HEXAGON | TESA TECHNOLOGY

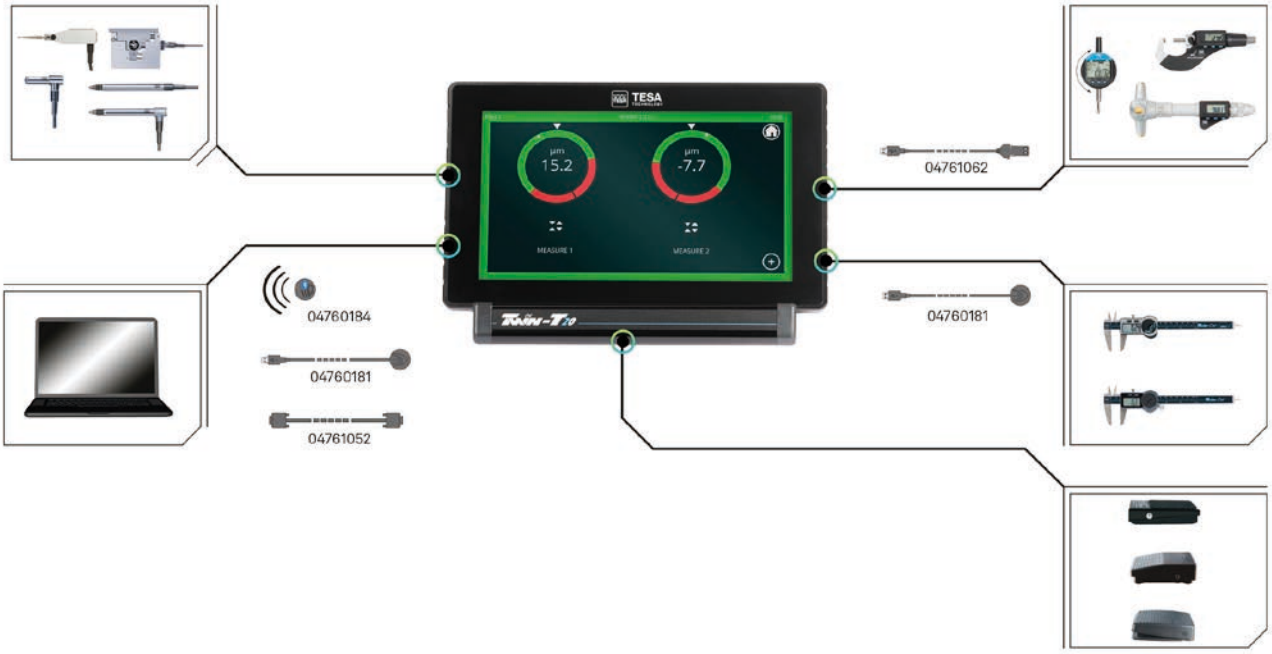
Display units and electronic interfaces

TESA displays units: precision for all your applications

The display units are designed to show a reliable measurement value, usually from inductive TESA probes, for quick control of parts both in production workshops and quality assurance laboratories.

Our range meets the needs of portable measurement for the verification of alignments or run-outs close to the installation and also stationary measurement benches.

Of course, our display units also incorporate connectivity features to store, collect and analyse data for optimal traceability.

