## Selecting a measuring range, limit values and analogue output

1. by switching dipswitch **no.2** to position „ON" programming mode is accessed - LED „Lo" ● lights up and LED „Hi" ✳ by flashing it indicates selected measuring range – voltage (table 1)
2. setting the measuring range (U), LED „Lo" is green ● - by repeated pressing of button „Lo" input types are accessed step by step and LED „Hi" ✳ by flashing it indicates actual voltage range (table 1)
3. by pressing button „Hi" our selection is confirmed and a next menu item can be accessed
4. setting the measuring range (I), LED „Lo" is green ● - by repeated pressing of button „Lo" input types are accessed step by step and LED „Hi" ✳ by flashing it indicates actual current range (table 1)
5. by pressing button „Hi" our selection is confirmed and a next menu item can be accessed
6. setting the value for limits and analogue output - LED „Lo" is red ● - by repeated pressing of button „Lo" stepping in the input values menu and LED „Hi" ✳ by flashing it indicates selected input value (table 2)
7. by pressing „Hi" selected setting is confirmed and dipswitch **no.2** can be switched to „OFF"

## Setting of Limits 1 (2)

1. after pressing button „Hi" (for Limit 2 it is button „Lo") red LED „L.1" („L.2") starts flashing ✳ and both LED „Lo" and „Hi" flash in cycles ✳ ✳ ○
2. set dipswitch **no.2** (for Limit **L.2** it is switch **no.1**) to „ON", LED „Lo" an „Hi" flash in cycles ✳ ✳
3. on the OMX 333 input set the sinal to the level required for the Limit to be actuated
4. select your setting by pressing the „Hi" button and switch the dipswitch **no.2** to „OFF"

## Setting of Analogue/Data output  (Table 3/4)

1. by switching the dipswitch **no.1** to „ON" programming mode is accessed - LED „Hi" ● lights up and LED „Lo" ✳ signals the type of output by flashing (table 3) or the rate of analogue output (table 4)
2. by repeated pressing of button „Hi" the types of analogue output are accessed (rate) and LED „Lo" ✳ signals the the type of output (table 3) or the rate of data output (table 4)
3. by pressing „Lo" the selected setting is confirmed and a next menu item can be accessed (only for further setting of data output)
4. by repeated pressing of „Hi" button instrument's address can be set ang LED „Lo" ✳ signals by flashing the address of OMX 333 (table 4) (this procedure only applies to setting of data output)
5. our setting is confirmed by pressing „Lo" button and progarmming mode is exited by switching dipswitch **no.1** to „OFF"

## Changing analogue output (AO) range  (Table 3)

1. OMX 333 AO is set by manufacturer. This procedure is for experienced users.
2. by switching dipswitches **no.1** and **no.2** to „ON" programming mode is accessed - LED „Lo" aND „Hi" flash alternatively ✳
3. to input terminals of OMX 333 connect signal of requested level which equals to minimum range of AO (for example 4 mA)  and by pressing „Lo" button this value is recorded, LED „Lo" ✳ flashes twice the normal rate
4. to input terminals of OMX 333 connect signal of requested level which equals to maximum range of AO (for example 20 mA) and by pressing „Hi" button this value is recorded, LED „Hi" ✳ flashes twice the normal rate
5. by switching dipswitches **no.1** and **no.2** to „OFF" ukončíte programovací mód

## Restoration of manufacturer's /user settings

1. this is a good way how to return to the original manufacturer's setting especially when making a mistake during the set up process
2. by pressing buttons „Lo" and „Hi" simultaneously for approx 2 s  LEDs „Lo" and „Hi" ✳ ✳
3. by switching dipswitches **no. 1** and **no. 2** to „ON" the rate of flashing increases
4. by pressing button „Hi" restoration of manufacturer's setting is executed (linearisation table, if it had been entered, is deleted), by pressing button „Lo" restoration of user settings including those which had been set via OM Link SW is executed, (linearisation table remains)
5. by switching dipswitches **no. 1** and **no. 2** to „OFF" this mode is exitted
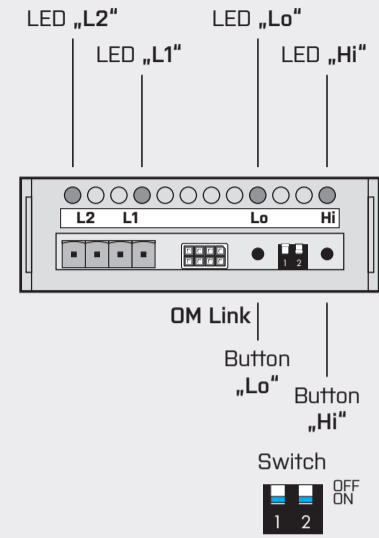


