

Chapter 5 • XV modules

1. General information

For valve manifold control, there were previously two possibilities:

- Direct connections via fieldbus
- With individually wired outputs

The first possibility cannot be used with every valve manifold manufacturer, the second requires a great deal of work and high costs. The XV System from B&R represents a third possibility.

Using the XV System, various valve manifolds can be connected easily and economically. It allows standard devices to be used with multi-pin connectors instead of having to connect valve manifolds via an expensive fieldbus. Regardless of the type, valve manifolds are always integrated in the same way. The application program and circuit diagrams are reused as-is without changes.

The XV module is connected directly to the valve manifold. The connection to the controller is made using the integrated connector on the central backplane. All of the electronics used to control the valves are housed in a 25-pin DSUB connector that is simply connected to the multi-pin valve manifold.

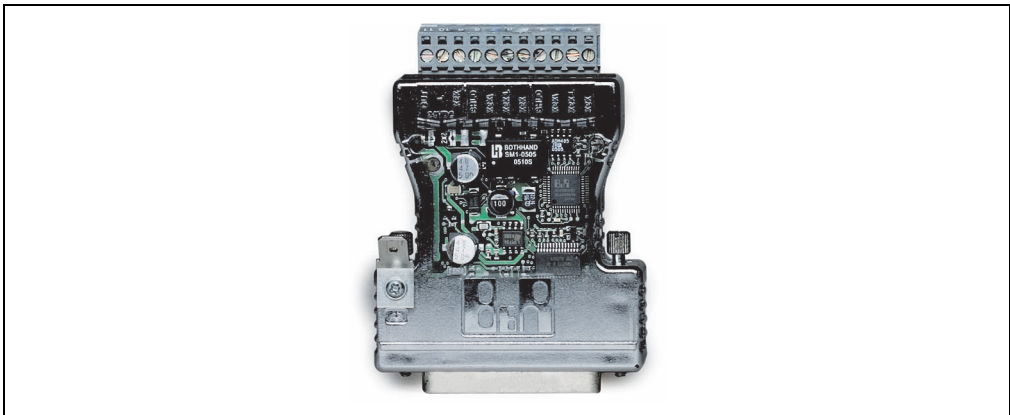


Figure 158: XV System – more than a connector

This makes the XV System compatible with devices from leading manufacturers and countless smaller suppliers.

The decentralized XV connection module is available for 8, 16, or 24 valves. The valve manifold connection module is available with IP67 protection for use in rough environments.

2. Overview

	7XV108.50-11	7XV108.50-12	7XV108.50-51	7XV108.50-62	7XV116.50-01	7XV116.50-11	7XV116.50-12	7XV116.50-51	7XV116.50-62	7XV124.50-11	7XV124.50-12	7XV124.50-51	7XV124.50-61	7XV124.50-62
Number of outputs	8				16					24				
+24 VDC for X2X supply and output supply separated	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Protection type														
IP20	✓	✓			✓	✓	✓			✓	✓			
IP67			✓	✓				✓	✓			✓	✓	✓
X2X connection and supply														
11-pin multipoint connector	✓	✓				✓	✓			✓	✓			
10-pin multipoint connector					✓									
M12/M8 connections			✓	✓				✓	✓			✓	✓	✓
Page	263	263	305	315	275	281	281	325	335	293	293	345	355	365

Table 154: XV modules - overview

3. XV modules with IP20 design

3.1 7XV108.50-11

3.1.1 Order data

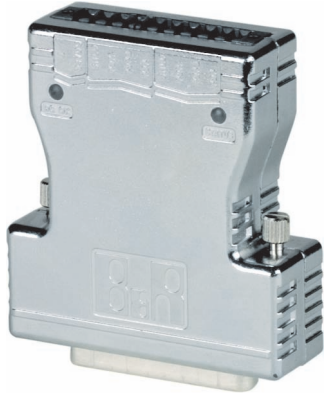
Model number	Short description	Figure
7XV108.50-11	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, GND pins 22,23,24,25, X2X Link, electrically isolated, 8 digital outputs 0.1 A, 24 VDC. OTB1111 terminal blocks must be ordered separately!	
Terminal blocks		
OTB1111.8110	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	
OTB1111.8010	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	

Table 155: 7XV108.50-11 - Order data

3.1.2 Technical data

Product ID	7XV108.50-11
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	8 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	200 µs
Max. turn-off time	250 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 156: 7XV108.50-11 - Technical data

XV modules • 7XV108.50-11 • Additional technical data

Product ID	7XV108.50-11
General information	
Status indicators	Operating status and supply
Electrical isolation	Yes
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	No
Dig. outp. - 24 VDC supply (X2X, OUT)	
Power consumption	
Certification	CE, C-UL-US, GOST-R
Wiring	
GND pin	22, 23, 24, 25
Bus connection	11-pin
Power supply	Bus connection
Mechanical characteristics	
Protection type	IP20
Module dimensions including mounting plates (H x W x D [mm])	63 x 59 x 20
Weight	56 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	1 x 0TB1111.8110 terminal block must be ordered separately

Table 156: 7XV108.50-11 - Technical data

3.1.3 Additional technical data

Product ID	7XV108.50-11
Digital outputs	
Type	Highside driver (source)
Total current	0.8 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 150 µs Max. 200 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 175 µs Max. 250 µs
General information	
Diagnostics	
Output overload	Yes, with software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status
Interfaces	
Application interface	
Type	X2X Link slave
Design	11-pin multipoint connector
Min. cycle time on the X2X bus	>200 µs

Table 157: 7XV108.50-11 - Additional technical data

Product ID	7XV108.50-11
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$7395

Table 157: 7XV108.50-11 - Additional technical data

3.1.4 Diagnostic LEDs

Status LED

Color	Meaning
Off	No module supply via X2X Link (supply voltage to pin 9 of the <10 V connector)
Green blinking	Module supply ok, but no X2X communication
Green/orange blinking	X2X communication ok. Module not configured.
Green	X2X communication ok.
Orange	X2X communication ok. Module not initialized.

Table 158: 7XV108.50-11 - Status-LED

DCOK LED

The DCOK LED indicates the status of the +24 VDC output supply (voltage to pin 11 of the connector):

Color	Meaning
Off	+24 VDC OUT <15 V supply
On	+24 VDC OUT supply ok

Table 159: 7XV108.50-11 - Status-LED

3.1.5 X2X Link and module supply

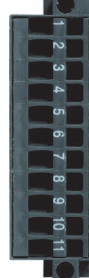
11-pin terminal block		Terminal	Assignment		
X1  0TB1111.8010	X1  0TB1111.8110	1	X2X	X2X input	
		2	X2X⊥		
		3	X2X\		
		4	Shield ¹⁾		
		5	X2X	X2X Output	
		6	X2X⊥		
		7	X2X\		
		8	Shield ¹⁾		
		9	X2X supply +24 VDC		
		10	OUT supply GND		
		11	OUT supply +24 VDC		

Table 160: 7XV108.50-11 - Pin assignments for X1 / X2X Link and module supply

1) Same potential as the housing

3.1.6 Digital outputs 1 - 8

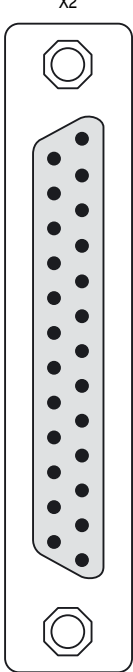
25-pin DSUB socket	Pin	7XV108.50-11
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 8
	10	Digital output 3
	11	Digital output 6
	12	Digital output 1
	13	Digital output 4
	14	Digital output 5
	15	Digital output 6
	16	Digital output 7
	17	Digital output 8
	18	Digital output 2
	19	nc
	20	nc
	21	nc
	22	Module supply GND
	23	Module supply GND
	24	Module supply GND
	25	Module supply GND
	Shield	Shield

Table 161: 7XV108.50-11 - Pin assignments for X2 / digital outputs 1 - 8

3.1.7 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 8	DigitalOutput01 - DigitalOutput08	BOOL	Actual state of the digital outputs 1 - 8
Status registers	StatusInput01	USINT	Status registers

Table 162: 7XV108.50-11 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-8 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 163: 7XV108.50-11 - Status register

3.2 7XV108.50-12

3.2.1 Order data

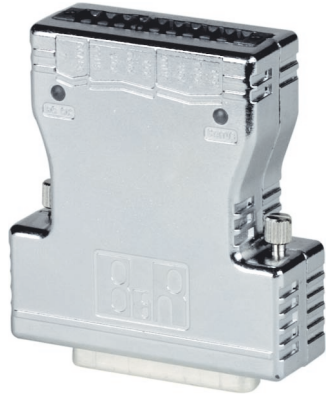
Model number	Short description	Figure
7XV108.50-12	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, GND pins 13,22,23,24,25, X2X Link, electrically isolated, 8 digital outputs 0.1 A, 24 VDC. OTB1111 terminal blocks must be ordered separately!	
Terminal blocks		
OTB1111.8110	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	
OTB1111.8010	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	

Table 164: 7XV108.50-12 - Order data

3.2.2 Technical data

Product ID	7XV108.50-12
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	8 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	200 µs
Max. turn-off time	250 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 165: 7XV108.50-12 - Technical data

XV modules • 7XV108.50-12 • Additional technical data

Product ID	7XV108.50-12
General information	
Status indicators	Operating status and supply
Electrical isolation	Yes
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	No
Dig. outp. - 24 VDC supply (X2X, OUT)	
Power consumption	
Certification	CE, C-UL-US, GOST-R
Wiring	
GND pin	13, 22, 23, 24, 25
Bus connection	11-pin
Power supply	Bus connection
Mechanical characteristics	
Protection type	IP20
Module dimensions including mounting plates (H x W x D [mm])	63 x 59 x 20
Weight	56 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	1 x 0TB1111.8110 terminal block must be ordered separately

Table 165: 7XV108.50-12 - Technical data

3.2.3 Additional technical data

Product ID	7XV108.50-12
Digital outputs	
Type	Highside driver (source)
Total current	0.8 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 150 µs Max. 200 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 175 µs Max. 250 µs
General information	
Diagnostics	
Output overload	Yes, with software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status
Interfaces	
Application interface	
Type	X2X Link slave
Design	11-pin multipoint connector
Min. cycle time on the X2X bus	>200 µs

Table 166: 7XV108.50-12 - Additional technical data

Product ID	7XV108.50-12
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$7396

Table 166: 7XV108.50-12 - Additional technical data

3.2.4 Diagnostic LEDs

Status LED

Color	Meaning
Off	No module supply via X2X Link (supply voltage to pin 9 of the <10 V connector)
Green blinking	Module supply ok, but no X2X communication
Green/orange blinking	X2X communication ok. Module not configured.
Green	X2X communication ok.
Orange	X2X communication ok. Module not initialized.

Table 167: 7XV108.50-12 - Status-LED

DCOK LED

The DCOK LED indicates the status of the +24 VDC output supply (voltage to pin 11 of the connector):

Color	Meaning
Off	+24 VDC OUT <15 V supply
On	+24 VDC OUT supply ok

Table 168: 7XV108.50-12 - Status-LED

3.2.5 X2X Link and module supply

11-pin terminal block		Terminal	Assignment		
X1  0TB1111.8010	X1  0TB1111.8110	1	X2X	X2X input	
		2	X2X⊥		
		3	X2X\		
		4	Shield ¹⁾		
		5	X2X	X2X Output	
		6	X2X⊥		
		7	X2X\		
		8	Shield ¹⁾		
		9	X2X supply +24 VDC		
		10	OUT supply GND		
		11	OUT supply +24 VDC		

Table 169: 7XV108.50-12 - Pin assignments for X1 / X2X Link and module supply

1) Same potential as the housing

3.2.6 Digital outputs 1 - 8

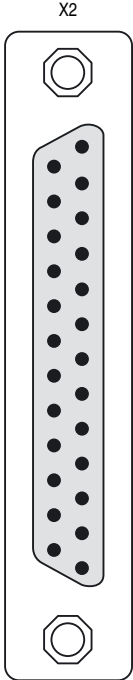
25-pin DSUB socket	Pin	7XV108.50-12
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 8
	10	Digital output 3
	11	Digital output 6
	12	Digital output 1
	13	Module supply GND
	14	Digital output 5
	15	Digital output 6
	16	Digital output 7
	17	Digital output 8
	18	Digital output 2
	19	nc
	20	nc
	21	nc
	22	Module supply GND
	23	Module supply GND
	24	Module supply GND
	25	Module supply GND
	Shield	Shield

Table 170: 7XV108.50-12 - Pin assignments for X2 / digital outputs 1 - 8

3.2.7 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 8	DigitalOutput01 - DigitalOutput08	BOOL	Actual state of the digital outputs 1 - 8
Status registers	StatusInput01	USINT	Status registers

Table 171: 7XV108.50-12 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-8 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 172: 7XV108.50-12 - Status register

3.3 7XV116.50-01

3.3.1 Order data

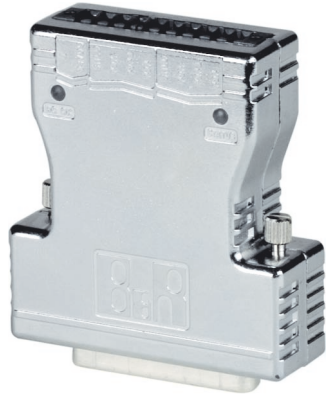
Model number	Short description	Figure
7XV116.50-01	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, GND pins 22,23,24,25, X2X Link, electrically isolated, 16 digital outputs 0.1 A, 24 VDC, shared 24 VDC supply. 0TB710.91 terminal blocks must be ordered separately!	
Terminal blocks		
0TB710.91	Accessory terminal block, 10-pin, cage clamps, 1.5 mm²	
0TB710.90	Accessory terminal block, 10-pin, screw clamp, 1.5 mm²	

Table 173: 7XV116.50-01 - Order data

3.3.2 Technical data

Product ID	7XV116.50-01
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	16 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	200 µs
Max. turn-off time	250 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 174: 7XV116.50-01 - Technical data

XV modules • 7XV116.50-01 • Additional technical data

Product ID	7XV116.50-01
General information	
Status indicators	Operating status and supply
Electrical isolation	
X2X Link - digital output	Yes
X2X Link - 24 VDC module supply	Yes
Dig. output - 24 VDC module supply	No
Power consumption	
Certification	CE, C-UL-US, GOST-R
Wiring	
GND pin	22, 23, 24, 25
Bus connection	10-pin
Power supply	Bus connection
Mechanical characteristics	
Protection type	IP20
Module dimensions including mounting plates (H x W x D [mm])	63 x 59 x 20
Weight	56 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	1 x TB710 terminal block sold separately

Table 174: 7XV116.50-01 - Technical data

3.3.3 Additional technical data

Product ID	7XV116.50-01
Digital outputs	
Type	Highside driver (source)
Total current	1.6 A
Switch-on time for the output driver from 0 to 1 (90% V_{out}) at full load	Typ. 150 μ s Max. 200 μ s
Switch-off time for the output driver from 1 to 0 (10% V_{out}) with no load	Typ. 175 μ s Max. 250 μ s
General information	
Diagnostics	
Output overload	Yes, with software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status
Interfaces	
Application interface	
Type	X2X Link slave
Design	10-pin multipoint connector
Min. cycle time on the X2X bus	>200 μ s

Table 175: 7XV116.50-01 - Additional technical data

Product ID	7XV116.50-01
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$6857

Table 175: 7XV116.50-01 - Additional technical data

3.3.4 Diagnostic LEDs

Status LED

Color	Meaning
Off	No supply (<10 VDC supply voltage)
Green blinking	No X2X communication. I/O ok.
Green/orange blinking	X2X communication ok. Module not configured.
Green	X2X communication ok. I/O function ok.
Orange	X2X communication ok. I/O function not ok.

Table 176: 7XV116.50-01 - Status-LED

DCOK LED

Color	Meaning
Off	+24 VDC module supply ok.
Orange	+24 VDC module supply is <15 VDC.

