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

simplify calibration

QUICKTEMP mit easy connect

Das modulare Anschlusssystem MODULAR von Hengesbach

FEATURES

- 1 BASIC DEVICE - PROCESS ADAPTION USING 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
- ACCURATE AND LONG-TERM STABILITY DUE TO HIGH-QUALITY BASIC TECHNOLOGY

DESCRIPTION

The TP60 resistance thermometers with Quicktemp modular system enable fast installation and calibration with maximum flexibility in the process connection. They are particularly suitable for temperature measurements at quality-relevant measuring points with the highest demands on accuracy and short response times.
The Quicktemp modular system consists of a TP60 resistance thermometer and a protective sleeve as a process connection.The uniform lengths of the interchangeable measuring insert and protective sleeves reduces storage costs and significantly simplifies spare parts management. The TP60 resistance thermometers can be installed and removed without interrupting the process and without opening the process, e.g. for calibration. This increases system availability and reduces calibration costs, cleaning costs and the risk of contamination for product and personnel.
The wide range of hygienic process connections, welding solutions or standard process connections, e.g. VARIVENT, conical connection pieces with grooved union nut DIN 11851, ... qualify the TP60 resistance thermometer for use in all industries and applications with the highest hygiene requirements.
The TP60 resistance thermometers are equipped as standard with an exchangeable measuring insert with 1xPt100, 3-wire class A and a TE46 temperature transmitter with 4-20mA, 2-wire output signal. Other versions are available.

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TECHNICAL DATA

General information			
Device type/measuring principle	TP60...T500 / Pt100 resistor		
Measuring insert			
Sensor type according to DIN EN IEC 60751	- 1x Pt100, 2-wire - 1x Pt100, 3-wire (standard) - 1x Pt100, 4-wire	- 2x Pt100, 2-wire - 2x Pt100, 3-wire	
Version	- Standard version: T_{max}=200°C - Mineral-insulated version: T_{max}=600°C, vibration resistant		
Dimensions	Length 154 mm (with T500), Ø = 3 mm		
Output			
Version	- Resistor - loose wires, 50 mm length - Resistor - clamping block - Temperature transmitter - TE46, 4-20 mA, 2-wire (standard) (data sheet T-TE46 ...) - Temperature transmitter - TE52, 4-20 mA, HART®, 2-wire (data sheet T-TE52 ...) - Temperature transmitter - TE82, PROFIBUS PA (data sheet T-TE82 ...)		
Transmitter TE46 (see also data sheet TE46)			
Supply voltage	10 ... 36 V DC	Calibration temperature	+25°C ± 3°C
Power consumption	≤ 3,5 mA ... 22,5 mA	Ambient temperature	-40...+85°C
Circuit type	2-wire	Output signal	4...20 mA / 20...4 mA (invertible)
Switch-on delay	≤ 5 s	max. load resistance	(V_{ref}-10 V)/0,023 A
Response time	≤ 0,5 s	Climate class (acc. to EN 60654-1)	C1
Protection class according to EN 60529	IP 00. When installed, depends on the connection head or housing used for field mounting.		
Measuring current at sensor	< 0,3 mA	Max. sensor cable resistance	50 Ω per wire
Line compensation (2-wire)	0...30 Ω	Norm	DIN EN IEC 60751
Long-term stability (the higher value is valid)	after 1 year ±0,05 K or ±0,03% of the measuring span after 2 years ±0,06 K or ±0,04% of the measuring span after 3 years ±0,07 K or ±0,05% of the measuring span		
Accuracy (the higher value is valid)	See table below		
Shock and vibration resistance	Vibration resistance according to DNVGL-CG-0339 : 2015 und DIN EN 60068-2-27 8,6 ... 150 Hz at 3g, impact resistance acc. to KTA 3505 (Section 5.8.4., Impact testing)		
Connection terminals	Screw terminals, cable cross-section ≤ 1,5 mm² (16AWG)		
Measuring accuracy			
Pt100 class acc. DIN EN IEC 60751	A (standard), AA		
Response times	T_{50} ≤ 4…6 s or shorter (depending on design), further information on request		
Operating conditions			
Medium temperature	-50...200°C (standard), -50...600°C (version with mineral-insulated measuring insert)		
Ambient / storage conditions	-40...+85°C (below -20°C there is an increased risk of cable breakage) Humidity 95%, without condensation (depending on the transmitter used)		
Protection class acc. to EN 60529	IP 67 and IP 69K (depending on the design) / Transmitter protection class IP 00		
Constructive design - basic device			
Electrical connection	Cable gland M16x1.5 (standard), circular plug connector M12x1, 2-pin, brass nickel-plated (stainless steel on request)		
Process connection	Quicktemp with screw-in thread G¼" - for protection sleeves with collar and loose union nut G¼"		
Sealing	Captive O-ring seal		
Materials	- Field housing / cover: AISI 304 - Measuring insert: AISI 316Ti	- Housing seal: FKM - O-ring seal: FKM	
Constructive design - protection sleeves			
Process connection	- Clamp fitting - Clamp DIN 32676, ISO 2852 - Elastomer-free sealing systems - VARIVENT Type N, Type F - Thread 1" ISO 228	- Welding solution - Tapered spigot / threaded spigot DIN 11851 - Collar connection / threaded conn. DIN 11864-1 - Thread 1/2" - T- and corner pieces	

