



■ Transportation Solutions

LUNA – LÜTZE Universal Network Adapter

**Intelligent control system for switching, monitoring
and protecting of 24 V actuators on trains**

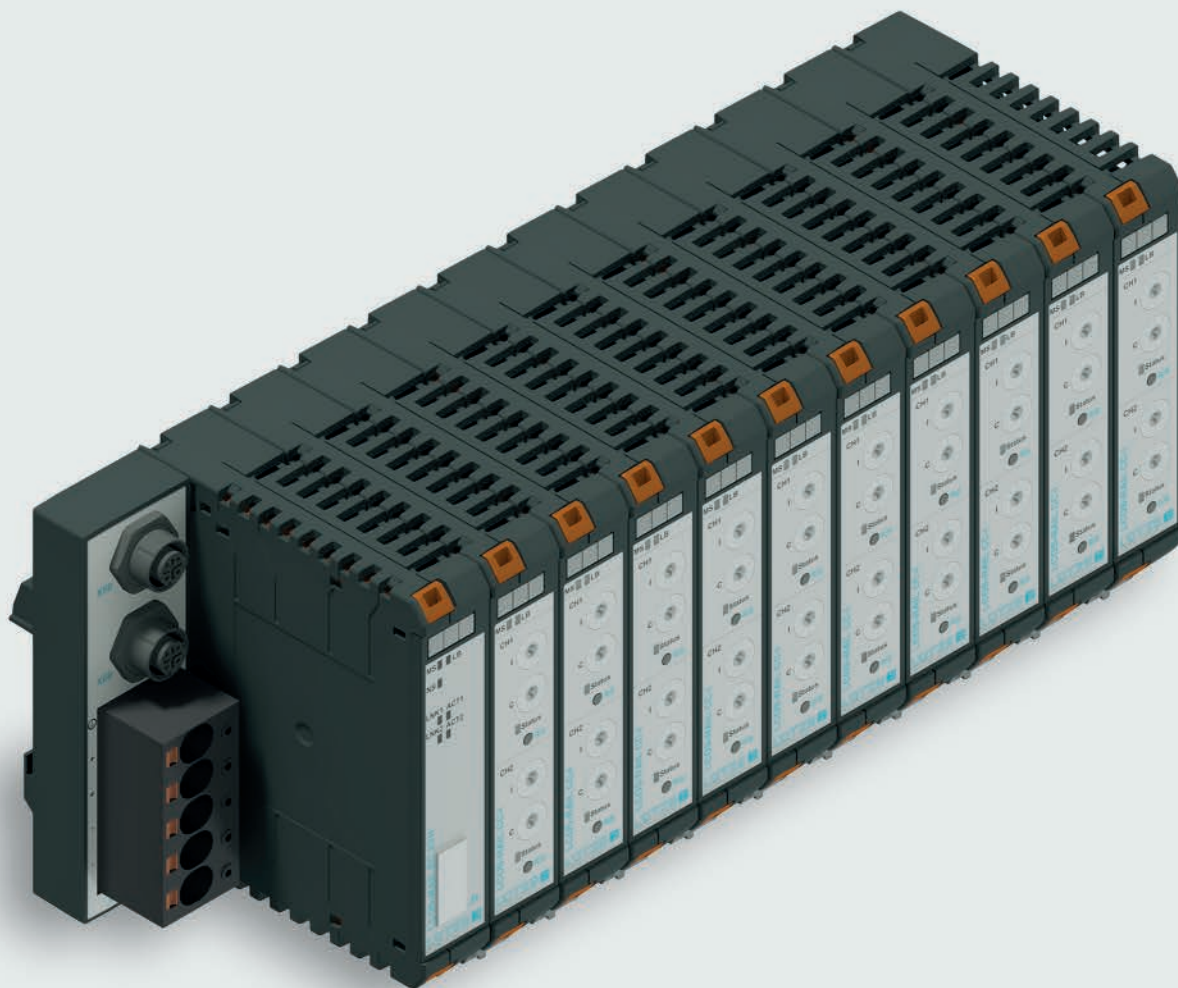
LUNA – System for data collection for predictive maintenance on trains



The new intelligent control system LUNA enables intelligent switching, monitoring, and protecting of 24 V actuators on trains. By connecting to Ethernet TRDP, the connected actuators can be remotely switched on and off. This allows installation even in inaccessible locations. Through continuous current monitoring, upcoming failures of the consumers can be detected early based on the collected data and replaced as part of preventive maintenance.