Table 177: 7XV116.50-01 - Status-LED

3.3.5 X2X Link and module supply

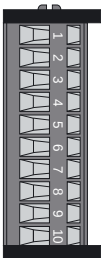
10-pin terminal block	Terminal	Assignment	
X1  0TB710.9x	1	X2X	X2X input
	2	X2X GND	
	3	X2X\	
	4	Shield ¹⁾	
	5	X2X	X2X Output
	6	X2X GND	
	7	X2X\	
	8	Shield ¹⁾	
	9	+24 VDC module supply	
	10	Module supply GND	

Table 178: 7XV116.50-01 - Pin assignments for X1 / X2X Link and module supply

1) Same potential as the housing

3.3.6 Digital outputs 1 - 16

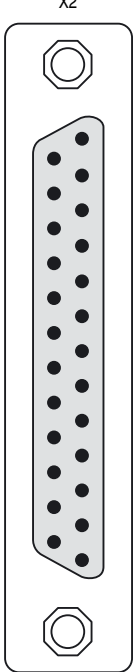
25-pin DSUB socket	Pin	7XV116.50-01
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Digital output 13
	14	Digital output 14
	15	Digital output 15
	16	Digital output 16
	17	Digital output 13
	18	Digital output 12
	19	Digital output 11
	20	Digital output 10
	21	Digital output 9
	22	Module supply GND
	23	Module supply GND
	24	Module supply GND
	25	Module supply GND
	Shield	Shield

Table 179: 7XV116.50-01 - Pin assignments for X2 / digital outputs 1 - 16

3.3.7 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 16	DigitalOutput01 - DigitalOutput16	BOOL	Actual state of the digital outputs 1 - 16
Status registers	StatusInput01	USINT	Status registers

Table 180: 7XV116.50-01 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	24 VDC supply monitor 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-16 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 181: 7XV116.50-01 - Status register

3.4 7XV116.50-11

3.4.1 Order data

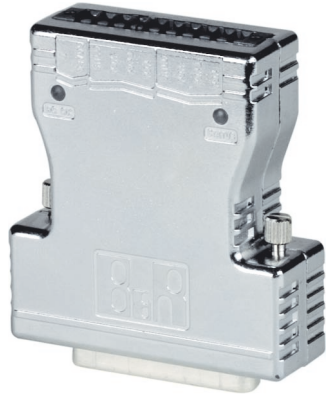
Model number	Short description	Figure
7XV116.50-11	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, GND pins 22,23,24,25, X2X Link, electrically isolated, 16 digital outputs 0.1 A, 24 VDC. OTB1111 terminal blocks must be ordered separately!	
Terminal blocks		
OTB1111.8110	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	
OTB1111.8010	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	

Table 182: 7XV116.50-11 - Order data

3.4.2 Technical data

Product ID	7XV116.50-11
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	16 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	200 µs
Max. turn-off time	250 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 183: 7XV116.50-11 - Technical data

XV modules • 7XV116.50-11 • Additional technical data

Product ID	7XV116.50-11
General information	
Status indicators	Operating status and supply
Electrical isolation	Yes
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	No
Dig. outp. - 24 VDC supply (X2X, OUT)	
Power consumption	
Certification	CE, C-UL-US, GOST-R
Wiring	
GND pin	22, 23, 24, 25
Bus connection	11-pin
Power supply	Bus connection
Mechanical characteristics	
Protection type	IP20
Module dimensions including mounting plates (H x W x D [mm])	63 x 59 x 20
Weight	56 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	1 x 0TB1111.8110 terminal block must be ordered separately

Table 183: 7XV116.50-11 - Technical data

3.4.3 Additional technical data

Product ID	7XV116.50-11
Digital outputs	
Type	Highside driver (source)
Total current	1.6 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 150 µs Max. 200 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 175 µs Max. 250 µs
General information	
Diagnostics	
Output overload	Yes, with software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status
Interfaces	
Application interface	
Type	X2X Link slave
Design	11-pin multipoint connector
Min. cycle time on the X2X bus	>200 µs

Table 184: 7XV116.50-11 - Additional technical data

Product ID	7XV116.50-11
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$7397

Table 184: 7XV116.50-11 - Additional technical data

3.4.4 Diagnostic LEDs

Status LED

Color	Meaning
Off	No module supply via X2X Link (supply voltage to pin 9 of the <10 V connector)
Green blinking	Module supply ok, but no X2X communication
Green/orange blinking	X2X communication ok. Module not configured.
Green	X2X communication ok.
Orange	X2X communication ok. Module not initialized.

Table 185: 7XV116.50-11 - Status-LED

DCOK LED

The DCOK LED indicates the status of the +24 VDC output supply (voltage to pin 11 of the connector):

Color	Meaning
Off	+24 VDC OUT <15 V supply
On	+24 VDC OUT supply ok

Table 186: 7XV116.50-11 - Status-LED

3.4.5 X2X Link and module supply

11-pin terminal block		Terminal	Assignment		
X1  0TB1111.8010	X1  0TB1111.8110	1	X2X	X2X input	
		2	X2X⊥		
		3	X2X\		
		4	Shield ¹⁾		
		5	X2X	X2X Output	
		6	X2X⊥		
		7	X2X\		
		8	Shield ¹⁾		
		9	X2X supply +24 VDC		
		10	OUT supply GND		
		11	OUT supply +24 VDC		

Table 187: 7XV116.50-11 - Pin assignments for X1 / X2X Link and module supply

1) Same potential as the housing

3.4.6 Digital outputs 1 - 16

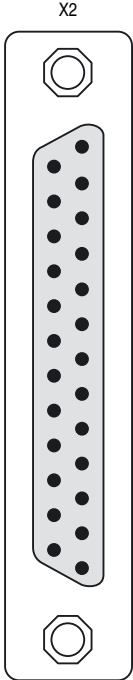
25-pin DSUB socket	Pin	7XV116.50-11
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Digital output 13
	14	Digital output 14
	15	Digital output 15
	16	Digital output 16
	17	Digital output 13
	18	Digital output 12
	19	Digital output 11
	20	Digital output 10
	21	Digital output 9
	22	Module supply GND
	23	Module supply GND
	24	Module supply GND
	25	Module supply GND
	Shield	Shield

Table 188: 7XV116.50-11 - Pin assignments for X2 / digital outputs 1 - 16

3.4.7 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 16	DigitalOutput01 - DigitalOutput16	BOOL	Actual state of the digital outputs 1 - 16
Status registers	StatusInput01	USINT	Status registers

Table 189: 7XV116.50-11 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-16 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 190: 7XV116.50-11 - Status register

3.5 7XV116.50-12

3.5.1 Order data

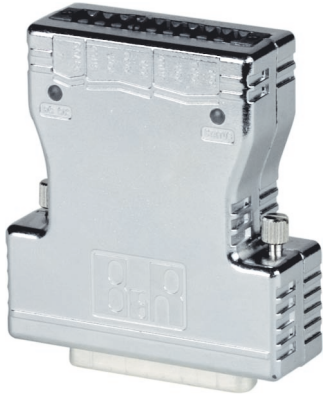
Model number	Short description	Figure
7XV116.50-12	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, GND pins 13,22,23,24,25, X2X Link, electrically isolated, 16 digital outputs 0.1 A, 24 VDC. OTB1111 terminal blocks must be ordered separately!	
Terminal blocks		
OTB1111.8110	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	
OTB1111.8010	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	

Table 191: 7XV116.50-12 - Order data

3.5.2 Technical data

Product ID	7XV116.50-12
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	16 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	200 µs
Max. turn-off time	250 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 192: 7XV116.50-12 - Technical data

XV modules • 7XV116.50-12 • Additional technical data

Product ID	7XV116.50-12
General information	
Status indicators	Operating status and supply
Electrical isolation	Yes
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	No
Dig. outp. - 24 VDC supply (X2X, OUT)	
Power consumption	
Certification	CE, C-UL-US, GOST-R
Wiring	
GND pin	13, 22, 23, 24, 25
Bus connection	11-pin
Power supply	Bus connection
Mechanical characteristics	
Protection type	IP20
Module dimensions including mounting plates (H x W x D [mm])	63 x 59 x 20
Weight	56 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	1 x 0TB1111.8110 terminal block must be ordered separately

Table 192: 7XV116.50-12 - Technical data

3.5.3 Additional technical data

Product ID	7XV116.50-12
Digital outputs	
Type	Highside driver (source)
Total current	1.6 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 150 µs Max. 200 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 175 µs Max. 250 µs
General information	
Diagnostics	
Output overload	Yes, with software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status
Interfaces	
Application interface	
Type	X2X Link slave
Design	11-pin multipoint connector
Min. cycle time on the X2X bus	>200 µs

Table 193: 7XV116.50-12 - Additional technical data

Product ID	7XV116.50-12
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$7398

Table 193: 7XV116.50-12 - Additional technical data

3.5.4 Diagnostic LEDs

Status LED

Color	Meaning
Off	No module supply via X2X Link (supply voltage to pin 9 of the <10 V connector)
Green blinking	Module supply ok, but no X2X communication
Green/orange blinking	X2X communication ok. Module not configured.
Green	X2X communication ok.
Orange	X2X communication ok. Module not initialized.

Table 194: 7XV116.50-12 - Status-LED

DCOK LED

The DCOK LED indicates the status of the +24 VDC output supply (voltage to pin 11 of the connector):

Color	Meaning
Off	+24 VDC OUT <15 V supply
On	+24 VDC OUT supply ok

Table 195: 7XV116.50-12 - Status-LED

3.5.5 X2X Link and module supply

11-pin terminal block		Terminal	Assignment	
X1  0TB1111.8010	X1  0TB1111.8110	1	X2X	X2X input
		2	X2X⊥	
		3	X2X\	
		4	Shield ¹⁾	
		5	X2X	X2X Output
		6	X2X⊥	
		7	X2X\	
		8	Shield ¹⁾	
		9	X2X supply +24 VDC	
		10	OUT supply GND	
		11	OUT supply +24 VDC	

Table 196: 7XV116.50-12 - Pin assignments for X1 / X2X Link and module supply

1) Same potential as the housing

3.5.6 Digital outputs 1 - 16

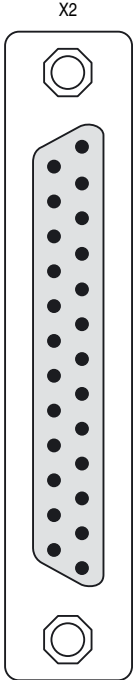
25-pin DSUB socket	Pin	7XV116.50-12
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Module supply GND
	14	Digital output 14
	15	Digital output 15
	16	Digital output 16
	17	Digital output 13
	18	Digital output 12
	19	Digital output 11
	20	Digital output 10
	21	Digital output 9
	22	Module supply GND
	23	Module supply GND
	24	Module supply GND
	25	Module supply GND
	Shield	Shield

Table 197: 7XV116.50-12 - Pin assignments for X2 / digital outputs 1 - 16

3.5.7 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 16	DigitalOutput01 - DigitalOutput16	BOOL	Actual state of the digital outputs 1 - 16
Status registers	StatusInput01	USINT	Status registers

Table 198: 7XV116.50-12 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-16 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 199: 7XV116.50-12 - Status register

3.6 7XV124.50-11

3.6.1 Order data

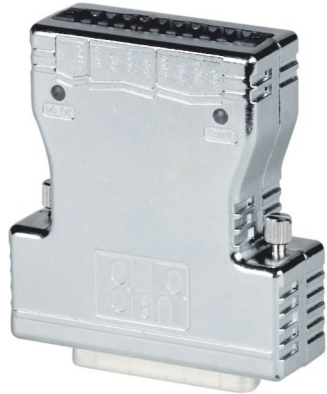
Model number	Short description	Figure
7XV124.50-11	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, GND pin 25, X2X Link, electrically isolated, 24 digital outputs 0.1 A, 24 VDC. OTB1111 terminal blocks must be ordered separately!	
Terminal blocks		
OTB1111.8110	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	
OTB1111.8010	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	

Table 200: 7XV124.50-11 - Order data

3.6.2 Technical data

Product ID	7XV124.50-11
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	24 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	200 µs
Max. turn-off time	250 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 201: 7XV124.50-11 - Technical data

XV modules • 7XV124.50-11 • Additional technical data

Product ID	7XV124.50-11
General information	
Status indicators	Operating status and supply
Electrical isolation	
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	Yes
Dig. outp. - 24 VDC supply (X2X, OUT)	No
Power consumption	
Certification	CE, C-UL-US, GOST-R
Wiring	
GND pin	25
Bus connection	11-pin
Power supply	Bus connection
Mechanical characteristics	
Protection type	IP20
Module dimensions including mounting plates (H x W x D [mm])	63 x 59 x 20
Weight	56 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	1 x 0TB1111.8110 terminal block must be ordered separately

Table 201: 7XV124.50-11 - Technical data

3.6.3 Additional technical data

Product ID	7XV124.50-11
Digital outputs	
Type	Highside driver (source)
Total current	2.4 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 150 µs Max. 200 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 175 µs Max. 250 µs
General information	
Diagnostics	
Output overload	Yes, with software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status
Interfaces	
Application interface	
Type	X2X Link slave
Design	11-pin multipoint connector
Min. cycle time on the X2X bus	>200 µs

Table 202: 7XV124.50-11 - Additional technical data

Product ID	7XV124.50-11
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes, (color/blink code)
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$7399

Table 202: 7XV124.50-11 - Additional technical data

3.6.4 Diagnostic LEDs

Status LED

Color	Meaning
Off	No module supply via X2X Link (supply voltage to pin 9 of the <10 V connector)
Green blinking	Module supply ok, but no X2X communication
Green/orange blinking	X2X communication ok. Module not configured.
Green	X2X communication ok.
Orange	X2X communication ok. Module not initialized.

Table 203: 7XV124.50-11 - Status-LED

DCOK LED

DCOK LED	Status LED	Meaning
On	Green	RUN mode
Blinking	Green	Warning: +24 VDC OUT supply in the lower range or overload
Double pulse	Green	Warning: +24 VDC OUT supply in the lower or upper range
Blinking	Red or Red blinking	RESET mode

Table 204: 7XV124.50-11 - Status-LED

3.6.5 X2X Link and module supply

11-pin terminal block		Terminal	Assignment	
X1  0TB1111.8010	X1  0TB1111.8110	1	X2X	X2X input
		2	X2X⊥	
		3	X2X\	
		4	Shield ¹⁾	
		5	X2X	X2X Output
		6	X2X⊥	
		7	X2X\	
		8	Shield ¹⁾	
		9	X2X supply +24 VDC	
		10	OUT supply GND	
		11	OUT supply +24 VDC	

Table 205: 7XV124.50-11 - Pin assignments for X1 / X2X Link and module supply

1) Same potential as the housing

3.6.6 Digital outputs 1 - 24

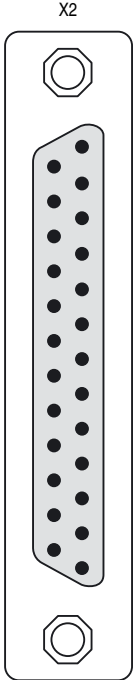
25-pin DSUB socket	Pin	7XV12450-11
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Digital output 13
	14	Digital output 14
	15	Digital output 15
	16	Digital output 16
	17	Digital output 17
	18	Digital output 18
	19	Digital output 19
	20	Digital output 20
	21	Digital output 21
	22	Digital output 22
	23	Digital output 23
	24	Digital output 24
	25	Module supply GND
	Shield	Shield

Table 206: 7XV124.50-11 - Pin assignments for X2 / digital outputs 1 - 24

3.6.7 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 24	DigitalOutput01 - DigitalOutput24	BOOL	Actual state of the digital outputs 1 - 24
Status registers	StatusInput01	USINT	Status registers

Table 207: 7XV124.50-11 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-24 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 208: 7XV124.50-11 - Status register

3.7 7XV124.50-12

3.7.1 Order data

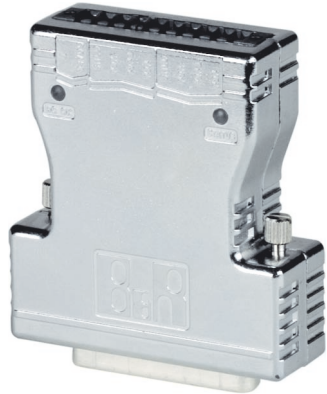
Model number	Short description	Figure
7XV124.50-12	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, GND pin 13, X2X Link, electrically isolated, 24 digital outputs 0.1 A, 24 VDC. OTB1111 terminal blocks must be ordered separately!	
Terminal blocks		
OTB1111.8110	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	
OTB1111.8010	Accessory terminal block (3.5), 11-pin, cage clamp, 1.5 mm², protection against vibration with the screw flange	

Table 209: 7XV124.50-12 - Order data

3.7.2 Technical data

Product ID	7XV124.50-12
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	24 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	200 µs
Max. turn-off time	250 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 210: 7XV124.50-12 - Technical data

XV modules • 7XV124.50-12 • Additional technical data

Product ID	7XV124.50-12
General information	
Status indicators	Operating status and supply
Electrical isolation	Yes
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	No
Dig. outp. - 24 VDC supply (X2X, OUT)	
Power consumption	
Certification	CE, C-UL-US, GOST-R
Wiring	
GND pin	13
Bus connection	11-pin
Power supply	Bus connection
Mechanical characteristics	
Protection type	IP20
Module dimensions including mounting plates (H x W x D [mm])	63 x 59 x 20
Weight	56 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	1 x 0TB1111.8110 terminal block must be ordered separately

Table 210: 7XV124.50-12 - Technical data

3.7.3 Additional technical data

Product ID	7XV124.50-12
Digital outputs	
Type	Highside driver (source)
Total current	2.4 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 150 µs Max. 200 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 175 µs Max. 250 µs
General information	
Diagnostics	
Output overload	Yes, with software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status
Interfaces	
Application interface	
Type	X2X Link slave
Design	11-pin multipoint connector
Min. cycle time on the X2X bus	>200 µs

Table 211: 7XV124.50-12 - Additional technical data

Product ID	7XV124.50-12
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes, (color/blink code)
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$7400

Table 211: 7XV124.50-12 - Additional technical data

3.7.4 Diagnostic LEDs

Status LED

Color	Meaning
Off	No module supply via X2X Link (supply voltage to pin 9 of the <10 V connector)
Green blinking	Module supply ok, but no X2X communication
Green/orange blinking	X2X communication ok. Module not configured.
Green	X2X communication ok.
Orange	X2X communication ok. Module not initialized.

