

8AC130.60-1

1 General information

The AC130 plug-in module makes a maximum of 8 digital inputs or 10 digital outputs available.

I/O points can be configured in pairs as inputs or outputs. The first three inputs have incremental encoder functionality (A, B, R).

The inputs are divided into 4 standard (max. 10 kHz) and 4 high speed (max. 100 kHz) inputs.

The outputs include 4 high speed (push-pull) outputs with a maximum current of 100 mA, 4 standard (high-side) outputs with a maximum current of 400 mA and 2 low speed (high-side) outputs with a maximum current of 2 A. All outputs can be read.

2 Order data

Model number	Short description	Figure
	Plug-in modules	
8AC130.60-1	ACOPOS plug-in module, 8 digital I/O configurable in pairs as 24 V input or as output 400/100 mA, 2 digital outputs 2 A, order TB712 terminal block separately	
	Required accessories	
	Terminal blocks	
7TB712.9	Accessory terminal block, 12-pin, screw clamps 1.5 mm ²	
7TB712.91	Accessory terminal block, 12-pin, cage clamp terminal block 1.5 mm ²	
	Optional accessories	
7TB712:90-02	2003 B&R terminal block, 12 pin 20 pieces, screw clamp	
7TB712:91-02	2003 B&R terminal block, 12 pin 20 pieces, cage clamp	



Table 1: 8AC130.60-1 - Order data

3 Technical data

Model number	8AC130.60-1
General information	
Module type	ACOPOS plug-in module
B&R ID code	0x1068
Slot ¹⁾	Slots 3 and 4
Power consumption	Max. 0.8 W
Certifications	
CE	Yes
UL	cULus E225616 Power conversion equipment
KC	Yes
Inputs/Outputs	
Module-side connection	12-pin connector
Status indicators	Status LED (24 V)
Configuration of digital inputs/outputs	Configurable in pairs as inputs or outputs
Incremental encoders	
Counter size	16-bit
Input frequency	Max. 62.5 kHz
Evaluation	4x
Signal form	Square wave pulse
Encoder monitoring	No
Counter frequency	Max. 250 kHz
Reference frequency	Max. 62.5 kHz
Distance between edges	Min. 2.5 µs

Table 2: 8AC130.60-1 - Technical data

Model number	8AC130.60-1
Inputs	
Input 1	Channel A
Input 2	Channel B
Input 3	Reference pulse R
Power supply	
Voltage monitoring (24 V - LED)	Yes, supply voltage >18 V
Reverse polarity protection	Yes
Power supply	
Minimum	18 VDC
Nominal	24 VDC
Maximum	30 VDC
Digital inputs²⁾	
Quantity	Max. 8
Circuit	Sink
Switching threshold	
Low	<5 V
High	>15 V
Input voltage	
Nominal	24 VDC
Maximum	30 VDC
Input current at nominal voltage	
Channel 1-4	Approx. 10 mA
Channel 5-8	Approx. 5.5 mA
Electrical isolation	
Channel - ACOPOS	Yes
Channel - Channel	No
Switching delay	
Channel 1-4	Max. 5 µs
Channel 5-8	Max. 35 µs
Event counters	
Signal form	Square wave pulse
Input frequency	Max. 100 kHz
Counter size	16-bit
Inputs	
Input 1	Counter 1
Input 2	Counter 2
Digital outputs	
Quantity	Max. 10
Readable outputs	Yes
Continuous current	
Outputs 1 - 4	Max. 100 mA
Outputs 5 - 8	Max. 400 mA
Outputs 9 - 10	Max. 2 A
Short-circuit current at 24 V (until cutoff)	
Outputs 1 - 4	Approx. 1 A
Outputs 5 - 8	Approx. 1.2 A
Outputs 9 - 10	Approx. 24 A
Electrical isolation	
Output - ACOPOS	Yes
Output - Output	No
Switching frequency (resistive load)	
Outputs 1 - 2	Max. 10 kHz ³⁾
Outputs 3 - 4	Max. 10 kHz ³⁾
Outputs 5 - 8	Max. 5 kHz
Outputs 9 - 10	Max. 100 Hz
Switching voltage	
Minimum	18 VDC
Nominal	24 VDC
Maximum	30 VDC
Switching delay 0 → 1 and 1 → 0	
Outputs 1 - 4	Max. 5 µs
Outputs 5 - 8	Max. 50 µs
Outputs 9 - 10	Max. 500 µs
Protection	
Short-circuit proof	Yes
Overload-proof	Yes
Type	
Outputs 1 - 4	Transistor outputs push-pull
Outputs 5 - 10	High-side transistor outputs

