MIEZ Power analyzer

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1 Installation

1.1 Montage

The multifunction measuring device is suitable for installation in control panels and requires a **cut-out dimension of 92^{+1} x 92^{+1} mm**.

There must be a distance of 20 mm and 50 mm respectively to adjacent devices to ensure sufficient ventilation.
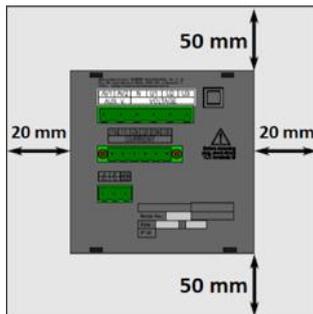
To fix the multifunction measuring device in the control panel, use the enclosed fixing clips. These are placed on the side of the device and fastened using a screwdriver.
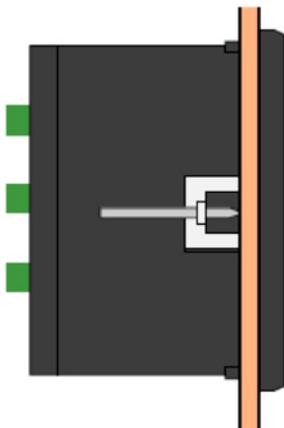
1.2 Voltage supply

The 37010 Power analyzer is available with the following voltage supply:

- The 24 V version requires a voltage of: 20 … 27 V_{AC}

                                                                        10 … 36 V_{DC}

- The connections for this are located at the bottom of the multifunction measuring devices and labelled AV1 (X1) and AV2 (X2). It is recommended to protect the voltage supply with a 1 A circuit breaker.
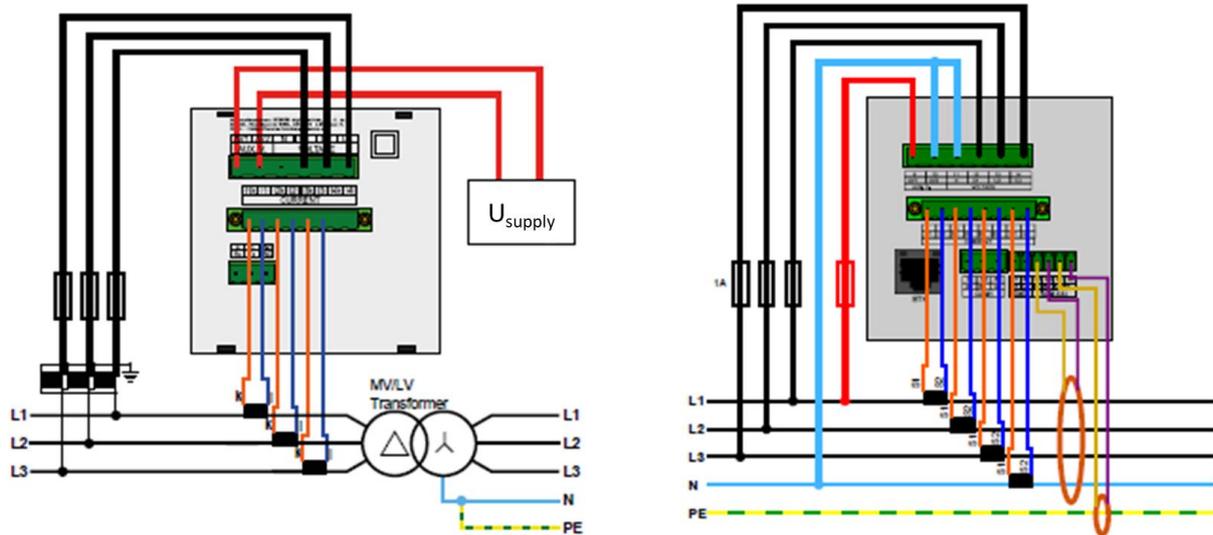
1.3 Voltage measurement

The multifunction measuring device has 3 voltage inputs that are suitable for both direct and current transformer measurements. The phase voltages are measured via the terminals 12 (L1), 13 (L2), 14 (L3), and the common neutral conductor connection N (terminal 11). It is recommended to protect the voltage paths with a 1 A circuit breaker.

1.4 Connecting a current transformer

The multifunction measuring devices are not designed for direct current measurement. The connections of the required current transformers are located at the bottom of the device and labelled as follows:

Variante 1 A // 5 A:
- I11 and I12 for the current transformer on phase 1
- I21 and I22 for the current transformer on phase 2
- I31 and I32 for the current transformer on phase 3

The current transformer connection terminals are designed for secondary signals of 1 A or 5 A.

Connection of the residual current transformers:
- AI1 and AG1 for one residual current transformer

The connection terminals for residual current transformers are suitable for secondary signals of 30 mA.