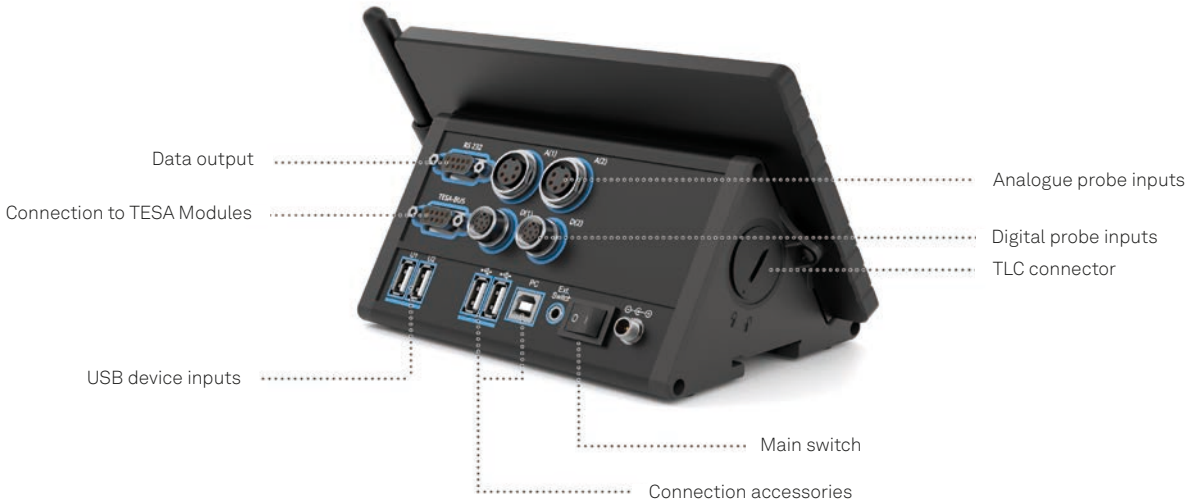


The TESATRONIC range, a solution for every need:

TWIN-T10, TWIN-T20, TT80, TT90

Display with battery

Display with power supply



TWIN-T10 digital display unit

- DISPLAY
  - Large, high-contrast screen for clear and immediate reading
  - Retractable feet
  - Back mounting
- USE
  - Light and portable
  - Robust for use in any kind of conditions, even the most extreme ones
- AUTONOMY
  - Powered by standard AA batteries only, its low consumption allows a long autonomy
- FUNCTIONS
  - Metric or imperial unit
  - Identification of values out of tolerance
  - Storage of MAX, MIN or MAX-MIN values during dynamic measurement
  - Combines analogue display and analogue indication
  - Zeroing of the display facilitating measurements by comparison
  - Special ZOOM display allowing a more detailed visualization of the analogue scale to facilitate precise adjustment
  - Up to 7 measuring ranges or automatic switching according to the measured value

04430013

Standard	DIN 32876
Input(s)	1 probe input
Max. permissible errors	At 20°C and relative humidity of ≤ 50 %: Analogue display: 1% ± 0,1 µm Digital display: 1% ± 0,1 µm
Material	Resistant synthetic material
Dimensions	Housing: 100 x 170 x 38 mm Screen: 70 x 62 mm Digit: 10 x 5 mm
Degree of protection	IP63
Weight	500 g
Power supply	4 AA batteries
Data output(s)	TLC
Units	mm / in
Particular characteristic(s)	At 20°C and relative humidity of ≤ 50 %: Zero drift and signal amplification: ≤ 0,005 %/° C Display frequency limit with respect to input signal: 10 Hz
Response time	At 20°C and relative humidity of ≤ 50 %: Response time ≤ 100 ms Digital display hold ≥ 100 ms
Included in delivery	TWIN-T10 display unit 4 AA batteries Instruction manual including declaration of conformity

Display units

Part number	Designation
04430013	TWIN-T10 display

Accessories

Part number	Designation
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
01460008	Back with central lug, Ø 40 mm
01460009	Back with offset lug, Ø 40 mm
04768000	Handswitch, Jack, 1,8 m
04768001	Footswitch, Jack, 1,8 m
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04768002	3 x batteries AA, 1,5 V, type LRC 6

Measuring ranges, analogue and numerical interval

Measuring range µm	Analogue interval µm	Numerical interval µm	Measuring range in	Analogue interval in	Numerical interval in
±5000	1	0,1	±250/1000	.010/1000	.005/1000
±2000	1	0,1	±100/1000	.010/1000	.005/1000
±500	1	0,1	±25/1000	.010/1000	.005/1000
±200	1	0,1	±10/1000	.010/1000	.005/1000
±50	0,1	0,1	±2.5/1000	.005/1000	.005/1000
±20	0,1	0,1	±1.0/1000	.005/1000	.005/1000
±5	0,1	0,1	±0.25/1000	.005/1000	.005/1000

