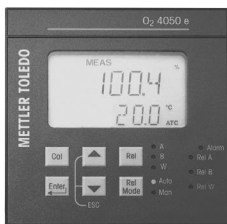


# Transmitters

## pH 2050 e, O<sub>2</sub> 4050 e and Cond 7050 e

The right measure of performance and price

### Technical Data



#### Short description

The Transmitters pH 2050 e, O<sub>2</sub> 4050 e and Cond 7050 e are panel- and wall-mount instruments for use in a wide range of applications, such as water and wastewater treatment, fish farming etc. The instruments are designed for easy wiring, mounting and installation. Each transmitter is equipped with a microprocessor offering powerful features through a user-friendly menu-driven setup program.

#### Features

- New!** – Two 0/4...20 mA current outputs, galvanically isolated
- Two relays as limit contacts with on/off delay timer
- One alarm relay
- One relay as wash contact
- Manual control of relay contacts
- IP 54 splash-proof front for panel mount
- New!** – IP 65 rated wall-mount enclosure
- New!** – PI controller with pulse length or pulse frequency control
- Password protection against accidental parameter changes
- New!** – 2- and 4-electrode conductivity sensors capability

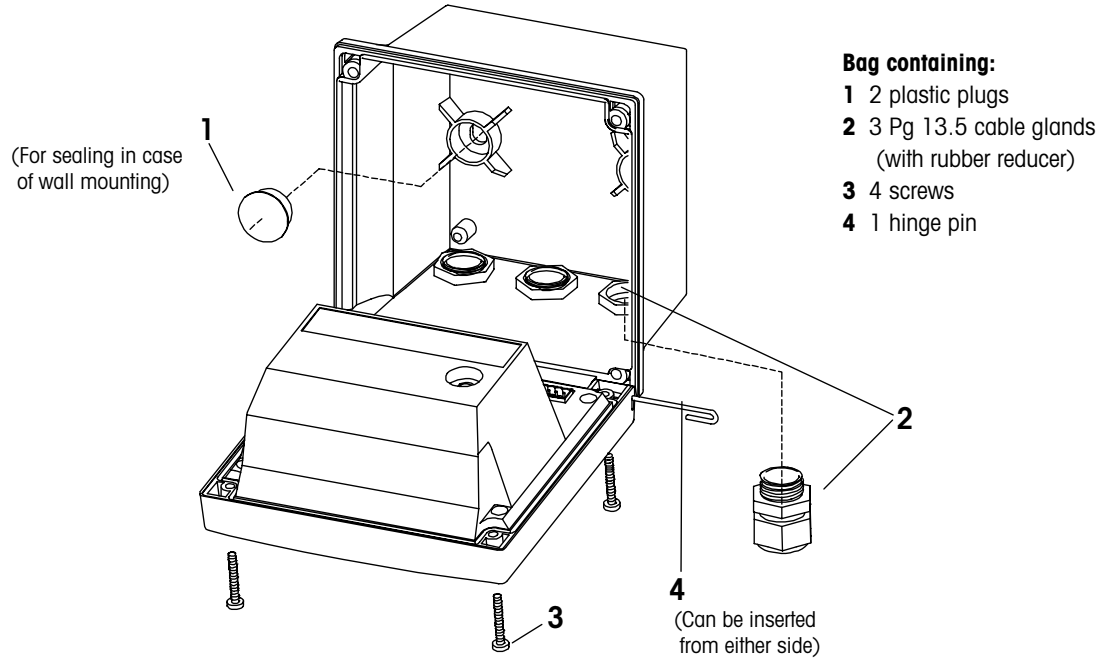
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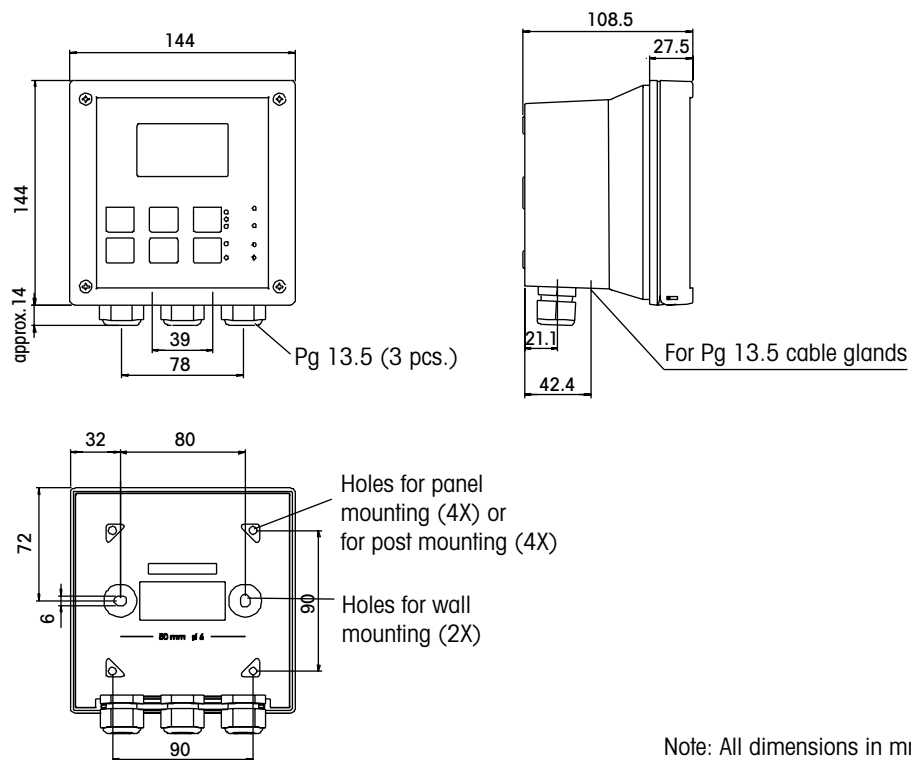
**METTLER TOLEDO**

