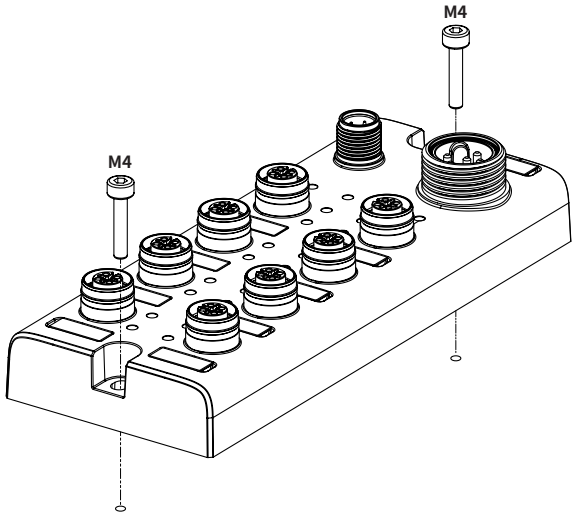
Installation and Grounding

■ Mounting

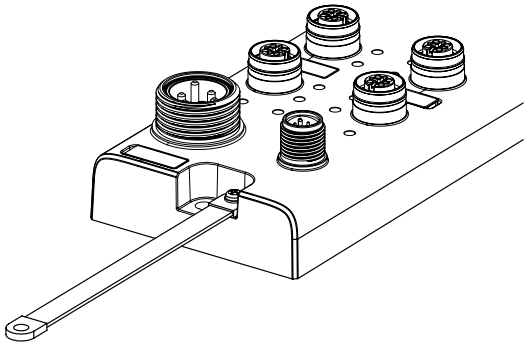
01. Prepare a flat or metal panel in the enclosure.
02. Drill a hole to mount and ground the product on the surface.
03. Turn off all power.
04. Fix the product using M4 screws in the mounting holes.
    Tightening torque: 1.5 N m



■ Grounding

⚠ Be sure to use a cable with low impedance and as short as possible for connecting the housing to the product.

01. Connect the grounding strap and M4×10 screw with washer.
02. Fix the screw in the grounding hole.
    Tightening torque: 1.2 N m

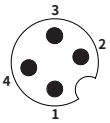


Connections

⚠ Make sure that the total power consumption of the ADIO hub does not exceed a maximum of 9 A, and be sure to use the provided waterproof covers for any unused standard I/O ports.
Otherwise, the protection rating of the product cannot be guaranteed.

■ IO-Link port

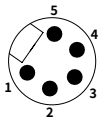
- The port type: M12 (Plug-Male), 4-pin, A-coded
- Connected to the I/O ports of the ADIO IO-Link master, it is possible to supply power and establish IO-Link communication for the ADIO IO-Link hub.



Pin	Function	Description
1	+24 VDC⎓, 4 A (US1)	Supply power from the IO-Link master
2	N.C.	Not connected
3	GND	Electrical grounding, 0 V
4	C/Q (IO-Link)	IO-Link data channel

■ Auxiliary power port

- The port type: 7/8'' (Plug-Male), 5-pin
- Supplying power to the external device (sensor or actuator) you want to connect to the ADIO hub. This auxiliary power port can be connected to the power supply port of the ADIO IO-Link master or an external power supplying device.

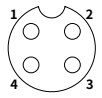


Pin	Function	Description
1	GND (UA)	Ground for actuator supply voltage
2	GND (US2)	Ground for sensor supply voltage
3	FE	Functional earth
4	+24 VDC⎓, 9 A (US2)	Sensor supply voltage
5	+24 VDC⎓, 9 A (UA)	Actuator supply voltage

■ Standard I/O port

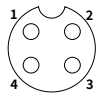
- The port type: M12 (Socket-Female), 4-pin, A-coded
- Connected to the standard device (sensor and actuator).

