OMB 452UNI



OMB 452UNI



The OMB 452 model series are panel programmable three-color bargraphs with auxiliary display and adjustable LCD scale.

Type OMB 452UNI is a multifunction instrument with the option of configuration for 8 various input options, easily configurable in the instrument menu.

The instrument is based on a single-chip microcontroller with multichannel 24-bit sigma-delta converter, which secures high accuracy, stability and easy operation of the instrument.



UNIVERSAL BARGRAPH

- BARGRAF 50 LED WITH DISPLAY AND LCD SCALE
- MULTIFUNCTION INPUT (DC, PM, RTD, T/C, DU)
- DIGITAL FILTERS, TARE, LINEARIZATION
- SIZE OF DIN 160 x 80 MM
- POWER SUPPLY 10...30 V AC/DC; 80...250 V AC/DC
- Option Comparators • Data output • Analog output Measured data record

OMB 452UNI

DC VOLTMETER AND AMMETER PROCESS MONITOR OHMMETER THERMOMETER FOR PT/CU/NI/THERMOCOUPLES DISPLAY UNIT FOR LINEAR POTENTIOMETERS

OPERATION

The instrument is set and controlled by two control keys and a turn knob located on the front panel. All programmable settings of the instrument may be performed in three adjusting modes:

LIGHT MENU is protected by optional number code and contains solely items necessary for instrument setting.

PROFI MENU is protected by optional number code and contains complete instrument settina.

 $\ensuremath{\mathsf{USER}}$ $\ensuremath{\mathsf{MENU}}$ may contain arbitrary items from the programming menu (LIGHT/ PROFI), which determine the right (see, change). Access w/o password.

Standard equipment is the OM Link interface, which together with operation program enables modification and filing of all instrument settings as well as performing firmware updates (with OML cable). The program is also designed for visualization and filing of measured values from more instruments.

All settings are stored in the EEPROM memory (settings hold even after the instrument is switched off).

OPTION

COMPARATORS are assigned to monitor four or eight limit values with relay output. For each input the user may select an arbitrary number of relays with the regime: LIMIT/BATCH/FROM-TO. The limits have adjustable hysteresis within full range of the display and selectable delay of the switch-on within the range of 0...99 s. Reaching the preset limits is signalled by LED and simultaneously by the switch-on of the relevant relay.

DATA OUTPUTS are for their rate and accuracy suitable for transmission of the measured data for further projection or directly into the control systems. We offer an isolated RS232 and RS485 with the ASCII/MESSBUS/MODBUS/PROFIBUS nrotocol

ANALOG OUTPUTS will find their place in applications where further evaluating or processing of measured data is required in external devices. We offer universal analog output with the option of selection of the type of output - voltage/current and the option of assigning it to arbitrary input. The value of analog output corresp. with the displayed data and its type and range are selectable in menu.

MEASURED DATA RECORD is an internal time control of data collection. It is suitable where it is necessary to register measured values. Two modes may be used. FAST is designed for fast storage (40 records/s) of all measured values up to 8 000 records. Second mode is RTC, where data record is governed by Real Time with data storage in a selected time segment and cycle. Up to 266 000 values may be stored in the instrument memory. Data transmission into PC via serial interface RS 232/485 and OM Link

STANDARD FUNCTIONS

PROGRAMMABLE PROJECTION

Selection: of input type and measuring range Measuring range: adjustable, either fixed or with automatic change (OHM) Setting: manual, optional projection on the display may be set in menu for both limit values of the input signal, e.g. input 0...10,00 V > 0...850.0 Projection: 50 LED + 6-digit auxiliary display Scale: LCD, freely programmable

EXCITATION

Range: 5...24 VDC/1,2 W, for feeding sensors and transmitters

COMPENSATION

Of conduct (RTD, OHM): automatic (3- or 4-wire) or manual in menu (2-wire) Of conduct in probe (RTD): internal connection (conduct resistance in measuring head) Of CJC (T/C): manual or automatic, in menu it is possible to perform selection of the type of thermocouple and compensation of cold junctions, which is adjustable or automatic

FUNCTIONS

(temperature of terminals)

