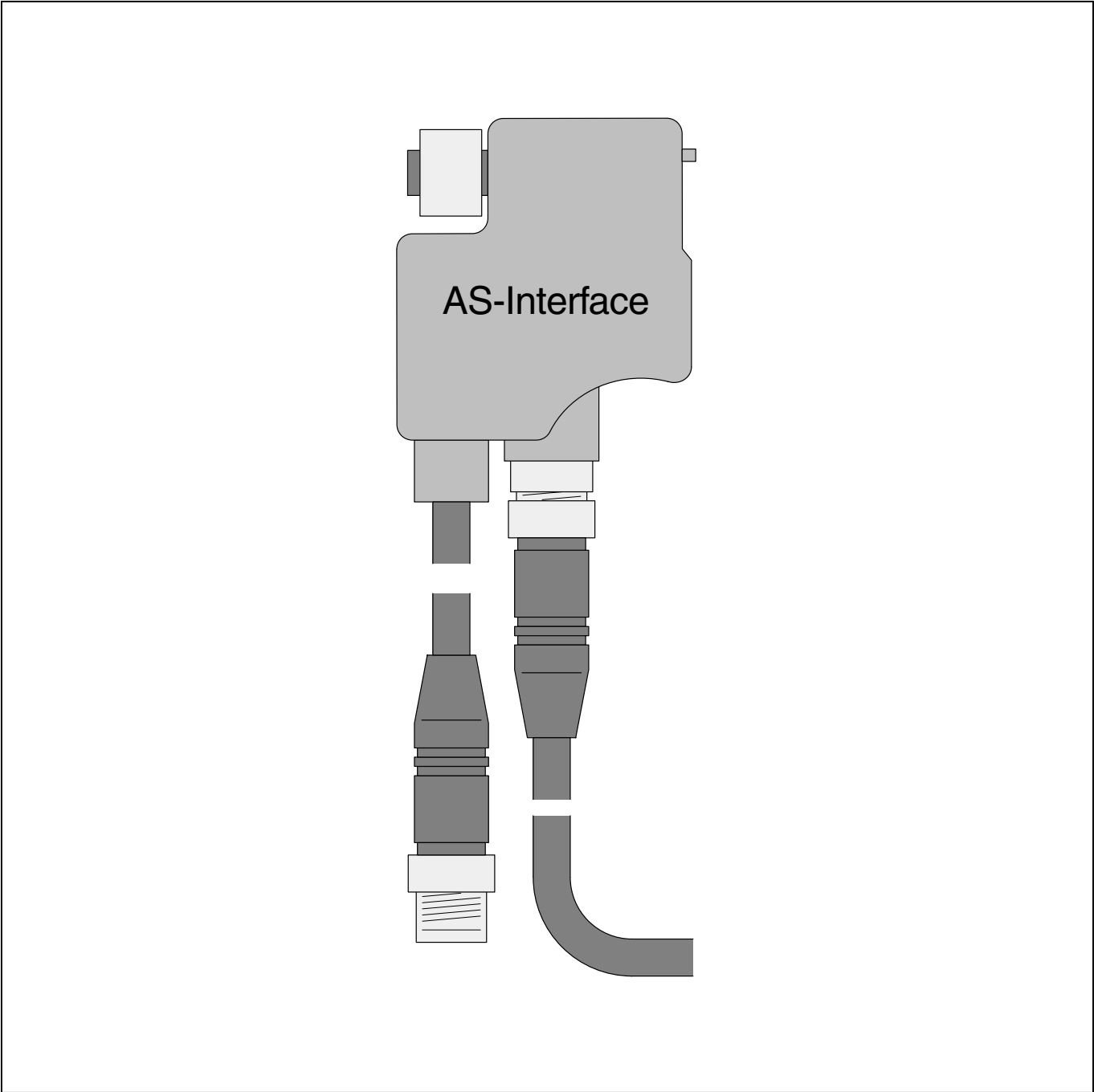




V6

AS-Interface FieldBusPlugs
ASD11-FBP Direct
ASP22-FBP Performance





ASD11-FBP: AS-Interface FieldBusPlug Direct,
2 digital inputs, 1 digital output

ASP22-FBP: AS-Interface FieldBusPlug Performance,
4 digital inputs, 3 digital outputs

