

# Technical Information

## Liquisys M CPM223/253

### pH/ORP Measurement



Transmitter for analog and digital glass and ISFET sensors

#### Application

- Effluent treatment
- Neutralization
- Detoxication (electroplating)
- Water treatment
- Water monitoring

#### Your benefits

- Memosens technology
- Field or panel-mounted housing
- Universal application
- Simple handling
  - Logically arranged menu structure
  - Large two-line display
  - Ultrasimple two-point calibration
- Safe operation
  - Overvoltage (lightning) protection
  - Manual contact control and user-defined alarm configuration
  - Calibration plausibility check

The basic unit can be extended with:

- Additional 2 or 4 contacts for use as:
  - Limit contacts (also for temperature)
  - P(ID) controller
  - Timer for simple rinse processes
  - Complete cleaning with Chemoclean
  - Current input
- Plus package:
  - User defined current output characteristics
  - Automatic cleaning trigger on alarm or limit violation
  - Sensor Check System for pH glass and reference
  - Live check of sensor
  - Special neutralization controller
- HART or PROFIBUS-PA/-DP
- 2nd current output for temperature, pH/ORP or continuous controller

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## Function and system design

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### Features of the basic version

#### pH and ORP value measurement

This is selected via the menu. During measurement, the value measured can be displayed in the other measuring mode (e.g. pH - mV or ORP % - ORP mV). The temperature is displayed at the same time or, if desired, not shown at all.

#### Calibration

pH electrodes are normally calibrated with the same pH values. Therefore the transmitter presents the settings from the **previous** calibration as defaults for the next calibration. If the buffer solutions are interchanged by accident (e.g. pH 4 buffer first, then pH 7 buffer instead of pH 7 first and then pH 4) the **plausibility check** ensures that the calibration is accepted anyway.

#### Configuration

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 Up to two 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.

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### Additional functions of the plus package

#### Current output

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.

#### Sensor-Check-System (SCS)

The sensor check system alerts to deviations of the pH glass impedance or reference impedance (analog sensors only) from the normal range, thus indicating possible failure due to pH electrode blocking or damage.

In addition, the SCS detects glass breakage of glass electrodes and leakages of ISFET sensors.

#### Live-check

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.

#### Neutralization controller

A special control response that cannot be handled adequately by a P(ID) controller is required to neutralize solutions. For this reason, the transmitter provides a special neutralization controller function by combining two P(ID) controllers.

#### Current input

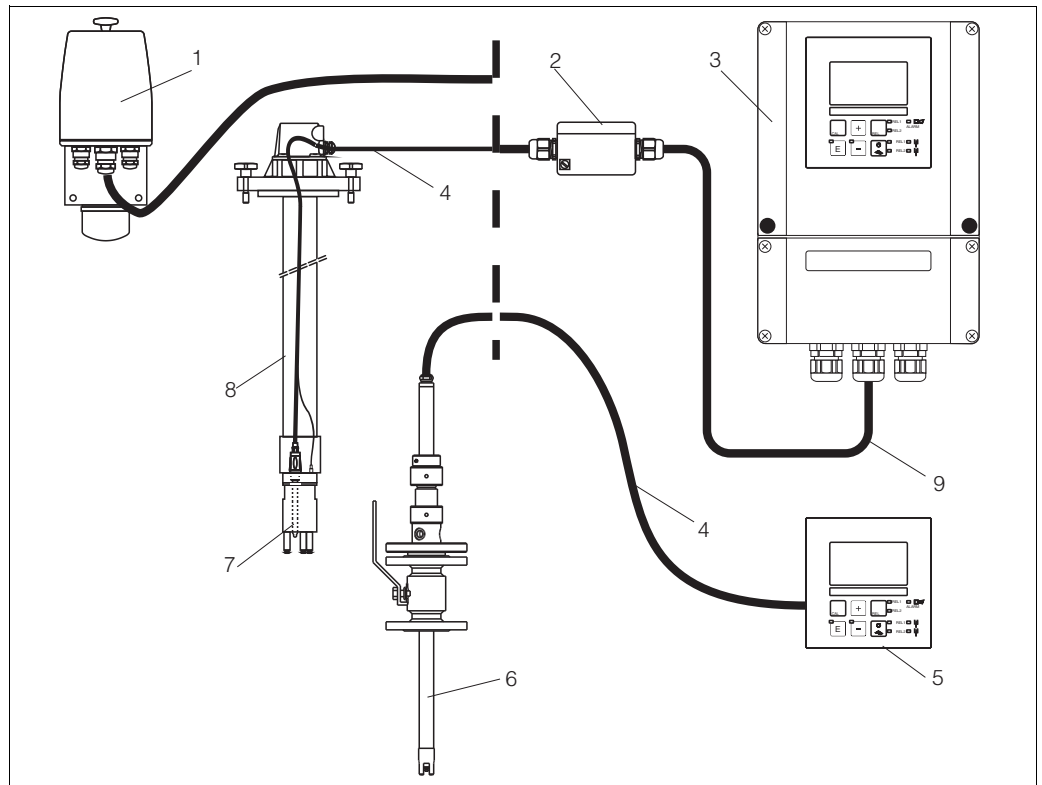
The current input of the transmitter allows two different applications: controller shut-down in case of lower flow rate violation or total failure in the main flow as well as feedforward control. Both functions are also combinable.

**Measuring system**

A complete measuring systems comprises:

- The transmitter Liquisys M CPM223 or CPM253
- A pH/ORP electrode with or without an integrated temperature sensor
- An immersible, flow or retractable assembly
- A measuring cable (e.g. CPK9)

Options: extension cable, junction box VBA or VBM



Complete measuring system Liquisys M CPM223/253

1 Flow assembly CPA250

2 Junction box VBA

3 Liquisys M CPM253

4 Measuring cable e.g. CPK9

5 Liquisys M CPM223

6 Retractable assembly Cleanfit W CPA450

7 Electrode, e.g. Orbisint CPS11

8 Immersion assembly CPA111

9 Extension cable

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## Input

<b>Measured variables</b>	pH (analog or digital sensors) ORP Temperature	
<b>Measuring range</b>	pH: ORP: Temperature: Pt 100 Pt 1000 (versions IS / PS) NTC 30K (versions IS / PS)	-2 to 16 -1500 to +1500 mV / 0 to 100 % -50 to +150 °C (-58 to +302 °F) -50 to +150 °C (-58 to +302 °F) -20 to +100 °C (-4 to +212 °F)
<b>Input resistance</b>	> 10 <sup>12</sup> Ω (for nominal operating conditions) for standard sensors	
<b>Cable specification</b>	Length of cable (analog): Length of cable (digital):	max. 50 m (164 ft) max. 100 m (328 ft)
<b>Binary inputs</b>	Voltage: Power consumption:	10 to 50 V max. 10 mA
<b>Current input</b>	4 to 20 mA, galvanically separated Load: 260 Ω at 20 mA (voltage drop 5.2 V)	

## Output

**Output signal** 0/4 to 20 mA, galvanically separated, active

**Output signal via fieldbus**

HART	
Signal coding	Frequency Shift Keying (FSK) + 0.5 mA via current output signal
Data transfer rate	1200 Baud
Galvanic isolation	yes

PROFIBUS PA	
Signal coding	Manchester Bus Powered (MBP)
Data transfer rate	31.25 kBit/s, voltage mode
Galvanic isolation	yes (IO-Module)

PROFIBUS DP	
Signal coding	RS485
Data transfer rate	9.6 kBd, 19.2 kBd, 93.75 kBd, 187.5 kBd, 500 kBd, 1.5 MBd
Galvanic isolation	yes (IO-Module)

**Signal on alarm** 2.4 or 22 mA

**Load** maximum 500  $\Omega$

**Output range**

pH:	adjustable, min. $\Delta$ 1 pH
ORP:	
absolute:	adjustable, min. $\Delta$ 50 mV
relative:	fixed, 0 to 100 %
Temperature:	adjustable, $\Delta$ 10 to $\Delta$ 100 % of upper range value

