METTLER TOLEDO

pH Transmitter 2500

Technical Data

Inputs	1 input for pH or mV 1 input for ORP[1)] (redox potential) 1 current input with evaluation 0...100%, e.g. in combination with power supply output for feedforward control or setpoint compensation of complete 2-wire measuring circuits, e.g. for flow meter or level indicator 1 input for Pt100/Pt1000, automatic selection, attachment using 2-wire or 3-wire technique	
Measuring range	pH-/mV value	pH –2,00…+16,00 –2000…+2000 mV
	ORP (redox potential)	–2000…+2000 mV
	rH value	0,0…42,5
	temperature	–50,0…+250,0 °C
	current input	0(4)…20 mA/50 Ω (0…100%)
	glass impedance	2…2000 MΩ
	reference impedance	0,1 ... 200,0 kΩ
Display	graphics LCD, 240x64 points with CFL[2)] backlighting	
	main display	character height approx. 25 mm,
	additional display	character height approx. 6 mm
	parameter display	7 lines, character height approx. 4 mm

Display options

main display	additional display	
pH-/mV value	pH-/mV value	[pH],[mV]
ORP (redox potential)	ORP	[mV]
rH value	rH value	[rH]
temperature	temperature	[°C]
time	time	[h, min]
	date	[d, m, y]
	current output 1	[mA]
	current output 2	[mA]
	current input	[%]
	controller manipulated variable	[%]
	calibration timer	[h]
	glass impedance	[MΩ]
	reference impedance	[kΩ]

Current output 1*)	0…20 mA or 4…20 mA, max. 10 V, floating user defined for the measured variables pH, mV, ORP, rH, °C error messages if burden exceeded	
Current output 2*) (Option 350)	0…20 mA or 4…20 mA, max. 10 V, floating user defined for the measured variables pH, mV, ORP, rH, °C error messages if burden exceeded	
Beginning/end of scale*)	definable within the measuring range for pH, mV, ORP, rH, °C	
Measuring spans*)	pH value	1,00…20,00
	electrode potential	100…2000 mV
	ORP (redox potential)	100…2000 mV
	rH value	10,0…200,0
	temperature	10,0…300,0 °C

Electrode calibration

Operating modes*)
- automatic calibration with automatic buffer recognition Calimatic®
  with three fixed buffer sets:

METTLER TOLEDO technical buffers	2.00/4.01/7.00//9.21
Merck/Riedel de Haën	2.00/4.00/7.00/9.00/12.00
techn. buffer DIN 19267	1.09/4.65/6.79/9.23/12.75

  buffer sets to customer requirements (opt. 357)
- entry of individual buffer values
- sample calibration
- entry of premeasured calibration data

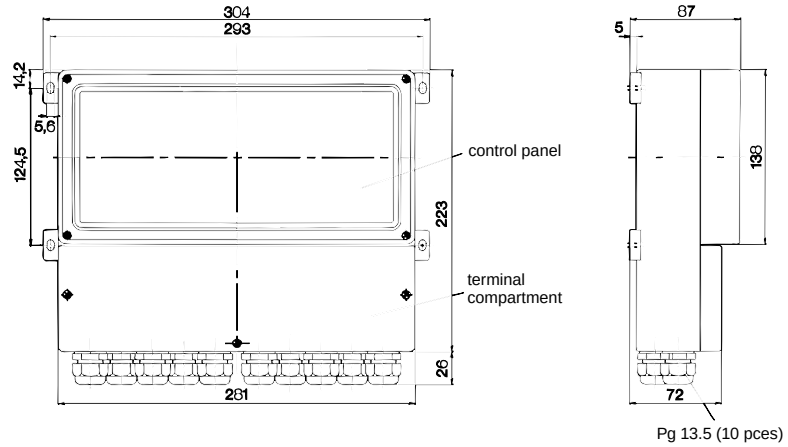
*) user defined 1) Oxidation/Reduction Potential 2) Cold Fluorescent Lamp

