

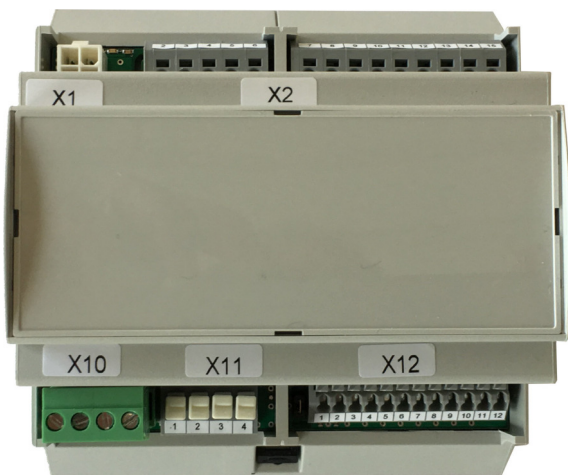
Data Sheet

Gas detection unit

Accessory

Expansion module

Detecting and warning of hazardous gas concentrations in industrial refrigeration systems



The gas detection Controller Expansion module is used for expansion of the cable coverage in terms of number of fieldbus loops and the total wire length. Each Controller Unit can handle up to 7 Expansion modules allowing 7 additional loops of 900 meters (2953 ft) length available for local Gas Detection Units. Communication between the Controller, the Expansion modules and the Gas Detection Units is done via Analog or RS485 fieldbus.

Additional 4 relays for external looped alarm devices is made available for each Expansion module.

Expansion modules can be installed close to the Controller (Controller Solution) or alternatively in the field.

Features:

- For extension of the covered site area for gas detection sensors
- 4 relays for external alarm device circuits per Expansion module
- Up to 7 Expansion modules per Controller possible; allows additional 7 segments with a total of 7200 meters (23622 ft.) wiring and a total of 32 relays for alarm device circuits
- Flexible connection to local gas detection units by either Analog or RS485 fieldbus communications
- Located in Controller Solution or in the field
- Easy configuration via intuitive user-interface; helps simplify operator handling and minimize risk of operational setting errors
- Simple commissioning by standard parameter configuration
- Enables regulatory compliance with EN 378:2016, ISO 5149:2014,

Product specification

Electrical

Table 1: Electrical

Power supply	24 V DC \pm 20 %
Power consumption	3 W, 120 mA
Analog input (4)	4 – 20 mA, overload and short-circuit protected, input resistance 200 Ω
Tension for external analog transmitter	24 V DC (same as power supply), max. 100 mA / per sensor
Analog output (2) configurable for each input	Proportional, overload and short-circuit- protected, charge \leq 500 Ω 4 – 20 mA = measuring range 3.0 < 4 mA = underrange >20 – 21.2 mA = overrange 2.0 mA = fault
Alarm relay (4)	250 V AC, 5 A, potential-free, change-over (SPDT)

Interface fieldbus

Table 2: Interface fieldbus

Transceiver	RS 485 / 19200 Baud
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Environmental

Table 3: Environmental

Humidity	15 – 95 % RH non-condensing
Working temperature	-10 °C to +40 °C (14 °F to 104 °F)
Storage temperature	0 °C – +40 °C (32 °F to 104 °F)

Physical

Table 4: Physical

Enclosure	Plastic housing ABS
Colour	Black
Protection class	IP40
Weight	0.2 kg (0.5 lb.)
Packaging volumes	Ca. 4.4 l
Mounting	Top hat DIN rail mounting
Dimensions	(W x H x D) 104 x 86 x 56 mm (4.1 x 3.4 x 2.2 in.)
Wire connection:	
Power supply	Screw type terminal: 2.5 mm ² (14 AWG)
Output	2 x spring type terminal: min. 0.5 mm ² , max. 1.5 mm ² (22 to 16 AWG)
Input	Spring type: min. 0.5 mm ² , max. 1.5 mm ² (22 to 16 AWG)

