LD 800HSE Instruction Leaflet

General

Additional information regarding this product is available in the ABB SolutionsBank
http://solutionsbank.abb.com

⚠ Before commissioning of LD 800HSE make sure to use the latest and recommended linking device firmware released for your system environment according to *LD 800HSE Version Table (3BDS009910)* in ABB SoutionsBank.

For commissioning of LD 800HSE the *User Instructions (3BDD011677R0501)* have to be observed! To obtain the User Instructions search for document number 3BDD011677* in ABB SolutionsBank

Restrictions

There exist various hardware versions of the FF Linking Device LD 800HSE with different article numbers as listed below.

Table 1: Hardware Versions

Hardware Version	Article Number
1.0x (x = 0, 1, 2, ...)	3BDH000320R0101
1.1y (y = 0, 1, 2, ...)	3BDH000320R02

💡 You can look up the hardware version and the article number of the device on the type plate.

As a general rule these hardware versions are compatible. Different hardware versions may be used within one system environment, but the following restrictions apply:

⚠ Do not use Linking Devices LD 800HSE with different article numbers within a redundant set of devices during normal plant operation.

⚠ Do not online replace a redundant set of Linking Devices LD 800HSE of hardware version 1.1y by devices of hardware version 1.0x (hardware downgrade).

ℹ Using Linking Devices LD 800HSE with different article numbers within a redundant set of devices is allowed for online replacement (hardware upgrade) of a redundant set only. Both devices have to be replaced one after the other keeping the period of mixed operation as short as possible.
During the period of mixed operation it is not allowed to apply configuration changes to the redundant set of linking devices and the H1 devices connected.

Interfaces

Power Supply
The supply voltage (24V DC ± 20%) is connected by a 3-pole terminal block.

L+
M
⊕
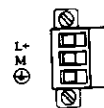
Grounding
A separate screw connection is available for grounding at the bottom part of the front panel. To meet the EMC requirements a low inductance connection between this screw and ground potential is required.

Table 5 shows the symbols used in this document for the various indications of the display elements (LED block).

Table 5: Indication of Display Elements

Symbol	Indication of Display Element
⊗	Off
●	Permanent
☻	Flashing (2 Hz)
◑	Flashing, slow (0.5 Hz)
◐	Flashing, fast (5 Hz)

Device Status Indication (Two-colored F- and R-LEDs)

Table 6: Device Status Indication with Two-colored F- and R-LEDs

Display Element	Description
P	**P - Power Supply**
⊗	No supply voltage.
● green	Supply voltage is present.
HSE	**HSE - Ethernet Port**
⊗	No Ethernet link established.
● green	Ethernet link has been established (10 Mbit/s or 100 Mbit/s).
☻ green	Device is transmitting Ethernet frames.
F / R	**F - Error Status / R - Ready for Operation**
F ⊗ R ☻ green	**Initial boot phase (approx. 7 seconds).** During this phase the boot process may be stopped via the serial interface.
F ⊗ R ⊗	**Start-up phase (approx. 25 seconds).** During this phase the power-on self tests are executed and the redundancy role is determined.
F ● red R ⊗	**Permanent hardware fault detected during startup.** A fatal error has been detected during power-on self tests. Refer to *Power-on Self Tests* in the User Instructions *(3BDD011677Rxxxx)*.
F ⊗ R ● green	**Non-redundant device, ready.** The device is operational; it is not part of a redundant set.
F ● green R ● green	**Primary Device in redundant set.** The device is operational, acting as Primary Device in a redundant set. The Secondary Device is ready.
F ● red R ● green	**Primary Device or non-redundant device, failure.** The device is acting as Primary Device in a redundant set or as non-redundant device, but a failure has been detected. In the case of a Primary Device in a redundant set, the Secondary Device is not ready.

Table 6: Device Status Indication with Two-colored F- and R-LEDs

Display Element	Description
F 🔴 red R 🟢 green	**Primary Device or non-redundant device, hardware failure.** The device is acting as Primary Device in a redundant set or as non-redundant device, but a minor hardware failure has been detected during start-up. Details are available on the web page /Information/Hardware Diagnostics of the device. Refer to *Hardware Diagnostics* in the User Instructions *(3BDD011677Rxxxx)*. In the case of a Primary Device in a redundant set, the Secondary Device is not ready.
F 🟢 green R ⚪ yellow	**Secondary Device, operational.** The device is operational as Secondary Device in a redundant set. The configuration information has been successfully transferred from the Primary Device and the redundancy link is operational.
F 🔴 red R ⚪ yellow	**Secondary Device, not ready.** The device is acting as Secondary Device in a redundant set, but it is not ready to take over the primary role due to e. g. not synchronized configuration information or a non-operational redundancy link.
F 🔴 red R ⚪ yellow	**Secondary Device, hardware failure.** The device is acting as Secondary Device in a redundant set, but a harware failure has been detected. Details are available on the web page /Information/Hardware Diagnostics of the device. Refer to *Hardware Diagnostics* in the User Instructions *(3BDD011677Rxxxx)*.
F 🔴 red R ⊗	**Inactive device, duplicate H1 address.** The device is inactive on HSE and affected H1 links, because a device with the H1 address of the linking device has been detected on at least one H1 link during startup. If the device is part of a redundant set, this state may be caused by interruption of the serial communication between the two linking devices during startup. After the serial communication is reestablished, the device with the duplicate H1 address error will reboot and receive configuration data from the Primary Device.

ABB

All shield contacts of COM, HSE, and H1 fieldbus ports, the ground contact of the power supply interface, the separate grounding screw connection, and the housing are interconnected.

Serial Interface

The serial interface RS-232 is not galvanically isolated.
The maximum cable length is 3 m according to EMC requirements.
The baud rate is pre configured to 115.2 kbit/s.

Table 2: Pin Assignment of the Serial Interface

Pin	Signal	Pin	Signal
1	CD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND		

10/100 Mbit/s Ethernet Port (HSE High Speed Ethernet Port)

The pin assignment of the Ethernet port corresponds to MDI (Medium Dependent Interface).

Table 3: Pin Assignment of the 10/100 Mbit/s Port

Pin	MDI Signal	Pin	MDI Signal
1	TD+	5	Not used
2	TD-	6	RD-
3	RD+	7	Not used
4	Not used	8	Not used

FF H1 Fieldbus Connection

With 3-pole terminal blocks, up to 4 separate fieldbus segments can be connected. The FF-H1 interfaces comply with type 114 of the FF physical layer profile.
The fieldbus cables +/- can be interchanged.

Device Status Indication

The device status indication depends on the hardware version of the LD Base Module. To allow enhanced device status indication newer hardware is equipped with two-colored F- and R-LEDs. Please refer to Table 4 to find out, which device status indication applies to your hardware.

Table 4: Hardware Versions

HW Version of LD Base Module	Serial Number of Device	Remark	Device Status Indication according to
ver < 1.40	up to 040800673	Single-colored LEDs	refer to User Instructions
1.40 ≤ ver < 1.60	040800674 ... 060101705	Two-colored F-LEDs	refer to User Instructions
ver ≥ 1.60	starting from 060101706	Two-colored F- and R-LEDs	Table 6

You can look up the serial number of the device on the **type plate**. In addition both the serial number of the device as well as the hardware version of the LD Base Module are displayed on the **web page Information/Version Information**.