LED „L2"    LED „Lo"
LED „L1"    LED „Hi"

L2   L1        Lo   Hi

OM Link
Button „Lo"
Button „Hi"
Switch
OFF / ON
1  2

**Table 1**

| LED „LO" ○ | | |
|---|---|---|
| **LED „HI"** | | **MEASURING RANGES** |
| ✳ | U1 | 0...10 / 0...250 V |
| ✳ ✳ | U2 | 0...120 / 0...450 V |
| ✳ | I1 | 0...60 mV / 0...1 A |
| ✳ ✳ | I2 | 0...150 mV / 0...2,5 A |
| ✳ ✳ ✳ | I3 | 0...300 mV / 0...5 A |

**Table 2**

| LED „LO" ● | | |
|---|---|---|
| **LED „HI"** | | **VALUE FOR LIMITS AND ANALOGUE OUTPUT** |
| ✳ | U | Voltage |
| ✳ ✳ | I | Current |
| ✳ ✳ ✳ | P | Active power |
| ✳ ✳ ✳ ✳ | S | Apparent power |
| ✳ | cos φ | Power factor |

**Table 3**

| LED „HI" ● | |
|---|---|
| **LED „LO"** | **ANALOGUE OUTPUT** |
| | TYPE |
| ✳ | 0...2 V |
| ✳ ✳ | 0...5 V |
| ✳ ✳ ✳ | 0...10 V |
| ✳ ✳ ✳ ✳ | ±10 V |
| ✳ | 4...20 mA (Er) |
| ✳ ✳ | 4...20 mA |
| ✳ ✳ ✳ | 0...20 mA |
| ✳ ✳ ✳ ✳ | 0...5 mA |

**Table 4**

| LED „HI" | ● | ● | ○ |
|---|---|---|---|
| **LED „LO"** | **DATA OUTPUT** | | |
| | RATE | ADDRESS | ADDRESS PB |
| ✳ | 300 | 0 | 0 |
| ✳ ✳ | 600 | 1 | 1 |
| ✳ ✳ ✳ | 1200 | 2 | 2 |
| ✳ ✳ ✳ ✳ | 2400 | 3 | 3 |
| ✳ | 4800 | 4 | 4 |
| ✳ ✳ | 9600 | 5 | 5 |
| ✳ ✳ ✳ | 19200 | 6 | 6 |
| ✳ ✳ ✳ ✳ | 38400 | 7 | 7 |
| ✳ ✳ | 57600 | 8 | 8 |
| ✳ ✳ ✳ ✳ | 115200 | 9 | 9 |
| ✳ ✳ ✳ ✳ ✳ ✳ | 230400 | 10 | 10 |
| ✳ ✳ ✳ ✳ ✳ ✳ ✳ | | 11 | 11 |

**Table 5**

| LED symbol Legend | |
|---|---|
| ○ | LED is off |
| ● / ● | LED is on |
| ✳ / ✳ | LED flashes |
| ✳✳ | LED flashes twice with a shotr pause |

Menu navigation diagram:

- `1428` ⊕ + ⊖ `PAS` ⊖ `0` ⊖

**InP**
- `CFG` → `n.PS` → `50 • 25 • i2 • 05`
  - **Setting of measuring rate**
- `MAK.U` → `U1 • U2`
  - **Selection of measuring range - Voltage**
- `MAK.i` → `i1 • i2 • i3`
  - **Selection of measuring range - Current**
- `EHt` → `EH.1` → `OFF • HLd`
  - **Selection of auxiliary input function**

