MURR ELEKTRONIK

stay connected

ENGLISH MANUAL

for devices of the MVP8 series

Art.-No. 59504 | 59507 | 59604 | 59607

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This document applies to the following products:

Name	Art.-No.
MVP8-P3 DIO8 8xM8-3 IOLA12 B0	59507
MVP8-P3 DIO8 8xM8-3 IOLA12 E0	59607
MVP8-P3 DIO4 DIO4 8xM8-3 IOLB12 B0	59504
MVP8-P3 DIO4 DIO4 8xM8-3 IOLB12 E0	59604

Document status:

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NOTE
Translation of the original instructions

Table of Contents

1 Introduction

Function of this document

This document instructs the technical personnel of the machine manufacturer or machine operator on the safe use of the devices described in the scope.

It does not instruct the safe use of the machine in which this Devices are or will be integrated. Information on this is contained in the operating instructions for the machine.

- ➔ Read this chapter carefully before you start working with the documentation or the device.
- ➔ Read the documentation carefully before starting up the device.
- ➔ Store the manual in a place that is accessible to all users at all times for the entire service life of the device.

You will need general knowledge about automation engineering in order to understand this manual. In addition, planning and using automation systems requires technical knowledge which is not contained in this manual.

Glossary
You can find explanations of the terms/abbreviations used at:
https://www.murrelektronik.com/products-industries/glossary/

1.1 Service and support

Sales and distribution

Our sales employees in the indoor and outdoor service and our technicians will support you at any time.

Customer Service Center (CSC)

Our staff of the Customer Service Center will help you with all questions concerning installation and start-up. They support you, for example, if you have problems with combining hardware and software products from different manufacturers with Murrelektronik products.

A number of support tools and measurement facilities are available for field bus systems and EMC interferences.

Please do not hesitate to call us at +49 (0) 7191 47-2050 or send an e-mail to support@murrelektronik.com

Service addresses

Murrelektronik GmbH has a policy of customer proximity, both at national and international level. Please visit our website to find your contact person: https://www.murrelektronik.com/

1.2 Scope of delivery

The scope of delivery includes:

1x	MVP8 module
1x	Operating instructions
10x	Designation label

1.3 Applicable documents

Document	Art.-No.
Operating instructions	59507
Product Data	59507
Product Data	59607
Product Data	59504
Product Data	59604

You will find the applicable documents included in the scope of delivery or online under https://shop.murrelektronik.com

1.4 Environmentally friendly disposal

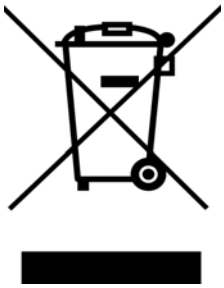
Comply with country-specific waste disposal regulations!

➔ Always dispose of scrap devices in compliance with the applicable country-specific regulations on waste disposal (e.g., the European Waste Code 16 02 14).

Scrap materials may only be sorted by qualified persons!

➔ Proceed with caution when dismantling the device since you could injure yourself.

➔ Sort the separated components into the correct recycling line.



Disposal

The product can be returned to Murrelektronik GmbH free of charge for disposal. The same is true for the original packaging and any batteries or power packs. Any units that have been contaminated with hazardous substances will not be accepted for repair or disposal.

Returns

➔ Label the product and the packaging with ***"For disposal"***.

➔ Package the product.

➔ Send the package to:

Murrelektronik GmbH

Falkenstraße 3

71570 Oppenweiler / Germany

We will make sure that the items are disposed of in accordance with German legislation. The most recent owner is responsible for transport to the return point until items arrive at their destination.

1.5 About this manual

1.5.1 Symbols

This document includes information and notes that have to be observed for your own safety and to avoid injuries and material damage. They are marked as follows:

DANGER!

Immediate danger

➔ Failure to observe this warning involves an imminent risk of death or serious injuries.

WARNING!

Possible danger

➔ Failure to observe this warning can lead to death or serious injuries.

CAUTION!

Low-risk danger

➔ Failure to observe this warning can lead to mild to moderate injuries.

NOTICE

Possible material damage

➔ Failure to observe the warning may cause damage to the device and/or the system.

NOTE
Other technical information and notes of Murrelektronik GmbH.

RECOMMENDATION
Notes with this symbol are recommendations of Murrelektronik GmbH.

PRODUCTS AND ACCESSORIES
This symbol indicates accessories or product recommendations.

Instruction for use

➔ An arrow marks instructions.

➔ Read and observe the instructions.

1 | If they are numbered, it is absolutely necessary to follow them in the correct order.

2 | Read and observe the instructions.

1.5.2 Trademarks

Trademarks of the following companies and institutions are used in this documentation:

IO-Link	c/o PROFIBUS Nutzerorganisation e.V. (PNO)

1.5.3 Specifications

Specification	Link
IO-Link specification Version 1.1.2 dated 07/2013	http://www.io-link.com

The features of the IO-Link Specification version 1.1.3 are supported as well.

2 For your safety

2.1 General safety instructions

Qualified personnel

Only qualified and safety-trained personnel may assemble, commission and operate the product.

This document is intended for specialists in automation technology.

NOTE
Interventions in the hardware and software of the device dare, if they are not described in this document, only be carried out by qualified personnel from Murrelektronik GmbH.

NOTE
The operating instructions must always be available to the operator of the machine where the device is used.

2.2 Intended purpose

The product has been designed and manufactured for:

- industrial use
- operation within the specified environmental conditions
- field use.

NOTE
Radio interference may occur if the module is used in a domestic or mixed environment.

➔ Follow standards for domestic or mixed environments!

2.2.1 Foreseeable misuse

Foreseeable misuse

The module:

- ➔ must not be altered with regard to design, engineering, or electrical features.
- ➔ should only be used in the application fields described in this manual, in the technical data or in the operating instructions.
- ➔ must not be used as a safety-related device. It does not meet the relevant standards. Safety functions of the system are not ensured.
- ➔ should only be used in the respective IP-protected environment.
- ➔ should only be cleaned with oil-free compressed air and a leather cloth.
- ➔ must not be used as a climbing aid.

2.2.2 Warranty and liability

Warranty and liability claims cannot be made if

- the product is not used according to its intended use
- damage is caused due to non-observance of the operating instructions
- the personnel was/is not qualified

3 Description

Art.-No. 59507, 59607

- IO-Link hub in 30 mm plastic housing
- 1 x M12 IO-Link class A
- 8 x M8 I/O
- 8 configurable digital inputs/outputs

Art.-No. 59504, 59604

- IO-Link hub in 30 mm plastic housing
- 1 x M12 IO-Link class B
- 8 x M8 I/O
- 8 configurable digital inputs/outputs
- Galvanically isolated voltage groups

IO-Link

c UL us LISTED IND. CONT. EQ E201820

3.1 Product Designation Code

The product designation provides information on the module function.

Art.-No. 59507

MVP8-P3 DIO8 8xM8-3 IOLA12 B0	
MVP8-P3	Product family + module size
DIO	■ D = Digital ■ I = Input ■ O = Output
8xM8-3	Number and size of ports + number of pins
IOLA	■ IOL = IO-Link ■ A = Class A
B0	Basic Firmware Features

Art.-No. 59607

MVP8-P3 DIO8 8xM8-3 IOLA12 E0	
MVP8-P3	Product family + module size
DIO	■ D = Digital ■ I = Input ■ O = Output
8xM8-3	Number and size of ports + number of pins
IOLA	■ IOL = IO-Link ■ A = Class A
E0	Extended Firmware Features

Art.-No. 59504

MVP8-P3 DIO4 DIO4 8xM8-3 IOLB12 B0	
MVP8-P3	Product family + module size
DIO	■ D = Digital ■ I = Input ■ O = Output
8xM8-3	Number and size of ports + number of pins
IOLB	■ IOL = IO-Link ■ B = Class B
B0	Basic Firmware Features

Art.-No. 59604

MVP8-P3 DIO4 DIO4 8xM8-3 IOLB12 E0	
MVP8-P3	Product family + module size
DIO	■ D = Digital ■ I = Input ■ O = Output
8xM8-3	Number and size of ports + number of pins
IOLB	■ IOL = IO-Link ■ B = Class B
E0	Extended Firmware Features

3.2 Module structure

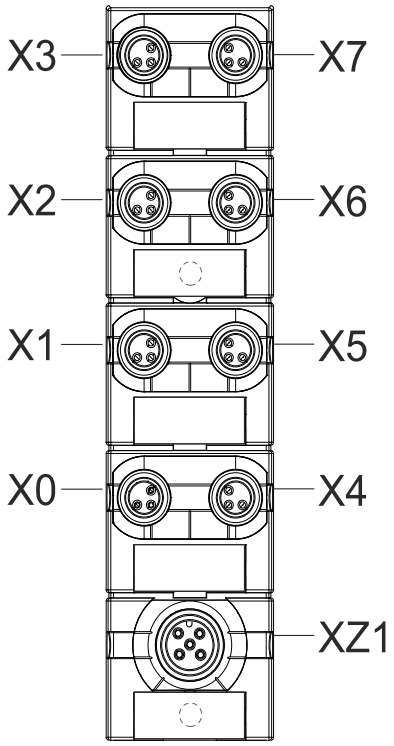


Fig. 3-1: Module structure and port designations

Art. No.	Port designation	Explanation
59507, 59607	X0 ... X7	Digital inputs and outputs US
	XZ1	Module supply, IO-Link Class A
59504, 59604	X0 ... X3	Digital inputs and outputs UA
	X4 ... X7	Digital inputs and outputs US
	XZ1	Module supply, IO-Link Class B

3.3 PIN assignment

3.3.1 IO-Link Class A

IO-Link	XZ1 (M12 male connectors)	
	Pin 1	24 V ⎓ US (L+)
	Pin 2	n.c.
	Pin 3	0 V US (L-)
	Pin 4	C/Q IO-Link
	Pin 5	n.c.