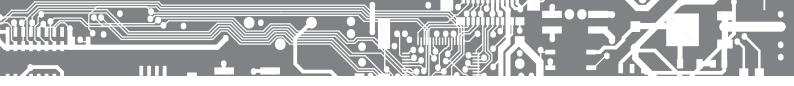
Linearization: linear interpolation in 50 points (only via OM Link) Tare: designed to reset display upon non-zero input signal Min./max. value: registration of min./max. value reached during measurement Peak value: the display shows only max. or min. value Mathemat. operations: polynom, 1/x, logarithm, exponential, power, root, sin x, and operations between inputs - sum, quotient

DIGITAL FILTERS

Floating average: from 2...30 measurements Exponential average: from 2...100 measurements Arithmetic average: from 2...100 measurements Rounding: setting the projection step for display

EXTERNAL CONTROL

Lock: control keys blocking Hold: display/instrument blocking Tare: tare activation Resetting MM: resetting min/max value



TECHNICAL DATA

DC	Range	optional in configuration menu				
	•	±60 mV	> 100 MΩ	Input U		
		±150 mV	> 100 MΩ	Input U		
		±300 mV	> 100 MΩ	Input U		
		±1 200 mV	> 100 MQ	Input U		
РМ	Range	optional in configuration menu				
		020 mA	< 400 mV	Input I		
		420 mA	< 400 mV	Input I		
		±2 V	1 MΩ	Input U		
		±5 V	1 MΩ	Input U		
		±10 V ±40 V	1 MΩ 1 MΩ	Input U Input U		
онм	Range		uration menu with a			
	Connect.	2, 3 or 4 wire				
RTD	Туре	optional in configuration menu				
		EU > 100/500/1 000 0, with 3 850 ppm/°C-650°450°C US > 100 0, with 3 920 ppm/°C -50°450°C RU > 50 0, with 3 910 ppm/°C -200°1100°C RU > 100 0, with 3 910 ppm/°C -200°450°C				
	Connect.	2, 3 or 4 wire				
Ni	Туре	optional in configuration menu Ni 1 000/10 000 with 5 000 ppm/°C -50°250°C Ni 1 000/10 000 with 6 180 ppm/°C -50°250°C				
	Connect.	2, 3 or 4 wire				
		optional in configu	uration menu			
Cu	Туре	Cu 50/100 with 4 Cu 50/100 with 4				
Cu	Type Connect.	Cu 50/100 with 4				
		Cu 50/100 with 4 Cu 50/100 with 4	280 ppm/°C			
	Connect.	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire	280 ppm/°C	-200°200°C		
	Connect.	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire optional in configu	280 ppm/°C	-200°200°C -200°900°C		
	Connect.	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire optional in configu J (Fe-CuNi)	280 ppm/°C	-200°200°C -200°900°C -200°1 300°C		
	Connect.	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire optional in configu J (Fe-CuNi) K (NiCr-Ni)	280 ppm/°C	-200°200°C -200°900°C -200°1300°C -200°400°C		
	Connect.	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire optional in configu J [Fe-CuNi] K [NiC-Ni] T [Cu-CuNi] E [NiCr-CuNi] B [PtRh30-PtRh6]	280 ppm/ ^s C	-200°200°C -200°900°C -200°1300°C -200°1300°C -200°400°C -200°690°C		
	Connect.	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire optional in configu J (Fe-CuNi) T (Cu-CuNi) E (NICr-CUNi) B (PRh30-PRh6) S (PRh10-Pt)	280 ppm/ ^s C	-50°200°C -200°200°C -200°300°C -200°1300°C -200°400°C -200°690°C 300°1820°C -50°1760°C		
	Connect.	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire optional in configu J [Fe-CuNi] K [NiC-Ni] T [Cu-CuNi] E [NiCr-CuNi] B [PtRh30-PtRh6]	280 ppm/ ^s C	-200°200°C -200°900°C -200°1300°C -200°400°C -200°690°C 300°1820°C		
	Connect.	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire optional in configu J (Fe-CuNi) T (Cu-CuNi) E (NICr-CUNi) B (PRh30-PRh6) S (PRh10-Pt)	280 ppm/ ^s C	-200°200°C -200°1300°C -200°1300°C -200°400°C -200°690°C 300°1760°C -50°1760°C		
	Connect.	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire optional in configu J (Fe-CuNi) T (Cu-CuNi) E (NiCr-CUNi) E (NiCr-CUNi) B (PtRh30-PtRh6) S (PtRh10-Pt) R (Pt13Rh-Pt)	280 ppm/ ^s C	-200°200°C -200°900°C -200°1300°C -200°400°C -200°690°C 300°1820°C -50°1760°C		
Cu T/C	Connect.	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire optional in configu J (Fe-CuNi) K (NiCr-Ni) T (Cu-CuNi) E (NiCr-CuNi) B (PHRh30-PHRh6) S (PHRh30-Pt) R (PH3Rh-Pt) N (Dmegalloy) L (Fe-CuNi)	280 ppm/ ^s C	-200°200°C -200°900°C -200°1300°C -200°690°C 300°1820°C -50°1740°C -50°1740°C -200°1300°C -200°900°C		
T/C	Connect. Type P. supply	Cu 50/100 with 4 Cu 50/100 with 4 2, 3 or 4 wire optional in configu J (Fe-CuNi) K (NIC-NI) T (Cu-CuNi) E (NIC-CUNi) B (PHRh30-PHRh6) S (PHRh30-PHRh6) S (PHRh30-PHRh7) N (Omegalloy) L (Fe-CuNi) 2 VDC/6 mA, Pote 3 inputs, on cont The following fur	280 ppm/°C aration menu	-200°200°C -200°1300°C -200°1300°C -200°400°C -200°1820°C -300°1820°C -50°1760°C -200°1300°C -200°300°C e > 500.0 igned:		

