

PolyGard® Freon Gas Flow Transmitter FT-D3 20XX with Infrared Sensor

DESCRIPTION

Freon transmitter with two-beam infrared sensor for the continuous monitoring of the ambient air to detect hydrochlorofluorocarbon (HCFC) and hydro fluorocarbon (HFC) refrigerants. The infrared measuring method with integrated temperature and drift compensation stands for highest accuracy, selectivity and reliability despite of the calibration interval of 3 years. The FT-D3 possesses a standard analog output (0) 4- 20 mA or (0) 2- 10 VDC, and an RS-485 interface. 2 relays with adjustable switching thresholds as well as an integrated display are available as options.

APPLICATION

For detecting leakages in refrigeration plants with refrigerant gases (HCFC and HFC) as refrigerant, and also within a wide range of commercial and industrial applications. Due to the standard analog signal and the RS-485 serial interface the Freon transmitter is compatible to the PolyGard gas controller series by MSR-E as well as to any other controllers or automation systems.



Standard enclosure

FEATURES

- Two-beam infrared gas sensor (NDIR)
- High accuracy, selectivity and reliability
- Automatic drift and temperature compensation
- Good resistance to poisoning
- Life expectancy > 10 years
- Maintenance periods > 3 years
- Comfortable calibration with selective access release
- Reverse polarity protected, overload and short-circuit proof
- (0) 4 - 20 mA / (0) 2 – 10V analog signal output, selectable
- Serial interface RS-485
- IP65 version
- Housing fire-resistant according to UL 94V2
- Modular plug-in technology
- Manual addressing for RS-485 mode
- 4 – 20 mA analog input for external transmitter (optional)
- Relay output (optional)
- Integrated buzzer (optional)
- LED flashlight (optional)
- LCD display (optional)
- LED status indicator (optional)
- Heating (optional)

SPECIFICATIONS

General sensor performance

Detected gas	Freon refrigerant
Sensor element	Two-beam infrared (NDIR)
Measuring ranges (4)	0- 1000 ppm / 0 – 2000 ppm
Accuracy	< 2 % of measuring range
Repeatability	< 2 % of measuring range
Response time	t_{90} < 30 sec. @ 500 ml/min (constant)
Resolution	10 ppm
Temperature range	-10 °C to + 40 °C (14 °F to 104 °F) w/o heating
Long-term zero-point drift	< 2 % of measuring range/year
Long-term output drift	< 3 % of measuring range/year
Pressure range	800 -1200 hPa
Humidity range	0 – 95 % RH non-condensing
Life expectancy	> 10 years
Recommended calibration interval	> 3 years
Storage temperature	0 °C to 50 °C (32 °F to 122 °F)
Storage time	Max. 6 months

Pneumatic

Flow speed	200 – 800 ml/min (constant)
Tube connection	4 mm inner diameter

Electrical

Power supply	18 - 28 VDC/AC, (reverse polarity protected)
Power consumption (without options)	45 mA, max. (1.1 VA)

Output signal

Analogue output signal	(0) 4 – 20 mA, load \leq 500 Ω
Selectable: Current / tension	(0) 2 - 10 V, load \geq 50 k Ω
Starting point 0 / 20 %	proportional, overload and short-circuit proof

Serial interface

Transceiver	RS 485 / 19200 Baud (9600 at ModBus)
-------------	--------------------------------------

Physical characteristics

Enclosure plastic type C	Polycarbonate
Flammability	UL 94 V2
Enclosure colour	RAL 7032 (light grey)
Dimensions (W x H x D)	130 x 130 x 75 mm (5.12 x 5.12 x 2.95 inch.)
Weight	Approx. 0.5 kg (1.1 lbs.)
Protection class	IP 65
Installation	Wall mounting
Cable entry	Standard 1 x M 20
Wire connection	Screw type terminal, 0.25 - 2.5 mm ² (24 - 14 AWG)
Wire distance	Current signal: ca. 500 m (1500 ft) Voltage signal: ca. 200 m (600 ft.)

