Bus modules

Data sheets

Version: **1.10 (March 2024)**
Order no.: **Bus modules**

Translation of the original documentation

Publishing information

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1707054974581-1.10

1 X20(c)BM01

1.1 General information

1.1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual
MAEMV	Installation / EMC guide

1.1.2 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

1.1.2.1 Starting temperature

The starting temperature describes the minimum permissible ambient temperature in a voltage-free state at the time the coated module is switched on. This is permitted to be as low as -40°C. During operation, the conditions as specified in the technical data continue to apply.

Information:

It is important to absolutely ensure that there is no forced cooling by air currents in the closed control cabinet, e.g. due to the use of a fan or ventilation slots.

1.1.3 Order data

Order number	Short description	Figure
	Bus modules	
X20BM01	X20 power supply bus module, 24 VDC keyed, internal I/O power supply interrupted to the left	
X20cBM01	X20 power supply bus module, coated, 24 VDC keyed, internal I/O power supply interrupted to the left	

Table 1: X20BM01, X20cBM01 - Order data

1.1.4 Module description

The bus module is the base for all power supply modules.

- Basis for all power supply modules
- For creating potential groups
- The internal I/O power supply is interrupted to the left.

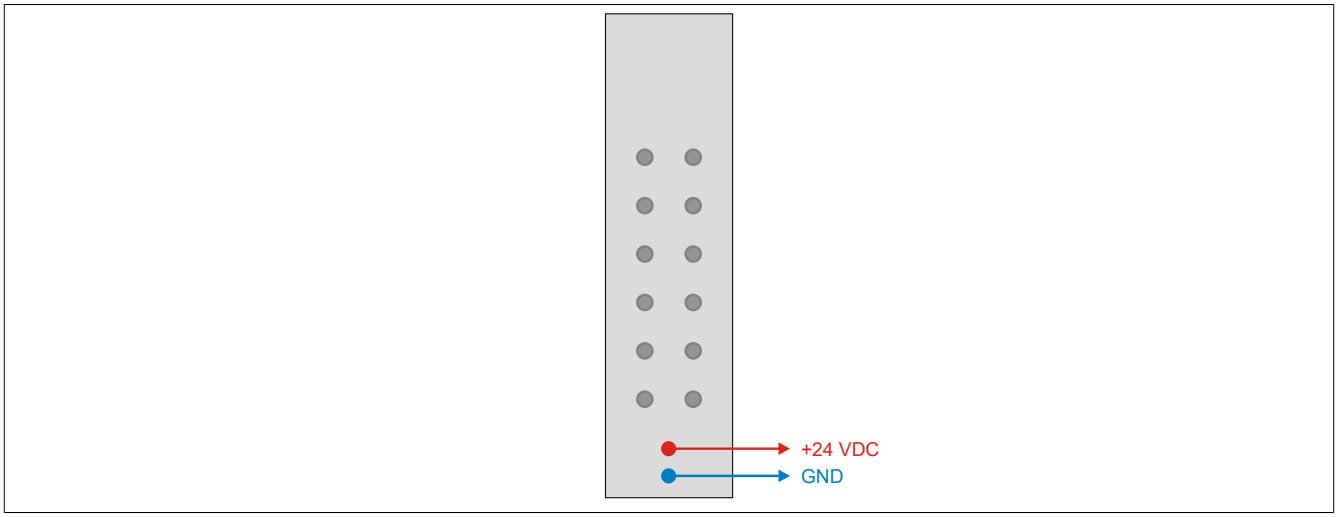
1.2 Technical description

1.2.1 Technical data

Order number	X20BM01	X20cBM01
Short description		
Bus module	Power supply bus module, 24 VDC keyed, internal I/O power supply interrupted to the left	
General information		
Power consumption		
Bus	0.13 W	
Internal I/O	-	
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	
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5	
DNV	Temperature: **B** (0 to 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)	
LR	ENV1	
KR	Yes	
ABS	Yes	
BV	**EC33B** Temperature: 5 - 55°C Vibration: 4 g EMC: Bridge and open deck	
EAC	Yes	
KC	Yes	-
I/O power supply		
Nominal voltage	24 VDC	
Permissible contact load	10 A	
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	-	
Starting temperature	-	Yes, -40°C
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		
Pitch	$12.5^{+0.2}$ mm	

Table 2: X20BM01, X20cBM01 - Technical data

1.2.2 Voltage routing



2 X20BM01X

2.1 General information

2.1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual
MAEMV	Installation / EMC guide

2.1.2 Order data

Order number	Short description	Figure
	Bus modules	
X20BM01X	X20 X2X+ power supply bus module, internal I/O power supply interrupted to the left	

Table 3: X20BM01X - Order data

2.1.3 Module description

The X2X+ bus module is the base for all power supply modules.

- Basis for all power supply modules, not mechanically keyed
- For creating potential groups
- The internal I/O power supply is interrupted to the left.

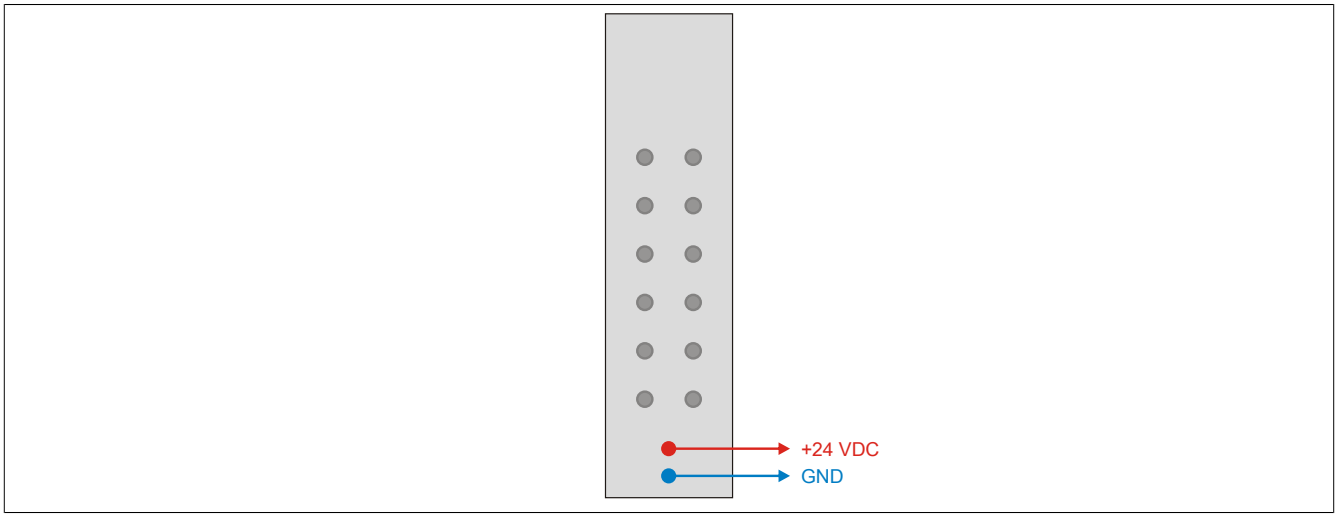
2.2 Technical description

2.2.1 Technical data

Order number	X20BM01X
Short description	
Bus module	X2X+ power supply bus module, not mechanically keyed, internal I/O power supply interrupted to the left
General information	
B&R ID code	0xF377
Power consumption	
Bus	0.45 W
Internal I/O	-
Additional power dissipation caused by actuators (resistive) [W]	-
Certifications	
CE	Yes
UKCA	Yes
EAC	Yes
I/O power supply	
Nominal voltage	24 VDC
Permissible contact load	10 A
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 50°C
Vertical mounting orientation	-25 to 45°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	
Pitch	$12.5^{+0.2}$ mm

Table 4: X20BM01X - Technical data

2.2.2 Voltage routing



3 X20BM05

3.1 General information

3.1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual
MAEMV	Installation / EMC guide

3.1.2 Order data

Order number	Short description	Figure
	Bus modules	
X20BM05	X20 power supply bus module, with node number switch, 24 VDC keyed, internal I/O power supply interrupted to the left	

Table 5: X20BM05 - Order data

3.1.3 Module description

The bus modules have node number switches that can be used to set permanent addresses. Placing one of these modules at the beginning of an X20 block ensures a unique address. The addresses of subsequent modules are automatically set in ascending order starting at this address. This simple feature greatly increases the flexibility of applications.