Table 212: 7XV124.50-12 - Status-LED

DCOK LED

DCOK LED	Status LED	Meaning
On	Green	RUN mode
Blinking	Green	Warning: +24 VDC OUT supply in the lower range or overload
Double pulse	Green	Warning: +24 VDC OUT supply in the lower or upper range
Blinking	Red or Red blinking	RESET mode

Table 213: 7XV124.50-12 - Status-LED

3.7.5 X2X Link and module supply

11-pin terminal block		Terminal	Assignment	
X1  0TB1111.8010	X1  0TB1111.8110	1	X2X	X2X input
		2	X2X⊥	
		3	X2X\	
		4	Shield ¹⁾	
		5	X2X	X2X Output
		6	X2X⊥	
		7	X2X\	
		8	Shield ¹⁾	
		9	X2X supply +24 VDC	
		10	OUT supply GND	
		11	OUT supply +24 VDC	

Table 214: 7XV124.50-12 - Pin assignments for X1 / X2X Link and module supply

1) Same potential as the housing

3.7.6 Digital outputs 1 - 24

25-pin DSUB socket	Pin	7XV124.50-12
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Module supply GND
	14	Digital output 14
	15	Digital output 15
	16	Digital output 16
	17	Digital output 17
	18	Digital output 18
	19	Digital output 19
	20	Digital output 20
	21	Digital output 21
	22	Digital output 22
	23	Digital output 23
	24	Digital output 24
	25	Digital output 13
	Shield	Shield

Table 215: 7XV124.50-12 - Pin assignments for X2 / digital outputs 1 - 24

3.7.7 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 24	DigitalOutput01 - DigitalOutput24	BOOL	Actual state of the digital outputs 1 - 24
Status registers	StatusInput01	USINT	Status registers

Table 216: 7XV124.50-12 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-24 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 217: 7XV124.50-12 - Status register

4. XV modules with IP67 design

4.1 7XV108.50-51

4.1.1 Order data

Model number	Short description	Figure
7XV108.50-51	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, IP67, GND pins 22,23,24,25, X2X Link, electrically isolated, 8 digital outputs 0.1 A, 24 VDC.	

Table 218: 7XV108.50-51 - Order data

4.1.2 Technical data

Product ID	7XV108.50-51
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	8 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	150 µs
Max. turn-off time	200 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 219: 7XV108.50-51 - Technical data

XV modules • 7XV108.50-51 • Additional technical data

Product ID	7XV108.50-51
General information	
Status indicators	Operating status and supply
Electrical isolation	
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	Yes
Dig. outp. - 24 VDC supply (X2X, OUT)	No
Power consumption	
X2X Link supply	Max. 0.75 W
I/O supply, internal (without load)	Max. 1.5 W
Certification	CE, C-UL-US, GOST-R
Ex zone 2	II 3G Eex nA II T5, IP67, Ta = 0 - 50°C
Wiring	
GND pin	22, 23, 24, 25
Bus connection	M12
Power supply	M8
Mechanical characteristics	
Protection type	IP67
Module dimensions including mounting plates (H x W x D [mm])	62 x 70 x 30
Weight	125 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	M12/M8 plugs/sockets must be ordered separately

Table 219: 7XV108.50-51 - Technical data

4.1.3 Additional technical data

Product ID	7XV108.50-51
Digital outputs	
Type	Highside driver (source)
Total current	0.8 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 100 µs Max. 150 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 125 µs Max. 200 µs
General information	
Diagnostics	
Output overload	Yes, with LED and software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status

Table 220: 7XV108.50-51 - Additional technical data

Product ID	7XV108.50-51
Interfaces	
Application interface Type Design Min. cycle time on the X2X bus	X2X Link slave M12 >150 µs
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes, (color/blink code)
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$7403

Table 220: 7XV108.50-51 - Additional technical data

4.1.4 Dimensions

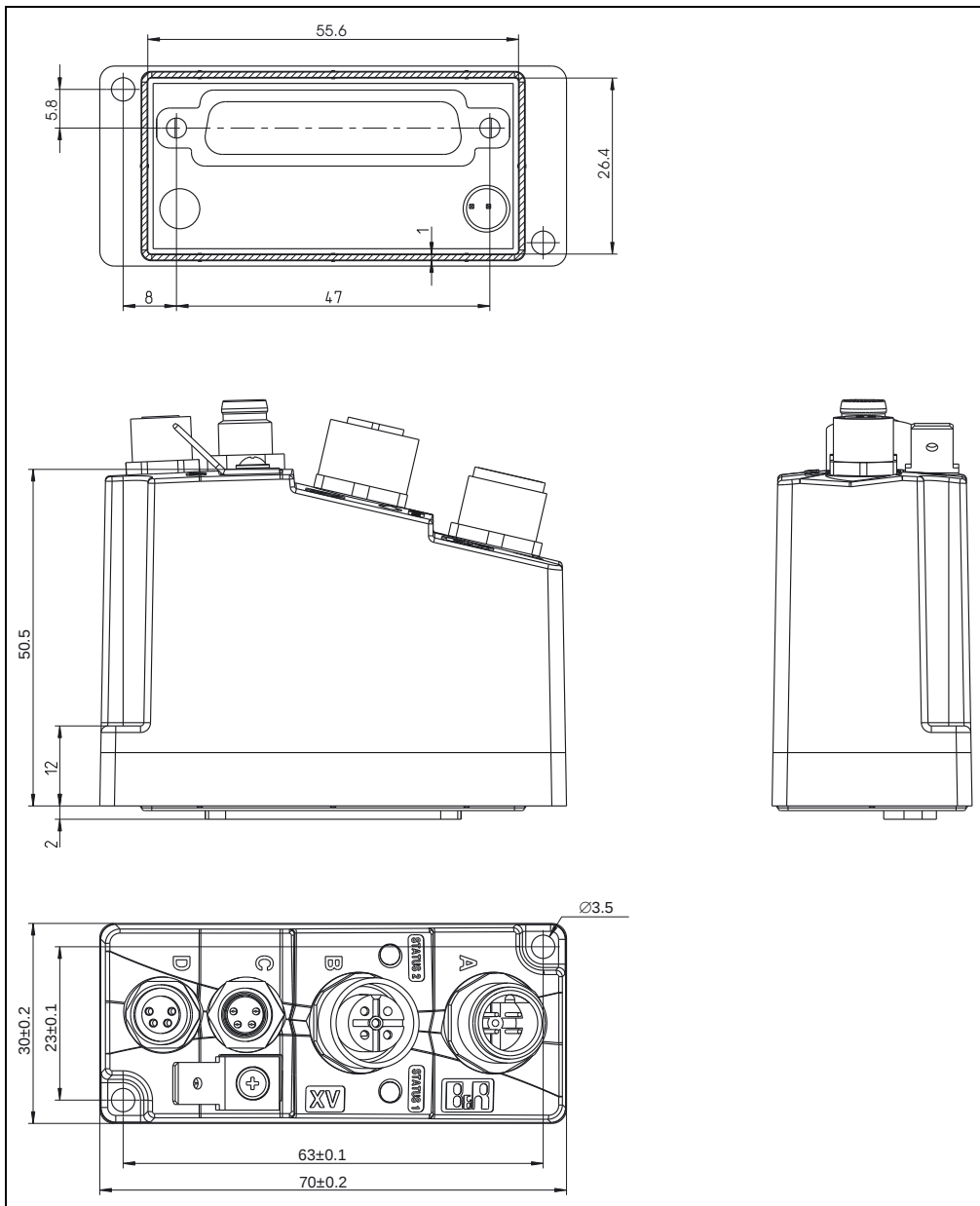


Figure 159: 7XV108.50-51 - Dimensions

4.1.5 Images

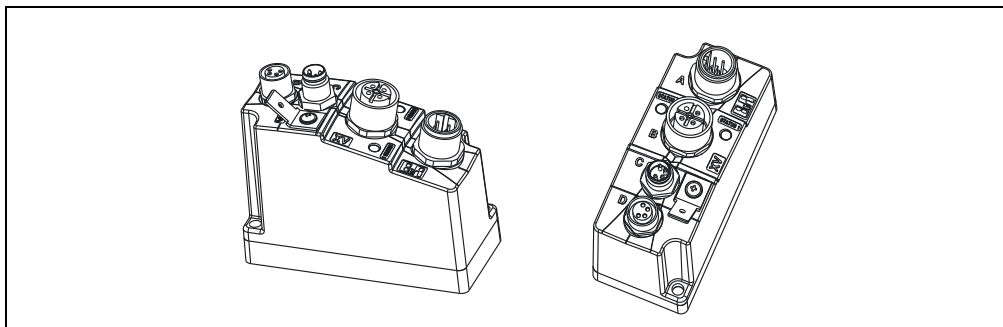


Figure 160: 7XV108.50-51 - Images

4.1.6 Diagnostic LEDs

LED Status 1: X2X status

Color	Meaning
Off	No module supply via X2X Link
Green	Supply via X2X Link is ok. X2X communication ok.
Red	Supply via X2X Link is ok. No X2X communication.
Orange	Supply via X2X Link is ok. Module not initialized.

Table 221: 7XV108.50-51 - Status LED X2X Link

LED Status 2: Status of the digital outputs and the output supply

Color	Meaning
Green	In operation. Output supply ok.
Green + orange double pulse	Warning: 24 VDC output supply outside of the permitted range
Orange	Warning: 24 VDC output supply far outside of the permitted range
Green + orange single pulse	Overload or short-circuit on one or more outputs
Green blinking	Module not initialized.

Table 222: 7XV108.50-51 - Status LED (digital outputs and output supply)

4.1.7 X2X Link and module supply

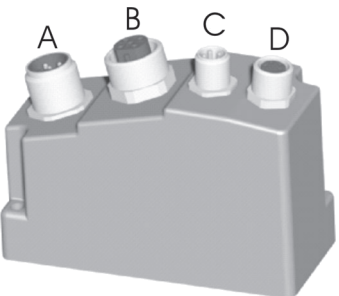
Figure	Connection	Name
	A	X2X input ¹⁾
	B	X2X output to the next module
	C	24 VDC supply for digital outputs (feed to the module)
	D	24 VDC supply for digital outputs (routed to the next module)

Table 223: 7XV108.50-51 - X2X Link and module supply

1) An X67PS1300 current supply module must be used before the first module in the series.

X2X Link

The module is connected to the X2X Link with prefabricated cables. The connection is made using a circular plug (2x M12, 4-pin).

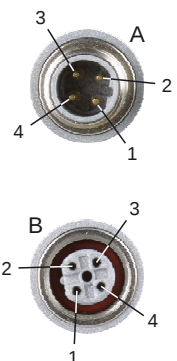
Connection	Pin assignments	
	Pin	Name
	1	X2X+
	2	X2X
	3	X2X _L
	4	X2X _N
	A ... B-coded plug in the module, input B ... B-coded socket in the module, output SHLD ... Shield connection made via threaded insert in the module	

Table 224: 7XV108.50-51 - X2X Link

24 VDC module supply

The module supply connection is made using circular connectors (2x M8, 4-pin). The supply feed is connected via plug C. Socket D is used for routing the supply to other modules.

The maximum permitted current for the circular connector is 8 A.

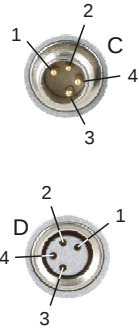
Connection	Pin assignments	
	Pin	Name
	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Plug on the module, supply feed D ... Socket on the module, supply routing	

Table 225: 7XV108.50-51 - Module supply 24 VDC

4.1.8 Digital outputs 1 - 8

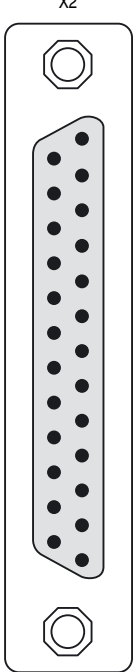
25-pin DSUB socket	Pin	Name
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 8
	10	Digital output 3
	11	Digital output 6
	12	Digital output 1
	13	Digital output 4
	14	Digital output 5
	15	Digital output 2
	16	Digital output 7
	17	Digital output 8
	18	Digital output 6
	19	Digital output 7
	20	Digital output 8
	21	nc
	22	Module supply GND
	23	Module supply GND
	24	Module supply GND
	25	Module supply GND
	Shield	Shield

Table 226: 7XV108.50-51 - Pin assignments for X2 / digital outputs 1 - 8

4.1.9 Output circuit

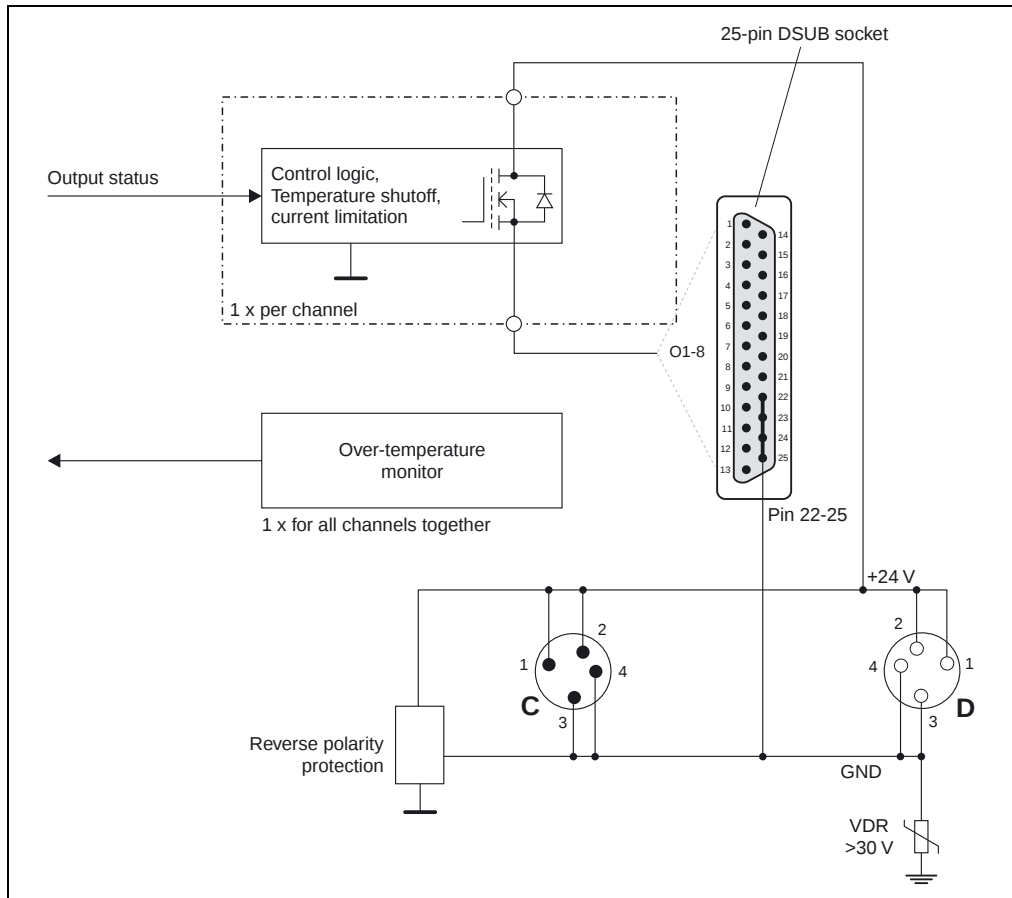


Figure 161: 7XV108.50-51 - Output wiring

The outputs are assigned to multiple pins on the DSUB socket.

