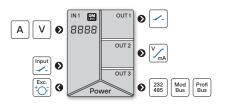
# **OM** 502DC



## DC V-A METER



# **OM** 502DC



- Range ±99,999 mV...±300,00 V ±999,99 μA...±5,0000 A
- Mathematic functions, Digital filters, Tare
- Accuracy 0.02 %
- Rate 100 meas./s
- Size of DIN 96 x 48 mm
- Power supply 10...30 V AC/DC; 80...250 V AC/DC

### Option

Comparators • Data output • Analog output • Data record

Type OM 502DC is a precision 5-digit programmable panel V-A meter. The instrument is based on a microcontroller and fast 24-bit  $\Delta\Sigma$  ADC, which secures high accuracy, stability and easy operation of the instrument.

#### STANDARD FUNCTIONS

#### PROGRAMMABLE PROJECTION

Setting: manual, optional projection on the display may be set in menu for both limit values of the input signal, e.g. input 0...300,0 V > 0...450.0 Projection: -99999...99999

#### EXCITATION

Range: 5...24 VDC/1.2 W, for feeding sensors and transmitters

#### FUNCTIONS

Linearization: non-linear signal is converted by a 50-point linear interpolation Min./max. value: registration of min./max. value reached during measurement Tare: designed to reset display upon non-zero input signal Peak value: the display shows only max. or min. value Mathemat. operations: polynom, 1/x, logarithm, exponential, power, root, sin x

### 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 Min/Max: resetting min./max. value

#### OPERATION

The instrument is set and controlled by five buttons 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 setting.

USER 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). The measured units may be projected on the display.

#### OPTION

**COMPARATORS** are assigned to monitor one, two, three or four limit values with relay output. As a user you can select the mode limit: LIMIT/BATCH/FROM-TO. 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/PROFIBUS protocols.

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. 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 (80 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 RS232/485 and OM Link.

## **TECHNICAL DATA**

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INPUT			
No. of inputs	1 The range is fi	xed	
DC Range	±999.99 μA	< 300 mV	Input I
	±9.9999 mA	< 300 mV	Input I
	±99.999 mA	< 300 mV	Input I
	±999.99 mA	< 50 mV	Input I
	±5.0000 A	< 10 mV	Input I
	±99.999 mV	1.8 MΩ	Input U
	±999.99 mV	1.8 MΩ	Input U
	±9.9999 V	1.8 MΩ	Input U
	±99.999 V	1.8 MΩ	Input U
	±300.00 V	1.8 MΩ	Input U

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## EXTERNAL INPUT

No. of inputs	3, on cont	act
Function	OFF LOCK HOLD PASS. TARE CL. TA. CL. M.M. SAVE CL. ME. CHAN. A. FIL. A. MAT. FN.	no function assigned control keys blocking measurement paused menu access blocking tare activation tare resetting resetting min/max value data recording start (FAST/RTC) value display ,Channel A" value display ,Channel A" value display ,Math. functions"

PROJECTION						
Display	-99999999999, single color 14-segment LED					
Digit height	14 mm					
Display color	red or green					
Description	last two characters on the display may be used for description of measured quantities					
Decimal point	adjustable - in menu					
Brightness	adjustable - in menu					
INSTRUMENT SPE						
TC	50 ppm/°C					
Accuracy	±0.02% of FS + 1 digit ±0.05% of FS + 1 digit ±0.0% of FS + 1 digit ±0.1% of FS + 1 digit above accuracies apply for projection 99999 and 10 meas./s					
Rate	1100 measurement/s					
Overload	10x (t < 30 ms), 2x not valid for 300 V and 5 A ranges					
Functions	offset, Min/max value, Tare, peak value, math. functions					
Digital filters	exponential / floating / arithmetic average, rouding					
Math functions	polynomial / inverse polynomial / logarithm / exponential / power / root					
Linearization	linear interpolation in 50 points setup only via OM Link					
Data record	RTC 15 ppm/°C, time-date-display value < 266k data					
OM Link	company communication interface for operation, setting and update of instruments					
Watch-dog	reset after 400 ms					
Calibration	at 25°C and 40 % r.h.					

