X20(c)PS9600

Data sheet
1.25 (August 2025)

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1 General information

1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual

1.2 Coated modules

Coated modules are X20 modules with a protective coating for the electronics component. This coating protects X20c modules from condensation and corrosive gases.
The modules' electronics are fully compatible with the corresponding X20 modules.

> ⓘ For simplification purposes, only images and module IDs of uncoated modules are used in this data sheet.

The coating has been certified according to the following standards:

- Condensation: BMW GS 95011-4, 2x 1 cycle
- Corrosive gas: EN 60068-2-60, method 4, exposure 21 days

1.3 Order data

Order number	Short description	Figure
	System modules for Compact-S PLC	
X20PS9600	X20 power supply module, for Compact-S PLC and internal I/O power supply, X2X Link power supply	
X20cPS9600	X20 power supply module, coated, for Compact-S PLC and internal I/O power supply, X2X Link power supply	
	Required accessories	
	System modules for Compact-S PLC	
X20BB52	X20 Compact-S bus base, for Compact-S PLC and Compact-S PLC power supply module, base for integrated RS232 interface, X20 connection, X20 end cover plates (left and right) X20AC0SL1/X20AC0SR1 included	
X20BB53	X20 Compact-S bus base, for Compact-S PLC and Compact-S PLC power supply module, base for integrated RS485 interface, X20 connection, X20 end cover plates (left and right) X20AC0SL1/X20AC0SR1 included	
X20BB57	X20 Compact-S bus base, for Compact-S PLC and Compact-S PLC power supply module, base for integrated RS232 and CAN bus interface, X20 connection, X20 end cover plates (left and right) X20AC0SL1/X20AC0SR1 included	
X20BB62	X20 Compact-S bus base, for Compact-S PLC and Compact-S PLC power supply module, base for integrated RS232 interface, slot for X20 interface module, X20 connection, X20 end cover plates (left and right) X20AC0SL1/X20AC0SR1 included	
X20BB63	X20 Compact-S bus base, for Compact-S PLC and Compact-S PLC power supply module, base for integrated RS485 interface, slot for X20 interface module, X20 connection, X20 end cover plates (left and right) X20AC0SL1/X20AC0SR1 included	
X20BB67	X20 Compact-S bus base, for Compact-S PLC and Compact-S PLC power supply module, base for integrated RS232 and CAN bus interface, slot for X20 interface module, X20 connection, X20 end cover plates (left and right) X20AC0SL1/X20AC0SR1 included	
X20BB72	X20 Compact-S bus base, for Compact-S PLC and Compact-S PLC power supply module, base for integrated RS232 interface, 2 slots for X20 interface modules, X20 connection, X20 end cover plates (left and right) X20AC0SL1/X20AC0SR1 included	
X20BB77	X20 Compact-S bus base, for Compact-S PLC and Compact-S PLC power supply module, base for integrated RS232 and CAN bus interface, 2 slots for X20 interface modules, X20 connection, X20 end cover plates (left and right) X20AC0SL1/X20AC0SR1 included	
X20cBB52	X20c Compact-S bus base, coated, for Compact-S PLC and Compact-S PLC power supply module, base for integrated RS232 interface, X20 connection, X20 end cover plates (left and right) X20AC0SL1/X20AC0SR1 included	
X20cBB57	X20c Compact-S bus base, coated, for Compact-S PLC and Compact-S PLC power supply module, base for integrated RS232 and CAN bus interface, X20 connection, X20 end cover plates (left and right) X20AC0SL1/X20AC0SR1 included	
	Terminal blocks	
X20TB12	X20 terminal block, 12-pin, 24 VDC keyed	

Table 1: X20PS9600, X20cPS9600 - Order data

1.4 Module description

The power supply module is used together with an X20 Compact-S PLC. It has a feed for the Compact-S PLC, X2X Link and the internal I/O power supply.

