

# OMB 301



<b>OMB 301DC</b>	<b>DC VOLTMETER AND AMMETER</b>
<b>OMB 301PWR</b>	<b>AC NETWORK ANALYSER</b>
<b>OMB 301PM</b>	<b>PROCESS MONITOR</b>
<b>OMB 301OHM</b>	<b>OHMMETER</b>
<b>OMB 301RTD</b>	<b>THERMOMETER FOR Pt/Ni</b>
<b>OMB 301T/C</b>	<b>THERMOMETER FOR THERMOCOUPLES</b>
<b>OMB 301DU</b>	<b>DISPLAY UNIT FOR LINEAR POTENTIOMETERS</b>
<b>OMB 301UQC</b>	<b>UNIVERSAL COUNTER FREQUENCY METER</b>

## Description

The OMB 301 model series are programmable, three-color panel bargraphs with auxiliary display.

The instrument is based on an 8-bit processor and a precise A/D converter, that secures high accuracy, stability and easy operation of the instrument.

## Operation

The instrument is set and controlled by five control keys located on the front panel. All programmable settings of the instrument are realised in two adjusting modes.

**Configuration menu** (hereinafter referred to as CM) is protected by an optional number code and contains complete instrument setting.

**User menu** may contain arbitrary programming settings defined in „CM“ with another selective restriction (see, change)

Standard equipment is the OM Link interface, which together with operation program enables modification and filing of all instrument settings as well as perform firmware updates.

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

The measured units may be projected on the display.

## Extension

**Excitation** is suitable for feeding of sensors and transmitters. It has a galvanic isolation with continuously adjustable value in the range of 2...24 VDC.

**Comparators** are assigned to monitor two limit values with relay output. The limits have adjustable hysteresis within the full range of the display as well as selectable delay of the switch-on in the range of 0...99,9 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 protocol.

- **Horizontal bargraph 1 x 30 LED with display**
- **Digital filter, Tare**
- **Size of DIN 96 x 48 mm**
- **Power supply 230 VAC**

**OMLINK**

## Extension

- Dual comparator • Excitation • Data output • Analog output
- Power supply 24/110 VAC, 10...30 VDC

**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. The value of analog output corresponds with the displayed data and its type and range are selectable in CM.

## Standard functions

### PROGRAMMABLE PROJECTION

**Setting:** manual, in „CM“ optional projection on the display may be set for both limit values of the input signal

**Projection:** 30 LED + 6 digit auxiliary display

### COMPENSATION

**of conduct (RTD):** in „CM“ it is possible to perform compensation for 2-wire connection  
**of conduct in probe (RTD):** internal connection (conduct resistance in measuring head)  
**of CJC (T/C):** manual or automatic, in „CM“ it is possible to perform selection of the type of thermocouple and compensation of cold junctions, which is adjustable or automatic (temperature at the input brackets)

### DIGITAL FILTERS

**Radius of insensitiveness:** band of suppressed change of measured value

### FUNCTIONS

**Tare:** resetting display upon non-zero input signal

### EXTERNAL CONTROL

**Hold:** display/instrument blocking

**Lock:** control keys blocking

**Technical data**

**PROJECTION**

**Display:** 30 three-color LED with 6 digit auxiliary display, height 14 mm  
**Decimal point:** adjustable - in programming mode  
**Brightness:** adjustable - in programming mode

**INSTRUMENT ACCURACY**

**TC:** 100 ppm/°C  
**Accuracy:** ±0,15% of range + 1 digit  
 ±0,3% of range + 1 digit (AC, T/C)  
 ±0,01% of range + 1 digit (UC)  
**Rate:** 1,3...40 measurements/s  
**Overload capacity:** 10x (t < 30 ms) - not for 400 V and 5A; 2x  
**Measuring modes (PWR):** voltage (V<sub>RMS</sub>), current (A<sub>RMS</sub>), real power (W), frequency (Hz) and with calculation of Q, S, cos Ψ  
**Resolution:** 0,1 °C (RTD), 1 °C (T/C)  
**Watch-dog:** reset after 1,2 s  
**Functions:** HOLD, LOCK, digital filters, tare  
**OM Link:** Company communication interface for operation, setting and update of instruments  
**Calibration:** at 25 °C and 40% r.h.

**COMPARATOR**

**Type:** digital, adjustable in programming mode, contact switch-on < 30 ms  
**Limits 1 and 2:** -999...3999

**Hysteresis:** 0...999

**Delay:** 0...99,9 s  
**Output:** 2 relays with switching contact (250 VAC/30 VDC, 3 A)  
*On request SSR or open collector may be fitted*

**DATA OUTPUTS**

**Data format:** 8 bit + no parity + 1 stop bit (ASCII)  
 7 bit + even parity + 1 stop bit (DIN Messbus)  
**Rate:** 600...115 200 Baud  
**RS 232:** isolated  
**RS 485:** isolated, addressing (max. 31 instruments)

**ANALOG OUTPUTS**

**Type:** isolated, programmable with resolution of max. 10 000 points, analog output corresponds with the displayed data, type and range are selectable in CM  
**Non-linearity:** 0,2% of range  
**TC:** 100 ppm/°C  
**Rate:** response to change of value < 40 ms  
**Ranges:** 0...2/5/10 V, 0...5 mA, 0/4...20 mA (compensation of conduct < 600 Ω)

