



OM 503DC



- 3-color LED main display, auxiliary display and bargraph
- Range $\pm 99.999 \text{ mV} \dots \pm 300.00 \text{ V}$
 $\pm 999.99 \text{ }\mu\text{A} \dots \pm 5.0000 \text{ A}$
- Touch keys with haptic feedback and RGB backlighting
- Accuracy 0.02%
- Teach-in, Digital filters, Tare, Mat. function, Linearization
- DIN size 96 x 48 mm
- Power supply 10...30 V AC/DC or 80...250 V AC/DC

Option

Comparators ● Data communication ● Analog output ● Data recording

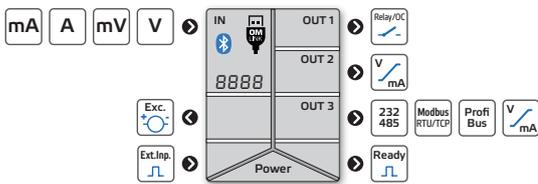
The OM 503 series consists of 6-digit panel meters that are based on a 32-bit processor and a fast 24-bit $\Delta\Sigma$ ADC converter, ensuring high measurement accuracy and immediate response. These meters have been designed with a focus on top performance, reliability, and user comfort, making them an ideal choice for demanding measurement applications.

For maximum convenience, the instruments feature a dual-line display, capacitive touch buttons with color navigation and haptic feedback, as well as an integrated setup guide that facilitates intuitive operation.

Their modular design allows easy customization of functions, while the focus on serviceability ensures long lifespan and low maintenance costs.

The OM 503DC model, a precision DC V-A meter, is ideal for applications requiring high accuracy and flexibility.

DC V-A METER



CONTROLS

The device is controlled and set by either five touch keys located on the front panel or via a PC. For easier navigation of the device menu, the keys are backlit in different colors and provide haptic feedback when pressed.

Initial set up of the device is easily done using our Setup Wizard, which guides you step by step through the basic settings required to make the device operational.

There are two menu levels, USER and PROFIL. The PROFIL menu is password protected and it allows access to all menu items. If necessary, a narrowed down USER menu can be created using only selected items. These can be any items you select. USER menu is not password protected.

OM 403UNI can also be configured from a PC using our free OM Link software via USB-C or Bluetooth. This SW also lets you archive all settings, transfer them from one device to another, perform firmware updates and even device calibration.

All settings are stored in the EEPROM memory, so they are preserved even after the device is turned off.

OPTIONS

COMPARATORS (Relays or Open Collectors) are designed to monitor two, three, four or six limit values. The user can select various output modes and functions to match specific operational requirements. Reaching one or more set limit values is indicated by signaling LEDs and by switching on/off the relevant output.

DATA COMMUNICATION OUTPUTS can transfer measured values to other display devices or directly to control systems with speed and accuracy. Galvanic isolated RS232 and RS485 interfaces are available, supporting ASCII, Modbus and PROFINET protocols.

ANALOG OUTPUTS are ideal for applications where further evaluation or processing of measured values in external devices is required. The galvanic isolated analog output is universal with the option of choosing the type and range - voltage or current.

RECORDING OF MEASURED VALUES is ideal for applications that require measured values to be analyzed retrospectively, or simply archived. Recording takes place in real time (RTC). Recording parameters (start and stop times as well as frequency) are user defined. In case of short-term events, recording can be continuous with writing speed equal to sampling rate. Data is stored either in the device's internal memory or on a USB-C flash drive.

STANDARD FUNCTIONS

PROGRAMMABLE PROJECTION

Standard: for both endpoints of the input range, any value can be set on the display, e.g. input 0...99.99 V > 0...200.00

Teach-In: with this function, it is possible to assign any display values for the currently measured endpoints of the input signal, e.g. input 0.08...985 mA > 0...500.0

Manual: user can manually set the two endpoint values of the input signal and assign to them any display values, e.g. input 0.07...9.58 V > 0...700.0

Overall projection: -99999...999999

FUNCTIONS

Linearization: non-linear signal can be converted by up to 100-point linear interpol.

