

EY6IO50: 6 × relay (2A) outputs I/O module, modu650-IO

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu660-AS and modu680-AS automation stations and the modu612-LC IP coupler
- Activation of displays in operational systems, such as HVAC engineering
- Activation of actuators such as contactors or valve actuators, in operational systems
- Six digital outputs (relay)
- Power supply from modu6**-AS automation station, modu612-LC IP coupler or modu601-LC supply module
- Can be equipped locally with a modu600-LO operating and indicating unit



EY6IO50F001

Technical data

Power supply			
	Power supply	From AS or LC via I/O bus	
	Dissipated power ¹⁾	≤ 1,3 W	
Ambient conditions			
	Operating temperature	0...45 °C	
	Storage and transport temperature	-20...70 °C	
	Ambient humidity	10...90% rh, no condensation	
Inputs/outputs			
Digital outputs (DO)	Number of outputs	6	
	Type of outputs	Relay (0-1), normally-open contact, galvanically isolated	
	Load	Load	24 VDC, 24...250 VAC
			Resistive load: 2 A
			Inductive load: ≤ 1 A, cos φ ≥ 0.8 Start-up current: ≤ 5 A
	Switching frequency, mechanical	300,000 cycles for 2 A	
Interfaces, communication			
	Connection, LOI	4-pin	
	Connection, I/O bus	7-pin, spring contact	
	Connection terminals	6 x 2-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. DIN rail housing as per DIN 43880	
	Dimensions W × H × D	56 (3 HP) × 98 × 59 mm	
	Weight	124 g	
Standards, directives			
	Type of protection	Connections and terminals: IP00 Front in DIN cut-out: IP30 (EN 60730-1)	
	Protection class	I (EN 60730-1)	
	Software class ²⁾	A (EN 60730-1, Appendix H)	
	Environment class	3K3 (IEC 60721)	
CE/UKCA conformity ³⁾	EMC-D 2014/30/EU (CE)	EN 50491-5-1, EN 50491-5-2, EN 50491-5-3	
	EMC-2016 (UKCA)	See EMC Directive	

¹⁾ Measured value without accessories

²⁾ The product is not suitable for safety functions

³⁾ Explanation of abbreviations in the "Further information" section of the product data sheet and in the appendix to SAUTER's product catalogues



RoHS-D 2011/65/EU & 2015/863/EU (CE)	EN IEC 63000
RoHS-2012 (UKCA)	EN IEC 63000

Overview of types

Type	Features
EY6IO50F001	6 x relay (2 A) outputs 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 modu650-IO is an I/O module for extending the modu660-AS and modu680-AS automation stations and the modu612-LC coupler.

The modu650-IO serves the following purposes in operational plants (e.g. in HVAC):

- Activation of gates and actuators, e.g. valve actuators. If applicable, an external lock is required.
- Activation of displays (start-up current < 5 A)

The module provides six digital relay 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 equipment and storage facilities as per Regulation 37/2005
- As a measuring device as per EU Measuring Instruments Directive 2014/32/EU
- For use outside and in rooms with a risk of condensation

Engineering and fitting notes



Notice

Only qualified electricians are permitted to fit and connect the module.
Prevent access by laypersons.

The modu650-IO is a module that is connected frontally on the DIN rail. The connection between the modules is made via spring contacts on the side.

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



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

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

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.








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LED indicators

The following operating statuses of the I/O module are indicated by the front system LED:

Status ⁴⁾	Indicator/display	Description
Continuous green		Normal mode
Continuous orange		Start-up mode
Flashing orange		Configuration error
Continuous red		Not configured
Flashing red		I/O bus communication error
Alternating Green → Red → Off (1 sec. each)		LED test
Off		No power supply

Digital outputs (DO)

Number of outputs	6
Type of outputs	Relays, normally-open contacts (0-1)
Load on outputs	24 VDC, 24...250 VAC Resistive load: 2 A, inductive load: ≤ 1 A, cos φ ≥ 0.8, start-up current: ≤ 5 A
Processing cycle time	≤ 60 ms
Switching frequency	300,000 cycles for 2 A with resistive load

Characteristics of the digital outputs

Targeted feedback signals can only be implemented via digital inputs (BACnet COMMANDFAILURE). The individual relay outputs can be supplied with a maximum voltage of 250 VAC and can be loaded with 2 A.

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

Special protective measures ensure that the relay outputs can be safely separated from each other. This allows mixed operation of 250 VAC and SELV/PELV circuits without causing mutual interference. In the event of a module defect, defined relay states are guaranteed by an independent internal cut-off facility. This prevents flickering of the relays/outputs.

