

Modular resistance thermometer - Quicktemp TP60/TW39...T500 -



QUICKTEMP
mit easy connect
**QUICK-CALIBRATE
INSIDE**

FEATURES

- 1 BASIC DEVICE - PROCESS ADAPTATION USING PROTECTIVE SLEEVE DESIGNS
- QUICKTEMP MODULAR PROCESS CONNECTION SYSTEM FOR DEVICE REPLACEMENT AND QA CHECKING WITHOUT PROCESS INTERRUPTIONS/OPENING
- EXTENSIVE RANGE OF PROTECTIVE SLEEVES AVAILABLE FOR WELDING IN, SCREWING IN AND CLAMPING
- SPRING-MOUNTED MEASURING INSERT FOR OPTIMUM METALLIC CONTACT WITH THE PROTECTIVE SLEEVE AND SHORT REACTION TIMES, REPLACEABLE
- QUICK-CALIBRATE-INSIDE FOR QUICK AND EASY INSTALLATION AND CALIBRATION WITHOUT UNDOING THE ELECTRICAL CONNECTION
- ACCURATE AND LONG-TERM STABLE BY MEANS OF HIGH-QUALITY BASIC TECHNOLOGY

DESCRIPTION

The TP60 resistance thermometers with the Quicktemp modular system and the optional, innovative Quick-Calibrate-Inside system make possible quick installation and calibration with maximum flexibility in the process connection. They are particularly suitable for temperature measurements in quality-related measuring locations with extremely high demands with regard to accuracy and short reaction times.

The Quicktemp modular system consists of a TP60 resistance thermometer and a protective sleeve as the process connection. Because of the uniform length of the replaceable measuring insert and the protective sleeves, the stock-keeping costs can be reduced and spare part management simplified considerably. The TP60 resistance thermometers can be installed and removed without interrupting or opening the process, e.g. for calibration. This increases system availability and reduces calibration costs, cleaning costs and the risk of contamination of products and personnel.

The wide range of hygienic process connections, welded solutions or standard process connections, e.g. G $\frac{1}{2}$ " with elastomer-free sealing cone (TP16), VARIVENT®, conical couplings with groove union nuts DIN 11851, ... qualifies the TP60 resistance thermometer for use in all industries and applications with extremely high hygiene demands.

With the innovative Quick-Calibrate-Inside, the TP60 resistance thermometers can be connected more quickly and the signal output checked more easily. The signal pick-up for calibration takes place quickly, easily and reliably via the two additional clamps, without disconnecting the system voltage.

The TP60 resistance thermometers have a replaceable measuring insert with 1xPt100, 3-wire class A and a TE42 temperature transmitter with a 4...20mA 2-wire output signal. Other versions are available.