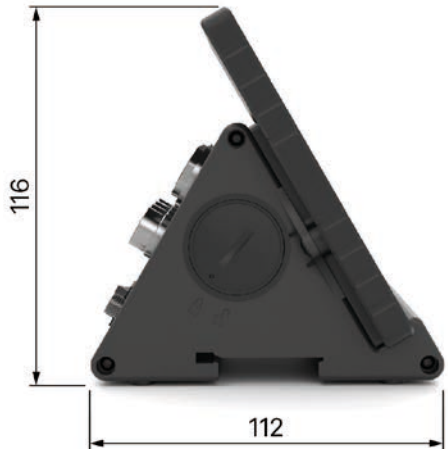
TWIN-T20 digital display unit

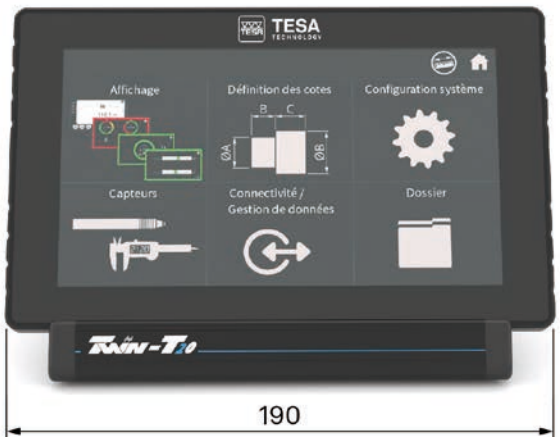
- USE
  - Robust, for laboratory and workshop use
  - Compatible with a wide range of probes and measuring devices
  - Large colour screen for comfortable reading in dark environments
  - Black background display for excellent contrast
  - Refined interface for easy handling without confusion
  - 4 different display styles
  - Touch screen
- FUNCTIONS
  - One or two measurement values displayed
  - Static or dynamic measurements
  - Intuitive measurement setting
  - Classification of the values

04430014

Standard	DIN 32876
Input(s)	2 inductive probe inputs 2 digital probe inputs 2 USB measuring device inputs
Max. permissible errors	At 20°C, relative humidity of ≤ 50 %, with fictive probes: Digital display: ± (0,2 % measured value + 0,3 µm)
Material	Housing: aluminium
Dimensions	Housing: 112 x 190 x 119 mm Screen: 15,5 x 8,7 cm
Degree of protection	Front side: IP65
Weight	1,74 kg
Power supply	100 ÷ 240 V, 50 ÷ 60 Hz, 0,6 A
Data output(s)	TLC, RS232
Units	mm / in
Particular characteristic(s)	At 20°C and relative humidity of ≤ 50 %: Zero drift ≤ 0,15 µm / °C
Sampling frequency	4300 Hz
Included in delivery	TWIN-T20 display unit Power supply + EU, UK, US and CH cables Self-test report Calibration certificate Quick start manual including a declaration of conformity

Display units





Part number	Designation
04430014	TWIN-T20 display

Accessories

Part number	Designation
04460016	TWIN-T20 power supply + UE, UK, US and CH cables
04460013	Stylus + holder
04460017	Screen
04460019	Socket
04768000	Handswitch, Jack, 1,8 m
04768001	Footswitch, Jack, 1,8 m
04761071	Footswitch, USB, 2 m
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04761062	Opto-RS232 to USB cable, duplex, 2 m
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software

Measuring ranges, analogue and numerical interval

Measuring range µm	Analogue interval µm	Numerical interval µm	Measuring range in	Analogue interval in	Numerical interval in
±5000	200	0,1	±.2	.01	.0001
±2000	100	0,1	±.1	.005	.0001
±500	20	0,1	±.02	.001	.0001
±200	10	0,1	±.01	.0005	.0001
±50	2	0,1	±.002	.0001	.0001
±20	1	0,1	±.001	.00005	.0001
±5	0,2	0,1	±.0002	.00001	.0001

TT80 & TT90 digital display units

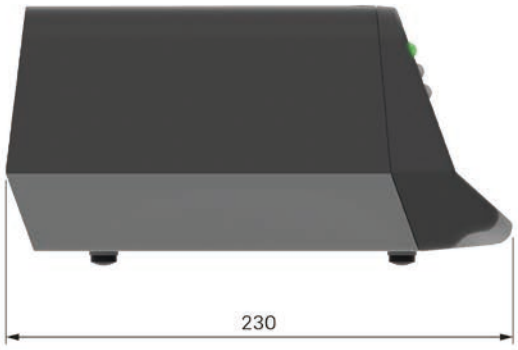
• DISPLAY
- Large, high-contrast screen for clear and immediate reading
- Combines analogue display and analogue indication
- Pointer or bargraph indication

