

# 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

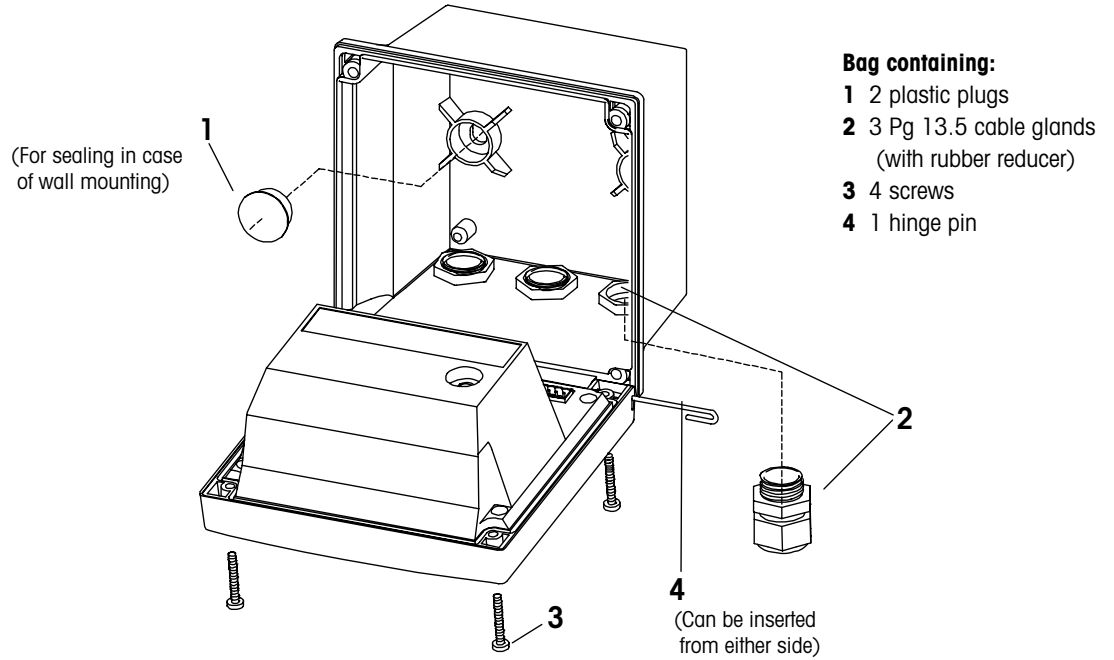
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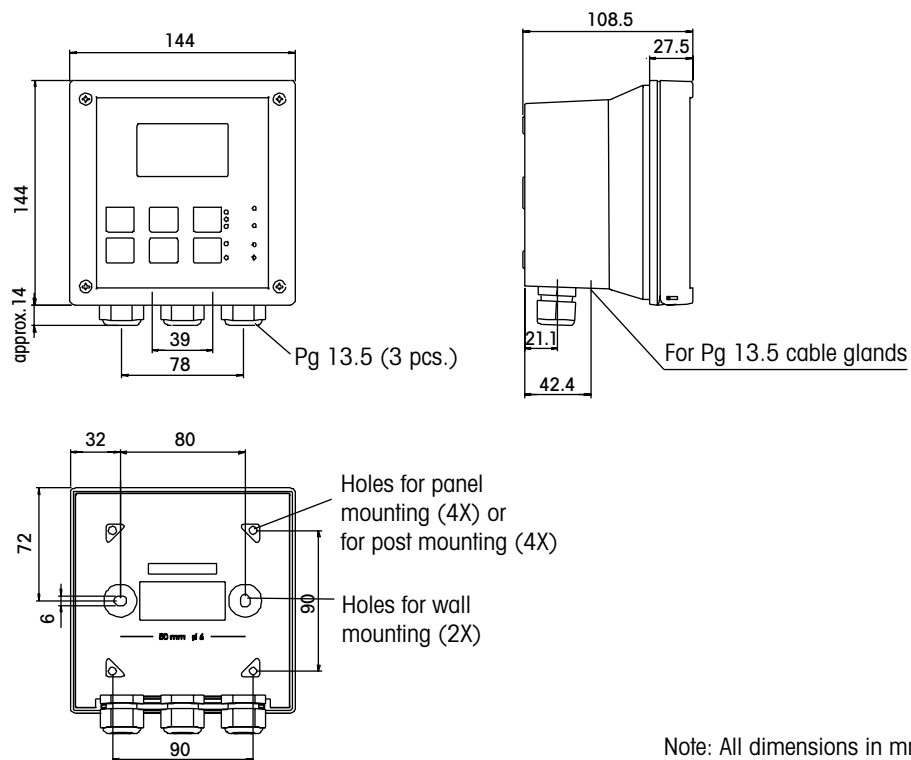
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Wall mount version

Assembling the case

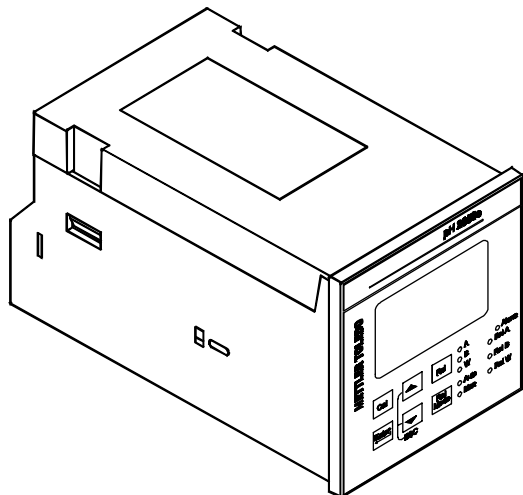


Dimension drawing

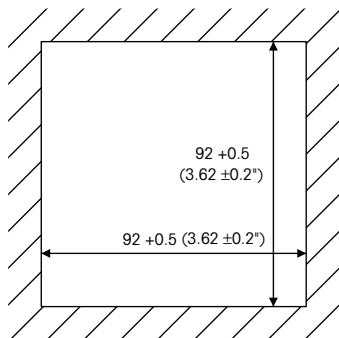
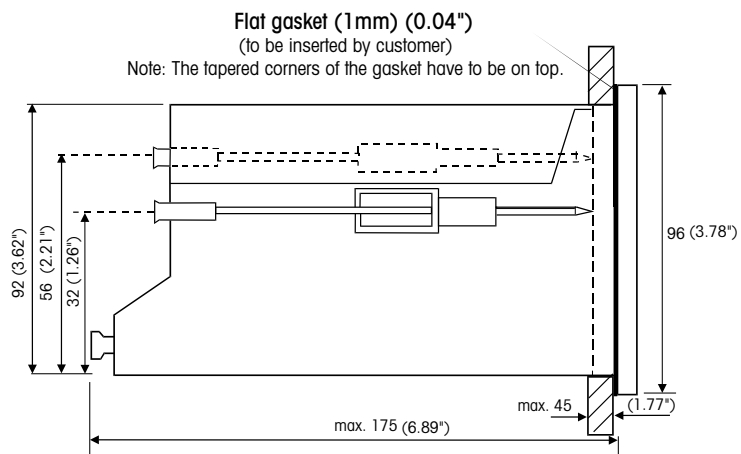


Note: All dimensions in mm

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.)**

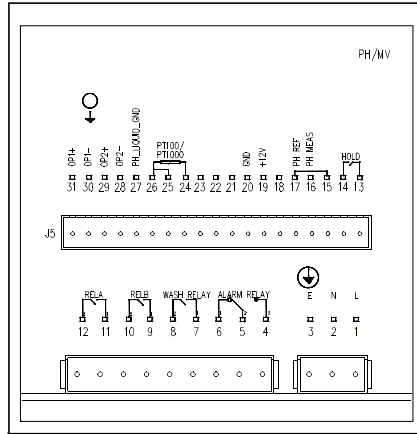
<b>Alarm functions</b>	
Function	latching/pulse
Pickup delay	0...1999 seconds
Switching voltage	max. 250 VAC
Switching current	max. 3 A
Switching power	max. 600 VA
<b>Display</b>	
LCD	14 segments display with symbols for status information UV protected
Backlighting	ON/OFF selectable, with four level 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**

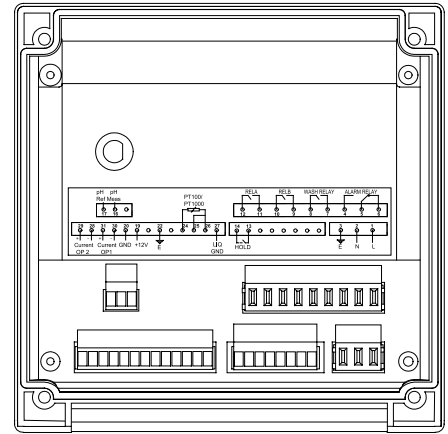
	<b>panel mount</b>	<b>wall mount</b>
Transmitter pH 2050 e	52 121 109	52 121 108
Transmitter O <sub>2</sub> 4050 e	52 121 107	52 121 106
Transmitter Cond 7050 e	52 121 125	52 121 124

pH 2050 e: panel and wall mount version

Panel mount (92 x 92 mm)

