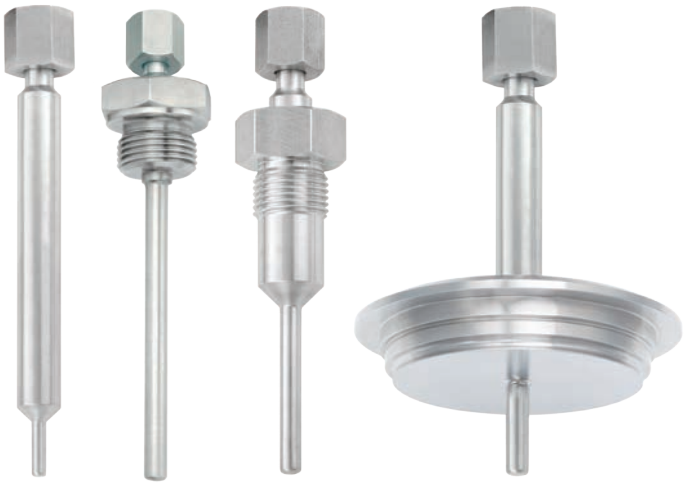
Modular resistance thermometer with double transmitter

- Quicktemp TP62/TW39...T500 -

Hengesbach Prozessmesstechnik

2x transmitters TE42 each with 4...20mA, 2-L
Redundant temperature measurement in heating lines, for example



simplify calibration

FEATURES

- **1 BASIC DEVICE - PROCESS ADAPTATION USING PROTECTIVE SLEEVE DESIGNS**
- **QUICKTEMP MODULAR PROCESS CONNECTION SYSTEM FOR DEVICE CHANGES AND QA CHECKING WITHOUT PROCESS INTERRUPTIONS/OPENING**
- **REDUNDANT MEASURING SYSTEM (Pt100, TRANSMITTER) IN ONE DEVICE**
- **SPRING-MOUNTED MEASURING INSERT FOR OPTIMUM METALLIC CONTACT WITH THE PROTECTIVE SLEEVE AND SHORT REACTION TIMES**
- **EXACT AND LONG-TERM STABILITY BY MEANS OF HIGH-QUALITY BASIC TECHNOLOGY**
- **ELECTRICAL CONNECTION WITH ROUND CONNECTOR M12x1**

DESCRIPTION

The TP62 resistance thermometers with Quicktemp modular system make simultaneous measurement recording and transmission to data recorders, on-site displays or PLCs possible by installing 2x 3-wire Pt100 and 2x transmitters, each with 4...20mA. This redundant temperature recording is particularly used for quality-related measuring stations that require testing such as in heating lines. A high degree of accuracy and also fast response times are requirement criteria that are fulfilled by the Hengesbach Pt100.
The Quicktemp modular system consists of a TP62 resistance thermometer and a protective sleeve as the process connection. Because of the uniform length of the measuring insert and the protective sleeves, stock-keeping costs can be reduced and spare part management simplified considerably. The TP62 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 for products and people.
The TP62 resistance thermometers have a measuring insert with 2x Pt100, 3-wire class A and two TE42 temperature transmitters, each with a 4...20mA 2-wire output signal. Other versions are available.

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TECHNICAL DATA

General details				
Device type/measuring principle	TP62...T500 / Pt100 resistor			
Measuring insert				
Sensor type	- 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	- Temperature transmitter - 2X TE42, 4...20mA, 2-wire (standard)		(data sheet T-TE42 ...)	
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_{ref}-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	-200°C
	min. temperature span	10K	max. temperature	+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_{50}≤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	Round plug-in connector M12x1, 4-pin, nickel-plated brass (stainless steel available 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: - Housing seal: - Measuring insert: - O-Ring seal:	CrNiSt 1.4301 (304) FPM (Viton®) CrNiSt 1.4571 FKM		
Structural design - protective sleeves				
Process connection	- Clamp connection - Weld-in solutions - Conical coupling / threaded coupling DIN 11851 - Female union / threaded coupling DIN 11864-1 - VARIVENT® type N, type F - 1“ ISO 228 thread - Other connections such as elastomer-free sealing systems, Ingold connectors, 1“ ISO 228 thread, ...			
Materials	- Sleeve body and collar CrNiSt 1.4404 - Union nut CrNiSt 1.4305			
Shape of tip	- Standard - Tapered			
Max. process pressure	Depending on design, min. PN10 (optionally up to PN80, pay attention to design)			
Accessories for Quicktemp TP62...T500				
Configuration kit	TZ42-USB with HengCom software (as download at www.hengesbach.com)			
Certificates	Calibration certificate, conformity declaration, material products in accordance with EN 10204			

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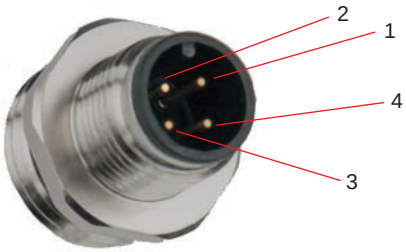
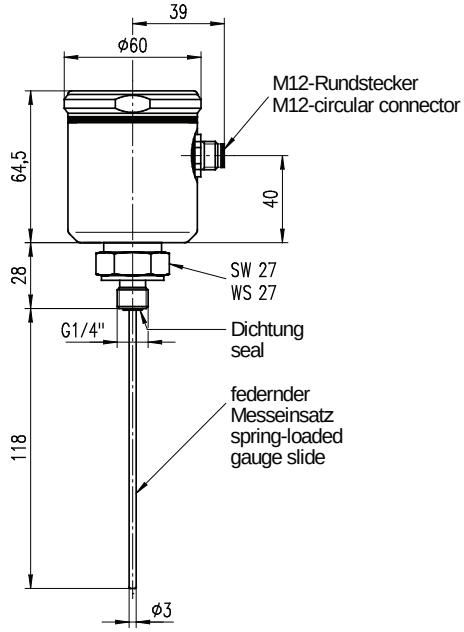
ELECTRICAL CONNECTION

