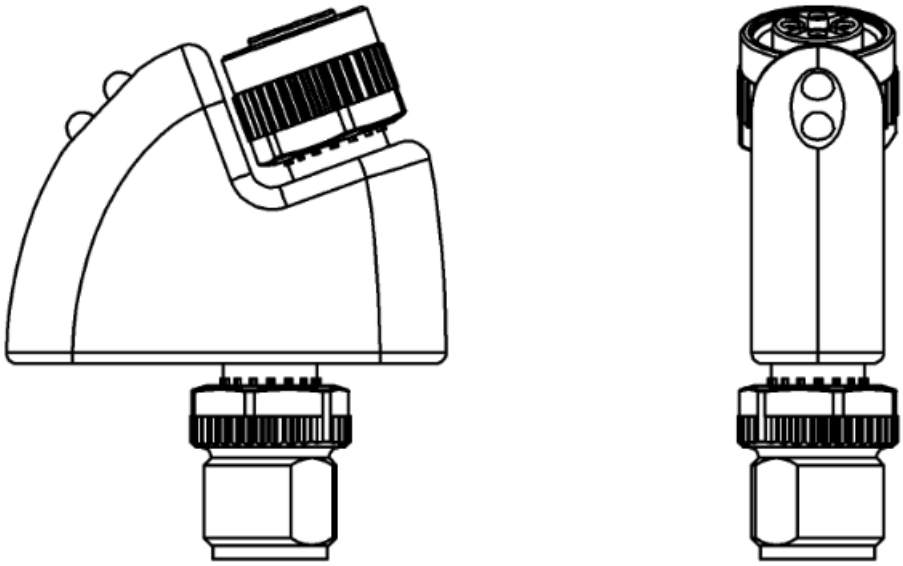
FAS ELECTRONICS IOL-712 IO-Link Analog Adapter User Guide

FAS ELECTRONICS®

FNI IOL-712-000-K023
FNI IOL-714-000-K023
User's Guide



FAS Network Interface / 10-Link

Contents

Notes

1.1. Structure of the guide
The guide is organized so that the sections build on one another.
Section 2: Basic safety information.
1.2. Typographical conventions
The following typographical conventions are used in this guide.
Enumerations
Enumerations are shown in list form with bullet points:

- Entry1
- Entry2

Actions
Action instructions are indicated by a preceding triangle. The result of an action is indicated by an arrow.

- Action instruction 1
- Action result
- Action instruction 2

Syntax
Numbers:
Decimal numbers are shown without additional indicators (e.g. 123), Hexadecimal numbers are shown with the additional indicator hex (e.g. 00hex).
Cross references
Cross references indicate where additional information on the topic can be found.
1.3. Symbols
Note
This symbol indicates general notes.
Attention!
This symbol indicates a security notice which most be observed.
1.4. Abbreviations

FNI	FAS Network Interface
I-Port	Standard input port
DPP	Direct parameter page
1oL	10-Link
EMC	Electromagnetic compatibility
FE	Function ground
SPDU	Service Protocol Data Unit

1.5. Deviating views
Product views and illustrations in this user's guide may differ from the actual product. They are intended only as illustrative material.

Safety

2.1. Intended use
This guide describes the FAS Network Interface FNI 10L-712/714-000-K023 for the application as peripheral output module to connect analogue sensors. Hereby it is about an 10-Link device which communicates by means of |O-Link protocol with the superordinate 10-Link master assembly.
2.2. Installation and startup
⚠ **Attention!**
Installation and startup are to be performed only by trained specialists. Qualified personnel are persons who are familiar with the installation and operation of the product, and who fulfills the qualifications required for this activity. Any damage resulting from unauthorized manipulation or improper use voids the manufacturer's guarantee and warranty. The Operator is responsible for ensuring that applicable of safety and accident prevention regulations are complied with.
2.3. General safety notes
Commissioning and inspection
Before commissioning, carefully read the operating manual.
The system must not be used in applications in which the safety of persons is dependent on the function of the device.
Authorized Personnel
Installation and commissioning may only be performed by trained specialist personnel.
Intended use
Warranty and liability claims against the manufacturer are rendered void by:

- Unauthorized tampering
- Improper use
- Use, installation or handling contrary to the instructions provided in this operating manual

Obligations of the Operating Company
The device is a piece of equipment from EMC Class A. Such equipment may generate RF noise. The operator must take appropriate precautionary measures. The device may only be used with an approved power supply. Only approved cables may be used.
Malfunctions
In the event of defects and device malfunctions that cannot be rectified, the device must be taken out of operation and protected against unauthorized use.
Intended use is ensured only when the housing is fully installed.
2.4. Resistance to aggressive substances
⚠ **Attention!**

The FNI modules generally have a good chemical and oil resistance. When used in aggressive media (eg chemicals, oils, lubricants and coolants each in high concentration (ie, low water content)) must be checked prior application- related material compatibility. In the event of failure or damage to the FNI modules due to such aggressive media are no claims for defects.