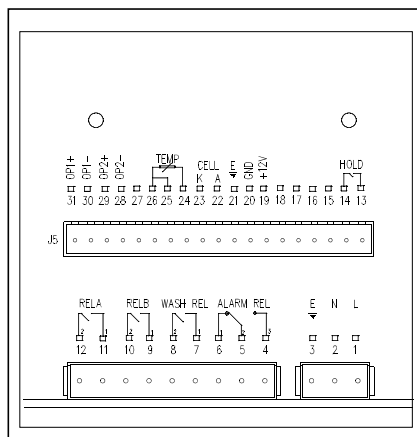


Wall mount (144 x 144 mm)

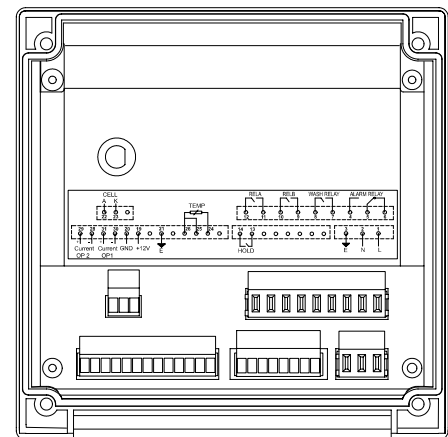


O<sub>2</sub> 4050 e: panel and wall mount version

Panel mount (92 x 92 mm)

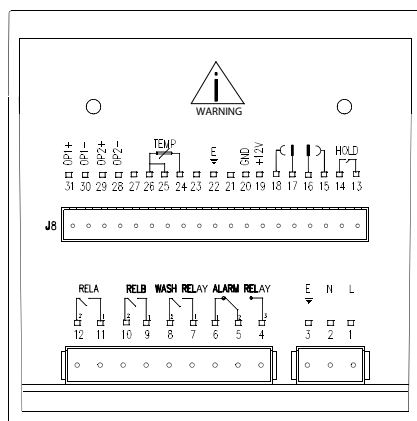


Wall mount (144 x 144 mm)

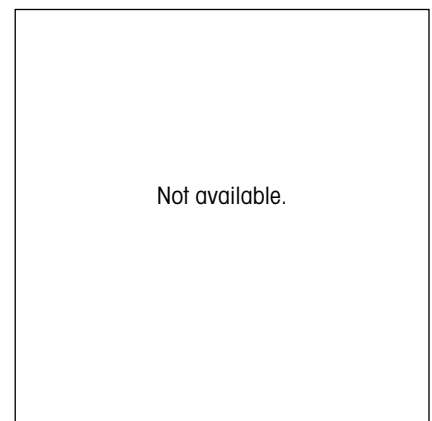


Cond 7050 e: panel and wall mount version

Panel mount (92 x 92 mm)



Wall mount (144 x 144 mm)



## METTLER TOLEDO Market Organizations

### Sales and Service:

#### Australia

Mettler-Toledo Ltd.  
220 Turner Street  
Port Melbourne  
AUS-3207 Victoria  
Phone +61 39 644 57 20  
Fax +61 39 645 39 35  
e-mail mtausprocess@mt.com

#### Austria

Mettler-Toledo GmbH  
Favoritner Gewerbering 17  
A-1100 Wien  
Phone +43 1 604 19 80  
Fax +43 1 604 28 80  
e-mail infoprocess.mt.at@mt.com

#### Brazil

Mettler-Toledo Ind. e Com. Ltda.  
Alameda Araguaia  
451 - Alphaville  
BR-06455-000 Barueri/SP  
Phone +55 11 4166 74 00  
Fax +55 11 4166 74 01  
e-mail sales@mettler.com.br  
service@mettler.com.br

#### China

Mettler-Toledo Instruments  
(Shanghai) Co. Ltd.  
589 Gui Ping Road  
Cao He Jing  
CN-200233 Shanghai  
Phone +86 21 64 85 04 35  
Fax +86 21 64 85 33 51

#### Croatia

Mettler-Toledo d.o.o.  
Mandlova 3  
HR-10000 Zagreb  
Phone +385 1 292 06 33  
Fax +385 1 295 81 40  
e-mail mt-zag@zg.tel.hr

#### Czech Republic

Mettler-Toledo s.r.o.  
Trebosticka 2283/2  
CZ-10000 Praha 10  
Phone +420 2 72 123 151  
Fax +420 2 72 123 170  
e-mail sales.mtcz@mt.com

