METTLER TOLEDO

Conductivity Transmitter 7500

Technical Data

Inputs	1 input for conductivity sensor, either 2- or 4-electrode sensor 1 current input with evaluation 0 to 100%, e.g. for injection of controller disturbance or reference signal in conjunction with power output complete 2-wire loop, e.g. for flow or level meter 1 input for Pt100/Pt1000, automatic selection 2 or 3-wire connection optional: Ni100 (option 355)		
Measuring ranges	conductivity	0.001 µS/cm ... 2000 mS/cm	
	concentration	0.0 ... 200.0% by wt.	
	resistivity (1/κ)	0.5 Ωcm ... 1000 MΩcm	
	temperature	–50.0 ... +250.0 °C[1)]	
	current input	0 (4) ... 20 mA / 50Ω (0 ... 100%)	
Display	graphic LCD, 240 x 64 matrix with CFL[2)] backlighting		
	main display	character height approx. 25 mm	
	additional displays	character height approx. 6 mm	
	dialog display	7 lines, character height approx. 4 mm	
Display options	main display	additional display	
	conductivity	conductivity	[S/cm]
	concentration	concentration	[% by wt.]
	temperature	temperature	[°C]
	time	time	[h, min]
		date	[d, m, y]
		resistivity (1/κ)	[Ωcm]
		current output 1	[mA]
		current output 2	[mA]
		current input	[%]
		manipulated variable	[%]
		manual set temperature	[°C]
Output 1*)	0 ... 20 mA or 4 ... 20 mA, max. 10 V, floating user-defined for conductivity, concentration, °C error message if load is exceeded current characteristic user-defined with 2 interpolation points		
Output 2*) (option 350)	0 ... 20 mA or 4 ... 20 mA, max. 10 V, floating user-defined for conductivity, concentration, °C error message if load is exceeded current characteristic user-defined with 2 interpolation points		
Beginning/end of scale*)	conductivity	0.000 µS/cm ... 2000 mS/cm	
	concentration	0.0 ... 200.0% by wt.	
	temperature	–50.0 ... +250.0 °C	
Spans*)	conductivity	≥ 0.20 µS/cm, min. 20% full scale	
	concentration	1.0 ... 200.0 %	
	temperature	10.0 ... 300.0 °C	
Concentration determination (option 359, 360, 382)	calculation and display of concentration [% by wt.] from the conductivity and temperature values of given substance solutions (see table on page 3)		
	opt. 359	HCl, HNO_3 and H_2SO_4	
	opt. 360	customer-specific tables on request	
	opt. 382	HCl and NaOH	
Cell matching	operating modes*) • automatic, by cell constant determination through NaCl or KCl solution • entry of individual conductivity values for cell constant determination • direct entry of cell constant • sample calibration		
Cell constants	0.01 ... 200.0 cm^{-1}		

*) user-defined
1) for Ni100: –50 to +180 °C
2) Cold Fluorescent Lamp

Conductivity input	measuring voltage source: • measuring voltage • measuring frequency voltage inputs: • input impedance • max. permissible direct voltage against signal ground ±2 V (especially when using stray-field probes, an equipotential bonding electrode is required)	 <4 V_{pp} square, signal-dependent 28 Hz ... 2.8 kHz, signal-dependent >100 MΩ
Measuring lead length	≤20 m, with suitable sensors, up to 100 m depending on conductivity	
Current input	0 (4) ... 20 mA (0 ... 100%), input resistance 50Ω overload 100 mA additional voltage drop 2.5 V	
Temperature input	Pt100/Pt1000, automatic selection optional: Ni100 (option 355) 2 or 3-wire connection measuring current approx. 4 mA (Pt100) or approx. 0.4 mA (Pt1000) temperature probe adjustable	
Temperature compensation*) according to medium	automatic with Pt100/Pt1000, Ni100 optional (option 355) manual operating modes: • without • linear 0.00 ... 20.00%/K, reference temperature user-defined • natural waters to DIN 38 404 • optional:	 –50.0 ... +250 °C[1)] - ultra pure water with traces of impurity (option 392) - to customer requirements (option 361)
Measurement error (±1 count, operating temp. –20 ... +50 °C)	conductivity temperature current input	<1% of measured value ± 4 counts[3)] <0.2% of measured value ± 0.2 K <1% of full scale
Current source mode	0.00 ... 20.50 mA	
Output current error	<0.25% of measured value ± 20 µA	
Switching contacts*)	8 switching contacts, floating contact ratings NAMUR[4)] contacts failure/warning: limit/controller contacts (optional: controller, option 353) cleaning contacts (option 352)	 ac <250 V/5 A, <1250 VA resistive dc <120 V/5 A, <120 W functional check warning failure user defined delays limit 1 limit 2 rinsing cleaning probe
PI controller*) (option 353)	quasi continous switching controller via limit contacts pulse duration and pulse frequency user defined control range user defined within conductivity and temperature ranges	
Cleaning function*) (option 352)	automatic sensor cleaning and rinsing via timer controlled contacts	
Interface*) (option 351)	RS485, galvanically isolated baud rate data bits parity point-to-point or bus connection of up to 31 instruments	 300/600/1200/9600 7/8 no/even/odd

