

DESCRIPTION

Expansion module provides additional relays and analog inputs/outputs in a DGC6 digital gas detection and control system. Also provides one-input, two-output splitting of the RS-485 communications bus.

May be mounted in the DGC6 chassis or remotely anywhere on the RS-485 bus.

Up to a combination of seven EP-06 modules may be connected to one DGC6, locally within the controller (five max.) or along the network.

APPLICATION

For on/off and variable speed fan control, each EP-06 module provides four SPDT dry contacts rated at 250 VAC / 5 A and two 4-20 mA analog outputs. The relays and analog outputs are controlled according to the system configuration parameters that have been programmed in the DGC6 Digital Gas Controller.

The EP-06 Expansion Module is also used to create additional RS-485 communication bus segments.

FEATURES

- Four (4) SPDT, dry contact, alarm relays; max. 250 VAC, 5 A
- Two (2) 4-20 mA analog outputs
- Four (4) 4-20 mA analog inputs, for analog sensors
- Second RS-485 field bus output for trunk splitting applications
- Reverse polarity and overload protection
- High-impact NEMA 4X (IP65) enclosure, optional

SPECIFICATIONS

Electrical

Power supply	24 VDC ±20%
Power consumption	3 W, 120 mA
Analog output	(2) Proportional, overload and short-circuit- protected, ext. load resistance ≤ 500 Ω
- configurable for each input	4-20 mA = measuring range; 3.0 < 4 mA = under range; > 20-21.2 mA = over range; 2.0 mA = fault
Analog input	(4) inputs; 4 to 20 mA, overload and short-circuit protected, input resistance 200 Ω
- supplied voltage	24 VDC, max. 100 mA / per sensor
Alarm relay	(4) SPDT, dry contact; max. 250 VAC, 5 A



PolyGard®2 EP-06



- EMC Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- EN 50545-1
- EN 50271
- EN 61010-1:2010
- ANSI/UL 61010-1
- CAN/CSA-C22.2 No. 61010-1

Interface Field Bus

Transceiver RS-485 / 19200 Baud

Environmental

Permissible ambient	
- working temperature	14°F to 104°F (-10°C to 40°C)
- storage temperature	32°F to 104°F (0°C to 40°C)
- humidity	15 to 95% RH, non-condensing

Physical

EP-06-X-100 (Module)

- material	Plastic housing ABS
- color	Light gray, RAL 7035
- protection	NEMA 1 (IP40)
- installation	Top hat DIN rail mounting, installation in distribution box

EP-06-I-100 (w/Enclosure) &

EP-06-Z-100 (w/Enclosure & Power Supply)

- material	Polycarbonate, UL 94-HB, fire-retardant
- conforms to	UL 50 standards

SPECIFICATIONS

Physical (cont...)

- color Light gray
 - protection NEMA 4X (IP65)
 - installation Wall (surface) mounted
 - cable entry, knock out Multiple holes of different sizes for conduit all around
- Wire connection & size
- power supply Screw type terminal:
14 AWG (2.5 mm²)
 - output 2 x spring type terminal:
Min. 20 AWG (0.5 mm²),
Max. 16 AWG (1.5 mm²)
 - input Spring type:
Min. 20 AWG (0.5 mm²),
Max. 16 AWG (1.5 mm²)

Dimensions (H x W x D)

- EP-06-X-100, module 4.17 x 4.33 x 2.44 in.
(106 x 110 x 62 mm)
- EP-06-I-100, w/encl 7.09 x 7.09 x 3.54 in.
(180 x 180 x 90 mm)
- EP-06-Z-100, w/encl+ps 7.09 x 7.09 x 5.35 in.
(180 x 180 x 136 mm)

Weight

- EP-06-X-100, module 0.5 lb (0.2 kg)
- EP-06-I-100, w/encl 1.8 lb (0.8 kg)
- EP-06-Z-100, w/encl+ps 2.0 lb (0.9 kg)

Conforms to

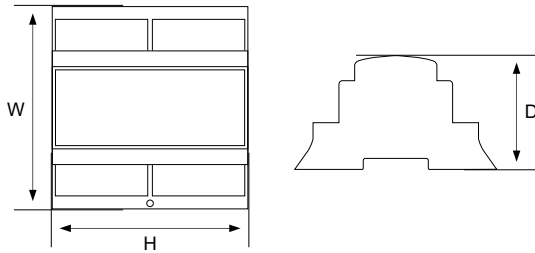
EMC Directive 2014/30/EU
 Low Voltage Directive 2014/35/EU
 EN 50545-1
 EN 50271
 EN 61010-1:2010
 ANSI/UL 61010-1
 CAN/CSA-C22.2 No. 61010-1
 Two years material and workmanship

