

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



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

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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 $T_{max}=400^{\circ}\text{C}$ - Mineral-insulated version $T_{max}=600^{\circ}\text{C}$, vibration resistant			
Dimensions	Length 154mm (with T500), $\varnothing=3\text{mm}$			
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	$\leq \pm 0.01\%$	
Current requirement	$\leq 3.5\text{mA}$	Calibration temperature	$+25^{\circ}\text{C} \pm 5\text{K}$	
Current limitation	$\leq 23\text{mA}$	Ambient temperature	$-40...+85^{\circ}\text{C}$	
Switch-on delay	4s	Configurable start of range	$< 50\%$ final value	
Response time	1s	Attenuation	0...60s, configurable	
Fault signal	$\leq 3.6\text{mA} / \geq 21\text{mA}$, configurable	Vibration resistance	4g / 2...150Hz (according to IEC 60068-2-30)	
Voltage change influence	$\leq \pm 0.01\%/V$ 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	$(V_{\text{vers}} - 10\text{V})/0.022\text{A}$	Measuring accuracy (typical values)	0.2K or 0.08%	
Long-term stability	$\leq \pm 0.1\text{K/year}$ (under reference conditions)	Measuring current at sensor (normal)	$< 0.6\text{mA}$	
Linearity error	$\leq \pm 0.1\%/K$	max. sensor cable resistance	11 Ω /wire	
Burden influence	$\leq \pm 0.02\%/100\Omega$ FS	Wire compensation with 2-L	max. 20 Ω	
Measuring range	Type	Pt100, 2L / 3L / 4L	min. temperature	-200°C
	min. temperature span	10K	max. temperature	$+650^{\circ}\text{C}$
Connecting terminals	Screw clamps (captive screws), wires up to 1.75mm ² or 1.5mm ² with wire-end ferrules			
Measuring accuracy				
Pt100 class in accordance with EN 60751	- A (Standard) - AA (1/3B)			
Response times	$T_{50} \leq 4...6\text{sec}$ or shorter (design-dependent), other information on request			
Conditions of use				
Medium temperature	$-50...400^{\circ}\text{C}$ (standard), $-50...600^{\circ}\text{C}$ (version with mineral-insulated measuring insert)			
Ambient / storage conditions	$-40...+85^{\circ}\text{C}$ (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 G $\frac{1}{4}$ " - for protective sleeves with collar and loose union nut G $\frac{1}{4}$ "			
Seal	Captive O-ring seal			
Materials	- Field housing / lid: - Housing seal: - Measuring insert: - O-Ring seal:	CrNiSt 1.4301 (304) FKM (Viton®) CrNiSt 1.4571 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

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Structural design - protective sleeves

Materials	- Sleeve body and collar CrNiSt 1.4404 - Union nut CrNiSt 1.4305
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Construction type - protective sleeves

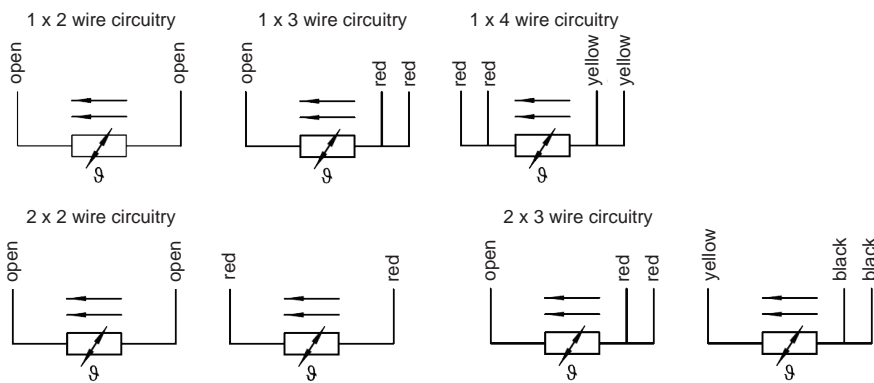
type of tip	- standard (no reduction) - reduced
max. process pressure	depending on construction, min. PN 10 (optional up to PN80, please follow design)