Digital input/output type



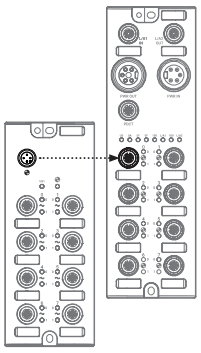
Pin	Function	Description
1	+24 VDC⎓, 300 mA (L+)	Supply power
2	Input / Output (B)	Digital input or output (NPN, PNP)
3	GND (L-)	Electrical grounding, 0 V
4	Input / Output (A)	Digital input or output (NPN, PNP)

Digital input type

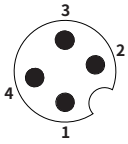


Pin	Function	Description
1	+24 VDC⎓, 150 mA (L+)	Supply power
2	Input (B)	Digital input (NPN, PNP)
3	GND (L-)	Electrical grounding, 0 V
4	Input (A)	Digital input (NPN, PNP)

■ Example of wiring (ADIO IO-Link hub to ADIO IO-Link master)

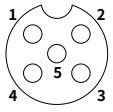


IO-Link port



Pin	Function		Pin	Function
1	+24 VDC⎓ (US1)	→	1	+24 VDC⎓
2	N.C.		2	I/Q
3	GND	→	3	0 V
4	C/Q (IO-Link)	→	4	C/Q (IO-Link)
-	-		5	N.C.

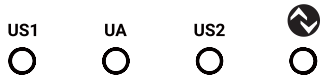
I/O port [01]



01) M12 (Socket-Female), A-coded

Indicators

■ Status indicator



01. ADIO IO-Link hub supply status

Indicator	LED status	Description
US1	● OFF	• Power supply is off.
	● Green ON	• Power supply: Operating normally.
	● Red ON	• Power supply: Operating at a low level. (< 18 VDC⎓)

02. Actuator power supply status [01)]

Indicator	LED status	Description
UA	● OFF	• Auxiliary power supply is off.
	● Green ON	• Actuator auxiliary power supply: Operating normally.
	● Red ON	• Actuator auxiliary power supply: Operating at a low level. (< 18 VDC⎓)

03. Sensor power supply status [01)]

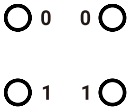
Indicator	LED status	Description
US2	● OFF	• Auxiliary power supply is off.
	● Green ON	• Sensor auxiliary power supply: Operating normally.
	● Red ON	• Sensor auxiliary power supply: Operating at a low level. (< 18 VDC⎓)

04. IO-Link communication status

Indicator	LED status	Description
	● OFF	• IO-Link communication error.
	◐ Flashing green	• IO-Link communication is running.
	● Green ON	• IO-Link communication is in standby. (pre-operate)

01) Only the digital I/O type is supported.

■ Standard I/O port status indicator



01. Input status on Pin 4

Indicator	LED status	Description
0	● OFF	• No digital input or output signal (0)
	● Orange ON	• When the direction is set to Pin 4, it detects the input or output signal. (1)
	● Red ON	• Short circuit between the L+ / L- (Pin 1, 3) • A port channel failure (or short circuit). • Actuator warning

02. Input status on Pin 2

Indicator	LED status	Description
1	● OFF	• No digital input or output signal (0)
	● Orange ON	• When the direction is set to Pin 2, it detects the input or output signal. (1)
	● Red ON	• Short circuit between the L+ / L- (Pin 1, 3) • A port channel failure (or short circuit). • Actuator warning

Specifications

■ Electrical / Mechanical specifications

Type	Digital Input/Output	Digital Input
Model	**ADIO-IL-MA08B□-HUB3**	**ADIO-IL-MA08CA□-HUB3**
Rated voltage / current	24 VDC⎓, ≤ 9 A (±10%)	24 VDC⎓, ≤ 4 A (±10%)
Supply current	300 mA ±10%	150 mA ±10%
Dimensions	W 66 × H 165 × D 32 (20) mm	
Material	Zinc die casting	
IO-Link port	M12 (Plug-Male), 4-pin, A-coded Number of ports: 1	
Auxiliary power port	7/8'' (Plug-Male), 5-pin Number of ports: 1	-
Standard I/O port	M12 (Socket-Female), 4-pin, A-coded Push-Pull connector supported Number of ports: 8	
Mounting method	Mounting hole: fixed with M4 screw	
Grounding method	Grounding hole: fixed with M4 screw	
Unit weight (packaged)	≈ 550 g (≈ 750 g)	≈ 550 g (≈ 750 g)