- Supply for the Compact-S controller, X2X Link and internal I/O power supply
- Galvanic isolation of supply and controller / X2X Link power supply
- Redundancy of the controller / X2X Link power supply possible through parallel operation of multiple power supply modules
- RS232 configurable as online interface (if available on bus base)
- CAN bus or RS485 (if available on bus base)

Functions:

- Monitoring the operating limits

Monitoring operating limits

The voltage of the I/O power supply is monitored for voltage overshoot or undershoot.

2 Technical description

2.1 Technical data

Order number	X20PS9600	X20cPS9600
Short description		
Power supply module	24 VDC power supply module for Compact-S PLC, X2X Link power supply and I/O	
Interfaces	1x RS232, 1x RS485, 1x CAN bus [1]	
General information		
B&R ID code	0xEB03	0xFC38
Status indicators	Overload, operating state, module status, RS232, RS485, CAN bus [1]	
Diagnostics		
Module run/error	Yes, using LED status indicator and software	
CAN bus data transfer [2]	Yes, using LED status indicator	
RS232 data transfer [3]	Yes, using LED status indicator	
RS485 data transfer [4]	Yes, using LED status indicator	
Overload	Yes, using LED status indicator and software	
Power consumption for X2X Link power supply [5]	1.42 W	
Power consumption [5]		
Internal I/O	0.6 W	
Additional power dissipation caused by actuators (resistive) [W]	-	
Certifications		
CE	Yes	
UKCA	Yes	
ATEX	Zone 2, II 3G Ex nA nC IIA T5 Gc IP20, Ta (see X20 user's manual) FTZÚ 09 ATEX 0083X	
UL	cULus E115267 Industrial control equipment	
DNV	Temperature: **B** (0 to 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)	
CCS	Yes	-
LR	ENV1	
KR	Yes	
ABS	Yes	
BV	**EC33B** Temperature: 5 - 55°C Vibration: 4 g EMC: Bridge and open deck	
CPU / X2X Link power supply input		
Input voltage	24 VDC -15% / +20%	
Input current	Max. 0.7 A	
Fuse	Integrated, cannot be replaced	
Reverse polarity protection	Yes	
CPU / X2X Link power supply output		
Nominal output power	7 W	
Parallel connection	Yes [6]	Yes [7]
Redundant operation	Yes	
Overload characteristics	Short-circuit proof, temporary overload	
Input I/O power supply		
Input voltage	24 VDC -15% / +20%	
Fuse	Required line fuse: Max. 10 A, slow-blow	
Reverse polarity protection	No	
Output I/O power supply		
Nominal output voltage	24 VDC	
Behavior on short circuit	Required line fuse	
Permissible contact load	10 A	
Interfaces		
Interface IF1		
Signal	RS232 or RS485 [8]	
Variant	Connection made using 12-pin terminal block X20TB12	
Transfer rate	Max. 115.2 kbit/s	
Interface IF3		
Signal	CAN bus [9]	
Variant	Connection made using 12-pin terminal block X20TB12	
Transfer rate	Max. 1 Mbit/s	

Table 2: X20PS9600, X20cPS9600 - Technical data

Order number	X20PS9600	X20cPS9600
Electrical properties		
Electrical isolation	PLC/X2X Link supply isolated from PLC/X2X Link power supply I/O supply not isolated from I/O power supply	
Operating conditions		
Mounting orientation		
Horizontal	Yes	
Vertical	Yes	
Installation elevation above sea level		
0 to 2000 m	No limitation	
>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	See section "Derating".	
Storage	-40 to 85°C	
Transport	-40 to 85°C	
Relative humidity		
Operation	5 to 95%, non-condensing	Up to 100%, condensing
Storage	5 to 95%, non-condensing	
Transport	5 to 95%, non-condensing	
Mechanical properties		
Note	Order 1x terminal block X20TB12 separately. Order 1x Compact-S PLC base X20B-B5x, X20BB6x or X20BB7x separately.	Order 1x terminal block X20TB12 separately. Order 1x Compact-S PLC base X20cBB5x separately.
Pitch	12.5$^{+0.2}$ mm	

