OMB 300

30-POINT BARGRAHP

PROCESS MONITOR
THERMOMETER FOR PT 1 000
THERMOMETER FOR NI 1 000
DISPLAYS FOR LIN. POTENTIOMETERS

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 OMB 300 series conform to the European regulation 89/336/EWG and the Ordinance 168/1997 Coll.

The instruments 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

Supply of energy from the main line has to be isolated from the measuring leads.

CE

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PAP

2.1 Desctription

The OMB 300 bargraph is a 30 point panel programmable instruments designed for maximum pragmatics and convenience of the user.

Type OMB 300 is a multifunction instrument with the option of configuration for 4 various input options, easily configurable in the instrument menu

The instrument is based on a microcontroller with 10-bit converter, which secures good precision, stability and easy operation of the instrument.

The OMB 300 is a multifunction instrument available in following types and ranges

PM:	0...20 mA/4...20 mA/0...2 V/ 0...2 V /0...10 V
RTD-Pt:	Pt 1000; KTY
RTD-Ni:	Ni 1 000; Ni 10 000
DU:	Linear potentiometer (min. 500 Ω)

PROGRAMMABLE PROJECTION

Selection:	of type of input and measuring range
Measuring range:	adjustable
Setting:	manual, optional display projection may be set for both limit values of the input signal in the menu
Projection:	30 LED

LINEARIZATION

Linearization:	by linear interpolation in 25 points (solely via OM Link)

DIGITAL FILTERS

Exponen.average:	from 2...100 measurements
Rounding:	setting the projection step for display

EXTERNAL CONTROL

Lock:	control keys blocking
Hold:	display/instrument blocking

2.2 Operation

The instrument is set and controlled by five control keys located under the front panel. All programmable settings of the instrument are performed in two adjusting modes:

LIGHT **Simple programming menu**
- contains solely items necessary for instrument setting

PROFI **Complete programming menu**
- contains complete instrument menu

All programmable parameters are stored in the EEPROM memory (they hold even after the instrument is switched off).

OMLINK Complete instrument operation and setting may be performed via OM Link communication interface, which is a standard equipment of all instruments.

The operation program is freely accessible (www.orbit.merret.cz) and the only requirement is the purchase of OML cable to connect the instrument to PC. It is manufactured in version RS 232 and USB and is compatible with all ORBIT MERRET instruments. Another option for connection is with the aid of data output RS 232 or RS 485 (without the need of the OML cable).

The program OM LINK in „Basic" version will enable you to connect one instrument with the option of visualization and archiving in PC. The OM Link „Standard" version has no limitation of the number of instruments connected.

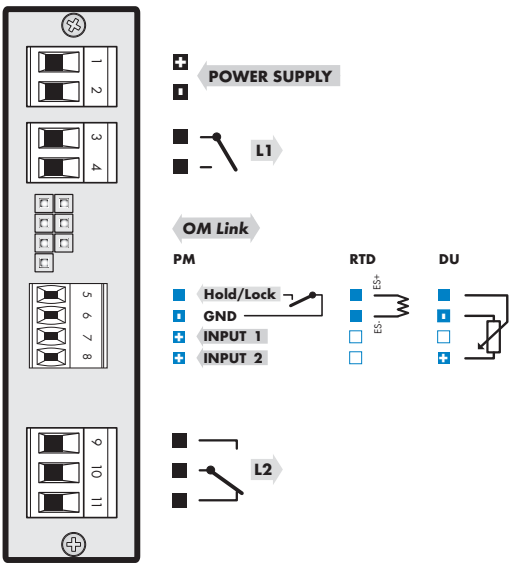
2.3 Options

Comparators are assigned to monitor one, 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.

The instrument supply leads should not be in proximity of the incoming low-potential signals.
Contactors, motors with larger input power should not be in proximity of the instrument.
The leads into the instrument input (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 (bracket E).
The instruments are tested in compliance with standards for use in industrial area, yet we recommend to abide by the above mentioned principles.

