

## Product Information Multi-channel Controller TOPAX® DX / DX Net

### Important values securely under control

As a multi-channel controller the TOPAX DX monitors the current water values during the preparation of the water and it controls in real-time the connected metering system for treating the water. In this way it ensures constant water values in the most varied of applications – taking into account the given norms and guidelines – it is universally applicable.

One of its main applications is to ensure the quality of the water in public baths by evaluating the measurements of, amongst other things, the free chlorine, pH, redox, total chlorine and the conductivity and to control the chlorine gas meter – and/ or salt-flow rate electro-analysis unit.

### Convincing features

The TOPAX DX is based on the longstanding experience of many generations of TOPAX controllers from Lutz-Jesco. Its modular design makes it an adaptable and a highly compatible partner in measuring and control technology. With the option of connecting it directly to a variety of sensors to measure the water parameters the TOPAX DX fulfils all the needs for optimal water preparation. Mounted on a water sampling station, e.g. PM 01 or DCM 01, all elements required for a professional measurement are united.

When developing the multi-channel controller emphasize was put at the beginning on making it simple and easy to use. The large colour display, presenting all information in plain text and the concise, multilingual menu guidance are proof of this. They make the TOPAX DX easy to understand and operable. The integrated online help adds to its user friendliness.

The access possibilities to the actual measuring and control values are extensive: All current measurement data and controller values are displayed in the main view. They can also be displayed in the screen writer for 24 h at various zoom levels. The data logger and the logbook use the memory card to archive the values. The memory card (Software TopReader) or the TOPAX DX can be read out or controlled per PC via RS 485 (Software TopView). The communication with a PLC controller is possible via RS 485 or Ethernet.

The maintenance and upkeep of the measuring unit with the sensors and the regulator is greatly facilitated with the menu-guided calibration with the subsequent validity check. Faulty sensors or errors in the calibration process are automatically recognized and displayed by the TOPAX DX.

### How it Works

The TOPAX DX has multiple digital as well as analogue inputs and different regulator-outputs. All measured water parameters can be regulated.

Very accurate and quick control is attained thanks to its microprocessor controlled measurement amplifier and controller. The connection of Lutz-Jesco sensors is carried out very simply via terminal blocks to the modules in the TOPAX DX.

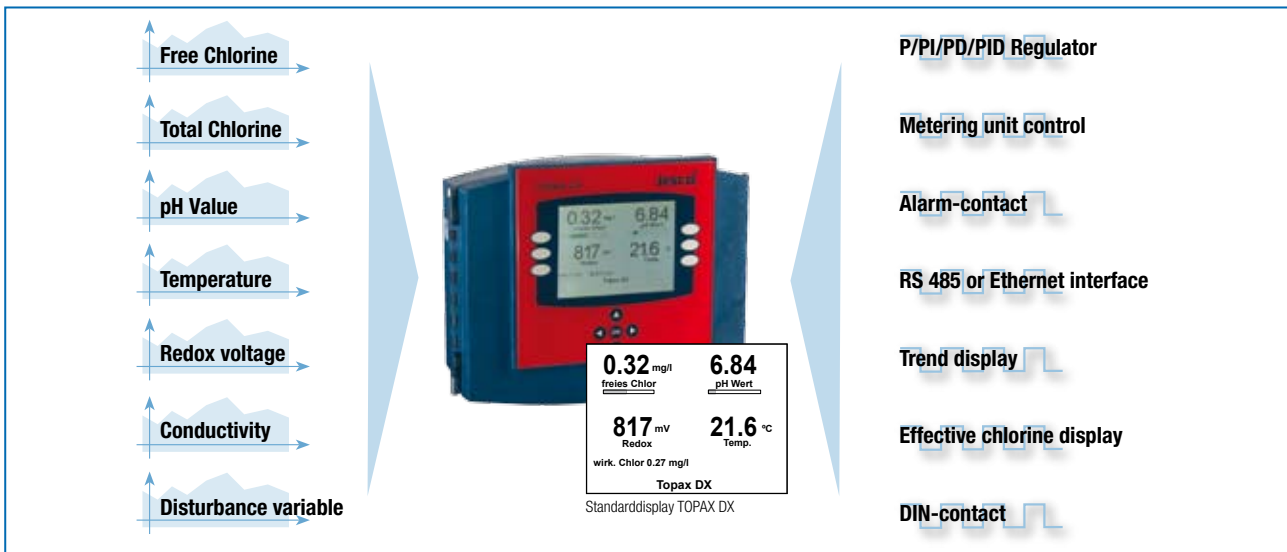
The start up is supported by the pre-selection of sensors displayed in plain text, which can be assigned in the most varied of outlet signals and thereby freely configured. Following the configuration the complete wiring diagram is displayed.