DIO	X0 ... X7 (M8 female connectors)	
	Pin 1	24 V ⎓ US
	Pin 3	0 V US
	Pin 4	DIO US

3.3.2 IO-Link Class B

IO-Link	XZ1 (M12 male connectors)	
	Pin 1	24 V ⎓ US (L+)
	Pin 2	24 V ⎓ UA (P24)
	Pin 3	0 V US (L-)
	Pin 4	C/Q IO-Link
	Pin 5	0 V UA (N24)

DIO	X0 ... X3 (M8 female connectors)	
	Pin 1	24 V ⎓ UA
	Pin 3	0 V UA
	Pin 4	DIO UA

DIO	X4 ... X7 (M8 female connectors)	
	Pin 1	24 V ⎓ US
	Pin 3	0 V US
	Pin 4	DIO US

4 Technical Data

4.1 Art.-No. 59507

4.1.1 Electrical data

Module supply		
Operating voltage US		24 V ⎓
Operating voltage range US		18 ... 30 V ⎓
Total current US	≤50 °C (see Derating)	≤4 A
Power consumption when idling		≤40 mA
Galvanic isolation		No

Total current US

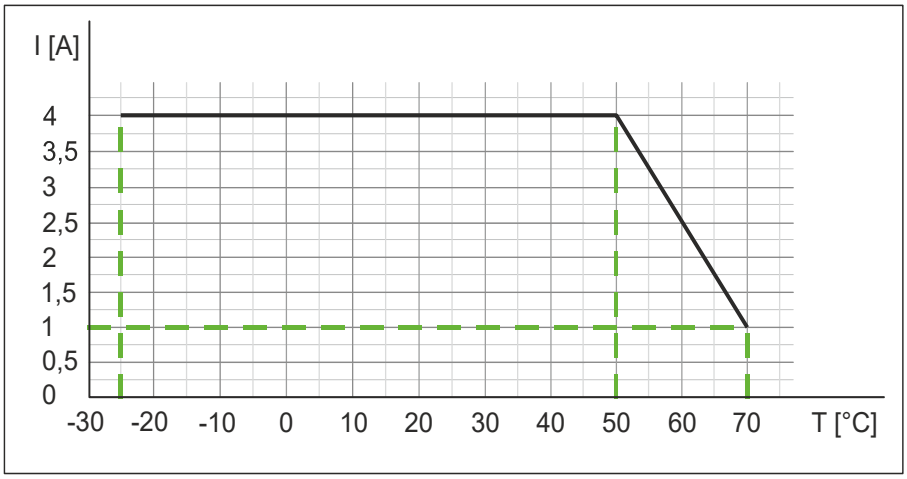


Fig. 4-1: Total current US

IO-Link		
Communication speed		COM3
Transfer rate		230,400 bit/s
Bus protocol		IO-Link V1.1.2, compatible with IO-Link V1.1.3
IO-Link cycle time		≥1 ms
VendorID		0x012F
DeviceID		0x0C0005
Process data		2 byte (inputs), 2 byte (outputs)

Sensor power supply		
Connection/female connector		M8
Operating voltage		24 V ⎓
Power supply	Per 2 ports (X0+X1, X2+X3, X4+X5, X6+X7)	≤1 A

Input (DI)		
Connection/female connector		M8
Cable cross section		≤0.75 mm²

Input (DI)		
Cable length		≤30 m
Input characteristic	EN 61131-2	Type 1 + Type 3
Input filter		1 ms

Output (DO)		
Connection/female connector		M8
Cable cross section		≤0.75 mm²
Cable length		≤30 m
Output current	Per pin	≤0.5 A
Switching frequency	Resistive load	≤25 Hz

4.1.2 Environmental characteristics

Climatic		
Operating temperature		-25 °C ... +70 °C
Storage temperature		-40 °C ... +85 °C
Installation height	Above sea level	≤3000 m
Relative humidity		≤95 %

Mechanical		
Vibration test	EN 60068 Parts 2-6	5 ... 500 Hz; const. amplitude 1 mm; acceleration 15 g
Shock test	EN 60068 Parts 2-27	50 g @ 11 ms

Electrical safety		
Degree of protection		IP68
Protection class		III
Degree of pollution		2

Emitted EMC interference		
Radio interference field strength	EN 61000-6-4 Emission	QP: 40 dBµ V/m @ 30 ... 230 MHzQP: 47 dBµ V/m @ 230 ... 1000 MHz

EMC immunity		
Electrostatic discharge (housing)	EN 61000-4-2	±4 kV @ contact ±8 kV @ air
Electromagnetic high-frequency fields (housing)	EN 61000-4-3 RF field	10 V/m
Rapid transient electric disturbances (burst) DC inputs/outputs	EN 61000-4-4	±2 kV I/O supply ±1 kV data line/ ±1 kV I/O line
Magnetic field	EN 61000-4-8	30 A/m @ 50 Hz
Conducted interferences, high-frequency fields	EN 61000-4-6, asymmetric	10 V

4.1.3 Protection

Device protection		
Overvoltage protection		Yes
Overload protection of module supply	To be ensured through load circuit monitoring	Yes
Reverse polarity protection of module supply		Yes
Short-circuit protection, sensor supply		Electronically
Short-circuit protection, output (DO)		Electronically
Protective circuit for input	Internal	Suppressor diode

4.1.4 Product reliability

Product reliability		
MTTF	SN 29500 (at 40 °C and rated data)	94 years

4.1.5 Mechanical data

Assembly data		
Weight	Net	129 g
Dimensions	L x W x H	126 x 30 x 34.5 mm

4.1.6 Conformity, Approvals

Conformity, Approvals		
Product standard	EN 61131-2 Programmable logic controllers, Part 2	Compliant
CE	2014/30/EU 2011/65/EU	Compliant
UKCA		Compliant
EMC	2014/30/EU	Compliant
REACH	No. 1907/2006	SVHC List
WEEE	2012/19/EU	Compliant
ULus		E201820
RoHS	2011/65/EU & 2015/863	Exception 6c&7a
China RoHS	SJ/T 11364-2014	25 EPUP

Hazardous substance (有害物質)						
Part Name 零件名稱	Lead (Pb) 铅	Mercury (Hg) 汞	Cadmium (Cd) 镉	Hexavalent Chromium (Cr (VI)) 六价铬	Polybrominated biphenyls (PBB) 多溴联苯	Polybrominated diphenyl ethers (PBDE) 多溴联苯醚
Component part PCB 组件部分 印刷电路板	X	O	O	O	O	O
Connection Terminal/ Screws 接线端子 / 拧	X	O	O	O	O	O

O: Indicates that the content of the harmful substance in all homogeneous materials of the component part is below the limit defined in GB/T 26572.

O: 表明該有害物質在組成部分的所有均質材料的含量低於按GB/ T26572定義的限制。

X: Indicates that the content of the harmful substance in at least one homogeneous material of the component part exceeds the limit defined in GB/T 26572.

