

EY-FM 165: Field module for digital outputs 0-I-II, moduLink165

How energy efficiency is improved

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

Features

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



EY-FM165F001

Technical data

Power supply		
Power supply		From AS (via novaLink)
External supply		24 V~/=
Current consumption		≤ 150 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		
Digital outputs		2 × 0-I-II relay, change-over contacts
Electrical life		> 5 × 10 ⁶ cycles
Load		250 V~/2 A resistive load
Interfaces and communication		
Control		From modu590, modu225, nova225, nova106 (EYX 168)
Connection		novaLink bus ≤ 100 m (cable shielded, twisted and earthed on both ends < 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		II (EN 60730-1)
Environment class		3K3 (IEC 60721)
Mode of operation		Type 1C (EN 60730)
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
	Low-voltage directive 2006/95/EC	EN 60730-1

Overview of types

Type	Properties
EY-FM165F001	Field module for digital outputs 0-I-II, moduLink165

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



Accessories

Type	Description
0920000165	Front insert, printable, yellow, 1 A4 sheet with 6 inserts each, perforated

Additional information

Fitting instructions	P100002346
Declaration on materials and the environment	MD 92.840

Description of operation

The moduLink165 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 moduLink165 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	2x 0-I-II
Type of outputs	Digital, relay contacts for change-over contact
Load on outputs	< 250 V~/2 A (resistive load)

Real feedbacks are only possible via digital inputs.

The relay outputs can each be supplied with a voltage of a maximum of 250 V~ and loaded with 2 A.

The plant devices are connected using screw terminals (PELV electrical circuits).²⁾The work must always be carried out when the system is disconnected from the electrical supply.

In the case of a module defect, defined relay states are ensured by means of an independent internal cut-off facility. This prevents flickering on the relay outputs.

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.

²⁾ By means of special protective measures in their electronics, the relay outputs provide secure separation for the earth/housing and for the remaining electronics in accordance with SELV and PELV specifications. This allows mixed operation with both 250 V~ and SELV/PELV circuits without mutual interference.

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 automation station.

The priority/watchdog or back-up power mode is signalled by flashing with a frequency of approx. 2 Hz.

Four additional green LEDs indicate the "ON" status (level I or II) for the relay outputs. Here the feedbacks are exclusively virtual feedbacks.

Back-up power mode

The AS, or the modu590 novaLink module, provides the required power supply and the telegrams (actuation) 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/watchdog mode

On the field module, switching statuses are preselected with the DIP switch. As a result, if there are disturbances in the novaLink connection (voltage/AS failure, watchdog), defined switching statuses are reached for each individual output.

Note: It is not admissible for both DIP switches on an output to be "ON"!

A changeover to priority/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.

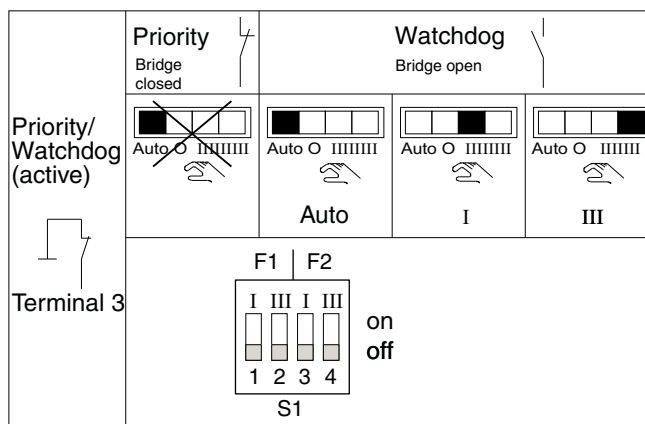
Bridge closed - priority mode (factory setting)

During priority mode, the DIP switches are used to activate preselected switching statuses independently of the position of the manual switch. It is no longer possible to manually override these with the manual switches.

Bridge open - watchdog mode

During watchdog mode, the DIP switches are used to activate preselected switching statuses only when the manual switches are set to automatic. However, it is still possible to manually override these with the manual switches.

Priority/watchdog operation diagram

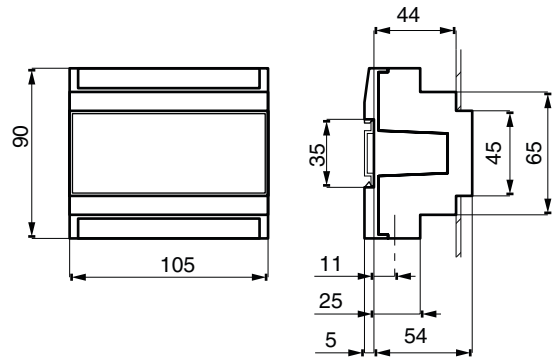


Disposal

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

