

## EY-FM 170: Field module for analogue outputs 0...10 V (0...20 mA), moduLink170

### How energy efficiency is improved

SAUTER EY-modulo – thoroughly proven technology with a new design

### Features

- Part of the SAUTER EY-modulo system family
- 4 analogue outputs
- Remote unit for modu590 and modu225
- Front insert for direct labelling
- Can be located up to 100 m from the automation station (AS)
- Defined signal values can be preselected for the priority or watchdog functions
- Can be used for local priority operation with manual control of outputs
- Communication and power supply via novaLink connection (2-wire) of AS
- 1 output, novaLink bus monitoring



EY-FM170F001

### Technical data

Power supply		
Power supply		From AS (via novaLink)
External supply		24 V~/=
Current consumption		≤ 100 mA
Power loss		≤ 1 W
Ambient conditions		
Operating temperature		0...45 °C
Storage and transport temperature		-25...70 °C
Admissible ambient humidity		10...85% rh, no condensation
Inputs/Outputs		
Analogue outputs		2 × 0...10 V 2 × 0...10 V/0...20 mA
Interfaces and communication		
Control		From modu590, modu225, nova225, nova106 (EYX172)
Connection		novaLink bus ≤ 100 m (cable screened, twisted and earthed at both sides, < 5 nF/< 7.5 Ω)
Construction		
Dimensions W x H x D		105 × 90 × 60 mm
Weight		0.24 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 <sup>1)</sup>	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

### Overview of types

Type	Properties
EY-FM170F001	Field module for analogue outputs 0...10 V (0...20 mA), moduLink170

### Accessories

Type	Description
0920000170	Front insert, printable, yellow, 1 A4 sheet with 6 inserts each, perforated

<sup>1)</sup> EN 61000-6-2: In order to meet the European Standard, the power cables for the inputs must not exceed 30 m in length



## Additional information

Fitting instructions	MV P100003215
Declaration on materials and the environment	MD 92.835

## Description of operation

The moduLink170 field module is used to regulate, control, monitor and optimise operational plants, e.g. in HVAC.

## 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.

## Engineering notes

The moduLink170 field module can be fitted using an EN 60715 top-hat rail directly in the cabinet or at a suitable location in the system. However, the distance for the connection to the AS must not exceed 100 m (5 nF/7.5 Ω)!

The connection to the AS is via the specified novaLink terminals, by means of which the data and the power supply are transferred. Observe the correct polarity when making the connection.

The novaLink connection cable (AS field module) must be twisted and shielded (shielding on both ends to ground).

The field module can be labelled individually under the frontal transparent cap.

## Description of outputs

Number of outputs	4
Type of outputs	Analogue, 4x 0...10 V= (up to 20 mA) of which 2x 0...20 mA (up to 8 V)
Return line for all signals	Ground

The signal 0...10 V is picked up between the corresponding output and ground terminals. At two outputs, a current signal of 0...20 mA is also available.

The outputs are protected against static discharges, but not against any external voltage present.

## Monitoring function

To monitor the operability of the field module (novaLink connection), there is an additional output (monitor). During correct operation, a current of approx. 10 µA is output. When using a novaNet automation station, this monitor output can now be connected directly to an analogue input and evaluated. If multiple field modules are being monitored, the monitor outputs are connected in parallel.

## Application examples for modu225

1 field module	1x 0.000010 A x 57000 Ω (input resistance) = 0.57 V
8 field modules	8x 0.000010 A x 57000 Ω (input resistance) = 4.56 V (parallel connection)

The currents are added in the input resistance for an analogue input with the voltage of 0.57 V per field module, whereby the maximum current flow is reached with 8 field modules, i.e. at a voltage of 4.56 V.

When it is used with modu590 and modu525, the monitor output cannot be connected directly to an analogue input. In this case, a different procedure must be selected. See PDS of modu590.

By selecting the limit values (limiter module) via CASE Engine, the monitoring function can be programmed and evaluated.

## Labelling concept

The field module can be labelled under the frontal transparent cap. There are specific perforated label sheets available for this purpose.

The labelling is usually carried out using texts generated from CASE Suite, and the labels are printed using commercial printers.

## LED indicator

The field module contains a green LED (power), which lights up when there is a correct connection and power supply via the AS. The priority/watchdog or back-up power mode is signalled by flashing with a frequency of approx. 2 Hz.

## Back-up power mode

The AS, or the modu590 novaLink module, provides the required power supply and the telegrams (signal values) for the inputs/outputs via the novaLink connection. Additionally, an emergency power supply (24 V~/=) can be connected via the MM/LS terminals. This emergency power supply is only active if the normal power supply via novaLink has failed.

## Priority and watchdog modes

On the field module it is possible to set predefined signal values with a trim potentiometer. As a result, if there are disturbances in the novaLink connection (voltage/AS failure, watchdog), defined signal values are reached for each individual output.

A changeover to priority or watchdog mode is performed if:

- Terminal 3 of the field module is connected to the ground potential.
- The novaLink telegram fails or is not supplying any more power.

The selection of the priority or watchdog mode is set via a mechanical bridge coding as follows:










Bridge closed - priority mode (factory setting)

During priority mode, the signal values preselected by the trim potentiometer are activated independently of the position of the manual switch. It is no longer possible to manually override these with the manual switches and potentiometer.

Bridge open - watchdog mode

During watchdog mode, the signal values preselected by the trim potentiometer are activated in the "Auto" switch position. However, it is still possible to manually override these with the manual switches and potentiometer.

## Priority/watchdog operation diagram

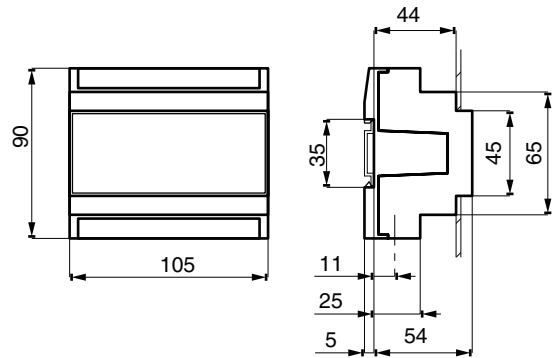
	Priority Bridge closed 	Watchdog Bridge open 	
Priority / Watchdog (active) 	 Auto	 Auto	 Auto Manual
Terminal 3	Trim potentiometer  1...4	Trim potentiometer  1...4	Potentiometer 1...4 

## 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**