**EXCITATION**

**Adjustable:** 2...24 VDC/50 mA, isolated

PM

**POWER SUPPLY**

24, 110, 230 VAC, 50/60 Hz, ±10%, 5 VA  
 10...30 VDC/max. 300 mA, isolated  
*Power supply is protected by a fuse inside the instrument*

**MECHANIC PROPERTIES**

**Material:** Noryl GFN2 SE1, incombustible UL 94 V-1  
**Dimensions:** 96 x 48 x 120 mm  
**Panel cutout:** 90,5 x 45 mm

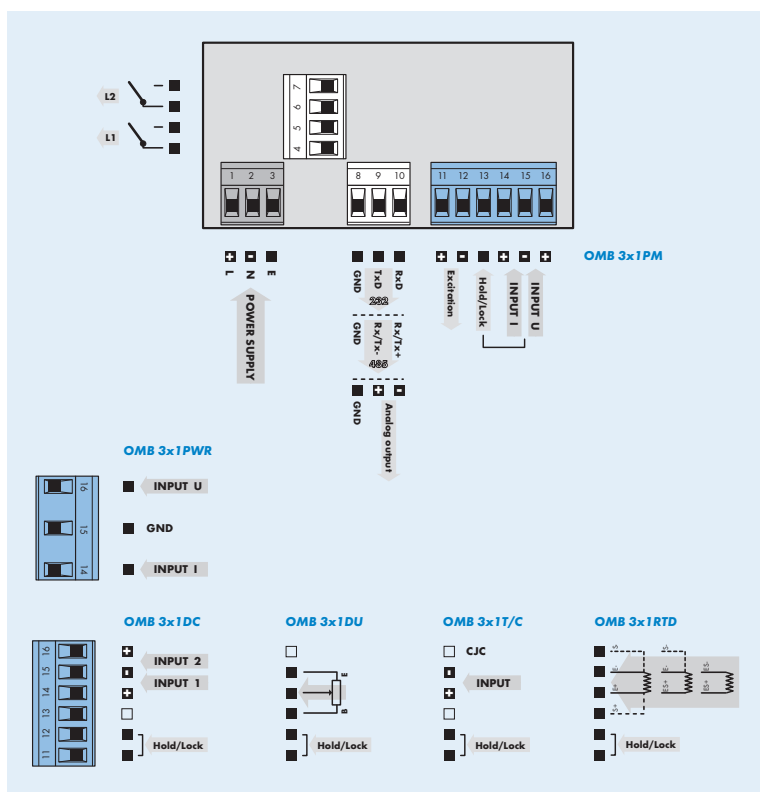
**OPERATING CONDITIONS**

**Connection:** connector terminal board, conductor section < 2,5 mm<sup>2</sup>  
**Stabilization period:** within 15 minutes after switch-on  
**Working temperature:** 0°...60°C  
**Storage temperature:** -10°...85°C  
**Protection:** IP65 (front panel only)  
**Construction:** safety class II  
**El. safety:** EN 61010-1, A2  
**Overvoltage category:** for pollution degree II  
 II. - instrument power supply, relay output (300 V)  
 II. - input, output (300 V)  
**EMC:** EN 61000-3-2+A12; EN 61000-4-2, 3, 4, 5, 8, 11; EN 550222, A1, A2

**Measuring ranges**

	DC	PWR	PWR	PM	OHM	RTD	T/C	DU	UQC
w/o				0/4...20 mA, 0...2/5/10 V			J, K, T, E, B, S, R, N	potentiometer > 500 Ω	TTL, NPN/PNP < 100 kHz
A		0...10 V			0...0,4/4/40 kΩ	Pt 100/500/1000 [EU]			
B		0...30 V			0...10/100 kΩ, 5...105Ω	Pt 100/500/1000 [US]			
C		0...60 V				Ni 1 000/10 000 [5000]			
D		0...100 V				Ni 1 000/10 000 [6180]			
E									
F									
G									
H			0...60 mV						
I	0...0,4/1/5 A								
J			0...150 mV						
K			0...300 mV						
L			0...39,99 mA						
M			0...399,9 mA						
N			0...1 A						
P			0...5 A						
R									
S		0...150 V							
T		0...250 V							
U	0...60/150/300 mV, 0...4/40/400 V	0...450 V							
Z	on request	on request	on request	on request	on request	on request			

**Connection**



**Order code**

**OMB 301**

Type

D	C	.	.	.	.	.	.	.	.
P	M	.	.	.	.	.	.	.	.
O	H	M	.	.	.	.	.	.	.
P	W	R	.	.	.	.	.	.	.
R	T	D	.	.	.	.	.	.	.
T	C	.	.	.	.	.	.	.	.
D	U	.	.	.	.	.	.	.	.
U	Q	C	.	.	.	.	.	.	.

Order code shall not include blank spaces!

<b>Power supply</b>	24 VAC/50 Hz	0			
	230 VAC/50 Hz	1			
	110 VAC/50 Hz	3			
	10...30 VDC, isolated	4			
<b>Measuring range, see table „Measuring ranges“</b>		?			
<b>Comparators</b>	no	0			
	yes	1			
<b>Output</b>	none	0			
	Analog	1			
	RS 232	2			
	RS 485	3			
<b>Excitation</b>	no	0			
	yes	1			
<b>Auxiliary display color</b>	red			1	
	green			2	