

# FOUNDATION Fieldbus

## Linking Device LD 800HSE EX



The FOUNDATION Fieldbus Linking Device LD 800HSE EX is registered according to class 42c of the HSE profile, therefore providing the following functions:

- Identification of devices connected to the H1 links
- Configuration of connected H1 devices through System Management and Network Management via HSE
- Access to the function blocks of connected H1 devices via HSE
- Republishing of process data between H1 links
- Republishing of process data from H1 to HSE and vice versa
- Distribution of alarms and events sent by H1 devices

In each of the four H1 channels the Linking Device operates as the Link Master as well as the SM Time Publisher.

### Function

LD 800HSE EX is a highly compact gateway between four FF H1 links and FF HSE suited for redundant use. The linking device meets protection class IP20 and is DIN rack mountable. It is powered by 24 Vdc and supports Ethernet 10 Mbit/s and 100 Mbit/s.

# Functionality

## General

- Linking device according to class 42c of FF HSE profile
- Connects up to four H1 links to an HSE subnet
- Certified for decentralized installation in hazardous areas Zone 2 / Division 2
  - cULus Class I, Division 2, Groups A, B, C, D
  - IECEx Ex nA IIC T4 Gc
  - ATEX II 3G Ex nA IIC T4 Gc
- G3 coated acc. to:
  - ANSI/ISA7104
  - EN 60068-2-60

## Gateway

- Identification of devices connected to the H1 links
- Configuration of connected H1 devices through System Management and Network Management via HSE
- Access to the function blocks of connected H1 devices via HSE
- Republishing of process data between H1 links
- Republishing of process data from H1 to HSE and vice versa
- Distribution of alarms and events sent by H1 devices

## HSE

- System Management Agent
- Network Management Agent
- Server providing object access to H1 devices
- Publishing/Subscribing of process data from/to H1 devices
- Distribution of alarms and events sent by H1 devices
- Time synchronization via SNTP
- IP address configurable via integrated web server

## H1

- System Management Manager
- Network Management Manager
- Client for object access
- Publisher and Subscriber of process data
- Reception of alarms and events
- Link Master, SM Time Publisher

### Maximum Limits per H1 Channel

Connections (VCRs) - overall <sup>1</sup>	128
- Source <sup>2</sup> + Sink	20
- Client + Server	40
- Publisher + Subscriber	100
LAS schedules	2
Sub-schedules	4
Sequences per sub-schedule	64
Elements per sequence	4
Size of LAS schedule domain [octets]	2000

<sup>1</sup> The total number of Source/Sink, Client/Server, and Publisher/Subscriber VCRs in an H1 channel cannot exceed this value.

<sup>2</sup> As the LD 800HSE does not generate alarms, there is no practical use case for Source VCRs.

### Maximum Limits of the Linking Device on HSE

Configured HSE sessions	64
Configured HSE VCRs	400
Automatic HSE sessions	32
Automatic HSE VCRs	256
H1-H1 republishings	64

