OPERATION MANUAL

DIGIFORCE® 9311
Interfaces manual

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1 For your safety

The following symbols on the DIGIFORCE® 9311 and in this operation manual warn of hazards.

1.1 Symbols used in the instruction manual

1.1.1 Signal words

The following signal words are used in the operation manual according to the specified hazard classification.

DANGER
High degree of risk: indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING
Moderate degree of risk: indicates a hazardous situation which, if not avoided, may result in death or serious injury.
CAUTION
Low degree of risk: indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE
Property damage to the equipment or the surroundings will result if the hazard is not avoided.

Note: It is important to heed these safety notices in order to ensure you handle the DIGIFORCE® 9311 correctly.

Caution: Follow the information given in the operation manual.

1.1.2 Pictograms

Symbol	Description
	Warning concerning the use and installation of the device and software.
	Observe the advice for protecting the instrument.

1.2 Symbols and precautionary statements on the instrument

Symbol	Description
	Hazard warning Disconnect the power plug before opening – Follow safety instructions – Professional servicing only
Warning ! To prevent electrical shock do not open device.	**Warning of electrical shock hazard** Do not open the unit.
To prevent fire replace only with same type and rating of fuse !	**Warning of fire hazard** Always replace the fuse with a fuse of the same type and rating.

2 Introduction

2.1 General safety instructions

DANGER

Warning concerning installation of the device and software

Installation of the device and the interface must be carried out by qualified personnel only.
Qualified personnel meets the following requirements:

- You are familiar with the safety designs used in automation engineering, and understand how to deal with them in your capacity as configuration engineer.
- You are an operator of automation systems and have been instructed in how to handle the system. You are familiar with the operation of the equipment described in this documentation.
- You are a commissioning or service engineer and have successfully completed a training course qualifying you to repair automation systems. In addition you are authorized to commission, ground and label circuits and equipment in accordance with safety engineering standards.

Always observe the current safety and accident prevention regulations when commissioning the equipment.
Install automation engineering equipment and installations with sufficient protection against accidental actuation.

DANGER

Warning concerning use of the device

- Take suitable precautions in both the hardware and software to prevent any undefined states of the automation installation in the event of an open circuit.
- In installations where major damage to property or even personal injury may be caused by a malfunction, take suitable precautions to establish a safe operating state in the event of a fault. This may be achieved using limit switches, mechanical interlocks etc. for example.
- Do not make unauthorized modifications to the device or to the interfaces.

NOTICE

- Install the power, signal and sensor cables so as to prevent electromagnetic interference from impairing operation of the equipment.
- Proper transportation, storage, installation and assembly plus careful operation and maintenance are essential for trouble-free and safe operation of the equipment.
- Have non-functional instruments inspected by the manufacturer.

NOTICE

- Only the commands described in this operation manual should be used. Use of undocumented commands can cause incorrect unit operation.
- No commas can occur within a parameter.
- A point '.' is used in floating-point numbers.
- The number of parameters must always be adhered to.

2.2 Intended use

The DIGIFORCE® 9311 is an instrument for monitoring repetitive production processes. Its core function is to record and analyze signals from processes in which physical variables, such as force, pressure or torque, vary as a function of displacement, angle or time according to a defined curve. The resultant measurement curve is analyzed using graphical evaluation elements such as windows, envelopes and thresholds. The result of the analysis is classified as "OK" or "NOT OK" (NOK) and can be retrieved from various interfaces.

The instrument is not a substitute for a safety device; for instance it cannot be used as an emergency stop device in a press for when the pressure exceeds a set limit.

2.3 Electromagnetic compatibility

2.3.1 Interference immunity

Interference immunity to EN 61326-1:2013

Industrial locations

2.3.2 Emitted interference

Emitted interference to EN 61326-1:2013

Class A

EN 61000-3-2:2014

EN 61000-3-3:2013

2.4 Notes on CE labeling

burster equipment carrying the CE mark meets the requirements of the EU directives and the harmonized European standards (EN) cited therein.

The EU declarations of conformity are available to the relevant authorities as specified in the directives. A copy of the declaration of conformity is included in the relevant equipment documentation.

3 General communication info

The DIGIFORCE® 9311 lets you control certain device functions from a remote host and read out all evaluation and measurement results. There are two communication modes to choose from: USB or Ethernet (UDP protocol). The configuration parameters for each port can be found in operation manual DIGIFORCE® Model 9311 chapter 6.1.10 "Interfaces".

Before reading out evaluation or measurement results, you are recommended to execute the command MSTA. This checks whether the device has ended the current measurement and the new measurement data are available.

NOTICE

Please bear in mind that the commands in this manual are described using the example of the USB communications protocol.

3.1 Communication via the USB port

Figure 1: USB port

The USB port is on the front of the device and is protected against dirt behind a screw-in cover (see figure on the left).

Before accessing the device via the USB port, you must first install an FTDI driver for the OS environment. The latest FTDI drivers can be downloaded from http://www.ftdichip.com/FTDrivers.htm. The drivers available at present are for some Windows, MAC OS, and Android versions.

Note: This is not necessary when Windows is the communications platform and *"DigiControl"* has already been installed.

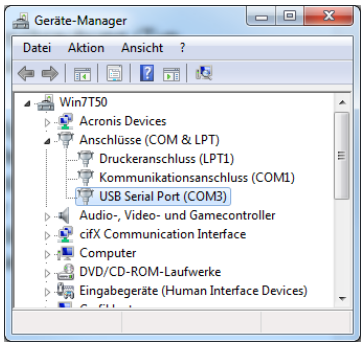


Figure 2: COM port listeted in Windows Device Manager

Once the FTDI driver has been installed and the device connected via USB, your operating system creates a new COM port. Please note the COM port number, which you will need to open this. Please also note that this port number may change when the device is reconnected. For this reason, you are recommended to implement a function that finds devices on the installed ports or allows manual COM port selections.

The figure on the left depicts the created COM port USB Serial Port (COM3) in Windows Device Manager.

You must enter the following settings for the COM port parameters

Baud rate	921600
Data bits	8
Stop bits	1
Parity	None
Block check	Disabled* - or Enabled

* Default setting after initialisation, can be changed in the menu “Basic Setup” > “Interfaces” > “USB”

General procedure under Windows

1. Open COM port
2. Configure COM port (set baud rate, data/stop bits, parity, timeout)
3. Send/receive data
4. Close COM port

3.1.1 The communications protocol

ANSII standard X3.28-1976 Subcategory 2.5, A4 is used as the communications protocol. This standard is used in systems in which a number of secondary stations exist in a non-switched multipoint connection, and all commands are sent by a control station. Only one transmitter (master) and one receiver (slave) are ever active on the bus at one time. One station is the control station. The control station is given master status and sends commands to a selected slave station, or relinquishes its master status to a secondary station and assumes slave status to receive data. A connection between two secondary stations is not allowed. The control station monitors the connection continuously.

3.1.2 Establishing a connection

Before a connection is established, the control station has master status and none of the secondary stations have slave status. The connection can be established in two different ways:

Selection with response

In this case, device addressing and command sending do not take place in the same communications step. This method is useful when you want to send several commands to the same device and then retrieve the responses to these commands in one go (see example communication in chapter 3.1.3 "Selection with response" on page 16).

Fast selection

This method eliminates the need to address the device before the first command is sent. Instead, the device address is appended to each command (see example communication in chapter 3.1.4 "Fast selection" on page 18).

When establishing a connection, the control station can

either

- define a slave to establish a connection, i.e. send a command to the addressed slave

or

- poll in order to relinquish its master status to a secondary station, i.e. query for a response to a previously sent command and hence assign the transmit right to the slave.

3.1.3 Selection with response

The control station sends a *"selection supervisory sequence"*. The *selection supervisory sequence* is used to initialize the 9311 as a slave so that it is subsequently possible to send commands to it. The prefix calls up a single secondary station. **<ENQ>** defines the end of the *selection supervisory sequence*. This method requires the device number to be sent to the device prior to the first command only. All further commands are executed without device number.

The *selection supervisory sequence* of the 9311 has the following format.

```
<Address>sr<ENQ>
```

Parameter	Value	Meaning
<Address>	0x30, 0x30	Device address, ASCII character for 00
sr	0x73, 0x72	ASCII characters "s" and "r"
<ENQ>	0x05	Enquiry

A secondary station that recognizes its *selection supervisory sequence* assumes slave status and sends one of two responses:

If the station is ready to receive data, it sends **<ACK>**. On receiving this response, the master station initiates data transfer.

If the station is not ready to receive data, it sends **<NAK>**. With this response the master station can try to select the same station again.

If the master station receives an invalid response or none at all, it can try to address the same station again or end the transmission.

Example

This example queries the INFO command with enabled and disabled block check.

Controller sends: **<EOT>**

to make sure that any existing connections are terminated and the 9311 receive buffer is cleared.

Controller sends: **00sr<ENQ>**

Selection: controller wishes to address the 9311 with address 0

9311 replies with: **<ACK>**

The 9311 signals that it accepts the addressing

Controller sends: **<STX>INFO?<LF><ETX>[BCC] (here BCC = 0xB8)**

Caution: Only if BCC ON (see example in chapter 3.1.6 "Data transfer" on page 19).

Command sequence: the info? command is to be executed

9311 replies with: **<ACK>**

The 9311 signals that it recognizes and has understood the info? command

Controller sends: **<EOT>**

The host controller unaddresses the device in order to start a polling sequence immediately.

Controller sends: **00po<ENQ>**

The 9311 with address 0 is requested to send all existing responses

9311 replies with: **<STX>Digiforce 9311<NUL>,931101<NUL>,V201602<NUL>,V201501<NUL>,4<NUL>, EIP V1601<NUL>,0<NUL>,12.05.2016<NUL><LF><ETX>[BCC] (here BCC = 0x8D)**

This is the correct response to the info? command

Controller sends: **<ACK>**

The controller has received the response and accepted it. Does the 9311 have other queries saved for which a response can now be sent?

9311 replies with: **<EOT>**

No. This ends the communication sequence and the 9311 has unaddressed itself.

3.1.4 Fast selection

Instead of *selection with response*, the master station can send a *selection supervisory sequence* without **<ENQ>**. This will designate a secondary station as the slave station. It then initiates data transfer directly without waiting for the acknowledge response from the secondary station. This method requires the device address to be appended to each command.

The *fast selection supervisory sequence* of the 9311 has the following format.

```
<Address>sr<STX>Command<ETX>[BCC]
```

Parameter	Value	Meaning
<Address>	0x30, 0x30	Device address, ASCII character for 00
sr	0x73, 0x72	ASCII characters "s" and "r"
<STX>	0x02	ASCII character STX
Command	e.g. INFO?	Command sequence
<ETX>	0x03	Enquiry
[BCC]	0 to 255	Optional block check (see 3.1.6 "Data transfer")

Example

In the following example, the INFO command is executed with block check disabled. The 9311 has the address 00.

Controller sends: **<EOT>**
to make sure that any existing connections are terminated and the 9311 receive buffer is cleared.

Controller sends: **00sr<STX>INFO?<LF><ETX>**
Command sequence: The 9311 with address 0 is to be addressed and the info? command is to be executed

9311 replies with: **<ACK>**
The 9311 signals that it accepts the addressing and recognizes and has understood the info? command

Controller sends: **<EOT>**
The host controller unaddresses the device in order to start a polling sequence immediately.

Controller sends: **00po<ENQ>**
The 9311 with address 0 is requested to send all existing responses

9311 replies with: **<STX>Digiforce 9311<NUL>,931101<NUL>,V201602<NUL>, V201501<NUL>,4<NUL>,EIP V1601<NUL>,0<NUL>, 12.05.2016<NUL><LF><ETX>**
This is the correct response to the info? command

Controller sends: **<ACK>**
The controller has received the response and accepted it. Does the 9311 have other queries saved for which a response can now be sent?

9311 replies with: **<EOT>**
No. This ends the communication sequence and the 9311 has unaddressed itself.

3.1.5 Polling

The control station sends a *polling supervisory sequence*. The polling supervisory sequence is used to retrieve requested data from the 9311. The prefix selects a single station. **<ENQ>** defines the end of the *polling supervisory sequence*:

The *polling supervisory sequence* of the 9311 has the following format:

```
<Address>po<ENQ>
```

Parameter	Value	Meaning
<Address>	0x30, 0x30	Device address, ASCII character for 00
po	0x70, 0x6F	ASCII characters "p" and "o"
<ENQ>	0x05	Enquiry

A secondary station that recognizes its *polling supervisory sequence* responds using one of two options:

- If the station has data ready to send, it starts the data transfer. The control station assumes the slave status.
- If the station has no data ready to send, it sends **<EOT>**, which terminates its master status. The master status returns to the control station.

If the control station receives an invalid response or none at all, it terminates the connection by sending **<EOT>**.

3.1.6 Data transfer

After establishing the connection, the data is transferred in accordance with the rules of subcategory A4. The master station begins the transfer with **<STX>**. Then the corresponding data are sent. The data block is terminated with **<ETX>**. The **<ETX>** character is followed by the optional block check character **[BCC]**. This is formed from all the bytes that come **after <STX>**, **including <ETX>**. The **[BCC]** is obtained by performing an exclusive-OR operation on all these bytes. 80hex is also OR'ed with the result of this operation in order to prevent any possible mix up with control characters.

Example

Calculating the checksum from the command **<STX>INFO?<LF><ETX>**

BCC		Character	ASCII		Result	Type
0	^	I	(0x49)	=	0x49	XOR
0x49	^	N	(0x4E)	=	0x07	XOR
0x07	^	F	(0x46)	=	0x41	XOR
0x41	^	O	(0x4F)	=	0x0E	XOR
0x0E	^	?	(0x3F)	=	0x31	XOR
0x31	^	<LF>	(0x0A)	=	0x3B	XOR
0x3B	^	<ETX>	(0x03)	=	0x38	XOR
0x38	|	-	(0x80)	=	0xB8	OR

C++ example

```
unsigned char CalculateBCC(char *chrCmd)
{
  unsigned char chrBCC = 0;

  for (int i = 0; i < (int)strlen(chrCmd); i++) // Calculate checksum
  {
       chrBCC ^= chrCmd[i];                    // Form XOR from all characters
  }
  return (chrBCC | 0x80);// 0x80 to prevent identification as control character
}
```

The slave station sends one of two possible responses after detecting the [BCC]:

- If the data have been accepted and the station is ready to receive new data, it sends **<ACK>**. On receiving this, the master station either sends new data or terminates the data transfer.
- If the data were not accepted and the slave station is ready to receive new data, it sends **<NAK>**. On receiving this, the master station may send other data or terminate the connection.

3.1.7 Timers

Two software timers are used to monitor the USB communication. The first timer A (response timer) is used to guard against an invalid response or no response from the control station. Timer B (receive timer), on the other hand, guards against non-identification of the <ETX> character. The timeout for both timers is set to 5 seconds.

Timer A (response timer)

- **Start**: Timer A is started after data transfer has been terminated with **<ETX>**.
  The instrument waits for an acknowledgement by the master.
- **Stop**: Timer A is stopped if a valid response **<ACK>** has been received.
- **Timeout**: If a timeout occurs, the DIGIFORCE® 9311 sends an **<EOT>** and returns to its initial state (ready for a new command).

Timer B (receive timer)

- **Start**: Timer B is started after receiving the **<STX>** character
- **Restart**: Timer B is restarted as long as data are being received in order to allow variable datablock lengths to be received.
- **Stop**: Timer B is stopped when the **<ETX>** character has been received
- **Timeout**: If a timeout occurs, the received data (command) are discarded.
  The instrument enters the initial state and waits for new commands.

3.1.8 Terminating a connection

The master station sends **<EOT>** to indicate that it has no more data to transfer. **<EOT>** returns the master status to the control station.

3.2 Communication via the Ethernet port

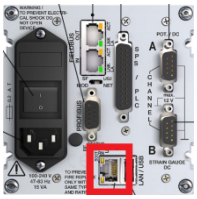


Figure 3: USB port

The Ethernet RJ45 port is on the rear side of the device. Please use a Cat 5e or higher patch cable to connect the device to your Ethernet network. The relevant Ethernet parameters like IP address and port number can be found in the following device menu: "Configuration Main Menu" > "Basic setup" > "Interfaces" > "Ethernet" (for further information please see operation manual DIGIFORCE® Model 9311 chapter 6.1.10 "Interfaces").

3.2.1 The UDP transmission protocol

Communication with the DIGIFORCE® 9311 is based on UDP (User Datagram Protocol). UDP is a connectionless communications protocol used on IP networks. UDP is not a reliable protocol, so the DIGIFORCE® 9311 implements block checksum functions that analyse datagram consistency. This XORs all datagram bytes following **<STX>** (including **<ETX>**). 80hex is also OR'ed with the result of this operation in order to prevent any possible mix up with control characters. The calculated checksum is then appended to the end of the datagram. An example block check calculation can be found in chapter 3.1.6 "Data transfer" on page 19.

For larger data quantities (> 1450 bytes), the datagrams are fragmented.

Datagram format – Request to device

```
<STX>Code,ID,Command<LF><ETX>BCC
```

Parameter	Value		Meaning
<STX>	0x02		ASCII character STX
Code	bit 0	0: 1:	Message is not encrypted Message is encrypted (for internal purposes)
	bit 1	0: 1:	Other command IPEX! command
ID	1 to 999		Serial number 1-999 (ASCII) for identifying device's later response
Command	e.g. INFO?		Command (ASCII) **or** <ACK> for acknowledgements
<LF>	0x0A		Line Feed
<ETX>	0x03		ASCII character ETX
BCC	0 to 255		1 byte block check; XOR all bytes following STX including ETX/ENQ, and additionally OR with 0x80hex (see 3.1.6 "Data transfer")

Datagram format – Device response to request with data (e.g. INFO?; see example below)

```
<STX>Code,ID,Status,Number,DataEndCharBCC
```

Parameter	Value		Meaning
<STX>	0x02		ASCII character STX
Code	bit 0	0: 1:	Message is not encrypted Message is encrypted (for internal purposes)
	bit 1	0: 1:	Other command IPEX! Command
ID	1 to 999		Sequential number 1–999 (ASCII). The device responds with the same number as received
Status	0 1 2 3 4 5 6 7 8 9 A B C D E F G H		No error NAK Not used Timeout on internal serial port STX not detected ID not detected ETX not detected Checksum error No response Unknown error Measurement running Invalid host IP address Unencrypted message received (internal res.) Invalid code ID Device was locked by another master Invalid MAC address Problems entering MAC address Device is in edit mode
Number	0 1...		No fragmentation or no first fragment number Fragment number
Data	e.g. DIGIFORCE® model 9311...		User data in ASCII format
End mark	0x0A, 0x03 **or** 0x0A, 0x05		<LF><ETX> unfragmented transmission <LF><<ENQ> fragmented transimission
BCC	0 to 255		1 byte block check; XOR all bytes following STX including ETX/ENQ (see 3.1.6 "Data transfer")

Example “INFO?” request

Controller sends: **<STX>0,2,INFO?<LF><ETX>BCC (here BCC = 0xBA)**

Note: For BCC calculations, see example in chapter 3.1.6 "Data transfer" on page 19.

9311 replies with: **<STX>0,2,0,0,Digiforce 9311<NUL>,931101<NUL>,V201602<NUL>, V201501<NUL>,4<NUL>,EIP V1601<NUL>,0<NUL>, 12.05.2016<NUL><LF><ETX>BCC[2] (here BCC = 0x83)**

Datagram format – Device response to command with acknowledgement (see example below)

```
<STX>Code,ID,Status,Number,Acknowledgement<LF><ETX>BCC
```

Parameter	Value		Meaning
<STX>	0x02		ASCII character STX
Code	bit 0	0: 1:	Message is not encrypted Message is encrypted (for internal purposes)
	bit 1	0: 1:	Other command IPEX! command
ID	1 to 999		Sequential number 1-999 (ASCII). The device responds with the same number as received.
Status	0 1 2 3 4 5 6 7 8 9 A B C D E F G H		No error NAK Not used Timeout on internal serial port STX not detected ID not detected ETX not detected Checksum error No response Unknown error Measurement running Invalid host IP address Unencrypted message received (internal res.) Invalid code ID Device was locked by another master Invalid MAC address Problems entering MAC address Device is in edit mode
Number	0 1...		No fragmentation or no first fragment number Fragment number
Acknowledgement	0x06 0x15		<ACK> (0x06) Command processed OK <NAK> (0x15) Command processing error
<LF>	0x0A		Line feed
<ETX>	0x03		End of Text
BCC	0 to 255		1 byte block check; XOR all bytes following STX including ETX/ENQ, and additionally OR with 0x80hex (see 3.1.6 "Data transfer")

Example assigning of function key F2 as “sensor test”

Controller sends: **<STX>0,2,FKEY! 1,8<LF><ETX>BCC (here BCC = 0xBE)**

9311 replies with: **<STX>0,2,0,0,<ACK> <LF><ETX>BCC (here BCC = 0x8D)**

Note: For BCC calculations, see example in chapter 3.1.6 "Data transfer" on page 19.

Data splitting for fragmented transfer (if data >= 1450 bytes)

1. Fragment:

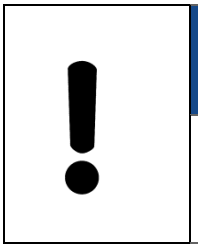
```
<STX>Code,ID,Status,0,Data 1...1450<LF><ENQ>BCC
```

2. Fragment:

```
<STX>Code,ID,Status,1,Data 1451...2900<LF><ENQ>BCC
```

3. Fragment:

```
<STX>Code,ID,Status,2,Data 2901...3000<LF><ENQ>BCC
```



NOTICE

The host must acknowledge every datagram ending on **<ENQ>** with a special datagram before it receives the next datagram from the 9311.

4 Commands

Before executing individual commands, you should first familiarize yourself with their structure. Every command has a name that always consists of four letters. When data are read out of the device, a question mark (e.g. INFO?) is appended to the command name. This is an exclamation mark (e.g. STAN!) when data are being written. Commands taking parameters are appended with these additional parameters separated by commas.

Control characters

Designation	Hex value	Meaning
<NUL>	0x00	NULL character
<STX>	0x02	Start of Text
<ETX>	0x03	End of Text
<EOT>	0x04	End Of Transmission
<ENQ>	0x05	Enquiry
<ACK>	0x06	Acknowledge
<BEL>	0x07	ACK in edit mode
<LF>	0x0A	Line Feed
<NAK>	0x15	Not Acknowledge
<SYN>	0x16	ACK in edit mode
<S>	0x20	Space

Command format

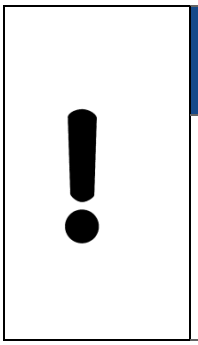
```
aaaaB[<S>P1,P2,P3,Px]<LF>
```

Parameter	Value	Meaning
aaaa		Command name, 4 ASCII characters
B	0x3F or 0x21	Command type, ´?´ for queries, ´!´ for executions
[<S>]	0x20	ASCII character <S>, for commands taking parameters only
[P1,P2,...,Px]		Parameters 1 to x, for commands taking parameters only
[<LF>]	0x0A	Line Feed

Device response to a command with 3 parameters

```
<STX>P1<NUL>,P2<NUL>,P3<NUL><LF><ETX>
```

Parameter	Value	Meaning
P1, P2, P3		Parameters 1 to 3
<NUL>	0x00	ASCII character <NUL>,
[<LF>]	0x0A	Line Feed



NOTICE

- There are no **<NUL>** characters for the commands KUSX, KUSY, HKRX, HRYM, HDMI, HDMA, DXKO, DYKO, REFX, REFY
- Commands in either upper or lower case, not mixed.
- For example communications with protocol, see chapter 3.1.3 "Selection with response" on page 16 and 3.1.4 "Fast selection" on page 18.

4.1 Device status

4.1.1 FSTA - 9311 Query device status

Execute - Query form only

Query FSTA?

With the command FSTA? queries the device error status. Once read out, the error status is reset. The error status is a bit-coded 32-bit word. More than one bit can be set when multiple events have occurred since the last readout. The error status is in hexadecimal. Except for USB stick errors, the error bits are set only when the evaluation or the execution of a port command encounters an error.