No.	Type	Measuring range	Min. range	Measurement deviation	
1	Pt100	-200 ... 850°C	10 K	≤ 0,15 K	0,07% of the measuring span
2	Pt100	-50 ... 250°C	10 K	≤ 0,10 K	0,07% of the measuring span
3	Pt1000	-200 ... 250°C	10 K	≤ 0,15 K	0,07% of the measuring span
4	Pt1000	-50 ... 250°C	10 K	≤ 0,10 K	0,07% of the measuring span

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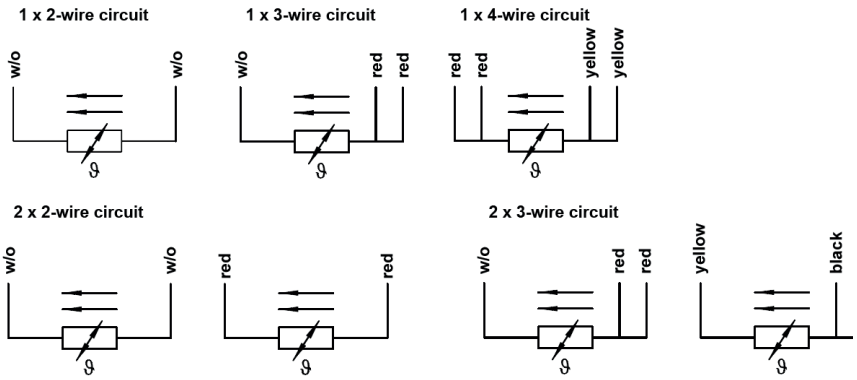
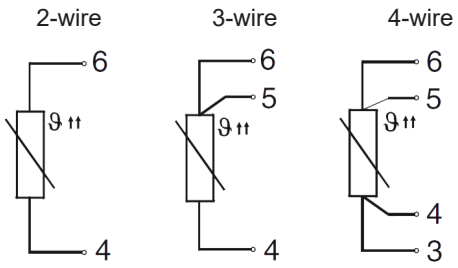
Material - protection sleeves	
Materials	- Sleeve body and collar AISI 316L - Union nut AISI 304
Constructive design - protection sleeves	
Shape of tip	- Standard without tapered sensor tip, depending on design - Tapered
Max. process pressure	Depending on the design, min. PN10 (optionally up to PN80, observe design)
Accessories Quicktemp TP60...T500	
Configuration kit	TZ45-USB with HengCom software (download at www.hengesbach.com)
Certificates	Calibration certificate Declaration of conformity (CE) Material certificates according to EN 10204