The LUNA system consists of a TRDP bus coupler, current monitoring modules, compact supply modules Ethernet and compact extension modules. The current monitoring modules feature a 2-pole disconnection with galvanic isolation, adjustable current ranges up to 10 A, and 5 different characteristics. The compact power supply- and extension modules are available with 6 or 11 slots, and allow supply currents up to 100 A.

LUNA – System



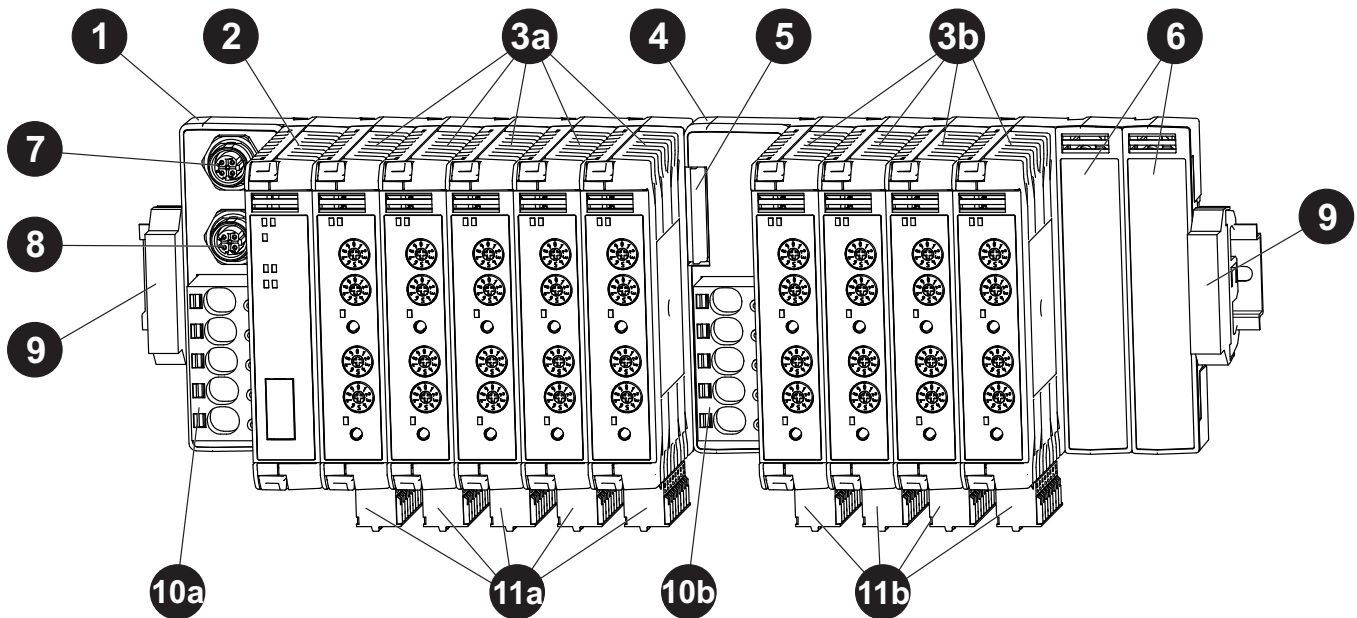
Key Features

- Ethernet TRDP bus coupler
- 2-channels per module
- 2-pole switching with galvanic isolation
- Current ranges up to 10 A per channel
- 5 different characteristics
- Triggering behavior independent of temperature
- Parameter setting optionally via configuration data or rotary switch
- Up to 32 current control modules per bus coupler
- Supply current up to 100 A per supply- or extension module
- DIN rail mounting
- Simple commissioning and configuration using the LÜTZE LUNA Configuration Framework Tool (LUNA LCF)

Product Overview

Type	Part no.	Description
Bus Coupler	819600	Bus coupler LUNA BC-TRDP
Current Monitoring Modules	819601.0606	Current monitoring module LUNA CC-I 6 A / 6 A
	819601.1006	Current monitoring module LUNA CC-I 10 A / 6 A
	819601.1010	Current monitoring module LUNA CC-I 10 A / 10 A
Infrastructure Components	819602.006	Compact supply module Ethernet LUNA ES 6 slots
	819602.011	Compact supply module Ethernet LUNA ES 11 slots
	819603.006	Compact extension module LUNA EW 6 slots
	819603.011	Compact extension module LUNA EW 11 slots

