

# OM 351/651



<b>OM 351DC</b>	<b>DC VOLTMETER AND AMMETER</b>
<b>OM 351AC</b>	<b>AC VOLTMETER AND AMMETER</b>
<b>OM 351PM</b>	<b>PROCESS MONITOR</b>
<b>OM 351OHM</b>	<b>OHMMETER</b>
<b>OM 351RTD</b>	<b>THERMOMETER FOR Pt/Ni</b>
<b>OM 351T/C</b>	<b>THERMOMETER FOR THERMOCOUPLES</b>
<b>OM 351DU</b>	<b>DISPLAY UNIT FOR LINEAR POTENTIOMETERS</b>
<b>OM 651UC</b>	<b>UNIVERSAL COUNTER</b>

## Description

The OM 351 and OM 651 model series are 3 1/2, respectively 6 digit panel programmable instruments.

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).

## Extension

**Excitation** is suitable for feeding of sensors and transmitters. It has a galvanic isolation with fixed preset value of 15 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.

**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

- 3 1/2/6 digit programmable projection
- Digital filter, Tare
- Size of DIN 96 x 48 mm
- Power supply 230 VAC

OMLINK

## Extension

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

- voltage/current. The value of analog output corresponds with the displayed data and its type and range are selectable in CM.

**Time backup** is suitable where time needs to be measured even in case of supply voltage outage (upon power supply outage the instrument does not display) (only for OM 651UC)

## Standard functions

**Setting:** manual, in „CM“ optional projection on the display may be set for both limit values of the input signal, e.g. input 0...19,99 V ⇒ 0...150,0

**Setting (UC):** measuring mode counter/frequency/stopwatch/watch with adjustable calibration coefficient, time base and projection

**Projection:** ±1999, resp. -99999...999999

## 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

**Exponential average:** from 2...100 measurements

**Rounding(UC):** setting the projection step for display

**Filtration constant (UC):** limiting maximum input frequency, suppressing interfering impulses 5 Hz...200 Hz

## FUNCTIONS

**Preset (UC):** initial non-zero value, which is always read after resetting the instrument to zero

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

## EXTERNAL CONTROL

**Hold:** display/instrument blocking

**Lock:** control keys blocking

**Resetting:** counter resetting

## Technical data

### PROJECTION

**Display:** ±1999 resp. 999999, red or green 7-segment LED, digit height 14 mm  
**Decimal point:** adjustable - in programming mode  
**Brightness:** adjustable - in programming mode

### INSTRUMENT ACCURACY

**TC:** 100 ppm/°C, 50 ppm/°C (UC)  
**Accuracy:** ±0,2% of range + 1 digit  
 ±0,3% of range + 1 digit (AC, T/C)  
 ±0,05% of range + 1 digit (UC)  
**Rate:** 0,5...10 measurements/s  
**Overload capacity:** 10x (t < 30 ms) - not for 200 V and 5A; 2x  
**Resolution:** 0,1°C (RTD), 1°C (T/C)  
**Watch-dog:** reset after 20 ms  
**Functions:** HOLD, LOCK, digital filters, tare  
**Functions (UC):** data backup, time backup, preset  
**Input filters (UC):** filtration constant, rounding  
**Time base (UC):** 0,5/1/5/10 s  
**Calibration constant (UC):** 0,00001...999999  
**Filtration constant (UC):** 0/5/40/100/200 Hz  
**Presetting (UC):** 0...999999  
**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 < 50 ms  
**Limits 1 and 2:** ±1999, resp. -99999...999999  
**Hysteresis:** 0...999, resp. 99999  
**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  
**Rate:** 1 200...38 400 Baud  
**RS 232:** isolated  
**RS 485:** isolated, addressing (max. 31 instruments)

### ANALOG OUTPUTS

**Type:** isolated, programmable with resolution of max. 5 000 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 < 100 ms  
**Ranges:** 0...2/5/10 V, 0...5 mA, 0/4...20 mA (compensation of conduct < 600 Ω)

### EXCITATION

**Fixed:** 15 VDC/50 mA, isolated

### POWER SUPPLY

24, 110, 230 VAC, 50/60 Hz, ±10%, 3 VA  
 10...30 VDC/max. 250 mA, isolated  
*Power supply is protected by a fuse inside the instrument*