• FUNCTIONS
For TT80 and TT90
- Classification of values and display through colour LEDs with signal outputs
- Locking of displayed values for step by step measurement routines
- Automatic recognition of the type of connected TESA probe with adaptation of the measurement signals to the value of output
- 9 measuring ranges, switchable manually or automatically according to the measured value
- Dynamic measurement
- Storage in the memory of extreme values Min, Max, Max-Min and average (Max, Min)
- Output signals through relay for 5, 10, 20 or 40 acceptable classes
- Analogue output for exterior processing of signals

For TT90
- 6 measuring ranges, switchable manually or automatically according to the measured value
- Output for bolt retraction control
- Selection of stabilisation time for measuring cycles

Standard	DIN 32876
Input(s)	2 probe inputs
Max. permissible errors	At 20°C and relative humidity of ≤ 50 %: Analogue display: 2 % Digital display: 0,15 % Analogue output: 0,3 % Digital output: 0,15 %
Material	Resistant synthetic material
Dimensions	Housing: 255 x 235 x 120 mm Screen: 126 x 62 mm Digit: 12,5 x 6,6 mm
Degree of protection	Front side: IP54
Weight	1,1 kg
Power supply	110 ÷ 240 V, 50 ÷ 60 Hz
Data output(s)	Opto-RS232
Units	mm / in
Particular characteristic(s)	At 20°C and relative humidity of ≤ 50 % Zero drift and signal amplification: ≤ 0,005 %/° C Display frequency limit with respect to input signal: 10 Hz No drift of stored values
Response time	At 20°C and relative humidity of ≤ 50 %: Response time of displays and classification LEDs: ≤100 ms Digital display hold: 100 ms Response time of the analogue output signal in relation to digital display: ≤30 ms
Included in delivery	TT80 or TT90 display unit Power supply + EU and US cables Instruction manual including declaration of conformity

Display units



Part number	Designation
04430011	TT80 display
04430012	TT90 display

Accessories

Part number	Designation
04761062	Opto-RS232 to USB cable, duplex, 2 m
04761049	Opto-RS232 to Sub-D 9p/f cable, duplex, 2 m
04768000	Handswitch, Jack, 1,8 m
04768001	Footswitch, Jack, 1,8 m
04761054	Power supply 100 ÷ 240 Vac, 50 ÷ 60 Hz, 6,6 Vdc, 750 mAh
04761055	Power cable, UE
04761056	Power cable, US

Measuring ranges, analogue and numerical interval

TT80 and TT90 (TT80 mode)

Measuring range µm	Analogue interval µm	Numerical interval µm	Measuring range in	Analogue interval in	Numerical interval in
±5000	200	0,01	±.2	.01	.000001
±2000	100	0,01	±.1	.005	.000001
±500	20	0,01	±.02	.001	.000001
±200	10	0,01	±.01	.0005	.000001
±50	2	0,01	±.002	.0001	.000001
±20	1	0,01	±.001	.00005	.000001
±5	0,2	0,01	±.0002	.00001	.000001
±2	0,1	0,01	±.0001	.000005	.000001
±0,5	0,02	0,01	±.00002	.000001	.000001

TT90

Measuring range µm	Analogue interval µm	Numerical interval µm	Measuring range in	Analogue interval in	Numerical interval in
±200	10	0,001	±5000	200	.05
±50	2	0,001	±2000	100	.05
±20	1	0,001	±1000	50	.05
±5	0,2	0,001	±200	10	.05
±2	0,1	0,001	±100	5	.05
±0,5	0,02	0,001	±20	1	.05

TTA20 analogue display unit

• DISPLAY
- Compact analogue display unit with classification of measurement values

• FUNCTIONS
- Metric or imperial unit
- Zero-setting
- Tolerance setting
- 6 measuring ranges
- Colour LEDs for classification
- Polarity reverse switch for classification signals (internal or external dimensions)
- Locking a displayed value
- Analogue output for a display unit or external recording
- 1 auxiliary signal input, e.g. for all correction values.