Options - control of external warning devices

Table 5: Options - control of external warning devices

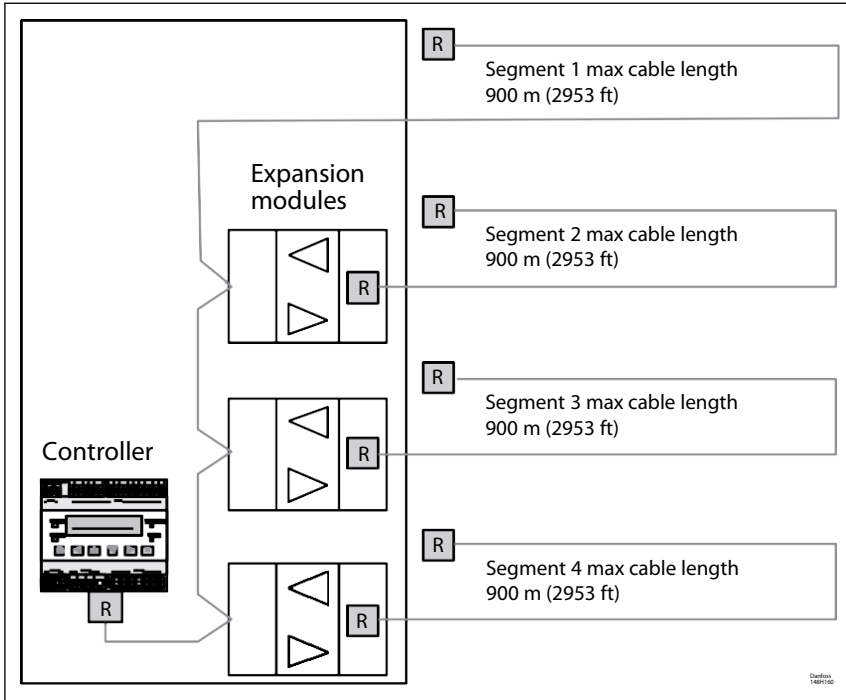
Power supply of the external warning devices	24 V DC
Measuring resistance at the warning device	12 k Ω , 0.5 W, 5 %

i NOTE:

If expansion modules are distributed along the communication bus it is recommended that each be powered by a separate DC power supply with only the ground connected to the bus.

Installation

Figure 1: Expansion modules installation in Controller Solution. Resistor R (560 Ohm)



Expansion modules are installed close to the Controller (Controller Solution) or in the field (Examples shown above).

Each cable end must be applied a Resistor of 560 Ohm.

Figure 2: Expansion modules installation in the field. Resistor R (560 Ohm)

