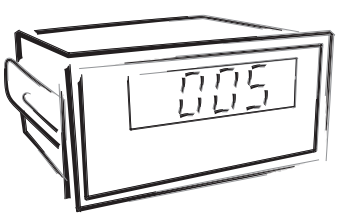
GUARANTEE 2 YEARS

OM 36

3 1/2 DIGIT

DC VOLTMETER/AMMETER
AC VOLTMETER/AMMETER
PROCESS MONITOR
OHMMETER
THERMOMETER FOR Pt 100



SAFETY INSTRUCTIONS

Please, read the enclosed safety instructions carefully and observe them!
These instruments should be safeguarded by isolated or common fuses (breakers)!
For safety information the EN 61 010-1 + A2 standard must be observed.
This instrument is not explosion-safe!

TECHNICAL DATA

Measuring instruments of the OM 36 series conform to European regulation 89/336/EWG and Ordinance 168/1997 Coll.

They are up to the following European standards:
EN 55 022, class B
EN 61000-4-2, -4, -5, -6, -8, -9, -10, -11

The instruments are applicable for unlimited use in agricultural and industrial areas.

CONNECTION

Power supply from the main line has to be isolated from the measuring leads.

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2.1 Description

The OM 36 model series are simple 3 1/2 digit panel instruments, which are manufactured in the following alternatives:

DC	DC voltmeter/ammeter
AC	AC voltmeter/ammeter
PM	Process monitor
OHM	Ohmmeter
RTD	Thermometer for sensors Pt 100

The instrument is based on a simple converter, which secures high accuracy and stability.

ADJUSTABLE DISPLAY PROJECTION

Setting	by potentiometers under the front panel (in the range of approx. ±10 %)
Projection	±1999

2.2 Operation

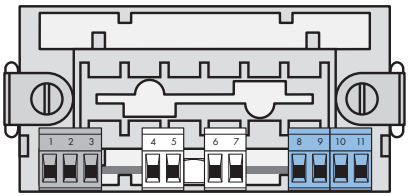
The instrument is designed for simple measurement without further control.
Placement of the decimal point is selectable by shorting link under the front panel.

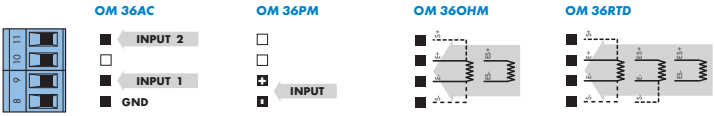
2.3 Options

Excitation is suitable for feeding of sensors and transducers. It has a galvanic isolation with continuously adjustable value in the range of 5...24 VDC.

Analogue outputs will find their place in applications where further evaluating or processing of measured data in external devices is required. We offer several types of current or voltage non-isolated outputs. The value of analogue output corresponds with the input signal.

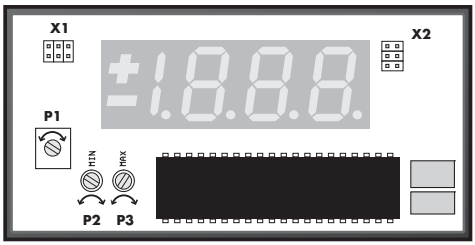
The supply lead for feeding the instrument should not be in the proximity of low-potential signals.
Contactors, motors with larger input and other efficient elements should not be in the proximity of the instrument.
The lead into the instrument input (the measured quantity) should be in sufficient distance from all power leads and appliances. Provided this cannot be secured, it is necessary to use shielded leads with connection to ground.
The instruments are tested in compliance with standards for use in industrial area, yet, we recommend to abide by the above mentioned principles.





MEASURING RANGE

Type	Input 1	Input 2
OM 36 DC - U	±199,9 mV; ±1,999 V; ±19,99 V	±199,9 V; ±300 V
OM 36 DC - I	±199,9 µA; ±1,999 mA; ±19,99 mA; ±199,9 mA, ±1,999 A; ±5,00 A	
OM 36 AC - U	0...199,9 mV; 0...1,999 V; 0...19,99 V	0...199,9 V; 0...300 V
OM 36 AC - I	0...1,999 mA; 0...19,99 mA; 0...199,9 mA; 0...1,999 A; 0...5,00 A	



Jumper X1, Decimal point

1 - 1	X.xxx
2 - 2	XX.xx
3 - 3	XXX.x

Jumper X2, measuring rate

1 - 2	1,2 m/s
5 - 6	2,5 m/s
2 - 3	5 m/s
5 - 4	10 m/s

ADJUSTING ELEMENTS

- after removing the top cover frame the following settings are accessible
- decimal point - may be adjusted by shorting links

