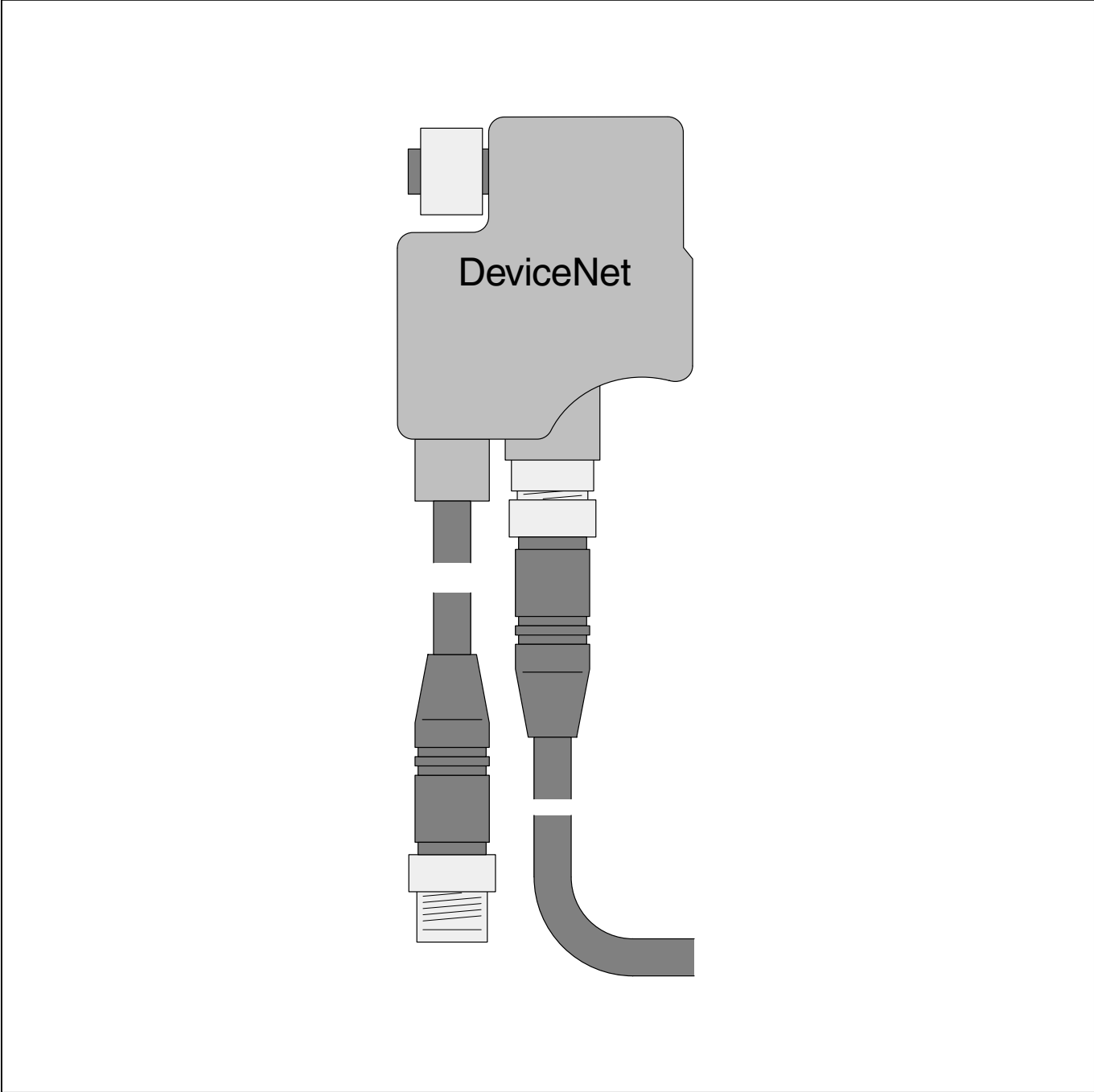




V6

DeviceNet FieldBusPlug  
DNP21-FBP







## DNP21-FBP DeviceNet FieldBusPlug

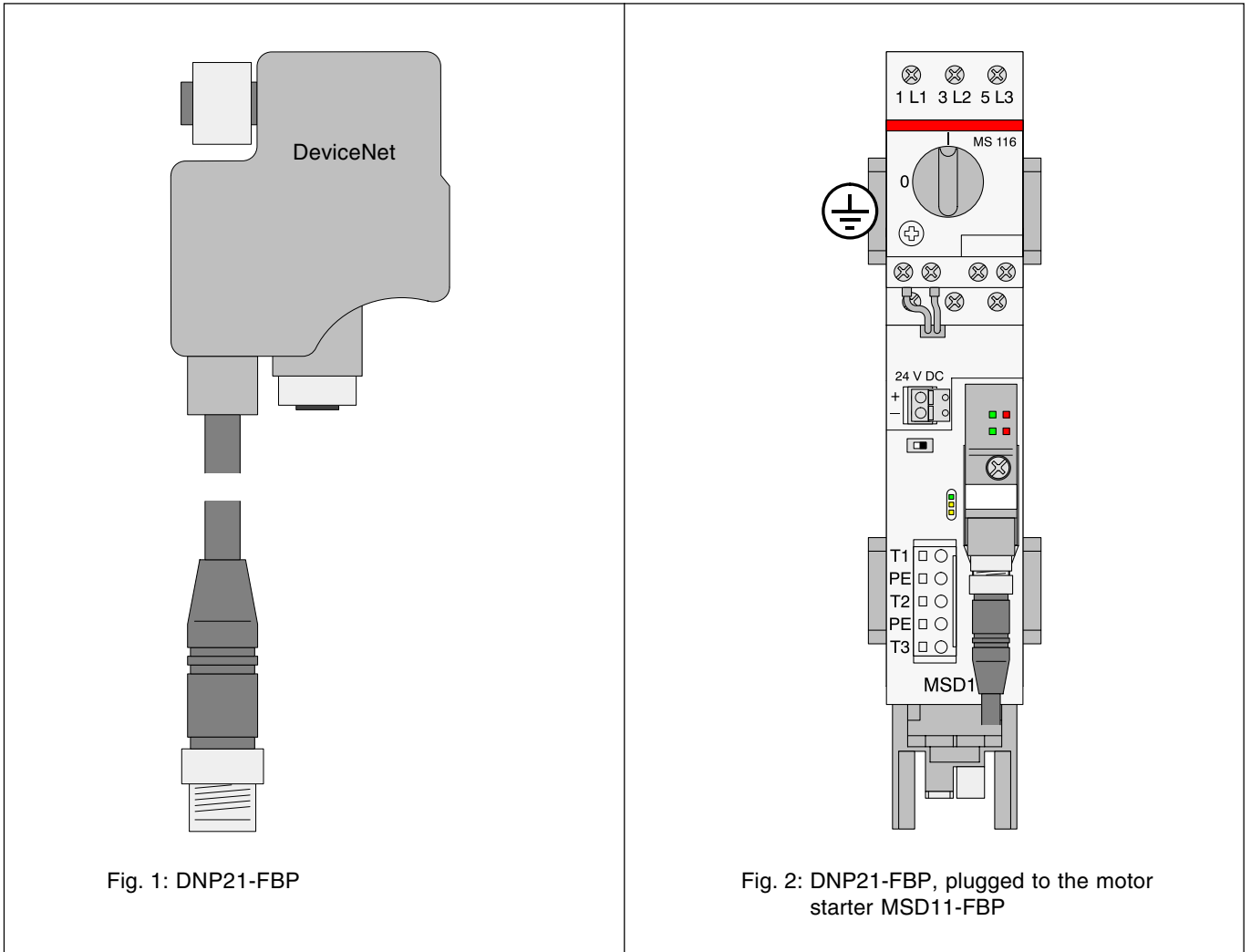


Fig. 1: DNP21-FBP

Fig. 2: DNP21-FBP, plugged to the motor starter MSD11-FBP

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### Purpose and short description

The DeviceNet FieldBusPlug DNP21-FBP establishes the field bus connection between the DeviceNet bus and the terminal devices connected to this bus. The DeviceNet FieldBusPlugs are slaves (nodes) on the DeviceNet bus.