Warranty

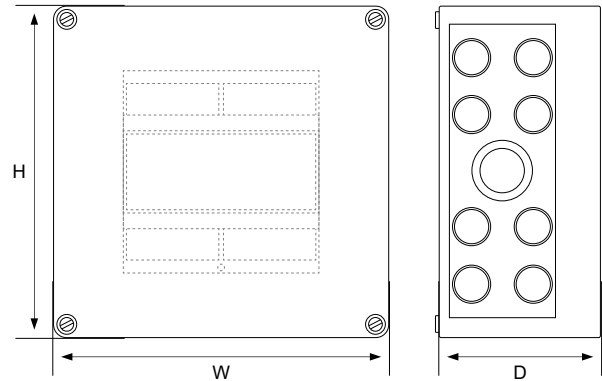
DIMENSIONS

inch (mm)

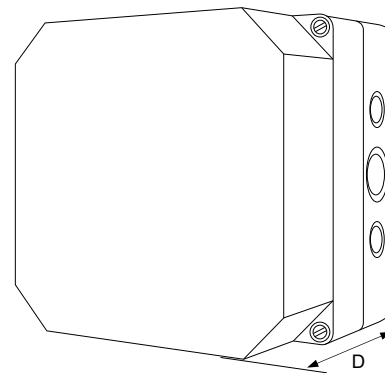
EP-06-X-100 (Module)



EP-06-I-100



EP-06-Z-100



Dimension Table (inch/mm)

Model #	Height	Width	Depth
EP-06-X-100	4.17 (106)	4.33 (110)	2.44 (62)
EP-06-I-100	7.09 (180)	7.09 (180)	3.54 (90)
EP-06-Z-100	7.09 (180)	7.09 (180)	5.35 (136)

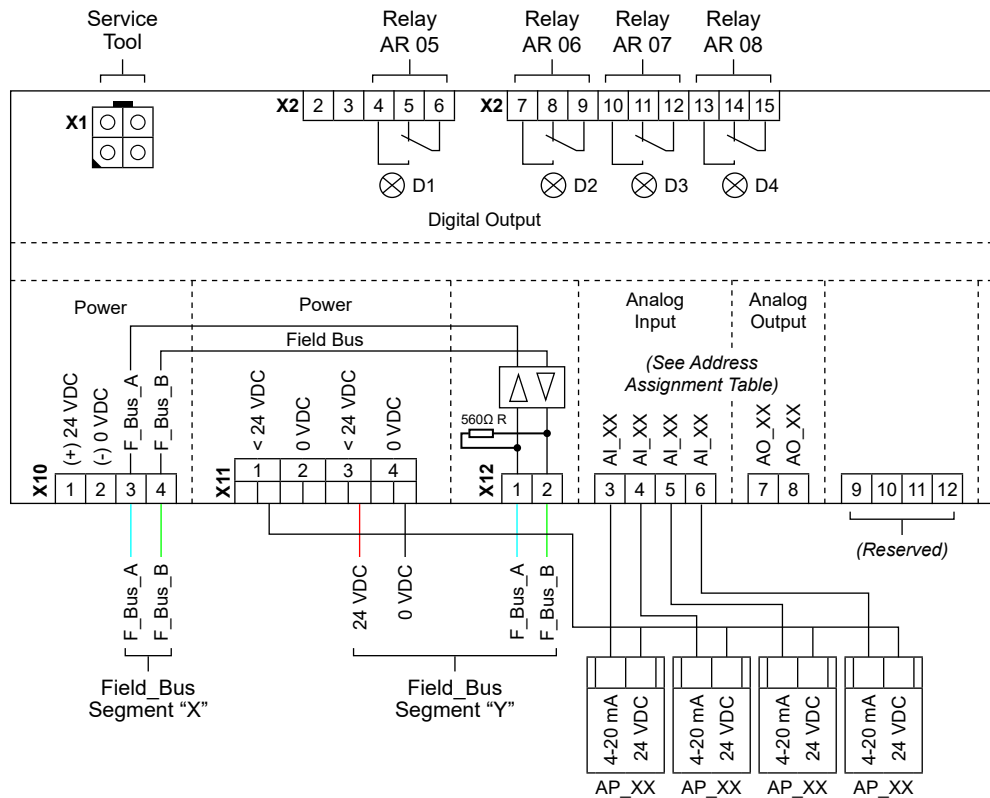
ADDRESS ASSIGNMENT TABLE

Address Assignment Table EP-06 Modules

EP Number	EP Address	AP Address	Relay Number	Analog Output Number
01	01	05-08	05-08	03-04
02	02	09-12	09-12	05-06
03	03	13-16	13-16	07-08
04	04	17-20	17-20	09-10
05	05	21-24	21-24	11-12
06	06	25-28	25-28	13-14
07	07	29-32	29-32	15-16