Tare: zeroing the display when the input signal is not zero

Offset: fixed offset of the initial value

Min/max value: registration of min./max. values reached during the measurement

Peak value: the display projects only the highest or the lowest measured value

Mathematical functions: polynomial, 1/x, logarithm, exponential, power, square root

Simulation: the device simulates its function without a connected input signal

Log: recording of events and error messages with a date and time stamp

DIGITAL FILTERS

Floating / Exponential / Arithmetic average: from 2 to 100 measurements

Rounding: setting the display step for the display

EXTERNAL CONTROL

Hold: stop measurement

Lock: locking out the buttons

Tare: activation and zeroing of tare

Reset Min/Max: reset the min/max value

Hold Min/Max: start the measurement to evaluate the Min/Max value

Sample: start of one-time measurement

Data recording: storage of measured values in the device memory

Opening of a relay: enabling a relay to disengage while in Permanent mode (safety relay)

TECHNICAL DATA

INPUT

No. of inputs	1		The range is fixed according to the order code.
DC Range	±999.99 µA	< 300 mV	Input I
	±9.9999 mA	< 300 mV	Input I
	±99.999 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	

CONTROL INPUTS AND OUTPUT

No. of inputs	3, isolated, on contact, PNP/NPN, < 30 V	
Function	No function assigned	
	Activation of Tare	
	Reset of Tare	
	Reset of Min./Max and PEAK values	
	Tare activation (<1s) + Zero tare (-1s)	
	Activation of Tech-In for Offset	
	Open relay/OC (Type LATCH)	
	Controlling of cumulative measurement	
	Min/Max and PEAK value	
	Measurement paused	
Take a one-off measurement		
Value of minimum/maximum/MAX-MIN/Average*		
Device buttons blocked		
Data recording		
Delete memory		
Show value of all Channels and Brutto		
No. of output	1, isolated, open collector 30 V/100 mA	
Function - Ready	Active when the device reports no error messages	

* The value is calculated from the period starting with the previous external input activation

PROJECTION

Primary display	-99999...999999, three-color alphanumeric LED, 6 digits 11-segment, red / green / orange, digit height 14 mm
Secondary display	-99999...999999, single-color alphanumeric LED, 6 digits, 11-segment, green, digit height 7 mm
Info display	0...99, single-color alphanumeric LED, 2 digits, 11-segment, orange, digit height 7 mm
Bar graph	17 single-color LEDs, horizontal column
Signal LEDs	20 single-color LEDs indicating device functions and status (red, yellow, orange)
Decimal point	adjustable, floating or exponential display
Description	displayed on the secondary display or on the last two characters of the primary display
Brightness	adjustable or automatic

INSTRUMENT SPECIFICATION

TC	25 ppm/°C	
Accuracy	±0.02% of FS	DC - 1A
	±0.05% of FS	DC - 5A
	Accuracy specified at 50 meas./s, display 99999	
Rate	1...1200 measurement/s	
IIR filter	mains hum suppression (50/60 Hz) greater than 45 dB (=180° reduction of interference amplitude) For measurement speeds >100 measurements/s	
Overload	10x (t < 30 ms), 2x	
Control	5 touch keys backlit by LEDs and haptic feedback	
Functions	Teach-in, tare, preset tare, peak value, min/max value, math. functions, delayed start, simulation, error and event logging	
Timer	time and daily operational restrictions of the device, functions, and its peripherals (data recording, relays, ...)	
Digital filters	exponential / floating / arithmetic average, rounding	
Math functions	polynomial / inverse polynomial / logarithm / exponential / power / root	
Linearization	linear interpolation in 100 points setup only via OM Link	
Measured data logging	< 100 000 records	
	Long-term time-date-measured value	
	Single-shot high-speed logging > 400 meas./s	
OM Link	company communication interface for operation, setting and update of instruments (BT, USB-C)	
Time	accuracy < 1 minute/year	
Watch-dog	reset after 500 ms	
Calibration	at 25°C and 40% rh.	

RELAYS / OC OUTPUT

No. of outputs	up to 6	
Type	digital, menu adjustable	
Mode	RISE	active above set value
	DROP	active below set value
	WINDOW BATCH	active in the set window / band active in set periods
Function Relays/OC	SW. ON	is closed in active mode
	SW. OFF	is open in active mode
	PULSE	switches on once in active mode
	LATCH	in active mode the output is switched permanently, disconnection is blocked (IEC EN 61496) - disconnection is performed by ext. input
Limits	-99999...999999	
Hysteresis	0...999999	
Delay / Time	0...999.9 s	
Outputs	2 - 4x relay with switching contact (Form C)	(250 VAC/50 VDC, 3 A)*
	3 - 6x relay with switch-on contact (Form A)	(250 VAC/30 VDC, 3 A)*
	3 - 6x open collector (30 VDC/100 mA)	
Relays	1/8 HP 277 VAC, 1/10 HP 125 V, Pilot Duty D300	