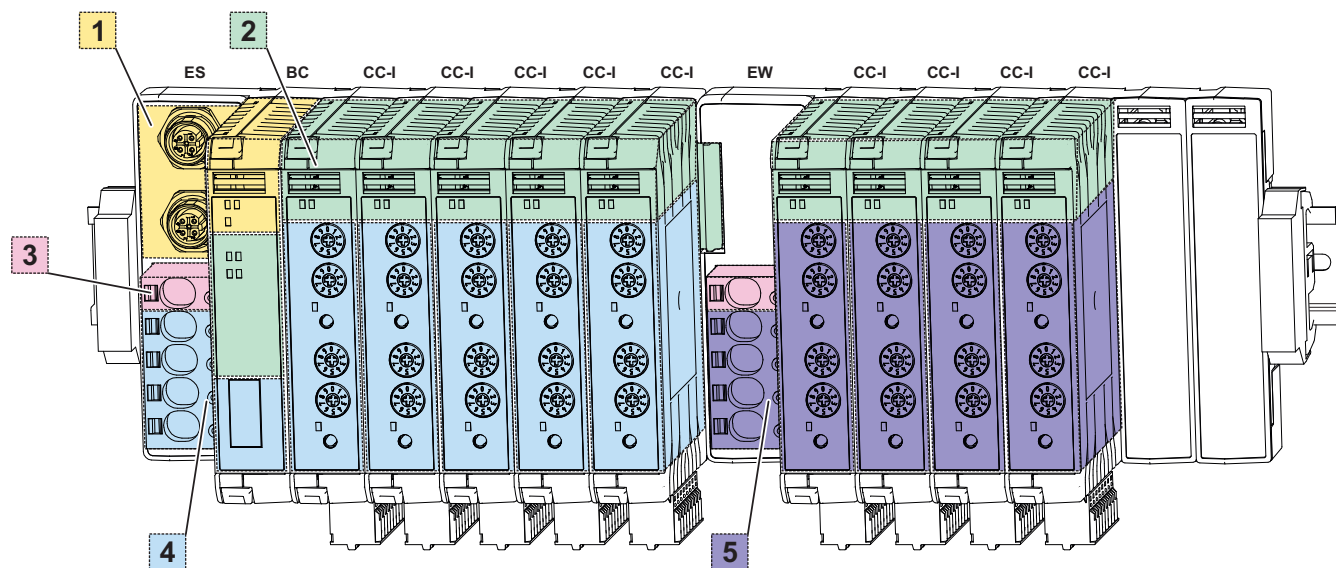
System Structure – LUNA



No.	Description
1	Backplane: Compact supply module Ethernet LUNA ES
2	Bus coupler LUNA BC-TRDP (supply voltage area A)
3a / 3b	Current monitoring modules LUNA CC-I (supply voltage area A) / Current monitoring modules LUNA CC-I (supply voltage area B)
4	Backplane: Compact extension module LUNA EW
5	Extension connection data bridge
6	Cover for module slot
7 / 8	Ethernet connectors 100BaseT, M12 D-coded, female
9	End bracket
10a / 10b	Supply Powerbus (supply voltage area A) / Supply Powerbus (supply voltage area B)
11a / 11b	Connection terminals current monitoring modules (supply voltage area A) / Connection terminals current monitoring modules (supply voltage area B)

LUNA – System

Operating Bus Systems – LUNA



No.	Description
1	Fieldbus: Ethernet TRDP (Train Realtime Data Protocol) acc. to IEC 61375-2-3 and diagnostic via LUNA web server
2	Internal data bus: The backbone of LUNA is the internal L-BUS ² (LÜTZE bus), via all data is exchanged between the current control modules (DEVICES) and the bus coupler (HEAD). In case of a malfunction of one or several DEVICES, the HEAD can unambiguously record this malfunction and continue to address the intact modules. The functionality and availability of the overall system is retained despite the malfunction.
3	PE / shielding
4	Power bus - compact supply module Ethernet (max. 100 A)
5	Power bus - compact extension module (max. 100 A)

