

Technical Information

Liquisys M COM223/253

Dissolved Oxygen Measurement Transmitter for oxygen sensors



Application

The modular design of the transmitter allows easy adaption to a variety of customer requirements. Starting with the basic version for "measurement and alarm generation", the transmitter can be equipped with additional software and hardware modules for special applications. These modules can also be retrofitted as required.

Areas of Application

- Sewage treatment plants
- Wastewater treatment
- Water treatment
- Drinking water
- Surface water: rivers, lakes, sea
- Fish farming
- Boiler feed water (trace measurement)

Your benefits

- Field or panel-mounted housing
- Universal application
- For analog and digital sensors
- Simple handling
 - Logically arranged menu structure
 - Simple single-point calibration in air, air-saturated water or in the medium is possible
- Safe operation
 - Excellent interference immunity
 - Direct access for manual contact control
 - User-defined alarm configuration

The basic unit can be extended with:

- 2 or 4 additional contacts for use as:
 - Limit contacts (also for temperature)
 - P(ID) controller
 - Timer for simple rinse processes
 - Complete cleaning with Chemoclean
- Plus package:
 - User-defined current output characteristics
 - Automatic cleaning trigger on alarm or limit violation
 - Process monitoring
 - Sensor live check
- HART® or PROFIBUS-PA/-DP
- 2nd current output for temperature, main measured value or actuating variable
- Current input for flow rate monitoring with controller shut off or for feedforward control

Function and system design

Features of the basic version	<p>Measurement of oxygen content and of partial oxygen pressure</p> <p>The oxygen content is displayed in ppm (mg/l) or in %SAT, the partial oxygen pressure is displayed in hPa. This is selected via the menu. The temperature is displayed at the same time or, if desired, not shown at all.</p> <p>Calibration</p> <p>The amperometric sensors are zero-current-free and only require a single-point calibration. This takes place in air, air-saturated water or by reference calibration in the medium. The optical sensor will be calibrated before shipment. If necessary it can be calibrated in air and for zero point.</p> <p>Configuration</p> <p>Different alarms are required depending on application and operator. Therefore the transmitter permits independent configuration of the alarm contact and error current for each individual error. Unnecessary or undesirable alarms can be suppressed in this manner. Up to four contacts can be used as limit contacts (also for temperature), to implement a P(ID) controller or for cleaning functions. Direct manual operation of the contacts (bypassing the menu) provides quick access to limit, control or cleaning contacts, permitting speedy correction of deviations. The serial numbers of the instrument and modules and the order code can be called up on the display.</p>						
Additional functions of version WX/WS/DS	<p>Automatic pressure compensation</p> <p>Oxygen concentration is not only dependent on altitude but also on weather conditions (pressure). Automatic pressure compensation takes these fluctuations into account.</p>						
Additional functions of the Plus package	<p>Current output configuration</p> <p>In order to output wide measuring ranges while still achieving a high resolution in specific ranges, the current output can be configured as required via a table. This permits bilinear or quasi-logarithmic curves, etc.</p> <p>Process Check System (PCS)</p> <p>It comprises two independent safety functions:</p> <ul style="list-style-type: none"> ■ Errors in applications without control are detected by monitoring the limit between plausible and implausible measured values, i.e. the alarm threshold. ■ Errors in applications with control are detected by the controller monitor which monitors freely adjustable, maximum permissible time intervals and reference value overshoot or undershoot. <p>Live check</p> <p>The live check issues an alarm when the sensor signal does not change over a defined period of time. This may be caused by blocking, passivation, separation from the process, etc.</p>						
Second current output	<p>The second current output can be configured for temperature, main measured value (oxygen content, partial oxygen pressure) or actuating variable.</p>						
Current input	<p>The current input of the transmitter allows two different applications: controller shut-down in case of lower flow rate violation or total failure in the main flow as well as feedforward control. Both functions are also combinable.</p>						
Explosion proof versions for zone 2	<table border="0"> <tr> <td data-bbox="441 1575 876 1638">Field housing COM253 with power supply 24 V</td> <td data-bbox="893 1575 1412 1638">Application of transmitter and sensor in hazardous area zone 2</td> </tr> <tr> <td data-bbox="441 1638 876 1743">Field housing COM253 with power supply 230 V</td> <td data-bbox="893 1638 1412 1743">Application of transmitter as related electrical equipment in non-hazardous area or in simple pressurized apparatus; application of sensor in hazardous area zone 2</td> </tr> <tr> <td data-bbox="441 1743 876 1833">Panel mounted housing COM223 with power supply 230 V or 24 V</td> <td data-bbox="893 1743 1412 1833">Application of transmitter as related electrical equipment in non-hazardous area or in simple pressurised apparatus; application of sensor in hazardous area zone 2</td> </tr> </table>	Field housing COM253 with power supply 24 V	Application of transmitter and sensor in hazardous area zone 2	Field housing COM253 with power supply 230 V	Application of transmitter as related electrical equipment in non-hazardous area or in simple pressurized apparatus; application of sensor in hazardous area zone 2	Panel mounted housing COM223 with power supply 230 V or 24 V	Application of transmitter as related electrical equipment in non-hazardous area or in simple pressurised apparatus; application of sensor in hazardous area zone 2
Field housing COM253 with power supply 24 V	Application of transmitter and sensor in hazardous area zone 2						
Field housing COM253 with power supply 230 V	Application of transmitter as related electrical equipment in non-hazardous area or in simple pressurized apparatus; application of sensor in hazardous area zone 2						
Panel mounted housing COM223 with power supply 230 V or 24 V	Application of transmitter as related electrical equipment in non-hazardous area or in simple pressurised apparatus; application of sensor in hazardous area zone 2						

Measuring system

A complete measuring system comprises:

Variant 1 (DX/DS with COS41)

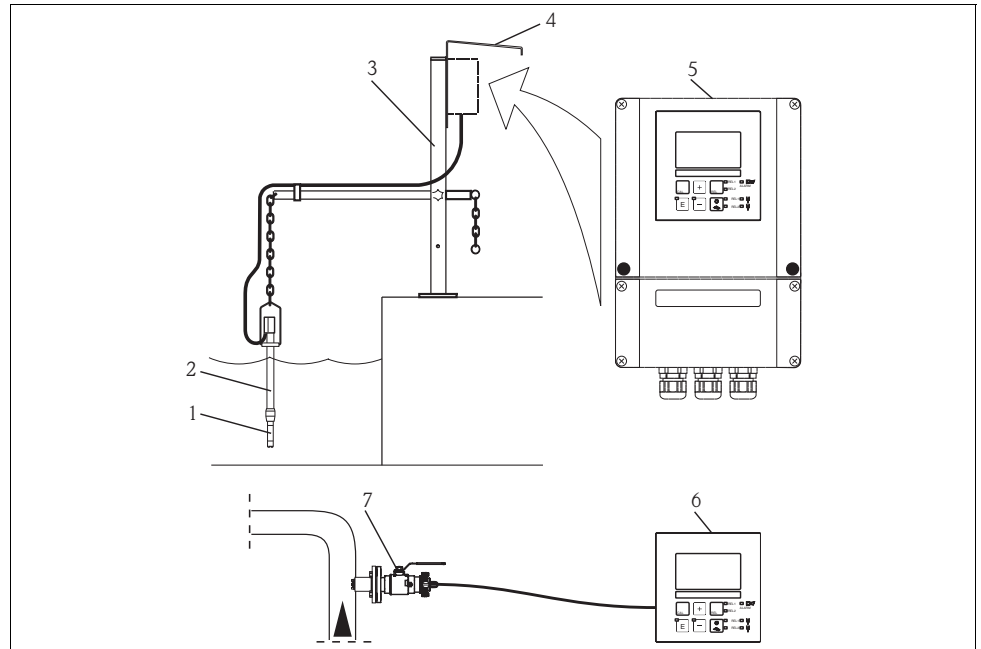
- The transmitter Liquisys M COM223 or COM253 in version DX or DS
- An oxygen sensor COS41
- An immersion, flow or retractable assembly