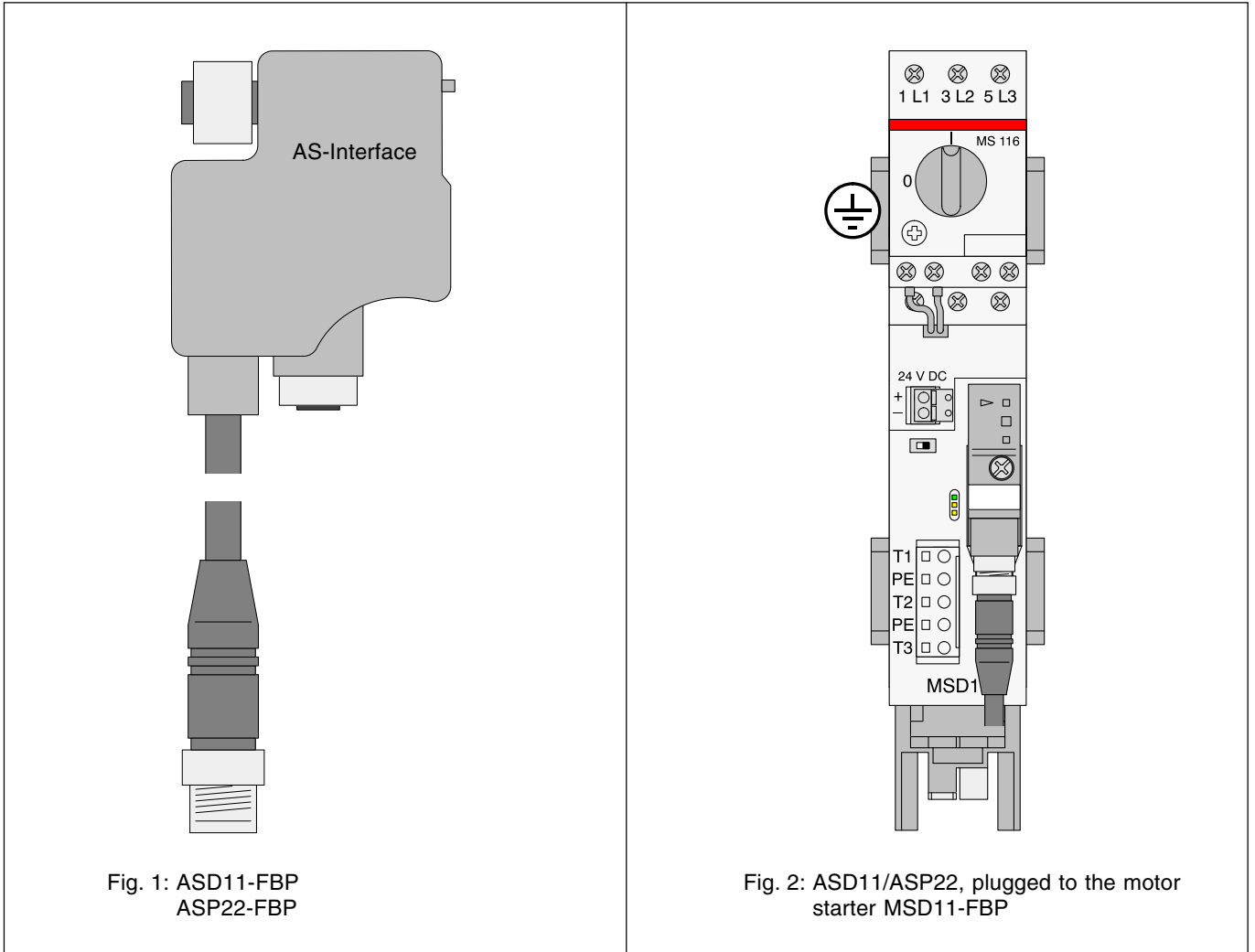


Fig. 1: ASD11-FBP
ASP22-FBP

Fig. 2: ASD11/ASP22, plugged to the motor
starter MSD11-FBP

Contents

Page

Purpose and short description	4
Connector pin assignment.....	5
Indicators and operating elements on the front plate	6
Technical data	7
Ordering data	8
Mechanical dimensions	9



ASD11-FBP AS-Interface FieldBusPlug Direct

ASP22-FBP AS-Interface FieldBusPlug Performance

Technical description

V 6

Purpose and short description

The AS-Interface FieldBusPlugs ASD11-FBP (Direct) and ASP22-FBP (Performance) establish the field bus connection between the AS-Interface bus and the terminal devices connected to this bus. The AS-Interface FieldBusPlugs are slaves on the AS-Interface bus.

The terminal devices must either have the field bus-neutral interface or their pin configuration must be sufficient for connection of the AS-Interface FieldBusPlug (e.g. as provided by specific proximity switches).

The data exchange between the terminal device and the AS-Interface FieldBusPlug can be performed in two ways:

- **Parallel communication** (the signals are exchanged **directly** via the connections of the field bus-neutral interface). Scope of data: max. 1 digital output (1 control signal to terminal device) plus 2 digital inputs (2 feedback signals from terminal device).
- **Serial communication** (the signals are exchanged with the help of a serial data protocol via the fieldbus-neutral interface). Scope of data: max. 3 digital outputs (3 control signals to terminal device) plus 4 digital inputs (4 feedback signals from terminal device). Additionally, parameter data (described later) can be transmitted.

The following operating modes are supported by the FieldBusPlugs:

ASD11-FBP (Direct) **parallel**
ASP22-FBP (Performance) **parallel** and **serial** (which also enables the transmission of parameters)