#### Denmark

Mettler-Toledo A/S  
Naverland 8  
DK-2600 Glostrup  
Phone +45 43 27 08 00  
Fax +45 43 27 08 28  
e-mail mtdk@post10.tele.dk  
lsl@mts.mt.com

#### France

Mettler-Toledo  
Analyse Industrielle Sarl.  
30, Boulevard Douaumont  
BP 949  
F-75829 Paris Cedex 17  
Phone +33 1 47 37 06 00  
Fax +33 1 47 37 46 26  
e-mail mtpro-f@mt.com

#### Germany

Mettler-Toledo GmbH  
Prozeßanalytik  
Ockerweg 3  
D-35396 Gießen  
Phone +49 641 507 333  
Fax +49 641 507 397  
e-mail prozess@mt.com

#### Great Britain

Mettler-Toledo LTD  
64 Boston Road Beaumont Leys  
GB-LE4 1AW Leicester  
Phone +44 116 235 7070  
Fax +44 116 236 5500  
e-mail enquire.mtuk@mt.com

#### Hungary

Mettler-Toledo Kereskedelmi KFT  
Teve u. 41  
HU-1139 Budapest  
Phone +36 1 288 40 40  
Fax +36 1 288 40 50

#### Italy

Mettler-Toledo S.p.A.  
Via Vialba 42  
I-20026 Novate Milanese  
Phone +39 02 333 321  
Fax +39 02 356 2973  
e-mail mettler.toledo@interbusiness.it

#### Japan

Mettler-Toledo K.K.  
5F Tokyo Ryutsu Center Annex B  
6-1-1 Heiwajima, Ohta-ku  
JP-143-0006 Tokyo  
Phone +81 3 5762 07 06  
Fax +81 3 5762 09 71

#### Mexico

Mettler-Toledo S.A. de C.V.  
Pino No. 350, Col. Sta.  
Col Atlampa  
MX-06450 México D.F.  
Phone +52 5 541 33 00  
Fax +52 5 541 04 02  
e-mail mario.roca@mt.com

#### Poland

Mettler-Toledo (Poland) Sp.z.o.o.  
ul. Iwonicka 39  
PL-02-924 Warszawa  
Phone +48 22 651 92 32  
Fax +48 22 651 71 72

#### Russia

Mettler-Toledo ZAO  
Sretenskij Bulvar 6/1  
Office 6  
RU-101000 Moscow  
Phone +7 095 921 92 11  
Fax +7 095 921 63 53  
+7 095 921 78 68

#### Singapore

Mettler-Toledo (S) Pte. Ltd.  
Block 28  
Ayer Rajah Crescent #05-01  
SG-139959 Singapore  
Phone +65 890 00 11  
Fax +65 890 00 12  
+65 890 00 13

#### Slovakia

Mettler-Toledo SERV s.r.o.  
Bulharska 61  
SK-82104 Bratislava  
Phone +421 743 42 74 96  
Fax +421 743 33 71 90

#### Slovenia

Mettler-Toledo d.o.o.  
IOC Trzin, Peske 12  
SI-1236 Trzin  
Phone +386 61 162 18 01  
Fax +386 61 162 17 89  
e-mail cipot@mtslo.mt.com  
racman@mettler-toledo.si

#### Sweden

Mettler-Toledo AB  
Virkesvägen 10  
Box 92161  
SE-12008 Stockholm  
Phone +46 8 702 50 00  
Fax +46 8 642 45 62  
e-mail sales.mts@mt.com

#### Switzerland

Mettler-Toledo (Schweiz) AG  
Im Langacher  
Postfach  
CH-8606 Greifensee  
Phone +41 1 944 45 45  
Fax +41 1 944 45 10  
e-mail info.ch@mt.com

#### Thailand

Mettler-Toledo Thailand  
1. Floor, 272 Block A3  
Raintree Office Garden  
Rama 9 Rd. Kuay Kwang  
TH-10310 Bangkok  
Phone +66 2 723 03 00  
Fax +66 2 719 64 79

#### USA

Mettler-Toledo  
Process Analytical, Inc.  
299 Washington Street  
Woburn, MA 01801, USA  
Phone +1 781 939 6300  
Toll free +1 800 352 8763  
Fax +1 781 939 6390  
e-mail mtprous@mt.com



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INTERNET

<http://www.mtpro.com>

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Mettler-Toledo GmbH, Process Analytics  
Industrie Nord, CH-8902 Urdorf  
Tel. +41 1 736 22 11, Fax +41 1 736 26 36