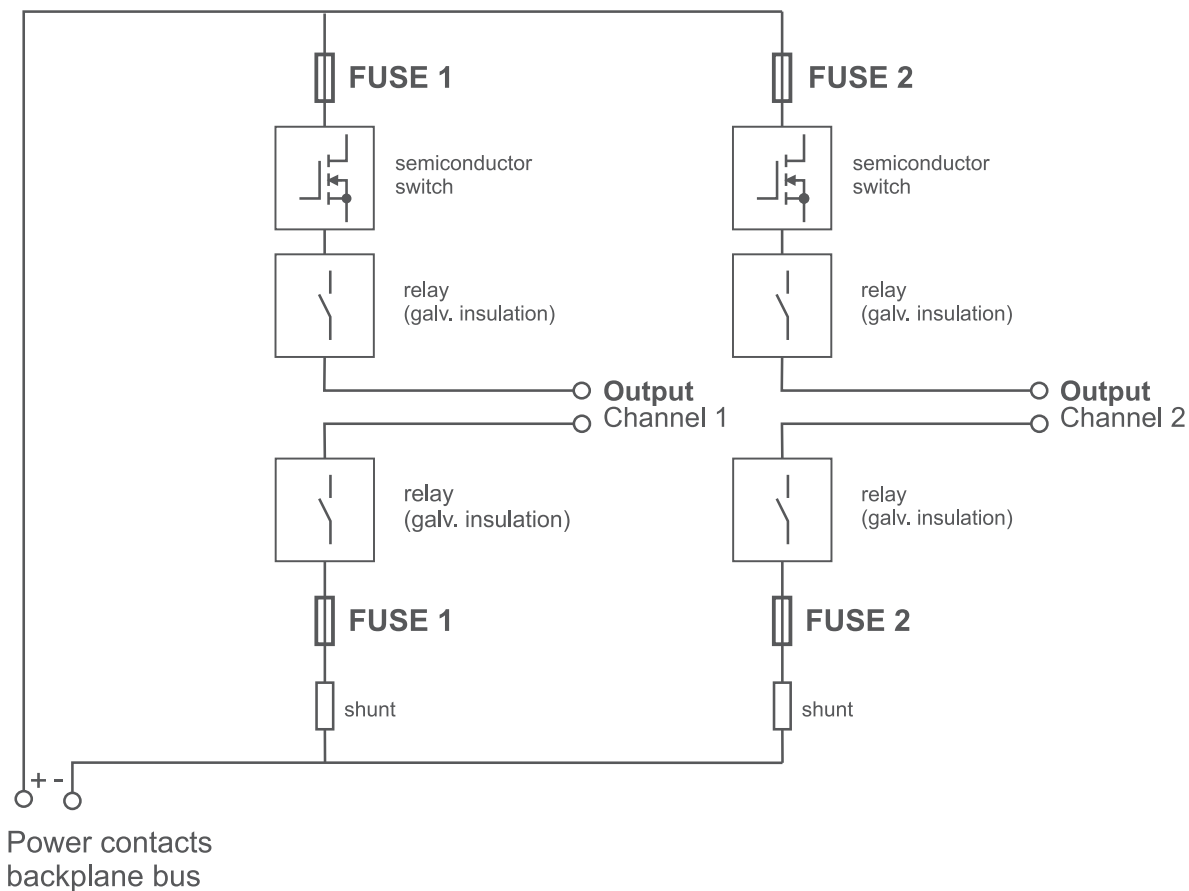
Functionality – LUNA CC-I

In the event of a fault or overcurrent, a semiconductor switch interrupts the current flow in the positive path. Then a relay contact opens in both the positive and negative paths, ensuring a 2-pole, galvanically isolated disconnection. All LUNA CC-I modules have a fixed installed back-up fuse in both the positive and negative paths to ensure cable protection in the event of an electronics failure. The 6 A channels are protected by a 10 A fuse and the 10 A channels by a 15 A fuse. The cross-sections of the connected cables must be dimensioned according to the tripping current of these fuses.

819601.1010: FUSE 1: 15A / FUSE 2: 15A

819601.1006: FUSE 1: 15A / FUSE 2: 10A

819601.0606: FUSE 1: 10A / FUSE 2: 10A



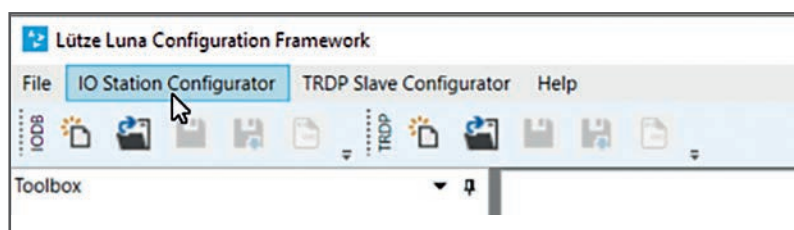
LÜTZE LUNA Configuration Framework Tool

The LÜTZE LUNA Configuration Framework Tool is used to generate configuration files for the HEAD (bus coupler) and to configure a LUNA system.

