OM 502PM



PROCESS MONITOR



OM 502PM



- Range 0...5 mA; 0...20 mA; 4...20 mA ±2 V; ±5 V; ± 10V
- 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 502PM is a precision 5-digit programmable panel process monitor. 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 4...20 mA > 0...8500.0 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 (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 RS232/485 and OM Link.

TECHNICAL DATA

INPUT				PROJECTION
No. of inputs	1	adiustable in the instru		Display
		,		Digit height
PM Range	05 mA 020 mA	< 300 mV < 300 mV	Input I Input I	Display color
	420 mA	< 300 mV	Input I	Description
	±2 V ±5 V	1.8 MΩ 1.8 MΩ	Input U Input U	
	±10 V	1.8 MΩ	Input U	Decimal point

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 menu access blocking tare activation tare resetting resetting mir/max value data recording start (FAST/RTC) data recording start (FAST/RTC) value display "Channel A" value display "Channel A" filter value display "Channel A"

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
NSTRUMENT SPE	50 ppm/°C
Accuracy	±0.02% of FS + 1 digit
	above accuracies apply for projection 99999 and 10 meas./s
Rate	1100 measurement/s
Overload	10x (t < 30 ms), 2x
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 FAST display value < 8k data
OM Link	company communication interface for operation, setting and update of instruments
Watch-dog	reset after 400 ms

No. of outputs	up to 4		
Туре	digital, menu adjustable		
Mode	HYSTER. active above set value WINDOW active in the set window / band BATCH active in set period		
Function Relays/OC	CLOSE is closed in active mode OPEN is open in active mode		
Limits	-99999999999		
Hysteresis	0999999		
Delay	099.9 s		
Outputs	12x relay with switch-on contact (Form A) (250 VAC/30 VDC, 3 A)* 12x relay with switching contact (Form C) (250 VAC/50 VDC, 3 A)* 2x bistable relays (250 VAC/250 VDC, 3 A/0,3 A) 24x open collector (30 VDC/100 mÅ)		
Relays	1/8 HP 277 VAC, 1/10 HP 125 V, Pilot Duty D300		
No. of outputs	* values apply for resistance load		
Туре	isolated, adjustable with 16-bit DAC,		
Type	output type and range is selectable		
TC	15 ppm/°C		
Non-linearity	0.1 % from FS		
Accuracy	±0.02 % of FS		
Rate			
Rate	response to change of value < 1 ms		
Ranges	$\begin{array}{l} \mbox{response to Change of Value < 1 ms} \\ 02 / 5 / 10 V, \pm 10 V, resistive load \geq 1 \ \rm k\Omega \\ 05 / 20 \ \rm mA / 420 \ \rm mA, \\ \mbox{compensation < 600 } \Omega / 12 V \ \rm or 1000 \ \rm \Omega / 24 V \\ \mbox{Indication of error message (output < 3.2 mA)} \end{array}$		
Ranges	02 / 5 / 10 V, ±10 V, resistive load ≥ 1 kΩ 05 / 20 mA /420 mA, compensation < 600 Ω/12 V or 1000 Ω / 24 V		
Ranges	02 / 5 / 10 V, ±10 V, resistive load ≥ 1 kΩ 05 / 20 mA /420 mA, compensation < 600 Ω/12 V or 1000 Ω / 24 V		
Ranges	$\begin{array}{c} 0 \ldots 2 \ / \ 5 \ / \ 10 \ V, \pm 10 \ V, \text{resistive load} \geq 1 \ k\Omega \\ 0 \ldots 5 \ / \ 20 \ mA \ / \ 4 \ldots 20 \ mA, \\ compensation < 600 \ \varOmega/12 \ V \ r \ 1000 \ \Omega \ / \ 24 \ V \\ Indication \ of error \ message \ (output < 3.2 \ mA) \end{array}$		
Ranges DATA OUTPUTS No. of outputs	02 / 5 / 10 V, ±10 V, resistive load ≥ 1 kΩ 05 / 20 mA /420 mA, compensation < 600 Ω/12 V or 1000 Ω / 24 V Indication of error message (output < 3.2 mA)		
Ranges DATA OUTPUTS No. of outputs Protocol	02 / 5 / 10 V, ±10 V, resistive load ≥ 1 kΩ 05 / 20 mA /420 mA, compensation < 600 Ω/12 V or 1000 Ω / 24 V Indication of error message (output < 3.2 mA) 1 ASCII, MESSBUS, Modbus RTU, PROFIBUS DP 8 bit + no parity + 1 stop bit (ASCII)		

Range	1030 V AC/DC, ±10 %, PF \geq 0.4, I $_{\rm STP}$ < 40 A / 1 ms, isolated 80250 V AC/DC, ±10 %, PF \geq 0.4, I $_{\rm STP}$ < 40 A / 1 ms, isolated Protection by fuse inside the device.				
Consumption	< 8.0 W / 7.8 VA				
MECHANIC PROPER	TTIES				
Material	Noryl GFN2 SE1, incombustible UL 94 V-I, black				
Dimensions	96 x 48 x 120 mm (w x h x d)				
Panel cutout	90.5 x 45 mm (w x h)				
Connection	connector terminal blocks, section < 1.5 / 2.5 mm ²				
	connector terminal blocks, section < 1.57 2.5 mm ² within 5 minutes after switch-on				
Stabilization period					
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 25 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)				

EN 61326-1, Industrial area IEC 980: 1993, par. 6

* PI - Primary insulation, DI - Double insulatio

POWER SUPPLY

EMC

Seismic capacity

No. of outputs	1
Protocol	ASCII, MESSBUS, Modbus RTU, PROFIBUS DF
Data format	8 bit + no parity + 1 stop bit (ASCII) 7 bit + even parity + 1 stop bit (Messbus)
Rate	300230 400 Baud 9 600 Baud12 Mbaud (PROFIBUS)
RS 232	isolated
RS 485	isolated, addressing (max. 31 instruments)

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

CONNECTION



ORDER CODE

OM 502F	РМ -					1			- [
Power supply	1030 V AC/DC	0							
	80250 V AC/DC	1							
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 $\Omega/24$ V)				2				
Excitation	yes					1			
Data record	no						0		
	RTC						1		
	FAST						2		
Display color	red							1	
	green							2	
Specification	customized version, do not fill in								00

Basic configuration of the instrument is in bold.