The terminal devices must have the field bus-neutral interface (e.g. as provided by the ABB FBP modules MSD11-FBP, MSR22-FBP, MFI21-FBP and UMC22-FBP).

The data exchange between the DeviceNet FieldBusPlug and the terminal device 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 field bus-neutral interface. Binary, analog, parameter and diagnosis data is sent and received.

The DNP21-FBP as well as the connected terminal device are powered by the DeviceNet power supply unit, if the terminal device is set to "internal supply". If the setting is "external supply", an additional power supply unit must be used. It powers the electronic circuits of the terminal device.

There is **no** electrical isolation between the DeviceNet bus signals and the field bus-neutral interface.

The DeviceNet FieldBusPlugs must be addressed, i.e. they must contain the address used to access the connected terminal device.

Once the address is set, it is stored in the FieldBusPlug, even in case of supply voltage breakdown.

The parameter data of the terminal device are stored in the DeviceNet coupler (master) and sent to the terminal device (slave) with power-on.

According to the DeviceNet standard, the addresses 0 to 63 can be set. The addresses 0, 62 and 63 are reserved and should not be used for slaves. Addressing is carried out by means of separate programming units or by a software tool of the control-gear manufacturer.

Some of the terminal devices, e.g. the MFI21-FBP, must be parameterized. The setting of the parameters is described in the bus-specific software description. Normally, the parameter setting is performed by means of a software tool of the control-gear manufacturer.

For diagnosis purposes, the DeviceNet FieldBusPlugs are equipped with four LEDs (see Fig. 4).

In order to build up a DeviceNet bus or a part of it using DeviceNet FieldBusPlugs, the FieldBusPlugs must be simply connected in series, i.e. the cable of the first FieldBusPlug is plugged to the DeviceNet 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 DeviceNet 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.

The fieldbus will not be interrupted, if the FieldBusPlug is withdrawn from the terminal device. Within the fieldbus, the FieldBusPlug behaves like a tee connector.

The DeviceNet bus must be terminated with terminating resistors of **120 Ω** at each end of the bus. Terminating resistors belong to the assortment.

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

Due to their compound construction, the DeviceNet FieldBusPlugs comply with the requirements of IP 65 and consequently can also be mounted outside the control cabinet. In order to meet this requirement, the open connector of the last FieldBusPlug must be covered with the closing cap, which is part of delivery.



## Connector pin assignment

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

- the DeviceNet bus interface (plug at the cable end and bus interface to the next FieldBusPlug)
- the field bus-neutral interface to the terminal device

