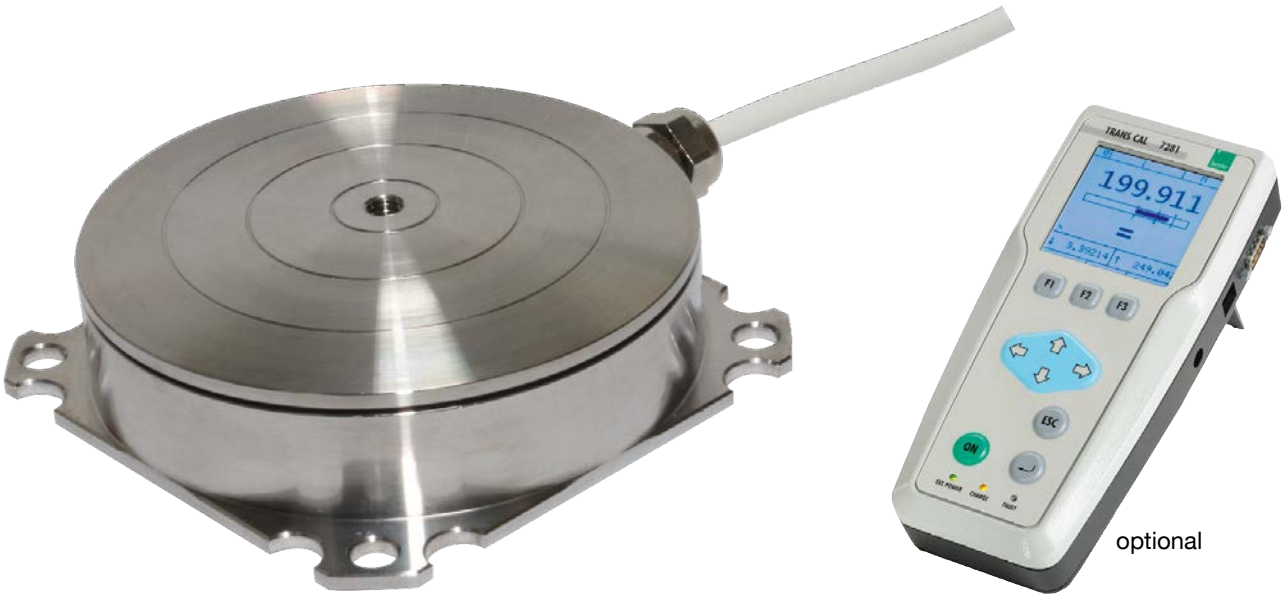
Pedal Load Cell
for pedal operating forces

Model 8400-B001

Code:	8400 EN
Delivery:	ex stock
Warranty:	24 months



optional

- **Very flat design**
- **Insensitive to forces traverse to the operating direction**
- **Easy changeable, ergonomical operating plate**
- **Temperatures from -40 °C to 120 °C**
- **In combination with TRANS CAL 7281, can be used portably and network-independent**
- **Option: available as dual range version**

8400 EN

Application
With its flat construction this force sensor is specially designed to be fitted to a pedal. By this, the operator's forces for each respective action, for example brake tests, can be measured directly and the reaction of the vehicle or machine can be designated. This applies to real test drives, as well as in driving simulators. Due to the special construction of the membrane, it is irrelevant whether an upright or hanging pedal is concerned. The sensor is designed in a way that unavoidable lateral forces have as little impact on the measurement result as possible. Using a central internal thread on the control surface, various machine-related adaptor parts can be easily mounted. Because the pedal is convex-shaped on its surface, the pedal force sensor has a very rigid base plate and therefore can easily be applied to various geometrics. The mounting can even take place on a pedal with an elastomer covering.

Description
With a height of only 17 mm, this sensor is particularly flat and, in its assembled state, does not interfere with the operation task of the pedal. Additionally, its diameter of less than 60 mm makes this sensor suitable for almost all forms of pedals. The sensor is screwed together in a safe and stable way with a suitable bracket which goes under the pedal. Due to various pedal designs, this bracket is not included in the delivery scope and has to be manufactured separately to fit to the pedal. The connection cable is specially protected, it sturdily holds using PG cable glands and is suitable for robots: Therefore lots of movements in realistic, dirty and damp areas are guaranteed. On the measurement membrane in addition to its stable mechanics several bridges formed by strain gauges protect the sensor from additional transverse forces. The operator provides, from personal factors such as foot position, habits or various shoes, inevitably off-centre forces on the operating part of the sensors, which need to be compensated.

Messtechnik Schaffhausen GmbH
Mühlenstrasse 4, CH-8260 Stein am Rhein, Telefon +41 52-672 50 00, Telefax +41 52-672 50 01, www.mts.ch, e-mail: info@mts.ch
Messen Prüfen Automatisieren www.mts.ch

Technical Data

Order Code	Measuring Range
8400-B001-6001	0 ... 1000 N
8400-B001-6002	0 ... 2000 N

Electrical values

Bridge resistance:	700 Ω
Excitation voltage:	10 VDC
Sensitivity:	2 mV/V ± 0.5 %
by a circuit board in the cable, 10 cm before the cable end of 1 kN	
Calibrator resistor:	100 kΩ

Environmental conditions

Nominal temperature range:	- 30 °C ... + 60 °C
Range of operating temperature:	- 30 °C ... + 80 °C
Influence of temperature on zero:	0.02 % F.S./K
Influence of temperature on sensitivity:	0.02 % F.S./K

