OPERATING MANUAL

PQ Display

FRAKO Kondensatoren- und Anlagenbau GmbH
www.frako.com

Contents

1 Safety Instructions & General Information

1.1 Target Group

This operating manual is intended for persons who mount, install, commission and operate the PQ Display. Before carrying out any work on or with the display, this operating manual must be read carefully and completely. All work must be performed in accordance with this operating manual.

1.2 Storage

This operating manual contains important instructions for the safe, proper and economical operation of the display. It is an integral part of the device and must be kept readily accessible at all times.

1.3 Device-Specific Hazards

The display is manufactured according to the current state of the art. However, not all hazards can be completely eliminated.

Danger due to electrical voltage:

– Installation, commissioning and decommissioning of the PQ Display may only be carried out by qualified electrical personnel who are familiar with and understand the contents of this manual.
– Do not open the display.

1.4 Organizational Information

User Qualification

Required qualifications for working on the PQ Display:

– **Installation, commissioning and troubleshooting (installation):**
Must only be carried out by a qualified electrician.
– **Operation and troubleshooting in case of misconfiguration:**
By persons who have fully read and understood this operating manual.
– **Troubleshooting in case of device faults:**
Exclusively by FRAKO customer service.

Responsibility of the Operator

In commercial facilities, the accident prevention regulations of the relevant professional associations for electrical systems and equipment must be observed. The safety of the system into which the PQ Display is integrated is the responsibility of both the system installer and the operator. For safety and certification reasons (CE), any unauthorized modification or alteration of the product is prohibited. The operator must ensure that all users are familiar with and comply with this operating manual.

1.5 Disclaimer

Failure to comply with this operating manual voids any warranty claims. No liability is accepted for consequential damages. No liability is accepted for damage to property or personal injury resulting from improper handling or failure to observe safety instructions. In such cases, all warranty claims are void.

1.6 Applicable Standards

Installation and commissioning in industrial systems must strictly comply with the following standards:

– DIN EN 61508-1:2011-02; VDE 0803-1:2011-02

In addition, all relevant laws, standards, directives and safety regulations (e.g. IEC, EN, VDE, Equipment Safety Act, professional association regulations) for the protection of persons and property must be observed.

1.7 Repair

In the event of required repairs, the customer or operator must contact the manufacturer: FRAKO Kondensatoren- und Anlagenbau GmbH, Tscheulinstraße 21A, D-79331 Teningen, Germany, www.frako.com

1.8 Intended Use

The PQ Display is intended, within the scope of the technical data, for:

– Displaying measured values, graphs and operating structures of compatible FRAKO Energy Management System devices, e.g. PQA 2300 or PQMC Pro
– Connection exclusively to the Ethernet network to which FRAKO devices are connected

1.9 Improper Use

Any use beyond the intended use is considered improper and is therefore prohibited.

1.10 Disposal

This device must not be disposed of with household waste.

It must be disposed of properly in accordance with the European WEEE Directive 2012/19/EU via appropriate collection points for electrical and electronic equipment.

2 Technical Data

Display:

Touchscreen-technology	Projected capacitive multi-touch
Display / backlight	TFT color display with LED backlight
Color depth	16 million colors
Resolution	1024 x 600 pixels
Screen size	7" widescreen
Viewing angle	Horizontal: (left/right): typ. 75° Vertical: (up/down): typ. 75°
Brightness control	Dimmable down to 0 %

Power Supply

Supply	802.3af PoE
Battery	3 V, 7 mAh vanadium lithium, rechargeable, not user-replaceable (VL1220)
Power consumption	12 W

Connections:

Ethernet	10 / 100 PoE 802.3af/at

Mechanical Data:

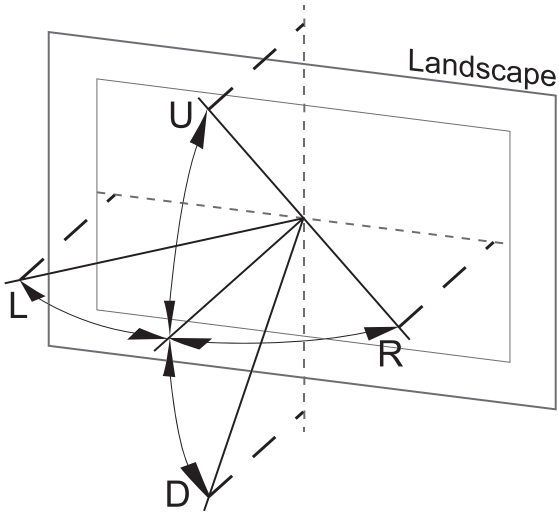
Dimensions	See section 2.1
Weight	0,7 kg
Protection class	IP67 (only when using suitable connectors and cables) according to EN 60529
Mounting	Front panel / door mounting using: One central hole Ø 22.5 mm One anti-rotation hole Ø 3.5 mm

Electromagnetic compatibility / EMC:

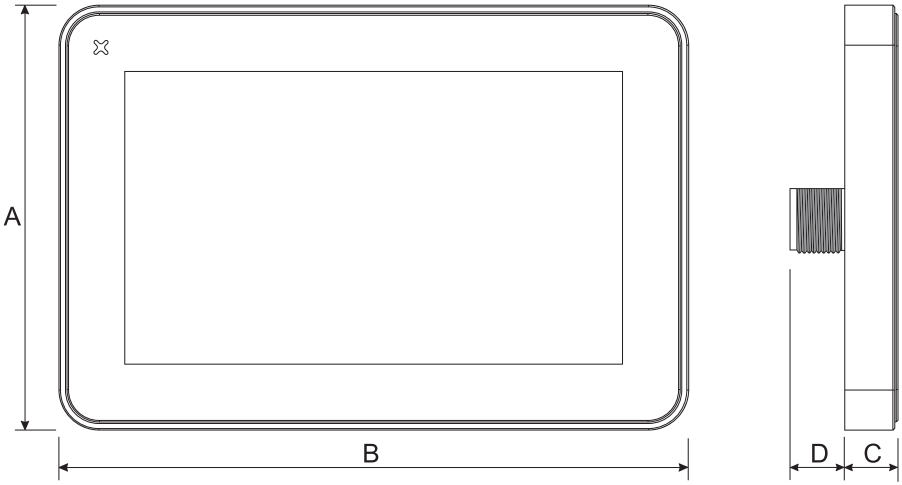
Emission	Class A according to CISPR 22, CISPR 16-2-3
ESD immunity	8 kV air discharge 4 kV contact discharge (EN 61000-4-2)
Radiated RF immunity	80 MHz - 1 GHz: 10 V/m 1.4 GHz - 2 GHz: 3 V/m 2 GHz - 2.7 GHz: 1 V/m (EN 61000-4-3)
Burst immunity	± 2 kV DC supply ± 1 kV signal lines (EN 61000-4-4)
Surge immunity	± 0,5 kV DC supply (line-earth / line-line) ± 1 kV signal lines (line-earth) (EN 61000-4-5)
Conducted RF immunity	0.15 - 80 MHz: 10 V EN 61000-4-6
Power frequency magnetic field	50/60 Hz, 30 A/m (EN 61000-4-8)

Environmental Conditions:

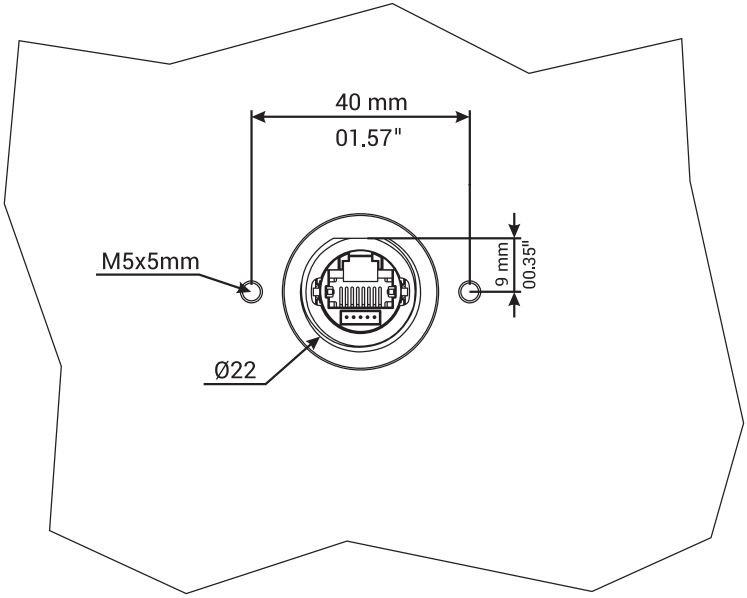
Operating temperature	-20 °C to +55 °C (EN 60068-2-14)
Storage temperature	-30 °C to +80 °C (EN 60068-2-1, EN 60068-2-2, EN 60068-2-14)
Installation altitude	max. 2,000 m above sea level



