

Compact I/O system

User's manual

Version: **2.00 (October 2018)**
Model no.: **MACIO-ENG**

Translation of the original documentation

All values in this manual are current as of its creation. We reserve the right to change the contents of this manual without notice. B&R Industrial Automation GmbH is not liable for technical or editorial errors and defects in this manual. In addition, B&R Industrial Automation GmbH assumes no liability for damages that are directly or indirectly attributable to the delivery, performance or use of this material. We point out that the software and hardware designations and brand names of the respective companies used in this document are subject to general trademark, brand or patent protection.

1 General information.....	5
1.1 Manual history.....	5
1.2 Safety notices.....	6
1.2.1 Introduction.....	6
1.2.2 Intended use.....	6
1.2.3 Protection against electrostatic discharge.....	6
1.2.3.1 Packaging.....	6
1.2.3.2 Regulations for proper ESD handling.....	6
1.2.4 Regulations and measures.....	7
1.2.5 Transport and storage.....	7
1.2.6 Installation.....	7
1.2.7 Operation.....	8
1.2.7.1 Protection against contact with electrical parts.....	8
1.2.7.2 Ambient conditions - Dust, moisture, aggressive gases.....	8
1.2.7.3 Programs, viruses and malicious programs.....	8
1.2.8 Environmentally friendly disposal.....	8
1.2.8.1 Separation of materials.....	8
1.2.9 Organization of safety notices.....	9
1.2.10 Safety-relevant symbols.....	9
2 System characteristics.....	10
2.1 Introduction.....	10
3 XV modules.....	11
3.1 General information.....	11
3.2 Overview.....	11
3.3 XV modules with IP20 protection.....	12
3.3.1 7XV108.50-11.....	12
3.3.1.1 Order data.....	12
3.3.1.2 Technical data.....	12
3.3.1.3 Diagnostic LED status indicators.....	13
3.3.1.4 X2X Link and module power supply.....	13
3.3.1.5 Digital outputs 1 to 8.....	14
3.3.1.6 Register description.....	14
3.3.2 7XV108.50-12.....	15
3.3.2.1 Order data.....	15
3.3.2.2 Technical data.....	15
3.3.2.3 Diagnostic LED status indicators.....	16
3.3.2.4 X2X Link and module power supply.....	16
3.3.2.5 Digital outputs 1 to 8.....	17
3.3.2.6 Register description.....	17
3.3.3 7XV116.50-01.....	18
3.3.3.1 Order data.....	18
3.3.3.2 Technical data.....	18
3.3.3.3 Diagnostic LED status indicators.....	19
3.3.3.4 X2X Link and module power supply.....	19
3.3.3.5 Digital outputs 1 to 16.....	20
3.3.3.6 Register description.....	20
3.3.4 7XV116.50-11.....	21
3.3.4.1 Order data.....	21
3.3.4.2 Technical data.....	21
3.3.4.3 Diagnostic LED status indicators.....	22
3.3.4.4 X2X Link and module power supply.....	22
3.3.4.5 Digital outputs 1 to 16.....	23
3.3.4.6 Register description.....	23
3.3.5 7XV116.50-12.....	24
3.3.5.1 Order data.....	24

3.3.5.2 Technical data.....	24
3.3.5.3 Diagnostic LED status indicators.....	25
3.3.5.4 X2X Link and module power supply.....	25
3.3.5.5 Digital outputs 1 to 16.....	26
3.3.5.6 Register description.....	26
3.3.6 7XV124.50-11.....	27
3.3.6.1 Order data.....	27
3.3.6.2 Technical data.....	27
3.3.6.3 Diagnostic LED status indicators.....	28
3.3.6.4 X2X Link and module power supply.....	28
3.3.6.5 Digital outputs 1 to 24.....	29
3.3.6.6 Register description.....	29
3.3.7 7XV124.50-12.....	30
3.3.7.1 Order data.....	30
3.3.7.2 Technical data.....	30
3.3.7.3 Diagnostic LED status indicators.....	31
3.3.7.4 X2X Link and module power supply.....	31
3.3.7.5 Digital outputs 1 to 24.....	32
3.3.7.6 Register description.....	32
3.4 XV modules with IP67 protection.....	33
3.4.1 7XV108.50-51.....	33
3.4.1.1 Order data.....	33
3.4.1.2 Technical data.....	33
3.4.1.3 Dimensions.....	35
3.4.1.4 Figures.....	36
3.4.1.5 Diagnostic LED status indicators.....	36
3.4.1.6 X2X Link and module power supply.....	36
3.4.1.7 Digital outputs 1 to 8.....	38
3.4.1.8 Output circuit.....	39
3.4.1.9 Register description.....	39
3.4.2 7XV108.50-62.....	41
3.4.2.1 Order data.....	41
3.4.2.2 Technical data.....	41
3.4.2.3 Dimensions.....	43
3.4.2.4 Figures.....	44
3.4.2.5 Diagnostic LED status indicators.....	44
3.4.2.6 X2X Link and module power supply.....	44
3.4.2.7 Digital outputs 1 to 8.....	46
3.4.2.8 Output circuit.....	47
3.4.2.9 Register description.....	47
3.4.3 7XV116.50-51.....	49
3.4.3.1 Order data.....	49
3.4.3.2 Technical data.....	49
3.4.3.3 Dimensions.....	51
3.4.3.4 Figures.....	52
3.4.3.5 Diagnostic LED status indicators.....	52
3.4.3.6 X2X Link and module power supply.....	52
3.4.3.7 Digital outputs 1 to 16.....	54
3.4.3.8 Output circuit.....	55
3.4.3.9 Register description.....	55
3.4.4 7XV116.50-62.....	57
3.4.4.1 Order data.....	57
3.4.4.2 Technical data.....	57
3.4.4.3 Dimensions.....	59
3.4.4.4 Figures.....	60
3.4.4.5 Diagnostic LED status indicators.....	60
3.4.4.6 X2X Link and module power supply.....	60

3.4.4.7 Digital outputs 1 to 16.....	62
3.4.4.8 Output circuit.....	63
3.4.4.9 Register description.....	63
3.4.5 7XV124.50-51.....	65
3.4.5.1 Order data.....	65
3.4.5.2 Technical data.....	65
3.4.5.3 Dimensions.....	67
3.4.5.4 Figures.....	68
3.4.5.5 Diagnostic LED status indicators.....	68
3.4.5.6 X2X Link and module power supply.....	68
3.4.5.7 Digital outputs 1 to 24.....	70
3.4.5.8 Output circuit.....	71
3.4.5.9 Register description.....	71
3.4.6 7XV124.50-61.....	73
3.4.6.1 Order data.....	73
3.4.6.2 Technical data.....	73
3.4.6.3 Dimensions.....	75
3.4.6.4 Figures.....	76
3.4.6.5 Diagnostic LED status indicators.....	76
3.4.6.6 Switching inductive loads.....	77
3.4.6.7 X2X Link and module power supply.....	77
3.4.6.8 Digital outputs 1 to 24.....	79
3.4.6.9 Output circuit.....	80
3.4.6.10 Register description.....	80
3.4.7 7XV124.50-62.....	82
3.4.7.1 Order data.....	82
3.4.7.2 Technical data.....	82
3.4.7.3 Dimensions.....	84
3.4.7.4 Figures.....	85
3.4.7.5 Diagnostic LED status indicators.....	85
3.4.7.6 Switching inductive loads.....	86
3.4.7.7 X2X Link and module power supply.....	86
3.4.7.8 Digital outputs 1 to 24.....	88
3.4.7.9 Output circuit.....	89
3.4.7.10 Register description.....	89

1 General information

Information:

B&R makes every effort to keep this printed user's manual as current as possible. If there is a newer version of the user's manual available, it can always be downloaded electronically (in PDF format) from the B&R website (www.br-automation.com).

1.1 Manual history

Version	Date	Comment
2.00	October 2018	Updated technical data. Deleted chapter: • Embedded controller • Typical topologies • I/O modules
1.22	December 2010	Changed following terms: • ARsim (previously: AR000) • ARwin (previously: AR010) • ARemb (previously: AR102, AR105, AR106)
1.21	December 2010	Updated technical data and pinouts.
1.20	April 2008	New modules • 7XV124.50-61
1.10	October 2007	New modules • 7EC021.61-2 • 7XV108.50-62 • 7XV116.50-62 • 7XV124.50-62 Supplementary information • Added diagrams for switching inductive loads to CX and XX modules.
1.01	June 2007	Updated various chapters
1.00	August 2006	First edition

Table 1: Manual history

1.2 Safety notices

Important!

If the device is not used in accordance with the manufacturer's instructions, the protection provided by the device may be impaired.

1.2.1 Introduction

Programmable logic controllers (PLCs), operating and monitoring devices (such as industrial PCs, Power Panels, Mobile Panels, etc.) as well as the uninterruptible power supply from B&R have been designed, developed and manufactured for normal use in industry. They have not been designed, developed and manufactured for use that involves fatal risks or hazards that could result in death, injury, serious physical harm or other loss without the assurance of exceptionally stringent safety precautions. In particular, this includes the use of these systems to monitor nuclear reactions in nuclear power plants, flight control systems, air traffic control, the control of mass transport vehicles, medical life support systems and the control of weapon systems.

When using programmable logic controllers as well as when using operating and monitoring devices as control systems in conjunction with a Soft PLC (e.g. Automation Runtime or similar product) or Slot PLC (e.g. B&R LS251 or similar product), the safety measures that apply to industrial controllers (protection by protective equipment such as emergency stops, etc.) must be observed in accordance with applicable national and international regulations. This also applies to all other connected devices, such as drives.

All work such as installation, commissioning and servicing are only permitted to be carried out by qualified personnel. Qualified personnel are persons who are familiar with the transport, installation, assembly, commissioning and operation of the product and have the appropriate qualifications for their job (e.g. IEC 60364). National accident prevention regulations must be observed.

The safety guidelines, information about connection conditions (nameplate and documentation) and limit values specified in the technical data must be read carefully before installation and commissioning and must be strictly observed.

1.2.2 Intended use

Electronic devices are generally not failsafe. If the programmable logic controller, operating or monitoring device or uninterruptible power supply fails, the user is responsible for ensuring that connected devices, such as motors, are brought to a safe state.

1.2.3 Protection against electrostatic discharge

Electrical assemblies that can be damaged by electrostatic discharge (ESD) must be handled accordingly.

1.2.3.1 Packaging

- Electrical assemblies with housing
... Do not require special ESD packaging but must be handled properly (see "[Electrical assemblies with housing](#)" on page 6).
- Electrical assemblies without housing
... Are protected by ESD-suitable packaging.

1.2.3.2 Regulations for proper ESD handling

Electrical assemblies with housing

- Do not touch the connector contacts on the device (bus data contacts).
- Do not touch the connector contacts of connected cables.
- Do not touch the contact tips on circuit boards.

Electrical assemblies without housing

The following applies in addition to "Electrical assemblies with housing":

- All persons handling electrical assemblies and devices in which electrical assemblies are installed must be grounded.
- Assemblies are only permitted to be touched on the narrow sides or front plate.
- Always place assemblies on suitable surfaces (ESD packaging, conductive foam, etc.).

Information: Metallic surfaces are not suitable surfaces!

- Assemblies must not be subjected to electrostatic discharges (e.g. due to charged plastics).
- A minimum distance of 10 cm from monitors or television sets must be maintained.
- Measuring instruments and devices must be grounded.
- Test probes of floating potential measuring instruments must be discharged briefly on suitable grounded surfaces before measurement.

Individual components

- ESD protective measures for individual components are implemented throughout B&R (conductive floors, shoes, wrist straps, etc.).
- The increased ESD protective measures for individual components are not required for handling B&R products at customer locations.

1.2.4 Regulations and measures

Electronic devices are generally not failsafe. If the programmable logic controller, operating or control device or uninterruptible power supply fails, the user is responsible for ensuring that connected devices, such as motors, are brought to a safe state.

When using programmable logic controllers as well as when using operating and monitoring devices as control systems in conjunction with a Soft PLC (e.g. B&R Automation Runtime or similar product) or Slot PLC (e.g. B&R LS251 or similar product), the safety measures that apply to industrial controllers (protection by protective equipment such as emergency stops, etc.) must be observed in accordance with applicable national and international regulations. This also applies to all other connected devices, such as drives.

All work such as installation, commissioning and servicing are only permitted to be carried out by qualified personnel. Qualified personnel are persons who are familiar with the transport, installation, assembly, commissioning and operation of the product and have the appropriate qualifications for their job (e.g. IEC 60364). National accident prevention regulations must be observed.

The safety guidelines, information about connection conditions (nameplate and documentation) and limit values specified in the technical data must be read carefully before installation and commissioning and must be strictly observed.

1.2.5 Transport and storage

During transport and storage, devices must be protected against undue stress (mechanical stress, temperature, humidity, aggressive atmosphere).

Devices contain components sensitive to electrostatic charges that can be damaged by improper handling. It is therefore necessary to provide the required protective measures against electrostatic discharge when installing or removing these devices (see ["Protection against electrostatic discharge" on page 6](#)).

1.2.6 Installation

- Installation must be performed according to this documentation using suitable equipment and tools.
- Devices are only permitted to be installed by qualified personnel when the power is switched off.
- General safety regulations and national accident prevention regulations must be observed.
- The electrical installation must be carried out in accordance with relevant regulations (e.g. wire cross section, fuse protection, protective ground connection).
- Take the necessary protective measures against electrostatic discharge (see ["Protection against electrostatic discharge" on page 6](#)).

1.2.7 Operation

1.2.7.1 Protection against contact with electrical parts

In order to operate programmable logic controllers, operating and monitoring devices and the uninterruptible power supply, it is necessary for certain components to carry dangerous voltages over 42 VDC. Touching one of these components can result in a life-threatening electric shock. There is a risk of death, serious injury or damage to property.

Before switching on the programmable logic controllers, operating and monitoring devices and uninterruptible power supply, it must be ensured that the housing is properly connected to ground potential (PE rail). The ground connection must also be made if the operating and monitoring device and uninterruptible power supply are only connected for testing purposes or only operated for a short time!

Before switching on, live parts must be securely covered. All covers must be kept closed during operation.

1.2.7.2 Ambient conditions - Dust, moisture, aggressive gases

The use of operating and monitoring devices (e.g. industrial PCs, Power Panels, Mobile Panels, etc.) and uninterruptible power supplies in dusty environments must be avoided. This can otherwise lead to dust deposits that affect the functionality of the device. Sufficient cooling may then no longer be ensured, especially in systems with an active cooling unit (fan).

The presence of aggressive gases in the environment can also result in malfunctions. In combination with high temperature and relative humidity, aggressive gases – for example with sulfur, nitrogen and chlorine components – trigger chemical processes that can very quickly impair or damage electronic components. Blackened copper surfaces and cable ends in existing installations are indicators of aggressive gases.

When operated in rooms with dust and condensation that can endanger functionality, operating and monitoring devices such as Automation Panels or Power Panels are protected on the front against the ingress of dust and moisture when installed correctly (e.g. cutout installation). The back of all devices must be protected against the ingress of dust and moisture, however, or the dust deposits must be removed at suitable intervals.

1.2.7.3 Programs, viruses and malicious programs

Any data exchange or installation of software using data storage media (e.g. floppy disk, CD-ROM, USB flash drive, etc.) or via networks or the Internet poses a potential threat to the system. It is the user's own responsibility to avert these dangers and to take appropriate measures such as virus protection programs, firewalls, etc. to protect against them and to use only software from trustworthy sources.

1.2.8 Environmentally friendly disposal

All programmable logic controllers, operating and monitoring devices and uninterruptible power supplies from B&R are designed to have as little impact on the environment as possible.

1.2.8.1 Separation of materials

To ensure that devices can be recycled in an environmentally friendly manner, it is necessary to separate out the different materials.

Component	Disposal
Programmable logic controllers Operating and monitoring devices Uninterruptible power supply Batteries and accumulators Cables	Electronics recycling
Cardboard/Paper packaging	Paper/Cardboard recycling
Plastic packaging material	Plastics recycling

Table 2: Environmentally friendly disposal

Disposal must be carried out in accordance with applicable legal regulations.

1.2.9 Organization of safety notices

Safety notices and explanations of their meaning are organized in this manual as follows:

Safety notice	Description
Danger!	Failure to observe these safety guidelines and notices will result in death or severe injury.
Warning!	Failure to observe these safety guidelines and notices can result in death, severe injury or substantial damage to property.
Caution!	Failure to observe these safety guidelines and notices can result in minor injury or damage to property.
Notice!	These instructions are important for avoiding malfunctions. Failure to observe these safety guidelines and notices can result in damage to property.
Information:	Application tips and useful information. This information does not warn against dangerous or harmful functionality.

1.2.10 Safety-relevant symbols

The following symbols may appear on the device or its packaging:

Symbol	Explanation
--------	-------------



The operating instructions must be observed.

This documentation contains information about types of potential hazards and enables you to identify risks and implement countermeasures.

2 System characteristics

2.1 Introduction

The modules of the compact I/O system series offer the possibility to integrate peripherals into a control system without taking up too much space. Space-saving dimensions, flexible connectivity for distributed I/O connections in the control cabinet, and connections to third-party systems can all be implemented in a simple and cost-effective manner using this system.

The modules of the various series offer signal adaptations from simple inputs to complex digital or analog interfaces, and therefore represent a customized solution for every application. The strengths of the modules are particularly apparent in combined connectivity with B&R's wide variety of components.

These range from compact CPUs with integrated I/O and a wide range of communication interfaces to CAN bus or X2X Link connectable I/O modules that can either be wired in the control cabinet or, like XV modules, connected directly to the connectors of third-party systems. Due to the complete and thorough integration within the B&R Automation Studio programming system and B&R's wide range of products, there are virtually no limits to how these can be used.

3 XV modules

3.1 General information

Up to now, there were 2 possibilities for controlling valve terminals:

- Directly via the fieldbus
- With individually wired outputs

The first solution is dependent on the valve terminal manufacturer; the second is very complex and cost-intensive. B&R's XV system offers a third possibility.

Using XV allows for an easy and economic connection of different valve terminals. Instead of valve terminals with expensive fieldbuses, standard devices with multipin connectors can be used. Regardless of brand, the integration of the valve terminals always remains the same. The application program and circuit diagrams are used continuously without any changes.

The XV module is connected directly to the valve terminal. The controller is connected to the central backplane via the integrated connection. All the valve control electronics are housed in a 25-pin DSUB connector, which can simply be connected to the multipin valve terminal.

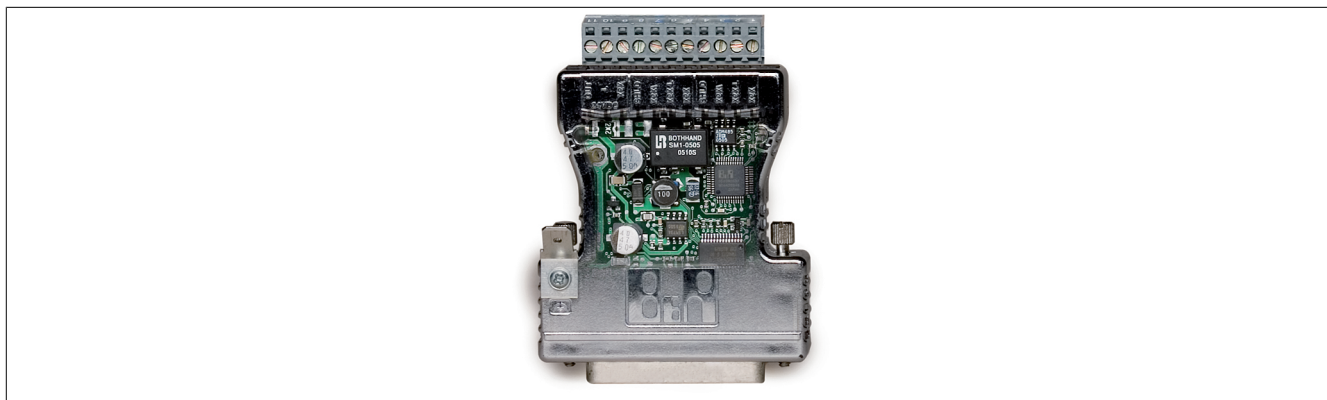


Figure 1: XV system - More than a connector

Thus, XV allows interoperability with all leading manufacturers and many smaller suppliers.