Hazardous voltage

Attention!

Disconnect all power before servicing equipment.

Note

In the interest of product improvement, the FAS reserves the right to change the specifications of the product and the contents of this manual at any time without notice.

Getting started

3.1. Connection overview

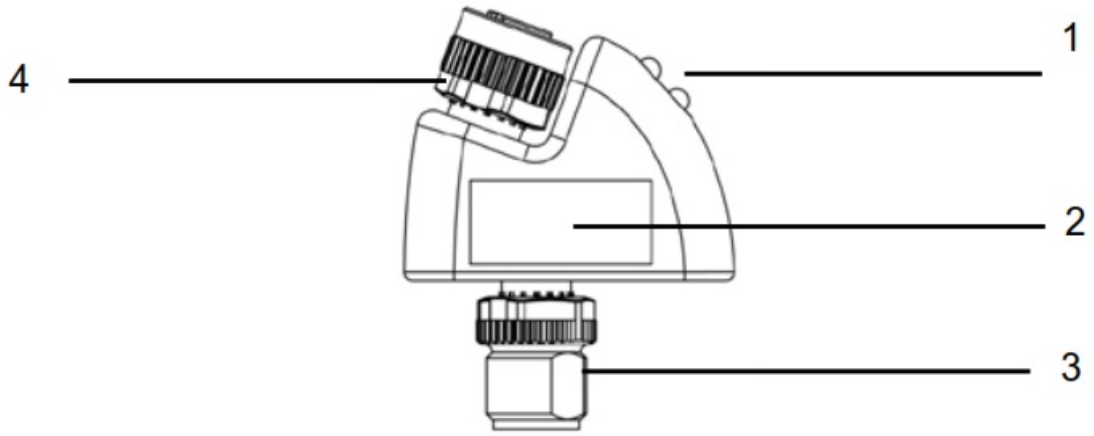


Figure 3-1: FNI IOL-…-K023

1. Status LED: Supply, Communication
2. Label
3. 10-Link interface
4. Analogue input port

3.2. Mechanical connection

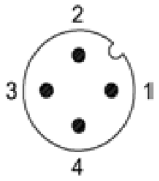
To avoid long, shielded analogue cables, the FNI IOL-712/714-000-K023 modules should be attached to the analogue unit which has to be connected. No further mechanical attachment is required.

3.3. Electrical connection

The FNI IOL-712/714-000-K023 modules require no separate supply voltage connection. Power is provided through the I0-Link interface by the superordinate |0-Link Master Assembly.

3.4. 10-Link interface

10-Link (M12, A-coded, male)



Pin	Signal
1	Supply voltage, +24V
2	–
3	GND, reference potential
4	C/Q, IO-Link Data transmission channel

Connecting the module
» Connect the FNI IOL-…-K023 either to an 10-Link Master directly or to an analogue sensor.
» Connect the male plugs unconnected by using cables.

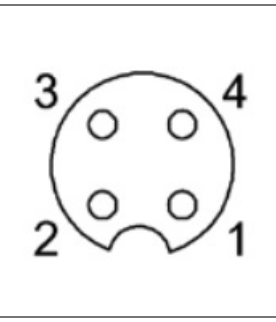
Note
A standard 3 wire sensor cable is used for connection to the host 10-Link master.
Note
A shielded 4 wire sensor cable is used for connection to the analog actuator.

Getting started

Module versions

Moduleversions	Analogue port
FNI IOL-712-000-K023	Current input(4-20mA)
ENIIOL-714-000-K023	Voltage input (0-10V)

3.5. Sensor interface
Analogue input port (M12, A-coded, female)



Pin	Signal
1	+24V, mA*
2	Voltage input 0-10V2
3	GND
4	Current input 0-20mA”

1. Only in case of FNI 10L-712-000-K023
2. Only in case of FNI 10L-714-000-K023

* Depending on the I0-Link master, but max. 2A.

