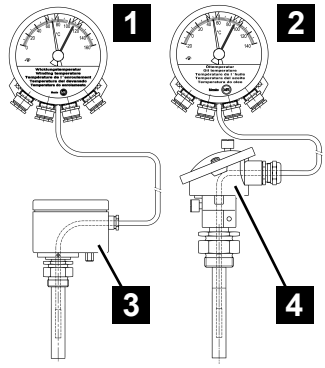
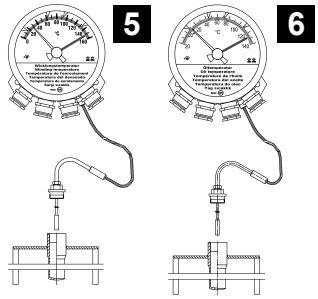
MESSKO® TRASY2 / MESSKO® COMPACT

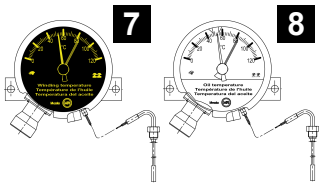
Pointer Thermometer

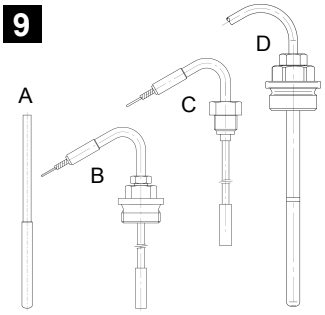
Technical data

Product variants









This technical document contains detailed information about the technical properties of the product. If you would like to place an order, please use the MESSKO inquiry and order specification, which you can also find on our website http://www.reinhausen.com below the respective product.

Design types	MESSKO® TRASY2 / MESSKO® COMPACT	
1 TRASY2 MT-STW160F2 – Winding temperature		
2 TRASY2 MT-ST160F – Oil temperature		
5 COMPACT MT-ST160W(R)(TT) – Winding temperature		
6 COMPACT MT-ST160SK(TT) – Oil temperature		
7 COMPACT MT-ST160W(R)/RM (TT) – Winding temperature		RM = Version for the US market
8 COMPACT MT-ST160/RM (TT) – Oil temperature		
Housing color	RAL 7033 cement gray	
	RAL 7038 agate gray	
Measuring range	–20 °C...+140 °C for oil temperature	
	0°C...+160 °C for winding temperature	
	Other measuring ranges on request	
Capillary line length	2 m / 4 m / 6 m / ... / 20 m possible	
Protective tube around the capillary line	Stainless steel	
	PVC	
Installation module for TRASY2 series	3 MESSKO® ZT-F2.1 Transformer Temperature Transmitter with:	
		1 x Pt100
		2 x Pt100
		1 x 4...20 mA
		2 x 4...20 mA
		1 x Pt100 and 1 x 4...20 mA
	G1 thermo well	
	4 Combi well	Pt100 (RTD)
		4...20 mA
Installation module for COMPACT (US version): 1/2"–14 NPT or 3/4"–14 NPT		
Sensor screw connection for COMPACT series	G1"B (not for US version)	
	G3/4"B (not for US version)	
	7/8"–14 UNF	
9 sensor type	1 2 TRASY2 series	**A**: Sensor No. 2, brass
		Sensor No. 2, stainless steel
	5 6 COMPACT series	**B**: Sensor No. 7, brass (not for US version)
		C: Sensor No. 7 RM, brass
	7 8 COMPACT (US version)	**D**: Sensor No. 6, VA (offshore) with stainless steel capillary line and stainless steel sensor (only for G1"B; not for US version)
Labeling color	Black text on white scale	
	White text on black scale	
	Yellow text on black scale	

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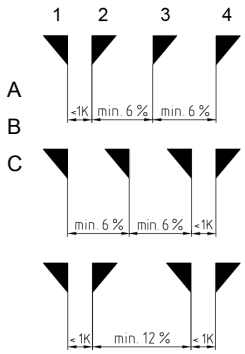