The XV connection module can be used decentrally and is available in variants with 8, 16 or 24 valves. The valve terminal connection is available with IP67 protection for use in harsh environments.

3.2 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 Link power supply and output power supply isolated	•	•	•	•		•	•	•	•	•	•	•	•	•
Protection														
IP20	•	•			•	•	•			•	•			
IP67			•	•				•	•			•	•	•
X2X Link connection and power supply														
11-pin male multipoint connector	•	•				•	•			•	•			
10-pin male multipoint connector					•									
M12/M8 connectors			•	•				•	•			•	•	•
Page	12	15	33	41	18	21	24	49	57	27	30	65	73	82

Table 3: XV modules - Overview

3.3 XV modules with IP20 protection

3.3.1 7XV108.50-11

Data sheet version: 2.00

3.3.1.1 Order data

Model number	Short description	Figure
	XV108 valve connections	
7XV108.50-11	Remote valve terminal connection, 8 digital outputs, 0.1 A, 24 VDC, for 25-pin DSUB multipin connector, GND pins 22, 23, 24, 25, X2X Link, electrically isolated, IP20 protection, Order terminal block 1x 0TB1111 separately!	
	Required accessories	
	Terminal blocks	
0TB1111.8010	Accessory screw clamp terminal block, 11-pin, screw clamp terminal block 1.5 mm ² , protected against vibration by the screw flange	
0TB1111.8110	Accessory terminal block, 11-pin, cage clamp, 1.5 mm ² , protected against vibration by the screw flange	

Table 4: 7XV108.50-11 - Order data

3.3.1.2 Technical data

Model number	7XV108.50-11
General information	
B&R ID code	0x1CE3
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using software (outputs)
Power consumption	Max. 0.75 W
Input capacitance	
Module power supply	47 µF / 7.5 Ω
I/O power supply	47 µF
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	8 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
GOST-R	Yes
Circuit	
Bus connection	11-pin
GND pin	22, 23, 24, 25
Power supply	via bus connector
Interfaces	
User interface	
Variant	11-pin male multipoint connector
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	0.8 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 150 µs / max. 200 µs
1 → 0	Typ. 175 µs / max. 250 µs

Table 5: 7XV108.50-11 - Technical data

Model number	7XV108.50-11
Type	High-side driver (source)
Max. output current	0.1 A
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP20
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order terminal block 1 x 0TB1111.8110 separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	56 g
Module dimensions including mounting plates	63 x 59 x 20 mm (H x W x D)

Table 5: 7XV108.50-11 - Technical data

3.3.1.3 Diagnostic LED status indicators

3.3.1.3.1 LED "Status"

Color	Explanation
Off	No module power supply via X2X Link (supply voltage on pin 9 of the multipoint connector < 10 V)
Green, blinking	Module power supply OK, but no X2X Link communication
Green/Orange, blinking	X2X Link communication OK. Module not configured.
Green	X2X Link communication OK.
Orange	X2X Link communication OK. Module not initialized.

Table 6: Diagnostic LED status indicators - LED "Status"

3.3.1.3.2 DCOK LED

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

Color	Explanation
Off	24 VDC OUT power supply < 15 V
On	24 VDC OUT power supply OK

Table 7: Diagnostic LEDs - DCOK LED

3.3.1.4 X2X Link and module power supply

11-pin terminal block		Terminal	Assignment
 0TB1111.8010	 0TB1111.8110	1	X2X
		2	X2X _L
		3	X2X _N
		4	Shield ¹⁾
		5	X2X
		6	X2X _L
		7	X2X _N
		8	Shield ¹⁾
		9	X2X power supply 24 VDC
		10	OUT power supply GND
		11	OUT power supply 24 VDC

Table 8: X2X Link and module power supply

1) Same potential as the housing.

3.3.1.5 Digital outputs 1 to 8

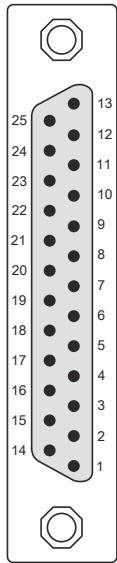
25-pin female DSUB connector	Pin	Assignment
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 8
	10	Digital output 3
	11	Digital output 6
	12	Digital output 1
	13	Digital output 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	GND - Module power supply
	23	GND - Module power supply
	24	GND - Module power supply
	25	GND - Module power supply
25-pin female DSUB connector	Shield	Shield

Table 9: Digital outputs 1 to 8

3.3.1.6 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 8	DigitalOutput01 - DigitalOutput08	BOOL	Current state of digital outputs 1 to 8
Status register	StatusInput01	USINT	Status register

Table 10: Register description

3.3.1.6.1 Status register

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

Figure 2: Register description - Status register

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

Table 11: Register description - Status register

3.3.1.6.2 Minimum cycle time

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

Minimum cycle time
>200 µs

Table 12: Register description - Minimum cycle time

3.3.2 7XV108.50-12

Data sheet version: 2.00

3.3.2.1 Order data

Model number	Short description	Figure
	XV108 valve connections	
7XV108.50-12	Remote valve terminal connection, 8 digital outputs, 0.1 A, 24 VDC, for 25-pin DSUB multipin connector, GND pins 13, 22, 23, 24, 25, X2X Link, electrically isolated, IP20 protection, Order terminal block 1x 0TB1111 separately!	
	Required accessories	
	Terminal blocks	
0TB1111.8010	Accessory screw clamp terminal block, 11-pin, screw clamp terminal block 1.5 mm ² , protected against vibration by the screw flange	
0TB1111.8110	Accessory terminal block, 11-pin, cage clamp, 1.5 mm ² , protected against vibration by the screw flange	

Table 13: 7XV108.50-12 - Order data

3.3.2.2 Technical data

Model number	7XV108.50-12
General information	
B&R ID code	0x1CE4
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using software (outputs)
Power consumption	Max. 0.75 W
Input capacitance	
Module power supply	47 µF / 7.5 Ω
I/O power supply	47 µF
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	8 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
GOST-R	Yes
Circuit	
Bus connection	11-pin
GND pin	13, 22, 23, 24, 25
Power supply	via bus connector
Interfaces	
User interface	
Variant	11-pin male multipoint connector
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	0.8 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 150 µs / max. 200 µs
1 → 0	Typ. 175 µs / max. 250 µs
Type	High-side driver (source)
Max. output current	0.1 A

Table 14: 7XV108.50-12 - Technical data

Model number	7XV108.50-12
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP20
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order terminal block 1 x 0TB1111.8110 separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	56 g
Module dimensions including mounting plates	63 x 59 x 20 mm (H x W x D)

Table 14: 7XV108.50-12 - Technical data

3.3.2.3 Diagnostic LED status indicators

3.3.2.3.1 LED "Status"

Color	Explanation
Off	No module power supply via X2X Link (supply voltage on pin 9 of the multipoint connector < 10 V)
Green, blinking	Module power supply OK, but no X2X Link communication
Green/Orange, blinking	X2X Link communication OK. Module not configured.
Green	X2X Link communication OK.
Orange	X2X Link communication OK. Module not initialized.

Table 15: Diagnostic LED status indicators - LED "Status"

3.3.2.3.2 DCOK LED

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

Color	Explanation
Off	24 VDC OUT power supply < 15 V
On	24 VDC OUT power supply OK

Table 16: Diagnostic LEDs - DCOK LED

3.3.2.4 X2X Link and module power supply

11-pin terminal block		Terminal	Assignment
 0TB1111.8010	 0TB1111.8110	1	X2X
		2	X2X _L
		3	X2X _I
		4	Shield ¹⁾
		5	X2X
		6	X2X _L
		7	X2X _I
		8	Shield ¹⁾
		9	X2X power supply 24 VDC
		10	OUT power supply GND
		11	OUT power supply 24 VDC

Table 17: X2X Link and module power supply

1) Same potential as the housing.

3.3.2.5 Digital outputs 1 to 8

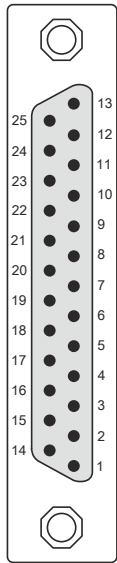
25-pin female DSUB connector	Pin	Assignment
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 8
	10	Digital output 3
	11	Digital output 6
	12	Digital output 1
	13	GND - Module power supply
	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	GND - Module power supply
	23	GND - Module power supply
	24	GND - Module power supply
	25	GND - Module power supply
	Shield	Shield

Table 18: Digital outputs 1 to 8

3.3.2.6 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 8	DigitalOutput01 - DigitalOutput08	BOOL	Current state of digital outputs 1 to 8
Status register	StatusInput01	USINT	Status register

Table 19: Register description

3.3.2.6.1 Status register

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

Figure 3: Register description - Status register

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

Table 20: Register description - Status register

3.3.2.6.2 Minimum cycle time

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

Minimum cycle time
>200 µs

Table 21: Register description - Minimum cycle time

3.3.3 7XV116.50-01

Data sheet version: 2.00

3.3.3.1 Order data

Model number	Short description	Figure
	XV116 valve connections	
7XV116.50-01	Remote valve terminal connection, 16 digital outputs, 0.1 A, 24 VDC, for 25-pin DSUB multipin connector, GND pins 22, 23, 24, 25 X2X Link, electrically isolated, general 24 VDC power supply, Order terminal block 1x 0TB710.91 separately!	
	Required accessories	
	Terminal blocks	
0TB710.90	Accessory terminal block, 10-pin, screw clamp terminal block 1.5 mm ²	
0TB710.91	Accessory terminal block, 10-pin, cage clamp terminal block 1.5 mm ²	

Table 22: 7XV116.50-01 - Order data

3.3.3.2 Technical data

Model number	7XV116.50-01
General information	
B&R ID code	0x1AC9
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using software (outputs)
Power consumption	Max. 0.75 W
Input capacitance	
Module power supply	220 µF
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	16 valves
Certifications	
CE	Yes
UL	cULus E115267
GOST-R	Industrial control equipment Yes
Circuit	
Bus connection	10-pin
GND pin	22, 23, 24, 25
Power supply	via bus connector
Interfaces	
User interface	
Variant	10-pin male multipoint connector
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	1.6 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 150 µs / max. 200 µs
1 → 0	Typ. 175 µs / max. 250 µs
Type	High-side driver (source)
Max. output current	0.1 A
Max. switching frequency	100 Hz

Table 23: 7XV116.50-01 - Technical data

Model number	7XV116.50-01
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP20
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order terminal block 1 x 0TB710 separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	56 g
Module dimensions including mounting plates	63 x 59 x 20 mm (H x W x D)

Table 23: 7XV116.50-01 - Technical data

3.3.3.3 Diagnostic LED status indicators

3.3.3.3.1 LED "Status"

Color	Explanation
Off	No power supply (supply voltage < 10 VDC)
Green, blinking	No X2X Link communication. I/O function OK.
Green/Orange, blinking	X2X Link communication OK. Module not configured.
Green	X2X Link communication OK. I/O function OK.
Orange	X2X Link communication OK. I/O function not OK.

Table 24: Diagnostic LED status indicators - LED "Status"

3.3.3.3.2 DCOK LED

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

Color	Explanation
Off	24 VDC OUT power supply < 15 V
On	24 VDC OUT power supply OK

Table 25: Diagnostic LEDs - DCOK LED

3.3.3.4 X2X Link and module power supply

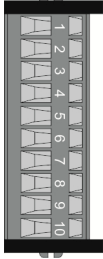
10-pin terminal block	Terminal	Assignment
	1	X2X
	2	X2X _L
	3	X2X _N
	4	Shield ¹⁾
	5	X2X
	6	X2X _L
	7	X2X _N
	8	Shield ¹⁾
	9	24 VDC module power supply
	10	Module power supply GND

Table 26: X2X Link and module power supply

1) Same potential as the housing.

3.3.3.5 Digital outputs 1 to 16

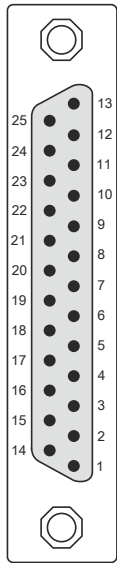
25-pin female DSUB connector	Pin	Assignment
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Digital 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	GND - Module power supply
	23	GND - Module power supply
	24	GND - Module power supply
	25	GND - Module power supply
	Shield	Shield

Table 27: Digital outputs 1 to 16

3.3.3.6 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 16	DigitalOutput01 to DigitalOutput16	BOOL	Current state of digital outputs 1 to 16
Status register	StatusInput01	USINT	Status register

Table 28: Register description

3.3.3.6.1 Status register

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

Figure 4: Register description - Status register

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

Table 29: Register description - Status register

3.3.3.6.2 Minimum cycle time

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

Minimum cycle time
>200 µs

Table 30: Register description - Minimum cycle time

3.3.4 7XV116.50-11

Data sheet version: 2.00

3.3.4.1 Order data

Model number	Short description	Figure
	XV116 valve connections	
7XV116.50-11	Remote valve terminal connection, 16 digital outputs, 0.1 A, 24 VDC, for 25-pin DSUB multipin connector, GND pins 22, 23, 24, 25, X2X Link, electrically isolated, IP20 protection, Order terminal block 1x 0TB1111 separately!	
	Required accessories	
	Terminal blocks	
0TB1111.8010	Accessory screw clamp terminal block, 11-pin, screw clamp terminal block 1.5 mm ² , protected against vibration by the screw flange	
0TB1111.8110	Accessory terminal block, 11-pin, cage clamp, 1.5 mm ² , protected against vibration by the screw flange	

Table 31: 7XV116.50-11 - Order data

3.3.4.2 Technical data

Model number	7XV116.50-11
General information	
B&R ID code	0x1CE5
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using software (outputs)
Power consumption	Max. 0.75 W
Input capacitance	
Module power supply	47 µF / 7.5 Ω
I/O power supply	47 µF
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	16 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
GOST-R	Yes
Circuit	
Bus connection	11-pin
GND pin	22, 23, 24, 25
Power supply	via bus connector
Interfaces	
User interface	
Variant	11-pin male multipoint connector
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	1.6 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 150 µs / max. 200 µs
1 → 0	Typ. 175 µs / max. 250 µs
Type	High-side driver (source)
Max. output current	0.1 A

Table 32: 7XV116.50-11 - Technical data

Model number	7XV116.50-11
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP20
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order terminal block 1 x 0TB1111.8110 separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	56 g
Module dimensions including mounting plates	63 x 59 x 20 mm (H x W x D)

Table 32: 7XV116.50-11 - Technical data

3.3.4.3 Diagnostic LED status indicators

3.3.4.3.1 LED "Status"

Color	Explanation
Off	No module power supply via X2X Link (supply voltage on pin 9 of the multipoint connector < 7 V)
Orange	X2X communication OK. Module power supply via X2X Link < 15 V
Red	No X2X Link communication
Green	X2X Link communication OK

Table 33: Diagnostic LED status indicators - LED "Status"

3.3.4.3.2 DCOK LED

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

Color	Explanation
Off	24 VDC OUT power supply < 15 V
On	24 VDC OUT power supply OK

Table 34: Diagnostic LEDs - DCOK LED

3.3.4.4 X2X Link and module power supply

11-pin terminal block		Terminal	Assignment
 0TB1111.8010	 0TB1111.8110	1	X2X
		2	X2X _L
		3	X2X _N
		4	Shield ¹⁾
		5	X2X
		6	X2X _L
		7	X2X _N
		8	Shield ¹⁾
		9	X2X power supply 24 VDC
		10	OUT power supply GND
		11	OUT power supply 24 VDC

Table 35: X2X Link and module power supply

1) Same potential as the housing.

3.3.4.5 Digital outputs 1 to 16

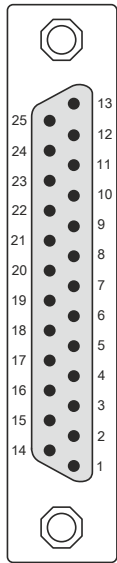
25-pin female DSUB connector	Pin	Assignment
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Digital 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	GND - Module power supply
	23	GND - Module power supply
	24	GND - Module power supply
	25	GND - Module power supply
	Shield	Shield

Table 36: Digital outputs 1 to 16

3.3.4.6 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 16	DigitalOutput01 to DigitalOutput16	BOOL	Current state of digital outputs 1 to 16
Status register	StatusInput01	USINT	Status register

Table 37: Register description

3.3.4.6.1 Status register

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

Figure 5: Register description - Status register

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

Table 38: Register description - Status register

3.3.4.6.2 Minimum cycle time

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

Minimum cycle time
>200 µs

Table 39: Register description - Minimum cycle time

3.3.5 7XV116.50-12

Data sheet version: 2.00

3.3.5.1 Order data

Model number	Short description	Figure
	XV116 valve connections	
7XV116.50-12	Remote valve terminal connection, 16 digital outputs, 0.1 A, 24 VDC, for 25-pin DSUB multipin connector, GND pins 13, 22, 23, 24, 25, X2X Link, electrically isolated, IP20 protection, Order terminal block 1x 0TB1111 separately!	
	Required accessories	
	Terminal blocks	
0TB1111.8010	Accessory screw clamp terminal block, 11-pin, screw clamp terminal block 1.5 mm ² , protected against vibration by the screw flange	
0TB1111.8110	Accessory terminal block, 11-pin, cage clamp, 1.5 mm ² , protected against vibration by the screw flange	

Table 40: 7XV116.50-12 - Order data

3.3.5.2 Technical data

Model number	7XV116.50-12
General information	
B&R ID code	0x1CE6
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using software (outputs)
Power consumption	Max. 0.75 W
Input capacitance	
Module power supply	47 µF / 7.5 Ω
I/O power supply	47 µF
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	16 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
GOST-R	Yes
Circuit	
Bus connection	11-pin
GND pin	13, 22, 23, 24, 25
Power supply	via bus connector
Interfaces	
User interface	
Variant	11-pin male multipoint connector
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	1.6 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 150 µs / max. 200 µs
1 → 0	Typ. 175 µs / max. 250 µs
Type	High-side driver (source)
Max. output current	0.1 A

Table 41: 7XV116.50-12 - Technical data

Model number	7XV116.50-12
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP20
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order terminal block 1 x 0TB1111.8110 separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	56 g
Module dimensions including mounting plates	63 x 59 x 20 mm (H x W x D)

Table 41: 7XV116.50-12 - Technical data

3.3.5.3 Diagnostic LED status indicators

3.3.5.3.1 LED "Status"

Color	Explanation
Off	No module power supply via X2X Link (supply voltage on pin 9 of the multipoint connector < 10 V)
Green, blinking	Module power supply OK, but no X2X Link communication
Green/Orange, blinking	X2X Link communication OK. Module not configured.
Green	X2X Link communication OK.
Orange	X2X Link communication OK. Module not initialized.

Table 42: Diagnostic LED status indicators - LED "Status"

3.3.5.3.2 DCOK LED

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

Color	Explanation
Off	24 VDC OUT power supply < 15 V
On	24 VDC OUT power supply OK

Table 43: Diagnostic LEDs - DCOK LED

3.3.5.4 X2X Link and module power supply

11-pin terminal block		Terminal	Assignment
 0TB1111.8010	 0TB1111.8110	1	X2X
		2	X2X _L
		3	X2X _I
		4	Shield ¹⁾
		5	X2X
		6	X2X _L
		7	X2X _I
		8	Shield ¹⁾
		9	X2X power supply 24 VDC
		10	OUT power supply GND
		11	OUT power supply 24 VDC

Table 44: X2X Link and module power supply

1) Same potential as the housing.