P1 setting the display brightness

P2 setting the zero
- in the DC and AC types
- in the RTD and OHM types this trimmer is used for compensation of conduct resistance

P3 setting the full range
- setting display projection (approx. ±10 %)

X1 setting the decimal point
- by jumper

X2 setting the measuring rate
- by jumper

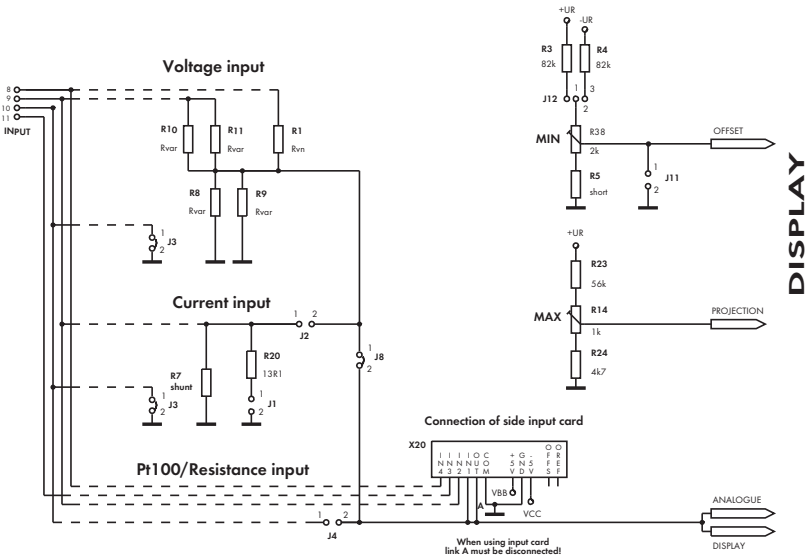
The measuring range and projection of the display are set from manufacture pursuant to customer requirements stated in the order form for which the manufacturer declares validity of the catalogue technical parameters.

Under certain conditions, i.e. the expertise and technical equipment, the change in instrument parameters may be performed pursuant to the following procedure.

SOLDERING JUMPERS

Type	Range	Counting the input divider	J1	J2	J3	J4
I	< 90 mA	Shunt R_7 with loss 200 mV or resistances R_8, R_{11}	link	link		
I	< 5 A	R_8, R_{11} for shunt R_7 - loss 200 mV		link		
U	< 200 mV	Set by changing R_8 = 750 Ohm, without R_8, R_{11}		link		
U	< 60 V	R_8, R_{11}				
U	< 300 V	R_1, R_8, R_9 remove link B				
Pt 100		Without R_1, R_7, R_{11}, remove link A			cut	link

Wiring diagram - input



4.1 Change of projection range

Voltage Input < 60 V

- R_8 has value of 1MOhm

$$R_{10} = \frac{R_8 \times (D_{max} - D_{min})}{10\,000 \times (U_{max} - U_{min}) - (D_{max} - D_{min})}$$

Voltage Input > 60 V

- R8 has value of 1,22 MOhm, 2x 511 kOhm in series

$$R_{10} = \frac{R_1 \times (D_{max} - D_{min})}{10\,000 \times (U_{max} - U_{min}) - (D_{max} - D_{min})}$$

Current Input

$$R_7 = \frac{D_{max} - D_{min}}{10\,000 \times (I_{max} - I_{min})}$$

Zero offset

$$R_5 = 2\,000 \times \frac{P_{od}}{P_{do} - P_{od}}$$

$$R_3 = \frac{24\,600\,000}{P_{do} - P_{od}} - 2\,000 - R_5$$

R_8 may be replaced by series/parallel combination of two resistances R_8 a R_9

$$R_8 = \frac{R_8 \times R_9}{R_8 + R_9}$$

R_{10} may be replaced by series/parallel combination of two resistances R_{10} a R_{11}

$$R_{10} = \frac{R_{10} \times R_{11}}{R_{10} + R_{11}}$$

ZERO OFFSET - SOLDERING JUMPERS

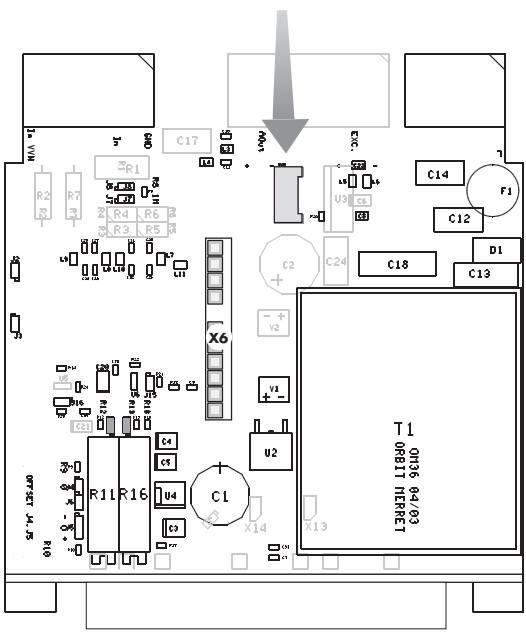
Jumper	Offset
J11 - link	none
J12 - link, to connector	negative
J12 - link, to display	positive

