

## PolyGard® Single Point Controller SPC-X3-20XX for refrigerant gases and vapours

### DESCRIPTION

Gas measuring, monitoring and warning controller based on state-of-the-art micro-technology with integrated sensor and internal buzzer for the continuous monitoring of the ambient air and detecting refrigerant gases and vapours. The SPC-X3 is provided with an input for one external analog transmitter. 4 alarm thresholds per sensor/transmitter are free programmable. Configuration and operation are possible via the logical, simple system menu structure without specific programming knowledge.

### APPLICATION

The SPC-X3-20XX is particularly suitable for the leak detection in commercial applications such as cold-storage depots, ventilation systems, breweries, ice rinks etc.

In cooling systems the SPC-X3-20XX is employed for the leak detection of HCFC (hydrochlorofluorocarbon) and HFC (hydrofluorocarbon) cooling agents.

Free programmable parameters and set-points enable the individual adaptation to a variety of applications in the field of gas measuring and monitoring.

### FEATURES

- Continuous monitoring
- Integrated gas sensor for Freons
- Modular design (plug-in technology)
- Standard version with display/LED/keyboard and internal buzzer
- Reverse polarity protected, overload-proof and short-circuit-proof
- (0) 4 – 20 mA / (0) 2 – 10V analog signal output
- 2 x relay outputs 30 VAC/DC, 0.5 A
- 2 x binary output, 30 VDC, 0.05 A
- 4 – 20 mA input for external transmitter
- Different housing versions
- Approved according to EN 61010-1; ANSI/UL 61010 1; CAN/CSA-C22.2 No. 61010-1
- Communication interface (option)
- LED flashing light in red (option)
- 2 x warning lights, colours: red – orange selectable (option)
- 1 x power light green (option)
- Up to 3 power relays (potential-free, 250 VAC/DC 5A) (option)
- External warning horn (87 dB) mounted on the housing (option)
- External multi-sound horn, mounted on the housing (option)
- 230 VAC power supply (option)
- Uninterruptible emergency power supply (option)
- Heating (option)
- Duct mounting (option)



Standard enclosure



## SPECIFICATIONS

### Electrical

Power supply	18 - 28 VDC/AC, reverse polarity protected
Power consumption (without options)	130 mA, max. (2.5 VA)
Analog output, current or voltage selectable	0 (4) – 20 mA, load ≤ 500 Ω 0 (2) – 10 V, load ≥ 50 kΩ overload-proof and short-circuit-proof
Alarm relay (1)	30 VAC/DC 0.5 A, potential-free, SPDT
Alarm relay (1)	30 VAC/DC 0.5 A, potential-free, SPNO/SPNC
Binary output (2)	30 VDC / 0.05 A, open collector output
<b>Analog input</b>	4 – 20 mA overload-proof and short-circuit-proof, input resistance 200 Ω
Voltage for ext. analog transmitter	24 VDC max. load 50 mA

### Visualisation

Display	Two lines, 16 characters each
Status LED (4)	Normal operation- Fault- Alarm 1- Alarm 2
Operation	4 push-buttons – menu-driven

### Buzzer (internal)

Acoustic pressure	83 dB (A) (distance 200 mm) (0.6 ft.)
Frequency	2300 Hz

### Gases

Internal sensor	Refrigerant gases, Freons (see order inform.)
Sensor data	See corresponding datasheet of ADTX3 transmitter
External transmitter	Toxic gases, Ex gases, Freons, temperature, humidity, pressure, etc.

