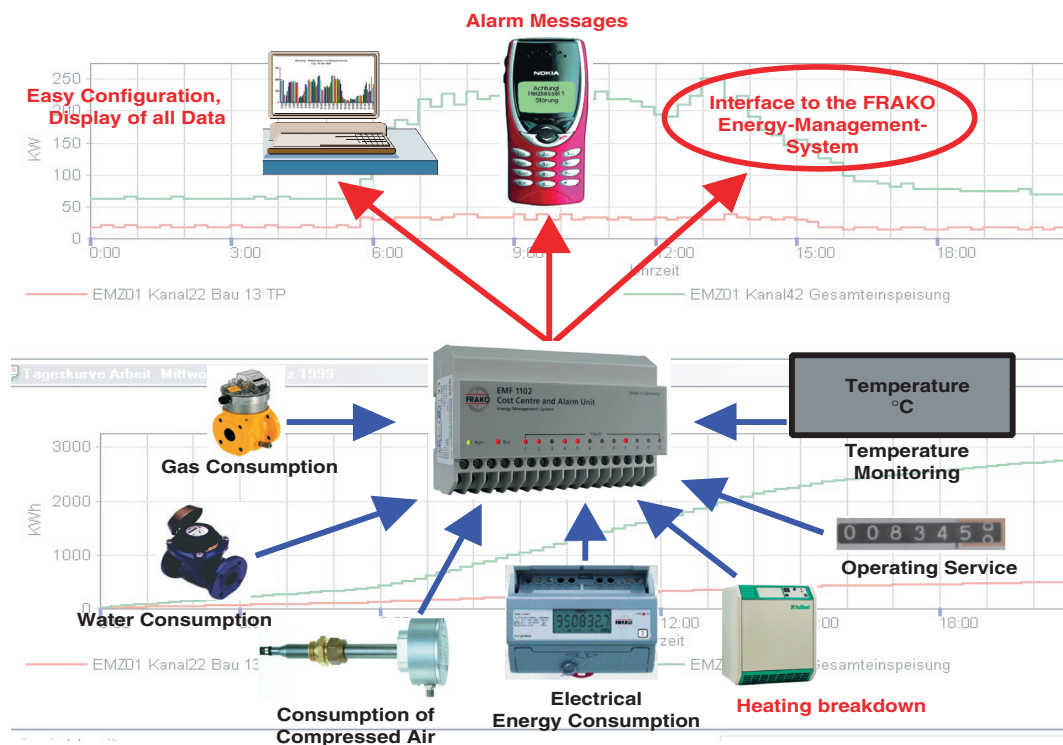


Cost Center and Alarm System EMF 1102

For the acquisition and monitoring of energy costs and key operating status



Benefits to the user

The EMF 1102 is a compact and cost-effective system for the acquisition and storage of meter readings, switching status and alarm signals.

It consists of a data acquisition and memory unit plus modular software components for easy user configuration and for the evaluation and management of the data. Remote alarms can be transmitted by SMS via a modem.

The EMF 1102 can be used as a stand-alone system for the acquisition of utilities and operating data in a factory or other premises, or can be installed as an integral part of a FRAKO Energy Management System.

Instrument functions

- Data acquisition for all types of utility such as electricity, water, gas, compressed air, or meter pulse inputs via an S0 interface
- Calculation of power, energy and flow rates
- Monitoring of power, energy or flow rate with high and low alarm settings
- Determination of running time and downtime for each channel (running time meter)

- Operating cycle counter
- Monitoring of running times and downtimes with alarm settings (e.g. to detect instrument failure)
- Monitoring of key operating conditions
- Remote alarms by SMS in an event of system faults or if monitored variables exceed critical limits.

Data storage, data transmission by an RS232 interface Starkstrombus® or modem

- Storage of all utility data with memory for several days
- Recording of events, meter readings, alarms and running times

Connection

- Via RS232 adapter with modem or COM server or direct to PC, or
- Via Starkstrombus® to the EMP communications process or the EMZ bus central unit

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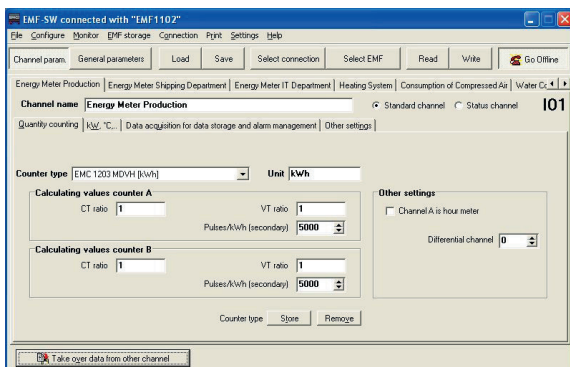
Configuration

When **configuring** the instrument, the user specifies which of the measurement signals are stored and monitored for deviations from set limits. This depends on the definition of the various input signals (e.g. energy meter, running time counter, status or alarm signal). If measured variables exceed the set limits, this is recorded in the status and alarms report. Depending on the nature of the input signal, the following limits may be set:

- Maximum and minimum momentary power levels
- Maximum and minimum average power levels in a set period of time
- Maximum totalized consumption (in kWh, m³, depending on channel configuration) for both normal tariff and off-peak tariff.
- Maximum operating time ON and maximum operating time OFF

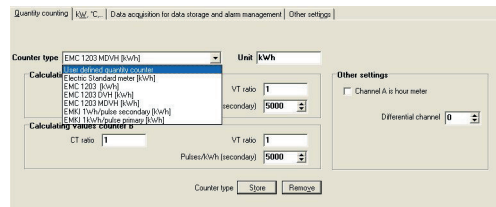
Each **alarm signal** (e.g. the change in status at a fault signal input or a meter pulse input exceeding the set limits) can be configured to send an SMS alarm message to a mobile phone.

The EMF 1102 is configured using the system software supplied with it in a very simple user dialogue.



Meter impulses are converted into any desired engineering units, e.g. kWh, m³ or temperature, using three constants.

Simplified dialogue boxes have been predefined for standard meters, such as the FRAKO EMC 1202/1203:



The EMF 1102 status signals are displayed via the system software, either for all channels together or as a complete set of data for each individual channel:

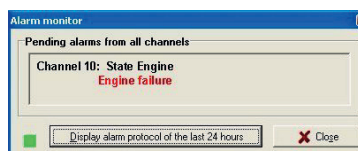
Alarm	Channel name	State	Quantity counting	Quantity/time	Operating time
1	Energy Meter Production	OFF	6043547648 kWh	0 kWh	19h 30m 31s
2	Energy Meter Shipping Department	OFF	174417440 kWh	0 kWh	7h 4m 56s
3	Energy Meter IT Department	OFF	397723 kWh	0 kWh	3h 42m 40s
4	Heating System	ON	3183343 kWh	0 kWh	4h 27m 34s
5	Consumption of Compressed Air	OFF	181569 m ³	7,63 m ³ /h	3740h 13m 35s
6	Water Consumption	OFF	125249847296 l	117,8 l/h	14107h 36m 43s
7	Gas Consumption	ON	4354764 m ³	1,52 m ³ /h	1h 4m 35s
8	State Ventilation I	OFF	71417440	0	637h 18m 50s
9	Temperature Building I	ON	6,43638e+005 °Ch	23,86 °C	115h 3m 52s
10	State Engine	ON	4268	0,03634	0h 13m 45s
11	Not Connected	OFF	0	0	0h 0m 0s
12	Not Connected	OFF	0	0	0h 0m 0s

Meter reading	Absolute	Since Reset	Calculated
Counter A	125249847296	125249847296	125249847296
Counter B	3943778	3943778	3943778

Operating time	Time ON	Time OFF	Date of last reset
	14107h 36m 6s	15214h 3m 20s	14.01.2002 14:22:55

Utility meters and running time counters can be reset or adjusted after the password has been entered.

All changes of status in the switch and alarm signal inputs are saved in the event protocol together with all deviations from set limits for the measured variables. The event protocol can be displayed and printed out via the system software.



