

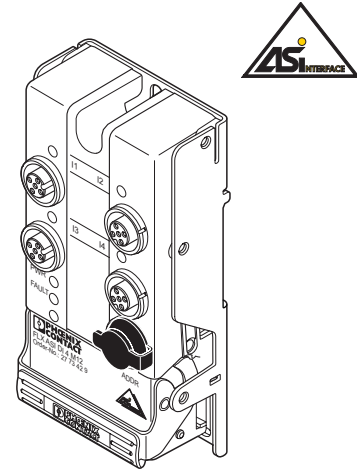
FLX ASI DI 4 M12

Fieldline Extension AS-i M12 device with four digital inputs

AUTOMATION

Data sheet
7465_en_01

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1 Description

The device is designed for use within an AS-Interface system. It is used to acquire digital signals.

Features

- Four digital inputs
- AS-i connection via flat-ribbon cable (penetration technique)
- No tools required for connection to the flat-ribbon cable
- Connection of digital sensors using M12 connectors (SPEEDCON fast connection technology)
- AS-i voltage indication
- Diagnostic and status indicators
- Short-circuit and overload protection of the sensor supply
- AB slave
- IP65/IP67 degree of protection



Make sure you always use the latest documentation.
It can be downloaded at www.phoenixcontact.net/download.

2 Ordering data

Device

Description	Type	Order No.	Pcs./Pkt.
Fieldline Extension AS-i M12 device with four digital inputs	FLX ASI DI 4 M12	2773429	1

Accessories

Description	Type	Order No.	Pcs./Pkt.
Protective caps (for unused female connectors)	PROT-M12	1680539	5
Manual addressing device for AS-Interface devices	ASI CC ADR	2741338	1
Programming cable for connecting AS-Interface devices to the manual addressing device	ASI CC ADR CAB CINCH	2741341	1



Additional accessories for connecting the sensors can be found in the Phoenix Contact PLUSCON catalog.

Documentation

Description	Type	Order No.	Pcs./Pkt.
User Manual: Configuring and installing of devices in the Fieldline Extension AS-Interface product group	UM EN FLX ASI SYS PRO INST	-	-
User Manual: AS-Interface addressing device	ASI CC ADR UM E	9013727	1

3 Technical data

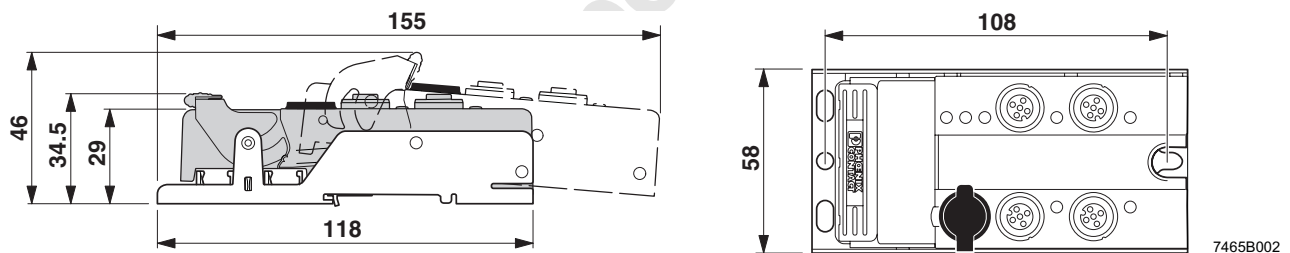


Figure 1 Dimensions of the device in mm

General data

Dimensions (width x height x depth); including mounting base	58 mm x 118 mm x 34.5 mm
Weight	195 g
Connection method for sensors	2, 3, and 4-wire technology
Permissible temperature (operation)	-25°C to +70°C
Permissible temperature (storage/transport)	-25°C to +85°C
Degree of protection	IP65/IP67 according to IEC 60529
Protection class	Class 3 according to IEC 61140

Mechanical requirements

Vibration test, sinusoidal vibrations according to EN 60068-2-6	5 g load in each space direction
Shock test according to EN 60068-2-27	30 g load, half sinusoidal wave positive and negative in each space direction



For additional information on mechanical requirements and ambient conditions, please contact Phoenix Contact.

Power supply

Communications power and sensor supply voltage U_{LS}	26.5 V to 31.6 V from AS-Interface
Current consumption at U_{LS}	≤ 40 mA + sensor current (200 mA, maximum)
Surge protection	U_{LS} : Surge Voltage Category III

Digital inputs

Number	4
Input design	According to IEC 61131-2 Type 2
Definition of switching thresholds	
Maximum low-level voltage	$U_{Lmax} < 5$ V
Minimum high-level voltage	$U_{Hmin} > 11$ V
Nominal input voltage	30 V DC from AS-i
Range	-3 V DC $< U_{IN} < +30$ V DC
Nominal input current	8 mA
Current flow	Non-linear < 10 mA
Delay time	$t_{ON} < 1$ ms, typical $t_{OFF} < 1$ ms, typical
Permissible cable length to the sensor	< 30 m