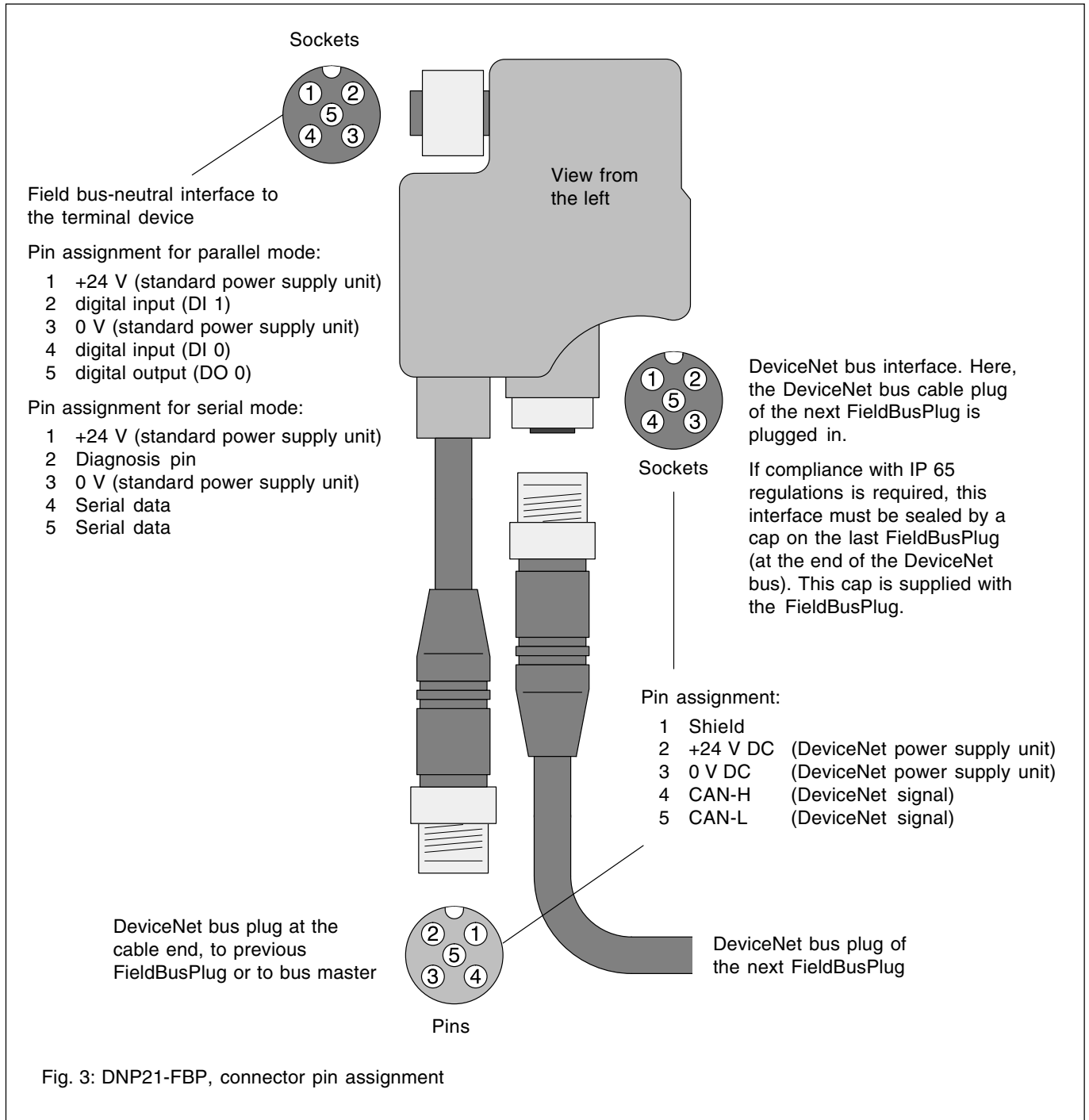
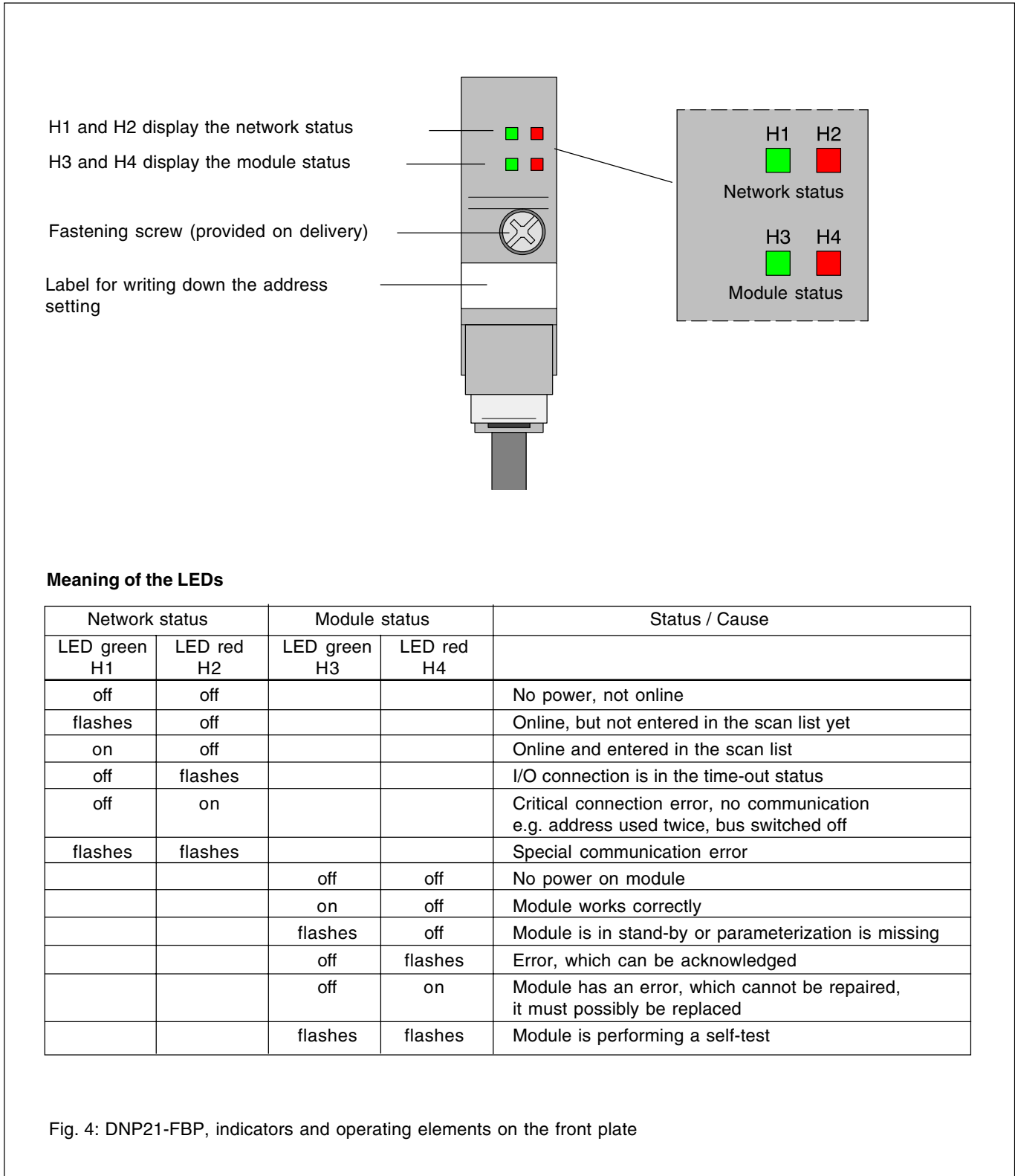


