

pH/ORP Measurement *liquisys S CPM 223 / 253*

pH and ORP Transmitter



Liquisys S CPM 223

Liquisys S CPM 253

Due to the modularity of its design, the Liquisys S CPM 223 / 253 transmitter can be adapted to a wide range of customer needs. The basic version, which provides simple measuring and alarm signalling functions, can be equipped with additional software and hardware modules to match specific applications. Retrofitting of expansion modules is also possible.

Areas of application

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

Benefits at a glance

- Measuring transmitter in field or panel-mounted housing
- Universal application
 - pH value and ORP measurement (mV or %) via software switching
- Simple handling
 - Logically arranged menu structure with plain text in 6 languages facilitates instrument configuration
 - Large, two-line display indicates measured value and temperature at the same time
 - Ultrasimple two-point calibration via CAL key
- Safe operation
 - Overvoltage (lightning) protection according to EN 61000-4-5
 - Direct access for manual contact control
 - Calibration plausibility check
 - User-defined alarm configuration for alarm contact and error current

The basic unit can be extended with:

- 2 or 4 contacts for use as:
 - Limit contacts (also for temperature)
 - P(ID) controller
 - Timer for simple rinse processes
 - Complete cleaning with Chemoclean
- Plus package:
 - Any current output configuration via table
 - Automatic initiation of cleaning in case of alarm or limit violation
 - Sensor Check System for pH glass and reference
 - Live check of sensor
 - Special neutralisation controller
- HART® or Profibus PA
- 2nd current output for temperature

Quality made by
Endress+Hauser



ISO 9001

Endress + Hauser

Nothing beats know-how



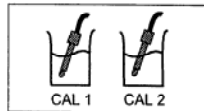
Details

Liquisys S CPM 223 / 253 provides a solution for all water, waste water and process engineering applications.

Features of the **basic version (PR)**:

pH and ORP value measurement

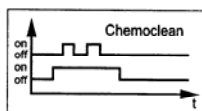
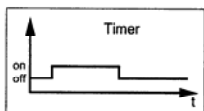
This is selected via the menu. During measurement, the value measured can be displayed in the other measuring mode (e.g. pH – mV / ORP % – ORP mV). The **temperature** is displayed at the same time or, if desired, not shown at all.



pH electrodes are normally calibrated with the same pH values. Therefore the Liquisys S CPM 223 / 253 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.

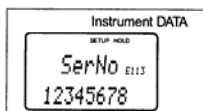
	2.4 / 22 mA	
E 057	yes	no
E 080	no	yes
----	yes	no

Different alarms are required depending on application and operator. Therefore the Liquisys S CPM 223 / 253 permits independent **configuration of the alarm contact and error current** for each individual error. Unnecessary or undesirable alarms can be suppressed in this manner.



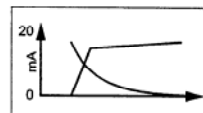
Up to four contacts can be used as limit contacts (also for temperature), to implement a P(ID) controller or for cleaning functions.

Direct **manual operation of the contacts** (bypassing the menu) provides quick access to limit, control or cleaning contacts, permitting speedy correction of deviations.

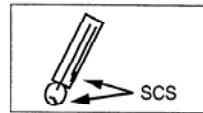


The **serial numbers** of the instrument and modules and the order code can be called up on the display.

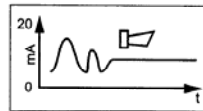
The **PS version** provides **additional functions**:



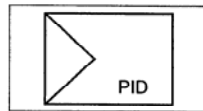
In order to display wide measuring ranges while still achieving a high resolution in specific ranges, the **current output** can be configured as required via a table. This permits **bilinear** or **quasi-logarithmic** curves, etc.



The **Sensor Check System (SCS)** alerts to deviations of the pH glass resistance or reference resistance from the normal range, thus indicating possible inaccuracy due to pH electrode blocking or damage.



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.