Options: extension cable CMK, junction box VBM

Variant 2 (WX/WS with COS31, COS61 or COS71)

- The transmitter Liquisys M COM223 or COM253 in version WX or WS
- An oxygen sensor COS31, COS61 or COS71
- An immersion, flow or retractable assembly

Options: extension cable OMK, junction box VS



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Complete measuring system Liquisys M COM223/253

- | | |
|--|-------------------------------|
| 1 Oxygen sensor | 5 Liquisys M COM253 |
| 2 Immersion assembly CYA611 | 6 Liquisys M COM223 |
| 3 Universal hanging assembly holder CYH101 | 7 Retractable assembly COA451 |
| 4 Weather protection cover CYY101 | |

Input

Measured variables	Oxygen Temperature	
Measuring range	COS31: Oxygen concentration 0 to 20 / 0 to 60 mg/l (ppm) Oxygen saturation index 0 to 200 / 0 to 600 % SAT Oxygen partial pressure 0 to 400 / 0 to 1200 hPa COS41, COS61: Oxygen concentration 0 to 20 mg/l (ppm) Oxygen saturation index 0 to 200 % SAT Oxygen partial pressure 0 to 400 hPa COS71: Oxygen concentration 0 to 20 mg/l (ppm) Oxygen saturation index 0 to 200 % SAT Oxygen partial pressure 0 to 400 hPa Temperature: -10 to 60°C (14 to 140°F)	
Cable specification	Cable length: COS31, COS61, COS71 max. 100 m (328 ft) COS41 max. 50 m (164 ft)	
O₂ signal input	Version DX/DS: 0 to 3000 nA Version WX/WS: digital communication or 0 to -7500 mV	
Binary inputs	Voltage: 10 to 50 V Power consumption: max. 10 mA	
Current input	4 to 20 mA, galvanically separated Load: 260 Ω at 20 mA (voltage drop 5.2 V)	

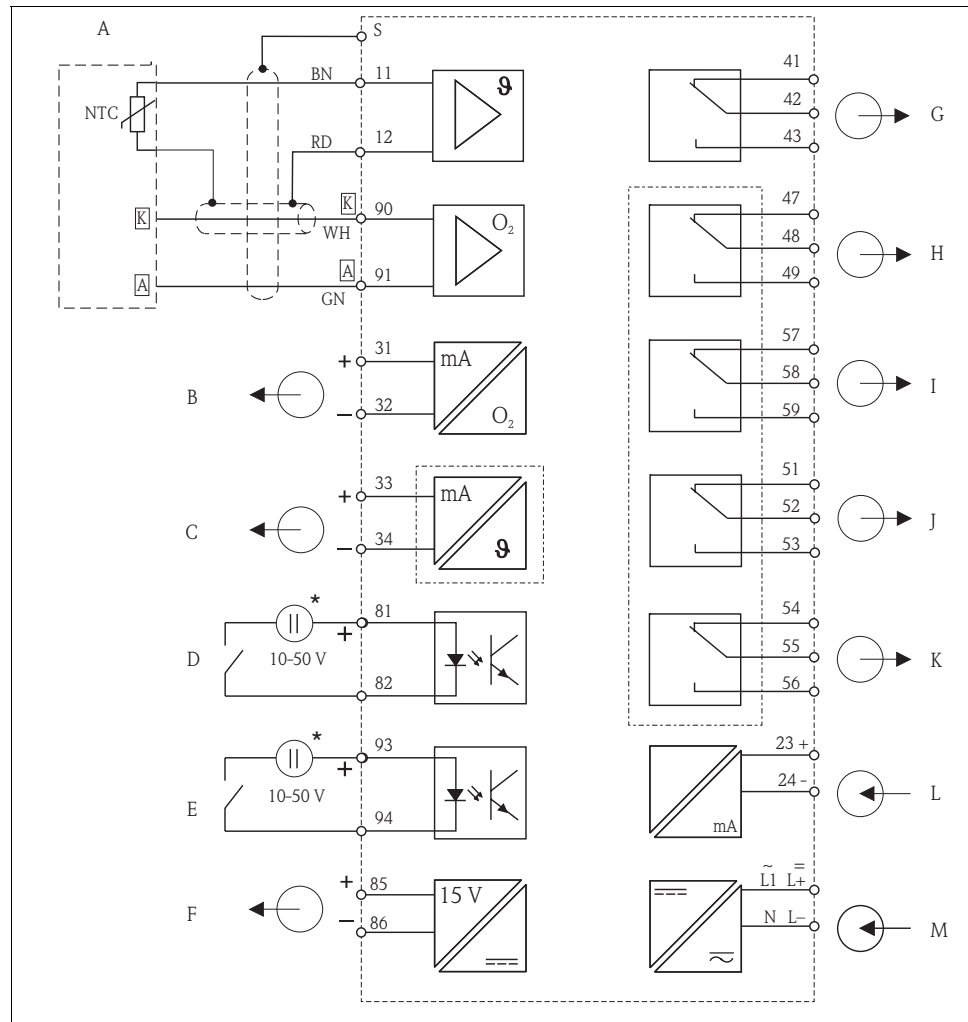
Output

Current range	0/4 to 20 mA, galvanically separated, active	
Error current	2.4 or 22 mA in case of an error	
Load	maximum 500 Ω	
Transmission range	COS31: Oxygen concentration Δ 0.2 to Δ 20 / Δ 0.6 to Δ 60 mg/l (ppm) Oxygen saturation index Δ 2 to Δ 200 / Δ 6 to Δ 600 % SAT Oxygen partial pressure Δ 4 to Δ 400 / Δ 12 to Δ 1200 hPa COS41, COS61: Oxygen concentration Δ 0.2 to Δ 20 mg/l (ppm) Oxygen saturation index Δ 2 to Δ 200 % SAT Oxygen partial pressure Δ 4 to Δ 400 hPa COS71: Oxygen concentration Δ 0.02 to Δ 20 mg/l (ppm) Oxygen saturation index Δ 0.2 to Δ 200 % SAT Oxygen partial pressure Δ 0.4 to Δ 400 hPa Temperature: Δ 7 to Δ 70°C (Δ 45 to Δ 160°F)	
Resolution	max. 700 digits/mA	