1.5 RJ45 interface

The multifunction measuring device has a standard RJ45 connection for the LAN. The connection is located at the bottom left on the rear of the device.

1.6 USB interface

The 37010 Power analyzer is equipped with a USB-C-interface on the front. This interface can be used to edit the configuration of the device with a PC or to read out the memory on site.

1.7 Local Bus interface

The 37010 Power analyzer is equipped with a Local Bus connection on the rear. This interface can be used to connect our modular current extension module (37100). Configuration takes place via the MIEZ.Daq.
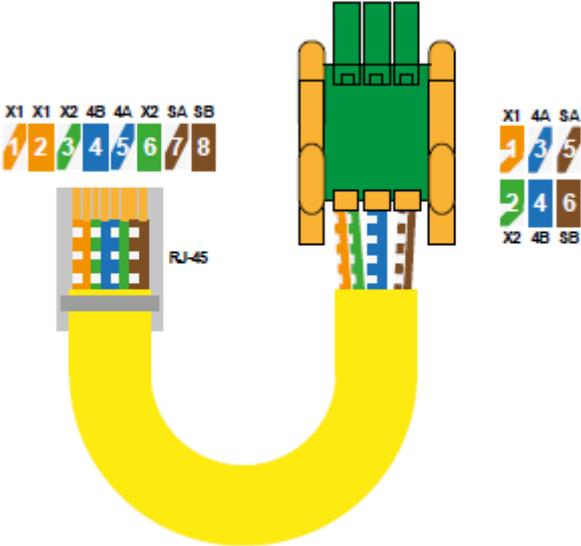
2 Commissioning

2.1 Factory communication settings

The Power analyzer 37010 is delivered with the **IP address 10.0.0.1** by default. The IP address can be changed manually on the device via the display or the mode can be set to DHCP.

2.2 Manual network settings

To change the IP address, the subnet mask and the default gateway manually, proceed as follows:

1. Push any button on the Power analyzer 37010.
2. Button 3 ▮▮▤▮ will take you to the main menu.

3. Buttons 2, 4, and 5 will navigate to the settings . Confirm with button 3.

4. Now navigate to the item "Comm" and confirm with button 3 as well.

5. You can choose between Ethernet and COM here, depending on model. You can activate DHCP or enter a static IP address under the item Ethernet.
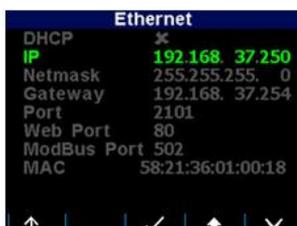
6. Once you have made the necessary settings, confirm them with button 3 and return to the main menu by pushing button 1 repeatedly. Confirm the subsequent query with button 2.

The multifunction measuring device 37001 or 37002 can now be reached at the set IP address.

2.3 Setting the current transformiert

1. Push any button on the 37010 Power analyzer.
2. Button 3 ▮▮▤▮ will take you to the main menu.

3. Buttons 2, 4, and 5 will navigate to the settings . Confirm with button 3.

4. Now navigate to the item "Measurement" and confirm with button 3 as well.

5. You can enter your current transformer ratio (for I1, I2, I3) here in the item "CT". In this example: 1500 / 5 A. Select "CTN" for the neutral conductor's current transformer ratio and "CT RCM" for the residual current transformers.
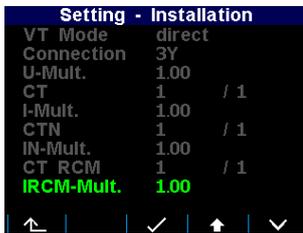
Once you have made the necessary settings, confirm them with button 3 and return to the main menu by pushing button 1 repeatedly. Confirm the subsequent query with button 2.

2.4 Checking the connection and settings

The connection and settings of the universal measurement device can now be reviewed via the device display.

- The display of the currents can be used to review plausibility. If you do not know the current, we recommend comparing the current with a current clamp.
- When displaying the individual active powers, consumption is displayed without a prefix and supply with a negative prefix. This permits verification of the correct installation and connection of the current transformers.
- The pointer diagram can be used to check the rotating field (1) and assignment of the current and voltage paths. Observe the phase shift (2) of current and voltage for this.
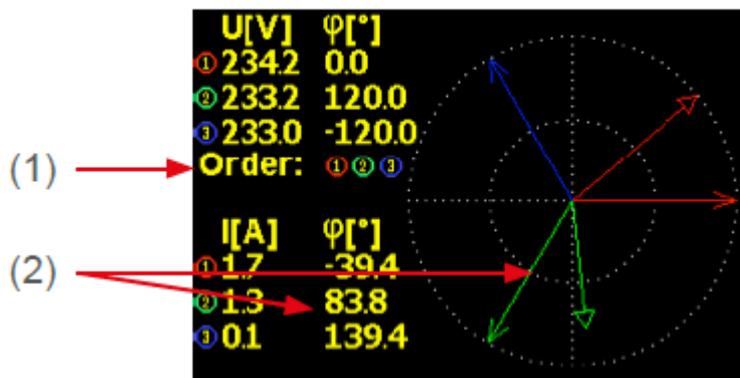
2.5 Connecting to a PC

You can either use a USB-C- or a LAN cable to connect the 37010 Power analyzer to a PC.

