

8EAC0130.000-1

1 General information

I/O plug-in module 8EAC0130.000-1 can be used in the slot of an ACOPOS P3 8EI servo drive. The plug-in module provides 10 digital input/outputs.

Digital inputs/outputs 1 to 8 can be configured individually; digital inputs/outputs 9 and 10 can be configured in pairs as inputs or outputs.

Up to 4 high-speed (push-pull) outputs with maximum current of 100 mA, 4 standard (high-side) outputs with maximum current of 400 mA and 2 slow (high-side) outputs with maximum current of 2 A are available.

The digital inputs/outputs are also equipped with an internal reverse current protection circuit:

Even if the input voltage on one of the digital I/O connections exceeds the value of the supply voltage on connections X41D/29 and X41D/30, they are protected against damage by the internal reverse current protection circuit.

Information:

The type of individual digital I/O connections is not predefined at the factory.

Before commissioning, configure the desired type (input or output) for each I/O connection in Automation Studio!

2 Order data

Order number	Short description	Figure
	Plug-in modules	
8EAC0130.000-1	ACOPOS P3 plug-in module, 8 digital I/O 24 V (4x 400 mA, 4x 100 mA) individually configurable as inputs or outputs, 2 digital I/O 24 V 2 A configurable in pairs as inputs or outputs, order terminal block 8TB0230.221A-00 separately!	
	Required accessories	
	Terminals	
8TB0230.221A-00	30-pin push-in terminal block, 2-row, pitch: 2.54 mm, label 1: Numbered consecutively	

Table 1: 8EAC0130.000-1 - Order data

3 Technical data

Order number	8EAC0130.000-1
General information	
Module type	ACOPOS P3 plug-in module
B&R ID code	0xF037
Slot	Slot 1
Power consumption	Typ. 1.5 W
Certifications	
CE	Yes
UKCA	Yes
UL	cULus E225616
KC	Power conversion equipment
	Yes
Inputs/Outputs	
Module-side connection	30-pin multipoint connector
Status indicators	None
Configuration of digital inputs/outputs	Input/Output 1 - 8: Individually configurable as inputs or outputs Input/Output 9 - 10: Configurable in pairs as inputs or outputs

Table 2: 8EAC0130.000-1 - Technical data

Order number	8EAC0130.000-1
Incremental encoders ¹⁾	
Counter size	16-bit
Input frequency	Max. 125 kHz
Evaluation	4x
Signal form	Rectangle
Encoder monitoring	Yes
Counter frequency	Max. 500 kHz
Reference frequency	Max. 125 kHz
Distance between edges	Min. 0.64 µs
Inputs	
Input 1	Channel A
Input 2	Channel B
Input 3	Reference pulse R
Power supply ²⁾	
Reverse polarity protection	Yes
Power supply	
Minimum	18 VDC
Nominal	24 VDC
Maximum	30 VDC
Digital inputs ³⁾	
Quantity	Max. 10
Input current at 24 VDC	Inputs 1 - 8: Typ. 2.5 mA Inputs 9 - 10: Typ. 3 mA
Input filter	
Hardware	Inputs 1 - 8: No filter Inputs 9 - 10: Yes
Software	5.12 µs (default) Between 0 and 20.97 ms
Connection type	1-wire connections
Circuit	Sink
Input frequency ⁴⁾	Inputs 1 - 8: Max. 125 kHz Inputs 9 - 10: Max. 10 kHz
Switching threshold	
Low	≤5 V
High	≥15 V
Input voltage	
Maximum	Supply voltage
Electrical isolation	
Channel - ACOPOS	Yes
Channel - Channel	No
Switching delay ⁵⁾	
Digital input	Inputs 1 - 8: Approx. 1 µs Inputs 9 - 10: Typ. 34 µs
Event counters ¹⁾	
Signal form	Square wave pulse
Input frequency	Max. 125 kHz
Counter size	16-bit
Inputs	
Input 1	Counter 1
Input 2	Counter 2
Trigger inputs ⁶⁾	
Quantity	4
Channels	Digital I/O 5 - 8
Digital outputs	
Quantity	Max. 10
Variant	Output 1 - 4: Push-pull transistor outputs Output 5 - 8: High-side transistor outputs Output 9 - 10: High-side transistor outputs
Connection type	1-wire connections
Readable outputs	Yes
Continuous current	Outputs 1 - 4: Max. 100 mA Outputs 5 - 8: Max. 400 mA Outputs 9 - 10: Max. 2 A
Peak short-circuit current	Outputs 1 - 8: Approx. 10 A, 0.5 µs Outputs 9 - 10: Max. 90 A, 800 µs
Switching frequency (resistive load) ⁷⁾	Outputs 1 - 4: Max. 125 kHz Outputs 5 - 8: Max. 10 kHz Outputs 9 - 10: Max. 100 Hz
Switching delay ⁸⁾	Outputs 1 - 8: <3 µs Outputs 9 - 10: 50 to 150 µs
Electrical isolation	
Output - ACOPOS	Yes
Output - Output	No