Table 2: 8AC130.60-1 - Technical data

Model number	8AC130.60-1	
Ambient conditions		
Temperature		
Operation		5 to 40°C
Nominal		55°C
Maximum		
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

Table 2: 8AC130.60-1 - Technical data

- 1) The AC130 can also be used as an encoder module. It is also possible to insert multiple encoder modules. In this case, the encoder module in the slot with the lowest number is automatically used for motor feedback.
- 2) Shielded cables must be used for inputs 1 - 4.
- 3) Encoder emulation mode: Max. 65 kHz.

4 Status indicators

AC130 LED status indicators

Label	Color	Function	Description						
24 V	Green	Status	<table border="1"> <tr> <td>LED off</td> <td>Supply voltage on pin 11 and pin 12 of the module accounts for less than 18 VDC</td> </tr> <tr> <td>LED is lit</td> <td>Supply voltage on pin 11 and pin 12 of the module accounts for more than 18 VDC</td> </tr> <tr> <td>LED is blinking ¹⁾</td> <td> Module error: <ul style="list-style-type: none"> • ACOPOS network error • Overvoltage on digital O 9 and/or digital O 10 • One or more I/O drives are defective • Incremental encoder emulation mode: Frequency too high </td> </tr> </table>	LED off	Supply voltage on pin 11 and pin 12 of the module accounts for less than 18 VDC	LED is lit	Supply voltage on pin 11 and pin 12 of the module accounts for more than 18 VDC	LED is blinking ¹⁾	Module error: <ul style="list-style-type: none"> • ACOPOS network error • Overvoltage on digital O 9 and/or digital O 10 • One or more I/O drives are defective • Incremental encoder emulation mode: Frequency too high
LED off	Supply voltage on pin 11 and pin 12 of the module accounts for less than 18 VDC								
LED is lit	Supply voltage on pin 11 and pin 12 of the module accounts for more than 18 VDC								
LED is blinking ¹⁾	Module error: <ul style="list-style-type: none"> • ACOPOS network error • Overvoltage on digital O 9 and/or digital O 10 • One or more I/O drives are defective • Incremental encoder emulation mode: Frequency too high 								

Table 3: LED status 8AC130

- 1) The LED blinks if supply voltage on pin 11 and pin 12 of the module accounts for more than 18 VDC.

5 Firmware

The firmware is part of the operating system for the ACOPOS servo drives. Firmware is updated by updating the ACOPOS operating system.

6 Wiring

6.1 Pinout

Figure	X11	Pin	Name	Function
		1	Digital I/O 1	Digital input/output 1
		2	Digital I/O 2	Digital input/output 2
		3	Digital I/O 3	Digital input/output 3
		4	Digital I/O 4	Digital input/output 4
		5	Digital I/O 5	Digital input/output 5
		6	Digital I/O 6	Digital input/output 6
		7	Digital I/O 7	Digital input/output 7
		8	Digital I/O 8	Digital input/output 8
		9	Digital O 9	Digital output 9
		10	Digital O 10	Digital output 10
		11	+24 V	+24 V supply
Terminal cross sections		12	COM (1 - 11)	0 V supply

Table 4: AC130 digital mixed module - Pinout

Figure	X11	Pin	Name	Function
Solid core / multiple-conductor lines			0.5 - 1.5	20 - 14
Flexible, multiple wire line Without wire end sleeves			0.5 - 1.5	20 - 14
With wire end sleeves			0.5 - 1.5	20 - 14
Approbation Data (UL/C-UL-US- and CSA) UL/C-UL-US CSA			--	26 - 14
Tightening torque for the terminal screws [Nm]			0.2 ... 0.25	26 - 14

Table 4: AC130 digital mixed module - Pinout

Danger!

