X20PD0016

1 General information

The potential distributor module provides 5x 24 VDC and 5x ground connections (from an external supply) at the terminals. There is no connection to the internal I/O supply, so this module only serves to distribute an external supply for the load and electronics supply. The externally fed 24 VDC supply is provided on the terminal connections through a replaceable microfuse. The 24 VDC feed and the functionality of the fuse are monitored.

- Integrated exchangeable microfuse
- Monitoring of the fuse
- Potential for routing as needed
- Distribution of the load and electronics supply
- Isolation from the internal I/O supply

2 Order data

Model number	Short description	Figure
	Other functions	
X20PD0016	X20 potential distributor module, 5x GND, 5x 24 VDC, each with 1x floating feed, integrated microfuse	
	Required accessories	
	Bus modules	
X20BM11	X20 bus module, 24 VDC keyed, internal I/O supply continuous	
X20BM15	X20 bus module, with node number switch, 24 VDC keyed, internal I/O supply continuous	
	Terminal blocks	
X20TB12	X20 terminal block, 12-pin, 24 VDC keyed	

Table 1: X20PD0016 - Order data

3 Technical data

| Model number	X20PD0016
Short description	
Potential distributor module	5x 24 VDC on the terminal connections, 5x ground on the terminal connections
General information	
B&R ID code	0x2680
Status indicators	Operating state, module status
Diagnostics	
Module run/error	Yes, using status LED and software
Fuse monitoring	Yes, using status LED and software
Power consumption [1]	
Bus	0.12 W
Internal I/O	-
External I/O	1.15 W
Additional power dissipation caused by actuators (resistive) [W]	-
Certifications	
CE	Yes
KC	Yes
EAC	Yes
UL	cULus E115267 Industrial control equipment
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5
ATEX	Zone 2, II 3G Ex nA nC IIA T5 Gc IP20, Ta (see X20 user's manual) FTZÚ 09 ATEX 0083X
DNV GL	Temperature: **B** (0 - 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)
Input supply	
Nominal input voltage	24 VDC -15% / +20% external, external ground
Fuse	Integrated 6.3 A, slow-blow, can be replaced
Reverse polarity protection	No
Output supply	
Nominal output voltage	24 VDC, ground
Permissible contact load	10 A
Behavior on short circuit	
On 24 VDC power supply	Integrated fuse
On GND power supply	No protection available
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Installation elevation above sea level	
0 to 2000 m	No limitations
>2000 m	Reduction of ambient temperature by 0.5°C per 100 m
Degree of protection per EN 60529	IP20
Ambient conditions	
Temperature	
Operation	
Horizontal mounting orientation	-25 to 60°C
Vertical mounting orientation	-25 to 50°C
Derating	-
Storage	-40 to 85°C
Transport	-40 to 85°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order 1x X20TB12 terminal block separately Order 1x X20BM11 bus module separately
Spacing	12.5$^{+0.2}$ mm

Table 2: X20PD0016 - Technical data

1) The specified values are maximum values. For examples of the exact calculation, see section "Mechanical and electrical configuration" of the X20 system user's manual.

4 LED status indicators

For a description of the various operating modes, see section "Additional information - Diagnostic LEDs" of the X20 system user's manual.

| Figure	LED	Color	Status	Description
	r	Green	Off	No power to module
			Single flash	RESET mode
			Blinking	PREOPERATIONAL mode
			On	RUN mode
	e	Red	Off	No power to module or everything OK
			On	Error or reset status
			Single flash	Fuse defective or missing
			Double flash	Supply voltage too low
	e + r	Red on / Green single flash		Invalid firmware