Attachement Quicktemp TP60...T500

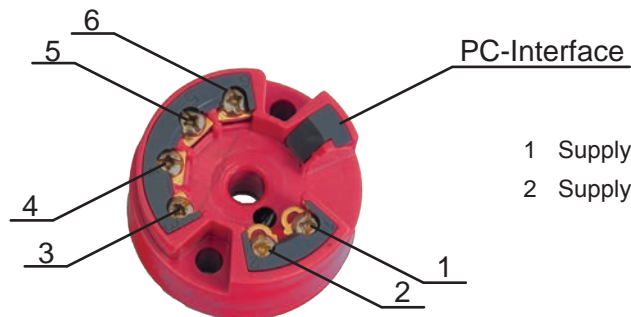
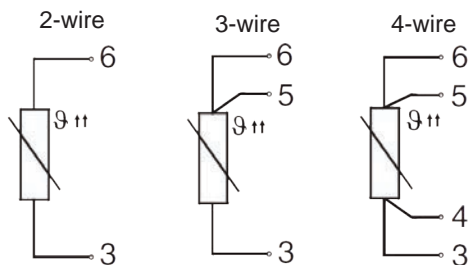
configuration kit	TZ42-USB with Software HengCom (download at www.hengesbach.com)
certificates	calibration certificate conformity declaration material certificate acc. to EN 10204

ELECTRICAL CONNECTION

resistor / connector

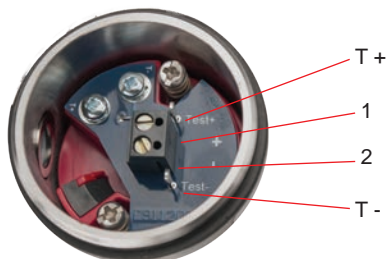


Transmitter TE42 with cable gland



- 1 Supply +, 4...20mA
- 2 Supply -, 4...20mA

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

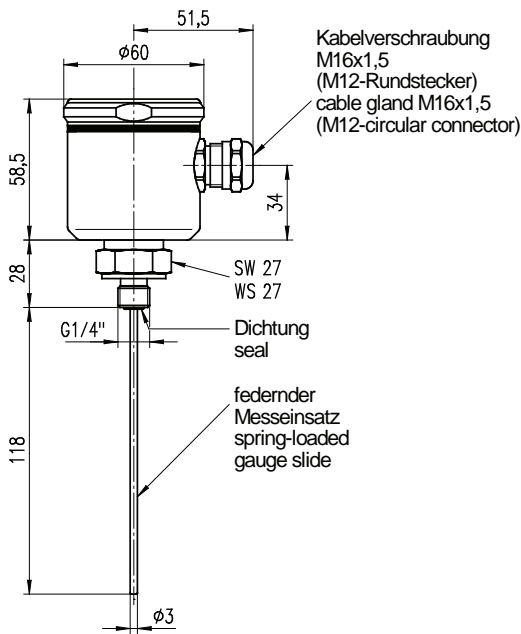
Transmitter TE42 with circular connective M12, 3-polar



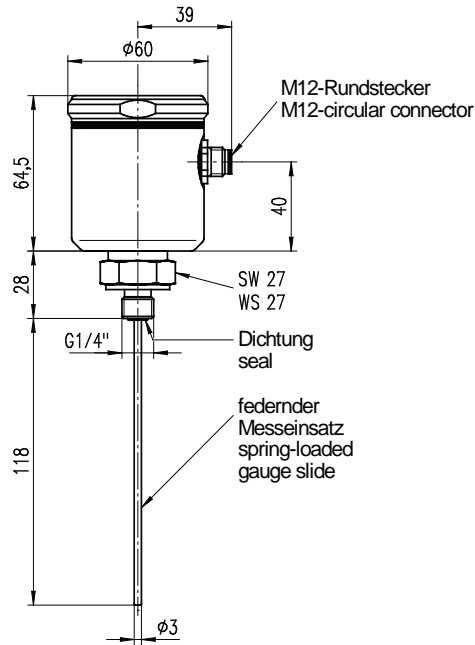
- 1 Supply +, 4...20mA
- 3 Supply -, 4...20mA
- 4 open

