Modular resistance thermometer with dual transmitter

- Quicktemp TP62/TW39...T500 -

Hengesbach Prozessmesstechnik

2x transmitter TE46 with 4...20 mA each, 2-w
Redundant temperature measurement, e.g. in heating lines

Das modulare Anschlusssystem
MODULAR
von Hengesbach

simplify calibration

FEATURES

- **1 BASIC DEVICE - PROCESS ADAPTION USING SLEEVE DESIGNS**
- **QUICKTEMP MODULAR PROCESS CONNECTION SYSTEM FOR DEVICE REPLACEMENT AND QA CHECKING WITHOUT PROCESS INTERRUPTIONS / OPENING**
- **REDUNDANT MEASURING SYSTEM (2x Pt100, 2x TRANSMITTER) IN ONE DEVICE**
- **SPRING-MOUNTED MEASURING INSERT FOR OPTIMUM METALLIC CONTACT WITH THE PROTECTIVE SLEEVE AND SHORT REACTION TIMES**
- **ACCURATE AND LONG-TERM STABILITY DUE TO HIGH-QUALITY BASIC TECHNOLOGY**
- **ELECTRICAL CONNECTION CIRCULAR CONNECTOR M12, 4-pin**

DESCRIPTION

The TP62 resistance thermometers with Quicktemp modular system enable simultaneous measured value recording and transmission to e.g. data recorder and on-site display or PLC by installing 2x 3-wire Pt100 and 2x transmitters with 4...20 mA each.
This redundant temperature measurement is used particularly for quality-relevant measuring points that require testing, e.g. in heating lines. High accuracy and fast response times are requirement criteria that it fulfills.
The Quicktemp modular system consists of a TP62 resistance thermometer and a protective sleeve as process connection. The uniform length of the measuring insert and the protective sleeves reduces storage costs and significantly simplifies spare parts management.
The TP62 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 as well as cleaning costs and the risk of contamination for products and personnel.
The TP62 resistance thermometers have measuring inserts with 2x Pt100, 3-wire class A and two TE46 temperature transmitters with 4...20 mA each, 2-wire output signal as standard. Other versions are available.

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TECHNICAL DATA

General information			
Device type/measuring principle	TP62...T500 / Pt100 resistor		
Measuring insert			
Sensor type according to DIN EN IEC 60751	- 2x Pt100, 3-wire		
Version	- Standard version: T_{max}=200°C - Mineral-insulated version: T_{max}=600°C, vibration resistant		
Dimensions	Length 154 mm (T500), Ø 3 mm		
Output			
Version	- Temperature transmitter - 2x TE46, 4...20mA, 2-wire (standard) (data sheet T-TE46 ...)		
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 und IP 69K (depending on the design) / Transmitter protection class IP 00		
Constructive design - basic device			
Electrical connection	M12x1 circular connector, 4-pin, nickel-plated brass (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		
Material	- 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 - Other connections e.g. elastomer-free sealing systems, Ingold connectors, ...	- Welding solution - Tapered spigot / threaded spigot DIN 11851 - Collar connection / threaded conn. DIN 11864-1 - Thread 1/2" - T- and corner pieces	
Materials	- Sleeve body and collar AISI 316L	- Union nut AISI 304	
Shape of the tip	- Standard Ø 3 mm		
Max. process pressure	depending on the design, min. PN10 (optionally up to PN80, observe design)		
Accessories Quicktemp TP62...T500			
Certificates	Calibration certificate, declaration of conformity, material certificates according to EN 10204		

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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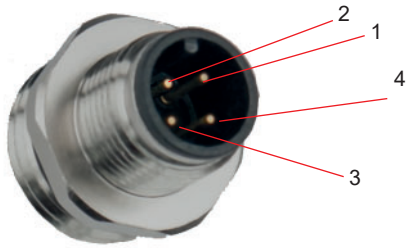
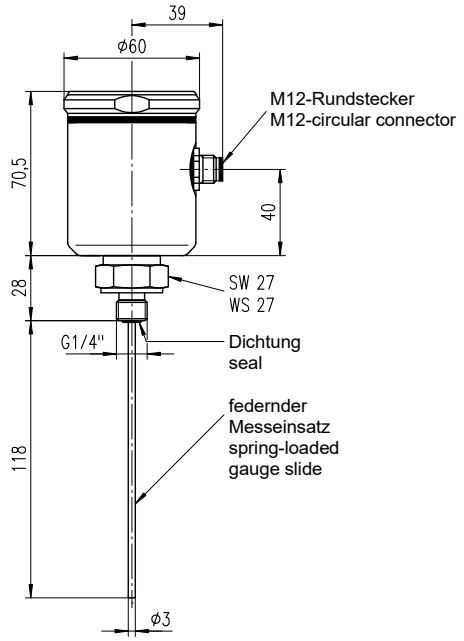
ELECTRICAL CONNECTION