Host sends:	<Address>sr<STX>FSTA? <LF><ETX>[<BCC>]
DIGIFORCE responds:	<ACK>
Host sends:	<EOT>

Host sends:	<Address>po<ENQ>
DIGIFORCE responds:	<STX>P1<LF><ETX>[<BCC>]
Host sends:	<ACK>
DIGIFORCE responds:	<EOT>

Meaning of parameter Pn

Parameter	Meaning	Value	
P1	Device error statuses	0x00000000	No error
		0x00000001	PREFIX addressing error
		0x00000002	Enquiry received in slave mode
		0x00000004	Block check error
		0x00000008	Command error
		0x00000010	Parameter error
		0x00000020	Timeout Receive Timer
		0x00000040	Timeout Response Timer
		0x00000080	Invalid ! or ?
		0x00000100	Invalid configuration
		0x00000200	Scaling error
		0x00000400	No valid measurement found
		0x00001000	EEPROM read error
		0x00002000	Scaling overdrive
		0x00004000	Measurement curve readout interrupted by start of new measurement
		0x00008000	Invalid envelope limits
		0x00010000	Calibration failed
		0x00080000	No TEDS or invalid TEDS
		0x00100000	TEDS Excitation too low
		0x00200000	TEDS Invalid ID
		0x00400000	TEDS Invalid version
		0x00800000	TEDS Strain gauge sensor entered, but another selected
		0x01000000	TEDS Standard signal sensor entered, but another selected
		0x02000000	TEDS Unknown error
		0x04000000	TEDS Invalid sensor type
		0x08000000	TEDS Potentiometer sensor entered, but another selected
		0x10000000	TEDS Invalid strain gauge direction
		0x20000000	USB drive error

4.2 General commands

4.2.1 GOTO - Go to Measurement or Setup menu

Execute GOTO!

This goes to a measurement or setup menu during port communication. Except for the UPDA command, this is the only command that updates the device's process display.

The command GOTO! defines the menu that is opened during port communication. This menu is also opened after the command has been executed.

Host sends: <Address>sr<STX>GOTO! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The GOTO target	0 → Go to Measurement menu 1 → Go to graphic Setup menu

Query GOTO?

The command GOTO? can read out the menu jumped to during port communication

Host sends: <Address>sr<STX>GOTO?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The GOTO target	0 → Go to Measurement menu 1 → Go to graphic Setup menu

4.2.2 UPDA - Perform display update

Execute UPDA!

For time reasons, normal port communication does not update the device's process display.

The explicit command UPDA! updates the device's process display.

Host sends: <Address>sr<STX>UPDA!<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Updating the display	

Query UPDA?

This command does not have a query form.

4.2.3 MEFR - Enable start of measurement ON/OFF

Caution: Command not allowed when measurement running.

Execute MEFR!

The command MEFR! locks the start of a new measurement.

Host sends: <Address>sr<STX>MEFR! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement enable	0 → Measurement locked 1 → Measurement enabled

Query MEFR?

The command MEFR? reads out the current status of measurement enable.

Host sends: <Address>sr<STX>MEFR?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement enable	0 → Measurement locked 1 → Measurement enabled

4.2.4 EIZA - Query or reset power up counter

This counter increments every time the device is switched ON.

Execute EIZA!

The command EIZA! resets the power up counter to 0.

Host sends: <Address>sr<STX>EIZA! <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Query EIZA?

The command EIZA? queries the power up counter.

Host sends: <Address>sr<STX>EIZA?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Current reading of the power up counter	Unsigned 32 bit long integer

4.2.5 EIGE - Query or reset counter setting changed

“Counter setting changed” increments after every change in the channel settings, measurement mode, or one of the evaluation menus.

Execute EIGE!

The command EIGE! resets “Counter setting changed” to 0.

If “Counter setting changed” for the current measurement program

Host sends: <Address>sr<STX>EIGE! <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

If “Counter setting changed” for the transferred program number

Host sends: <Address>sr<STX>EIGE! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15

Query EIGE?

The command EIGE? queries “Counter setting changed”.

If “Counter setting changed” for the current measurement program

Host sends: <Address>sr<STX>EIGE?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Current reading of “Counter setting changed”	Unsigned 32 bit integer

If “Counter setting changed” for the transferred program number

Host sends: <Address>sr<STX>EIGE? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Current reading of “Counter setting changed”	Unsigned 32 bit integer

4.3 Minimum setup menu

4.3.1 PRNR - Select measurement program

Execute PRNR!

The PRNR! command selects a measurement program

Host sends: <Address>sr<STX>PRNR! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15

Query PRNR?

The command PRNR? reads out the set measurement program.

Host sends: <Address>sr<STX>PRNR?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the set measurement program	A value between 0 and 15

4.3.2 PNAM - Enter or query the name of the measurement program

Execute PNAM!

The PNAM! command assigns a name to a measurement program.

If 1 parameter, a name is assigned to the measurement program currently selected.

Host sends: <Address>sr<STX>PNAM! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measuring program name	ASCII string <= 20 characters

If 2 parameters, a name is assigned to the measurement program corresponding to the transferred number

Host sends: <Address>sr<STX>PNAM! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15.
P2	Measuring program name	ASCII string <= 20 characters

Query PNAN?

If no parameters: Query the name of the measurement program currently selected.

Host sends: <Address>sr<STX>PNAM? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measuring program name	ASCII string <= 20 characters

If 1 parameter: Query the name of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX>PNAM? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15.
P2	Measuring program name	ASCII string <= 20 characters

4.3.3 RSPR - Reset measurement program statistics

Execute RSPR!

The RSPR! command resets a measurement program's statistics

If no parameters, reset the statistics of the measurement program currently selected.

Host sends: <Address>sr<STX>RSPR! <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

If 1 parameter, reset the statistics of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> RSPR! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15

No query form

4.3.4 RSET - Reset all measurement program statistics

Execute RSET!

The RSET! command resets all measurement programs' statistics

Host sends: <Address>sr<STX>RSET! <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

No query form

4.3.5 CMPR - Checks the measurement program names

Execute CMPR!

This command does not have a ! form.

Query CMPR?

The command CMPR? checks all measurement program names for differences form the default

Host sends: <Address>sr<STX>CMPR?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	A string of length 15 String with zeroes and ones;	A “0” in the string means the measurement program has the default name. A “1” in the string means the measuring program name has changed. The position in the string corresponds to the measurement program number. 0 to 15

4.4 Assigning function keys

4.4.1 FKEY - Set or query function key assignments

Execute FKEY!

The FKEY! command sets the F key assignments 1 to 3 in the measurement menus.

Host sends: <Address>sr<STX>FKEY! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	F key number	0 -> F1 key 1 -> F2 key 2 -> F3 key
P2	Assignment	0 -> OFF 1 -> Increment measurement program 2 -> Decrement measurement program 3 -> Tare X 4 -> Tare Y 5 -> Start/stop measurement 6 -> Acknowledge OK parts 7 -> Acknowledge NOK parts 8 -> Sensor test 9 -> Edit mode

Query FKEY?

The FKEY? command queries the F key assignments.

Host sends: <Address>sr<STX>FKEY? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	F key number	0 -> F1 key 1 -> F2 key 2 -> F3 key
P2	Assignment	0 -> OFF 1 -> Increment measurement program 2 -> Decrement measurement program 3 -> Tare X 4 -> Tare Y 5 -> Start/stop measurement 6 -> Acknowledge OK parts 7 -> Acknowledge NOK parts 8 -> Sensor test 9 -> Edit mode

4.4.2 FKAU - Always hide or show function keys

Execute FKAU!

The FKAU! command defines whether the function keys are always shown or hidden in the measurement menus.

Host sends: <Address>sr<STX>FKAU! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	F keys always shown or hidden	0 -> Hidden 1 -> Always shown

Query FKAU?

The FKAU? command queries whether the function keys are always shown or hidden in the measurement menus.

Host sends: <Address>sr<STX>FKAU?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	F keys always shown or hidden	0 -> Hidden 1 -> Always shown

4.5 PLC outputs/inputs

4.5.1 SPSA - Set selectable PLC output assignments

Execute SPSA!

The SPSA! command sets the selectable PLC output assignments.

Host sends: <Address>sr<STX>SPSA! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the PLC output	0 -> Output 1 (pin 20) 1 -> Output 2 (pin 21) 2 -> Output 3 (pin 22) 3 -> Output 4 (pin 23) 4 -> Output 5 (pin 24) 5 -> Output 6 (pin 25)
P2	Assignment of the PLC output	0 -> OUT_OK_STEST 1 -> OUT_STROBE 2 -> PROG0 3 -> PROG1 4 -> PROG2 5 -> PROG3 6 -> OUT_MEAS_ACT 7 -> OUT_S3 8 -> OUT_S4 9 -> OUT_S5 10 -> OUT_S6 11 -> OUT_TEST_OP 12 -> OUT_ERROR 13 -> OUT_WARN_TARA 14 -> OUT_CONFIG 15 -> OUT_ACK_ALARM 16 -> OUT_ACK_LOCK 17 -> OUT_ACK_OK 18 -> OUT_ACK_NOK 19 -> OUT_PC_LOG

Query SPSA?

The SPSA? command queries the selectable PLC output assignments.

Host sends: <Address>sr<STX>SPSA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the PLC output	0 -> Output 1 (pin 20) 1 -> Output 2 (pin 21) 2 -> Output 3 (pin 22) 3 -> Output 4 (pin 23) 4 -> Output 5 (pin 24) 5 -> Output 6 (pin 25)
P2	Assignment of the PLC output	0 -> OUT_OK_STEST 1 -> OUT_STROBE 2 -> PROG0 3 -> PROG1 4 -> PROG2 5 -> PROG3 6 -> OUT_MEAS_ACT 7 -> OUT_S3 8 -> OUT_S4 9 -> OUT_S5 10 -> OUT_S6 11 -> OUT_TEST_OP 12 -> OUT_ERROR 13 -> OUT_WARN_TARA 14 -> OUT_CONFIG 15 -> OUT_ACK_ALARM 16 -> OUT_ACK_LOCK 17 -> OUT_ACK_OK 18 -> OUT_ACK_NOK 19 -> OUT_PC_LOG

4.5.2 PCLO - Set or reset the PLC output signal OUT_PC_LOGGING

Execute PCLO!

The PCLO! command sets or resets the PLC output signal OUT_PC_LOGGING.

Host sends: <Address>sr<STX> PCLO! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	OUT_PC_LOGGING status	0 -> OUT_PC_LOGGING = 0 1 -> OUT_PC_LOGGING = 1

Query PCLO?

This command does not have a query form

4.5.3 SPIC - Set selectable PLC input assignments

Execute SPIC!

The SPIC! command sets the selectable PLC input assignments.

Host sends: <Address>sr<STX>SPIC! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the PLC input	0 -> Input 1 (pin 4) 1 -> Input 2 (pin 5) 2 -> Input 3 (pin 6)
P2	Assignment of the PLC input	0 -> IN_TARE_X 1 -> IN_TARE_Y 2 -> IN_TARAXY 3 -> IN_RESET_STAT 4 -> IN_STEST 5 -> IN_TEST_OP 6 -> IN_ACK 7 -> IN_ACK_OK 8 -> IN_ACK_NOK 9 -> IN_ACK_ERR

Query SPIC?

The SPIC? command queries the selectable PLC input assignments.

Host sends: <Address>sr<STX>SPIC? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the PLC input	0 -> Input 1 (pin 4) 1 -> Input 2 (pin 5) 2 -> Input 3 (pin 6)
P2	Assignment of the PLC input	0 -> IN_TARE_X 1 -> IN_TARE_Y 2 -> IN_TARAXY 3 -> IN_RESET_STAT 4 -> IN_STEST 5 -> IN_TEST_OP 6 -> IN_ACK 7 -> IN_ACK_OK 8 -> IN_ACK_NOK 9 -> IN_ACK_ERR

4.6 Access permissions

4.6.1 MPAS - Enter or query master password

Execute MPAS!

The MPAS! command lets the user enter a new master password.

Host sends: <Address>sr<STX>MPAS! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The new master password	It must consist of 4 numerics (0 to 9)

Query MPAS?

The MPAS? command queries the master password.

Host sends: <Address>sr<STX>MPAS? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The set master password	4 numerics (0 to 9)

4.6.2 MRES - Reset master password to default

Execute MRES!

The MRES! command resets the master password to its default

Host sends: <Address>sr<STX>MRES! <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Query MPAS?

This command does not have a ? form.

4.6.3 UPAS - Enter or query user password

Execute UPAS!

The UPAS! command lets the user enter a new user password.

Host sends: <Address>sr<STX>UPAS! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The new user password	It must consist of 4 numerics (0 to 9)

Query UPAS?

The UPAS? command queries the user password.

Host sends: <Address>sr<STX>UPAS? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The set user password	4 numerics (0 to 9)

4.6.4 PASP - Query or enable/disable password protection

Execute PASP!

The PASP! command enables or disables password protection

Host sends: <Address>sr<STX>PASP! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Setting password protection	0 -> Password protection OFF 1 -> Password protection ON

Query PASP?

The PASP? command queries the password protection setting.

Host sends: <Address>sr<STX>PASP? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The set password protection	0 -> Password protection OFF 1 -> Password protection ON

4.6.5 ZUGR - Enable/lock or query access levels

Execute ZUGR!

The ZUGR! command locks or disables the various access levels.

Host sends: <Address>sr<STX>ZUGR! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Access level number	0 -> Basic setup 1 -> Program selection 2 -> Program copy 3 -> Curve analysis 4 -> Channel settings 5 -> Measurement mode 6 -> Evaluation 7 -> Switching points 8 -> Test operation 9 -> Sensor test 10 -> User-defined values 11 -> External memory
P2	Setting the access level	0 -> Access level locked 1 -> Access level enabled

Query ZUGR?

The ZUGR? command queries the access level settings.

Host sends: <Address>sr<STX>ZUGR? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Access level number	0 -> Basic setup 1 -> Program selection 2 -> Program copy 3 -> Curve analysis 4 -> Channel settings 5 -> Measurement mode 6 -> Evaluation 7 -> Switching points 8 -> Test operation 9 -> Sensor test 10 -> User-defined values 11 -> External memory
P2	Setting the access level	0 -> Access level locked 1 -> Access level enabled

4.7 Enabling measurement menus

4.7.1 MFRE - Measurement menu enable

Execute MFRE!

The MFRE! command enables or locks the various measurement menus.

Host sends: <Address>sr<STX>MFRE! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement menu enable	0 -> Graphic measurement curves enable 1 -> General curve data enable 2 -> Total result enable 3 -> Entries/exits enable 4 -> User def values enable 5 -> Statistics enable 6 -> Order sheet enable
P2	Setting the measurement menu enable for all measurement menus except Total For Total measurement menu	0 -> Measurement menu locked 1 -> Measurement menu enabled 0 -> Measurement menu locked 1 -> Smiley 2 -> Pass/fail

Query MFRE?

The MFRE? command queries the measurement menu enable settings.

Host sends: <Address>sr<STX> MFRE? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement menu enable	0 -> Graphic measurement curves enable 1 -> General curve data enable 2 -> Total result enable 3 -> Entries/exits enable 4 -> User def values enable 5 -> Statistics enable 6 -> Order sheet enable
P2	Setting the measurement menu enable for all measurement menus except Total For Total measurement menu	0 -> Measurement menu locked 1 -> Measurement menu enabled 0 -> Measurement menu locked 1 -> Smiley 2 -> Pass/fail

4.8 Info menu

4.8.1 INFO - Device info query

Execute - No ! form

Query INFO?

The INFO? command queries the device information.

Host sends: <Address>sr<STX>INFO? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,P3,P4,P5,P6,P7,P8,<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Device ID	Digiforce 9311
P2	Serial number	Max 10 character ASCII string
P3	Device software version	Max 15 character ASCII string
P4	Boot software version	Max 15 character ASCII string
P5	Fieldbus ID	0 -> No Fieldbus 1 -> PROFIBUS 2 -> EtherCAT (not available at present) 3 -> PROFINET 4 -> Ethernet/IP
P6	Fieldbus software version	Max 15 character ASCII string (not relevant if no Fieldbus)

P7	Analogue card ID	0 -> ANALOGUE_STRAIN_GAUGE_POTENTIOMETER 1 -> ANALOGUE_PIEZO_POTENTIOMETER
P8	Analogue card calibration date	Max 10 character ASCII string

4.8.2 SERN - Serial number

Query SERN?

The SERN? command queries the serial number.

Host sends: <Address>sr<STX>SERN? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The serial number	Max 11 character ASCII string

4.8.3 STAN - Station name

Execute STAN!

The STAN! command lets the user enter the station name

Host sends: <Address>sr<STX>STAN! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The station name	Max 15 character ASCII string

Query STAN?

The STAN? command queries the station name.

Host sends: <Address>sr<STX>STAN? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The station name	Max 15 character ASCII string

4.9 LCD setting

4.9.1 LCDK - Set LCD contrast

Execute LCDK!

The LCDK! command sets the LCD display contrast.

Host sends: <Address>sr<STX>LCDK! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The LCD contrast	Value between 1 and 10 10 -> Max contrast

Query LCDK?

The LCDK? command queries the LCD display contrast.

Host sends: <Address>sr<STX>LCDK? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The LCD contrast	Value between 1 and 10 10 -> Max contrast

4.10 Date and time

4.10.1 DATE - Set or query date

Execute DATE!

The DATE! command sets the RTC date.

Host sends: <Address>sr<STX>DATE! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The date	String in the form: dd/mm/yyyy Example: 23/07/2009

Query DATE?

The DATE? command queries the RTC date.

Host sends: <Address>sr<STX>DATE? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The date	String in the form: dd/mm/yyyy Example: 23/07/2009

4.10.2 TIME - Set or query the time of day

Execute TIME!

The TIME! command sets the RTC time.

Host sends: <Address>sr<STX> TIME! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The time of day	String in the form: hh:mm:ss Example: 08:11:34

Query TIME?

The TIME? command queries the RTC time.

Host sends: <Address>sr<STX> TIME? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The time of day	String in the form: hh:mm:ss Example: 08:11:34

4.11 User languages

4.11.1 SPRA - Set or query user language

Execute SPRA!

The SPRA! command sets the user language.

Host sends: <Address>sr<STX> SPRA! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Operating language	0 -> German 1 -> English 2 -> French 3 -> Spanish 4 -> Italian 5 -> Chinese

Query SPRA?

The SPRA? command queries the user language.

Host sends: <Address>sr<STX> SPRA? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Operating language	0 -> German 1 -> English 2 -> French 3 -> Spanish 4 -> Italian 5 -> Chinese

4.12 Acknowledgement function

4.12.1 AMPL - ACK function ON/OFF

Execute AMPL!

The AMPL! command sets the ACK function.

Host sends: <Address>sr<STX>AMPL! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Selecting the ACK function	0 -> OFF 1 -> ON

Query AMPL?

The AMPL? command queries the ACK function setting.

Host sends: <Address>sr<STX>AMPL? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Setting the ACK function	0 -> OFF 1 -> ON

4.12.2 QUIO - OK ACK ON/OFF

Execute QUIO!

The QUIO! command sets OK ACK.

Host sends: <Address>sr<STX> QUIO! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Setting OK ACK	0 -> OFF 1 -> ON

Query QUIO?

The QUIO? command queries the OK ACK setting.

Host sends: <Address>sr<STX> QUIO? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Setting OK ACK	0 -> OFF 1 -> ON

4.12.3 QNIO - NOK ACK ON/OFF

Execute QNIO!

The QNIO! command sets NOK ACK.

Host sends: <Address>sr<STX> QNIO! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Setting NOK ACK	0 -> OFF 1 -> ON

Query QNIO?

The QNIO? command queries the NOK ACK setting.

Host sends: <Address>sr<STX> QNIO? <LF><ETX>[<BCC>]
DIGIFORCE responds: <ACK>
Host sends: <EOT>

Host sends: <Address>po<ENQ>
DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]
Host sends: <ACK>
DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Setting NOK ACK	0 -> OFF 1 -> ON

4.12.4 LASU - Buzzer volume

Execute LASU!

The LASU! command sets the buzzer volume.

Host sends: <Address>sr<STX> LASU! P1<LF><ETX>[<BCC>]
DIGIFORCE responds: <ACK>
Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Buzzer volume	Value between 0 and 10 10 -> Max volume

Query LASU?

The LASU? command queries the buzzer volume.

Host sends: <Address>sr<STX> LASU? <LF><ETX>[<BCC>]
DIGIFORCE responds: <ACK>
Host sends: <EOT>

Host sends: <Address>po<ENQ>
DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]
Host sends: <ACK>
DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Buzzer volume	Value between 0 and 10 10 -> Max volume

4.13 Fieldbusses

4.13.1 FELD - Which Fieldbus is implemented on the NETX circuit board

Execute - There is no ! form

Query FELD?

The FELD? command queries which Fieldbus is implemented.

Host sends: <Address>sr<STX> FELD? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Version	0 -> No Fieldbus 1 -> PROFIBUS 2 -> EtherCAT 3 -> PROFINET 4 -> EtherNet/IP 9 -> Invalid setting

4.13.2 PBIN - Device controlled via Fieldbus or PLC

Execute PBIN!

The PBIN! command sets the source of device control.

Host sends: <Address>sr<STX> PBIN! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Source of device control	0 -> PLC 1 -> Fieldbus

Query PBIN?

The PBIN? command queries the source of device control.

Host sends: <Address>sr<STX> PBIN? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Source of device control	0 -> PLC 1 -> Fieldbus

4.14 PROFIBUS settings

4.14.1 PBAD - Set PROFIBUS address

Execute PBAD!

The PBAD! command sets the PROFIBUS address.

Host sends: <Address>sr<STX> PBAD! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	PROFIBUS address	Value between 0 and 125 (126 is a factory setting, and the devices denies writing to this)

Query PBAD?

The PBAD? command queries the PROFIBUS address.

Host sends: <Address>sr<STX> PBAD? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	PROFIBUS address	Value between 0 and 126

4.14.2 PINF - PROFIBUS info

Execute - There is no ! form

Query PINF?

The PINF? command queries the PROFIBUS information.

Host sends: <Address>sr<STX> PINF? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Version	Max 20 character string
P2	PROFIBUS data mode	0 to tbd

4.15 EtherCAT settings

4.15.1 EINF - EtherCAT info

Execute - There is no ! form

Query EINF?

The EINF? command queries the EtherCAT information.

Host sends: <Address>sr<STX> EINF? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Version	Max 20 character string
P2	EtherCAST operating state	0 -> INIT 1 -> PREOP 2 -> SAVEOP 3 -> OP 4 -> BOOTSTRAP 5 -> Invalid state

4.16 PROFINET settings

4.16.1 PNIF - PROFINET info

Execute - There is no ! form

Query PNIF?

The PNIF? command queries the PROFINET information.

Host sends: <Address>sr<STX> PNIF? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	PROFINET SW version	Max 20 character string
P2	PROFINET device name	Max 63 character string
P3	PROFINET IP address	15 character string
P4	PROFINET subnet mask	15 character string
P5	PROFINET gateway IP address	15 character string

4.16.2 FBKS - Enter and query the Fieldbus board serial number

Query FBKS?

FBKS? queries the serial number received form the Fieldbus board during booting.

Host sends: <Address>sr<STX> FBKS? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Fieldbus board serial number	Max 20 character string

4.16.3 FBMA - Enter and query the Fieldbus board MAC addresses

Query FBMA?

FBMA? queries the MAC addresses received form the Fieldbus board during booting.

Host sends: <Address>sr<STX> FBMA? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Device MAC address of the Fieldbus board	String in the form: 00-23-6e-xx-xx-xx
P2	Port1 MAC address of the Fieldbus board	String in the form: 00-23-6e-xx-xx-xx
P3	Port2 MAC address of the Fieldbus board	String in the form: 00-23-6e-xx-xx-xx

4.16.4 FSER - Checks whether a serial number has been programmed in the Fieldbus board flash memory

Execute - There is no ! form

Query FSER?

The FSER! command checks whether a serial number has been programmed in the Fieldbus board flash memory.

Goldfire reads it directly out of thed NETX flash memory.

Host sends: <Address>sr<STX> FSER? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Is the serial number programmed into the Fieldbus board flash memory?	0 → There is no serial number 1 → There is a serial number
P2	Otherwise, if none is programmed in flash memory, the serial number is a string of 0s.	The serial number as a string. If there is one, then 11 0s

4.16.5 FMAC - Checks whether the MAC addresses have been programmed in the Fieldbus board flash memory

Execute - There is no ! form

Query FMAC?

The FMAC? command checks whether the 3 MAC addresses have been programmed in the Fieldbus board flash memory

Coldfire reads it directly out of thed NETX flash memory.

Host sends: <Address>sr<STX> FMAC? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Are the MAC addresses programmed in the Fieldbus board flash memory?	0 → There are no MAC addresses 1 → There are MAC addresses
P2	Device MAC address, if programmed Else 0s	00-23-6e-xx-xx-xx 00-00-00-00-00-00, if no MAC
P3	Port 1 MAC address, if programmed Else 0s	00-23-6e-xx-xx-xx 00-00-00-00-00-00, if no MAC
P4	Port 2 MAC address, if programmed Else 0s	00-23-6e-xx-xx-xx 00-00-00-00-00-00, if no MAC

4.17 EtherNet/IP settings

4.17.1 ETHI - EtherNet/IP settings

Execute ETHI!

The ETHI! command can transfer the Ethernet/IP IP setting.

Host sends: <Address>sr<STX> ETHI! P1,P2,P3 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	EtherNet/IP IP address	15 character string in the form xxx.xxx.xxx.xxx
P2	EtherNet/IP subnet mask	15 character string in the form xxx.xxx.xxx.xxx
P3	EtherNet/IP gateway address	15 character string in the form xxx.xxx.xxx.xxx

Query ETHI?