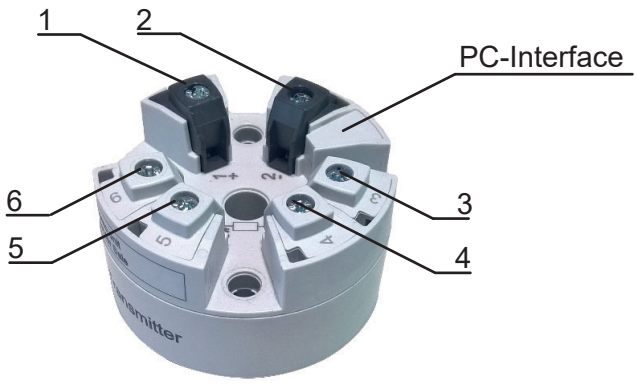
ELECTRICAL CONNECTION

Resistor / terminal block



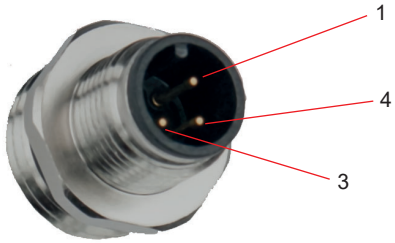
Transmitter TE46 with cable gland





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

Transmitter TE46 with circular connector M12, 3-pin



1 Supply +, 4...20 mA
3 Supply -, 4...20 mA
4 not used

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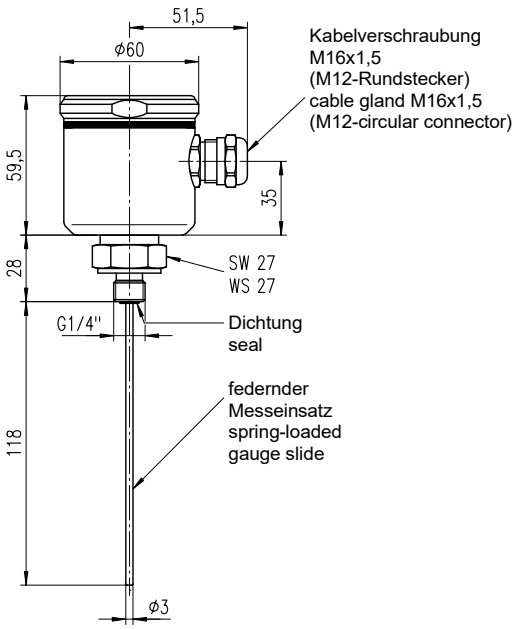
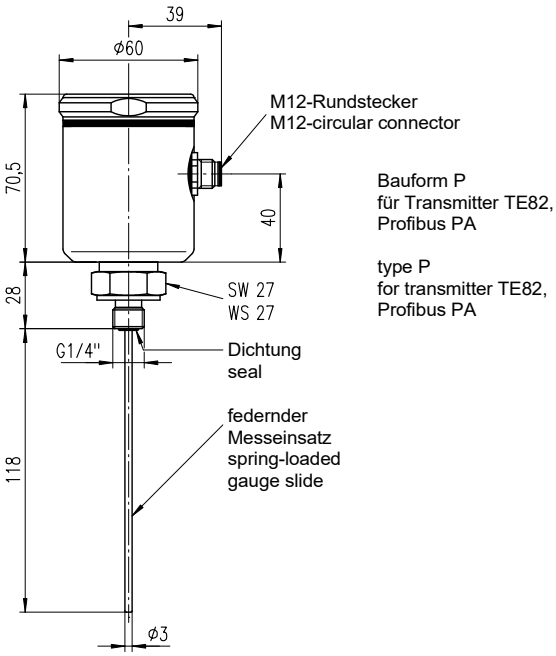
DIMENSIONAL DRAWING (Dimensions in mm)



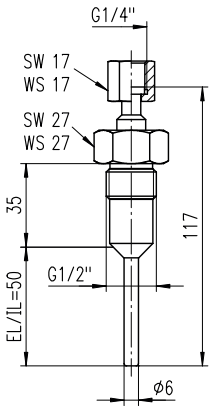
Quicktemp TP60/TW39...T500
Grundgerät
basic gauge



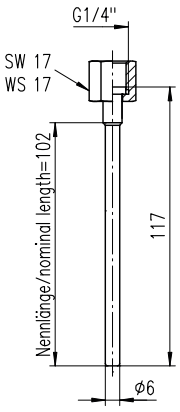
Bauform P
für Transmitter TE82,
Profibus PA

type P
for transmitter TE82,
Profibus PA

Quicktemp TP60/TW39...T500
Grundgerät
basic gauge



Art. 06402380



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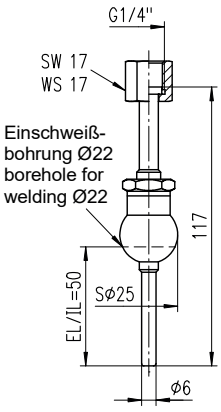
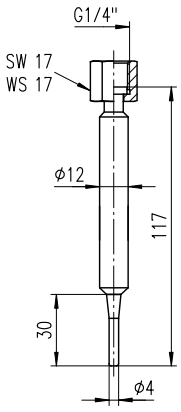