MEASURING RANGES

Type	Input 1	Input 2
PM	0...20 mA/4...20 mA	0...2 V/0...5 V/0...10 V
RTD-Pt	Pt 1 000 • KTY 210 • Termistor	
RTD-Ni	Ni 1 000	
DU	Linear potentiometer (min. 500 Ω)	


1
2
3
4
5
6
7
8
9
10
11
POWER SUPPLY
L1
OM Link
PM
RTD
DU
Hold/Lock
GND
INPUT 1
INPUT 2
ES+
ES-
L2

Setting PROFI

- For expert users
- Complete instrument menu

Setting LIGHT

- For trained users
- Only items necessary for instrument setting
- Linear menu structure

4.1 Setting

The instrument is set and controlled by five control keys located under the front panel. All programmable settings of the instrument are performed in three adjusting modes:

LIGHT **Simple programming menu**
- contains solely items necessary for instrument setting

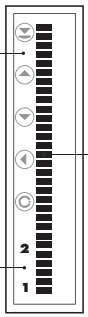
PROFI **Complete programming menu**
- contains complete instrument menu

All programmable parameters are stored in the EEPROM memory (they hold even after the instrument is switched off).

Complete instrument operation and setting may be performed via OM Link communication interface, which is a standard equipment of all instruments.
The operation program is freely accessible (www.orbit.merret.cz) and the only requirement is the purchase of OML cable to connect the instrument to PC. It is manufactured in version RS 232 and USB and is compatible with all ORBIT MERRET instruments.
Another option for connection is with the aid of data output RS 232 or RS 485 (without the need of the OML cable).

4 INSTRUMENT SETTING

Setting and controlling the instrument is performed by means of 5 control keys located under the front panel. With the aid of these keys it is possble to browse through the operation menu and to select and set required values.



Control keys

- under front panel

Measured value (red/green/orange LED)

Ralay status (red LED)

ON the digit is lit
OFF the digit is not lit
OFF the digit is flashing
limits with restriction
(hysteresis, delay

Symbols used in the instructions

PM DU RTD T/C Indicates the setting for given type of instrument

DEF values preset from manufacture

after pressing the key the set value will not be stored

after pressing the key the set value will be stored

Control keys functions

Key	Measurement	Menu	Setting numbers/selection
	selection of measuring range	exit menu	quit editing
	setting limits	back to previous level	move to higher decade
	setting the projection gange - begin	move to previous item	move down
	setting the projection gange - end	move to next item	move up
	setting display projection	confirm selection	confirm setting/selection
	access into LIGHT/PROFI menu		
	direct access into PROFI menu		
	restoring manufacture setting		

5.0 Setting "LIGHT"

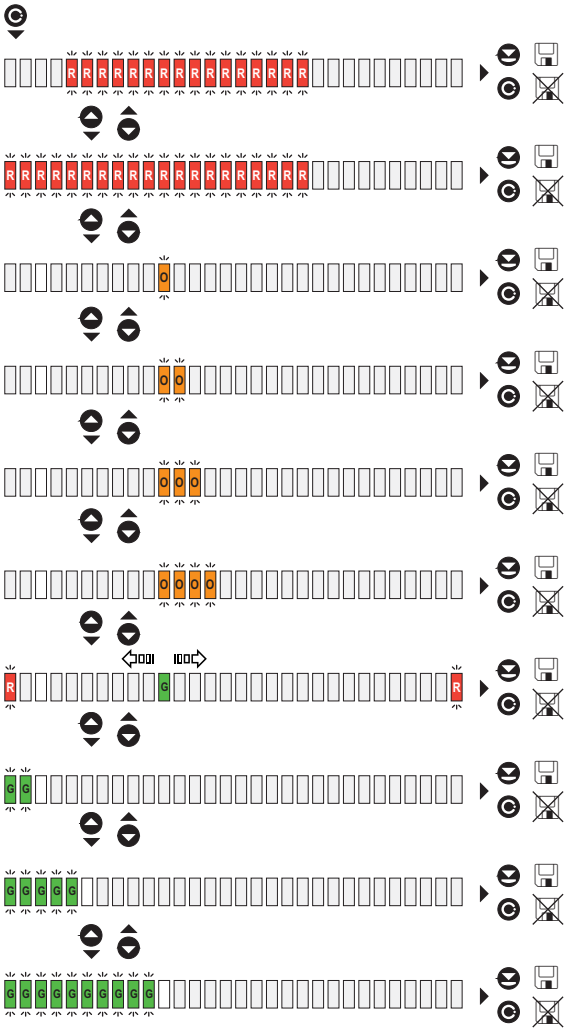
LIGHT **Simple programming menu**
- contains only items necessary for instrument setting