nc Range optional in configuration menu ±0,1 A +0.25 A

Range	ophonai in configuration menu				
	±0,1 A	< 300 mV	Input I		
	±0,25 A	< 300 mV	Input I		
	±0,5 A	< 300 mV	Input I		
	±1 A	< 30 mV	Input I		
	±5 A	< 150 mV	Input I		
	±100 V	20 MΩ	Input U		
	±250 V	20 MΩ	Input U		
	±500 V	20 MΩ	Input U		

OPTION "B" 3x Pl

OPTION "A"

M Range	optional in configuration menu				
	020 mA	< 400 mV	Input 2, 3, 4 - I		
	420 mA	< 400 mV	Input 2, 3, 4 - I		
	±2 V	1 MΩ	Input 2, 3, 4 - U		
	±5 V	1 MΩ	Input 2, 3, 4 - U		
	±10 V	1 MΩ	Input 2, 3, 4 - U		
	±40 V	1 MΩ	Input 2, 3, 4 - U		

PROJECTION

Bargraph display: 50 + 50 LED, upper row displays the input value, the lower one indicates the set limits

Bar color: red/green/orange

Scale: LCD backlif and freely programmable Auxiliary display: -999...9999 + 99, single color 14-segment LED

Digit height: 14mm (4 digits) + 10 mm (2 digits) Display color: red or green

Description: the last two characters on the display can be used to describe the measured quantities

Decimal point: adjustable - in menu Brightness: adjustable - in menu

INSTRUMENT ACCURACY

TK: 50 ppm/°C Accuracy: ±0,1% of range + 1 digit (for proj. 9999 and 5 measur/s) ±0,15% of range + 1 digit RTD, T/ RTD, T/C

Accuracy of cold junction measur.: ±1,5°C

Rate: 0,1...40 measur./s

Overload capacity: 2x; 10x (t < 30 ms) - not for > 250 V and 5 A **Resolution (RTD, T/C):** 1°/0,1°/0,01°C Line compensation: max. 30 Q (RTD)

Cold junction compens.: adjustable -20°...99°C or automatic Linearization: linear interpolation in 50 points (only via OM Link) Digital filters: Exp./Floating/Arithm. average, Rounding Functions: Ofset, Min/max value, Tare, Peak value, Mat. operations Data record: measured data record into instrument memory

RTC - 15 ppm/°C, time-date-display value < 266k data FAST - display value < 8k data OM Link: Company communication interface for operation, setting and

update of instruments.

ORDER CODE

OMB 452UNI

Watch-dog: reset after 400 ms Calibration: at 25°C and 40 % r.h.