Isolation voltage	max. 350 V _{RMS} /500 V DC	
Overvoltage protection	according to EN 61000-4-5	
Auxiliary voltage output	Output voltage: Output current:	15 V ± 0.6 max. 10 mA
Contact outputs	Switching current with ohmic load (cos φ = 1): Switching current with inductive load (cos φ = 0.4): Switching voltage: Switching power with ohmic load (cos φ = 1): Switching power with inductive load (cos φ = 0.4):	max. 2 A max. 2 A max. 250 V AC, 30 V DC max. 500 VA AC, 60 W DC max. 500 VA AC, 60 W DC
Limit contactor	Pickup/dropout delay:	0 ... 2000 s
Controller	Function (adjustable): Controller response: Control gain K _p : Integral action time T _n : Derivative action time T _v : Period for pulse length controller: Frequency for pulse frequency controller: Basic load:	pulse length/pulse frequency controller PID 0.01 to 20.00 0.0 to 999.9 min 0.0 to 999.9 min 0.5 to 999.9 s 60 to 180 min ⁻¹ 0 to 40% of max. set value
Alarm	Function (switchable): Alarm threshold adjustment range: Alarm delay: Monitoring time lower limit violation: Monitoring time upper limit violation:	latching/momentary contact O ₂ / temperature: entire measuring range, depending on sensor type 0 to 2000 s (min) 0 to 2000 min 0 to 2000 min

Power supply

Electrical connection variant 1 (DX/DS)



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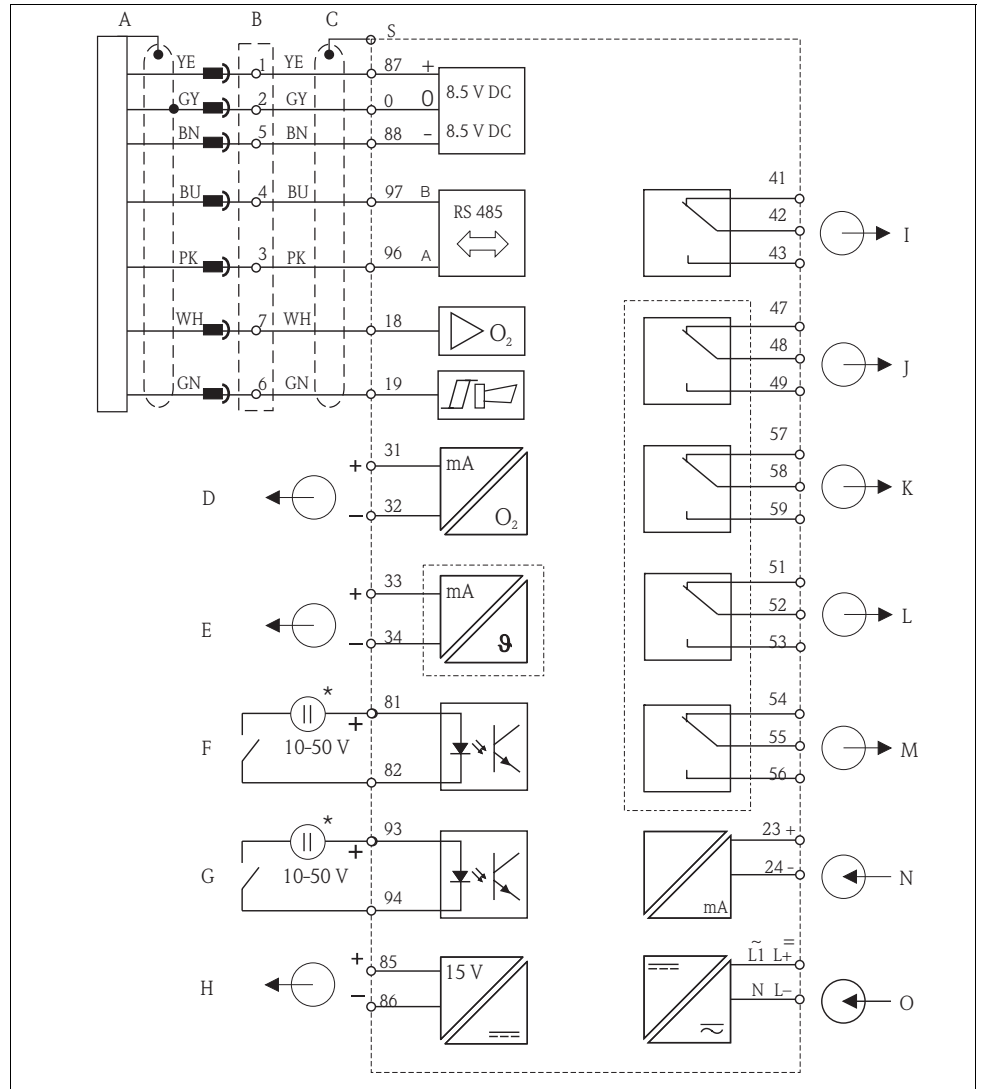
Electrical connection version DX or DS

- | | | | |
|---|-----------------------------|---|---|
| A | Sensor COS41 | G | Alarm (current-free contact position) |
| B | Signal output 1 oxygen | H | Relay 1 (current-free contact position) |
| C | Signal output 2 temperature | I | Relay 2 (current-free contact position) |
| D | Binary input 1 (Hold) | J | Relay 3 (current-free contact position) |
| E | Binary input 2 (Chemoclean) | K | Relay 4 (current-free contact position) |
| F | Aux. voltage output | L | Current input 4 to 20 mA |
| | | M | Power supply |

* Aux. voltage output terminal 85/86 applicable

The device is approved for protection class II and is generally operated without a protective ground connection.

**Electrical connection variant 2
(WX/WS) COS31/71 or
COS61 with serial number
79xxxx or later**



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Electrical connection version WX/WS

- | | | | |
|---|---|---|---|
| A | Oxygen sensor COS31/61/71 | I | Alarm (current-free contact position) |
| B | Junction box VS with extension | J | Relay 1 (current-free contact position) |
| C | COM223: Plug connection for oxygen sensor
COM223: The sensor cable plug must be removed or
junction box VS used | K | Relay 2 (current-free contact position) |
| D | Signal output 1 oxygen | L | Relay 3 (current-free contact position) |
| E | Signal output 2 temperature | M | Relay 4 (current-free contact position) |
| F | Binary input 1 (Hold) | N | Current input 4 to 20 mA |
| G | Binary input 2 (Chemoclean) | O | Power supply |
| H | Aux. voltage output | | |