When the supply voltage is switched on, the plug ASP-22-FBP (Performance) automatically detects the operating mode (parallel or serial) of the connected terminal device. This is why the FieldBusPlug type Direct can be replaced by the FBP type Performance in any case.

On the AS-Interface bus side all AS-Interface FieldBusPlugs are identical.

Transmission of analog signals is not possible with the AS-i FieldBusPlugs.

The plugs ASD11-FBP and ASP22-FBP are supplied from the AS-Interface power supply unit. The second power supply from the additional standard power supply unit is only routed to the field bus-neutral interface and can feed parts of the electric and electronic circuits in the terminal device.

The potentials of the AS-Interface bus signals and the field bus-neutral interface are isolated from each other.

The AS-Interface FieldBusPlugs must be addressed, i.e. they must contain the address used to access the connected terminal device. Due to this, already addressed plugs may not be plugged to other terminal devices. The addressing procedure is described in detail in the AS-Interface bus description. Once the address is set it is stored in the plug, even in case of supply voltage breakdown.

According to the extended AS-Interface standard up to 62 different addresses can be used. They are divided into the addresses 1 A to 31 A and 1 B to 31 B. Here, it is assumed that the AS-Interface master (coupler, gateway, etc.) supports this type of addressing (A and B). Otherwise only the addresses 1 to 31 are available which are then set on the FieldBusPlug as 1 A to 31 A.

Some of the terminal devices, e.g. the MFI21-FBP, must be parameterized. Parameter data can only be transmitted to the terminal device by the AS-Interface FieldBusPlug Performance ASP22-FBP. Setting the parameters is described in the bus-specific software description (e.g. AS-Interface functions).

For diagnosis purposes the AS-Interface FieldBusPlugs are equipped with two LEDs.