- **For capable users**
- **Only items necessary for instrument setting**
- **Linear menu structure**

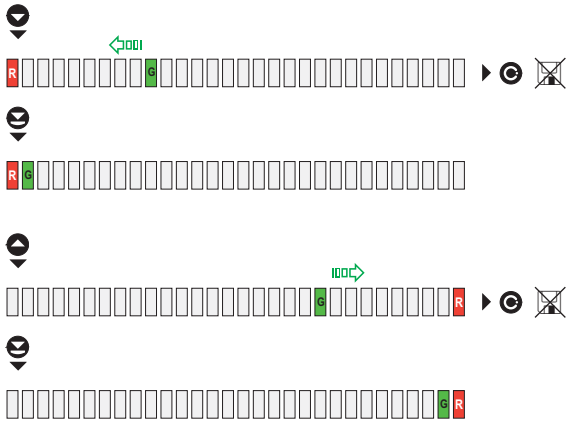
!

Upon delay exceeding 60 s the programming mode is automatically discontinued and the instrument itself restores the measuring mode

Selection of measuring range



Setting the projection range



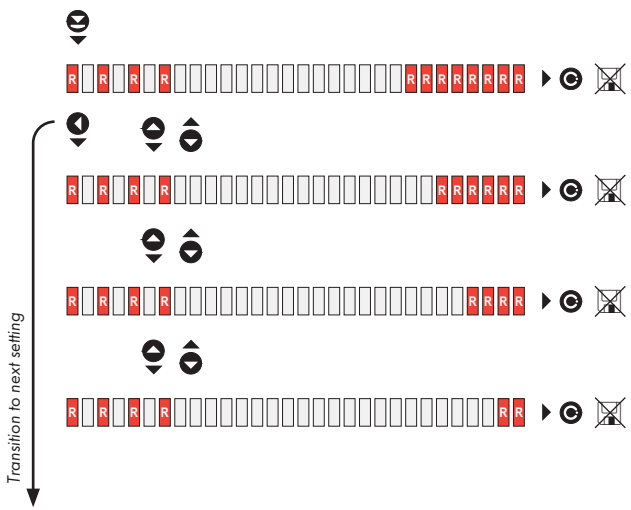
Prompt to connect input signal corresponding with the beginning of projection range