A special control response that cannot be handled adequately by a P(ID) controller is required to neutralise solutions. For this reason, the Liquisys S CPM 223 / 253 provides a **special neutralisation controller function** by combining two P(ID) controllers.

Basic version and plus package

	Basic version	With plus package (PS version)
Alarm signalling	MEASUREMENT CALIBRATION with plausibility check Read instrument DATA Linear CURRENT OUTPUT CURRENT OUTPUT simulation 1 programmable ALARM CONTACT (contact and error current)	SENSOR CHECK SYSTEM for monitoring of pH glass and reference LIVE CHECK of sensor CURRENT OUTPUT programmable (table)
	<i>Additional features</i>	<i>Additional features</i>
Controlling	2 CHANGEOVER CONTACTS for - Measuring parameter limit - Temperature limit - P(ID) controller - Timer for cleaning	Neutralisation controller Automatic cleaning triggered by alarm or limit violation
	<i>Additional features</i>	<i>Additional features</i>
Cleaning	2 more CHANGEOVER CONTACTS (total of 4) for - Measuring parameter limit - Temperature limit - P(ID) controller - Chemoclean cleaning (water and cleaning agent)	Cleaning triggered externally or automatically by alarm or limit violation
	<i>Additional features</i>	<i>Additional features</i>

Measuring and control system

A complete measuring system comprises:

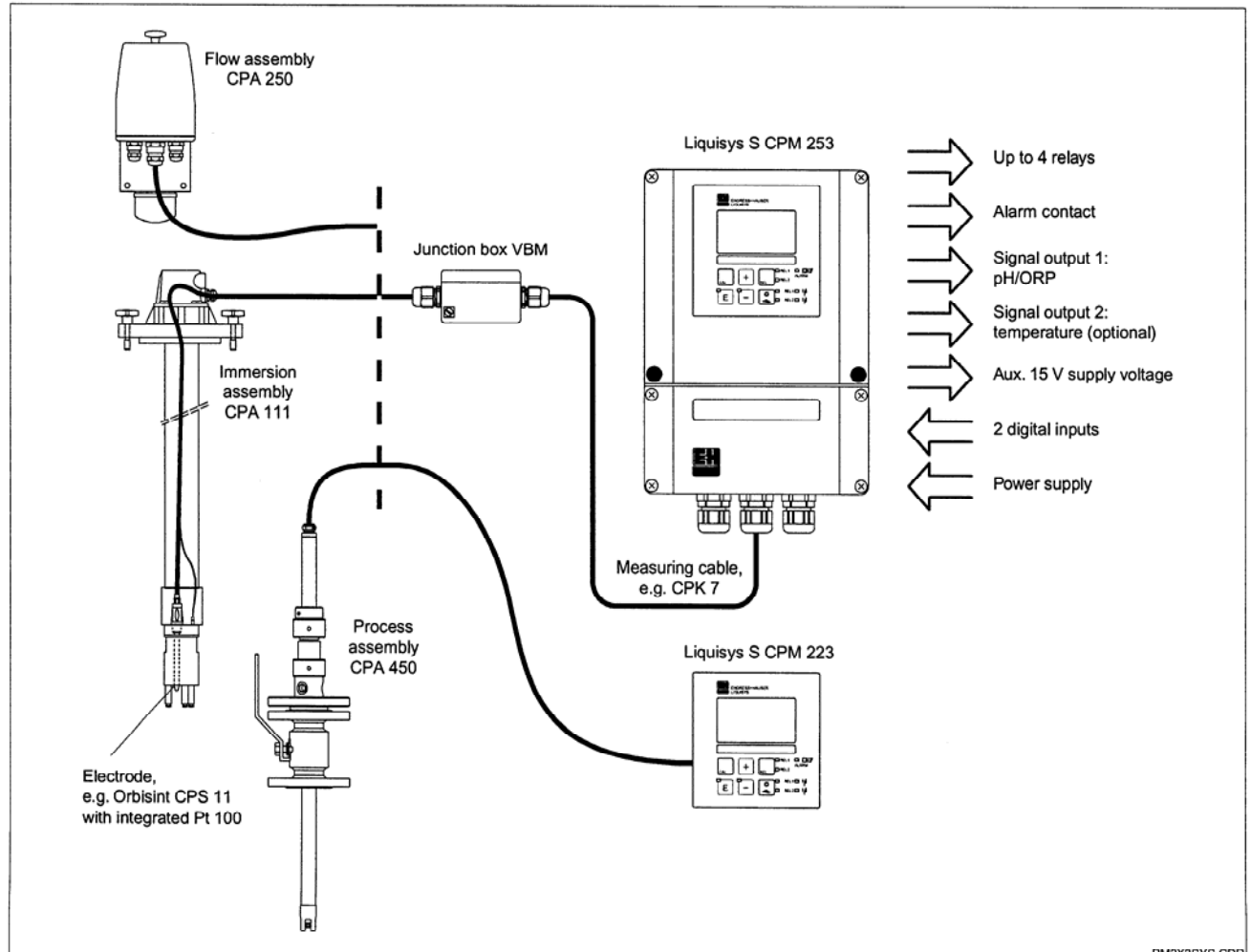
- the pH/ORP transmitter Liquisys S CPM 223 or CPM 253
- a pH/ORP combination electrode with an integrated or separate temperature sensor Pt 100, and