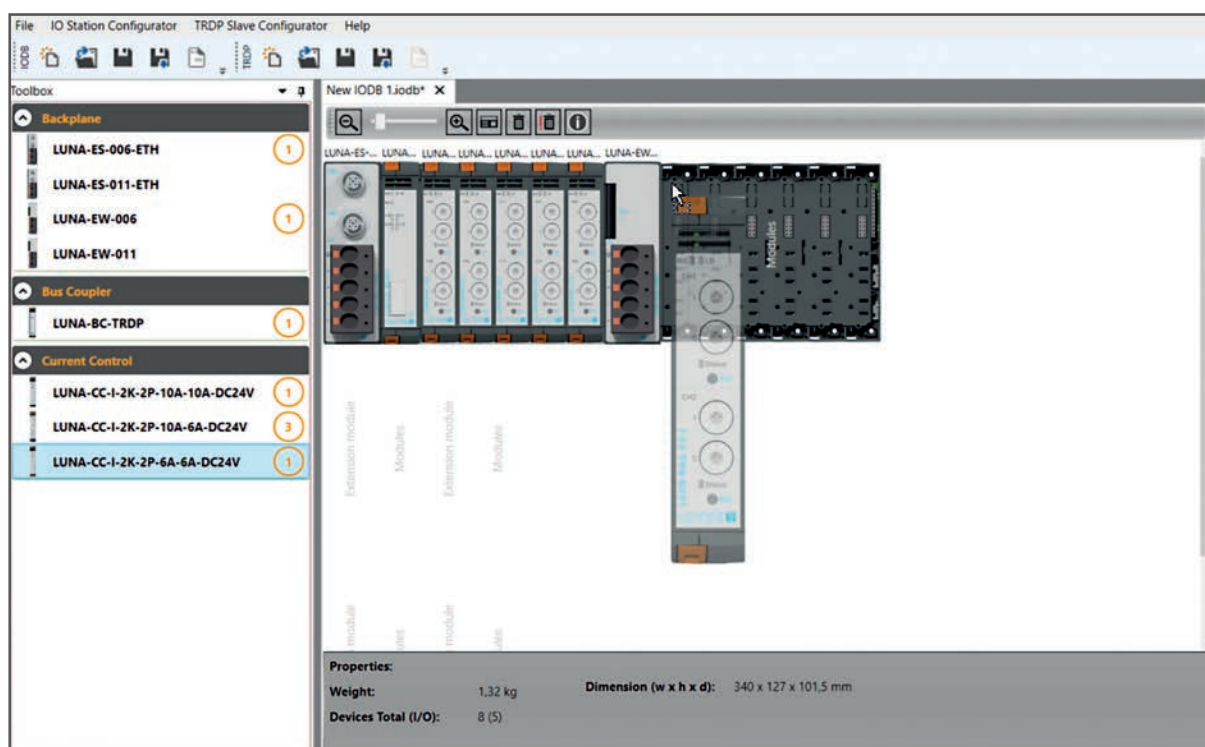
The LCF is an innovative software platform of the LUNA system. It supports the user during all project phases, starting with the planning of the LUNA stations, through the fieldbus configuration to the configuration of the LUNA CC-I modules.

The LCF contains two configuration components:

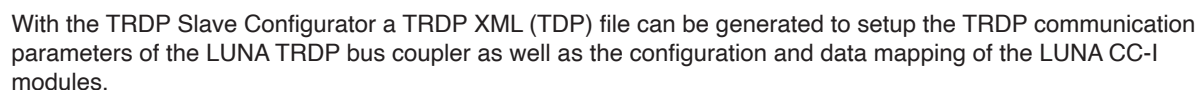
I/O Station Configurator



The composition of the LUNA station is configured in the I/O Station Configurator. This includes all components of the LUNA system.



