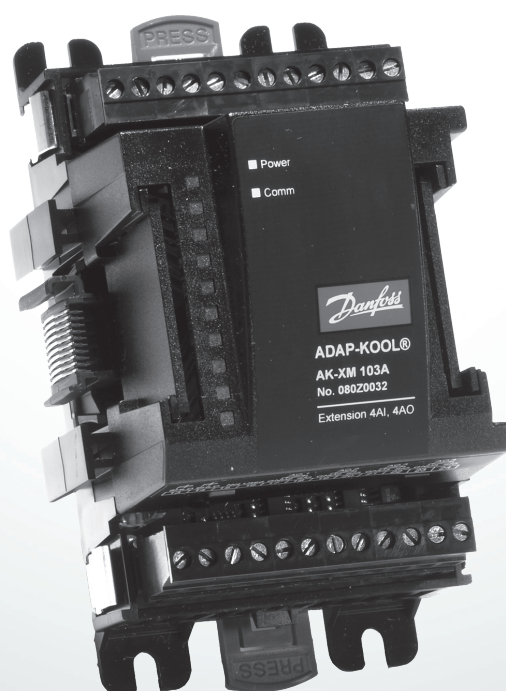


Technical Brochure

Extension module 4AI + 4AO

AK-XM 103A

ADAP-KOOL® Refrigeration control systems



Introduction

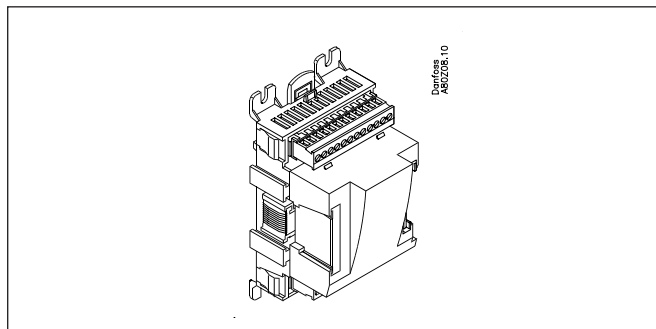
Application

The extension module should be used with a controller in the same serial connection if there is not enough connections on the controller itself.

Function

The module contains:

- 4 analog inputs for temperature sensors, pressure transmitters, voltage signals and contact signals.
- Four analogue outputs (0-10 V) for speed control of e.g. frequency converters



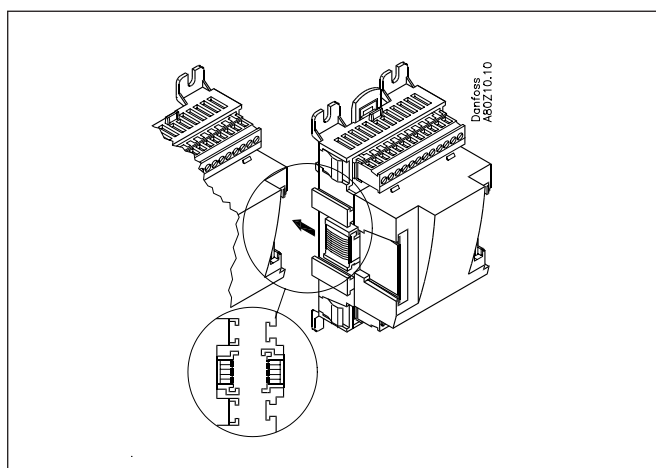
Installation

- The module is connected to the plug from the previous module in the sequence.

Supply voltage

The supply voltage to the module comes from the previous module in the row.

Supply voltage to a pressure transmitter can be taken from either the 5 V output or the 12 V output depending on transmitter type.



Light-emitting diodes

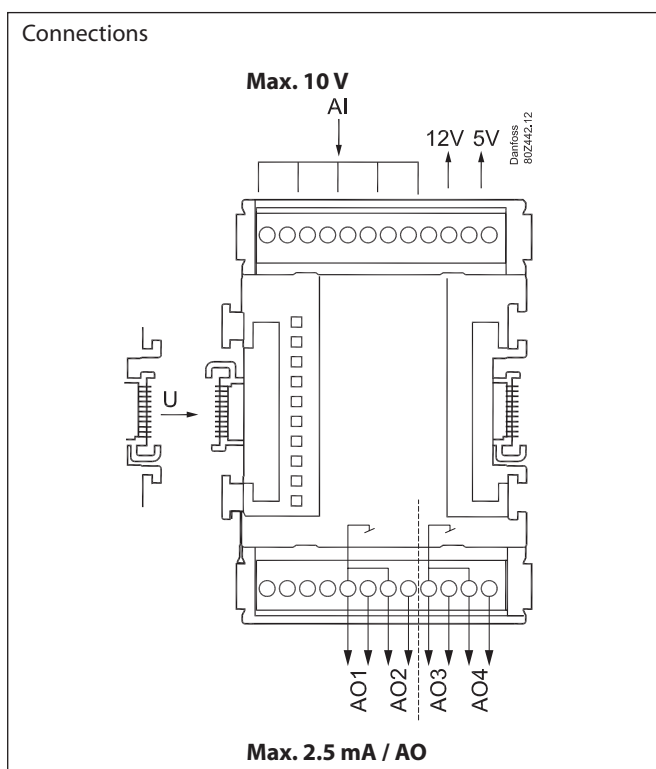
Only the two top LED's are used. They indicate the following:

- Voltage supply to the module
- Communication with the controller is active (red = error)