04430003

Standard	DIN 32876
Input(s)	2 probe inputs
Max. permissible errors	At 20°C and relative humidity of ≤ 50 %: Analogue display: 1,5% Analogue output: 1 % of the scale +/- 0,1 µm
Material	Housing: cast aluminium
Dimensions	Housing: 258 x 190 x 158 mm
Degree of protection	IP40
Weight	3,4 kg
Power supply	110 ÷ 230 V, 50 ÷ 60 Hz
Data output(s)	Sub-D 15p
Units	mm / in
Particular characteristic(s)	At 20°C and relative humidity of ≤ 50 %: Zero drift = ≤ 0,005 % / °C No drift of stored values Frequency limit for analogue display: 1 Hz. Frequency limit for analogue output: 50 Hz. Frequency limit for classification: 30 Hz
Response time	At 20°C and relative humidity of ≤ 50 %: Response time of analogue displays ≤1 ms Response time of the analogue output signal in relation to analogue display: ≤20 ms Response time of classification signals: ≤10 ms
Included in delivery	TTA20 display unit Power supply Power supply cable to choose (to be specified when ordering) Instruction manual including declaration of conformity

Display units

Part number	Designation
04430003	TTA20 display

Accessories

Part number	Designation
03160015	Power cable, CH, 2 m
03160016	Power cable, UE, 2 m
03160017	Power cable, without plug, 2 m
04460004	Connector 15p for analogue output and classification signal of TT A20

Measurement ranges and analogue interval

Measuring range µm	Analogue interval µm	Measuring range in	Analogue interval in
±1000	50	±.1	.005
±300	100	±.03	.001
±100	5	±.01	.0005
±30	1	±.003	.0001
±10	0,5	±.001	.00005
±3	0,1	±.0003	.00001

Probe + TWIN-T10 display set

04430013P1 and 04430013P2

Input(s)	1 probe input
Max. permissible errors	TWIN-T10 at 20°C and relative humidity of ≤ 50 %: Analogue display: 1% Digital display: 1 %
Material	Resistant synthetic material (TWIN-T10)
Dimensions	TWIN-T10: Housing: 100 x 170 x 38 mm Screen: 70 x 62 mm Digit: 10 x 5 mm
Degree of protection	TWIN-T10: IP63
Power supply	4 AA batteries
Data output(s)	TWIN-T10: TLC
Units	mm / in
Particular characteristic(s)	TWIN-T10 at 20°C and relative humidity of ≤ 50 %: Zero drift and signal amplification: ≤ 0,005 %/° C Display frequency limit with respect to input signal: 10 Hz
Response time	TWIN-T10 at 20°C and relative humidity of ≤ 50 %: Response time ≤ 100 ms Digital display hold ≥ 100 ms
Included in delivery	TWIN-T10 + batteries Probe GT31 or GT22 Magnetic holder UJ15 Instruction manual including declaration of conformity

Sets of probe and display

Part number	Designation
04430013P1	TESA µ-FINDER set with GT31 lever probe
04430013P2	TESA µ-FINDER set with GT22 axial probe

Accessories

Part number	Designation
04981001	DATA-DIRECT software
04981002	STAT-EXPRESS software
DATA-VIEWER	Free data acquisition software
01460008	Back with central lug, Ø 40 mm
01460009	Back with offset lug, Ø 40 mm
03210802	GT31 probe
04768000	Handswitch, Jack, 1,8 m
04768001	Footswitch, Jack, 1,8 m
04760181	TLC-USB cable, 2 m
04760182	TLC-DIGIMATIC cable, 2 m
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable
04768002	3 x batteries AA, 1,5 V, type LRC 6

Dummy probes

The reference probes, also called «dummy probes», are resistance dividers. Each probe simulates a given length very accurately.

Reference probes are connected to the instrument instead of standard probes for checking or calibrating electronic devices that can be connected to TESA inductive probes.