In order to build up an AS-Interface bus or a part of it using AS-Interface FieldBusPlugs, the FieldBusPlugs must be simply connected in series, i.e. the cable of the first FieldBusPlug is plugged to the AS-Interface bus distributor (in the direction of the coupler / gateway), the cable of the second FieldBusPlug is plugged to the socket of the first plug, etc. To make work easier, the AS-Interface FieldBusPlugs are available with different cable lengths. For very long distances, several cable extensions are available as well as cable coils and male and female plug connectors for self-mounting. Within one AS-Interface configuration the two AS-Interface FieldBusPlug types (Direct and Performance) can be mixed (any sequence, any arrangement).

When determining the total AS-Interface bus length, all cables belonging to the AS-Interface FieldBusPlugs must also be taken into account. They are part of the AS-Interface bus.

Due to their compound construction, the AS-Interface FieldBusPlugs comply with the requirements of IP 65 and consequently can also be mounted outside the control cabinet.



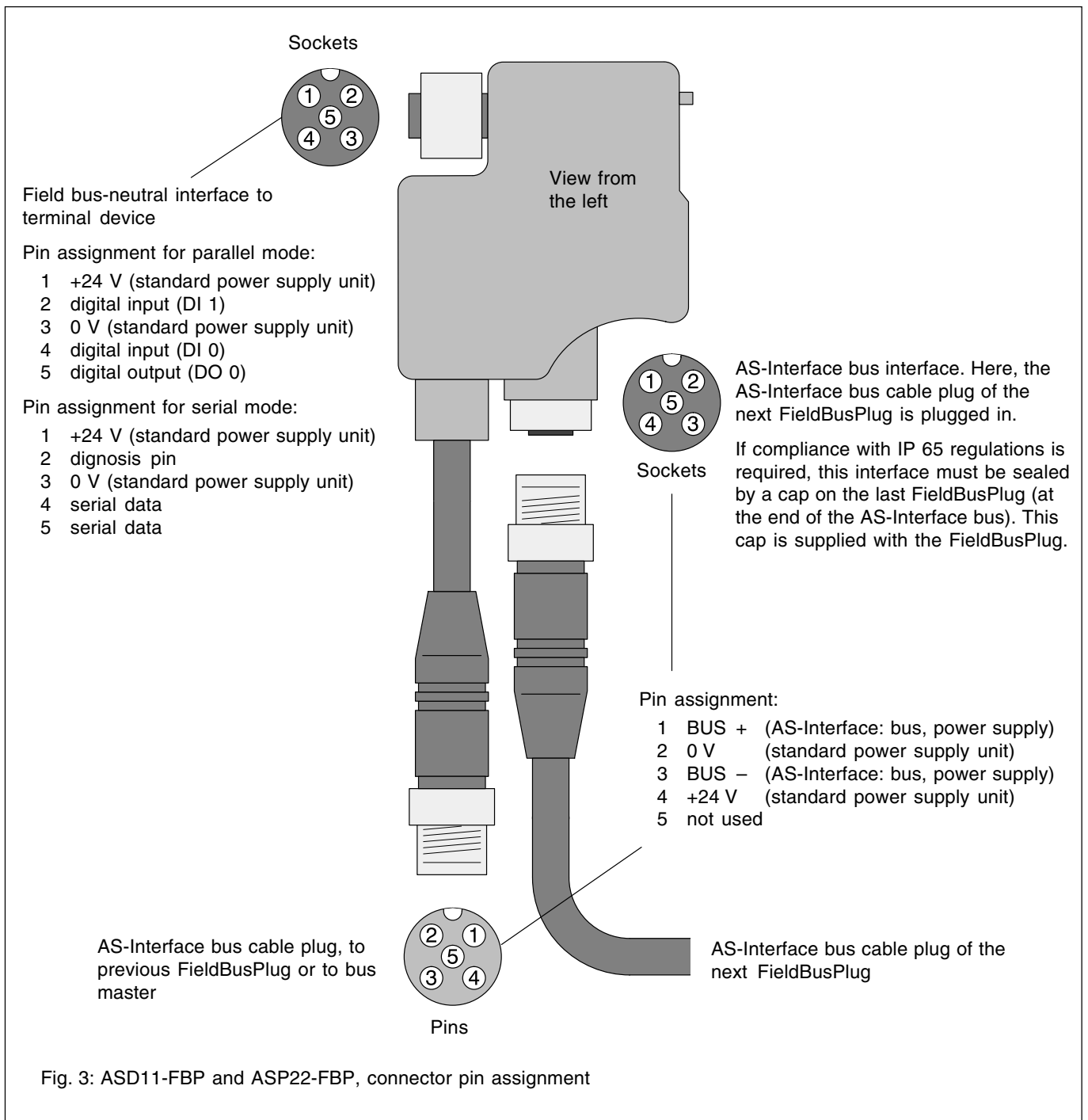
Connector pin assignment

Fig. 3 shows the connector pin assignment of the FieldBusPlugs for

- the AS-Interface bus interfaces (cable plug and bus interface to the next FieldBusPlug)
- the field bus-neutral interface to the terminal device

The field bus-neutral interface is active:

- for the AS-Interface FieldBusPlug Direct always when it is in parallel operating mode or
- for the AS-Interface FieldBusPlug Performance depending on the connected terminal device either when in parallel mode or when in serial operating mode. The setting is automatically performed when the supply voltage is applied.





Indicators and operating elements on the front plate

Fig. 4 shows the indicators and operating elements on the front plate.