Electrical connection	MESSKO® TRASY2 / MESSKO® COMPACT		
Connection variants	4 x M25x1.5		
	4 x 1/2" – 14 NPT		
	4 x 3/4" – 14 NPT		
	ANSI plug	Cable lengths: 48" (1220 mm); 72" (1830 mm); 96" (2440 mm); 144" (3660 mm); 180" (4570 mm); 240" (6100 mm); 300" (7620 mm); 360" (9140 mm)	
		Other cable lengths available on request	
	Other connections available on request		
Number of micro-switches	2...4 micro-switches (change-over switches)		
	5 or 6 micro-switches (NO contacts)		
	Other switching functions and combinations available on request		
10 Switch arrangement	**A**: 1 + 2 tight * (standard model)		**1** = red / **2** = blue / **3** = green / **4** = yellow * < 1 K
	B: 3 + 4 tight*		
	C: 1 + 2 and 3 + 4 tight*		
Optional (only for COMPACT)	4...20 mA analog output		
Offshore model (not for TRASY2 and Retrofit)	Stainless steel housing with vibration plate		
	Micro-switch with gold-plated contacts		
	Electrical connection with stainless steel 4 x M25x1.5 WADI cable glands (watertight)		

Technical data – Oil temperature

Operating conditions	MESSKO® MT-ST160F TRASY2 series	MESSKO® MT-ST160SK(TT) COMPACT series	MESSKO® MT-ST160RM COMPACT series (US version)
Site of operation	Indoors and outdoors, tropic-proof	Indoors and outdoors, tropic-proof	Indoors and outdoors, tropic-proof
Ambient temperature	–50...+80 °C	– 50...+80 °C	–50...+80 °C
Degree of protection	IP55 in accordance with DIN EN 60529 VDE 0470-1	IP55 in accordance with DIN EN 60529 VDE 0470-1	IP55 in accordance with DIN EN 60529 VDE 0470-1
Ventilation	Ventilation device: viewing glass, fog-resistant up to 80% relative humidity		
General			
Housing (standard)	Steel plate, galvanized	Steel plate, galvanized	Steel plate, galvanized
Front ring and housing	Powder-coated, bayonet ring with silicone seal		
Viewing glass		Laminated safety glass with UV filter	
Temperature sensor	Bare brass	Bare brass, angled	Bare brass, angled
Retaining plate	Stainless steel	Stainless steel	Aluminum
Capillary line	Copper capillaries with PVC protective tube and optional add-on stainless steel protective tube		Copper capillaries with stainless steel Ø 4 mm coiled tube
Cable screw connection	4 x M25x1.5 nickel-plated brass	4 x M25x1.5 nickel-plated brass	ANSI connector, 1x 1/2"-14 NPT internal thread
Sensor screw connection	None	G1"B double screw connection Bare brass ≙ BSP 1"	7/8"-14 UNF
Specifications			
Measuring range	–20...+140 °C standard	–20...+140 °C	0...+120 °C
			0...+160 °C
Accuracy	In accordance with DIN EN 13190 Class 1	±3 °C in accordance with DIN EN 13190 Class 1 and DIN 16196	
Drag hands	Drag hands that can be reset manually, red		
Weight	Approx. 2.5 kg (6 m capillary line)	Approx. 2.5 kg (6 m capillary line)	Approx. 2.5 kg (6 m capillary line)
Analog output option	–	4...20 mA (supply voltage required; 12...30 V; max. load resistance of 750 Ω)	

Micro-switch	MESSKO® MT-ST160F TRASY2 series	MESSKO® MT-ST160SK(TT) COMPACT series	MESSKO® MT-ST160RM COMPACT series (US version)
Quantity	1...6 adjustable micro-switches (1...4 change-over switches)		
Breaking capacity	See *Switching power* table, page [► 5]		
Minimum switching distance	6% of the measuring range with standard switch arrangement; < 1 K for tight positioning		
Contact material	Silver nickel (AgNi10)	Silver nickel (AgNi10)	Silver nickel (AgNi10)
Rated insulation voltage	2,500 V AC/1 min Terminals to ground	2,500 V AC/1 min Terminals to ground	2,500 V AC/1 min Terminals to ground
Switching hysteresis	Approx. 5 K	Approx. 5 K	Approx. 5 K
Connection terminals	0.25...2.5 mm^2 Bare brass	0.25...2.5 mm^2 Bare brass, angled	0.25...2.5 mm^2 Bare brass, angled

