M420 2-wire Transmitter, for pH, O_2, Cond and Cond Ind

Transmitters for reliable measurements and for harsh conditions with HART® interface.

Technical Data

Short description

The M420 transmitter series is METTLER TOLEDO´s solution for your most demanding process conditions in hazardous area applications. Thanks to the mixed-mode input functionality, it accepts conventional (analog) or ISM® sensor of your choice. The easy-to-use interface with large backlit display allows for intuitive and straightforward application.

Features

– ATEX/FM* approved for X versions
– Advanced ISM® technology for easy and reliable maintenance
– HART®-communication available as a standard
– Sensocheck® real-time sensor diagnostics and Sensoface® display information
– Internal log-book (100 entries) expandable to 200 (with AuditTrail®)
– Multi-level password protection
– 2 analog outputs available as a standard
– Selection of TAN software options available
*pending

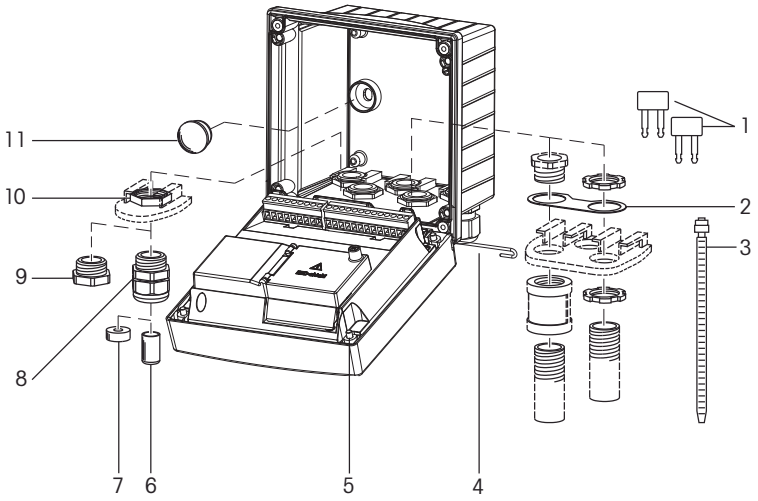
HART FIELD COMMUNICATION PROTOCOL

Contents

METTLER TOLEDO

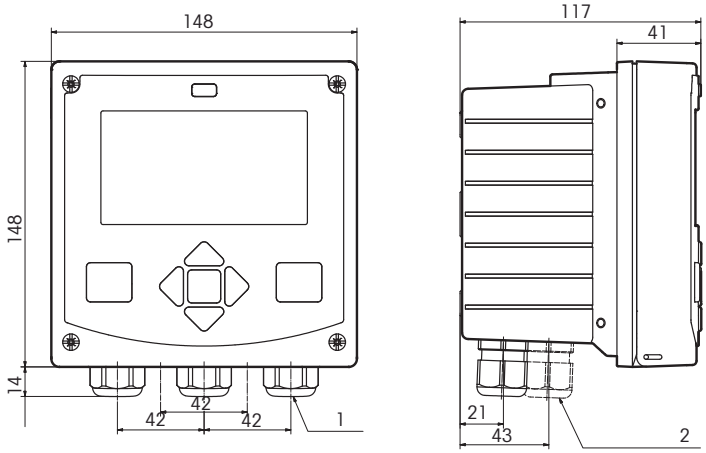
Drawings

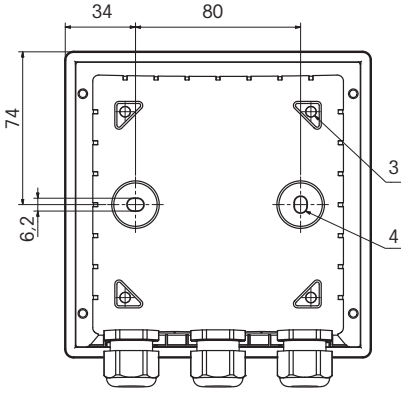
Assembly



1 Sealing plugs (3 pieces)
2 Washer (1 piece),
for pipe mounting:
insert between case and nut
3 Pg cable glands (3 pieces)
4 Hinge pin (1 piece)
5 Enclosure screws (4 pieces)
6 Pg plug (1 piece)
7 Rubber reducer (1 piece)
8 Cable ties (3 pieces)
9 Filler plugs (3 pieces)
10 Hexagon nuts (5 pieces)
11 Jumper (2 pieces)