- On the AS-Interface FieldBusPlug, the address can be set by means of an infrared adapter (one possibility for setting the address, please refer to the AS-Interface bus description for further information). For this purpose, the infrared adapter is put on the FieldBusPlug, so that it fits onto the triangle standing out of the front plate. The data communication for setting the address is performed via the red LED (transmitter to infrared adapter) and the photodiode (receiver for data from infrared adapter).
- During normal operation the red LED is used as an error indicator. The green LED indicates that the supply voltage for the FieldBusPlug is present.

Triangle standing out of the front plate to hold the infrared adapter (address setting)

Red LED used as a transmitter to the infrared adapter

Photodiode used as receiver for data from infrared adapter

Label for writing down the address setting

Red LED for error indication

Green LED for supply voltage indication

Fastening screw (provided on delivery)

Meanings of the LEDs

FieldBusPlug	Operating mode	Green LED	Red LED
ASD11-FBP (Direct)	parallel	on = supply voltage present	off = normal operation on = no data communication
ASP22-FBP (Performance)	parallel	on = supply voltage present	off = normal operation on = no data communication
ASP22-FBP (Performance)	serial	on = supply voltage present	off = normal operation on = no data communication ¹⁾ blinking = terminal device error ²⁾

1) The error "no data communication" can occur, if the master is in STOP state, if the slave has the address setting "0", if the slave has an invalid address which is not listed in the address list or if the slave has detected an internal hardware error.

2) A terminal device error is indicated if the terminal device is not functional, e.g. due to a short circuit, an overload condition or an interrupted cable or wire.

Fig. 4: ASD11-FBP and ASP22-FBP, indicators and operating elements on the front plate