Another advantage: Addresses can be set independently of which specific I/O modules are used. All that is required are the respective bus modules. This provides logistical advantages with respect to cost and the variety of parts.

- The bus module is the base for all X20 supply modules
- For creating voltage groups
- The internal I/O supply is isolated to the left
- Manual node number assignment
- Independent of electronics module
- Manual and automatic addressing can be combined as desired

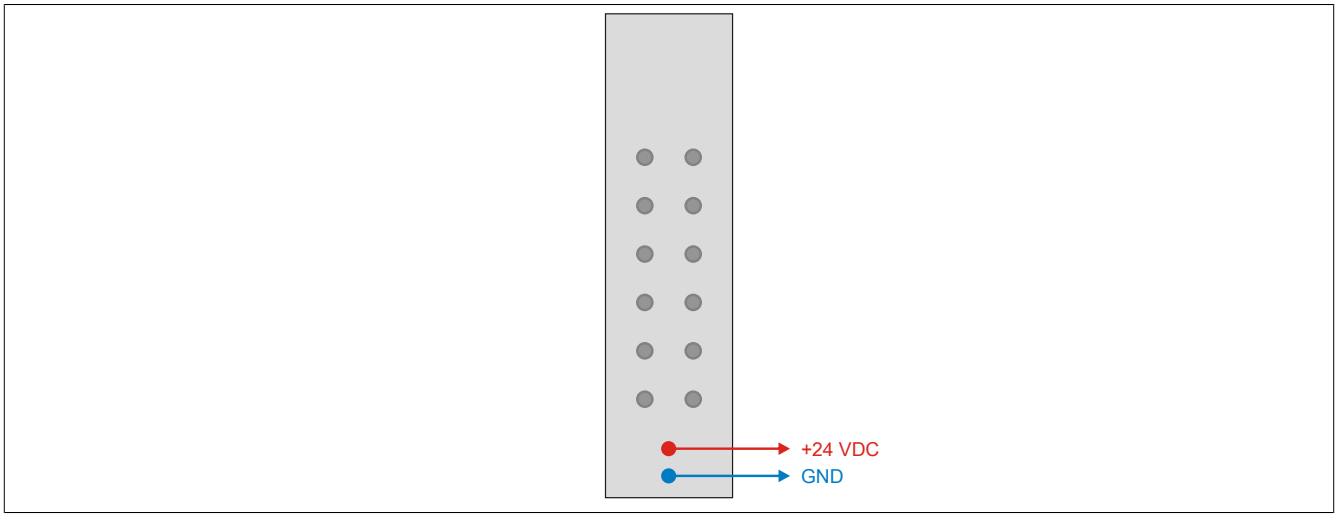
3.2 Technical description

3.2.1 Technical data

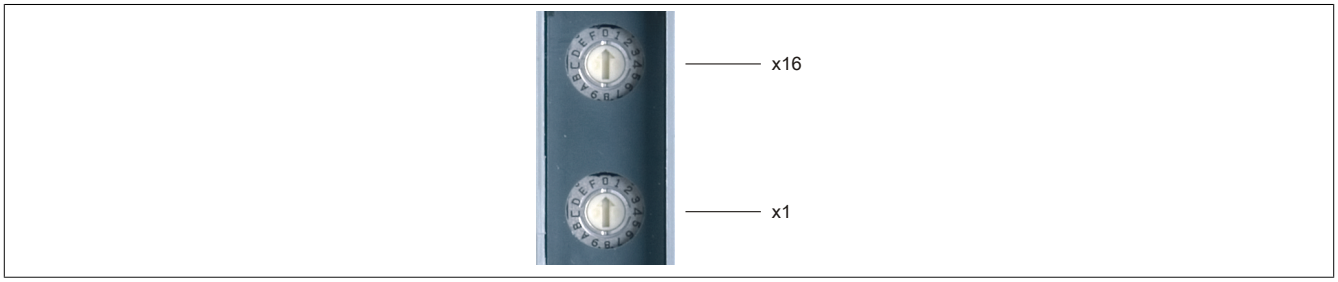
Order number	X20BM05
Short description	
Bus module	Power supply bus module, with node number switch, 24 VDC keyed, internal I/O power supply interrupted to the left
General information	
Power consumption	
Bus	0.13 W
Internal I/O	-
Additional power dissipation caused by actuators (resistive) [W]	-
Certifications	
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
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5
DNV	Temperature: **B** (0 to 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)
LR	ENV1
KR	Yes
ABS	Yes
BV	**EC33B** Temperature: 5 - 55°C Vibration: 4 g EMC: Bridge and open deck
EAC	Yes
KC	Yes
I/O power supply	
Nominal voltage	24 VDC
Permissible contact load	10 A
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	-
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	
Pitch	$12.5^{+0.2}$ mm

Table 6: X20BM05 - Technical data

3.2.2 Voltage routing



3.2.3 Node number switches

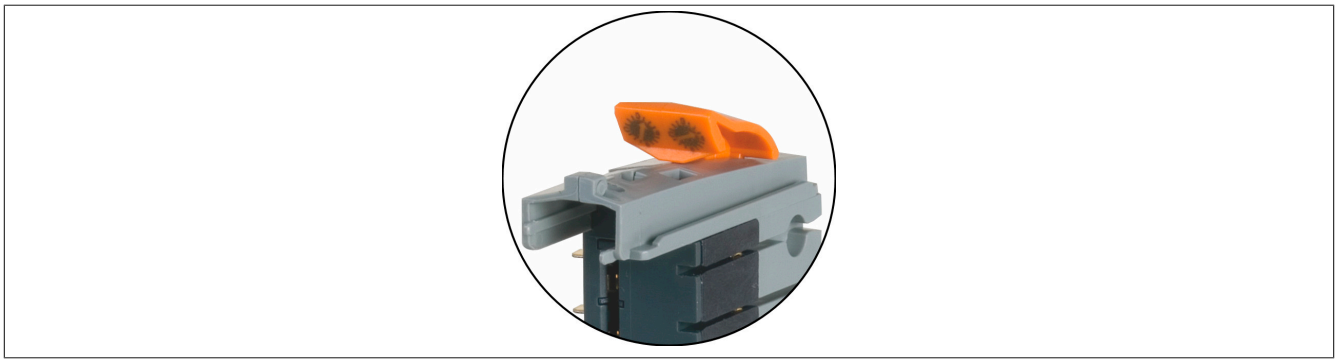


The X2X Link address of the module is set using the node number switches (0x01 to 0xFD).