**Resolution** max. 700 digits/mA

**Min. distance for 0 / 4 to 20 mA signal** 10% of measuring range

**Isolation voltage** max. 350 V<sub>RMS</sub>/500 V DC

**Overvoltage protection** according to EN 61000-4-5

**Auxiliary voltage output**

Output voltage:	15 V $\pm$ 0.6
Output current:	max. 10 mA

**Contact outputs**

Switching current with ohmic load ( $\cos \varphi = 1$ ):	max. 2 A
Switching current with inductive load ( $\cos \varphi = 0.4$ ):	max. 2 A
Switching voltage:	max. 250 V AC, 30 V DC
Switching power with ohmic load ( $\cos \varphi = 1$ ):	max. 500 VA AC, 60 W DC
Switching power with inductive load ( $\cos \varphi = 0.4$ ):	max. 500 VA AC, 60 W DC

**Limit contactor** Pickup/dropout delay: 0 to 2000 s

<b>Controller</b>	Function (adjustable):	pulse length/pulse frequency controller
	Controller response:	PID
	Control gain $K_p$ :	0.01 to 20.00
	Integral action time $T_n$ :	0.0 to 999.9 min
	Derivative action time $T_v$ :	0.0 to 999.9 min
	Period for pulse length controller:	0.5 to 999.9 s
	Frequency for pulse frequency controller:	60 to 180 $\text{min}^{-1}$
	Basic load:	0 to 40% of max. set value

<b>Alarm</b>	Function (selectable):	latching / momentary contact
	Alarm threshold adjustment range:	pH / temperature: complete measuring range
	Alarm delay:	0 to 2000 s 0 to 2000 min

**Protocol specific data**

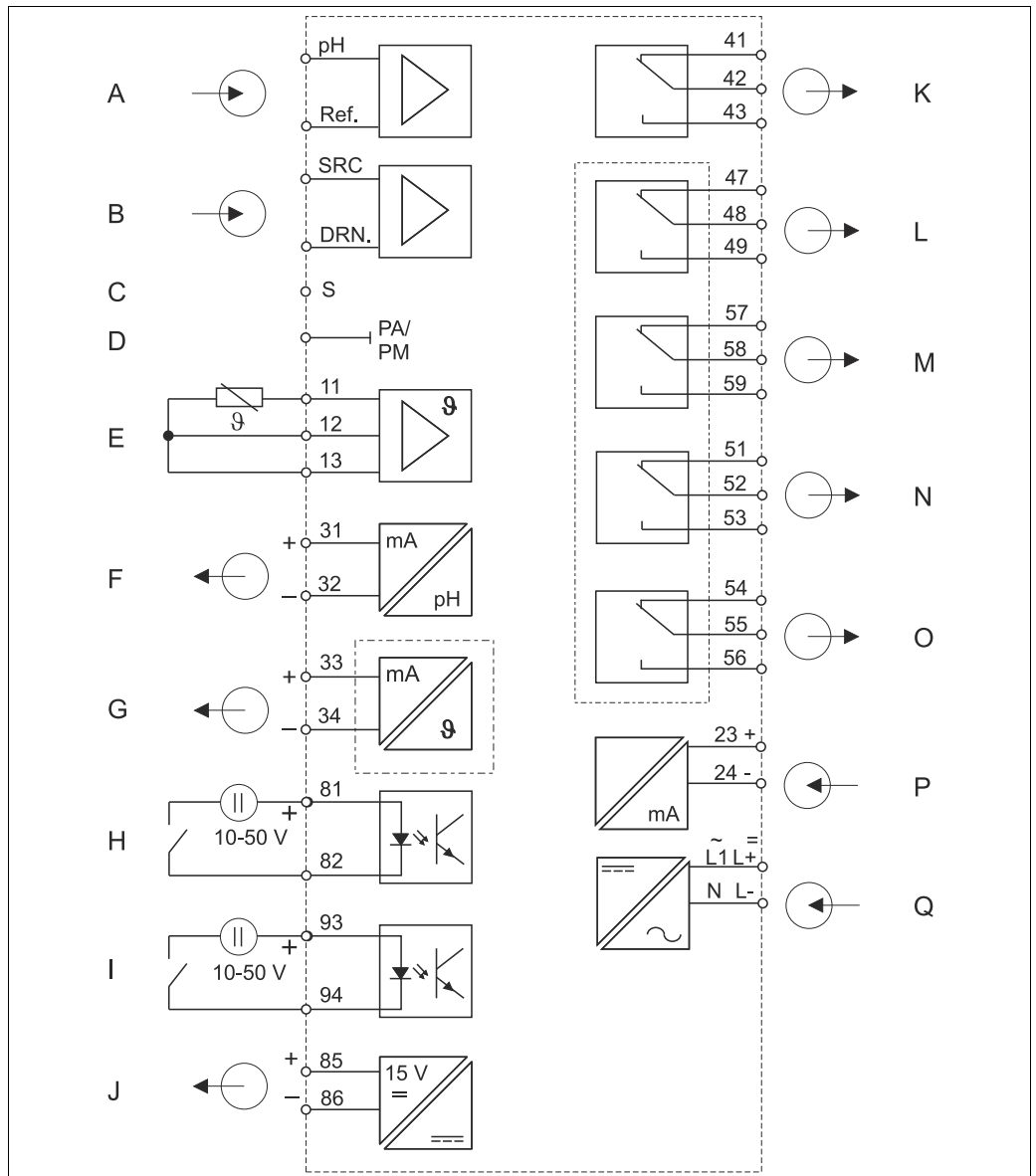
<b>HART</b>	
Manufacturer ID	11 <sub>h</sub>
Device type code	0091 <sub>h</sub>
Transmitter specific revision	0001 <sub>h</sub>
HART specification	5.0
DD files	<a href="http://www.products.endress.com/hart">www.products.endress.com/hart</a>
Load HART	250 $\Omega$
Device variables	None (dynamic variables PV, SV, only)
Features supported	-

<b>PROFIBUS PA</b>	
Manufacturer ID	11 <sub>h</sub>
Ident number	1516 <sub>h</sub>
Device revision	11 <sub>h</sub>
Profile version	2.0
GSD files	<a href="http://www.products.endress.com/profibus">www.products.endress.com/profibus</a>
GSD file version	
Output values	Main value, temperature value
Input values	Display value of PLC
Features supported	Device locking: The device can be locked by hardware or software.

<b>PROFIBUS DP</b>	
Manufacturer ID	11 <sub>h</sub>
Ident number	1520 <sub>h</sub>
Profile version	2.0
GSD files	<a href="http://www.products.endress.com/profibus">www.products.endress.com/profibus</a>
GSD file version	
Output values	Main value, temperature value
Input values	Display value of PLC
Features supported	Device locking: The device can be locked by hardware or software.