Modular resistance thermometer

- Quicktemp TP60/TW39...T500 -



TECHNICAL DATA

General details				
Device type/measuring principle		TP60...T500 / Pt100 resistor		
Measuring insert				
Sensor type		- 1x Pt100 in accordance with EN 60751, 2-wire - 1x Pt100 in accordance with EN 60751, 3-wire (standard) - 1x Pt100 in accordance with EN 60751, 4-wire - 2x Pt100 in accordance with EN 60751, 2-wire - 2x Pt100 in accordance with EN 60751, 3-wire		
Version		- Standard version T _{max} =400°C - Mineral-insulated version T _{max} =600°C, vibration resistant		
Dimensions		Length 154mm (with T500), Ø=3mm		
Output				
Version		- Resistor - loose wires, 50mm - Resistor - clamping block - Temperature transmitter - TE42, 4...20mA, 2-wire (standard) (data sheet T-TE42 ...) - Temperature transmitter - TE42, 4...20mA, HART®, 2-wire (data sheet T-TE42 ...) - Temperature transmitter - TE82, PROFIBUS PA (data sheet T-TE82 ...)		
Transmitter TE42				
Supply voltage		10 to 35 VDC	Temperature drift	≤ ± 0.01%
Current requirement		≤ 3.5mA	Calibration temperature	+25°C ± 5K
Current limitation		≤ 23mA	Ambient temperature	-40...+85°C
Switch-on delay		4s	Configurable start of range	< 50% final value
Response time		1s	Attenuation	0...60s, configurable
Fault signal		≤3.6mA / ≥21mA, configurable	Vibration resistance	4g / 2...150Hz (according to IEC 60068-2-30)
Voltage change influence		≤ ± 0.01%/V of 24V FS	Protection class	IP00 (installed, see housing protection class)
Circuit type		2-wire	Climate class	Cl. C, EN60654-1
Output signal		4...20mA or 20...4mA, 2-wire	CE conformity	EN 61326-1
Load resistance		(V _{vers} -10V)/0.022A	Measuring accuracy (typical values)	0.2K or 0.08%
Long-term stability		≤ ± 0.1K/year (under reference conditions)	Measuring current at sensor (normal)	< 0.6mA
Linearity error		≤ ± 0.1%/K	max. sensor cable resistance	11Ω/wire
Burden influence		≤ ± 0.02%/100Ω FS	Wire compensation with 2-L	max. 20Ω
Measuring range		Type	Pt100, 2L / 3L / 4L	min. temperature
		min. temperature span	10K	max. temperature
				-200°C
				+650°C
Connecting terminals		Screw clamps (captive screws), wires up to 1.75mm² or 1.5mm² with wire-end ferrules		
Measuring accuracy				
Pt100 class in accordance with EN 60751		- A (Standard) - AA (1/3B)		
Response times		T ₉₀ ≤4...6sec or shorter (design-dependent), other information on request		
Conditions of use				
Medium temperature		-50...400°C (standard), -50...600°C (version with mineral-insulated measuring insert)		
Ambient / storage conditions		- -40...+85°C (increased risk of cable breaks at less than -20°C) - Humidity 95%, without condensing (depending on transmitter used)		
Protection class acc. to EN60529		IP 67 and IP 69K (depending on design)		
Structural design - basic device				
Electrical connection		Cable gland M16x1.5 (standard), round connector M12x1, 2-pin, nickel-plated brass (stainless steel on request)		
Process connection		Quicktemp with screw-in thread G¼" - for protective sleeves with collar and loose union nut G¼"		
Seal		Captive O-ring seal		
Materials		- Field housing / lid:	CrNiSt 1.4301 (304)	
		- Housing seal:	FKM (Viton®)	
		- Measuring insert:	CrNiSt 1.4571	
		- O-Ring seal:	FKM (Viton®)	
Structural design - protective sleeves				
Process connection		- Clamp connection - Weld-in solutions - Clamp DIN 32676, ISO 2852, Tri-Clamp - Conical coupling / threaded coupling DIN 11851 - Female union / threaded coupling DIN 11864-1 - Elastomer-free sealing systems - VARIVENT® type N, type F - 1" ISO 228 thread - T-pieces and corner pieces		

T-TP60-EN-19-1/2

Modular resistance thermometer

- Quicktemp TP60/TW39...T500 -

Structural design - protective sleeves

Materials	- Sleeve body and collar CrNiSt 1.4404 - Union nut CrNiSt 1.4305
-----------	---

Construction type - protective sleeves

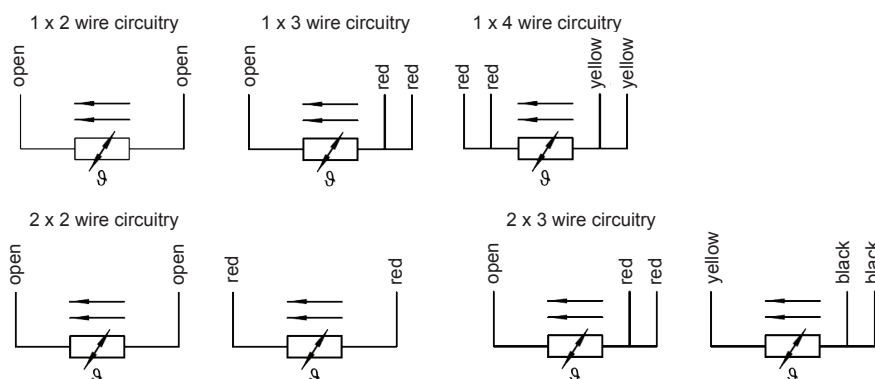
type of tip	- standard (no reduction) - reduced
max. process pressure	depending on construction, min. PN 10 (optional up to PN80, please follow design)