Mechanical values

Accuracy:	relative non-linearity 0.5 % F.S. acc. to VDE 2638
Kind of measurement:	load cell
Deflection:	> 80 µm
Overload safe:	150 % of capacity
Overload:	250 % of capacity
Dynamic load	
erecommended:	70 % of capacity
possible:	100 % of capacity
Material:	stainless steel 1.4542
Protection class:	IP67, acc. to DIN 60529
Electrical connection:	suitable for drag chain 4 leaded TPE isolated cable, length 1.5 m
Bending radius:	fixed 10 mm by movement 30 mm

Wiring code:

white	excitation voltage	positive
brown	excitation voltage	negative
yellow	signal output	positive
green	signal output	negative

Dimensions:	refer to scale drawing
Weight:	600 g

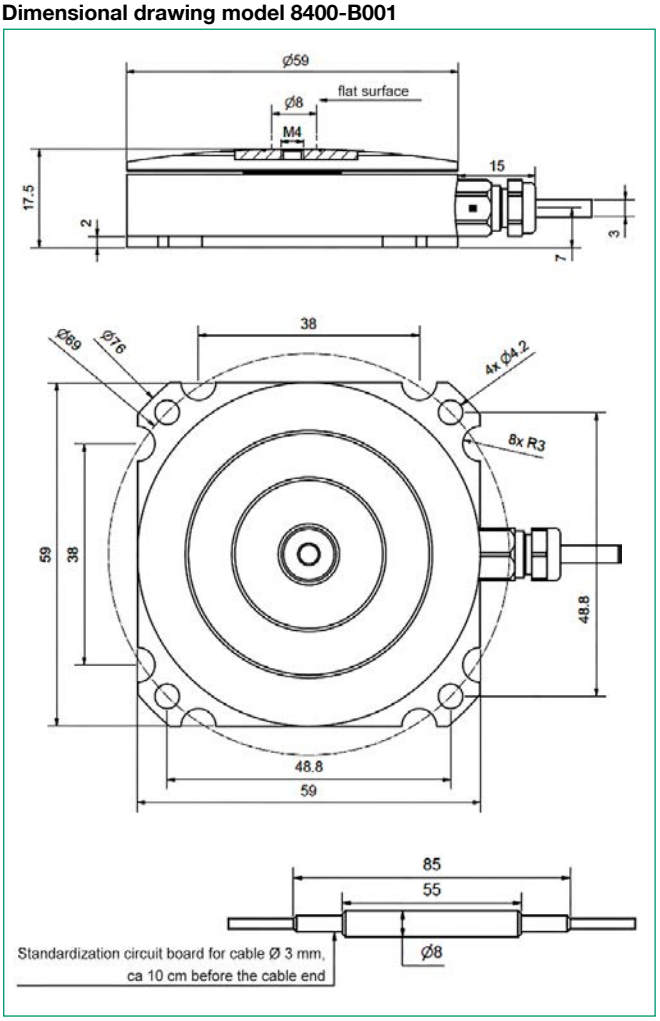
Option

Better accuracy	< ± 0.25 % F. S.
For additional standardised output signal then with rated output tolerance ± 0.25 %	**...-V1x**
Dual range version additional calibration point at 200 N or 500 N	**on request**

Order Information

Pedal load cell, measuring range 1000 N **Model 8400-B001-6001**

Dimensional drawing model 8400-B001



Factory Calibration Certificate (WKS)

Calibration of a load cell separately as well as connected to an indicator. Standard is a certificate with 11 points, starting at zero, running up and down in 20% increments covering the complete measuring range for preferential direction. Special calibrations on request. Calculation of costs by base price plus additional costs per point.

Order Code 84WKS-84...

Accessories

burster TEDS

9-pin male sub-D connector and memory chip for the electronic sensor datasheet, for connecting strain-gauge load cells to the TRANS CAL 7281 **Model 9900-V229**

High-precision calibrator for mechanical measurements TRANS CAL - reference measurement device **Model 7281-V0000**

Technical Data 7281

Operation mode: Reference measurement device

Non-linearity:	< ± 0.001 %
Measuring rates:	0.1 ... 1200/s (DC); 0.1 ... 2/s (AC) (reduced accuracy at 50/s)
TC gain:	± 0.001 %/K
TC zero point:	< 0.2 µV/K
Cut-off frequency:	10 kHz (-3db)

Strain gauge

Error limit:	± 0.02 % v.E.
Bridge resistance (full bridge):	120 Ω ... 10 kΩ
Connection type:	4 / 6 wire technology
Input voltage ranges (DC):	± 15 mV; ± 30 mV; ± 250 mV
Input voltage ranges (AC):	± 15 mV; ± 30 mV
Sensor excitation voltage (DC):	2.5 V; 5 V (at 120 Ω only 2.5 V)
Sensor excitation voltage (AC):	2.5 Veff / 5 Veff (from 350 Ω)
Sensor excitation current:	max. 30 mA
Electronic data sheet (TEDS):	read from sensor EEPROMs

General device data

A/D converter:	24 Bit
Real-time clock/date	
Interface:	USB 2.0, downwards compatible, opto-isolated
Nominal temperature range:	0 ... 40 °C
Storage temperature range:	-20 ... 60 °C
Display:	LCD with white LED backlighting
Baud rate:	115200
Supply voltage:	4 x Mignon or 10 ... 28 VDC integrated battery charging circuit

Terminals

Measuring, device test, sensor test:	SUB-D female connector, 9 pin
USB interface:	type B male connector

Housing

Material:	Aluminium (light gray, black)
Dimension (L x W x H):	220 x 100 x 52 mm with tilting foot and rubber feet
Weight:	approx. 850 g
Protection class:	IP40

For further information, please refer to data sheet 7281.

MTS Messtechnik Schaffhausen GmbH
Mühlenstrasse 4, CH-8260 Stein am Rhein, Telefon +41 52-672 50 00, Telefax +41 52-672 50 01, www.mts.ch, e-mail: info@mts.ch
Messen Prüfen Automatisieren www.mts.ch