Technical Information
Liquiline To Go CYM290 and Liquiline To Go Ex CYM291

Portable multiparameter device for Memosens
pH, conductivity and oxygen sensors.

Measuring device for hazardous and non-hazardous areas

Application

Liquiline To Go is a portable multiparameter handheld for pH, ORP, conductivity and oxygen measurement. The outstanding features of the device include:
- Operation in hazardous areas to Zone 0 (CYM291)
- Use of digital Memosens sensors
- The robust, high-performance polymer housing stands for excellent shock resistance and dimensional stability even with intensive impact from moisture.

Your benefits

Reliability and flexibility
- Easy commissioning
- Memosens: plug & play lab-calibrated sensors
- Waterproof and robust housing with IP66/67 protection

Safety
- Active indication of cable disconnect
- CYM291 Ex Approvals: IECEx, ATEX

Endress+Hauser [EH]

People for Process Automation

Function and system design

Liquiline To Go CYM290 and Liquiline To Go Ex CYM291 are portable multiparameter measuring devices for the use of analog (CYM290 only) and digital sensors.

The device automatically detects when a Memosens sensor is connected and switches to the appropriate measured variable. By simply plugging in a new Memosens sensor, the device can measure *conductivity*, the *pH value* and *oxygen*.

Operation is simple and intuitive, and supported by info text and help.

Liquiline To Go CYM290
QVGA TFT illuminated display

Liquiline To Go Ex CYM291
LCD STN 7-segment display with 3 lines and icons

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 1   Liquiline To Go functions

1   Connections
2   Display
3   Keypad
4   Holder for pH sensors

Communication and data processing

Liquiline To Go CYM290 and CYM291 automatically detects when a Memosens sensor is connected and switches to the appropriate measured variable. Memosens is indicated on the display. Only one sensor can be connected to the measuring device at the time. Liquiline To Go CYM290 has a pH-socket according to DIN 19262 for analog pH sensors.

Dependability

Reliability

Memosens technology digitizes the measured values in the sensor and transmits the data to the transmitter using a non-contact connection that is free from potential interference. The result:
- Automatic error message if sensor fails or connection between sensor and transmitter is interrupted
- Immediate error detection increases measuring point availability

Maintainability

Easy handling

Sensors with Memosens technology have an integrated electronics unit that stores calibration data and other information (e.g. total operating hours and operating hours under extreme measuring conditions). Once the sensor has been connected, the sensor data are transferred automatically to the transmitter and used to calculate the current measured value. As the calibration data are stored in the sensor, the sensor can be calibrated and adjusted independently of the measuring point. The result:
- Easy calibration in the measuring lab under optimum external conditions increases the quality of the calibration.
- Pre-calibrated sensors can be replaced quickly and easily, resulting in a dramatic increase in the availability of the measuring point .
- Maintenance intervals can be defined based on all stored sensor load and calibration data and predictive maintenance is possible.
- The sensor history can be documented on external data carriers and in evaluation programs. Thus, the current application of the sensors can be made to depend on their previous history.

Integrity

With inductive transmission of the measured value using a non-contact connection, Memosens guarantees maximum process safety and offers the following benefits:
- All problems caused by moisture are eliminated.
  - Plug-in connection remains free from corrosion
  - Measured value distortion from moisture is not possible.
  - The plug-in system can even be connected under water.
- The transmitter is galvanically decoupled from the medium.
- EMC safety is guaranteed by screening measures for the digital transmission of measured values.

Input

Measured variables	→ Documentation of the connected sensor
Measuring range	→ Documentation of the connected sensor

Types of input	**Connections**
	From right to left
	• 1x micro USB-B for battery-free operation
	• 1x M8 socket, 4-pin, for Memosens laboratory cable
	• 2x socket, Ø 4 mm, for separate temperature sensor
	• 1x socket:
	  – CYM290: DIN 19 262 for analog PH sensors
	  – CYM291: M12 8-pin Memosens cable

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 2 *CYM290 connections*

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 3 *CYM291 connections*

Temperature inputs	2 x Ø 4 mm for integrated or separate temperature sensor **Measuring ranges** • Temperature sensor NTC30: -20 to +120 °C (-4 to 248 °F) • Temperature sensor Pt1000: -40 to +250 °C (-40 to 482 °F) **Measuring cycle** Approx. 1s **Measured error** [1][2][3] < 0.2 K (Tamb = 23 °C); TK < 25 ppm/K 1) according to DIN EN 60746-1, at rated operating conditions 2) ± 1 digit 3) plus sensor error
Sensor inputs	**Cable specification** M8 socket, 4-pin, for Memosens laboratory cable CYK20

Power supply

Supply voltage	• Batteries: 4x AA (Mignon) alkaline or 4x NiMH rechargeable batteries • Service time of up to 500 h

Performance characteristics

Repeatability	→ Documentation of the connected sensor

Setting up the device

Options

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Protective cover
The front of the device is protected by a cover. To operate the device, the protective cover can be folded back completely and locked in place.

