

Process Controller E2

Dual-channel display, calibration and control unit



Basic description

Process Controller E2 is a unit designed for numerical and graphical display of data from connected sensors, for calibration of these sensors and for control of connected technology using internal relays and current outputs 4-20 mA. The two-channel design allows the simultaneous connection of sensors of two identical or different quantities and thus reduces the purchase price per measuring point.

The measured values are continuously stored in the internal memory of the device and can be transferred to the server via the internal GPRS module (version E2/G).

The large touch screen and fingerboard keyboard contribute to easy and intuitive operation of the unit. A clear control MENU in several language versions also helps.

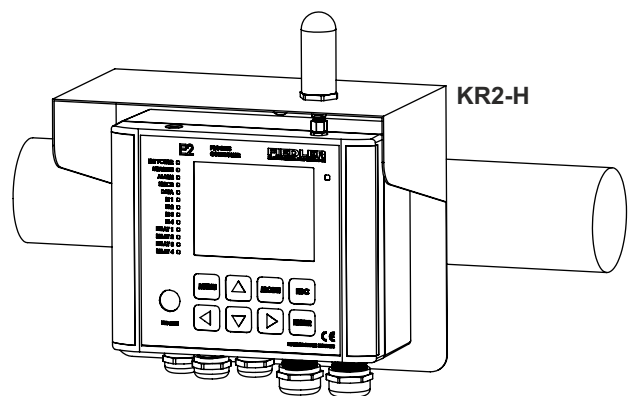
The robust design of the metal housing with high IP67 protection and a number of self-diagnostic procedures contribute to the high operational reliability of this universal unit.

A stainless steel bracket is also available for quick installation of the unit, which also forms a protective cover for the unit. It is attached to a railing or pole using brackets.

Application

- Monitoring and control of technological processes in water supply and industry
- Display of measured values, calibration of sensors and electrochemical probes
- Acquisition and collection of data for subsequent evaluation

- *Display of numerical values and graphs: dissolved oxygen, pH, REDOX, turbidity, conductivity, ISE, temperature, ...*
- *Simultaneous connection of two sensors*
- *One or two point calibration of connected sensors, password access*
- *Touch color display, controlled brightness*
- *Intuitive MENU, language versions*
- *4x PID control of controlled technology*
- *2x active separate output 4-20 mA*
- *4x user-adjustable relays*
- *Simulation of outputs in manual mode*
- *Interface: 1x USB, 2x RS485 (Modbus)*
- *Supply voltage 24 V DC or 230 V AC*
- *Backup power from internal battery.*
- *Extensive self-diagnostics (voltage and current monitoring, humidity, ...)*
- *Integrated data logger with real time for recording measured data*
- *Recording events in the station log*
- *Internal GSM/GPRS data module (E2/G)*
- *Sending warning SMS (exceeding limits, self-diagnostics - E2/G)*
- *Visualization of measured data in the form of graphs and tables on the server (E2/G)*
- *Data access and remote parameterization via web browser (E2/G)*
- *High protection IP67, solid metal casting*



Mounting bracket KR2-H (for horizontal construction)
Mounting bracket KR2-V (for vertical supporting structure)

Basic functions and features

Connection of sensors and display of measured values

- Connection of sensors via RS485 (ModbusRTU or FINET)
- Two measuring channels reduce the price per measuring point
- Joint display of temperature and main measured quantities
- Possibility of simultaneous display of values of both channels in one screen or cyclic alternation of measured values and graphs
- Display of preset limits in the graphical display
- Control of the unit via touch screen or keyboard
- Clear control MENU in several language versions

PID control

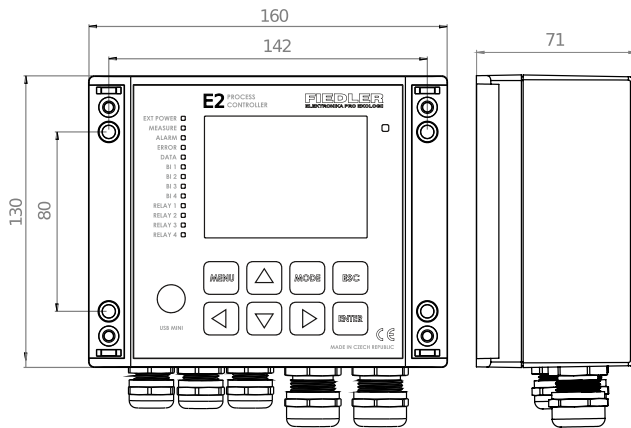
- Two adjustable controllers with mode selection - P - PI - PID
- Control of binary (relay) or analog (4-20 mA) output
- Recorder status of the controller into a binary channel