## Power supply

### Electrical connection of analog sensors



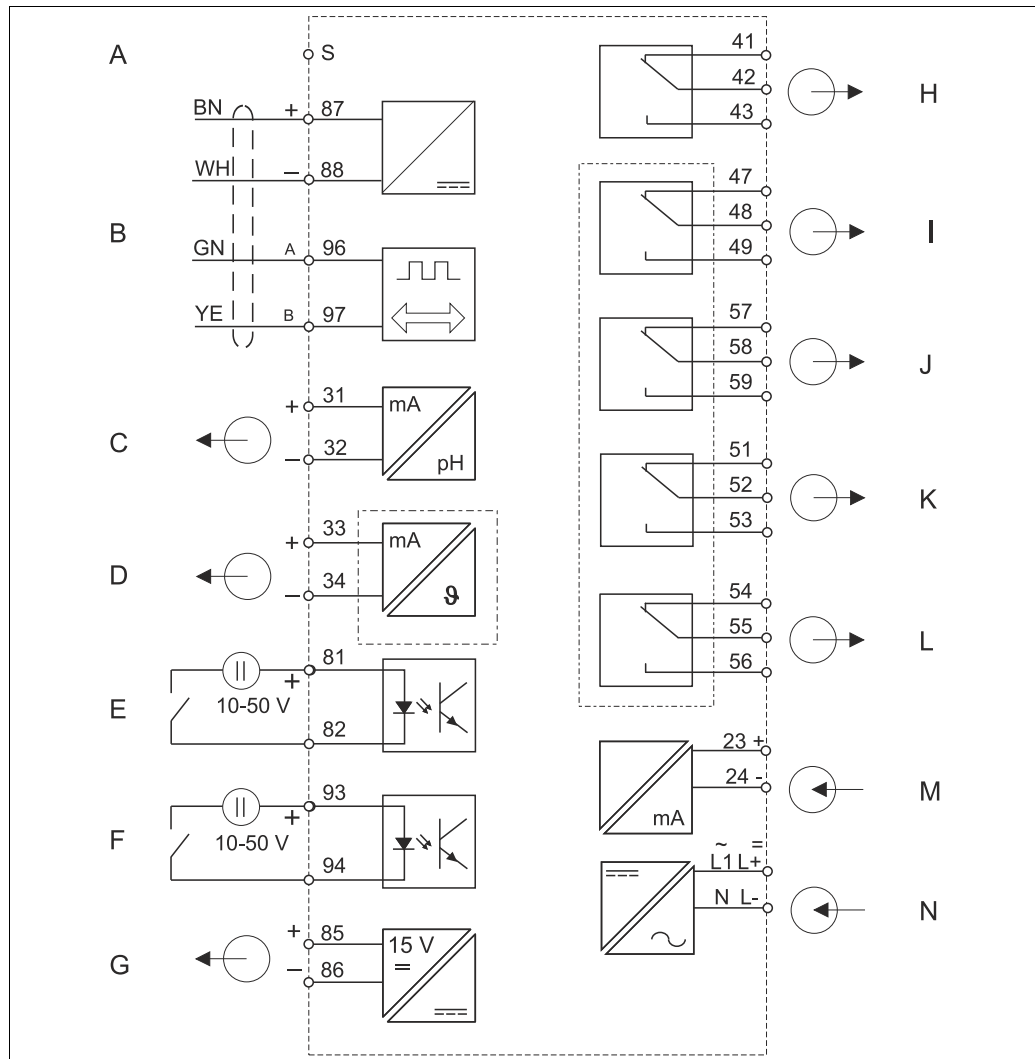
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*Electrical connection Liquisys M*

- A Standard sensor
- B ISFET sensor
- C Outer screen connection for glass electrodes
- D Potential matching
- E Temperature sensor
- F Signal output 1 pH/ORP
- G Signal output 2 temperature, pH/ORP or controller
- I Binary input 1 (Hold)
- I Binary input 2 (Chemoclean)

- J Auxiliary voltage output
- K Alarm (contact position currentless)
- L Relay 1 (contact position currentless)
- M Relay 2 (contact position currentless)
- N Relay 3 (contact position currentless)
- O Relay 4 (contact position currentless)
- P Current input 4 to 20 mA
- Q Power supply

## Electrical connection of Memosens sensors



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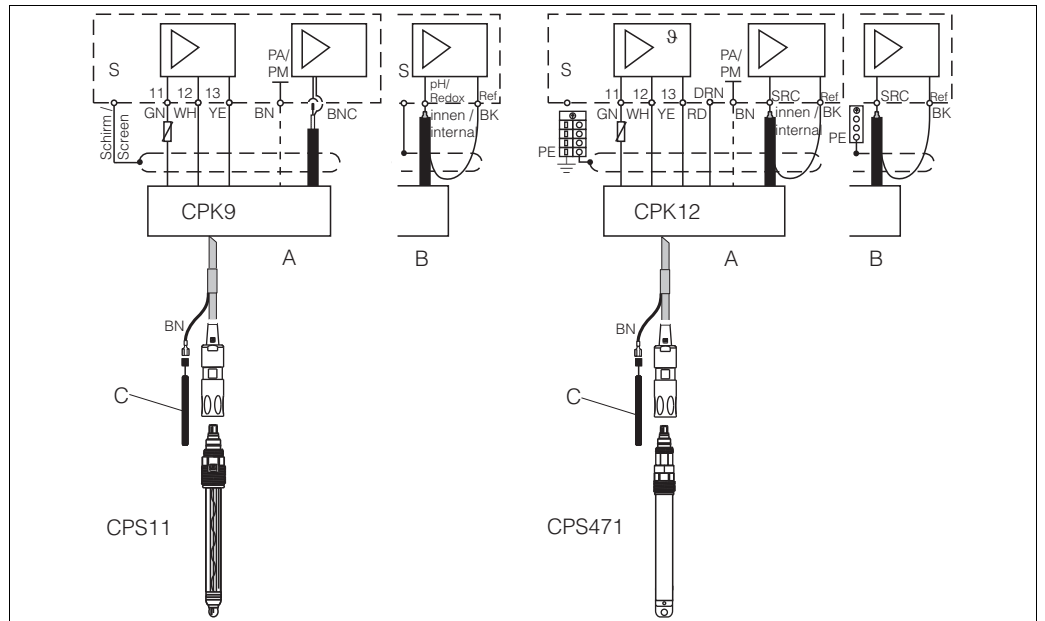
### Transmitter electrical connection with Memosens technology

- |   |   |   |  |
|---|---|---|--|
| A | Screen  | H | Alarm (contact position currentless)   |
| B | Sensor  | I | Relay 1 (contact position currentless) |
| C | Signal output 1 pH/redox                            | J | Relay 2 (contact position currentless) |
| D | Signal output 2 temperature, pH/redox or controller | K | Relay 3 (contact position currentless) |
| E | Binary input 1 (Hold)                               | L | Relay 4 (contact position currentless) |
| F | Binary input 2 (Chemoclean)                         | M | Current input 4 to 20 mA               |
| G | Auxiliary voltage output                            | N | Power supply                           |



**Sensor cable**

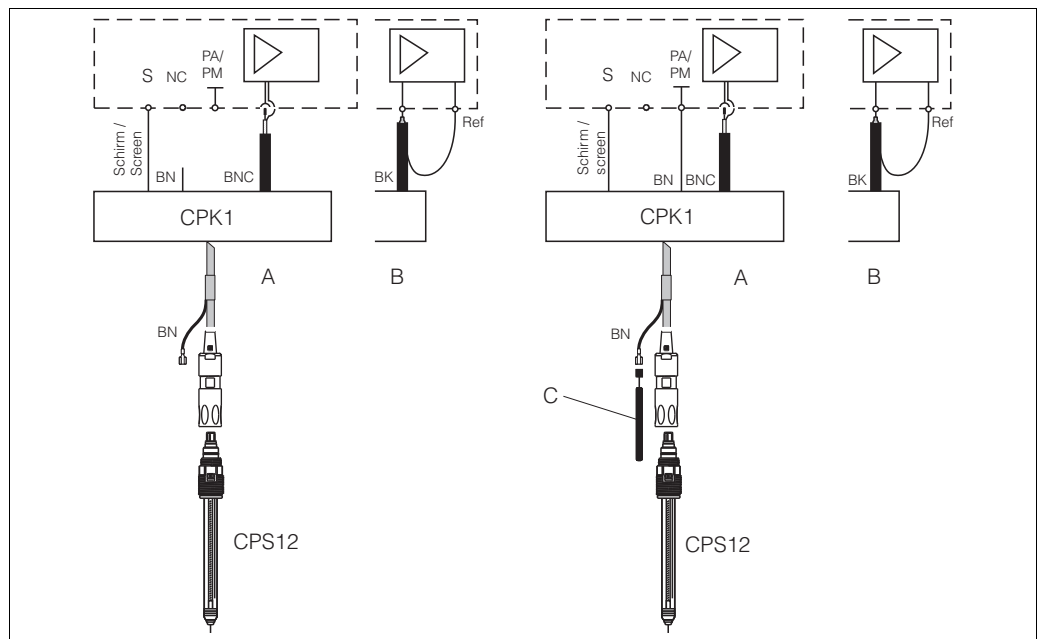
The pH and ORP electrodes are connected using special terminated and shielded multicore cables. The measuring cable can be extended with a junction box and an extension cable. Termination instructions are supplied with the measuring cable.