2x TE46 transmitter with M12 circular connector, 4-pin

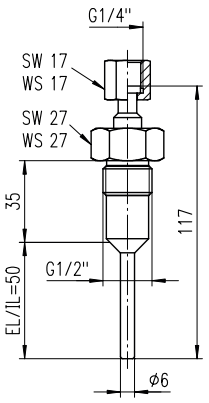


1	$TE46_{below}$	Supply + 4...20 mA
2	$TE46^{top}$	Supply + 4...20 mA
3	$TE46_{below}$	Supply - 4...20mA
4	$TE46^{top}$	Supply - 4...20 mA

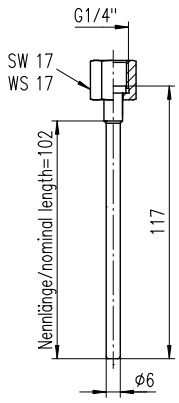
DIMENSIONAL DRAWING (Dimensions in mm)



Quicktemp TP62/TW39...T500
Grundgerät
basic gauge



Art. 06402380



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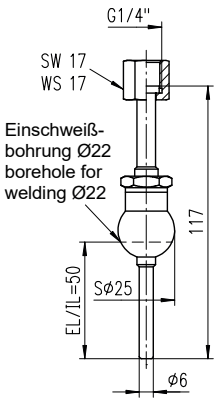

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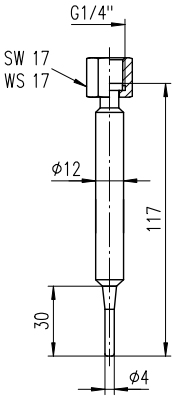
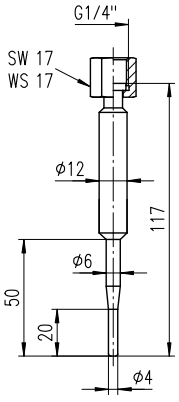
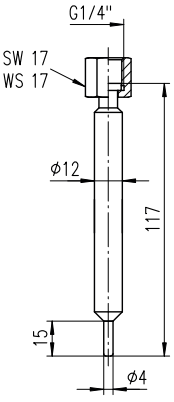


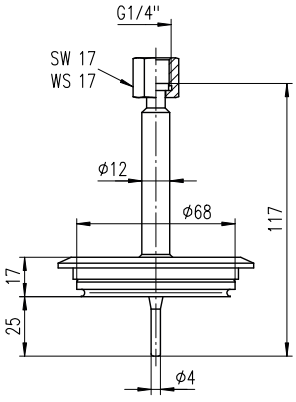
Art. 06402387



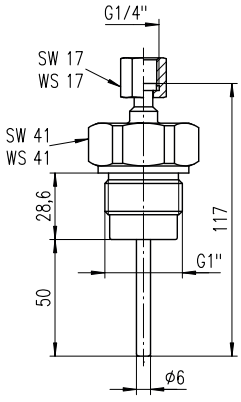
Art. 06402400



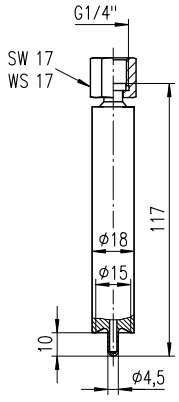
Art. 06402427



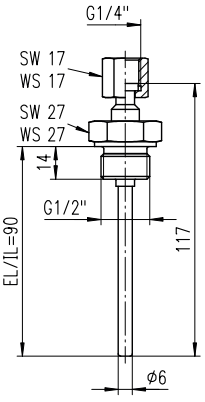
Art. 06402455 (N)
Art. 06402633 (F)



Art. 06402548



Art. 06402506



Art. 06402389

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ORDERING INFORMATION Quicktemp TP62...T500

S1 - Sensor type	
E	2xPt100, 3-w
B1 - Design - connection head	
P	Field housing for version with dual transmitter
E1 - Installation length / measuring insert length	
90	118 mm / 154 mm
A1 - Output / measuring range	
L0	2x Transmitter TE46, 4...20 mA, 2-w
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	
M	Circular connector M12x1
Further options	
	Mineral-insulated measuring insert, vibration-resistant
	Accuracy class AA according to DIN EN IEC 60751

	S1	B1	E1	A1		O1
TP62/TW39	**E**	**P**	**90**	**L0**	**T500**	**M**

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ORDER INFORMATION Accessories Quicktemp TP62...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 TP62...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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ORDER INFORMATION Accessories Quicktemp TP62...T500 (please order separately)

Article no. : NEM1LLQT

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

Article no. : 06402303

Weld-in ball socket Ø 25mm, 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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