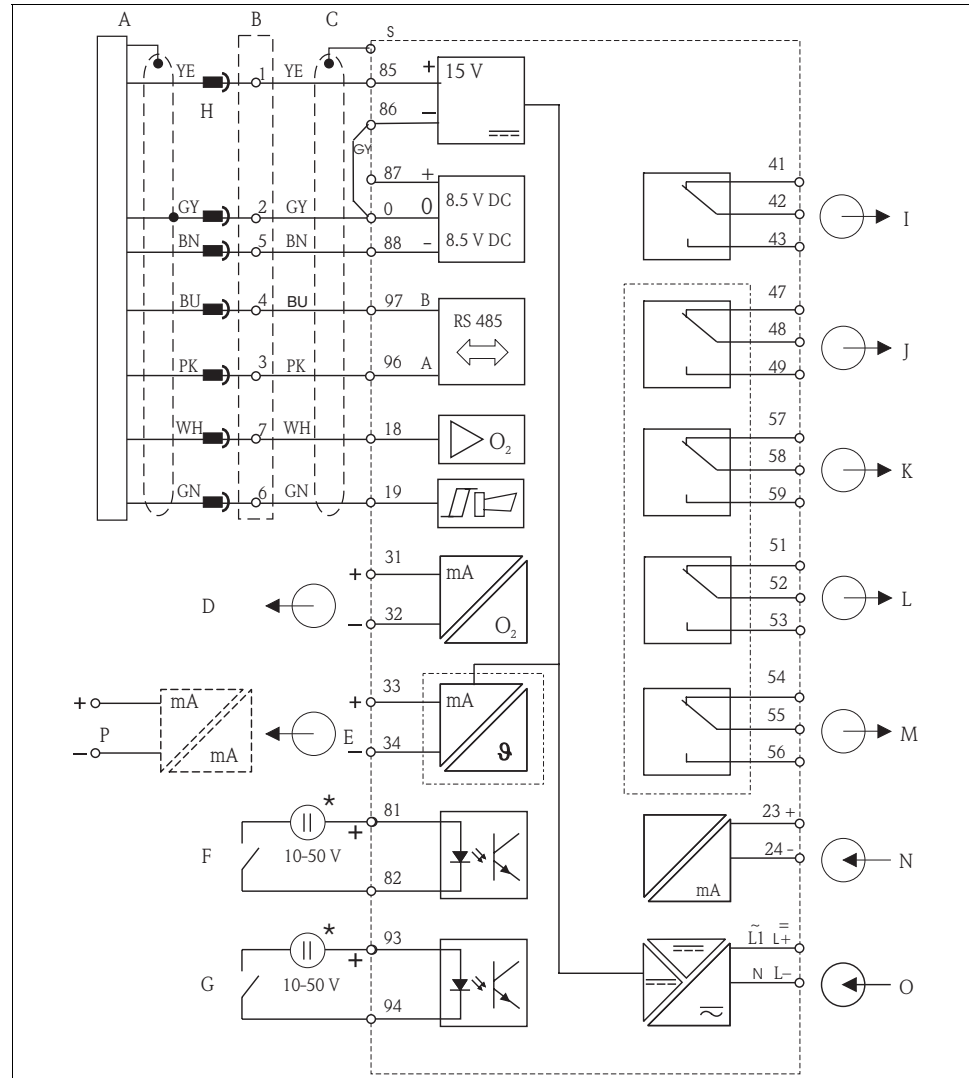
* Aux. voltage output terminal 85/86 applicable

The device is approved for protection class II and is generally operated without a protective ground connection.



Note!
The signals "Sensor signal" and "Alarm" are not used by COS61 and the TOP68-versions.

**Electrical connection variant 2
(WX/WS) COS61 up to serial
number 78xxxx**



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Electrical connection version WX/WS for COS61

A	Oxygen sensor	H	Aux. voltage output
B	Junction box VS with extension	I	Alarm (current-free contact position)
C	COM253: Plug connection for oxygen sensor COM223: The sensor cable plug must be removed or junction box VS used	J	Relay 1 (current-free contact position)
D	Signal output 1 oxygen	K	Relay 2 (current-free contact position)
E	Signal output 2 temperature	L	Relay 3 (current-free contact position)
F	Binary input 1 (Hold)	M	Relay 4 (current-free contact position)
G	Binary input 2 (Chemoclean)	N	Current input 4 to 20 mA
		O	Power supply
		P	Isolation converter

* Aux. voltage output terminal 85/86 applicable

The device is approved for protection class II and is generally operated without a protective ground connection.



Note!

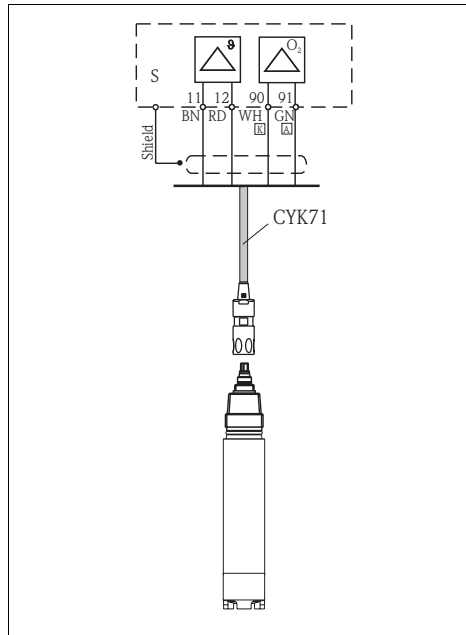
The signals "Sensor signal" and "Alarm" are not used by COS61 and the TOP68-versions.

Sensor COS61 uses the aux. voltage 15 V. This eliminates the galvanic isolation to the signal output 2.

To connect both signal outputs to a process control system, the inputs of the process control system must be galvanically isolated. If the inputs are not galvanically isolated, you can connect "signal output 2" via an isolation converter (0/4 - 20 ma / 0/4 - 20 mA) to the input of the process control system.

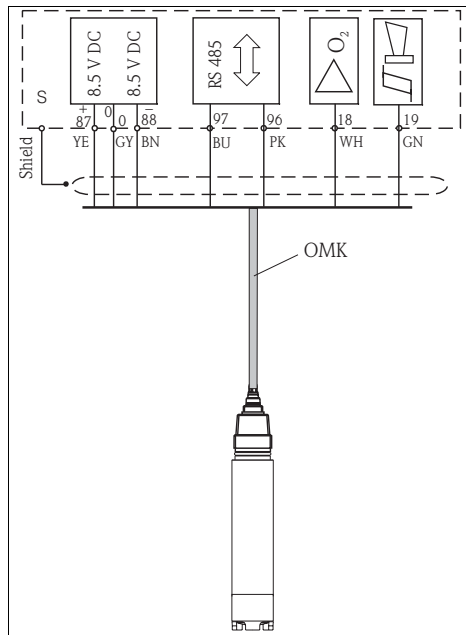
Connection of sensor

The oxygen sensors are supplied with the measuring cable. To extend this cable, you have to use a junction box and an extension cable (see "Accessories").



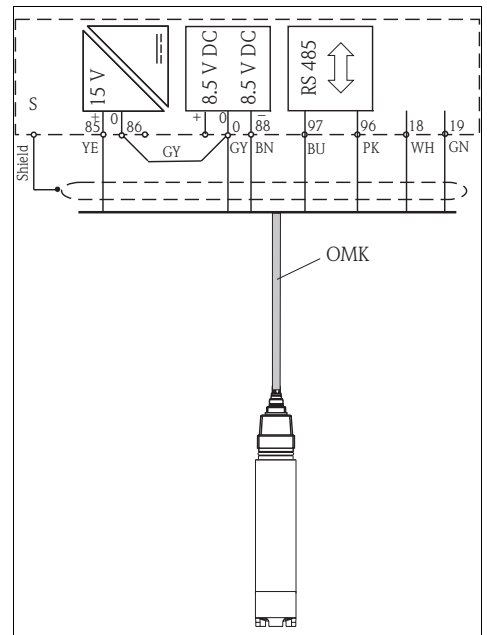
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COS41 to transmitter (DX/DS) with CYK71 cable



C07-COM2x3xx-04-06-00-xx-005.eps

COS31/71 to transmitter (WX/WS) with OMK cable



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COS61 to transmitter (WX/WS) with OMK cable

Power supply

Depending on ordered version:
 100/115/230 V AC +10/-15 %, 48 to 62 Hz
 24 V AC/DC +20/-15 %