Input characteristic curve

Input voltage (V)	Typical input current (mA)
0	0
1	0.5
2	1.1
3	1.7
4	2.3
5	3.0
6	3.6
7	4.3
8	5.1
9	6.1
10	7.0
11	7.9
12	8.0
15	8.0
18	8.1
21	8.1
24	8.2
27	8.2
30	8.3

Sensor supply

Minimum sensor voltage	$U_{LS} - 7 V$
Nominal current per channel	200 mA
Nominal current per device	200 mA

Connections

AS-Interface	Flat-ribbon cable penetration technique
Inputs	M12 female connector

Electrical isolation/isolation of the voltage ranges

Separate potentials in the FLX ASI DI 4 M12 device

Test distance	Test voltage
30 V supply (sensor supply and communications power and inputs)/ housing	500 V AC, 50 Hz, 1 min.

Approvals

For the latest approvals, please visit www.phoenixcontact.net/download or www.phoenixcontact.net/catalog.

4 Pin assignment

4.1 AS-i connection

A connection to the AS-Interface is established by inserting the AS-i flat-ribbon cable in the cable routing aid provided in the mounting base of the device, and then making contact with the module electronics. Contact is established as soon as the locking latch snaps in.

Designation	Meaning
IN1 to IN4	Inputs 1 to 4
AS-i	Connection to AS-i (bus and power supply)

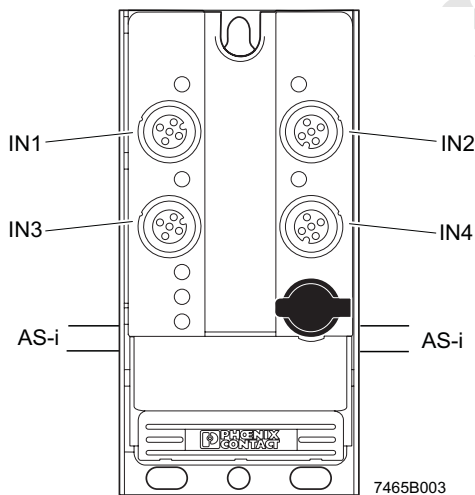


Figure 2 Connections of the FLX ASI DI 4 M12 device

4.2 Pin assignment of the inputs

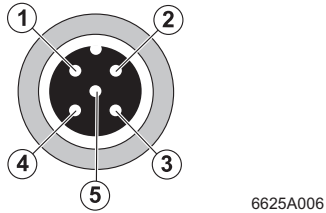


Figure 3 Pin assignment of the inputs

Female input connectors				
Pin	IN1	IN2	IN3	IN4
1	Sensor supply +			
2	IN2	Not used	IN4	Not used
3	Sensor supply -			
4	IN1	IN2	IN3	IN4
5	Not used			



The M12 connectors are designed for a tightening torque of 0.4 Nm.

5 Local diagnostic and status indicators

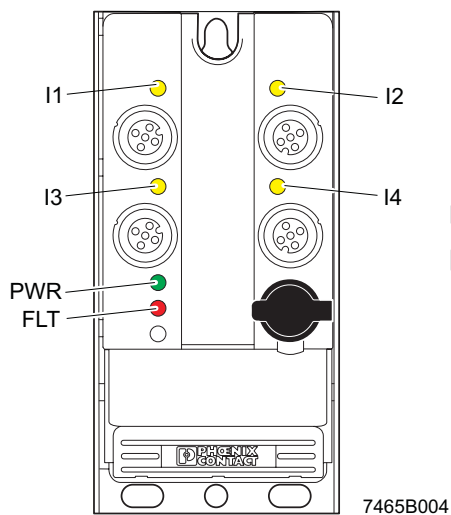
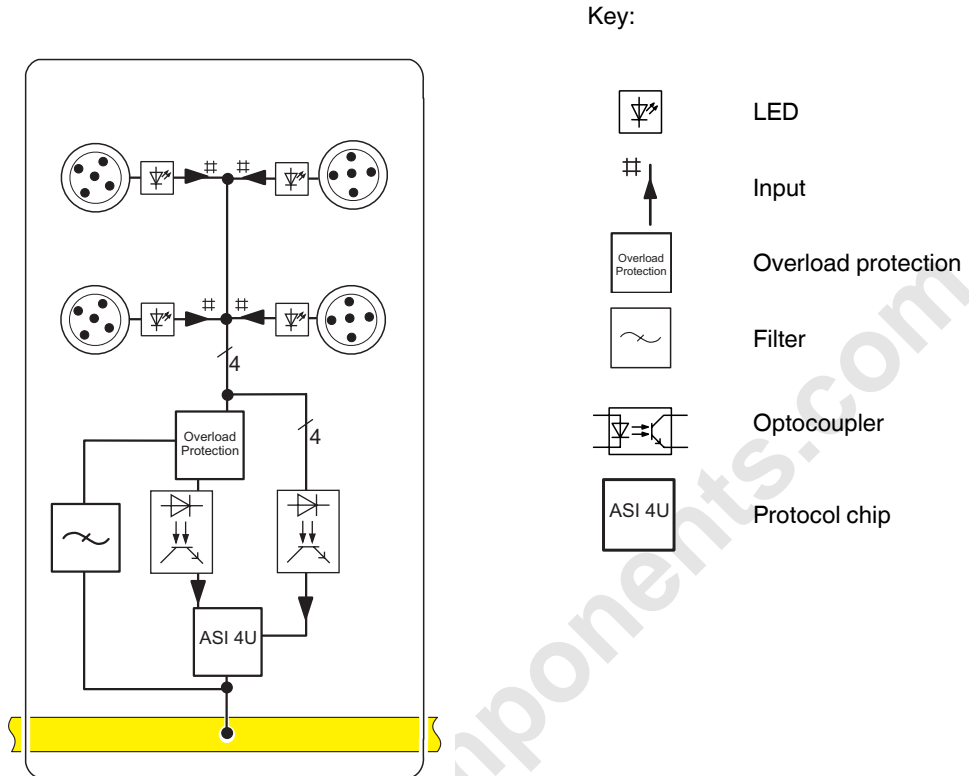