X: 表示該有害物質在組成部分中的至少一個均質材料的含量超過按GB / T26572定義的限制。

4.2 Art.-No. 59607

4.2.1 Electrical data

Module supply		
Operating voltage US		24 V ⎓
Operating voltage range US		18 ... 30 V ⎓
Total current US	≤50 °C (see Derating)	≤4 A
Power consumption when idling		≤40 mA
Galvanic isolation		No

Total current US

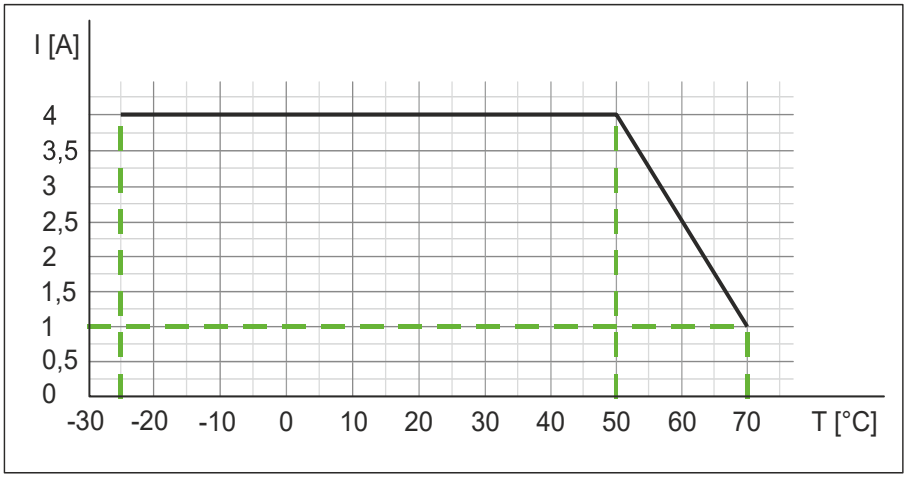


Fig. 4-2: Total current US

IO-Link		
Communication speed		COM3
Transfer rate		230,400 bit/s
Bus protocol		IO-Link V1.1.2, compatible with IO-Link V1.1.3
IO-Link cycle time		≥1 ms
VendorID		0x012F
DeviceID		0x0C0006
Process data		4 byte (inputs), 2 byte (outputs)

Sensor power supply		
Connection/female connector		M8
Operating voltage		24 V ⎓
Power supply	Per 2 ports (X0+X1, X2+X3, X4+X5, X6+X7)	≤1 A

Input (DI)		
Connection/female connector		M8
Cable cross section		≤0.75 mm²
Cable length		≤30 m
Input characteristic	EN 61131-2	Type 1 + Type 3
Input filter		1 ... 10 ms, adjustable

Output (DO)		
Connection/female connector		M8
Cable cross section		≤0.75 mm²
Cable length		≤30 m
Output current	Per pin	≤0.5 A
Switching frequency	Resistive load	≤25 Hz

4.2.2 Environmental characteristics

Climatic		
Operating temperature		-25 °C ... +70 °C
Storage temperature		-40 °C ... +85 °C
Installation height	Above sea level	≤3000 m
Relative humidity		≤95 %

Mechanical		
Vibration test	EN 60068 Parts 2-6	5 ... 500 Hz; const. amplitude 1 mm; acceleration 15 g
Shock test	EN 60068 Parts 2-27	50 g @ 11 ms

Electrical safety		
Degree of protection		IP68
Protection class		III
Degree of pollution		2

Emitted EMC interference		
Radio interference field strength	EN 61000-6-4 Emission	QP: 40 dBµ V/m @ 30 ... 230 MHzQP: 47 dBµ V/m @ 230 ... 1000 MHz

EMC immunity		
Electrostatic discharge (housing)	EN 61000-4-2	±4 kV @ contact ±8 kV @ air
Electromagnetic high-frequency fields (housing)	EN 61000-4-3 RF field	10 V/m
Rapid transient electric disturbances (burst) DC inputs/outputs	EN 61000-4-4	±2 kV I/O supply ±1 kV data line/ ±1 kV I/O line
Magnetic field	EN 61000-4-8	30 A/m @ 50 Hz
Conducted interferences, high-frequency fields	EN 61000-4-6, asymmetric	10 V

4.2.3 Protection

Device protection		
Overvoltage protection		Yes
Overload protection of module supply	To be ensured through load circuit monitoring	Yes
Reverse polarity protection of module supply		Yes
Short-circuit protection, sensor supply		Electronically
Short-circuit protection, output (DO)		Electronically
Protective circuit for input	Internal	Suppressor diode

4.2.4 Product reliability

Product reliability		
MTTF	SN 29500 (at 40 °C and rated data)	94 years

4.2.5 Mechanical data

Assembly data		
Weight	Net	129 g
Dimensions	L x W x H	126 x 30 x 34.5 mm

4.2.6 Conformity, Approvals

Conformity, Approvals		
Product standard	EN 61131-2 Programmable logic controllers, Part 2	Compliant
CE	2014/30/EU 2011/65/EU	Compliant
UKCA		Compliant
EMC	2014/30/EU	Compliant
REACH	No. 1907/2006	SVHC List
WEEE	2012/19/EU	Compliant
ULus		E201820
RoHS	2011/65/EU & 2015/863	Exception 6c&7a
China RoHS	SJ/T 11364-2014	25 EPUP

Hazardous substance (有害物質)						
Part Name 零件名稱	Lead (Pb) 铅	Mercury (Hg) 汞	Cadmium (Cd) 镉	Hexavalent Chromium (Cr (VI)) 六价铬	Polybrominated biphenyls (PBB) 多溴联苯	Polybrominated diphenyl ethers (PBDE) 多溴联苯醚
Component part PCB 组件部分 印刷电路板	X	O	O	O	O	O
Connection Terminal/ Screws 接线端子 / 拧	X	O	O	O	O	O

O: Indicates that the content of the harmful substance in all homogeneous materials of the component part is below the limit defined in GB/T 26572.

O: 表明該有害物質在組成部分的所有均質材料的含量低於按GB/ T26572定義的限制。

X: Indicates that the content of the harmful substance in at least one homogeneous material of the component part exceeds the limit defined in GB/T 26572.

X: 表示該有害物質在組成部分中的至少一個均質材料的含量超過按GB / T26572定義的限制。

4.3 Art.-No. 59504

4.3.1 Electrical data

Module supply		
Operating voltage US		24 V ⎓
Operating voltage UA		24 V ⎓
Operating voltage range US		18 ... 30 V ⎓
Operating voltage range UA		18 ... 30 V ⎓
Total current US	≤50 °C (see Derating)	≤4 A
Total current UA	≤50 °C (see Derating)	≤4 A
Power consumption when idling		≤50 mA
Galvanic isolation		Yes

Total current US and total current UA

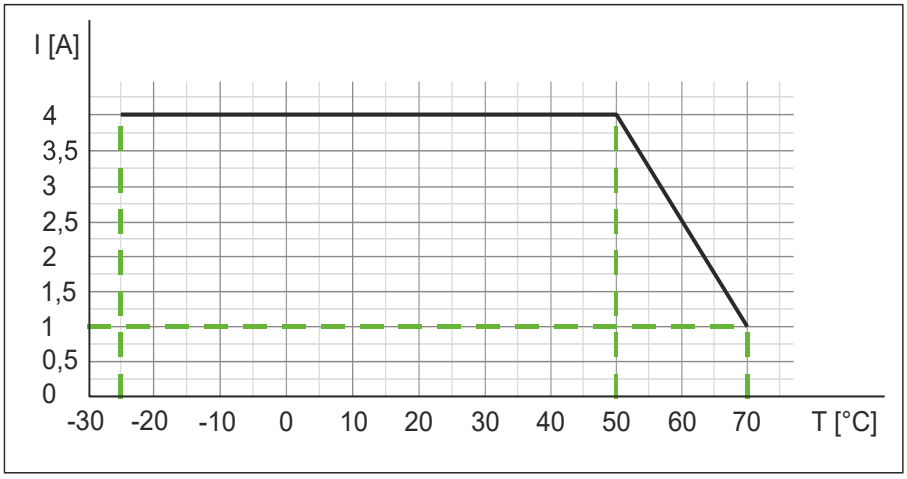


Fig. 4-3: Total current US and total current UA

IO-Link		
Communication speed		COM3
Transfer rate		230,400 bit/s
Bus protocol		IO-Link V1.1.2, compatible with IO-Link V1.1.3
IO-Link cycle time		≥1 ms
VendorID		0x012F
DeviceID		0x0C0007
Process data		2 byte (inputs), 2 byte (outputs)

Sensor power supply		
Connection/female connector		M8
Operating voltage		24 V ⎓
Power supply	Per 2 ports (X0+X1, X2+X3, X4+X5, X6+X7)	≤1 A

Input (DI)		
Connection/female connector		M8
Cable cross section		≤0.75 mm²

Input (DI)		
Cable length		≤30 m
Input characteristic	EN 61131-2	Type 1 + Type 3
Input filter		1 ms

Output (DO)		
Connection/female connector		M8
Cable cross section		≤0.75 mm²
Cable length		≤30 m
Output current	Per pin	≤2 A
Switching frequency	Resistive load	≤25 Hz

4.3.2 Environmental characteristics

Climatic		
Operating temperature		-25 °C ... +70 °C
Storage temperature		-40 °C ... +85 °C
Installation height	Above sea level	≤3000 m
Relative humidity		≤95 %

Mechanical		
Vibration test	EN 60068 Parts 2-6	5 ... 500 Hz; const. amplitude 1 mm; acceleration 15 g
Shock test	EN 60068 Parts 2-27	50 g @ 11 ms

Electrical safety		
Degree of protection		IP68
Protection class		III
Degree of pollution		2