3.3.5.5 Digital outputs 1 to 16

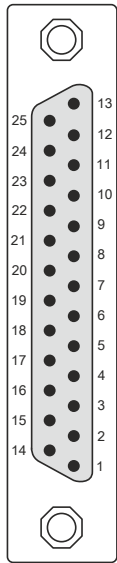
25-pin female DSUB connector	Pin	Assignment
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	GND - Module power 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 - Module power supply
	23	GND - Module power supply
	24	GND - Module power supply
	25	GND - Module power supply
	Shield	Shield

Table 45: Digital outputs 1 to 16

3.3.5.6 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 16	DigitalOutput01 to DigitalOutput16	BOOL	Current state of digital outputs 1 to 16
Status register	StatusInput01	USINT	Status register

Table 46: Register description

3.3.5.6.1 Status register

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

Figure 6: Register description - Status register

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

Table 47: Register description - Status register

3.3.5.6.2 Minimum cycle time

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

Minimum cycle time
>200 µs

Table 48: Register description - Minimum cycle time

3.3.6 7XV124.50-11

Data sheet version: 2.00

3.3.6.1 Order data

Model number	Short description	Figure
	XV124 valve connections	
7XV124.50-11	Remote valve terminal connection, 24 digital outputs, 0.1 A, 24 VDC, for 25-pin DSUB multipin connector, GND pin 25, X2X Link, electrically isolated, IP20 protection, Order terminal block 1x 0TB1111 separately!	
	Required accessories	
	Terminal blocks	
0TB1111.8010	Accessory screw clamp terminal block, 11-pin, screw clamp terminal block 1.5 mm ² , protected against vibration by the screw flange	
0TB1111.8110	Accessory terminal block, 11-pin, cage clamp, 1.5 mm ² , protected against vibration by the screw flange	

Table 49: 7XV124.50-11 - Order data

3.3.6.2 Technical data

Model number	7XV124.50-11
General information	
B&R ID code	0x1CE7
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes (color / blink code)
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using software (outputs)
Power consumption	Max. 0.75 W
Input capacitance	
Module power supply	47 µF
I/O power supply	47 µF
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	24 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
GOST-R	Yes
Circuit	
Bus connection	11-pin
GND pin	25
Power supply	via bus connector
Interfaces	
User interface	
Variant	11-pin male multipoint connector
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	2.4 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 150 µs / max. 200 µs
1 → 0	Typ. 175 µs / max. 250 µs
Type	High-side driver (source)

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

Model number	7XV124.50-11
Max. output current	0.1 A
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP20
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order terminal block 1 x 0TB1111.8110 separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	56 g
Module dimensions including mounting plates	63 x 59 x 20 mm (H x W x D)

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

3.3.6.3 Diagnostic LED status indicators

DCOK LED (Orange)	LED "Status" (Green/Red)	Description
Off	Off	No module power supply via X2X Link (multipoint connector pin 9)
Blinking	On (red)	Module power supply OK, but no X2X communication
On	On (green)	Mode RUN
Blinking		Warning! +24 VDC OUT power supply in the lower range or overload of the outputs.
		Caution! No warning when exceeding 30 VDC!
Double impulse		Warning! +24 VDC X2X power supply in lower or upper range.

3.3.6.4 X2X Link and module power supply

11-pin terminal block		Terminal	Assignment	
 0TB1111.8010	 0TB1111.8110	1	X2X	X2X input
		2	X2X _L	
		3	X2X _N	
		4	Shield ¹⁾	
		5	X2X	X2X output
		6	X2X _L	
		7	X2X _N	
		8	Shield ¹⁾	
		9	X2X power supply 24 VDC	
		10	OUT power supply GND	
		11	OUT power supply 24 VDC	

Table 51: X2X Link and module power supply

1) Same potential as the housing.

3.3.6.5 Digital outputs 1 to 24

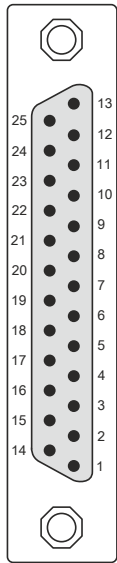
25-pin female DSUB connector	Pin	Assignment
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Digital 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 - Module power supply
	Shield	Shield

Table 52: Digital outputs 1 to 24

3.3.6.6 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 24	DigitalOutput01 - DigitalOutput24	BOOL	Current state of digital outputs 1 to 24
Status register	StatusInput01	USINT	Status register

Table 53: Register description

3.3.6.6.1 Status register

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

Figure 7: Register description - Status register

Bit	Description
0	Monitoring the 24 VDC OUT power supply (output power supply) 0 ... Outside of the permissible range 1 ... OK
1	Monitoring the outputs 1 to 24 0 ... Overload on one or more outputs 1 ... OK
2	Reserve (must be set to 1)
3 to 7	Reserve (must be set to 0)

Table 54: Register description - Status register

3.3.6.6.2 Minimum cycle time

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

Minimum cycle time
>200 µs

Table 55: Register description - Minimum cycle time

3.3.7 7XV124.50-12

Data sheet version: 2.00

3.3.7.1 Order data

Model number	Short description	Figure
	XV124 valve connections	
7XV124.50-12	Remote valve terminal connection, 24 digital outputs, 0.1 A, 24 VDC, for 25-pin DSUB multipin connector, GND pin 13, X2X Link, electrically isolated, IP20 protection, Order terminal block 1x 0TB1111 separately!	
	Required accessories	
	Terminal blocks	
0TB1111.8010	Accessory screw clamp terminal block, 11-pin, screw clamp terminal block 1.5 mm ² , protected against vibration by the screw flange	
0TB1111.8110	Accessory terminal block, 11-pin, cage clamp, 1.5 mm ² , protected against vibration by the screw flange	

Table 56: 7XV124.50-12 - Order data

3.3.7.2 Technical data

Model number	7XV124.50-12
General information	
B&R ID code	0x1CE8
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes (color / blink code)
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using software (outputs)
Power consumption	Max. 0.75 W
Input capacitance	
Module power supply	47 µF
I/O power supply	47 µF
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	24 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
GOST-R	Yes
Circuit	
Bus connection	11-pin
GND pin	13
Power supply	via bus connector
Interfaces	
User interface	
Variant	11-pin male multipoint connector
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	2.4 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 150 µs / max. 200 µs
1 → 0	Typ. 175 µs / max. 250 µs
Type	High-side driver (source)
Max. output current	0.1 A

Table 57: 7XV124.50-12 - Technical data

Model number	7XV124.50-12
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP20
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order terminal block 1 x 0TB1111.8110 separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	56 g
Module dimensions including mounting plates	63 x 59 x 20 mm (H x W x D)

Table 57: 7XV124.50-12 - Technical data

3.3.7.3 Diagnostic LED status indicators

DCOK LED (Orange)	LED "Status" (Green/Red)	Description
Off	Off	No module power supply via X2X Link (multipoint connector pin 9)
Blinking	On (red)	Module power supply OK, but no X2X communication
On	On (green)	Mode RUN
Blinking		Warning! +24 VDC OUT power supply in the lower range or overload of the outputs. Caution! No warning when exceeding 30 VDC!
Double impulse		Warning! +24 VDC X2X power supply in lower or upper range.

3.3.7.4 X2X Link and module power supply

11-pin terminal block		Terminal	Assignment
 0TB1111.8010	 0TB1111.8110	1	X2X
		2	X2X _L
		3	X2X _I
		4	Shield ¹⁾
		5	X2X
		6	X2X _L
		7	X2X _I
		8	Shield ¹⁾
		9	X2X power supply 24 VDC
		10	OUT power supply GND
		11	OUT power supply 24 VDC

Table 58: X2X Link and module power supply

1) Same potential as the housing.

3.3.7.5 Digital outputs 1 to 24

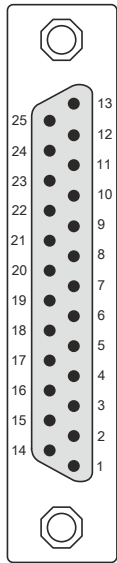
25-pin female DSUB connector	Pin	Assignment
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	GND - Module power 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 59: Digital outputs 1 to 24

3.3.7.6 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 24	DigitalOutput01 - DigitalOutput24	BOOL	Current state of digital outputs 1 to 24
Status register	StatusInput01	USINT	Status register

Table 60: Register description

3.3.7.6.1 Status register

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

Figure 8: Register description - Status register

Bit	Description
0	Monitoring the 24 VDC OUT power supply (output power supply) 0 ... Outside of the permissible range 1 ... OK
1	Monitoring the outputs 1 to 24 0 ... Overload on one or more outputs 1 ... OK
2	Reserve (must be set to 1)
3 to 7	Reserve (must be set to 0)

Table 61: Register description - Status register

3.3.7.6.2 Minimum cycle time

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

Minimum cycle time
>200 µs

Table 62: Register description - Minimum cycle time

3.4 XV modules with IP67 protection

3.4.1 7XV108.50-51

Data sheet version: 2.00

3.4.1.1 Order data

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

Table 63: 7XV108.50-51 - Order data

3.4.1.2 Technical data

Model number	7XV108.50-51
General information	
B&R ID code	0x1CEB
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes (color / blink code)
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using LED and software (outputs)
Power consumption	
Internal I/O	Max. 1.5 W (without load)
X2X Link power supply	Max. 0.75 W
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	8 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
ATEX	Zone 2, II 3G Ex nA IIA T5 Gc IP67, Ta = 0 - Max. 60°C TÜV 05 ATEX 7201X
GOST-R	Yes
Circuit	
Bus connection	M12
GND pin	22, 23, 24, 25
Power supply	M8
Interfaces	
User interface	
Variant	M12
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	0.8 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature

Table 64: 7XV108.50-51 - Technical data

Model number	7XV108.50-51
Switching delay	
0 → 1	Typ. 100 µs / max. 150 µs
1 → 0	Typ. 125 µs / max. 200 µs
Type	High-side driver (source)
Max. output current	0.1 A
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP67
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order male/female M12/M8 connectors separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	125 g
Module dimensions including mounting plates	62 x 70 x 30 mm (H x W x D)

Table 64: 7XV108.50-51 - Technical data

3.4.1.3 Dimensions

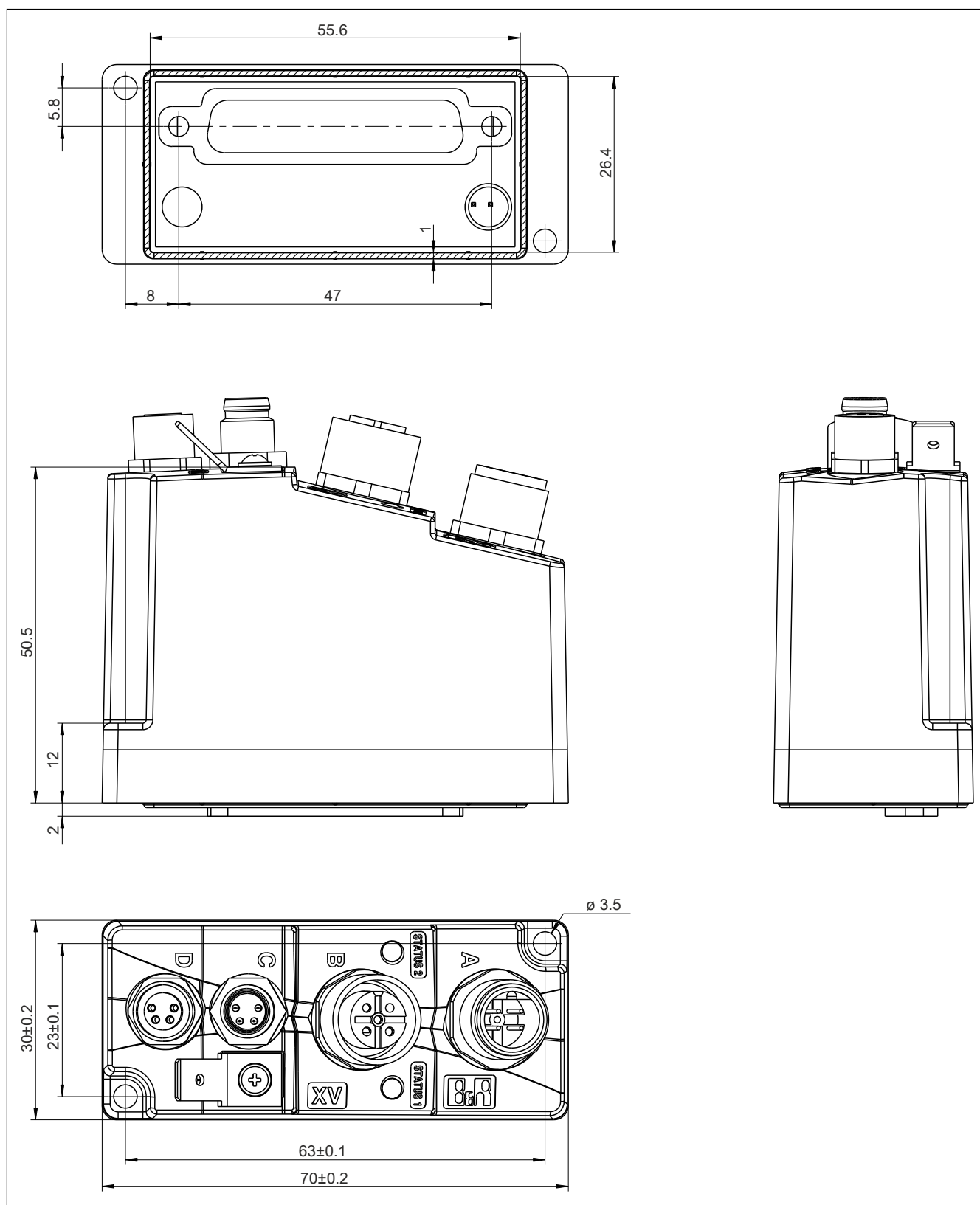


Figure 9: Dimensions

3.4.1.4 Figures

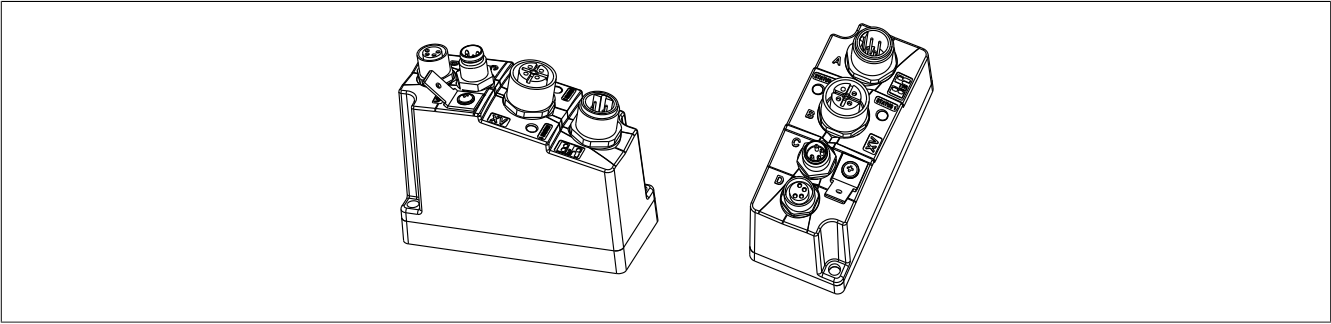


Figure 10: Figures

3.4.1.5 Diagnostic LED status indicators

DCOK LED (Orange)	LED "Status" (Green/Red)	Description
Off	Off	No module power supply via X2X Link (multipoint connector pin 9)
Blinking	On (red)	Module power supply OK, but no X2X communication
On	On (green)	Mode RUN
Blinking		Warning! +24 VDC OUT power supply in the lower range or overload of the outputs.
Double impulse		Caution! No warning when exceeding 30 VDC!
		Warning! +24 VDC X2X power supply in lower or upper range.

3.4.1.6 X2X Link and module power supply

Figure	Connection	Description
	A	X2X Link input ¹⁾
	B	X2X Link output to the next module
	C	24 VDC power supply for digital outputs (supply to the module)
	D	24 VDC power supply for digital outputs (routing to next module)

Table 65: X2X Link and module power supply

1) The standard power supply regulations for X67 modules must also be applied to these modules. Since the 7XV modules are supplied via X67 cables, using X67PS1300 and/or X20BT9400 is required.

3.4.1.6.1 X2X Link

This module is connected to X2X Link using pre-assembled cables. The connection is made using a circular connector (2x M12, 4-pin).

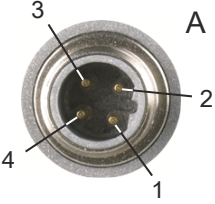
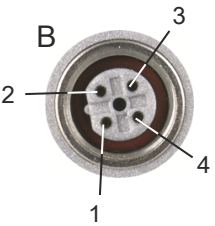
Connection	Pinout	
	Pin	Description
	1	X2X+
	2	X2X
	3	X2X _L
	4	X2X _N
	A ... B-keyed male connector on the module, input B ... B-coded female connector on the module, output SHLD ... Shield via threaded insert in the module	
		

Table 66: X2X Link and module power supply - X2X Link

3.4.1.6.2 24 VDC module power supply

The module power supply connection is made using circular connectors (2x M8, 4-pin). The power supply is connected via male connector C. Female connector D is used to route the power supply to other modules.

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

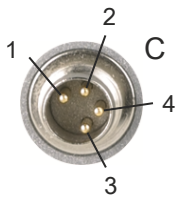
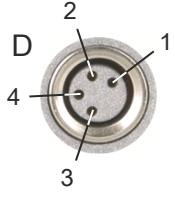
Connection	Pinout	
	Pin	Description
	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Male connector on the module, supply D ... Female connector on the module, routing	
		

Table 67: X2X Link and module power supply - 24 VDC module power supply

3.4.1.7 Digital outputs 1 to 8

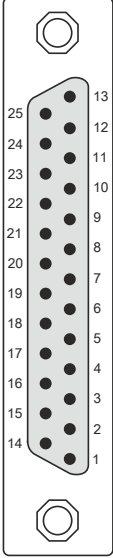
25-pin female DSUB connector	Pin	Description
 25-pin female DSUB connector	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 8
	10	Digital output 3
	11	Digital output 6
	12	Digital 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	GND - Module power supply
	23	GND - Module power supply
	24	GND - Module power supply
	25	GND - Module power supply
	Shield	Shield

Table 68: Digital outputs 1 to 8

3.4.1.8 Output circuit

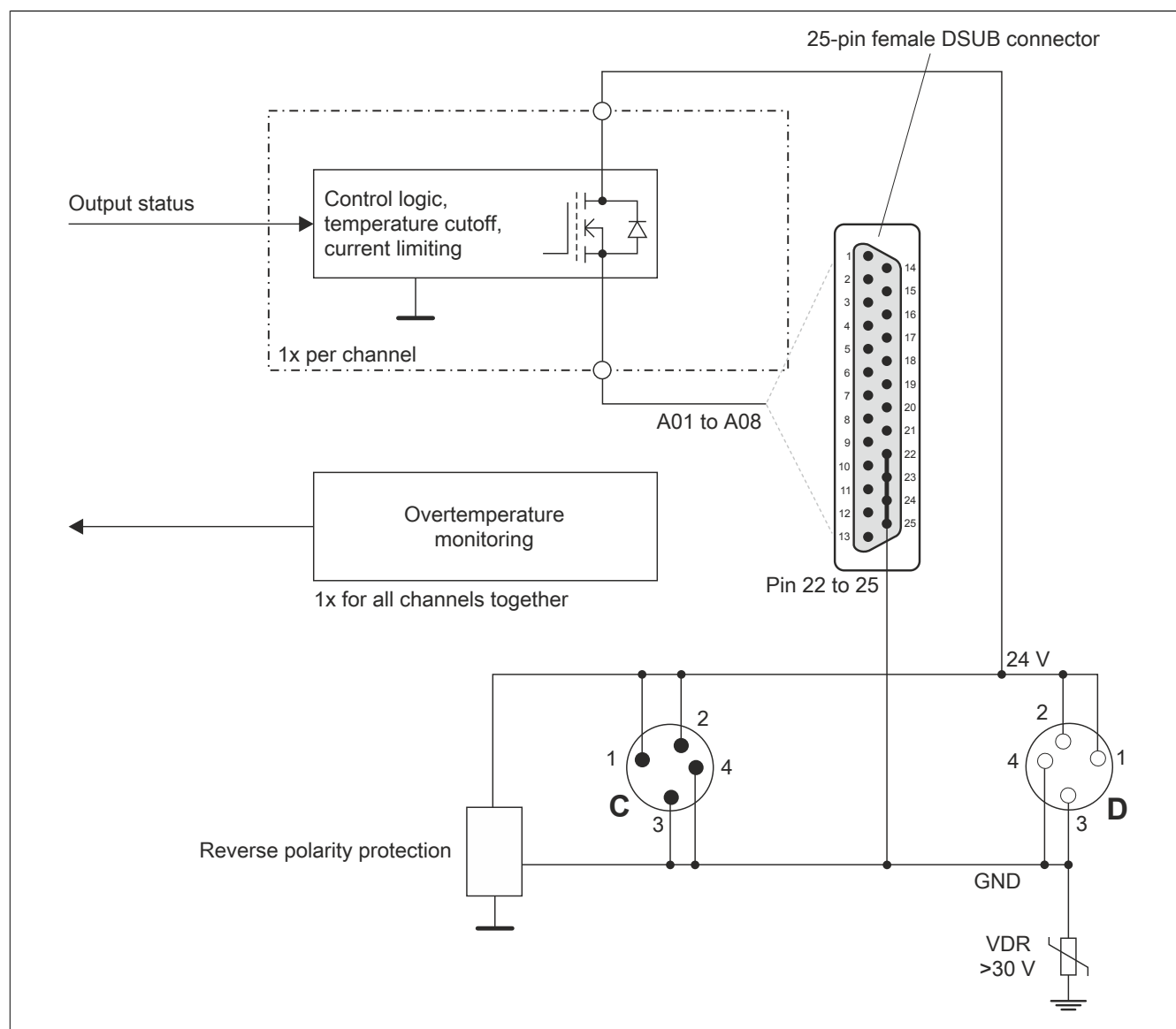


Figure 11: Output circuit

The outputs are connected to several pins on the Female DSUB connector.