The ETHI? command queries the Ethernet/IP settings.

Host sends: <Address>sr<STX> ETHI? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	EtherNet/IP SW version	Max 20 character string
P2	EtherNet/IP IP configuration	0 -> DHCP 1-> BOOTP 2 -> Static 3 -> DHCP and BOOTP
P3	EtherNet/IP IP address	15 character string in the form xxx.xxx.xxx.xxx
P4	EtherNet/IP subnet mask	15 character string in the form xxx.xxx.xxx.xxx
P5	EtherNet/IP gateway address	15 character string in the form xxx.xxx.xxx.xxx

4.18 Order sheet

4.18.1 AUWE - Order sheet: Operator

Execute AUWE!

The AUWE! command lets the user enter the worker's name given on the order sheet.

Host sends: <Address>sr<STX> AUWE! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Worker's name	Max 64 character ASCII string

Query AUWE?

The AUWE? command queries the worker's name given on the order sheet.

Host sends: <Address>sr<STX> AUWE? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Worker's name	Max 64 character ASCII string

4.18.2 AUNR - Order sheet: Order number

Execute AUNR!

The AUNR! command lets the user enter the order number given on the order sheet.

Host sends: <Address>sr<STX> AUNR! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Order number	Max 64 character ASCII string

Query AUNR?

The AUNR? command queries the order number given on the order sheet.

Host sends: <Address>sr<STX> AUNR? <LF><ETX>[<BCC>]
DIGIFORCE responds: <ACK>
Host sends: <EOT>

Host sends: <Address>po<ENQ>
DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]
Host sends: <ACK>
DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Order number	Max 64 character ASCII string

4.18.3 AUCH - Order sheet: Batch

Execute AUCH!

The AUCH! command lets the user enter the batch given on the order sheet.

Host sends: <Address>sr<STX> AUCH! P1 <LF><ETX>[<BCC>]
DIGIFORCE responds: <ACK>
Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Batch	Max 64 character ASCII string

Query AUCH?

The AUCH? command queries the batch given on the order sheet.

Host sends: <Address>sr<STX> AUCH? <LF><ETX>[<BCC>]
DIGIFORCE responds: <ACK>
Host sends: <EOT>

Host sends: <Address>po<ENQ>
DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]
Host sends: <ACK>
DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Batch	Max 64 character ASCII string

4.18.4 AUBA - Order sheet: Component identification

Execute AUBA!

The AUBA! command lets the user enter the component identification given on the order sheet.

Host sends: <Address>sr<STX> AUBA! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Component identification	Max 64 character ASCII string

Query AUBA?

The AUBA? command queries the component identification given on the order sheet.

Host sends: <Address>sr<STX> AUBA? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Component identification	Max 64 character ASCII string

4.18.5 AUS1 - Order sheet Serial number 1

Execute AUS1!

The AUS1! command lets the user enter serial number 1 given on the order sheet.

Host sends: <Address>sr<STX> AUS1! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Serial number 1	Max 64 character ASCII string

Query AUS1?

The AUS1? command queries serial number 1 given on the order sheet.

Host sends: <Address>sr<STX> AUS1? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Serial number 1	Max 64 character ASCII string

4.18.6 AUS2 - Order sheet Serial number 2

Execute AUS1!

The AUS2! command lets the user enter serial number 2 given on the order sheet.

Host sends: <Address>sr<STX> AUS2! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Serial number 2	Max 64 character ASCII string

Query AUS2?

The AUS2? command queries serial number 2 given on the order sheet.

Host sends: <Address>sr<STX> AUS2? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Serial number 2	Max 64 character ASCII string

4.19 Measurement mode

4.19.1 ABTX - X sampling ON/OFF

Execute ABTX!

The ABTX! command sets X sampling.

If 1 parameter, the X sampling for the currently selected measurement program is set

Host sends: <Address>sr<STX> ABTX! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The X sampling	0 -> OFF 1 -> ON

If 2 parameters, the X sampling is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABTX! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	The X sampling	0 -> OFF 1 -> ON

Query ABTX?

The ABTX? command queries the X sampling.

If no parameter, the X sampling for the currently selected measurement program is queried

Host sends: <Address>sr<STX> ABTX? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The X sampling	0 -> OFF 1 -> ON

If 1 parameter, the X sampling is queried of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABTX? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	The X sampling	0 -> OFF 1 -> ON

4.19.2 ABTY - Y sampling ON/OFF

Execute ABTY!

The ABTY! command sets Y sampling.

If 1 parameter, the Y sampling for the currently selected measurement program is set

Host sends: <Address>sr<STX> ABTY! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The Y sampling	0 -> OFF 1 -> ON

If 2 parameters, the Y sampling is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABTY! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	The Y sampling	0 -> OFF 1 -> ON

Query ABTY?

The ABTY? command queries the Y sampling.

If no parameter, the Y sampling for the currently selected measurement program is queried

Host sends: <Address>sr<STX> ABTY? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The Y sampling	0 -> OFF 1 -> ON

If 1 parameter, the Y sampling is queried of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABTY? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	The Y sampling	0 -> OFF 1 -> ON

4.19.3 ABTZ - Time sampling ON/OFF

Execute ABTZ!

The ABTZ! command sets time sampling.

If 1 parameter, the time sampling for the currently selected measurement program is set

Host sends: <Address>sr<STX> ABTZ! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The time sampling	0 -> OFF 1 -> ON

If 2 parameters, the time sampling is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABTZ! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15.
P2	The time sampling	0 -> OFF 1 -> ON

Query ABTZ?

The ABTZ? command queries the time sampling.

If no parameter, the time sampling for the currently selected measurement program is queried

Host sends: <Address>sr<STX> ABTZ? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	The time sampling	0 -> OFF 1 -> ON

If 1 parameter, the time sampling is queried of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABTZ? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15.
P2	The time sampling	0 -> OFF 1 -> ON

4.19.4 ABSX - Set or query X sample rate

Execute ABSX!

The ABSX! command sets X sample rate.

If 1 parameter, the X sample rate for the currently selected measurement program is set

Host sends: <Address>sr<STX> ABSX! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	X sample rate	Floating point value 0 to 999999

If 2 parameters, the X sample rate is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABSX! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	X sample rate	Floating point value 0 to 999999

Query ABSX?

The ABTX? command queries X sample rate.

If no parameter, the X sample rate for the currently selected measurement program is queried

Host sends: <Address>sr<STX> ABSX? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	X sample rate	Floating point value 0 to 999999

If 1 parameter, the X sample rate is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABSX? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	X sample rate	Floating point value 0 to 999999

4.19.5 ABSY - Set or query Y sample rate

Execute ABSY!

The ABSY! command sets Y sample rate.

If 1 parameter, the Y sample rate for the currently selected measurement program is set

Host sends: <Address>sr<STX> ABSY! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Y sample rate	Floating point value 0 to 999999

If 2 parameters, the Y sample rate is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABSY! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Y sample rate	Floating point value 0 to 999999

Query ABSY?

The ABSY? command queries Y sample rate.

If no parameter, the Y1 sample rate for the currently selected measurement program is queried

Host sends: <Address>sr<STX> ABSY? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Y sample rate	Floating point value 0 to 999999

If 1 parameter, the Y sample rate is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABSY? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Y sample rate	Floating point value 0 to 999999

4.19.6 ABSZ - Set or query time sample rate

Execute ABSZ!

The ABSZ! command sets time sample rate.

If 1 parameter, the time sample rate for the currently selected measurement program is set

Host sends: <Address>sr<STX> ABSZ! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Time sample rate	Floating point value 0.0001 to 99999

If 2 parameters, the time sample rate is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABSZ! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Time sample rate	Floating point value 0.0001 to 99999

Query ABSZ?

The ABSZ? command queries time sample rate.

If no parameter, the time sample rate for the currently selected measurement program is queried

Host sends: <Address>sr<STX> ABSZ? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Time sample rate	Floating point value 0.0001 to 99999

If 1 parameter, the time sample rate is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> ABSZ? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Time sample rate	Floating point value 0.0001 to 99999

4.19.7 BZUG - Set or query reference

Execute BZUG!

The BZUG! command sets the reference.

If 1 parameter, the reference for the currently selected measurement program is set

Host sends: <Address>sr<STX> BZUG! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Reference	0 -> Absolute 1 -> Final force 2 -> Y reference line above reference 3 -> Y reference line below reference 4 -> Y trigger above reference 5 -> Y trigger below reference Comment: Below reference not permitted if the affected channel is set to time.

If 2 parameters, the reference is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> BZUG! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Reference	0 -> Absolute 1 -> Final force 2 -> Y reference line above reference 3 -> Y reference line below reference 4 -> Y trigger above reference 5 -> Y trigger below reference Comment: Below reference not permitted if the affected channel is set to time.

Query BZUG?

The BZUG? command queries the reference.

If no parameter, the reference for the currently selected measurement program is queried

Host sends: <Address>sr<STX> BZUG? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Reference	0 -> Absolute 1 -> Final force 2 -> Y reference line above reference 3 -> Y reference line below reference 4 -> Y trigger above reference 5 -> Y trigger below reference Comment: Below reference not permitted if the affected channel is set to time.

If 1 parameter, the reference is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> BZUG? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Reference	0 -> Absolute 1 -> Final force 2 -> Y reference line above reference 3 -> Y reference line below reference 4 -> Y trigger above reference 5 -> Y trigger below reference Comment: Below reference not permitted if the affected channel is set to time.

4.19.8 BEZY - Set or query reference line Y

Execute BEZY!

The BEZY! command sets the Y reference line.

If 1 parameter, the Y reference line for the currently selected measurement program is set

Host sends: <Address>sr<STX> BEZY! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Y reference line	Floating point value -999999 to 999999

If 2 parameters, the Y reference line is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> BEZY! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Y reference line	Floating point value -999999 to 999999

Query BEZY?

The BEZY? command queries the Y reference line.

If no parameter, the Y reference line for the currently selected measurement program is queried

Host sends: <Address>sr<STX> BEZY? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Y reference line	Floating point value -999999 to 999999

If 1 parameter, the Y reference line is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> BEZY? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Y reference line	Floating point value -999999 to 999999

4.19.9 TRIY - Set or query trigger line Y

Execute TRIY!

The TRIY! command sets the Y trigger line.

If 1 parameter, the Y trigger line for the currently selected measurement program is set

Host sends: <Address>sr<STX> TRIY! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Y trigger line	Floating point value -999999 to 999999

If 2 parameters, the Y trigger line is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> TRIY! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Y trigger line	Floating point value -999999 to 999999

Query TRIY?

The TRIY? command queries the Y trigger line.

If no parameter, the Y trigger line for the currently selected measurement program is queried

Host sends: <Address>sr<STX> TRIY? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Y trigger line	Floating point value -999999 to 999999

If 1 parameter, the Y trigger line is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> TRIY? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Y trigger line	Floating point value -999999 to 999999

4.19.10 UPKT - Set or query return point

Execute UPKT!

The UPKT! command sets the return point.

If 1 parameter, the return point for the currently selected measurement program is set

Host sends: <Address>sr<STX> UPKT! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Return point	0 -> XMIN 1 -> XMAX 2 -> YMIN 3 -> YMAX

If 2 parameters, the return point is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> UPKT! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Return point	0 -> XMIN 1 -> XMAX 2 -> YMIN 3 -> YMAX

Query UPKT?

The UPKT? command queries the return point.

If no parameter, the return point for the currently selected measurement program is queried

Host sends: <Address>sr<STX> UPKT? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Return point	0 -> XMIN 1 -> XMAX 2 -> YMIN 3 -> YMAX

If 1 parameter, the return point is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> UPKT? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Return point	0 -> XMIN 1 -> XMAX 2 -> YMIN 3 -> YMAX

4.19.11 KERF - Set or query 'Record curve to'

Execute KERF!

The KERF! command sets the recorded curve section.

If 1 parameter, the return point for the currently selected measurement program is set

Host sends: <Address>sr<STX> KERF! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Recorded curve section	0 -> Complete curve 1 -> To return point

If 2 parameters, the recorded curve section is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> KERF! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Recorded curve section	0 -> Complete curve 1 -> To return point

Query KERF?

The KERF? command queries the recorded curve section.

If no parameter, the recorded curve section for the currently selected measurement program is queried

Host sends: <Address>sr<STX> KERF? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Recorded curve section	0 -> Complete curve 1 -> To return point

If 1 parameter, the recorded curve section is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> KERF? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Recorded curve section	0 -> Complete curve 1 -> To return point

4.19.12 STAM - Set or query start mode

Execute STAM!

The STAM! command sets the start mode.

If 1 parameter, the start mode for the currently selected measurement program is set

Host sends: <Address>sr<STX> STAM! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Start mode	0 -> External 1 -> X above reference 2 -> X below reference 3 -> Y above reference 4 -> Y below reference Comment: Below or above reference not permitted if the affected channel is set to piezo or time.

If 2 parameters, the start mode is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STAM! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Start mode	0 -> External 1 -> X above reference 2 -> X below reference 3 -> Y above reference 4 -> Y below reference Comment: Below or above reference not permitted if the affected channel is set to piezo or time.

Query STAM?

The STAM? command queries the start mode.

If no parameter, the start mode for the currently selected measurement program is queried

Host sends: <Address>sr<STX> STAM? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Start mode	0 -> External 1 -> X above reference 2 -> X below reference 3 -> Y above reference 4 -> Y below reference Comment: Below or above reference not permitted if the affected channel is set to piezo or time.

If 1 parameter, the start mode is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STAM? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Start mode	0 -> External 1 -> X above reference 2 -> X below reference 3 -> Y above reference 4 -> Y below reference Comment: Below or above reference not permitted if the affected channel is set to piezo or time.

4.19.13 STOM - Set or query stop mode

Execute STOM!

The STOM! command sets the stop mode.

If 1 parameter, the stop mode for the currently selected measurement program is set

Host sends: <Address>sr<STX> STOM! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Stop mode	0 -> External 1 -> X above reference 2 -> X below reference 3 -> Y above reference 4 -> Y below reference 5 -> Timeout 6 -> Number of readings Comment: Below reference not permitted if the affected channel is set to time.

If 2 parameters, the stop mode is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STOM! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Stop mode	0 -> External 1 -> X above reference 2 -> X below reference 3 -> Y above reference 4 -> Y below reference 5 -> Timeout 6 -> Number of readings Comment: Below reference not permitted if the affected channel is set to time.

Query STOM?

The STOM? command queries the stop mode.

If no parameter, the stop mode for the currently selected measurement program is queried

Host sends: <Address>sr<STX> STOM? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Stop mode	0 -> External 1 -> X above reference 2 -> X below reference 3 -> Y above reference 4 -> Y below reference 5 -> Timeout 6 -> Number of readings Comment: Below reference not permitted if the affected channel is set to time.

If 1 parameter, the stop mode is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STOM? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Stop mode	0 -> External 1 -> X above reference 2 -> X below reference 3 -> Y above reference 4 -> Y below reference 5 -> Timeout 6 -> Number of readings Comment: Below reference not permitted if the affected channel is set to time.

4.19.14 STAX - Set or query start value X

Execute STAX!

The STAX! command sets the X start value.

If 1 parameter, the X start value for the currently selected measurement program is set

Host sends: <Address>sr<STX> STAX! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	X start value	Floating point value -999999 to 999999

If 2 parameters, the X start value is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STAX! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	X start value	Floating point value -999999 to 999999

Query STAX?

The STAX? command queries the X start value.

If no parameter, the X start value for the currently selected measurement program is queried

Host sends: <Address>sr<STX> STAX? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	X start value	Floating point value -999999 to 999999

If 1 parameter, the X start value is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STAX? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	X start value	Floating point value -999999 to 999999

4.19.15 STAY - Set or query start value Y

Execute STAY!

The STAY! command sets the Y start value.

If 1 parameter, the Y start value for the currently selected measurement program is set

Host sends: <Address>sr<STX> STAY! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Y start value	Floating point value -999999 to 999999

If 2 parameters, the Y start value is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STAY! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Y start value	Floating point value -999999 to 999999

Query STAY?

The STAY? command queries the Y start value.

If no parameter, the Y start value for the currently selected measurement program is queried

Host sends: <Address>sr<STX> STAY? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Y1 start value	Floating point value -999999 to 999999

If 1 parameter, the Y start value is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STAY? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Y start value	Floating point value -999999 to 999999

4.19.16 STOX - Set or query X stop value

Execute STOX!

The STOX! command sets the X stop value.

If 1 parameter, the X stop value for the currently selected measurement program is set

Host sends: <Address>sr<STX> STOX! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	X stop value	Floating point value -999999 to 999999

If 2 parameters, the X stop value is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STOX! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	X stop value	Floating point value -999999 to 999999

Query STOX?

The STOX? command queries the X stop value.

If no parameter, the X stop value for the currently selected measurement program is queried

Host sends: <Address>sr<STX> STOX? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	X stop value	Floating point value -999999 to 999999

If 1 parameter, the X stop value is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STOX? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	X stop value	Floating point value -999999 to 999999

4.19.17 STOY - Set or query Y stop value

Execute STOY!

The STOY! command sets the Y stop value.

If 1 parameter, the Y stop value for the currently selected measurement program is set

Host sends: <Address>sr<STX> STOY! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Y stop value	Floating point value -999999 to 999999

If 2 parameters, the Y stop value is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STOY! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Y stop value	Floating point value -999999 to 999999

Query STOY?

The STOY? command queries the Y stop value.

If no parameter, the Y stop value for the currently selected measurement program is queried

Host sends: <Address>sr<STX> STOY? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Y1 stop value	Floating point value -999999 to 999999

If 1 parameter, the Y stop value is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STOY? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Y stop value	Floating point value -999999 to 999999

4.19.18 STOT - Set or query stop timeout value

Execute STOT!

The STOT! command sets the stop timeout value.

If 1 parameter, the stop timeout value for the currently selected measurement program is set

Host sends: <Address>sr<STX> STOT! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Stop timeout value	Floating point value 0.0001 to 99999

If 2 parameters, the stop timeout value is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STOT! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Stop timeout value	Floating point value 0.0001 to 99999

Query STOT?

The STOT? command queries the stop timeout value.

If no parameter, the stop timeout value for the currently selected measurement program is queried

Host sends: <Address>sr<STX> STOT? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Stop timeout value	Floating point value 0.0001 to 99999

If 1 parameter, the stop timeout value is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STOT? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Stop timeout value	Floating point value 0.0001 to 99999

4.19.19 STOA - Set or query number of readings stop mode

Execute STOA!

The STOA! command sets the number of readings stop mode.

If 1 parameter, the number of readings stop mode for the currently selected measurement program is set

Host sends: <Address>sr<STX> STOA! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of readings stop mode	Integer value between 0 and 5000 (unsigned 16 bit)

If 2 parameters, the number of readings stop mode is set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STOA! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Number of readings stop mode	Integer value between 0 and 5000 (unsigned 16 bit)

Query STOA?

The STOA? command queies the number of readings stop mode.

If no parameter, the number of readings stop mode for the currently selected measurement program is queried

Host sends: <Address>sr<STX> STOA? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of readings stop mode	Integer value between 0 and 5000

If 1 parameter, the number of readings stop mode is queried for the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> STOA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Number of readings stop mode	Integer value between 0 and 5000 (unsigned 16 bit)

4.20 Channel settings

4.20.1 KAGL - Channel settings global or program dependent

Execute KAGL!

The KAGL! command sets the channel settings to global or program dependent

Host sends: <Address>sr<STX> KAGL! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Global or program dependent channel settings	0 -> Program dependent 1 -> Global

Query KAGL?

The KAGL? command queries the channel settings for global or program dependent

Host sends: <Address>sr<STX>KAGL?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Global or program dependent channel settings	0 -> Program dependent 1 -> Global

4.20.2 KANA - Set channels (connection, sensor)

Execute KANA!

The KANA! command assigns connections or sensors to the channels.

If 2 parameters, the channels for the currently selected measurement program are set

Host sends: <Address>sr<STX> KANA! P1,P2,<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel X sensor and connection	0 –> Connector A, potentiometer 1 -> Connector A, standard signal 2 -> Connector B, strain gauge (only if strain gauge analogue board) 3 -> Connector B, standard signal (only if strain gauge analogue board) 4 -> Connector B, piezo (only if piezo analogue board) 5 -> Time
P2	Channel Y sensor and connection	0 –> Connector A, potentiometer 1 -> Connector A, standard signal 2 -> Connector B, strain gauge (only if strain gauge analogue board) 3 -> Connector B, standard signal (only if strain gauge analogue board) 4 -> Connector B, piezo (only if piezo analogue board) 5 -> Time

If 3 parameters, the channels are set of the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX> KANA! P1,P2,P3,<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel X sensor and connection	0 –> Connector A, potentiometer 1 -> Connector A, standard signal 2 -> Connector B, strain gauge (only if strain gauge analogue board) 3 -> Connector B, standard signal (only if strain gauge analogue board) 4 -> Connector B, piezo (only if piezo analogue board) 5 -> Time
P3	Channel Y sensor and connection	0 –> Connector A, potentiometer 1 -> Connector A, standard signal 2 -> Connector B, strain gauge (only if strain gauge analogue board) 3 -> Connector B, standard signal (only if strain gauge analogue board) 4 -> Connector B, piezo (only if piezo analogue board) 5 -> Time 15 -> Time

Query KANA?

The KANA? command queries the channel settings.

If no parameter, the channel settings for the currently selected measurement program are queried

Host sends: <Address>sr<STX> KANA? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel X sensor and connection	0 –> Connector A, potentiometer 1 -> Connector A, standard signal 2 -> Connector B, strain gauge (only if strain gauge analogue board) 3 -> Connector B, standard signal (only if strain gauge analogue board) 4 -> Connector B, piezo (only if piezo analogue board) 5 -> Time
P2	Channel Y sensor and connection	0 –> Connector A, potentiometer 1 -> Connector A, standard signal 2 -> Connector B, strain gauge (only if strain gauge analogue board) 3 -> Connector B, standard signal (only if strain gauge analogue board) 4 -> Connector B, piezo (only if piezo analogue board) 5 -> Time

If 1 parameter, the channel settings corresponding to the transferred measurement program number are queried.

Host sends: <Address>sr<STX> KANA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel X sensor and connection	0 –> Connector A, potentiometer 1 -> Connector A, standard signal 2 -> Connector B, strain gauge (only if strain gauge analogue board) 3 -> Connector B, standard signal (only if strain gauge analogue board) 4 -> Connector B, piezo (only if piezo analogue board) 5 -> Time

P3	Channel Y sensor and connection	0 –> Connector A, potentiometer 1 -> Connector A, standard signal 2 -> Connector B, strain gauge (only if strain gauge analogue board) 3 -> Connector B, standard signal (only if strain gauge analogue board) 4 -> Connector B, piezo (only if piezo analogue board) 5 -> Time

Caution: Only one sensor can be set for the one connector at any one time.

4.20.3 FILT - Set or query filters

Caution: Not permitted if connection OFF or set to time.
Command not allowed when measurement running.

Execute FILT!

The FILT! command sets the filters for each of the channels.

If 2 parameters, the filter for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> FILT! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Filter	0 -> OFF 1 -> 5 Hz filter 2 -> 10 Hz filter 3 -> 25 Hz filter 4 -> 50 Hz filter 5 -> 100 Hz filter 6 -> 200 Hz filter 7 -> 400 Hz filter 8 -> 800 Hz filter

If 3 parameters, the filter for the transferred channel and for the measurement program corresponding to the transferred number is set.

Host sends: <Address>sr<STX> FILT! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Filter	0 -> OFF 1 -> 5 Hz filter 2 -> 10 Hz filter 3 -> 25 Hz filter 4 -> 50 Hz filter 5 -> 100 Hz filter 6 -> 200 Hz filter 7 -> 400 Hz filter 8 -> 800 Hz filter

Query FILT?

The FILT? command queries the channel filters.

If 1 parameter, the filter for the transferred channel and the currently selected measurement program is queried

Host sends: <Address>sr<STX> FILT? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Filter	0 -> OFF 1 -> 5 Hz filter 2 -> 10 Hz filter 3 -> 25 Hz filter 4 -> 50 Hz filter 5 -> 100 Hz filter 6 -> 200 Hz filter 7 -> 400 Hz filter 8 -> 800 Hz filter

If 2 parameters, the filter for the transferred channel corresponding to the transferred measurement program number is queried.

Host sends: <Address>sr<STX> FILT? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Filter	0 -> OFF 1 -> 5 Hz filter 2 -> 10 Hz filter 3 -> 25 Hz filter 4 -> 50 Hz filter 5 -> 100 Hz filter 6 -> 200 Hz filter 7 -> 400 Hz filter 8 -> 800 Hz filter

4.20.4 EINH - Select or query unit

Execute EINH!

Caution: Not permitted if connection OFF or set to time or resistance.

The **EINH**! command sets the unit for each of the channels.

If 2 parameters, the unit for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> EINH! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Units	0 -> User defined unit 1 1 -> User defined unit 2 2 -> User defined unit 3 3 -> mm 4 -> N 5 -> kN 6 -> Nm 7 -> Ncm 8 -> degrees 9 -> bar 10 -> V 11 -> s 12 -> ms

If 3 parameters, the unit for the transferred channel corresponding to the transferred measurement program number is set.

Host sends: <Address>sr<STX> EINH! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Units	0 -> User defined unit 1 1 -> User defined unit 2 2 -> User defined unit 3 3 -> mm 4 -> N 5 -> kN 6 -> Nm 7 -> Ncm 8 -> degrees 9 -> bar 10 -> V 11 -> s 12 -> ms

Query **EINH**?

The EINH? command queries the unit for each of the channels.

If 1 parameter, the unit for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> EINH? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Units	0 -> User defined unit 1 1 -> User defined unit 2 2 -> User defined unit 3 3 -> mm 4 -> N 5 -> kN 6 -> Nm 7 -> Ncm 8 -> degrees 9 -> bar 10 -> V 11 -> s 12 -> ms

If 2 parameters, the unit for the transferred channel corresponding to the transferred measurement program number is queried.

Host sends: <Address>sr<STX> EINH? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Units	0 -> User defined unit 1 1 -> User defined unit 2 2 -> User defined unit 3 3 -> mm 4 -> N 5 -> kN 6 -> Nm 7 -> Ncm 8 -> degrees 9 -> bar 10 -> V 11 -> s 12 -> ms

4.20.5 BEIN - Set or query user defined units

Execute BEIN!

The BEIN! command sets the user defined units.

If 2 parameters, the user defined units for the currently selected measurement program are set

Host sends: <Address>sr<STX> BEIN! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the user defined units	0, 1, 2
P2	User defined units	Max 4 character string

If 3 parameters, the user defined units corresponding to the transferred measurement program number are set.

Host sends: <Address>sr<STX> BEIN! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Number of the user defined units	0, 1, 2
P3	User defined units	Max 4 character string

Query BEIN?

The BEIN? command queries the user defined units.

If 1 parameter, the user defined units for the currently selected measurement program are queried.

Host sends: <Address>sr<STX> BEIN? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the user defined units	0, 1, 2
P2	User defined units	Max 4 character string

If 2 parameters, the user defined units corresponding to the transferred measurement program number are queried.

Host sends: <Address>sr<STX> BEIN? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Number of the user defined units	0, 1, 2
P3	User defined units	Max 4 character string

4.20.6 SKAL - Scaling; receive and implement values

Execute **SKAL!**

Caution: Not permitted if connection set to time.

Lower scale and upper scale as well as lower calibration value and upper calibration value may not be equal to any other.

The SKAL! command receives the scaling values and executes scaling.

If 2 parameters, the values for the currently selected measurement program are received.

Host sends: <Address>sr<STX> SKAL! P1,P2,P3,P4,P5 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Lower scale	Floating-point value between -999999 and 999999
P3	Upper scale	Floating-point value between -999999 and 999999
P4	Lower cal	Floating-point value between -999999 and 999999
P5	Upper cal	Floating-point value between -999999 and 999999

If 3 parameters, the values corresponding to the transferred measurement program number are received.

Host sends: <Address>sr<STX> SKAL! P1,P2,P3,P4,P5,P6<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Lower scale	Floating-point value between -999999 and 999999
P4	Upper scale	Floating-point value between -999999 and 999999
P5	Lower cal	Floating-point value between -999999 and 999999
P6	Upper cal	Floating-point value between -999999 and 999999

Query **SKAL**?

The SKAL? command queries the scaling values.

If 1 parameter, the values for the currently selected measurement program are queried.

Host sends: <Address>sr<STX> SKAL? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Lower scale	Floating-point value between -999999 and 999999
P3	Upper scale	Floating-point value between -999999 and 999999
P4	Lower cal	Floating-point value between -999999 and 999999
P5	Upper cal	Floating-point value between -999999 and 999999

If 2 parameters, the values corresponding to the transferred measurement program number are queried

Host sends: <Address>sr<STX> SKAL? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5,P6<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Lower scale	Floating-point value between -999999 and 999999
P4	Upper scale	Floating-point value between -999999 and 999999
P5	Lower cal	Floating-point value between -999999 and 999999
P6	Upper cal	Floating-point value between -999999 and 999999

4.20.7 MKAL - Teach in cal values

Caution: Not permitted if connection set to time. Command not allowed when measurement running.

Execute - There is no ! form of this command

Query **MKAL**?

The MKAL? command teaches in a cal value

Host sends: <Address>sr<STX> MKAL? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Measured cal value	Floating-point value between -999999 and 999999

4.20.8 TABM - Set or query tare at start of measurement

Caution: Not permitted if connection set to time or piezo.

Execute TABM!

The TABM! command sets the tare at the start of measurements for each of the channels.

If 2 parameters, the tare at the start of measurements for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> TABM! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Tare at meas. start	0 -> OFF 1 -> ON

If 3 parameters, the tare at the start of measurements for the transferred channel and the transferred measurement program is set.

Host sends: <Address>sr<STX> TABM! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Tare at meas. start	0 -> OFF 1 -> ON

Query TABM?

The TABM? command queries the tare at the start of measurements for each of the channels.

If 1 parameter, the tare at the start of measurements for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> TABM? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Tare at meas. start	0 -> OFF 1 -> ON

If 2 parameters, the tare at the start of measurements for the transferred channel and the transferred measurement program is queried.

Host sends: <Address>sr<STX> TABM? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Tare at meas. start	0 -> OFF 1 -> ON

4.20.9 TAVO - Set or query tare default

Caution: Not permitted if connection set to time or piezo.

Execute TAVO!

The TAVO! command sets the tare default for each of the channels.

If 2 parameters, the tare default for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> TAVO! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Tare default	Floating-point value between -999999 and 999999

If 3 parameters, the tare default for the transferred channel and the transferred measurement program is set.

Host sends: <Address>sr<STX> TAVO! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value up to 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Tare default	Floating-point value between -999999 and 999999

Query TAVO?

The TAVO? command queries the tare default for each of the channels.

If 1 parameter, the tare default at the start of measurements for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> TAVO? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Tare default	Floating-point value between -999999 and 999999

If 2 parameters, the tare default for the transferred channel and the transferred measurement program is queried.

Host sends: <Address>sr<STX> TAVO? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Tare default	Floating-point value between -999999 and 999999

4.20.10 TAWA - Set or query tare warning

Caution: Permitted only if a strain gauge, pot, or standard signal sensor is set.

Execute TAWA!

The TAWA! command sets the tare warning for each channel (X, Y).

If 2 parameters, the tare warning for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> TAWA! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Tare warning	0 -> OFF 1 -> ON

If 3 parameters, the tare warning for the transferred channel and the transferred measurement program is set.

Host sends: <Address>sr<STX> TAWA! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Tare warning	0 -> OFF 1 -> ON

Query TAWA?

The TAWA? command queries the tare warning for each of the channels.

If 1 parameter, the tare warning for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> TAWA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Tare warning	0 -> OFF 1 -> ON

If 2 parameters, the tare warning for the transferred channel and the transferred measurement program is queried.

Host sends: <Address>sr<STX> TAWA? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Tare warning	0 -> OFF 1 -> ON

4.20.11 TAWG - Set or query tare warning limit

Caution: Permitted only if a strain gauge, potentiometer or standard signal sensor is set.

Execute TAWG!

The TAWG! command sets the tare warning limit for each channel (X, Y).

If 2 parameters, the tare warning for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> TAWG! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Tare warning limit	Floating-point value between 1.0 and 20.0

If 3 parameters, the tare warning limit for the transferred channel and the transferred measurement program is set.

Host sends: <Address>sr<STX> TAWG! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Tare warning limit	Floating-point value between 1.0 and 20.0

Query TAWG?

The TAWG? command queries the tare warning limit for each of the channels.

If 1 parameter, the tare warning limit for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> TAWG? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y1
P2	Tare warning limit	Floating-point value between 1.0 and 20.0

If 2 parameters, the tare warning limit for the transferred channel and the transferred measurement program is queried.

Host sends: <Address>sr<STX> TAWG? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Tare warning limit	Floating-point value between 1.0 and 20.0

4.20.12 TARA - Perform tare

Caution: Not permitted if connection set to time or piezo.

Execute TARA!

The TARA! command performs or undoes a tare for each of the channels.

Host sends: <Address>sr<STX> TARA! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Performing a tare	1 -> Perform tare 0 -> Reset the tared-off value to 0

Query TARA?

The TARA? command queries tared-off value for each of the channels.

Host sends: <Address>sr<STX> TARA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Tared value	Floating-point value between -999999 and 999999

4.20.13 TAWE - Set or query tare value

Caution: Not permitted if connection set to time or piezo.

This value serves backup purposes.

Execute TAWE!

The TAWE! command sets the tare for each channel to a particular value.

If 2 parameters, the tare value for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> TAWE! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Standard tare value	Floating-point value between -999999 and 999999

If 3 parameters, the tare value for the transferred channel and the transferred measurement program is set.

Host sends: <Address>sr<STX> TAWE! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Standard tare value	Floating-point value between -999999 and 999999

Query TAWE?

The TAWE? command queries the tared-off value for each of the channels.

If 1 parameter, the tared-off value for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> TAWE? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Tared value	Floating-point value between -999999 and 999999

If 2 parameters, the tared-off value for the transferred channel and the transferred measurement program is queried.

Host sends: <Address>sr<STX> TAWE? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Tared value	Floating-point value between -999999 and 999999

4.21 Standard signal input

4.21.1 NOEI - Set or query standard signal input range

Caution: Permitted only if standard signal set.

Execute NOEI!

The NOEI! command sets the standard signal input range for each channel (X, Y).

If 2 parameters, the standard signal input range for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> NOEI! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Standard signal input range	0 -> 5 V range 1 -> 10 V range

If 3 parameters, the standard signal input range for the transferred channel and the transferred measurement program is set.

Host sends: <Address>sr<STX> NOEI! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Standard signal input range	0 -> 5 V range 1 -> 10 V range

Query NOEI?

The NOEI? command queries the standard signal input range for each of the channels.

If 1 parameter, the standard signal input range for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> NOEI? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Standard signal input range	0 -> 5 V range 1 -> 10 V range

If 2 parameters, the standard signal input range for the transferred channel and the transferred measurement program is queried.

Host sends: <Address>sr<STX> NOEI? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Standard signal input range	0 -> 5 V range 1 -> 10 V range

4.22 Strain gauge sensor

4.22.1 NOEI - Set or query strain gauge input range

Caution: Permitted only if strain gauge set.

Execute DMEI!

The DMEI! command sets the strain gauge input range for each channel (X, Y).

If 2 parameters, the strain gauge input range for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> DMEI! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Strain gauge input range	0 -> 2 mV/V input range 1 -> 4 mV/V input range 2 -> 10 mV/V input range 3 -> 20 mV/V input range 4 -> 40 mV/V input range

If 3 parameters, the strain gauge input range for the transferred channel and the transferred measurement program is set.

Host sends: <Address>sr<STX> DMEI! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Strain gauge input range	0 -> 2 mV/V input range 1 -> 4 mV/V input range 2 -> 10 mV/V input range 3 -> 20 mV/V input range 4 -> 40 mV/V input range

Query DMEI?

The DMEI? command queries the strain gauge input range for each of the channels.

If 1 parameter, the strain gauge input range for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> DMEI? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Strain gauge input range	0 -> 2 mV/V input range 1 -> 4 mV/V input range 2 -> 10 mV/V input range 3 -> 20 mV/V input range 4 -> 40 mV/V input range

If 2 parameters, the strain gauge input range for the transferred channel and the transferred measurement program is queried.

Host sends: <Address>sr<STX> DMEI? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Strain gauge input range	0 -> 2 mV/V input range 1 -> 4 mV/V input range 2 -> 10 mV/V input range 3 -> 20 mV/V input range 4 -> 40 mV/V input range

4.22.2 DMNK - Set or query strain gauge sensitivity

Caution: Permitted only if strain gauge sensor set.

Execute DMNK!

The DMNK! command sets the strain gauge sensitivity for each channel (X, Y).

If 2 parameters, the strain gauge sensitivity for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> DMNK! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Strain gauge sensitivity	Floating-point value between 0.01 and 100.0

If 3 parameters, the strain gauge sensitivity for the transferred channel and the transferred measurement program is set.

Host sends: <Address>sr<STX> DMNK! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Tare warning limit	Floating-point value between 0.01 and 100.0

Query DMNK?

The DMNK? command queries the strain gauge sensitivity for each of the channels.

If 1 parameter, the strain gauge sensitivity for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> DMNK? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Strain gauge sensitivity	Floating-point value between 0.01 and 100.0

If 2 parameters, the strain gauge sensitivity for the transferred channel and the transferred measurement program is queried.

Host sends: <Address>sr<STX> DMNK? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Strain gauge sensitivity	Floating-point value between 0.01 and 100.0

4.22.3 DMAS - Query strain gauge output level

Caution: Permitted only if strain gauge sensor set.

Execute - This command does not have a ! form.

Query DMAS?

The DMAS? command queries the strain gauge output level for each of the channels.

If 1 parameter, the strain gauge output level for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> DMAS? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Strain gauge output level	Floating-point value between 0.01 and 100.0

If 2 parameters, the strain gauge output level for the transferred channel and the transferred measurement program is queried.

Host sends: <Address>sr<STX> DMAS? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Strain gauge output level	Floating-point value between 0 and 999999

4.23 Piezo sensor

4.23.1 PIEI - Set or query piezo input range

Caution: Permitted only if piezo set.

Execute PIEI!

The PIEI! command sets the piezo input range for each channel (X, Y).

If 2 parameters, the piezo input range for the transferred channel and the currently selected measurement program is set

Host sends: <Address>sr<STX> PIEI! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Piezo input range	0 -> 1nC range 1 -> 2nC range 2 -> 5nC range 3 -> 10nC range 4 -> 20nC range 5 -> 40nC range 6 -> 80nC range 7 -> 200nC range 8 -> 400nC range 9 -> 1uC range

If 3 parameters, the piezo input range for the transferred channel and the transferred measurement program is set.

Host sends: <Address>sr<STX> PIEI! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Piezo input range	0 -> 1nC range 1 -> 2nC range 2 -> 5nC range 3 -> 10nC range 4 -> 20nC range 5 -> 40nC range 6 -> 80nC range 7 -> 200nC range 8 -> 400nC range 9 -> 1uC range

Query PIEI?

The PIEI? command queries the piezo input range for each of the channels.

If 1 parameter, the piezo input range for the transferred channel and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> PIEI? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Piezo input range	0 -> 1nC range 1 -> 2nC range 2 -> 5nC range 3 -> 10nC range 4 -> 20nC range 5 -> 40nC range 6 -> 80nC range 7 -> 200nC range 8 -> 400nC range 9 -> 1uC range

If 2 parameters, the piezo input range for the transferred channel and the transferred measurement program is queried.

Host sends: <Address>sr<STX> PIEI? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Piezo input range	0 -> 1nC range 1 -> 2nC range 2 -> 5nC range 3 -> 10nC range 4 -> 20nC range 5 -> 40nC range 6 -> 80nC range 7 -> 200nC range 8 -> 400nC range 9 -> 1uC range

4.23.2 PIKZ - Open/close piezo input short circuit

Caution: Permitted only if piezo set.

Execute PIKZ!

The PIKZ command short circuits or opens the piezo input

Host sends: <Address>sr<STX> PIKZ! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Piezo input range	0 -> Do not short circuit piezo input 1 -> Short circuit piezo input

Query PIKZ?

There is no ? form of this command.

4.24 Evaluating the square window

4.24.1 FEST - Switch ON/OFF square window

Execute FEST!

The FEST! command enables or disables a square window.

If 2 parameters, the square window for the transferred window number and the currently selected measurement program is enabled or disabled.

Host sends: <Address>sr<STX> FEST! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Window ON/OFF	0 -> OFF 1 -> ON

If 3 parameters, the square window for the transferred window number and the currently selected measurement program is enabled or disabled.

Host sends: <Address>sr<STX> FEST! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Window ON/OFF	0 -> OFF 1 -> ON

Query FEST?

The FEST? command queries whether the square window is enabled or disabled.

If 1 parameter, the square window for the transferred window number and the currently selected measurement program is queried for its enabled/disabled status.

Host sends: <Address>sr<STX> FEST? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Window ON/OFF	0 -> OFF 1 -> ON

If 2 parameters, the square window for the transferred window number and the transferred measurement program is queried for its enabled/disabled status.

Host sends: <Address>sr<STX> FEST? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Window ON/OFF	0 -> OFF 1 -> ON

4.24.2 FGRZ - Set or query square window limits

Execute FGRZ!

The FGRZ! command sets the square window limits.

If 5 parameters, the window limits are set with the transferred window number and the currently selected measurement program

Host sends: <Address>sr<STX> FGRZ! P1,P2,P3,P4,P5 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Xmin window limit	Floating-point value between -999999 and 999999
P3	Xmax window limit	Floating-point value between -999999 and 999999
P4	Ymin window limit	Floating-point value between -999999 and 999999
P5	Ymax window limit	Floating-point value between -999999 and 999999

If 6 parameters, the window limits are set with the transferred window number and the transferred measurement program

Host sends: <Address>sr<STX> FGRZ! P1,P2,P3,P4,P5,P6<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Xmin window limit	Floating-point value between -999999 and 999999
P4	Xmax window limit	Floating-point value between -999999 and 999999
P5	Ymin window limit	Floating-point value between -999999 and 999999
P6	Ymax window limit	Floating-point value between -999999 and 999999

Note: Xmax must be greater than Xmin, and Ymax must be greater than Ymin.

Query FGRZ?

The FGRZ? command queries the square window limits.

If 1 parameter, the window limits are queried with the transferred window number and the currently selected measurement program

Host sends: <Address>sr<STX> FGRZ? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Xmin window limit	Floating-point value between -999999 and 999999
P3	Xmax window limit	Floating-point value between -999999 and 999999
P4	Ymin window limit	Floating-point value between -999999 and 999999
P5	Ymax window limit	Floating-point value between -999999 and 999999

If 2 parameters, the window limits are queried with the transferred window number and the transferred measurement program

Host sends: <Address>sr<STX> FGRZ? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5,P6<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Xmin window limit	Floating-point value between -999999 and 999999
P4	Xmax window limit	Floating-point value between -999999 and 999999
P5	Ymin window limit	Floating-point value between -999999 and 999999
P6	Ymax window limit	Floating-point value between -999999 and 999999

4.24.3 FEAU - Set or query square window entry and exit sides

Execute **FEAU!**

The FEAU! command sets the square window entry and exit sides

If 9 parameters, the square window entry and exit sides are set with the transferred window number and the currently selected measurement program

Host sends: <Address>sr<STX> FEAU! P1,P2,P3,P4,P5,P6,P7,P8,P9 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Entry left	0 -> No 1 -> Yes
P3	Entry right	0 -> No 1 -> Yes
P4	Entry bottom	0 -> No 1 -> Yes
P5	Entry top	0 -> No 1 -> Yes
P6	Exit left	0 -> No

		1 -> Yes
P7	Exit right	0 -> No 1 -> Yes
P8	Exit bottom	0 -> No 1 -> Yes
P9	Exit top	0 -> No 1 -> Yes

If 10 parameters, the entry and exit sides are set for the window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FEAU! P1,P2,P3,P4,P5,P6,P7,P8,P9,P10 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Entry left	0 -> No 1 -> Yes
P4	Entry right	0 -> No 1 -> Yes
P5	Entry bottom	0 -> No 1 -> Yes
P6	Entry top	0 -> No 1 -> Yes
P7	Exit left	0 -> No 1 -> Yes
P8	Exit right	0 -> No 1 -> Yes
P9	Exit bottom	0 -> No 1 -> Yes
P10	Exit top	0 -> No 1 -> Yes

Query **FEAU**?

The FEAU? command queries the square window entry and exit sides.

If 1 parameter, the entry and exit sides of the window are set queried with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FEAU? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4,P5,P6,P7,P8,P9<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Entry left	0 -> No 1 -> Yes
P3	Entry right	0 -> No 1 -> Yes
P4	Entry bottom	0 -> No 1 -> Yes
P5	Entry top	0 -> No 1 -> Yes
P6	Exit left	0 -> No 1 -> Yes
P7	Exit right	0 -> No 1 -> Yes
P8	Exit bottom	0 -> No 1 -> Yes
P9	Exit top	0 -> No 1 -> Yes

If 2 parameters, the entry and exit sides are queried for the window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FEAU? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5,P6,P7,P8,P9,P10<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Entry left	0 -> No 1 -> Yes
P4	Entry right	0 -> No 1 -> Yes
P5	Entry bottom	0 -> No 1 -> Yes

P6	Entry top	0 -> No 1 -> Yes
P7	Exit left	0 -> No 1 -> Yes
P8	Exit right	0 -> No 1 -> Yes
P9	Exit bottom	0 -> No 1 -> Yes
P10	Exit top	0 -> No 1 -> Yes

4.24.4 FKAB - Curve section over which a square window is evaluated

Execute FKAB!

The FKAB! command sets the curve section over which a square window is evaluated.

If 2 parameters, the square window's curve section is set with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FKAB! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Curve segment	0 -> Forward 1 -> Return 2 -> Complete

If 3 parameters, the square window's curve section is set with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FKAB! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Curve segment	0 -> Forward 1 -> Return 2 -> Complete

Query FKAB?

The FKAB? command queries the curve section over which a square window is evaluated.

If 1 parameter, the curve section is queried for the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FKAB? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Curve segment	0 -> Forward 1 -> Return 2 -> Complete

If 2 parameters, the curve section is queried for the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FKAB? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Curve segment	0 -> Forward 1 -> Return 2 -> Complete

4.24.5 FOBE - Set online evaluation for a square window

Execute FOBE!

Caution: Only two windows per measurement program can be activated for the online evaluation!

The FOBE! command sets the online evaluation of a square window.

If 2 parameters, the online evaluation is set for the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FOBE! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Online evaluation	0 -> OFF 1 -> Left – Right 2 -> Right – Left 3 -> Bottom – Top 4 -> Top – Bottom

If 3 parameters, the online evaluation is set for the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FOBE! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Online evaluation	0 -> OFF 1 -> Left – Right 2 -> Right – Left 3 -> Bottom – Top 4 -> Top – Bottom

Query FOBE?

The FKAB? command queries the online evaluation of a square window.

If 1 parameter, the online evaluation is queried for the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FOBE? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Online evaluation	0 -> OFF 1 -> Left – Right 2 -> Right – Left 3 -> Bottom – Top 4 -> Top – Bottom

If 2 parameters, the online evaluation is queried for the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FOBE? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Online evaluation	0 -> OFF 1 -> Left – Right 2 -> Right – Left 3 -> Bottom – Top 4 -> Top – Bottom

4.24.6 FOLV - Set online signal level for a square window

Execute FOLV!

Caution: You must first activate the online evaluation for a window before you can set an online signal level for it.

The FOLV! command sets the online signal level for a square window.

If 2 parameters, the online signal level is set for the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FOLV! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Online signal level	0 -> Low active 1 -> High active

If 3 parameters, the online signal level is set for the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FOLV! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Online signal level	0 -> Low active 1 -> High active

Query FOLV?

The FOLV? command queries the online signal level for a square window.

If 1 parameter, the online signal level is queried for the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FOLV? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Online signal level	0 -> High active 1 -> Low active

If 2 parameters, the online signal level is queried for the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FOLV? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Online signal level	0 -> High active 1 -> Low active

4.24.7 FBEF - Evaluation result of a square window (OK/NOK)

Execute FBEF!

There is no ! form of this command

Query FBEF?

The FBEF? command queries the evaluation result of a square window.

If 1 parameter, the evaluation result is queried for the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FBEF? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Evaluation result	0 -> NOK 1 -> OK

If 2 parameters, the evaluation result is queried for the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FBEF? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Evaluation result	0 -> NOK 1 -> OK

4.24.8 FNIO - Number of NOKs for a square window

Execute FNIO!

There is no ! form of this command

Query FNIO?

The FNIO? command queries the number of NOKs for a square window.

If 1 parameter, the number of NOKs is queried for the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FNIO? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	Number of NOKs	Numerical integer >= 0

If 2 parameters, the number of NOKs is queried for the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FNIO? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Number of NOKs	Numerical integer >= 0

4.24.9 FMAA - Query the absolute maximum within a square window

Execute FMAA!

There is no ! form of this command

Query FMAA?

The FMAA? command queries the absolute maximum within a square window.

If 1 parameter, the absolute maximum is queried within the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FMAA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	X coordinate of the absolute maximum	Floating-point value
P3	The absolute maximum (of the Y value)	Floating-point value

If 2 parameters, the absolute maximum is queried within the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FMAA? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	X coordinate of the absolute maximum	Floating-point value
P4	The absolute maximum (of the Y value)	Floating-point value

4.24.10 FMIA - Query the absolute minimum within a square window

Execute FMIA!

There is no ! form of this command

Query FMIA?

The FMIA? command queries the absolute minimum within a square window.

If 1 parameter, the absolute minimum is queried within the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FMIA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Window number	1 to 3
P2	X coordinate of the absolute minimum	Floating-point value
P3	The absolute minimum (of the Y value)	Floating-point value

If 2 parameters, the absolute minimum is queried within the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FMIA? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	X coordinate of the absolute minimum	Floating-point value
P4	The absolute minimum (of the Y value)	Floating-point value

4.24.11 FEIN - Query the curve entry values of a square window

Execute FEIN!

There is no ! form of this command

Query FEIN?

The FEIN? command queries the curve entry values of a square window.

If 1 parameter, the entry values are queried for the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FEIN? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P!	Window number	1 to 3
P2	Index of the entry	Integer value (unsigned 16 bit)
P3	X coordinate of the entry	Floating-point value
P4	Y coordinate of the entry	Floating-point value

If 2 parameters, the entry values are queried for the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FEIN? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 3
P3	Index of the entry	Integer value (unsigned 16 bit)
P4	X coordinate of the entry	Floating-point value
P5	Y coordinate of the entry	Floating-point value

4.24.12 FAUS - Query the curve exit values of a square window

Execute FAUS!

There is no ! form of this command

Query FAUS?

The FAUS? command queries the curve exit values of a square window.

If 1 parameter, the exit values are queried for the square window with the transferred window number and the currently selected measurement program.

Host sends: <Address>sr<STX> FAUS? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P!	Window number	1 to 3
P2	Index of the exit	Integer value (unsigned 16 bit)
P3	X coordinate of the exit	Floating-point value
P4	Y coordinate of the exit	Floating-point value

If 2 parameters, the exit values are queried for the square window with the transferred window number and the transferred measurement program.

Host sends: <Address>sr<STX> FAUS? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Window number	1 to 10

P3	Index of the exit	Integer value (unsigned 16 bit)
P4	X coordinate of the exit	Floating-point value
P5	Y coordinate of the exit	Floating-point value

4.25 Evaluating thresholds

4.25.1 SWST - Thresholds ON/OFF

Execute SWST!

The SWST! command enables or disables a threshold.

If 2 parameters, the threshold for the transferred threshold number and the currently selected measurement program is enabled or disabled.

Host sends: <Address>sr<STX> SWST! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	Threshold ON/OFF	0 -> OFF 1 -> ON

If 3 parameters, the threshold for the transferred threshold number and the transferred measurement program is enabled or disabled.

Host sends: <Address>sr<STX> SWST! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	Threshold ON/OFF	0 -> OFF 1 -> ON

Query SWST?

The SWST? command queries whether the threshold is enabled or disabled.

If 1 parameter, the threshold for the transferred threshold number and the currently selected measurement program is queried for its enabled/disabled status.

Host sends: <Address>sr<STX> SWST? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	Threshold ON/OFF	0 -> OFF 1 -> ON

If 2 parameters, the threshold for the transferred threshold number and the transferred measurement program is queried for its enabled/disabled status.

Host sends: <Address>sr<STX> SWST? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	Threshold ON/OFF	0 -> OFF 1 -> ON

4.25.2 STYP - Set threshold type (X/Y threshold)

Execute STYP!

The STYP! command sets the threshold type (X or Y threshold).

If 2 parameters, the threshold type corresponding to the transferred threshold number and the currently selected measurement program is set.

Host sends: <Address>sr<STX> STYP! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	Threshold type	0 -> X threshold 1 -> Y threshold

If 3 parameters, the threshold type corresponding to the transferred threshold number and the transferred measurement program is set.

Host sends: <Address>sr<STX> STYP! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	Threshold type	0 -> X threshold 1 -> Y threshold

Query STYP?

The STYP? command queries the threshold type (X or Y threshold).

If 1 parameter, the threshold type corresponding to the transferred threshold number and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> STYP? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	Threshold type	0 -> X threshold 1 -> Y threshold

If 2 parameters, the threshold type corresponding to the transferred threshold number and the transferred measurement program is queried.

Host sends: <Address>sr<STX> STYP? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	Threshold type	0 -> X threshold 1 -> Y threshold

4.25.3 SGRZ - Set or query threshold limits

Execute **SGRZ!**

The SGRZ! command sets the threshold limits.

If 4 parameters, the threshold limits are set with the transferred threshold number and the currently selected measurement program

Host sends: <Address>sr<STX> SGRZ! P1,P2,P3,P4 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	For X threshold: X value of threshold, for Y threshold: Y value of threshold	Floating-point value between -999999 and 999999
P3	For X threshold: Ymin; for Y threshold: Xmin	Floating-point value between -999999 and 999999
P4	For X threshold: Ymax; for Y threshold: Xmax	Floating-point value between -999999 and 999999

If 5 parameters, the threshold limits are set with the transferred threshold number and the transferred measurement program.

Host sends: <Address>sr<STX> SGRZ! P1,P2,P3,P4,P5<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	For X threshold: X value of threshold, for Y threshold: Y value of threshold	Floating-point value between -999999 and 999999
P4	For X threshold: Ymin; for Y threshold: Xmin	Floating-point value between -999999 and 999999
P5	For X threshold: Ymax; for Y threshold: Xmax	Floating-point value between -999999 and 999999

Note: Xmax must be greater than Xmin, and Ymax must be greater than Ymin.

Query **SGRZ**?

The SGRZ? command queries the threshold limits.

If 1 parameter, the threshold limits are queried with the transferred threshold number and the currently selected measurement program.

Host sends: <Address>sr<STX> SGRZ? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	For X threshold: X value of threshold, for Y threshold: Y value of threshold	Floating-point value between -999999 and 999999
P3	For X threshold: Ymin; for Y threshold: Xmin	Floating-point value between -999999 and 999999
P4	For X threshold: Ymax; for Y threshold: Xmax	Floating-point value between -999999 and 999999

If 2 parameters, the threshold limits are queried with the transferred threshold number and the transferred measurement program.

Host sends: <Address>sr<STX> SGRZ? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	For X threshold: X value of threshold, for Y threshold: Y VALUE of threshold	Floating-point value between -999999 and 999999
P4	For X threshold: Ymin; for Y threshold: Xmin	Floating-point value between -999999 and 999999
P5	For X threshold: Ymax; for Y threshold: Xmax	Floating-point value between -999999 and 999999

4.25.4 SDUR - Set or query threshold crossover

Execute **SDUR!**

The SDUR! command sets the threshold crossovers. Left–right or right–left for an X threshold, and bottom–top or top–bottom for a Y threshold.

If 3 parameters, the threshold crossovers are set with the transferred threshold number and the currently selected measurement program

Host sends: <Address>sr<STX> SDUR! P1,P2,P3 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	Left–right crossover for X threshold Bottom–top crossover for Y threshold	0 -> No 1 -> Yes
P3	Right–left crossover for X threshold Top–bottom crossover for Y threshold	0 -> No 1 -> Yes

If 4 parameters, the threshold crossovers are set with the transferred threshold number and the transferred measurement program.

Host sends: <Address>sr<STX> SDUR! P1,P2,P3,P4<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	Left–right crossover for X threshold Bottom–top crossover for Y threshold	0 -> No 1 -> Yes
P4	Left–right crossover for X threshold Bottom–top crossover for Y threshold	0 -> No 1 -> Yes

Query **SDUR**?

The SDUR? command queries the threshold crossovers.

If 1 parameter, the threshold crossovers are queried with the transferred threshold number and the currently selected measurement program.

Host sends: <Address>sr<STX> SDUR? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	Left–right crossover for X threshold Bottom–top crossover for Y threshold	0 -> No 1 -> Yes
P3	Left–right crossover for X threshold Bottom–top crossover for Y threshold	0 -> No 1 -> Yes

If 2 parameters, the threshold crossovers are queried with the transferred threshold number and the transferred measurement program.

Host sends: <Address>sr<STX> SDUR? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	Left–right crossover for X threshold Bottom–top crossover for Y threshold	0 -> No 1 -> Yes
P4	Left–right crossover for X threshold Bottom–top crossover for Y threshold	0 -> No 1 -> Yes

4.25.5 SKAB - Curve section over which a threshold is evaluated

Execute SKAB!

The SKAB! command sets the curve section over which a threshold is evaluated.

If 2 parameters, the threshold's curve section is set with the transferred threshold number and the currently selected measurement program.

Host sends: <Address>sr<STX> SKAB! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	Curve segment	0 -> Forward 1 -> Return 2 -> Total

If 3 parameters, the threshold's curve section is set with the transferred threshold number and the transferred measurement program.

Host sends: <Address>sr<STX> SKAB! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 4
P3	Curve segment	0 -> Forward 1 -> Return 2 -> Total

Query SKAB?

The SKAB? command queries the curve section over which a threshold is evaluated.

If 1 parameter, the threshold's curve section is queried with the transferred threshold number and the currently selected measurement program.

Host sends: <Address>sr<STX> SKAB? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	Curve segment	0 -> Forward 1 -> Return 2 -> Total

If 2 parameters, the threshold's curve section is queried with the transferred threshold number and the transferred measurement program.

Host sends: <Address>sr<STX> SKAB? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	Curve segment	0 -> Forward 1 -> Return 2 -> Total

4.25.6 SBEF - Evaluation result of a threshold (OK/NOK)

Execute SBEF!

There is no ! form of this command

Query SBEF?

The SBEF? command queries the evaluation result of a threshold.

If 1 parameter, the threshold's evaluation result is queried with the transferred threshold number and the currently selected measurement program.

Host sends: <Address>sr<STX> SBEF? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	Evaluation result	0 -> NOK 1 -> OK

If 2 parameters, the threshold's evaluation result is queried with the transferred threshold number and the transferred measurement program.

Host sends: <Address>sr<STX> SBEF? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	Evaluation result	0 -> NOK 1 -> OK

4.25.7 SNIO - NOK counter for a threshold

Execute SNIO!

There is no ! form of this command

Query SNIO?

The SNIO? command queries the NOK counter for a threshold.

If 1 parameter, the NOK counter is queried for the threshold with the transferred threshold number and the currently selected measurement program.

Host sends: <Address>sr<STX> SNIO? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	NOK counter for a threshold	Integer value >= 0

If 2 parameters, the NOK counter is queried for the threshold with the transferred threshold number and the transferred measurement program.

Host sends: <Address>sr<STX> SNIO? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2
P3	NOK counter for a threshold	Integer value >= 0

4.25.8 SDKO - The curve's crossover points through a threshold

Execute SDKO!

There is no ! form of this command

Query SDKO?

The SDKO? command queries the curve's crossover points through a threshold.

If 1 parameter, the crossover points are queried through the threshold with the transferred threshold number and the currently selected measurement program.

Host sends: <Address>sr<STX> SDKO? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Threshold number	1 to 2
P2	Index of curve crossover	Integer value >= 0
P3	Crossover X coordinate	Floating-point value
P3	Crossover Y coordinate	Floating-point value

If 2 parameters, the crossover points are queried through the threshold with the transferred threshold number and the transferred measurement program.

Host sends: <Address>sr<STX> SDKO? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Threshold number	1 to 2

P3	Index of curve crossover	Integer value >= 0
P4	Crossover X coordinate	Floating-point value
P5	Crossover Y coordinate	Floating-point value

4.26 Evaluating the trapezoid window

4.26.1 TRST - Trapezoid window ON/OFF

Execute TRST!

The TRST! command enables or disables a trapezoid window.

If 2 parameters, the trapezoid window for the transferred trapezoid window number and the currently selected measurement program is enabled or disabled.

Host sends: <Address>sr<STX> TRST! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Trapezoid window ON/OFF	0 -> OFF 1 -> ON

If 3 parameters, the trapezoid window for the transferred threshold number and the transferred measurement program is enabled or disabled.

Host sends: <Address>sr<STX> TRST! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Trapezoid window ON/OFF	0 -> OFF 1 -> ON

Query TRST?

The TRST? command queries whether the trapezoid window is enabled or disabled.

If 1 parameter, the trapezoid window for the transferred trapezoid window number and the currently selected measurement program is queried for its enabled/disabled status.

Host sends: <Address>sr<STX> TRST? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Trapezoid window ON/OFF	0 -> OFF 1 -> ON

If 2 parameters, the trapezoid window for the transferred trapezoid window number and the transferred measurement program is queried for its enabled/disabled status.

Host sends: <Address>sr<STX> TRST? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Trapezoid window ON/OFF	0 -> OFF 1 -> ON

4.26.2 TTYP - Set trapezoid type (X/Y trapezoid window)

Execute TTYP!

The TTYP! command sets the trapezoid type (X or Y trapezoid window).

If 2 parameters, the trapezoid window type corresponding to the transferred trapezoid number and the currently selected measurement program is set.

Host sends: <Address>sr<STX> TTYP! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Trapezoid number	1 to 2
P2	Trapezoid type	0 -> X trapezoid window 1 -> Y trapezoid window

If 3 parameters, the trapezoid window type corresponding to the transferred trapezoid number and the transferred measurement program is set.

Host sends: <Address>sr<STX> TTYP! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid number	1 to 2
P3	Trapezoid type	0 -> X trapezoid window 1 -> Y trapezoid window

Query TTYP?

The TTYP? command queries the trapezoid type (X or Y trapezoid window).

If 1 parameter, the trapezoid window type corresponding to the transferred trapezoid number and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> TTYP? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Trapezoid number	1 to 2
P2	Trapezoid type	0 -> X trapezoid window 1 -> Y trapezoid window

If 2 parameters, the trapezoid window type corresponding to the transferred trapezoid number and the transferred measurement program is queried.

Host sends: <Address>sr<STX> TTYP? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid number	1 to 2
P3	Trapezoid type	0 -> X trapezoid window 1 -> Y trapezoid window

4.26.3 TRGR - Enter or query trapezoid window limits

Execute TRGR!

The TRGR! command sets the trapezoid window limits.

If 7 parameters, the trapezoid window limits are set with the transferred trapezoid window number and the currently selected measurement program.

Host sends: <Address>sr<STX> TRGR! P1,P2,P3,P4,P5,P6,P7 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of the Pn parameters if trapezoid window X

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Xmin	Floating-point value
P3	Xmax	Floating-point value
P4	Y value bottom left	Floating-point value
P5	Y value top left	Floating-point value
P6	Y value bottom right	Floating-point value
P7	Y value top right	Floating-point value

Meaning of the Pn parameters if trapezoid window Y

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Ymin	Floating-point value
P3	Ymax	Floating-point value
P4	X value bottom left	Floating-point value
P5	X value bottom right	Floating-point value
P6	X value top left	Floating-point value
P7	X value top right	Floating-point value

If 8 parameters, the trapezoid window limits are set with the transferred trapezoid window number and the transferred measurement program.

Host sends: <Address>sr<STX> TRGR! P1,P2,P3,P4,P5,P6,P7,P8<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of the Pn parameters if trapezoid window X

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Xmin	Floating-point value
P4	Xmax	Floating-point value
P5	Y value bottom left	Floating-point value
P6	Y value top left	Floating-point value
P7	Y value bottom right	Floating-point value
P8	Y value top right	Floating-point value

Meaning of the Pn parameters if trapezoid window Y

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Ymin	Floating-point value
P4	Ymax	Floating-point value
P5	X value bottom left	Floating-point value
P6	X value bottom right	Floating-point value

P7	X value top left	Floating-point value
P8	X value top right	Floating-point value

Query TRGR?

The TRGR? command queries the trapezoid window limits.

If 1 parameter, the trapezoid window limits are queried with the transferred trapezoid window number and the currently selected measurement program.

Host sends: <Address>sr<STX> TRGR? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4,P5,P6,P7<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of the Pn parameters if trapezoid window X

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Xmin	Floating-point value
P3	Xmax	Floating-point value
P4	Y value bottom left	Floating-point value
P5	Y value top left	Floating-point value
P6	Y value bottom right	Floating-point value
P7	Y value top right	Floating-point value

Meaning of the Pn parameters if trapezoid window Y

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Ymin	Floating-point value
P3	Ymax	Floating-point value
P4	X value bottom left	Floating-point value
P5	X value bottom right	Floating-point value
P6	X value top left	Floating-point value
P7	X value top right	Floating-point value

If 2 parameters, the trapezoid window limits are queried with the transferred trapezoid window number and the transferred measurement program.

Host sends: <Address>sr<STX> TRGR? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5,>P6,P7,P8<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of the Pn parameters if trapezoid window X

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Xmin	Floating-point value
P4	Xmax	Floating-point value
P5	Y value bottom left	Floating-point value
P6	Y value top left	Floating-point value
P7	Y value bottom right	Floating-point value
P8	Y value top right	Floating-point value

Meaning of the Pn parameters if trapezoid window Y

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P2	Ymin	Floating-point value
P3	Ymax	Floating-point value
P4	X value bottom left	Floating-point value
P5	X value bottom right	Floating-point value
P6	X value top left	Floating-point value
P7	X value top right	Floating-point value

4.26.4 TREA - Enter or query trapezoid window entries/exits

Execute TREA!

The TREA! command sets the trapezoid window entries/exits.

If 5 parameters, the trapezoid window entries/exits are set with the transferred trapezoid window number and the currently selected measurement program.

Host sends: <Address>sr<STX> TREA! P1,P2,P3,P4,P5 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of the Pn parameters if trapezoid window X

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Entry left	0 -> No 1 -> Yes
P3	Entry right	0 -> No 1 -> Yes
P4	Exit left	0 -> No 1 -> Yes
P5	Exit right	0 -> No 1 -> Yes

Meaning of the Pn parameters if trapezoid window Y

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Entry bottom	0 -> No 1 -> Yes
P3	Entry top	0 -> No 1 -> Yes
P4	Exit bottom	0 -> No 1 -> Yes
P5	Exit top	0 -> No 1 -> Yes

If 6 parameters, the trapezoid window entries/exits are set with the transferred trapezoid window number and the transferred measurement program.

Host sends: <Address>sr<STX> TREA! P1,P2,P3,P4,P5,P6<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of the Pn parameters if trapezoid window X

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Entry left	0 -> No 1 -> Yes
P4	Entry right	0 -> No 1 -> Yes
P5	Exit left	0 -> No 1 -> Yes
P6	Exit right	0 -> No 1 -> Yes

Meaning of the Pn parameters if trapezoid window Y

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Entry bottom	0 -> No 1 -> Yes
P4	Entry top	0 -> No 1 -> Yes
P5	Exit bottom	0 -> No 1 -> Yes
P6	Exit top	0 -> No 1 -> Yes

Query TREA?

The TREA? command queries the trapezoid window entries/exits.

If 1 parameter, the entries/exits are queried of that trapezoid window with the transferred trapezoid window number and the currently selected measurement program.

Host sends: <Address>sr<STX> TREA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of the Pn parameters if trapezoid window X

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Entry left	0 -> No 1 -> Yes
P3	Entry right	0 -> No 1 -> Yes
P4	Exit left	0 -> No 1 -> Yes
P5	Exit right	0 -> No 1 -> Yes

Meaning of the Pn parameters if trapezoid window Y

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Entry bottom	0 -> No 1 -> Yes
P3	Entry top	0 -> No 1 -> Yes
P4	Exit bottom	0 -> No 1 -> Yes
P5	Exit top	0 -> No 1 -> Yes

If 2 parameters, the entries/exits are set queried of that trapezoid window with the transferred trapezoid window number and the transferred measurement program.

Host sends: <Address>sr<STX> TREA? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5,>P6<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of the Pn parameters if trapezoid window X

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Entry left	0 -> No 1 -> Yes
P4	Entry right	0 -> No 1 -> Yes

P5	Exit left	0 -> No 1 -> Yes
P6	Exit right	0 -> No 1 -> Yes

Meaning of the Pn parameters if trapezoid window Y

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Entry bottom	0 -> No 1 -> Yes
P4	Entry top	0 -> No 1 -> Yes
P5	Exit bottom	0 -> No 1 -> Yes
P6	Exit top	0 -> No 1 -> Yes

4.26.5 TRKA - Set or query curve section used to evaluate a trapezoid window

Execute TRKA!

The TRKA! command lets the user enter the curve section used to evaluate a trapezoid window.

If 2 parameters, the curve section is set for that trapezoid window with the transferred trapezoid window number and the currently selected measurement program

Host sends: <Address>sr<STX> TRKA! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Curve segment	0 -> Forward 1 -> Return 2 -> Total

If 3 parameters, the curve section is set for that trapezoid window with the transferred trapezoid window number and the transferred measurement program.

Host sends: <Address>sr<STX> TRKA! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Curve segment	0 -> Forward 1 -> Return 2 -> Total

Query TRKA?

The TRKA? command queries the curve section used to evaluate a trapezoid window.

If 1 parameter, the curve section is queried for that trapezoid window with the transferred trapezoid window number and the currently selected measurement program.

Host sends: <Address>sr<STX> TRKA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Curve segment	0 -> Forward 1 -> Return 2 -> Total

If 2 parameters, the curve section is queried for that trapezoid window with the transferred trapezoid window number and the transferred measurement program.

Host sends: <Address>sr<STX> TRKA? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Curve segment	0 -> Forward 1 -> Return 2 -> Total

4.26.6 TRBF - Evaluation result of a trapezoid window (OK/NOK)

Execute TRBF!

There is no ! form of this command

Query TRBF?

The TRBF? command queries the evaluation result of a trapezoid window.

If 1 parameter, the evaluation result is queried for the X trapezoid window with the transferred trapezoid window number and the currently selected measurement program.

Host sends: <Address>sr<STX> TRBF? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Evaluation result	0 -> NOK 1 -> OK

If 2 parameters, the evaluation result is queried for the trapezoid window with the transferred trapezoid window number and the transferred measurement program.

Host sends: <Address>sr<STX> TRBF? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Evaluation result	0 -> NOK 1 -> OK

4.26.7 TRNI - Query NOK counter for a trapezoid window

Execute TRNI!

There is no ! form of this command

Query TRNI?

The TRNI? command queries the NOK counter for a trapezoid window.

If 1 parameter, the NOK counter is queried for the trapezoid window with the transferred trapezoid window number and the currently selected measurement program.

Host sends: <Address>sr<STX> TRNI? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	NOK counter	Integer value > 0

If 2 parameters, the NOK counter is queried for the trapezoid window with the transferred trapezoid window number and the transferred measurement program.

Host sends: <Address>sr<STX> TRNI? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	NOK counter	Integer value > 0

4.26.8 TREI - Query the curve entry values of a trapezoid window

Execute TREI!

There is no ! form of this command

Query TREI?

The TREI? command queries the curve entry values of a trapezoid window.

If 1 parameter, the entry values are queried for the trapezoid window with the transferred trapezoid window number and the currently selected measurement program

Host sends: <Address>sr<STX> TREI? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P!	Trapezoid window number	1 to 2
P2	Index of the entry	Integer value (unsigned 16 bit)
P3	X coordinate of the entry	Floating-point value
P4	Y coordinate of the entry	Floating-point value

If 2 parameters, the entry values are queried for the trapezoid window with the transferred trapezoid window number and the transferred measurement program.

Host sends: <Address>sr<STX> TREI? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Index of the entry	Integer value (unsigned 16 bit)
P4	X coordinate of the entry	Floating-point value
P5	Y coordinate of the entry	Floating-point value

4.26.9 TRAU - Query the curve exit values of a trapezoid window

Execute TRAU!

There is no ! form of this command

Query TRAU?

The TRAU? command queries the curve exit values of a trapezoid window.

If 1 parameter, the exit values are queried for the trapezoid window with the transferred trapezoid window number and the currently selected measurement program

Host sends: <Address>sr<STX> TRAU? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Trapezoid window number	1 to 2
P2	Index of the exit	Integer value (unsigned 16 bit)
P3	X coordinate of the exit	Floating-point value
P4	Y coordinate of the exit	Floating-point value

If 2 parameters, the exit values are queried for the trapezoid window with the transferred trapezoid window number and the transferred measurement program.

Host sends: <Address>sr<STX> TRAU? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Trapezoid window number	1 to 2
P3	Index of the exit	Integer value (unsigned 16 bit)
P4	X coordinate of the exit	Floating-point value
P5	Y coordinate of the exit	Floating-point value

4.27 Evaluating envelopes

4.27.1 HKST - Envelopes ON/OFF

Execute HKST!

The HKST! command enables or disables an envelope.

If 1 parameter, the envelope for the currently selected measurement program is enabled or disabled.

Host sends: <Address>sr<STX> HKST! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Envelope ON/OFF	0 -> OFF 1 -> ON

If 2 parameters, the envelope for the transferred measurement program is enabled or disabled.

Host sends: <Address>sr<STX> HKST! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Envelope ON/OFF	0 -> OFF 1 -> ON

Query HKST?

The HKST? command queries whether the envelope is enabled or disabled.

If no parameters, the envelope for the currently selected measurement program is queried for its enabled/disabled status.