TRDP Slave Configurator

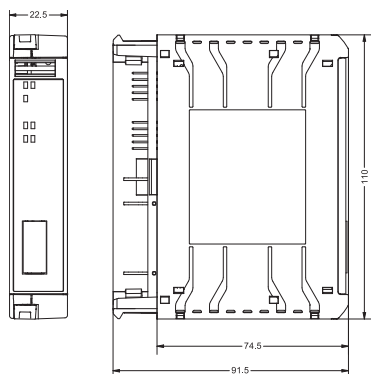


Technical Data – LUNA

Bus Coupler Ethernet TRDP



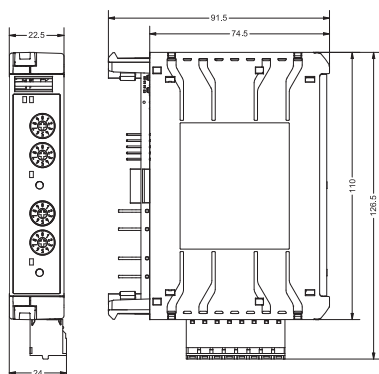
Part no.	819600
Type	LUNA BC-TRDP
Safety integrity	Basic integrity according to EN 50657
Fieldbus	Ethernet 802.3, 100 Base TX 2 with TRDP (TCNOpen V1.4.1.0)
Local bus	L-Bus ² Interface for local I/O modules
Module type	HEAD (Master)
	Max. number of connectable slaves: 32
Diagnostics and configuration	Via Webserver: Default IP 10.0.1.29 (Bridge Mode)
Operating voltage	DC 24 V
Operating temperature	-40 °C to +70 °C
Dimensions (w x h x d)	22.5 mm x 110.0 mm x 91.5 mm
Standards	EN 50155, EN 50121-3-2, EN 50124-1, EN 61373, Regelung Nr. EMV 06, EN 45545-2



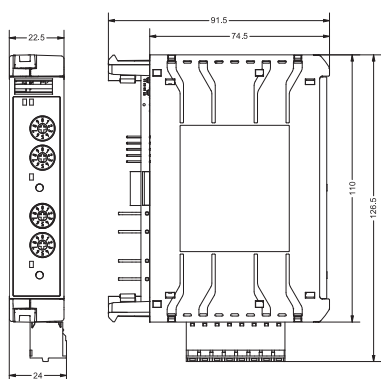
Current Monitoring Modules



Part no.	819601.0606
Type	LUNA CC-I 2K-2P 6A / 6A DC 24V
Local bus	L-Bus ²
Module type	DEVICE (Slave)
Data capacity in process image	2 Byte outputs / 30 Byte inputs / Configuration data (see operating manual)
Operating voltage	DC 24 V
Output current	Channel 1: DC 1 A - 6 A Channel 2: DC 1 A - 6 A (adjustable via switch or configuration data in 1 A steps) Total output current of the module (permanent): DC 12 A
Back-up fuse	Per channel: 10 A
Characteristic	Per channel: fast, medium, slow 1, slow 2, slow 3 (adjustable via switch or configuration data)
Switching element	MOSFET transistor + 2 relays
Connection type	Push-In terminals, pluggable
Operating temperature	-40 °C to +70 °C
Dimensions (w x h x d)	22.5 mm x 110.0 mm x 91.5 mm
Standards	EN 50155, EN 50121-3-2, EN 50124-1, EN 61373, Regelung Nr. EMV 06, EN 45545-2

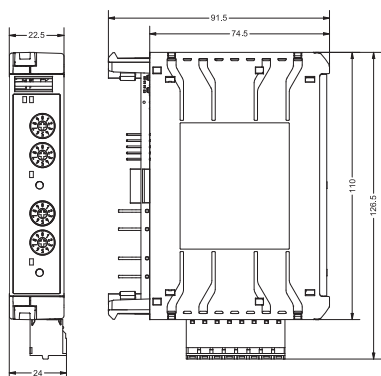


Current Monitoring Modules



Part no.	819601.1006
Type	LUNA CC-I 2K-2P 10A / 6A DC 24V
Local bus	L-Bus ²
Module type	DEVICE (Slave)
Data capacity in process image	2 Byte outputs / 30 Byte inputs / Configuration data (see operating manual)
Operating voltage	DC 24 V
Max. output current	Channel 1: 1 A - 10 A Channel 2: 1 A - 6 A (adjustable via switch or configuration data in 1 A steps) Total output current of the module (permanent): DC 14 A
Back-up fuse:	Channel 1: 15 A / Channel 2: 10 A
Characteristic	Per channel: fast, medium, slow 1, slow 2, slow 3 (adjustable via switch or configuration data)
Switching element	MOSFET transistor + 2 relays
Connection type	Push-In terminals, pluggable
Operating temperature	-40 °C to +70 °C
Dimensions (w x h x d)	22.5 mm x 110.0 mm x 91.5 mm
Standards	EN 50155, EN 50121-3-2, EN 50124-1, EN 61373, Regelung Nr. EMV 06, EN 45545-2