Attachement Quicktemp TP60...T500

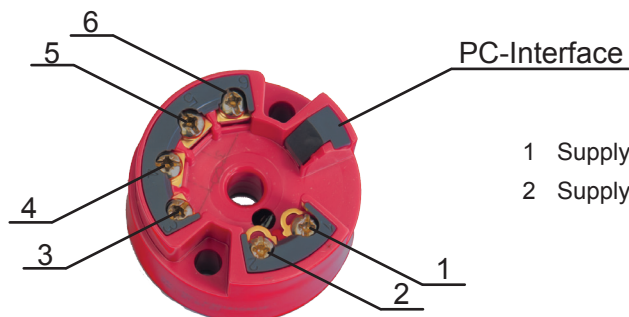
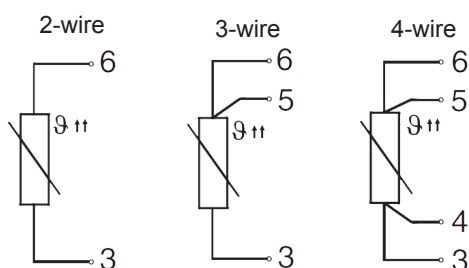
configuration kit	TZ42-USB with Software HengCom (download at www.hengesbach.com)
certificates	calibration certificate conformity declaration material certificate acc. to EN 10204

ELECTRICAL CONNECTION

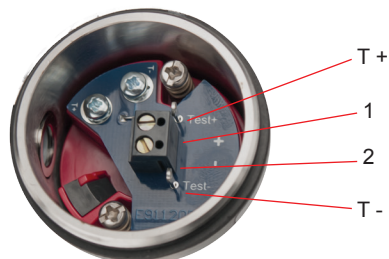
resistor / connector



Transmitter TE42 with cable gland

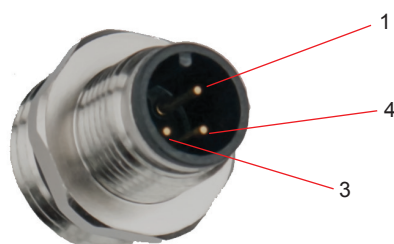


Transmitter TE42 with cable gland and QCI



- 1 Supply +, 4...20mA
- 2 Supply -, 4...20mA
- T+ Test / Calibration +, 4...20mA
- T- Test / Calibration -, 4...20mA

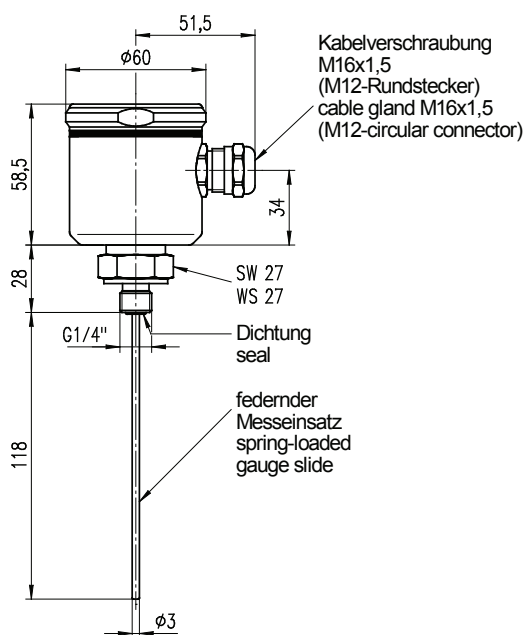
Transmitter TE42 with circular connective M12, 3-polar