Host sends: <Address>sr<STX> HKST? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Envelope ON/OFF	0 -> OFF 1 -> ON

If 1 parameter, the envelope for the transferred measurement program is queried for its enabled/disabled status.

Host sends: <Address>sr<STX> HKST? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Envelope ON/OFF	0 -> OFF 1 -> ON

4.27.2 HKGR - Set or query start and end values for envelopes

Execute HKGR!

The HKGR! command sets the start and end value of an envelope

If 2 parameters, the start and end value of that envelope with the currently selected measurement program are set.

Host sends: <Address>sr<STX> HKGR! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Start value of envelope	Floating-point value
P2	End value of envelope	Floating-point value

If 3 parameters, the start and end value of that envelope with the transferred measurement program are set.

Host sends: <Address>sr<STX> HKGR! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Start value of envelope	Floating-point value
P3	End value of envelope	Floating-point value

Query HKGR?

The HKGR? command queries the start and end value of an envelope.

If no parameters, the start and end value of that envelope with the currently selected measurement program are queried.

Host sends: <Address>sr<STX> HKGR?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Start value of envelope	Floating-point value
P2	End value of envelope	Floating-point value

If 1 parameter, the start and end value of that envelope with the transferred measurement program are queried.

Host sends: <Address>sr<STX> HKGR? P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Start value of envelope	Floating-point value
P3	End value of envelope	Floating-point value

4.27.3 HKDE - Set or query Delta min and max values of envelopes

Execute HKDE!

The HKDE! command sets the Delta min and max values of an envelope

If 2 parameters, the Delta min and max values of that envelope with the currently selected measurement program are set.

Host sends: <Address>sr<STX> HKDE! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Delta min value of the envelope	Floating-point value
P2	Delta max value of the envelope	Floating-point value

If 3 parameters, the Delta min and max values of that envelope with the transferred measurement program are set.

Host sends: <Address>sr<STX> HKDE! P1,P2,P3 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Delta min value of the envelope	Floating-point value
P3	Delta max value of the envelope	Floating-point value

Query HKDE?

The HKDE? command queries the Delta min and max values of an envelope.

If no parameters, the Delta min and max values of that envelope with the currently selected measurement program are queried.

Host sends: <Address>sr<STX> HKDE? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Delta min value of the envelope	Floating-point value
P2	Delta max value of the envelope	Floating-point value

If 1 parameter, the Delta min and max values of that envelope with the transferred measurement program are queried.

Host sends: <Address>sr<STX> HKDE? P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Delta min value of the envelope	Floating-point value
P3	Delta max value of the envelope	Floating-point value

4.27.4 HKES - Set or query the entry side of envelopes

Execute HKES!

The HKES! command sets the entry side of an envelope.

Note: If an envelope already exists, this is deleted when its entry side is changed.

If 1 parameter, the entry side of that envelope with the currently selected measurement program is set.

Host sends: <Address>sr<STX> HKES! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Entry side of envelope	0 -> left 1 -> right 2 -> bottom 3 -> top

If 2 parameters, the entry side of that envelope with the transferred measurement program is set.

Host sends: <Address>sr<STX> HKES! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Entry side of envelope	0 -> left 1 -> right 2 -> bottom 3 -> top

Caution: The envelope is deleted when its entry side is changed!

Query HKES?

The HKES? command queries the entry side of an envelope.

If no parameters, the entry side of that envelope with the currently selected measurement program is queried.

Host sends: <Address>sr<STX> HKES? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Entry side of envelope	0 -> left 1 -> right 2 -> bottom 3 -> top

If 1 parameter, the entry side of that envelope with the transferred measurement program is queried.

Host sends: <Address>sr<STX> HKES? P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Entry side of envelope	0 -> left 1 -> right 2 -> bottom 3 -> top

4.27.5 HKKA - Set or query the curve section for envelopes

Execute HKKA!

The HKKA! command sets the curve section for an envelope (forward or return)

Note: If an envelope already exists, this is deleted when the curve section is changed.

If 1 parameter, the curve section of that envelope with the currently selected measurement program is set.

Host sends: <Address>sr<STX> HKKA! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Curve section for envelopes	0 -> Forward 1 -> Return

If 2 parameters, the curve section of that envelope with the transferred measurement program is set.

Host sends: <Address>sr<STX> HKKA! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Curve section for envelopes	0 -> Forward 1 -> Return

Caution: The envelope is deleted when the curve section is changed!

Query HKKA?

The HKKA? command queries the curve section of an envelope.

If no parameters, the curve section of that envelope with the currently selected measurement program is queried.

Host sends: <Address>sr<STX> HKKA? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Curve section for envelopes	0 -> Forward 1 -> Return

If 1 parameter, the curve section of that envelope with the transferred measurement program is queried.

Host sends: <Address>sr<STX> HKKA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Curve section for envelopes	0 -> Forward 1 -> Return

4.27.6 HKBF - Evaluation result of an envelope (OK/NOK)

Execute HKBF!

There is no ! form of this command

Query HKBF?

The HKBF? command queries the evaluation result of an envelope.

If no parameter, the evaluation result of that envelope with the currently selected measurement program is queried.

Host sends: <Address>sr<STX> HKBF?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Evaluation result	0 -> NOK 1 -> OK

If 1 parameter, the evaluation result of that envelope with the transferred measurement program is queried.

Host sends: <Address>sr<STX> HKBF? P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P3	Evaluation result	0 -> NOK 1 -> OK

4.27.7 HKNI - Query NOK for an envelope

Execute HKNI!

There is no ! form of this command

Query HKNI?

The HKNI? command queries the NOK counter for an envelope.

If no parameter, the NOK counter of the envelope with the currently selected measurement program is queried.

Host sends: <Address>sr<STX> HKNI? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	NOK counter	Integer value > 0

If 1 parameter, the NOK counter of the envelope with the transferred measurement program is queried.

Host sends: <Address>sr<STX> HKNI? P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	NOK counter	Integer value > 0

4.27.8 HKEI - Query the curve entry values of an envelope

Execute HKEI!

There is no ! form of this command

Query HKEI?

The HKEI? command queries the curve entry values of an envelope.

If no parameter, the entry values of the envelope with the currently selected measurement program are queried.

Host sends: <Address>sr<STX> HKEI? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Index of the entry	Integer value (unsigned 16 bit)
P2	X coordinate of the entry	Floating-point value
P3	Y coordinate of the entry	Floating-point value

If 1 parameter, the entry values of the envelope with the transferred measurement program are queried.

Host sends: <Address>sr<STX> HKEI? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Index of the entry	Integer value (unsigned 16 bit)
P3	X coordinate of the entry	Floating-point value
P4	Y coordinate of the entry	Floating-point value

4.27.9 HKAU - Query the curve exit values of an envelope

Execute HKAU!

There is no ! form of this command

Query HKAU?

The HKAU? command queries the curve exit values of an envelope.

If no parameter, the exit values of the envelope with the currently selected measurement program are queried

Host sends: <Address>sr<STX> HKAU? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Index of the entry	Integer value (unsigned 16 bit)
P2	X coordinate of the exit	Floating-point value
P3	Y coordinate of the exit	Floating-point value

If 1 parameter, the exit values of the envelope with the transferred measurement program are queried.

Host sends: <Address>sr<STX> HKAU? P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Index of the entry	Integer value (unsigned 16 bit)
P3	X coordinate of the exit	Floating-point value
P4	Y coordinate of the exit	Floating-point value

4.27.10 HRAW - Index of the last point on the envelope reference curve

Execute HRAW!

The HRAW! command receives the index of the last point on the envelope reference curve

If 1 parameter, the index corresponding to the currently selected measurement program is set.

Host sends: <Address>sr<STX> HRAW! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Index of the last point on the reference curve	Integer value <= 499 (unsigned 16 bit)

If 2 parameters, the index corresponding to the transferred measurement program is set.

Host sends: <Address>sr<STX> HRAW! P1,P2,P3 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Index of the last point on the reference curve	Integer value <= 499 (unsigned 16 bit)

Query HRAW?

The HRAW? command queries the index of the last point on the envelope reference curve.

If no parameter, the index corresponding to the currently selected measurement program is queried.

Host sends: <Address>sr<STX> HRAW? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Index of the last point on the reference curve	Integer value <= 499 (unsigned 16 bit)

If 1 parameter, the index corresponding to the transferred measurement program is queried.

Host sends: <Address>sr<STX> HRAW? P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Index of the last point on the reference curve	Integer value <= 499 (unsigned 16 bit)

4.27.11 HKGE - Generate envelope

Execute HKGE!

The HKGE! command generates an envelope based on the reference curve and the other envelope settings.

If no parameter, the envelope corresponding to the currently selected measurement program is generated.

Host sends: <Address>sr<STX> HKGE! <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

If 1 parameter, the envelope corresponding to the transferred measurement program is generated.

Host sends: <Address>sr<STX> HKGE! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15

Query HKGE?

This command does not have a query form.

4.27.12 HKRX - The reference curve X coordinates for generating the envelope

Execute HKRX!

The HKRX! command transfers the reference curve X coordinates for generating the envelope.

If 3 parameters: Transferred are the reference curve X coordinates for generating the envelope corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> HKRX! P1,P2,P3 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Block number	For RS232: A value between 1 and 13; the max 500 coordinates are transferred in blocks of 40 values. For Ethernet: A value between 1 and 2. Ethernet can transfer up to 280 values at any one time
P3	Reference curve X coordinates for generating the envelope	See description below

If 2 parameters: Transferred are the reference curve X coordinates for generating the envelope corresponding to the selected measurement program.

Host sends: <Address>sr<STX> HKRX! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Block number	For RS232: A value between 1 and 13; the max 500 coordinates are transferred in blocks of 40 values. For Ethernet: A value between 1 and 2. Ethernet can transfer up to 280 values at any one time
P2	Reference curve X coordinates for generating the envelope	See description below

The max 40 coordinates (or max 280 for Ethernet) are transferred as binary code. Each coordinate is transferred as 5 bytes (4 bytes for a 32 bit floating point followed by a status byte). There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

Caution: Before transferring the coordinates, you must first have transferred the number of value pairs with the HRAW! command.

Query HKRX?

The HKRX? command reads out the reference curve X coordinates for generating the envelope.

If 1 parameter: Read out are the reference curve X coordinates for generating the envelope corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> HKRX? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
K1...K50	Reference curve X coordinates for generating the envelope	See description below

If no parameter: Queried are the reference curve X coordinates for generating the envelope corresponding to the selected measurement program.

Host sends: <Address>sr<STX> HKRX? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
K1...K50	Reference curve X coordinates for generating the envelope	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after <ACK> with <EOT>, signifying the end of coordinate transfer.

4.27.13 HRYM - The Y coordinates of the reference curve mean values for generating the envelope

Execute HRYM!

The HRYM? command transfers the Y coordinates of the reference curve mean values for generating the envelope.

If 3 parameters: Transferred are the Y coordinates of the reference curve mean values for generating the envelope corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> HRYM! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Block number	For RS232: A value between 1 and 3; the max 500 coordinates are transferred in blocks of 40 values. For Ethernet: A value between 1 and 2. Ethernet can transfer up to 280 values at any one time
P3	Y coordinates of the reference curve mean values for generating the envelope	See description below

If 2 parameters: Transferred are the Y coordinates of the reference curve mean values for generating the envelope corresponding to the selected measurement program.

Host sends: <Address>sr<STX> HRYM! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Block number	For RS232: A value between 1 and 3; the max 500 coordinates are transferred in blocks of 40 values. For Ethernet: A value between 1 and 2. Ethernet can transfer up to 280 values at any one time
P2	Y coordinates of the reference curve mean values for generating the envelope	See description below

The max 40 coordinates (or max 280 for Ethernet) are transferred as binary code. Each coordinate is transferred as 5 bytes (4 bytes for a 32 bit floating point followed by a status byte). There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

Caution: Before transferring the coordinates, you must first have transferred the number of value pairs with the HRAW! command.

Query HRYM?

The HRYM? command reads out the Y coordinates of the reference curve mean values for generating the envelope.

If 1 parameter: Read out are the Y coordinates of the reference curve mean values for generating the envelope corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> HRYM? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
K1...K50	Y coordinates of the reference curve mean values for generating the envelope	See description below

If no parameter: Queried are the Y coordinates of the reference curve mean values for generating the envelope corresponding to the selected measurement program.

Host sends: <Address>sr<STX> HRYM?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
K1...K50	Y coordinates of the reference curve mean values for generating the envelope	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after

<ACK> with <EOT>, signifying the end of coordinate transfer.

4.27.14 HDMI - The Y coordinates of the reference curve Delta min values for generating the envelope

Execute HDMI!

The HDMI? command transfers the Y coordinates of the reference curve Delta min values for generating the envelope.

If 3 parameters: Transferred are the Y coordinates of the reference curve Delta min values for generating the envelope corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> HDMI! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Block number	For RS232: A value between 1 and 13; the max 500 coordinates are transferred in blocks of 40 values. For Ethernet: A value between 1 and 2. Ethernet can transfer up to 280 values at any one time
P3	Y coordinates of the reference curve Delta min values for generating the envelope	See description below

If 2 parameters: Transferred are the Y coordinates of the reference curve Delta min values for generating the envelope corresponding to the selected measurement program.

Host sends: <Address>sr<STX> HDMI! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Block number	For RS232: A value between 1 and 13; the max 500 coordinates are transferred in blocks of 40 values. For Ethernet: A value between 1 and 2. Ethernet can transfer up to 280 values at any one time
P2	Y coordinates of the reference curve Delta min values for generating the envelope	See description below

The max 40 coordinates (or max 280 for Ethernet) are transferred as binary code. Each coordinate is transferred as 5 bytes (4 bytes for a 32 bit floating point followed by a status byte). There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

Caution: Before transferring the coordinates, you must first have transferred the number of value pairs with the HRAW! command.

Query HDMI?

The HDMI? command reads out the Y coordinates of the reference curve Delta min values for generating the envelope.

If 1 parameter: Read out are the Y coordinates of the reference curve Delta min values for generating the envelope corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> HDMI? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
K1...K50	Y coordinates of the reference curve Delta min values for generating the envelope	See description below

If no parameter: Queried are the Y coordinates of the reference curve Delta min values for generating the envelope corresponding to the selected measurement program.

Host sends: <Address>sr<STX> HDMI?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
K1...K50	Y coordinates of the reference curve Delta min values for generating the envelope	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after

<ACK> with <EOT>, signifying the end of coordinate transfer.

4.27.15 HDMA - The Y coordinates of the reference curve Delta max values for generating the envelope

Execute HDMA!

The HDMA? command transfers the Y coordinates of the reference curve Delta max values for generating the envelope.

If 3 parameters: Transferred are the Y coordinates of the reference curve Delta max values for generating the envelope corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> HDMA! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Block number	For RS232: A value between 1 and 13; the max 500 coordinates are transferred in blocks of 40 values. For Ethernet: A value between 1 and 2. Ethernet can transfer up to 280 values at any one time
P3	Y coordinates of the reference curve Delta max values for generating the envelope	See description below

If 2 parameters: Transferred are the Y coordinates of the reference curve Delta max values for generating the envelope corresponding to the selected measurement program.

Host sends: <Address>sr<STX> HDMA! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Block number	For RS232: A value between 1 and 13; the max 500 coordinates are transferred in blocks of 40 values. For Ethernet: A value between 1 and 2. Ethernet can transfer up to 280 values at any one time
P2	Y coordinates of the reference curve Delta max values for generating the envelope	See description below

The max 40 coordinates (or max 280 for Ethernet) are transferred as binary code. Each coordinate is transferred as 5 bytes (4 bytes for a 32 bit floating point followed by a status byte). There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

Caution: Before transferring the coordinates, you must first have transferred the number of value pairs with the HRAW! command.

Query HDMA?

The HDMA? command reads out the Y coordinates of the reference curve Delta max values for generating the envelope.

If 1 parameter: Read out are the Y coordinates of the reference curve Delta max values for generating the envelope corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> HDMA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
K1...K50	Y coordinates of the reference curve Delta max values for generating the envelope	See description below

If no parameter: Queried are the Y coordinates of the reference curve Delta max values for generating the envelope corresponding to the selected measurement program.

Host sends: <Address>sr<STX> HDMA?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
K1...K50	Y coordinates of the reference curve Delta max values for generating the envelope	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after

<ACK> with <EOT>, signifying the end of coordinate transfer.

4.27.16 HKDA query: Are there envelopes at all

Execute HKDA!

There is no ! form of this command

Query HKDA?

The HKDA? command queries whether there is an envelope.

If no parameters, this queries whether there is an envelope in the currently selected measurement program

Host sends: <Address>sr<STX> HKDA? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Is there an envelope?	0 -> There is no envelope 1 -> There is an envelope

If 1 parameter, this queries whether there are envelopes in the measurement program corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> HKDA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Is there an envelope?	0 -> There is no envelope 1 -> There is an envelope

4.28 Evaluation in general

4.28.1 TOBA - Enter or query tolerance bands

Execute TOBA!

The TOBA! command sets the tolerance bands for the evaluation elements.

If 2 parameters, the tolerance bands are set for the evaluation elements corresponding to the currently selected measurement program.

Host sends: <Address>sr<STX> TOBA! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Tolerance band X	Floating-point value
P2	Tolerance band Y	Floating-point value

If 3 parameters, the tolerance bands are set for the evaluation elements corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> TOBA! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Tolerance band X	Floating-point value
P3	Tolerance band Y	Floating-point value

Query TOBA?

The TOBA? command queries the tolerance bands for the evaluation elements.

If no parameters, the tolerance bands are queried for the evaluation elements corresponding to the currently selected measurement program.

Host sends: <Address>sr<STX> TOBA? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Tolerance band X	Floating-point value
P2	Tolerance band Y	Floating-point value

If 1 parameter, the tolerance bands are queried for the evaluation elements corresponding to the transferred measurement program number

Host sends: <Address>sr<STX> TOBA? P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Tolerance band X	Floating-point value
P3	Tolerance band Y	Floating-point value

4.29 Switching points

4.29.1 SCHA - Configure or query switching points

Execute SCHA!

The SCHA! command configures the switching points.

If 5 parameters, the switching point corresponding to the transferred switching point number and the currently selected measurement program is set.

Host sends: <Address>sr<STX> SCHA! P1,P2,P3,P4,P5 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Switching point number	1 to 6
P2	Switching value	Floating-point value
P3	Channel	0 -> Channel X 1 -> Channel Y
P4	Switching signal level	1 -> High active 0 -> Low active
P5	Switching point reference	0 -> Absolute reference 1 -> Trigger reference

If 6 parameters, the switching point corresponding to the transferred switching point number and the transferred measurement program number is set.

Host sends: <Address>sr<STX> SCHA! P1,P2,P3,P4,P5,P6 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Switching point number	1 to 6
P3	Switching value	Floating-point value
P4	Channel	0 -> Channel X 1 -> Channel Y
P5	Switching signal level	1 -> High active 0 -> Low active
P6	Switching point reference	0 -> Absolute reference 1 -> Trigger reference

Query SCHA?

The SCHA? command queries the switching point settings.

If 1 parameter, the switching point corresponding to the transferred switching point number and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> SCHA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Switching point number	1 to 6
P2	Switching value	Floating-point value
P3	Channel	0 -> Channel X 1 -> Channel Y
P4	Switching signal level	0 -> High active 1 -> Low active
P5	Switching point reference	0 -> Absolute reference 1 -> Trigger reference

If 2 parameters, the switching point corresponding to the transferred switching point number and the transferred measurement program number is queried.

Host sends: <Address>sr<STX> SCHA? P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5,P6<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Switching point number	1 to 6
P3	Switching value	Floating-point value
P4	Channel	0 -> Channel X 1 -> Channel Y
P5	Switching signal level	0 -> High active 1 -> Low active
P6	Switching point reference	0 -> Absolute reference 1 -> Trigger reference

4.30 Sensor test

4.30.1 STST - Sensor test ON/OFF

Execute STST!

The STST! command enables or disables the sensor test for a particular channel (X, Y).

If 2 parameters, the sensor test for the transferred channel number and the currently selected measurement program is enabled or disabled.

Host sends: <Address>sr<STX> STST! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Sensor test ON/OFF	0 -> OFF 1 -> ON

If 3 parameters, the sensor test corresponding to the transferred channel number and the transferred measurement program is enabled or disabled.

Host sends: <Address>sr<STX> STST! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Sensor test ON/OFF	0 -> OFF 1 -> ON

Query STST?

The STST? command queries whether the sensor test for a particular channel (X, Y) is enabled or disabled.

If 1 parameter, the sensor test corresponding to the transferred channel number and the currently selected measurement program is queried for its enabled/disabled state.

Host sends: <Address>sr<STX> STST? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Sensor test ON/OFF	0 -> OFF 1 -> ON

If 2 parameters, the sensor test corresponding to the transferred channel number and the transferred measurement program is queried for its enabled/disabled state.

Host sends: <Address>sr<STX> STST? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Sensor test ON/OFF	0 -> OFF 1 -> ON

4.30.2 STRW - Set or query sensor test reference value

Execute STRW!

The STRW! command sets the sensor test reference value for a particular channel (X, Y).

If 2 parameters, the reference value for the sensor test corresponding to the transferred channel number and the currently selected measurement program is set.

Host sends: <Address>sr<STX>STRW! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Reference value	Floating-point value

If 3 parameters, the reference value for the sensor test corresponding to the transferred channel number and the transferred measurement program is set.

Host sends: <Address>sr<STX> STRW! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Reference value	Floating-point value

Query STRW?

The STRW? command queries the sensor test reference value for a particular channel (X, Y).

If 1 parameter, the reference value for the sensor test corresponding to the transferred channel number and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> STRW? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Reference value	Floating-point value

If 2 parameters, the reference value for the sensor test corresponding to the transferred channel number and the transferred measurement program is queried.

Host sends: <Address>sr<STX> STRW? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Reference value	Floating-point value

4.30.3 STAB - Set or query permitted sensor test tolerance

Execute STAB!

The STAB! command sets the permitted sensor test tolerance for a particular channel (X, Y).

If 2 parameters, the permitted tolerance for the sensor test corresponding to the transferred channel number and the currently selected measurement program is set.

Host sends: <Address>sr<STX> STAB! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Permitted tolerance	Floating-point value

If 3 parameters, the permitted tolerance for the sensor test corresponding to the transferred channel number and the transferred measurement program is set.

Host sends: <Address>sr<STX> STAB! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Permitted tolerance	Floating-point value

Query STAB?

The STAB? command queries the permitted sensor test tolerance for a particular channel (X, Y).

If 1 parameter, the permitted tolerance for the sensor test corresponding to the transferred channel number and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> STAB? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y
P2	Permitted tolerance	Floating-point value

If 2 parameters, the permitted tolerance for the sensor test corresponding to the transferred channel number and the transferred measurement program is queried.

Host sends: <Address>sr<STX> STAB? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Channel number	0 -> Channel X 1 -> Channel Y
P3	Permitted tolerance	Floating-point value

4.30.4 STME - Teach in sensor test reference value

Execute STME!

The STME! command teaches in the sensor test reference value for a particular channel (X, Y).

Host sends: <Address>sr<STX> STME! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel number	0 -> Channel X 1 -> Channel Y

The STRW? command queries the teach-in value.

Query STRW?

There is no ? form of this command

4.30.5 STDO - Perform a sensor test

Execute STDO!

This command does not have a ! form.

Query STDO?

The STDO? command performs a sensor test and returns the test results.

Host sends: <Address>sr<STX> STDO? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Result of sensor test	0 -> NOK 1 -> OK

4.31 User-defined values

4.31.1 FRDW - Enter or query user definable values

Execute FRDW!

The FRDW! command sets the user definable values.

If 2 parameters, the user definable value corresponding to the transferred value number and the currently selected measurement program is set.

Host sends: <Address>sr<STX> FRDW! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Value number	1 to 20
P2	User-defined value	See operands table

If 3 parameters, the user definable value corresponding to the transferred value number and the transferred measurement program number is set.

Host sends: <Address>sr<STX> FRDW! P1,P2,P3 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Value number	1 to 20
P3	User-defined value	See operands table

Query FRDW?

The FRDW? command queries the user definable values.

If 1 parameter, the user definable value corresponding to the transferred value number and the currently selected measurement program is queried.

Host sends: <Address>sr<STX> FRDW? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Value number	1 to 20
P2	User-defined value	See operands table
P3	Name of the user definable value	String

If 2 parameters, the user definable value corresponding to the transferred value number and the transferred measurement program number is queried.

