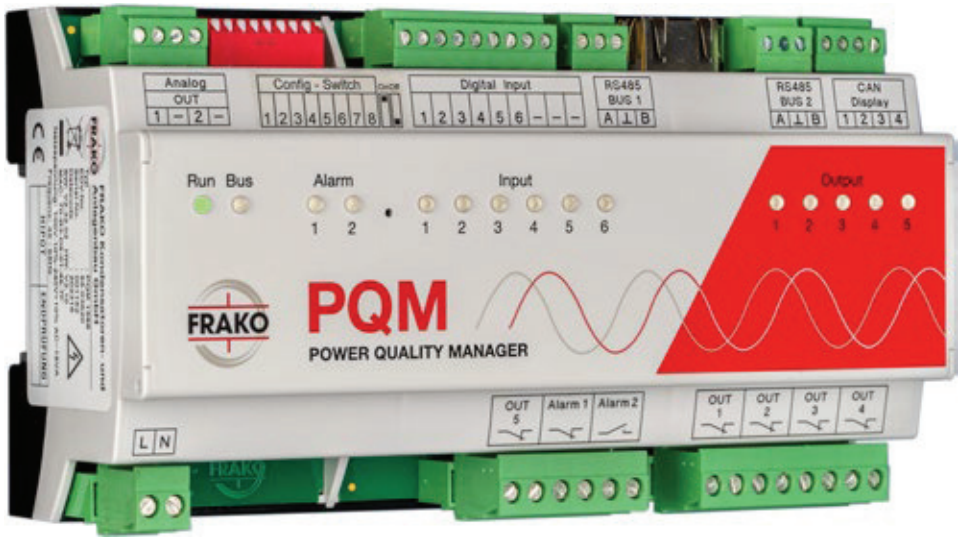


Version 3 – Now even better!

Including 6 x S0 pulse inputs

PQM
Power Quality Manager

With the new PQM 3.0 as a central unit, all requirements for capturing parameters related to energy and power quality are fulfilled. Version 3.0 impresses with higher computing power while simultaneously reducing energy consumption. This results in increased reliability and improved security in processing the invaluable energy data. Enhanced communication capabilities, in addition to the proven OPC-UA server and REST interface, include support for the MQTT protocol and the Influx-DB protocol. This further improves access to cloud systems and enhances IoT capability. The update of the operating system ensures an increase in IT security and secures the future viability of the FRAKO data acquisition system.

Description
The PQM Power Quality Manager is a versatile all-rounder that even just as a gateway offers a variety of uses. Its integrated RS-485 and RJ45 interfaces and its built-in flexibility enable the PQM to interpret diverse protocols and access fieldbus instruments through the communications network.

Protocol options for connection to measuring instruments:
- FRAKO Starkstrombus
- Modbus RTU
- Modbus TCP

Using an external coupler:
- M-BUS
- KNX

If additional system points are acquired, the Power Quality Manager will automatically activate its data collector function plus some other useful features:
- OPC UA server
- S0 pulse inputs (6x)
- Numerous alarm functions:
  – Alarm limits (lower/upper) for registered metering and analogue channels
  – Alarm function, individually or in groups via various alarm routes: contacts on the PQM, e-mail, alarm report

User benefits:
- EMVIS 3000 visualization software (included with appropriate system points)
- Web interface for basic configuration
- Software updates to expand range of functions
- Simple data exchange via OPC UA
- IoT compatible, REST interface (machine to machine)

A specified number of system points are required for collecting data from the measuring instruments. These devices can be combined at will up to the limiting number for each type of device.