### Operating environment

Humidity	15 – 95 % RH non-condensing
Working temperature	-10 °C to + 50 °C (14 °F to 122 °F)
Storage temperature	5 °C to 30 °C (41°F to 86 °F)
Pressure range	Atmospheric ± 10 %

### Physical

Enclosure plastic type C, B und E	Polycarbonate
Flammability	UL 94 V2
Enclosure colour	RAL 7032 (light grey)
Dimensions type C and B (W x H x D)	130 x 130 x 75 mm (5.12 x 5.12 x 2.95 inch.)
Dimensions type E (W x H x D)	130 x 130 x 100 mm (5.12 x 5.12 x 3.94 inch.)
Weight	Approx. 0.6 kg (1.323 lbs.)
Protection class	IP 65
Installation	Wall mounting
Cable entry	Standard 3 x M 20
Wire connection	Screw type terminal, min. 0.25 mm <sup>2</sup> (24 AWG) max. 2.5 mm <sup>2</sup> (14 AWG)

### Guidelines

EMC Directives 2004/108/EC  
Low Voltage Directive 2006/95/EC  
EN 61010-1:2010  
ANSI/UL 61010-1  
CAN/CSA-C22.2 No. 61010-1  
CE

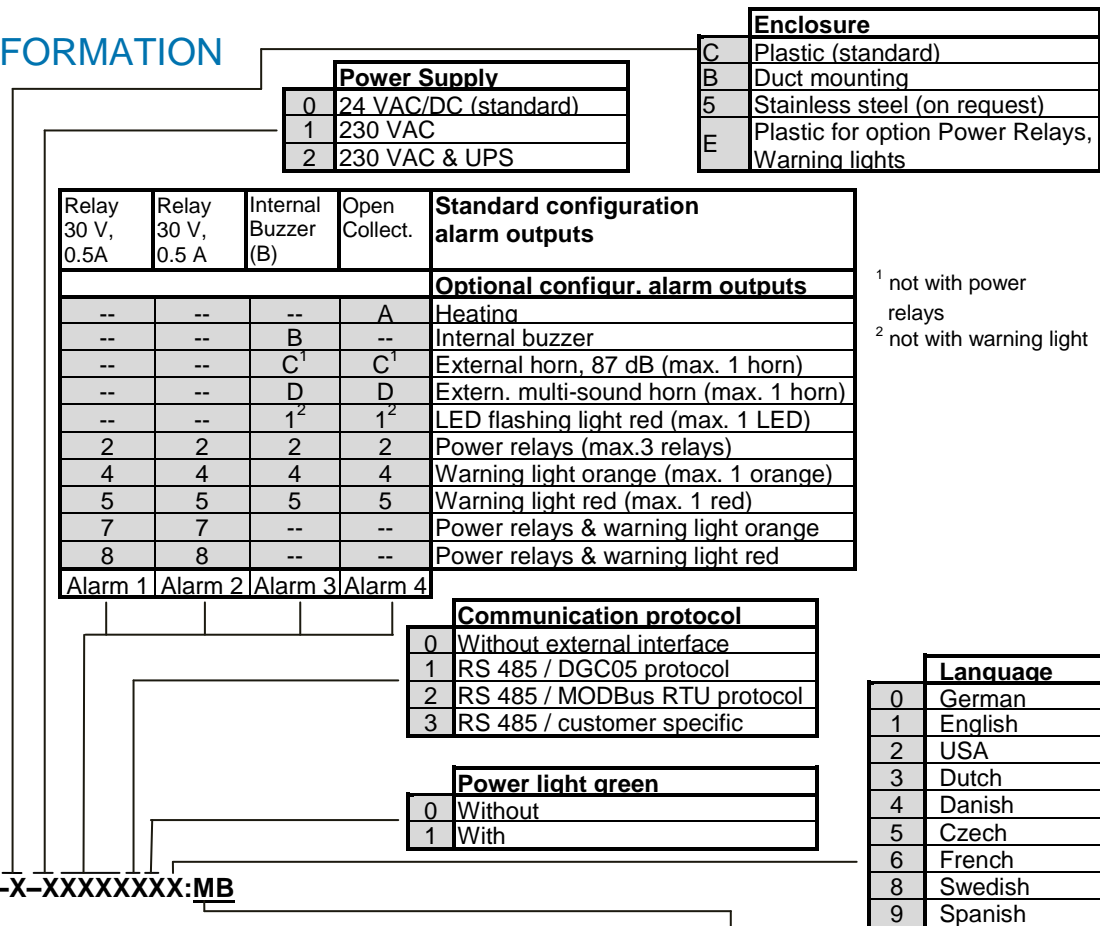
### Warranty

1 year on material (without sensor)