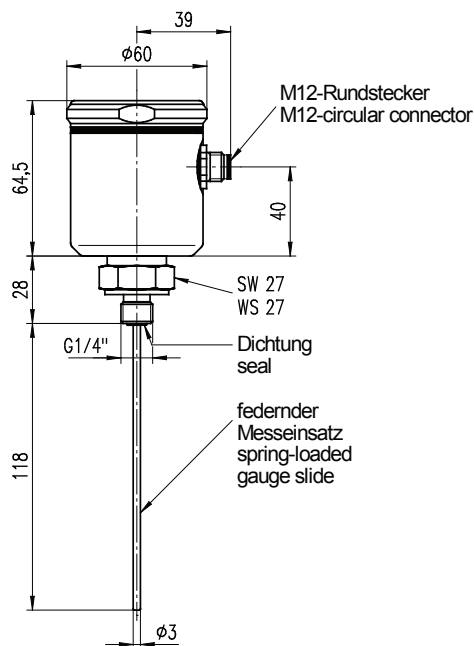
- 1 Supply +, 4...20mA
- 3 Supply -, 4...20mA
- 4 open

Modular resistance thermometer - Quicktemp TP60/TW39...T500 -

REFERENCE DRAWINGS (dimensions in mm)



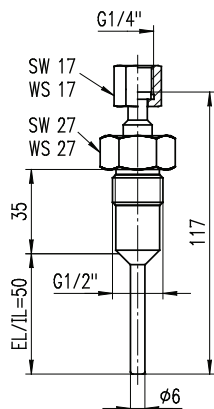
Quicktemp TP60/TW39...T500
Grundgerät
basic gauge



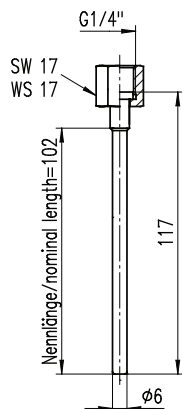
Quicktemp TP60/TW39...T500
Grundgerät
basic gauge

Bauform P
für Transmitter TE82,
Profibus PA

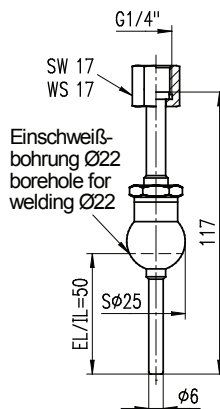
type P
for transmitter TE82,
Profibus PA