Host sends: <Address>sr<STX> FRDW? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Value number	1 to 20
P3	User-defined value	See operands table
P4	Name of the user definable value	String

4.31.2 Operand table

ID of operand	Number
OFF	0
First measured value of the measurement curve – X-coordinate	100
First measured value of the measurement curve – Y-coordinate	101
Last measured value of the measurement curve – X-coordinate	102
Last measured value of the measurement curve – Y-coordinate	103
Absolute maximum of entire measurement curve for X-channel – X-coordinate	104
Absolute maximum of entire measurement curve for X-channel – Y-coordinate	105
Absolute minimum of measurement curve for X-channel – X-coordinate	106
Absolute minimum of measurement curve for X-channel – Y-coordinate	107
Absolute maximum of measurement curve for Y-channel – X-coordinate	108

Absolute maximum of measurement curve for Y-channel – Y-coordinate	109
Absolute minimum of measurement curve for Y-channel – X-coordinate	110
Absolute minimum of measurement curve for Y-channel – Y-coordinate	111
Return point of measurement curve – X-coordinate	112
Return point of measurement curve – Y-coordinate	113

Window 1 entry value – X-coordinate	200
Window 1 entry value – Y-coordinate	201
Window 1 exit value – X-coordinate	202
Window 1 exit value – Y-coordinate	203
Absolute minimum for Y-channel inside window 1 – X-coordinate	204
Absolute minimum for Y-channel inside window 1 – Y-coordinate	205
Absolute maximum for Y-channel inside window 1 – X-coordinate	206
Absolute maximum for Y-channel inside window 1 – Y-coordinate	207
Window 1 boundary, Xmin	208
Window 1 boundary, Xmax	209
Window 1 boundary, Ymin	210
Window 1 boundary, Ymax	211

Window 2 entry value – X-coordinate	300
Window 2 entry value – Y-coordinate	301
Window 2 exit value – X-coordinate	302
Window 2 exit value – Y-coordinate	303
Absolute minimum for Y-channel inside window 2 – X-coordinate	304
Absolute minimum for Y-channel inside window 2 – Y-coordinate	305
Absolute maximum for Y-channel inside window 2 – X-coordinate	306
Absolute maximum for Y-channel inside window 2 – Y-coordinate	307
Window 2 boundary, Xmin	308
Window 2 boundary, Xmax	309
Window 2 boundary, Ymin	310
Window 2 boundary, Ymax	311

Window 3 entry value – X-coordinate	400
Window 3 entry value – Y-coordinate	401

Window 3 exit value – X-coordinate	402
Window 3 exit value – Y-coordinate	403
Absolute minimum for Y-channel inside window 3 – X-coordinate	404
Absolute minimum for Y-channel inside window 3 – Y-coordinate	405
Absolute maximum for Y-channel inside window 3 – X-coordinate	406
Absolute maximum for Y-channel inside window 3 – Y-coordinate	407
Window 3 boundary, Xmin	408
Window 3 boundary, Xmax	409
Window 3 boundary, Ymin	410
Window 3 boundary, Ymax	411

Trapezoid 1 entry value – X-coordinate	500
Trapezoid 1 entry value – Y-coordinate	501
Trapezoid 1 exit value – X-coordinate	502
Trapezoid 1 exit value – Y-coordinate	503
Trapezoid 1 Xmin (Type X) or Ymin (Type Y)	504
Trapezoid 1 Xmax (Type X) or Ymax (Type Y)	505
Trapezoid 1 XminLeft (Type X), XminBottom (Type Y)	506
Trapezoid 1 YmaxLeft (Type X), XmaxBottom (Type Y)	507
Trapezoid 1 YminRight (Type X), XminTop (Type Y)	508
Trapezoid 1 XmaxRight (Type X), XmaxTop (Type Y)	509

Trapezoid 2 entry value – X-coordinate	600
Trapezoid 2 entry value – Y-coordinate	601
Trapezoid 2 exit value – X-coordinate	602
Trapezoid 2 exit value – Y-coordinate	603
Trapezoid 2 Xmin (Type X) or Ymin (Type Y)	604
Trapezoid 2 Xmax (Type X) or Ymax (Type Y)	605
Trapezoid 2 XminLeft (Type X), XminBottom (Type Y)	606
Trapezoid 2 YmaxLeft (Type X), XmaxBottom (Type Y)	607
Trapezoid 1 YminRight (Type X), XminTop (Type Y)	608
Trapezoid 1 XmaxRight (Type X), XmaxTop (Type Y)	609

Threshold 1 crossing point (intersection) – X-coordinate	700

Threshold 1 crossing point (intersection) – Y-coordinate	701
Threshold 1 Position X (X-Threshold), Position Y (Y-threshold)	702
Threshold 1 Limit Ymin (X-Threshold), Limit Xmin (Y-Threshold)	703
Threshold 1 Limit Ymax (X-Threshold), Limit Xmax (Y-Threshold)	704

Threshold 2 crossing point (intersection) – X-coordinate	800
Threshold 2 crossing point (intersection) – Y-coordinate	801
Threshold 2 Position X (X-Threshold), Position Y (Y-threshold)	802
Threshold 2 Limit Ymin (X-Threshold), Limit Xmin (Y-Threshold)	803
Threshold 2 Limit Ymax (X-Threshold), Limit Xmax (Y-Threshold)	804

Envelope entry value – X-coordinate	900
Envelope entry value – Y-coordinate	901
Envelope exit value – X-coordinate	902
Envelope exit value – Y-coordinate	903
Start position	904
End position of envelope	905

4.31.3 LIVE - Set the live values

Execute LIVE!

The LIVE! command sets the live values (X and Y value) that then appear on the graphical measurement menu.

Show/hide live values on graphical measurement menu

Host sends: <Address>sr<STX> LIVE! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Live values ON/OFF	0 -> Live values OFF 1 -> Live values ON

Query LIVE?

The LIVE? command queries whether the live values are shown or hidden.

Host sends: <Address>sr<STX>LIVE?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Live values ON/OFF	0 -> Live values OFF 1 -> Live values ON

4.32 Initializing and copying measurement programs

4.32.1 PRKO - Copy all data between measurement programs

Execute PRKO!

The PRKO! command copies all of the configuration data from a measurement program to others. (Source is copied from the start to end targets.)

Host sends: <Address>sr<STX>PRKO? P1,P2,P3 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of source measurement program	A value between 0 and 15
P2	Number of start target measurement program	A value between 0 and 15
P3	Number of end target measurement program	A value between 0 and 15

Caution: The number of the start target measurement program may not be greater than the number of the end target measurement program.

Query PRKO?

There is no ? form of this command.

4.32.2 SEKO - Copy sensor data between measurement programs

Execute SEKO!

The SEKO! command copies the sensor data (channel settings) from a measurement program to others. (Source is copied from the start to end targets.)

Host sends: <Address>sr<STX>SEKO? P1,P2,P3 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of source measurement program	A value between 0 and 15
P2	Number of start target measurement program	A value between 0 and 15
P3	Number of end target measurement program	A value between 0 and 15

Caution: The number of the start target measurement program may not be greater than the number of the end target measurement program.

Query SEKO?

There is no ? form of this command.

4.32.3 INIT - Default initialization of measurement programs

Execute INIT!

The INIT! command executes a default initialization of the transferred measurement programs.

Host sends: <Address>sr<STX>INIT? P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of start measurement program	A value between 0 and 15
P2	Number of end measurement program	A value between 0 and 15

Caution: The number of the start target measurement program may not be greater than the number of the end target measurement program.

Query INIT?

There is no ? form of this command.

4.32.4 GINI - Default initialization of all measurement programs and device parameters

Execute GINI!

The GINI! command executes a default initialization of all measurement programs.

Host sends: <Address>sr<STX>GINI!<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Query GINI?

There is no ? form of this command.

4.33 Numerical configuration

4.33.1 TEST - Switch ON test mode for numerical configuration

Note: Command not allowed when measurement running.

Execute TEST!

The TEST! command enables or disables the test mode. With test mode ON, no measurements can be started. Although the device continues to read in the PLC inputs, it does not respond to them.

Host sends: <Address>sr<STX>TEST? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Test mode ON/OFF	0 -> Test mode is switched OFF 1 -> Test mode is switched ON

Query TEST?

The TEST? command queries the current status of the test mode.

Host sends: <Address>sr<STX>TEST! <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Test mode ON/OFF	0 -> Test mode is switched OFF 1 -> Test mode is switched ON

4.33.2 TESA - Switching signals ON/OFF in test mode

Execute TESA!

The TESA! command enables or disables switching signal reaction in test mode.

Host sends: <Address>sr<STX>TESA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Switching signal response in test mode	0 -> Switching signals OFF in test mode 1 -> Switching signals ON in test mode

Query TESA?

The TESA? command queries the setting for switching signal reaction in test mode.

Host sends: <Address>sr<STX>TESA! <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Switching signal response in test mode	0 -> Switching signals OFF in test mode 1 -> Switching signals ON in test mode

4.33.3 MESS - Fetch current readings

Execute MESS!

This command does not have a ! form.

Query MESS?

The MESS? command fetches the current readings.

Host sends: <Address>sr<STX>MESS? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,P3,P4 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Current reading for channel X	Floating point value (32 bit)
P2	Current reading for channel Y	Floating point value (32 bit)
P3	Current raw value for channel X	32 bit decimal value (signed long)
P4	Current raw value for channel Y	32 bit decimal value (signed long)

4.33.4 SPSI - Fetch PLC inputs

Execute SPSI!

This command does not have a ! form.

Query SPSI?

The SPSI? command reads the PLC inputs.

Host sends: <Address>sr<STX>SPSI? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	PLC input register 1 (SPSI1)	Byte hex coded (see table)
P2	PLC input register 2 (SPSI2)	Byte hex coded (see table)

PLC input register assignment

	D7	D6	D5	D4	D3	D2	D1	D0
SPSI1	START	----	----	IN_AUTO	IN_STROBE	WHL3	WHL2	WHL1
SPSI2	----	----	----	----	IN_PROG3	IN_PROG2	IN_PROG1	IN_PROG0

WHL1 -> Input 1 (pin 4)

WHL2 -> Input 2 (pin 5)

WHL3 -> Input 3 (pin 6)

Caution: The bits not used are always 1.

4.33.5 SPSO - Set PLC outputs

Execute SPSO!

Note: This command is permitted only when test mode ON.

The SPSO! command selectively sets the PLC outputs for test purposes.

Host sends: <Address>sr<STX>SPSO! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	PLC output byte 1	In hex format; see table
P2	PLC output byte 2	In hex format; see table

Query SPSO?

The SPSO? command queries the current status of the PLC outputs.

Host sends: <Address>sr<STX>SPSO? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	PLC output byte 1	In hex format; see table
P2	PLC output byte 2	In hex format; see table

PLC output register assignment

	D7	D6	D5	D4	D3	D2	D1	D0
Output byte 1		WHL1	S2	S1	NIO_ONLINE	NOK	OK	READY
Output byte 2	NC	NC	NC	NC	WHL5	WHL4	WHL3	WHL2

WHL1 -> Output 1 (pin 20)

WHL2 -> Output 2 (pin 21)

WHL3 -> Output 3 (pin 22)

WHL4 -> Output 4 (pin 23)

WHL5 -> Output 5 (pin 24)

WHL6 -> Output 6 (pin 25)

4.34 Record errors/events in the logfile

4.34.1 LOGS - Port operation logging ON/OFF

Execute LOGS!

The command LOGS! enables or disables error/event logging during port operations.

Host sends: <Address>sr<STX>LOGS! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Error/event logging	1 → Logging ON 0 → Logging OFF

Query LOGS?

The command LOGS? queries whether error/event logging during port operations is enabled or disabled.

Host sends: <Address>sr<STX> LOGS?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Error/event logging	1 → Logging ON 0 → Logging OFF

4.34.2 LOGL - Delete logfile, query index of last entry

Query LOGL?

The command LOGL? queries the index of the last entry

Host sends: <Address>sr<STX>LOGL?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Index of last entry	0 to 255

4.34.3 LOGD - Query logfile entries

Execute LOGD!

This command does not have a ! form.

Query LOGD?

The command LOGD? queries a logfile entry

Host sends: <Address>sr<STX>LOGD? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,….,P11<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Entry index	0 to 255
P2	Entry code	0 -> no error 1 -> Memory error detected 2 -> Voltage supply error detected 3 -> PLC driver error detected 4 -> Main analog board EEPROM error detected 5 -> Optional analog board EEPROM error detected 32 -> Tare warning limit reached 33 -> Start/Stop without measurement 35 -> Channel X overdrive 36 -> Channel Y overdrive 38 -> Measurement storage overflow 39 -> Start of measurement without READY 40 -> Change of circuit board analog 42 -> Device power up 43 -> Error on communication interface 44 -> Unauthorized access on USB Interface 45 -> Software update 128 -> Menu: Channel setup X 129 -> Menu: Channel setup Y 130 -> Menu: Measurement mode 131 -> Menu: Evaluation - window 132 -> Menu: Evaluation- trapezoid window 133 -> Menu: Evaluation - threshold 134 -> Menu: Evaluation - envelope 135 -> Main menu: Evaluation 136 -> Menu: Assignment PLC-Outputs

		137 -> Menu: Assignment PLC-Inputs 139 -> Menu: Interface USB 140 -> Menu: Interface Ethernet 141 -> Copy sensor setup 142 -> Initialize target program(s) 143 -> Copy whole setup 144 -> Setup real-time switch points
P3	Measurement program number	0 to 31, or 0 to 127
P4	Access	0 -> No access protection 1 -> Master access 2 -> User access 4 -> Access via port
P5	Date: year	Integer value (unsigned 16 bit)
P6	Date: month	Integer value (unsigned 16 bit)
P7	Date: day	Integer value (unsigned 16 bit)
P8	Time: hour	Integer value (unsigned 16 bit)
P9	Time: minute	Integer value (unsigned 16 bit)
P10	Time: second	Integer value (unsigned 16 bit)
P11	Copies of the last entry	Integer value (unsigned 16 bit)

4.35 Voltage monitor

4.35.1 UKNO - Measure and test node voltage

Note: Command not allowed when measurement running.

Execute UKNO!

This command does not have a ! form.

Query UKNO?

The command UKNO? measures and tests the node voltage and returns the results

Host sends: <Address>sr<STX>UKNO?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Node voltage status	0 → Node voltage OK 1 → Node voltage outside tolerance
P2	Value of measured node voltage	Floating-point value with units

4.35.2 UGND - Measure and test GND potential

Note: Command not allowed when measurement running.

Execute UGND!

This command does not have a ! form.

Query UGND?

The command UGND? measures and tests the GND potential and returns the results

Host sends: <Address>sr<STX>UGND?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	GND potential status	0 → GND potential OK 1 → GND potential outside tolerance
P2	Value of measured GND potential	Floating-point value with units

4.35.3 USPA - Measure and test channel A excitation

Note: Command not allowed when measurement running.

Execute USPA!

This command does not have a ! form.

Query USPA?

The command USPA? measures and tests channel A excitation and returns the results

Host sends: <Address>sr<STX>USPA?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel A excitation voltage status	0 → Excitation voltage OK 1 → Excitation voltage outside tolerance
P2	Value of measured excitation voltage	Floating-point value with units

4.35.4 USPB - Measure and test channel B excitation

Note: Command not allowed when measurement running.

Execute USPB!

This command does not have a ! form.

Query USPB?

The command USPB? measures and tests channel B excitation and returns the results

Host sends: <Address>sr<STX>USPB?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Channel B excitation voltage status	0 → Excitation voltage OK 1 → Excitation voltage outside tolerance
P2	Value of measured excitation voltage	Floating-point value with units

4.36 Amplifier test

4.36.1 VTKA - Channel A amplifier test

Note: Command not allowed when measurement running.

Execute VTKA!

The VTKA! command configures the hardware for the channel A amplifier test.

Host sends: <Address>sr<STX> VTKA! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Input range	0 → 5.5 V range 1 → 11.0 V range
P2	Set hardware	0 → The hardware will be configured to the transferred parameters 1 → The hardware will be reset to the original values The transferred parameters (ground connection, excitation, range) are ignored.

Query VTKA?

The command VTKA? reads out the value measured by the channel A amplifier test

Host sends: <Address>sr<STX>VTKA?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	A/D converter value (LSBs)	Floating-point value
P2	Measured voltage test	Floating-point value with units

4.36.2 VTKB - Channel B amplifier test

Note: Command not allowed when measurement running.

Execute VTKB!

The VTKB! command configures the hardware for the channel B amplifier test.

Host sends: <Address>sr<STX> VTKB! P1,P2,P3 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Ground connection	0 → Ground connection OFF 1 → Ground connection ON
P2	Input range	0 → 13 mV range 1 → 27 mV range 2 → 55 mV range 3 → 110 mV range 4 → 220 mV range 5 → 5.5 V range 6 → 11 V range
P3	Set hardware	0 → The hardware will be configured to the transferred parameters 1 → The hardware will be reset to the original values The transferred parameters (ground connection, excitation, range) are ignored.

Query VTKB?

The command VTKB? reads out the value measured by the channel B amplifier test

Host sends: <Address>sr<STX>VTKB?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	A/D converter value (LSBs)	Floating-point value
P2	Measured voltage test	Floating-point value with units

4.37 Measurement results

4.37.1 MSTA - Measurement status; is there a new measurement curve?

Execute MSTA!

This command does not have a ! form.

Query MSTA?

The command MSTA? queries whether there is a new measurement curve

If 1 parameter: Queried is the measurement status corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX>MSTA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Index of the last reading on the curve	16 bit integer (unsigned short); 0 means there is no measurement curve
P3	Running measurement curve counter	32 bit integer (unsigned long); this counter increments every time a new measurement curve is recorded.

If no parameters: Queried is the measurement status of the currently selected measurement program.

Host sends: <Address>sr<STX>MSTA?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Index of the last reading on the curve	16 bit integer (unsigned short); 0 means there is no measurement curve
P2	Running measurement curve counter	32 bit integer (unsigned long); this counter increments every time a new measurement curve is recorded.

4.37.2 KRVA - Supplementary data for current measurement curve

Execute KRVA!

This command does not have a ! form.

Query KRVA?

The command KRVA? queries supplementary data for the current measurement curve.

If 1 parameter: Queried are the data corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX>KRVA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4, ...,P17<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Part counter	32 bit integer value (unsigned long)
P3	NOK counter	32 bit integer value (unsigned long)
P4	Overall evaluation	0 → NOK 1 → OK
P5	Index of curve return point	16 bit integer value (unsigned short)
P6	Index of the last reading on the curve	16 bit integer value (unsigned short)
P7	A/D converter overdrive	0 → No overdrive 1 → Overdrive
P8	Recording date / year	16 bit integer value (unsigned short)
P9	Recording date / month	16 bit integer value (unsigned short)
P10	Recording date / day	16 bit integer value (unsigned short)
P11	Recording time / hour	16 bit integer value (unsigned short)
P12	Recording time / minute	16 bit integer value (unsigned short)
P13	Recording time / second	16 bit integer value (unsigned short)
P14	Channel X unit	String
P15	Channel Y unit	String
P16	Counter change setting	32 bit integer value (unsigned long)
P17	NOK causes summary	32 bit integer value (unsigned long), bit coded See following table

If no parameters: Queried are the data of the currently selected measurement program.

Host sends: <Address>sr<STX>KRVA?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,P3,.....,P16<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Part counter	32 bit integer value (unsigned long)
P2	NOK counter	32 bit integer value (unsigned long)
P3	Overall evaluation	0 → NOK 1 → OK
P4	Index of curve return point	16 bit integer value (unsigned short)
P5	Index of the last reading on the curve	16 bit integer value (unsigned short)
P6	A/D converter overdrive	0 → No overdrive 1 → Overdrive
P7	Recording date / year	16 bit integer value (unsigned short)
P8	Recording date / month	16 bit integer value (unsigned short)
P9	Recording date / day	16 bit integer value (unsigned short)
P10	Recording time / hour	16 bit integer value (unsigned short)
P11	Recording time / minute	16 bit integer value (unsigned short)
P12	Recording time / second	16 bit integer value (unsigned short)
P13	Channel X unit	String
P14	Channel Y unit	String
P15	Counter change setting	32 bit integer value (unsigned long)
P16	NOK causes summary	16 bit integer value (unsigned short), bit coded See following table 1 -> Element is NOK 2 -> Element OFF or OK

Sources that can lead to NOKs

Bit no.	Function
0	NOK total
1	Measurement channel overdrive
2	Square window 1

3	Square window 2
4	Square window 3
5	Threshold 1
6	Threshold 2
7	Trapezoid window 1
8	Trapezoid window 2
9	Envelope

4.37.3 MEVE - Measurement curves

For the last 10 recorded measurement curves, the measurement program and the measurement curve counter are stored in an array.

This command can query the array and reset an entry.

Execute MEVE!

The command MEVE! resets an entry in the array. The entry corresponding to the number of the parameter is reset. The number of the measurement program is set to 255. The measurement curve counter is set to 0.

Host sends: <Address>sr<STX>MEVE! P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the array	1 to 10

Query MEVE?

The command MEVE? queries the program number and measurement curve counter for the last 10 measurements.

The last parameter returns the current measurement program number

Host sends: <Address>sr<STX>MEVE?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P3,P2,P3, … P21<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program entry 1	0 to 15 (255 if still no measurement curve)
P2	Measurement curve counter entry 1	1 to 255 (0 if still no measurement curve)
P3	Number of the measurement program entry 2	0 to 15 (255 if still no measurement curve)
P4	Measurement curve counter entry 2	1 to 255 (0 if still no measurement curve)
P5	Number of the measurement program entry 3	0 to 15 (255 if still no measurement curve)
P6	Measurement curve counter entry 3	1 to 255 (0 if still no measurement curve)
P7	Number of the measurement program entry 4	0 to 15 (255 if still no measurement curve)
P8	Measurement curve counter entry 4	1 to 255 (0 if still no measurement curve)
P9	Number of the measurement program entry 5	0 to 15 (255 if still no measurement curve)
P10	Measurement curve counter entry 5	1 to 255 (0 if still no measurement curve)
P11	Number of the measurement program entry 6	0 to 15 (255 if still no measurement curve)
P12	Measurement curve counter entry 6	1 to 255 (0 if still no measurement curve)
P13	Number of the measurement program entry 7	0 to 15 (255 if still no measurement curve)
P14	Measurement curve counter entry 7	1 to 255 (0 if still no measurement curve)
P15	Number of the measurement program entry 8	0 to 15 (255 if still no measurement curve)
P16	Measurement curve counter entry 8	1 to 255 (0 if still no measurement curve)
P17	Number of the measurement program entry 9	0 to 15 (255 if still no measurement curve)
P18	Measurement curve counter entry 9	1 to 255 (0 if still no measurement curve)
P19	Number of the measurement program entry 10	0 to 15 (255 if still no measurement curve)
P20	Measurement curve counter entry 10	1 to 255 (0 if still no measurement curve)
P21	Currently set measurement program number	0 to 15

Note: Entry 1 is the oldest measurement.
Entry 10 is the newest measurement.

4.37.4 ALKU - General curve data

Execute ALKU!

This command does not have a ! form.

Query ALKU?

The command ALKU? queries the general curve data

If 1 parameter: Queried are the general curve data corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX>ALKU? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,....,P15<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	X minimum, X coordinate	Floating-point value
P3	X minimum, Y coordinate	Floating-point value
P4	X maximum, X coordinate	Floating-point value
P5	X maximum, Y coordinate	Floating-point value
P6	Y minimum, X coordinate	Floating-point value
P7	Y minimum, Y coordinate	Floating-point value
P8	Y maximum, X coordinate	Floating-point value
P9	Y maximum, Y coordinate	Floating-point value
P10	First value X coordinate	Floating-point value
P11	First value Y coordinate	Floating-point value
P12	Last value X coordinate	Floating-point value
P13	Last value Y coordinate	Floating-point value
P14	Return point X coordinate	Floating-point value
P15	Return point Y coordinate	Floating-point value

If no parameters: Queried are the general curve data of the currently selected measurement program.

Host sends: <Address>sr<STX>ALKU?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,...,P14<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	X minimum, X coordinate	Floating-point value
P2	X minimum, Y coordinate	Floating-point value
P3	X maximum, X coordinate	Floating-point value
P4	X maximum, Y coordinate	Floating-point value
P5	Y minimum, X coordinate	Floating-point value
P6	Y minimum, Y coordinate	Floating-point value
P7	Y maximum, X coordinate	Floating-point value
P8	Y maximum, Y coordinate	Floating-point value
P9	First value X coordinate	Floating-point value
P10	First value Y coordinate	Floating-point value
P11	Last value X coordinate	Floating-point value
P12	Last value Y coordinate	Floating-point value
P13	Return point X coordinate	Floating-point value
P14	Return point Y coordinate	Floating-point value

4.37.5 FRER - Query measurement results of the user definable values

Execute FRER!

This command does not have a ! form.

Query FRER?

The FRER? command queries the measurement results of the user definable values.

If 1 parameter, the measurement result is queried for that user definable value corresponding to the transferred value number and the currently selected measurement program.

Host sends: <Address>sr<STX>FRER? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Value number	1 to 20
P2	Number of the user definable value	See operands table
P3	Name of the user definable value	See operands table
P4	Measurement value of the user definable value	Floating-point value
P5	Unit of the user definable value	String

If 2 parameters, the measurement result is queried for that user definable value corresponding to the transferred value number and the transferred measurement program number.