# GAS ALARM SYSTEMS

Options	
<b>Power supply 230 VAC</b>	
	90 to 250 VAC, 50/60 Hz, 0.5 A
<b>Power relay</b>	
Contact rating	230 VAC, 5 A, potential-free, change-over contact
<b>Emergency power supply</b>	
	Supply duration 60 Min., maintenance-free
<b>LED flashing light</b>	
	IP65, LED, 3500 lm.
<b>Warning light/power light</b>	
Power supply	18 - 28 VDC/AC
Consumption	45 mA, max. (1.2 VA)
Protection class	IP 65
<b>External horn</b>	
Acoustic pressure	87 dB (A) (distance 1000 mm)
Frequency	3500 Hz
Power supply	18 - 28 VDC
Consumption	6 mA, max. (0.15 VA)
<b>External multi-sound horn</b>	
Acoustic pressure	85 -100 dB (A) (depending on sound type)
Sound types	28
Power supply	18 - 28 VDC
Consumption	6 mA, max. (depending on sound type)
<b>Heating</b>	
Temperature controlled	3 °C ±2°C (37.5 °F ± 3.6°F)
Ambient temperature	- 30 °C (- 22 °F)
Power supply	18 - 28 VDC/AC
Power consumption	0.5 A; 12 VA
<b>Enclosure stainless steel, type 5</b>	
Material	V2A steel, 1 mm, material 1.4301 corrosion resistant
Colour	Natural, brushed
Dimensions (B x H xD)	113 x 135 x 45 mm (4.45 x 5.31 x 1.77 inch.)
Weight	ca. 0.5 kg (1.1 lbs.)
Protection class	IP 55
Mounting	Wall mounting, pillar mounting
Cable entry	Standard 2 x M 20

## ORDER INFORMATION



Power Supply	
0	24 VAC/DC (standard)
1	230 VAC
2	230 VAC & UPS

Enclosure	
C	Plastic (standard)
B	Duct mounting
5	Stainless steel (on request)
E	Plastic for option Power Relays, Warning lights

Relay 30 V, 0.5A	Relay 30 V, 0.5 A	Internal Buzzer (B)	Open Collect.	Standard configuration alarm outputs
--	--	--	A	Heating
--	--	B	--	Internal buzzer
--	--	C <sup>1</sup>	C <sup>1</sup>	External horn, 87 dB (max. 1 horn)
--	--	D	D	Extern. multi-sound horn (max. 1 horn)
--	--	1 <sup>2</sup>	1 <sup>2</sup>	LED flashing light red (max. 1 LED)
2	2	2	2	Power relays (max.3 relays)
4	4	4	4	Warning light orange (max. 1 orange)
5	5	5	5	Warning light red (max. 1 red)
7	7	--	--	Power relays & warning light orange
8	8	--	--	Power relays & warning light red

<sup>1</sup> not with power relays  
<sup>2</sup> not with warning light

Alarm 1 Alarm 2 Alarm 3 Alarm 4

Communication protocol	
0	Without external interface
1	RS 485 / DGC05 protocol
2	RS 485 / MODBus RTU protocol
3	RS 485 / customer specific

Power light green	
0	Without
1	With

Language	
0	German
1	English
2	USA
3	Dutch
4	Danish
5	Czech
6	French
8	Swedish
9	Spanish