4.1.10 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 8	DigitalOutput01 - DigitalOutput08	BOOL	Actual state of the digital outputs 1 - 8
Status registers	StatusInput01	USINT	Status registers

Table 227: 7XV108.50-51 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-8 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 228: 7XV108.50-51 - Status register

4.2 7XV108.50-62

4.2.1 Order data

Model number	Short description	Figure
7XV108.50-62	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, IP67, GND pins 13,22,23,24,25, X2X Link, electrically isolated, 8 digital outputs 0.1 A, 24 VDC.	

Table 229: 7XV108.50-62 - Order data

4.2.2 Technical data

Product ID	7XV108.50-62
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	8 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	150 µs
Max. turn-off time	200 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 230: 7XV108.50-62 - Technical data

XV modules • 7XV108.50-62 • Additional technical data

Product ID	7XV108.50-62
General information	
Status indicators	Operating status and supply
Electrical isolation	
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	Yes
Dig. outp. - 24 VDC supply (X2X, OUT)	No
Power consumption	
X2X Link supply	Max. 0.75 W
I/O supply, internal (without load)	Max. 1.5 W
Certification	CE, C-UL-US, GOST-R
Ex zone 2	II 3G Eex nA II T5, IP67, Ta = 0 - 50°C
Wiring	
GND pin	13, 22, 23, 24, 25
Bus connection	M12
Power supply	M8
Mechanical characteristics	
Protection type	IP67
Module dimensions including mounting plates (H x W x D [mm])	67 x 66 x30
Weight	131 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	M12/M8 plugs/sockets must be ordered separately

Table 230: 7XV108.50-62 - Technical data

4.2.3 Additional technical data

Product ID	7XV108.50-62
Digital outputs	
Type	Highside driver (source)
Total current	0.8 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 100 µs Max. 150 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 125 µs Max. 200 µs
General information	
Diagnostics	
Output overload	Yes, with LED and software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status

Table 231: 7XV108.50-62 - Additional technical data

Product ID	7XV108.50-62
Interfaces	
Application interface Type Design Min. cycle time on the X2X bus	X2X Link slave M12 >150 µs
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes, (color/blink code)
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$9656

Table 231: 7XV108.50-62 - Additional technical data

4.2.4 Dimensions

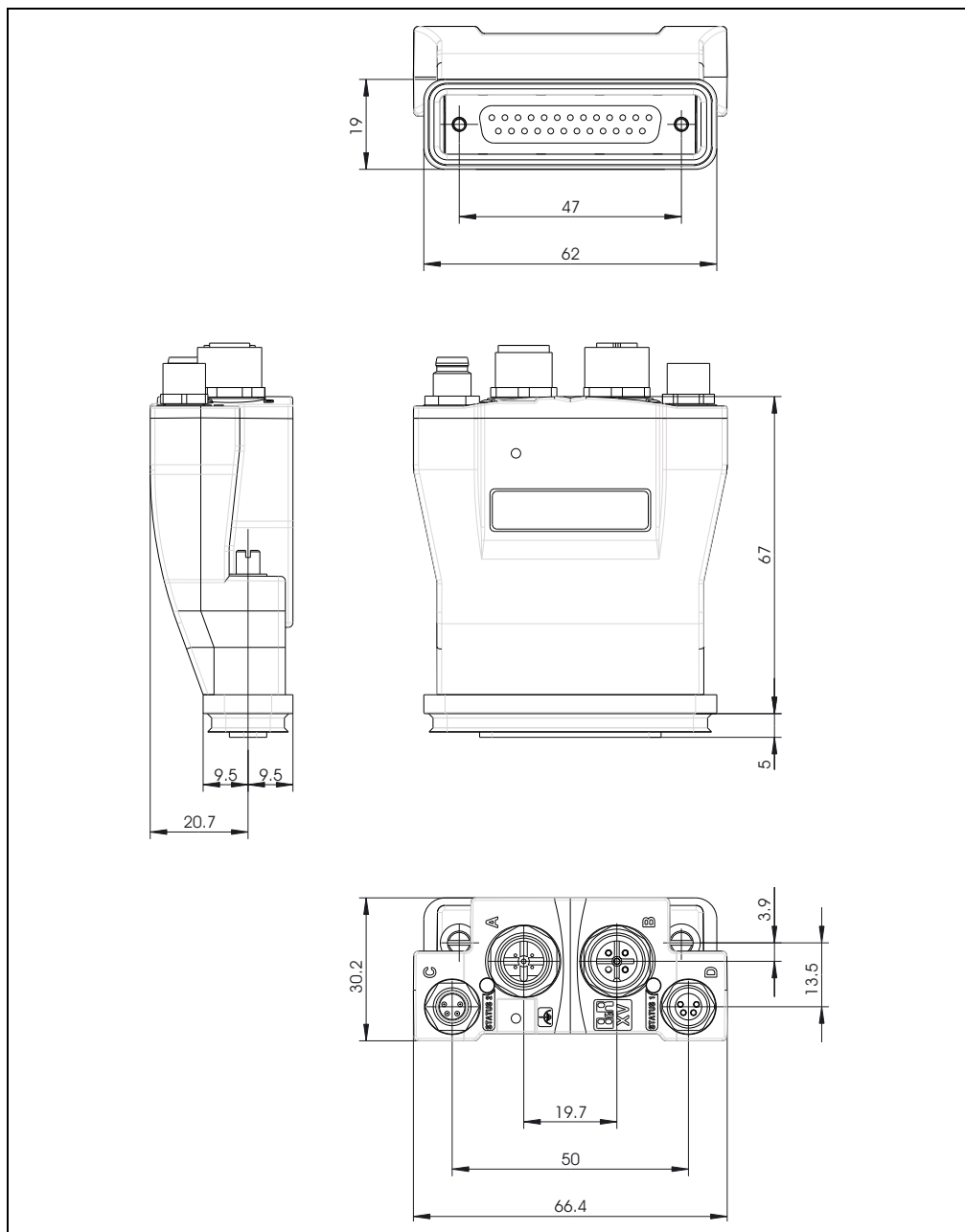


Figure 162: 7XV108.50-62 - Dimensions

4.2.5 Images

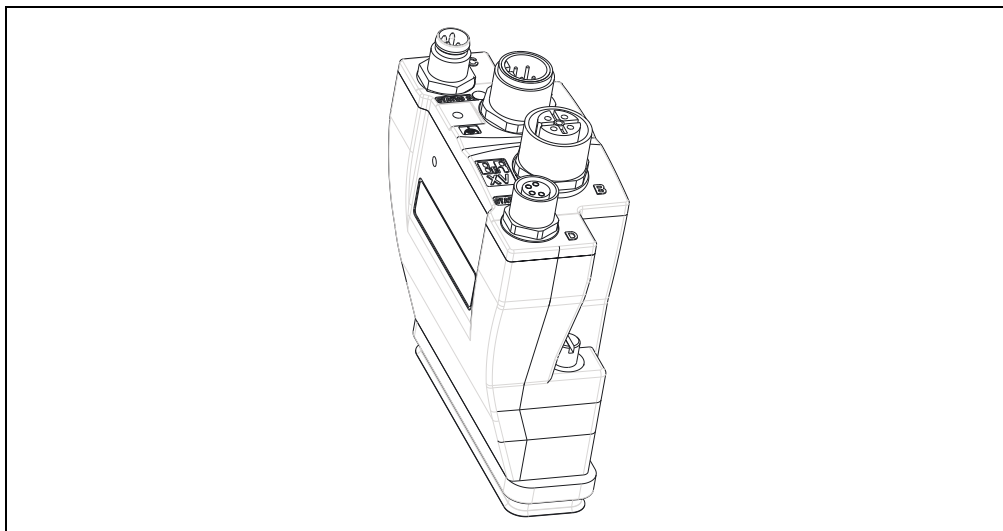


Figure 163: 7XV108.50-62 - Images

4.2.6 Diagnostic LEDs

LED Status 1: X2X status

Color	Meaning
Off	No module supply via X2X Link
Green	Supply via X2X Link is ok. X2X communication ok.
Red	Supply via X2X Link is ok. No X2X communication.
Orange	Supply via X2X Link is ok. Module not initialized.

Table 232: 7XV108.50-62 - Status LED X2X Link

LED Status 2: Status of the digital outputs and the output supply

Color	Meaning
Green	In operation. Output supply ok.
Green + orange double pulse	Warning: 24 VDC output supply outside of the permitted range
Orange	Warning: 24 VDC output supply far outside of the permitted range
Green + orange single pulse	Overload or short-circuit on one or more outputs
Green blinking	Module not initialized.

Table 233: 7XV108.50-62 - Status LED (digital outputs and output supply)

4.2.7 X2X Link and module supply

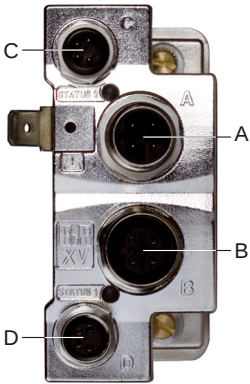
Figure	Connection	Name
	A	X2X input ¹⁾
	B	X2X output to the next module
	C	24 VDC supply for digital outputs (feed to the module)
	D	24 VDC supply for digital outputs (routed to the next module)

Table 234: 7XV108.50-62 - X2X Link and module supply

1) An X67PS1300 current supply module must be used before the first module in the series.

X2X Link

The module is connected to the X2X Link with prefabricated cables. The connection is made using a circular plug (2x M12, 4-pin).

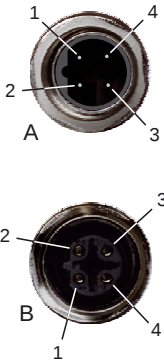
Connection	Pin assignments	
	Pin	Name
	1	X2X+
	2	X2X
	3	X2X⊥
	4	X2X\
A ... B-coded plug in the module, input B ... B-coded socket in the module, output SHLD ...Shield connection made via threaded insert in the module		

Table 235: 7XV108.50-62 - X2X Link

24 VDC module supply

The module supply connection is made using circular connectors (2x M8, 4-pin). The supply feed is connected via plug C. Socket D is used for routing the supply to other modules.

The maximum permitted current for the circular connector is 8 A.

Connection	Pin assignments	
	Pin	Name
	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Plug on the module, supply feed D ... Socket on the module, supply routing	

Table 236: 7XV108.50-62 - Module supply 24 VDC

4.2.8 Digital outputs 1 - 8

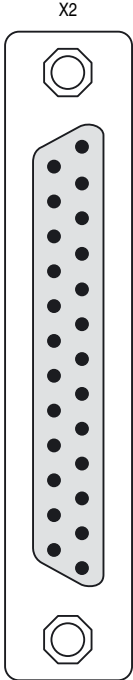
25-pin DSUB socket	Pin	Name
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 8
	10	Digital output 3
	11	Digital output 6
	12	Digital output 1
	13	GND output supply
	14	Digital output 5
	15	Digital output 6
	16	Digital output 7
	17	Digital output 8
	18	nc
	19	nc
	20	nc
	21	nc
	22	GND output supply
	23	GND output supply
	24	GND output supply
	25	GND output supply
	Shield	Shield

Table 237: 7XV108.50-62 - Pin assignments for X2 / digital outputs 1 - 8

4.2.9 Output circuit

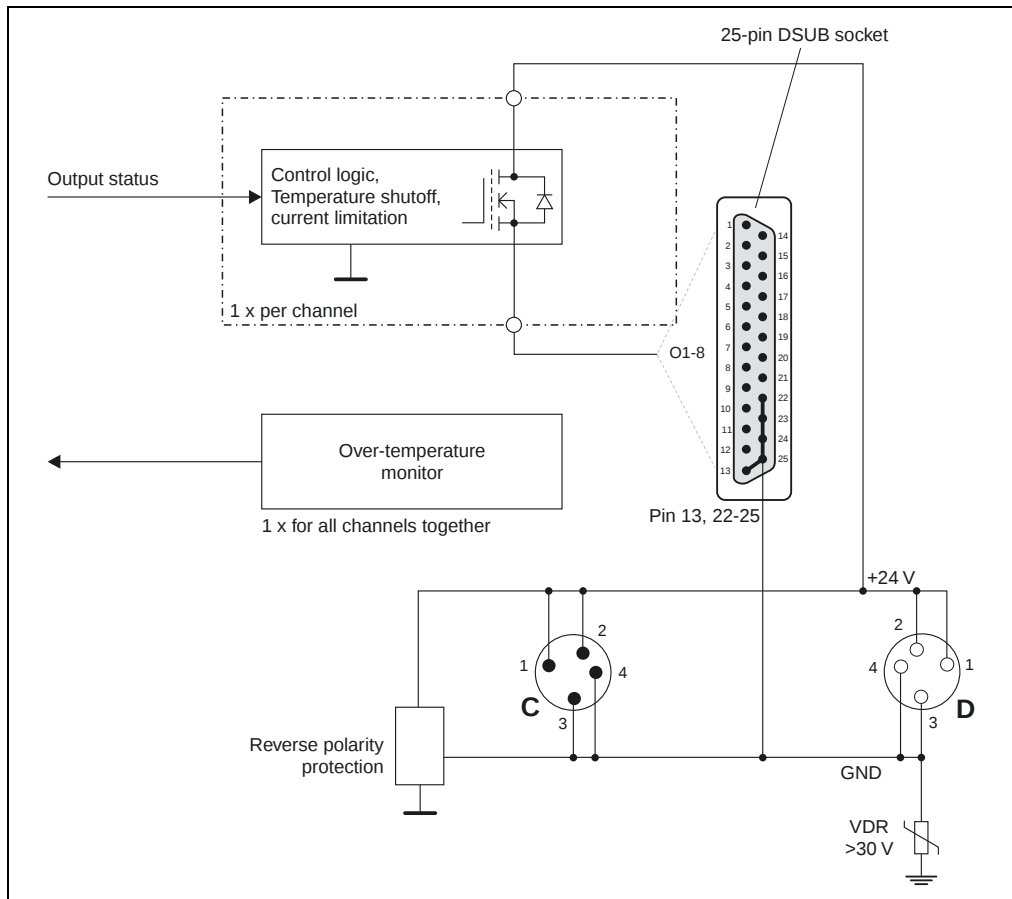


Figure 164: 7XV108.50-62 - Output wiring

The outputs are assigned to multiple pins on the DSUB socket.

4.2.10 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 8	DigitalOutput01 - DigitalOutput08	BOOL	Actual state of the digital outputs 1 - 8
Status registers	StatusInput01	USINT	Status registers

Table 238: 7XV108.50-62 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-8 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 239: 7XV108.50-62 - Status register

4.3 7XV116.50-51

4.3.1 Order data

Model number	Short description	Figure
7XV116.50-51	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, IP67, GND pins 22,23,24,25, X2X Link, electrically isolated, 16 digital outputs 0.1 A, 24 VDC.	