Art. 06402382



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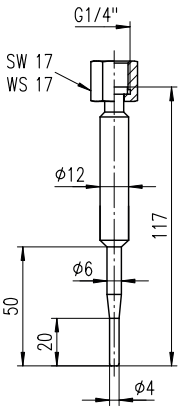
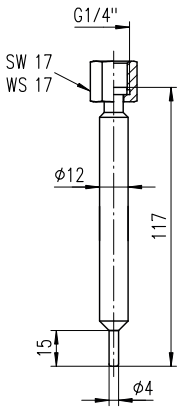


Art. 06402743



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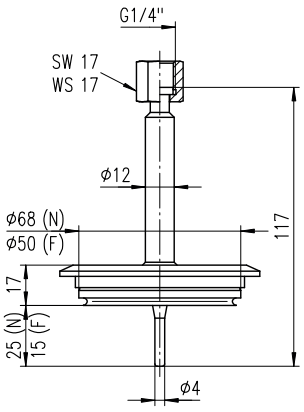
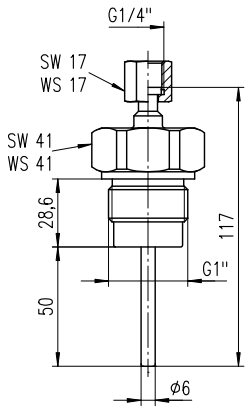
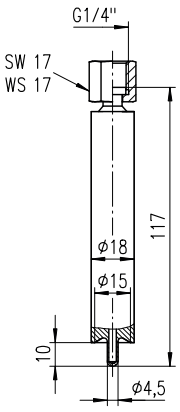


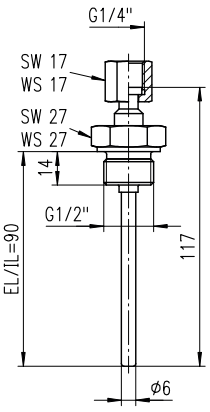
Art. 06402455 (N)
Art. 06402633 (F)



Art. 06402548



Art. 06402506



Art. 06402389

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ORDER INFORMATION Quicktemp TP60...T500

S1 - Sensor type		
	A	1xPt100, 2-w
	B	1xPt100, 3-w
	C	1xPt100, 4-w
	D	2xPt100, 2-w (only in conjunction with resistance output A0 or K0
	E	2xPt100, 3-w (only in conjunction with resistance output A0 or K0)
B1 - Design - connection head		
	H	Field housing (standard)
	P	Field housing, raised design for TE82 transmitter, Profibus PA
E1 - Installation length / measuring insert length		
	90	118 mm / 154 mm
A1 - Output / measuring range		
A0	00	Resistance output with loose wire ends, 50 mm length
K0	00	Resistance output with terminal block
P0	00	Transmitter TE82, Profibus PA
L0		Transmitter TE46, 4...20 mA, 2-w
T0		Transmitter TE52, 4...20 mA, 2-w HART
	20	-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 measuring range
O1 - Option - Electrical connection		
	–	Cable gland M16x1.5 (standard)
	M	M12x1 circular connector
Further options		
		Mineral-insulated measuring insert, vibration-resistant
		Accuracy class AA according to DIN EN IEC 60751

	S1	B1	E1	A1		O1
TP60/TW39			**90**		**T500**	

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ORDER INFORMATION Accessories Quicktemp TP60...T500 (please order separately)

Article no. : 06402380

Protection sleeve,
process connection TP16,
G½" with elastomer-free
sealing cone,
total length 117 mm,
diameter measuring probe
6 mm,
insertion length 50 mm

Article no. : 06402381

Protection sleeve,
process connection TP15,
smooth sensor for
compression fitting,
total length 117 mm,
diameter measuring probe
6 mm,
insertion length variable