1

Your easy access to Power Quality Management 4.0

PQM as bus gateway:
- FRAKO Starkstrombus
- Modbus RTU

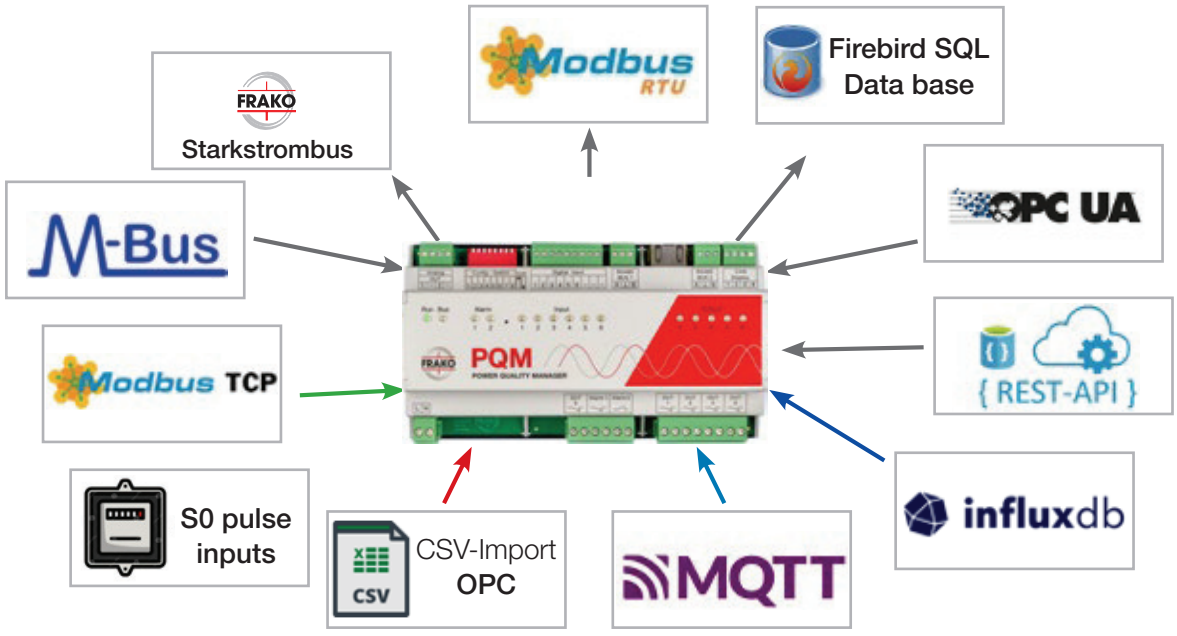
PQM as universal data acquisition system:
- Reception and collection of measurement readings and other data from connected devices via Modbus, M-Bus, S0 pulses and TCP/IP
- Monitoring of data with individually configurable alarm limits
- Alerting when variables go outside set limits using various media such as alarm relays or e-mail
- Optimum scalability, providing solutions for all, from the smallest applications right up to major businesses

PQM as remote monitoring unit:
- Monitoring
- Generating alarms

PQM as data collector incl. synchronization:
- Data transfer to third-party systems
- Collation of machine and energy data
- Visualization with any desired software

6 x S0 pulse inputs, freely programmable, can be used as/for:
- Meter
- Operating hours (seconds) counter
- Status channel
- Pulse input for time synchronization with utilities
- Collector of impulses from transducers which convert process variables into a frequency, for example, temperature, humidity mg/m² etc.
- Power calculation from meter pulses
- OPC UA Server (integrated in the device)
- To increase processing power – more stable data transfer via bus and Ethernet
- Pulse acquisition (S0 pulse inputs) for another PQM
- Complete small system incl. data collection of pulse meters

Interfaces such as OPC UA and REST



Software for the display/ evaluation of the data:
- including EMVIS 3000 to enable total visualization
- Comprehensive data evaluation
- CSV export facility

Software according to BAFA suitable for EN 50001

OPC UA

Interface for:
- Industry 4.0
- All types of data
- Free choice of database
- Free choice of visualization
- Customized solutions
- Third-party systems