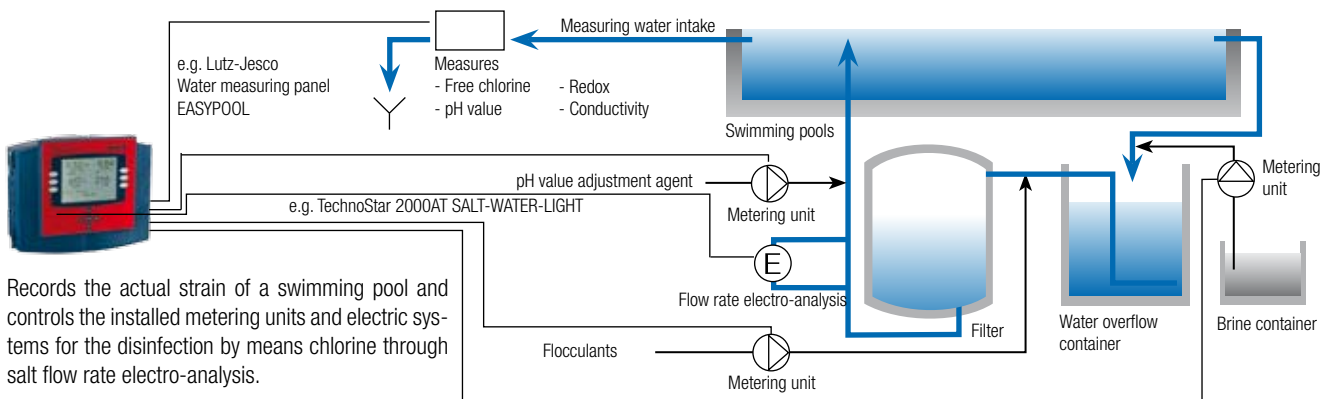
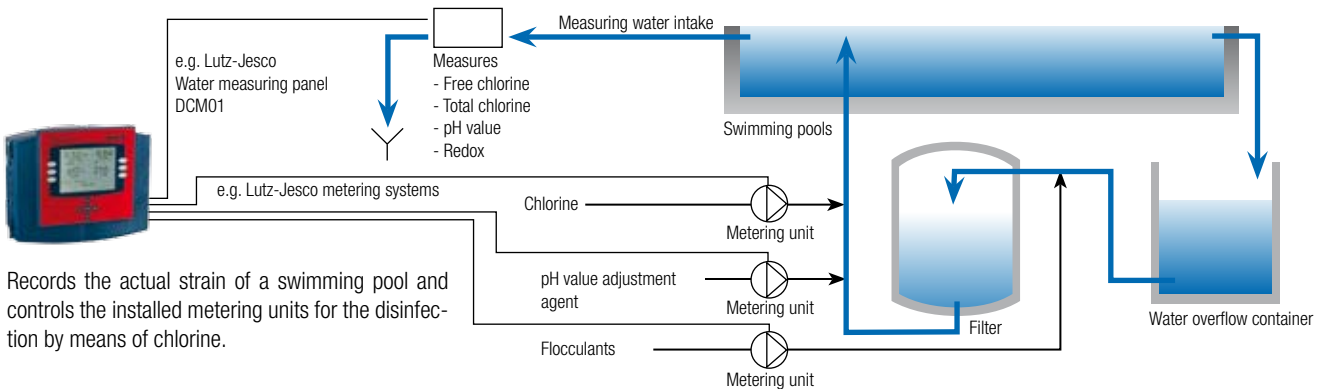
### In short

- Measuring free chlorine with potentiostatic, open amperometric or diaphragm covered measuring cell
- Measuring total chlorine, pH, temperature, redox and conductivity
- Display of the effective chlorine according to dissociation curve
- 6 analogue measured value inputs and 8 digital inputs, galvanically isolated
- 8 analogue outputs 0/4 ... 20 mA for measurement or control values, galvanically isolated
- 2 ... 4 controllers for free chlorine, pH value, bound chlorine and conductivity (brine dosing)
- Balancing the pH value of the chlorine value
- Balancing the temperature of the pH value
- Control of the flocculants metering
- Real-time with timers for autom. control of the ECO-mode, thereby saving energy
- DIN contact function
- Modbus protocol via RS 485 or Ethernet
- Memory card for data logger and logbook
- Very easy to operate, guided start up
- Large display with operator guidance in plain language, a flat, multilingual menu structure and context oriented online help
- Glass surface with touch-sensitive keypad
- Integrated 24 h screen writer
- Display of the quality of the measuring cells during calibration
- Validity check during calibration
- Sensor monitoring
- Extensive alarm function