Hook
A fold-out hook is located on the back of the device, allowing you to suspend it. This means your hands are free for the actual measurement. The nameplate is located under the hook.

Stand
The protective cover and hook can be joined to form a stand, allowing the convenient and ergonomic operation of the device in the lab or on a desktop.

Environment

Ambient temperature range	**Liquiline To Go CYM290** -10 to +55 ℃ (+14 to +130 ℉)
	Liquiline To Go CYM291 • -10 to +40 ℃ (+14 to +104 ℉) T3 Duracell MN1500 • -10 to +50 ℃ (+14 … +122 ℉) T4 Energizer E91, Power One 4106 and Panasonic Pro Power LR6
Storage temperature	-25 to +70 ℃ (-13 to +158 ℉)
Degree of protection	IP66/67 with pressure compensation
Electromagnetic compatibility	DIN EN 61326-1 (general requirements) • Interference emission: Class B (residential environments) • Interference immunity: Class A (industrial environments) DIN EN 61326-2-3 (special requirements for transmitters)
Relative humidity	0 to 95 %, condensation permitted for short periods

Mechanical construction

Dimensions	Approx. (132 x 156 x 30) mm
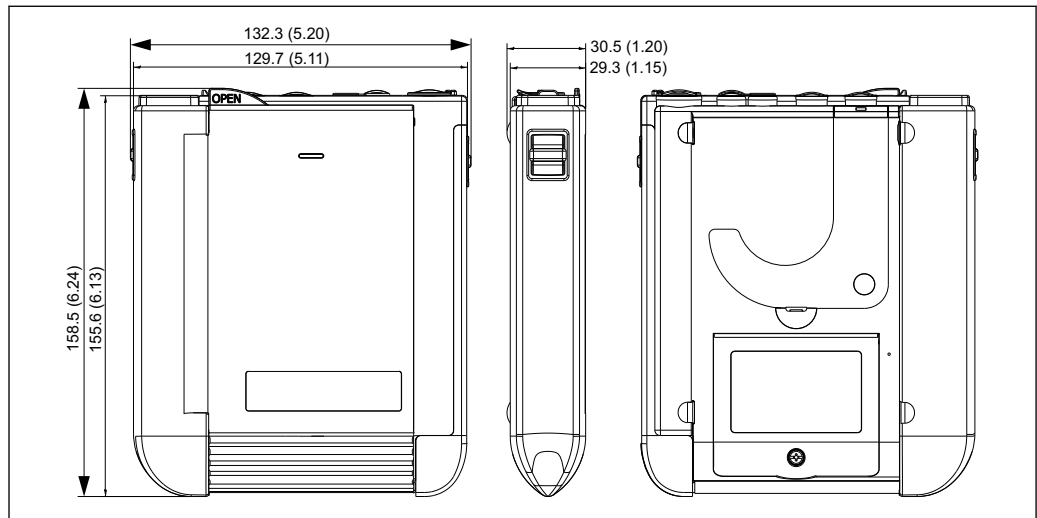
🖾 4   Dimensions in mm/inch

Weight	Approx. 500 g (1.1 lbs)
Materials	PA12 GF30 (silver-gray RAL 7001) + TPE (black)

Operability

Operating concept	Clear menu navigation with graphic symbols and detailed plain-text operating instructions
	Languages
	German, English, French, Spanish, Italian, Portuguese, Russian
Display	Displayable data:
	Manufacturer, sensor type, serial number, zero point, slope, date of calibration
	Status indicators
	For battery charge state, data logger
	Keypad
	[on/off], [meas], [enter], 2 soft keys with context-dependent functions
Software	**Messages**
	Displays all the error and device messages currently pending as well as complementary help text.
	MemoLog (Memosens only)
	Individually displays the calibration protocols saved. You have the option of deleting individual entries or all entries. The following is displayed:
	• Sensor type
	• Manufacturer
	• Calibration date
	• Serial number
	• Zero point
	• Slope
	• Utilization data
	• Measuring point (TAG)

Certificates and approvals

C€ mark	**Declaration of Conformity**
	The product meets the requirements of the harmonized European standards. As such, it complies with the legal specifications of the EU directives. The manufacturer confirms successful testing of the product by affixing to it the C€ mark.
Ex approval	• IECEx Ex ia IIC T4/T3 Ga
	• ATEX II 1 G Ex ia IIC T4/T3 Ga

Ordering information

Product page	www.endress.com/cym290
	www.endress.com/cym291

Product Configurator

On the product page there is a "Configuration" button to the right of the product image.