LEGEND

$R_{8,9}$ and $R_{10,11}$	resistances of input divider for range < 60 V
R_1 and $R_{8,9}$	resistances of input divider for range > 60 V
$R_{3[4],5}$	resistances for zero offset, R_5 is, as a standard, replaced by short-circuit
P_{od}, P_{do}	offset values (in divisions 0...1999) for extreme positions of the potentiometer „ MIN"
U_{min}	minimum value of input voltage (in Volts)
U_{max}	maximum value of input voltage (in Volts)
D_{min}	minimum value on display (in divisions)
D_{max}	maximum value on display (in divisions)
I_{min}	minimum value of input current (in Amperes)
I_{max}	maximum value of input current (in Amperes

Placement parts and Jumpers

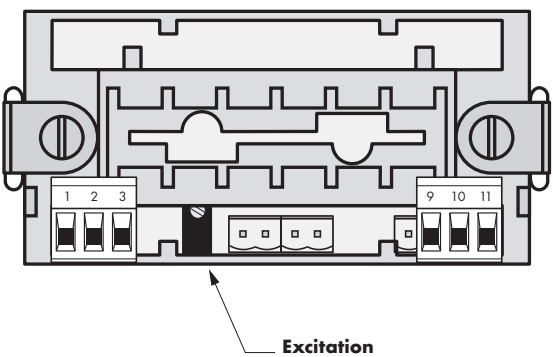
Excitation



4.2 Setting the Excitation

Excitation is, as a standard, set for 24 VDC.

Change in adjustment of the excitation value is performed by trimmer located over the terminal boards of the instrument (see picture).



INPUT

the range is fixed, according to order			***DC***
	±199,9 mV	1 MOhm	Input 1
	±1,999 V	1 MOhm	Input 1
	±19,99 V	1 MOhm	Input 1
	±199,9 V	1 MOhm	Input 2
	±300 V	2 MOhm	Input 2
	±199,9 µA	< 260 mV	Input 1
	±1,999 mA	< 260 mV	Input 1
	±19,99 mA	< 260 mV	Input 1
	±199,9 mA	< 200 mV	Input 1
	±1,999 A	< 200 mV	Input 1
	±5,00 A	<50 mV	Input 1
the range is fixed, according to order			***AC***
	0...199,9 mV	1 MOhm	Input 1
	0...1,999 V	1 MOhm	Input 1
	0...19,99 V	1 MOhm	Input 1
	0...199,9 V	1 MOhm	Input 2
	0...300 V	2 MOhm	Input 2
	0...1,999 mA	< 260 mV	Input 1
	0...19,99 mA	< 260 mV	Input 1
	0...199,9 mA	< 200 mV	Input 1
	0...1,999 A	< 200 mV	Input 1
	0...5,00 A	< 50 mV	Input 1
Frequency range:	40...2 500 Hz		
the range is fixed, according to order			***PM***
	0...5 mA	< 260 mV	
	0...20 mA	< 260 mV	
	4...20 mA	< 260 mV	
	±2 V	1 MOhm	
	±5 V	1 MOhm	
	±10 V	1 MOhm	
the range is fixed, according to order			***OHM***
	0...199,9 Ohm		
	0...1,999 kOhm		
	0...19,99 kOhm		
	5...105 Ohm		
Connection:	2 or 4 wire		
the range is fixed, according to order			***RTD***
Pt xxx	±199,9°C or -200°...850°C		
Type Pt:	100/500/1 000 Ohm, platinum, 3850 ppm		
Connection:	2, 3 or 4 wire		

PROJECTION

Display:	±1999, red or green LED, digit height 14 mm
Decimal point:	adjustable by jumper
Brightness:	adjustable by potentiometer under the front panel

INSTRUMENT ACCURACY

TC:	50 ppm/°C	
Accuracy:	±0,1 % of range	
	±0,3 % of range (< 100 Hz, crest faktor 1-2)	***AC***
	±0,2 % z range	***OHM***
Resolution:	0,1° or 1°C	***RTD***
Rate:	1,2 - 2,5 - 5 - 10 measurements/s	
Overload capacity:	10x (t < 100 ms) - not for 5 A and 300 V	
	2x (long-term)	
Calibration:	at 25°C and 40 % r.h.	