Table 2: X20PS9600, X20cPS9600 - Technical data

1) RS232 interface only in connection with bus module X20BBx2 or X20BBx7.
   RS485 interface only in connection with bus module X20BB53 or X20BB63.
   CAN bus only in connection with bus module X20BB57, X20BB67 or X20BB77.
2) CAN bus only when used with bus module X20BB57, X20BB67 or X20BB77.
3) RS232 interface only in connection with bus module X20BBx2 or X20BBx7.
4) RS485 interface only in connection with bus module X20BB53 or X20BB63.
5) The specified values are maximum values. For examples of the exact calculation, see section "Mechanical and electrical configuration" in the X20 system user's manual.
6) In parallel operation, it is only permitted to expect 75% of the nominal power. It is important to make sure that all power supplies operated in parallel are switched on and off at the same time.
7) In parallel operation, it is only permitted to expect 75% of the nominal power. It is important to make sure that all power supply units operated in parallel are switched on and off at the same time.
8) RS232 interface only in connection with bus module X20BBx2 or X20BBx7.
   RS485 interface only in connection with bus module X20BB53 or X20BB63.
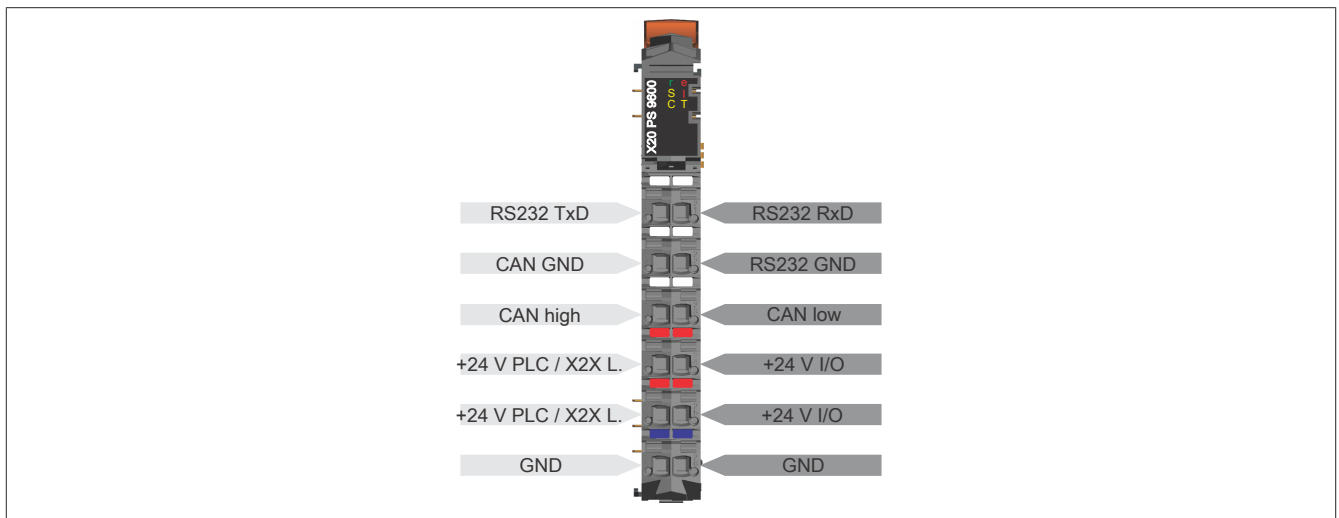9) CAN bus only in connection with bus module X20BB57, X20BB67 or X20BB77.