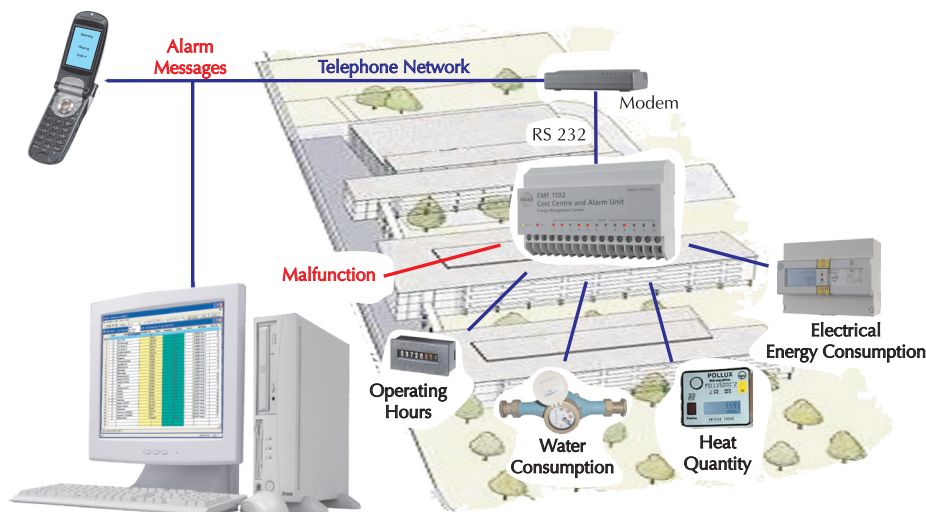
Cost Center and Alarm System EMF 1102

For the acquisition and monitoring of energy costs and key operating status



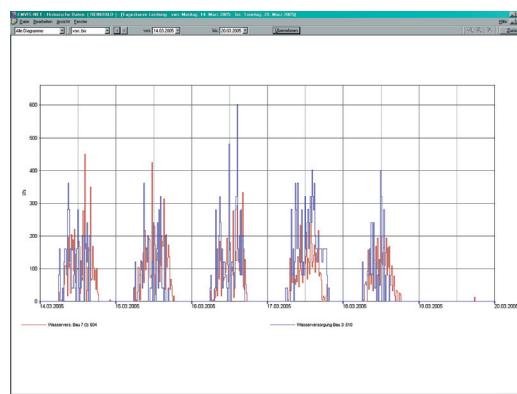
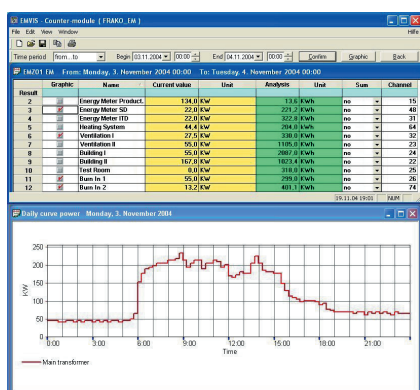
Acquisition of energy costs and operating data with little effort or expense

Evaluation of energy consumption, running times, switch status and faults in an operation. Alarm function in the event of faults occurring or monitored variables exceeding set limits:



Analysis of the energy data with the EMVIS-NET system visualization software

Integrating the EMF 1102 in the FRAKO energy information system enables all energy data to be clearly visualized:



Function

Twelve signal inputs suitable for connecting potential-free and electronic contacts. The following parameters are calculated for each signal input:

- Total number of counting pulses and number over a set period of time. This is set via an external contact (utility company time signal) or by selecting it in the internal clock (e.g. 5 min, 15 min or 60 min). The instrument saves the totalized number of input pulses per channel per period of time for optimum data back-up.
- One signal input can be used for switching between tariffs (normal/off-peak). At some point the normal and off-peak tariff input pulses are each stored separately for each period of time.
- Momentary values of power and average power over a period of time
- Operating time ON and OFF. Totalized (running time counter) and per set period of time
- Date and time of a signal interchange (switching status or alarm signals)

Cost Center and Alarm System EMF 1102

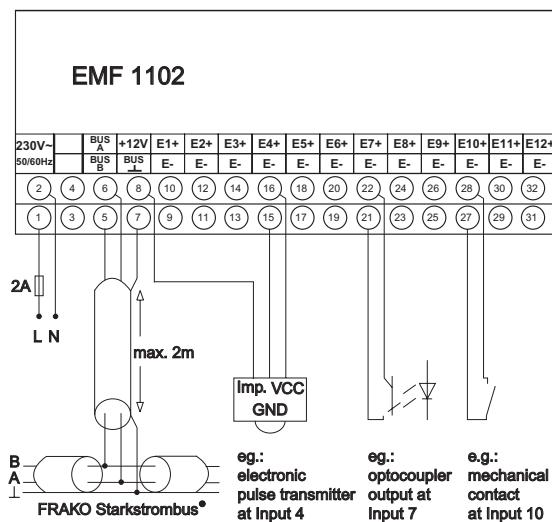
For the acquisition and monitoring
of energy costs and key operating status



Technical data

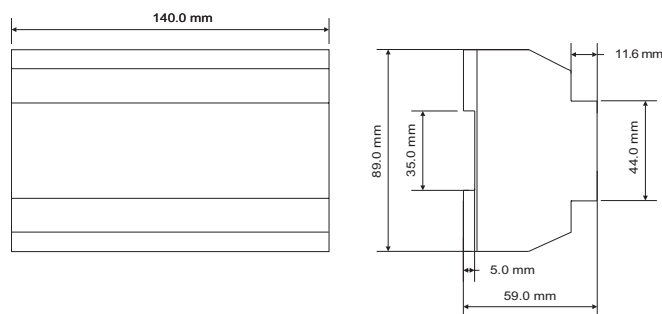
12 inputs:	50 interfaces, common "E"-potential, switching time ≥ 25 ms, short-circuit current $12 \text{ mA} \pm 10\%$, maximum pulse frequency 20 Hz
Power supply:	230V $\sim \pm 10\%$, 45 Hz to 65 Hz, power consumption approx. 10 VA
Protection:	to VDE 0411 Protection class II (EN 61 010 – 1)
Ingress protection:	Enclosure / terminals: IP 40 / IP 20
Enclosure material:	Flame-resistant to UL-94 V-0
Dimensions:	140 x 89 x 59 mm (W x H x D), weight: 0.6 kg
Mounting:	on DIN 35 mm rail, any position
Connections:	Screw terminals, max. conductor cross-section: 2.5 mm ²
Operating conditions:	Ambient temperature: 0°C to 50°C
Data interchange:	FRAKO Starkstrombus® or with the cable supplied to the RS232 interface

Connections



A supply voltage of 12 V DC $\pm 10\%$ is available between terminals "+12V" and "E-" to power external devices. The maximum current draw is 20 mA. If up to 3 input channels remain inactive (always open), the maximum permissible current draw is 50 mA.

Dimensions



Reliable energy solutions.

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ISO 9001
and
ISO 14001

Your representative: