

Digalox DPM72-MPN Instruction manual (Rev-2018-09)

Visit **www.digalox.com** to download the software “Digalox Manager”.

Package contents: Panel meter Digalox DPM72, 5 × jumpers, 1 × mounting bracket

1. Intended Use

- Indoor use non condensing, non corrosive.
- Panel mounting.
- Failure to comply with these instructions will void all guarantee and warranty.
- In operation, supply the device preferably via screw terminals with 10 to 24 V AC/DC. If the device is supplied via USB in operation, USB supply voltage must be at least 5 V.

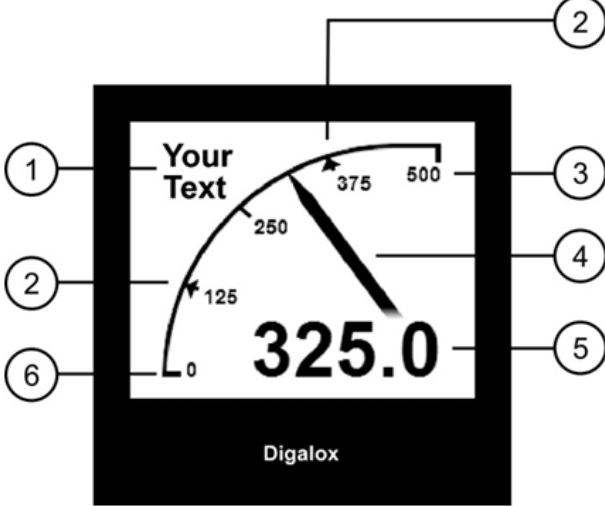
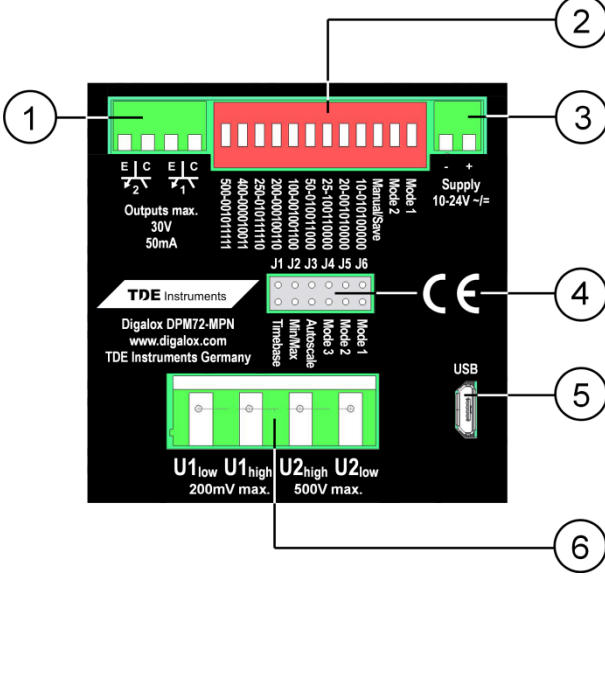
2. Safety instructions

- **Note: The measurement inputs of the device can carry life-threatening voltages!**
- **When working on the device hazardous voltages must not be connected to the device!**
- **The device must not be used as the only protective device or protective shutdown.**
- Read instruction manual carefully before operating the device!
- The device is not intended to protect persons or facilities against harm. Specific devices must be used to guarantee safety (protection relays, cut-off switches, etc.).
- When connecting switches to the terminals J1-J6, only switches must be used whose isolation voltage is at least twice the maximum occurring measurement voltage. For example, when measuring 250 V AC switches must be isolated for at least 500 V.
- Do not open the housing!
- Do not use the instrument in the presence of explosive or flammable substances!
- All cables carrying hazardous voltages must be secured with external separators.