1. Click this button.
   - ↳ The Configurator opens in a separate window.
2. Select all the options to configure the device in line with your requirements.
   - ↳ In this way, you receive a valid and complete order code for the device.
3. Export the order code as a PDF or Excel file. To do so, click the appropriate button on the right above the selection window.

ℹ️ For many products you also have the option of downloading CAD or 2D drawings of the selected product version. To do so, click the "CAD" tab and select the desired file type using drop-down lists.

Scope of delivery

The scope of delivery comprises:
- Measuring device including 4 batteries (AA) and pre-mounted holder
- Carry strap
- Data storage medium with detailed operating instructions
- USB cable, 1.5 m
- Safety instructions
- Brief Operating Instructions in multiple languages

Accessories

ℹ️ The following are the most important accessories available at the time this documentation was issued. For accessories not listed here, please contact your service or sales office.

Kits

Carrying case
- Suitable for the safe transportation of the Liquiline To Go CYM290 and CYM291
- Order No. 71296856

🖼 *5   Liquiline To Go carrying case*

Adapter sleeves
- Sleeves for PG adapter
- 6 pieces in the set
- Order No. 71279016

Sensor holder / Watering cap
- Watertight
- 5 pieces in the set
- Order No. 71281544

Sensor cable

Memosens laboratory cable CYK20
- For digital sensors with Memosens technology
- Product Configurator on the product page: www.endress.com/cyk20

Memosens laboratory cable ATEX CYK20
- For digital sensors with Memosens technology in the hazardous area
- Product Configurator on the product page: www.endress.com/cyk20
- Order version: BAB1C2

Memosens laboratory cable IECEx CYK20
- For digital sensors with Memosens technology in the IECEx area
- Product Configurator on the product page: www.endress.com/cyk20
- Order version: IABIC2

Sensors	**ORP sensors**

Orbisint CPS11D
- pH electrode for process technology
- Optional SIL version for connecting to SIL transmitter
- With dirt-repellent PTFE diaphragm
- Product Configurator on the product page: www.endress.com/cps11d

📖 Technical Information TI00028C

Orbisint CPS12D
- ORP sensor for process technology
- Product Configurator on the product page: www.endress.com/cps12d

📖 Technical Information TI00367C

Memosens CPS16D
- Combined pH/ORP sensor for process technology
- With dirt-repellent PTFE diaphragm
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cps16D

📖 Technical Information TI00503C

Memosens CPS31D
- pH electrode with gel-filled reference system with ceramic diaphragm
- Product Configurator on the product page: www.endress.com/cps31d

📖 Technical Information TI00030C

Ceraliquid CPS41D
- pH electrode with ceramic junction and KCl liquid electrolyte
- Product Configurator on the product page: www.endress.com/cps41d

📖 Technical Information TI00079C

Ceraliquid CPS42D
- ORP electrode with ceramic junction and KCl liquid electrolyte
- Product Configurator on the product page: www.endress.com/cps42d

📖 Technical Information TI00373C

Ceragel CPS71D
- pH electrode with reference system including ion trap
- Product Configurator on the product page: www.endress.com/cps71d

📖 Technical Information TI00245C

Ceragel CPS72D
- ORP electrode with reference system including ion trap
- Product Configurator on the product page: www.endress.com/cps72d

📖 Technical Information TI00374C

Memosens CPS76D
- Combined pH/ORP sensor for process technology
- Hygienic and sterile applications
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cps76d

📖 Technical Information TI00506C

Orbipore CPS91D
- pH electrode with open aperture for media with high dirt load
- Product Configurator on the product page: www.endress.com/cps91d

📖 Technical Information TI00375C

Orbipore CPS92D
- ORP electrode with open aperture for media with high dirt load
- Product Configurator on the product page: www.endress.com/cps92d

📖 Technical Information TI00435C

Memosens CPS96D
- Combined pH/ORP sensor for chemical processes
- With poison-resistant reference with ion trap
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cps96d