2.1 Dimensions



A	B	C	D
131.6 mm / 5.18"	195.2 mm / 7.68"	16.5 mm / 0.64"	17 mm / 0.66"



3 Description

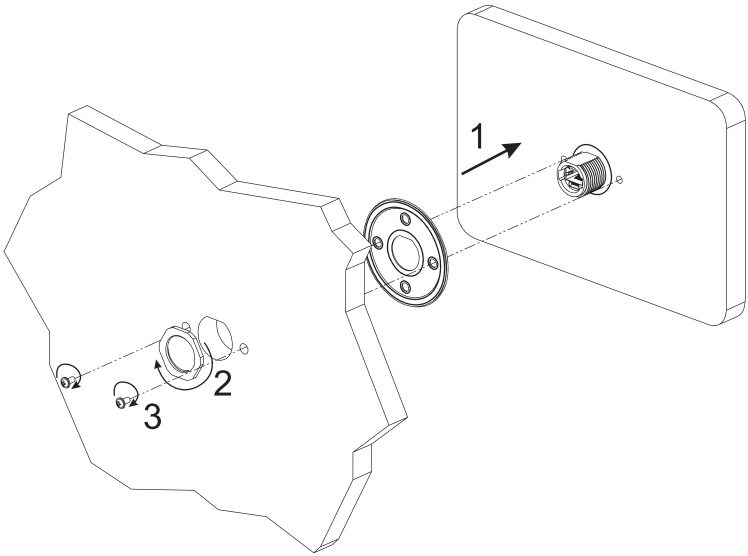
The PQ Display expands the FRAKO product family with a user-friendly solution for operating, configuring and visualizing FRAKO devices via a touchscreen.

The display shows a list of all FRAKO devices detected in the network.

From this list, the user can switch to the visualization of each listed device to view detailed information or adjust device settings.

4 Installation – Environment & Procedure

- Avoid prolonged exposure to direct sunlight to prevent overheating.
- The device is not intended for installation in environments with corrosive chemicals. Check the resistance of the front panel before installation.
- Do not use any tools (screwdrivers, etc.) to operate the touchscreen.
- The device may only be used in environments with pollution degree ≤ 2 according to IEC/EN 60664-1.
- The device must be installed in an enclosure providing at least IP54 protection according to IEC/EN 60079-15.
- Overvoltage protection must be provided and set so that 140% of the rated peak voltage at the supply terminals is not exceeded.
- Ensure that no dust layers accumulate on the graphic panel to avoid electrostatic charging. Clean only with a soft cloth and neutral detergent. Do not use solvents.



CAUTION

Tightening torque: Nut: 1,000 Ncm, Screws: 130 Ncm

5 Commissioning

The PQ Display is commissioned by connecting it to the Ethernet network. Power is supplied exclusively via Power over Ethernet (PoE).

The device obtains its IP address and network parameters from the DHCP server. Communication is also carried out via the Ethernet interface.