Setting node number 0x00 causes the X2X Link address to be assigned automatically.

3.2.4 Bus modules with node number switches

Symbols are printed on the locking lever of bus modules with node number switches. This provides a way to see from outside that the X20 system mounted in this slot is using node number switches.



4 X20(c)BM11

4.1 General information

4.1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual
MAEMV	Installation / EMC guide

4.1.2 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

4.1.2.1 Starting temperature

The starting temperature describes the minimum permissible ambient temperature in a voltage-free state at the time the coated module is switched on. This is permitted to be as low as -40°C. During operation, the conditions as specified in the technical data continue to apply.

Information:

It is important to absolutely ensure that there is no forced cooling by air currents in the closed control cabinet, e.g. due to the use of a fan or ventilation slots.

4.1.3 Order data

Order number	Short description	Figure
	Bus modules	
X20BM11	X20 bus module, 24 VDC keyed, internal I/O power supply connected through	
X20cBM11	X20 bus module, coated, 24 VDC keyed, internal I/O power supply connected through	

Table 7: X20BM11, X20cBM11 - Order data

4.1.4 Module description

The bus module is the base for all 24 VDC I/O modules. The internal I/O power supply is connected through.

- Bus module for 24 VDC I/O modules
- The internal I/O power supply is connected through.

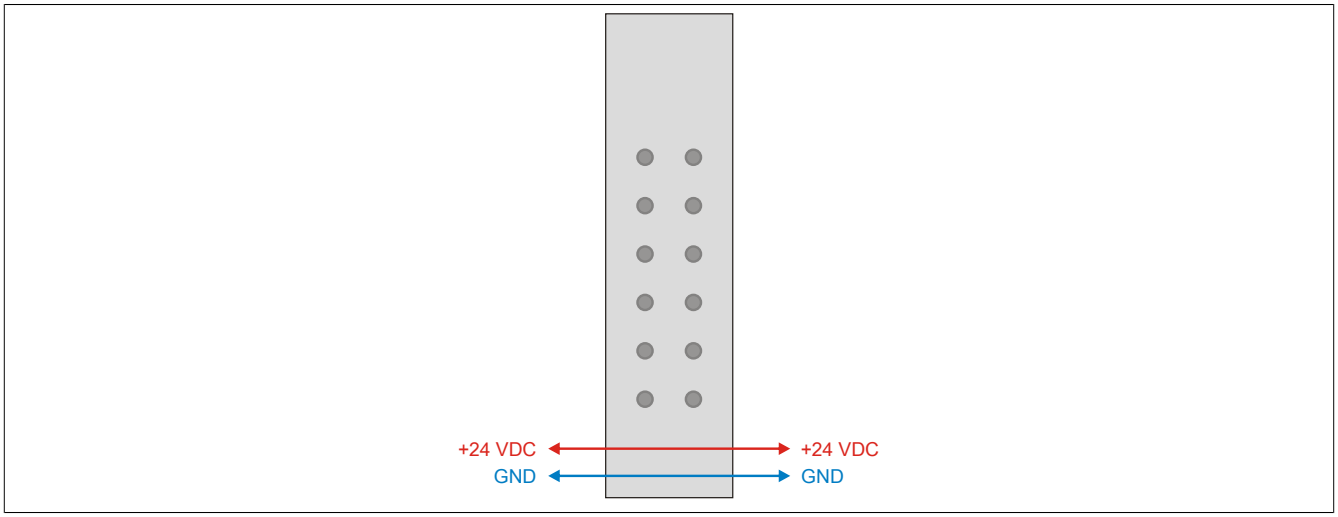
4.2 Technical description

4.2.1 Technical data

Order number	X20BM11	X20cBM11
Short description		
Bus module	Bus module, 24 VDC keyed, internal I/O power supply connected through	
General information		
Power consumption		
Bus	0.13 W	
Internal I/O	-	
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	
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5	
DNV	Temperature: **B** (0 to 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)	
LR	ENV1	
KR	Yes	
ABS	Yes	
BV	**EC33B** Temperature: 5 - 55°C Vibration: 4 g EMC: Bridge and open deck	
EAC	Yes	
KC	Yes	-
I/O power supply		
Nominal voltage	24 VDC	
Permissible contact load	10 A	
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	-	
Starting temperature	-	Yes, -40°C
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		
Pitch	$12.5^{+0.2}$ mm	

Table 8: X20BM11, X20cBM11 - Technical data

4.2.2 Voltage routing



5 X20BM11X

5.1 General information

5.1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual
MAEMV	Installation / EMC guide

5.1.2 Order data

Order number	Short description	Figure
	Bus modules	
X20BM11X	X20 X2X+ bus module, internal I/O power supply connected through	

Table 9: X20BM11X - Order data

5.1.3 Module description

The X2X+ bus module serves as the basis for all single-width electronics modules. The internal I/O power supply is connected through.

- Bus module for single-width electronics modules, not mechanically keyed
- The internal I/O power supply is connected through.

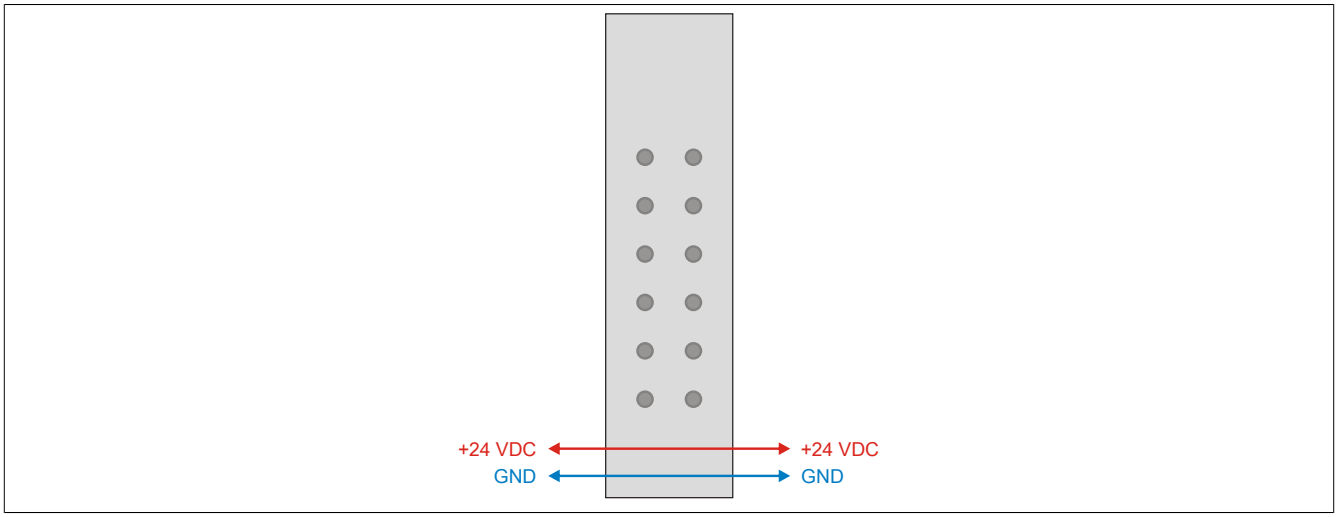
5.2 Technical description

5.2.1 Technical data

Order number	X20BM11X
Short description	
Bus module	X2X+ bus module, not mechanically keyed, internal I/O power supply connected through
General information	
B&R ID code	0xF378
Power consumption	
Bus	0.45 W
Internal I/O	-
Additional power dissipation caused by actuators (resistive) [W]	-
Certifications	
CE	Yes
UKCA	Yes
EAC	Yes
I/O power supply	
Nominal voltage	24 VDC
Permissible contact load	10 A
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 50°C
Vertical mounting orientation	-25 to 45°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	
Pitch	$12.5^{+0.2}$ mm

Table 10: X20BM11X - Technical data

5.2.2 Voltage routing



6 X20(c)BM12

6.1 General information

6.1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual
MAEMV	Installation / EMC guide

6.1.2 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

6.1.3 Order data

Order number	Short description	Figure
	Bus modules	
X20BM12	X20 bus module, 240 VAC keyed, internal I/O power supply connected through	
X20cBM12	X20 bus module, coated, 240 VAC keyed, internal I/O power supply connected through	

Table 11: X20BM12, X20cBM12 - Order data

6.1.4 Module description

The bus module serves as the base for all 240 VAC X20 I/O modules. The internal I/O supply is interconnected.