2.2 LED status indicators

For a description of the various operating modes, see section "Additional information - Diagnostic LEDs" in the X20 system user's manual.
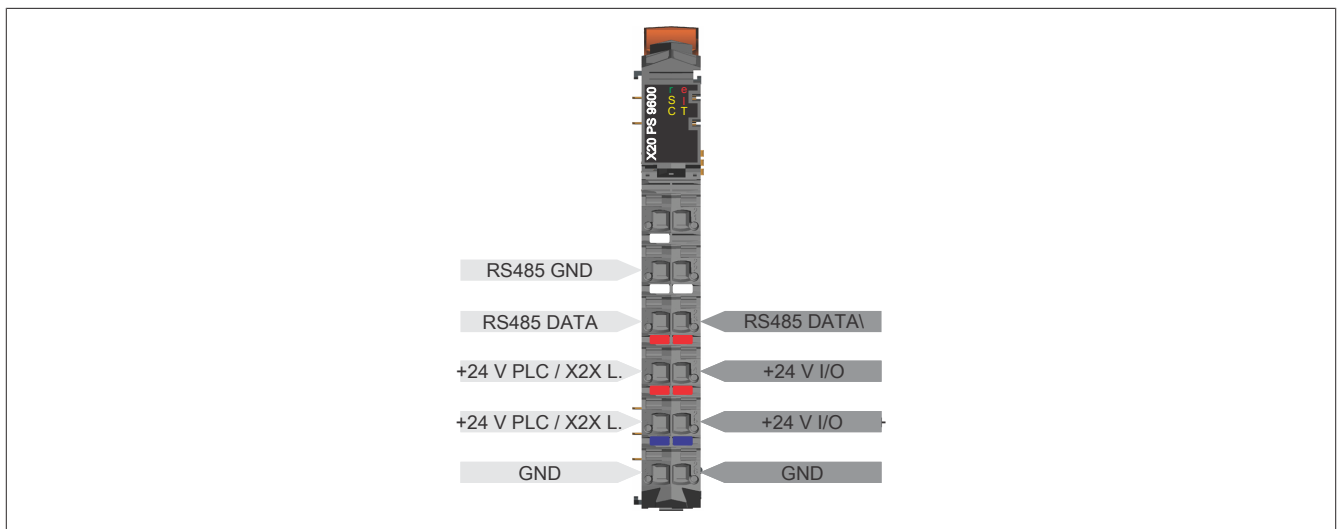
Figure	LED	Color	Status	Description
X20 PS 9600	r	Green	Off	No power to module
			Single flash	Mode RESET
			Blinking	Mode PREOPERATIONAL
			On	Mode RUN
	e	Red	Off	Module not supplied with power or everything OK
			Double flash	The LED indicates one of the following states: • The controller / X2X Link power supply of the power supply unit is overloaded. • I/O power supply too low • The input voltage for the controller / X2X Link power supply is too low.
	e + r	Solid red / Single green flash		Invalid firmware
	l	Red	Off	The controller / X2X Link power supply is within the valid range.
			On	The controller / X2X Link power supply of the power supply unit is overloaded.
	S	Yellow	Off	The controller is not transmitting data via the RS232/RS485 interface.
			On	The controller is transmitting data via the RS232/RS485 interface.
	C	Yellow	Off	The controller is not transmitting data via the CAN bus interface.
			On	The controller is transmitting data via the CAN bus interface.
	T	Yellow	Off	The terminating resistor integrated in bus module X20BBx3 or X20BBx7 is switched off.
			On	The terminating resistor integrated in bus module X20BBx3 or X20BBx7 is switched on.

2.3 Pinout

With bus base X20BBx2 or X20BBx7

RS232 TxD		RS232 RxD
CAN GND		RS232 GND
CAN high		CAN low
+24 V PLC / X2X L.		+24 V I/O
+24 V PLC / X2X L.		+24 V I/O
GND		GND

With bus base X20BBx3

RS485 GND		
RS485 DATA		RS485 DATA\
+24 V PLC / X2X L.		+24 V I/O
+24 V PLC / X2X L.		+24 V I/O
GND		GND

2.4 Connection examples

With 2 isolated power supplies

PS

1)   2)   3)