Current Monitoring Modules



Part no.	819601.1010
Type	LUNA CC-I 2K-2P 10A / 10A DC 24V
Local bus	L-Bus ²
Module type	DEVICE (Slave)
Data capacity in process image	2 Byte outputs / 30 Byte inputs / Configuration data (see operating manual)
Operating voltage	DC 24 V
Max. output current	Channel 1: DC 1 A - 10 A Channel 2: DC 1 A - 10 A (adjustable via switch or configuration data in 1 A steps) Total output current of the module (permanent): DC 14 A
Bak-up fuse	Per Channel: 15 A
Characteristic	Per channel: fast, medium, slow 1, slow 2, slow 3 (adjustable via switch or configuration data)
Switching element	MOSFET transistor + 2 relays
Connection type	Push-In terminals, pluggable
Operating temperature	-40 °C to +70 °C
Dimensions (w x h x d)	22.5 mm x 110.0 mm x 91.5 mm
Standards	EN 50155, EN 50121-3-2, EN 50124-1, EN 61373, Regelung Nr. EMV 06, EN 45545-2

Technical Data – LUNA

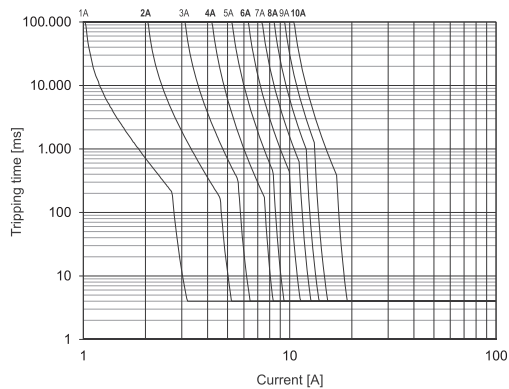
Current Monitoring Modules - Characteristics

The LUNA CC-I modules feature 5 triggering characteristics per channel, which can be set via switch or configuration data.

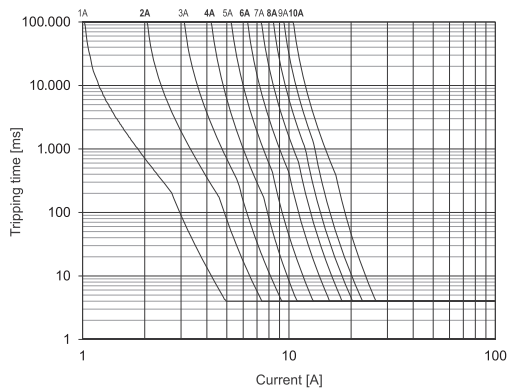
These five characteristic curves were reproduced electronically and have significantly less tolerances than typical characteristic curves based on magnetic or thermal principles.

The electronically simulated characteristic curves offer a much more reliable and consistent performance.

