

EY6IO70: 8 x DI/CI/DO (OC) and 8 x DI/CI I/O module, modu670-IO

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu660-AS and modu680-AS automation stations and modu6*2-LC link coupler
- Activation of actuators such as relays and displays of operational systems, e.g. in HVAC engineering
- Activation of displays in operational systems
- Receiving digital inputs (alarm, status or pulse counter) in operational systems
- Eight digital inputs and eight digital inputs/outputs
- Power supply from automation station (modu6**-AS), link coupler (modu6*2-LC) or supply module (modu601-LC)
- Can be equipped with a local operating and indicating unit (modu600-LO)



EY6IO70F001

Technical data

Power supply

Power supply	From AS or LC via I/O bus
Dissipated power ¹⁾	≤ 0,8 W

Ambient conditions

Operating temperature	0...45 °C
Storage and transport temperature	-25...70 °C
Admissible ambient humidity	10...90% rh, no condensation

Inputs/outputs

Digital inputs (DI/CI)	Number of inputs	8
	Pulse counter ²⁾	≤ 50 Hz
Digital inputs/outputs (DIO)	Number of inputs/outputs	8
	Type of inputs/outputs	Open collector, normally-open contacts (0-1), outputs switched with respect to ground (any arrangement)
	Power supply for DO	External, positive ≤ 28 V=
	Load	0...100 mA (max. 2 V voltage drop)
	Power supply for DI	Internal, ~13 V=
	Pulse counter ³⁾	≤ 50 Hz

Interfaces and communication

Connection, LOI	4-pin
Connection, I/O bus	7-pin, spring contact
Connection terminals	4 x 8-pin spring-loaded plug-in connectors
Earth connector	Spring contact against DIN rail

Construction

Fitting	On metallic DIN rail 35 x 7.5/15 as per EN 60715
Dimensions W x H x D	55.7 (3 HP) x 100 x 59 mm
Weight	131 g

Standards and directives

Protection type (as per EN 60730)	Connections and terminals:IP00 Front in DIN cut-out:IP30
Protection class	I (EN 60730-1)
Environment class	3K3 (IEC 60721)

¹⁾ Measured value without accessories

²⁾ 50 Hz only with PC module, otherwise 5 Hz

³⁾ 50 Hz only with PC module, otherwise 5 Hz



	Software class ⁴⁾	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU ⁵⁾	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 50491-5-1, EN 50491-5-2, EN 50491-5-3

Overview of types

Type	Features
EY6IO70F001	8 x DI/CI/DO(OC) and 8 x DI/CI I/O module

Accessories

Type	Description
EY6LO00F001	Local operating and indicating unit for I/O modules

Manuals

Document number	Language	Title
D100397589	de	Systembeschreibung SAUTER modulo
D100408512	de	EY-modulo 6 – Best Practice I
D100402674	en	SAUTER modulo system description
D100410201	en	EY-modulo 6 – Best Practice I
D100402676	fr	Description du système SAUTER modulo
D100410203	fr	EY-modulo 6 – Meilleures pratiques I

Description of operation

The modu670-IO is an I/O module for extending the modu660-AS and modu680-AS automation stations and the modu6*2-LC link coupler.

The modu670-IO serves the following purposes in operational plants (e.g. in HVAC):

- Activation of relays. If applicable, an external lock is required.
- Activation of displays
- Acquisition of digital status and alarm inputs
- Acquisition of digital counter pulses

The module provides eight digital inputs and eight digital inputs/outputs.

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 regulations must also be adhered to. Changing or converting the product is not admissible.

Improper use

The SAUTER modulo 6 system does not have functional safety and is not fail-safe. MTTF, MTBF and MTTR data is not available.

This product is not suitable:

- for safety functions
- in transportation means and storage facilities as per Directive 37/2005
- as a measuring device as per EU Measuring Instruments Directive 2014/32/EU
- for use outside and in rooms with the risk of condensation

Fitting notes



Note

Only qualified electricians are permitted to fit and connect the module.
Prevent laypersons from accessing it.

The modu670-IO is a module that is connected frontally on the DIN rail. It is not necessary to slide it in from the side. The connection between the modules is made via spring contacts on the side. The modules must be pushed together on the DIN rail in such a way that the spring contacts ensure that the signal cable is connected to the I/O bus system.

The spring contacts of the last module on the right side must be covered by the bus cover provided with the automation station (AS).

⁴⁾ The product is not suitable for safety functions

⁵⁾ EN 61000-6-2: To comply with the standard, the connecting cables for the digital open collector outputs (DO-OC) may not be longer than 30 m

All external power supplies must have safe, undamaged insulation.



Note

The ground terminal must not be earthed.

For examples and procedures for problem-free installation and wiring, see the manual "EY-modulo 6 – Best Practice I"

Assignment to the automation station (AS)

The type and position of the I/O module in the system are defined using CASE Suite. This information is stored permanently in the AS.

If the configuration with CASE Suite does not match the physical arrangement of the module, this is indicated by the system LED of the module.

LED indicators

The I/O module is equipped with a system LED. The various operating statuses are displayed as follows:

Status	Description
Continuous green	Normal operation
Continuous red	Not configured
Flashing red	I/O bus communication error
Continuous orange	Startup mode
Flashing orange	Configuration error
Off→Green→Red	LED test run
Off	No power supply

Digital inputs (DI/CI)

Number of inputs	8
Type of inputs	Potential-free contacts, connected to ground Opto-coupler Transistor (open collector)
Pulse counter ⁶⁾	≤ 50 Hz
Pulse status	> 4 ms
Protection against external voltage	± 30 V= / 24 V~
Output current	≤ 1.5 mA
Refresh rate	60 ms

Pulse counters (CI with DI)

At the digital inputs, signals of potential-free contacts, opto-couplers or transistors with an open collector can be connected. The maximum pulse frequency may be 50 Hz.