■ Digital input/output specifications

Type	Digital Input/Output	Digital Input
Number of channels	16-CH (2 channels in each port)	
Digital input	It depends on the I/O specifications.	
NPN (sink type)	ON state: 5 VDC⎓, ≤ 1.5 mA	
	OFF state: 11 VDC⎓, ≥ 2 mA	
	Leakage current: -	
PNP (source type)	ON state: 11 VDC⎓, ≥ 2 mA	
	OFF state: 5 VDC⎓, ≤ 1.5 mA	
	Leakage current: ≤ 0.1 mA	-
Input filter	none / 0.5 / 1 (default value) / 2 / 4 / 8 / 16 / 32 / 64 / 128 ms	
Digital output	It depends on the I/O specifications.	-
NPN (sink type)	Output current: ≤ 1.0 A/CH	
	Leakage voltage : -	
PNP (source type)	Output current: ≤ 1.0 A/CH	
	Leakage voltage: ≤ 1.2 VDC⎓	

■ Environmental conditions

Type	Digital Input/Output	Digital Input
Vibration	1.5 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 2 hours	
Shock	400 m/s² (≈ 40 G) in each X, Y, Z direction for 3 times	
Ambient temperature [01)]	-5 to 55 °C, Storage: -25 to 70 °C (no freezing or condensation)	-5 to 70 °C, Storage: -25 to 70 °C (no freezing or condensation)
Ambient humidity	35 to 85%RH (no freezing or condensation)	
Protection rating	IP67 (IEC standard), IP69K (DIN standard)	

01) UL approved ambient temperature: 45 °C

■ Certification

Certification	CE UKCA cULus LISTED KC IO-Link

Communication Interface

■ IO-Link

IO-Link version	1.1
IO-Link port class	Class A
Minimum cycle time	5 ms
Transmission rate	COM3 (230.4 kbps)
IO-Link frame type	M-sequence TYPE_2_V
Cable length	≤ 20 m
Size of process data [01)]	It depends on the product type.
Digital input/output type	Process data input (PD In.): 8-byte Process data output (PD Out.): 2-byte
Digital input type	Process data input (PD In.): 4-byte Process data output (PD Out.): N.A
Data storage	YES
IODD file	Download the IODD file from the Autonics website
Standard	IO-Link Interface and System Specification Version 1.1.2 IO-Link Test Specification Version 1.1.2

01) The process data input: IO-Link hub → IO-Link master
The process data output: IO-Link master → IO-Link hub

IO-Link: Identification information of ADIO IO-Link Hub

You can see the relevant parameters and identity details of ADIO hubs, such as the manufacturer and firmware version.

• atIOLink: Click the **IODD Catalog** or **Master PORT no.** tab **> Device information** tab

Index (dec.)	Subindex	Parameter	Access	Data length	Data type	Value / Range
0x00 (0)	8	Vendor ID 1 (MSB)	RO	2-byte	UINT8	0x0383 (899) = Autonics Corporation
	9	Vendor ID 2 (LSB)				
	10	Device ID 1 (MSB)	RO	3-byte	UINT8	0x30001 (196609) = ADIO-IL-MA08CAN-HUB3 0x30002 (196610) = ADIO-IL-MA08CAP-HUB3 0x30003 (196611) = ADIO-IL-MA08BN-HUB3 0x30004 (196612) = ADIO-IL-MA08BP-HUB3
	11	Device ID 2				
	12	Device ID 3 (LSB)				

■ Read and write the identification data

You can read or change the vendor-specific parameters to identify the ADIO hubs.

• atIOLink: Click the **Master PORT no.** tab **> Parameters** tab **> Identification Menu**

Index (dec.)	Subindex	Parameter	Access	Data length	Data type	Value / Range
0x10 (16)	0	Vendor Name	RO	64-byte	String	Autonics Corporation
0x11 (17)	0	Vendor Text	RO	64-byte	String	Sensor & Controller, www.autonics.com
0x12 (18)	0	Product Name	RO	64-byte	String	ADIO-IL-MA08CAN-HUB3 ADIO-IL-MA08CAP-HUB3 ADIO-IL-MA08BN-HUB3 ADIO-IL-MA08BP-HUB3
0x13 (19)	0	Product ID	RO	64-byte	String	ADIO-IL
0x14 (20)	0	Product Text	RO	64-byte	String	Digital Input 16 Channel NPN Digital Input 16 Channel PNP Digital Input/Output 16 Channel NPN Digital Input/Output 16 Channel PNP
0x15 (21)	0	Serial Number	RO	16-byte	String	YYYYMMDDnn [01]
0x16 (22)	0	Hardware version	RO	4-byte	String	1.0
0x17 (23)	0	Firmware version	RO	4-byte	String	1.00.000r [02]
0x18 (24)	0	Application Specific Tag	RW	64-byte	String	*** [03]

01) Y = year / M = month / D = day / n = sequential number

02) major.minor.patch

03) You can write a product description such as its installation location or roles in the system.