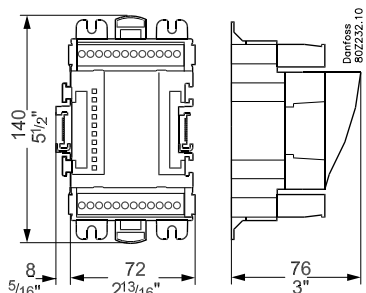
Galvanic isolation

There are three groups, and the signals should not be mixed up:

- Inputs and 5V and 12V supplies for the signals connected to the inputs.
- Output 1 and 2
- Output 3 and 4



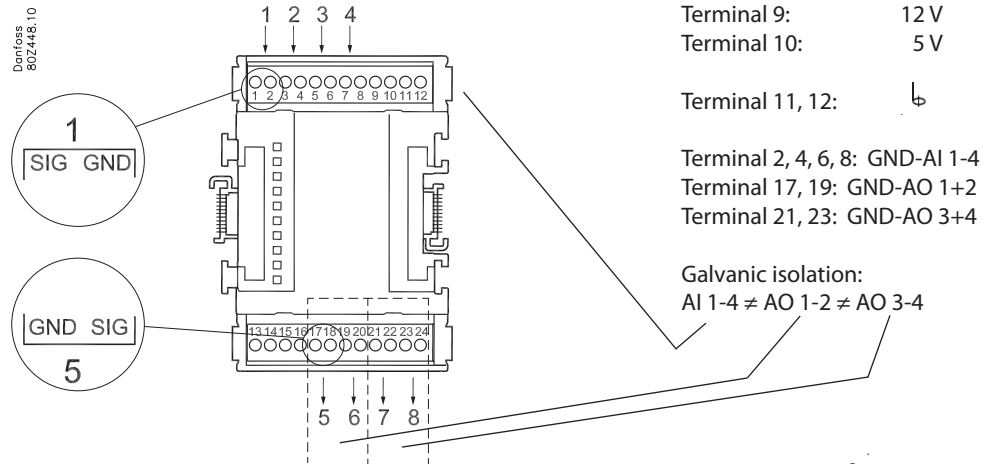
Data

Supply voltage	Received from the AK controller, which the extension module is connected to	
Power consumption	2 VA	
Analog inputs	Pt 1000 ohm /0°C	Resolution: 0,1°C Accuracy: +/- 0,5°C
	Pressure transmitter type AKS 32R / AKS 32 (1-5 V)	Resolution 1 mV Accuracy +/- 20 mV
	Voltage signal 0-10 V	
	Contact function (On/Off)	On at R < 20 ohm Off at R > 2K ohm (Gold -plated contacts not necessary)
Analog outputs	Voltage signal	0-10 V
	Max. load	I < 2.5 mA R > 4 Kohm
Supply for pressure transmitters	5 V 12 V	Max. 25 mA Max. 100 mA
Galvanic isolation	3 groups	AI 1-4 AO 1-2 AO 3-4
Environment	During transport	-40 to 70°C
	During operation	-20 to 55°C , 0 to 95% RH (non condensing) No shock influences / vibrations
Enclosure	Material	PC / ABS
	Density	IP10 , VBG 4
	Mounting	For mounting on panel wall or DIN rail
Weight with screw terminals	Ca. 200 g	
Approvals	EU low voltage directive and EMC requirements are complied with	LVD tested according to EN 60730 EMC tested Immunity according to EN 61000-6-2 Emission according to EN 61000-6-3
	UL 916, c  US	UL file number: E357029
Dimensions	 <p>Technical drawing of the AK-XM 103A extension module. The front view shows a rectangular module with a height of 140 mm (5 1/2 inches) and a width of 72 mm (2 13/16 inches). The side view shows a depth of 76 mm (3 inches). The module has screw terminals on the top and bottom edges. The drawing is labeled with 'Danfoss 80232.10'.</p>	

Ordering

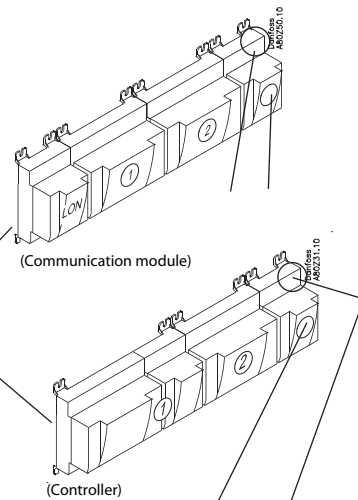
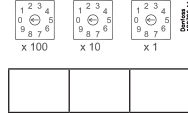
Type	Application	Function	Code no.
AK-XM 103A	Extension module for controller in the AK-series	4 Analog inputs. For sensors, pressure transmitters etc.	4 Analog outputs 0 -10 V d.c. 080Z0032

Point



AI	Signal	Signal type
S (sensor) Pt 1000 ohm/0°C 	S1 S2 Saux1 Saux2 SSA SdA	Pt 1000
P (pressure) AKS 32R AKS 32 	POA POB PcA PcB	AKS 32R AKS 2050 MBS 8250 -1 - xx bar AKS 32 -1 - zz bar
U (voltage) + ——— SIG ——— GND	...	0 - 5 V 0 - 10 V
On/Off 	Ext. Main switch Day/ Night Door	Active at: Closed / Open
AO ——— 0-10 V + ———		0-10 V

Address



Signal	Signal type / Active at	Module	Point	Terminals
			1 (AI 1)	1 - 2
			2 (AI 2)	3 - 4
			3 (AI 3)	5 - 6
			4 (AI 4)	7 - 8
			5 (AO 1)	17 - 18
			6 (AO 2)	19 - 20
			7 (AO 3)	21 - 22
			8 (AO 4)	23 - 24