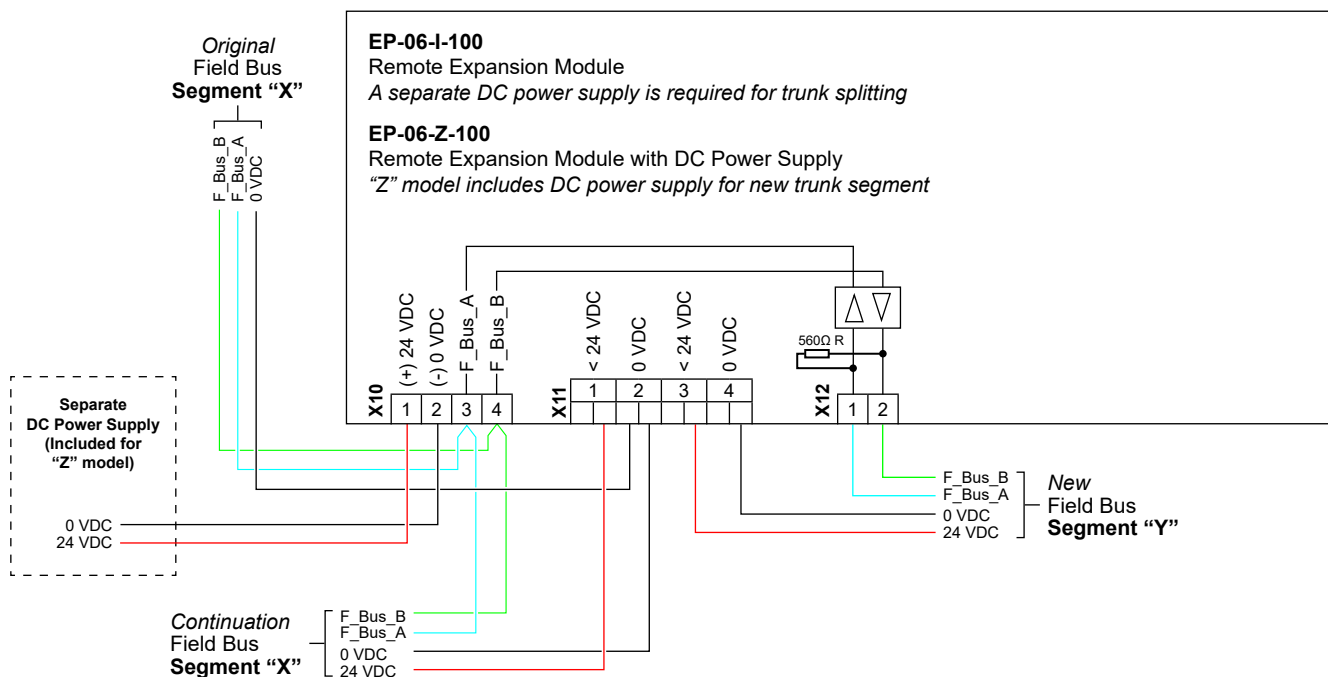
WIRING CONFIGURATION

EP-06 Expansion Module



FIELD BUS CONNECTIONS

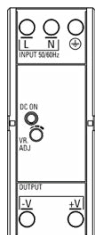
(For "I" and "Z" Models)



"EP-06-Z-100" POWER SUPPLY SPECS

Power Supply

Model	PS5R-VD24
Output capacity	60 W
- rated input voltage	100 to 240 VAC
- frequency	50/60 Hz
- input current	100 VAC, 1.3 A
- inrush current	18 A
- rated voltage current	24 V / 2.5 A
Permissible ambient	
- working temperature	-13 to 158°F (-25 to +70°C)
- humidity	20 to 90% RH, non-condensing
Expected life	8 years, normal operations
EMC	
- EMI	EN61204-3 (Class B)
- EMS	EN61204-3 (industrial)
Terminal screw	M3.5
Internal fuse rated current	4 A
Overcurrent protection	Auto-reset
Safety standards	UL508 (Listing), UL1310 Class 2, ANSI/ISA-12.12.01 CSA C22.2 No. 107.1, 213, 223 EN60950-1, EN50178
Applicable standards	UL508 UL13101 ANSI/ISA 12.12.01 CSA C22.2 No.107.1 CSA C22.2 No.213 CSA C22.2 No.223 EN60950-1; EN50178 EN61204-3; EN50581 SEMI F47
Compliance	RoHS
Width	1.42 in (36 mm)
Universal voltage input	85-264 VAC / 100-370 VDC
Spring-up terminals	Accepts ring & fork terminals
Output rating	NEC Class 2