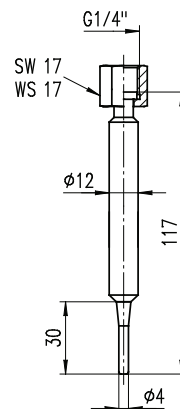
Art. 06402380



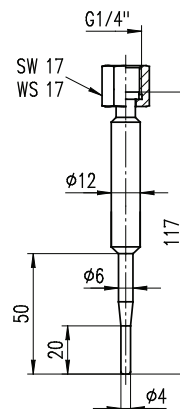
Art. 06402381



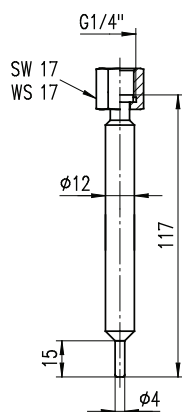
Art. 06402382



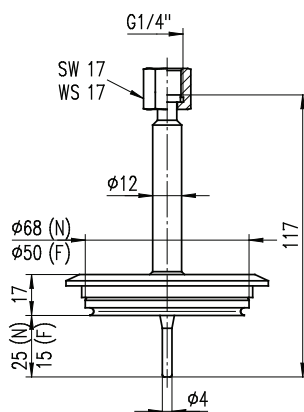
Art. 06402387



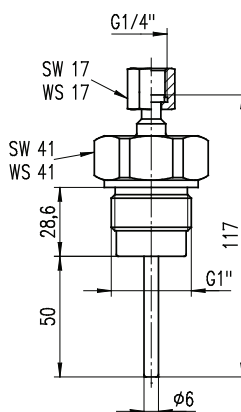
Art. 06402400



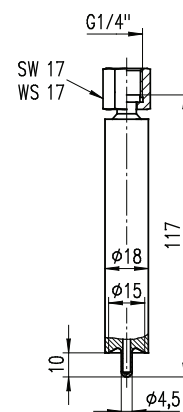
Art. 06402427



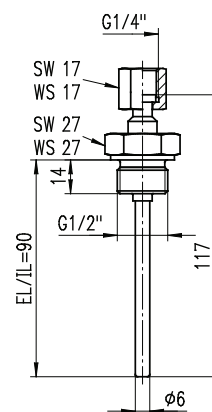
Art. 06402455 (N)
Art. 06402633 (F)



Art. 06402548



Art. 06402506



Art. 06402389

Modular resistance thermometer - Quicktemp TP60/TW39...T500 -



ORDER INFORMATION Quicktemp TP60...T500

S1 - Sensortype

A	1xPt100, 2-L
B	1xPt100, 3-L
C	1xPt100, 4-L
D	2xPt100, 2-L (only in connection with resistor output A0 oder K0)
E	2xPt100, 3-L (only in connection with resistor output A0 oder K0)

B1 - Type Header

H	Housing (Standard)
P	Housing: extended design for transmitter TE82, Profibus PA

E1 - Insertion lenght / measuring length

90	118mm / 154mm
----	---------------

A1 - Output / range

A0	00	resistor output with open wire, 50mm
K0	00	resistor output with connector
P0	00	Transmitter TE82, Profibus PA
L0		Transmitter TE42, 4...20mA, 2-L
Q0		Transmitter TE42, 4...20mA, 2-L with Quick-Calibrate-Inside-Platine (QCI)
T0		Transmitter TE52, 4...20mA, 2-L HART
02		-50°C...+50°C
30		0...50°C
40		0...100°C
41		0...120°C
50		0...150°C
60		0...200°C
61		0...250°C
70		0...300°C
71		0...350°C
80		0...400°C
99		other range

O1 - Option - electrical connection

-	cable gland M16x1,5 (standard)
M	circular connector M12x1

O2 - Option - measuring insert

-	standard
M	mineral-isolated insert, vibrationproof

O3 - Option - accuracy class Pt100

-	class A (standard)
2	class AA

O4 - Option - necktubing

-	without
H	with

	S1	B1	E1	A1		O1	O2	O3	O4
TP60/TW39			90		T500				

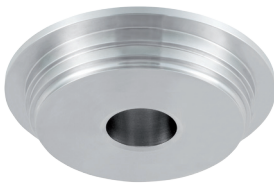
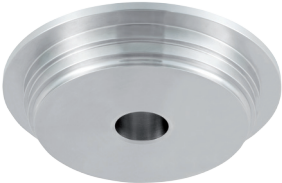
Modular resistance thermometer - Quicktemp TP60/TW39...T500 -