**SPC-X3-20XX-X-XXXXXXXX:MB**

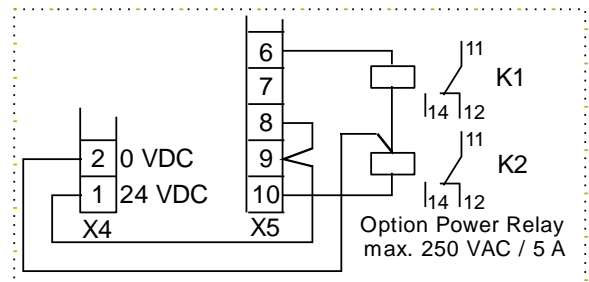
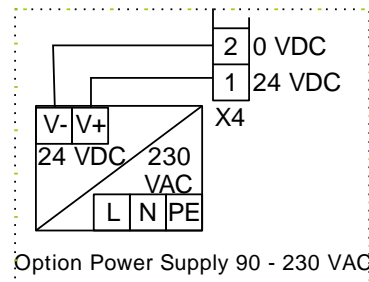
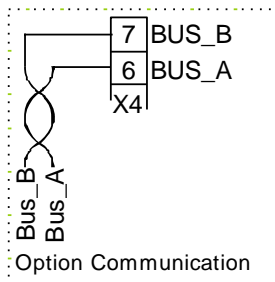
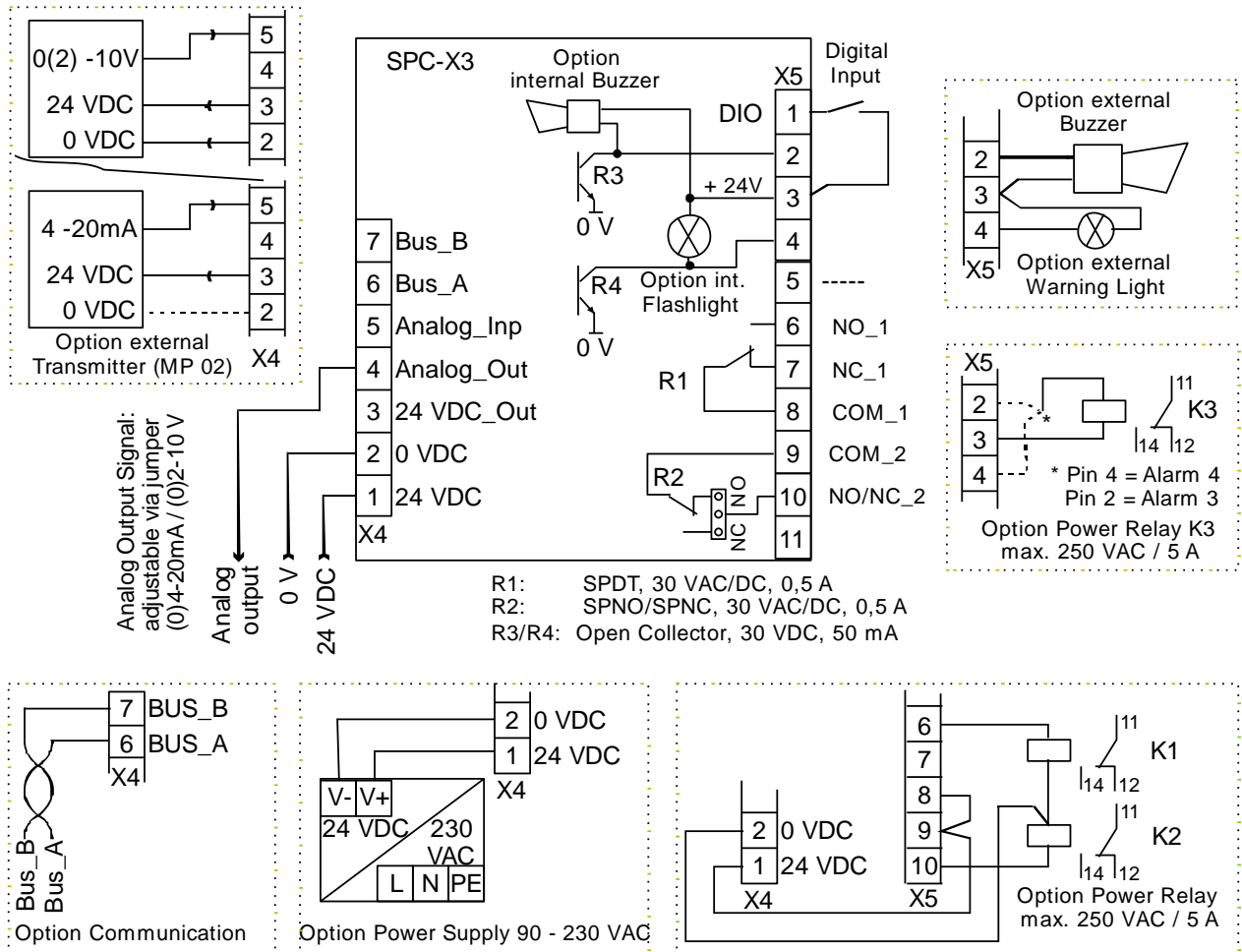
Type	Available measuring ranges (others on request)					
43-2070	R 22	HCFC	Semiconductor	20 – 2000 ppm		
43-2071	R 401a	HCFC	Semiconductor	20 – 2000 ppm		
43-2072	R 401b	HCFC	Semiconductor	20 – 2000 ppm		
43-2073	R 402a	HCFC	Semiconductor	20 – 2000 ppm		
43-2074	R 402b	HCFC	Semiconductor	20 – 2000 ppm		
43-2075	R 408a	HCFC	Semiconductor	20 – 2000 ppm		
43-2076	R 409a	HCFC	Semiconductor	20 – 2000 ppm		
43-2064	R 123	HCFC	Semiconductor	20 – 2000 ppm		
43-2077	R 134a	HFC	Semiconductor	20 – 300 ppm	20 – 2000 ppm	
43-2078	R 404a	HFC	Semiconductor	20 – 300 ppm	20 – 2000 ppm	
43-2079	R 416a	HFC	Semiconductor	20 – 300 ppm	20 – 2000 ppm	
43-2069	R 507	HFC	Semiconductor	20 – 300 ppm	20 – 2000 ppm	
43-2068	R 410a	HFC	Semiconductor	20 – 300 ppm	20 – 2000 ppm	
43-2067	R 411a	HFC	Semiconductor	20 – 300 ppm	20 – 2000 ppm	