Wall mount version

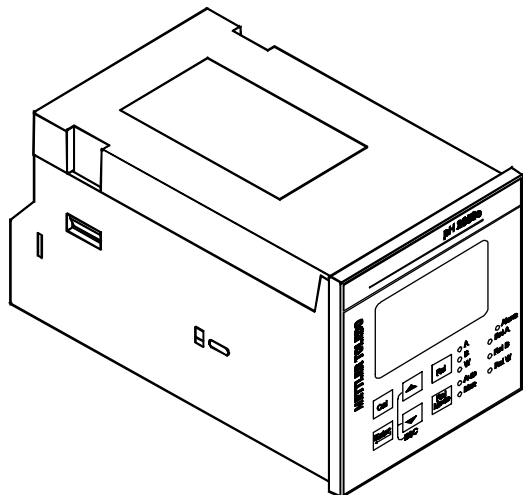
Assembling the case



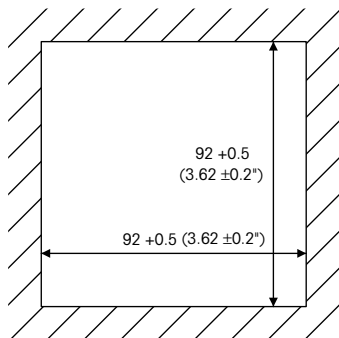
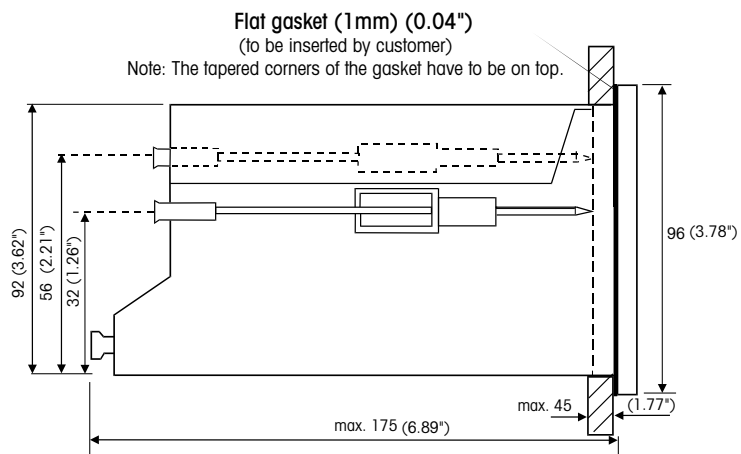
Dimension drawing



Panel mount version



Dimension drawing



Panel cut-out

## Transmitter pH 2050 e

<b>pH range</b>	-2.00...16.00 pH
Resolution	0.01 pH
Relative accuracy	± 0.01 pH
<b>mV range</b>	0...100%/-1000...1000 mV
Resolution	0.1%/1 mV
Relative accuracy	± 1 mV
<b>Temperature</b>	-9.9...125.0 °C / 15.0...257.0 °F
Resolution	0.1 °C / 0.1 °F
Relative accuracy	± 0.5 °C / ± 1.0 °F
Sensor	Pt100/Pt1000 (jumper selectable)
<b>Temperature compensation</b>	auto/manual
<b>Calibration</b>	single or two-point calibration, manual buffer entry, 5 programmed sets of buffer tables