Fig. 3: DNP21-FBP, connector pin assignment



### Indicators and operating elements on the front plate

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





## V 6 Technical Description

### Technical data

Supply voltages	
DeviceNet power supply	24 V DC $\pm$ 1% (according to DeviceNet specifications, a special power supply unit is necessary)
Standard power supply	24 V DC
FieldBusPlugs work correctly at	DeviceNet supply voltage = 11.0 ... 24.7 V DC
Current consumption	
from the DeviceNet power supply	DNP21-FBP: typ. 18.5 mA (24 V)
from the 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 a DeviceNet 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 resistors	at both ends of the bus line 120 $\Omega$ each
Modes of data communication between FieldBusPlug and terminal device	parallel and serial
Scope of data	according to DeviceNet specifications
Construction of the FieldBusPlug cable	round cable, black, 2 x 0.34 mm <sup>2</sup> for supply voltage 2 x 0.25 mm <sup>2</sup> for data lines 3 shields
Load capacity of plugs and cables	max. 4 A
Pin assignment of the interfaces	see 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 MSD11-FBP)
Ambient temperature	
storage	-20...+75 °C
operation	0...+55 °C
Dimensions	see Fig. 5
Total power dissipation of the unit DNP21-FBP	max. 0.525 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	with special software of the PLC manufacturer or with manual addressing unit with PC connection
Possible addresses	1 to 61 (0, 62 and 63 are reserved)
Diagnosis (see Fig. 4)	4 LEDs on the front plate
LED green, LED red	network status
LED green, LED red	module status