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Connection CPS11 with CPK9 and CPS471 with CPK12 to Liquisys M

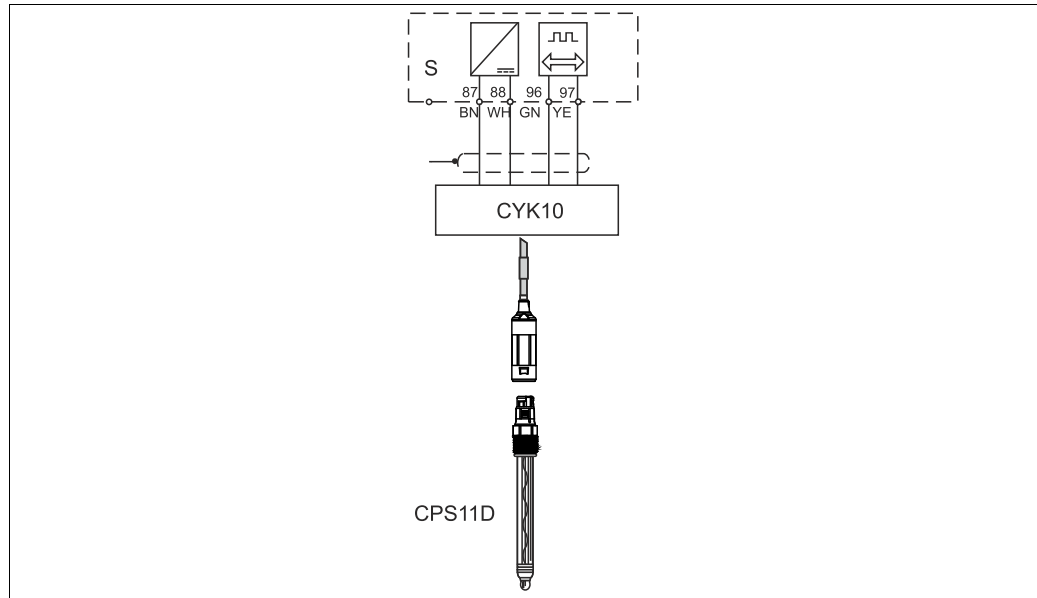
- A Panel-mounted instrument
- B Field instrument
- C Potential matching PM for symmetrical connection



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Unsymmetrical and symmetrical connection of ORP electrodes to Liquisys M

- A Panel-mounted instrument
- B Field instrument
- C Potential matching PM for symmetrical connection



Connection of digital sensor CPS11D with CYK10

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

**Supply via fieldbus**

HART	
Supply voltage	n/a, active current outputs
Integrated reverse voltage protection	n/a, active current outputs

PROFIBUS PA	
Supply voltage	9 V to 32 V, max. 35 V
Polarity sensitive	no
FISCO/FNICO compliant acc. to IEC 60079-27	no

PROFIBUS DP	
Supply voltage	9 V to 32 V, max. 35 V
Polarity sensitive	n/a
FISCO/FNICO compliant acc. to IEC 60079-27	no

**Power consumption** max. 7.5 VA

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

**Circuit breaker****NOTICE****The device does not have a power switch**

- ▶ You must provide a protected circuit breaker in the vicinity of the device.
- ▶ This must be a switch or a power-circuit breaker and you must label it as the circuit breaker for the device.
- ▶ At the supply point, the power supply for the 24 V versions must be isolated from dangerous live cables by double or reinforced insulation.

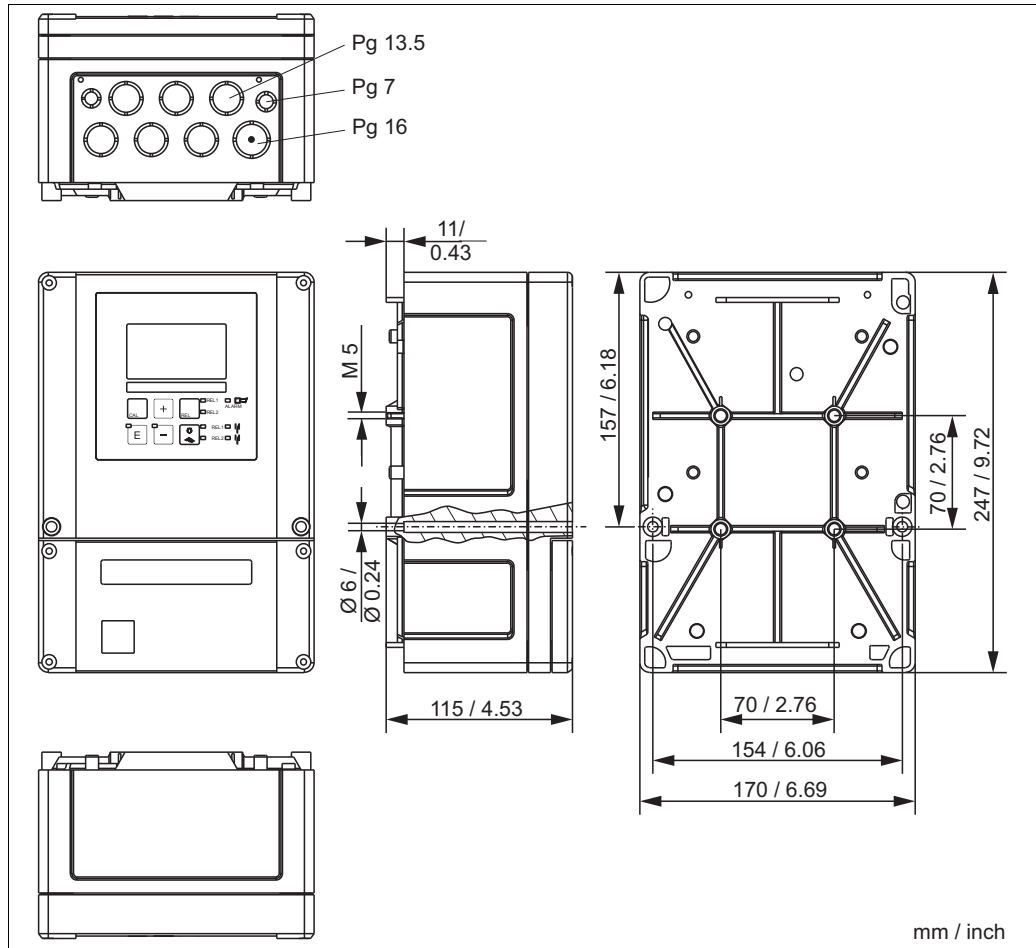
## Performance characteristics

<b>Reference temperature</b>	25 °C (77 °F)	
<b>Resolution</b>	pH: ORP: Temperature:	0.01 pH 1 mV/0.1 % 0.1 °C
<b>Maximum measured error<sup>1)</sup></b>	Display pH: ORP: Temperature: Signal output pH: ORP: Temperature:	max. 0.5 % of measuring range max. 0.5 % of measuring range max. 1.0 % of measuring range  max. 0.75 % of measuring range max. 0.75 % of measuring range max. 1.25 % of measuring range
<b>Repeatability<sup>1)</sup></b>	pH: ORP:	max. 0.2 % of measuring range max. 0.2 % of measuring range
<b>Zero point</b>	Glass: Antimon: ISFET:	pH 5.0 to 9.0 (nominal pH 7.00) pH -1.0 to 3.0 (nominal pH 1.00) -500 to +500 mV
<b>Slope</b>	Glass: Antimon: ISFET:	38.00 to 65.00 mV/pH (nominal 59.16 mV/pH) 25.00 to 65.00 mV/pH (nominal 59.16 mV/pH) 38.00 to 65.00 mV/pH (nominal 59.16 mV/pH)
<b>Offset</b>	pH: ORP: Temperature:	±2 pH ±120 mV/±50 % ±5 °C