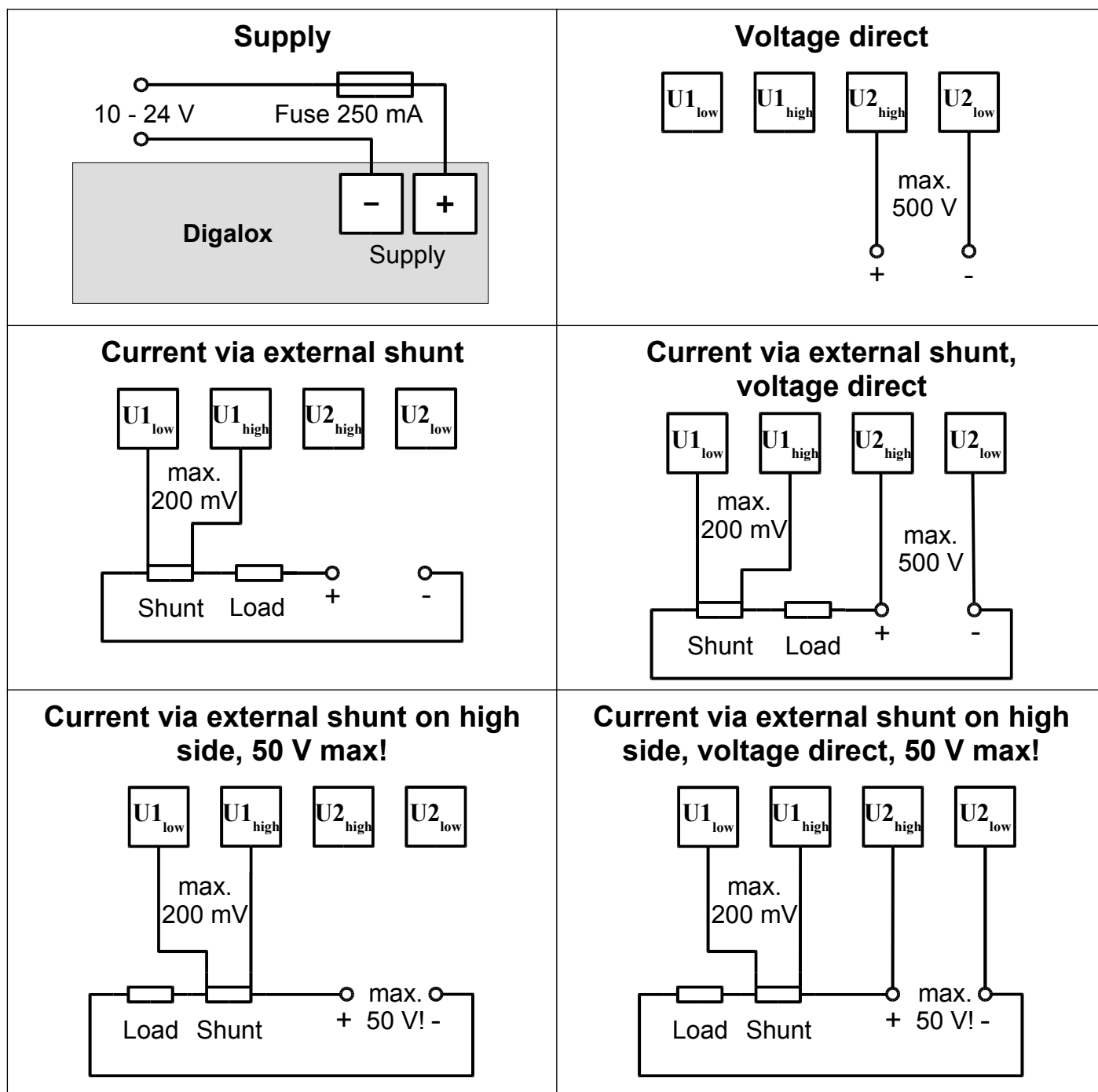
3. Description

The multi display with RGB backlight is able to display up to 4 parameters simultaneously. Thresholds can be associated with individual warning backlight colours. The unit can be switched between measurement modes via an external switch. Minimum and maximum values for each parameter are recorded and can be displayed optionally using an external switch. Measured values of one parameter are recorded over a time span of three minutes up to 14 days. The time base as well as the display of the measuring history can be activated by an external switch. The measured values remain stored as long as the device is supplied with voltage.

The following parameters can be adjusted using the USB software: scale endpoint, scale caption, display style (pointer, tachometer, bar graph, and more), splash image, backlight colour, thresholds for alarm output, threshold warning colour (light, blink), hysteresis, and more. Recorded measurement values can be read and a continuous transmission of up to four measuring values can be enabled. Using the software, values can be viewed and exported as CSV file.