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REFERENCE DRAWINGS (dimensions in mm)



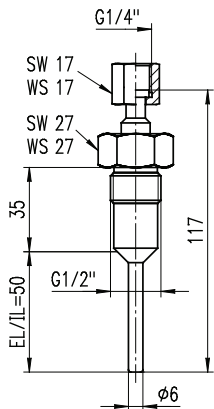
Quicktemp TP60/TW39...T500
Grundgerät
basic gauge



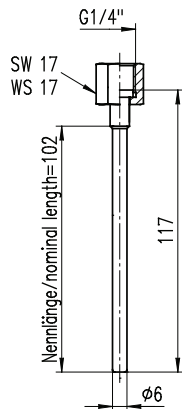
Quicktemp TP60/TW39...T500
Grundgerät
basic gauge

Bauform P
für Transmitter TE82,
Profibus PA

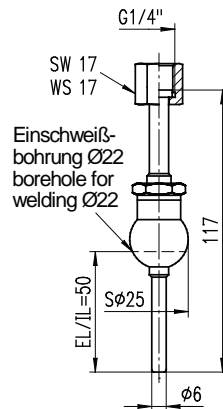
type P
for transmitter TE82,
Profibus PA



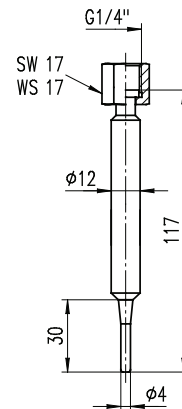
Art. 06402380



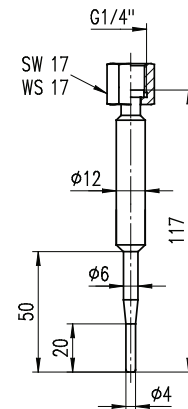
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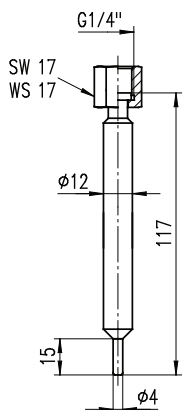
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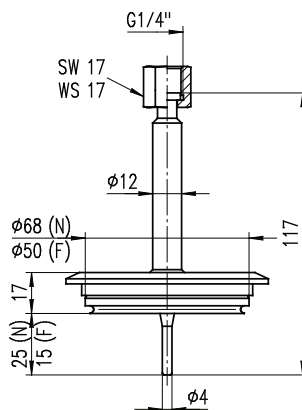
Art. 06402387



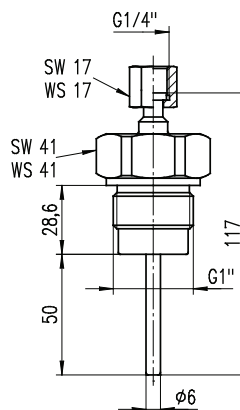
Art. 06402400



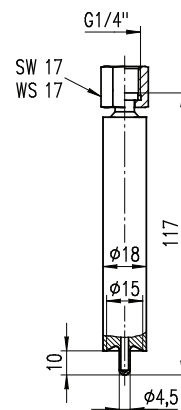
Art. 06402427



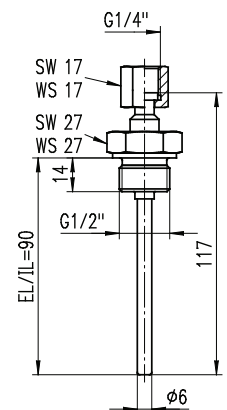
Art. 06402455 (N)
Art. 06402633 (F)



Art. 06402548



Art. 06402506



Art. 06402389

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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
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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

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






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

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

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.