



M2001-EK (-EP, -ER)

Sets for absorbed oxygen, pH and ORP measuring

FIEDLER

Reliable
cost-effective
and widely
variable devices
for your
applications

Water level indicators

Open channels
flow rate meters

Oxymeters

PH-meters

Technology control

Data loggers

Monitoring

Telemetry



- *Easy controlling*
- *Easy sensor calibration*
- *Pre-set buffers for pH*
- *Fast single-point oxymeter's calibration on air*
- *Relay Alarm, Limit, Washes*
- *Internal PI regulator with outputs on relay*
- *Actual time and statistics (minima, maxima, latest calibration)*
- *Two current active outputs 4-20 mA*
- *Easy connection to M4016 unit including data transfer to the Internet*
- *Large lighted display*
- *Reliable operating*
- *Low purchase cost*

Application

M2001-EK oxymeter, M2001-EP pH meter and Oxidation reduction-meter M2001-ER are sets determinate for continual measuring of absorbed oxygen, if you like pH or oxydation meter potential, in many areas of water service:

- Sewage works
- Technological processes in manufacturing
- Water quality monitoring on brooks and rivers
- Water works and water pumping stations
- Fishery

Basic description

Each measuring set consists of one visual M2001E calibration unit adjustable by program for measuring of absorbed oxygen, pH or oxydation meter potential and from sensor of measured physical value. These sensors have identical mechanical design, differ only in sensor (electrode) itself and in inner electronics adjusted to sensor that was used.

Thanks to usage of identical pieces for all three measuring sets was possible to lower price of machines and still keep massive design and reliability of measuring. Operation of more machines installed in one area is thanks to identical structure of control menu easier and digest for users as well.

It is possible to operate M2001E calibration unit from keyboard and from PC with MOST program. Normally, on a big two-line lightened screen a general measured values and temperature are displayed in turns.

Calibration of pH electrode or oxygen sensor is very easy and after stabilization of measured unit is realized by pushing of one button.

Bar sensors contain its own microprocessor operational unit and in some applications are able to communicate right with superior system, which is then used for their calibration.

Characteristics

M2001E calibration unit might contain up to two active current outputs 4-20mA. One is for general measured value and second, optional, for temperature or as another output of general value. It is possible to transfer all actual measured values with digital current loop DCL right into registered unit (telemetric station) M4016 and subsequently onto the Internet.

Relay alarm and relay Limit is possible to set so ever as bottom limit and as upper limit and as a window comparator on general measured value and on temperature. Both relays might be used for example for operating of a double speed blower including needed hysteresis.

Adjustable absorbing of measured value facilitates operating of frequency converter by output current loop, for example according to actual oxygen value, because it prevents from fast changes of rotations of converter.

Calibration of sensor for measuring of absorbed oxygen is possible to do on air with no necessity of zero point calibration. During calibration its also possible to set correction of static pressure.

Accessories and Price List

M2001-EK (oxymeter)	
Calibration unit and absorbed oxygen sensor	29.970,- CZK
M2001-EP (pH-meter)	
Calibration unit and pH sensor	28.650,- CZK
M2001-ER (redox-meter)	
Calibration unit and ORP sensor	28.700,- CZK
DE1	
Rustless holder of the sensor	860,- CZK
KR1	
Calibration unit holder and cover	1.180,- CZK
MK50	
Membrane for oxygen sensor	1.000,- CZK

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Full list of products and price list are available on:
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Water Supply
Hydro-meteorology
Science & Research

Calibration

- Aging of measuring electrode (sensor) is signalized by change of steepness of output signal displayed in percentage on display of the unit after each recalibration is done.
- Displaying of an actual stream size flowing in an oxygen sensor during recalibration enables to examine state of membrane and disclose its eventual blocking up or mechanical damage.
- M2001E unit enables to set a recalibration alarm, that warns operator after expiration of set number of days, with notice on display that there is a need to make a recalibration
- With help of programmable time relay "Oplachy" automatic cleaning of electrode (sensor) might be done. During wash and during calibration or recalibration the latest measured item remains on current output.
- Calibration procedure is accessible only through calibration password, that doesn't allow changing of another unit setting (double-level security even against unintentional resetting of unit parameters).
- Automatic record of date and time of calibration into unit log.