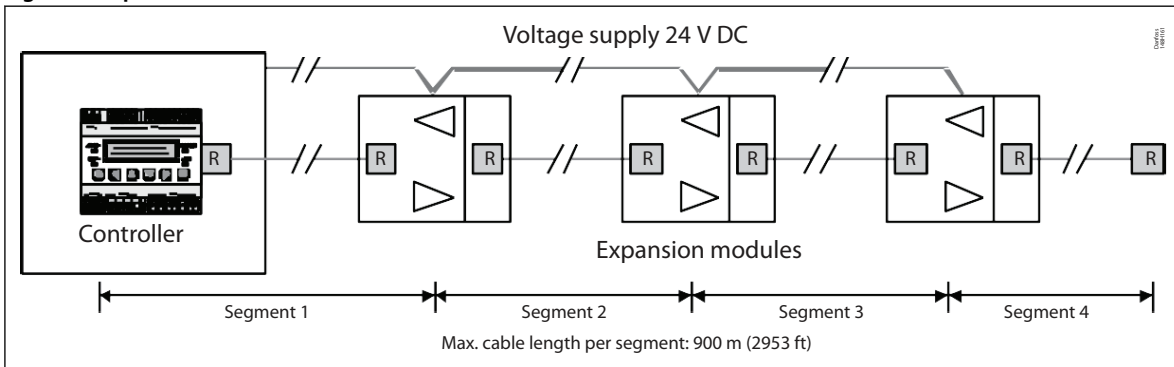
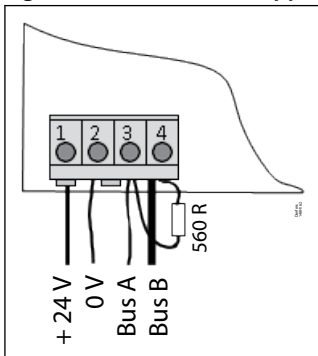
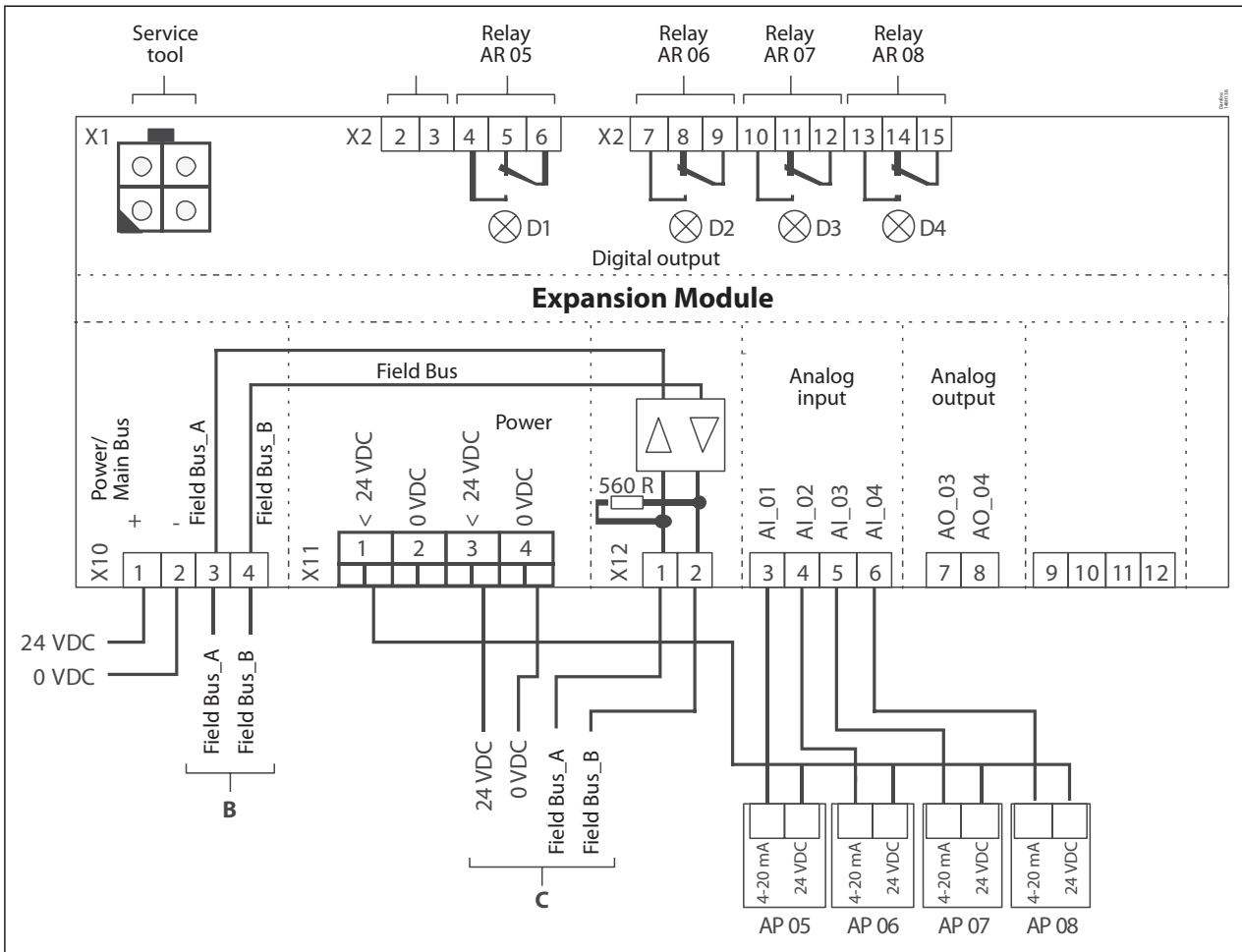


Figure 3: Each Cable end applied 560 Ohm



Wiring configuration



Ordering

Table 6: Ordering

Description	Code number
Expansion module	148H6222

Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 7: Compliance

EMC Directive 2014/30/EU
Low voltage directive 2014/35/EU
Conformity to: EN 50 545-1, EN 50271, EN 61010-1:2010, ANSI/UL 61010-1, CAN/CSA-C22.2 No. 61010-1

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