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

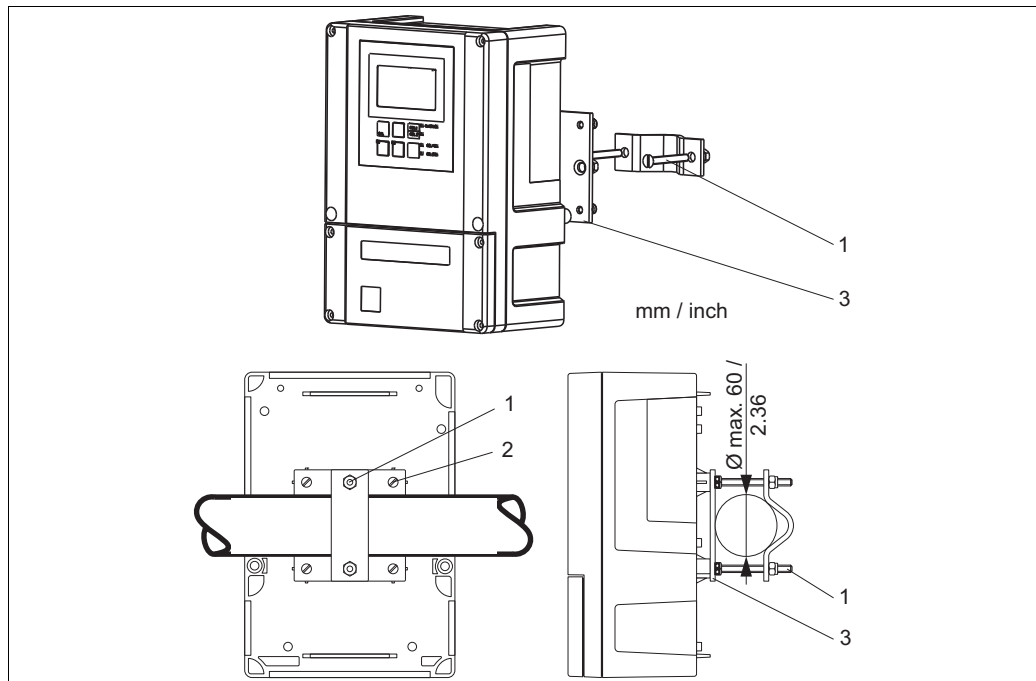
# Installation

## Installation instructions



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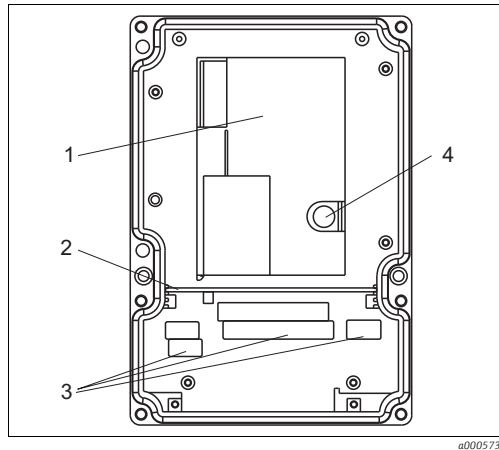
## Field instrument



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## Mounting on pipes

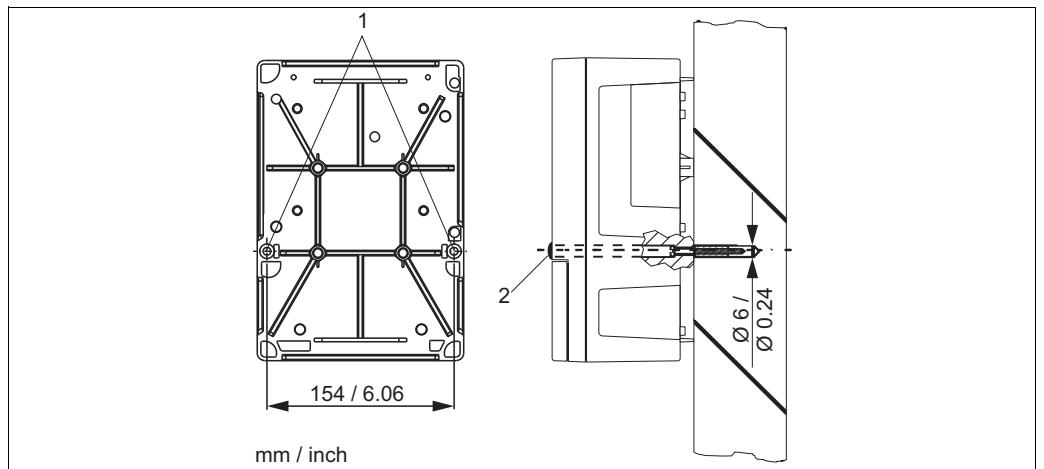
1 - 3 Mounting screws and mounting plate



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

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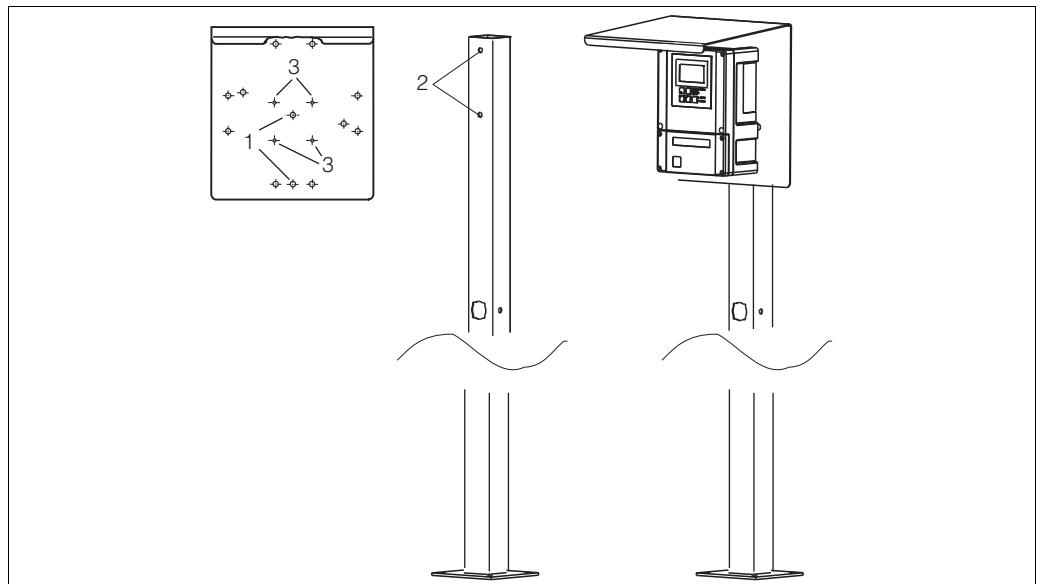
View into the field instrument



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Wall mounting of the field instrument