	<p>Front</p> <ol style="list-style-type: none"> 1 Unit or free text 2 Threshold values 3 Upper scale caption 4 Graphical measurement display 5 Digital measurement value 6 Lower scale caption
	<p>Back</p> <ol style="list-style-type: none"> 1 2 optocoupler switch outputs 2 DIP switch for setting measurement mode and upper scale caption 3 Supply voltage input 4 Jumpers for configuration/connection external switch for activating/switching measurement mode, graphical historic data display, min/max display, auto-scaling 5 USB interface for alternative power supply and software communication interface 6 Measurement inputs

4. Electrical Connections



Warning:

The device may only be operated in one of the connection options shown above!

Current measurement on the high side (between plus and load) is recommended only for voltages up to 50 V!

In this case the entire device is on high potential. Particularly to be considered when connecting switches to J1-6.

When measuring current, an external shunt must be connected to U1!

5. Configuration

The device can be configured via DIP switches and jumpers manually or with the corresponding software “Digalox Manager” via USB interface. When configuring via DIP switches and jumpers the basic settings can be made computer-independent. The configuration with the software “Digalox Manager” allows full functionality.

Scaling

When setting the scaling via DIP switch to represent the correct measurement value (e.g. 60 mV DC for shunt) the upper scale caption corresponds to the primary value of the shunt.

Example: upper scale caption = 250 = primary value shunt

Configuration via USB interface with software “Digalox Manager”

For configuration with software set DIP switch 10 to OFF position.

Please note that the measurement mode selected in "Digalox Manager" is displayed only until the power supply of the DPM72 is interrupted.

**In further operation, the device always shows the measurement mode, which is selected by the jumpers J4-J6 or the DIP switches 11-12 respectively!
(see table "Measurement mode").**

Configuration via DIP switches and jumpers if only one measurement mode is required (Manual mode)

1. Set DIP switch 10 to ON position.
2. Set measurement mode with jumpers at J4-J6 according to table “Measurement mode”, column “Manual mode”.
3. Set upper scale caption for the first measurement mode with DIP switches 1-9 (see “Configuration of the upper scale caption”).
4. Connect supply voltage.

Configuration via DIP switches and jumpers if it is required to switch between multiple measurement modes via an external switch (Save mode)

The required measurement modes are configured and saved sequentially.

1. Connect supply voltage.
2. Set DIP-switch 10, 11 and 12 to OFF position.
3. Set the measurement mode with jumpers at J4-J6 according to table "Measurement mode", column "Save mode".
4. Set DIP switch 10 to ON position.
5. Set upper scale caption for the first measurement mode with DIP switches 1-9 (see "Configuration of the upper scale caption").
6. Set time base for graphical historic data display (optional, see "Other settings").
7. Set DIP switch 10 to OFF position.
8. "Saved" appears on the display. The configuration of the first measurement mode is now completed.
9. When using multiple measurement modes repeat steps 2-8 until all required measurement modes are configured. The time base does not need to be set again, as it is used for all measurement modes.
10. In operation the measurement modes can be changed with a switch at J4-J6 according to table "Measurement mode", column "Save mode".

Configuration of the upper scale caption

The upper scale caption is binary coded using DIP switches 1-9. Possible values are 1 to 500. Switch 1 corresponds to 256, switch 2 corresponds to 128, switch 3 corresponds to 64, etc., switch 9 corresponds to 1. For configuration, proceed as follows:

1. Connect supply voltage.
2. Set DIP switches 1-9 to OFF position.
3. Set DIP switch 10 to ON Position.
4. Start with 1st switch.
5. Set switch to ON position.
6. If the displayed value is greater than the desired value, set the switch back to OFF position.
7. If the displayed value is less than the desired value, leave the switch in ON position and move on to the next switch.
8. Repeat steps 5 to 7 until the desired value is displayed.