**CHA**
- `U` → `SEt` → `MAK` → `450`
  - **Setting the end of range - Voltage**
- `i` → `SEt` → `MAK` → `5`
  - **Setting the end of range - Current**
- `P` → `3L` → `d15 • EnR`
  - **Setting of 3-phase power calculation**

**OUt**
- `L1` → `L1` → `InP` → `U • i • P • S • CF1`
  - **Setting of input value for limit evaluation**
- `L2` → `tYP` → `CLO • OPE • rdY • Err`
  - **Selecting output mode***
- `L1` → `25`
  - **Setting of limit value**
- `H1` → `0`
  - **Setting of limit's hysteresis**
- `t1` → `0`
  - **Setting of limit's time delay**
- `dAt` → `bAUd` → `600 • 1200 • 2400 ••• 115200 • 230400`
  - **Setting of baud rate**
- `Add` → `0`
  - **Setting of address**
- `A.O` → `InP` → `U • i • P • S • CF1`
  - **Setting of input value for analogue output evaluation**
- `A.t` → `.20 • E.4 • .4 • .5 • U.2 • U.5 • U.10`
  - **Selecting output type**
- `A.Lo` → `0`
  - **Setting minimum for analogue output**
- `A.H` → `100`
  - **Setting maximum for analogue output**

**SEr**
- `rES` → `F.tr` → `YES`
  - **Restoring manufacturer's settings**
- `USr`
- `SAu`

***Selecting output mode**
- CLO.  closing relay (normally open)
- OPE.  opening relay (normally closed)
- rdY.  all OK
- Err.  error indication

## ERROR MESSAGES

| ERROR | LED "LO" | LED "HI" | CAUSE | SOLUTION |
|---|---|---|---|---|
| E.d._ | | ✷✷✷✷ | number is too low (or high negative) to be displayed (less than -99999) | change setting of channel constant |
| E.d.¯ | | ✷✷✷ | number is too high to be displayed (greater than 99999) | change setting of channel constant |
| E.t._ | ✷✷ | | number is out of table range (lower) | widen values in table (add first line), change input setting (channel constants) |
| E.t.¯ | ✷ | | number is out of table range (greater) | widen values in table (add last line), change input setting (channel constants) |
| E.l._ | | ✷✷ | input value is lower than permitted input range | change value of input signal or change settings of input range |
| E.l.¯ | | ✷ | input value is greater than permitted input range | change value of input signal or change settings of input range |
| E.Hu. | ✷✷ | ✷✷ | a part of the instrument is not functioning properly | send to manufacturer to be serviced |
| E.EE. | ✷✷✷ | ✷✷✷ | data in EEPROM corrupted | restore manufacturer's settings, if error message reoccures, send to manufacturer to be serviced |
| E.dt. | ✷✷✷✷ | ✷✷✷✷ | data in EEPROM out of range | restore manufacturer's settings, if error message reoccures, send to manufacturer to be serviced |
| E.CL. | ✷✷✷✷✷ | ✷✷✷✷✷ | memory was empty (pre-setting had taken place) | if error message reoccures, send to manufacturer to be serviced, possibilty of corrupted calibration data |

# OMX 333PWR
## CONNECTION OF INSTRUMENT / TECHNICAL DATA

### MEASURING INPUT

| Range | | | |
|---|---|---|---|
| | 0...60 mV | 21 kOhm | Input 5 |
| | 0...150 mV | 21 kOhm | Input 5 |
| | 0...300 mV | 1,2 kOhm | Input 5 |
| | 0...1 A | < 150 mV | Input 5 |
| | 0...2,5 A | < 150 mV | Input 5 |
| | 0...5 A | < 150 mV | Input 5 |
| | 0...10 V | 152 kOhm | Input 3 |
| | 0...120 V | 930 kOhm | Input 1 |
| | 0...250 V | 730 kOhm | Input 3 |
| | 0...450 V | 930 kOhm | Input 1 |
| Input frequency | 0...400 Hz | | |
| Measured quantities | Voltage ($V_{RMS}$) | | |
| | Current ($I_{RMS}$) | | |
| | Active power P (W) | | |
| | *with calculation* | | |
| | Apparent power S (W) | | |
| | Power factor (cos φ) | | |