IO-Link interface

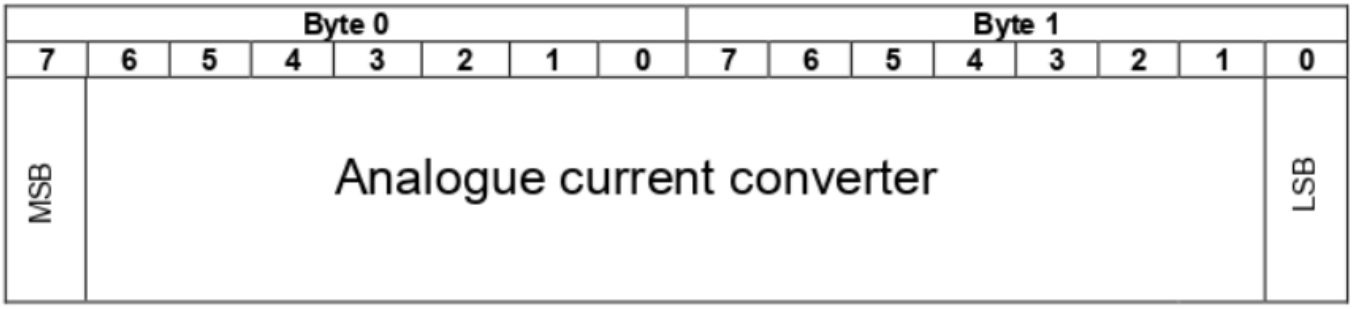
4.1. 10-Link data
FNIIOL-712-000-K023

Data transmission rate	COM2 (38,4 k Baud)
Frame type	2.2
Minimal cycle time	3ms
Process data cycles	3 ms, at minimal cycle time
Prozess data length	2 byte input

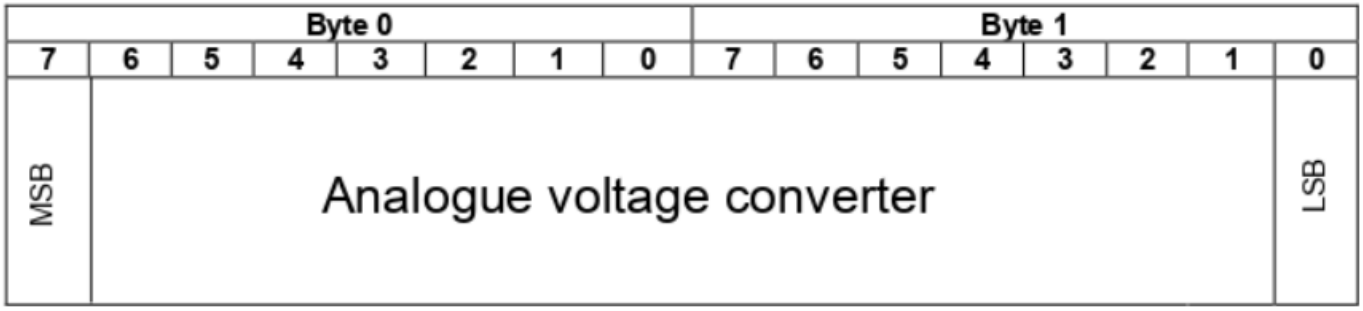
FNIIOL-714-000-K023

Data transmission rate	COM2 (38,4 k Baud)
Frame type	2.2
Minimal cycle time	3ms
Process data cycles	3 ms, at minimal cycle time
Prozess data length	2 byte input

4.2. Process data / input data
FNI IOL-712-000- K023



FNI IOL-714-000- K023



Note
The measuring range from 0 —21.15 mA (for FNI IOL-712-000-K023) will be shown in 16384 steps.
Note
The measuring range from 0 – 10 Volt (for FNI IOL-714-000-K023) will be shown in 16384 steps.

4.3. Parameter data/ Request data

	DPP	SPDU		Object name	Length	Range	Default value
	Index	Index	Sub- Index				
Identification Data	0x07			Vendor ID	2 Byte	read only	0x0454
	0x08						
	0x09			Device ID	3 Byte		0x099BE2 0x099BE1
	0x0A						
	0x0B						
		0x10	0	Vendor name	18 Byte		FAS(Fujian)Co.,LTD
		0x11	0	Vendor text	16 Byte		www.fas-elec.com
		0x12	0	Product name	19 Byte		FNI IOL-712-000-K023 FNI IOL-714-000-K023
		0x13	0	Product ID	7 Byte		0AC021 0AC001
		0x14	0	Product text	18 Byte		IO-Link 1AI 0…20mA IO-Link 1AI 0…10V
		0x16	0	Hardware Revision	1 Byte		1.0
		0x17	0	Firmware Revision	23 Byte		1.0
Parameter Data		–					