*) user-defined
1) for Ni100: –50 to +180 °C
3) for cell constants > 0.05
4) German committee for measurement and control standards in the chemical industry

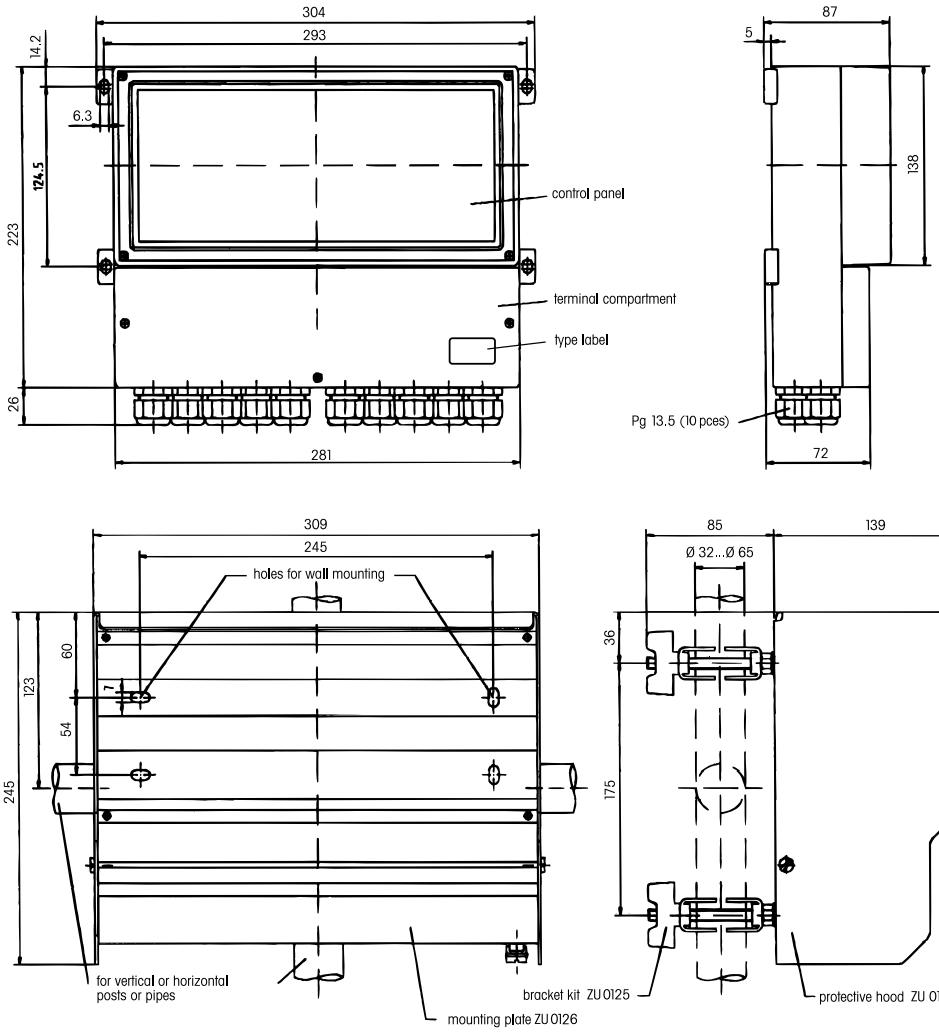
Logbook (option 354)	recording of		function activations, appearance and disappearance of warning and failure messages, with date and time	
	memory depth		200 entries available	
	retrievable via		keypad/display or interface	
Data retention	parameters and calibration data		>10 years (EEPROM)	
	clock and logbook		>1 year (battery packed)	
Instrument self-test	test of RAM, EPROM, EEPROM, display and keypad, record for quality management documentation (QM) to DIN ISO 9000 data retrievable via display and interface			
Power output	24 Vdc / 30 mA, floating, short-circuit-proof typical applications: loop current for universal input, signal current for switching outputs			
Clock	real-time clock with date, self-contained			
Ex-proof	Ex II T6 (Ex Zone II) TÜV Hannover Sachsen-Anhalt No. 1004/3			
RFI suppression	according to EN 50 081-1			
Immunity to interference	according to EN 50 082-2 and to NAMUR EMC recommandation for process and laboratory control equipment			
Protection to electrical shock	all inputs and outputs, except power supply input, are protected by functional extra-low voltage with protective separation according to DIN 57100/VDE 0100 Part 410 and DIN VDE 0106 Part 101			
Power supply		ac 230 V	–15% +10%, <10 VA	48 ... 62 Hz
	option 363	ac 115 V	–15% +10%, <10 VA	48 ... 62 Hz
	option 298	ac/dc 24 V	ac: –15% +10%, <10 VA dc: –15% +25%, <10 W	48 ... 62 Hz
Protection class	II □ overvoltage category III/I			
Operating/ambient temperature[5)] Transport and storage temperature	–20 ... +50 °C –20 ... +70 °C			
Enclosure	case with separate terminal compartment, suitable for outdoor mounting material: acrylonitrile butadiene styrene (ABS) IP 65 protection			
Cable glands	10 Pg 13.5 threaded cable glands			
Dimensions	refer to dimension drawing			
Weight	approx. 3 kg			

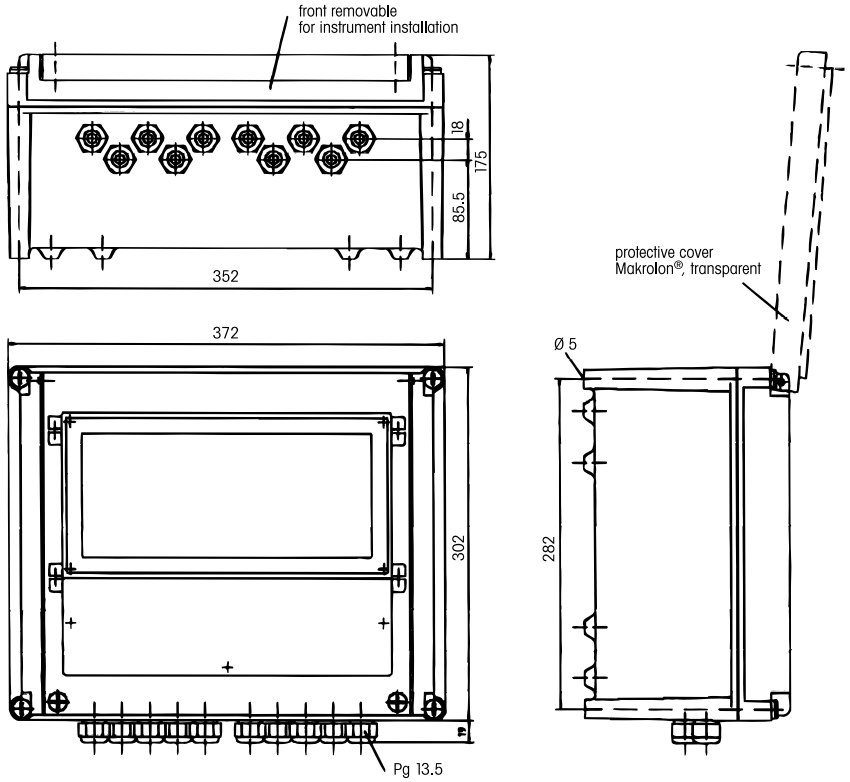
5) At ambient temperatures below 0 °C the readability of the display may be reduced, however the unit functions are not impaired.

Concentration Table

Substance	Concentration Ranges			
HNO_3	0.0 ... 30.0	35.0 ... 96.0		% by wt
	–20.0 ... 50.0	–20.0 ... 50.0		°C
HCl	0.0 ... 18.0	22.0 ... 39.0		% by wt
	–20.0 ... 50.0	–20.0 ... 50.0		°C
H_2SO_4[1)]	0.0 ... 30.0	32.0 ... 84.0	92.0 ... 99.0	% by wt
	–17.8 ...110.0	–17.8 ...115.6	–17.8 ...115.6	°C
NaOH	0.0 ... 15.0	19.0 ... 50.0		% by wt
	0.0 ...100.0	0.0 ...100.0		°C

1) The limits apply for 27° C





ISO 9001 certified
ISO 14001 certified

Management System
certified according to
ISO 9001 / ISO 14001

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