ASD11-FBP AS-Interface FieldBusPlug Direct

ASP22-FBP AS-Interface FieldBusPlug Performance

Technical description



V 6

Technical data

Supply voltages		
AS-Interface power supply unit		29.5...31.6 V DC (according to AS-Interface specification)
standard power supply unit		24 V DC
Volt. range for functional FieldBusPlug		AS-Interface supply voltage = 18.5...31.6 V DC
Current consumption		
from AS-Interface power supply		ASD11-FBP: 20 mA ASP22-FBP: 30 mA
from standard power supply		Only the terminal device is supplied from the standard power supply unit. The terminal device may not load the standard power supply unit with more than 200 mA.
Mounting		on the terminal device, fixed with a screw (provided on delivery) or by M12 box nut fixing
Building of an AS-Interface bus (or a section)		by connecting the FieldBusPlugs in series (first bus plug to coupler/master, second bus plug to socket of the first FieldBusPlug, etc.)
Bus terminating resistor		not required
Modes of data communication		ASD11-FBP: parallel ASP22-FBP: parallel and serial (parameter transmission also possible)
Scope of data		ASD11-FBP: parallel, 1 output + 2 inputs ASP22-FBP: parallel, 1 output + 2 inputs serial, 3 outputs + 4 inputs (+ parameter transmission)
Terminal device data in parallel mode		
inputs		0 signal = 0...2 V, 1 signal = 10...30 V, signal current at 24V: max. 2.5 mA, max. permitted leakage current at 0 signal: 0.4 mA
output		n-p-n transistor, open collector, load capacity max. 25 mA, reference potential 0 V, ON signal when n-p-n transistor is conductive
Potential separation / insulation voltage		
between power supply units		yes, 500 V DC
between AS-Interface bus and terminal device		yes, 500 V DC
Construction of FieldBusPlug cable		round cable, orange, 4 x 0.5 mm ²
Load capacity of plugs and cables		max. 4 A
Pin assignment of the interfaces		refer to Fig. 3
Degree of protection (see also Fig. 3)		IP 65 if M12 box nut fixing is used at the terminal device (e.g. sensor) IP 20 if mounting is performed using the supplied fastening screw (e.g. for MSD)
Ambient temperature		
storage		-25...+85 °C
operation		0...+55 °C
Dimensions		refer to Fig. 5
Total power dissipation of the unit		
ASD11-FBP		0.6 W
ASP22-FBP		0.9 W
Weight		
plug with cable 0.25 m		0.09 kg
plug with cable 0.5 m		0.10 kg
plug with cable 1 m		0.13 kg
plug with cable 5 m		0.35 kg
Bus address setting		via AS-Interface bus, using a handheld addressing unit or via infrared adapter
Possible addresses		max. 62 addresses (1 A...31 A and 1 B...31 B)
Diagnostics		2 LEDs on the front plate (refer to Fig. 4)
green LED		supply voltage present
red LED		error



ASD11-FBP AS-Interface FieldBusPlug Direct

ASP22-FBP AS-Interface FieldBusPlug Performance

Technical description

V 6

Ordering data

A fastening screw, an address label and a terminal cap for the bus are supplied along with the FieldBusPlug.