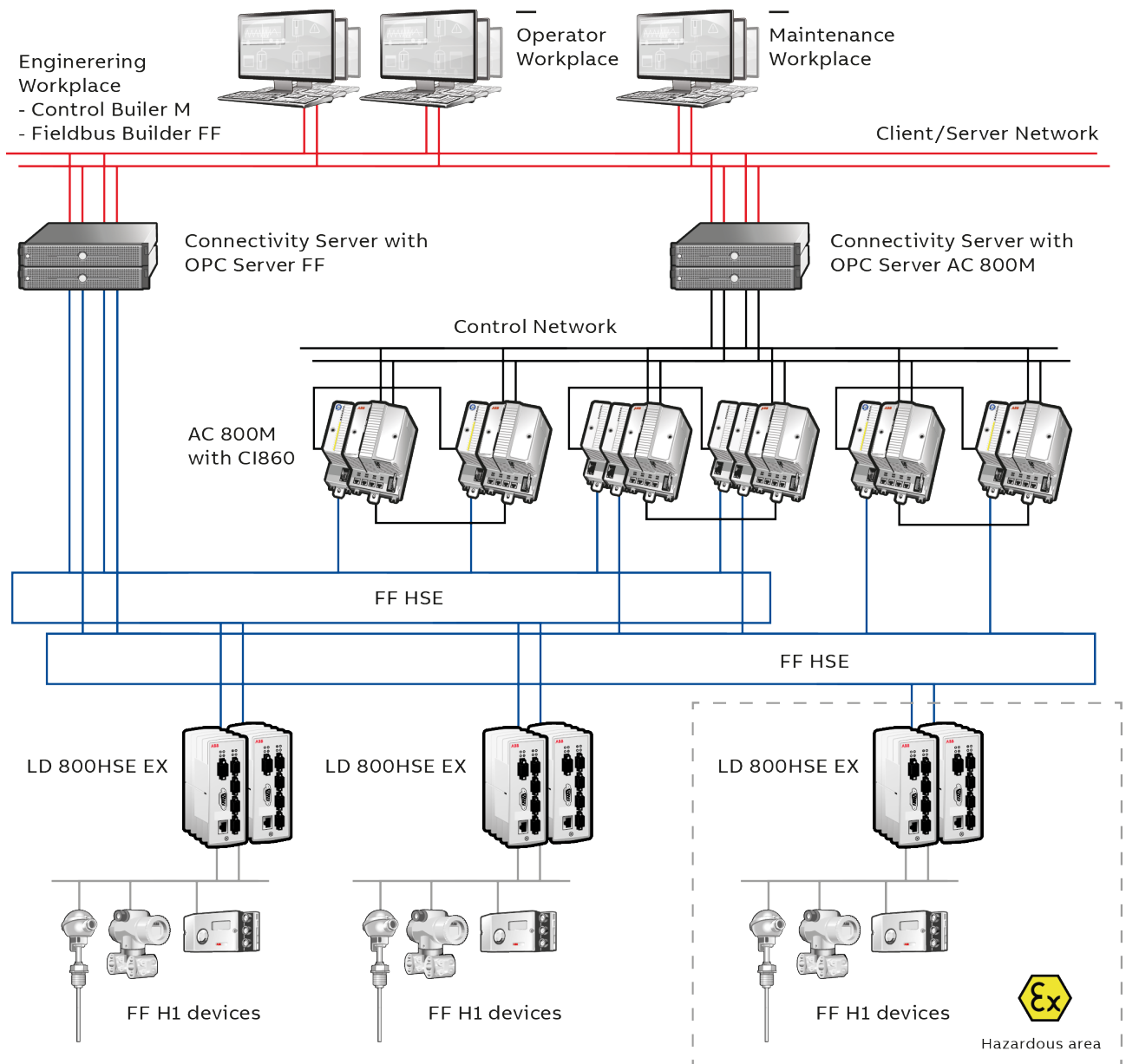


Figure 1. Sample System Structure with FF Network

### Integration into the ABB Ability™ System Structure

Within a typical ABB Ability™ system structure as shown in Figure 1 a FOUNDATION Fieldbus subsystem is linked to the control system via the HSE subnet. The linking devices LD 800HSE EX serve as gateways between the field devices on the H1 links and the HSE subnet.

The FOUNDATION Fieldbus subsystem consists of linking devices and possibly other devices which communicate with one another using the HSE protocol and subsidiary H1 links. As a device registered as a class 42c device of the HSE profile the LD 800HSE EX allows process data that are being published cyclically on the subsidiary H1 links to be republished on the HSE subnet.

By using HSE republishing, it is possible to configure cyclical communication between field

devices on different H1 links and devices on the HSE subnet. Furthermore alarms and events from H1 devices are communicated to the Connectivity Servers FF, thus allowing seamless integration in the overall 800xA alarm management philosophy.

The displayed system structure also includes redundant LD 800HSE EX. The corresponding H1 ports of both physical linking devices making up a redundant set of linking devices are connected to the same H1 link. Both physical devices belonging to a redundant set are connected via a serial RS-232 null modem cable for exchanging redundancy control information.

Within a typical 800xA system structure system structure the FOUNDATION Fieldbus subsystem is interfaced to the IEC 61131 controller using the communication interface module CI860 in the AC 800M which acts as HSE host on the HSE subnet.

Technical Data		
Power Supply	Supply voltage	24 V DC (+ - 20%)
	Current consumption	typ. 200 mA
	Power dissipation	typ. 4.8 W
Mechanical Properties	Dimensions	(length x height x width) 47 x 131 x 111 mm, mounted on DIN rail 35 mm
	Weight	approx. 0.4 kg
	Degree of protection	IP 20
Environmental Conditions	Operating temperature	0° C ... +55° C, non-vertical mounting and hampered air convection may reduce upper temperature limit
	Storage temperature	-20° C ... +70° C
	Relative humidity	0% ... 95%, non-condensing
Ethernet Interface	Number of channels	1
	Port	Ethernet 10BASE-T/100BASE-TX, Tj45
	Transfer rates	10 Mbit/s or 100 Mbit/s (autosensing)
H1 Fieldbus Interface	Number of channels	4
	Port	FF H1 3-pole screw terminals (pluggable) transformer coupling galvanically isolated
	Physical layer profile	type 114, standard power signalling, separately powered, not intrinsically safe
	Transfer rate	31.25 kbit/s
Serial Interface	Port	9-pole SubD male RS-232, 115.2 kbit/s
Certifications	CE compliance acc. to EMC Directive 2004/108/EG (EMC), 2006/95/EG (Low Voltage) and 94/9/EG (ATEX) Electro Magnetic Compatibility (EMC) acc. to FCC Part 15 Subpart B Class A, VCCI Class 2 Information Technology Equipment 2002 Shock and Vibration acc. to DIN IEC68 Part 2	
Certifications  (LD 800HSE EX only)	G3 coated acc. to ANSI/ISA 71.04, EN60068-2-60  Hazardous Location Certification: UL Class I, Division 2, Groups A, B, C, D IECEX Ex nA IIC T4 Gc ATEX II 3G Ex nA IIC T4 Gc	
Accessories	Redundancy Link Cable 0.5 m (to be ordered separately)	