USB: The associated USB driver must be installed on the PC for this. You can install it in the MIEZ software package using the menu path:

- "Setup" → "Install USB driver"

or in the MIEZ installation folder at:

- ...\Wöhner\MIEZ x.x\driver by right-clicking **KMB-USB.inf**.

LAN: If you want to connect to the device by LAN cable, you need to either adjust your device's IP address to your network or the IP address of your computer. The 37010 Power analyzer is delivered with the **IP: 10.0.0.1**.

- Open the MIEZ.Daq and select the item "COM" for a USB connection and the item "TCP" for Ethernet.
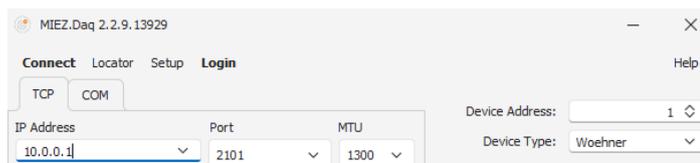
- Open the drop-down menu and select the COM interface or enter the IP address of the 37010 Power analyzer in the field provided for this.
- Clicking "Connect" establishes a connection to the device. You can make all further settings of the device here.

2.6 Configuring the current extension module

After you are connected to the 37010 Power analyzer, you can configure the connected current extension module in the configuration under "Local Bus".

1. **Detected but not Configured Slaves**

   All (max. 5) current extension modules that are connected via the Local Bus but not yet configured in the 37010 Power analyzer are displayed here.

2. **Assigning current extension module**

   D1 – D5 are the available slots on the Local Bus that can be occupied with current extension modules. Under "Parameter", the respective module can be added by selecting the serial number and a name can be assigned.

3. **Selecting current input**

   F1 – F4 are the respective 3-phase inputs at the current extension module. They can be activated and configured under "Parameter".

4. **Device address**

The individual device addresses of the current extension module inputs start from 200 by default. The first module thus has the addresses from 200 (F1) – 203 (F4).

Notice:

Recording of the Local Bus data must be activated in the "Archive" tab.

2.7 Checking the connection and settings of the current extension module

The connection and settings of the connected modules can now be reviewed via the 37010 Power analyzer display or the "Act Data" in the MIEZ.Daq.

The measured values of the current extension modules can be found on the 37010 Power analyzer by going to:

Menu → Local Bus → LB – Current … and the respective measurement

- The display of the currents can be used to review plausibility. If you do not know the current, we recommend comparing the current with a current clamp.
- When displaying the individual active powers, consumption is displayed without a prefix and supply with a negative prefix. This permits verification of the correct installation and connection of the current transformers.
- The pointer diagram in the MIEZ.Daq can be used to check the rotating field and assignment of the current and voltage paths. Observe the phase shift of current and voltage for this.

3 Technical data

Voltage supply	20 ... 27 V_{AC}; 10 ... 36 V_{DC}
Voltage measurement	2 … 650 V_{L-N}; 3,5 … 1120 V_{L-L}
Frequency	40 … 70 Hz
Sampling rate	57,6 kHz
Power consumption	8 VA / 4 W
Ambient temperature T$_{Operation}$	-20 ... 60 °C
Protection type front / rear	IP40 (opt.: IP54) / IP20
EMC	Class A: Industrial area according to IEC 61326-1
Overvoltage category	CAT III / 300 V
Overload (permanent)	U: 600 V_{L-N}	I: 7,5 A_{AC}	I_{333mV}: 666 mV
Overload (1s)	U: 1200 V_{L-N}	I: 70 A_{AC}	I_{333mV}: 3,33 V
Mechanical data	
Mounting	Front panel installation 96 x 96 (opt.: DIN rail with adapter)
Dimensions WxHxD	96 x 96 x 80 mm
Weight	Ca. 300 g
Installation cut-out	92^{+1} x 92^{+1} mm
Interfaces	
RJ45	Max. 100 MBit/s
USB	USB-C
Digital in/output	Max. 35 V_{DC}; 100 mA
Protocols	Modbus TCP, DHCP, SMTP, NTP, SNMP