4.4. Errors

Error Code	Additional Code
Device application error	Index not available
0x80	0x11
Device application error	Subindex not available
0x80	0x12
Device application error	Value out of range
0x80	0x30

4.5. Events

Class / Qualifier			Code (high + low)			
Mode	**Type**	**Instance**				
Appears	Error	AL	Device Hardware	Supply	Supply low voltage	U2 = Supply + 24V
0xC0	0x30	0x03	0x5000	0x0100	0x0010	0x0002
0xF3			0x5112			
Disappears	Error	AL	Device Hardware	Supply	Supply low voltage	U2 = Supply + 24V
0x80	0x30	0x03	0x5000	0x0100	0x0010	0x0002
0xB3			0x5112			

Technical data

5.1. Dimensions

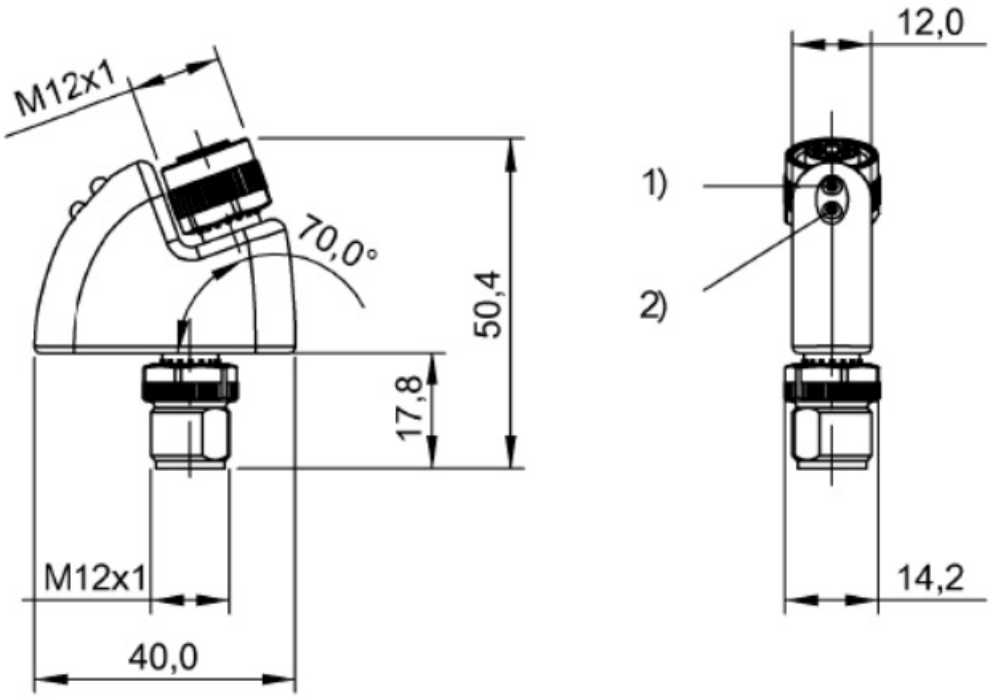


Figure 5-1: Dimensions FNI IOL-...-K023

5.2. Mechanical data

Housing materials	Plastic, Macromelt 6208
IO-Link port	M12, A-coded, male
I-port	M12, A-coded, female
Enclosure rating per IEC 60529	IP 67 (only when plugged in and threaded in)
Dimensions (W x H x D in mm)	40 x 50.4 x 14.2
Weight	ca. 50 g

5.3. Electrical data

Operating voltage	18. 30.2 V DC, per EN 61131-2
Ripple	< 1%
Current draw without load	<= 30 mA
Resolution	12bit
Sampling rate	3ms

