Produktinformation
Product information
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modulo 6 hardware
modu672-IO module with universal inputs and outputs

Contents

1.   Main objectives

The new **modu672-IO** offers universal inputs and outputs for the integration of current and voltage signals. As with the modu631-IO, the four (4) universal inputs can process voltage signals from 0 to 10 V, resistance signals Ni1000 and Pt1000 for measuring temperature and resistance signals from 100 to 2500 Ω, and now also current signals from 0 to 20 mA and potentiometers (3-pin). As with the modu671-IO, the four (4) analogue outputs can supply voltage signals from 0 to 10 V and now also 0 to 20 mA. There are also four (4) digital output signals. Therefore, 12 channels in total.

2.   Application

 The advantage of this module is the expansion of the signal types in comparison to the modu631-IO in terms of input signals or the modu671 in terms of output signals. In particular, the **modu672-IO** module enables the measurement of current signals 0(4)–20 mA that are common in industry, especially in the pharmaceutical or chemical industry. In addition, potentiometers (3-pin) can also be connected in order to carry out a relative measurement. On the output side, current signals 0–20 mA can now also be provided. The module supports four (4) universal inputs and four (4) analogue outputs as well as four (4) digital outputs.

3.   Overview of product range

Module	Type	Stations	Firmware	CASE Suite
modu672-IO	EY6IO72F001	modu680-AS, modu660-AS, modu612-LC	From V.2.1.1	From V.5.2

4.   Module properties

Property	modu672-IO		
Reference	EY6IO72F001		
Physics	modulo 6 IO modules with 4 x 8-pin plug-in connectors		
Power supply	from bus (AS, LC)		
Inputs	4 UI + Ref(3.0 V)		
Input signal types	U: 0(2)–10 V $\quad$ R_i ~ 100 kΩ I: 0(4)–20 mA $\quad$ R_i ~ 50 Ω R(T): -50–185°C $\quad$ {Ni1000, Pt1000} R(☐): 200–2500 Ω Pot: 0–100% $\quad$ 0.5–10 kΩ $\quad$ Ref: 3.0 V D: DI/CI		
Outputs	4 UO + 4 DO		
Output signal types (UO)	U: 0–10 V $\quad$ Load > 6kΩ I: 0–20 mA $\quad$ Load: < 500 Ω		
Output signal types (DO)	OD $\quad$ <100 mA	24 V		

Property	modu672-IO
Max. power consumption	3W
Max. number of modules without additional power supply	6
Local operation	modu600-LO, modulo 6 app via AS

5. Engineering notes

5.1 Connections

The connections are distributed as follows:

Top left: four analogue outputs, in each case

- Signal terminal (02, 04, 06, 08)
- GND terminal (01, 03, 05, 07).

Top right: four digital outputs, in each case

- Signal terminal (10, 12, 14, 16)
- GND terminal (09, 11, 13, 15).

Bottom: four universal inputs, distributed in groups of four, e.g. {17-18-19-20} belong together.

- Signal terminal (17, 21, 25, 29)
- Reference output for potentiometer (19, 23, 27, 31)
- GND terminals double (18, 20, 22, 24, 26, 28, 30, 32).
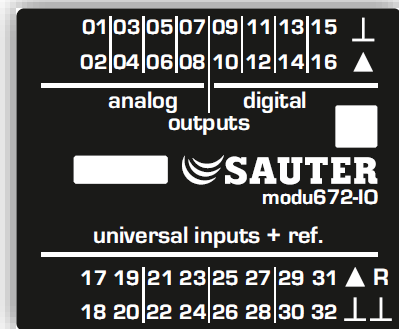
5.2 Number of modules

Due to the presence of power sources, the **modu672-IO** module can become a higher load for the internal bus. The **modu672-IO** draws up to twice as much power (≤ 3.0 W) as a normal module. This module must therefore be considered "double" in terms of the number of modules before a modu601-LC module must be used.

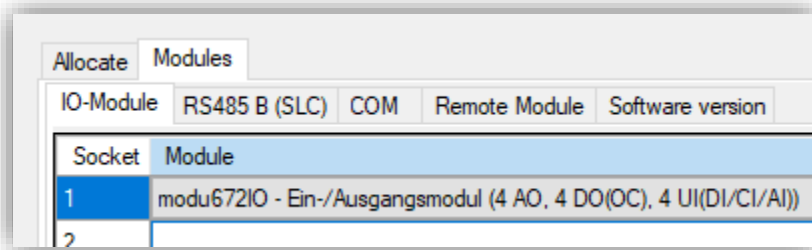| modu6**-AS	modu672-IO	modu672-IO	modu672-IO	modu672-IO	modu672-IO	modu672-IO	modu601-LC	...	modu6**-IO

Table 1 Maximum number of modu672-IO modules and use of modu601-LC

5.3 Reference signal for potentiometer

The reference signal of the **modu672-IO** has a voltage of 3.0 V.

5.4 Use of the modules in CASE Engine

As a modulo 6 IO module, the module is configured in CASE Engine in exactly the same way as all other modulo 6 modules.

5.5 BACnet objects

The internal structure of the modu672-IO module allows special cases such as short circuits or overrides to be detected, depending on the signal type. These states are forwarded to the BACnet objects and mapped in the reliability property (BACnet Reliability).

BACnet flags	SHORTED LOOP	UNDER RANGE	OVER RANGE	OPEN LOOP
Analog Output (AO)				
0–10V	☑	-	☑	-
2–10V	☑	-	☑	-
DO	☑	-	-	-
0–20mA	-	-	-	☑
4–20mA	-	-	-	☑
Analog Input (AI)				
0–10V	-	-	☑	-
0–20mA	-	-	☑	-
Temperature sensors (NI1000/PT1000)	☑	☑	☑	☑
Resistors	☑	-	-	☑

Comment:

Shorted-loop states are detected by the new modu672-IO module and the existing modu670-IO module. With the remaining IO modules, detection is not possible due to missing specific components.

Channel type	Signal	Condition	Reliability (BACnet Reliability)
Analogue output	0(2)–10 V	For target values greater than 1 V, if the actual value is more than 1 V lower than the target value (internal feedback loop)	shorted loop
Analogue output	0(2)–10 V	If the actual value is more than 1 V greater than the target value (internal feedback loop). This happens, for example, when an external source is connected.	over range
Digital output		$I_{out} > 265$ mA	shorted loop
Analogue output	0(4)–20 mA	For target signals greater than 0.02 mA	open loop
Analogue input	0–20 mA	$I_{in} > 33$ mA	over range

Channel type	Signal	Condition	Reliability (BACnet Reliability)
Ni/Pt1000	-50–185°C	T < -50°C T > 185°C	under range over range
Ni/Pt1000, R	Basic signal in Ω	Load resistance < 99 Ω Load resistance > 2601 Ω	shorted loop open loop
Potentiometer	0–100%	No load connected	open loop
Potentiometer	Ref. 3 V	Short circuit at Ref terminal or V<2.7 V	shorted loop

Comment:

These are the module restrictions, without taking into account the settings (e.g. MinHW, MaxHW) in the BACnet modules with CASE Engine.

6. Documentation

The following documents are available on the internet or extranet site www.sauter-controls.com.

EY6IO72F001 – modu672-IO 4xAO, 4xDO(OC), 4xUI(DI,CI,AI) IO module		
PDS	Data sheet	D100380656
AT	Tender specification	D100526750
MV	Fitting instructions (for all EY6IO**)	P100017303
	modulo 6 – Best Practice	D100410201

7. Availability

The **modu672-IO** (EY6IO72F001) is available from stock.
The prices were communicated with the price notification.

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