Technical Data

Power Supply	
Supply voltage	100 V AC – 253 V AC (absolute limits), 230 V DC (absolute limits)
Frequency	45 up to 65 Hz
Power consumption	Max. 7 W / 18 VA
Fuse protection	Max. 2 A (slow acting) external protection required
Interfaces	
Ethernet interface	10/100 MBit/s, RJ45 RS-485 Bus 1 | Modbus RTU RS-485 Bus 2 | FRAKO Starkstrombus
Outputs	
Relay contact	5 contacts – bistable, 250 V / 2 A AC or 30 V / 2 A DC
Alarm contact	1 contact – bistable, 250 V / 2 A AC or 30 V / 2 A DC 1 NC, 250 V / 2 A AC or 30 V / 2 A DC
Inputs	
6 pulse inputs	S0 pulse inputs (DIN 43864) for connecting to volt-free contacts, Open-contact voltage: 15 V, Max. line resistance: 800 Ohm, Short-circuit current: 18 mA, Pulse frequency: 0.1 to 20 Hz
Connections	
via plug-in type screw terminals	Conductor cross-section max. 1.5 mm², min. 0.14 mm², Relay-, alarm contacts and supply: Conductor cross-section max. 2.5 mm², min. 0.2 mm², Rated value insulation: 250 V AC, 80 °C
Control elements	
DIP switch	8 pieces
Display elements	
LED	15 pieces
Mechanical Construction	
Dimensions	161.6 mm x 89.7 mm x 60.5 mm (W x H x D)
Installation	On standard rail 35 mm according to DIN EN 50022
Weight	approx. 0.4 kg without packaging
Ingress protection	Enclosure IP30, terminals IP10 according to DIN EN 60529 pollution degree 2 according to EN 61010-1:2011-07
Version	Enclosure protection class II according to DIN EN 61010
Housing	Flammability according to UL 94 V0 as declared by the manufacturer

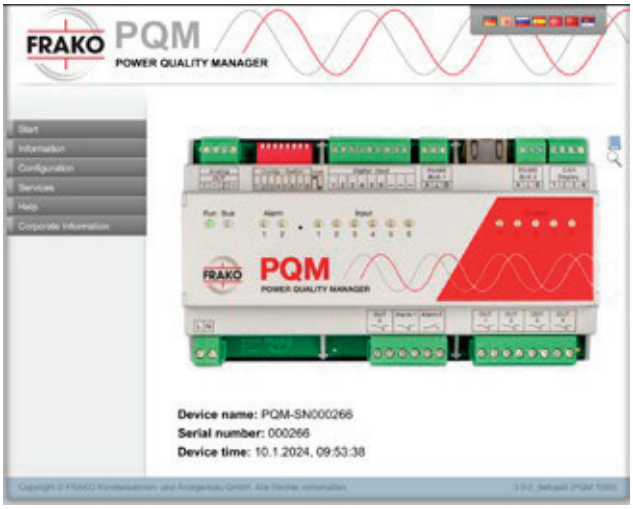
Mechanical Construction	
EMV	EN 55022 Class B : 2010 + AC : 2011 EN 61000-3-2 : 2014 EN 61000-3-3 : 2013 EN 61000-6-3 : 2007 + A1 : 2011 EN 61000-6-2 : 2005 EN 61000-4-2 : 2009 EN 61000-4-3 : 2006 + A1 : 2008 + A2 : 2010 EN 61000-4-4 : 2012 EN 61000-4-5 : 2014 EN 61000-4-6 : 2014 EN 61000-4-8 : 2010 EN 61000-4-11 : 2004
Operating conditions	
Temperature range	0 °C…45 °C
Installation height	Geographical height max. 2000 m above sea level
Article-No.	20-10090 without system points
PC requirements for FRAKO-NET software package	
Hardware	• Min. Intel Core I5 • Main memory min. 4 GB RAM • 10 GB free hard drive space • Ethernet 10/100 Mbit/s network connection or/and one free serial interface • DVD drive • SVGA graphics adapter • Colour screen with minimum resolution of 1024 x 768
Software	• Microsoft® Windows®* 10 • Microsoft® Windows®* 7 (x32/x64) • Microsoft® Windows®* Server 2008 R2 • current browser for example, Mozilla Firefox * Registered trademarks of Microsoft Corporation