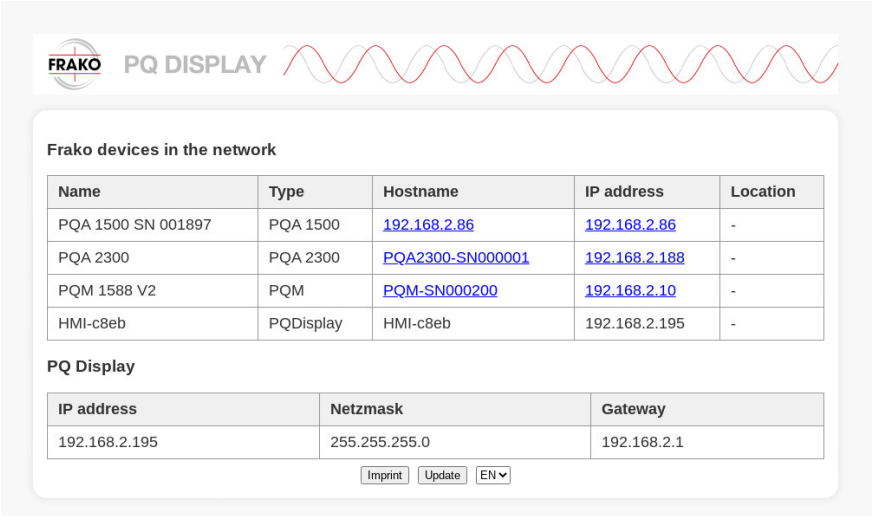
If no PoE-capable network switch is available, a PoE injector (available from FRAKO) may be used.

6 Operation

After startup, the PQ Display automatically shows a list of all FRAKO devices detected in the network.

Clicking on the link in the “Hostname” or “IP Address” column opens the web interface of the respective device.

You can return to the device list either via a dedicated button on the device web page or by swiping from left to right with one finger.



Explanation of the Device List:

Area	Column	Description
PQ Display	IP address, subnet mask and gateway	The network parameters of the PQ display are shown.
Detected FRAKO devices in the network	Name	The device name can be configured in the respective FRAKO device via the browser interface on the display or on a PC.
	Type	The FRAKO device type is displayed
	Hostname	If a hostname exists in the FRAKO device, it is displayed here.
	IP adress	The IP address of the FRAKO device is displayed. The network parameters are configured in the respective FRAKO device via the browser interface on the display or on a PC.
	Location	The location can be configured in the respective FRAKO device via the browser interface on the display or on a PC.

NOTE!

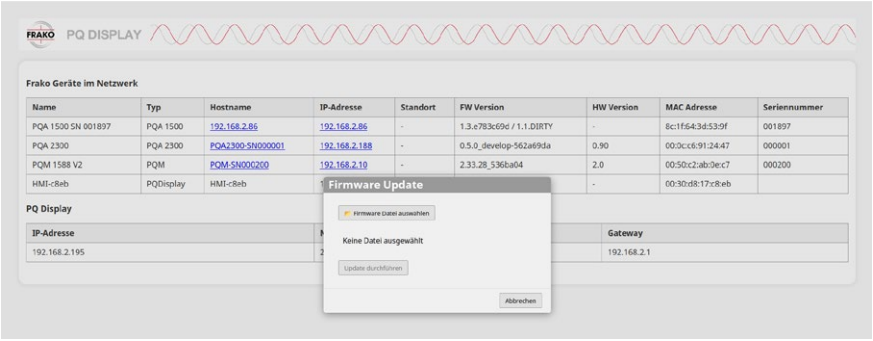
Operation of the web application of the displayed device is described in the respective device manual.

6.1 PQ Display Firmware Update

Firmware updates can only be performed from a PC. In the browser, enter: https://<IP ADDRESS OF THE DISPLAY>/frakoapi/

The table is extended with additional columns: firmware version, hardware version, MAC address and serial number.

Clicking the **“Update”** button below the device list opens the update dialog.



1. Select the firmware file
2. Start the update process

After completion, the display automatically restarts.

7 Troubleshooting

Fault	Possible Cause	Remedy
Display does not start	– Ethernet connection not established – PoE power supply is missing in the network	– Check the Ethernet cable and connect it correctly – Ensure that a PoE-capable switch or a PoE power supply is connected
Display message “This site cannot be reached”	– No connection to the website of the selected FRAKO device	– Check the network connection to the selected FRAKO device – Check the website of the selected FRAKO device from a PC. If required, restart the FRAKO device – After approximately 10 seconds, the display switches to a login page. Clicking the **“Load Homepage”** button on the display returns to the device list
Device list empty	– Display and FRAKO devices are not in the same network – FRAKO devices do not have an Ethernet interface – FRAKO devices do not have the required firmware update	– Connect the display to the network of the FRAKO devices – Perform the required updates on the FRAKO devices

8 Notes

Power capacitors
Reactive power controllers
Power factor correction systems
Modules
EMS components
Measuring instruments and network analysers
Power quality
EMS ISO 50001

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