IO-Link: Configuration of Parameter Data

You can read or configure the parameter data for the ADIO hubs.
Before configuring the ADIO hubs, check the supported parameters depending on the product type you are using.

- atIOLink: click the **Master PORT no.** tab **> Parameters** tab **> Parameter Menu**

■ Parameter list

Digital I/O type	Digital input type	Index (dec.)	Subindex	Parameter	Access	Data length	Data type	Default value
Supported	Supported	0x40 (64)	0	Inversion P□ - Pin 4 / Pin 2	RW	2-byte	Boolean	False: Input not inverted
			1 to 16			1-byte		
	N.A	0x41 (65)	0	Direction P□ - Pin 4 / Pin 2	RW	2-byte	Boolean	False: Input
			1 to 16			1-byte		
	N.A	0x42 (66)	0	SafeState P□ - Pin 4	RW	2-byte	-	0: Output is 0V (Off)
			1 to 8			1-byte		
	N.A	0x43 (67)	0	SafeState P□ - Pin 2	RW	2-byte	-	0: Output is 0V (Off)
			1 to 8			1-byte		
	Supported	0x47 (71)	0	Input filter P□ - Pin 4 / Pin 2	RW	2-byte	-	2: 1 ms
			1 to 16			1-byte		
	Supported	0x4A (74)	0	Operating hours alarm setting	RW	4-byte	UINT8	100000
	Supported	0x0C (12)	2	Data storage lock	RW	2-byte	Boolean	0: False
	Supported	0x82 (130)	0	Restore factory settings	WO	1-byte	-	-
	Supported	0xFF (255)	0	Reset	WO	1-byte	-	-

■ Inversion - Pin 4 / Pin 2

You can configure the input value of each standard I/O port to be inverted.
When this inversion is enabled, the values of the corresponding bits in the process data input will be displayed as inverted, as shown in the example below:
[E.g.] No input signal on Pin 2 or Pin 4 of the Port 0 → 1 (True)
Input signal detected on Pin 2 or Pin 4 of the Port 0 → 0 (False)
Subindex 0 allows you to access the inversion values for all ports, while the sub-indices from 1 to 16 allow you to read or change the values for each corresponding port.

Index (dec.)	Subindex	Bit size	Port no.	Value / Range
0x40 (64)	0	16	Port 0 to 7	False: Input not inverted True: Input inverted
	1	1	Port 0 - Pin 4	
	2	1	Port 1 - Pin 4	
	3	1	Port 2 - Pin 4	
	4	1	Port 3 - Pin 4	
	5	1	Port 4 - Pin 4	
	6	1	Port 5 - Pin 4	
	7	1	Port 6 - Pin 4	
	8	1	Port 7 - Pin 4	
	9	1	Port 0 - Pin 2	
	10	1	Port 1 - Pin 2	
	11	1	Port 2 - Pin 2	
	12	1	Port 3 - Pin 2	
	13	1	Port 4 - Pin 2	
	14	1	Port 5 - Pin 2	
	15	1	Port 6 - Pin 2	
	16	1	Port 7 - Pin 2	

■ Direction - Pin 4 / Pin 2

You can select the digital input or output source pin (Pin 2 / Pin 4) for each port.
Subindex 0 allows you to access the digital I/O mode for all ports, while the sub-indices from 1 to 16 allow you to read or change the digital I/O mode for each corresponding port.