- Bus module for 240 VAC I/O modules
- The internal I/O supply is interconnected
- 240 V coding for bus module, electronic module and terminal block

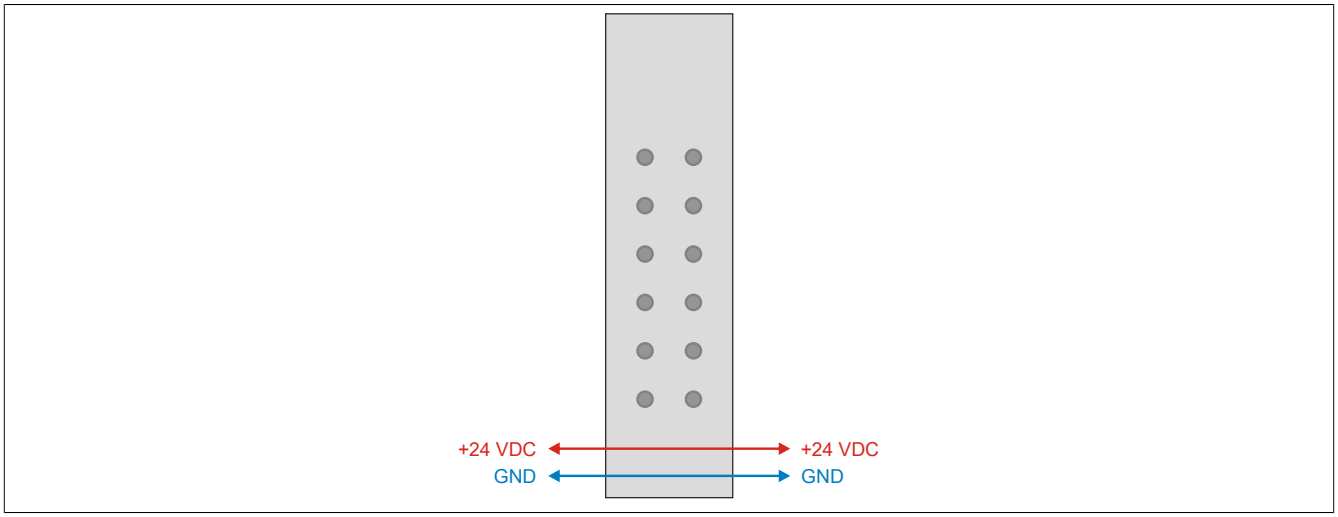
6.2 Technical description

6.2.1 Technical data

Order number	X20BM12	X20cBM12
Short description		
Bus module	Bus module, 240 VAC keyed, internal I/O power supply connected through	
General information		
Power consumption		
Bus	0.13 W	
Internal I/O	-	
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	
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5	
DNV	Temperature: **B** (0 to 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)	
LR	ENV1	
KR	Yes	
ABS	Yes	
BV	**EC33B** Temperature: 5 - 55°C Vibration: 4 g EMC: Bridge and open deck	
EAC	Yes	
KC	Yes	-
I/O power supply		
Nominal voltage	24 VDC	
Permissible contact load	10 A	
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	-	
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		
Pitch	$12.5^{+0.2}$ mm	

Table 12: X20BM12, X20cBM12 - Technical data

6.2.2 Voltage routing



7 X20BM15

7.1 General information

7.1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual
MAEMV	Installation / EMC guide

7.1.2 Order data

Order number	Short description	Figure
	Bus modules	
X20BM15	X20 bus module, with node number switch, 24 VDC keyed, internal I/O power supply connected through	

Table 13: X20BM15 - Order data

7.1.3 Module description

The bus modules have node number switches that can be used to set permanent addresses. Placing one of these modules at the beginning of an X20 block ensures a unique address. The addresses of subsequent modules are automatically set in ascending order starting at this address. This simple feature greatly increases the flexibility of applications.

Another advantage: Addresses can be set independently of which specific I/O modules are used. All that is required are the respective bus modules. This provides logistical advantages with respect to cost and the variety of parts.

- The bus module is the base for all X20 24 VDC I/O modules
- The internal I/O supply is interconnected
- Manual node number assignment
- Independent of electronics module
- Manual and automatic addressing can be combined as desired