Emitted EMC interference		
Radio interference field strength	EN 61000-6-4 Emission	QP: 40 dBµ V/m @ 30 ... 230 MHzQP: 47 dBµ V/m @ 230 ... 1000 MHz

EMC immunity		
Electrostatic discharge (housing)	EN 61000-4-2	±4 kV @ contact ±8 kV @ air
Electromagnetic high-frequency fields (housing)	EN 61000-4-3 RF field	10 V/m
Rapid transient electric disturbances (burst) DC inputs/outputs	EN 61000-4-4	±2 kV I/O supply ±1 kV data line/ ±1 kV I/O line
Magnetic field	EN 61000-4-8	30 A/m @ 50 Hz
Conducted interferences, high-frequency fields	EN 61000-4-6, asymmetric	10 V

4.3.3 Protection

Device protection		
Overvoltage protection		Yes
Overload protection of module supply	To be ensured through load circuit monitoring	Yes
Reverse polarity protection of module supply		Yes
Short-circuit protection, sensor supply		Electronically
Short-circuit protection, output (DO)		Electronically
Protective circuit for input	Internal	Suppressor diode

4.3.4 Product reliability

Product reliability		
MTTF	SN 29500 (at 40 °C and rated data)	86 years

4.3.5 Mechanical data

Assembly data		
Weight	Net	129 g
Dimensions	L x W x H	126 x 30 x 34.5 mm

4.3.6 Conformity, Approvals

Conformity, Approvals		
Product standard	EN 61131-2 Programmable logic controllers, Part 2	Compliant
CE	2014/30/EU 2011/65/EU	Compliant
UKCA		Compliant
EMC	2014/30/EU	Compliant
REACH	No. 1907/2006	SVHC List
WEEE	2012/19/EU	Compliant
ULus		E201820
RoHS	2011/65/EU & 2015/863	Exception 6c&7a
China RoHS	SJ/T 11364-2014	25 EPUP

Hazardous substance (有害物質)						
Part Name 零件名稱	Lead (Pb) 铅	Mercury (Hg) 汞	Cadmium (Cd) 镉	Hexavalent Chromium (Cr (VI)) 六价铬	Polybrominated biphenyls (PBB) 多溴联苯	Polybrominated diphenyl ethers (PBDE) 多溴联苯醚
Component part PCB 组件部分 印刷电路板	X	O	O	O	O	O
Connection Terminal/ Screws 接线端子 / 拧	X	O	O	O	O	O

O: Indicates that the content of the harmful substance in all homogeneous materials of the component part is below the limit defined in GB/T 26572.

O: 表明該有害物質在組成部分的所有均質材料的含量低於按GB/ T26572定義的限制。

X: Indicates that the content of the harmful substance in at least one homogeneous material of the component part exceeds the limit defined in GB/T 26572.

X: 表示該有害物質在組成部分中的至少一個均質材料的含量超過按GB / T26572定義的限制。

4.4 Art.-No. 59604

4.4.1 Electrical data

Module supply		
Operating voltage US		24 V ⎓
Operating voltage UA		24 V ⎓
Operating voltage range US		18 ... 30 V ⎓
Operating voltage range UA		18 ... 30 V ⎓
Total current US	≤50 °C (see Derating)	≤4 A
Total current UA	≤50 °C (see Derating)	≤4 A
Power consumption when idling		≤50 mA
Galvanic isolation		Yes

Total current US and total current UA

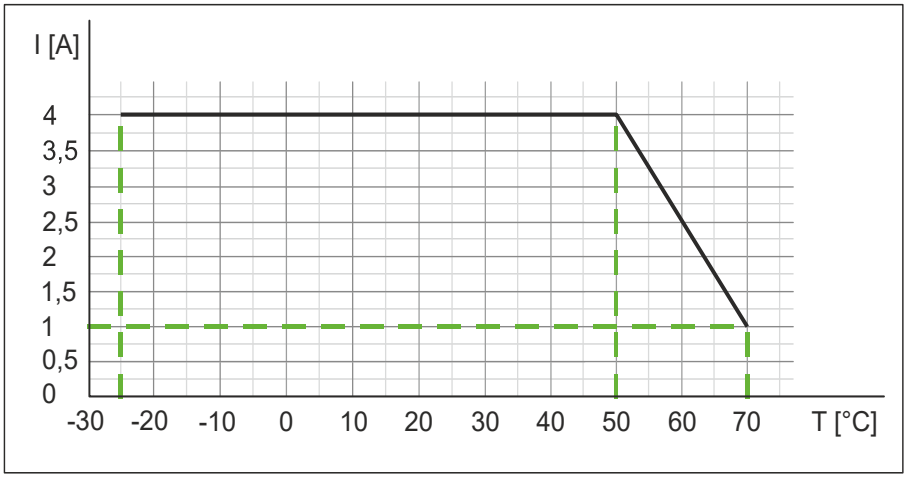


Fig. 4-4: Total current US and total current UA

IO-Link		
Communication speed		COM3
Transfer rate		230,400 bit/s
Bus protocol		IO-Link V1.1.2, compatible with IO-Link V1.1.3
IO-Link cycle time		≥1 ms
VendorID		0x012F
DeviceID		0x0C0008
Process data		4 byte (inputs), 2 byte (outputs)

Sensor power supply		
Connection/female connector		M8
Operating voltage		24 V ⎓
Power supply	Per 2 ports (X0+X1, X2+X3, X4+X5, X6+X7)	≤1 A

Input (DI)		
Connection/female connector		M8
Cable cross section		≤0.75 mm²

Input (DI)		
Cable length		≤30 m
Input characteristic	EN 61131-2	Type 1 + Type 3
Input filter		1 ... 10 ms, adjustable

Output (DO)		
Connection/female connector		M8
Cable cross section		≤0.75 mm²
Cable length		≤30 m
Output current	Per pin	≤2 A
Switching frequency	Resistive load	≤25 Hz

4.4.2 Environmental characteristics

Climatic		
Operating temperature		-25 °C ... +70 °C
Storage temperature		-40 °C ... +85 °C
Installation height	Above sea level	≤3000 m
Relative humidity		≤95 %

Mechanical		
Vibration test	EN 60068 Parts 2-6	5 ... 500 Hz; const. amplitude 1 mm; acceleration 15 g
Shock test	EN 60068 Parts 2-27	50 g @ 11 ms

Electrical safety		
Degree of protection		IP68
Protection class		III
Degree of pollution		2

Emitted EMC interference		
Radio interference field strength	EN 61000-6-4 Emission	QP: 40 dBµ V/m @ 30 ... 230 MHzQP: 47 dBµ V/m @ 230 ... 1000 MHz

EMC immunity		
Electrostatic discharge (housing)	EN 61000-4-2	±4 kV @ contact ±8 kV @ air
Electromagnetic high-frequency fields (housing)	EN 61000-4-3 RF field	10 V/m
Rapid transient electric disturbances (burst) DC inputs/outputs	EN 61000-4-4	±2 kV I/O supply ±1 kV data line/ ±1 kV I/O line
Magnetic field	EN 61000-4-8	30 A/m @ 50 Hz
Conducted interferences, high-frequency fields	EN 61000-4-6, asymmetric	10 V

4.4.3 Protection

Device protection		
Overvoltage protection		Yes
Overload protection of module supply	To be ensured through load circuit monitoring	Yes
Reverse polarity protection of module supply		Yes
Short-circuit protection, sensor supply		Electronically
Short-circuit protection, output (DO)		Electronically
Protective circuit for input	Internal	Suppressor diode

4.4.4 Product reliability

Product reliability		
MTTF	SN 29500 (at 40 °C and rated data)	86 years

4.4.5 Mechanical data

Assembly data		
Weight	Net	129 g
Dimensions	L x W x H	126 x 30 x 34.5 mm

4.4.6 Conformity, Approvals

Conformity, Approvals		
Product standard	EN 61131-2 Programmable logic controllers, Part 2	Compliant
CE	2014/30/EU 2011/65/EU	Compliant
UKCA		Compliant
EMC	2014/30/EU	Compliant
REACH	No. 1907/2006	SVHC List
WEEE	2012/19/EU	Compliant
ULus		E201820
RoHS	2011/65/EU & 2015/863	Exception 6c&7a
China RoHS	SJ/T 11364-2014	25 EPUP

Hazardous substance (有害物質)						
Part Name 零件名稱	Lead (Pb) 铅	Mercury (Hg) 汞	Cadmium (Cd) 镉	Hexavalent Chromium (Cr (VI)) 六价铬	Polybrominated biphenyls (PBB) 多溴联苯	Polybrominated diphenyl ethers (PBDE) 多溴联苯醚
Component part PCB 组件部分 印刷电路板	X	O	O	O	O	O
Connection Terminal/ Screws 接线端子 / 拧	X	O	O	O	O	O

O: Indicates that the content of the harmful substance in all homogeneous materials of the component part is below the limit defined in GB/T 26572.