Index (dec.)	Subindex	Bit size	Port no.	Value / Range
0x41 (65)	0	16	Port 0 to 7	False: Input True: Output
	1	1	Port 0 - Pin 4	
	2	1	Port 1 - Pin 4	
	3	1	Port 2 - Pin 4	
	4	1	Port 3 - Pin 4	
	5	1	Port 4 - Pin 4	
	6	1	Port 5 - Pin 4	
	7	1	Port 6 - Pin 4	
	8	1	Port 7 - Pin 4	
	9	1	Port 0 - Pin 2	
	10	1	Port 1 - Pin 2	
	11	1	Port 2 - Pin 2	
	12	1	Port 3 - Pin 2	
	13	1	Port 4 - Pin 2	
	14	1	Port 5 - Pin 2	
	15	1	Port 6 - Pin 2	
	16	1	Port 7 - Pin 2	

■ SafeState - Pin 4 / Pin 2

You can configure the individual output behavior for Pin 2 or Pin 4 on each port. When you activate this safe output, the ADIO hub will operate in the user-defined output state if a communication error or abnormal process data output is detected while monitoring the output signals.
Subindex 0 allows you to access the safe state for all ports, while sub-indices from 1 to 8 allow you to read or change the safe state values for each corresponding port.

Index (dec.)	Subindex	Bit size	Port no.	Value / Range
0x42 (66)	0	16	Port 0 to 7	0: Output is 0V (Off) 1: Output is 24V (On) 2: Current status is maintained
	1	2	Port 0 - Pin 4	
	2	2	Port 1 - Pin 4	
	3	2	Port 2 - Pin 4	
	4	2	Port 3 - Pin 4	
	5	2	Port 4 - Pin 4	
	6	2	Port 5 - Pin 4	
	7	2	Port 6 - Pin 4	
	8	2	Port 7 - Pin 4	
0x43 (67)	0	16	Port 0 ~ 7	
	1	2	Port 0 - Pin 2	
	2	2	Port 1 - Pin 2	
	3	2	Port 2 - Pin 2	
	4	2	Port 3 - Pin 2	
	5	2	Port 4 - Pin 2	
	6	2	Port 5 - Pin 2	
	7	2	Port 6 - Pin 2	
	8	2	Port 7 - Pin 2	

■ Input filter - Pin 4 / Pin 2

If Pin 2 or Pin 4 is configured in the digital input mode for each port, you can set the filter time for each input source pin.
Subindex 0 allows you to access the filter time for all ports, while sub-indices from 1 to 16 allow you to read or change the filter time for each corresponding port.

Index (dec.)	Subindex	Bit size	Port no.	Value / Range
0x47 (71)	0	16	Port 0 to 7	0: none 1: 0.5 ms 2: 1 ms 3: 2 ms 4: 4 ms 5: 8 ms 6: 16 ms 7: 32 ms 8: 64 ms 9: 128 ms
	1	1	Port 0 - Pin 4	
	2	1	Port 1 - Pin 4	
	3	1	Port 2 - Pin 4	
	4	1	Port 3 - Pin 4	
	5	1	Port 4 - Pin 4	
	6	1	Port 5 - Pin 4	
	7	1	Port 6 - Pin 4	
	8	1	Port 7 - Pin 4	
	9	1	Port 0 - Pin 2	
	10	1	Port 1 - Pin 2	
	11	1	Port 2 - Pin 2	
	12	1	Port 3 - Pin 2	
	13	1	Port 4 - Pin 2	
	14	1	Port 5 - Pin 2	
	15	1	Port 6 - Pin 2	
	16	1	Port 7 - Pin 2	

■ Operating hours alarm setting

You can configure the operating hours of the ADIO hub.
When the operating hour reaches the set value, an event will be triggered for notifications.

Index (dec.)	Subindex	Byte size	Value / Range
0x4A (74)	0	4	0 to 131071 hours

■ Data storage lock

You can prevent the upload of the ADIO hub's configuration when using Data Storage (DS) mode.

Index (dec.)	Subindex	Byte size	Value / Range
0x0C (12)	2	2	0: False (Unlocked) 1: True (Locked)

■ Restore factory settings

You can restore the parameter configuration of the ADIO hub to its factory default settings.

- atIOLink: Click the **Parameter Menu > RESTORE FACTORY SETTINGS**
- Commands: Activate the 'Restore factory settings' parameter. The index is 0x82, and the subindex is 0.

■ Reset

Restart the ADIO hub.

- Commands: Activate the 'Reset' parameter. The index is 0xFF, and the subindex is 0.

IO-Link: Diagnostic Information

You can see the diagnostic information for the ADIO hub.
Before configuring the ADIO hubs, check the supported parameters depending on the product type you are using.