Transmitter O<sub>2</sub> 4050 e

<b>Dissolved oxygen range</b>	
mg/l of oxygen	0.00...20.00 mg/l
% saturation of air	0.0...200.0%
<b>Resolution</b>	
mg/l of oxygen	0.01 mg/l
% saturation of air	0.1%
<b>Relative accuracy</b>	
mg/l of oxygen	± 1.0% of full scale reading
% saturation of air	± 1.0% of full scale reading
<b>Flow rate</b>	1-2 cm/sec. (dependent on both temperature & oxygen level)
<b>Resolution response time</b>	t <sub>99</sub> < 60 sec. for S-membrane t <sub>99</sub> < 90 sec. for T-membrane
<b>Calibration</b>	single point or two point calibration
<b>Temperature</b>	0...50 °C (display -9.9...125.0 °C / 15.0...257.0 °F)
Resolution	0.1 °C / 0.1 °F
Relative accuracy	± 0.5 °C / ± 1.0 °F
Sensor	NTC 22 kΩ
Time response	approx. 1 min
Temperature compensation	auto/manual (reference at 25 °C)
<b>Pressure units input</b>	bar, psi and mm Hg (manual input and automatic correction)
<b>Salinity input range</b>	0.0...50.0 ppt (manual input and automatic correction)

Transmitter Cond 7050 e

<b>Conductivity input</b>	input for 2- or 4-electrode sensors	
<b>Conductivity ranges</b> (Resolution)	<b>1</b>	0.001...2.000 µS/cm (0.001 µS/cm)
	<b>2</b>	0.01...20.00 µS/cm (0.01 µS/cm)
	<b>3</b>	0.1...200.0 µS/cm (0.1 µS/cm)
	<b>4</b>	1...2000 µS/cm (1 µS/cm)
	<b>5</b>	0.01...20.00 mS/cm (0.01 mS/cm)
	<b>6</b>	0.1...200.0 mS/cm (0.1 mS/cm)
	<b>7</b>	1...1000 mS/cm (1 mS/cm)
Relative accuracy	± 1 % of full scale reading (± 2 % > 500 mS/cm)	
System accuracy	The effective measuring range and the total system accuracy depend on the sensor used with the transmitter. Please refer to the respective sensor documentation.	
<b>Temperature</b>	-9.9...125.0 °C / 15.0...257.0 °F	
Resolution	0.1 °C / 0.1 °F	
Relative accuracy	± 0.5 °C / ± 1.0 °F	
Sensor	Pt100 / Pt1000 (jumper selectable)	
Offset adjustment	± 10 °C / ± 18 °F	
<b>Temperature compensation</b>	auto / manual	
Reference temperature	25 °C / 77 °F	
Mode	linear ( <b>LIN</b> )	0.00...10.00 %/°C
	pure water ( <b>PUR</b> )	
<b>Calibration</b>	Direct entry of cell constant or manual determination of the cell constant using a standard solution.	
Permissible cell constants	0.005...9.999 cm <sup>-1</sup>	
Acceptable calibration window	± 40 % of the displayed (default) value	

General specifications: transmitters pH 2050 e, O<sub>2</sub> 4050 e and Cond 7050 e

Controller	limit-/proportional-/proportional-integral-control (pulse length or pulse frequency)
Proportional range	10...500 %
Integral time	0...999.9 minutes
Adjustable period with pulse length controller	0.5...20 sec.
Adjustable frequency with pulse frequency controller	60...120 pulses/min
Pickup/dropout delay	0...1999 seconds
Wash cycle	0.1...199.9 hours
Wash duration	1...1999 seconds
Hysteresis for pH	0.1...1 pH
Hysteresis for ORP	1...10.0% / 10...100 mV
Hysteresis for DO	0.1...1.0 mg/l or 0...10 %
Hysteresis for Conductivity	1...10.0 % full scale
Contact outputs, controller	1 SPDT, 3 SPST relays, P/PI controller
Switching voltage	max. 250 VAC
Switching current	max. 3 A
Switching power	max. 600 VA