- a suitable pH/ORP measuring cable

Options:

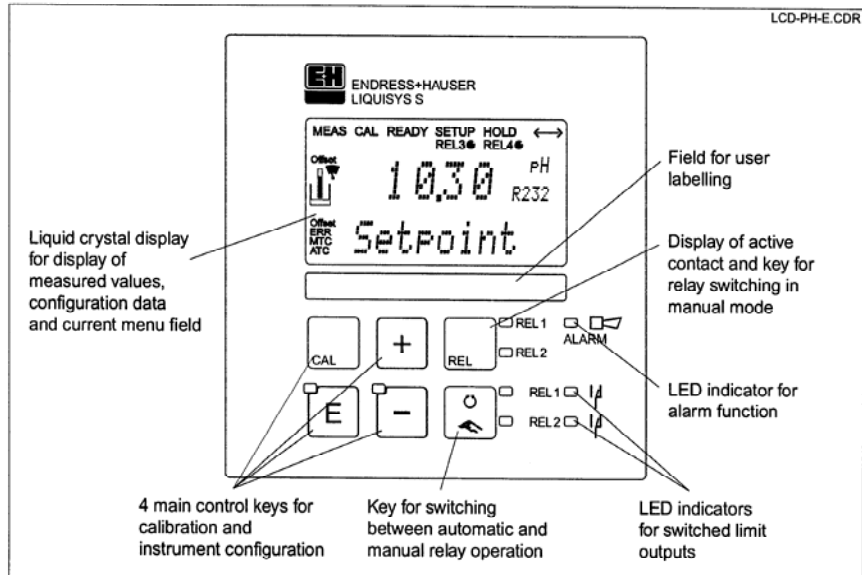
- Junction box VBM or VBA, and
- extension cable CPK 1, 2, 7.