Table 240: 7XV116.50-51 - Order data

4.3.2 Technical data

Product ID	7XV116.50-51
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	16 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	150 µs
Max. turn-off time	200 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 241: 7XV116.50-51 - Technical data

XV modules • 7XV116.50-51 • Additional technical data

Product ID	7XV116.50-51
General information	
Status indicators	Operating status and supply
Electrical isolation	
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	Yes
Dig. outp. - 24 VDC supply (X2X, OUT)	No
Power consumption	
X2X Link supply	Max. 0.75 W
I/O supply, internal (without load)	Max. 1.5 W
Certification	CE, C-UL-US, GOST-R
Ex zone 2	II 3G Eex nA II T5, IP67, Ta = 0 - 50°C
Wiring	
GND pin	22, 23, 24, 25
Bus connection	M12
Power supply	M8
Mechanical characteristics	
Protection type	IP67
Module dimensions including mounting plates (H x W x D [mm])	62 x 70 x 30
Weight	125 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	M12/M8 plugs/sockets must be ordered separately

Table 241: 7XV116.50-51 - Technical data

4.3.3 Additional technical data

Product ID	7XV116.50-51
Digital outputs	
Type	Highside driver (source)
Total current	1.6 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 100 µs Max. 150 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 125 µs Max. 200 µs
General information	
Diagnostics	
Output overload	Yes, with LED and software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status

Table 242: 7XV116.50-51 - Additional technical data

Product ID	7XV116.50-51
Interfaces	
Application interface Type Design Min. cycle time on the X2X bus	X2X Link slave M12 >150 µs
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes, (color/blink code)
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$7404

Table 242: 7XV116.50-51 - Additional technical data

4.3.4 Dimensions

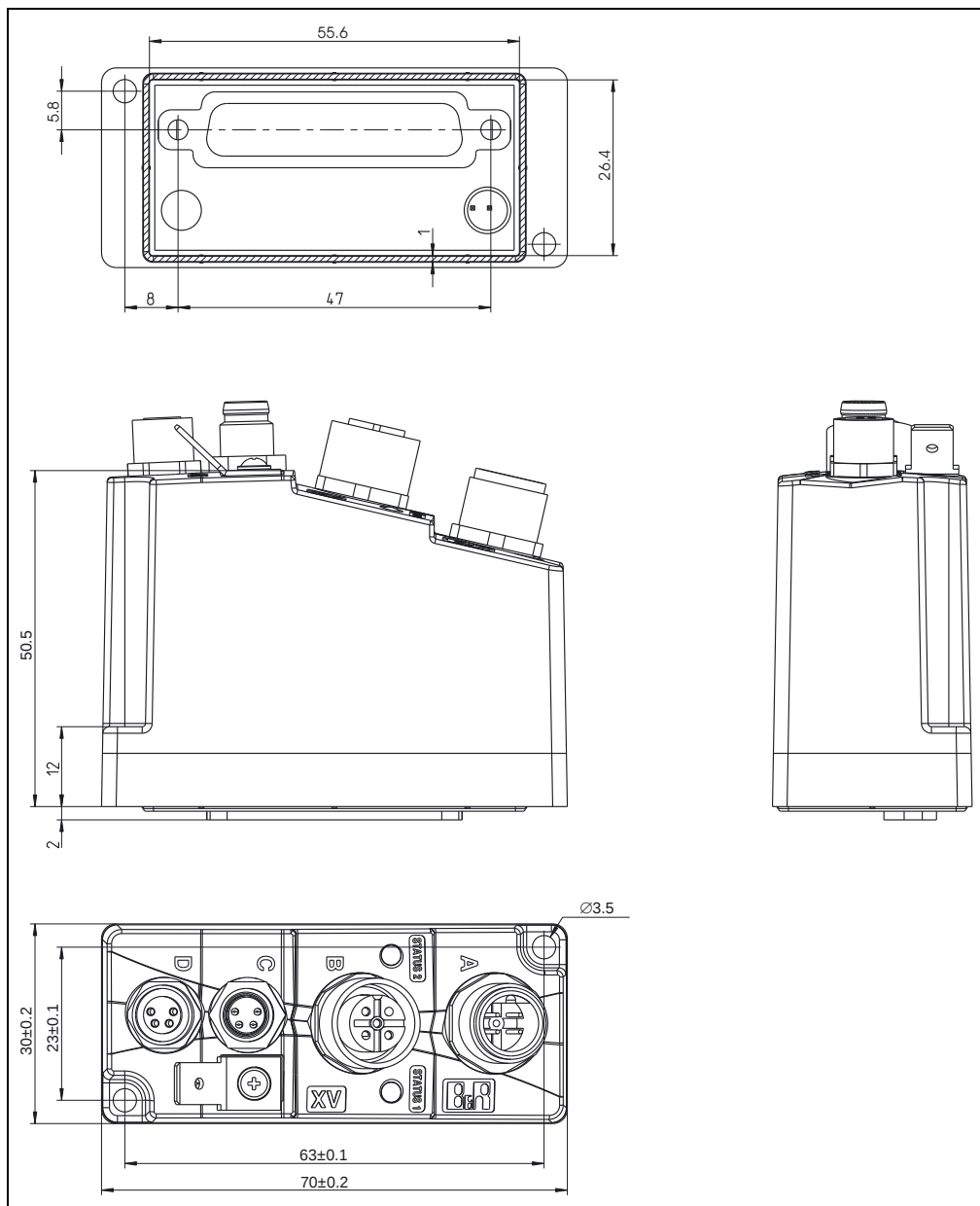


Figure 165: 7XV116.50-51 - Dimensions

4.3.5 Images

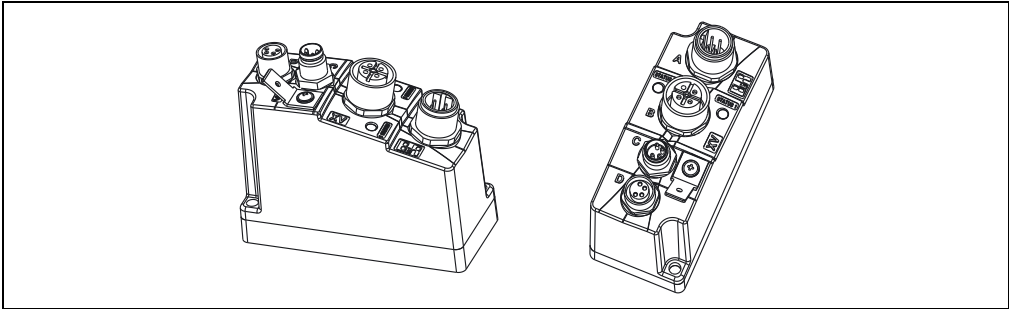


Figure 166: 7XV116.50-51 - Images

4.3.6 Diagnostic LEDs

LED Status 1: X2X status

Color	Meaning
Off	No module supply via X2X Link
Green	Supply via X2X Link is ok. X2X communication ok.
Red	Supply via X2X Link is ok. No X2X communication.
Orange	Supply via X2X Link is ok. Module not initialized.

Table 243: 7XV116.50-51 - Status LED X2X Link

LED Status 2: Status of the digital outputs and the output supply

Color	Meaning
Green	In operation. Output supply ok.
Green + orange double pulse	Warning: 24 VDC output supply outside of the permitted range
Orange	Warning: 24 VDC output supply far outside of the permitted range
Green + orange single pulse	Overload or short-circuit on one or more outputs
Green blinking	Module not initialized.

Table 244: 7XV116.50-51 - Status LED (digital outputs and output supply)

4.3.7 X2X Link and module supply

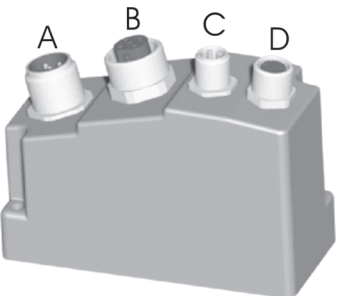
Figure	Connection	Name
	A	X2X input ¹⁾
	B	X2X output to the next module
	C	24 VDC supply for digital outputs (feed to the module)
	D	24 VDC supply for digital outputs (routed to the next module)

Table 245: 7XV116.50-51 - X2X Link and module supply

1) An X67PS1300 current supply module must be used before the first module in the series.

X2X Link

The module is connected to the X2X Link with prefabricated cables. The connection is made using a circular plug (2x M12, 4-pin).

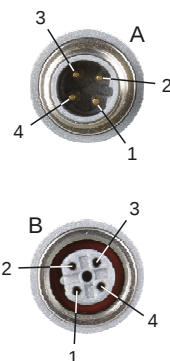
Connection	Pin assignments	
	Pin	Name
	1	X2X+
	2	X2X
	3	X2X _L
	4	X2X _N
	A ... B-coded plug in the module, input B ... B-coded socket in the module, output SHLD ...Shield connection made via threaded insert in the module	

Table 246: 7XV116.50-51 - X2X Link

24 VDC module supply

The module supply connection is made using circular connectors (2x M8, 4-pin). The supply feed is connected via plug C. Socket D is used for routing the supply to other modules.

The maximum permitted current for the circular connector is 8 A.

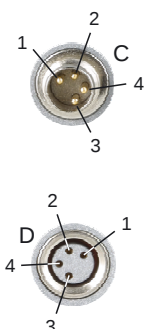
Connection	Pin assignments	
	Pin	Name
	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Plug on the module, supply feed D ... Socket on the module, supply routing	

Table 247: 7XV116.50-51 - Module supply 24 VDC

4.3.8 Digital outputs 1 - 16

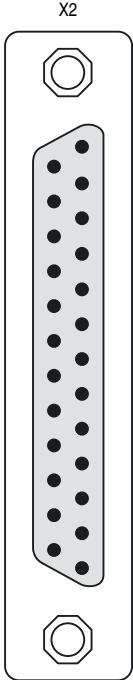
25-pin DSUB socket	Pin	Name
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Digital output 13
	14	Digital output 14
	15	Digital output 15
	16	Digital output 16
	17	Digital output 13
	18	Digital output 12
	19	Digital output 11
	20	Digital output 10
	21	Digital output 9
	22	Module supply GND
	23	Module supply GND
	24	Module supply GND
	25	Module supply GND
	Shield	Shield

Table 248: 7XV116.50-51 - Pin assignments for X2 / digital outputs 1 - 16

4.3.9 Output circuit

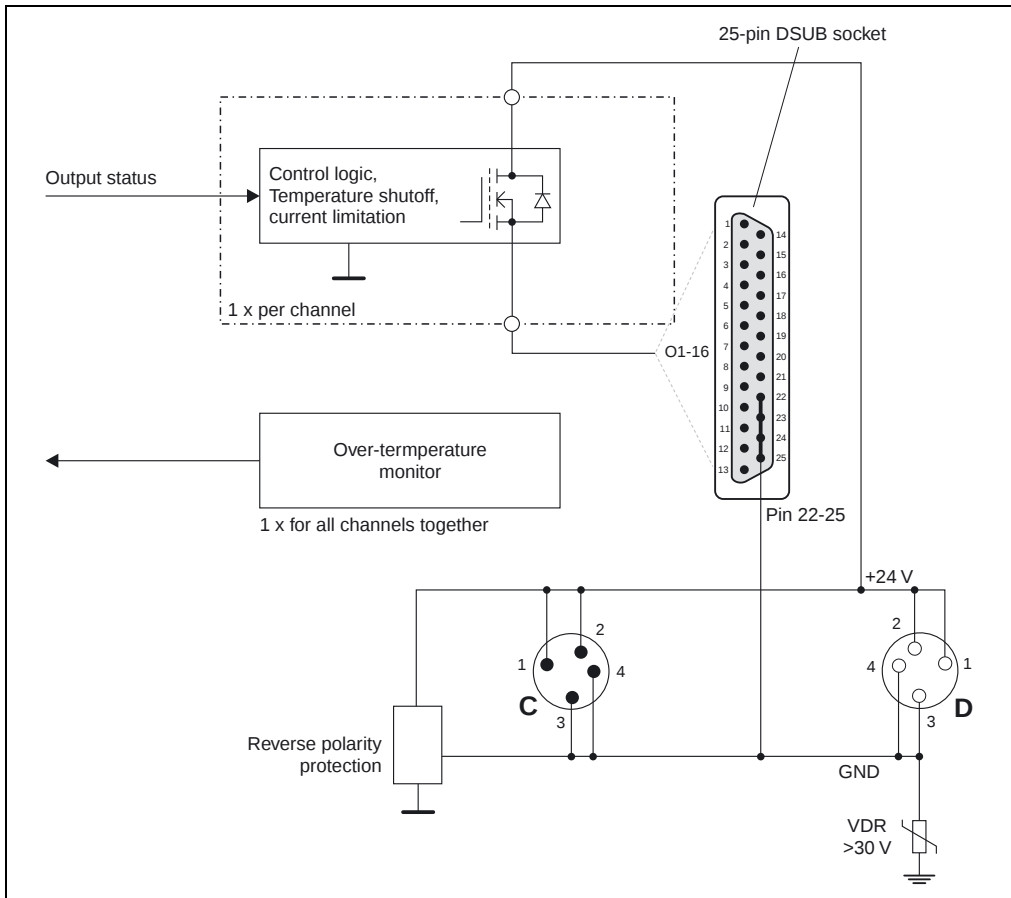


Figure 167: 7XV116.50-51 - Output wiring

Some outputs are assigned to multiple pins on the DSUB socket.

4.3.10 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 16	DigitalOutput01 - DigitalOutput16	BOOL	Actual state of the digital outputs 1 - 16
Status registers	StatusInput01	USINT	Status registers

Table 249: 7XV116.50-51 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-16 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 250: 7XV116.50-51 - Status register

4.4 7XV116.50-62

4.4.1 Order data

Model number	Short description	Figure
7XV116.50-62	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, IP67, GND pins 13,22,23,24,25, X2X Link, electrically isolated, 16 digital outputs 0.1 A, 24 VDC.	

Table 251: 7XV116.50-62 - Order data

4.4.2 Technical data

Product ID	7XV116.50-62
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	16 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	150 µs
Max. turn-off time	200 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 252: 7XV116.50-62 - Technical data

XV modules • 7XV116.50-62 • Additional technical data

Product ID	7XV116.50-62
General information	
Status indicators	Operating status and supply
Electrical isolation	
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	Yes
Dig. outp. - 24 VDC supply (X2X, OUT)	No
Power consumption	
X2X Link supply	Max. 0.75 W
I/O supply, internal (without load)	Max. 1.5 W
Certification	CE, C-UL-US, GOST-R
Ex zone 2	II 3G Eex nA II T5, IP67, Ta = 0 - 50°C
Wiring	
GND pin	13, 22, 23, 24, 25
Bus connection	M12
Power supply	M8
Mechanical characteristics	
Protection type	IP67
Module dimensions including mounting plates (H x W x D [mm])	67 x 66 x30
Weight	131 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	M12/M8 plugs/sockets must be ordered separately

Table 252: 7XV116.50-62 - Technical data

4.4.3 Additional technical data

Product ID	7XV116.50-62
Digital outputs	
Type	Highside driver (source)
Total current	1.6 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 100 µs Max. 150 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 125 µs Max. 200 µs
General information	
Diagnostics	
Output overload	Yes, with LED and software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status

Table 253: 7XV116.50-62 - Additional technical data

Product ID	7XV116.50-62
Interfaces	
Application interface Type Design Min. cycle time on the X2X bus	X2X Link slave M12 >150 µs
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes, (color/blink code)
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$9655