- atIOLink: Click the **Master PORT no.** tab **> Parameters** tab **> Diagnosis Menu**

■ Parameter list

Index (dec.)	Subindex	Diagnostic information	Access	Data length
0x44 (68)	0	Power supply voltage status	RO	2-byte
	1 to 16			1-byte
0x45 (69)	0	Short circuit status	RO	2-byte
	1 to 16			1-byte
0x46 (70)	0	Actuator warning	RO	2-byte
	1 to 16			1-byte
0x48 (72)	0	Operating hours	RO	4-byte

■ Power supply voltage status

Digital I/O type	Digital input type	Index (dec.)	Subindex	Bit size	Diagnostic parameter	Description
Supported	Supported	0x44 (68)	1	1	Short Circuit P0 - Pin 1	The short circuit occurs between Pin 1 and Pin 3 for supplying power to the each port. - False: OK - True: actor short circuit
			2	1	Short Circuit P1 - Pin 1	
			3	1	Short Circuit P2 - Pin 1	
			4	1	Short Circuit P3 - Pin 1	
			5	1	Short Circuit P4 - Pin 1	
			6	1	Short Circuit P5 - Pin 1	
			7	1	Short Circuit P6 - Pin 1	
			8	1	Short Circuit P7 - Pin 1	
	Supported		9	1	Undervoltage US1 (module) / Low Sensor Voltage (US)	The supply voltage level is less than 18 VDC⎓. (ADIO IO-Link hub supply power, actuator, and sensor auxiliary supply power) - False: OK - True: undervoltage
	Supported		10	1	Undervoltage US2 (sensor)	
	N.A		11	1	Undervoltage UA (actuators)	
	N.A		12	1	Output off (UA too low)	The supply voltage level is less than 11.5 VDC⎓. - False: OK - True: output off
N.A	N.A		13	1	Reserved	-
			14	1		
			15	1		
			16	1		

■ Short circuit status

Digital I/O type	Digital input type	Index (dec.)	Subindex	Bit size	Diagnostic parameter	Description
Supported	N.A	0x45 (69)	1	1	Short Circuit P0 - Pin 4	The short circuit occurs on Pin 4 of each port. - False: OK - True: short circuit
			2	1	Short Circuit P1 - Pin 4	
			3	1	Short Circuit P2 - Pin 4	
			4	1	Short Circuit P3 - Pin 4	
			5	1	Short Circuit P4 - Pin 4	
			6	1	Short Circuit P5 - Pin 4	
			7	1	Short Circuit P6 - Pin 4	
			8	1	Short Circuit P7 - Pin 4	
			9	1	Short Circuit P0 - Pin 2	The short circuit occurs on Pin 2 of each port. - False: OK - True: short circuit
			10	1	Short Circuit P1 - Pin 2	
			11	1	Short Circuit P2 - Pin 2	
			12	1	Short Circuit P3 - Pin 2	
			13	1	Short Circuit P4 - Pin 2	
			14	1	Short Circuit P5 - Pin 2	
			15	1	Short Circuit P6 - Pin 2	
			16	1	Short Circuit P7 - Pin 2	

■ Actuator warning

When you have configured Pin 2 and Pin 4 in the digital output mode on the standard I/O ports, but an external input occurs on those pins, it triggers an actuator warning.
[E.g.] When the standard I/O port is set to the digital output mode, if 24 VDC⎓ is detected on the output source pin caused by a short circuit or an external voltage, the actuator warning is displayed.

Digital I/O type	Digital input type	Index (dec.)	Subindex	Bit size	Diagnostic parameter	Description
Supported	N.A	0x45 (69)	1	1	Actor Warning P0 - Pin 4	Warning signal on Pin 4 of each port. - False: OK - True: actor warning
			2	1	Actor Warning P1 - Pin 4	
			3	1	Actor Warning P2 - Pin 4	
			4	1	Actor Warning P3 - Pin 4	
			5	1	Actor Warning P4 - Pin 4	
			6	1	Actor Warning P5 - Pin 4	
			7	1	Actor Warning P6 - Pin 4	
			8	1	Actor Warning P7 - Pin 4	
			9	1	Actor Warning P0 - Pin 2	Warning signal on Pin 2 of each port. - False: OK - True: actor warning
			10	1	Actor Warning P1 - Pin 2	
			11	1	Actor Warning P2 - Pin 2	
			12	1	Actor Warning P3 - Pin 2	
			13	1	Actor Warning P4 - Pin 2	
			14	1	Actor Warning P5 - Pin 2	
			15	1	Actor Warning P6 - Pin 2	
			16	1	Actor Warning P7 - Pin 2	

• Actor = Actuator

■ Operating hours

Digital I/O type	Digital input type	Index (dec.)	Subindex	Bit size	Diagnostic parameter	Description
Supported	Supported	0x48 (72)	0	32	Operating hours	The total operating hours

IO-Link: Event and Error Monitoring

You can monitor the event and error history of the ADIO hub.
Before configuring the ADIO hubs, check the supported event and error codes depending on the product type you are using.