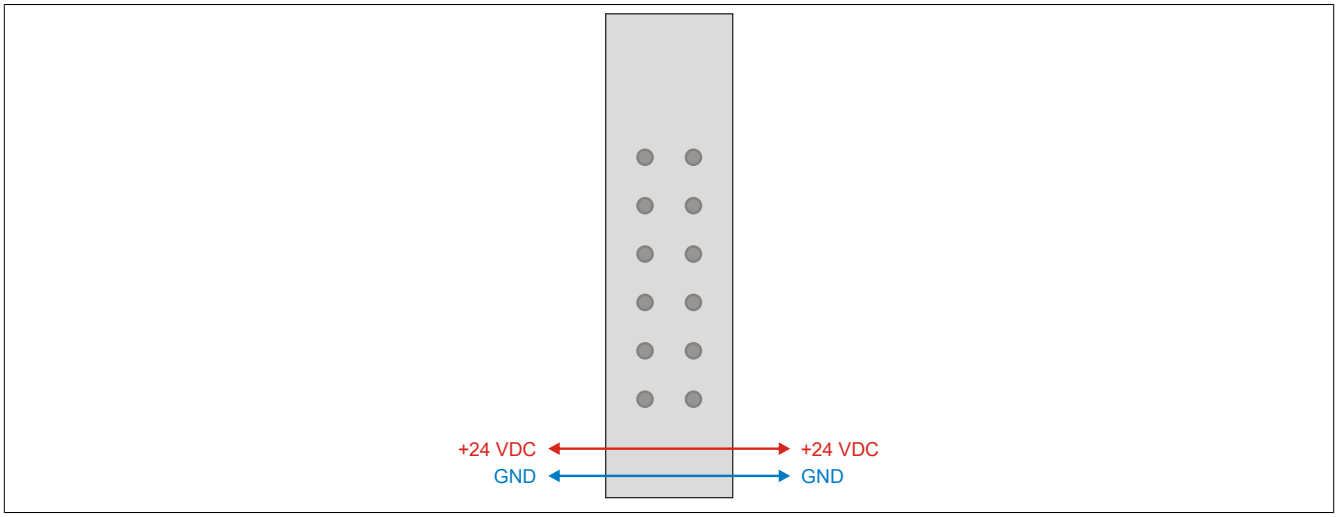
7.2 Technical description

7.2.1 Technical data

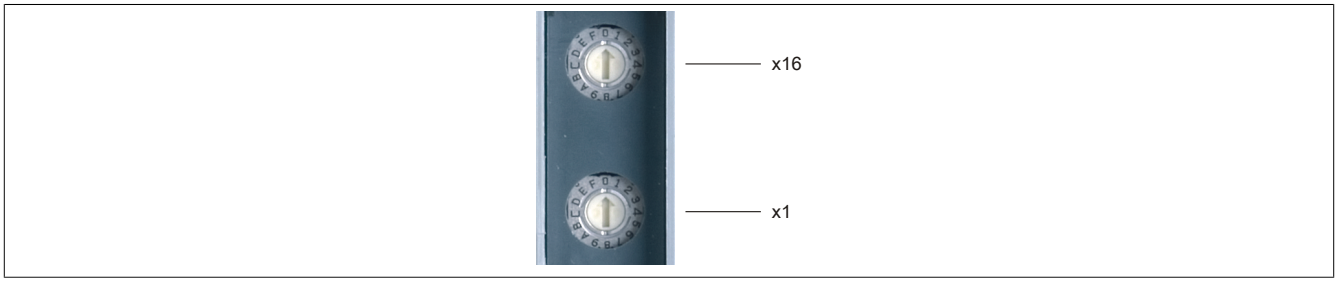
Order number	X20BM15
Short description	
Bus module	Bus module, with node number switch, 24 VDC keyed, internal I/O power supply connected through
General information	
Power consumption	
Bus	0.13 W
Internal I/O	-
Additional power dissipation caused by actuators (resistive) [W]	-
Certifications	
CE	Yes
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
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5
DNV	Temperature: **B** (0 to 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)
LR	ENV1
KR	Yes
ABS	Yes
BV	**EC33B** Temperature: 5 - 55°C Vibration: 4 g EMC: Bridge and open deck
EAC	Yes
KC	Yes
I/O power supply	
Nominal voltage	24 VDC
Permissible contact load	10 A
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	-
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	
Pitch	$12.5^{+0.2}$ mm

Table 14: X20BM15 - Technical data

7.2.2 Voltage routing



7.2.3 Node number switches

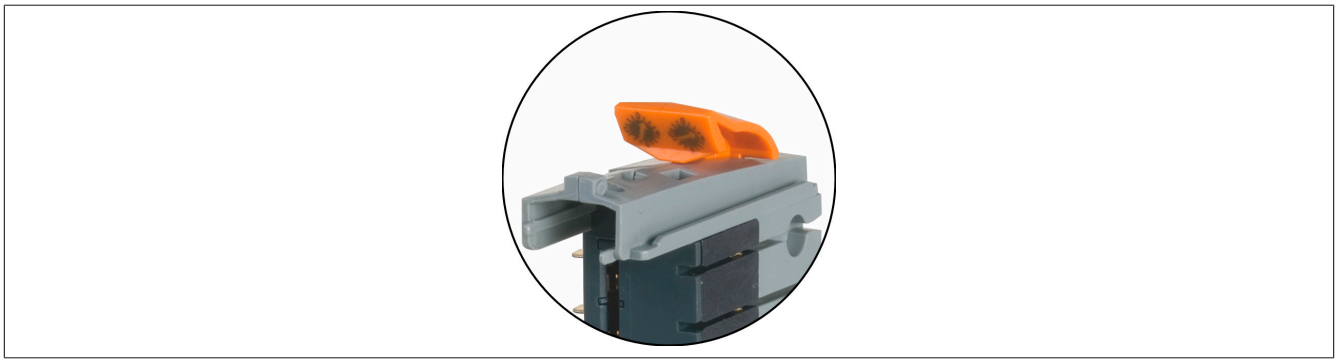


The X2X Link address of the module is set using the node number switches (0x01 to 0xFD).

Setting node number 0x00 causes the X2X Link address to be assigned automatically.

7.2.4 Bus modules with node number switches

Symbols are printed on the locking lever of bus modules with node number switches. This provides a way to see from outside that the X20 system mounted in this slot is using node number switches.



8 X20BM21

8.1 General information

8.1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual
MAEMV	Installation / EMC guide

8.1.2 Order data

Order number	Short description	Figure
	Bus modules	
X20BM21	X20 power supply bus module, for double-width modules, 24 VDC keyed, internal I/O power supply interrupted to the left	

Table 15: X20BM21 - Order data

8.1.3 Module description

The bus module serves as a basis for all double-width X20 I/O modules. The internal I/O supply is isolated to the left. This allows the bus module to be used to set up a separate voltage group if the X20BT9100 bus transmitter is used for the supply.

- For creating voltage groups
- The internal I/O supply is isolated to the left

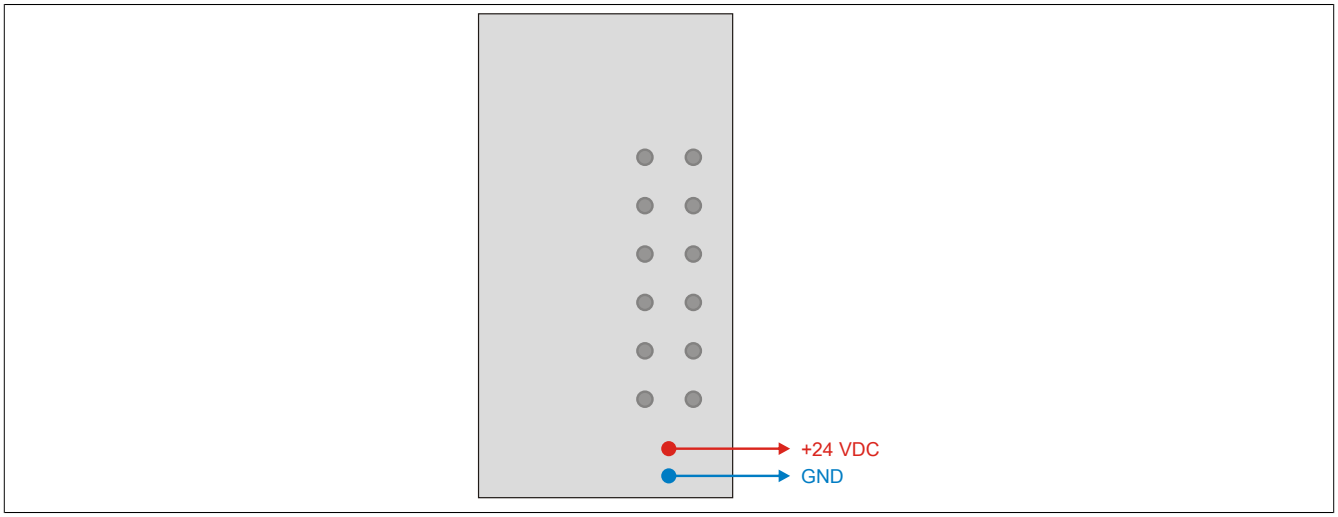
8.2 Technical description

8.2.1 Technical data

Order number	X20BM21
Short description	
Bus module	Power supply bus module, for double-width modules, 24 VDC keyed, internal I/O power supply interrupted to the left
General information	
Power consumption	
Bus	0.13 W
Internal I/O	-
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
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5
DNV	Temperature: **B** (0 to 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)
LR	ENV1
KR	Yes
ABS	Yes
BV	**EC33B** Temperature: 5 - 55°C Vibration: 4 g EMC: Bridge and open deck
EAC	Yes
KC	Yes
I/O power supply	
Nominal voltage	24 VDC
Permissible contact load	10 A
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	-
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	
Pitch	$25^{+0.2}$ mm

Table 16: X20BM21 - Technical data

8.2.2 Voltage routing



9 X20(c)BM31

9.1 General information

9.1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual
MAEMV	Installation / EMC guide

9.1.2 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

9.1.2.1 Starting temperature

The starting temperature describes the minimum permissible ambient temperature in a voltage-free state at the time the coated module is switched on. This is permitted to be as low as -40°C. During operation, the conditions as specified in the technical data continue to apply.