The de-bounce time can be configured so that switching contacts are correctly detected (CASE Suite: filter setting) (0...100 ms). Pulses can be captured on the falling or rising edge, or on both edges. The minimum pulse duration should be 4 times the de-bounce time.

Digital inputs/outputs (DIO)

The DI/CI data is also valid for the DI/DO as DI.

Number of inputs/outputs	8
Type of inputs/outputs	Signal to ground/GND
Load on outputs	≤ 28 V= / 100 mA
Digital output	24 V= / 0...100 mA (sink)
Processing cycle time	60 ms
Length of connecting cable	≤ 30 m

Characteristics of the digital outputs

⁶⁾ 50 Hz only with PC module, otherwise 5 Hz

Targeted feedback signals can only be implemented via digital inputs.

The open collector outputs (OC) can be supplied with a maximum supply voltage of 28 V=. The signals are to ground/GND.

Plant devices are connected via pluggable spring-type terminals. This may only be carried out when the system is disconnected from the electrical supply.

Note



According to standard EN 61000-6-2, the connecting cables for the digital open collector outputs (DO-OC) may not be longer than 30 m.

In the event of a module defect, defined output states are guaranteed by an independent internal cut-off facility. This prevents flickering of the outputs.

The OC outputs assume the defined state "0" (off) in the following situations:

- if the power supply to the I/O module fails,
- if the power supply to the AS fails.

A standard or default value can be defined in CASE Engine. This value applies if the module is supplied with power but the station is out of operation.

Note



All OC outputs are equipped with protective circuitry. DO-OC is disabled in case of overload. After returning to normal load, the control command must be reset.

When connecting relays with integrated protection, e.g. with flyback diodes, the correct polarity must be observed.

Technical specification of the inputs and outputs

Binary input	Switching threshold high "0"	Switching threshold low "1"	Switching hysteresis	Pulse counter
Digital input (DI) ⁷⁾	4 V	1 V	0.4 V	≤ 50 Hz ⁸⁾

Binary output	Max. I _{out}	Voltage drop at max. I _{out}
Digital output (DO-OC)	100 mA	2 V

Channel and terminal assignment

Digital input for pulse counter (CI)

Channel	Schematic	Terminals	
		Signal	GND
0	d0	2	1
1	d1	4	3
2	d2	6	5
3	d3	8	7
4	d4	10	9
5	d5	12	11
6	d6	14	13
7	d7	16	15

Digital input/output, open collector transistor

Channel	Schematic	Terminals	
		Signal	GND
8	od8	17	18
9	od9	19	20
10	od10	21	22
11	od11	23	24
12	od12	25	26
13	od13	27	28

⁷⁾ Between 1 and 4 V the switching transitions are not defined.

⁸⁾ 50 Hz only with PC module, otherwise 5 Hz

Channel	Schematic	Terminals	
		Signal	GND
14	od14	29	30
15	od15	31	32

Connection of the local operating and indicating unit (LOI)

The modu600-LO LOI can be added to the modu670-IO. The LOI enables the display and direct control of the positioning signals and display of the inputs.



Note

The modu600-LO does not store any override values. When the unit is removed, all outputs are operated with the automatic values of the AS or the I/O module. When an indicating unit is inserted, the signals remain unchanged.

For more information on the control function and display, see product data sheet 91.141 for the modu600-LO.

LOIs allow limited operation of plant components without the intervention of the AS intended for the application. Outputs of the I/O modules in manual operation may change the value briefly when the user program is downloading. The LOI can be used to actuate the outputs in the AS directly even without a user application (CASE Engine).

With the modu601-LC module for separate I/O module supply, the I/O modules can be supplied independently of the station, so that the signals can continue to be displayed and controlled in the event of the absence, failure or soft reboot of the station.



Note

The modu600-LO LOI is not suitable to be used as an emergency operating device as per Machine Directive 2006/42/EU.

Standard EN ISO 13849-1 has not been considered. If applicable, a local emergency operating device must be installed on the plant side.

Access security



CAUTION!

Priority operating units can lose their priority function.

- ▶ Limit the access to the local operating level (incl. via apps) on site.
- ▶ Consider the access security during the planning and risk assessment of the plant.

Labelling concept

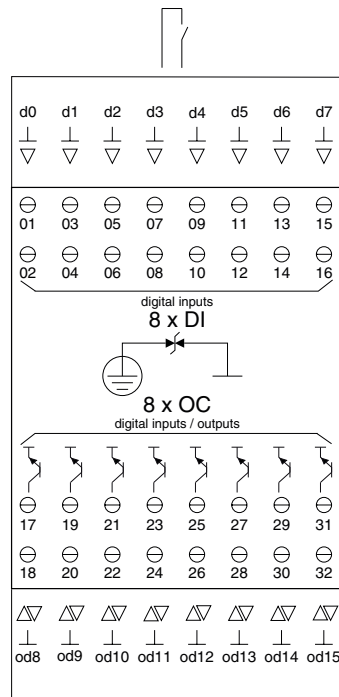
The LED display of the modu600-LO shows the individual channels as configured with CASE Suite.

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.

Connection diagram



Dimension drawing

All dimensions in millimetres.