Mounting



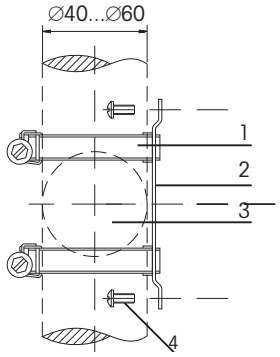


1 Cable gland (3 pieces)
2 Breakthroughs for cable
gland or conduit 1/2",
Ø 21.5 mm
(2 breakthroughs)
Conduits not included!
3 Holes for post mounting
(4 breakthroughs)
4 Holes for wall mounting
(2 breakthroughs)

All dimensions in mm

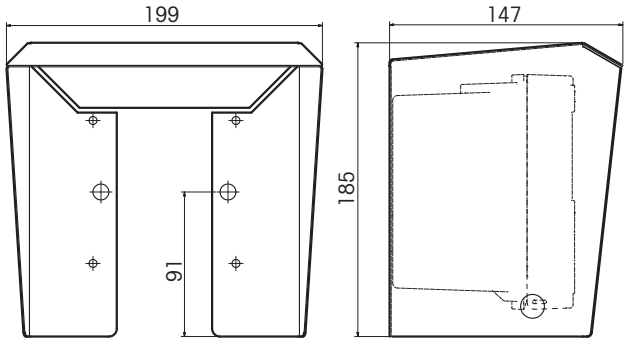
Drawings

Pipe mounting with ZU 0274 bracket kit

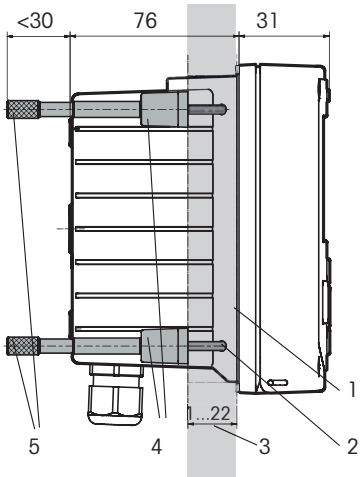


1 Hose clamps with worm gear drive to DIN 3017 (2 pieces)
2 Pipe mount plate (1 piece)
3 For vertical or horizontal post/pipe mounting
4 Self-tapping screws (4 pieces)

Protective hood ZU 0737 for wall and pipe mounting



Panel-mount kit ZU 0738



1 Seal (1 piece)
2 Screws (4 pieces)
3 Position of the panel
4 Span pieces (4 pieces)
5 Threaded sleeves (4 pieces)

Panel cutout 138 x 138 mm (DIN 43700)