+24 VDC
GND
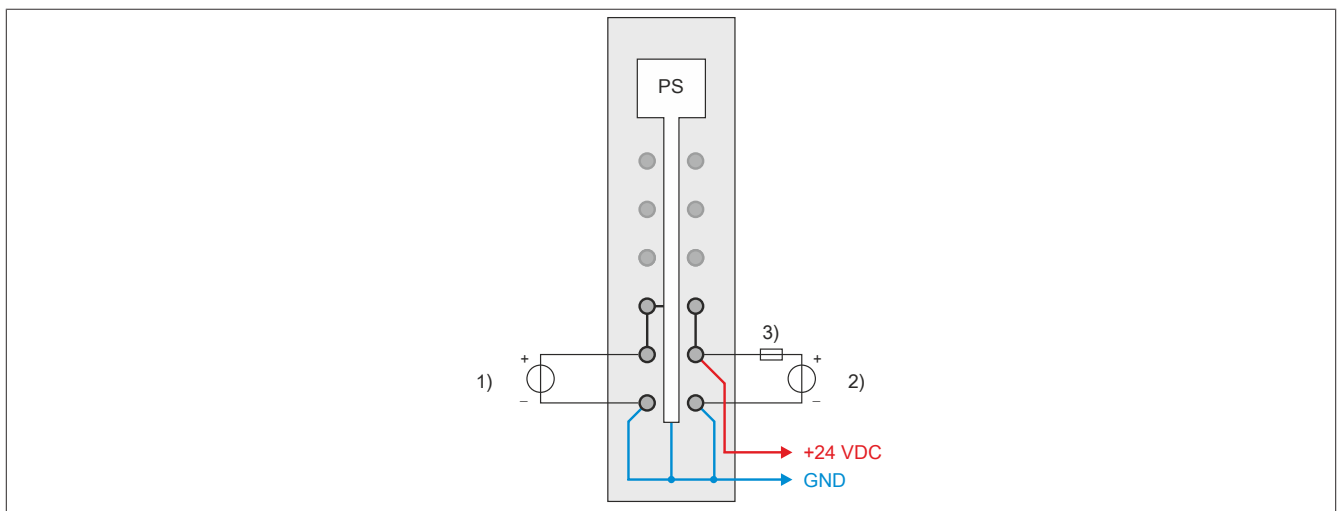
1)   Supply for the PLC or X2X Link power supply
2)   Supply for the I/O power supply
3)   Fuse, 10 A slow-blow
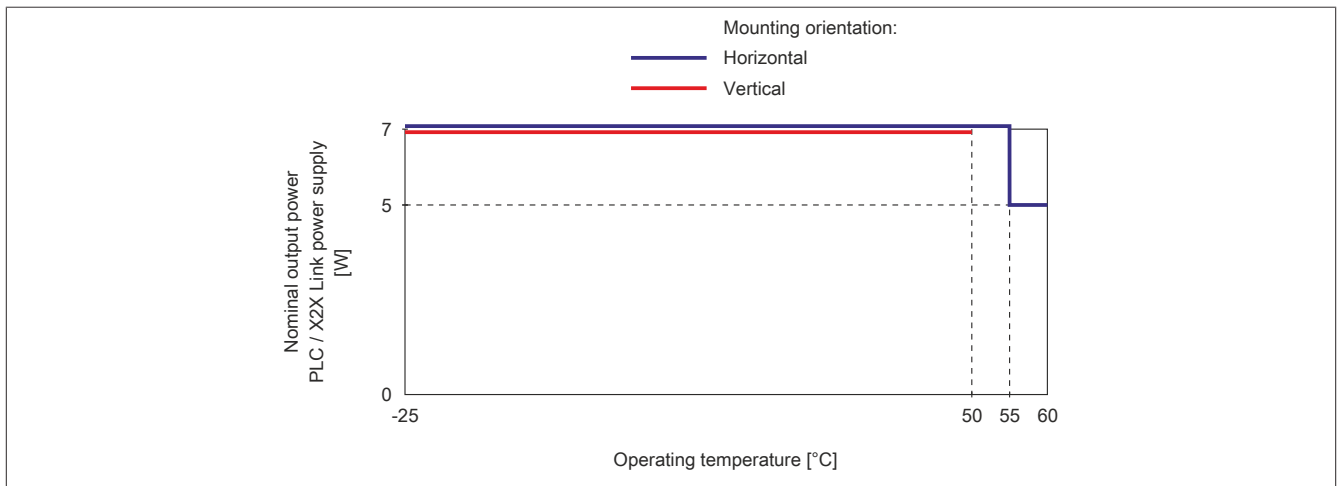
With 1 power supply and jumper
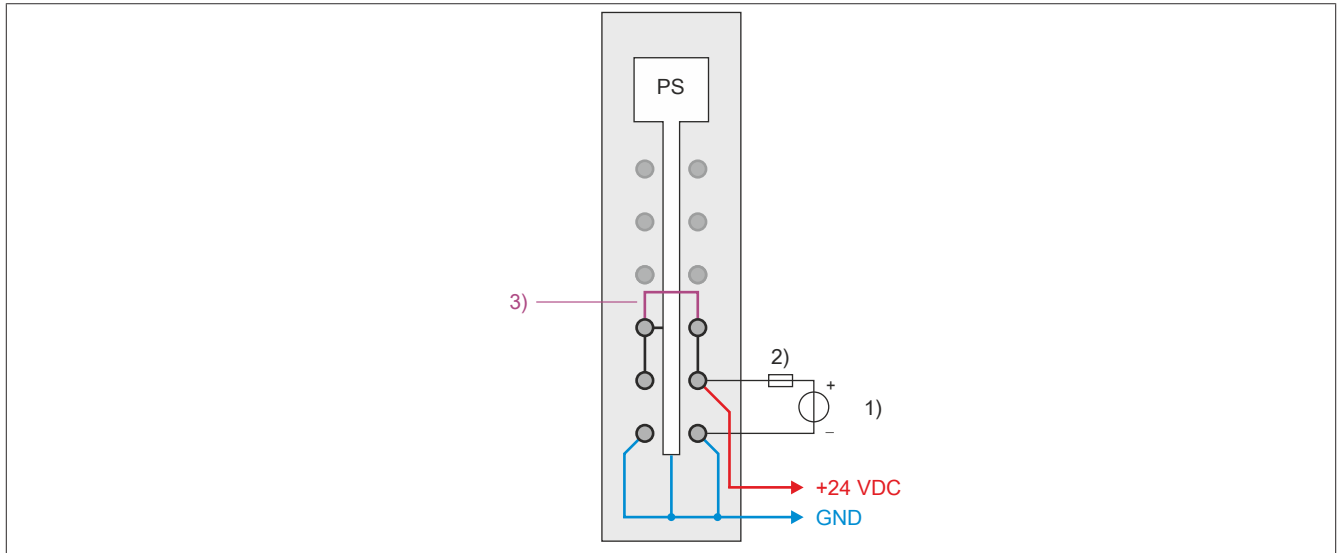
1)   Supply for the I/O power supply
2)   Fuse, 10 A slow-blow
3)   Jumper