Power consumption

max. 7.5 VA

Power supply protection

Fine-wire fuse, medium-slow blow 250 V/3.15 A

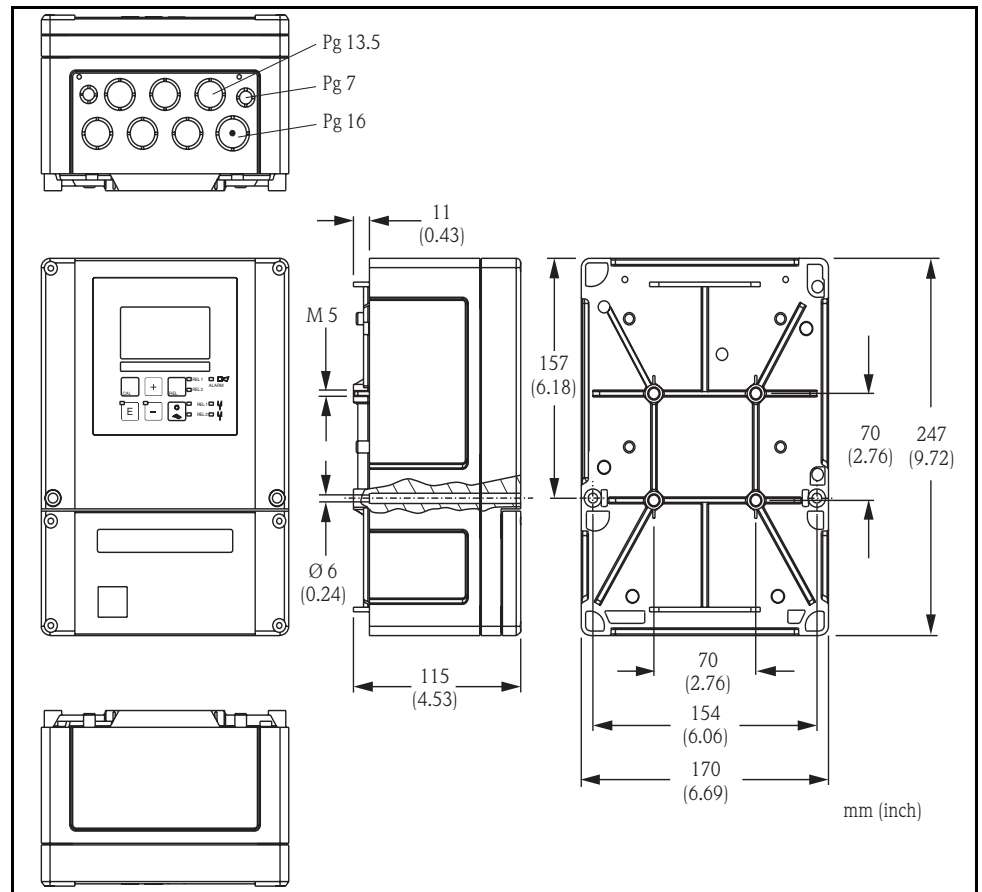
Performance characteristic

Resolution	Oxygen:	
	COS31, COS41, COS61:	0.01 mg/l / 0.1 % SAT / 1 hPa
	COS71:	0.001 mg/l / 0.1 % SAT / 1 hPa
	Temperature:	0.1°C (32°F)
Deviation of indication^a	Display	
	Oxygen:	max. 0.5 % of measuring range
	Temperature:	max. 1.0 % of measuring range
	Signal output	
	Oxygen:	max. 0.75 % of measuring range
Temperature:	max. 1.25 % of measuring range	
Repeatability^a	max. 0.2 % of measuring range	
Temperature compensation range	0 to 50°C (32 to 104°F)	
Pressure compensation range	500 to 1100 hPa	
Altitude adjustment range	0 to 4000 m (0 to 13124 ft)	
Salinity adjustment range	0 to 4 ‰	
Slope adjustment range	COS31:	75 to 140 % (nominal 290 nA, in air, 20°C (68°F), 1013 hPa)
	COS41:	75 to 140 % (nominal 290 nA, in air, 20°C (68°F), 1013 hPa)
	COS61:	75 to 140 % (nominal 1340 nA, in air, 20°C (68°F), 1013 hPa)
	COS71:	50 to 150 % (nominal 8000 nA, in air, 20°C (68°F), 1013 hPa)

a) acc. to IEC 746-1, for nominal operating conditions

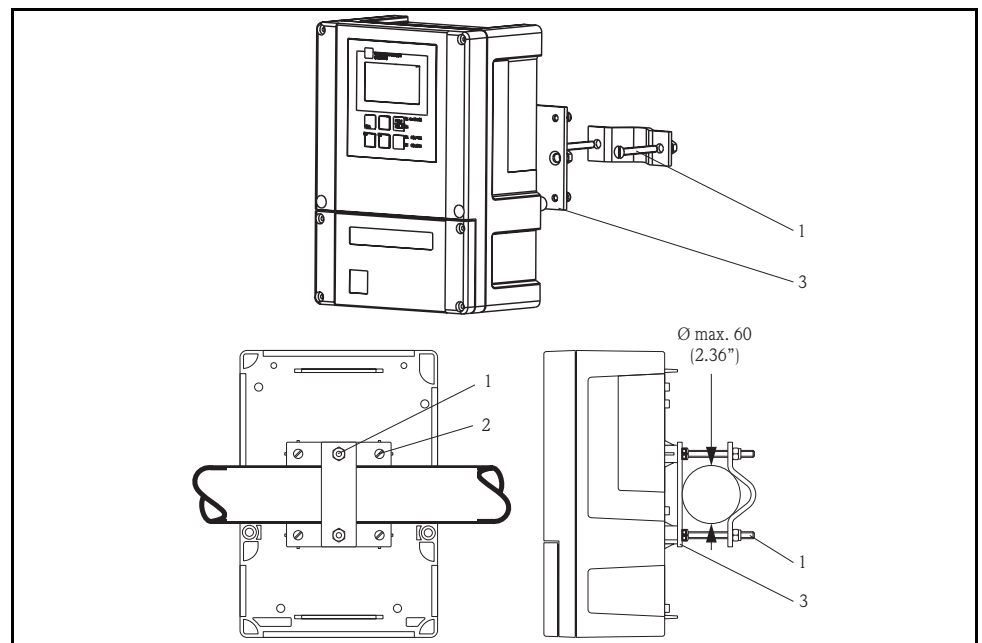
Installation conditions

Installation instructions



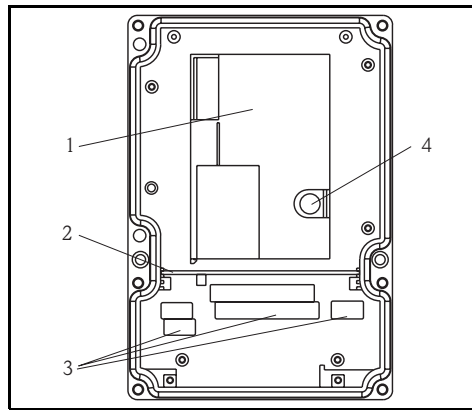
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Field instrument



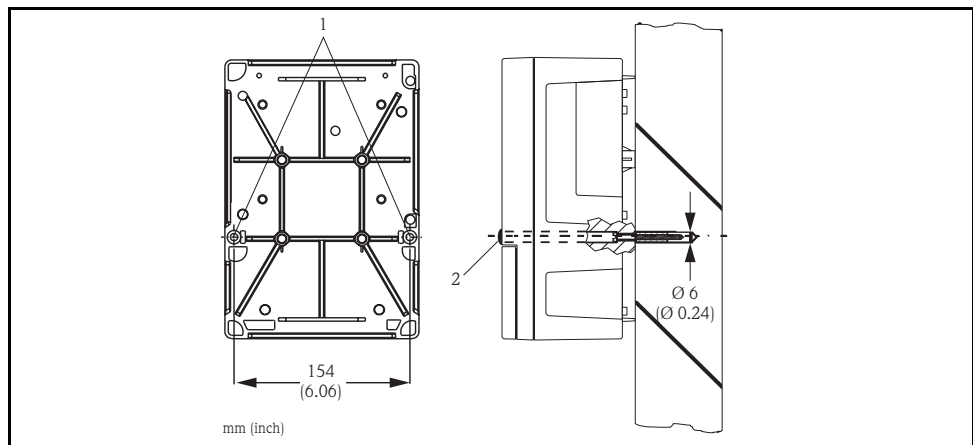
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Mounting on pipes