5.4. Operating conditions

Operating temperature	-5 °C … 70 °C
Storage temperature	-25 C … 70 °C

5.5. LED indicators

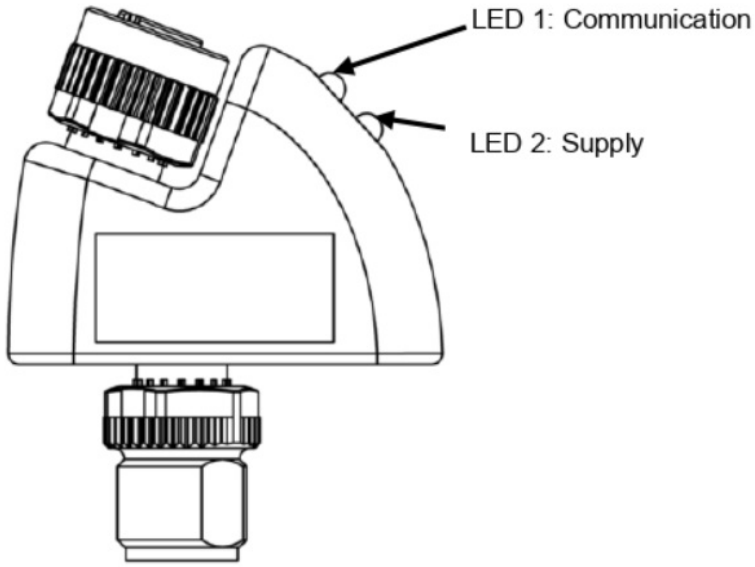


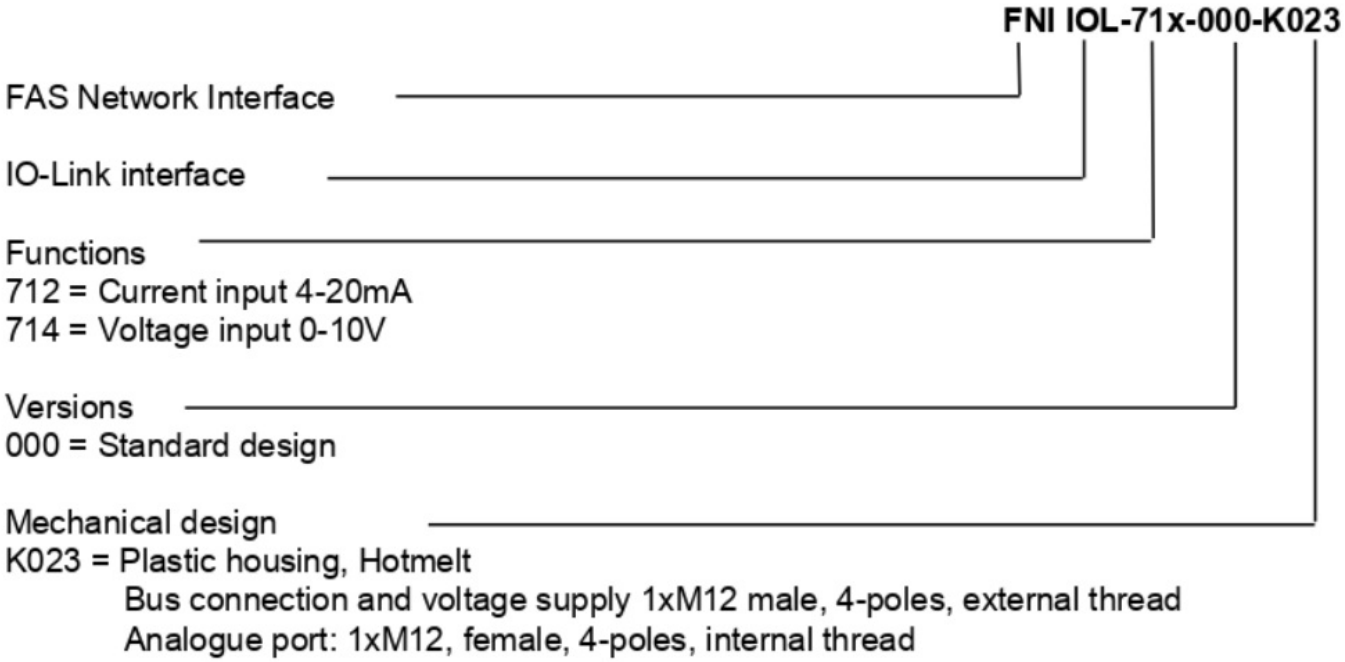
Figure 5-2: LED indicators

Status LED
FNI IOL-71x-000-K023

LED	Indicator	Function
LED 1	Green / Green flashing	Communication error / Communication ok
LED 2	Green / Green flashing	Supply sensor & module ok / Undervoltage

Appendix

6.1. Product ordering code



6.2. Order information

Order code	Material number	Product ordering code	Label color	Printing IN or OUT
0AC021	213978	FNI IOL-712-000-K023	Red (RAL5015)	I
0AC001	213979	FNI IOL-714-000-K023	Blue (RAL3020)	I

6.3. Scope of delivery

FNI IOL-…-K023 consists of the following components:

- 10-Link module
- User's guide

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Documents / Resources

	**FAS ELECTRONICS IOL-712 IO-Link Analog Adapter** [pdf] User Guide IOL-712 IO-Link Analog Adapter, IOL-712, IO-Link Analog Adapter, Analog Adapter, Adapter