Deviations for offshore	MESSKO® MT-ST160F TRASY2 series	MESSKO® MT-ST160SK(TT) COMPACT series	MESSKO® MT-ST160RM COMPACT series (US version)
Model	–	–	As per the requirements for C5-M in accordance with DIN EN ISO 12944
Housing	–	–	Stainless steel, with C5-M coating
Cable screw connection	–	–	Stainless steel, WADI (watertight) 4 x M25x1.5
Capillary line and sensor	–	–	Stainless steel

Technical data – Winding temperature

Operating conditions	MESSKO® MT-STW160F2 TRASY2 series	MESSKO® MT-ST160W(R) (TT) COMPACT series	MESSKO® MT-ST160W(R)/RM COMPACT series (US version)
Site of operation	Indoors and outdoors, tropic-proof	Indoors and outdoors, tropic-proof	Indoors and outdoors, tropic-proof
Ambient temperature	–50...+80 °C	–50...+80 °C	–50...+80 °C
CT input	–	2 A at 100% nominal load	2 A at 100% nominal load
Degree of protection	IP55 in accordance with DIN EN 60529 VDE 0470-1	IP55 in accordance with DIN EN 60529 VDE 0470-1	IP55 in accordance with DIN EN 60529 VDE 0470-1
Ventilation	Ventilation device: viewing glass, fog-resistant up to 80% relative humidity		
General			
Housing (standard)	Steel plate, galvanized	Steel plate, galvanized	Steel plate, galvanized
Front ring and housing	Powder-coated, bayonet ring with silicone seal		
Viewing glass	Laminated safety glass with UV filter		
Temperature sensor	Bare brass	Bare brass, angled	Bare brass, angled
Retaining plate	Stainless steel	Stainless steel	Aluminum
Capillary line	Copper capillaries with PVC protective tube and optional add-on stainless steel protective tube		Copper capillaries with stainless steel Ø 4 mm coiled tube
Cable screw connection	4 x M25x1.5 nickel-plated brass	4 x M25x1.5 nickel-plated brass	ANSI connector, 1x 1/2"-14 NPT internal thread
Sensor screw connection	None	G1"B double screw connection Bare brass ≙ BSP 1"	7/8"-14 UNF
Specifications			
Measuring range	0...+160 °C standard	0...+160 °C	0...+160 °C
			0...+180 °C
Accuracy	In accordance with DIN EN 13190 Class 1	±3 °C in accordance with DIN EN 13190 Class 1 and DIN 16196	
Drag hands	Drag hands that can be reset manually, red		
Weight	Approx. 2.5 kg (6 m capillary line)	Approx. 2.5 kg (6 m capillary line)	Approx. 2.5 kg (6 m capillary line)
Analog output option	–	4...20 mA (supply voltage required; 12...30 V; max. load resistance of 750 Ω)	

Micro-switch	MESSKO® MT-STW160F2 TRASY2 series	MESSKO® MT-ST160W(R) (TT) COMPACT series	MESSKO® MT-ST160W(R)/RM COMPACT series (US version)
Quantity	1...6 adjustable micro-switches (1...4 change-over switches)		
Breaking capacity	See *Switching power* table, page [► 5]		
Minimum switching distance	6% of the measuring range with standard switch arrangement; < 1 K for tight positioning		
Contact material	Silver nickel (AgNi10)	Silver nickel (AgNi10)	Silver nickel (AgNi10)
Rated insulation voltage	2,500 V AC/1 min Terminals to ground	2,500 V AC/1 min Terminals to ground	2,500 V AC/1 min Terminals to ground
Switching hysteresis	Approx. 5 K	Approx. 5 K	Approx. 5 K
Connection terminals	0.25...2.5 mm²	0.25...2.5 mm²	0.25...2.5 mm²