D3-2064	R 123	HCFC	Infrared	0 – 1000 ppm	0 – 2000 ppm	
D3-2065	R 125	HFC	Infrared	0 – 1000 ppm	0 – 2000 ppm	
D3-2070	R 22	HCFC	Infrared	0 – 1000 ppm	0 – 2000 ppm	
D3-2077	R 134a	HFC	Infrared	0 – 1000 ppm	0 – 2000 ppm	
D3-2078	R 404a	HFC	Infrared	0 – 1000 ppm	0 – 2000 ppm	
D3-2083	R 407a	HFC	Infrared	0 – 1000 ppm	0 – 2000 ppm	
D3-2080	R 407c	HFC	Infrared	0 – 1000 ppm	0 – 2000 ppm	
D3-2068	R 410a	HFC	Infrared	0 – 1000 ppm	0 – 2000 ppm	
D3-2069	R 507	HFC	Infrared	0 – 1000 ppm	0 – 2000 ppm	
D3-2063	R 1234yf	HFC	Infrared	0 – 1000 ppm	0 – 2000 ppm	



**Example:** Single Point Controller SPC-X3-20XX for Freon R 134a, semi-conductor sensor, plastic housing, 230 VAC supply, 2 x power relay, internal buzzer, menu language English, incl. factory calibration 20 – 300 ppm,

**Order No:** SPC-43-2077-E-122B0001:20-300ppm

## CONNECTING DIAGRAM



**Note:**

The alarm outputs R3 and R4 are designed as open collector outputs. Warning lamps / horn combination units with common ground can therefore not be connected!