O: 表明該有害物質在組成部分的所有均質材料的含量低於按GB/ T26572定義的限制。

X: Indicates that the content of the harmful substance in at least one homogeneous material of the component part exceeds the limit defined in GB/T 26572.

X: 表示該有害物質在組成部分中的至少一個均質材料的含量超過按GB / T26572定義的限制。

5 Mounting

5.1 Requirements

➔ Conditions for mounting:

- Even mounting surface to avoid mechanical tension
- Provide suitable grounding
- Suitable installation site in terms of vibration and shock load, temperature and humidity (see chap. 4 "Technical Data")
- Protected to avoid tearing off the connecting cables by personnel or device

5.2 Dimensions

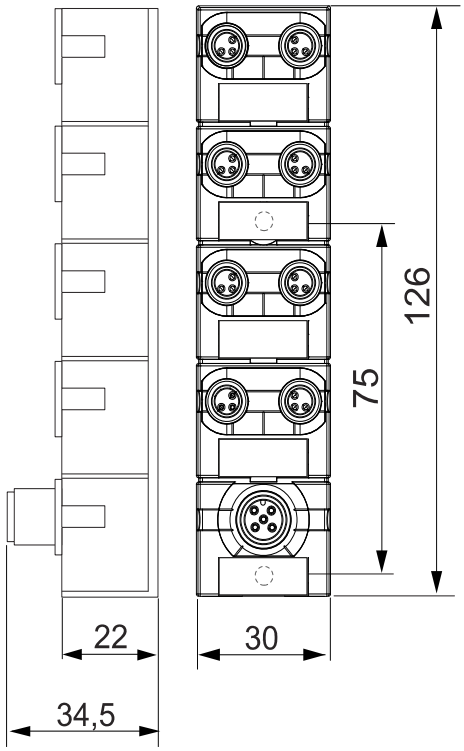


Fig. 5-1: Dimensions in mm

5.3 Mounting distance

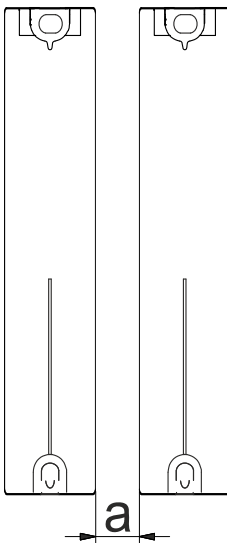


Fig. 5-2: Distance between modules

a | Male connector straight: 5 mm
male connector angled: 50 mm

NOTE

➔ If angled male connectors are used, a minimum distance of 50 mm must be adhered to.

5.4 Mounting the module

NOTICE

Material damage due to incorrect installation

The fastening screws and tightening torques depend on the surface of the installation site.

➔ Use fastening screws that are suitable for the mounting surface structure!

➔ Carefully tighten the screws! The indicated tightening torques have to be adhered to.

NOTICE

Material damage through improper use

Do not use the modules as climbing aids. Improper use can cause the modules to break off or to be damaged otherwise.

➔ Install the modules in such a way that they cannot be used as climbing aid!

Module fastening

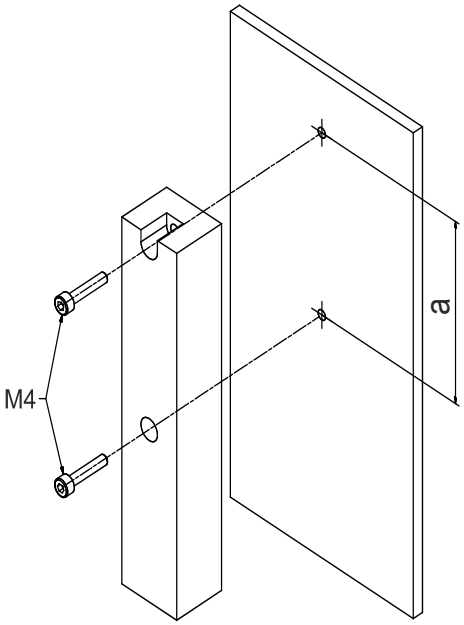


Fig. 5-3: Mounting with two fastening screws M4

Distance between the fastening screws
a = 75 mm

M4	2 Nm		Art.-No. 7000-98001-0000000

Mounting

1 | Align housing.
2 | Slightly tighten an M4 bolt.
3 | Slightly tighten the second M4 bolt.
4 | Tighten both screws M4 to the specified tightening torque.
5 | Fasten the grounding strap.
(see chapter 5.5 "Functional ground").

5.5 Functional ground

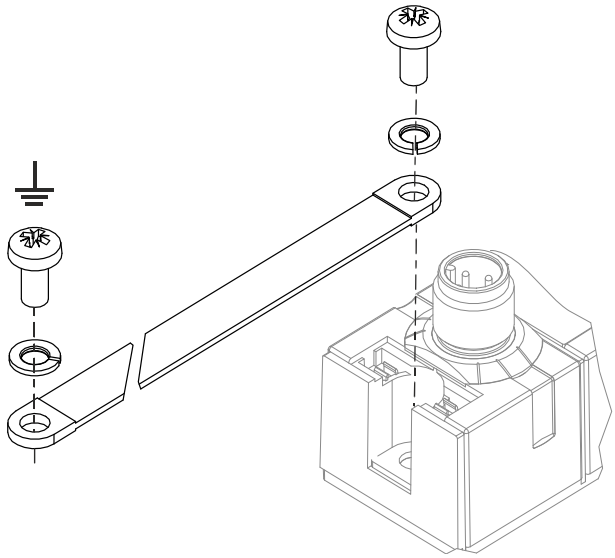


Fig. 5-4: Ground strap fastening

M4	2 Nm		Art.-No. 7000-98001-0000000

6 Installation

WARNING!

High electrical voltages

Electric shock may cause life-threatening injuries.

- ➔ Only an electric installer is allowed to connect the device!
- ➔ Before performing work at the device, disconnect it from the voltage source.
- ➔ Observe five safety rules!

Protective measures during connection work

- ➔ According to IEC 60364 - Protection against electric shock

CAUTION!

Hot surface

Burnings and line damage caused by touching the devices.

- ➔ Wear thermally suitable protective gloves.
- ➔ Only use lines with a temperature resistance of at least 80 °C.

6.1 Connection lines

WARNING!

Risk of fire due to short circuit!

Supply lines and/or modules damaged by short circuit can cause overheating and fires!

- ➔ Provide intelligent current monitoring or fuse.

NOTE

The cable length of the sensor and actuator cables is limited to 30 m.

6.1.1 Ensure tight seal

NOTICE

Damage to and failure of the device due to ingress of liquids!

The degree of protection IP68 is only guaranteed if all connections are sealed with plug connectors, screw plugs, or sealing caps.

➔ Seal unused male and female connectors.

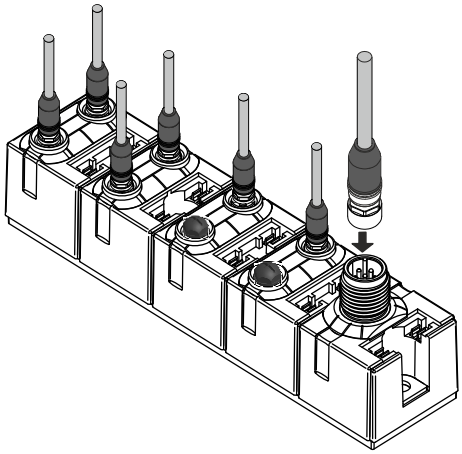


Fig. 6-1: Connecting cables

M8	0.4 Nm		Art.-No. 7000-99100-0000000
M12	0.6 Nm		Art.-No. 7000-99102-0000000

PRODUCTS AND ACCESSORIES

You will find a wide range of connecting lines in the catalog or in the Murrelektronik online shop http://shop.murrelektronik.com

7 Operation

NOTE
After writing an application-specific tag in the IO-Link hub, the hub briefly interrupts the IO-Link connection if the text is not the same as the text stored in the hub.

7.1 LED indication

The MVP8 modules are equipped with the following separate LED indicators:

- LED indication for inputs/outputs
- LED indication for IO-Link and US sensor supply
- LED indication for actuator supply UA (Class B only)

Indication takes place by means of static lighting or flashing of the LEDs.

7.1.1 LED indication US and IO-Link

The device has a combined LED for the IO-Link status and the status of the US sensor supply. The IO-Link status is mapped by the green LED chip, and the US status by the red LED chip.

This can give rise to a mixture of green and red flashing codes (in case of overlap orange flashing code).