The digital inputs are isolated circuits. Therefore, these connections are only allowed to be connected to devices or components with at least safe isolation in accordance with IEC 60364-4-41 or EN 61800-5-1.

6.2 Input/Output circuit diagram

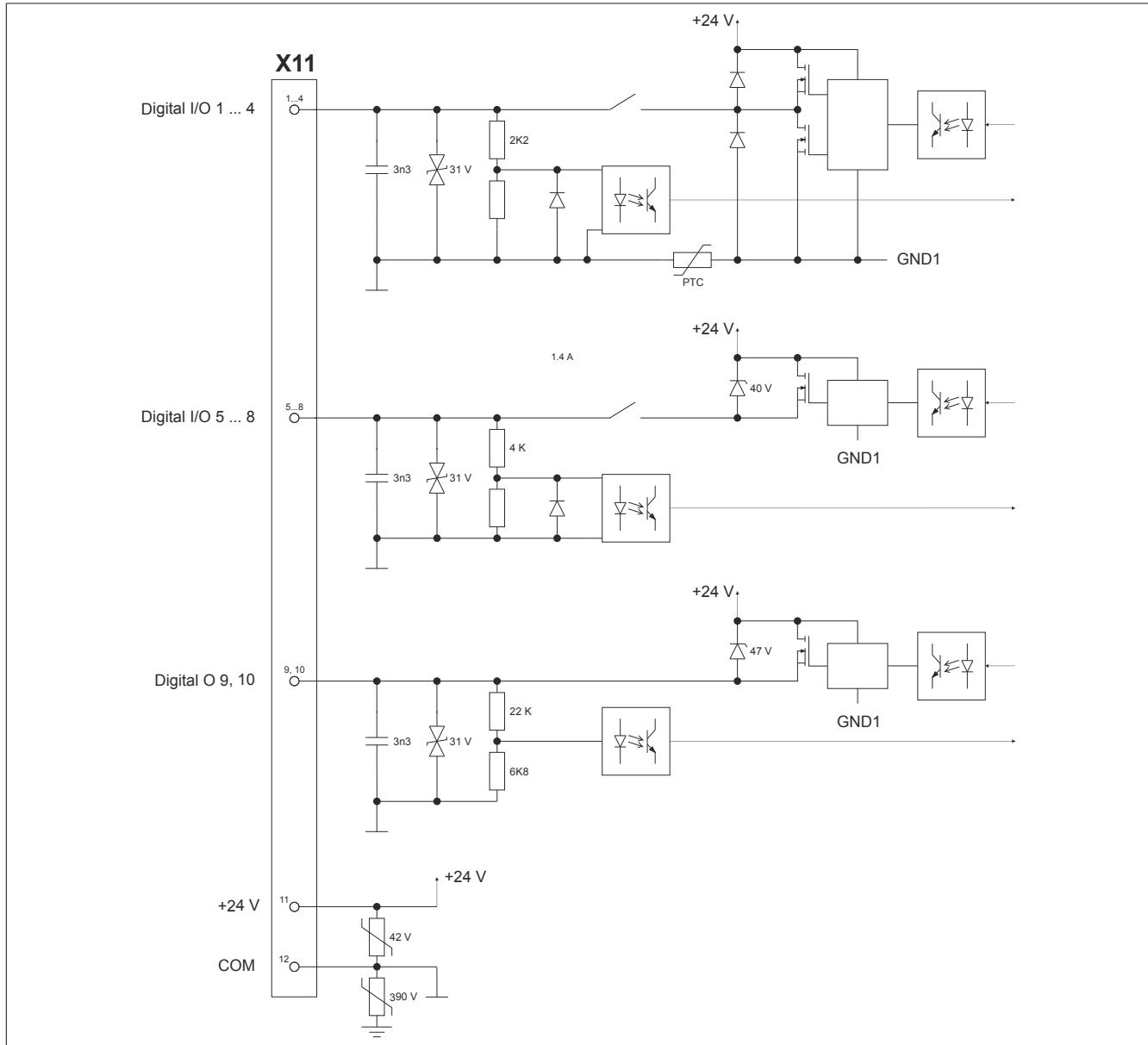


Figure 1: AC130 - Input/Output circuit diagram