All dimensions in mm

Transmitter	2-wire HART®	M420 pH	
pH/mV input	Input pH or ORP electrodes or ISFET		
	Input	Glass electrode or ISFET	
	Input	Reference electrode	
	Input	ORP electrode (e. g. platinum) or working electrode for impedance measurement	
Measurement range	−1500 ... +1500 mV		
Display range	pH value	−2.00 ... +16.00	
	ORP	−1999 ... +1999 mV	
Glass electrode input [4)]	Input resistance	$>1 \times 10^{12}$ Ohms	
	Input current	$<1 \times 10^{-12}$ A [2)]	
	Impedance measurement range	0.5 ... 1000 MOhms (±20%)	
Reference electrode input [4)]	Input resistance	$>1 \times 10^{10}$ Ohms	
	Input current	$<1 \times 10^{-10}$ A [2)]	
	Impedance measurement range	0.5 ... 200 kOhms (±20%)	
Measurement error [1,2,3)]	pH value	< 0.02	TC (temperature coefficient): 0.002 pH/K
	mV value	<1 mV	TC: 0.1 mV/K
Sensor Standardization pH *)	pH calibration		
Operating modes	BUF	Calibration with Calimatic automatic buffer recognition	
	MAN	Manual calibration with input of individual buffer values	
	DAT	Data entry of premeasured electrodes	
Calimatic Buffer Sets *)	-01- METTLER TOLEDO	2.00/4.01/7.00/9.21	
	-02- Merck/Riedel de Haen	2.00/4.00/7.00/9.00/12.00	
	-03- Ciba (94)	2.06/4.00/7.00/10.00	
	-04- NIST Technisch	1.68/4.00/7.00/10.01/12.46	
	-05- NIST Standard	1.679/4.006/6.865/9.180	
	-06- HACH	4.00/7.00/10.01	
	-07- WTW techn. Puffer	2.00/4.01/7.00/10.00	
	-08- Hamilton	4.01/7.00/10.01	
	-09- Reagecon	2.00/4.00/7.00/9.00/12.00	
Zero Offset	±200 mV (only ISFET)		
Max. calibration range	Asymmetry potential:	± 60 mV	
	Slope:	80 ... 103% (47,5 ... 61 mV/pH)	
Sensor Standardization ORP *)	ORP calibration (Zero Offset)		
Max. calibration range	−700 ... +700 mV		

Adaptive Calibration Timer*)	Preset interval	0000 ... 9999 h
Sensocheck	Automatic monitoring of glass and reference electrode, can be disabled	
Delay time	Approx. 30 s	
Sensoface	Provides information on the electrode status Evaluation of zero/slope, response, calibration interval, wear monitor, Sensocheck, can be disabled	
Temperature Input*)	Pt 100/Pt 1000/NTC 30 kOhms*) 2-wire connection, adjustable	
Measurement range	Pt 100/Pt 1000 NTC 30 kOhms	−20.0 ... +200.0 °C (−4.0 ... +392.0 °F) −20.0 ... +150.0 °C (−4.0 ... +302.0 °F)
Adjustment range	10 K	
Resolution	0.1 °C/0.1 °F	
Measurement error[1,2,3)]	<0.5 K (<1 K bei Pt100; <1K bei NTC >100 °C)	
Temp. compensation of process medium	Linear −19.99 ... +19.99 %/K Reference temperature 25 °C	
Power output	For operating an ISFET adapter +3 V/0.5 mA −3 V/0.5 mA	