3.4.1.9 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 8	DigitalOutput01 - DigitalOutput08	BOOL	Current state of digital outputs 1 to 8
Status register	StatusInput01	USINT	Status register

Table 69: Register description

3.4.1.9.1 Status register

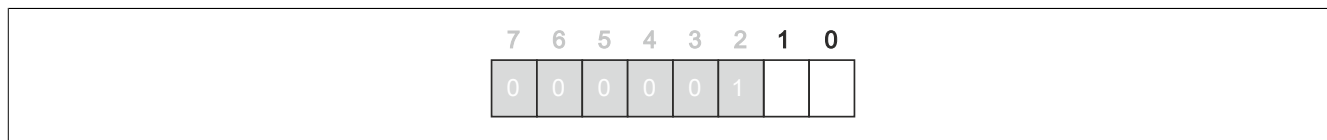


Figure 12: Register description - Status register

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

Table 70: Register description - Status register

3.4.1.9.2 Minimum cycle time

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

Minimum cycle time
>150 µs

Table 71: Register description - Minimum cycle time

3.4.2 7XV108.50-62

Data sheet version: 2.00

3.4.2.1 Order data

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

Table 72: 7XV108.50-62 - Order data

3.4.2.2 Technical data

Model number	7XV108.50-62
General information	
B&R ID code	0x25B8
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes (color / blink code)
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using LED and software (outputs)
Power consumption	
Internal I/O	Max. 1.5 W (without load)
X2X Link power supply	Max. 0.75 W
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	8 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
ATEX	Zone 2, II 3G Ex nA IIA T5 Gc IP67, Ta = 0 - Max. 60°C TÜV 05 ATEX 7201X
GOST-R	Yes
Circuit	
Bus connection	M12
GND pin	13, 22, 23, 24, 25
Power supply	M8
Interfaces	
User interface	
Variant	M12
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	0.8 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 100 µs / max. 150 µs
1 → 0	Typ. 125 µs / max. 200 µs
Type	High-side driver (source)

Table 73: 7XV108.50-62 - Technical data

XV modules

Model number	7XV108.50-62
Max. output current	0.1 A
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP67
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order male/female M12/M8 connectors separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	131 g
Module dimensions including mounting plates	67 x 66 x 30 mm (H x W x D)

Table 73: 7XV108.50-62 - Technical data

3.4.2.3 Dimensions

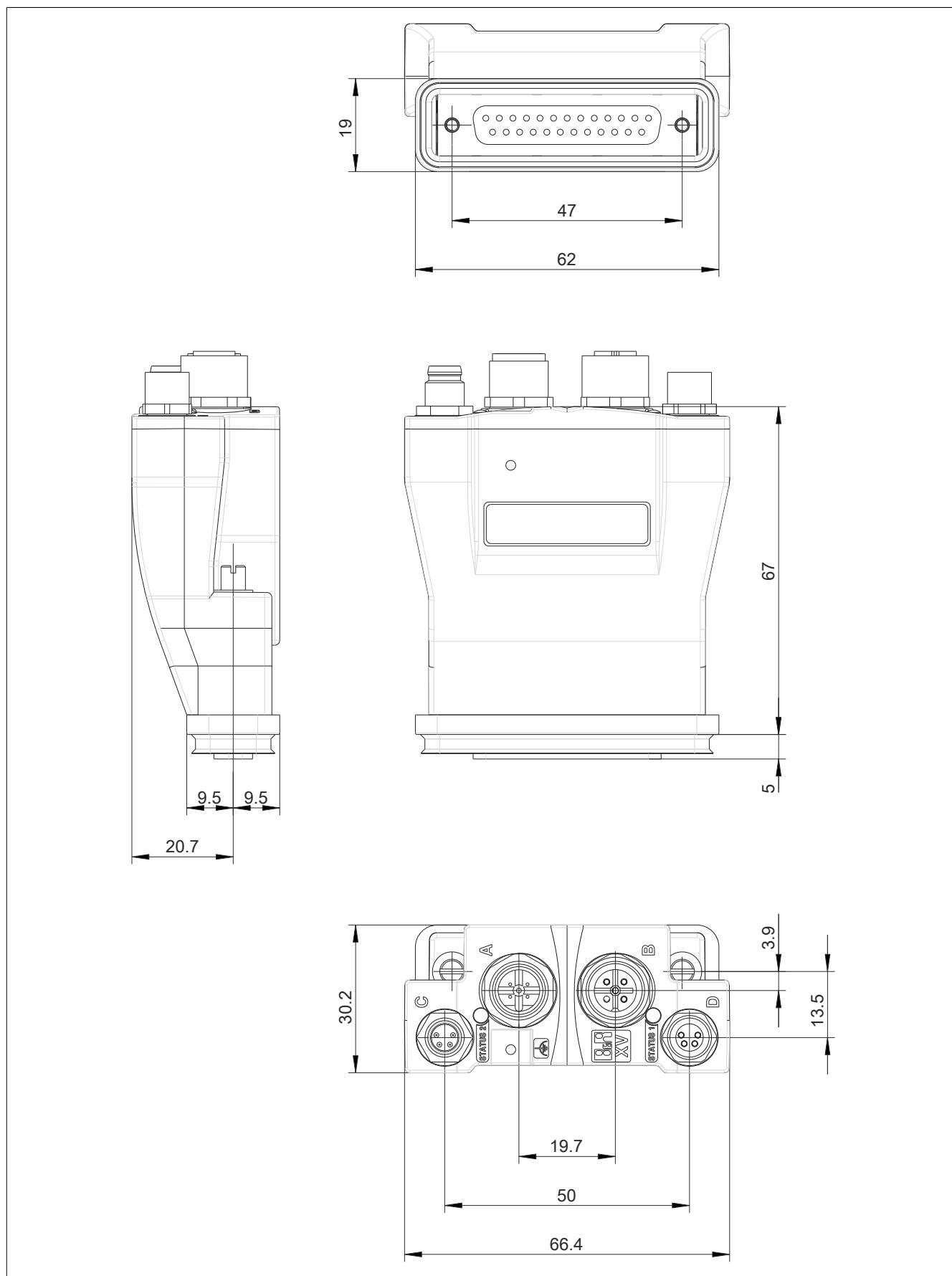


Figure 13: Dimensions

3.4.2.4 Figures

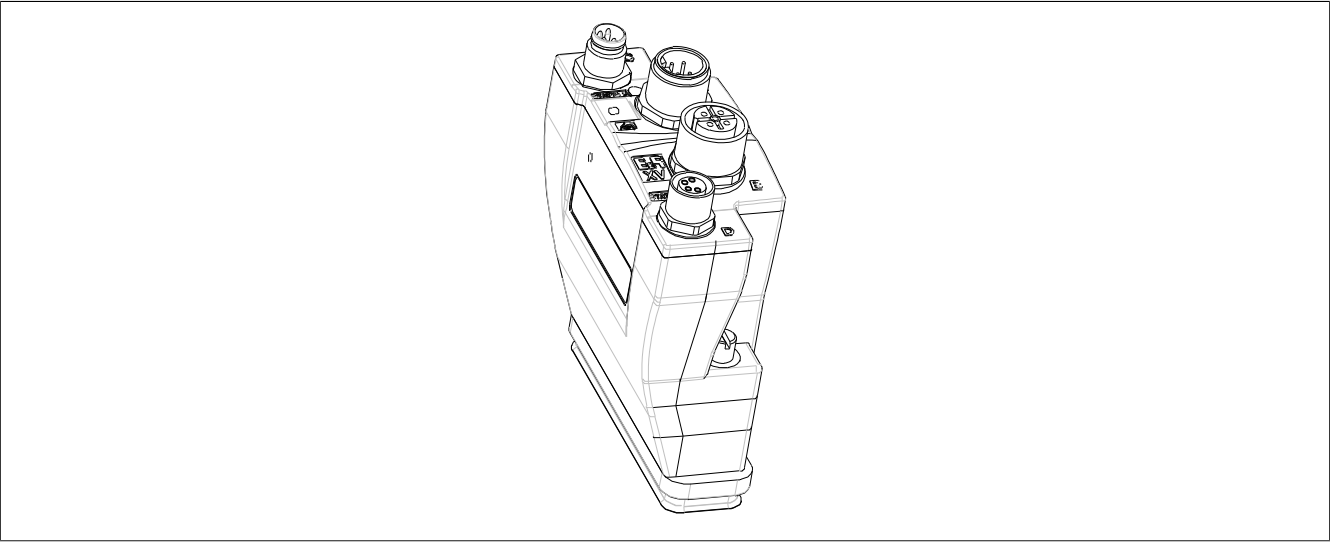


Figure 14: Figures

3.4.2.5 Diagnostic LED status indicators

DCOK LED (Orange)	LED "Status" (Green/Red)	Description
Off	Off	No module power supply via X2X Link (multipoint connector pin 9)
Blinking	On (red)	Module power supply OK, but no X2X communication
On	On (green)	Mode RUN
Blinking		Warning! +24 VDC OUT power supply in the lower range or overload of the outputs.
		Caution! No warning when exceeding 30 VDC!
Double impulse		Warning! +24 VDC X2X power supply in lower or upper range.

3.4.2.6 X2X Link and module power supply

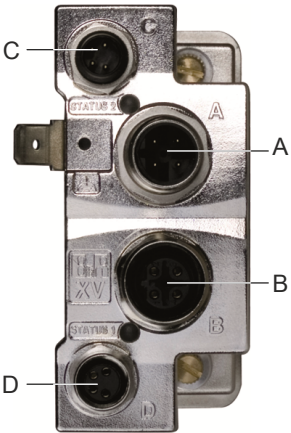
Figure	Connection	Description
	A	X2X Link input ¹⁾
	B	X2X Link output to the next module
	C	24 VDC power supply for digital outputs (supply to the module)
	D	24 VDC power supply for digital outputs (routing to next module)

Table 74: X2X Link and module power supply

1) The standard power supply regulations for X67 modules must also be applied to these modules. Since the 7XV modules are supplied via X67 cables, using X67PS1300 and/or X20BT9400 is required.

3.4.2.6.1 X2X Link

This module is connected to X2X Link using pre-assembled cables. The connection is made using a circular connector (2x M12, 4-pin).

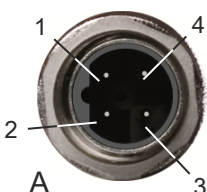
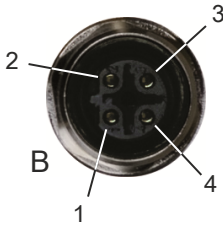
Connection	Pinout	
	Pin	Description
 A	1	X2X+
	2	X2X
	3	X2X _L
	4	X2X _N
	A ... B-keyed male connector on the module, input B ... B-coded female connector on the module, output SHLD ... Shield via threaded insert in the module	
 B		

Table 75: X2X Link and module power supply - X2X Link

3.4.2.6.2 24 VDC module power supply

The module power supply connection is made using circular connectors (2x M8, 4-pin). The power supply is connected via male connector C. Female connector D is used to route the power supply to other modules.

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

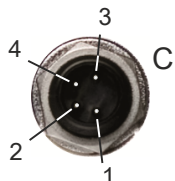
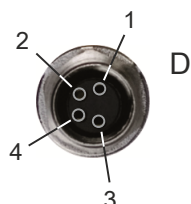
Connection	Pinout	
	Pin	Description
 C	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Male connector on the module, supply D ... Female connector on the module, routing	
 D		

Table 76: X2X Link and module power supply - 24 VDC module power supply

3.4.2.7 Digital outputs 1 to 8

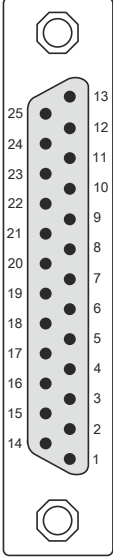
25-pin female DSUB connector	Pin	Assignment
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 8
	10	Digital output 3
	11	Digital output 6
	12	Digital output 1
	13	GND output power 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 power supply
	23	GND output power supply
	24	GND output power supply
	25	GND output power supply
25-pin female DSUB connector	Shield	Shield

Table 77: Digital outputs 1 to 8

3.4.2.8 Output circuit

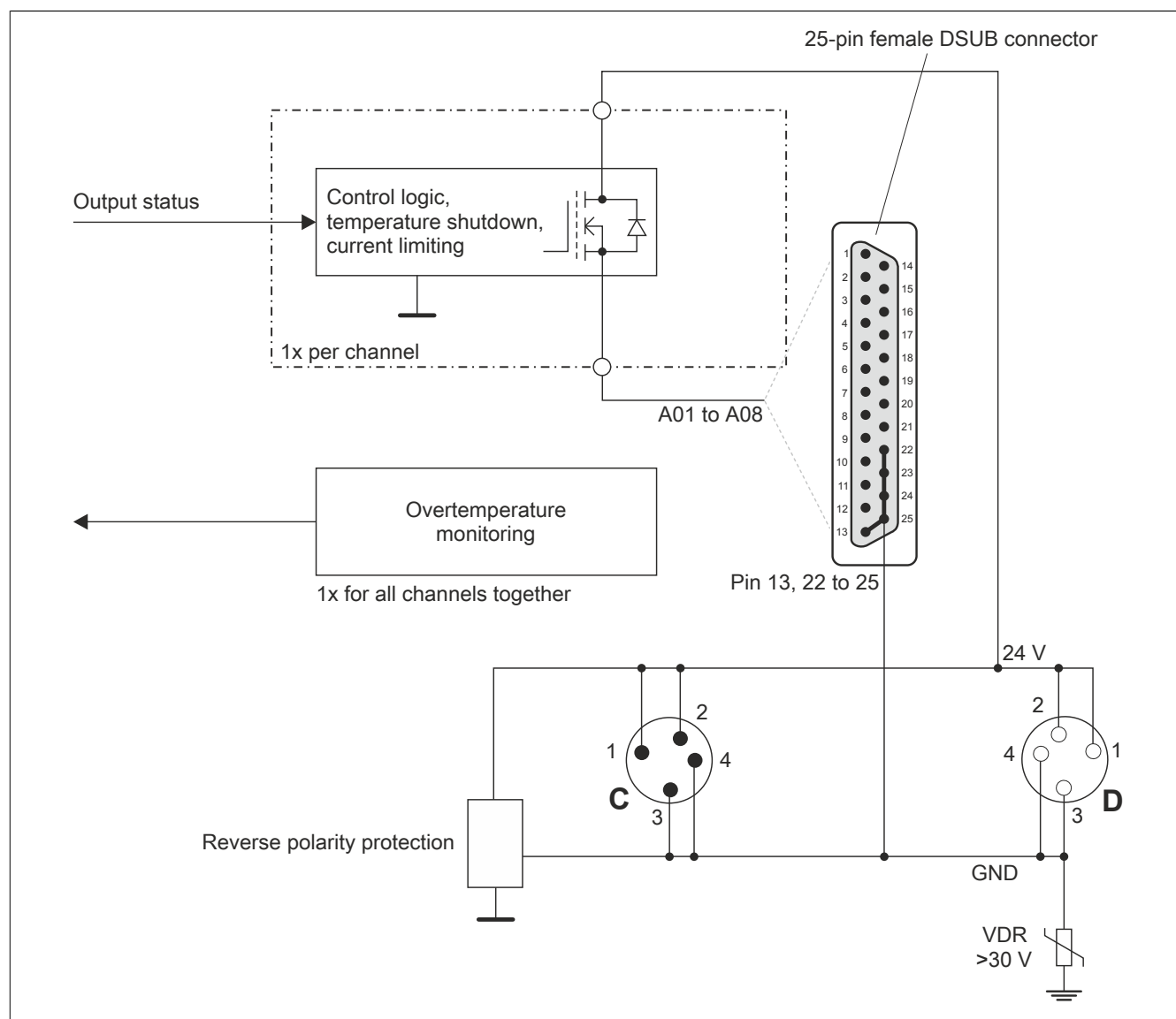


Figure 15: Output circuit

The outputs are connected to several pins on the Female DSUB connector.

3.4.2.9 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 8	DigitalOutput01 - DigitalOutput08	BOOL	Current state of digital outputs 1 to 8
Status register	StatusInput01	USINT	Status register

Table 78: Register description

3.4.2.9.1 Status register

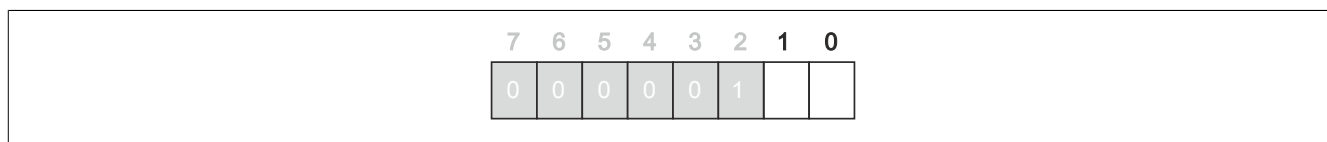


Figure 16: Register description - Status register

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

Table 79: Register description - Status register

3.4.2.9.2 Minimum cycle time

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

Minimum cycle time
>150 µs

Table 80: Register description - Minimum cycle time

3.4.3 7XV116.50-51

Data sheet version: 2.00

3.4.3.1 Order data

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

Table 81: 7XV116.50-51 - Order data

3.4.3.2 Technical data

Model number	7XV116.50-51
General information	
B&R ID code	0x1CEC
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes (color / blink code)
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using LED and software (outputs)
Power consumption	
Internal I/O	Max. 1.5 W (without load)
X2X Link power supply	Max. 0.75 W
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	16 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
ATEX	Zone 2, II 3G Ex nA IIA T5 Gc IP67, Ta = 0 - Max. 60°C TÜV 05 ATEX 7201X
GOST-R	Yes
Circuit	
Bus connection	M12
GND pin	22, 23, 24, 25
Power supply	M8
Interfaces	
User interface	
Variant	M12
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	1.6 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 100 µs / max. 150 µs
1 → 0	Typ. 125 µs / max. 200 µs
Type	High-side driver (source)

Table 82: 7XV116.50-51 - Technical data

XV modules

Model number	7XV116.50-51
Max. output current	0.1 A
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP67
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order male/female M12/M8 connectors separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	125 g
Module dimensions including mounting plates	62 x 70 x 30 mm (H x W x D)