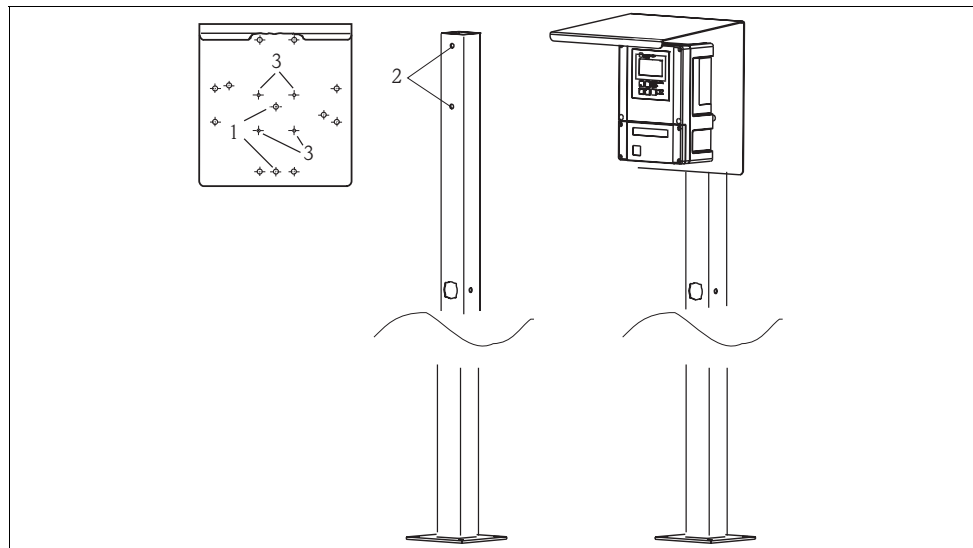
- 1 Removable electronics box
- 2 Partition plate
- 3 Terminal blocks
- 4 Fuse

Inside of field instrument



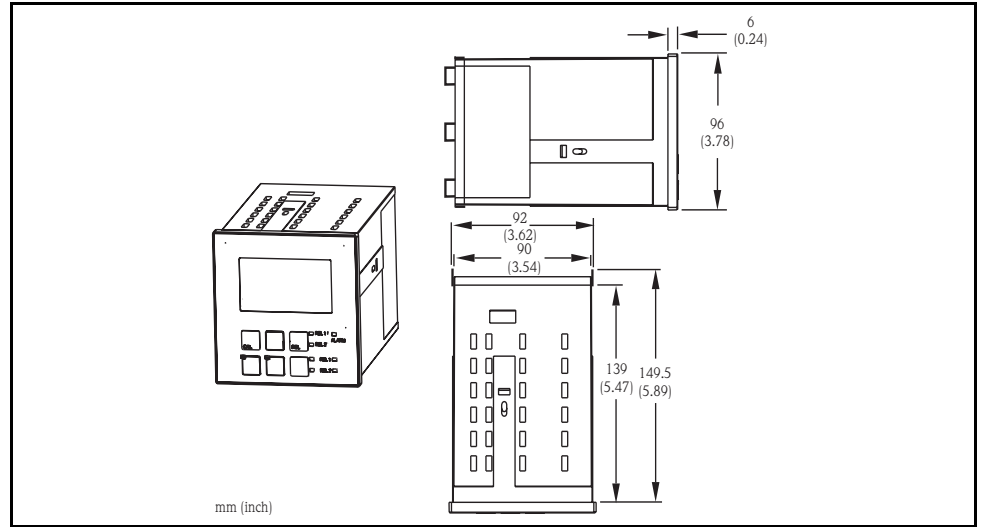
Wall mounting of the field instrument

- 1 Mounting holes
- 2 Protecting cap



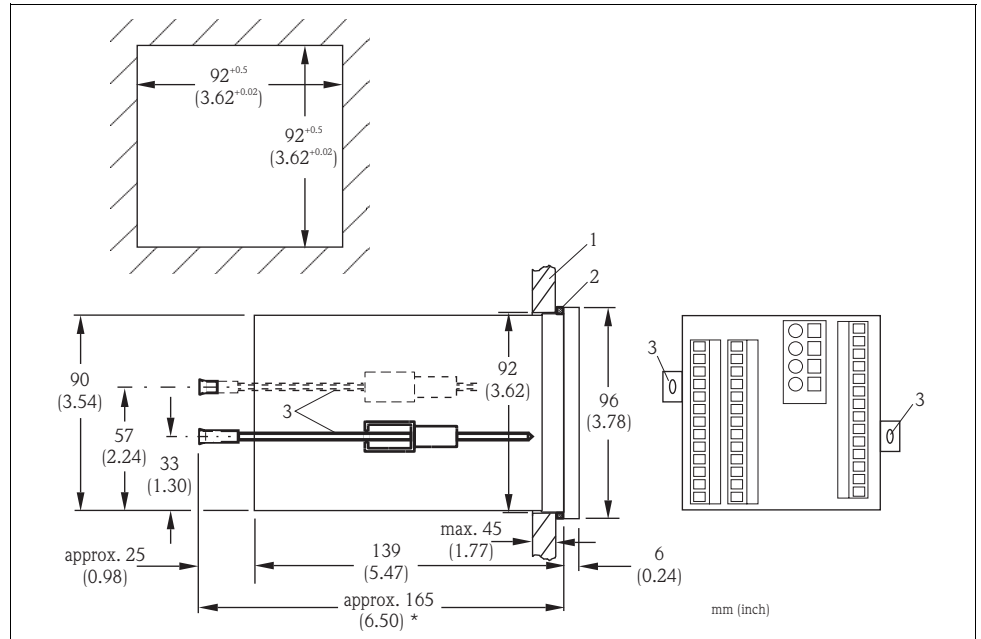
Mounting of the field instrument with mounting post and weather protection cover

- 1-3 Mounting holes



Dimensions panel-mounted instrument

C07-CaM223xx-06-00-en-001.EPS



Installation of the panel mounted instrument

- 1 Wall of control cabinet
- 2 Gasket
- 3 Tensioning screws
- * Required installation depth

C07-CaM223xx-11-06-00-en-001.EPS

Environment

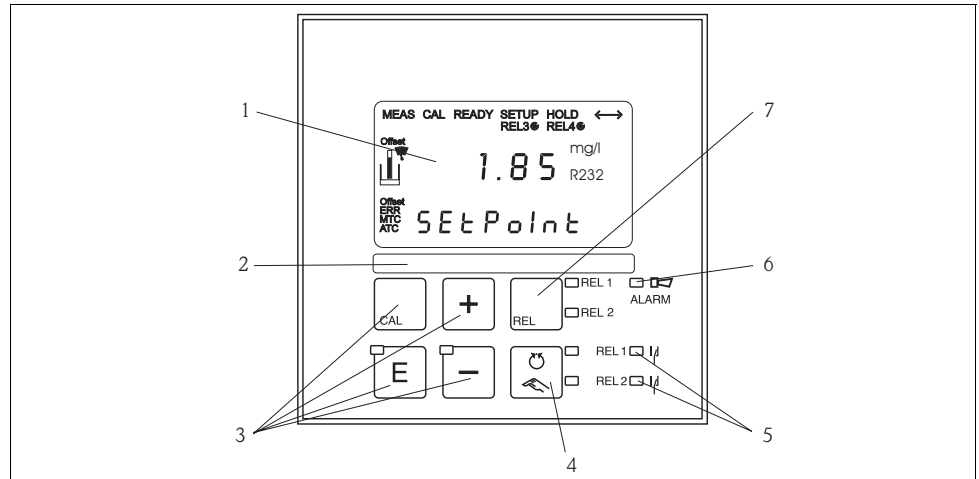
Ambient temperature	-10 to +55°C (+14 to +131°F)	
Ambient temperature limit	-20 to +60°C (-4 to +140°F)	
Storage and transport temperature	-25 to +65°C (-13 to +149°F)	
Electromagnetic compatibility	Interference emission and interference immunity acc. to EN 61326: 1997 / A1: 1998	
Ingress protection	Panel mounted instrument: Field instrument:	IP 54 / NEMA 3S (front), IP 30 / NEMA 1 (housing) IP 65 (NEMA 4X)
Relative humidity	10 to 95%, non-condensing	

Mechanical construction

Dimensions	Panel mounted instrument: Field instrument:	96 x 96 x 145 mm (3.78 x 3.78 x 5.71 inches) Installation depth: approx. 165 mm (6.50") 247 x 170 x 115 mm (9.72 x 6.69 x 4.53 inches)
Weight	Panel mounted instrument: Field instrument:	max. 0.7 kg (1.5 lb) max. 2.3 kg (5.1 lb)
Materials	Housing of panel mounted instrument: Field housing: Front membrane:	Polycarbonate ABS PC Fr Polyester, UV-resistant
Terminals	Cross section	max. 2.5 mm ² (0.004 in ²)

Human interface

Display elements



Operating elements

- 1 LC display for displaying the measured values and configuration data
- 2 Field for user labelling
- 3 4 main operating keys for calibration and device configuration
- 4 Changeover switch for automatic/manual mode of the relays
- 5 LEDs for limit contactor relay (switch status)
- 6 LED for alarm function
- 7 Display of the active contact and key for relay changeover in manual mode

The display simultaneously shows the current measured value and the temperature – the essential process data. Brief information texts in the configuration menu provide assistance with parameter configuration.

Instrument control functions

All instrument control functions are arranged in a logical menu structure. Following access code entry, the individual parameters can be easily selected and modified as needed.

Certificates and approvals

CE symbol

Declaration of conformity

The product meets the legal requirements of the harmonized European standards. The manufacturer confirms compliance with the standards by affixing the CE symbol.

Ex approval for zone 2

Explosion protection for Zone 2

Version	Approval
COM253-..6...	ATEX II 3G EEx nA[L] IIC T4
COM253-..4... COM223-..4... COM223-..6...	ATEX II 3G [EEx nAL] IIC

Ordering information

Product structure

		Version	
	DX	Sensor COS41 / 4 / 4HD, basic functions	
	DS	Sensor COS41 / 4 / 4HD, with additional functions (Plus package)	
	WX	Sensor COS31 / 61 / 71 / 3 / 3HD, basic functions	
	WS	Sensor COS31 / 61 / 71 / 3 / 3HD, with additional functions (Plus package)	
		Power supply; approval	
	0	230 V AC	
	1	115 V AC	
	2	230 V AC; CSA Gen. Purp.	
	3	115 V AC; CSA Gen. Purp.	
	4	230 V AC; ATEX II 3G [Ex nAL] IIC	
	5	100 V AC	
	6	24 V AC/DC; ATEX II 3G [Ex nAL] IIC for COM223, EEx nA[L] IIC T4 for COM253	
	7	24 V AC/DC; CSA Gen. Purp.	
	8	24 V AC/DC	
		Output	
	0	1 x 20 mA, dissolved oxygen	
	1	2 x 20 mA, dissolved oxygen and temperature/actuating variable	
	3	PROFIBUS PA	
	4	PROFIBUS DP	
	5	1 x 20 mA, dissolved oxygen with HART®	
	6	2 x 20 mA, dissolved oxygen with HART® and temperature/actuating variable	
		Additional contacts; analogue input	
	05	Not selected	
	10	2 x relay (limit/controller/timer)	
	15	4 x relay (limit/controller/Chemoclean)	
	16	4 x relay (limit/controller/timer)	
	20	2 x relay (limit/controller/timer); current input	
	25	4 x relay with cleaning (limit/controller/timer/Chemoclean); current input	
	26	4 x relay with timer (limit/controller/timer); current input	
COM253-			
			complete order code
COM223-			

Additional functions of the Plus package

- Current output table to cover large areas with varying resolution, fields O23x
- Process Check System (PCS): live check of the sensor, function group P
- Automatic cleaning function start, field F8
- At version DS: air pressure measurement

Scope of delivery

The delivery of the field instrument includes:

- 1 transmitter COM253
- 1 plug-in screw terminal
- 1 cable gland Pg 7
- 1 cable gland Pg 16 reduced
- 2 cable glands Pg 13.5
- 1 operating instructions BA 199C/07/en
- versions with HART communication:
 - 1 operating instructions Field Communication with HART, BA 208C/07/en
- versions with PROFIBUS communication:
 - 1 operating instructions Field Communication with PROFIBUS PA/DP, BA 209C/07/en
- versions with explosion protection for hazardous area zone 2 (ATEX II 3G):
 - Safety instructions for use in explosion-hazardous areas, XA 194C/07/a3

The delivery of the panel mounted instrument includes:

- 1 transmitter COM223
- 1 set of plug-in screw terminals
- 2 tensioning screws
- 1 BNC-plug (solder-free)
- 1 operating instructions BA 199C/07/en
- versions with HART communication:
 - 1 operating instructions Field Communication with HART, BA 208C/07/en
- versions with PROFIBUS communication:
 - 1 operating instructions Field Communication with PROFIBUS PA/DP, BA 209C/07/en
- versions with explosion protection for hazardous area zone 2 (ATEX II 3G):
 - Safety instructions for use in explosion-hazardous areas, XA 194C/07/a3

Accessories

Sensors

- Oxymax W COS31
oxygen sensor for drinking water and wastewater measurements, SS 1.4571 , potentiostatic amperometric principle
ordering acc. to product structure, see Technical Information (TI285C/24/ae)
- Oxymax W COS41
oxygen sensor for drinking water and wastewater measurements, POM, amperometric principle
ordering acc. to product structure, see Technical Information (TI284C/24/ae)
- Oxymax W COS61
optical oxygen sensor for drinking water and wastewater measurements, SS 1.4571, fluorescence quenching principle
ordering acc. to product structure, see Technical Information (TI387C/24/ae)
- Oxymax W COS71
oxygen sensor for trace measurement, SS 1.4571, potentiostatic amperometric principle
ordering acc. to product structure, see Technical Information (TI286C/24/ae)

Assemblies

- Flow assembly COA250
for sensor installation in pipe lines, PVC;
ordering acc. to product structure (Technical Information TI111C/24/ae)
- Flow assembly COA260
for plate or wall mounting, for oxygen trace measurements;
ordering acc. to product structure (Technical Information TI310C/24/ae)
- Retractable assembly Cleanfit COA451
manually driven retractable assembly, stainless steel, with ball valve, for oxygen sensors;
ordering acc. to product structure (Technical Information TI368C/24/ae)
- Immersion assembly COA110
for sensor immersion in the basin, PVC pipe resp. PUR floating body with SS 1.4571 (AISI 316Ti) immersion tube;
Ordering acc. to product structure (see Technical Information TI035C/24/ae)
- Immersion assembly Dipfit W CYA611
for sensor immersion in basins, open channels and tanks, PVC;
Ordering acc. to product structure (Technical Information TI166C/24/ae)
- Immersion assembly CYY105
for sensor immersion in basins, SS 1.4404 (AISI 316L) pipe, SS 1.4571 (AISI 316Ti) fitting;
Ordering acc. to product structure (Technical Information TI092C/24/ae)
- Basin rim holder CYY106
for sensor immersion in basins, SS 1.4301 (AISI 304);
Order no. CYY106-A
- Immersion assembly holder CYH101
for pH, ORP, oxygen, conductivity assemblies and for oxygen and turbidity sensors;
Ordering acc. to product structure (Technical Information TI092C/24/ae)

Connection accessories

- Measuring cable OMK for oxygen sensors COS31, COS61 and COS71
for use as extension cable between junction box VS and transmitter, not terminated
sold by the metre – order no. 50004124
- Measuring cable CMK for oxygen sensor COS41
for use as extension cable between junction box VBM and transmitter, not terminated
sold by the metre – order no. 50005374
- VS junction box
with plug-in socket and 7-pole plug,
for cable extension from sensor (COS71, COS61, COS31, COS3 with SXP connector) to transmitter, IP 65;
order no. 50001054
- Junction box VBM
for cable extension for sensors COS41, COS4 (fixed cable versions),
with 10 terminals, IP 65 / NEMA 4X

Cable entry Pg 13.5

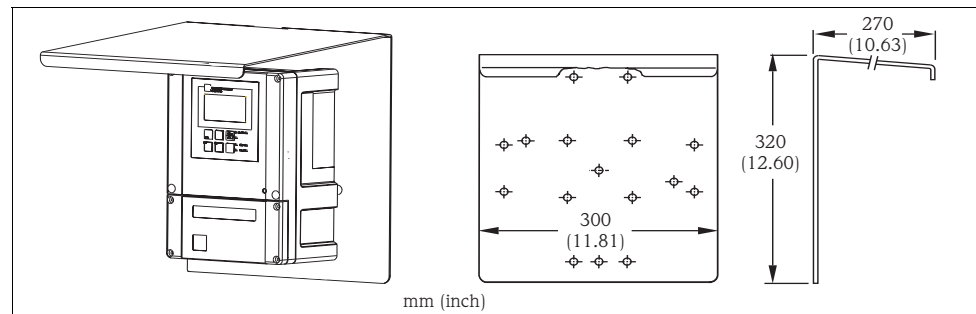
Order no. 50003987

Cable entry NPT ½"

Order no. 51500177

Mounting accessories

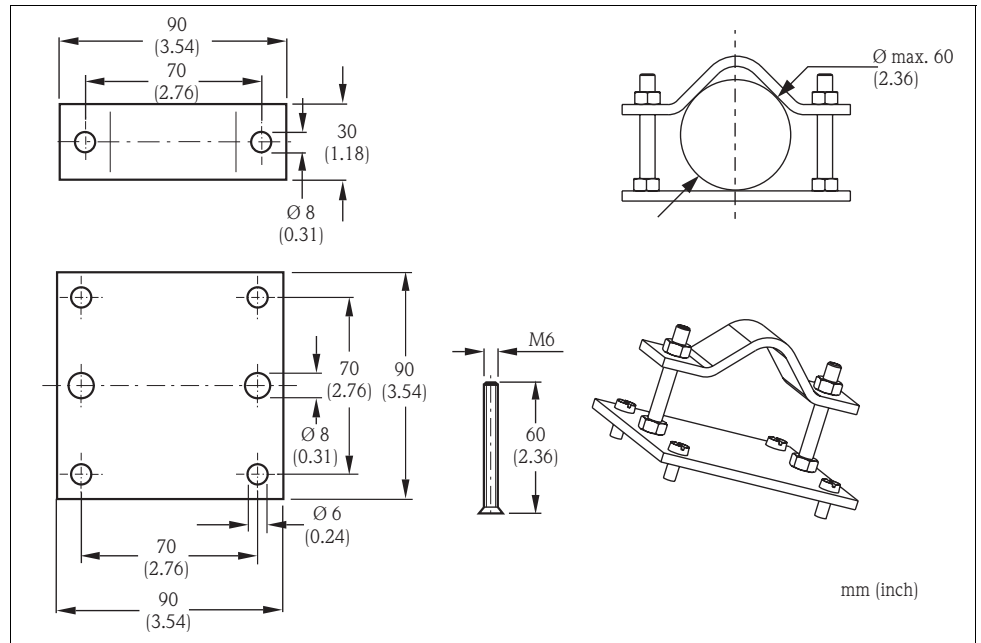
- Weather protection cover CYY101 for mounting of field housing, for outdoor installation
material: stainless steel 1.4031;
order no. CYY101-A



Weather protection cover for field instrument

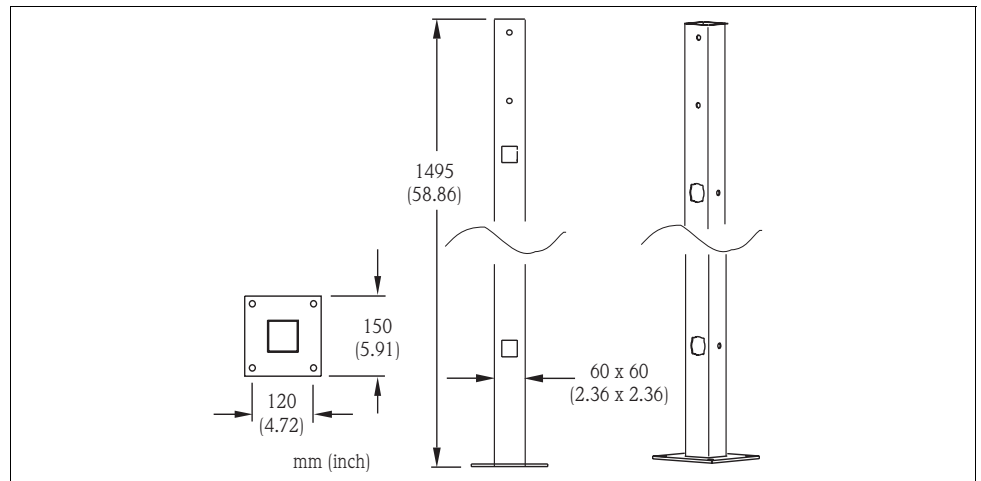
C07-CYY101-xx-00-06-00-en-001.eps

- Kit for mounting of field housing on horizontal or vertical pipes (Ø max. 60 mm (2.36"))
order no. 50086842



Pipe mounting kit

- Universal upright post CYY102
Square post for mounting of field housing, material: stainless steel 1.4301;
order no. CYY102-A



Square post CYY102

Optoscope

- Optoscope
Interface between transmitter and PC / laptop for service purposes.
The Windows software "Scopeware" required for the PC or laptop is supplied with the Optoscope. The Optoscope is supplied in a sturdy plastic case with all the accessories required.
Order no. 51500650

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