COMPARATOR

Type: digital, menu adjustable, contact switch-on < 30 ms Hysteresis mode: switching limit, hysteresis band "Lim ±1/2 Hys." and time (0...99,9 s) determining the switching delay Mode From-To: switching on and switching off interval Mode Batch: period, its multiples and time (0 ... 99.9 s), within which

the output is active Output: 1...4x relays Form C (250 VAC/50 VDC, 3 A); 2x/4x open collector (30 VDC/100 mA)

DATA OUTPUTS

Protocol: ASCII, MESSBUS, MODBUS RTU, PROFIBUS DP Data format: 8 bit + no parity + 1 stop bit (ASCII) 7 bit + even parity + 1 stop bit (Messbus)

Rate: 600...230 400 Baud, 0,0096...12 Mbaud (PROFIBUS)

RS 232: isolated

RS 485: isolated, addressing (max. 31 instruments)

ANALOG OUTPUTS

Type: isolated, programmable with a 16-bit D/A converter, output type and range are optional in the menu Non-linearity: 0.1% of range

TK: 15 ppm/°C

Rate: response to change of value < 1 ms Ranges: 0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA (comp. < 600 Ω/12 V or 1 000 Ω/24 V)

EXCITATION

Adjustable: 5...24 VDC/max. 1,2 W

POWER SUPPLY

 $\begin{array}{l} \textbf{Range: 10...30 V AC/DC, \pm 10 \%, PF \geq 0.4, I_{STP} < 40 A/1 ms, isolated \\ \textbf{80...250 V AC/DC, \pm 10 \%, PF \geq 0.4, I_{STP} < 40 A/1 ms, isolated \\ \end{array}$ Consumption: < 16 W/16 VA

Power supply is protected by a fuse inside the instrument

MECHANIC PROPERTIES

Material: Noryl GFN2 SE1, incombustible UL 94 V-I Dimensions: 160 x 80 x 80mm (w x h x d) Panel cutout: 150 x 70mm (w x h)

OPERATING CONDITIONS

Connection: connector terminal blocks, section < 1,5/2,5 mm² Working temperature: -20°...60°C Storage temperature: -20°...80°C

Protection: IP64 (front panel only) El. safety: EN 61010-1, A2

Dielectric strength: 4 kVAC per 1 min test between supply and input

4 kVAC per 1 min test between supply and data/analog output 4 kVAC per 1 min test between input and relay output 2,5 kVAC per 1 min test between input and data/analog output

Insulation resistance: for pollution degree II, measuring cat. III power supply > 670 V (PI), 300 V (DI) input, output, PN > 300 V (PI), 150 V (DI)

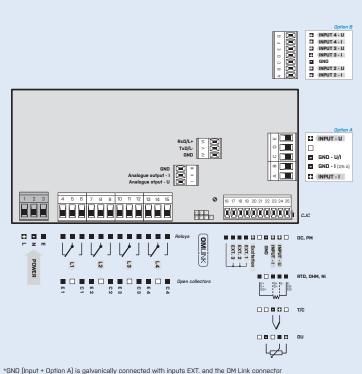
EMC: EN 61326-1

Seismic capacity: IEC 980: 1993, par. 6

SW validation: Class B, C in compl. with IEC 62138, 61226

PI - Primary insulation, DI - Double insulation

CONNECTION



e of Option B we recommend to connect terminals GND (main board/addit. board) by ext. connection *In ca

Power supply 10 30 V AC/DC п 80...250 V AC/DC 1 Measuring range standard 0 ontion .A' Α в option "B" Comparators no 0 1x relay (Form C) 1 2 2x relays (Form C) 3x relays (Form C) 3 4 4x relays (Form C) 2x open collector 5 4x open collector 6 Analog output 0 no yes (compensation < 600 Ω/12 V) 1 yes (compensation < 1000 Ω/24 V) 2 0 Data output no RS 232 1 2 RS 485 MODBUS* 3 PROFIBUS 4 Excitation 1 yes Data record 0 no RTC 1 FAST 2 Display color red (14 mm) 1 2 green (14 mm) Specification customized version, do not fill in

SW validation - IEC 62138, IEC 61226

Basic configuration of the instrument is indicated in bold.

00