Table 82: 7XV116.50-51 - Technical data

3.4.3.3 Dimensions

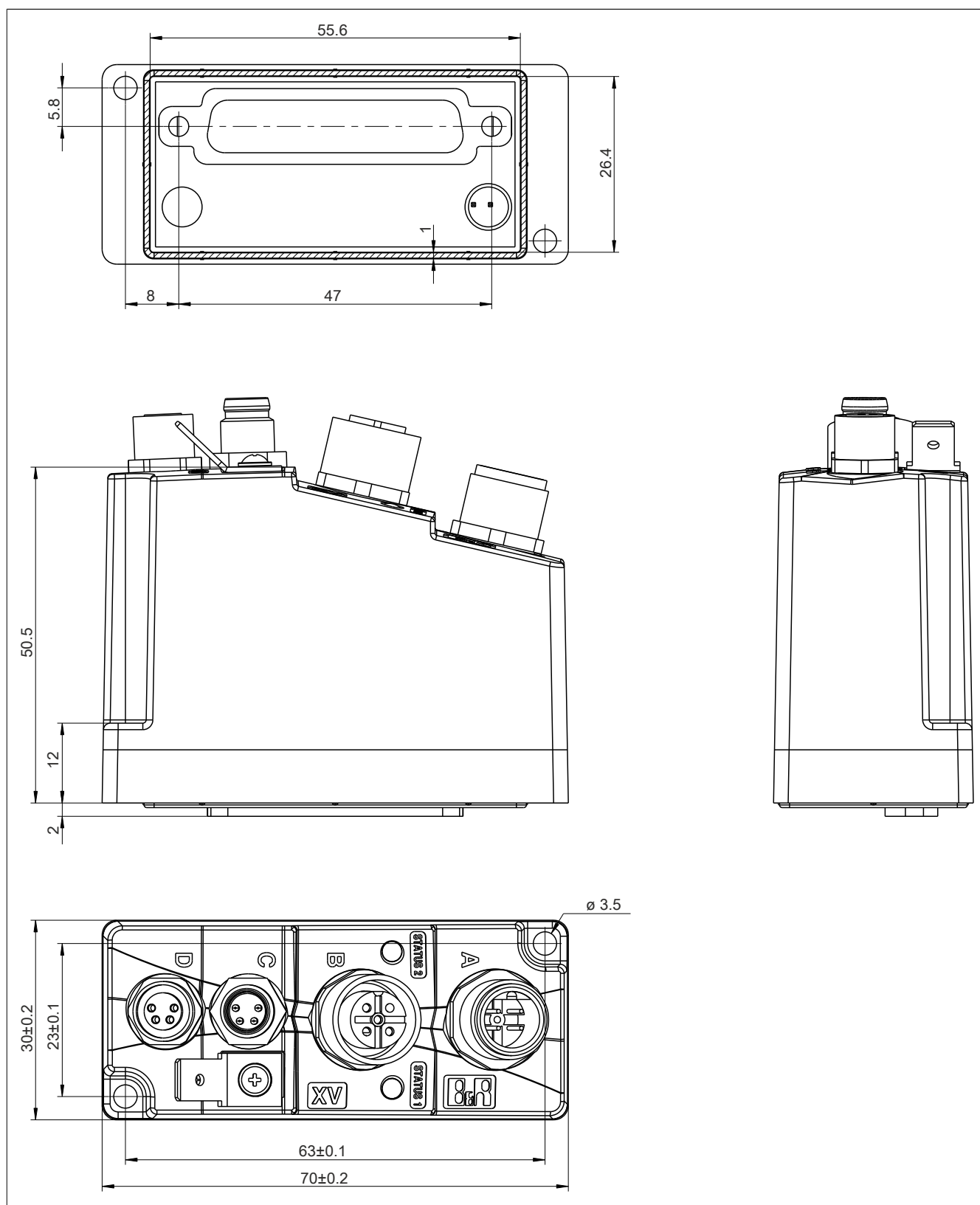


Figure 17: Dimensions

3.4.3.4 Figures

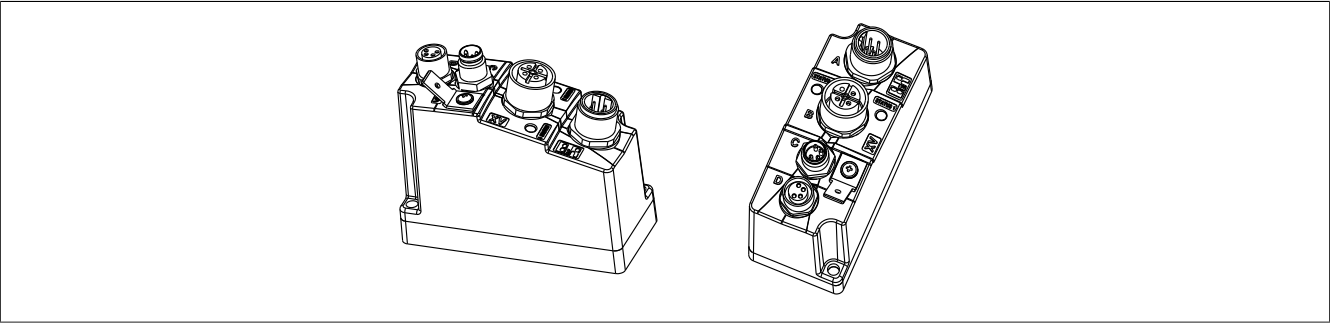


Figure 18: Figures

3.4.3.5 Diagnostic LED status indicators

DCOK LED (Orange)	LED "Status" (Green/Red)	Description
Off	Off	No module power supply via X2X Link (multipoint connector pin 9)
Blinking	On (red)	Module power supply OK, but no X2X communication
On	On (green)	Mode RUN
Blinking		Warning! +24 VDC OUT power supply in the lower range or overload of the outputs.
Double impulse		Caution! No warning when exceeding 30 VDC!
		Warning! +24 VDC X2X power supply in lower or upper range.

3.4.3.6 X2X Link and module power supply

Figure	Connection	Description
	A	X2X Link input ¹⁾
	B	X2X Link output to the next module
	C	24 VDC power supply for digital outputs (supply to the module)
	D	24 VDC power supply for digital outputs (routing to next module)

Table 83: X2X Link and module power supply

1) The standard power supply regulations for X67 modules must also be applied to these modules. Since the 7XV modules are supplied via X67 cables, using X67PS1300 and/or X20BT9400 is required.

3.4.3.6.1 X2X Link

This module is connected to X2X Link using pre-assembled cables. The connection is made using a circular connector (2x M12, 4-pin).

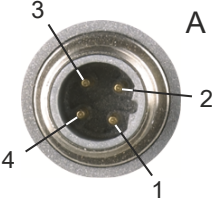
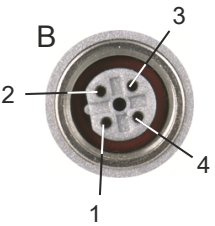
Connection	Pinout	
	Pin	Description
	1	X2X+
	2	X2X
	3	X2X _L
	4	X2X _N
	A ... B-keyed male connector on the module, input B ... B-coded female connector on the module, output SHLD ... Shield via threaded insert in the module	
		

Table 84: X2X Link and module power supply - X2X Link

3.4.3.6.2 24 VDC module power supply

The module power supply connection is made using circular connectors (2x M8, 4-pin). The power supply is connected via male connector C. Female connector D is used to route the power supply to other modules.

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

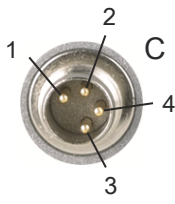
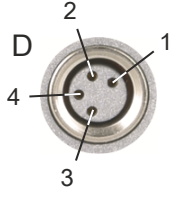
Connection	Pinout	
	Pin	Description
	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Male connector on the module, supply D ... Female connector on the module, routing	
		

Table 85: X2X Link and module power supply - 24 VDC module power supply

3.4.3.7 Digital outputs 1 to 16

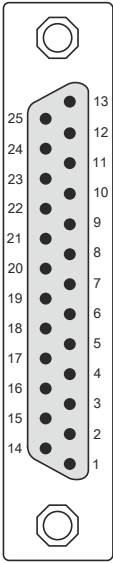
25-pin female DSUB connector	Pin	Description
 25-pin female DSUB connector	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	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	GND - Module power supply
	23	GND - Module power supply
	24	GND - Module power supply
	25	GND - Module power supply
	Shield	Shield

Table 86: Digital outputs 1 to 16

3.4.3.8 Output circuit

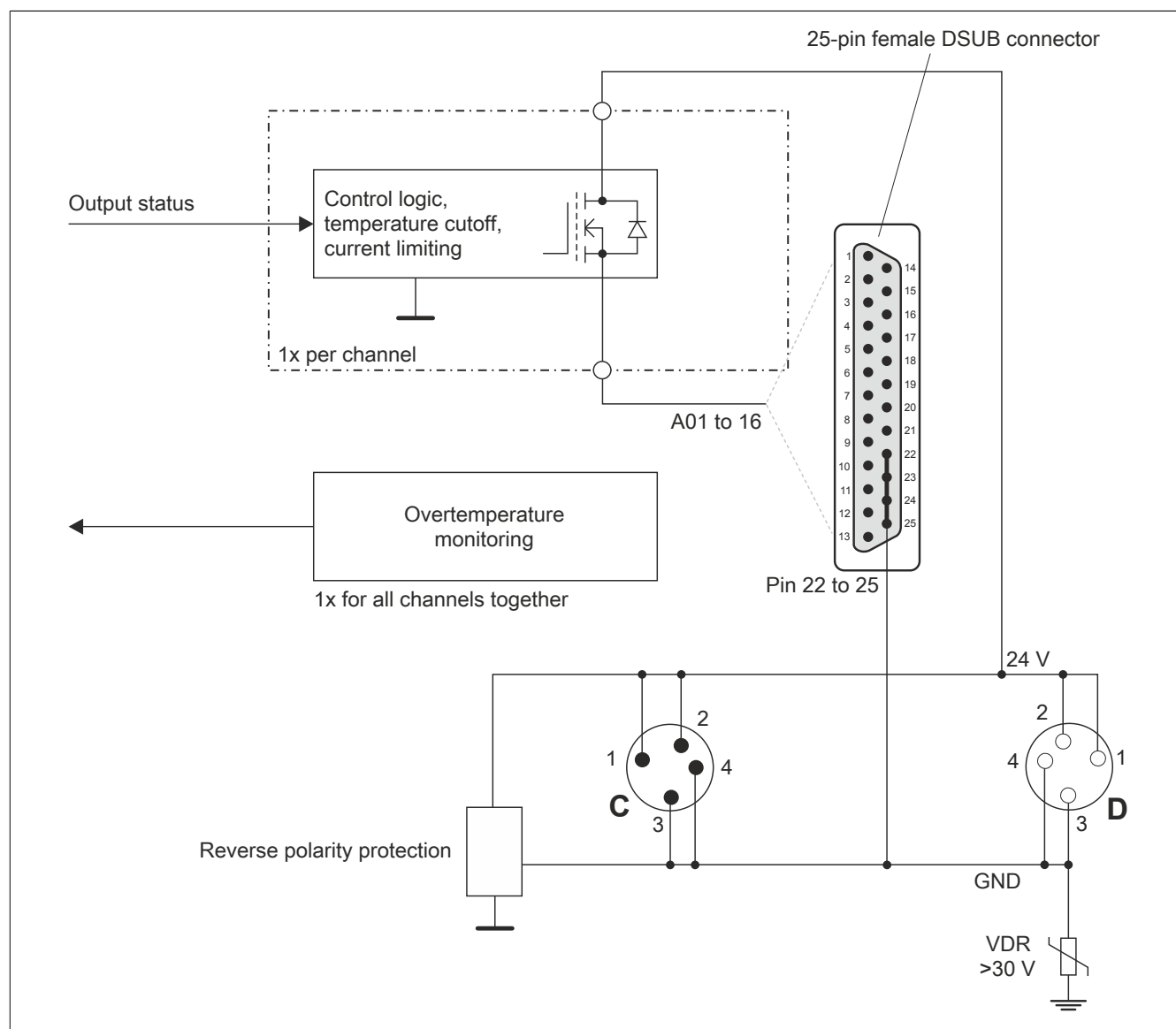


Figure 19: Output circuit

Some of the outputs are connected to multiple pins on the Female DSUB connector.

3.4.3.9 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 16	DigitalOutput01 to DigitalOutput16	BOOL	Current state of digital outputs 1 to 16
Status register	StatusInput01	USINT	Status register

Table 87: Register description

3.4.3.9.1 Status register

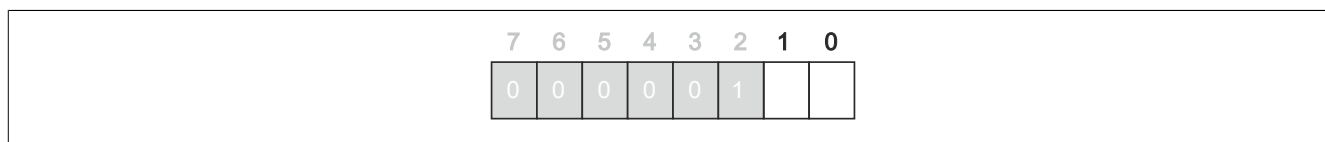


Figure 20: Register description - Status register

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

Table 88: Register description - Status register

3.4.3.9.2 Minimum cycle time

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

Minimum cycle time
>150 µs

Table 89: Register description - Minimum cycle time

3.4.4 7XV116.50-62

Data sheet version: 2.00

3.4.4.1 Order data

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

Table 90: 7XV116.50-62 - Order data

3.4.4.2 Technical data

Model number	7XV116.50-62
General information	
B&R ID code	0x25B7
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes (color / blink code)
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using LED and software (outputs)
Power consumption	
Internal I/O	Max. 1.5 W (without load)
X2X Link power supply	Max. 0.75 W
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	16 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
ATEX	Zone 2, II 3G Ex nA IIA T5 Gc IP67, Ta = 0 - Max. 60°C TÜV 05 ATEX 7201X
GOST-R	Yes
Circuit	
Bus connection	M12
GND pin	13, 22, 23, 24, 25
Power supply	M8
Interfaces	
User interface	
Variant	M12
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	1.6 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 100 µs / max. 150 µs
1 → 0	Typ. 125 µs / max. 200 µs
Type	High-side driver (source)

Table 91: 7XV116.50-62 - Technical data

XV modules

Model number	7XV116.50-62
Max. output current	0.1 A
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP67
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order male/female M12/M8 connectors separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	131 g
Module dimensions including mounting plates	67 x 66 x 30 mm (H x W x D)

Table 91: 7XV116.50-62 - Technical data

3.4.4.3 Dimensions

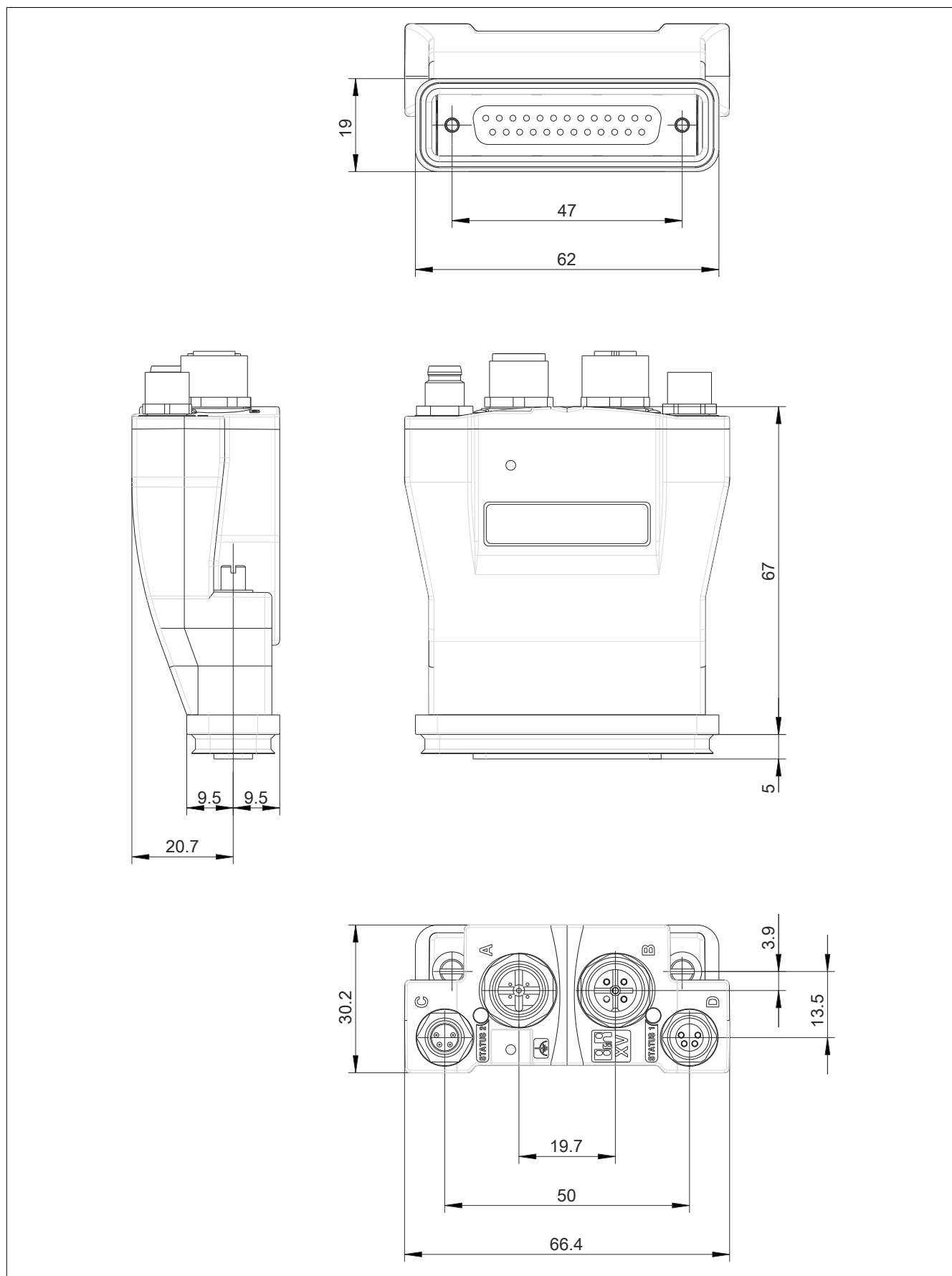


Figure 21: Dimensions

3.4.4.4 Figures

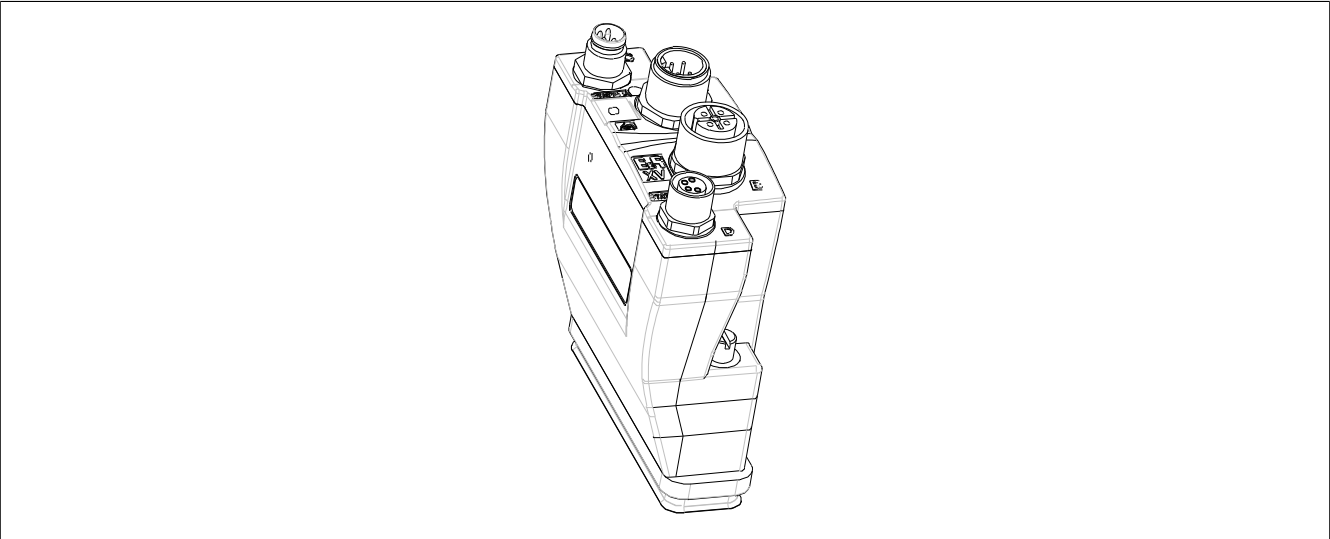


Figure 22: Figures

3.4.4.5 Diagnostic LED status indicators

DCOK LED (Orange)	LED "Status" (Green/Red)	Description
Off	Off	No module power supply via X2X Link (multipoint connector pin 9)
Blinking	On (red)	Module power supply OK, but no X2X communication
On	On (green)	Mode RUN
Blinking		Warning! +24 VDC OUT power supply in the lower range or overload of the outputs.
		Caution! No warning when exceeding 30 VDC!
Double impulse		Warning! +24 VDC X2X power supply in lower or upper range.