2.5 Derating

2.5.1 Controller / X2X Link power supply

The nominal output power for the controller / X2X Link power supply is 7 W. Depending on the mounting orientation, derating must be taken into account.
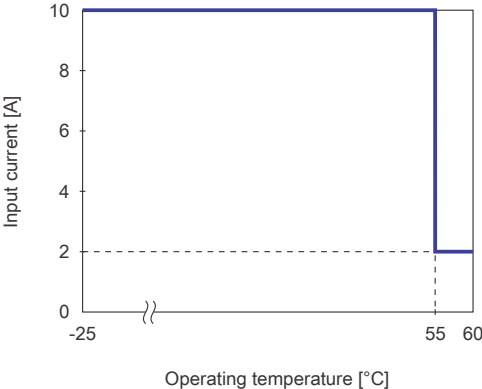
2.5.2 I/O power supply
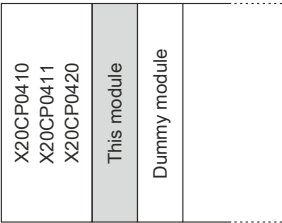
> ⓘ **Information:**
>
> **The specified maximum temperature and derating values are based on worst-case conditions. The controller contains an internal temperature sensor that triggers a reset if 95°C is exceeded. Depending on the ambient conditions (artificial convection), maintaining the internal temperature at <90°C can prevent derating.**

2.5.2.1 X20CP0410, X20CP0411 and X20CP0420

Horizontal mounting orientation

Derating is not required in the temperature range -25 to 55°C. 1 of the following 2 derating variants must be applied at temperatures above 55°C:

Variant 1	Variant 2
Max. 2 A input current on the I/O power supply.	A dummy module must be connected next to the power supply module.