Table common switch combinations

Value	Combination (DIP switch 1-9)	Value	Combination (DIP switch 1-9)	Value	Combination (DIP switch 1-9)
10		50		200	
20		100		250	
25		150		500	

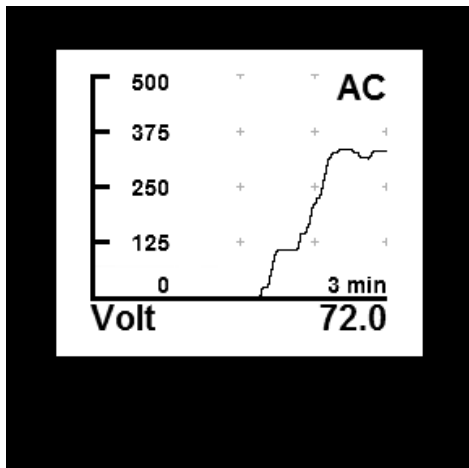
Table measurement mode

Measurement mode	Display	Scale	Manual mode	Save mode
V DC direct	Volt DC			
A DC scaled	Ampere DC	Upper scale caption		
P DC scaled	Watt DC	Configure via USB		
V AC direct	Volt AC			
A AC scaled (with shunt)	Ampere CT	Upper scale caption		
P AC scaled (with shunt)	Watt CT	Configure via USB		
AC Frequency	Frequency AC			

Remark: When using a multi display style, AC and DC measurement cannot be done simultaneously. The first measurement mode used defines the type of measurement.

6. Other settings

The following functions can be activated independently by short-circuiting connectors J1-J3 by jumper or switch during operation:

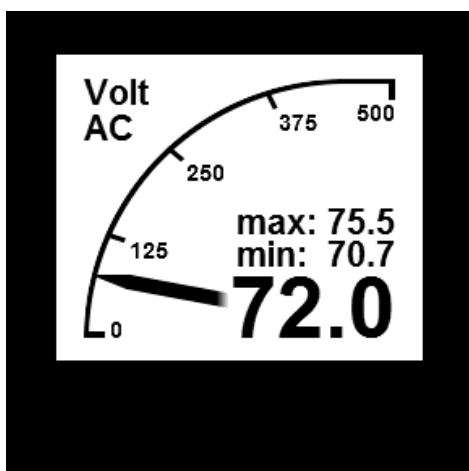


J1: Graphical historic data display

To activate the graphical historic data display connector J1 is shorted. The unit displays the stored values within the set time base as a graphical trend.

The time base can be set to days (7, 14), hours (6, 12, 24, 48, 72) or minutes (3, 15, 30, 60).

The time base can be changed by alternately opening and closing J1 (interval < 2 sec). When first opening and closing J1 the current time base is displayed. For each subsequent opening and closing the time base changes to the next setting. In order to save the setting permanently, DIP switch 10 must be switched from ON to OFF position.



J2: Min-Max-display

To activate the Min-Max display connector J2 is shorted. The display shows the maximum and minimum values recorded since the last reset. The values can be reset by opening and closing connection J2 shortly (interval < 2 sec). The display shows "Minmax reset".

J3: Auto-scaling

To activate auto-scaling J3 connector is shorted. The device automatically changes the upper scale caption depending on the current measuring value between 10, 100 and the set upper scale caption.

7. Mounting

Carefully insert the instrument into the panel cut-out. Insert the mounting bracket from the back and push towards the panel until the instrument sits tight. Make sure the mounting bracket is snapped into the side of the housing. To ensure IP65 protection (dust and water jet) when mounting in a front panel, use optional gasket (separately available).

8. Specifications

	DPM72-MPN
Supply	10 - 24 V AC/DC or via USB (min. 5 V) galvanically isolated
Display	LCD graphic display 192 × 160 pixels
Voltage measurement:	
Measuring range	±500 V AC/DC
Accuracy	±1 % true RMS
Internal resistance	2.6 MΩ
Ampere measurement via shunt:	
Measuring range	50/60 mV AC/DC
Accuracy	±1 % true RMS
Internal resistance	20 kΩ
Frequency measurement:	
Measuring range	10 - 500 Hz
Accuracy	±0.1 Hz
Recording of measurement	3 min to 14 days
Alarm outputs	2 optocoupler outputs max. 30 V DC, 50 mA
Operating temperature	0 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Front panel	72 mm × 72 mm
Panel cut-out	68 mm × 68 mm
Protection front	IP65 from the front

9. Cleaning

Observe the safety instructions before cleaning the instrument. Clean the instrument with a dry lint-free soft cloth. Do not use solvents.

10. Contact Information

TDE Instruments GmbH, Gewerbestraße 8, D-71144 Steinenbronn

phone: +49 7157-20801

E-Mail: info@tde-instruments.de

Internet: www.tde-instruments.de, www.digalox.com