3.4.4.6 X2X Link and module power supply

Figure	Connection	Description
	A	X2X Link input ¹⁾
	B	X2X Link output to the next module
	C	24 VDC power supply for digital outputs (supply to the module)
	D	24 VDC power supply for digital outputs (routing to next module)

Table 92: X2X Link and module power supply

1) The standard power supply regulations for X67 modules must also be applied to these modules. Since the 7XV modules are supplied via X67 cables, using X67PS1300 and/or X20BT9400 is required.

3.4.4.6.1 X2X Link

This module is connected to X2X Link using pre-assembled cables. The connection is made using a circular connector (2x M12, 4-pin).

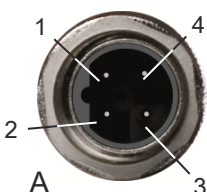
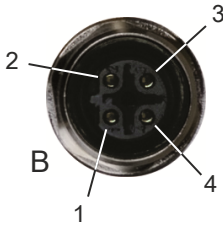
Connection	Pinout	
	Pin	Description
 A	1	X2X+
	2	X2X
	3	X2X _L
	4	X2X _N
	A ... B-keyed male connector on the module, input B ... B-coded female connector on the module, output SHLD ... Shield via threaded insert in the module	
 B		

Table 93: X2X Link and module power supply - X2X Link

3.4.4.6.2 24 VDC module power supply

The module power supply connection is made using circular connectors (2x M8, 4-pin). The power supply is connected via male connector C. Female connector D is used to route the power supply to other modules.

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

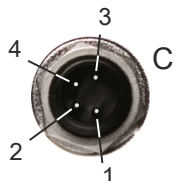
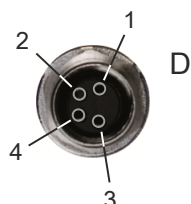
Connection	Pinout	
	Pin	Description
 C	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Male connector on the module, supply D ... Female connector on the module, routing	
 D		

Table 94: X2X Link and module power supply - 24 VDC module power supply

3.4.4.7 Digital outputs 1 to 16

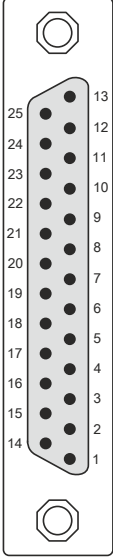
25-pin female DSUB connector	Pin	Assignment
X2  25-pin female DSUB connector	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	GND - Module power 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 - Module power supply
	23	GND - Module power supply
	24	GND - Module power supply
	25	GND - Module power supply
	Shield	Shield

Table 95: Digital outputs 1 to 16

3.4.4.8 Output circuit

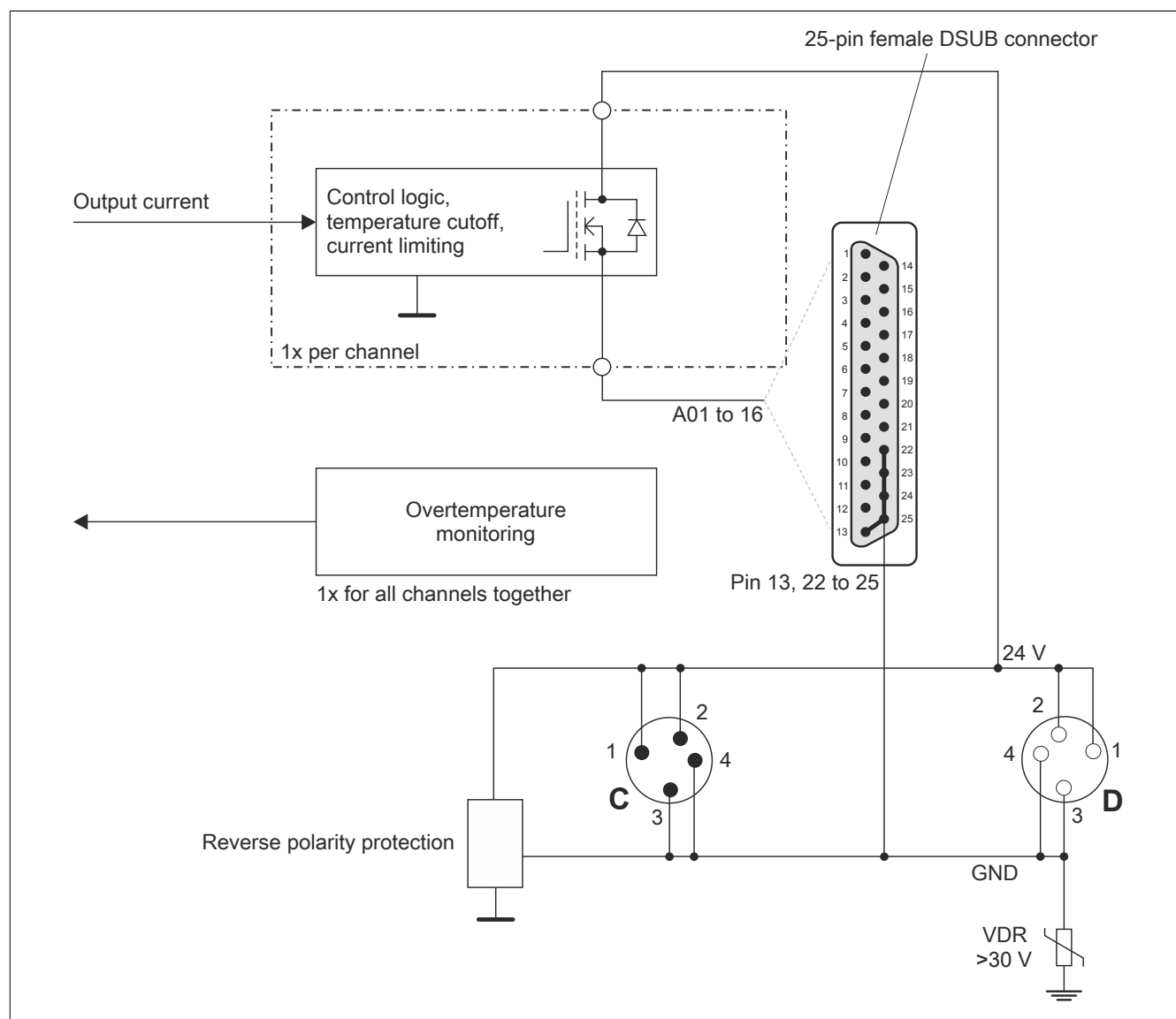


Figure 23: Output circuit

Some of the outputs are connected to multiple pins on the Female DSUB connector.

3.4.4.9 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 16	DigitalOutput01 to DigitalOutput16	BOOL	Current state of digital outputs 1 to 16
Status register	StatusInput01	USINT	Status register

Table 96: Register description

3.4.4.9.1 Status register

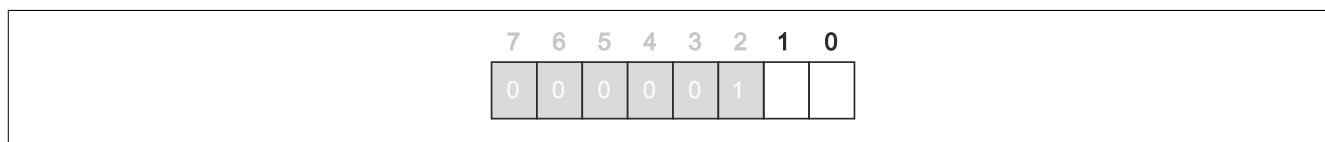


Figure 24: Register description - Status register

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

Table 97: Register description - Status register

3.4.4.9.2 Minimum cycle time

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

Minimum cycle time
>150 µs

Table 98: Register description - Minimum cycle time

3.4.5 7XV124.50-51

Data sheet version: 2.00

3.4.5.1 Order data

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

Table 99: 7XV124.50-51 - Order data

3.4.5.2 Technical data

Model number	7XV124.50-51
General information	
B&R ID code	0x1CED
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes (color / blink code)
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using LED and software (outputs)
Power consumption	
Internal I/O	Max. 1.5 W (without load)
X2X Link power supply	Max. 0.75 W
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	24 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
ATEX	Zone 2, II 3G Ex nA IIA T5 Gc IP67, Ta = 0 - Max. 60°C TÜV 05 ATEX 7201X
GOST-R	Yes
Circuit	
Bus connection	M12
GND pin	25
Power supply	M8
Interfaces	
User interface	
Variant	M12
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	2.4 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 100 µs / max. 150 µs
1 → 0	Typ. 125 µs / max. 200 µs
Type	High-side driver (source)

Table 100: 7XV124.50-51 - Technical data

XV modules

Model number	7XV124.50-51
Max. output current	0.1 A
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP67
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order male/female M12/M8 connectors separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	125 g
Module dimensions including mounting plates	62 x 70 x 30 mm (H x W x D)

Table 100: 7XV124.50-51 - Technical data

3.4.5.3 Dimensions

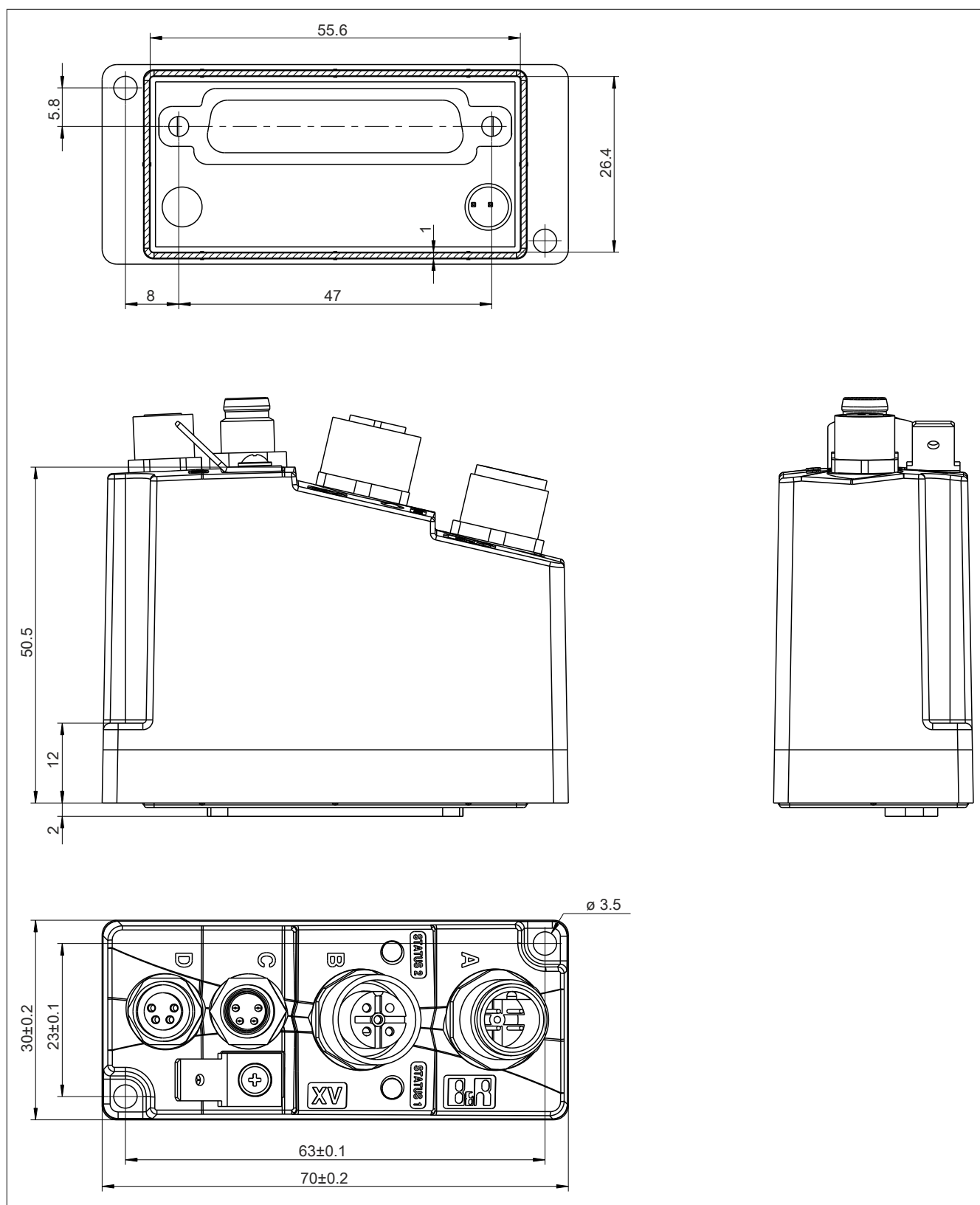


Figure 25: Dimensions

3.4.5.4 Figures

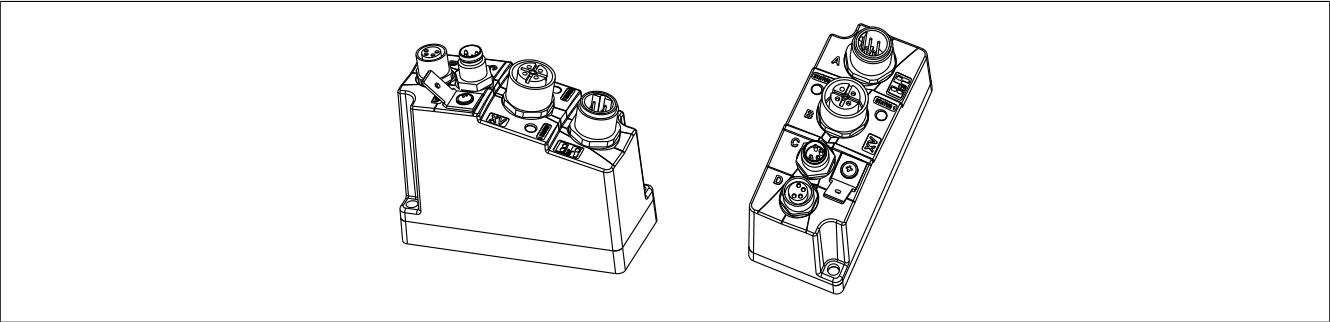


Figure 26: Figures

3.4.5.5 Diagnostic LED status indicators

DCOK LED (Orange)	LED "Status" (Green/Red)	Description
Off	Off	No module power supply via X2X Link (multipoint connector pin 9)
Blinking	On (red)	Module power supply OK, but no X2X communication
On	On (green)	Mode RUN
Blinking		Warning! +24 VDC OUT power supply in the lower range or overload of the outputs.
Double impulse		Caution! No warning when exceeding 30 VDC!
		Warning! +24 VDC X2X power supply in lower or upper range.

3.4.5.6 X2X Link and module power supply

Figure	Connection	Description
	A	X2X Link input ¹⁾
	B	X2X Link output to the next module
	C	24 VDC power supply for digital outputs (supply to the module)
	D	24 VDC power supply for digital outputs (routing to next module)

Table 101: X2X Link and module power supply

1) The standard power supply regulations for X67 modules must also be applied to these modules. Since the 7XV modules are supplied via X67 cables, using X67PS1300 and/or X20BT9400 is required.

3.4.5.6.1 X2X Link

This module is connected to X2X Link using pre-assembled cables. The connection is made using a circular connector (2x M12, 4-pin).

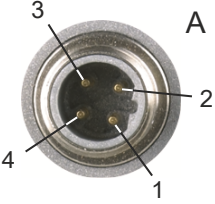
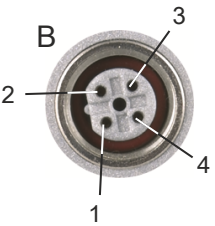
Connection	Pinout	
	Pin	Description
 	1	X2X+
	2	X2X
	3	X2X _L
	4	X2X _N
	A ... B-keyed male connector on the module, input B ... B-coded female connector on the module, output SHLD ... Shield via threaded insert in the module	

Table 102: X2X Link and module power supply - X2X Link

3.4.5.6.2 24 VDC module power supply

The module power supply connection is made using circular connectors (2x M8, 4-pin). The power supply is connected via male connector C. Female connector D is used to route the power supply to other modules.

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

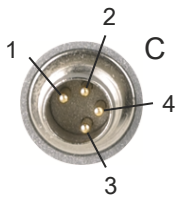
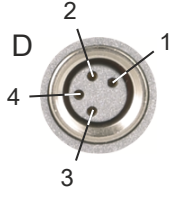
Connection	Pinout	
	Pin	Description
 	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Male connector on the module, supply D ... Female connector on the module, routing	

Table 103: X2X Link and module power supply - 24 VDC module power supply

3.4.5.7 Digital outputs 1 to 24

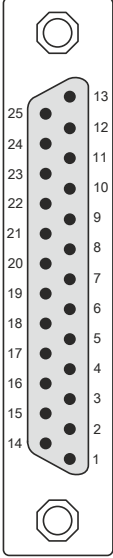
25-pin female DSUB connector	Pin	Assignment
 25-pin female DSUB connector	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	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 - Module power supply
	Shield	Shield

Table 104: Digital outputs 1 to 24

3.4.5.8 Output circuit

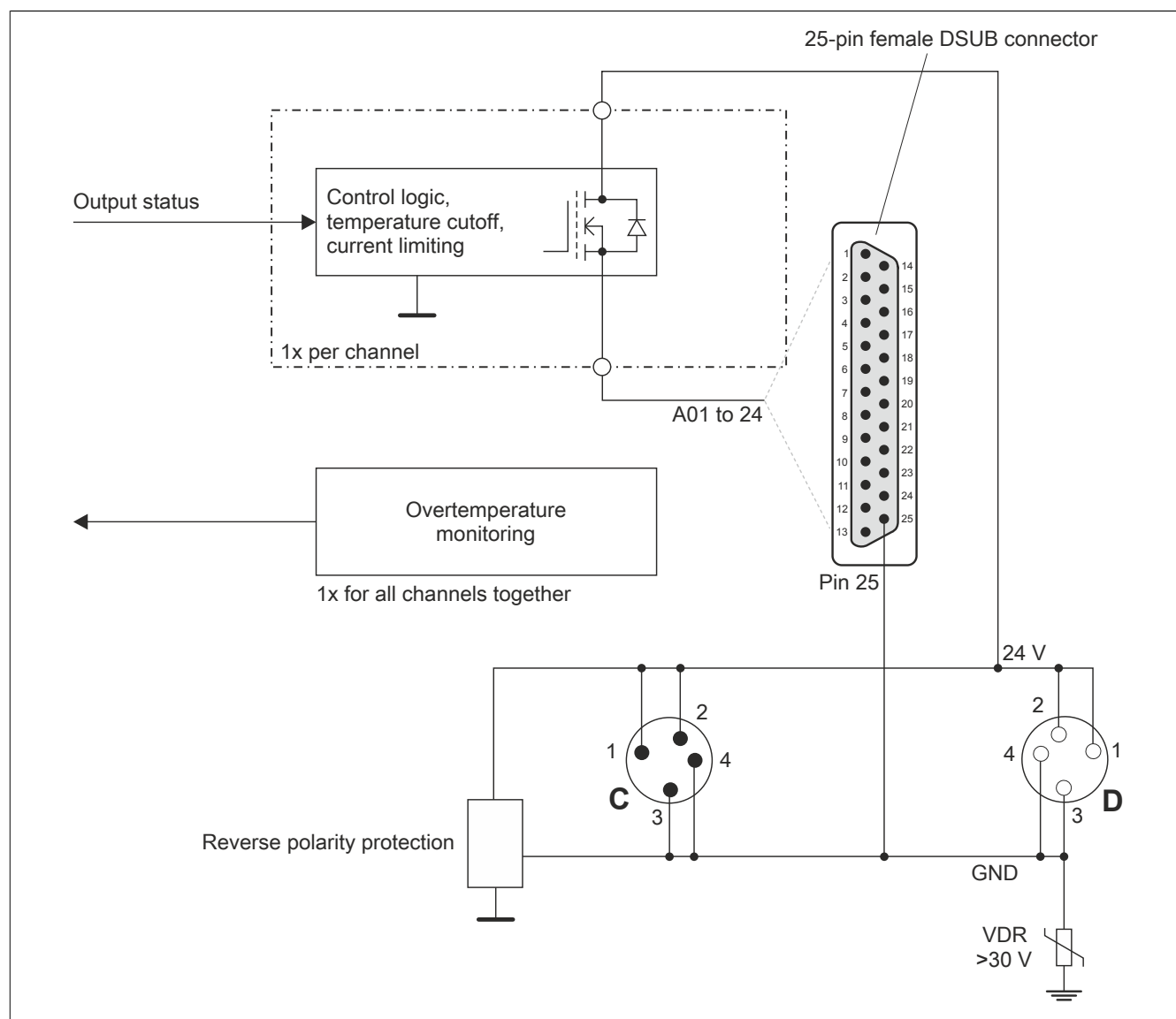


Figure 27: Output circuit

3.4.5.9 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 24	DigitalOutput01 - DigitalOutput24	BOOL	Current state of digital outputs 1 to 24
Status register	StatusInput01	USINT	Status register