Figure 4 Local diagnostic and status indicators of the FLX ASI DI 4 M12 device

Designation	Color	Meaning
I1 to I4	Yellow	Status indicators of the inputs
	ON	Input active
	OFF	Input not active
PWR	Green	AS-i supply voltage
	Flashing green	Address 0
FLT	Red	Communication failure
	Flashing red	Sensor overload

6 Internal basic circuit diagram



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Figure 5 Internal wiring of the connections

7 Connection examples

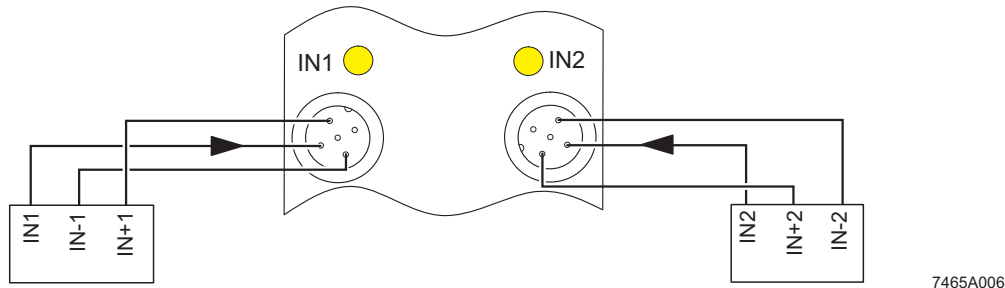


Figure 6 Typical connection of sensors in 3-wire technology

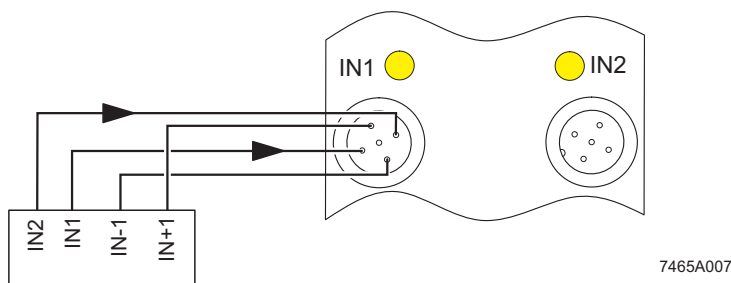


Figure 7 Typical connection of sensors in 4-wire technology

8 Connection notes

NOTE:
When using 4-wire sensors, opposite slots must not be used.

NOTE: Ensure degree of protection
To ensure IP65/IP67 protection, cover unused female connectors with protective caps.

NOTE: Avoid damage to the electronics
An external power supply unit must never be used to supply the sensors.

NOTE: Avoid compensating currents
Each individual sensor must be insulated.

NOTE:
Fix the device to a level surface or to a profile. Do not use the device to bridge gaps, in order to prevent forces from being transmitted via the device.

NOTE:
Tighten the mounting screws to a maximum of 2.8 Nm.

9 Programming data

9.1 Configuration data

IO code	0 _{hex}
ID code	A _{hex} (extended addressing)
ID1 code	7 _{hex} (can be defined by the user)
ID2 code	2 _{hex}
Profile	S-0.A.2.
AS-i specification	2.1 (AB slave)

9.2 Data bit (function via AS-Interface)

Bit	Function	Bit	Function
D0 IN	Input IN1	D0 OUT	Not used
D1 IN	Input IN2	D1 OUT	Not used
D2 IN	Input IN3	D2 OUT	Not used
D3 IN	Input IN4	D3 OUT	Not used

9.3 Parameter bit (programmable via AS-Interface)

Bit	Function
P0	Not used
P1	Filter for the inputs in the AS-i IC P1 = 0: Activated P1 = 1: Deactivated
P2	Synchronous mode P2 = 0: Activated P2 = 1: Deactivated
P3	Not used