Confirmation of the setting with automatic transition back to measuring mode

Prompt to connect input signal corresponding with the end of projection range

Confirmation of the setting with automatic transition back to measuring mode

Setting the projection



Select display brightness

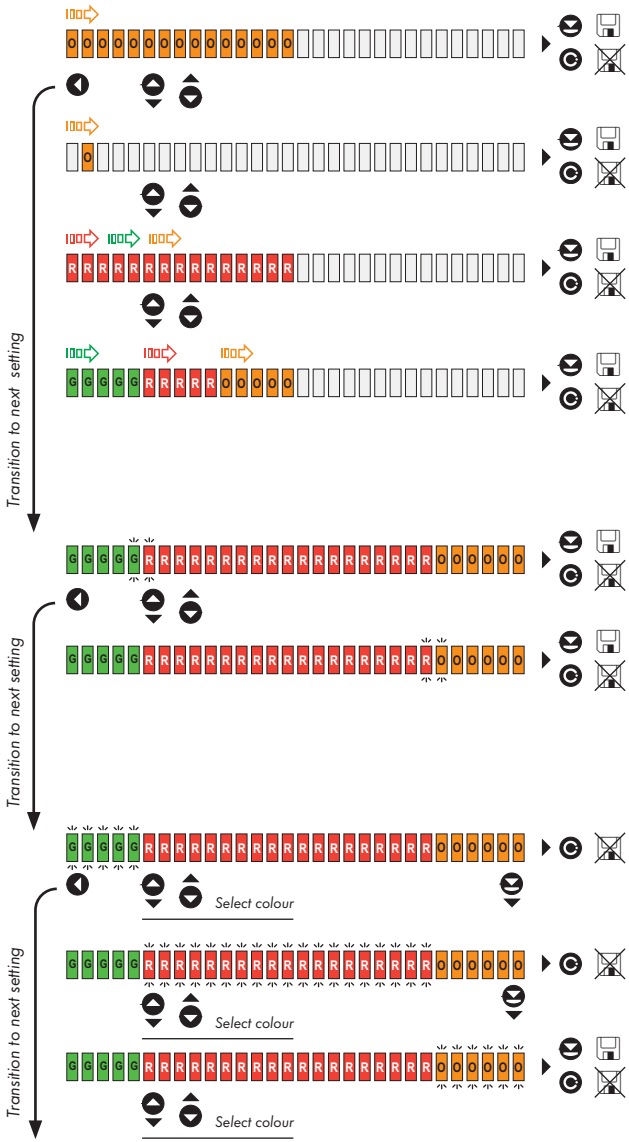
Display brightness > 100 %

Display brightness > 75 %

Display brightness > 50 %

Display brightness > 25 %

Transition to next setting



Select bargraph mode

Column projection

Point projection

3- colour column

3- colour band

Changing band colour

Only for mode > 3 colour/3 band

Setting limit 1

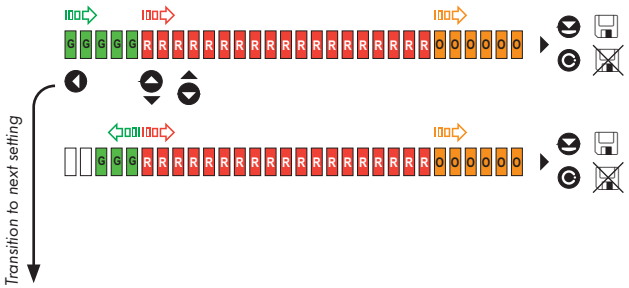
Setting limit 2

Select display colour

Select the colour for 1st band

Select colour for 2nd band

Select colour for 3rd band



Inverse 1st band

Only for mode > 3 colour/3 band

Standard projection

Inverse projection of 1st band

ERROR	CAUSE	ELIMINATION
	Number is too small (large negative) to be displayed	change DP setting, channel constant setting
	Number is too large to be displayed	change DP setting, channel constant setting
	Number is outside the table range	increase table values, change input setting (channel constant setting)
	Number is outside the table range	increase table values, change input setting (channel constant setting)
	Input quantity is smaller than permitted input quantity range	change input signal value or input (range) setting
	Input quantity is larger than permitted input quantity range	change input signal value or input (range) setting
	A part of the instrument does not work properly	send the instrument for repair
	Data in EEPROM corrupted	perform restoration of manufacture setting, upon repeated error statement send instrument for repair
	Data in EEPROM outside the range	perform restoration of manufacture setting, upon repeated error statement send instrument for repair
	Memory was empty (presetting carried out)	upon repeated error statement send instrument for repair, possible failure in calibration

INPUT

range is adjustbale — ***PM***

0/4...20 mA	< 400 mV	Input 1
±2 V	1 MOhm	Input 2
±5 V	1 MOhm	Input 2
±10 V	1 MOhm	Input 2

RTD

Pt xxxx	-200°...850°C
Ni xxxx	-30,0°...199,9°C
Type Pt:	1 000 Ohm, s 3850 ppm/°C
Type Ni:	Ni 1 000 s 5000 ppm/°C
Connection:	2 wire

DU

Voltage of lin. pot.	2,5 VDC/6 mA
	min. potentiometer resistance is 500 Ohm

PROJECTION

Display:	30 LED, intensive red/green/orange
Brightness:	adjustbale - in menu

INSTRUMENT ACCURACY

TC:	100 ppm/°C
Accuracy:	±1 % of range + 1 digit
Rate:	0,5 - 5 - 50 - Max. measurements/s
Overload capacity:	10x (t < 100 ms), 2x (long-term)
Linearisation:	by linear interpolation in 25 points - solely via OM Link
Digital filters:	Exponential filter, Rounding
Functions:	Hold - stop measuring (at contact) Lock - control key locking
OM Link:	company communication interface for setting, operation and update of instrument SW
Watch-dog:	reset after 400 ms
Calibration:	at 25°C and 40 % of r.h.