- atIOLink: Click the **Master PORT no.** tab **> Events** tab

■ Event code

Digital input/output type	Digital input type	Event code (dec.)	Description
Supported	Supported	0x5111 (20753)	Low sensor voltage (US)
	N.A	0x5112 (20754)	Low actuator voltage (UA)
	Supported	0x7710 (30480)	Short circuit or Actuator Warning [01)]

01) Only the digital I/O type is supported.

■ Error code

Digital input/output type	Digital input type	Error code (dec.)	Description
Supported	Supported	0x8011 (32785)	Index not available
		0x8012 (32786)	Subindex not available
		0x8023 (32803)	Access Denied
		0x8030 (32816)	Parameter value out of range
		0x8033 (32819)	Parameter length overrun
		0x8034 (32820)	Parameter length underrun
	N.A	0x8035 (32821)	Function not available
	N.A	0x8036 (32822)	Function temporarily unavailable

IO-Link: Process Data Input and Output Monitoring

You can monitor the process data input status of the ADIO hub.
Before monitoring the ADIO hubs, check the supported parameters depending on the product type you are using.
• atIOLink: Click the **Master PORT no.** tab **> Process data** tab

Digital I/O type	Digital input type	Input parameter	Description
Supported	Supported	Switchstate P□ - Pin 4 / Pin 2	You can see the input status of Pin 2 or Pin 4 for each standard I/O port.
	Supported	Supply Short Circuit P□ - Pin 1	When a short circuit occurs between Pin 1 and Pin 3 on a standard I/O port, the corresponding bits are set.
	Supported	Undervoltage US1 (module / US)	When the supply power (US1) of the ADIO hub is less than 18 VDC⎓, the corresponding bit is set.
	N.A	Undervoltage US2 (sensor)	When the sensor auxiliary supply power (US2) is less than 18 VDC⎓, the corresponding bit is set.
		Undervoltage UA (actuators)	When the actuator auxiliary supply power (UA) is less than 18 VDC⎓, the corresponding bit is set.
		Output off (UA too low)	When the power supply of the ADIO hub operates in an unstable state, the corresponding bit is set. If the voltage drops below 11.5 VDC⎓, the output operation can be stopped.
		Actor Short Circuit P□ - Pin 4 / Pin 2	When a short circuit occurs Pin 2 or Pin 4 on a standard I/O port, the corresponding bits are set.
		Actor Warning P□ - Pin 4 / Pin 2	When an actuator warning occurs, the corresponding bit is set.

Digital I/O type	Digital input type	Output parameter	Description
Supported	N.A	Switchstate P□ - Pin 4 / Pin 2	You can configure Pin 2 or Pin 4 on each standard I/O port in digital output mode.

■ Process data input structure

Parameter	Byte no.	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Switchstate P□ - Pin 4	**Byte 0**	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Port 0
Switchstate P□ - Pin 2	**Byte 1**	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Port 0
Supply Short Circuit P□ - Pin 1	**Byte 2**	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Port 0
Undervoltage US1 (module / US)	**Byte 3**	Reserved				Output Off	UA	US2	US1 / US
Undervoltage US2 (sensor)									
Undervoltage UA (actuators)									
Output off (UA too low)									
Actor Short Circuit P□ - Pin 4	**Byte 4**	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Port 0
Actor Short Circuit P□ - Pin 2	**Byte 5**	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Port 0
Actor Warning P□ - Pin 4	**Byte 6**	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Port 0
Actor Warning P□ - Pin 2	**Byte 7**	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Port 0

■ Process data output structure

Parameter	Byte no.	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Switchstate P□ - Pin 4	**Byte 0**	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Port 0
Switchstate P□ - Pin 2	**Byte 1**	Port 7	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Port 0