*) User-defined

1) According to EN 60746-1, at nominal operating conditions

2) ±1 count

3) Plus sensor error

4) at environment temperature

Transmitter	2-wire HART®	M420 O_2
Standard Device	Sensors: InPro 6800	
Input Range	Measuring current 0 ... 600 nA	resolution 10 pA
Measurement error	< 0.5 % v. M. + 0.05 nA + 0.005 nA/K	
Operation Modes	GAS DO	Measurement in gases Measurement in liquids
Display Ranges	Saturation (–10 ... 80 °C) Concentration (–10 ... 80 °C) (Dissolved oxygen) Volume concentration in gas	0.0 ... 600 % 0.00 ... 99.99 mg/l 0.00 ... 99.99 ppm 0.00 ... 99.99 Vol-%
Polarization voltage	–400 ... –1000 mV Presetting –675 mV (resolution < 5 mV)	
Accepted Guard Current	≤ 20 µA	
Traces Device	Sensors: InPro 6800/6900/6950	
Input Range I [1)]	Measuring current 0 ... 600 nA	Resolution 10 pA
Measurement error	< 0.5 % v. M. + 0.05 nA + 0.005 nA/K	
Input Range II [1)]	Measuring current 0 ... 10000 nA	Resolution 166 pA
Measurement error	< 0.5 % v. M. + 0.8 nA + 0.08 nA/K	
Operation Modes	GAS DO	Measurement in gases Measurement in liquids
Measurement Ranges StandardSensors «10»	Saturation (–10 ... 80 °C) Concentration (–10 ... 80 °C) (Dissolved oxygen) Volume concentration in gas	0.0 ... 600.0 % 0.00 ... 99.99 mg/l 0.00 ... 99.99 ppm 0.00 ... 99.99 Vol %
Measurement Ranges StandardSensors «01»	Saturation (–10 ... 80 °C) Concentration (–10 ... 80 °C) (Dissolved oxygen) Volume concentration in gas	0.000 ... 150.0 % 0.000 ... 9999 µg/l / 10.00 ... 20.00 mg/l 0.000 ... 9999 ppb / 10.00 ... 20.00 ppm 0.000 ... 9999 ppm / 1.000 ... 50.00 Vol %
Measurement Ranges StandardSensors «001»	Saturation (–10 ... 80 °C) Concentration (–10 ... 80 °C) (Dissolved oxygen) Volume concentration in gas	0.0 ... 150.0 % 0.000 ... 9999 µg/l / 10.00 ... 20.00 mg/l 0.000 ... 9999 ppb / 10.00 ... 20.00 ppm 0.000 ... 9999 ppm / 1.000 ... 50.00 Vol %
Polarization voltage	0 ... –1000 mV Presetting –675 mV (resolution < 5 mV)	
Accepted Guard Current	≤ 20 µA	

Sensor Adjustment *)		
Operation Modes *)	AIR Automatic calibration on air WTR Automatic calibration in air saturated water Product calibration Zero point calibration	
Calibration Range Standard Sensor «10»	Zero point	±2 nA
	Slope	25 ... 130 nA (at 25 °C, 1013 mbar)
Calibration Range Standard Sensor «01»	Zero point	±2 nA
	Slope	200 ... 550 nA (at 25 °C, 1013 mbar)
Calibration Range Standard Sensor «001»	Zero point	±3 nA
	Slope	2000 ... 9000 nA (at 25 °C, 1013 mbar)
Calibration Timer *)	Preset interval	0000 ... 9999 h
Pressure Correction *)	manual	0.000 ... 9.999 bar/999.9 kPa/145.0 psi)
Sensocheck	Monitoring of membrane, electrolyte and sensor feed cable for short circuits/open circuits (can be disabled)	
Delay time	Approx. 30 s	
Sensoface	Provides information on the condition of the sensor, evaluation of zero point/slope, response time, calibration interval, Sensocheck (also wear monitor with digital sensors), can be disabled	
Temperature Input	NTC 22 kOhm / NTC 30 kOhm *) 2-wire connection, adjustable	
Measurement Range	−20.0 ... +150.0 °C (−4.0 ... +302.0 °F)	
Adjustment Range	10 K	
Resolution	0.1 °C / 0.1 °F	
Measurement error 2, 3, 4)	< 0.5 K (<1 K at >100 °C)	