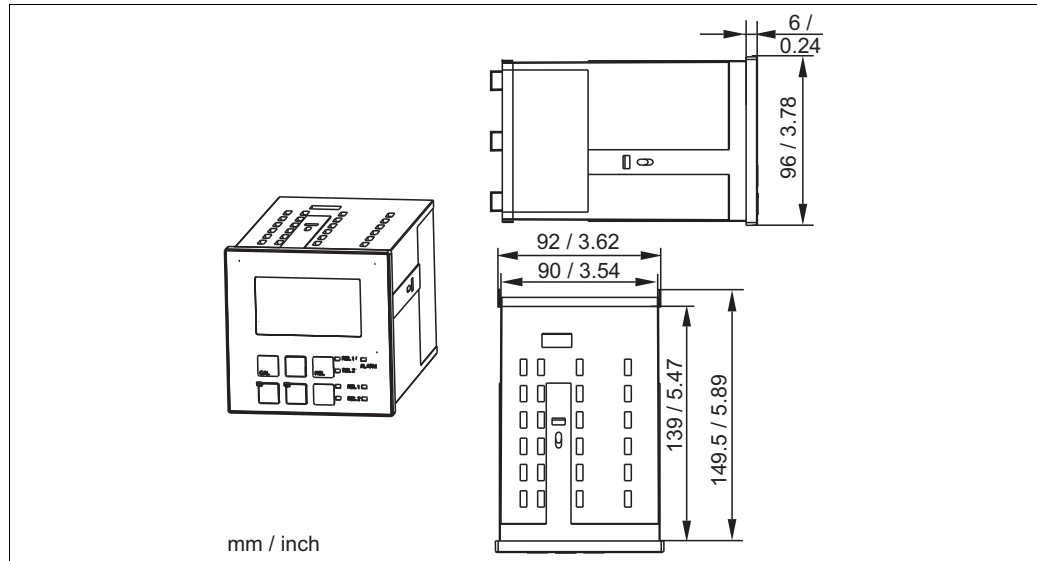
- 1 Mounting holes
- 2 Protecting cap



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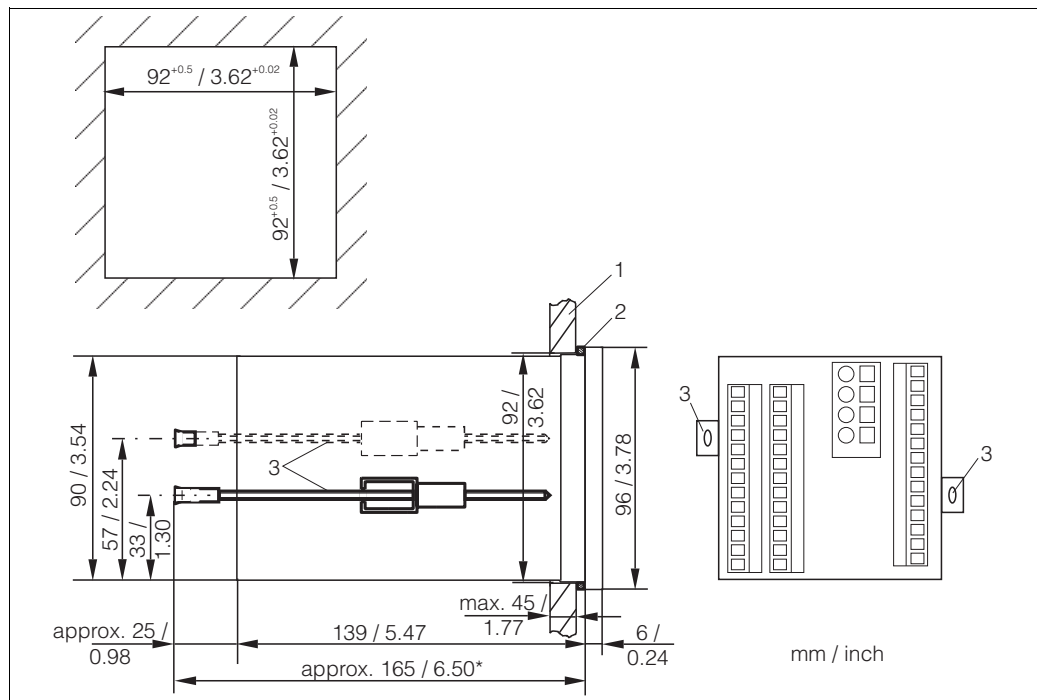
Mounting of the field instrument with mounting post and weather protection cover

- 1 - 3 Mounting holes



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Dimensions panel-mounted instrument



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Installation of the panel-mounted instrument

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

## Environment

<b>Ambient temperature</b>	-10 to +55 °C (+14 to +131 °F)	
<b>Storage temperature</b>	-25 to +65 °C (-13 to +149 °F)	
<b>Electromagnetic compatibility</b>	Interference emission and interference immunity as per EN 61326-1:2006, EN 61326-2-3:2006	
<b>Ingress protection</b>	Panel mounted instrument: Field instrument:	IP 54 (front), IP 30 (housing) IP 65 / tightness acc. to NEMA 4X
<b>Electrical safety</b>	according EN/IEC 61010-1:2001, Installation Category II, for use up to 2000 m above sea level	
<b>CSA</b>	Apparatus with CSA General Purpose Approval are certified for indoor use.	
<b>Relative humidity</b>	10 to 95%, non-condensing	
<b>Pollution degree</b>	The product is suitable for pollution degree 2.	

## Mechanical construction

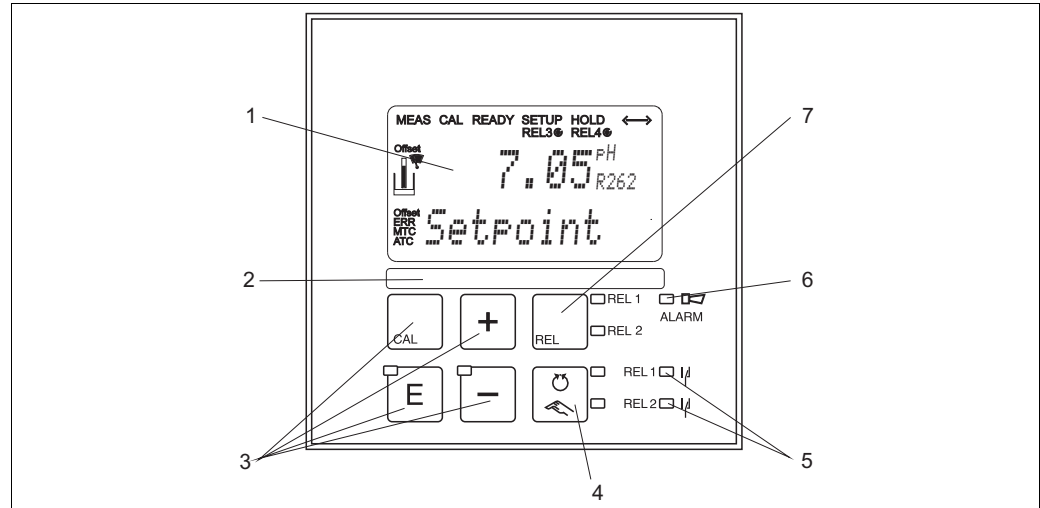
<b>Dimensions</b>	Panel mounted instrument: Field instrument:	96 x 96 x 145 mm (3.78 x 3.78 x 5.71 inches) Mounting depth: approx. 165 mm (6.50") 247 x 170 x 115 mm (9.72 x 6.69 x 4.53 inches)
<b>Weight</b>	Panel mounted instrument: Field instrument:	max. 0.7 kg (1.5 lb) max. 2.3 kg (5.1 lb)
<b>Material</b>	Housing of panel mounted instrument: Field housing: Front membrane:	Polycarbonate ABS PC FR Polyester, UV-resistant
<b>Terminals</b>	Cross section	2.5 mm <sup>2</sup> (14 AWG)

## Operability

### Operating concept

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.

### Display elements



#### Operating elements

- 1 LC display for display of measured values, configuration data and current menu field
- 2 Field for user labelling
- 3 4 main control keys for calibration and instrument configuration
- 4 Key for switching between automatic/manual operation
- 5 LED indicators for switched limit outputs
- 6 LED indicator for alarm function
- 7 Display of active contact and key for relay switching 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.

## Certificates and approvals

### CE symbol

#### Declaration of conformity

The product meets the requirements of the harmonized European standards. It thus complies with the legal requirements of the EC directives.

The manufacturer confirms successful testing of the product by affixing the CE symbol.

