EY-FM 260: Signal converter, modu260

EY-FM260F001

How energy efficiency is improved

SAUTER EY-modulo 2 – tried and tested technology to meet the highest requirements

Features

- Remote unit as part of the SAUTER EY-modulo system family
- Regulation, control, monitoring and optimisation of operational systems, e.g. in HVAC engineering
- Four channels for signal conversion of Ni/Pt sensor to voltage signal
- Front insert for direct labelling
- Reference voltage from automation stations SAUTER EY3600, EY-modulo 2 and 5

Technical data

Power supply		
	Power supply	24 V~, ±20%, 50...60 Hz 24 V=, ±10% 12 V=
	Current consumption	≤ 110 mA
	Power loss	≤ 1.6 W
Reference voltage U_{ref}	Internal	5.1 V
	EY3600	1.02 V (pulsed)
	EY-modulo 2	5.1 V
	EY-modulo 5	1.225 V
Ambient conditions		
	Operating temperature	0...45 °C
	Storage and transport temperature	–25...70 °C
	Admissible ambient humidity	10...85% rh, no condensation
Inputs/Outputs		
	Inputs	4 × Ni1000, Ni200/Pt100
	Outputs	4 × 0...10 V
Interfaces and communication		
	connections (screw terminals)	-Power supply -reference voltage -sensor connections (3-wire connection is possible) -output signals
	Selection of input sensor	Via jumper coding
Construction		
	Dimensions W x H x D	105 × 90 × 60 mm
	Weight	0.16 kg
Standards and directives		
	Type of protection	IP 00 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity as per	EMC directive 2004/108/EC[1)]	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types

Type	Description
EY-FM260F001	Signal converter field module Ni/Pt to 0...10 V

Accessories

Type	Description
0920000260	Front insert, printable, yellow, 1 A4 sheet with 6 inserts each, perforated

1) *In order to meet the European Standard (EN 61000-6-2), the power cables for the outputs must not exceed 30 m in length*

Additional information

Fitting instructions	MV P100006616
Declaration on materials and the environment	MD 92.910

Engineering notes

The modu260 field module is mounted directly on an EN 60715 top-hat rail in the cabinet.

Caution:
►The device may only be connected when the system is disconnected from the electrical supply.

All the inputs and outputs are connected via screw terminals, and the following conditions must be fulfilled:

- Conductor cross-section min. 0.8 mm², max. 2.5 mm² copper wire in accordance with standards and national installation requirements.
- Special standards such as IEC/EN 61508, IEC/EN 61511, IEC/EN 61131-1, IEC/EN 61131-2 and similar were not taken into account.
- Local standards regarding installation, application, access, access rights, accident prevention, safety, dismantling and disposal must be taken into account. Furthermore, installation standards EN 50178, 50310, 50110, 50274 and 61140 must be observed.
- To avoid external interference, the module must be positioned as closely as possible to the connected AS. For sensitive temperature measurements, make sure the cables are laid correctly, and shielded measurement lines must be used if necessary.
  Multiple coupling of the power supply must be avoided if possible due to ground cross-currents.

Note:
For further information on the installation, see the fitting instructions P100006616.

Description of operation

As a remote unit, the field module converts measured resistance values from various temperature sensors into a 0...10V analogue signal.
The module requires an external power supply of 24 V AC or DC at connection terminals 32 (LS) and 31 (MM). Additionally, connection terminals 34 (+) and 33 (⊥) are available for a direct 12 V DC power supply (e.g. from automation station (AS) EY3600). Please note that this voltage input is not protected against reversed polarity! It is not admissible to connect both power supplies (24 and 12 V). The ground connection to the AS should be directly from terminal 33 (⊥).
For the power supply via an EY3600 AS, a current consumption of up to 110 mA for the signal converter must be considered.
For precise operation, a reference voltage is also required, which is taken from the EY3600 or EY modulo AS at the "U_{ref}" output.

Number of inputs	4
Temperature sensor	Ni1000, Ni200, Pt100 via wire jumper coding
U_{ref} internal	5.1 V
U_{ref} external	1.02 V (EY3600 pulsed) 5.1 V (EY-modulo 2) 1.225 V (EY-modulo 5)
Measuring accuracy	
U_{ref} external	1 K at Ni1000 / Ni200 3 K at Pt100
U_{ref} internal	2 K at Ni1000 / Ni200 11 K at Pt100
Number of outputs	4
Type of outputs	Analogue signal 0...10 V

The measuring function for Ni1000, Ni200 or Pt100 sensors is defined by two DIP switches per channel, and the corresponding settings can be seen in the connection diagram.
The inputs do not require calibration. The external reference voltage U_{ref} ensures exact adherence to the measuring accuracy, and therefore the outputs of the signal converter may only be operated on the same AS.
The module can also be used without an external reference voltage. In this case, however, unequal voltage stability in the automation station and the field module can cause a drift in the measured val-

ues.
The measured temperatures are converted linearly into a standard signal of 0…10 V.
To counteract the effects of interference, the ground connection of the output signals (connection terminal 33⊥) must be connected directly to the automation station.
Each channel is operated individually, so that various sensor types can be connected to the device at the same time.
The Ni200 and Pt100 sensors are connected to the field module by means of 3-wire technology (signal Δ, ground ⊥ and compensation).

Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the “Description of operation” section.
All related product documents must also be adhered to. Changing or converting the product is not admissible.

Table of temperatures and output signals

Measuring range/0...10 V				
	modu260 internal	**EY-modulo 5**	**EY-modulo 2 and novaFlex**	**EY3600**
U_{ref}	5.1 V	1.225 V	5.1 V	1.02 V
Sensor				
Ni200 **Ni1000**	-50…150 °C			-50…190°C
Pt100	-112…519 °C			-112…645 °C

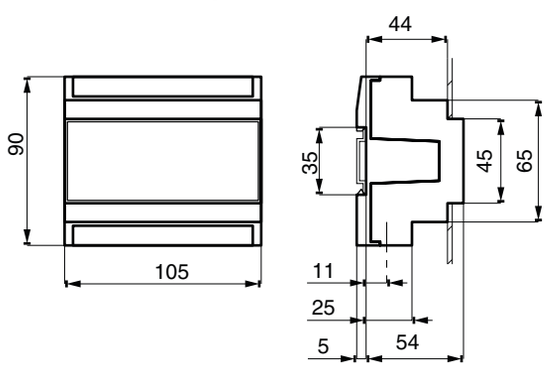
Labelling concept

The printable front insert (accessory no. 0920000260), which can be inserted behind the transparent cap, enables the channels to be labelled individually. Labelling sheets in DIN A4 format are available for this. The labelling is usually carried out using texts generated from SAUTER CASE engineering software, and the labels are created using commercial printers.

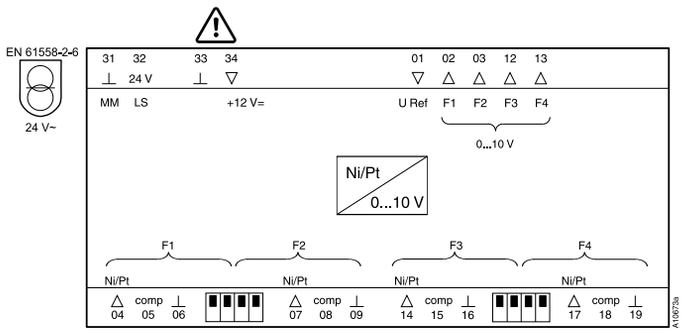
Disposal

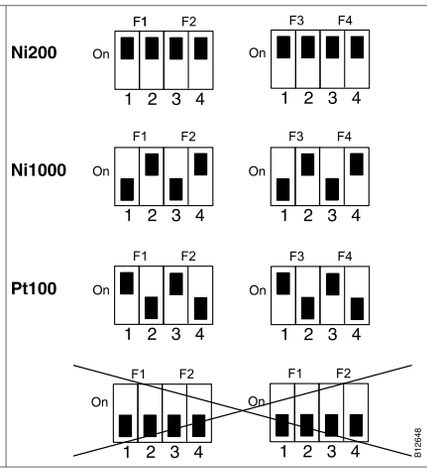
When disposing of the product, observe the currently applicable local laws.
More information on materials can be found in the Declaration on materials and the environment for this product.

Dimension drawing



Connection diagram





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