*) User-defined

1) Automatic range switch

2) According to EN 60746-1, at nominal operating conditions

3) ±1 count

4) Plus sensor error

Transmitter	2-wire HART®	M420 Cond	
Cond input	Input for 2-/4-electrode sensors (only analogue)		
Effective ranges	2-E sensors 4-E sensors (Conductance limited to 3500 mS)	0.2 µS × C to 200 mS × C 0.2 µS × C to 1000 mS × C	
Display range	Conductivity	0.000 to 9.999 µS/cm 00.00 to 99.99 µS/cm 000.0 to 999.9 µS/cm 0000 to 9999 µS/cm 0.000 to 9.999 mS/cm 00.00 to 99.99 mS/cm 000.0 to 999.9 mS/cm 0.000 to 9.999 S/cm 00.00 to 99.99 S/cm	
	Resistivity	00.00 to 99.99 MΩ × cm	
	Concentration	0.00 to 9.99 %	
	Salinity	0.0 to 45.00‰ (0 to 35 °C)	
	Response (T90)	Approx. 1 s	
Measurement error [1, 2, 3]	< 1 % measured value + 0.4 µS × C		
Temperature compensation *) (reference 25°C)	(OFF) (LIN) (NLF) (NACL) (HCL) (NH_3)	Without Linear characteristic (00.00 to 19.99 %/K) Natural water to EN 27888 Ultrapure water with NaCl traces (0 to 120 °C) Ultrapure water with HCL traces (0 to 120 °C) Ultrapure water with NH3 traces (0 to 120 °C)	
Concentration determination	-01- NaCl -02- HCl -03- NaOH -04- H_2SO_4 -05- HNO_3	0.00 to 9.99 by wt 0.00 to 9.99 by wt 0.00 to 9.99 by wt 0.00 to 9.99 by wt 0.00 to 9.99 by wt	(0 to 60 °C) (-20 to 50 °C) (0 to 100 °C) (-17 to 110 °C) (-17 to 50 °C)
Sensor standardization	Input of cell constant with simultaneous display of selected process variable and temperature Input of conductivity of calibration solution with simultaneous display of cell constant and temperature Product calibration of conductivity Temperature probe adjustment		
Permitted cell constant	00.0050 to 19.9999 cm^{-1}		

Sensocheck	Polarization detection and monitoring of cable capacitance	
Delay time	Approx. 30 s	
Sensoface	Provides information on the sensor condition	
Sensor monitor	Direct display of measured values from sensor for validation (resistance, temperature)	
USP	Water monitoring in the pharmaceutical industry (USP) with additional limit value (%)	
	Output via HART or current output (22 mA)	
Temperature Input *)	Pt100/Pt1000/NTC 30 kOhms *) 3-wire connection, adjustable	
Measurement range	Pt100/Pt1000	−50 ... +200 °C (−58 ... +392 °F)
	NTC 30 kOhms	−20 ... +150 °C (−4 ... +302 °F)
Resolution	0,1 °C/0.1 °F	
Measurement error [1,2,3)]	< 0,5 K (< 1 K bei Pt100; < 1 K bei NTC >100 °C)	

*) User-defined

1) According to EN 60746-1, at nominal operating conditions

2) ±1 count

3) Plus sensor error

Transmitter	2-wire HART®	M420 Cond Ind
Cond Ind input	Input for electrodeless conductivity sensors InPro 7250 ST, InPro 7250 PFA, InPro 7250 HT	
Effective ranges	Conductivity	0.000 … 1.999 mS/cm
	Concentration	0.00 to 100 % by wt
Display range	Conductivity	0.000 to 9.999 mS/cm 00.00 to 99.99 mS/cm 000.0 to 999.9 mS/cm 0.000 to 9.999 S/cm 00.00 to 99.99 S/cm
	Concentration	0.00 to 9.99 %/10.0 to 100.0 %
	Salinity	0.0 to 45.00 ‰ (0 to 35 °C)
	Response (T90)	Approx. 1 s
Measurement error [1, 2, 3]	< 1 % measured value + 0.005 mS	
Temperature compensation *) (reference 25°C)	(OFF) (LIN) (NLF)	Without Linear characteristic (00.00 to 19.99 %/K) Natural water to EN 27888
Concentration determination	-01- NaCl -02- HCl -03- NaOH -04- H_2SO_4 -05- HNO_3 -06- H_2SO_4 -07- HCl -08- HNO_3 -09- H_2SO_4 -10- NaOH	0–26 % by wt (0 °C) to 0–28 % by wt (100 °C) 0–18 % by wt (–20 °C) to 0–28 % by wt (50 °C) 0–13 % by wt (0 °C) to 0–24 % by wt (100 °C) 0–26 % by wt (–17 °C) to 0–37 % by wt (100 °C) 0–30 % by wt (–20 °C) to 0–30 % by wt (50 °C) 94–99 % by wt (–17 °C) to 89–99 % by wt (115 °C) 22–39 % by wt (–20 °C) to 22–39 % by wt (50 °C) 35–96 % by wt (–20 °C) to 35–96 % by wt (50 °C) 28–88 % by wt (–17 °C) to 39–88 % by wt (115 °C) 15–50 % by wt (0 °C) to 35–50 % by wt (50 °C)
Sensor standardization	Input of cell factor with simultaneous display of selected process variable and temperature Input of conductivity of calibration solution with simultaneous display of cell factor and temperature Product calibration of conductivity Zero adjustment Temperature probe adjustment	

Permitted cell factor	00.100 to 19.9999	
Permitted transfer ratio	01.00 to 199.99	
Permitted zero offset	±0.5 mS	
Sensocheck	Monitoring of primary and secondary coils and lines for open circuit and of primary coil and lines for short circuit	
Delay time	Approx. 30 s	
Sensoface	Provides information on the sensor condition (zero point, Sensocheck)	
Sensor monitor	Direct display of measured values from sensor for validation (resistance, temperature)	
Temperature Input *)	Pt100/Pt1000/NTC 30 k Ohms *) 3-wire connection, adjustable	
Measurement range	Pt 100/Pt 1000 NTC 30 k Ohms	−50 ... +200 °C (– 58... +392 °F) −20 ... +150 °C (– 4... +302.0 °F)
Resolution	0,1 °C/0.1 °F	
Measurement error1,2,3)	< 0,5 K (< 1K bei Pt100; < 1K bei NTC >100 °C)	

*) User-defined

1) According to EN 60746-1, at nominal operating conditions

2) ±1 count

3) Plus sensor error

ISM Input	«One wire»-interface for operation with ISM (digital Sensors) (6 V/Ri = approx. 1.2 kOhm)	
I Input	Supply voltage 0/4 ... 20 mA/50 Ohm for external pressure compensation	
Measurement range	Configurable 0 ... 9.999 bar resp. −50 to 200 °C (−58 to 392 °F)	
Characteristic	Linear	
Measurement error [2,4)]	< 1 % of current value + 0.1 mA	
HOLD Input	Galvanically isolated (OPTO coupler)	
Function	Switches the device into HOLD	
Switching Voltage	0 ... 2 V (AC/DC) 10 ... 30 V (AC/DC)	Inactive HOLD active
CONTROL Input	Galvanically isolated (OPTO coupler)	
Function	Switch parameter set A/B	
Switching voltage	0 ... 2 V (AC/DC) 10 ... 30 V (AC/DC)	Parameter set A Parameter set B
Output 1	loop current 4 ... 20 mA, floating, protected against wrong polarity, HART communication, feeding voltage 14 ... 30 V	
Measurement Value *)	M420 pH M420 O_2 M420 Cond M420 Cond Ind	pH/ORP/temperature DO saturation/DO concentration/temperature Conductivity/resistivity/concentration/salinity/ temperature Conductivity/concentration/salinity/temperature
Characteristic	Linear or logarithmic (M420 pH, M420 O_2 only linear)	
Alarm *)	22 mA on error messages	
Output Filter *)	PT_1-filter, time constant: 0 ... 120 s	
Measurement error [3)]	< 0.25 % of current value + 0.025 mA	
Measurement range *)	Configurable within the chosen measurement range	
Permissible Measurement Span M420 pH	pH 2.00 ... 18.00 / 200 ... 3000 mV / 20 ... 320 K / 36 ... 576 °F	
Min. Measurement Range	M420 O_2 M420 Cond: M420 Cond Ind: 	Standard: 5 % / 0,5 mg/l (ppm) / 2 Vol % Traces: 2 % / 0,1 mg/l (ppm) / 100 ppm LIN: 5% of selected range LOG: 1 decade LIN: 5% of selected range LOG: 1 decade