Table 105: Register description

3.4.5.9.1 Status register

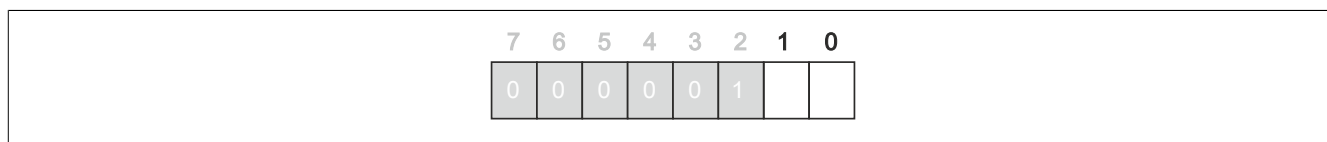


Figure 28: Register description - Status register

Bit	Description
0	Monitoring the 24 VDC OUT power supply (output power supply) 0 ... Outside of the permissible range 1 ... OK
1	Monitoring the outputs 1 to 24 0 ... Overload on one or more outputs 1 ... OK
2	Reserve (must be set to 1)
3 to 7	Reserve (must be set to 0)

Table 106: Register description - Status register

3.4.5.9.2 Minimum cycle time

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

Minimum cycle time
>150 µs

Table 107: Register description - Minimum cycle time

3.4.6 7XV124.50-61

Data sheet version: 2.00

3.4.6.1 Order data

Model number	Short description	Figure
	XV124 valve connections	
7XV124.50-61	Remote valve terminal connection, 24 digital outputs, 0.1 A, 24 VDC, for 25-pin DSUB multipin connector, GND pin 25, X2X Link, electrically isolated, IP67 protection	

Table 108: 7XV124.50-61 - Order data

3.4.6.2 Technical data

Model number	7XV124.50-61
General information	
B&R ID code	0xA366
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes (color / blink code)
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using LED and software (outputs)
Power consumption	
Internal I/O	Max. 1.5 W (without load)
X2X Link power supply	Max. 0.75 W
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	24 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
ATEX	Zone 2, II 3G Ex nA IIA T5 Gc IP67, Ta = 0 - Max. 60°C TÜV 05 ATEX 7201X
GOST-R	Yes
Circuit	
Bus connection	M12
GND pin	25
Power supply	M8
Interfaces	
User interface	
Variant	M12
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	2.4 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 100 µs / max. 150 µs
1 → 0	Typ. 125 µs / max. 200 µs
Type	High-side driver (source)

Table 109: 7XV124.50-61 - Technical data

Model number	7XV124.50-61
Max. output current	0.1 A
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP67
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order male/female M12/M8 connectors separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	131 g
Module dimensions including mounting plates	67 x 66 x 30 mm (H x W x D)

Table 109: 7XV124.50-61 - Technical data

3.4.6.3 Dimensions

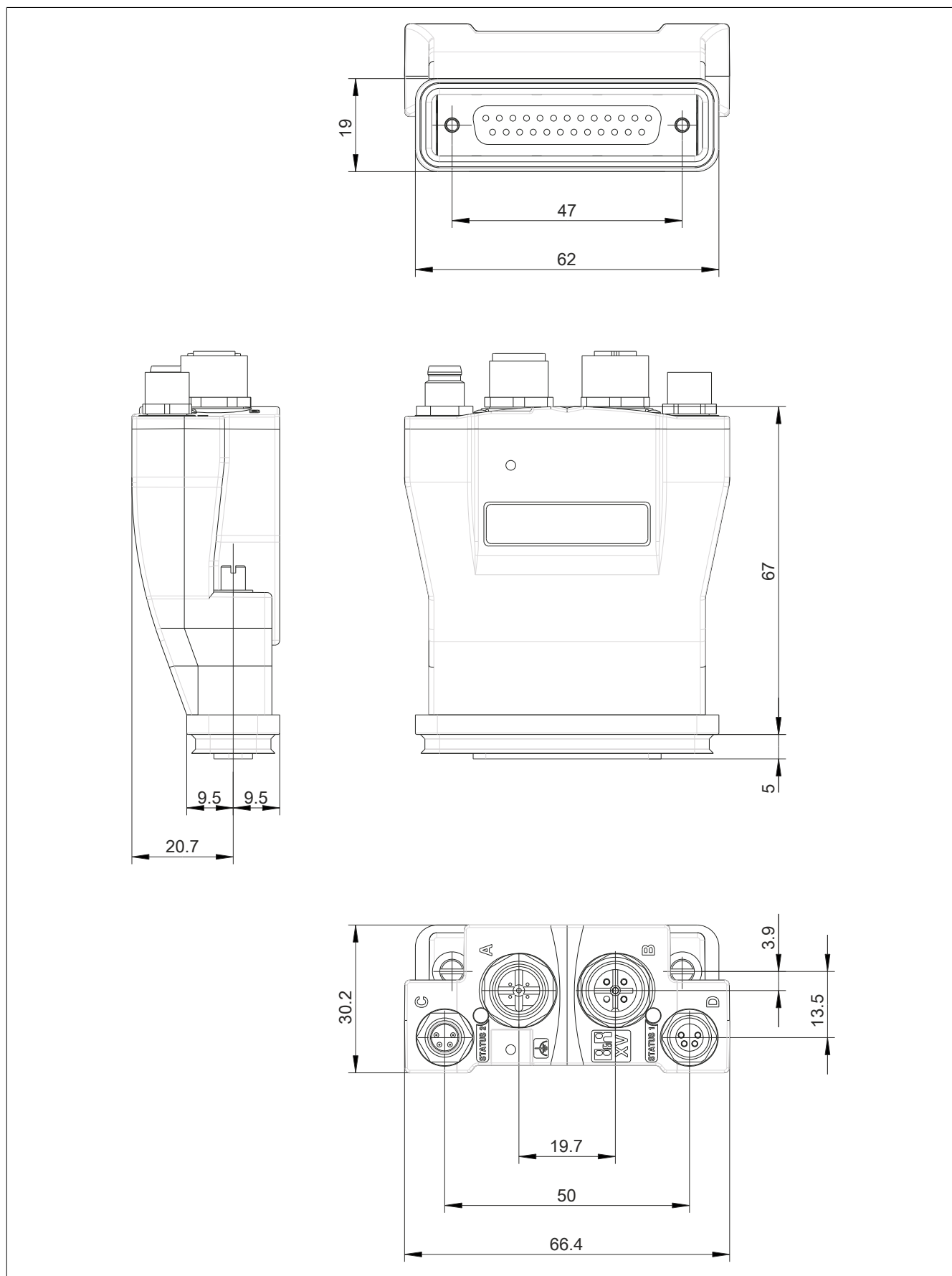


Figure 29: Dimensions

3.4.6.4 Figures

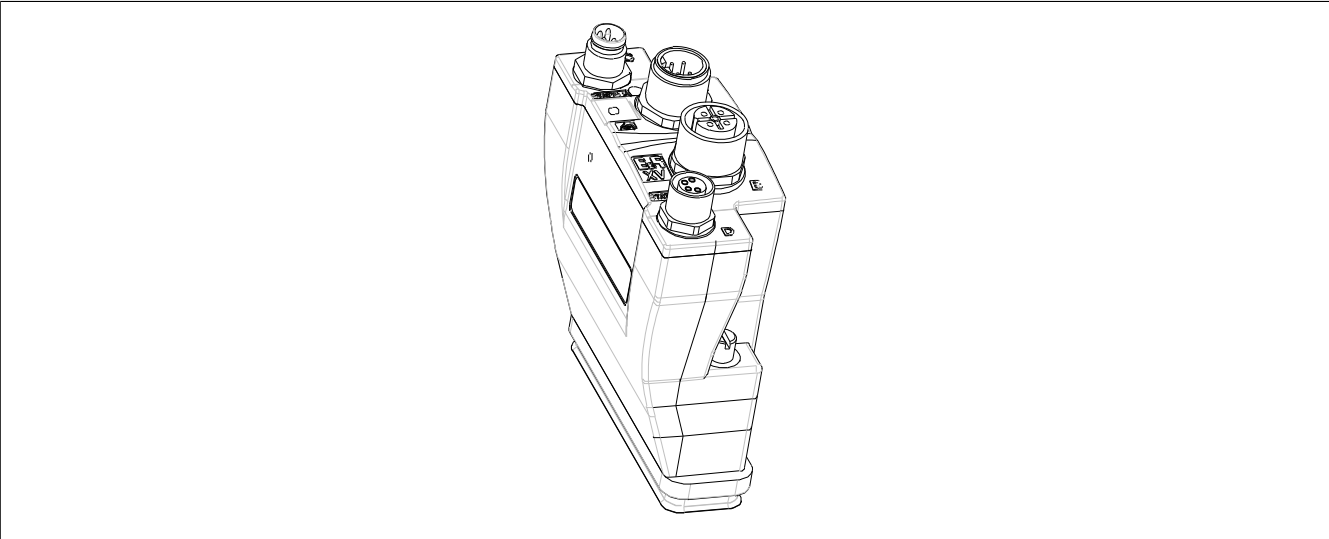


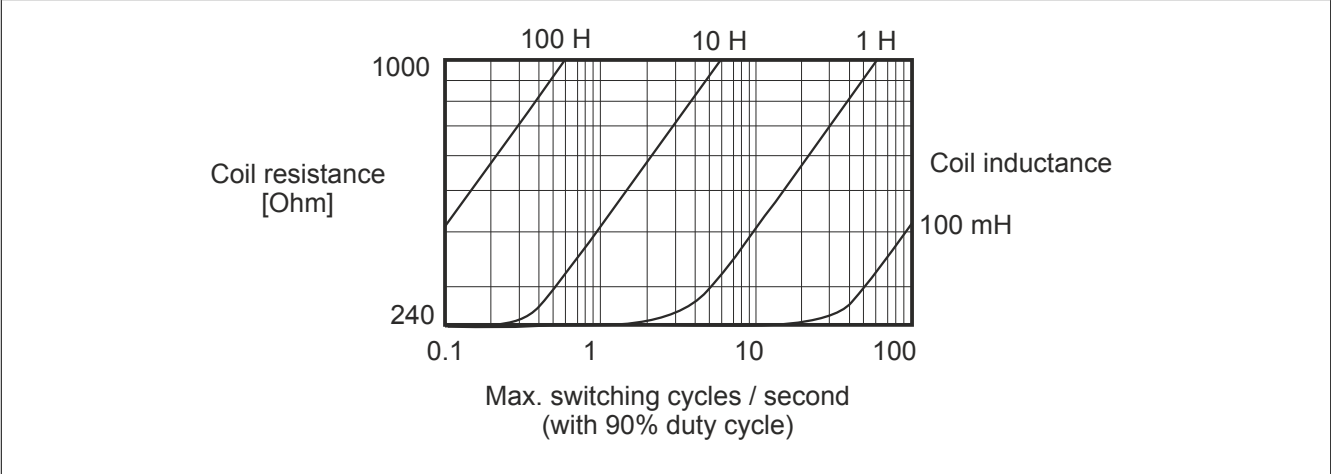
Figure 30: Figures

3.4.6.5 Diagnostic LED status indicators

DCOK LED (Orange)	LED "Status" (Green/Red)	Description
Off	Off	No module power supply via X2X Link (multipoint connector pin 9)
Blinking	On (red)	Module power supply OK, but no X2X communication
On	On (green)	Mode RUN
Blinking		Warning! +24 VDC OUT power supply in the lower range or overload of the outputs. Caution! No warning when exceeding 30 VDC!
Double impulse		Warning! +24 VDC X2X power supply in lower or upper range.

3.4.6.6 Switching inductive loads

Ambient temperature: 55°C, all outputs have the same load.



Information:

If the maximum number of switching cycles per second is exceeded, an external freewheeling diode must be used.

Operating conditions outside of the area in the diagram are not permitted!

3.4.6.7 X2X Link and module power supply

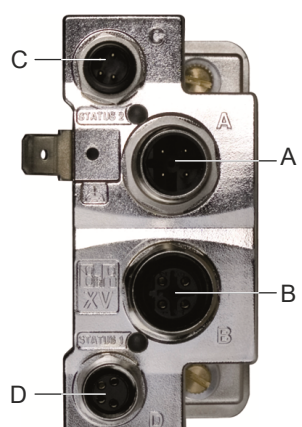
Figure	Connection	Description
	A	X2X Link input ¹⁾
	B	X2X Link output to the next module
	C	24 VDC power supply for digital outputs (supply to the module)
	D	24 VDC power supply for digital outputs (routing to next module)

Table 110: X2X Link and module power supply

1) The standard power supply regulations for X67 modules must also be applied to these modules. Since the 7XV modules are supplied via X67 cables, using X67PS1300 and/or X20BT9400 is required.

3.4.6.7.1 X2X Link

This module is connected to X2X Link using pre-assembled cables. The connection is made using a circular connector (2x M12, 4-pin).

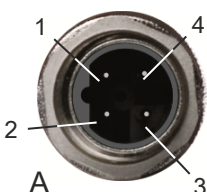
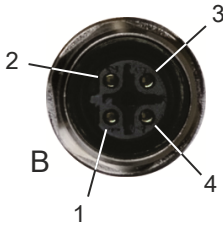
Connection	Pinout	
	Pin	Description
 A	1	X2X+
	2	X2X
	3	X2X _L
	4	X2X _N
 B		
A ... B-keyed male connector on the module, input B ... B-coded female connector on the module, output SHLD ... Shield via threaded insert in the module		

Table 111: X2X Link and module power supply - X2X Link

3.4.6.7.2 24 VDC module power supply

The module power supply connection is made using circular connectors (2x M8, 4-pin). The power supply is connected via male connector C. Female connector D is used to route the power supply to other modules.

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

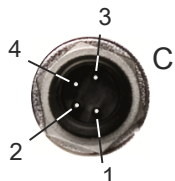
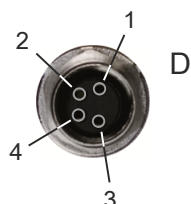
Connection	Pinout	
	Pin	Description
 C	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
 D		
C ... Male connector on the module, supply D ... Female connector on the module, routing		

Table 112: X2X Link and module power supply - 24 VDC module power supply

3.4.6.8 Digital outputs 1 to 24

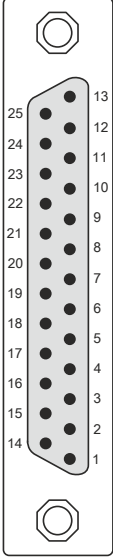
25-pin female DSUB connector	Pin	Assignment
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	Digital 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 - Module power supply
25-pin female DSUB connector	Shield	Shield

Table 113: Digital outputs 1 to 24

3.4.6.9 Output circuit

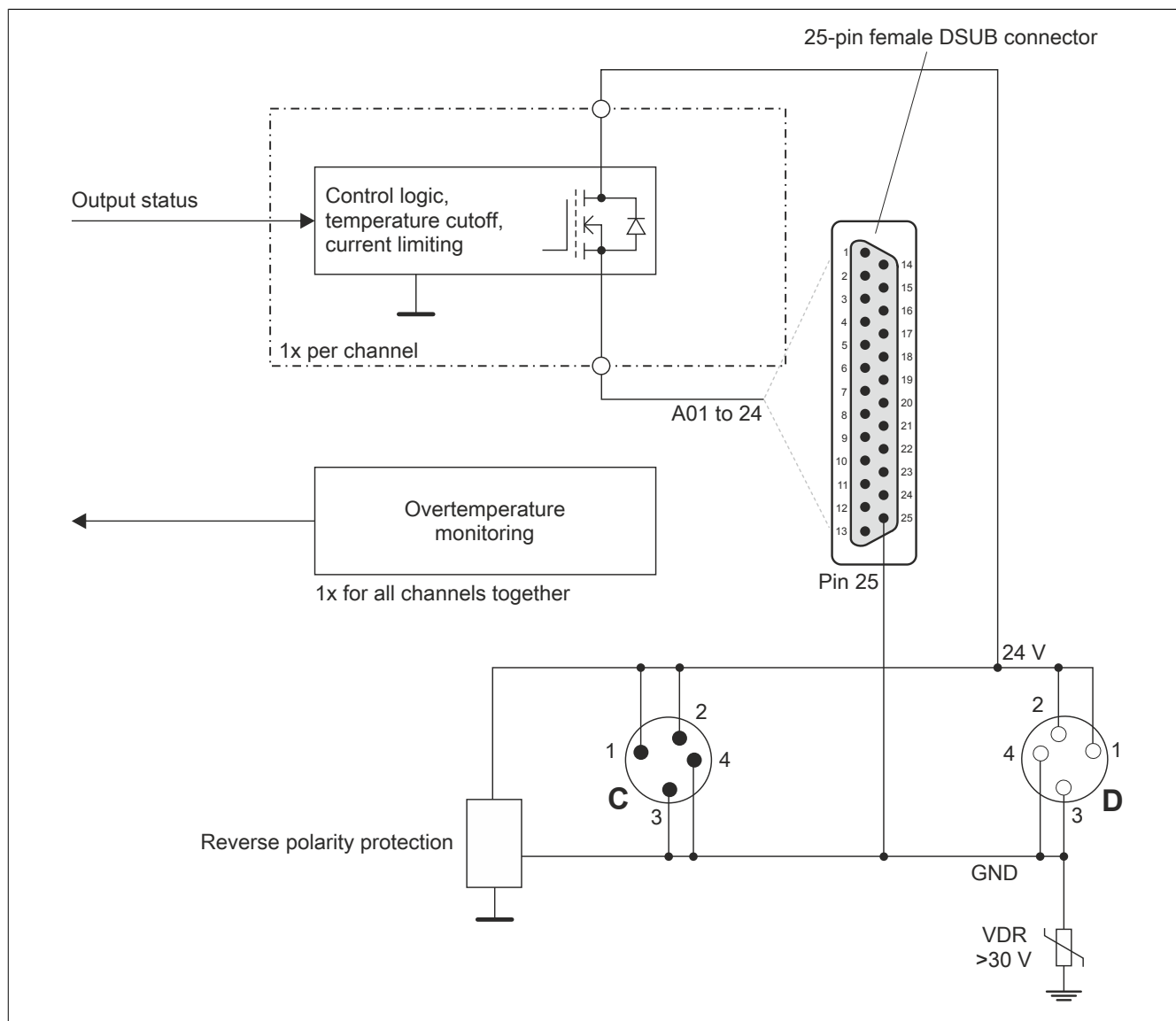


Figure 31: Output circuit

3.4.6.10 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 24	DigitalOutput01 - DigitalOutput24	BOOL	Current state of digital outputs 1 to 24
Status register	StatusInput01	USINT	Status register

Table 114: Register description

3.4.6.10.1 Status register

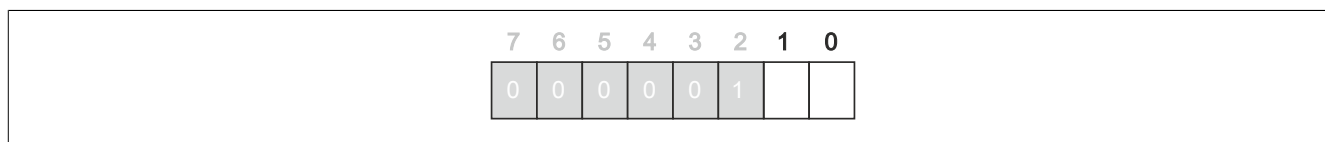


Figure 32: Register description - Status register

Bit	Description
0	Monitoring the 24 VDC OUT power supply (output power supply) 0 ... Outside of the permissible range 1 ... OK
1	Monitoring the outputs 1 to 24 0 ... Overload on one or more outputs 1 ... OK
2	Reserve (must be set to 1)
3 to 7	Reserve (must be set to 0)