### MECHANICAL PROPERTIES

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

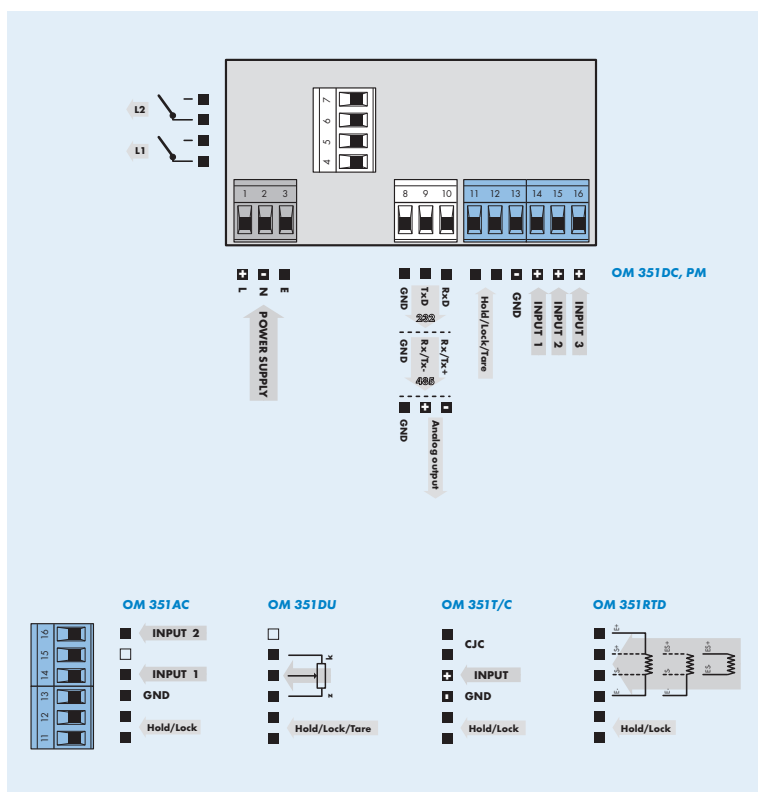
### OPERATING CONDITIONS

**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:** IP42 (front panel only)  
**Construction:** safety class II  
**El. safety:** EN 61010-1, A2  
**Overvoltage category:** for pollution degree II  
 II - instrument power supply, input, relay 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	AC	AC	PM	OHM	DU	UC	RTD	T/C
w/o				0/4...20 mA, 0...2/5/10 V		lin. potentiometer > 500 Ω	contact, TTL, NPN/PNP < 50 kHz counter/frequency stopwatch/watch		
A	±0,2/2/20/200 V, ±2/20 mA	0...10 V			0...199,9 Ω			1 Pt 100	B
B	±60/150 mV, ±1/5 A				0...1,999 kΩ			2 Pt 500	R, S, T
C					0...19,99 kΩ			3 Pt 1 000	E, J, K, N
D		0...100 V			0...100,0 kΩ			4 Ni 1 000 (5000 ppm/°C)	
E								5 Ni 2 226 (5000 ppm/°C)	
F								6 Ni 10 000 (5000 ppm/°C)	
G								7 Pt 100 (3920 ppm/°C)	
H			0...60 mV		5...105 Ω			8 Pt 500 (3920 ppm/°C)	
I								9 Pt 1 000 (3920 ppm/°C)	
J			0...150 mV						
K			0...300 mV						
L									
M									
N			0...1 A						
P			0...5 A						
R									
S		0...150 V							
T		0...250 V							
U		0...450 V							
Z	on request	on request							

## Connection



## Order code

### OM 351/651

Type

D	C	.	.	.	.	.	.	.	.
A	C	.	.	.	.	.	.	.	.
P	M	.	.	.	.	.	.	.	.
O	H	M	.	.	.	.	.	.	.
R	T	D	.	.	.	.	.	.	.
T	C	.	.	.	.	.	.	.	.
D	U	.	.	.	.	.	.	.	.
U	C	.	.	.	.	.	.	.	.

Order code shall not include blank spaces!

<b>Power supply</b>	24 VAC/50 Hz 230 VAC/50 Hz 110 VAC/50 Hz 10...30 VDC, isolated	0 1 3 4				
<b>Measuring range, see table „Measuring ranges“</b>		?				
<b>Comparators</b>	no yes	0 1				
<b>Output</b>	none Analog RS 232 RS 485	0 1 2 3				
<b>Time backup</b>	no yes	0 1				
<b>Excitation</b>	no Cannot be simultaneously with AO or RS yes	0 1				
<b>Display color</b>	red green					1 2