Complete measuring systems with Liquisys S CPM 223 / 253



PM2X3SYS.CDR

Operation



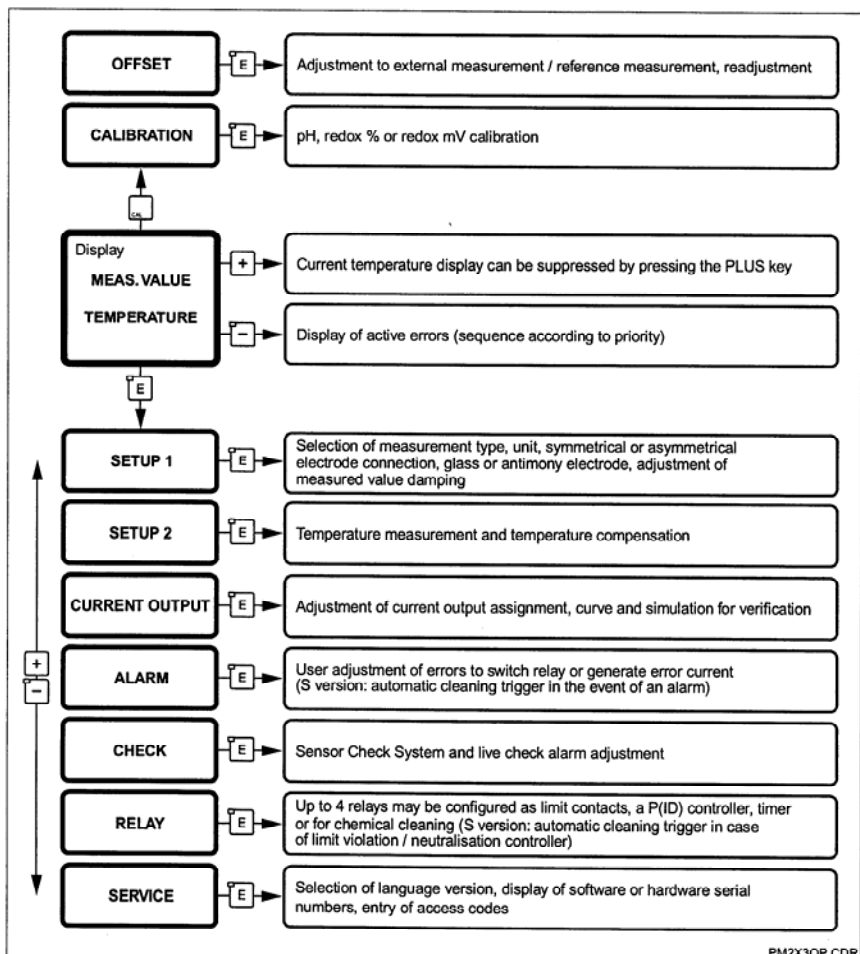
User interface:
Display and keys

Everything at a glance

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

Intelligent and simple

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.



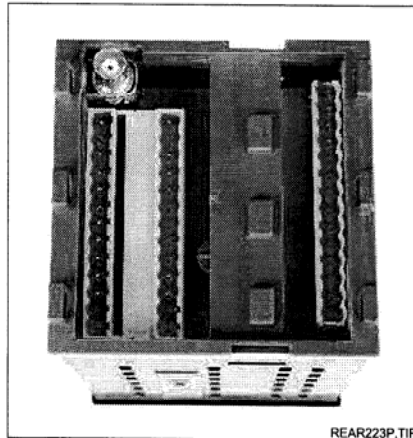
Overview of Liquisys S
CPM 223 / 253 menu.
This overview covers all
the options that can be
installed (see page 2
Details).