Combined LED indication IO-Link and US

LED indication	LED state	Description
Green	Permanently on	IO-Link not in OPERATE status, no cyclic data communication; sensor power supply OK
Green	Flashing **1 Hz**	IO-Link in OPERATE status, cyclic data communication; sensor power supply OK
Red	Permanently on	Short circuit DO, temperature warning etc.
Red	Flashing **1 Hz**	Communication error IO-Link
Off		Device off, no IO-Link connection

Tab. 7-1: Indication IO-Link and US

Firmware update

LED indication	LED state	Description
Green	Permanently on	IO-Link in IDLE status, Firmware update completed successfully
Green	Flashing **1 Hz**	IO-Link in status PREOPERATE/OPERATE, update is not yet performed
Red	Permanently on	Update failed
Green/ Red	Flashing **2 Hz**	IO-Link in status PREOPERATE/OPERATE, Update is being performed
Off		Device off, no IO-Link connection

Tab. 7-2: Firmware update

NOTE
At US <18 V, an error-free operation is no longer guaranteed.

7.1.2 LED indication UA

Art.-No. 59504, 59604

LED indication UA

LED indication	LED state	Description
Green	Permanently on	OK, 17.5 V < UA < 30 V
Red	Permanently on	Undervoltage, 12.5 V < UA < 17 V
Red	Flashing **1 Hz**	Over voltage (d) UA > 30.5 V
Off		Device off, UA < 12 V

Tab. 7-3: LED indication UA

7.1.3 LED indication for inputs and outputs

LED indication digital inputs/outputs

LED indication	LED state	Voltage at input	Description	Logical value
Yellow	Permanently on	24 V	Channel on	1
Red	Permanently on	0 V	Short-circuit or overload DO	0
Off		0 V	Device off or firmware update is being performed	0

Tab. 7-4: LED indication for digital inputs/outputs

Error at input or output

If at at least one input or output an error occurs (short circuit, overload or feedback), the LEDs will light in red on all M8 input slots and output slots.

7.2 IO-Link object directory

7.2.1 DPP

7.2.1.1 Art.-No. 59507, 59607

ISDU index	DPP index	Object name	Access	Length in bytes	Meaning / default value	
Identification						
					DIO8 Art.-No. 59507	**DIO8** Art.-No. 59607
0x0000	0x00	MasterCommand	W	1		
	0x01	MasterCycleTime	R/W	1		
	0x02	MinCycleTime	R	1		
	0x03	M-sequenceCapability	R	1		
	0x04	RevisionID	R/W	1		
	0x05	ProcessDataIn	R	1		
	0x06	ProcessDataOut	R	1		
	0x07	VendorID 1 (MSB)	R	1	0x012F	
	0x08	VendorID 2 (MSB)	R	1		
	0x09	DeviceID 1 (octet 2, MSB)	R/W	1	0x0C	
	0x0A	DeviceID 1 (octet 1, MSB)		1	0x00	
	0x0B	DeviceID 1 (octet 0, LSB)		1	0x05	0x06
	0x0C	FunctionID 1 (MSB)	R	1		
	0x0D	FunctionID 2 (LSB)		1		
	0x0E	Reserved	R	1		
	0x0F	SystemCommand	W	1		
0x0002		SystemCommand	R	1		
0x0003		DataStorageIndex	R	variable		
0x000D		ProfileCharacteristic	R	variable		
0x000E		PDInputDescriptor	R	variable		
0x000F		PDOutputDescriptor	R	variable		
0x0010		VendorName	R	64	Murrelektronik GmbH	

ISDU index	DPP index	Object name	Access	Length in bytes	Meaning / default value	
0x0011		VendorText	R	64	www.murrelektronik.com.	
0x0012		ProductName	R	64	MVP8-P3 DIO8 8xM8-3 IO-LA12 B0	MVP8-P3 DIO8 8xM8-3 IO-LA12 E0
0x0013		ProductID	R	64	59507	59607
0x0014		ProductText	R	64	Digital I/O hub MVP8-P30 - IO-Link Class A DIO8 8xM8-3P Basic Firmware Edition: 2 bytes IN / 1 byte Out	Digital I/O hub MVP8-P30 - IO-Link Class A DIO8 8xM8-3P Extended Firmware Edition: 4 bytes IN / 1 byte Out
0x0015		SerialNumber	R	16	Running serial number set during production	
0x0016		HardwareRevision	R	64	e.g. “01.00”	
0x0017		FirmwareRevision	R	64	e.g. “V.1.00.00”	
0x0018		ApplicationSpecificTag	R	16 ... 32	User-specific designation e.g. “System 3 / Port 4”	
0x0019		FunctionTag	R	32		
0x001A		LocationTag	R	32		
Diagnosis						
0x0020		Error Count	R	2		
0x0024		DeviceStatus	R	1	0: Device is operating properly 1: Maintenance Required 2: Out of Specification 3: Functional Check 4: Failure 5 ... 255: Reserved	
0x0025		DetailedDeviceStatus	R	variable	6 x (octet 1: EventQualifier, octet 2, 3: EventCode)	
0x0028		ProcessDataInput	R	PD length		
0x0029		ProcessDataOutput	R	PD length		
0x0031 ... 0x003F		Reserved for profiles				

7.2.1.2 Art.-No. 59504, 59604

ISDU index	DPP index	Object name	Access	Length in bytes	Meaning / default value	
Identification						
					DIO8 Art.-No. 59504	**DIO8** Art.-No. 59604
0x0000	0x00	MasterCommand	W	1		
	0x01	MasterCycleTime	R/W	1		
	0x02	MinCycleTime	R	1		
	0x03	M-sequenceCapability	R	1		
	0x04	RevisionID	R/W	1		
	0x05	ProcessDataIn	R	1		
	0x06	ProcessDataOut	R	1		
	0x07	VendorID 1 (MSB)	R	1	0x012F	
	0x08	VendorID 2 (MSB)	R	1		
	0x09	DeviceID 1 (octet 2, MSB)	R/W	1	0x0C	
	0x0A	DeviceID 1 (octet 1, MSB)		1	0x00	
	0x0B	DeviceID 1 (octet 0, LSB)		1	0x07	0x08
	0x0C	FunctionID 1 (MSB)	R	1		
	0x0D	FunctionID 2 (LSB)		1		
	0x0E	Reserved	R	1		
	0x0F	SystemCommand	W	1		
0x0002		SystemCommand	R	1		
0x0003		DataStorageIndex	R	variable		
0x000D		ProfileCharacteristic	R	variable		
0x000E		PDInputDescriptor	R	variable		
0x000F		PDOutputDescriptor	R	variable		
0x0010		VendorName	R	64	Murrelektronik GmbH	
0x0011		VendorText	R	64	www.murrelektronik.com.	
0x0012		ProductName	R	64	MVP8-P3 DIO4 DIO4 8xM8-3 IOLB12 B0	MVP8-P3 DIO4 DIO4 8xM8-3 IOLB12 E0
0x0013		ProductID	R	64	59504	59604
0x0014		ProductText	R	64	Digital I/O hub MVP8-P30 - IO-Link Class B DIO4 DIO4 8xM8-3P Basic Firmware Edition: 2 bytes IN / 1 byte Out	Digital I/O hub MVP8-P30 - IO-Link Class B DIO4 DIO4 8xM8-3P Extended Firmware Edition: 4 bytes IN / 1 byte Out
0x0015		SerialNumber	R	16	Running serial number set during production	
0x0016		HardwareRevision	R	64	e.g. “01.00”	
0x0017		FirmwareRevision	R	64	e.g. “V.1.00.00”	
0x0018		ApplicationSpecificTag	R	16 ... 32	User-specific designation e.g. “System 3 / Port 4”	
0x0019		FunctionTag	R	32		
0x001A		LocationTag	R	32		
Diagnosis						
0x0020		Error Count	R	2		
0x0024		DeviceStatus	R	1	0: Device is operating properly 1: Maintenance Required 2: Out of Specification 3: Functional Check 4: Failure 5 ... 255: Reserved	

ISDU index	DPP index	Object name	Access	Length in bytes	Meaning / default value	
0x0025		DetailedDeviceStatus	R	variable	6 x (octet 1: EventQualifier, octet 2, 3: EventCode)	
0x0028		ProcessDataInput	R	PD length		
0x0029		ProcessDataOutput	R	PD length		
0x0031 ... 0x003F		Reserved for profiles				