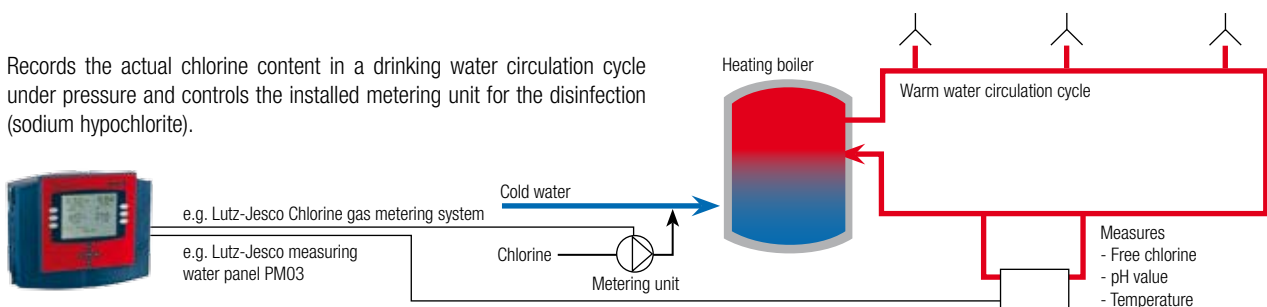
## Measurement inputs and main functions of the TOPAX DX



## Application of the TOPAX DX



Records the actual chlorine content in a drinking water circulation cycle under pressure and controls the installed metering unit for the disinfection (sodium hypochlorite).



## Technical data (depending on model)

|  |   |
|--|---|
| Display and operating elements   | Colour display with graphical capabilities<br>5.7 inch, 320 x 240 pixels with background lighting<br>6 sensor keys to navigate the menu<br>5 sensor keys to control the cursor  |
| Measuring input of free chlorine<br>Measuring cell-options   | Open amperometric measuring cells, measuring range adjustable from 0 ... 10 mg/l<br>Potentiostatic measuring cells, measuring range adjustable from 0 ... 2 mg/l<br>Diaphragm covered measuring cells, type 4 ... 20 mA, measuring range according to the measuring cell installed  |
| Further measurement inputs   | <ul style="list-style-type: none"> <li>• pH value, measuring range: pH 0 ... 14</li> <li>• Redox potential, measuring range: 0 ... 1000 mV</li> <li>• Temperature, measuring range: -10 ... +100 °C</li> <li>• Total chlorine, 4 ... 20 mA input, diaphragm covered measuring cell, 24 VDC supply of the measuring cell</li> <li>• Conductivity, 4 ... 20 mA input, with separate measurement amplifier</li> </ul>  |
| Digital inputs   | Inputs for: <ul style="list-style-type: none"> <li>• Pre-alarm and main alarm of the metering container metering pump 1 and metering pump 2</li> <li>• Filter cleaning-cut off of the regulating function without alarm</li> <li>• Measuring water deficiency of the regulating function with alarm (external cut off)</li> <li>• Night reduction</li> </ul>  |
| Connection of the in- and outputs  | By means of terminal blocks, max. 1 mm <sup>2</sup>   |
| Regulating characteristic for 4 inputs (free chlorine, bonded chlorine, conductivity and pH value) | P, PI, PD or PID performances<br>Fixed value regulation, standard channel selectable, disturbance variable feed forward, 2-sided control  |
| Disturbance variable input   | 0/4 ... 20 mA programmable, intervention of the disturbance variable 0.1 ... 10 times amplified   |
| Standard outputs (each as per the configuration)   | 3 digital outputs, optocoupler, 48 V DC; 250 mA, pulse frequency 10 ... 200 pulses/min<br>5 relay outputs programmable as: <ul style="list-style-type: none"> <li>• IN/OUT</li> <li>• Pulse frequency 10 ... 100 pulse/min</li> <li>• Pulse length 10 ... 120 seconds</li> <li>• 3-point steps outputs with setting feedback signal, value of the potentiometer 1 ... 10 kOhm</li> </ul> 4 analogue outputs, 0/4 ... 20 mA, max. working resistance 500 Ohm<br>Ethernet network, Modbus TCP/IP, 0 ... 100 %, for products of the manufacturer |
| Control output to control the flocculants pump   | Relay output, optocoupler output or continuous output 0/4 ... 20 mA (burden 500 Ohm)  |
| Alarm outputs  | Relay output as collective alarm for the measuring size of free and bonded chlorine, pH value, redox potential, temperature and conductivity as potential free changer<br>Measuring value alarm<br>Min. and max. alarm freely adjustable. Time delay adjustable: max. 200 minutes<br>Safety shut off<br>To prevent over metering (Y-alarm), time delay adjustable: max. 200 minutes   |
| Current outputs for remote transfer of the measured value to the inputs                            | 6 current outputs, 0/4 ... 20 mA, geometric spreading possible, max. burden 500 Ohm, potential-free<br>Significant geometric spreading:<br>>50% during measurement input of free chlorine and 0/4 ... 20 mA<br>>10% during measurement input of pH value and redox potential  |
| Interface  | Modbus protocol via RS 485 or Ethernet  |
| Load capacity of the relay   | 230 V / 50 Hz, 3 A  |
| Degree of protection   | IP 65 with locked filter cap  |
| Surrounding temperature  | -5 °C ... +45 °C  |
| Supply voltage   | 90 ... 264 VAC, short circuit and overload-proof  |
| Capacity intake  | 24 VA   |
| Housing dimensions   | 302 x 231 x 107 mm (W x H x D) wall mounted unit  |
| Weight   | 2 ... 2.5 kg  |