5 Pinout
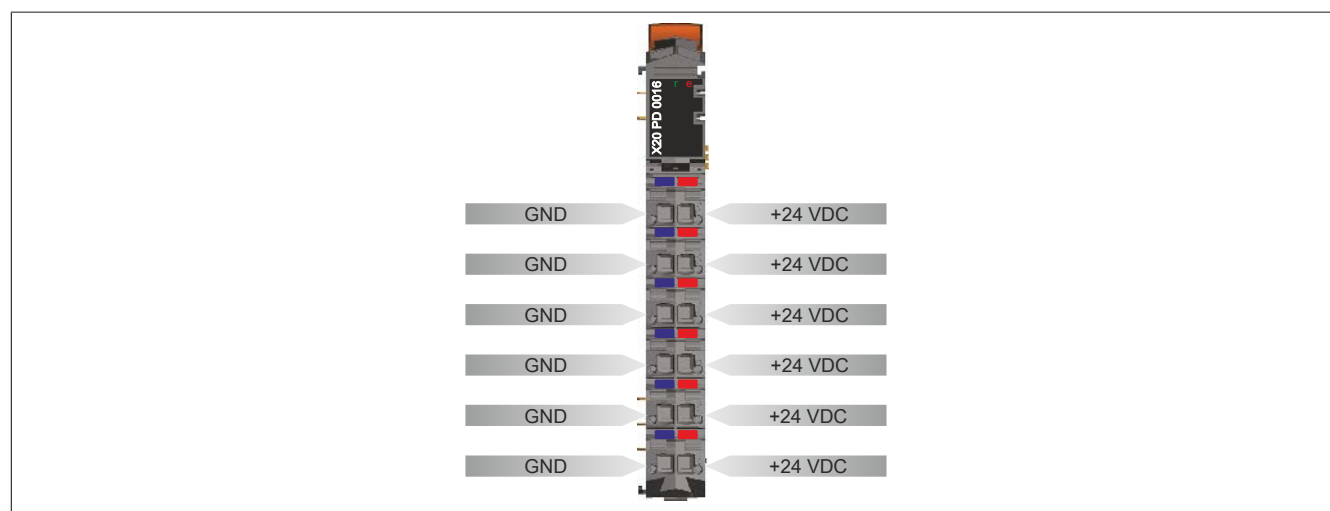
6 Connection example
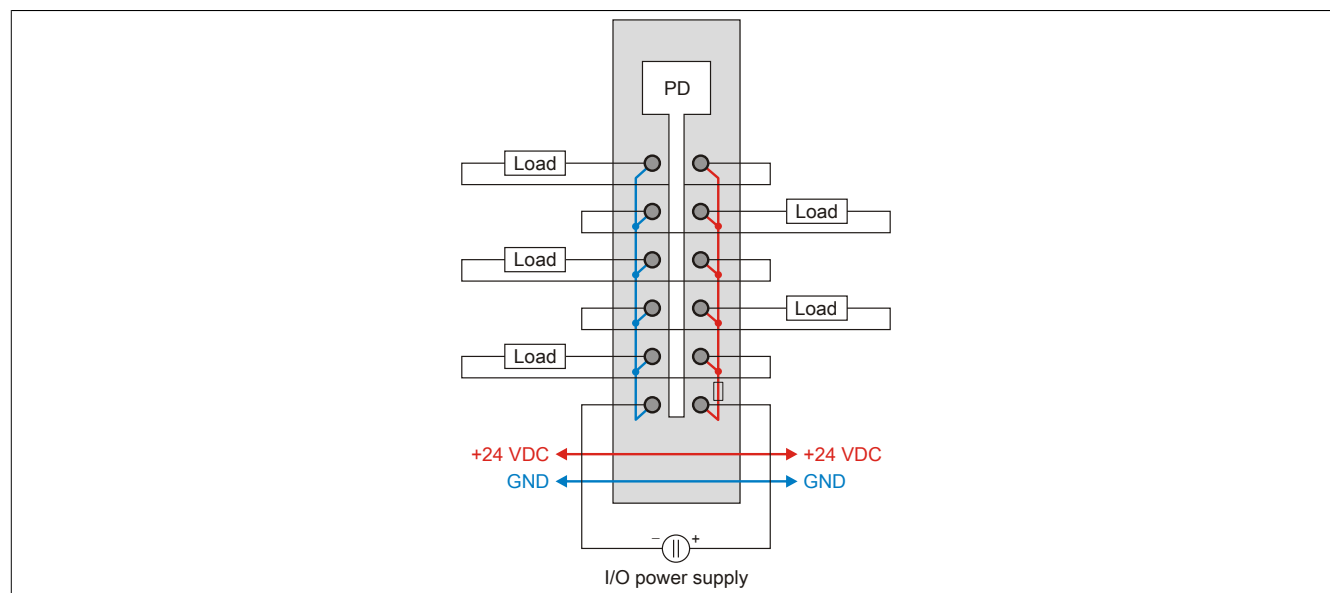
7 Replacing the built-in fuse

The module is equipped with a 6.3 A built-in fuse. Proceed as follows to replace a defective fuse:

1) Remove the fuse cover with the fuse on the right side of the module using a screwdriver.
2) Slide the cylindrical fuse out of the fuse holder and slide the new fuse in.
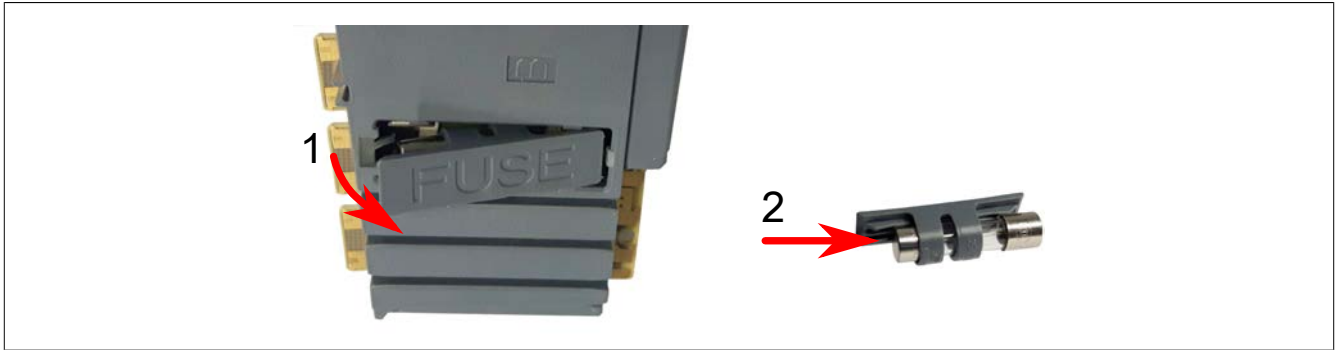
8 Register description

8.1 General data points

In addition to the registers described in the register description, the module has additional general data points. These are not module-specific but contain general information such as serial number and hardware variant.

General data points are described in section "Additional information - General data points" of the X20 system user's manual.

8.2 Function model 1 - Standard

Register	Fixed offset	Name	Data type	Read		Write	
				Cyclic	Non-cyclic	Cyclic	Non-cyclic
0	1	Module status	USINT	●			
		StatusFuse	Bit 0				
		StatusPowerSupply	Bit 1				
2	2	Counter01	USINT	●			

Fixed modules require their data points to be in a specific order in the X2X frame. Cyclic access occurs according to a predefined offset, not based on the register address.

Non-cyclic access continues to be based on the register numbers.

8.3 Function model 254 - Bus controller

Register	Offset[1]	Name	Data type	Read		Write	
				Cyclic	Non-cyclic	Cyclic	Non-cyclic
0	0	Module status	USINT	●			
		StatusFuse	Bit 0				
		StatusPowerSupply	Bit 1				
2	2	Counter01	USINT	●			

1) The offset specifies the position of the register within the CAN object.

8.3.1 Using the module on the bus controller

Function model 254 "Bus controller" is used by default only by non-configurable bus controllers. All other bus controllers can use additional registers and functions depending on the fieldbus used.

For detailed information, see section "Additional information - Using I/O modules on the bus controller" of the X20 user's manual (version 3.50 or later).

8.3.2 CAN I/O bus controller

The module occupies 1 digital logical slot on CAN I/O.

8.4 Module status

Name:
Module status
StatusFuse
StatusPowerSupply

This register can be used to read the status of the power supply.

Data type	Values
USINT	See the bit structure.

Bit structure:

Bit	Description	Value	Information
0	StatusFuse	0	Fuse OK
		1	Fuse not OK
	StatusPowerSupply	0	Level of fed voltage OK
		1	Level of fed voltage not OK
2 - 7	Reserved	-	

8.5 Counter for the voltage dips

Name:
Counter01

This register is used to count how often the voltage dips on the PD module.

Data type	Values
USINT	0 to 255

8.6 Minimum cycle time

The minimum cycle time specifies the time up to which the bus cycle can be reduced without communication errors occurring. It is important to note that very fast cycles reduce the idle time available for handling monitoring, diagnostics and acyclic commands.

Minimum cycle time
100 µs

8.7 Minimum I/O update time

The minimum I/O update time specifies how far the bus cycle can be reduced so that an I/O update is performed in each cycle.

Minimum I/O update time
100 µs