Table 253: 7XV116.50-62 - Additional technical data

4.4.4 Dimensions

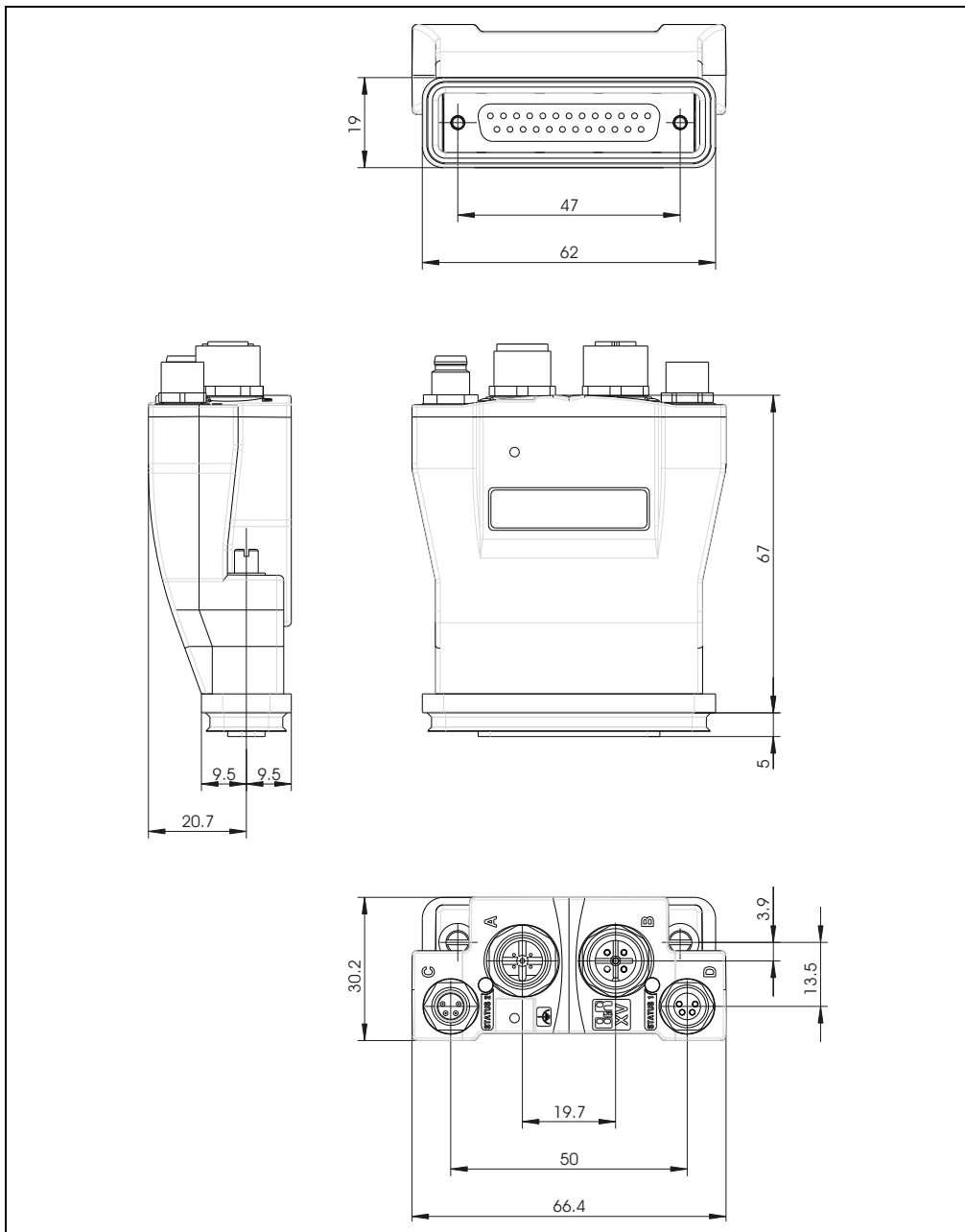


Figure 168: 7XV116.50-62 - Dimensions

4.4.5 Images

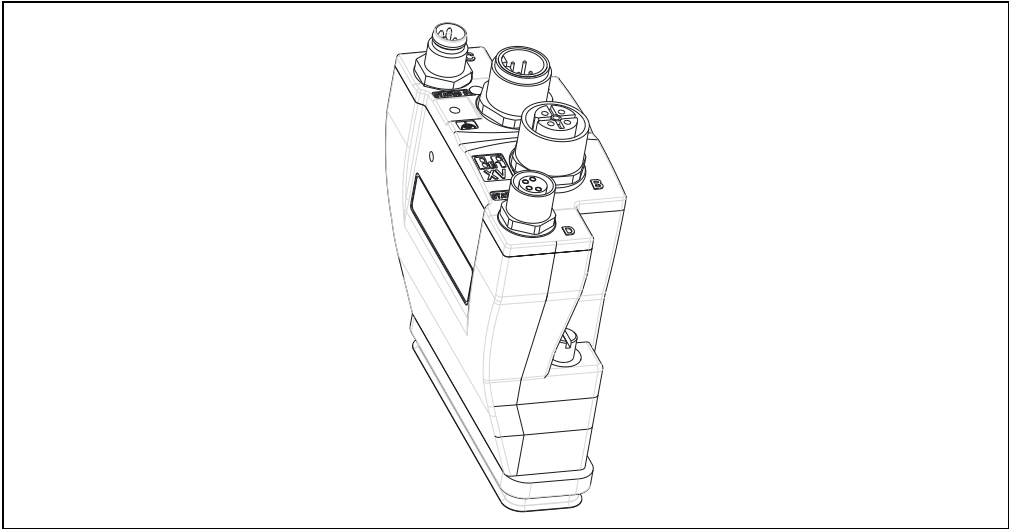


Figure 169: 7XV116.50-62 - Images

4.4.6 Diagnostic LEDs

LED Status 1: X2X status

Color	Meaning
Off	No module supply via X2X Link
Green	Supply via X2X Link is ok. X2X communication ok.
Red	Supply via X2X Link is ok. No X2X communication.
Orange	Supply via X2X Link is ok. Module not initialized.

Table 254: 7XV116.50-62 - Status LED X2X Link

LED Status 2: Status of the digital outputs and the output supply

Color	Meaning
Green	In operation. Output supply ok.
Green + orange double pulse	Warning: 24 VDC output supply outside of the permitted range
Orange	Warning: 24 VDC output supply far outside of the permitted range
Green + orange single pulse	Overload or short-circuit on one or more outputs
Green blinking	Module not initialized.

Table 255: 7XV116.50-62 - Status LED (digital outputs and output supply)

4.4.7 X2X Link and module supply

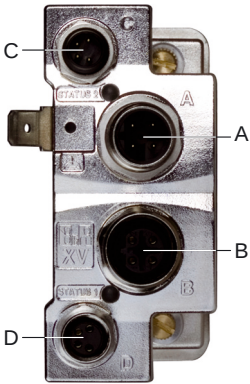
Figure	Connection	Name
	A	X2X input ¹⁾
	B	X2X output to the next module
	C	24 VDC supply for digital outputs (feed to the module)
	D	24 VDC supply for digital outputs (routed to the next module)

Table 256: 7XV116.50-62 - X2X Link and module supply

1) An X67PS1300 current supply module must be used before the first module in the series.

X2X Link

The module is connected to the X2X Link with prefabricated cables. The connection is made using a circular plug (2x M12, 4-pin).

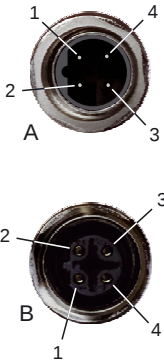
Connection	Pin assignments	
	Pin	Name
	1	X2X+
	2	X2X
	3	X2X⊥
	4	X2X\
	A ... B-coded plug in the module, input B ... B-coded socket in the module, output SHLD ...Shield connection made via threaded insert in the module	

Table 257: 7XV116.50-62 - X2X Link

24 VDC module supply

The module supply connection is made using circular connectors (2x M8, 4-pin). The supply feed is connected via plug C. Socket D is used for routing the supply to other modules.

The maximum permitted current for the circular connector is 8 A.

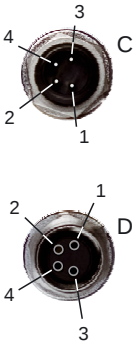
Connection	Pin assignments	
	Pin	Name
	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Plug on the module, supply feed D ... Socket on the module, supply routing	

Table 258: 7XV116.50-62 - Module supply 24 VDC

4.4.8 Digital outputs 1 - 16

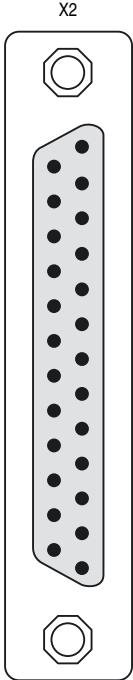
25-pin DSUB socket	Pin	Name
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	GND output supply
	14	Digital output 14
	15	Digital output 15
	16	Digital output 16
	17	Digital output 13
	18	Digital output 12
	19	Digital output 11
	20	Digital output 10
	21	Digital output 9
	22	GND output supply
	23	GND output supply
	24	GND output supply
	25	GND output supply
	Shield	Shield

Table 259: 7XV116.50-62 - Pin assignments for X2 / digital outputs 1 - 16

4.4.9 Output circuit

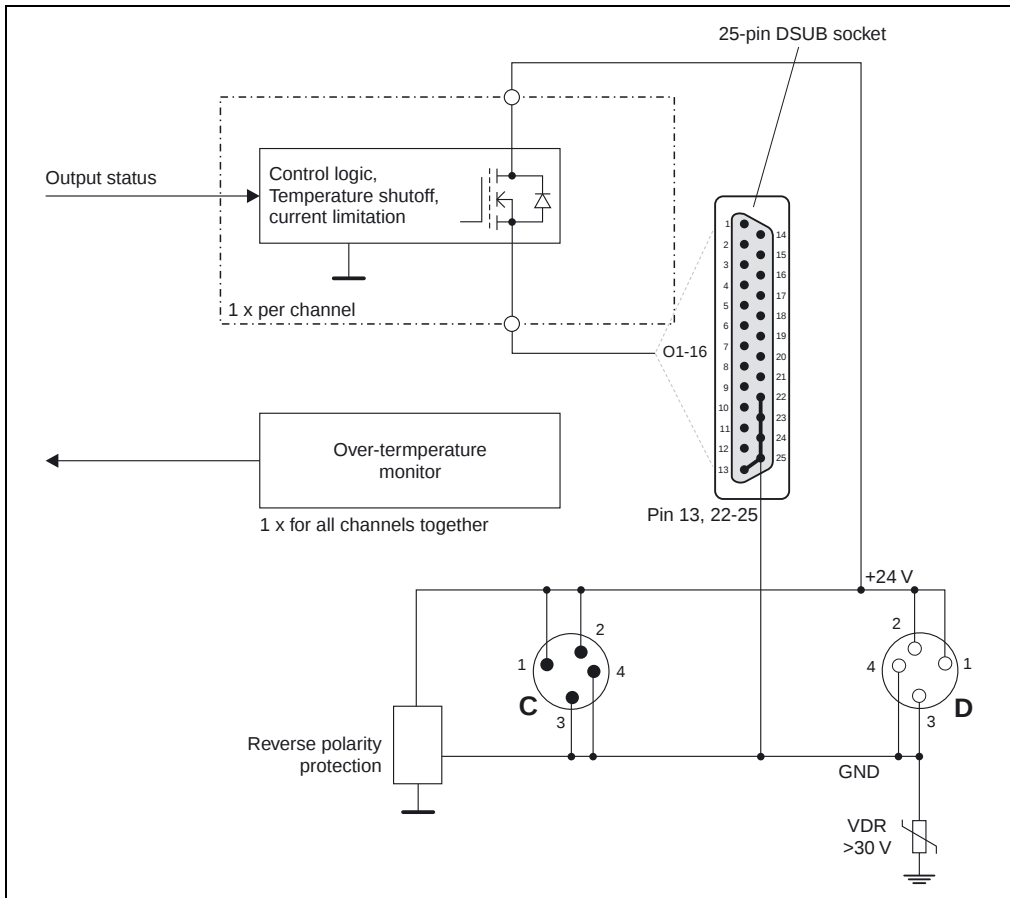


Figure 170: 7XV116.50-62 - Output wiring

Some outputs are assigned to multiple pins on the DSUB socket.

4.4.10 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 16	DigitalOutput01 - DigitalOutput16	BOOL	Actual state of the digital outputs 1 - 16
Status registers	StatusInput01	USINT	Status registers

Table 260: 7XV116.50-62 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-16 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 261: 7XV116.50-62 - Status register

4.5 7XV124.50-51

4.5.1 Order data

Model number	Short description	Figure
7XV124.50-51	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, IP67, GND pin 25, X2X Link, electrically isolated, 24 digital outputs 0.1 A, 24 VDC.	

Table 262: 7XV124.50-51 - Order data

4.5.2 Technical data

Product ID	7XV124.50-51
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	24 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	150 µs
Max. turn-off time	200 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 263: 7XV124.50-51 - Technical data

XV modules • 7XV124.50-51 • Additional technical data

Product ID	7XV124.50-51
General information	
Status indicators	Operating status and supply
Electrical isolation	
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	Yes
Dig. outp. - 24 VDC supply (X2X, OUT)	No
Power consumption	
X2X Link supply	Max. 0.75 W
I/O supply, internal (without load)	Max. 1.5 W
Certification	CE, C-UL-US, GOST-R
Ex zone 2	II 3G Eex nA II T5, IP67, Ta = 0 - 50°C
Wiring	
GND pin	25
Bus connection	M12
Power supply	M8
Mechanical characteristics	
Protection type	IP67
Module dimensions including mounting plates (H x W x D [mm])	62 x 70 x 30
Weight	125 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	M12/M8 plugs/sockets must be ordered separately

Table 263: 7XV124.50-51 - Technical data

4.5.3 Additional technical data

Product ID	7XV124.50-51
Digital outputs	
Type	Highside driver (source)
Total current	2.4 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 100 µs Max. 150 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 125 µs Max. 200 µs
General information	
Diagnostics	
Output overload	Yes, with LED and software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status

Table 264: 7XV124.50-51 - Additional technical data

Product ID	7XV124.50-51
Interfaces	
Application interface Type Design Min. cycle time on the X2X bus	X2X Link slave M12 >150 µs
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes, (color/blink code)
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$7405

Table 264: 7XV124.50-51 - Additional technical data

4.5.4 Dimensions

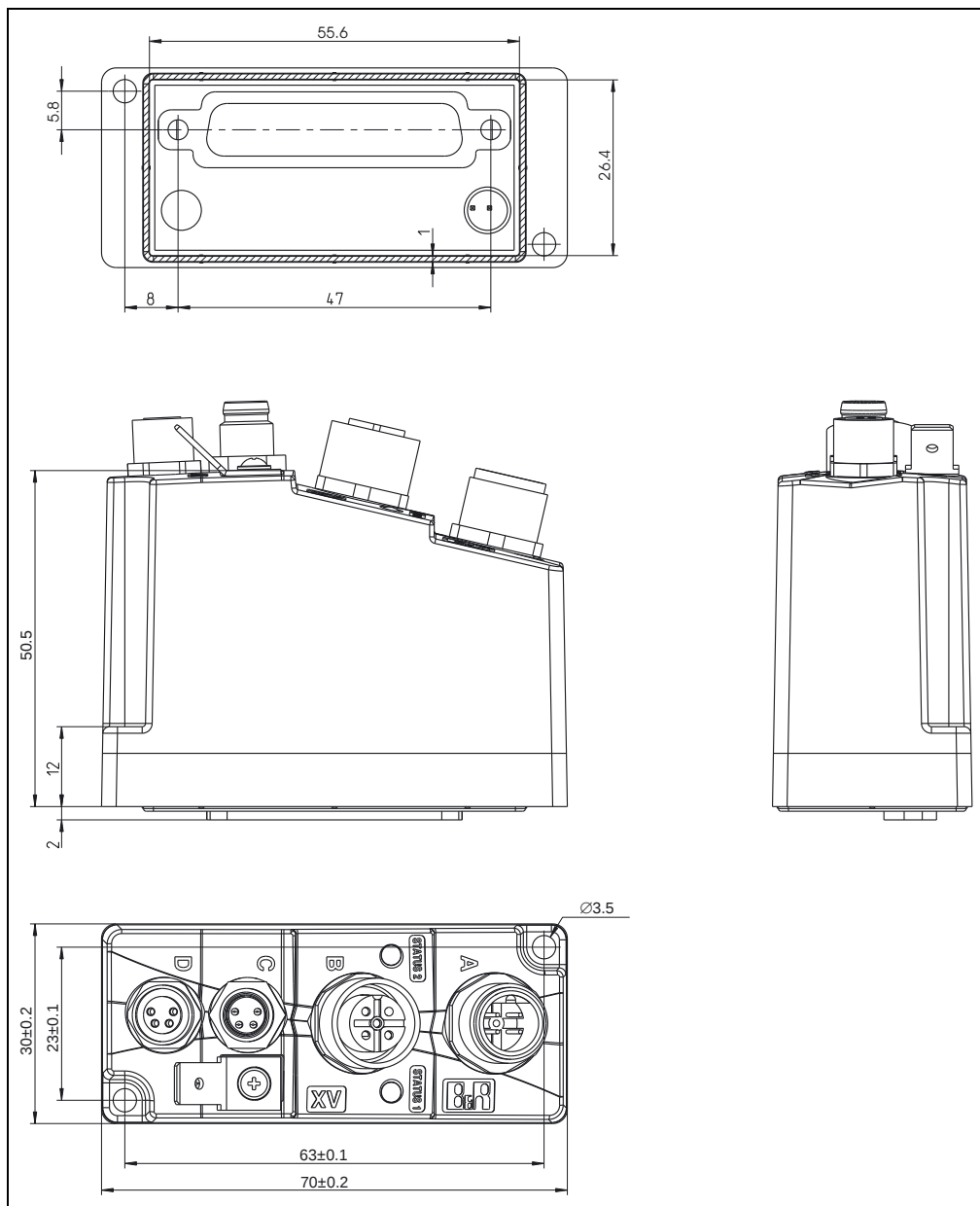


Figure 171: 7XV124.50-51 - Dimensions

4.5.5 Images

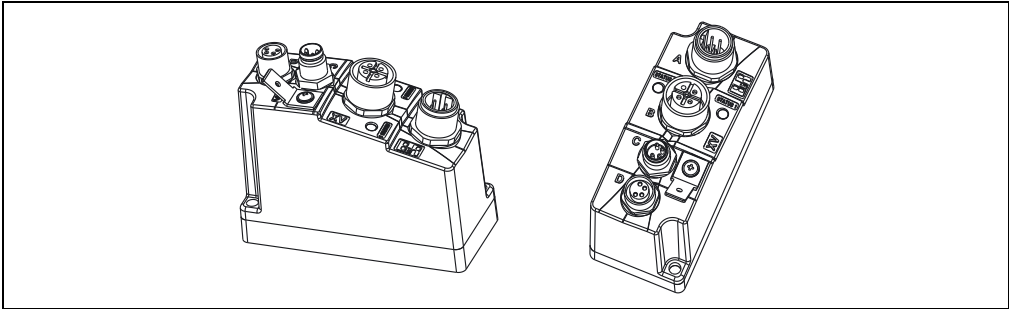


Figure 172: 7XV124.50-51 - Images

4.5.6 Diagnostic LEDs

LED Status 1: X2X status

Color	Meaning
Off	No module supply via X2X Link
Green	Supply via X2X Link is ok. X2X communication ok.
Red	Supply via X2X Link is ok. No X2X communication.
Orange	Supply via X2X Link is ok. Module not initialized.

Table 265: 7XV124.50-51 - Status LED X2X Link

LED Status 2: Status of the digital outputs and the output supply

Color	Meaning
Green	In operation. Output supply ok.
Green + orange double pulse	Warning: 24 VDC output supply outside of the permitted range
Orange	Warning: 24 VDC output supply far outside of the permitted range
Green + orange single pulse	Overload or short-circuit on one or more outputs
Green blinking	Module not initialized.