Optional accessories

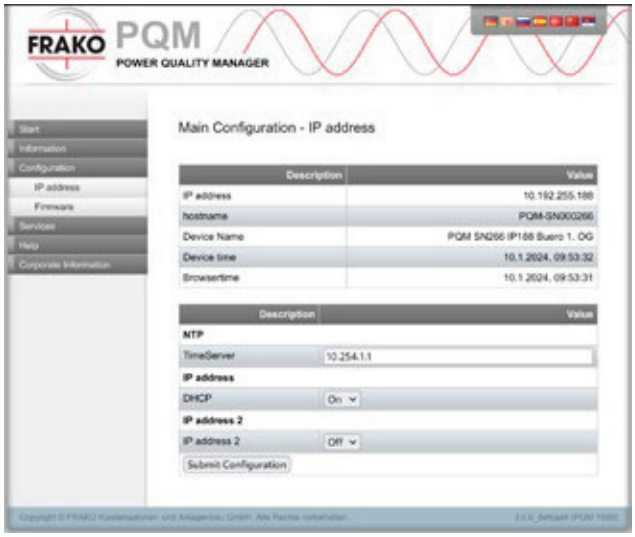
Article-No.	Type	Description
20-10495	System points upgrading package PQM	10 system points incl. system visualization EMVIS 3000
20-10496		50 system points
20-10497		100 system points

System points per integrated device	Upper limits
30 System points per EM-MC 2200	Max. 4 units EM-MC 2200 per PQM
15 System points per EM-PQ 2300	Max. 32 units EM-PQ 2300 per PQM in Slavemode, or max. 8 in Mastermode
15 System points per PQA 1101	Max. 32 units PQA 1101 per PQM
7 System points per PQC (single phase)	
10 System points per PQC (three phase)	
7 System points per EM-PQ 1500	Max. 32 units EM-PQ 1500 per PQM
1 System point per channel of EM-MC 2200, PQA 1101, EM-PQ, EMF 1102 or PQM	Max. 550 metering-, analogue-, status- or alarm channels per PQM
10 System points to activate the S0 function of the PQM	
7 System points per PQA 1500 Limit: Max. 32 points per PQM	

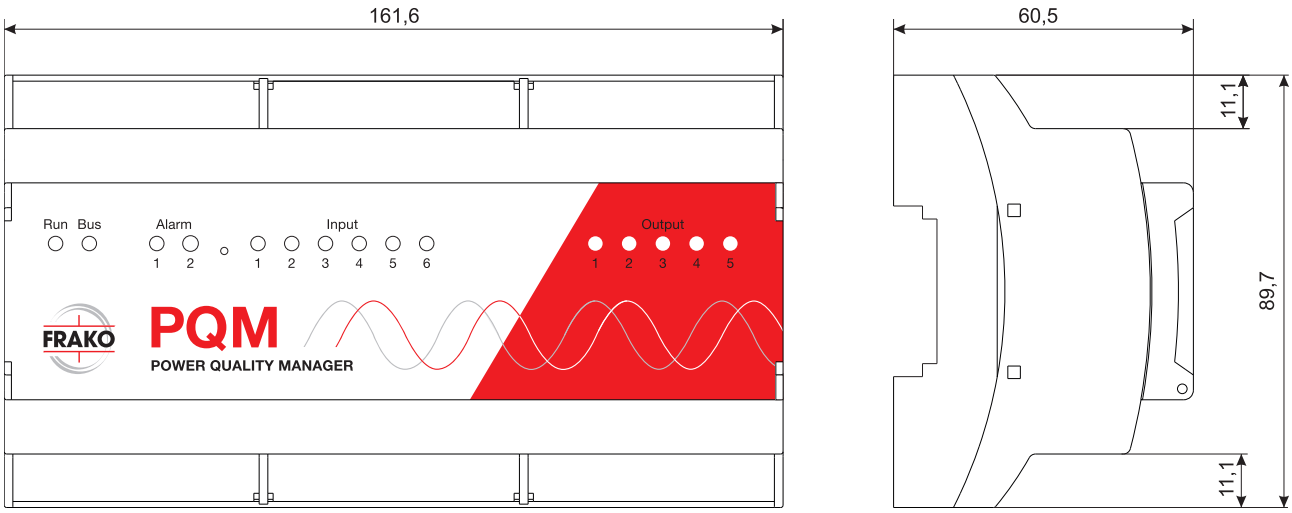
Web interface Start screen



Web interface Main Configuration – IP address



Dimensions



Dimensional drawing PQM

All dimensions in mm