📖 Technical Information TI00507C

Ceramax CPS341D
- pH electrode with pH-sensitive enamel
- Meets highest demands of measuring accuracy, pressure, temperature, sterility and durability
- Product Configurator on the product page: www.endress.com/cps341d

📖 Technical Information TI00468C

Orbipac CPF81D
- Compact pH sensor for installation or immersion operation
- In industrial water and wastewater
- Product Configurator on the product page: www.endress.com/cpf81d

📖 Technical Information TI00191C

Orbipac CPF82D
- Compact ORP sensor for installation or immersion operation in process water and wastewater
- Product Configurator on the product page: www.endress.com/cpf82d

📖 Technical Information TI00191C

pH ISFET sensors

Tophit CPS441D
- Sterilizable ISFET sensor for low-conductivity media
- Liquid KCl electrolyte
- Product Configurator on the product page: www.endress.com/cps441d

📖 Technical Information TI00352C

Orbipac CPS51
- pH electrode including and excluding integrated NTC temperature sensor
- For handheld and laboratory measuring devices
- Fixed cable 1.5 m / DIN plug
- Order code CPS51 excluding temperature sensor : 1EK2FDA
- Order code CPS51 including temperature sensor : 7EK2FDA

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Orbipac CPS52
- ORP combined electrode
- For handheld and laboratory measuring devices
- Standard plug-in head
- Order code CPS52: OPK2FDA
- Can be connected via a standard electrode plug-in head or a DIN connecting plug

📖 Technical Information TI031C

Tophit CPS471D
- Sterilizable and autoclavable ISFET sensor for food and pharmaceutics, process engineering
- Water treatment and biotechnology
- Product Configurator on the product page: www.endress.com/cps471d

📖 Technical Information TI00283C

Tophit CPS491D
- ISFET sensor with open aperture for media with high dirt load
- Product Configurator on the product page: www.endress.com/cps491d

  📖 Technical Information TI00377C

Conductivity sensors with conductive measurement of conductivity

Condumax CLS15D
- Conductive conductivity sensor
- For pure water applications, ultrapure water applications and Ex applications
- Product Configurator on the product page: www.endress.com/CLS15d

  📖 Technical Information TI00109C

Condumax CLS16D
- Hygienic, conductive conductivity sensor
- For pure water applications, ultrapure water applications and Ex applications
- With EHEDG and 3A approval
- Product Configurator on the product page: www.endress.com/CLS16d

  📖 Technical Information TI00227C

Condumax CLS21D
- Two-electrode sensor in plug-in head version version
- Product Configurator on the product page: www.endress.com/CLS21d

  📖 Technical Information TI00085C

Oxygen sensors

Oxymax COS22D
- Sterilizable sensor for dissolved oxygen
- With Memosens technology or as an analog sensor
- Product Configurator on the product page: www.endress.com/cos22d

  📖 Technical Information TI00446C

Buffer solutions (pH)	**High-quality buffer solutions from Endress+Hauser - CPY20** The secondary buffer solutions have been referenced to primary reference material of the PTB (German Federal Physico-technical Institute) or to standard reference material of NIST (National Institute of Standards and Technology) according to DIN 19266 by a laboratory accredited by the DAkkS (German accreditation body) according to DIN 17025. Product Configurator on the product page: www.endress.com/cpy20

Conductivity calibration solutions	**Conductivity calibration solutions CLY11**
	Precision solutions referenced to SRM (Standard Reference Material) by NIST for qualified calibration of conductivity measuring systems in accordance with ISO 9000
	• CLY11-A, 74 µS/cm (reference temperature 25 ℃ (77 ℉)), 500 ml (16.9 fl.oz)
	  Order No. 50081902
	• CLY11-B, 149.6 µS/cm (reference temperature 25 ℃ (77 ℉)), 500 ml (16.9 fl.oz)
	  Order No. 50081903
	• CLY11-C, 1.406 mS/cm (reference temperature 25 ℃ (77 ℉)), 500 ml (16.9 fl.oz)
	  Order No. 50081904
	• CLY11-D, 12.64 mS/cm (reference temperature 25 ℃ (77 ℉)), 500 ml (16.9 fl.oz)
	  Order No. 50081905
	• CLY11-E, 107.00 mS/cm (reference temperature 25 ℃ (77 ℉)), 500 ml (16.9 fl.oz)
	  Order No. 50081906
	
	  📖 Technical Information TI00162C

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