Vertical mounting orientation

Derating is not required in the vertical mounting orientation.

2.5.2.2 X20CP0482, X20CP0483, X20CP0484 and X20CP0484-1
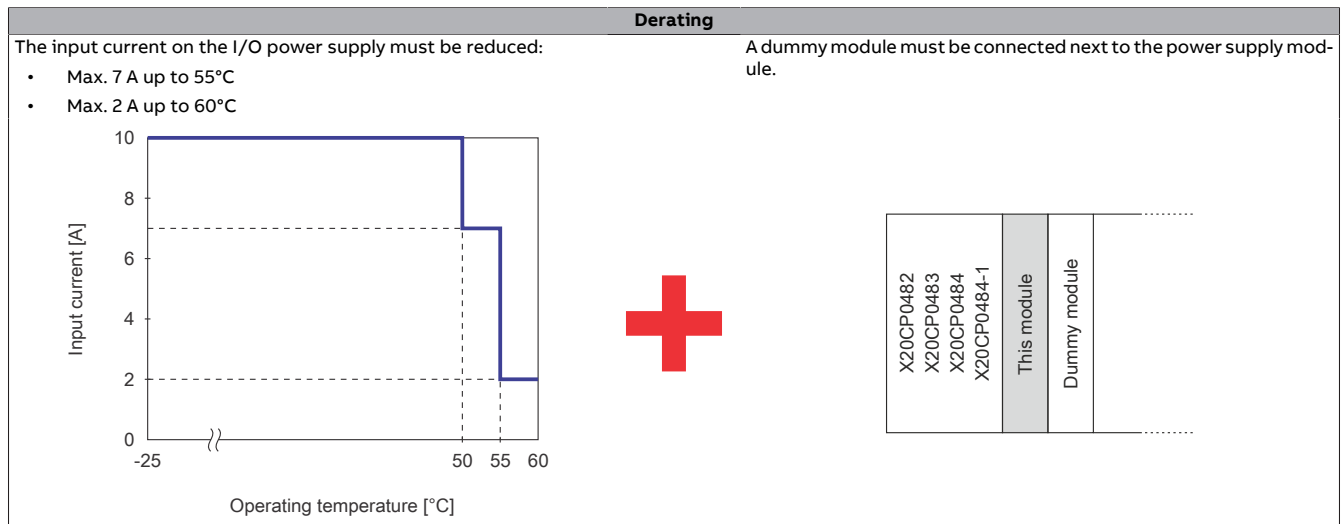
Horizontal mounting orientation

Derating is not required in the temperature range -25 to 50°C. The following 2 derating variants must be applied at temperatures above 50°C.

Information:

Both derating variants must always be applied!

Derating
The input current on the I/O power supply must be reduced: • Max. 7 A up to 55°C • Max. 2 A up to 60°C   A dummy module must be connected next to the power supply module.

Vertical mounting orientation

Derating is not required in the temperature range -25 to 40°C. The following 2 derating variants must be applied at temperatures above 40°C.

Information:

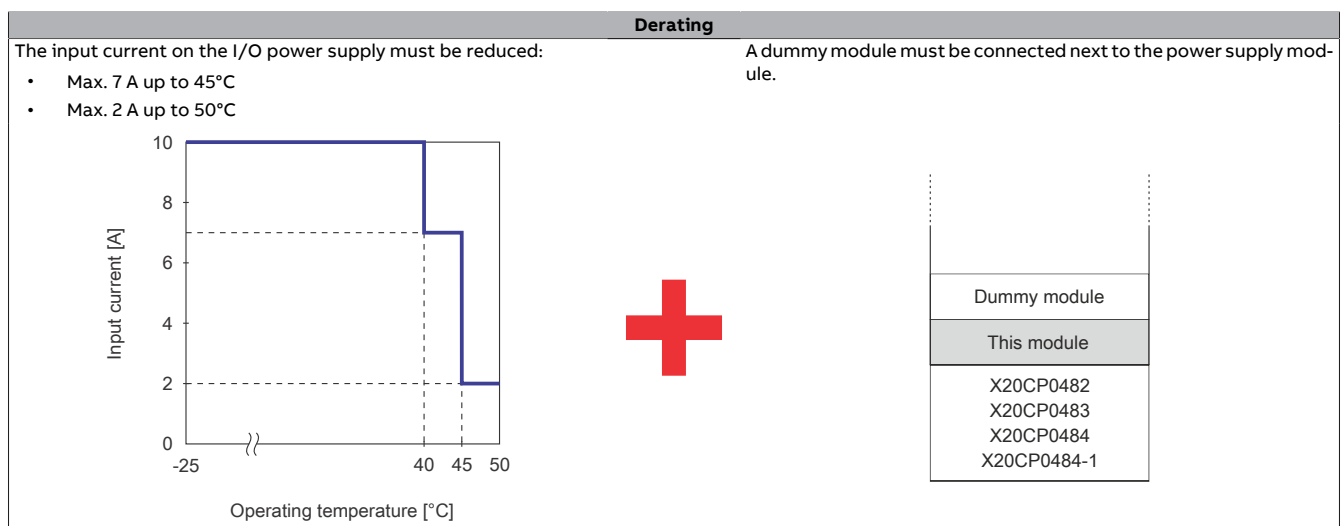**Both derating variants must always be applied!**

Derating
The input current on the I/O power supply must be reduced: • Max. 7 A up to 45°C • Max. 2 A up to 50°C   A dummy module must be connected next to the power supply module.

3 Function description

3.1 Monitoring the operating limits

The status of the bus supply voltage and the bus current can be read out.

Bit	Description
0	No error
1	Warning for overcurrent (>2.3 A) or undervoltage (<4.7 V)

The status of the I/O supply voltage can be read out.

Bit	Description
0	I/O power supply above the warning limits of (20.4 V)
1	I/O power supply below the warning limits (20.4 V)

Information:

The register is described in "Status of the module" on page 13.

4 Register description

4.1 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" in the X20 System user's manual.

4.2 Function model 0 - Standard

Register	Fixed offset	Name	Data type	Read		Write	
				Cyclic	Acyclic	Cyclic	Acyclic
0	1	Status of the module	USINT	●			
		StatusInput01	Bit 0				
		StatusInput02	Bit 2				
2	2	SupplyCurrent	USINT	●			
4	3	SupplyVoltage	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.

Acyclic access continues to be based on the register numbers.

4.3 Status of the module

Name:
StatusInput01 to StatusInput02

The following voltage and current states of the module are monitored in this register:

Bus power supply current:	Bus power supply current >2.3 A is displayed as a warning.
Bus supply voltage:	Bus supply voltage <4.7 V is displayed as a warning.
24 VDC I/O supply voltage:	I/O supply voltage <20.4 V is displayed as a warning.

Data type	Values
USINT	See the bit structure.

Bit structure:

Bit	Description	Value	Information
0	StatusInput01	0	No error
		1	Warning in the event of overcurrent (>2.3 A) or undervoltage (<4.7 V)
1	Reserved	0	
2	StatusInput02	0	I/O power supply above the warning limit of 20.4 V
		1	I/O power supply below the warning limit of 20.4 V
3 - x	Reserved	0	

4.4 Bus power supply current

Name:
SupplyCurrent

This register indicates the bus supply current with a resolution of 0.1 A.

Function model	Data type
0 - Standard	USINT

4.5 Bus supply voltage

Name:
SupplyVoltage

This register indicates the measured bus supply voltage with a resolution of 0.1 V.

> **Information:**
>
> **The nominal bus supply voltage is 5 V and should not fall below 4.7 V.**

Function model	Data type
0 - Standard	USINT

4.6 Minimum cycle time

The minimum cycle time specifies how far 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

4.7 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
2 ms