7.2.2 ISDU

7.2.2.1 Art.-No. 59607

ISDU index	Object name	Access	Length in Byte	Meaning	Default value
0x0040	Status: Power Supply Status US	R	1	Returns status of US - 0x00 = OK - 0x01 = Undervoltage - 0x02 = Overvoltage	
0x0041	Status: Power Supply Value US	R	1	Returns measured voltage of US in 0.1 V steps. Update every 10 ms.	
0x0042	Status: Power Supply Status UA	R	1	Returns status of UA - 0x00 = OK - 0x01 = Undervoltage - 0x02 = Overvoltage - 0x03 = OFF / not connected	
0x0050	Diagnosis: Short Circuit Detection DO	R	16	Allows reading of a short circuit that has occurred on a specific channel. - Subindex 1: X0 Pin 4 - Subindex 2: X1 Pin 4 ... - Subindex 7: X6 Pin 4 - Subindex 8: X7 Pin 4	
0x0060	Identification: Identification ID	R/W	2	Identification number for module identification. The value is shown inside the input process data.	0x0000
0x0061	Identification: User Defined Serial Number	R/W	2	User defined serial number. This can be used to ensure that a device is not connected to the wrong master.	0x0000
0x0062	Diagnosis: Disable General Diagnosis	R/W	16	Configurable diagnosis: 0 = active 1 = disabled - Subindex 1: IO-Link Event Code transmission to Master - Subindex 2: US - Diagnosis low voltage - Subindex 3:US - Diagnosis Over voltage - Subindex 4: US - LED status - Subindex 5: UA - Diagnosis `not connected´ - Subindex 6: UA - Diagnosis low voltage - Subindex 7: UA - Diagnosis over voltage - Subindex 8: UA - LED status - Subindex 9: TEMP - Diagnosis low temperature - Subindex 10: TEMP - Diagnosis over temperature - Subindex 11: TEMP - LED status - Subindex 12 ... 16: Reserved	0
0x0063	Module: L+ Current Limit	R/W	1	Current limitation of US (L +) to 200 mA for operation on an IO-Link master port that cannot supply enough current for full operation of the IO-Link hub. 0 = no current limitation from US (L +) 1 = current limitation of US (L +) active to 200 mA	0
0x0070	In-/Outputs: Bitmapping Layout	R/W	1	Bitmapping layout of the process data. 0 = Port based bit mapping 1 = Pin based bit mapping	0
0x0072	In-/Outputs: Channel Configuration	R/W	16	Setting of the I / O function per channel. - Subindex 1: X0 Pin 4 - Subindex 2: X1 Pin 4 ... - Subindex 7: X6 Pin 4 - Subindex 8: X7 Pin 4 Setting per channel (subindex): 0 = auto configuration / universal (DIO) 1 = input 2 = output	0

ISDU index	Object name	Access	Length in Byte	Meaning	Default value
0x0080	Inputs: Inverting Input Logic	R/W	1	Inversion of the input logic per channel. - Bit 0: X0 Pin 4 - Bit 1: X1 Pin 4 … - Bit 6: X6 Pin 4 - Bit 7: X7 Pin 4 Setting per channel (subindex): 0 = normal, no inversion 1 = inverted	0
0x0081	Inputs: Signal Extension / Impulse Stretching	R/W	16	Extension of the input pulses in steps of 10 ms. - Subindex 1: X0 Pin 4 - Subindex 2: X1 Pin 4 ... - Subindex 7: X6 Pin 4 - Subindex 8: X7 Pin 4 Setting per channel (subindex): 0 = 0 ms / OFF 1 = 10 ms 2 = 20 ms 3 = 30 ms ... 255 = reserved	0
0x0082	Inputs: Input Debounce / Filter Time	R/W	16	Setting of the input filter time per channel. - Subindex 1: X0 Pin 4 - Subindex 2: X1 Pin 4 ... - Subindex 7: X6 Pin 4 - Subindex 8: X7 Pin 4 Setting per channel (subindex): 0 = OFF (no filtering) 1 = 1 µs 2 = 10 µs 3 = 100 µs 4 = 1 ms 5 = 2 ms 6 = 3 ms 7 = 5 ms 8 = 10 ms	4
0x0090	Outputs: Short Circuit Recovery Behavior	R/W	1	Defines the behavior of each individual output channel after short circuit / overload: - Bit 0: X0 Pin 4 - Bit 1: X1 Pin 4 … - Bit 6: X6 Pin 4 - Bit 7: X7 Pin 4 0 = automatic reset after 60 sec. 1 = manual reset via output process data For a manual reset, set the affected bit in the process data from 0 to 1.	0
0x0091	Outputs: Fail-Safe Behavior	R/W	16	Defines the behavior of each individual output (channel) in the event of a loss of communication with the master. - Subindex 1: X0 Pin 4 - Subindex 2: X1 Pin 4 ... - Subindex 7: X6 Pin 4 - Subindex 8: X7 Pin 4 Setting per channel (subindex): 0 = logical 0 / OFF 1 = logical 1 / ON 2 = hold last state	0

7.2.2.2 Art.-No. 59604

ISDU index	Object name	Access	Length in Byte	Meaning	Default value
0x0040	Status: Power Supply Status US	R	1	Returns status of US - 0x00 = OK - 0x01 = Undervoltage - 0x02 = Overvoltage	-
0x0041	Status: Power Supply Value US	R	1	Returns measured voltage of US in 0.1 V steps. Update every 10 ms.	-
0x0042	Status: Power Supply Status UA	R	1	Returns status of UA - 0x00 = OK - 0x01 = Undervoltage - 0x02 = Overvoltage - 0x03 = OFF / not connected	-
0x0043	Status: Power Supply Value UA	R	1	Returns measured voltage of UA in 0.1 V steps. Update every 10 ms.	-
0x0044	Status: Internal Temperature Value °C	R	1	Returns the internal device temperature, in 0.1 °C steps, update every 10 ms. - Range: -25°C … +70°C - Value: 0x0000 (Bit 16 = sign)	-
0x0045	Status: Internal Temperature Value °F	R	1	Returns the internal device temperature from -13 °F to +158 °F in 0.1 °F steps. Update every 10 ms.	-
0x0050	Diagnosis: Short Circuit Detection DO	R	1	Allows reading of a short circuit that has occurred on a specific channel. - Subindex 1: X0 Pin 4 - Subindex 2: X1 Pin 4 ... - Subindex 7: X6 Pin 4 - Subindex 8: X7 Pin 4	-
0x0060	Identification: Identification ID	R/W	1	Identification number for module identification. The value is shown inside the input process data.	0x0000
0x0061	Identification: User Defined Serial Number	R/W	16	User defined serial number. This can be used to ensure that a device is not connected to the wrong master.	0x0000
0x0062	Diagnosis: Disable General Diagnosis	R/W	2	Configurable diagnosis: 0 = active 1 = disabled - Subindex 1: IO-Link Event Code transmission to Master - Subindex 2: US - Diagnosis low voltage - Subindex 3:US - Diagnosis Over voltage - Subindex 4: US - LED status - Subindex 5: UA - Diagnosis `not connected´ - Subindex 6: UA - Diagnosis low voltage - Subindex 7: UA - Diagnosis over voltage - Subindex 8: UA - LED status - Subindex 9: TEMP - Diagnosis low temperature - Subindex 10: TEMP - Diagnosis over temperature - Subindex 11: TEMP - LED status - Subindex 12 ... 16: Reserved	0
0x0063	Module: L+ Current Limit	R/W	1	Current limitation of US (L +) to 200 mA for operation on an IO-Link master port that cannot supply enough current for full operation of the IO-Link hub. 0 = no current limitation from US (L +) 1 = current limitation of US (L +) active to 200 mA	0
0x0064	Module: Clear L+ Current Limit Overload	R/W	2	Overcurrent protection for US (L+) active: 0 = Automatic reset after 60 sec. 1 = Manual reset via output process dataFor a manual reset, set the affected bit in the process data from 0 to 1.	0
0x0070	In-/Outputs: Bitmapping Layout	R/W	16	Bitmapping layout of the process data. 0 = Port based bit mapping 1 = Pin based bit mapping	0

ISDU index	Object name	Access	Length in Byte	Meaning	Default value
0x0072	In-/Outputs: Channel Configuration	R/W	1	Setting of the I / O function per channel. - Subindex 1: X0 Pin 4 - Subindex 2: X1 Pin 4 ... - Subindex 7: X6 Pin 4 - Subindex 8: X7 Pin 4 Setting per channel (subindex): 0 = auto configuration / universal (DIO) 1 = input 2 = output	0
0x0080	Inputs: Inverting Input Logic	R/W	1	Inversion of the input logic per channel. - Bit 0: X0 Pin 4 - Bit 1: X1 Pin 4 … - Bit 6: X6 Pin 4 - Bit 7: X7 Pin 4 Setting per channel (subindex): 0 = normal, no inversion 1 = inverted	0
0x0081	Inputs: Signal Extension / Impulse Stretching	R/W	16	Extension of the input pulses in steps of 10 ms. - Subindex 1: X0 Pin 4 - Subindex 2: X1 Pin 4 ... - Subindex 7: X6 Pin 4 - Subindex 8: X7 Pin 4 Setting per channel (subindex): 0 = 0 ms / OFF 1 = 10 ms 2 = 20 ms 3 = 30 ms ... 255 = reserved	0
0x0082	Inputs: Input Debounce / Filter Time	R/W	16	Setting of the input filter time per channel. - Subindex 1 = X0 Pin 4 - Subindex 2 = Reserved ... - Subindex 15 = X7 Pin 4 - Subindex 16 = Reserved Setting per channel (subindex): 0 = OFF (no filtering) 1 = 1 µs 2 = 10 µs 3 = 100 µs 4 = 1 ms 5 = 2 ms 6 = 3 ms 7 = 5 ms 8 = 10 ms	4
0x0090	Outputs: Short Circuit Recovery Behavior	R/W	1	Defines the behavior of each individual output channel after short circuit / overload: - Bit 0: X0 Pin 4 - Bit 1: X1 Pin 4 … - Bit 6: X6 Pin 4 - Bit 7: X7 Pin 4 0 = automatic reset after 60 sec. 1 = manual reset via output process data For a manual reset, set the affected bit in the process data from 0 to 1.	0

ISDU index	Object name	Access	Length in Byte	Meaning	Default value
0x0091	Outputs: Fail-Safe Behavior	R/W	2	Defines the behavior of each individual output (channel) in the event of a loss of communication with the master. - Subindex 1: X0 Pin 4 - Subindex 2: X1 Pin 4 ... - Subindex 7: X6 Pin 4 - Subindex 8: X7 Pin 4 Setting per channel (subindex): 0 = logical 0 / OFF 1 = logical 1 / ON 2 = hold last state	0

7.3 Diagnostic

7.3.1 Vendor-specific IO-Link events

In addition to the vendor-specific IO-Link events listed here, the standard events of the IO-Link specification also apply, version see chapter 1.5.3 "Specifications".