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## Model variants

The TOPAX DX is available in several different variations and configuration. The following 5 variants are standard:

| Order no.   | TOPAX DX                   | 40100001 | 40100002 | 40100003 | 40100004   | 40100005   |
|---|----------------------------|----------|----------|----------|------------|------------|
|   | TOPAX DX Net (Ethernet)    | 40100110 | 40100111 | 40100112 | on request | on request |
| Inputs  |                            |          |          |          |            |            |
| Unit 78403 (5-way input circuit board)  |                            | X        | X        | X        | X          | X          |
| Unit 78403 (3-way input circuit board)  |                            |          | X        | X        | X          | X          |
| Free chlorine   | Measuring cell (optional): |          |          |          |            |            |
|   | Amperometric               | X        | X        |          | X          |            |
|   | Potentiostatic             |          | X        | X        | X          | X          |
|   | Diaphragm covered          | X        | X        |          | X          |            |
| pH value  |                            | X        | X        | X        | X          | X          |
| Redox potential   |                            | X        | X        | X        | X          | X          |
| Temperature   |                            | X        | X        | X        | X          | X          |
| Setting feedback with 3-point-steps controller  |                            | 1        | 2        | 2        | 2          | 2          |
| Measurement of total chlorine with a diaphragm covered measuring cell   |                            |          |          | X        |            | X          |
| Measurement of conductivity with a measurement amplifier  |                            |          |          |          | X          | X          |
| Outputs   |                            |          |          |          |            |            |
| Unit 78399 (output circuit board)   |                            | X        | X        | X        | X          | X          |
| Controller with 3-point-step output / relay output (pulse length / pulse frequency / ON/OFF) or analogue output 0/4 ... 20 mA |                            | 1        | 2        | 2        | 2          | 2          |
| Controller with relay output (pulse length / pulse frequency / ON/OFF) or analogue output 0/4 ... 20 mA                       |                            | 1        |          | 1        | 1          | 2          |

## Options

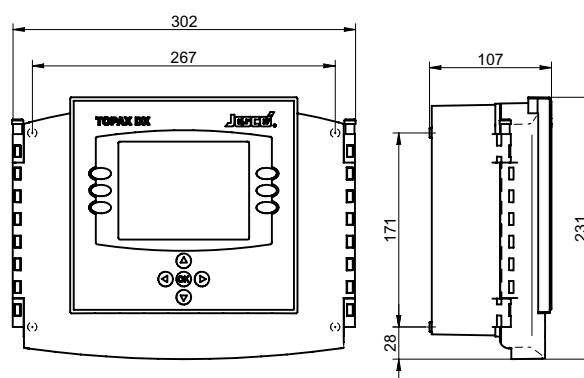
| Description  | Order no. |
|--|-----------|
| Interface RS 485   | 78406     |
| Expansion module for measuring the total chlorine content and controlling bonded chlorine (without measuring cell) | 78438     |
| Expansion module for measuring and controlling the conductivity (without measurement amplifier or measuring cell)  | 78439     |

## Scope of Delivery

- TOPAX DX
- Tool (M4 screw) to open the housing
- Memory card
- Mounting material
- Operating manual
- Measurement protocol
- Terminal plan for the sensors
- pH and Redox single-rod measuring cell (optional)
- Cable connection for the electrode (optional)

The product is delivered as a free-standing unit or mounted on a water measurement panel.

## Dimensional figure



All measurements are given in mm

TOPAX® is a registered trademark of Lutz-Jesco GmbH, Wedemark.