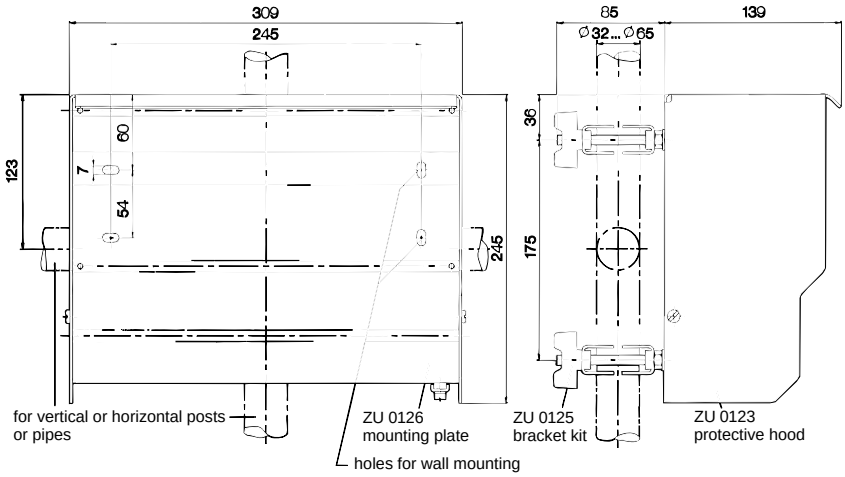
Calibration ranges	zero point slope V_{iso}	pH 6…8 50…61 mV/pH (25 °C) –200…+200 mV
Nominal zero point and slope of electrode*) (Option 356)	zero point slope V_{iso} e.g. for antimon probes	pH 0…14 25…61 mV/pH –500…+500 mV
Current input	0(4)...20 mA (0...100%), input resistance 50 Ω, overload 100 mA	
Temperature input	Pt100/Pt1000, automatic selection connection 2- or 3-wire measuring current approx. 4 mA (Pt100) or approx. 0.4 mA (Pt1000) temperature sensor adjustable	
Temperature compensation*)	automatic manual	with Pt100/Pt1000 –50,0…+250 °C
Temperature compensation according to medium	– none – ultrapure water with trace impurities	
Glass electrode input	input resistance input current (20 °C) 3) offset voltage TC of offset voltage	> $2*10^{12}$ Ω < $1*10^{-12}$ A < 0,5 mV < 20 µV/K
Reference electrode input	input resistance input current (20 °C) 3) offset voltage TC of offset voltage	> $2*10^{10}$ Ω < $1*10^{-10}$ A < 0,5 mV < 20 µV/K
Measurement error (± 1 digit, operating temperature –20…+50 °C)	pH value electrode potential temperatur current input	< 0,01 < 0,1% of measured value < 0,2% of measured value, ±0,2 K < 1% of full scale
Impedance measurement error	glass electrode reference electrode	< 10% 5…500 MΩ < 20% < 5 MΩ / > 500 MΩ < 10% 0,5…50 kΩ < 20% < 0,5 kΩ / > 50 kΩ
Admissible cable capacitance (impedance measurement)	< 2 nF	(cable length approx. 20 m, cable type METTLER TOLEDO ST-TRIAX 7)
Admissible voltage ORP +pH (mV)	±2 V, terminals 1, 3 across terminal 4	
Current source mode	0,00 mA…20,50 mA	
Output current error	< 0,25% of measured value ±20 µA	
Switching contacts*)	8 switching contacts, floating contact rating NAMUR 4) contacts failure/warning: delay times definable limit value/controller contacts (controller optional, opt. 353) cleaning contacts (option 352)	 ac < 250 V/5A < 1250 VA resistiv dc < 120 V/5A < 120 W function check warning failure limit 1 limit 2 rinsing cleaning probe

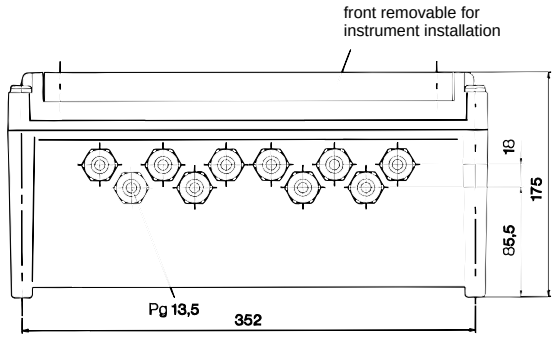
*) user defined 3) doubling every 10 K 4) German committee for measurement and control standards in chemical industry

PI controller*) (Option 353)	quasi-continuous switching controller via min./max. contacts control range definable within measurement ranges for pH/mV/ORP/rH/°C			
Interface*) (Option 351)	RS485, galvanically isolated baud rate data bits parity point-to-point connection or bus connection of up to 30 pH Transmitters 2500		300/600/1200/9600 7/8 no/even/odd	
Log book (Option 354)	recording of storage depth called up using		function call-ups, warning and failure messages on appearance and disappearence, with date and time 200 entries available keypad/display or interface	
Cleaning function*) (Option 352)	automatic sensor cleaning and rinsing via 3 timer controlled contacts			
Data retention	parameters and adjustment data clock and log book reserve power		> 10 years (EEPROM) > 1 year (battery buffered)	
Instrument self-test	test of RAM, EPROM, EEPROM, display and keypad, record for quality management documentation (QM) following DIN ISO 9000 called up via display and interface			
Power supply output	24 V DC/30 mA, floating, short-circuit proof application examples: current loop for universal input, signal current for switching outputs or supply for Knick model 87 pH isolation amplifier			
Clock	real-time clock with date, self contained			
RFI suppression	to EN 55011 and EN 55022 specifications			
Immunity to interferance	to NAMUR EMC recommendation for process and laboratory control equipment			
Input ratings	 Opt. 363 Opt. 298	ac 230V ac 115V ac/dc 24V	–15% +10% < 10 VA –15% +10% < 10 VA ac: –15% +10% < 10 VA dc: –15% +20% < 10 W	48 ...62 Hz 48 ...62 Hz 48 ...62 Hz
Operating/ambient temperature Transport and storage temperature	–20…+50 °C –20…+70 °C			
Case	case with separate terminal compartment, suitable for outdoor installation material: acrylonitrile-butadiene-styrene (ABS) type of protection: IP65			
Cable glands	10 Pg 13.5 threaded cable glands			
Dimensions	see dimension drawing			
Weight	approx. 3 kg			

*) user defined







ISO 9001 certified
ISO 14001 certified

Management System
certified according to
ISO 9001 / ISO 14001

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