Output 2	loop current 4 … 20 mA, floating, protected against wrong polarity, feeding voltage 14 … 30 V	
Measurement Value *)	M420 pH	pH, ORP, temperature
	M420 O_2	DO saturation / DO concentration / temperature
	M420 Cond	Conductivity / resistivity / concentration / salinity / temperature
	M420 Cond Ind	Conductivity / concentration / salinity / temperature
Characteristic	Linear or logarithmic (M420 pH/O_2/Cond only linear)	
Alarm *)	22 mA on error messages	
Output Filter *)	PT_1-filter, time constant: 0 … 120 s	
Measurement error 2, 3, 4)	< 0.25 % of current value + 0.025 mA	
Measurement range *)	Configurable within the chosen measurement range	
Permissible Measurement Span M420 pH	pH 2.00 … 18.00 / 200 … 3000 mV / 20 … 320 K / 36 … 576 °F	
Min. Measurement Range	M420 O_2	Standard: 5 % / 0,5 mg/l (ppm) / 2 Vol % Traces: 2 % / 0,1 mg/l (ppm) / 100 ppm
	M420 Cond:	LIN: 5% of selected range LOG: 1 decade
	M420 Cond Ind:	LIN: 5% of selected range LOG: 1 decade
Real-time Clock	several time and date formats selectable	
Power Reserve	> 5 days	
Display	LC display, 7-segment with icons, backlit (white)	
Main display	Character height ca. 22 mm, unit symbols 14 mm	
Secondary display	Character height ca. 10 mm	
Text line	14 characters, 14 segments	
Sensoface	3 status indicators (friendly, neutral and sad smiley)	
Mode indicators	Meas, cal, config, diag Further icons for configuration and messages	
Alarm indication	Alarm icon on display, blinking	
Keypad	Keys: meas, info, 4 cursor keys, enter	

HART-Communication	Digital communication via FSK modulation of the output current 1, device identification, measured values, status and messages, parameters, calibration, protocols.
IrDA-Interface	Infrared interface for data transmission as protocols and log book, parameterization, calibration, firmware update.
FDA 21 CFR Part 11	Access control through configurable pass codes. When the configuration is changed, a log book entry is generated a flag is set on the HART protocol. Message and log book entry when the transmitter is opened.
Diagnose Functions	
Calibration Data	Depending on connected sensor: Calibration date, zero point, slope, cell constant, cell factor and response time
Device self-test	Display test, automatic memory test (RAM, FLASH, EEPROM), module test
Log Book	100 events with date and time
Ext. Log Book (TAN)	AuditTrail: 200 events with date and time
Service Functions	
Sensor Monitor	Display of direct, uncorrected sensor signal
Current Source	Current can be defined for output 1 and 2 (00.00…22.00 mA)
IrDA	Unlocking of the IrDA functionality
Password Protection	Password assignment for menu access
Factory settings	Reset of all settings to the factory values Exception: Calibration data
TAN	Release of optional additional functions
Data retention	Parameters and calibration data >10 years (EEPROM)
EMC	DIN EN 61326-1 (general requirements)
Emitted interference	Class B
Immunity to interference	Industrial sector

Explosion Protection	M420	USA FM Cl I Div 2 **) Canada CSA Cl I Div 2 **)
	M420X	ATEX / IECEx / FM / CSA Zone 1 / Cl 1 Div 1 **)
Nominal Operation Conditions		
Ambient Temperature	−20 … +65 °C (−4.0... +149.0 °F)	
Transport/Storage Temperature	−20 … +70 °C (−4.0... +158.0 °F)	
Relative Humidity	10 … 95 % non condensating	
Feeding Voltage	14 … 30 V	
Enclosure	Molded enclosure made of PBT (polybutylene terephthalat), fiber-glass reinforced	
Assembly	Wall, pipe and panel mounting	
Color	Gray RAL 7001	
Protection	IP67	
Combustibility	UL 94 V-0	
Dimensions	148 mm x 148 mm	
Panel Cutout	138 mm x 138 mm nach DIN 43 700	
Weight	1.2 kg (1.6 kg incl. accessories and packaging)	
Cable Glands	3 breakthroughs for cable glands M20 x 1.5 2 breakthroughs for NPT 1/2" or Rigid Metallic Conduit	
Wiring	Terminal block, wire cross section max. 2.5 mm^2	