The outputs of the relay contacts assume the defined state "0" (open) in the following situations:

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

⁴⁾ LED flashing: 500 ms on, 500 ms off

Channel and terminal assignment

Digital output (relay)

Duct	Schematic	Terminals	
		Signal	GND
0	R0	2	1
1	R1	4	3
2	R2	6	5
3	R3	8	7
4	R4	10	9
5	R5	12	11

Connection of the local operating and indicating unit (LOI)

The I/O module can be supplemented by the LOI modu600-LO. The LOI enables the direct control of the positioning signals and the display of the input and output signals.

The unit can be installed and removed during operation (hot-pluggable) without affecting functions of the automation station or I/O module.

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

Note



The modu600-LO does not store any override values. When a unit is removed and inserted, the signals remain unchanged.

Override values are deleted during a firmware update.

LOIs allow limited operation of system components without the intervention of the automation station 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 analogue outputs in the automation station directly even without a user application (CASE Engine).

As required by EN ISO 16484, the modu600-LO offers independent local priority operation on the IO modules when the automation station is switched off or has failed. This requires 24 VDC from the module for separate IO module supply, the modu601-LC.

Modules supplied via a modu612-LC can also benefit from local priority operation with the modu600-LO if the automation station fails.

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

NOTICE!



Priority operating units can lose their priority function.

- ▶ Limit the access to the local operating level (including 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.

Additional information

Fitting instructions	P100017303
Declaration on materials and the environment	MD 91.121

Abbreviations used

CE	Manufacturer's Declaration of Conformity for the European Union (EU)
UKCA	Manufacturer's Declaration of Conformity for the United Kingdom of Great Britain and Northern Ireland (UK)

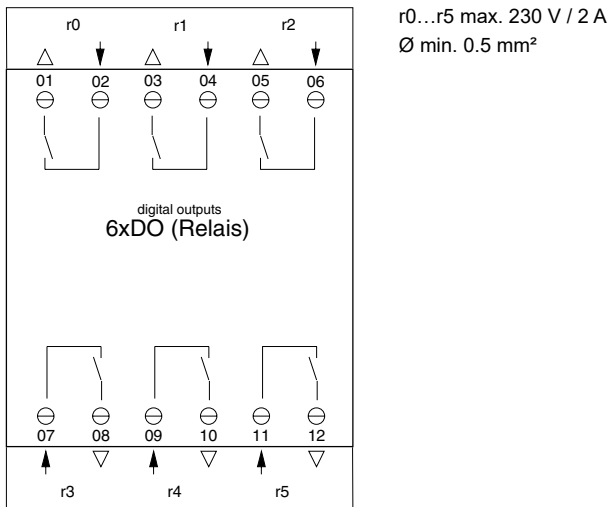
EMC-D	Electromagnetic Compatibility Directive 2014/30/EU
EMC-2016	Electromagnetic Compatibility Regulations 2016 (UK)
RoHS-D	Restriction of Hazardous Substances in Electrical and Electronic Equipment Directives 2011/65/EU & 2015/863/EU
RoHS-2012	Restriction of Hazardous Substances (RoHS) Regulations 2012 (UK)

Disposal

When disposing of the product, observe the currently applicable local laws.

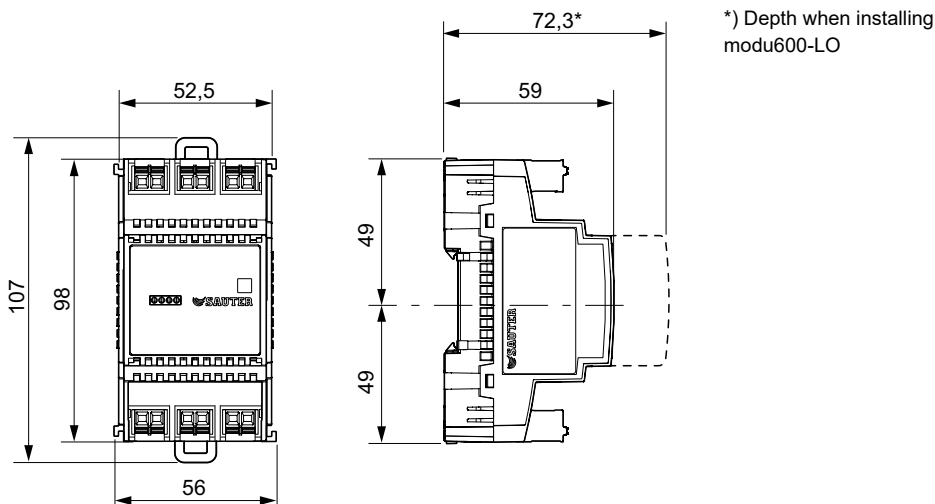
More information on materials can be found in the Declaration on materials and the environment for this product.

Connection diagram



Dimension drawing

All dimensions in mm.



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