

EY-IO 551: I/O module, digital outputs (open collector), modu551

How energy efficiency is improved

SAUTER EY-modulo 5 technology: modular, fast and universal

Features

- Part of the SAUTER EY-modulo 5 system family
- 16 digital outputs
- Plug-in element for extending the modu525 automation station (AS)
- Power supply from modu525 AS
- Direct labelling on the front
- Can be equipped with a local operating and indicating unit



EY-IO551F001

Technical data

Power supply

Power supply	From modu525 AS via I/O bus
Power consumption ¹⁾	≤ 0.7 VA/0.35 W
Power loss	≤ 0.35 W
Current consumption ²⁾	≤ 30 mA

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	16
Type of outputs	Open collector, NO contacts (0-I) outputs switched with respect to ground
Power supply for DO	External, positive ≤ 24 V=
Load	0.5 mA up to 100 mA

Interfaces and communication

Connection for modu6**	6-pin, integrated
Connection, I/O bus	12-pin, integrated
Connection terminals	24 (0.5...2.5 mm ²)

Construction

Fitting	On top-hat rail
Dimensions W x H x D	42 × 170 × 115 mm
Weight	0.29 kg

Standards and directives

Type of protection	IP 30 (EN 60529)
Protection class	I (EN 60730-1)
Environment class	3K3 (IEC 60721)

CE conformity according to	EMC directive 2004/108/EC ³⁾	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
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Overview of types

Type	Properties
EY-IO551F001	I/O module, digital outputs (open collector), modu551

¹⁾ On the primary side of modu525 base station (230 V~)

²⁾ Supply from modu525 base station

³⁾ EN 61000-6-2: In order to meet the European standard, the power cable should not exceed 30 metres in length.



Accessories

Local operating and indicating units (LOI)

Type	Description
EY-LO630F001	16-LED indication, bi-colour
EY-LO650F001	6 switches, auto-0-I, 4 LEDs operation/indication
EY-LO650F002	3 switches, auto-0-I-II, 4 LEDs operation/indication

Description of operation

The modu551 I/O module is used to activate actuators such as relays or displays of operational systems, e.g. in HVAC engineering.

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.

Engineering notes

The modu551 I/O module is generally comprised of two components. The baseplate in which the I/O bus system and the connection terminals are integrated and the actual I/O module electronics.

Fitting/assembly

The baseplate of the I/O module is fitted in a cabinet using a top-hat rail (EN 60715) and connected on the side directly to the I/O bus of the modu525 AS or modules. This work must only be carried out in the de-energised state.

The baseplate contains a "bus module", which is responsible for power supply and continuous communication as well as the optional emergency power supply. This ensures that faults due to a failure or partial defect in the electronic component do not affect the function of other downstream modules. Removing/inserting the I/O module electronics from/to the baseplate is possible while the AS is in operation.

To ensure plant safety and to avoid any faults at inputs or outputs, the I/O module electronics should only be removed or inserted while the base station is switched off.

Labelling concept

The I/O module can be labelled with a paper insert in the frontal transparent cap. There are specially perforated label sheets available for this purpose.

The labelling is usually carried out using texts generated from CASE Suite, and the labels are printed on normal A4 paper using commercial printers.

Assigning modules to AS

The I/O module electronics are encoded on the hardware side using pin inserts so that only the appropriate baseplate can be used. The modu525 AS detects whether a module baseplate is plugged into the I/O bus. Baseplate number and assignment of module types for the I/O modules on the AS are defined with CASE Suite. This information is permanently stored in the AS.

LED indicator/function

The I/O module is equipped with a system LED that indicates the operating statuses as follows:

System LED

LED I/O bus	Status	Description
No designation	Continuous green light	Module in operation
	Flashing green or red	Module not ready for operation
	Alternating green – red – off	Lamp test active (indicator type priority)
	No indicator	No power supply

Outputs

The I/O module has a total of 16 digital outputs

Outputs

Number of outputs	16 (DO)
Type of outputs	Digital, open collector transistor Signal connected to ground/earth

Load on outputs	24 V=, 0.5 mA up to 100 mA
Length of connecting cable	≤ 30 m
Processing cycle	100 ms

Real feedback is only possible via digital inputs.

The open collector outputs (OC) can be supplied with a maximum power supply of 24 V=; the signals are connected to ground. The plant devices are connected via screw terminals; this may only take place when the system is disconnected from the electrical supply.



Note

If it is mandatory to comply with the European standard (EN 61000-6-2), the connecting cables for the digital open collector outputs (DO-OC) must not be longer than 30 metres.

Defined switching statuses in the event of a module defect are guaranteed by an independent internal cut-off facility. This prevents the outputs from flickering.

The open collector outputs adopt the defined status "0" (Off):

- when the power supply/communication on the I/O bus is interrupted,
- or, when the AS power supply fails.

All open collector outputs are equipped with protective switches. When connecting relays with integrated protection (e.g. freewheeling diode), you must ensure that the polarity is correct.

Channel and terminal assignment

Description modu551	Channel	Schematic	Terminals	
			DO	GND
Digital output Open collector transistor	0	o0	1	
	1	o1	2	3
	2	o2	4	5
	3	o3	6	7
	4	o4	8	9
	5	o5	10	
	6	o6	11	
	7	o7	12	
	8	o8	13	
	9	o9	14	
	10	o10	15	16
	11	o11	17	18
	12	o12	19	20
	13	o13	21	22
	14	o14	23	
15	o15	24		

Connection of local operating unit

The modu551 I/O module can be complemented with the modu630 local operating and indicating units (LOI) to allow actuated outputs to be displayed directly or be actuated directly by the modu650 local operating unit. The function corresponds to the standard EN ISO 16484-2:2004 for local override and indicating units.

Two types are available:

- EY-LO650F001: 6 switches (automatic mode "A", 0-I) with LED indicators
- EY-LO650F002: 3 switches (automatic mode "A", 0-I-II) with LED indicators

The local operating and indicating units can be installed and removed during operation (hot-pluggable) without affecting functions of the AS or I/O module.

Detailed information about the actuation function and LED indicator can be found in the PDS 92.081 for EY-LO 6**.

If an incompatible unit is connected, this status is indicated by the flashing of all LEDs (red and yellow); there is no risk of the I/O module being destroyed.



Note

Before inserting an indicating and operating unit, all switch positions (AUTO) must be checked to ensure that no undesired switching statuses are active. When the unit is removed, all outputs are operated with the automatic statuses of the I/O module.

In accordance with the standard, the local override and indicating units allow restricted operation of system components without involvement of the AS planned for the application.

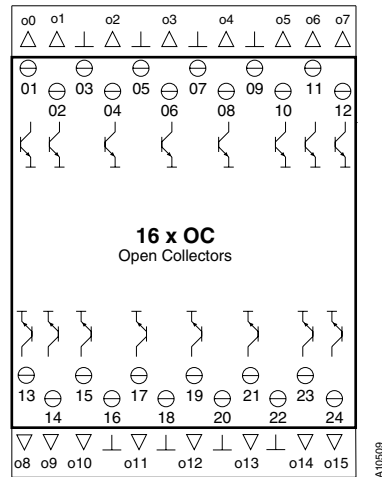
Outputs in manual position may change their status briefly when the user program is downloading. The local operating unit can be used to actuate the channels 0...5 in the AS directly even without a user application (CASE Engine).

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