Binary outputs - relays:

- Two classic relays, switching contact 250 V / 4 A, open at rest
- Two solid state relays, output 0/12 V-2A, at rest 0 V
- Control of other relays in expanding external modules
- Limit, time and logic control of own and external relays (AND, NAND, OR, XOR, NOR functions, exit and arrival delay, blower alternation and fault trip function)

Analog outputs 4-20 mA

- Two active 4-20mA current outputs separated from the power supply
- Output settings 0/4 - 20 mA, resolution <0.001 mA
- Possibility to control other current outputs in external modules



Recommended sensor types

Oxygen dissol. - optical method:
probe **ESKO12** (Modbus RTU)
range: 0 až 20,00 mg/l



Oxygen dissol. - Clark sensor:
probe **ESK12** (FINET)
range: 0 až 20,00 mg/l



pH:
probe: **PH4851** (Modbus RTU)
range: 0,1 až 13,00 pH



ORP, ISE:
probe **ORP485** (Modbus RTU)
range: -2.000 až +2.000 mV



Turbidity: nephelometric sensor
probe **NTU S461** (Modbus RTU)
range: 0 až 4000 NTU



conductivity
probe **ESV11** (FINET)
range: 25 až 2000 uS/cm



Interface

- USB for parameterization and reading of archived data (mini)
- RS485 for connecting sensors and controlling external modules
- RS485 for data transfer to the superior system (Modbus RTU)

Data recording to internal memory

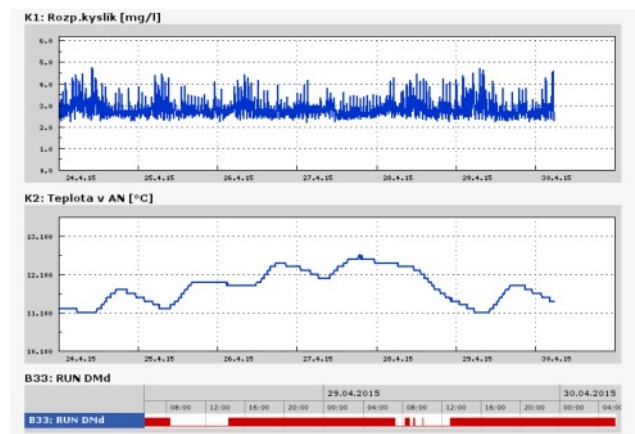
- Memory for > 500,000 values (more than a year recording data)
- Adjustable archiving interval from 10 sec to 24 hours
- Possibility to call up archived data on the display (graphs)
- Recording of the status of binary channels (runs and faults, ...)
- Recording of status events in the device operation log (power failures, sensor failures, received and sent SMS, ...)

Warning, info and control SMS system (E2/G only):

- Telephone directory for 24 recipients, grouping into 3 groups
- 24 adjustable warning SMS messages activated by reaching the set limit of the measured quantity, power failure, ...)
- Informative SMS compiled on the basis of command line or query SMS (current values, maximums, minimums, ...)
- Commands and SMS for control and simulation of outputs (binary and analog), forced sending of data to the server, ...)

GPRS (E2/G only)

- Automatic sending of data to the server at regular intervals
- Switch to more frequent transmissions after evaluation of the alarm condition
- Sending data directly to email or FTP server (daily reports)
- E2 / G parameterization and FW upgrade via server
- Backup of current parameter files on the server



Technical parameters

Number of measuring channels: 1 to 2 main quantities (pH, dissolved oxygen, redox, conductivity, ISE) + temperatures

Data memory capacity: 6 MB, cyclic scrolling

Display: RGB, 3.5", resolution 320x240 px., Controlled backlight

Keyboard: 8 fingerboards, mechanical press response

Binary inputs: 4 inputs, active state-switching with GND

Binary outputs: 2x relay 250 V, 4A; 2x half relay 0/12 VDC, 2A

Analog outputs: 2 active galvanically isolated 4-20 mA outputs

Optional power supply system: 12-24 VDC or 180-250 VAC/50 Hz

Operating time from the internal rechargeable battery: > 5 hours

Controlled power supply of connected sensors: 6 to 18 V DC

Self-diagnostics: current from the source and current taken by sensors, supply voltage, temperature and rel. humidity inside, ...

Real time clock: continuous synchronization via GPRS

GSM modem: Quad-band 850/900/1800 / 1900MHz (E2/G)

Working temperature range: -20 to +60 ° C

Dimensions (h x w x d): 130 x 160 x 85 mm

Weight: 1480 g including backup Li-Ion battery

Protection: IP67, metal casting