Information:

It is important to absolutely ensure that there is no forced cooling by air currents in the closed control cabinet, e.g. due to the use of a fan or ventilation slots.

9.1.3 Order data

Order number	Short description	Figure
	Bus modules	
X20BM31	X20 bus module, for double-width modules, 24 VDC keyed, internal I/O power supply connected through	
X20cBM31	X20 bus module, coated, for double-width modules, 24 VDC keyed, internal I/O power supply connected through	

Table 17: X20BM31, X20cBM31 - Order data

9.1.4 Module description

The bus module serves as a basis for all double-width X20 I/O modules. The internal I/O supply is interconnected.

- Bus module for double-width I/O modules
- The internal I/O supply is interconnected

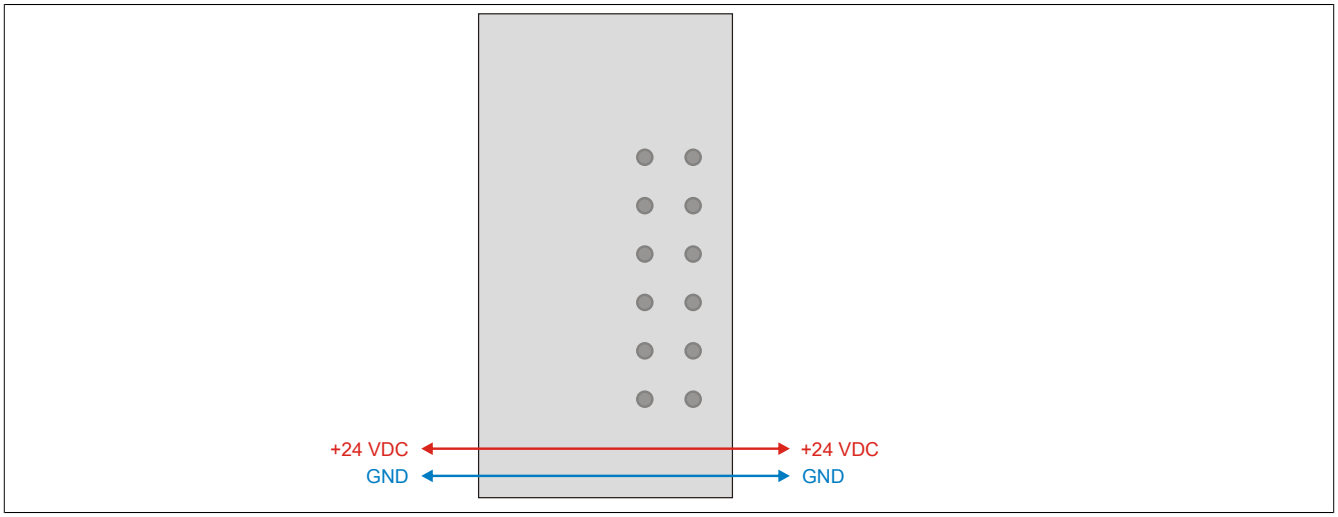
9.2 Technical description

9.2.1 Technical data

Order number	X20BM31	X20cBM31
Short description		
Bus module	Bus module, for double-width modules, 24 VDC keyed, internal I/O power supply connected through	
General information		
Power consumption		
Bus	0.13 W	
Internal I/O	-	
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	
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5	
DNV	Temperature: **B** (0 to 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)	
LR	ENV1	
KR	Yes	
ABS	Yes	
BV	**EC33B** Temperature: 5 - 55°C Vibration: 4 g EMC: Bridge and open deck	
EAC	Yes	
KC	Yes	-
I/O power supply		
Nominal voltage	24 VDC	
Permissible contact load	10 A	
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	-	
Starting temperature	-	Yes, -40°C
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		
Pitch	$25^{+0.2}$ mm	

Table 18: X20BM31, X20cBM31 - Technical data

9.2.2 Voltage routing



10 X20(c)BM32

10.1 General information

10.1.1 Other applicable documents

For additional and supplementary information, see the following documents.

Other applicable documents

Document name	Title
MAX20	X20 System user's manual
MAEMV	Installation / EMC guide

10.1.2 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

10.1.2.1 Starting temperature

The starting temperature describes the minimum permissible ambient temperature in a voltage-free state at the time the coated module is switched on. This is permitted to be as low as -40°C. During operation, the conditions as specified in the technical data continue to apply.

Information:

It is important to absolutely ensure that there is no forced cooling by air currents in the closed control cabinet, e.g. due to the use of a fan or ventilation slots.

10.1.3 Order data

Order number	Short description	Figure
	Bus modules	
X20BM32	X20 bus module, for double-width modules, 240 VAC keyed, internal I/O power supply connected through	
X20cBM32	X20 bus module, coated, for double-width modules, 240 VAC keyed, internal I/O power supply connected through	

Table 19: X20BM32, X20cBM32 - Order data

10.1.4 Module description

The bus module serves as the base for all double-width 240 VAC X20 I/O modules. The internal I/O supply is interconnected.

- Bus module for double-width 240 VAC I/O modules
- The internal I/O supply is interconnected
- 240 V coding for bus module, electronic module and terminal block