**General specifications: transmitters pH 2050 e, O<sub>2</sub> 4050 e and Cond 7050 e (cont.)**

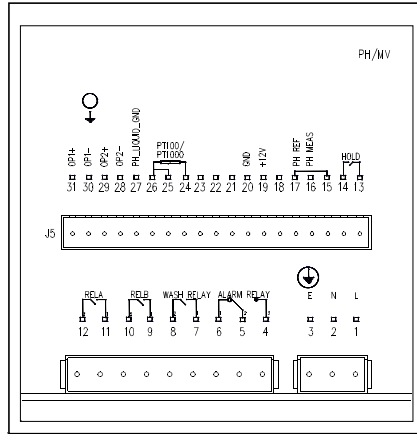
<b>Alarm functions</b>	
Function	latching/pulse
Pickup delay	0...1999 seconds
Switching voltage	max. 250 VAC
Switching current	max. 3 A
Switching power	max. 600 VA
<b>Display</b>	
LCD	14 segments display with symbols for status information UV protected
Backlighting	ON/OFF selectable, with four level of brightness control
<b>EMC specifications</b>	
Emissions	according to EN 50081-1
Susceptibility	according to EN 50082-1
<b>Environmental conditions</b>	
Ambient temp. operating range	0...50 °C
Relative humidity	10...95 %, non-condensing
<b>Electrical data and connections</b>	
Power requirements	80...250 V AC
Frequency	48...62 Hz
Signal output	two 0/4...20 mA outputs for process parameter and temperature, galvanically isolated, 22 mA alarm function
Load	max. 600 Ω
Sensor input	screw terminals
Connection terminals	removable terminal blocks
Main fuse	250 mA
<b>Mechanical specifications (wall mount version)</b>	
Dimensions	144 x 144 x 110 mm
Weights	670 g (unit) 950 g (boxed)
Material	PBT
Protection rating	IP65 / NEMA 4X
<b>Mechanical specifications (panel mount version)</b>	
Dimensions	96 x 96 x 175 mm
Weights	max 0.7 kg
Material	ABS
Protection rating	IP54 (front), IP40 (housing)

**Ordering information**

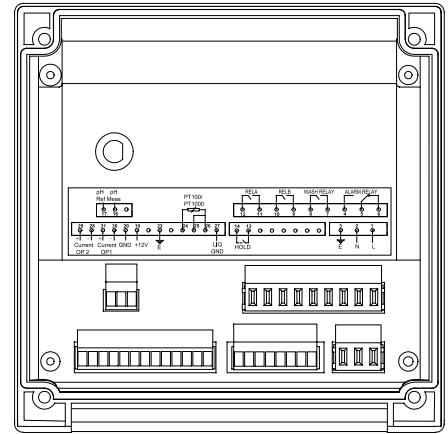
	<b>panel mount</b>	<b>wall mount</b>
Transmitter pH 2050 e	52 121 109	52 121 108
Transmitter O <sub>2</sub> 4050 e	52 121 107	52 121 106
Transmitter Cond 7050 e	52 121 125	52 121 124

pH 2050 e: panel and wall mount version

Panel mount (92 x 92 mm)

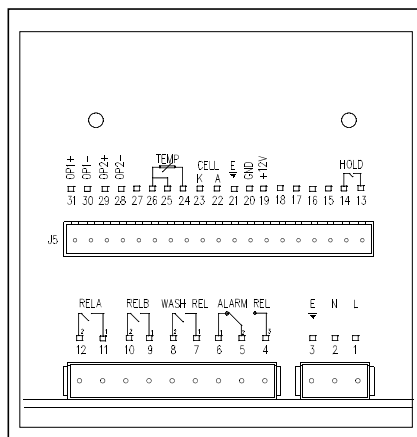


Wall mount (144 x 144 mm)

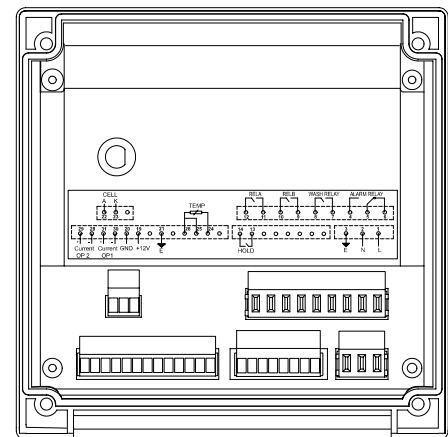


O<sub>2</sub> 4050 e: panel and wall mount version

Panel mount (92 x 92 mm)

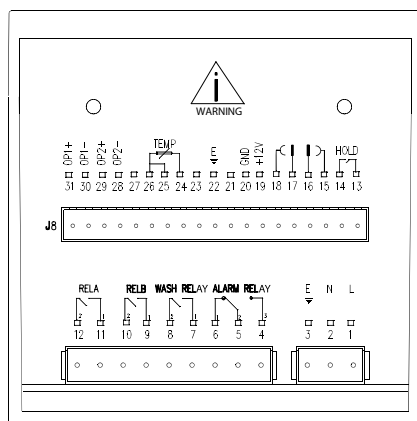


Wall mount (144 x 144 mm)



Cond 7050 e: panel and wall mount version

Panel mount (92 x 92 mm)



Wall mount (144 x 144 mm)

Not available.

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