Guidelines

	EMC Directive 2004 / 108 / EC
--	-------------------------------

Warranty

	CE
	One year on material (without sensor)

Options

Relay output

Alarm relay 1	30 VAC/DC, 0.5 A, potential-free, SPDT
Alarm relay 2	30 VAC/DC, 0.5 A, potential-free, SPNO/SPNC
Power consumption	30 mA, (max 0.8 VA)

Warning buzzer

Acoustic pressure	83 dB (distance 200 mm) (1 ft)
Frequency	2.3 kHz
Power consumption	30 mA, (max 0.8 VA)

GAS ALARM SYSTEMS

LCD Display

LCD Two lines, each 16 characters
 Power consumption 10 mA, (max 0.3 VA)

LED Indicator

Green- yellow- red Power supply, Low Alarm, High Alarm
 Power Consumption 10 mA, (max. 0.3 VA)

Heating

Temperature controlled 3 °C ±2° C (37.5 °F ± 3.6 °F)
 Ambient temperature - 30 °C (- 22 °F)
 Power consumption 0.3 A; 7.5 VA

Analog Input

Only for RS-485 mode 4 – 20 mA overload and short-circuit proof, input resistance 200 Ω
 Power supply for external transmitter 24 VDC max. charge 50 mA

ORDERING INFORMATION

FT-D3-20XX-X-XXXXXXXXXX

Options

1XXXXXXXXX Relay output¹
 X1XXXXXXXXX Warning buzzer integrated
 X2XXXXXXXXX Flashlight (LED)
 X3XXXXXXXXX Warning buzzer and flashlight
 XX1XXXXXXXX Heating
 XXXX1XXXXX RS-485 protocol for DGC-05 series
 XXXX2XXXXX RS-485 protocol ModBus
 XXXX3XXXXX RS-485 protocol customers' specifications
 XXXX4XXXXX RS-485 protocol BacNet
 XXXXX2XXX Manual calibration & tool addressing
 XXXXX4XXX Manual calibration & addressing
 XXXXXX1XX LCD display³
 XXXXXX2XX LED Indicator^{1, 3}
 XXXXXX1X 4 - 20 mA analog input²
 XXXXXX1 Factory calibration 0 – 1000 ppm
 XXXXXX2 Factory calibration 0 – 2000 ppm

Enclosure

C Plastic enclosure

Freon Type

2064 R 123
 2065 R 125
 2070 R 22
 2077 R 134a
 2078 R 404a
 2083 R 407a
 2080 R 407c
 2068 R 410a
 2069 R 507

¹ Please indicate the thresholds for Low and High Alarm, when ordering

² Only in connection with a RS-485 protocol

³ Not in connection with option Relay or RS-485 interface

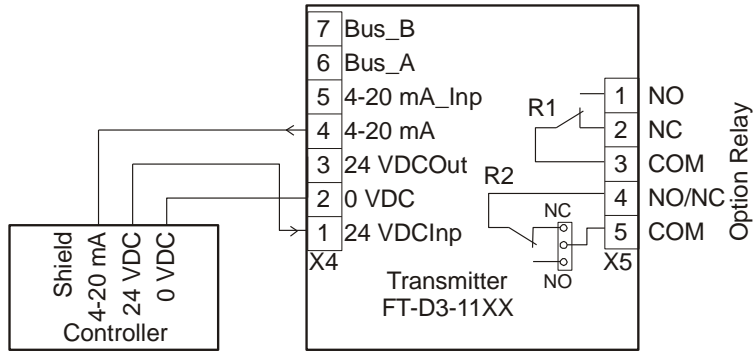
Example: Freon R22 IR transmitter, plastic housing, manual calibration & tool addressing, factory calibration 0 – 2000 ppm

Ordering number: FT-D3-2070-C-XXXXX2XX2



GAS ALARM SYSTEMS

ELECTRIC CONNECTION DIAGRAM



PNEUMATIC CONNECTION