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Adjustable

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No. of outputs	up to 4	up to 4			
Туре	digital, menu	ı adjustable			
Mode	WINDOW a	active above set value active in the set window / band active in set period			
Function Relays/OC		s closed in active mode s open in active mode			
Limits	-999999999	9999			
Hysteresis	09999999				
Delay	099.9 s				
Outputs	(250 VAC/30 12x relay w (250 VAC/50 2x bistable r	vith switching contact (Form C)			
Relays	1/8 HP 277 \	/AC, 1/10 HP 125 V, Pilot Duty D300			
ANALOG OUTPUT	s	* values apply for resistance load			
No. of outputs	1				
Туре		ustable with 16-bit DAC, and range is selectable			
TC	15 ppm/°C				
Non-linearity	0.1 % from F	S			
Accuracy	±0.02 % of	FS			
Rate		change of value < 1 ms			
Ranges	05 / 20 m/ compensatio	V, ±10 V, resistive load ≥ 1 kΩ A /420 mA, in < 600 Ω/12 V or 1000 Ω / 24 V error message (output < 3.2 mA)			
DATA OUTPUTS					
No. of outputs	1				
Protocol	ASCII, MESS	BUS, Modbus RTU, PROFIBUS DP			
Data format		rity + 1 stop bit (ASCII) parity + 1 stop bit (Messbus)			
Rate	300230 40 9 600 Baud.	10 Baud 12 Mbaud (PROFIBUS)			
RS 232	isolated				

5...24 VDC, < 1.2 W, isolated

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### POWER SUPPLY Range

Consump

	1030 V AC/DC, ±10 %, PF $\ge$ 0.4, I <sub>STP</sub> < 40 A/1 ms, isolated 80250 V AC/DC, ±10 %, PF $\ge$ 0.4, I <sub>STP</sub> < 40 A/1 ms, isolated <i>Protection by fuse inside the device.</i>
tion	< 8.0 W/7.8 VA

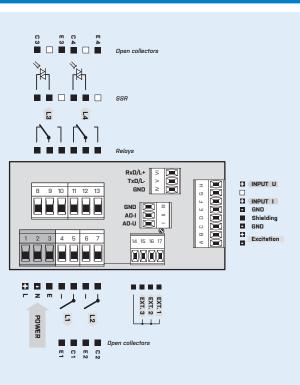
## MECHANIC PROPERTIES

Material	Noryl GFN2 SE1, incombustible UL 94 V-1, black
Dimensions	96 x 48 x 120 mm (w x h x d)
Panel cutout	90.5 x 45 mm (w x h)

### OPERATING CONDITIONS

Connection	connector terminal blocks, section < 1.5 / 2.5 mm <sup>2</sup>
Stabilization period	within 5 minutes after switch-on
Working temperat.	-20º60ºC
Storage temperat.	-20º85ºC
Working humidity	< 95 % r.v., non condensing
Protection	IP64, front panel only
Construction	safety class I
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 resist.*	for pollution degree II, measuring cat. III power supply, input > 670 V (PI), 300 (DI) input, output, excitation > 300 V (PI), 150 V (DI)
EMC	EN 61326-1, Industrial area
	IEC 980: 1993, par. 6

## CONNECTION



OM 502D	с -						1			-
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Power supply	1030 V AC/DC	0								
	80250 V AC/DC	1								
Measuring range	±99.999 mV		А							
	±999.99 mV		в							
	±9.9999 V		С							
	±99.999 V		D							
	±300.00 V		Е							
	±999.99 μA		К							
	±9.9999 mA		L							
	±99.999 mA		М							
	±999.99 mA		Ν							
	±5.0000 A		Р							
Comparators	none			0						
	1x relay (Form A)			1						
	2x relay (Form A)			2						
	3x relays (2x Form A + 1x Form C)			3						
	4x relays (2x Form A + 2x Form C)			4						
	2x open collector			5						
	4x open collector			6						
	2x open collector + 2x relays (Form C)			7						
	2x relays (Form C)			8						
	2x SSR			9						
	2x bistable relays			А						
	1x relay (Form C)			В						
Data output	none				0					
	RS 232				1					
	RS 485				2					
	Modbus*				3					
	PROFIBUS				4					
Analog output	no					0				
	yes (compensation < 600 $\Omega/12$ V)					1				
	yes (compensation < 1 000 Ω/24 V)					2				
Excitation	yes						1			
Data record	no							0		
	RTC							1		
	FAST							2		_
Display color	red								1	
Specification	green								2	