### INSTRUMENT'S ACCURACY

| | |
|---|---|
| TC | 50 ppm/°C |
| Accuracy | ±0,3 % of the range |
| Rate | 0,5...5 measurements/s |
| Overload capacity | 10x (t < 30 ms), 2x |
| Function | Hold - freezing the measured value (upon contact) |
| External input | 1, with the possibility of assigning various functions in the instrument's menu |
| OM Link | company communication interface for operating, setting and updating of instruments |
| Watch-dog | reset after 500 ms |
| Calibration | at 25°C and 40 % r.h. |

### COMPARATOR

| | |
|---|---|
| Type | digital, setting in v menu |
| Limits | 0...999999 |
| Hysteresis | 0...999999 |
| Delay | 0...99,9 s |
| Outputs | up to 2x relays with switch-on contact (Form A) (250 VAC/30 VDC, 3 A)* 2x open collector (30 VDC/100 mA)* |
| Reaction speed | < 50 ms |
| Relay | 1/8 HP 277 VAC, 1/10 HP 125 V, Pilot Duty D300 |

\* values apply to resistive load

### DATA OUTPUT

| | |
|---|---|
| Protocol | ASCII |
| Data format | 8 bit + no parity + 1 stop bit |
| Rate | 600...230 400 Baud |
| RS 485 | isolated, adressing (max. 31 instruments) |

### ANALOG OUTPUT

| | |
|---|---|
| Type | isolated, programmable with 16-bit D/A converter, type and range are selectable in menu |
| Non-linearity | 0,1 % of range |
| TC | 15 ppm/°C |
| Rate | response to change of value < 1 ms |
| Output | 0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA (comp. < 500 Ω/12 V), Detection of broken loop |
| Ripple | 5 mV residual ripple at output voltage of 10 V |

### POWER SUPPLY

| | |
|---|---|
| | 10...30 VDC/24 VAC, ±10 %, 3 VA, PF ≥ 0,4, $I_{STP}$< 40 A/1 ms, isolated |

### MECHANIC PROPERTIES

| | |
|---|---|
| Material | PA 66, incombustible UL 94 V-0, blue |
| Dimensions | 90,5 x 79 x 25 mm |
| Installation | to DIN rail, wide 35 mm |

### OPERATING CONDITIONS

| | |
|---|---|
| Connection | connector terminal board, cross section < 1,5/2,5 mm² |
| Stabilization period | within 15 minutes after switch-on |
| Working temperature | -20°...60°C |
| Storage temperature | -20°...85°C |
| Cover | IP20 |
| Execution | safety class I |
| El. safety | EN 61010-1, A2 |
| Dielectric strength | 2,5 kVAC after 1 min between supply/input 2,5 kVAC after 1 min between supply/outputs 4 kVAC after 1 min between input/relays output |
| Insulation resistance* | for pollution degree II, measuring cat. III. power supply > 300 V (PI), 255 V (DI) input/output > 300 V (PI) input/output - relay > 300 V (DI) |
| EMC | EN 61326-1 (Industrial environment) |

