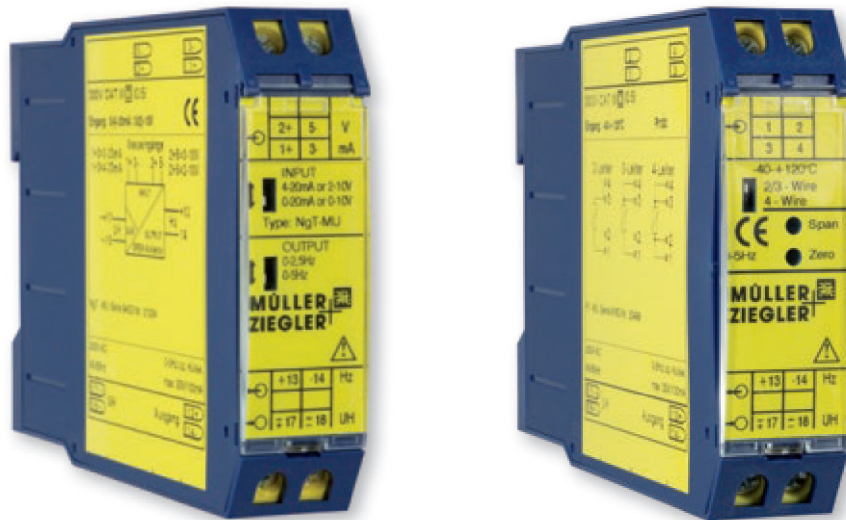


System Components

Acquisition of Process Data



EM-UIF / EM-PTF Frequency-Converter

The pulse output of the Frequency-Converter is connected to the Cost Centre and Alarm System EMF 1102. This offers the possibility to control, detect and visualize sensors with arbitrary output signals and temperatures with the FRAKO Energy Management System.

EM-UIF

Voltage-/Current-/Frequency Converter

For operating data acquisition of analogue signals with the FRAKO Energy Management System.

EM-PTF

Temperature-/Frequency-Converter

For acquiring operating data with the FRAKO Energy Management System, the measured inlet temperatures from $-40\text{ }^{\circ}\text{C}$ to $+120\text{ }^{\circ}\text{C}$ will be transformed into a pulse frequency from 0 to 5 Hz.

System Components

Acquisition of Process Data

Technical Data EM-UIF

Power Supply	
Mains voltage	230 V AC +/- 20 %
Frequency	45 up to 65 Hz
Power consumption	2.5 VA
Input	
Input variable	DC current or DC voltage
Rated voltage	0-20 mA, 4-20 mA, $R_i = 3 \Omega$ 0-10 V, 2-10 V, $R_i = 160 k\Omega$
Overloading continuously	2 times at current 5 times at voltage
Surge overload	Twenty times 1 sec at current five times at voltage
Output	
Rated value	0 up to 5 Hz
OPEN collector	npn, max. 30 V, 100 mA max. loadable
Ingress protection	IP40
Version	Housing insulated, protection class 2, at rated voltage up to 300 V (net to neutral conductor), pollution degree 2, according to DIN EN 61010 Part 1 EMV according to DIN EN 50081-2 and DIN EN 61000-6-2
Installation	On standard rail 35 mm according to DIN EN 50022
Operating conditions	
Ambient temperature	-15 °C up to +55 °C
Article-No.	29-20059

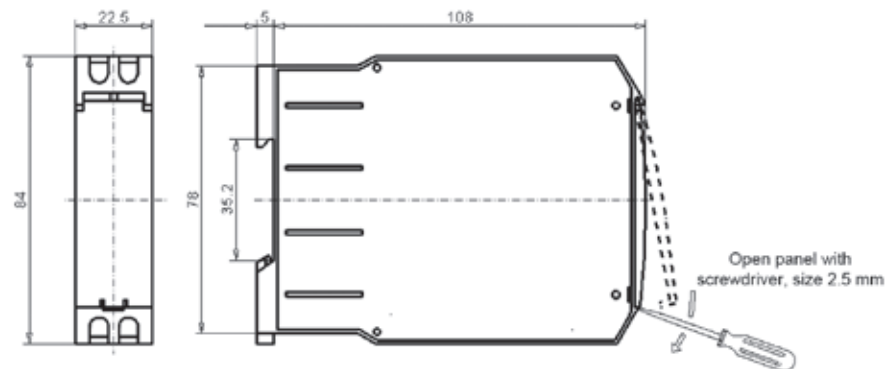
Technical Data EM-PTF

Power supply	
Mains voltage	230 V AC +/- 20 %
Frequency	45 bis 65 Hz
Power consumption	2.5 VA
Input	
Input variable	Resistor PT100
Rated value	-40 °C up to 120 °C, constant current via the sensor 2 mA
Types of connection	2-/3-or 4-wire, can be selected by DIP switch
2-wire circuit	Lead max. adjustment 10 Ohm via built-in potentiometer
3-wire circuit	Lead max. 100 Ohm, balanced, no adjustment required
4-wire circuit	Lead max. 100 Ohm, no adjustment required
Output	
Rated value	0 up to 5 Hz
OPEN collector	npn, max. 30 V, 100 mA load
Pulse / Pause	50/50 %
Connections	Screw terminals Conductor cross-section: max. 4 mm²
Mechanical construction	
Dimensions	22.5 x 84 x 108 mm (W x H x D)
Ingress protection	Housing/terminals IP30/IP20 according to DIN EN 60529
Version	Insulated housing, degree of pollution 2, overvoltage category CAT 3 according to DIN EN 61010 part 1, EMV according to DIN EN 50081-1, DIN EN 61000-6-2
Installation	On standard rail 35 mm according to DIN EN 50022
Weight	Approx. 0.15 kg
Operating conditions	
Ambient temperature	-15 °C up to +55 °C
Article-No.	29-20049

System Components

Acquisition of Process Data

Dimensions



Dimensional drawing EM-UIF, EM-PTF

All dimensions in mm

Accessories

EM-PT 100 Temperature Sensor

Temperature sensor in 4-wire technique for measuring temperatures using the Temperature-/Frequency-Converter EM-PTF, for devices with PT100 input1.

Technical Data

General	
Rated value	100 Ohm at 0 °C
Temperature range	-80 °C up to +260 °C
Material	Stainless steel
Dimensions	
Sensor sleeve	Diameter: 4 mm, length: 50 mm
Connecting cable	Length: 1 000 mm
Article-No.	29-20050



Optional Accessories

Article-No.	Type	Description
29-20051	EM-PT100 MF	Mounting flange for the temperature probe

System Components

Acquisition of Process Data





EM-AM 2108 Analogue Module

Data acquisition system for 8 analogue, freely configurable input channels. This allows to detect and visualize sensors with random output signals with the FRAKO Energy Management System.

Description

- 8 analogue inputs, selectively:
 - Temperature -50 °C up to 150 °C via 5 K NTC
 - 0 / 4 to 20 mA or - 0 to 10 V
- Monitoring of temperatures and analogue signals with upper and lower alarm limit
- External supply voltage 9 to 36 V DC
- Connection via FRAKO Starkstrombus
- Resolution temperature range: 0.1 °C; Accuracy entire temperature range: 1 °C
- Resolution voltage range: 10 mV; max. failure: 30 mV
- Resolution current range: 20 µA; max. failure: 60 µA
- Easy configuration of the EM-AM 2108 via EM-AM-SW software
- For each input of the analogue module the current measurement readings as well as the maximum and the minimum value of the last interval will be displayed by the EM-AM SW software
- By integrating the EM-AM 2108 into the FRAKO Energy Information System all temperatures and analogue signals will be captured and monitored with their upper and lower alarm limits
- The system visualization software EMVIS 3000 allows to analyse and visualize the data

System Components

Acquisition of Process Data

Technical Data

Power Supply	
Mains voltage	9 up to 36 V DC
Power consumption	0.72 VA
Input	
Input variable	Direct current or direct current voltage
Rated value	0 to 20 mA, 4 to 20 mA, $R_i = 130 \text{ Ohm}$, 0 to 10V, $R_i = 115,13 \text{ kOhm}$
Overload, constant	2.5 times (current), 2.5 times (voltage)
Short-time overload	5 times 1 s (current), 5 times 1 s (voltage)
Temperature measurement	Range: -50 °C up to 150 °C Resolution: approx. 0.1 °C Accuracy: 1.5 °C (-50 °C up to -25 °C); 1.0 °C (-25 °C up to +100 °C); 2.0 °C (+100 °C up to +125 °C); 3.5 °C (+125 °C up to +150 °C)
Current measurement	Range: 0 to 20 mA; 4 to 20 mA Resolution: 20 µA; max. failure: 60 µA
Voltage measurement	Range: 0 to 10 V Resolution: 10 mV; max. failure: 30 mV
Connections	Screw terminals; Wire cross section: max. 1.4 mm ²
Interface	
1 FRAKO Starkstrombus	For connection to FRAKO Energy Management System, according to EN 50170 (P-Net), standardised fieldbus, RS-485 transfer rate: 76.8 kbit/s
Display elements	2 LEDs
Mechanical construction	
Dimensions	86 x 128 x 50 mm (W x H x D)
Ingress protection	Housing/terminals IP30/IP20 according to DIN EN 60529
Version	Housing insulated, protection class 3 (SELV), at a rated voltage up to max. 36 V, pollution degree 2, according to EN 61010 part 1 EMV according to EN 61326-1
Installation	On standard rail 35 mm according to DIN EN 50022
Weight	190 g
Operating conditions	
Ambient temperature	0 °C up to +70 °C
Article-No.	20-40009

Optional Accessories

Article-No.	Type	Description
20-10700	Power Supply for analogue module EM-AM 24V DC	AC/DC SMPS adapter, DIN rail-mounted, 24 V DC / 0.35 A and 12 V DC / 20 mA, AC power supply 85 to 264 V (also suitable for EM-PQ 1500)