### CSA general purpose

#### CSA General Purpose

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators "C" and "US":

Version	Approval
CPM253-..2... CPM253-..3... CPM253-..7...	CSA Mark for Canada and USA
CPM223-..2... CPM223-..3... CPM223-..7...	CSA Mark for Canada and USA





**Additional functions of the Plus package**

- Current output table to cover large areas with varying resolution
- Monitoring of sensor and process for safe operation
- Neutralization controller to keep pH value constant by dosing acid and alkali
- Automatic cleaning function start<sup>2)</sup>

**Scope of delivery**

The delivery of the field instrument includes:

- 1 transmitter CPM253
- 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 BA00194C/07/EN
- 1 Operating Instructions
  - versions with HART communication:
    - 1 Operating Instructions Field Communication with HART, BA00208C/07/EN
  - versions with PROFIBUS communication:
    - 1 Operating Instructions Field Communication with PROFIBUS PA/DP, BA00209C/07/EN

The delivery of the panel mounted instrument includes:

- 1 transmitter CPM223
- 1 set of plug-in screw terminals
- 2 tensioning screws
- 1 BNC-plug (solder-free)
- 1 Operating Instructions BA00194C/07/EN
- 1 Operating Instructions
  - versions with HART communication:
    - 1 Operating Instructions Field Communication with HART, BA00208C/07/EN
  - versions with PROFIBUS communication:
    - 1 Operating Instructions Field Communication with PROFIBUS PA/DP, BA00209C/07/EN

2) In combination with "Additional contacts" only, see product structure

## Accessories

### Sensors

#### Glass sensors

##### Orbisint CPS11/CPS11D

- pH sensor for process applications
- Optional SIL version for connection to SIL approved transmitters
- With dirt-repellent PTFE diaphragm
- Ordering per product structure (--> Online configurator, [www.products.endress.com/cps11](http://www.products.endress.com/cps11) or [www.products.endress.com/cps11d](http://www.products.endress.com/cps11d))
- Technical Information TI00028C/07/EN

##### Orbisint CPS12/CPS12D

- ORP electrode for process applications
- With dirt-repellent PTFE diaphragm
- Ordering per product structure (--> Online configurator, [www.products.endress.com/cps12](http://www.products.endress.com/cps12) or [www.products.endress.com/cps12d](http://www.products.endress.com/cps12d))
- Technical Information TI00367C/07/EN

##### Ceraliquid CPS41/CPS41D

- pH sensor
- With ceramics diaphragm and liquid KCl electrolyte
- Ordering per product structure (--> Online configurator, [www.products.endress.com/cps41](http://www.products.endress.com/cps41) or [www.products.endress.com/cps41d](http://www.products.endress.com/cps41d))
- Technical Information TI00079C/07/EN

##### Ceraliquid CPS42/CPS42D

- ORP electrode
- With ceramics diaphragm and liquid KCl electrolyte
- Ordering per product structure (--> Online configurator, [www.products.endress.com/cps42](http://www.products.endress.com/cps42) or [www.products.endress.com/cps42d](http://www.products.endress.com/cps42d))
- Technical Information TI00373C/07/EN

##### Ceragel CPS71/CPS71D

- pH sensor
- With double chamber reference system and integrated bridge electrolyte
- Ordering per product structure (--> Online configurator, [www.products.endress.com/cps71](http://www.products.endress.com/cps71) or [www.products.endress.com/cps71d](http://www.products.endress.com/cps71d))
- Technical Information TI00245C/07/EN

##### Ceragel CPS72/CPS72D

- ORP electrode
- With double chamber reference system and integrated bridge electrolyte
- Ordering per product structure (--> Online configurator, [www.products.endress.com/cps72](http://www.products.endress.com/cps72) or [www.products.endress.com/cps72d](http://www.products.endress.com/cps72d))
- Technical Information TI00374C/07/EN

##### Orbipore CPS91/CPS91D

- pH sensor
- With open aperture for media with high dirt load
- Ordering per product structure (--> Online configurator, [www.products.endress.com/cps91](http://www.products.endress.com/cps91) or [www.products.endress.com/cps91d](http://www.products.endress.com/cps91d))
- Technical Information TI00375C/07/EN

##### Orbipore CPS92/CPS92D

- ORP sensor
- With open aperture for media with high dirt load
- Ordering per product structure (--> Online configurator, [www.products.endress.com/cps92](http://www.products.endress.com/cps92) or [www.products.endress.com/cps92d](http://www.products.endress.com/cps92d))
- Technical Information TI00435C/07/EN

#### ISFET sensors

##### Tophit CPS471

- Sterilizable and autoclavable ISFET sensor
- For food and pharmaceuticals, process technology, water treatment and biotechnology;
- Ordering acc. to product structure, [www.products.endress.com/cps471](http://www.products.endress.com/cps471)
- Technical Information TI00283C/07/EN

## Tophit CPS441

- Sterilizable ISFET sensor for media with low conductivity
- With liquid KCl electrolyte
- Ordering acc. to product structure, [www.products.endress.com/cps441](http://www.products.endress.com/cps441)
- Technical Information TI00352C/07/EN

## Tophit CPS491

- ISFET sensor with open aperture for media with high dirt load
- Ordering acc. to product structure, [www.products.endress.com/cps491](http://www.products.endress.com/cps491)
- Technical Information TI00377C/07/EN

**Connection accessories**

## CPK9 measuring cable

- For sensors with TOP68 plug-in head, for high-temperature and high-pressure applications, IP 68
- Ordering acc. to product structure, see Technical Information (TI00118C/07/EN)

## CPK1 measuring cable

- For pH/ORP electrodes with GSA plug-in head
- Ordering acc. to product structure, see Technical Information (TI00118C/07/EN)

## CPK2 special measuring cable

- For pH/ORP electrodes with GSA plug-in head, with three sensor plugs
- Ordering acc. to product structure, see Technical Information (TI00118C/07/EN)

## CPK12 special measuring cable

- For pH/ORP glass electrodes and ISFET sensors with TOP68 plug-in head
- Ordering acc. to product structure, see Technical Information (TI00118C/07/EN)

## CYK10 Data cable for digital sensors

- For digital pH sensors with Memosens technology
- Ordering according to product structure, see below

Certificates	
A	Standard, non Ex
G	ATEX II 1G EEx ia IIC T6/T4
O	FM Cl.I Div. 1 AEx ia IIC T6/T4
S	CSA IS Cl.I Ex ia IIC T6/T4
Cable length	
03	Cable length: 3 m / 9.84 ft
05	Cable length: 5 m / 16.41 ft
10	Cable length: 10 m / 32.81 ft
15	Cable length: 15 m / 49.22 ft
20	Cable length: 20 m / 65.62 ft
25	Cable length: 25 m / 82.03 ft
88	... m length
89	... ft length
Ready-made	
1	Wire terminals
<b>CYK10-</b>	complete order code

## CYK81 measuring cable

- Nonterminated cable for extending the sensor cables (e.g. Memosens)
- 2x2 wires, twisted with shield and PVC sheath (2 x 2 x 0.5 mm<sup>2</sup> + shield)
- Goods sold by meter, order no.: 51502543

## Junction box VBM

- For cable extension
- 10 terminals
- Cable entries: 2 x Pg 13.5 or 2 x NPT ½"
- Material: aluminum
- Ingress protection: IP 65 (≅ NEMA 4X)
- Order numbers:
  - cable entries Pg 13.5: 50003987
  - cable entries NPT ½": 51500177

Junction box VBA

- For cable extension of pH/ORP sensors
- 10 terminals, protection class: IP 65 (≅ NEMA 4X)
- Cable entries: 2 x Pg 13.5, 2 x Pg 16
- Material: polycarbonate
- Order no.: 50005276