\* PI - Primary insulation, DI - Double insulation
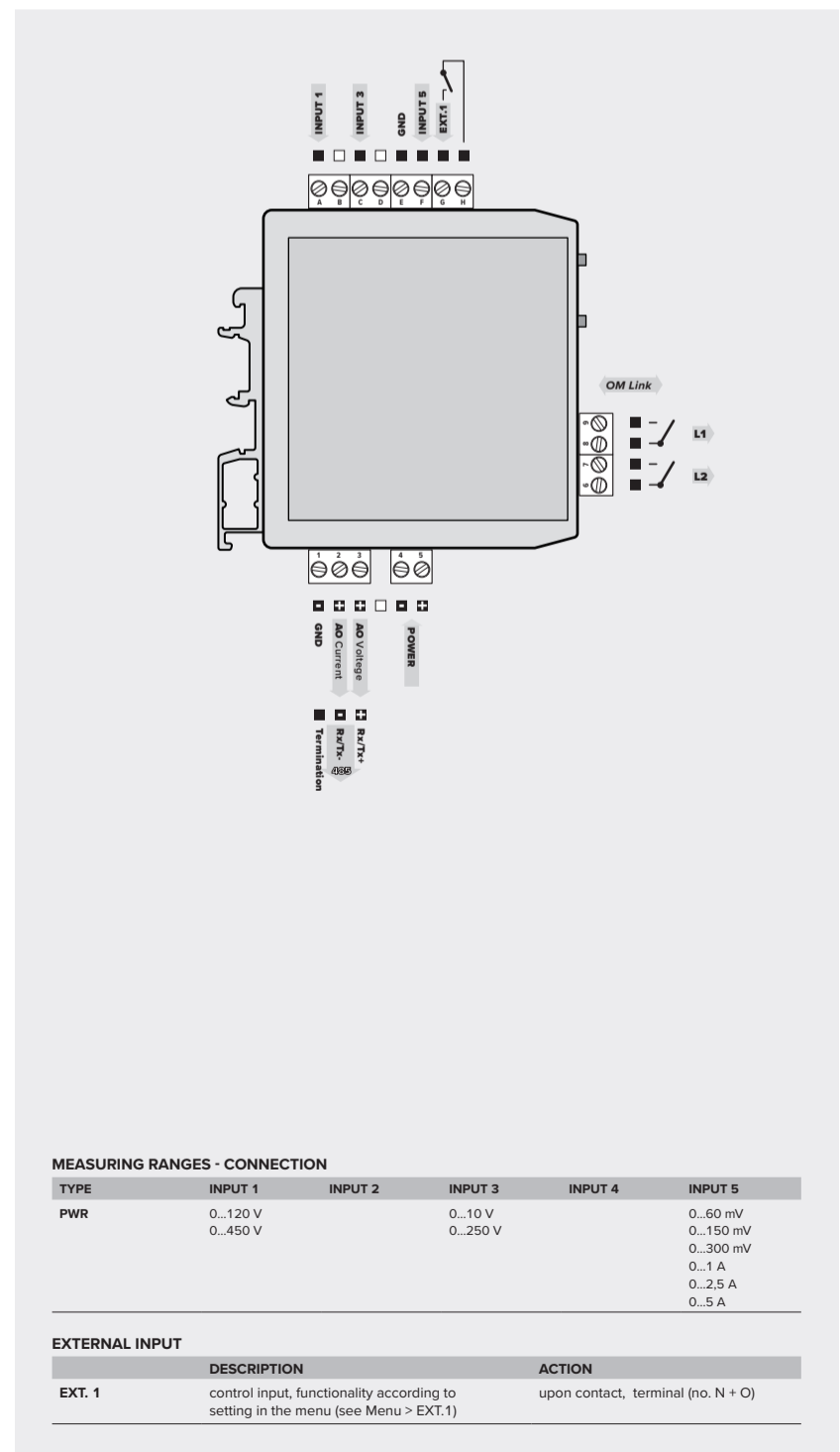


### MEASURING RANGES - CONNECTION

| TYPE | INPUT 1 | INPUT 2 | INPUT 3 | INPUT 4 | INPUT 5 |
|---|---|---|---|---|---|
| PWR | 0...120 V | | 0...10 V | | 0...60 mV |
| | 0...450 V | | 0...250 V | | 0...150 mV |
| | | | | | 0...300 mV |
| | | | | | 0...1 A |
| | | | | | 0...2,5 A |
| | | | | | 0...5 A |

### EXTERNAL INPUT

| | DESCRIPTION | ACTION |
|---|---|---|
| EXT. 1 | control input, functionality according to setting in the menu (see Menu > EXT.1) | upon contact, terminal (no. N + O) |

Instrument's power supply leads should not be in vicinity of low level input signals. Contactors, medium and high power electrical motors must not be used in vicinity of the instrument. Input signal leads (measured value) need to be separated from all high power leads and devices. Instruments are tested in accordance with standards for industrial use, however we strongly advise you to adhere to the above mentioned precaution measures.

In order to ensure proper functionality of this instrument it is absolutely essential to connect the input leads shielding to the junction box' frame.

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