ANALOGUE OUTPUTS

Type:	non-isolated,
	the output corresponds with the input signal
Nonlinearity:	0,3 % of range
TC:	100 ppm/°C
Rate:	response to change of value < 100 ms
Voltage:	0...2 V, 0...5 V, 0...10 V
Current:	0...5/20 mA/4...20 mA
	- compensation of conduct up to 600 Ohm

EXCITATION ***DC/AC/PM***

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

POWER SUPPLY

24/110/230 VAC, 50/60 Hz, 5 VA, ±10%
12...24 VDC, max. 150 mA
12...30 VDC, max. 300 mA, isolated

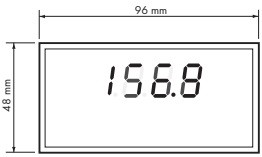
MECHANIC PROPERTIES

Material:	Noryl GFN2 SE1, incombustible UL 94 V-I
Dimensions:	96 x 48 x 110 mm
Panel cut-out:	92 x 45 mm

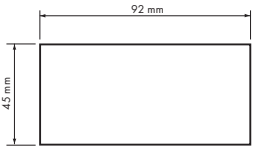
OPERATING CONDITIONS

Connection:	con. terminal board, conductor section up to 2,5 mm^2
Stabilization period:	within 15 minutes after switch-on
Working temp.:	0°...50°C
Storage temp.:	-10°...85°C
Shielding:	IP42, upon request IP64 - front panel only
El. safety:	EN 61010-1, A2
Dielectric strength:	2,5 kVAC after 1 min between supply and input
Insulation resistance:	for pollution degree II, measuring cat. III.
	AC power supply > 600 V (PI), 300 V (DI)
	DC power supply/input/output/Exc. > 300 V (PI),150 V (DI)
EMC:	EN 61326-1

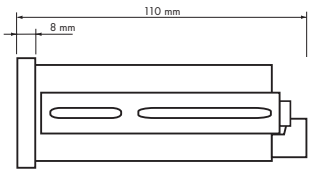
Front view



Panel cut



Side view



Panel thickness: 0,5...8 mm

Product	**OM 36**	**DC**	**AC**	**PM**	**OHM**	**RTD**
Type	. . . . .					
Manufacturing No.	. . . . .					
Date of sale	. . . . .					

GUARANTEE

A guarantee period of 24 months from the date of sale to the user applies to this instrument.
Defects occuring during this period due to manufacture error or due to material faults shall be eliminated free of charge.

For instrument quality, function and construction the guarantee shall apply provided that the instrument was connected and used in compliance with the instruction for use.

The guarantee shall not apply for defects caused by:

- mechanic damage
- in transport
- intervention of unqualified person incl. the user
- unavoidable event
- other unprofessional interventions

The manufacturer performs the guarantee and post-guarantee repairs unless provided for otherwise.

YEARS

Stamp, signature

DECLARATION OF CONFORMITY

Company: **ORBIT MERRET, spol. s r.o.**
Klánova 81/141, 142 00 Prague 4, Czech Republic, IDNo: 00551309

Manufactured: **ORBIT MERRET, spol. s r.o.**
Vodňanská 675/30, 198 00 Prague 9, Czech Republic

declares at its full responsibility that the product presented hereunder meets all technical requirements, is safe for use when utilised under the terms and conditions determined by ORBIT MERRET, spol.s r.o. and that our company has taken all measures to ensure conformity of all products of the type listed hereunder, which are being brought out to the market, with technical documentation and requirements of the appurtenant statutory orders.

Product: 3 1/2 digit panel instrument

Type: **OM 36**

Version: DC, AC, PM, OHM, RTD

Conformity is assessed pursuant to the following standards:

Electrical safety:	EN 61010-1
EMC:	EN 50131-1, par. 14 and par. 15
	EN 55022
	EN 61000-3-2 + A12, Cor. 1, change A1, change A2
	EN 61000-4-2
	EN 61000-4-3
	EN 61000-4-4
	EN 61000-4-5
	EN 61000-4-6
	EN 61000-4-8
	EN 61000-4-11, par. 5.1 and par. 5.2

and goverment ordinance:

Electrical safety:	No. 168/1997 Sb.
EMC:	No. 169/1997 Sb.

The evidence are the protocols of authorized and accredited organization:

VTÚE Praha, experimental laboratory No. 1158, accredited by ČIA
VTÚPV Vyškov, experimental laboratory No. 1103, accredited by ČIA

Place and date of issue: Prague, 14. Januar 2002

Miroslav Hackl
Company representative

Mode of asses. of conformity §12, par. 4 b, d of Act No. 22/1997 Sb.