Marking	Name	Description
L, N	AC Input Terminal	Voltage range: 85 to 264V AC/100 to 370V DC
⊕	Ground Terminal	Be sure to connect this terminal to a proper ground.
+V, -V	DC Output Terminals	+V: Positive output terminal -V: Negative output terminal
VR.ADJ	Output Voltage Adjustment	Allows adjustment within ±10% (VE = ±5%) Turning clockwise increases the output voltage. Turning counterclockwise decreases the output voltage.
DC ON	Operation Indicator (green)	Illuminates when the output voltage is on.

Overcurrent Protection

The output voltage drops automatically when an overcurrent flows due to an overload or short circuit. Normal voltage is automatically restored when the load returns to normal conditions.

Notes for Operation

- Output interruption may indicate blown fuses. Contact IDEC.
- The PS5R-V switching power supply contains an internal fuse for AC input. When using DC input, install an external fuse. To avoid blown fuses, select a fuse in consideration of the rated current of the internal fuse.

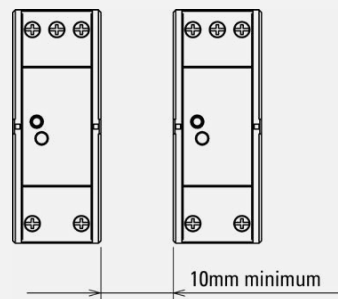
Safety Precautions

The PS5R-V should be placed in a proper enclosure. It is designed to be used with general electrical equipment and industrial electric devices

- Do not use switching power supplies with electric equipment whose malfunction or inadvertent operation may damage the human body or life directly.
- Make sure that the input voltage and output current do not exceed the ratings. If the input voltage and output current exceed the ratings, electric shock, fire, or malfunction may occur.
- Do not touch the terminals of the switching power supply while input voltage is applied, otherwise electric shock may occur.
- Provide the final product with protection against malfunction or damage that may be caused by malfunction of the switching power supply.
- Operating temperatures should not exceed the ratings. Be sure to note the derating characteristics. If the operating temperature exceeds the ratings, electric shock, fire, or malfunction may occur.
- Blown fuses indicate that the internal circuits are damaged. Contact IDEC for repair. Do not just replace the fuse and reoperate, otherwise electric shock, fire, or malfunction may occur.
- Do not disassemble, repair, or modify the power supplies, otherwise the high voltage internal part may cause electric shock, fire, or malfunction.
- The fuse inside the PS5R-V switching power supply is for AC input. Use an external fuse for DC input.
- Do not use the switching power supplies to charge rechargeable batteries.
- Do not overload or short-circuit the switching power supply for a long period of time, otherwise the internal elements may be damaged.

Notes for installation

- Do not close the top or bottom openings of the PS5R-V to allow for heat radiation by convection.
- When mounting multiple PS5R-V switching power supplies side by side, maintain a minimum of 10 mm clearance. Observe the derating curves in consideration of the ambient temperature.



- When the derating voltage may exceed the recommended value, provide forced air-cooling.
- Make sure to wire the ground terminal correctly.
- For wiring, use wires of heat resistance of 60°C or higher (PS5R-VB: 80°C or higher).

Terminal	Wire Size (allowable current)	Wire Type
Input	AWG 18 to 14	Copper Solid/Stranded
Output	AWG18 to 14 (AWG18: 7A, AWG16: 10A, AWG14: 15A)	

Cross-Sectional area AWG18: 0.82mm², AWG16: 1.31mm², AWG14: 2.0mm²

Adjustment of Output Voltage

The output voltage can be adjusted within ±10% (VE: ±5%) of the rated output voltage by using the VR.ADJ control on the front. Turning the VR.ADJ clockwise increases the output voltage. Turning the VR.ADJ counterclockwise decreases the output voltage.

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
GAS CONTROLLER EXPANSION MODULES	
EP-06-X-100	Module for Internal Mounting in DGC6 Chassis; <i>up to (5) local modules max., limited by chassis type</i>
EP-06-I-100	Module Mounted in NEMA 4X Enclosure (Type "I")
EP-06-Z-100	Module Mounted in NEMA 4X Enclosure (Type "Z"), with internal 60 W DC power supply