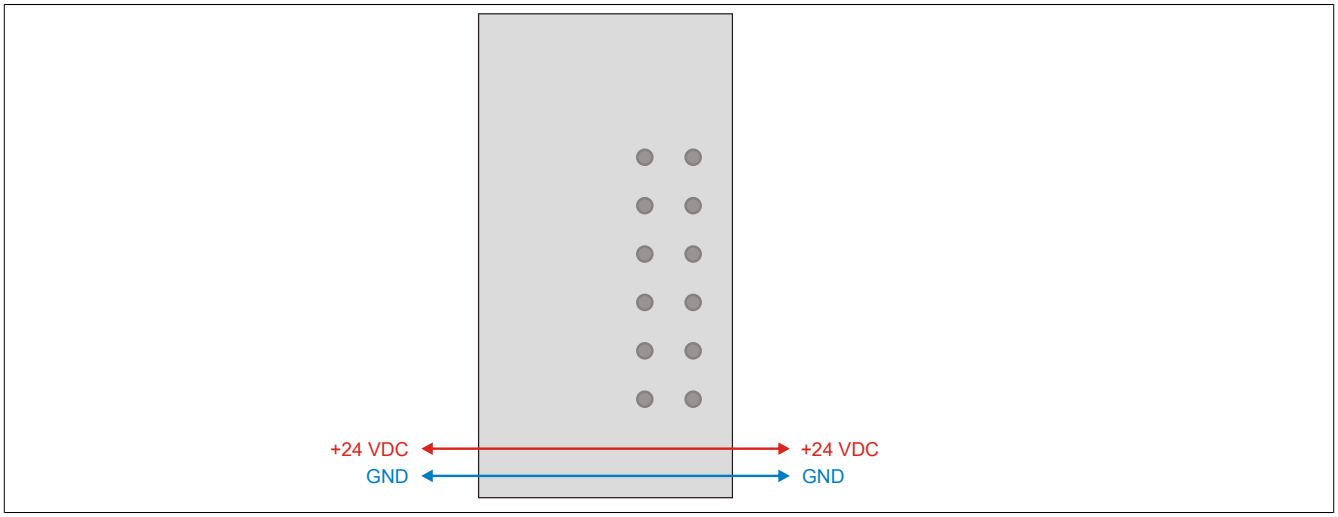
10.2 Technical description

10.2.1 Technical data

Order number	X20BM32	X20cBM32
Short description		
Bus module	Bus module, for double-width modules, 240 VAC keyed, internal I/O power supply connected through	
General information		
Power consumption		
Bus	0.13 W	
Internal I/O	-	
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	
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5	
DNV	Temperature: **B** (0 to 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)	
LR	ENV1	
KR	Yes	
ABS	Yes	
BV	**EC33B** Temperature: 5 - 55°C Vibration: 4 g EMC: Bridge and open deck	
EAC	Yes	
KC	Yes	-
I/O power supply		
Nominal voltage	24 VDC	
Permissible contact load	10 A	
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	-	
Starting temperature	-	Yes, -40°C
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		
Pitch	$25^{+0.2}$ mm	

Table 20: X20BM32, X20cBM32 - Technical data

10.2.2 Voltage routing



11 Safety module

11.1 X20BM13, X20BM16, X20BM23, X20BM26, X20(c)BM33, X20BM36

11.1.1 General information

Bus modules serve as the basis for all SafeIO modules.
Depending on the bus module type, the internal I/O power supply is continuous or interrupted to the left.

With X20BMx6 bus modules, fixed addresses can be set via node number switches. One of these modules at the beginning of an X20 block always generates a unique address. The subsequent modules then automatically increment from this address. This simple feature greatly increases the flexibility of applications.

Another advantage: Addresses can be set independently of specific I/O modules; only the necessary bus modules are required, which is logistically advantageous in terms of the cost and diversity of parts.

	X20BM13	X20BM16	X20BM23	X20BM26	X20BM33	X20BM36
Bus module type	X20 SafeIO modules		X20 SafeIO power supply module		X20 SafeIO modules	
Formation of potential groups possible	No		Yes		No	
Internal I/O power supply	Continuous		Interrupted to the left		Continuous	
Manual node number assignment possible	No	Yes	No	Yes	No	Yes
Single-width	Yes		No			

11.1.2 Coated modules

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

Information:

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

Contrary to the specifications for X20 system modules without safety certification and despite the tests performed, X20 safety modules are **NOT suited for applications with corrosive gases (EN 60068-2-60)!**

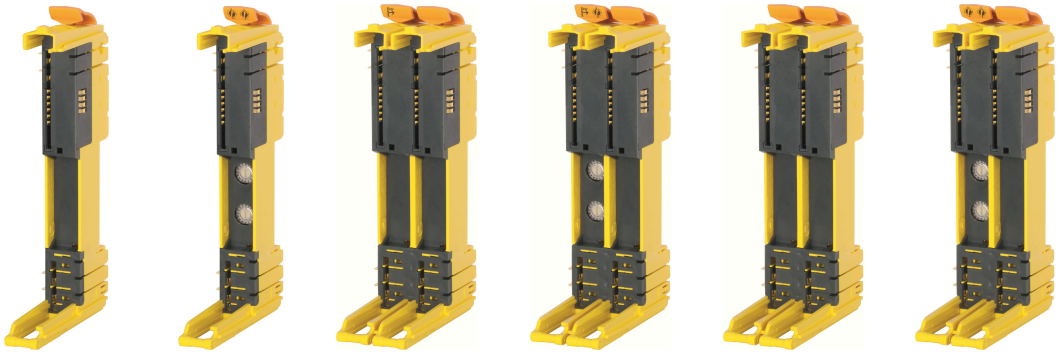
11.1.2.1 Starting temperature

The starting temperature describes the minimum permissible ambient temperature in a voltage-free state at the time the coated module is switched on. This is permitted to be as low as -40°C. During operation, the conditions as specified in the technical data continue to apply.

Information:

It is important to absolutely ensure that there is no forced cooling by air currents in the closed control cabinet, e.g. due to the use of a fan or ventilation slots.

11.1.3 Order data



X20BM13 X20BM16 X20BM23 X20BM26 X20BM33 X20BM36

Order number	Short description
	Bus modules
X20BM13	X20 bus module, for X20 SafeIO modules, internal I/O power supply connected through, single-width
X20BM16	X20 bus module, for X20 SafeIO modules, with node number switch, internal I/O power supply connected through, single-width
X20BM23	X20 power supply bus module, for X20 SafeIO power supply modules, internal I/O power supply interrupted to the left
X20BM26	X20 power supply bus module, for X20 SafeIO power supply modules, with node number switch, internal I/O power supply interrupted to the left
X20BM33	X20 bus module, for X20 SafeIO modules, internal I/O power supply connected through
X20cBM33	X20 bus module, coated, for X20 SafeIO modules, internal I/O power supply connected through
X20BM36	X20 bus module, for X20 SafeIO modules, with node number switch, internal I/O power supply connected through

Table 21: X20BM13, X20BM16, X20BM23, X20BM26, X20BM33, X20cBM33, X20BM36 - Order data

11.1.4 Technical data

Order number	X20BM13	X20BM16	X20BM23	X20BM26	X20BM33	X20cBM33	X20BM36
Short description							
Bus module	Bus module, for X20 SafeIO modules, internal I/O power supply connected through	Bus module, for X20 SafeIO modules, with node number switch, internal I/O power supply connected through	Power supply bus module, for X20 SafeIO power supply modules, internal I/O power supply interrupted to the left	Power supply bus module, for X20 SafeIO power supply modules, with node number switch, internal I/O power supply interrupted to the left	Bus module, for X20 SafeIO modules, internal I/O power supply connected through		Bus module, for X20 SafeIO modules, with node number switch, internal I/O power supply connected through
General information							
Power consumption							
Bus	0.13 W						
Internal I/O	-						
Additional power dissipation caused by actuators (resistive) [W]	-						
Certifications							
CE	Yes						
ATEX	Zone 2, II 3G Ex nA nC IIA T5 Gc IP20, Ta (see X20 user's manual) FTZÚ 09 ATEX 0083X	In preparation	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						
HazLoc	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5	In preparation	cCSAus 244665 Process control equipment for hazardous locations Class I, Division 2, Groups ABCD, T5				
DNV	In preparation		Temperature: **B** (0 - 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)	In preparation	Temperature: **B** (0 - 55°C) Humidity: **B** (up to 100%) Vibration: **B** (4 g) EMC: **B** (bridge and open deck)		In preparation
LR	-	-	ENV1	-	ENV1		-
KR	-	-	Yes	-	Yes		-
ABS	-	-	Yes	-	Yes		-
EAC	Yes						
KC	-	-	Yes	-	Yes	-	
I/O power supply							
Nominal voltage	24 VDC						
Permissible contact load	10 A						
Operating conditions							
Mounting orientation							
Horizontal	Yes						
Vertical	Yes						
Installation elevation above sea level	0 to 2000 m, no limitation						
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	-						
Starting temperature	-	-				Yes, -40°C	-
Storage	-40 to 85°C						
Transport	-40 to 85°C						