Table 2: 8EAC0130.000-1 - Technical data

Order number	8EAC0130.000-1
Switching voltage	
Nominal	≤Supply voltage
Protection	
Short-circuit proof	Yes
Overload-proof	Yes
Encoder emulation ¹⁾	
Output frequency	Max. 125 kHz ⁹⁾
Outputs	
Output 1	Channel A
Output 2	Channel B
Output 3	Reference pulse R
Support	
Motion system ¹⁰⁾	
mapp Motion	5.03.3 and higher
ACP10/ARNC0	5.03.3 and higher
Ambient conditions	
Temperature	
Operation	
Nominal	5 to 40°C
Maximum	55°C
Storage	-25 to 55°C
Transport	-25 to 70°C
Relative humidity	
Operation	5 to 85%
Storage	5 to 95%
Transport	Max. 95% at 40°C
Mechanical properties	
Dimensions	
Width	82 mm
Height	24 mm
Depth	103 mm
Weight	79 g

Table 2: 8EAC0130.000-1 - Technical data

- 1) Carry out wiring with shielded lines!
- 2) Carry out wiring for line lengths > 3 m with shielded lines!
- 3) When controlled by a push output or normally closed contact, the filter time should be increased to 655 µs in order to avoid disturbances from electromagnetic interference (EMI).
- 4) The maximum input frequency depends on the selected software function.
- 5) When controlled by a push output or normally closed contact, the switch-off time is extended depending on the length of the power supply cable since the line capacity is only discharged by the input current.
- 6) For additional technical data, see section "Digital inputs".
- 7) Outputs 1 to 8: The maximum switching frequency depends on the selected software function.
- 8) Without and with resistive load at continuous current.
- 9) Corresponds to max. 500,000 increments/s (4x evaluation).
- 10) Incremental encoder, event counter and encoder emulation functions are supported starting with version 5.08.2.

4 Pinout

Figure	X41D	Pin	Description		Function		
					Incremental encoders / Encoder emulation	Event counters	Trigger
		1	---	---	---	---	---
		2	---	---	---	---	---
		3	---	---	---	---	
		4	GND	GND	---	---	
		5	Shield	Shield	---	---	
		6	Shield	Shield	---	---	
		7	---	---	---	---	
		8	---	---	---	---	
		9	---	---	---	---	
		10	GND	GND	---	---	
		11	Shield	Shield	---	---	
		12	Shield	Shield	---	---	
		13	---	---	---	---	
		14	---	---	---	---	
		15	---	---	---	---	
		16	GND	GND	---	---	
		17	Shield	Shield	---	---	
		18	Shield	Shield	---	---	
		19	Digital I/O 1	Digital input/output 1	Channel A	Counter 1	---
		20	Digital I/O 2	Digital input/output 2	Channel B	Counter 2	---
		21	Digital I/O 3	Digital input/output 3	Reference pulse R	---	---
		22	Digital I/O 4	Digital input/output 4	---	---	---
		23	Digital I/O 5	Digital input/output 5	---	---	Trigger
		24	Digital I/O 6	Digital input/output 6	---	---	Trigger
		25	Digital I/O 7	Digital input/output 7	---	---	Trigger
		26	Digital I/O 8	Digital input/output 8	---	---	Trigger
		27	Digital I/O 9	Digital input/output 9	---	---	---
		28	Digital I/O 10	Digital input/output 10	---	---	---
		29	+Vin	External power supply +18 ... 30 VDC	---	---	---
		30	GND	External power supply 0 V	---	---	---
Terminal cross sections		[mm²]		[AWG]			
Solid core / Multiple-conductor lines		0.14 - 0.5		26 - 20			
Flexible, multiple wire line							
Without wire end sleeves		0.14 - 0.5		26 - 20			
With wire end sleeves		0.14 - 0.25		26 - 24			
Approval data							
UL/C-UL-US		---		26 - 20			
CSA		---		26 - 20			

Table 3: DIO interface 8BAC0130.000-1 - Pinout

Information:

The digital I/O connections can only be used if voltage is supplied to the module via connectors X41D/29 and X41D/30.