2x transmitter TE42 with M12 circular connector, 4-polar

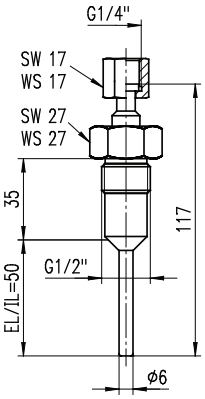


1	$TE42_{lower}$	Supply	+	4...20mA
2	$TE42^{upper}$	Supply	+	4...20mA
3	$TE42_{lower}$	Supply	-	4...20mA
4	$TE42^{upper}$	Supply	-	4...20mA

REFERENCE DRAWINGS



Quicktemp TP62/TW39...T500
Grundgerät
basic gauge



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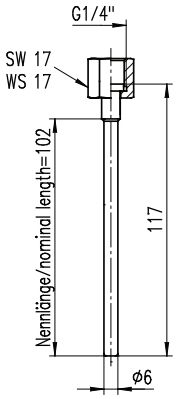

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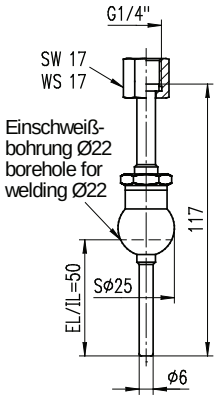

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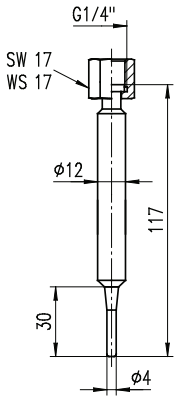

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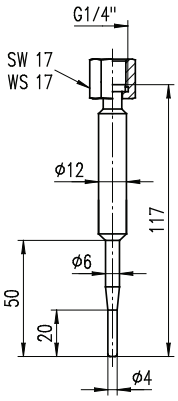

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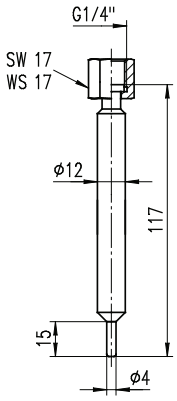

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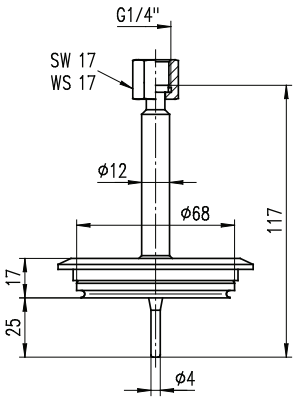

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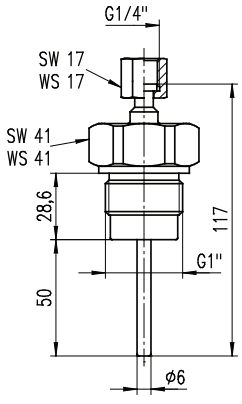

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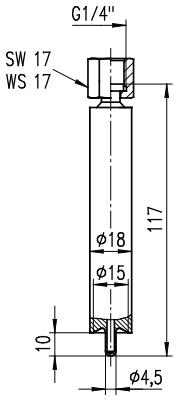

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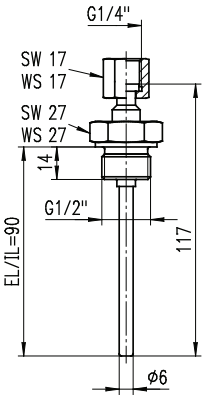

Art. 06402389

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ORDER INFORMATION Quicktemp TP62...T500

S1 - Sensortype

E	2xPt100, 3-L

B1 - Type Header

P	housing for design with double transmitter

E1 - Insertion lenght / measuring length

90	118mm / 154mm

A1 - Output / range

L0	2x transmitter TE42, 4...20mA, 2-L
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 - measuring insert

–	standard
M	mineral-isolated insert, vibration proof

O2 - Option - accuracy class Pt100

–	class A (standard)
2	class AA

O3 - Option - necktubing

–	without
H	with

	S1	B1	E1	A1		O1	O2	O3
TP62/TW39	**E**	**P**	**90**		**T500**			

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ORDER INFORMATION for Quicktemp TP62...T500 accessories

Item no.: 06402380

Protective sleeve, process connection TP16, G½“ 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

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ORDER INFORMATION for Quicktemp TP62...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

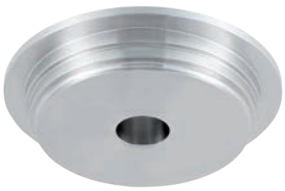
Item no.: TMN5FTP16

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 lug with collar Ø60mm
for process connection LQT -
protective sleeve 06402389

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ORDER INFORMATION for Quicktemp TP62...T500 accessories

Item no.: NEM1LLQT

Weld-in lug 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 interface (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.

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