Table 115: Register description - Status register

3.4.6.10.2 Minimum cycle time

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

Minimum cycle time
>150 µs

Table 116: Register description - Minimum cycle time

3.4.7 7XV124.50-62

Data sheet version: 2.00

3.4.7.1 Order data

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

Table 117: 7XV124.50-62 - Order data

3.4.7.2 Technical data

Model number	7XV124.50-62
General information	
B&R ID code	0x25B6
Status LED	Yes (color / blink code) 24 VDC OUT power supply (DCOK LED) = Yes (color / blink code)
Status indicators	Operating status and power supply
Diagnostics	
Power supply	24 VDC OUT: Yes, using LED and software 24 VDC X2X: Yes, using software
X2X Link	Yes, using software
Overload	Yes, using LED and software (outputs)
Power consumption	
Internal I/O	Max. 1.5 W (without load)
X2X Link power supply	Max. 0.75 W
Electrical isolation	
Digital outputs - 24 VDC X2X, OUT power supply	No
X2X Link - 24 VDC X2X, OUT power supply	Yes
X2X Link - Digital outputs	Yes
Remote valve terminal connection for 25-pin DSUB multi-pin connection	24 valves
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
ATEX	Zone 2, II 3G Ex nA IIA T5 Gc IP67, Ta = 0 - Max. 60°C TÜV 05 ATEX 7201X
GOST-R	Yes
Circuit	
Bus connection	M12
GND pin	13
Power supply	M8
Interfaces	
User interface	
Variant	M12
Type	X2X Link slave
Digital outputs	
Switching voltage	24 VDC ±25%
Total nominal current	2.4 A
Output circuit	Source
Output protection	Protected against short circuit, overload and overtemperature
Switching delay	
0 → 1	Typ. 100 µs / max. 150 µs
1 → 0	Typ. 125 µs / max. 200 µs
Type	High-side driver (source)

Table 118: 7XV124.50-62 - Technical data

Model number	7XV124.50-62
Max. output current	0.1 A
Max. switching frequency	100 Hz
Operating conditions	
Mounting orientation	
Horizontal	Yes
Vertical	Yes
Degree of protection per EN 60529	IP67
Ambient conditions	
Temperature	
Operation	0 to 55°C
Storage	-20 to 70°C
Transport	-20 to 70°C
Relative humidity	
Operation	5 to 95%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Mechanical properties	
Note	Order male/female M12/M8 connectors separately
Installation	25-pin DSUB, screw mounting, 4-40 UNC
Weight	131 g
Module dimensions including mounting plates	67 x 66 x 30 mm (H x W x D)

Table 118: 7XV124.50-62 - Technical data

3.4.7.3 Dimensions

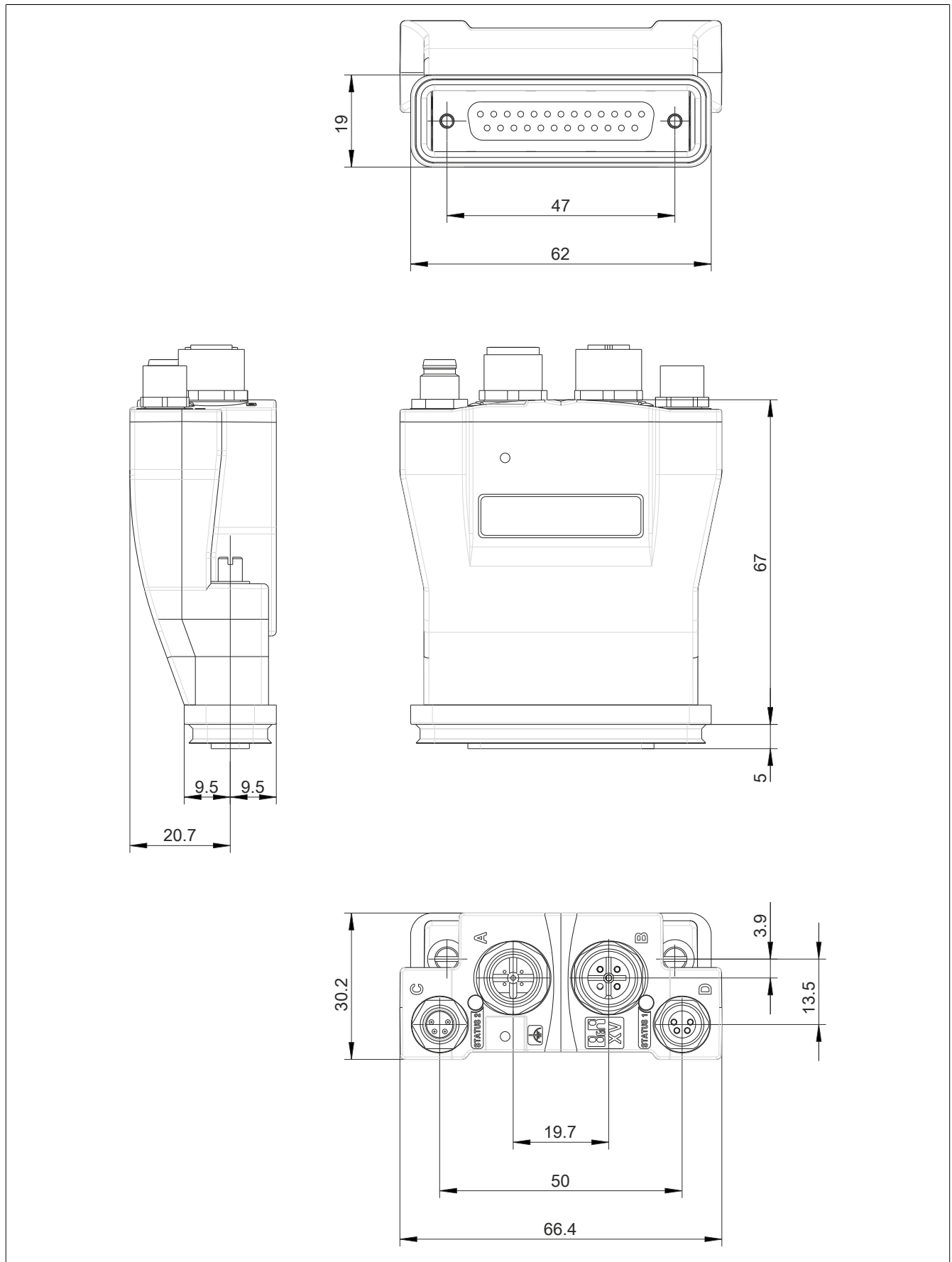


Figure 33: Dimensions

3.4.7.4 Figures

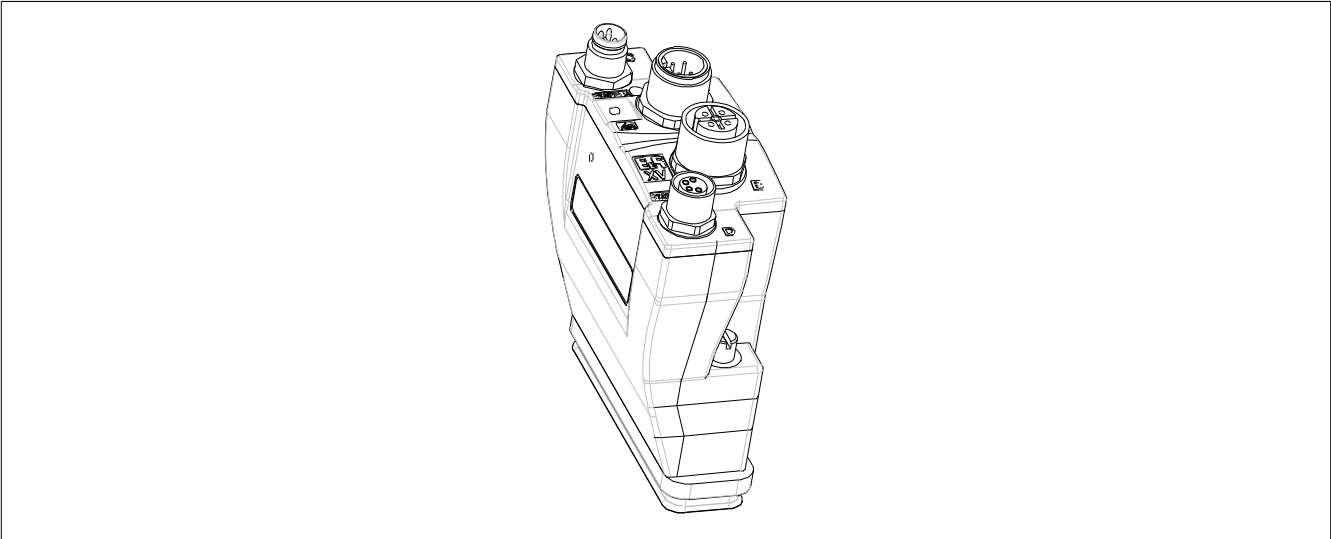


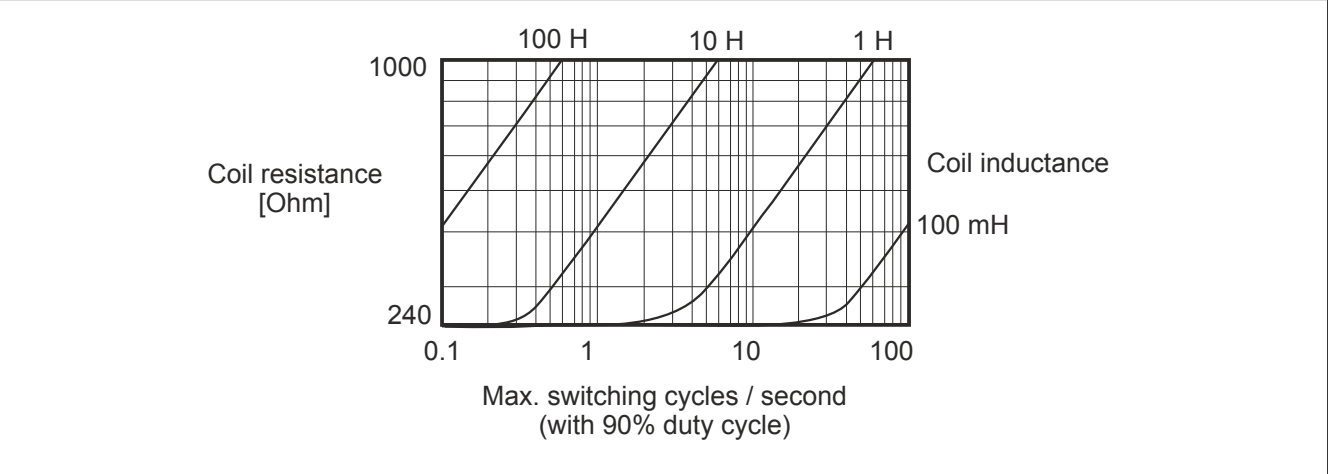
Figure 34: Figures

3.4.7.5 Diagnostic LED status indicators

DCOK LED (Orange)	LED "Status" (Green/Red)	Description
Off	Off	No module power supply via X2X Link (multipoint connector pin 9)
Blinking	On (red)	Module power supply OK, but no X2X communication
On	On (green)	Mode RUN
Blinking		Warning! +24 VDC OUT power supply in the lower range or overload of the outputs. Caution! No warning when exceeding 30 VDC!
Double impulse		Warning! +24 VDC X2X power supply in lower or upper range.

3.4.7.6 Switching inductive loads

Ambient temperature: 55°C, all outputs have the same load.



Information:

If the maximum number of switching cycles per second is exceeded, an external freewheeling diode must be used.

Operating conditions outside of the area in the diagram are not permitted!

3.4.7.7 X2X Link and module power supply

Figure	Connection	Description
	A	X2X Link input ¹⁾
	B	X2X Link output to the next module
	C	24 VDC power supply for digital outputs (supply to the module)
	D	24 VDC power supply for digital outputs (routing to next module)

Table 119: X2X Link and module power supply

1) The standard power supply regulations for X67 modules must also be applied to these modules. Since the 7XV modules are supplied via X67 cables, using X67PS1300 and/or X20BT9400 is required.

3.4.7.7.1 X2X Link

This module is connected to X2X Link using pre-assembled cables. The connection is made using a circular connector (2x M12, 4-pin).

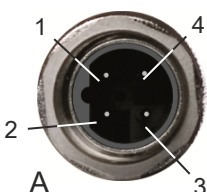
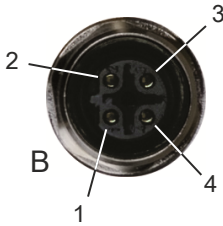
Connection	Pinout	
	Pin	Description
 A	1	X2X+
	2	X2X
	3	X2X _L
	4	X2X _L
	A ... B-keyed male connector on the module, input B ... B-coded female connector on the module, output SHLD ... Shield via threaded insert in the module	
 B		

Table 120: X2X Link and module power supply - X2X Link

3.4.7.7.2 24 VDC module power supply

The module power supply connection is made using circular connectors (2x M8, 4-pin). The power supply is connected via male connector C. Female connector D is used to route the power supply to other modules.

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

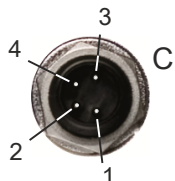
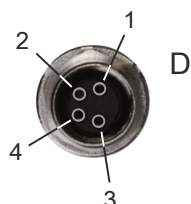
Connection	Pinout	
	Pin	Description
 C	1	24 VDC
	2	24 VDC
	3	GND
	4	GND
	C ... Male connector on the module, supply D ... Female connector on the module, routing	
 D		

Table 121: X2X Link and module power supply - 24 VDC module power supply

3.4.7.8 Digital outputs 1 to 24

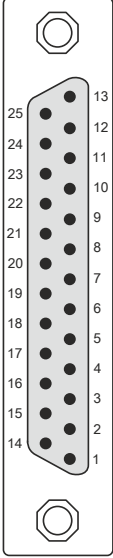
25-pin female DSUB connector	Pin	Assignment
	1	Digital output 1
	2	Digital output 2
	3	Digital output 3
	4	Digital output 4
	5	Digital output 5
	6	Digital output 6
	7	Digital output 7
	8	Digital output 8
	9	Digital output 9
	10	Digital output 10
	11	Digital output 11
	12	Digital output 12
	13	GND - Module power 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 122: Digital outputs 1 to 24

3.4.7.9 Output circuit

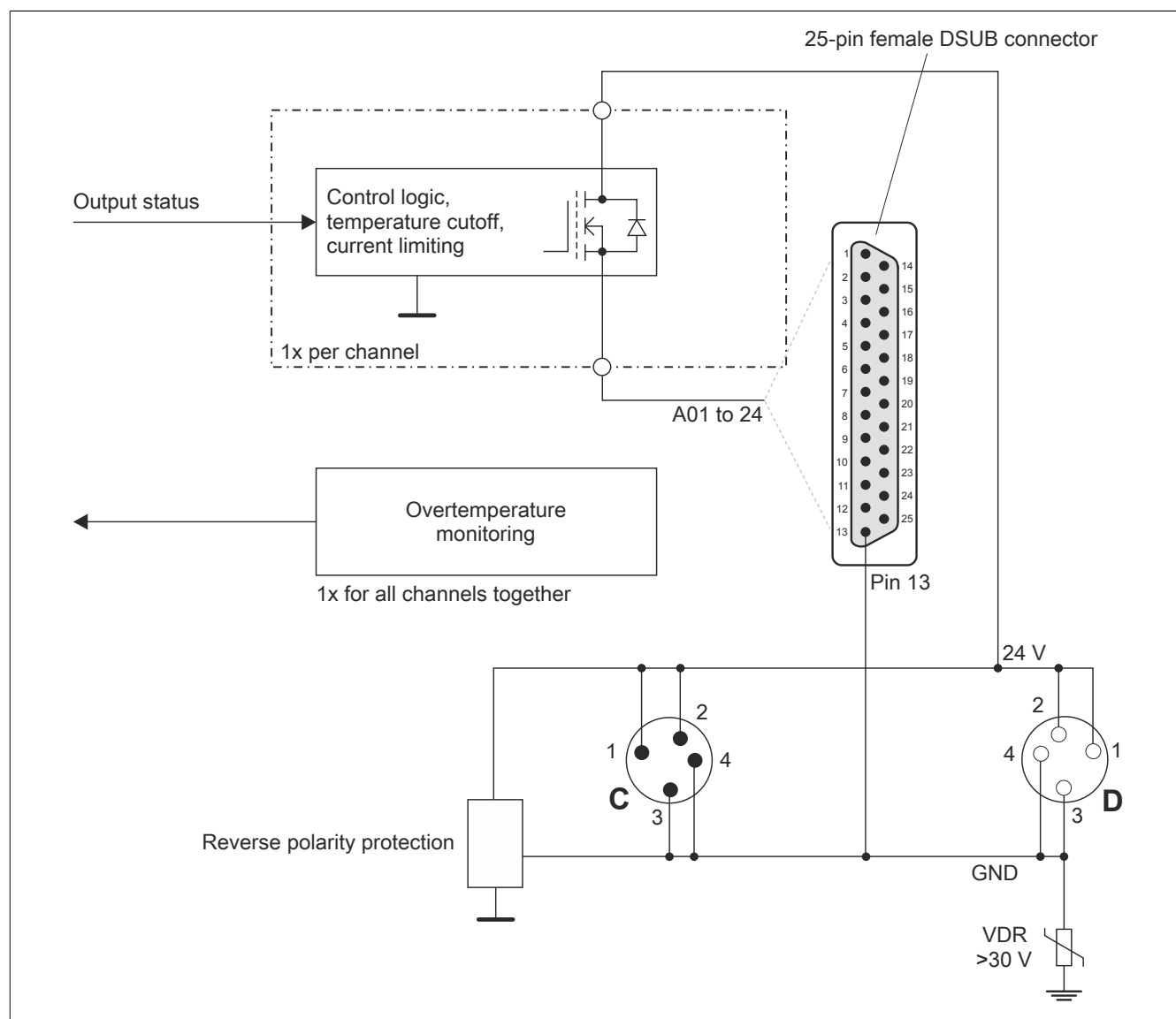


Figure 35: Output circuit

3.4.7.10 Register description

Mapping outputs is done in Automation Studio.

Description	Name in Automation Studio	Data type	Description
Digital outputs 1 to 24	DigitalOutput01 - DigitalOutput24	BOOL	Current state of digital outputs 1 to 24
Status register	StatusInput01	USINT	Status register

Table 123: Register description

3.4.7.10.1 Status register

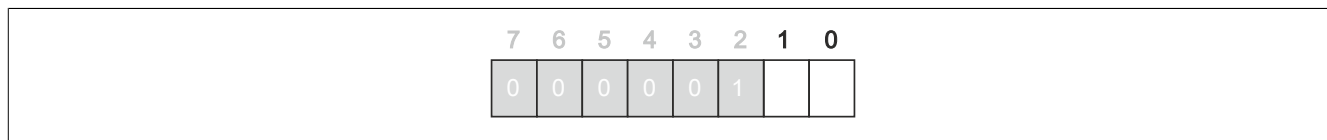


Figure 36: Register description - Status register

Bit	Description
0	Monitoring the 24 VDC OUT power supply (output power supply) 0 ... Outside of the permissible range 1 ... OK
1	Monitoring the outputs 1 to 24 0 ... Overload on one or more outputs 1 ... OK
2	Reserve (must be set to 1)
3 to 7	Reserve (must be set to 0)

Table 124: Register description - Status register

3.4.7.10.2 Minimum cycle time

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

Minimum cycle time
>150 µs

Table 125: Register description - Minimum cycle time

Publishing information

B&R Industrial Automation GmbH

B&R Strasse 1

5142 Eggelsberg

Austria

Telephone: +43 7748 6586-0

Fax: +43 7748 6586-26

office@br-automation.com