Notice!

Reverse current protection for the digital inputs is only ensured if the module is supplied with voltage via connections X41D/29 and X41D/30.

Danger!

The digital inputs are isolated circuits. They are therefore only permitted to be connected to devices or components that have at least safe isolation per IEC 60364-4-41 or EN 61800-5-1.

5 Input/Output circuit diagram

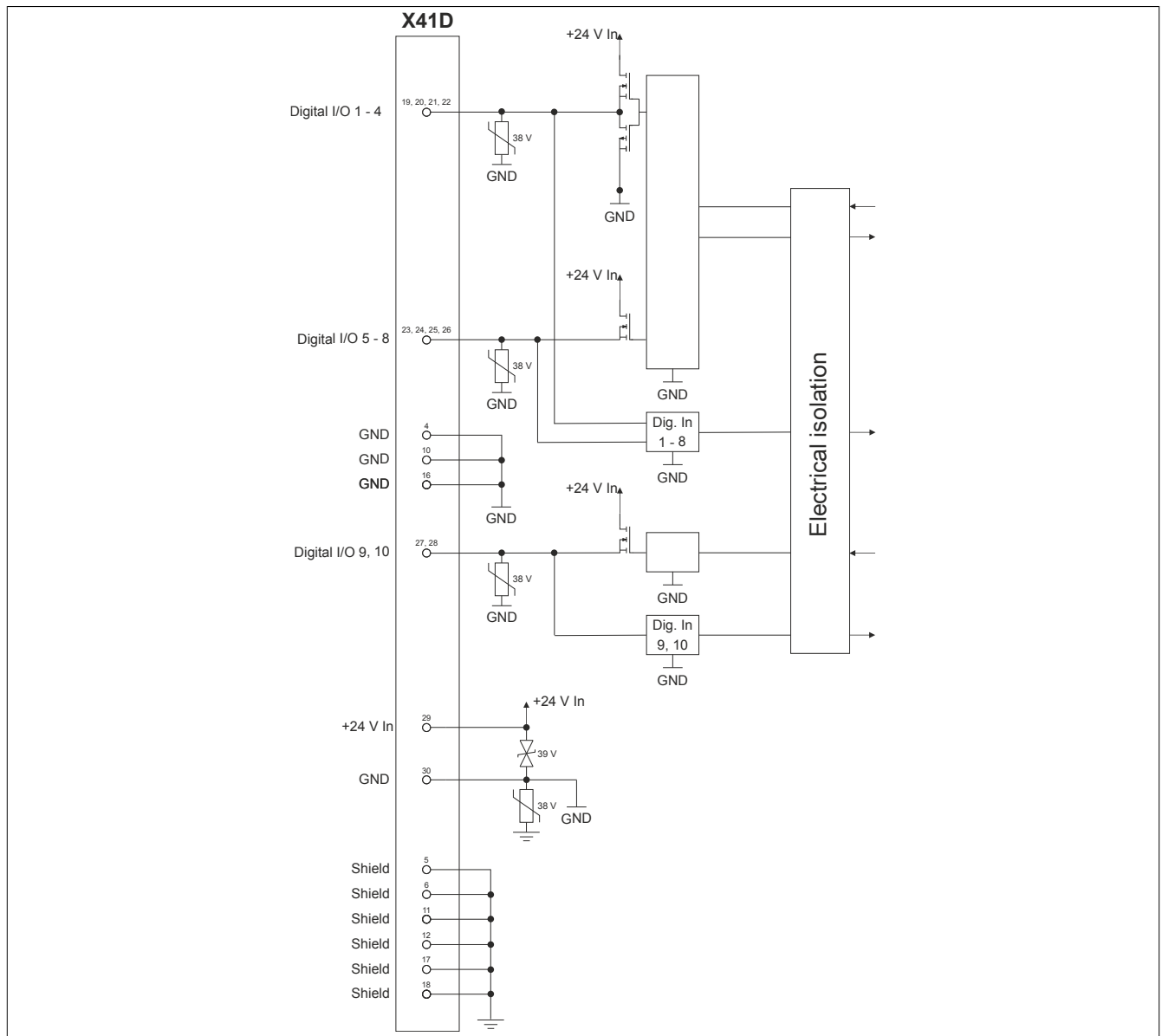


Figure 1: DIO interface 8EAC0130.000-1 - Input/Output circuit diagram