ORDER INFORMATION for Quicktemp TP60...T500 accessories

Item no.: 06402380  Protective sleeve, process connection TP16, G1½" with elastomer-free sealing cone, L_{Sleeve} 117mm, Ø6mm, EL 50mm	Item no.: 06402381  Protective sleeve, process connection TP15, smooth sensor for clamp connection, L_{Sleeve} 117mm, Ø6mm, EL variable
Item no.: 06402382  Protective sleeve, process connection TP13, sphere Ø25mm for welding in, L_{Sleeve} 117mm, Ø6mm, EL 50mm Optionally with tapered sensor tip Item no. 06401382V	Item no.: 06402387  Protective sleeve, smooth sensor for welding in, L_{Sleeve} 117mm, Ø12mm tapered to Ø_{Tip} 4mm, EL 30mm
Item no.: 06402400  Protective sleeve, smooth sensor for welding in, L_{Sleeve} 117mm, Ø12mm tapered to Ø6mm tapered to Ø_{Tip} 4mm, EL 50mm	Item no.: 06402427  Protective sleeve, smooth sensor for welding in, L_{Sleeve} 117mm, Ø12mm tapered to Ø4mm, EL 15mm
Item no.: 06402455  Protective sleeve, process connection VARIVENT® type N, Ø68mm, L_{Sleeve} 117mm, Ø12mm, Ø_{Tip} 4mm, EL 25mm	Item no.: 06402548  Protective sleeve, process connection LIQUITEC (LQT), G1", L_{Sleeve} 117mm, Ø6mm,
Item no.: 06402506  Protective sleeve, sensor for welding into tube DN15/20, L_{Sleeve} 117mm, Ø18mm, Ø_{Tip} 4.5mm, EL 10mm	Item no.: 06402389  Protective sleeve, process connection TP12, G1/2", L_{Sleeve} 117mm, Ø6mm, EL 90mm

Modular resistance thermometer - Quicktemp TP60/TW39...T500 -

ORDER INFORMATION for Quicktemp TP60...T500 accessories

Item no.: TEM1FTP16  Weld-in lug for process connection TP16 - protective sleeve 06402380	Item no.: TEM1LTP16  Weld-in lug for leakage holes for process connection TP16 - protective sleeve 06402380
Item no.: TCL4FTP16  Clamp DIN 32676 DN40 for process connection TP16 - protective sleeve 06402380	Item no.: TCL5FTP16  Clamp DIN 32676 DN50 for process connection TP16 - protective sleeve 06402380
Item no.: TMN2FTP16  Conical coupling with grooved union nut DIN 11851 DN25 for process connection TP16 - protective sleeve 06402380	Item no.: TMN4FTP16  Conical coupling with grooved union nut DIN 11851 DN40 for process connection TP16 - protective sleeve 06402380
Item no.: TMN5FTP16  Conical coupling with grooved union nut DIN 11851 DN50 for process connection TP16 - protective sleeve 06402380	Item no.: TVA5FTP16  VARIVENT® type F, Ø50mm for process connection TP16 - protective sleeve 06402380
Item no.: TVA6FTP16  VARIVENT® type N, Ø68mm for process connection TP16 - protective sleeve 06402380	Item no.: NEM1FLQT  Weld-in sleeve with collar Ø60mm for process connection LQT - protective sleeve 06402389

Modular resistance thermometer - Quicktemp TP60/TW39...T500 -

ORDER INFORMATION for Quicktemp TP60...T500 accessories

Item no.: NEM1LLQT  Weld-in sleeve with collar Ø60mm with leakage holes for process connection LQT - protective sleeve 06402389	Item no.: 06402303  Weld-in spherical sleeve Ø25mm, with clamping ring made from stainless steel and clamping screw M12x1.5 for protective sleeve 06402381 optionally with clamping ring made from PEEK Item no. 06402363
Item no.: TED1FTP16  Weld-in dummy for process connection TP16, G½" with elastomer-free sealing cone, mat. Ms58	Item no.: TVS1FTP16  Sealing plug for process connection TP16, G½" with elastomer-free sealing cone, mat. 1.4404
Item no.: TZ42_USB  Configuration kit TZ42 for transmitter, with USB inter- face (PC) HengCom software as download from www.hengesbach.com	Other protective sleeves, e.g. Clamp (DIN / ISO / TRI-Clamp), DIN 11851, DIN 11864-1, ... by request

Please observe the permissible nominal pressure of the process connection selected.

All specifications and certifications specified are only guaranteed when Hengesbach original components are used.

It is up to the system operator to ensure that the materials are compatible with the process conditions and the peripherals.

The devices are not suitable for use in potentially explosive areas and safety-related system components (SIL).

Our devices are subject to constant development; subject to technical modification.