Electrical connection

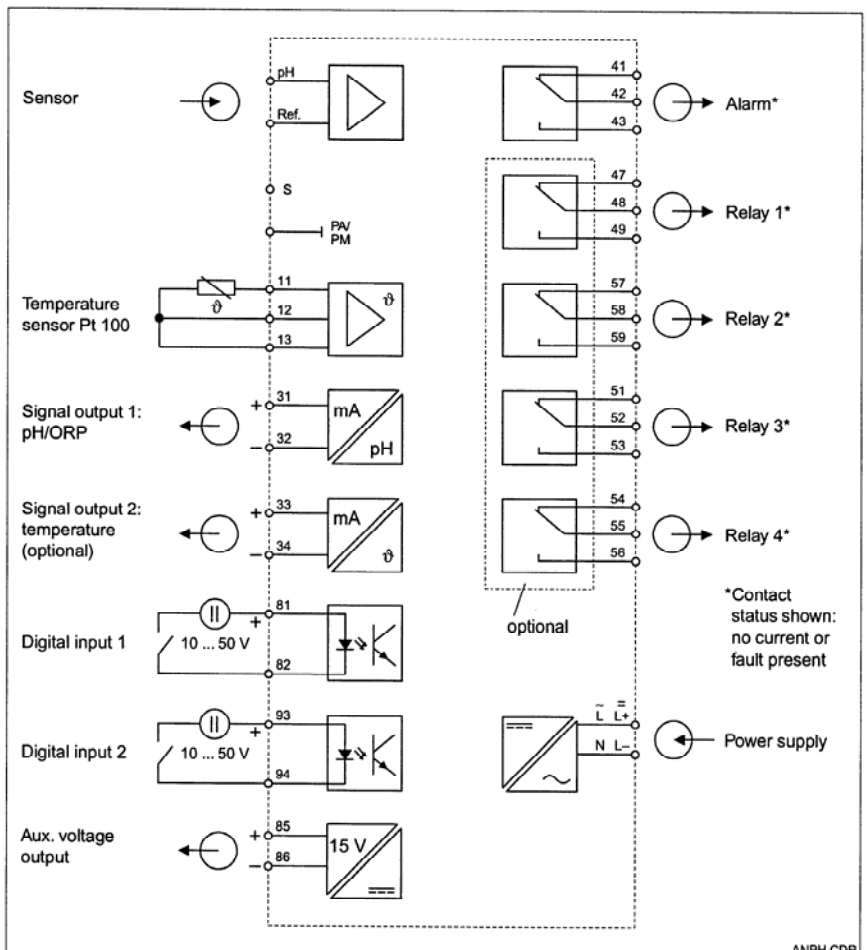
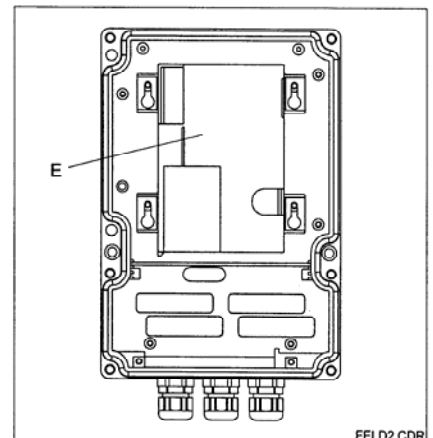
All connections to the panel-mounted instrument CPM 223 are established via the terminal strips on the rear. In the case of the field instrument CPM 253, all wires (including the sensor cable) are connected to terminals in a separate wiring compartment.

All the wiring except for the pH input can remain in place if the instrument needs repair because repairs are limited to assembly replacement. So, dismantling the instrument and rewiring are no longer necessary.

Left:
Liquisys S CPM 223, connections on the rear of the instrument; pH connection on BNC connector