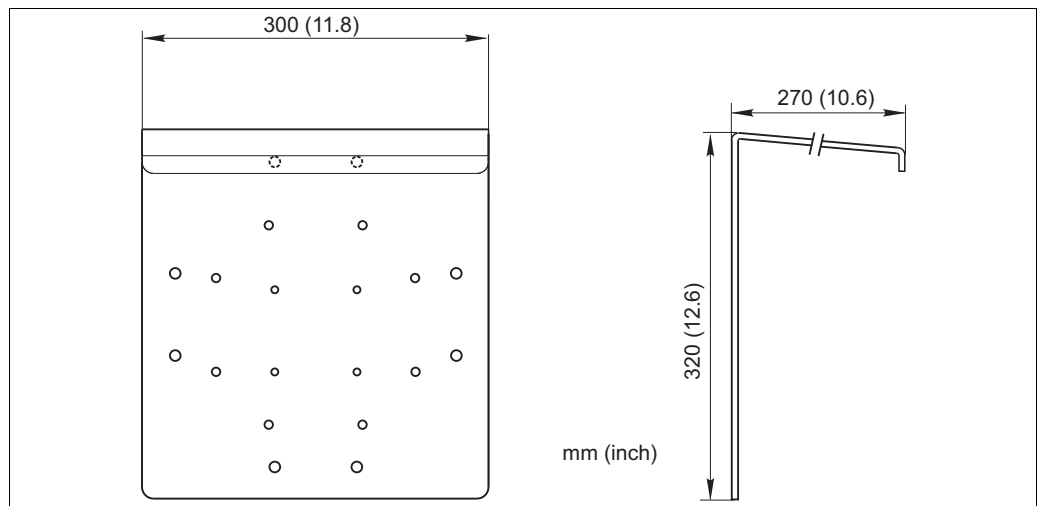
Junction box RM

- For cable extension (e.g. for Memosens sensors)
- 5 terminals
- Cable entries: 2 x Pg 13.5
- Material: PC
- Ingress protection: IP 65
- Order no.: 51500832

**Mounting accessories**

CYY101 weather protection cover for field devices, absolutely essential if operating the unit outdoors

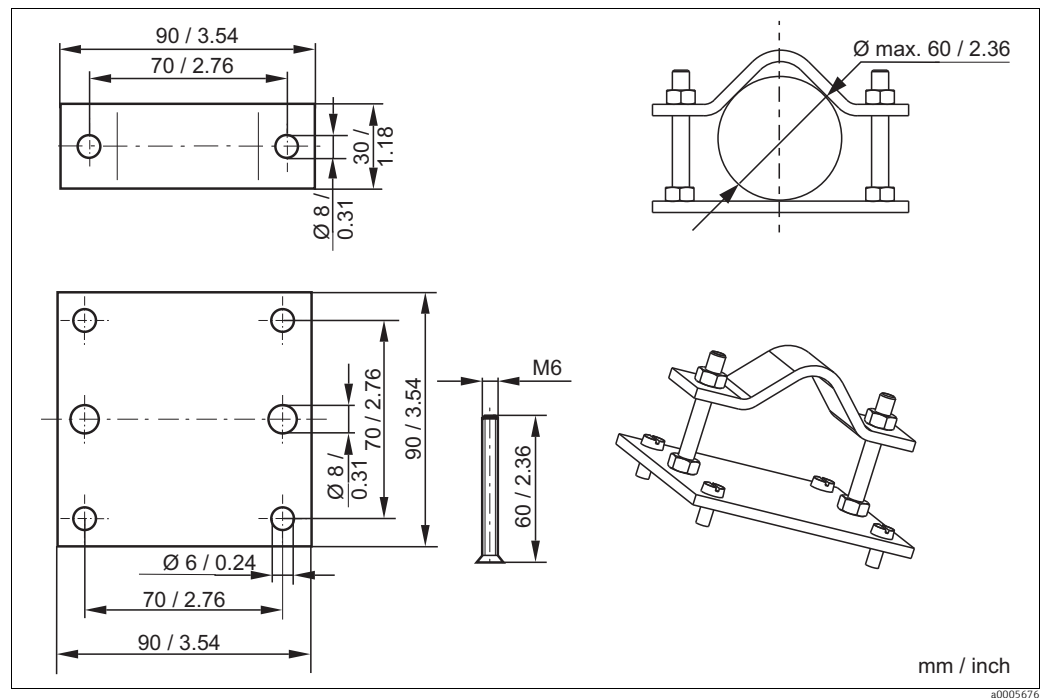
- Material: stainless steel 1.4031 (AISI 304)
- Order No. CYY101-A



Weather protection cover for field devices

## Post mounting kit

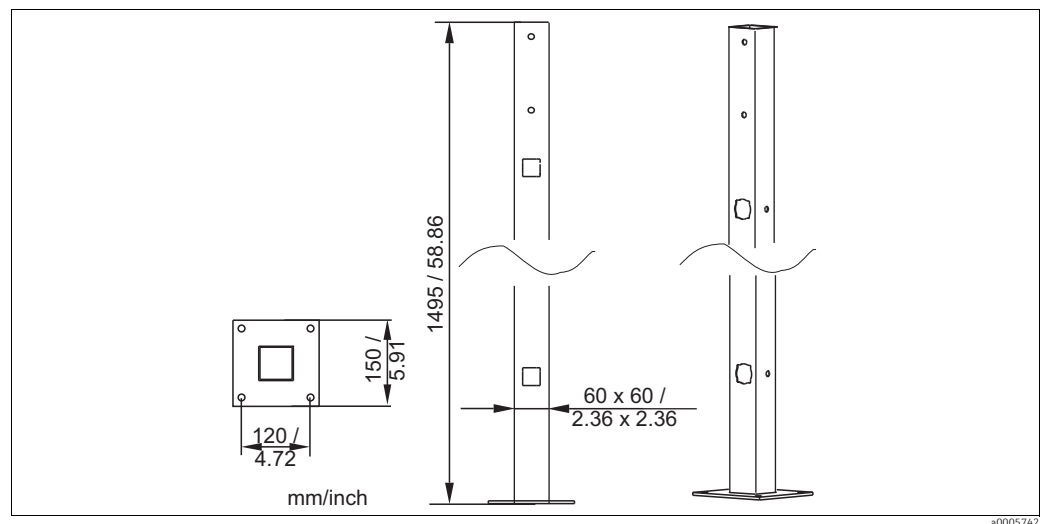
- For mounting of field housing on horizontal or vertical pipes ( $\varnothing$  max. 60 mm (2.36"))
- Material: stainless steel 1.4301
- order no. 50086842



Post mounting kit

## CYY102 universal post

- Square pipe for mounting transmitters
- Material: stainless steel 1.4301 (AISI 304)
- Order No. CYY102-A



Universal post

**Buffer solutions***High-quality buffer solutions of Endress+Hauser - CPY20*

The secondary buffer solutions have been referenced to primary reference material of the PTB (German Federal Physico-technical Institute) and to standard reference material of NIST (National Institute of Standards and Technology) according to DIN 19266 by a DKD (German Calibration Service) accredited laboratory.

pH value	
A	pH 2.00 (accuracy ± 0.02 pH)
C	pH 4.00 (accuracy ± 0.02 pH)
E	pH 7.00 (accuracy ± 0.02 pH)
G	pH 9.00 (accuracy ± 0.02 pH)
I	pH 9.20 (accuracy ± 0.02 pH)
K	pH 10.00 (accuracy ± 0.05 pH)
M	pH 12.00 (accuracy ± 0.05 pH)
Quantity	
01	20 x 18 ml (0.68 fl.oz) only buffer solutions pH 4.00 and 7.00
02	250 ml (8.45 fl.oz)
10	1000 ml (0.26 US gal)
50	5000 ml (1.32 US gal) canister for Topcal S
Certificates	
A	Buffer analysis certificate
Version	
1	Standard
CPY20-	complete order code

## Technical buffer solutions for ORP electrodes

- +220 mV, pH 7.0, 100 ml (3.4 fl.oz.); order no. CPY3-0
- +468 mV, pH 0.1, 100 ml (3.4 fl.oz.); order no. CPY3-1

## KCl-electrolyte solutions for liquid filled electrodes

- 3.0 mol, T = -10 to 100 °C (14 to 212 °F), 100 ml (3.4 fl.oz.), order no. CPY4-1
- 3.0 mol, T = -10 to 100 °C (14 to 212 °F), 1000 ml (34 fl.oz.), order no. CPY4-2
- 1.5 mol, T = -30 to 100 °C (-22 to 266 °F), 100 ml (3.4 fl.oz.), order no. CPY4-3
- 1.5 mol, T = -30 to 100 °C (-22 to 266 °F), 1000 ml (34 fl.oz.), order no. CPY4-4

[www.addresses.endress.com](http://www.addresses.endress.com)

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