Table 22: X20BM13, X20BM16, X20BM23, X20BM26, X20BM33, X20cBM33, X20BM36 - Technical data

Order number	X20BM13	X20BM16	X20BM23	X20BM26	X20BM33	X20cBM33	X20BM36
Relative humidity							
Operation	5 to 95%, non-condensing					Up to 100%, condensing	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing						
Transport	5 to 95%, non-condensing						
Mechanical properties							
Pitch	12.5$^{+0.2}$ mm		25$^{+0.2}$ mm				

Table 22: X20BM13, X20BM16, X20BM23, X20BM26, X20BM33, X20cBM33, X20BM36 - Technical data

11.1.5 Voltage routing

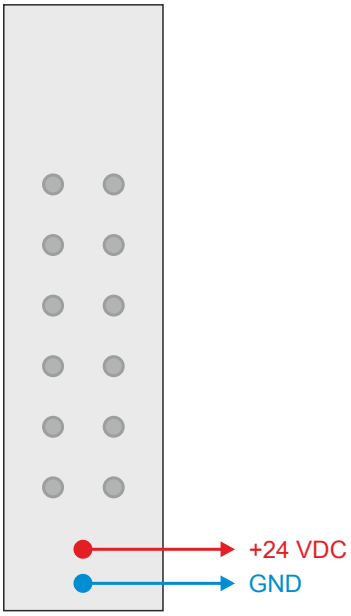


Figure 1: X20BM2x - Voltage routing

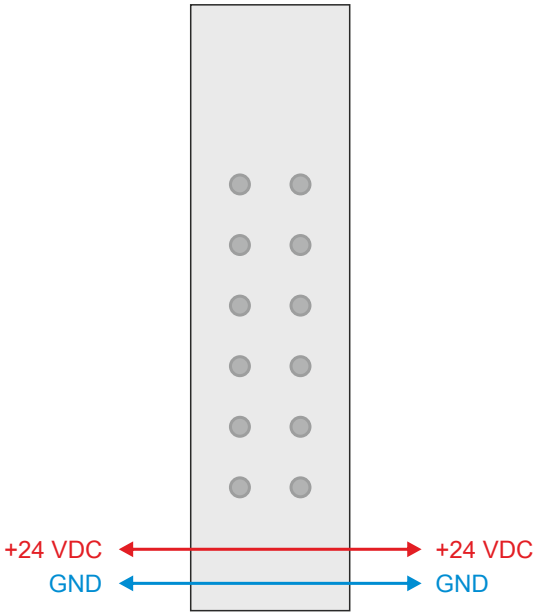


Figure 2: X20BM1x / X20BM3x - Voltage routing

Voltage routing identification

A symbol is printed on the locking lever on bus modules interrupted to the left. This makes it clear from the outside of a fully assembled X20 system that bus modules interrupted to the left are used in this slot.

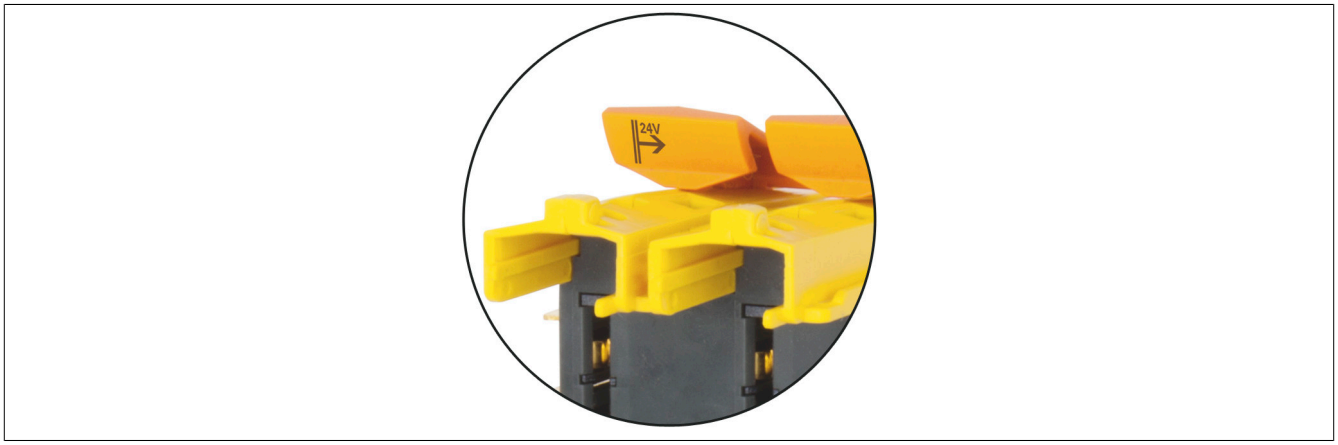


Figure 3: X20BM2x - Voltage routing identification

11.1.6 Manual node number assignment in the X20 safe I/O system

With X20 safety bus modules X20BM16, X20BM26 and X20BM36, permanent addresses can be set using node number switches. This type of module placed at the beginning of an X20 safety block always creates a unique address. The subsequent module addresses are assigned automatically in ascending order starting with this address. This simple feature greatly increases the flexibility of applications.

Another advantage: Addresses can be set independently of specific I/O modules; only the necessary bus modules are required, which is logistically advantageous in terms of the cost and diversity of parts.

11.1.6.1 Node number switches

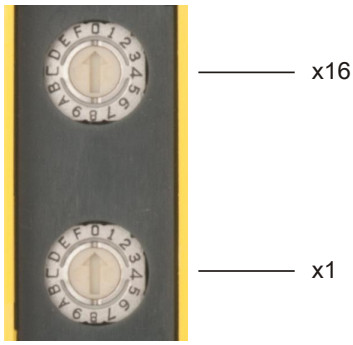


Figure 4: X20BMx6 - Node number switches

The X2X Link address of the module is set using the node number switches (0x01 to 0xFD).
Setting node number 0x00 causes the X2X Link address to be assigned automatically.

Node number switch identification

Symbols are printed on the locking lever of bus modules with node number switches. This provides a way to see from outside that the X20 system mounted in this slot is using node number switches.

Figure 5: X20BMx6 - Node number switch identification

11.1.7 Version history

Version	Date	Comment
2.14	May 2022	• Chapter 11.1.4 "Technical data": Updated DNV certification. • Updated chapter 11.1.8 "Declaration of conformity".
2.07	August 2020	• Chapter 11.1.4 "Technical data": – General information: Added additional power dissipation caused by actuators (resistive) [W]. – Updated certifications.
2.06	May 2020	• Chapter 11.1.2 "Coated modules": Added description of starting temperature. • Chapter 11.1.4 "Technical data": Coated module: Added starting temperature. • Editorial changes.
2.04	November 2019	Chapter 11.1.4 "Technical data": Updated certifications.
2.02	May 2019	First edition for mapp Safety

Table 23: Version history

11.1.8 Declaration of conformity

This document was originally written in the German language. The German edition therefore represents the original documentation in accordance with Machinery Directive 2006/42/EC. Documents in other languages should be interpreted as translations of the original documentation.

Product manufacturer:

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Fax: +43 7748 6586-26

office@br-automation.com

Commercial register number: FN 111651 v
Commercial registry: Regional court Ried im Innkreis
UID number: ATU62367156
Legal structure: Limited liability company
Corporate headquarters: Municipality of Eggelsberg (Upper Austria)

Declarations of conformity for B&R products are available for download on the B&R website (www.br-automation.com).