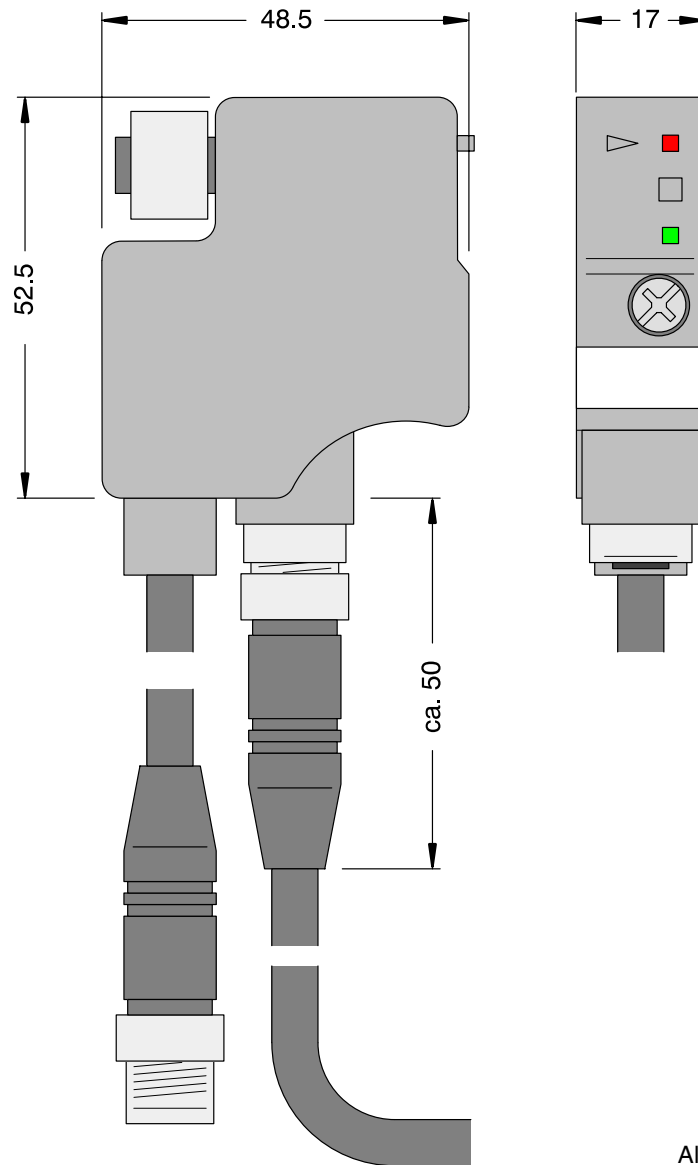
Type	Designation	Ordering number
ASD11-FBP.025	AS-Interface FBP Direct, cable length 0.25 m	1SAJ 210 000 R0003
ASD11-FBP.050	AS-Interface FBP Direct, cable length 0.5 m	1SAJ 210 000 R0005
ASD11-FBP.100	AS-Interface FBP Direct, cable length 1 m	1SAJ 210 000 R0010
ASD11-FBP.500	AS-Interface FBP Direct, cable length 5 m	1SAJ 210 000 R0050
ASP22-FBP.025	AS-Interface FBP Performance, cable length 0.25 m	1SAJ 220 000 R0003
ASP22-FBP.050	AS-Interface FBP Performance, cable length 0.5 m	1SAJ 220 000 R0005
ASP22-FBP.100	AS-Interface FBP Performance, cable length 1 m	1SAJ 220 000 R0010
ASP22-FBP.500	AS-Interface FBP Performance, cable length 5 m	1SAJ 220 000 R0050

Accessories

Type	Designation	Ordering number
ASX11-FBP.100	AS-Interface extension cable, length 1 m	1SAJ 922 001 R0010
ASX11-FBP.300	AS-Interface extension cable, length 3 m	1SAJ 922 001 R0030
ASX11-FBP.500	AS-Interface extension cable, length 5 m	1SAJ 922 001 R0050
ASF11-FBP.030	AS-Interface round cable, female plug attached at one end, 0.3 m, sheath partially removed, wire-end ferrules attached	1SAJ 922 002 R0003
ASM11-FBP.030	AS-Interface round cable, male plug attached at one end, 0.3 m, sheath partially removed, wire-end ferrules attached	1SAJ 922 003 R0003
ASC11-FBP.999	AS-Interface round cable on 100 m coil, 4 x 0.5 mm ²	1SAJ 922 004 R1000
ASM11-FBP.0	AS-Interface male connector for round cable	1SAJ 922 005 R0001
ASF11-FBP.0	AS-Interface female connector for round cable	1SAJ 922 006 R0001
AST11-FBP.0	AS-Interface flat cable junction with M12 socket	1SAJ 922 007 R0001



Mechanical dimensions



All dimensions in mm.

Fig. 5: ASD11-FBP and ASP22-FBP, dimensions



ASD11-FBP AS-Interface FieldBusPlug Direct
ASP22-FBP AS-Interface FieldBusPlug Performance
Technical description

V 6



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