Article no. : 06402382

Protection sleeve,
process connection TP13,
ball Ø 25 mm for welding
in, total length 117 mm,
diameter measuring probe
6 mm,
insertion length 50 mm
Optionally with tapered
sensor tip:
Article no. 06401382V

Article no. : 06402387

Protection sleeve,
smooth sensor for welding
in, total length 117 mm,
diameter measuring probe
tapered to 4 mm,
insertion length 30 mm

Article no. : 06402743

Protection sleeve,
smooth sensor for welding
in, total length 117 mm,
diameter measuring probe
6 mm tapered to 4 mm,
insertion length 50 mm

Article no. : 06402427

Protection sleeve,
smooth sensor for welding
in, total length 117 mm,
diameter measuring probe
4 mm,
insertion length 15 mm

Article no. : 06402455

Protection sleeve,
process connection
VARIVENT Type N,
Ø 68 mm,
total length 117 mm,
diameter measuring probe
4 mm,
insertion length 25 mm;
Alternatively: Type F,
insertion length 15 mm
Article no.: 06402633

Article no. : 06402548

Protection sleeve,
process connection
LIQUITEC (LQT), G1",
total length 117 mm,
diameter measuring probe
6 mm

Article no. : 06402506

Protection sleeve,
sensor for welding into
pipes DN15/20,
total length 117 mm,
sleeve diameter 18 mm,
diameter measuring probe
4,5 mm,
insertion length 10 mm

Article no.: 06402389

Protection sleeve,
process connection TP12,
G1/2",
total length 117 mm,
diameter measuring probe
6 mm,
insertion length 90 mm

Further protection sleeves e.g. clamp (DIN / ISO / TRI clamp), DIN 11851, DIN 11864-1, ... on request.

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ORDER INFORMATION Accessories Quicktemp TP60...T500 (please order separately)

Article no. : TEM1FTP16

Weld-in sleeve for process connection TP16 - protection sleeve 06402380

Article no. : TEM1LTP16

Weld-in sleeve for process connection TP16 - protection sleeve 06402380

Article no. : TCL4FTP16

Clamp DIN 32676 DN40 for process connection TP16 - protection sleeve 06402380

Article no. : TCL5FTP16

Clamp DIN 32676 DN50 for process connection TP16 - protection sleeve 06402380

Article no. : TMN2FTP16

Tapered connection piece with grooved union nut DIN 11851 DN25 for process connection TP16 - protection sleeve 06402380

Article no. : TMN4FTP16

Tapered connection piece with grooved union nut DIN 11851 DN40 for process connection TP16 - protection sleeve 06402380

Article no. : TMN5FTP16

Tapered connection piece with grooved union nut DIN 11851 DN50 for process connection TP16 - protection sleeve 06402380

Article no. : TVA5FTP16

VARIVENT type F, Ø 50 mm for process connection TP16 - protection sleeve 06402380

Article no. : TVA6FTP16

VARIVENT type N, Ø 68 mm for process connection TP16 - protection sleeve 06402380

Article no. : NEM1FLQT

Weld-in socket with collar Ø 60 mm for process connection LQT - protection sleeve 06402389

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Article no.: NEM1LLQT

Weld-in socket with collar Ø 60mm, with leakage holes for process connection LQT - protection sleeve 06402389

Article no. : 06402303

Weld-in ball socket Ø 25 mm, with stainless steel clamping ring and M12x1.5 clamping screw for protection sleeve 06402381

Optionally with clamping ring made of PEEK
Article no. 06402363

Article no. : TED1FTP16

Weld-in dummy for process connection TP16, G½" with elastomer-free sealing cone, material Ms58

Article no. : TVS1FTP16

Sealing plug for process connection TP16, G½" with elastomer-free sealing cone, material AISI 316L

Dead space-free process adaptations

as pipe T-pieces with weld-in sleeves; versions and nominal values on request

Article no. : TZ45_USB

Configuration kit TZ45 for transmitter, with USB interface (PC) Software HengCom, download at www.hengesbach.com/downloads

Please observe the permissible nominal pressure of the selected process connection. The stated specifications and certifications are only guaranteed if original Hengesbach parts are used.The system operator is responsible for ensuring material compatibility with the process conditions and peripherals.The devices are not suitable for use in potentially explosive atmospheres or safety-relevant system components (SIL).Our devices are subject to continuous further development and are therefore subject to change.

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