Host sends: <Address>sr<STX>FRER? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Value number	1 to 20
P3	Number of the user definable value	See operands table
P3	Name of the user definable value	See operands table
P4	Measurement value of the user definable value	Floating-point value
P5	Unit of the user definable value	String

4.37.6 FRAL - Query measurement results of all user definable values

Execute FRAL!

This command does not have a ! form.

Query FRAL?

The FRAL? command queries all of the measurement results of the user definable values as purely numerical values.

If 1 parameter, the measurement results are queried for the user definable values in the current program

Host sends: <Address>sr<STX>FRAL?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,……Px. <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1…P20	Measurement values each user definable values	Block 1 and 2 return 12 floating point values. Block 3 returns 6 floating point values.

If 2 parameters, the measurement results are queried for the user definable values in the transferred program

Host sends: <Address>sr<STX>FRAL? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3……..Px<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2…P20	Measurement values each user definable values	Block 1 and 2 return 12 floating point values. Block 3 returns 6 floating point values.

4.37.7 RDYM - PC Ready Mode ON/OFF

Execute RDYM!

The command RDYM! enables or disables the PC Read Mode. With PC Ready Mode switched ON the PC decides when Ready Mode is again set.

Host sends: <Address>sr<STX> RDYM! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	PC Ready Mode	1 → Ready Mode ON 0 → Ready Mode OFF

Query RDYM?

The command RDYM? reads out the current PC Ready Mode status.

Host sends: <Address>sr<STX> RDYM?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	PC Ready mode	1 → PC Ready Mode ON 0 → PC Ready Mode OFF

4.37.8 REDY - Ready signal enable if Ready Mode ON

Execute REDY!

The PC uses the command REDY! to enable the ready signal. With ready mode ON, this command must enable the ready signal in order to set this after every measurement.

Host sends: <Address>sr<STX> REDY!<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Query REDY?

This command does not have a ? form.

4.37.9 KSAN - Query number of curves in the curve array

Execute KSAN!

This command does not have a ! form.

Query KSAN?

The command KSAN? queries the number of curves in the curve array and the index of the newest curve in the curve array.

There are 10 curves at the most.

If 1 parameter: Queried are the values of the curves corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> KSAN? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Number of curves in the curve array	Integer between 0 and 10
P3	Index of the newest curve in the curve array	Integer between 0 and 9

If no parameters: Queried are the data for the curves of the currently selected measurement program.

Host sends: <Address>sr<STX> KSAN?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of curves in the curve array	Integer between 0 and 10
P2	Index of the newest curve in the curve array	Integer between 0 and 9

4.37.10 KUSA - Query return point and last value of the curves in the curve array

Execute KUSA!

This command does not have a ! form.

Query KUSA?

The KUSA? command queries the return point and the last value of the curve in the curve array.

If 1 parameter, the return point and the last value of the curve corresponding to the transferred curve number and the currently selected measurement program are queried.

Host sends: <Address>sr<STX> KUSA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Curve number	1 to 10
P2	Index of curve return point	16 bit integer value (unsigned short)
P3	Index of the last point on the curve	16 bit integer value (unsigned short)

If 2 parameters, the return point and the last value of the curve corresponding to the transferred curve number and the transferred measurement program number are queried.

Host sends: <Address>sr<STX> KUSA? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Curve number	1 to 10
P3	Index of curve return point	16 bit integer value (unsigned short)
P4	Index of the last point on the curve	16 bit integer value (unsigned short)

4.37.11 KURX - Read out the X coordinates of the current measurement curve

Execute KURX!

This command does not have a ! form.

Query KURX?

The command KURX? reads out the X coordinates of the current measurement curve.

If 1 parameter: Read out are the X coordinates of the measurement curve corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> KURX? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
K1...K50	X coordinates of the measurement curve	See description below

If no parameters: Queried are the X coordinates of the measurement curve corresponding to the selected measurement program.

Host sends: <Address>sr<STX> KURX?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
K1...K50	X coordinates of the measurement curve	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after <ACK> with <EOT>, signifying the end of coordinate transfer.

4.37.12 KURY - Read out the Y coordinates of the current measurement curve

Execute KURY!

This command does not have a ! form.

Query KURY?

The command KURY? reads out the Y coordinates of the current measurement curve.

If 1 parameter: Read out are the Y coordinates of the measurement curve corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX> KURY? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
K1...K50	Y coordinates of the measurement curve	See description below

If no parameters: Queried are the Y coordinates of the measurement curve corresponding to the selected measurement program.

Host sends: <Address>sr<STX> KURY?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
K1...K50	Y coordinates of the measurement curve	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after <ACK> with <EOT>, signifying the end of coordinate transfer.

4.37.13 KUSX - Read out the X coordinates of a measurement curve from the curve array

Execute KUSX!

This command does not have a ! form.

Query KUSX?

The KUSX? command reads out the X coordinates of a measurement curve from the curve array.

If 2 parameters: Read out are the X coordinates of the measurement curve corresponding to the transferred curve number and measurement program number.

Host sends: <Address>sr<STX> KUSX? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Curve number	1 to 10
K1...K50	X coordinates of the measurement curve	See description below

If 1 parameter: Queried are the X coordinates of the measurement curve corresponding to the transferred curve number and the selected measurement program.

Host sends: <Address>sr<STX> KUSX? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Curve number	1 to 10
K1...K50	X coordinates of the measurement curve	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after <ACK> with <EOT>, signifying the end of coordinate transfer.

4.37.14 KUSY - Read out the Y coordinates of a measurement curve from the curve array

Execute KUSY!

This command does not have a ! form.

Query KUSY?

The KUSY? command reads out the Y coordinates of a measurement curve from the curve array.

If 2 parameters: Read out are the Y coordinates of the measurement curve corresponding to the transferred curve number and measurement program number.

Host sends: <Address>sr<STX> KUSY? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Curve number	1 to 10
K1...K50	Y coordinates of the measurement curve	See description below

If 1 parameter: Queried are the Y coordinates of the measurement curve corresponding to the transferred curve number and the selected measurement program.

Host sends: <Address>sr<STX> KUSY? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Curve number	1 to 10
K1...K50	Y coordinates of the measurement curve	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after <ACK> with <EOT>, signifying the end of coordinate transfer

4.37.15 MENU - Enter or query current measurement menu

Execute MENU!

The MENU! command sets the measurement menu that is to be shown.

If 1 parameter, the measurement menu display is set according to the currently selected measurement program

Host sends: <Address>sr<STX> MENU! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement menu display	101 -> Measurement curve display 102 -> General curve data 103 -> Smiley or Pass/Fail indicator 104 -> Entries/exits of the evaluation elements 105 -> User defined values 106 -> Statistics display 107 -> Order sheet

If 2 parameters, the measurement menu display is set according to the transferred measurement program number.

Host sends: <Address>sr<STX>MENU! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Measurement menu display	101 -> Measurement curve display 102 -> General curve data 103 -> Smiley or Pass/Fail indicator 104 -> Entries/exits of the evaluation elements 105 -> User defined values 106 -> Statistics display 107 -> Order sheet

Query MENU?

The MENU? command queries which measurement menu is now being shown.

If no parameters, the measurement menu display is queried for the currently selected measurement program

Host sends: <Address>sr<STX> MENU?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement menu display	101 -> Measurement curve display 102 -> General curve data 103 -> Smiley or Pass/Fail indicator 104 -> Entries/exits of the evaluation elements 105 -> User defined values 106 -> Statistics display 107 -> Order sheet

If 1 parameter, the measurement menu display is queried for the transferred measurement program number

Host sends: <Address>sr<STX> MENU? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Measurement menu display	101 -> Measurement curve display 102 -> General curve data 103 -> Smiley or Pass/Fail indicator 104 -> Entries/exits of the evaluation elements 105 -> User defined values 106 -> Statistics display 107 -> Order sheet

4.38 Measurement data logger

4.38.1 DSTA - Query status information of measurement data logger

Execute DSTA!

This command does not have a ! form.

Query DSTA?

The command DSTA? queries the status information of the measurement data logger.

Host sends: <Address>sr<STX>DSTA?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of data record entries	Integer 0 to 50
P2	Index of the next data record entry	Integer 0 to 49

4.38.2 DADA - Query general data for a measurement data logger record

Execute DADA!

This command does not have a ! form.

Query DADA?

The command DADA? queries diverse information for a data record stored by the measurement data logger.

Host sends: <Address>sr<STX>DADA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4,P5,P6,P7,P8,P9,P10,P11,P12<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the data record	Integer 0 to 49
P2	Index of the data record return point	16 bit integer value (unsigned short)
P3	Index of the last value in the data record	16 bit integer value (unsigned short)
P4	Overall evaluation result of the data record	0 → NOK 1 → OK
P5	Measurement program number of the data record	A value between 0 and 15
P6	Change counter for the data record	32 bit integer value (unsigned long)
P7	Data record date / year	16 bit integer value (unsigned short)
P8	Data record date / month	16 bit integer value (unsigned short)
P9	Data record date / day	16 bit integer value (unsigned short)
P10	Data record time / hour	16 bit integer value (unsigned short)
P11	Data record time / minute	16 bit integer value (unsigned short)
P12	Data record time / second	16 bit integer value (unsigned short)

4.38.3 DRFE - Query square window data for a measurement data logger record

Execute DRFE!

This command does not have a ! form.

Query DRFE?

The command DRFE? queries the square window information for a data record stored by the measurement data logger.

Host sends: <Address>sr<STX>DRFE? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5,P6,P7<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the data record	Integer 0 to 49
P2	Window number	Integer 1 to 3
P3	Window evaluation	0 → NOK 1 → OK
P4	Window entry X coordinate	Floating-point value
P5	Window entry Y coordinate	Floating-point value
P6	Window exit X coordinate	Floating-point value
P7	Window exit Y coordinate	Floating-point value

4.38.4 DTRF - Query trapezoid window data for a measurement data logger record

Execute DTFX!

This command does not have a ! form.

Query DTFX?

The command DTFX? queries the trapezoid window information for a data record stored by the measurement data logger.

Host sends: <Address>sr<STX>DTFX? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5,P6,P7<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the data record	Integer 0 to 49
P2	Window number	Integer 1 to 2
P3	Window evaluation	0 → NOK 1 → OK
P4	Window entry X coordinate	Floating-point value
P5	Window entry Y coordinate	Floating-point value
P6	Window exit X coordinate	Floating-point value
P7	Window exit Y coordinate	Floating-point value

4.38.5 DTRF - Query envelope data for a measurement data logger record

Execute DHUE!

This command does not have a ! form.

Query DHUE?

The command DHUE? queries the envelope information for a data record stored by the measurement data logger.

Host sends: <Address>sr<STX>DHUE? P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4,P5,P6<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the data record	Integer 0 to 49
P2	Envelope evaluation	0 → NOK 1 → OK
P3	Envelope entry X coordinate	Floating-point value
P4	Envelope entry Y coordinate	Floating-point value
P5	Envelope exit X coordinate	Floating-point value
P6	Envelope exit Y coordinate	Floating-point value

4.38.6 DSCH - Query threshold data for a measurement data logger record

Execute DSCH!

This command does not have a ! form.

Query DSCH?

The command DSCH? queries the threshold information for a data record stored by the measurement data logger.

Host sends: <Address>sr<STX>DSCH? P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P3,P4,P5 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the data record	Integer 0 to 49
P2	Threshold number	Integer 1 to 2
P3	Threshold evaluation	0 → NOK 1 → OK
P4	Threshold crossover X coordinate	Floating-point value
P5	Threshold crossover Y coordinate	Floating-point value

4.38.7 DXKO - Read the X coordinates of a measurement curve from the data logger

Execute DXKO!

This command does not have a ! form.

Query DXKO?

The DXKO? command reads the X coordinates of a measurement curve from the data logger.

Host sends: <Address>sr<STX>DXKO? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Curve number	1 to 50
K1...K50	X coordinates of the measurement curve	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after <ACK> with <EOT>, signifying the end of coordinate transfer.

4.38.8 DYKO - Read the Y coordinates of a measurement curve from the data logger

Execute DYKO!

This command does not have a ! form.

Query DYKO?

The DYKO? command reads the Y coordinates of a measurement curve from the data logger.

Host sends: <Address>sr<STX> DYKO? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Curve number	1 to 50
K1...K50	Y coordinates of the measurement curve	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after <ACK> with <EOT>, signifying the end of coordinate transfer.

4.39 Graphical scaling

4.39.1 ASKA - Enter or query autoscaling

Execute ASKA!

The ASKA! command sets the graphical autoscaling.

If 1 parameter, the autoscaling corresponding to the currently selected measurement program is set

Host sends: <Address>sr<STX> ASKA! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Autoscaling	0 -> Autoscaling OFF 1 -> Autoscaling ON

If 2 parameters, the autoscaling corresponding to the transferred measurement program number is set.

Host sends: <Address>sr<STX>ASKA! P1,P2 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Autoscaling	0 -> Autoscaling OFF 1 -> Autoscaling ON

Query ASKA?

The ASKA? command queries the graphical autoscaling.

If no parameters, the autoscaling corresponding to the currently selected measurement program is queried

Host sends: <Address>sr<STX>ASKA?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Autoscaling	0 -> Autoscaling OFF 1 -> Autoscaling ON

If 1 parameter, the autoscaling corresponding to the transferred measurement program number is queried.

Host sends: <Address>sr<STX>ASKA? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Autoscaling	0 -> Autoscaling OFF 1 -> Autoscaling ON

4.39.2 MSKA - Enter or query manual scaling

Execute MSKA!

The MSKA! command sets the limits for the manual scaling.

If 4 parameters, the scaling limits corresponding to the currently selected measurement program and the transferred channel number are set.

Host sends: <Address>sr<STX>MSKA! P1,P2,P3,P4 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Xmin scaling limit	Floating-point value
P2	Xmax scaling limit	Floating-point value
P3	Ymin scaling limit	Floating-point value
P4	Ymax scaling limit	Floating-point value

If 5 parameters, the scaling limits corresponding to the transferred measurement program number and the transferred channel number are set.

Host sends: <Address>sr<STX>MSKA! P1,P2,P3,P4,P5 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Xmin scaling limit	Floating-point value
P3	Xmax scaling limit	Floating-point value
P4	Ymin scaling limit	Floating-point value
P5	Ymax scaling limit	Floating-point value

Query MSKA?

The MSKA? command queries the graphical autoscaling.

If no parameters, the scaling limits corresponding to the currently selected measurement program and the transferred channel number are queried.

Host sends: <Address>sr<STX>MSKA? <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2,P3,P4<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Xmin scaling limit	Floating-point value
P2	Xmax scaling limit	Floating-point value
P3	Ymin scaling limit	Floating-point value
P4	Ymax scaling limit	Floating-point value

If 1 parameter, the scaling limits corresponding to the transferred measurement program number and the transferred channel number are queried.

Host sends: <Address>sr<STX>MSKA? P1 <LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2,P3,P4,P5<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Xmin scaling limit	Floating-point value
P3	Xmax scaling limit	Floating-point value
P4	Ymin scaling limit	Floating-point value
P5	Ymax scaling limit	Floating-point value

4.40 Reference curve

4.40.1 RFAN - Show/hide reference curve

Execute RFAN!

The RFAN! command shows or hides the reference curve.

If 1 parameter, the value corresponding to the currently selected measurement program is set.

Host sends: <Address>sr<STX> RFAN! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Show reference curve	0 -> Do not show reference curve 1 -> Show reference curve

If 2 parameters, the value corresponding to the transferred measurement program is set.

Host sends: <Address>sr<STX>RFAN! P1,P2 ,P3,P4<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Show reference curve	0 -> Do not show reference curve 1 -> Show reference curve

Query RFAN?

The RFAN! command queries whether the reference curve is shown or not.

If no parameters, the value corresponding to the currently selected measurement program is queried.

Host sends: <Address>sr<STX>RFAN?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Show reference curve	0 -> Do not show reference curve 1 -> Show reference curve

If 1 parameter, the value corresponding to the transferred measurement program is queried.

Host sends: <Address>sr<STX>RFAN? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Show reference curve	0 -> Do not show reference curve 1 -> Show reference curve

4.40.2 RANZ - Number of value pairs for reference curve

Execute RANZ!

The RANZ! command sets the number of value pairs for the reference curve.

If 1 parameter, this is the number of value pairs for the reference curve corresponding to the currently selected measurement program.

Host sends: <Address>sr<STX>RANZ! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of value pairs for reference curve	16 bit integer value (unsigned short) <= 160

If 2 parameters, this is the number of value pairs for the reference curve Y1 corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX>RANZ! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Number of value pairs for reference curve	16 bit integer value (unsigned short) <= 160

Query RANZ?

The RANZ? command queries the number of value pairs for the reference curve.

If no parameters, the number of value pairs for the reference curve corresponding to the currently selected measurement program is queried.

Host sends: <Address>sr<STX>RANZ?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of value pairs for reference curve	16 bit integer value (unsigned short) <= 160

If 1 parameter, the number of value pairs for the reference curve Y1 corresponding to the transferred measurement program number is queried.

Host sends: <Address>sr<STX>RANZ? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2 <LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Number of value pairs for reference curve	16 bit integer value (unsigned short) <= 160

4.40.3 REFX - The X coordinates of the reference curve from channel X

Execute REFX!

The command REFX? transfers the X coordinates of the reference curve.

If 3 parameters: Transferred are the X coordinates of the reference curve corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX>REFX! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Block number	A value between 1 and 4; the max 160 coordinates are transferred in blocks of 40 values. Ethernet can transfer up to 280 values at any one time
P3	X coordinates of the reference curve	See description below

If 2 parameters: Transferred are the X coordinates of the reference curve corresponding to the selected measurement program.

Host sends: <Address>sr<STX>REFX! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Block number	A value between 1 and 4; the max 160 coordinates are transferred in blocks of 40 values. Ethernet can transfer up to 280 values at any one time
P2	X coordinates of the reference curve	See description below

The max 40 coordinates (or max 280 for Ethernet) are transferred as binary code. Each coordinate is transferred as 5 bytes (4 bytes for a 32 bit floating point followed by a status byte). There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

Caution: Before transferring the coordinates, you must first have transferred the number of value pairs with the RFAW! command.

Query REFX?

The command REFX? reads out the X coordinates of the reference curve.

If 1 parameter: Read out are the X coordinates of the reference curve corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX>REFX? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
K1...K50	X coordinates of the reference curve	See description below

If no parameters: Queried are the X coordinates of the reference curve corresponding to the selected measurement program.

Host sends: <Address>sr<STX>REFX?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
K1...K50	X coordinates of the reference curve	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after <ACK> with <EOT>, signifying the end of coordinate transfer.

4.40.4 REFY - The Y coordinates of the reference curve from channel Y

Execute REFY!

The command REFY? transfers the Y coordinates of the reference curve.

If 3 parameters: Transferred are the Y coordinates of the reference curve corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX>REFY! P1,P2,P3<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
P2	Block number	A value between 1 and 4; the max 160 coordinates are transferred in blocks of 40 values. Ethernet can transfer up to 280 values at any one time
P3	Y coordinates of the reference curve	See description below

If 2 parameters: Transferred are the Y coordinates of the reference curve corresponding to the selected measurement program.

Host sends: <Address>sr<STX>REFY! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Block number	A value between 1 and 4; the max 160 coordinates are transferred in blocks of 40 values. Ethernet can transfer up to 280 values at any one time
P2	Y coordinates of the reference curve	See description below

The max 40 coordinates (or max 280 for Ethernet) are transferred as binary code. Each coordinate is transferred as 5 bytes (4 bytes for a 32 bit floating point followed by a status byte). There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

Caution: Before transferring the coordinates, you must first have transferred the number of value pairs with the RFAW! command.

Query REFY?

The command REFY? reads out the Y coordinates of the reference curve.

If 1 parameter: Read out are the Y coordinates of the reference curve corresponding to the transferred measurement program number.

Host sends: <Address>sr<STX>REFY? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1,K2,K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1,...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Number of the measurement program	A value between 0 and 15
K1...K50	Y coordinates of the reference curve	See description below

If no parameters: Queried are the Y coordinates of the reference curve corresponding to the selected measurement program.

Host sends: <Address>sr<STX>REFY?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <STX>K1K2K3....K50<LF><ETX>[<BCC>]

etc.

etc.

etc.

DIGIFORCE responds: <STX>K1...Kn<LF><ETX>[<BCC>]

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
K1...K50	Y coordinates of the reference curve	See description below

The coordinates are transferred as binary code followed by a status byte. In other words, each coordinate consists of 5 bytes.

There are no separators inside or between the coordinates.

<K1Byte1><K1Byte2><K1Byte3><K1Byte4><K1StatusByte><K2Byte1><K2Byte2><K2Byte3><K2Byte4><K2StatusByte>... etc.

The 32 bit floating point for each coordinate is transferred byte by byte (4 bytes). To prevent these 4 bytes from being interpreted as control codes, the highest significant bit is set (if not already set). The status byte indicates whether the highest significant bit has been set in one of these 4 bytes. The status byte is additionally transmitted as the 5th byte together with the 4 bytes of the associated coordinate.

The highest significant bit of the status byte is always set. Bit D0 is set if the highest significant bit of Byte1 has been set. Bit D1 is set if the highest significant bit of Byte2 has been set. Bit D2 is set if the highest significant bit of Byte3 has been set. Bit D3 is set if the highest significant bit of Byte4 has been set.

After polling, no more than 50 coordinates (K1 to K50) are transferred.

<STX>K1K2....K50<LF><ETX>

Ethernet transfers 290 coordinates (K1 to K290)

<STX>K1K2....K290<LF><ETX>

After <ACK>, the next set of coordinates (max 50/290) are transferred.

This continues until all coordinates have been transferred. In this case, the device responds after <ACK> with <EOT>, signifying the end of coordinate transfer.

4.41 Saving to USB stick

4.41.1 USPR - USB stick logging ON/OFF

Execute USPR!

The USPR! command enables/disables logging on the USB stick

If 1 parameter, logging is enabled in the currently selected measurement program

Host sends: <Address>sr<STX>USPR! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Logging on USB stick	0 -> OFF 1 -> ON

If 2 parameters, logging is enabled in the measurement program corresponding to the transferred number.

Host sends: <Address>sr<STX>USPR! P1,P2<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Logging on USB stick	0 -> OFF 1 -> ON

Query USPR?

The USPR? command queries whether logging has been enabled or disabled on the USB stick

If no parameters, the logging activated in the currently selected measurement program is queried

Host sends: <Address>sr<STX>USPR?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Logging on USB stick	0 -> OFF 1 -> ON

If 1 parameter, the logging enabled in the measurement program corresponding to the transferred number is queried.

Host sends: <Address>sr<STX>USPR? P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Measurement program number	A value between 0 and 15
P2	Logging on USB stick	0 -> OFF 1 -> ON

4.41.2 USBE - Derived file names on USB Stick

Execute USBE!

The **USBE**! command defines whether the file names on the USB stick are derived from the program names or the order sheet's container

Host sends: <Address>sr<STX>USBE! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Derived file names	0 -> Program names 1 -> Order sheet

Query USBE?

The **USBE**? command queries whether the file names on the USB stick are derived from the program names or the order sheet's container

Host sends: <Address>sr<STX>USBE?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	Derived file names	0 -> Program names 1 -> Order sheet

4.41.3 USFO - Format the USB stick connected to the device

Execute USFO!

The **USFO**! command formats the USB stick connected to the DIGIFORCE 9311

Host sends: <Address>sr<STX>USFO!<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Caution: ACK is returned when formatting has ended. The time taken depends on the USB stick.
NAK is returned when no USB stick is connected.

Query USPE?

There is no query form.

4.41.4 USST - Read out USB stick status

Execute USST!

There is no ! form.

Query USST?

The **USST**? queries the USB stick status

Host sends: <Address>sr<STX>USST?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1,P2<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	USB stick status	0 -> Cannot read USB status (should not occur) 1 -> USB_STICK_NOT_ATTACHED 2 -> USB_STICK_ATTACHED_BUT_NOT_MOUNTED 3 -> USB_STICK_ATTACHED_AND_MOUNTED
P2	Free memory on USB stick	Value in MB with unit when attached and mounted. Else 0 is returned.

4.41.5 URDY - USB ready control ON/OFF

Execute URDY!

The **URDY**! command defines whether the USB ready control is ON or OFF.

Host sends: <Address>sr<STX>URDY! P1<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	USB ready control	0 -> OFF 1 -> ON

Query URDY?

The **URDY**? command queries whether the USB ready control is ON or OFF.

Host sends: <Address>sr<STX>URDY?<LF><ETX>[<BCC>]

DIGIFORCE responds: <ACK>

Host sends: <EOT>

Host sends: <Address>po<ENQ>

DIGIFORCE responds: <STX>P1<LF><ETX>[<BCC>]

Host sends: <ACK>

DIGIFORCE responds: <EOT>

Meaning of parameter Pn

Parameter	Meaning	Value
P1	USB ready control	0 -> OFF 1 -> ON