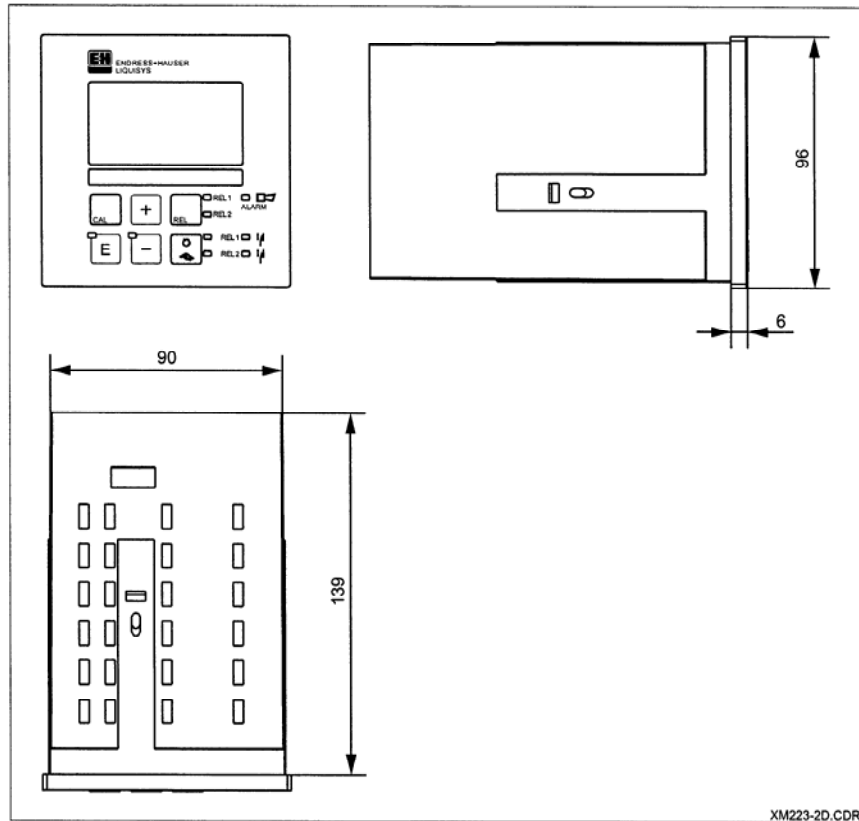
Right:
Liquisys S CPM 253, rear of instrument with replaceable electronics box (E); pH connection on terminal