* values apply for resistance load

ANALOG OUTPUTS

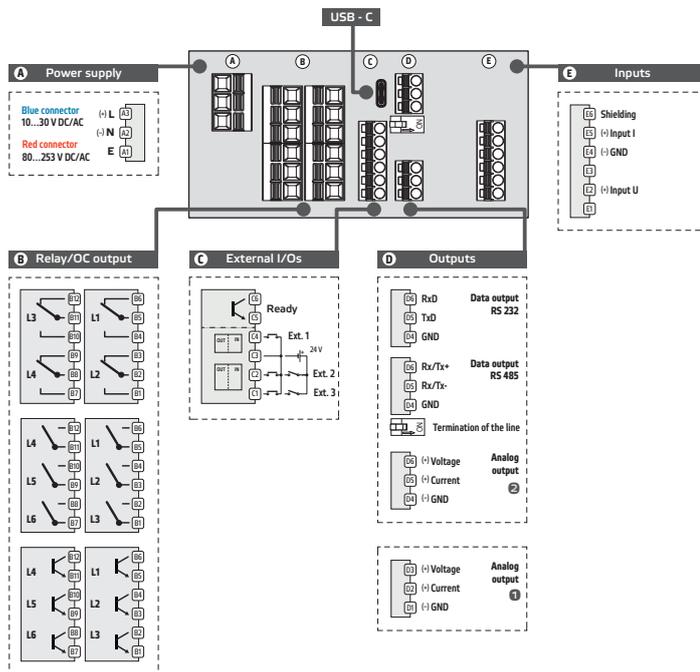
No. of outputs	1 or 2	
Type	isolated, adjustable with 16-bit DAC, output type and range is selectable	
TC	15 ppm/°C	
Accuracy	±0.02% of FS	0...5 V
	±0.03% of FS	0...2 V / 0...5 mA
	±0.06% of FS	
Rate	response to change of value < 160 µs	
Ranges	Range	Error indication
	0...2 V	-2.2 V resistive load ≥ 1 kΩ
	0...5 V	-5.5 V resistive load ≥ 1 kΩ
	0...10 V	-11.0 V resistive load ≥ 1 kΩ
	±10 V	-11.0 V resistive load ≥ 1 kΩ
	0...5 mA	-5.5 mA comp. < 600 Ω/12 V
	0...20 mA	-22.0 mA comp. < 600 Ω/12 V
	4...20 mA	-3.2 mA comp. < 600 Ω/12 V
	Indication of broken current loop	

DATA COMMUNICATION

No. of outputs	1	
Protocol	ASCII, Modbus RTU, Modbus TCP/IP, PROFINET	
Rate	600...230 400 Baud	
	10 Mbit/s, 100 Mbit/s (Modbus TCP/IP, PROFINET)	
Data format	Format	8bits + parity + stop bit
	Parity	none / even / odd
	Stop bit	1/1.5/2
Addressing	1...99 instruments (ASCII)	
	1...247 instruments (Modbus)	
Line termination	internim odporem 120 Ω DIP switch on the last device	

* PI - Primary insulation, DI - Double insulation

CONNECTION



ORDER CODE

OM 503DC

Power supply	10...30 V AC/DC 80...250 V AC/DC	0 1		
Measuring range	±99.999 mV	A		
	±999.99 mV	B		
	±9.9999 V	C		
	±99.999 V	D		
	±300.00 V	E		
	±999.99 µA	K		
	±9.9999 mA	L		
	±99.999 mA	M		
	±999.99 mA	N		
	±5.0000 A	P		
Comparators	no	0		
	2x relay (Form C)	1		
	4x relays (Form C)	2		
	3x relays (Form A)	3		
	6x relays (Form A)	4		
	3x open collectors	5		
Outputs	no		00	
	Analog output		11	
	RS 232		01	
	RS 485		02	
	Modbus TCP/IP		03	
	PROFINET		05	
	Analog output + RS 232		11	
Analog output + RS 485		12		
2x Analog outputs		19		
Recording of measured values	no		0	
	yes		1	
Specification	customized version, do not fill in			00

Basic configuration of the instrument is indicated in bold.

* Unavailable in combination with RTC/FAST