Design

Sensors ESK11, ESP11, ESR11

Beside electrode is a measuring and evaluating electronics placed in sensor. This electronics enables to connect sensor with calibration unit by four-conductor cable terminated with connector. This design makes sensor service, electrode calibration and its possible renewal easier.

Dimension (diameter x length): 63 x 1750 (1000) mm; (pH, oxydation reduction)

Sensor material: hostalen

Weight: 0,8 kg (unit), 3,5 kg (sensor)

Calibration and measuring unit M2001E

Regularly supplied connecting cable: polyurethane shield cable, length 3 meters, terminated with connector (IP67)

Maximum possible cable length: 500m

Serial interference: RS485: FINET protocol for connection of RS232 sensor: MOST program for connection of PC (unit setting and configuration, statistics loading)

Number of measured values: general (oxygen, pH, oxydation reduction) and temperature

Calibration coefficient setting and calculation: automatic calculation

Test mode: Relay and current outputs 4-20mA controlling

Running hours counter: time of switch on, time of switch off, sensor failures

Statistics: 5 times maximum and 5 times minimum including date and time of occurrence, average value, statistics initialization possibility

Real time clock: type deviation max. 160 sec/year

Display: alphanumeric 2/16 symbols 9 mm, controlled contrast

Keyboard: 3 fingerboards, mechanical response to pressing

Supply voltage: 10-30 VDC

Current consumption: Max. 90mA/24 VDC

Connected sensor supply: Connecting cable together with RS485 signals

Current output: active galvanic... 4-20mA, 16 bites distinction

Second current output: active 4-20mA output, 16 bites distinction

Relay Alarm, Limit, and Washes: switching contact 230VAC/4A

Working temperature limits: -20.... +50

Unit dimension (h/w/l): 220/160/115 mm

Sensor holder and unit cover material: rustless design

Covering: IP54 unit, IP68 sensor

Controlling and outputs

SW

- Digested and understandable MENU together with a large number of adjustable parameters enables to optimize measuring, considering needs of consecutive mechanisms (dosing pumps, one or two speed blowers, frequency converters) Parameters include for example absorbing quick changes of measured value or limits and hysteresis of its own and of external relay. M2001E calibration unit might operate 3 of its own and up to 12 external relays in SP06 switching units.
- One of its own relays is possible to set as an output of PI regulator. Regulator constants are set from MOST programs through RS232.
- Slip-on module of second current output 4-20mA is possible to use for temperature transfer or as another output of measured item.
- Each sensor is possible to operate even without a calibration unit. Sensor might be connected through RS485 series interface right to an appropriate controlling system, which enables data

Types of sensors

ESK11: absorbed oxygen measuring

Sensor: OC254 (Theta 90 producer)

Flow signal of sensor: 0-100nA

Measuring range: 0-30mg/l

Temperature compensation range: 0-50

Pressure compensation range: 900-1100mbar

Distinction: 0,001 mg/l

Accuracy: better than 1,0 % FS



OC254

ESP11: measurement of pH

Measuring electrode: HC253-C (Theta 90 producer), combined, self-cleaning electrode with increased mechanical resistance

Measuring range: 1-13 pH

Temperature compensation range: 0-50

Distinction: 0,001 pH

Accuracy: 0,5 % FS

ESR11:

Oxydation-reduction potential measuring

Measuring electrode: 0RC253-C (Theta 90 producer)

Measuring range: -1200mV...+1200mV

Working temperatures range: -20...+70

Working pressure: 30-300 kPa

Distinction: 0.1mV

Accuracy: 0,5% FS

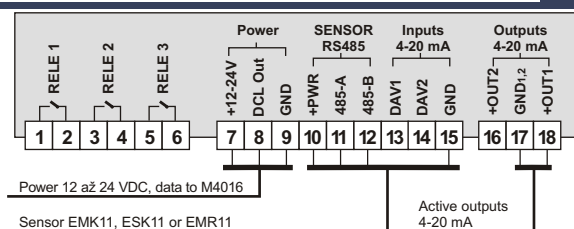
Measurement of temperatures

°C

Sensor: Pt100, rustless cover, sensor is included in each set

Measuring range: -20.... +60

Distinction: 0.1



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