COMPARATOR

Type:	digital, adjustable in menu
Mode:	Hysteresis, From, Dose
Limita:	999
Hysteresis:	0...999
Delay:	0...99,9 s
Outputs:	1x relays with switch-on contact (Form A) (230 VAC/30 VDC, 3 A)* 1x relays with switch-off contact (Form C) (230 VAC/50 VDC, 3 A)*
Relay:	1/8 HP 277 VAC, 1/10 HP 125 V, Pilot Duty D300

POWER SUPPLY

Options:	10...30 V AC/DC, 3 VA, isolated

MECHANIC PROPERTIES

Material:	Noryl GFN2 SE1, incombustible UL 94 V-I
Dimensions:	24 x 96 x 100 mm
Panel cut-out:	22,5 x 92 mm

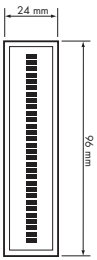
OPERATING CONDITIONS

Connection:	connector terminal board, conductor cross-section <1,5 mm^2 /<2,5 mm^2
Stabilisation period:	within 15 minutes after switch-on
Working temp.:	0°...60°C
Storage temp.:	-10°...85°C
Cover:	IP40 (front panel only)
Construction:	safety class I
Overvoltage category:	EN 61010-1, A2
Insulation resistance:	for pollution degree II, measurement category III instrum.power supply > 300 V (PI), 150 V (DI) Input/output > 300 V (PI), 150 (DI)
EMC:	EN 61000-3-2+A12; EN 61000-4-2, 3, 4, 5, 8, 11; EN 550222, A1, A2

** values apply for resistance load*

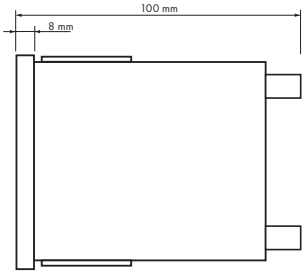
PI - Primary insulation, DI - Double insulation

Front view



Panel cut

Side view



Panel thickness: 0,5...20 mm

Product	**OMB 300UNI**
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 quality, function and construction of the instrument the guarantee shall apply provided that the instrument was connected and used in compliance with the instructions for use.

The guarantee shall not apply to defects caused by:

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

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

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: programmable panel bargraph

Type: **OMB 300**

Version: UNI, RS

Conformity is assessed pursuant to the following standards:

El. safety:	EN 61010-1	
EMC:	EN 50131-1, chapter 14 and chapter 15	
	EN 50130-4, chapter 7	EN 61000-4-11
	EN 50130-4, chapter 8	EN 61000-4-11
	EN 50130-4, chapter 9	EN 61000-4-2
	EN 50130-4, chapter 10	EN 61000-4-3
	EN 50130-4, chapter 11	EN 61000-4-6
	EN 50130-4, chapter 12	EN 61000-4-4
	EN 50130-4, chapter 13	EN 61000-4-5
	EN 50130-5, chapter 20	
	prEN 50131-2-1, par. 9.3.1	
	EN 61000-4-8	
	EN 61000-4-9	
	EN 61000-3-2 ed. 2:2001	
	EN 61000-3-3: 1997, Cor. 1:1998, Z1:2002	
	EN 55022, chapter 5 and chapter 6	

and Ordinance on:

El. safety:	No. 168/1997 Coll.
EMC:	No. 169/1997 Coll.

The evidence are the protocols of authorized and accredited organizations:
VTÚE Praha, experimental laboratory No. 1158, accredited by ČIA
VTÚPV Vyškov, experimental laboratory No. 1103, accredited by ČIA

Place and date of issue: Prague, 1. september 2006

Miroslav Hackl v.r.
Company representative

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