Deviations for offshore	MESSKO® MT-STW160F2 TRASY2 series	MESSKO® MT-ST160W(R) (TT) COMPACT series	MESSKO® MT-ST160W(R)/RM COMPACT series (US version)
Model	–	–	As per the requirements for C5-M in accordance with DIN EN ISO 12944
Housing	–	–	Stainless steel, with C5-M coating
Cable screw connection	–	–	Stainless steel, WADI (watertight) 4 x M25x1.5
Capillary line and sensor	–	–	Stainless steel

Technical data – Switching power and accessories

Switching power (breaking capacity)		Utilization category	U_N	I_N
For adjustable micro-switches in accordance with DIN EN 60947-5-1	**AC**	AC-12	230 V	5 A
		AC-15	230 V	0.26 A
		AC-15	120 V	0.5 A
		AC-15	24 V	2 A
	DC	DC-12	110 V	0.4 A
		DC-12	220 V	0.2 A
		DC-13	220 V	0.11 A
		DC-13	120 V	0.21 A
		DC-13	24 V	1.04 A

Technical data	MESSKO® ZT-F2.1 module
Function	Indirect measurement and simulation of the hotspot temperature in a transformer using the temperature gradient between the winding hotspot and coolant
	See Figure 5, page [► 9] and operating instructions for the MESSKO® ZT-F2.1 Transformer Temperature Transmitter product
Operating conditions and ambient conditions	
Ambient temperature	–50...+80 °C
Degree of protection	IP56 in accordance with EN 60529, with pressure equalization element
Rated insulation voltage	50 V DC; 300 V AC 1 min.; terminals to ground
Site of operation	Indoors and outdoors, tropic-proof
Mounting position	Any
General	
Housing	Cast aluminum, RAL 7033 coated
Well and screw connection	Bare brass; G1"B ≙ BSP1" double screw connection; other on request
Cable screw connection	2 x M25x1.5; 1 x M16x1.5; nickel-plated brass
Output signal	Pt100 measuring resistor in accordance with IEC 751 (100 Ω at 0 °C)
Measuring range	–50...+160 °C
Weight	Approx. 1.7 kg
Analog output (option)	
Output signal	4...20 mA
Supply voltage	DC: 12...30 V unregulated, max. 10% ripple, protected against polarity reversal
Measuring range	0...+160 °C standard
Max. load resistance	750 Ω at 24 V DC
Thermal map	
Heating	Integrated into the well
Gradient setting	Hotspot gradient over DIP switch in the housing Maximum: 50 K at 2 A CT nominal current
CT input	Nominal current 1.5...2.0 A from converter

Technical data	Thermo well module
Material	Bare brass
Screw connection	G1"B ≙ BSP1" Male screw connection
Installation dimension	See Figure 2, page [► 7] and Figure 5, page [► 9]
Mounting position	Vertical
Weight	Approx. 0.25 kg

Technical data	Combi well module
	Figure 5, page [► 9] and operating instructions for the MESSKO® Combi Well product
Operating conditions and ambient conditions	
Ambient temperature	–50...+80 °C
Rated insulation voltage	500 V AC/1 min; terminals to ground
Setup	Indoors and outdoors, tropic-proof

Technical data	Combi well module
Mounting position	Any
General	
Housing	Cast aluminum, RAL 7033 coated
Well and screw connection	Bare brass; G1"B ≙ BSP1" double screw connection
Cable screw connection	2 x M20x1.5; nickel-plated brass
Output signal	Pt100 measuring resistor, Class B in accordance with IEC 751 (100 Ω at 0 °C)
Measuring range	–50...+160 °C
Weight	Approx. 0.8 kg
Analog output (option)	
Output signal	4...20 mA
Supply voltage	DC: 12–30 V unregulated, max. 10% ripple, protected against polarity reversal
Measuring range	–20...+140 °C standard
Max. load resistance	750 Ω at 24 V DC

Technical data	MESSKO® SNT36 Power Supply module
	See the operating instructions for the MESSKO® SNT36 DC Power Supply product

Technical data	MESSKO® Multi-Ballast Transformer
	See operating instructions for the MESSKO® Multi-Ballast Transformer
Assembly variants	With mounting plate
	On rails
	With housing (RAL 7033)

Technical data	MESSKO® TRASY2 / MESSKO® COMPACT assembly variant
	For connection options, see Figure 8