# DNP21-FBP DeviceNet FieldBusPlug

## Technical Description

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### Ordering data

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

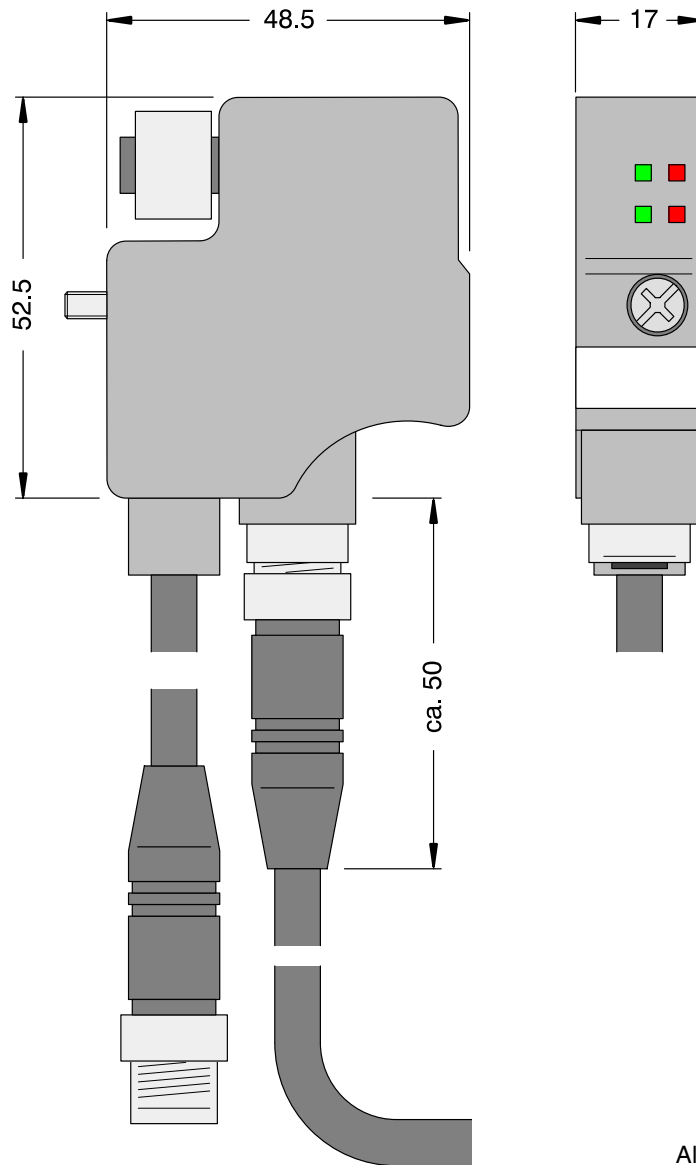
Type	Description	Order number
DNP21-FBP.025	DeviceNet FieldBusPlug, cable length 0.25 m	1SAJ 230 000 R0003
DNP21-FBP.050	DeviceNet FieldBusPlug, cable length 0.5 m	1SAJ 230 000 R0005
DNP21-FBP.100	DeviceNet FieldBusPlug, cable length 1 m	1SAJ 230 000 R0010
DNP21-FBP.500	DeviceNet FieldBusPlug, cable length 5 m	1SAJ 230 000 R0050

### Accessories

Type	Description	Order number
DNX11-FBP.100	DeviceNet extension cable, length 1 m	1SAJ 923 001 R0010
DNX11-FBP.300	DeviceNet extension cable, length 3 m	1SAJ 923 001 R0030
DNX11-FBP.500	DeviceNet extension cable, length 5 m	1SAJ 923 001 R0050
DNF11-FBP.050	DeviceNet round cable, female plug attached at one end, 0.5 m, sheath partially removed, wire-end ferrules attached	1SAJ 923 002 R0005
DNM11-FBP.050	DeviceNet round cable, male plug attached at one end, 0.5 m, sheath partially removed, wire-end ferrules attached	1SAJ 923 003 R0005
DNC11-FBP.999	DeviceNet round cable on 100 m coil	1SAJ 923 004 R1000
DNM11-FBP.0	DeviceNet mail connector for round cable	1SAJ 923 005 R0001
DNF11-FBP.0	DeviceNet female connector for round cable	1SAJ 923 006 R0001
DNR11-FBP.120	DeviceNet terminating resistor	1SAJ 923 007 R0001



### Mechanical dimensions



All dimensions in mm

Fig. 5: DNP21-FBP, mechanical dimensions



# DNP21-FBP DeviceNet FieldBusPlug

Technical Description

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