Electrical connection of
Liquisys S CPM 223 / 253

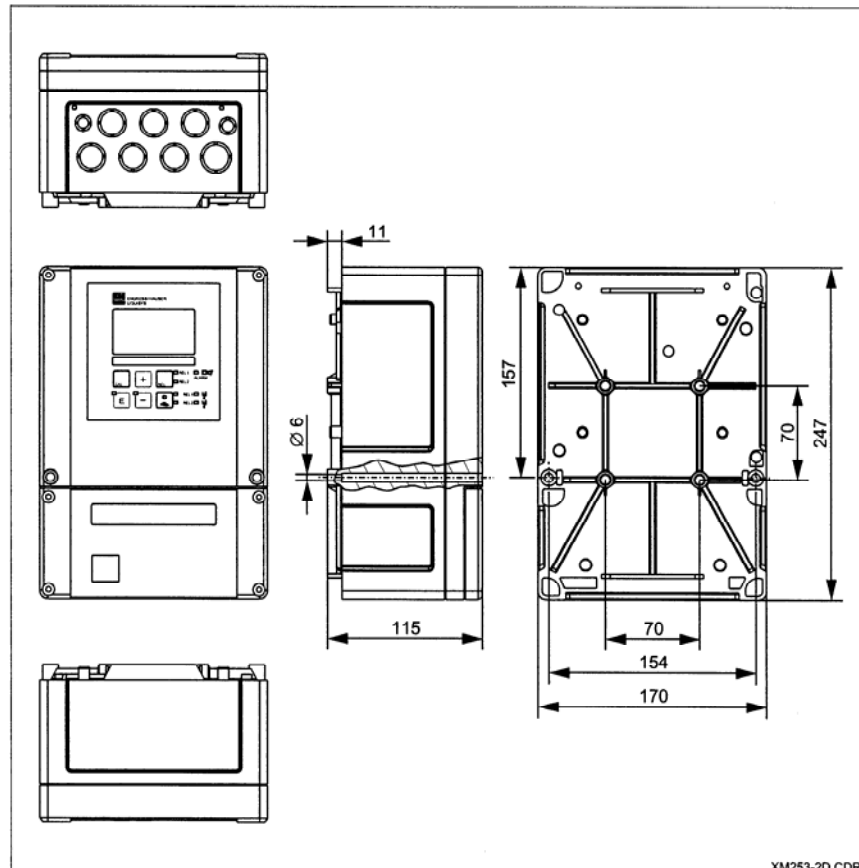
ANPH.CDR

Dimensions



Dimensions of
Liquisys S CPM 223

XM223-2D.CDR



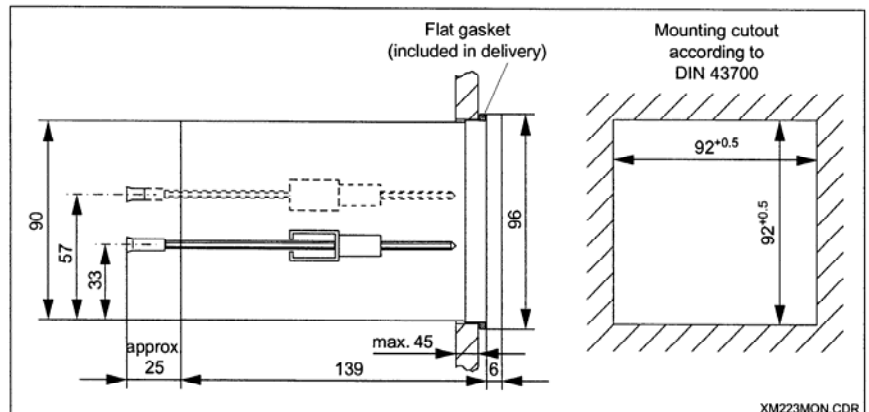
Dimensions of
Liquisys S CPM 253

XM253-2D.CDR

Mounting of Liquisys S CPM 223

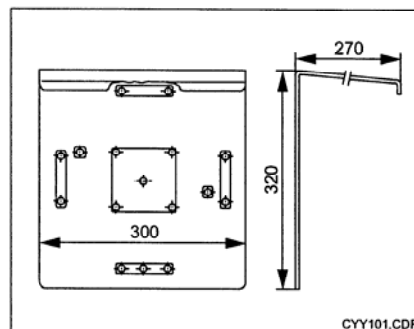
The panel-mounted version is mounted using the supplied tensioning screws. The required overall mounting depth is approx. 165 mm.

Installation of panel-mounted housing



Mounting of Liquisys S CPM 253

Weather protection cover CYY 101 (see Accessories)

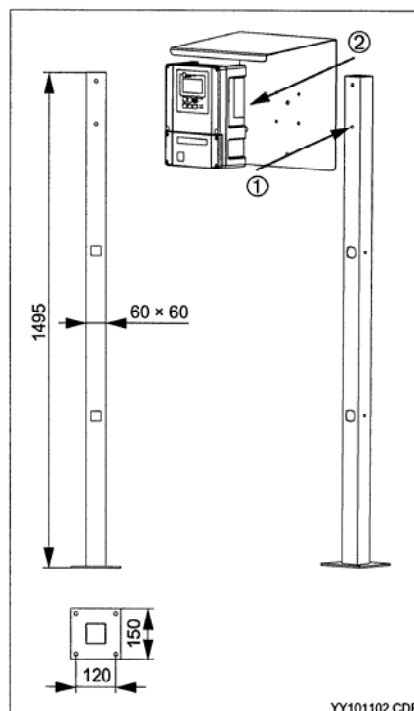


There are several mounting options for the field instrument:

- Mounting on a square-tube mounting post
- Mounting on cylindrical pipes
- Wall mounting with fastening screws

Weather protection cover CYY 101 is required for outdoor installation. This cover is compatible with all field instrument mounting options.

Universal upright post CYY 102 or identical upright post of suspension assembly holder CYH 101 (square tube, see Accessories); mounting of weather protection cover and field instrument



Proceed as follows to install the instrument on a square-tube mounting post (universal upright post CYY 102 or upright post of suspension assembly holder CYH 101):

- ① Install the weather protection cover on the upright post first.
- ② Attach the field instrument to the weather protection cover from the rear.