Dimensions	Ø 18 x 118 mm
Degree of protection	IP40
Weight	≈ 45 g
Particular characteristic(s)	Input impedance: 970 ± 50 Ω (13 kHz) or 2150 ± 50 Ω (0 µm normal) Phase (13 kHz): 71 ± 2° Input resistance: 100 ± 5 Ω Output impedance (13 kHz): 1000 ± 2 Ω Phase (13 kHz): 0,2° Dummy probe (half-bridge), sensitivity 73.75 mV/V/mm Suitable for instruments characterized as follows: Frequency: 13 ± 0,65 kHz Voltage: 3 ± 0,015 Vrms (2 symmetrical voltages of 1,5 Vrms) Output and input impedance: ≤ 0,2 Ω and 2000 Ω, resp.
Included in delivery	Measurement protocol

Part number	Designation
S41078077	Dummy probe, ± 0 µm
S41078079	Dummy probe, ± 3 µm
S41078231	Dummy probe, ± 5 µm
S41078081	Dummy probe, ± 10 µm
S41078228	Dummy probe, ± 100 µm
S41078230	Dummy probe, ± 190 µm
S41078087	Dummy probe, ± 300 µm
S41078332	Dummy probe, ± 500 µm
S41078751	Dummy probe, ± 1000 µm
S41078752	Dummy probe, ± 1900 µm
S41078078	Dummy probe, ± 0 in
S41078080	Dummy probe, ± .0003 in
S41078082	Dummy probe, ± .001 in
S41078084	Dummy probe, ± .003 in
S41078086	Dummy probe, ± .01 in
S41078088	Dummy probe, ± .03 in
S41077249	Set of 3 dummy probes, ± 0 µm, ± 100 µm, ± 1000 µm
S41078654	Set of 2 dummy probes, ± 190 µm, ± 1900 µm

BPX interface

- FUNCTIONS
  - Direct connection to the computer's USB port
  - "Stand Alone" operating mode
  - Modularity: several BPXs can be connected together to increase the number of probes used
  - Increased immunity to negative environmental effects, whether of electrical origin or provoked by liquid and solid contaminants
- SOFTWARE
  - TIS interface software is included in the BPX
  - Possibility of indicating tolerance values
  - Export of values to a .csv file

BPX interface, front and back sides

Max. permissible errors	At 20°C and relative humidity of ≤ 50 % Digital output: ± (0,05 + 0,15 % of the measuring range)
Material	Housing: aluminium
Dimensions	55 x 172 x 155 mm
Degree of protection	IP40
Weight	1 kg
Data output(s)	3x USB 2.0
Particular characteristic(s)	At 20°C and relative humidity of ≤ 50 %: Zero drift: ≤0,05 %/°C Sensitivity drift: ≤0,05 %/°C Acquisition time: 10 ms (between two consecutive measurements), 1 ms (timing window) Time data transfer of digital serial output (USB): depends on the operating system of the computer
Power supply	115 ÷ 230 V, 50 ÷ 60 Hz

Part number	Designation
05030010	BPX44 interface

M4P-3 interface

- USE
  - Connection to PC possible via A/D converter
  - Connectable to a programmable controller
  - Easy and quick integration on DIN rail
  - Interfaces can be connected to each other (up to 10 interfaces) with a common power supply
- FUNCTIONS
  - Analogue signal output (in V/mm)
  - The interface converts the signal from the probe into a DC voltage via an electronic circuit optimised for fast measurements.
  - Gain of 1V/mm (standard) or 2,5, 5 or 10 V/mm (via adjustment)

S48001720

Max. permissible errors	± 0,5 % of the measuring range
Dimensions	75 x 155 x 40 mm
Degree of protection	IP40
Weight	400 g
Data output(s)	Sub-D 9p/f
Particular characteristic(s)	Gain: 1 V/mm (standard), 2,5 V/mm, 5 V/mm, 10 V/mm
Operating temperature	0° ÷ 40° C
Input(s)	4 probe inputs
Fixing	On 35 x 7,5 mm DIN rail

Part number	Designation
S48001720	M4P-3 interface

Accessories

Part number	Designation
S48001719	Power supply 100 ÷ 240 V, 50 ÷ 60 Hz
03160016	Power cable, UE, 2 m
03160015	Power cable, CH, 2 m
03160017	Power cable, without plug, 2 m