Event code	Event type	Description
0x4000	Error	The device shows a temperature fault - overload.
0x4210	Warning	The device shows a temperature over-run.
0x4220	Warning	The device shows a temperature under-run.
0xFF91	Notification	The device requests a data storage upload from the master.
0x5100	Error	General power supply fault (US) - below shutdown voltage.
0x5110	Warning	Primary sensor supply voltage (US) is over-run.
0x5111	Warning	Primary sensor supply voltage (US) is under-run.
0x1830	Warning	Secondary sensor supply voltage (UA) is over-run.
0x1831	Warning	Secondary sensor supply voltage (UA) is under-run.
0x1832	Error	Secondary power supply fault (UA) - below shutdown voltage.
0x7710	Error	Short-circuit detected on a specific channel.
0x8CA0	Error	DIO pin current overload/ shortcircuit - Port 0 Pin 4.
0x8CA1	Error	DIO pin current overload/ shortcircuit - Port 0 Pin 2.
0x8CA2	Error	DIO pin current overload/ shortcircuit - Port 1 Pin 4.
0x8CA3	Error	DIO pin current overload/ shortcircuit - Port 1 Pin 2.
0x8CA4	Error	DIO pin current overload/ shortcircuit - Port 2 Pin 4.
0x8CA5	Error	DIO pin current overload/ shortcircuit - Port 2 Pin 2.
0x8CA6	Error	DIO pin current overload/ shortcircuit - Port 3 Pin 4.
0x8CA7	Error	DIO pin current overload/ shortcircuit - Port 3 Pin 2.
0x8CA8	Error	DIO pin current overload/ shortcircuit - Port 4 Pin 4.
0x8CA9	Error	DIO pin current overload/ shortcircuit - Port 4 Pin 2.
0x8CAA	Error	DIO pin current overload/ shortcircuit - Port 5 Pin 4.
0x8CAB	Error	DIO pin current overload/ shortcircuit - Port 5 Pin 2.
0x8CAC	Error	DIO pin current overload/ shortcircuit - Port 6 Pin 4.
0x8CAD	Error	DIO pin current overload/ shortcircuit - Port 6 Pin 2.
0x8CAE	Error	DIO pin current overload/ shortcircuit - Port 7 Pin 4.
0x8CAF	Error	DIO pin current overload/ shortcircuit - Port 7 Pin 2.
0x8CD0	Error	Power pin current overload/ shortcircuit - Port 0 Pin 1.
0x8CD1	Error	Power pin current overload/ shortcircuit - Port 1 Pin 1.
0x8CD2	Error	Power pin current overload/ shortcircuit - Port 2 Pin 1.
0x8CD3	Error	Power pin current overload/ shortcircuit - Port 3 Pin 1.
0x8CD4	Error	Power pin current overload/ shortcircuit - Port 4 Pin 1.
0x8CD5	Error	Power pin current overload/ shortcircuit - Port 5 Pin 1.
0x8CD6	Error	Power pin current overload/ shortcircuit - Port 6 Pin 1.
0x8CD7	Error	Power pin current overload/ shortcircuit - Port 7 Pin 1.

Tab. 7-5: IO-Link events

7.4 Process data

7.4.1 Port-Based Bitmapping

Input Process Data

Byte 0 Inputs X0 ... X3

Bit	Contact
0	Pin4_X0
1	Pin2_X0
2	Pin4_X1
3	Pin2_X1
4	Pin4_X2
5	Pin2_X2
6	Pin4_X3
7	Pin2_X3

Byte 1 Inputs X4 ... X7

Bit	Contact
0	Pin4_X4
1	Pin2_X4
2	Pin4_X5
3	Pin2_X5
4	Pin4_X6
5	Pin2_X6
6	Pin4_X7
7	Pin2_X7

Byte 2 Diagnostic

Bit	Description
0	Error/Warning at power supply (too low or high)
1	Error/Warning because of temperature rating (threshold can be defined inside object)
2	Error/Warning at Input/Output (short-circuit or overload)
3	DIA at channel X 0 = channel 1 ... 15 = channel 16
4	DIA at channel X 0 = channel 1 ... 15 = channel 16
5	DIA at channel X 0 = channel 1 ... 15 = channel 16
6	DIA at channel X 0 = channel 1 ... 15 = channel 16
7	Global status 0 = no diagnostic 1 = fault detected

Byte 3 Module Identification

Bit	Description
0 ... **7**	User defined module identification bits, e. g. for tool change applications; 0 = not used 1 ... 255 = ID value is read out from object

Output Process Data

Byte 0 Outputs X0 ... X3

Bit	Contact
0	Pin4_X0
1	Pin2_X0
2	Pin4_X1
3	Pin2_X1
4	Pin4_X2
5	Pin2_X2
6	Pin4_X3
7	Pin2_X3

Byte 1 Outputs X4 ... X7

Bit	Contact
0	Pin4_X4
1	Pin2_X4
2	Pin4_X5
3	Pin2_X5
4	Pin4_X6
5	Pin2_X6
6	Pin4_X7
7	Pin2_X7

7.4.2 Pin-Based Bitmapping

Input Process Data

Byte 0 Inputs X0 ... X7

Bit	Contact
0	Pin4_X0
1	Pin4_X1
2	Pin4_X2
3	Pin4_X3
4	Pin4_X4
5	Pin4_X5
6	Pin4_X6
7	Pin4_X7

Byte 1 Inputs X0 ... X7

Bit	Contact
0	Pin2_X0
1	Pin2_X1
2	Pin2_X2
3	Pin2_X3
4	Pin2_X4
5	Pin2_X5
6	Pin2_X6
7	Pin2_X7

Byte 2 Diagnostic

Bit	Description
0	Error/Warning at power supply (too low or high)
1	Error/Warning because of temperature rating (threshold can be defined inside object)
2	Error/Warning at Input/Output (short-circuit or overload)
3	DIA at channel X 0 = channel 1 ... 15 = channel 16
4	DIA at channel X 0 = channel 1 ... 15 = channel 16
5	DIA at channel X 0 = channel 1 ... 15 = channel 16
6	DIA at channel X 0 = channel 1 ... 15 = channel 16
7	Global status 0 = no diagnostic 1 = fault detected

Byte 3 Module Identification

Bit	Description
0 ... **7**	User defined module identification bits, e. g. for tool change applications; 0 = not used 1 ... 255 = ID value is read out from object

Output Process Data

Byte 0 Outputs X0 ... X3

Bit	Contact
0	Pin4_X0
1	Pin2_X0
2	Pin4_X1
3	Pin2_X1
4	Pin4_X2
5	Pin2_X2
6	Pin4_X3
7	Pin2_X3

Byte 1 Outputs X4 ... X7

Bit	Contact
0	Pin4_X4
1	Pin2_X4
2	Pin4_X5
3	Pin2_X5
4	Pin4_X6
5	Pin2_X6
6	Pin4_X7
7	Pin2_X7

8 Maintenance and cleaning

NOTE

➔ Replace defective or damaged devices.

Device cleaning:

➔ Use only oil-free compressed air or spirit

➔ Only use lint-free materials (e.g. leather cloth)

➔ Do not use contact spray

9 Appendix

9.1 Accessories

Description	Art.-No.
Screw Plug M12 Metal	996049
Plastic M12 screw plug, VE10	58627
Metal addressing lid	55317
Grounding strap screw-down set M4	4000-71003-0101604

9.2 Tools

Designation	Art.-No.
6-part screwdriver set	7000-98001-0000000
M8 torque wrench set, AF 10	7000-99100-0000000
M12 torque wrench set, AF 13	7000-99102-0000000

PRODUCTS AND ACCESSORIES

You will find a wide range of products in our catalog or
in our Murrelektronik online shop https://shop.murrelektronik.com

10 Legal notes

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