*) User defined
**) Pending
1) Automatic range switch
2) According to EN 60746-1, at nominal operating conditions
3) ±1 count
4) Plus sensor error

Transmitter M420 pH

General assignment

Terminal row 1	
1	Do not connect
2	Do not connect
3	Do not connect
4	Do not connect
5	+Analog input (4 … 20mA)
6	–Analog input (4 … 20mA)
7	Grounding
8	+Output 1, 2/Hart
9	–Output 1/Hart

Terminal row 2	
10	Hold input
11	Hold input
12	Not connected
13	Control input
14	Control input
15	Not connected
16	Not connected
17	–Output 2
18	Not connected

Sensor related assignment

M420 pH	
A	Measurement electrode
B	Reference electrode
C	SG (solution ground)
D	+3VDC
E	–3VDC
F	ISM (GND)
G	ISM (data)
H	RTD (GND)
I	RTD
K	Shield

M420 O_2	
A	Cathode
B	Reference
C	Anode
D	Guard
E	ISM (GND)
F	ISM (data)
G	RDT (GND)
H	RDT
I	Shield
K	Not connected

M420 Cond	
A	I hi
B	U hi
C	U lo
D	I lo
E	RTD (GND)
F	RTD
G	RTD (Sense)
H	Shield
I	Not connected
K	Not connected

M420 Cond Ind	
A	Hi receive
B	Lo receive
C	Lo send
D	Hi send
E	RTD (GND)
F	RTD
G	RDT (Sense)
H	Shield
I	Not connected
K	Not connected

Description	Designation	Order no.
2-wire instruments		
Transmitter M420 pH H	M420 pH H	52 121 405
Transmitter M420 pH H OUT2	M420 pH H OUT2	52 121 406
Transmitter M420 pH XH	M420 pH XH	52 121 407
Transmitter M420 pH XH OUT2	M420 pH XH OUT2	52 121 408
Transmitter M420 O_2 H	M420 O_2 H	52 121 415
Transmitter M420 O_2 H OUT2	M420 O_2 H OUT2	52 121 416
Transmitter M420 O_2 XH	M420 O_2 XH	52 121 417
Transmitter M420 O_2 XH OUT2	M420 O_2 XH OUT2	52 121 418
Transmitter M420 Cond H	M420 Cond H	52 121 425
Transmitter M420 Cond H OUT2	M420 Cond H OUT2	52 121 426
Transmitter M420 Cond XH	M420 Cond XH	52 121 427
Transmitter M420 Cond XH OUT2	M420 Cond XH OUT2	52 121 428
Transmitter M420 Cond Ind H	M420 Cond Ind H	52 121 435
Transmitter M420 Cond Ind H OUT2	M420 Cond Ind H OUT2	52 121 436
Transmitter M420 Cond Ind XH	M420 Cond Ind XH	52 121 437
Transmitter M420 Cond Ind XH OUT2	M420 Cond Ind XH OUT2	52 121 438
Software options		
Log Book	SW 420-002	52 121 466
Extended Log Book (AuditTrail)	SW 420-003	52 121 467
Oxygen trace measurement	SW 420-004	52 121 468
Current input & 2 digital inputs	SW 420-005	52 121 469
Mounting accessories		
Bracket kit	ZU 0274	52 120 741
Panel-mount kit	ZU 0738	52 121 471
Protective hood	ZU 0737	52 121 470

Notes

Notes

METTLER TOLEDO Market Organizations

Sales and Service:

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Fax +43 1 604 28 80
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