Table 266: 7XV124.50-51 - Status LED (digital outputs and output supply)

4.5.7 X2X Link and module supply

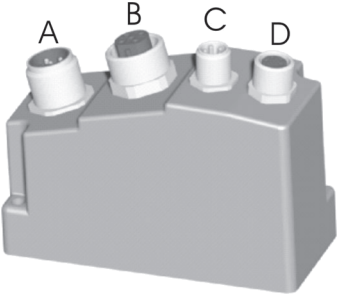
Figure	Connection	Name
	A	X2X input ¹⁾
	B	X2X output to the next module
	C	24 VDC supply for digital outputs (feed to the module)
	D	24 VDC supply for digital outputs (routed to the next module)

Table 267: 7XV124.50-51 - X2X Link and module supply

1) An X67PS1300 current supply module must be used before the first module in the series.

X2X Link

The module is connected to the X2X Link with prefabricated cables. The connection is made using a circular plug (2x M12, 4-pin).

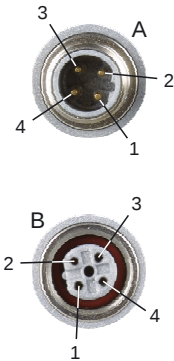
Connection	Pin assignments	
	Pin	Name
	1	X2X+
	2	X2X
	3	X2X _L
	4	X2X _N
	A ... B-coded plug in the module, input B ... B-coded socket in the module, output SHLD ...Shield connection made via threaded insert in the module	

Table 268: 7XV124.50-51 - X2X Link

24 VDC module supply

The module supply connection is made using circular connectors (2x M8, 4-pin). The supply feed is connected via plug C. Socket D is used for routing the supply to other modules.

The maximum permitted current for the circular connector is 8 A.

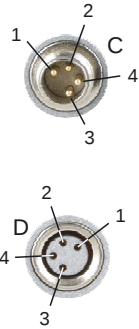
Connection	Pin assignments	
	Pin	Name
	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Plug on the module, supply feed D ... Socket on the module, supply routing	

Table 269: 7XV124.50-51 - Module supply 24 VDC

4.5.8 Digital outputs 1 - 24

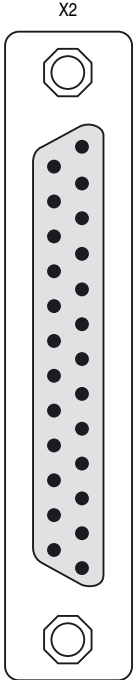
25-pin DSUB socket	Pin	Name
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Digital output 13
	14	Digital output 14
	15	Digital output 15
	16	Digital output 16
	17	Digital output 17
	18	Digital output 18
	19	Digital output 19
	20	Digital output 20
	21	Digital output 21
	22	Digital output 22
	23	Digital output 23
	24	Digital output 24
	25	Module supply GND
	Shield	Shield

Table 270: 7XV124.50-51 - Pin assignments for X2 / digital outputs 1 - 24

4.5.9 Output circuit

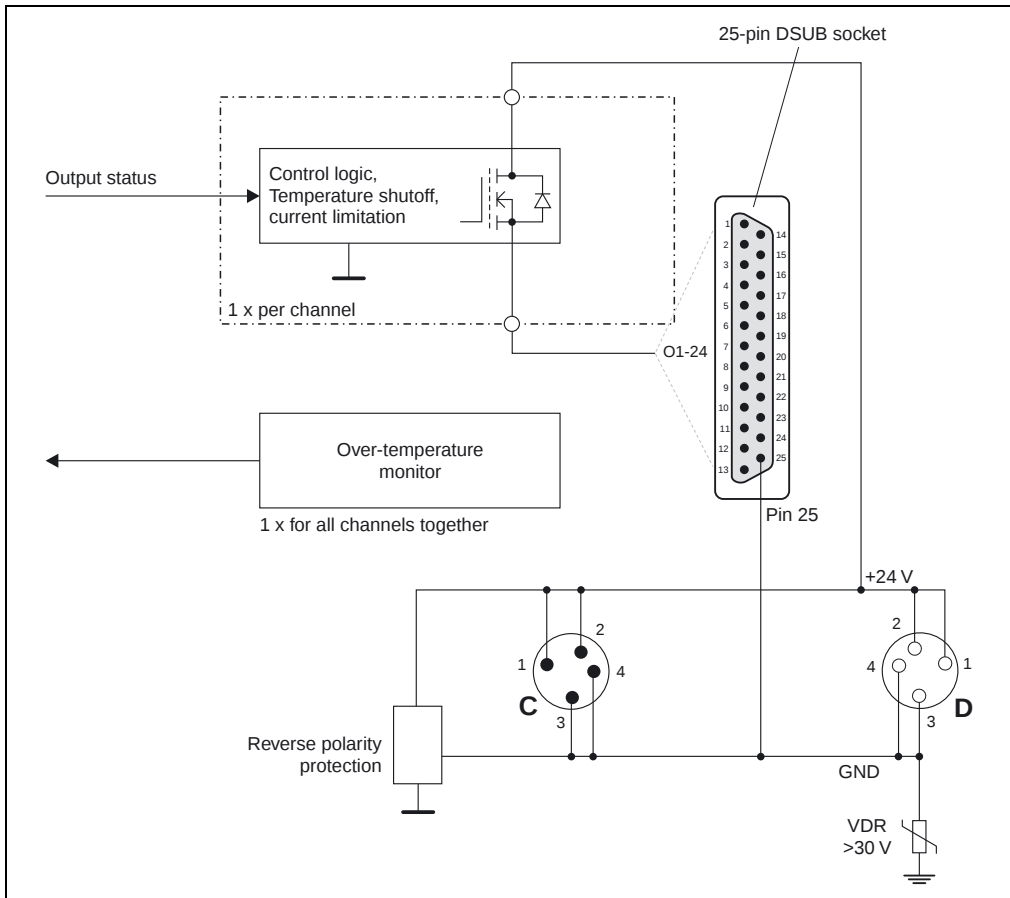


Figure 173: 7XV124.50-51 - Output wiring

4.5.10 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 24	DigitalOutput01 - DigitalOutput24	BOOL	Actual state of the digital outputs 1 - 24
Status registers	StatusInput01	USINT	Status registers

Table 271: 7XV124.50-51 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-24 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 272: 7XV124.50-51 - Status register

4.6 7XV124.50-61

4.6.1 Order data

Model number	Short description	Figure
7XV124.50-62	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, IP67, GND pin 25, X2X Link, electrically isolated, 24 digital outputs 0.1 A, 24 VDC.	

Table 273: 7XV124.50-61 - Order data

4.6.2 Technical data

Product ID	7XV124.50-61
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	24 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	150 µs
Max. turn-off time	200 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 274: 7XV124.50-61 - Technical data

XV modules • 7XV124.50-61 • Additional technical data

Product ID	7XV124.50-61
General information	
Status indicators	Operating status and supply
Electrical isolation	
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	Yes
Dig. outp. - 24 VDC supply (X2X, OUT)	No
Power consumption	
X2X Link supply	Max. 0.75 W
I/O supply, internal (without load)	Max. 1.5 W
Certification	CE, C-UL-US, GOST-R
Ex zone 2	II 3G Eex nA II T5, IP67, Ta = 0 - 50°C
Wiring	
GND pin	25
Bus connection	M12
Power supply	M8
Mechanical characteristics	
Protection type	IP67
Module dimensions including mounting plates (H x W x D [mm])	67 x 66 x30
Weight	131 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	M12/M8 plugs/sockets must be ordered separately

Table 274: 7XV124.50-61 - Technical data

4.6.3 Additional technical data

Product ID	7XV124.50-61
Digital outputs	
Type	Highside driver (source)
Total current	2.4 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 100 µs Max. 150 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 125 µs Max. 200 µs
General information	
Diagnostics	
Output overload	Yes, with LED and software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status

Table 275: 7XV124.50-61 - Additional technical data

Product ID	7XV124.50-61
Interfaces	
Application interface Type Design Min. cycle time on the X2X bus	X2X Link slave M12 >150 µs
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes, (color/blink code)
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$A366

Table 275: 7XV124.50-61 - Additional technical data

4.6.4 Dimensions

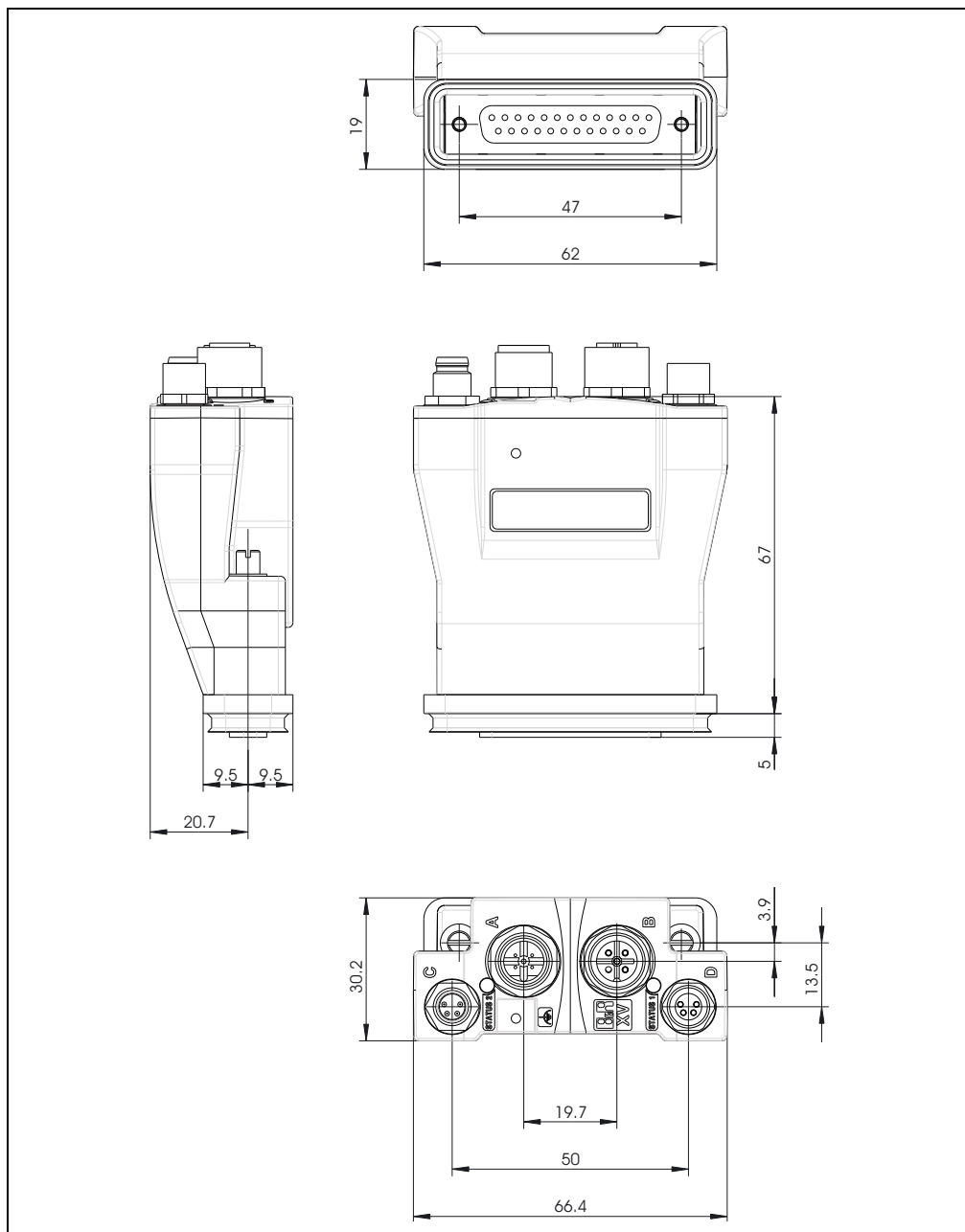


Figure 174: 7XV124.50-61 - Dimensions

4.6.5 Images

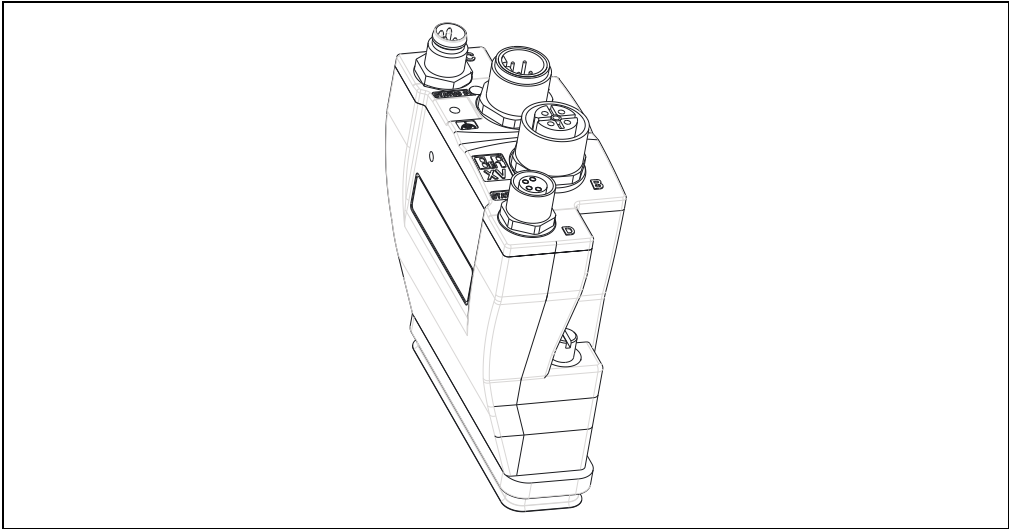


Figure 175: 7XV124.50-61 - Images

4.6.6 Diagnostic LEDs

LED Status 1: X2X status

Color	Meaning
Off	No module supply via X2X Link
Green	Supply via X2X Link is ok. X2X communication ok.
Red	Supply via X2X Link is ok. No X2X communication.
Orange	Supply via X2X Link is ok. Module not initialized.

Table 276: 7XV124.50-61 - Status LED X2X Link

LED Status 2: Status of the digital outputs and the output supply

Color	Meaning
Green	In operation. Output supply ok.
Green + orange double pulse	Warning: 24 VDC output supply outside of the permitted range
Orange	Warning: 24 VDC output supply far outside of the permitted range
Green + orange single pulse	Overload or short-circuit on one or more outputs
Green blinking	Module not initialized.

Table 277: 7XV124.50-61 - Status LED (digital outputs and output supply)

4.6.7 X2X Link and module supply

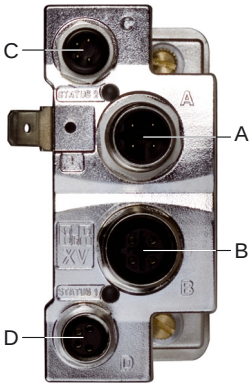
Figure	Connection	Name
	A	X2X input ¹⁾
	B	X2X output to the next module
	C	24 VDC supply for digital outputs (feed to the module)
	D	24 VDC supply for digital outputs (routed to the next module)

Table 278: 7XV124.50-61 - X2X Link and module supply

1) An X67PS1300 current supply module must be used before the first module in the series.

X2X Link

The module is connected to the X2X Link with prefabricated cables. The connection is made using a circular plug (2x M12, 4-pin).

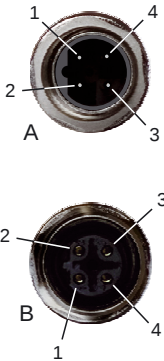
Connection	Pin assignments	
	Pin	Name
	1	X2X+
	2	X2X
	3	X2X⊥
	4	X2X\
	A ... B-coded plug in the module, input B ... B-coded socket in the module, output SHLD ...Shield connection made via threaded insert in the module	

Table 279: 7XV124.50-61 - X2X Link

24 VDC module supply

The module supply connection is made using circular connectors (2x M8, 4-pin). The supply feed is connected via plug C. Socket D is used for routing the supply to other modules.

The maximum permitted current for the circular connector is 8 A.

Connection	Pin assignments	
	Pin	Name
	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Plug on the module, supply feed D ... Socket on the module, supply routing	

Table 280: 7XV124.50-61 - Module supply 24 VDC

4.6.8 Digital outputs 1 - 24

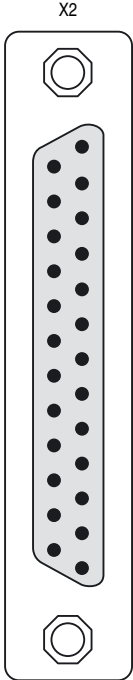
25-pin DSUB socket	Pin	Name
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Digital output 13
	14	Digital output 14
	15	Digital output 15
	16	Digital output 16
	17	Digital output 17
	18	Digital output 18
	19	Digital output 19
	20	Digital output 20
	21	Digital output 21
	22	Digital output 22
	23	Digital output 23
	24	Digital output 24
	25	GND output supply
	Shield	Shield

Table 281: 7XV124.50-61 - Pin assignments for X2 / digital outputs 1 - 24

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Figure 176: 7XV124.50-61 - Output wiring

4.6.10 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 24	DigitalOutput01 - DigitalOutput24	BOOL	Actual state of the digital outputs 1 - 24
Status registers	StatusInput01	USINT	Status registers

Table 282: 7XV124.50-61 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-24 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 283: 7XV124.50-61 - Status register

4.7 7XV124.50-62

4.7.1 Order data

Model number	Short description	Figure
7XV124.50-62	Remote valve manifold connection, for 25-pin DSUB multi-pin connection, IP67, GND pin 13, X2X Link, electrically isolated, 24 digital outputs 0.1 A, 24 VDC.	

Table 284: 7XV124.50-62 - Order data

4.7.2 Technical data

Product ID	7XV124.50-62
Short description	
Module	Remote valve manifold connection for 25-pin DSUB multi-pin connection
Outputs	24 valves
Digital outputs	
Switching voltage (min. /nom. /max.)	18 VDC / 24 VDC / 30 VDC
Max. output current	0.1 A
Output circuit	Source
Max. switching frequency	100 Hz
Max. turn-on time	150 µs
Max. turn-off time	200 µs
Output protection	Protected against short circuit, overload and overtemperature

Table 285: 7XV124.50-62 - Technical data

XV modules • 7XV124.50-62 • Additional technical data

Product ID	7XV124.50-62
General information	
Status indicators	Operating status and supply
Electrical isolation	
X2X Link - digital output	Yes
X2X Link - 24 VDC supply (X2X, OUT)	Yes
Dig. outp. - 24 VDC supply (X2X, OUT)	No
Power consumption	
X2X Link supply	Max. 0.75 W
I/O supply, internal (without load)	Max. 1.5 W
Certification	CE, C-UL-US, GOST-R
Ex zone 2	II 3G Eex nA II T5, IP67, Ta = 0 - 50°C
Wiring	
GND pin	13
Bus connection	M12
Power supply	M8
Mechanical characteristics	
Protection type	IP67
Module dimensions including mounting plates (H x W x D [mm])	67 x 66 x30
Weight	131 g
Operating / Storage temperature	0 to 55°C / -20 to +70°C
Relative humidity	5 - 95%, non-condensing
Comment	M12/M8 plugs/sockets must be ordered separately

Table 285: 7XV124.50-62 - Technical data

4.7.3 Additional technical data

Product ID	7XV124.50-62
Digital outputs	
Type	Highside driver (source)
Total current	2.4 A
Switch-on time for the output driver from 0 to 1 (90% V _{out}) at full load	Typ. 100 µs Max. 150 µs
Switch-off time for the output driver from 1 to 0 (10% V _{out}) with no load	Typ. 125 µs Max. 200 µs
General information	
Diagnostics	
Output overload	Yes, with LED and software status
24 VDC OUT supply	Yes, with LED and software status
24 VDC X2X supply	Yes, with software status
X2X	Yes, with software status

Table 286: 7XV124.50-62 - Additional technical data

Product ID	7XV124.50-62
Interfaces	
Application interface Type Design Min. cycle time on the X2X bus	X2X Link slave M12 >150 µs
Status display	
Status LED	Yes, (color/blink code)
24 VDC OUT supply (DCOK LED)	Yes, (color/blink code)
Mechanical characteristics	
Installation	DSUB 25-pin, screw mounting, 4-40 UNC
General information	
B&R ID code	\$9654

Table 286: 7XV124.50-62 - Additional technical data

4.7.4 Dimensions

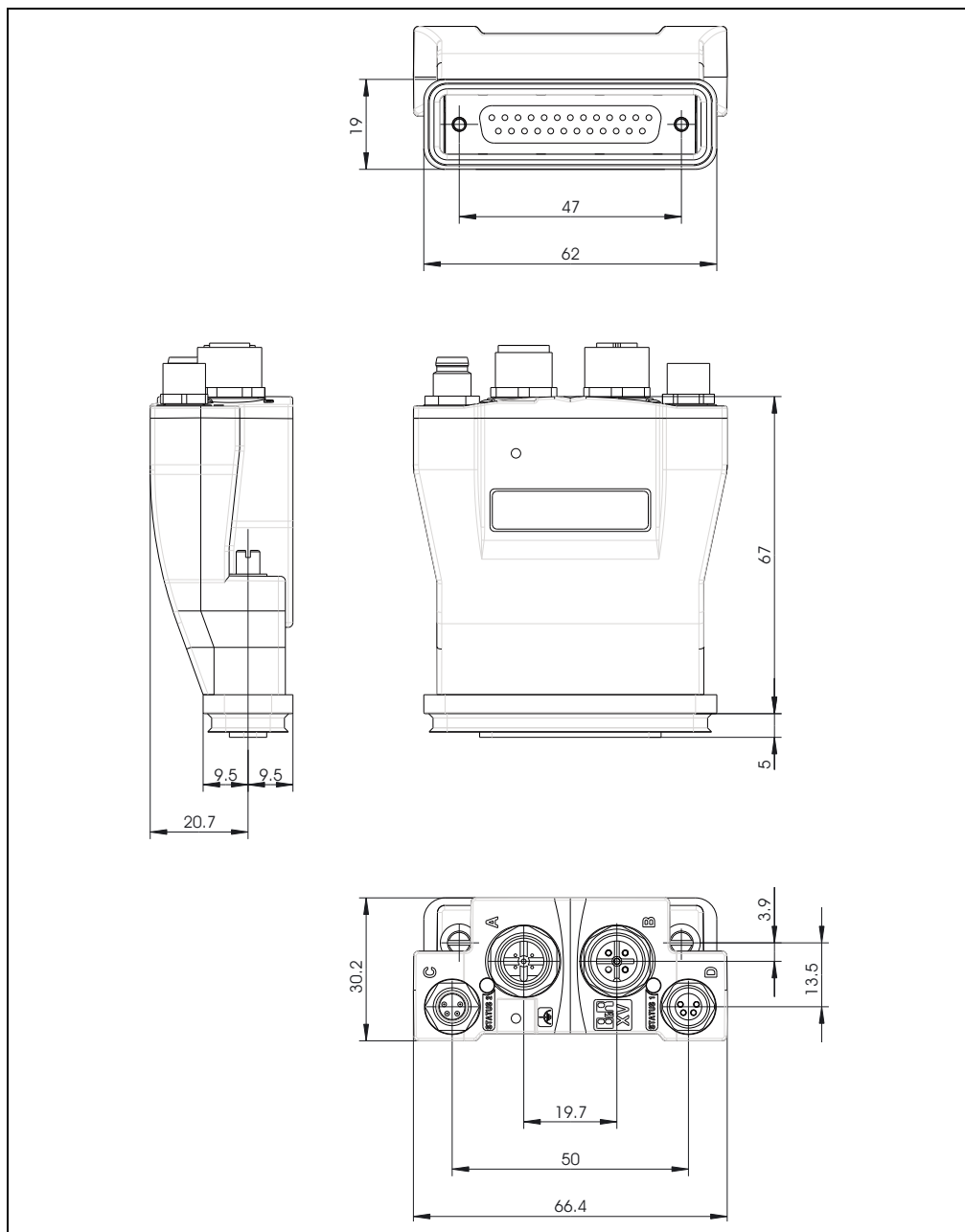


Figure 177: 7XV124.50-62 - Dimensions

4.7.5 Images

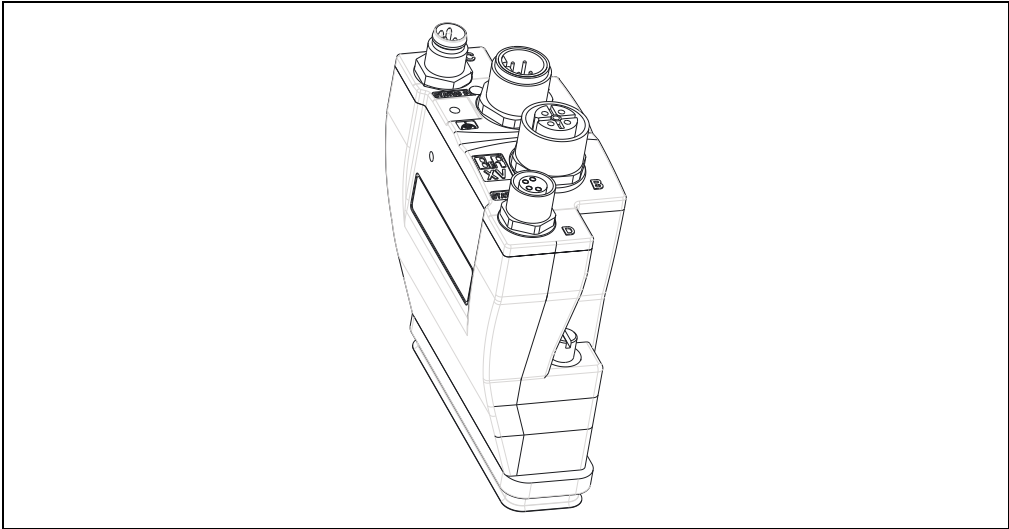


Figure 178: 7XV124.50-62 - Images

4.7.6 Diagnostic LEDs

LED Status 1: X2X status

Color	Meaning
Off	No module supply via X2X Link
Green	Supply via X2X Link is ok. X2X communication ok.
Red	Supply via X2X Link is ok. No X2X communication.
Orange	Supply via X2X Link is ok. Module not initialized.

Table 287: 7XV124.50-62 - Status LED X2X Link

LED Status 2: Status of the digital outputs and the output supply

Color	Meaning
Green	In operation. Output supply ok.
Green + orange double pulse	Warning: 24 VDC output supply outside of the permitted range
Orange	Warning: 24 VDC output supply far outside of the permitted range
Green + orange single pulse	Overload or short-circuit on one or more outputs
Green blinking	Module not initialized.

Table 288: 7XV124.50-62 - Status LED (digital outputs and output supply)

4.7.7 X2X Link and module supply

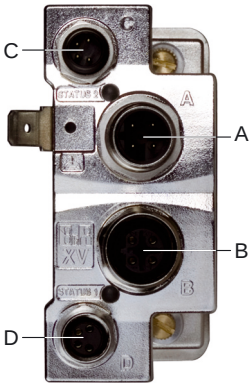
Figure	Connection	Name
	A	X2X input ¹⁾
	B	X2X output to the next module
	C	24 VDC supply for digital outputs (feed to the module)
	D	24 VDC supply for digital outputs (routed to the next module)

Table 289: 7XV124.50-62 - X2X Link and module supply

1) An X67PS1300 current supply module must be used before the first module in the series.

X2X Link

The module is connected to the X2X Link with prefabricated cables. The connection is made using a circular plug (2x M12, 4-pin).

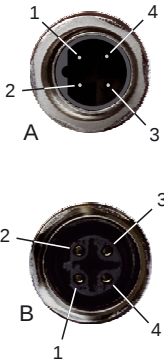
Connection	Pin assignments	
	Pin	Name
	1	X2X+
	2	X2X
	3	X2X⊥
	4	X2X\
	A ... B-coded plug in the module, input B ... B-coded socket in the module, output SHLD ...Shield connection made via threaded insert in the module	

Table 290: 7XV124.50-62 - X2X Link

24 VDC module supply

The module supply connection is made using circular connectors (2x M8, 4-pin). The supply feed is connected via plug C. Socket D is used for routing the supply to other modules.

The maximum permitted current for the circular connector is 8 A.

Connection	Pin assignments	
	Pin	Name
	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Plug on the module, supply feed D ... Socket on the module, supply routing	

Table 291: 7XV124.50-62 - Module supply 24 VDC

4.7.8 Digital outputs 1 - 24

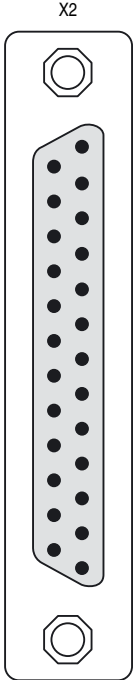
25-pin DSUB socket	Pin	Name
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	GND output supply
	14	Digital output 14
	15	Digital output 15
	16	Digital output 16
	17	Digital output 17
	18	Digital output 18
	19	Digital output 19
	20	Digital output 20
	21	Digital output 21
	22	Digital output 22
	23	Digital output 23
	24	Digital output 24
	25	Digital output 13
	Shield	Shield

Table 292: 7XV124.50-62 - Pin assignments for X2 / digital outputs 1 - 24

4.7.9 Output circuit

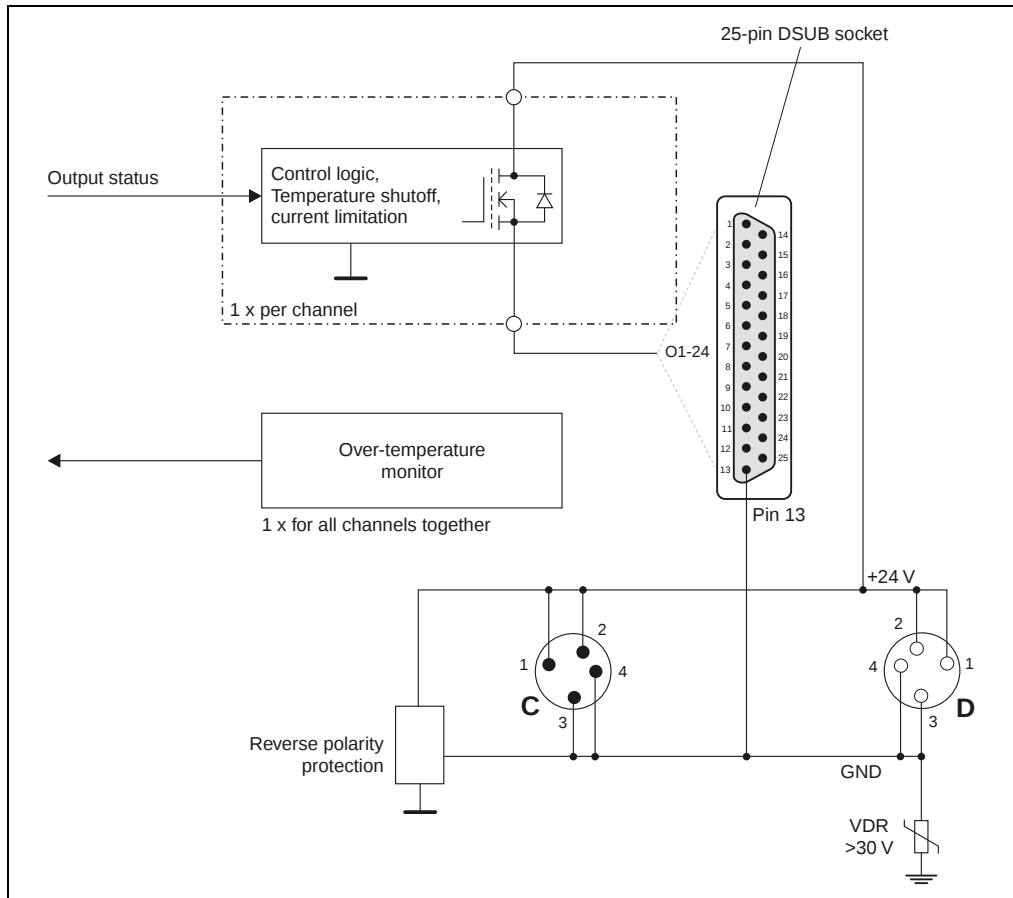


Figure 179: 7XV124.50-62 - Output wiring

4.7.10 Register description

The outputs are assigned in Automation Studio™.

Name	Name in Automation Studio™	Data type	Description
Digital outputs 1 - 24	DigitalOutput01 - DigitalOutput24	BOOL	Actual state of the digital outputs 1 - 24
Status registers	StatusInput01	USINT	Status registers

Table 293: 7XV124.50-62 - Variable declaration

Status registers

7	6	5	4	3	2	1	0
0	0	0	0	0	1		

Bit	Description
0	Monitoring of the 24 VDC OUT supply (output supply) 0 ... Outside of the permitted range 1 ... OK
1	Monitor for outputs 1-24 0 ... Overload on one or more outputs 1 ... OK
2	Reserved (must be set to 1)
3 - 7	Reserved (must be set to 0)

Table 294: 7XV124.50-62 - Status register