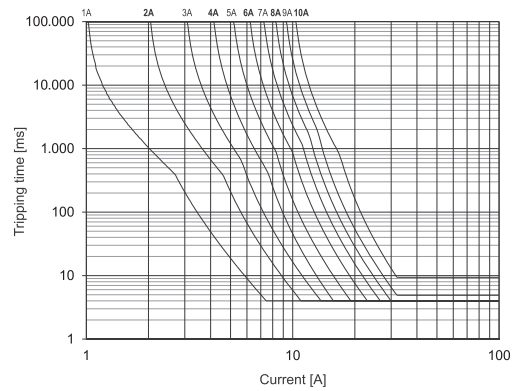
1. Characteristic fast



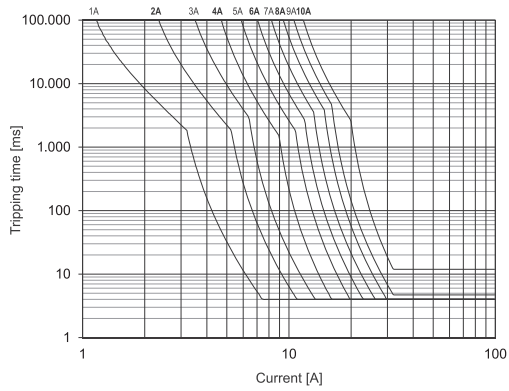
2. Characteristic medium



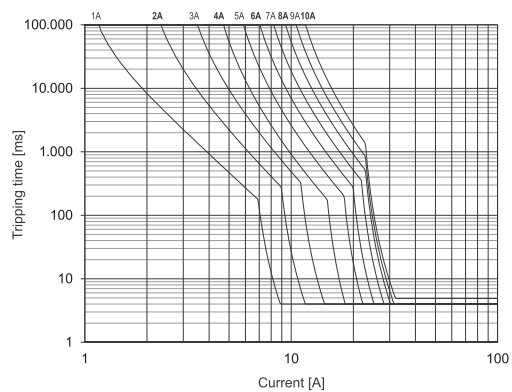
3. Characteristic slow-1



4. Characteristic slow-2



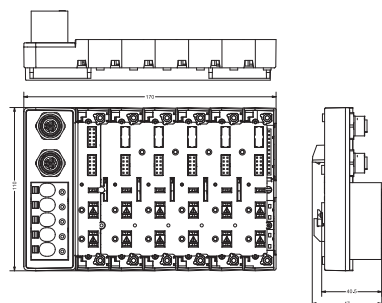
5. Characteristic slow-3



Compact Supply Module Ethernet 6 slots



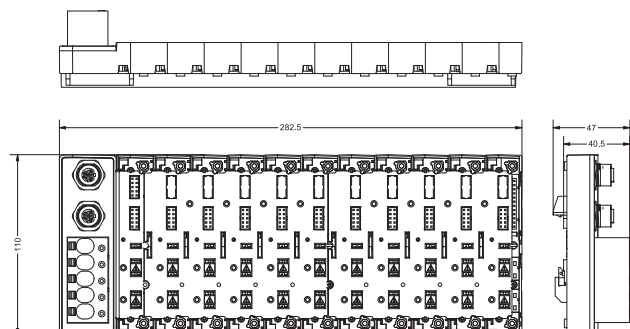
Part no.	819602.006
Type	LUNA ES-006 ETH
Number of slots	6
Fieldbus	Ethernet 802.3, 100 Base TX
Local bus	L-Bus ² Interface for local I/O modules
Module type	Generic
Connection type fieldbus	M12 female connector, 4-Pin, D-coded
Supply voltage	DC 24 V
Supply current	Max. 100 A (max. 50 A per pin)
Connection type supply	Push-In, 5-pole, max. 16 mm ²
Operating temperature	-40 °C to +70 °C
Dimensions (w x h x d)	170.0 mm x 110.0 mm x 47.0 mm
Standards	EN 50155, EN 50121-3-2, EN 50124-1, EN 61373, Regelung Nr. EMV 06, EN 45545-2



Compact Supply Module Ethernet 11 slots

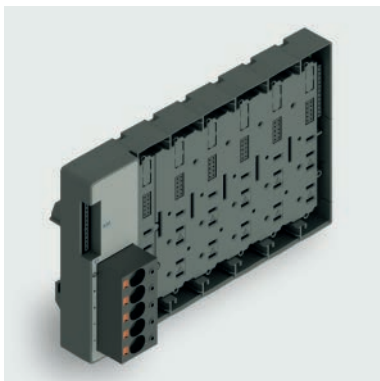


Part no.	819602.011
Type	LUNA ES-011 ETH
Number of slots	11
Fieldbus	Ethernet 802.3, 100 Base TX
Local bus	L-Bus ² Interface for local I/O modules
Module type	Generic
Connection type fieldbus	M12 female connector, 4-Pin, D-coded
Supply voltage	DC 24 V
Supply current	Max. 100 A (max. 50 A per pin)
Connection type supply	Push-In, 5-pole, max. 16 mm ²
Operating temperature	-40 °C to +70 °C
Dimensions (w x h x d)	282.5 mm x 110.0 mm x 47.0 mm
Standards	EN 50155, EN 50121-3-2, EN 50124-1, EN 61373, Regelung Nr. EMV 06, EN 45545-2

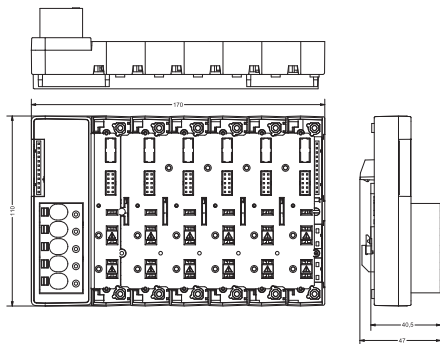


Technical Data – LUNA

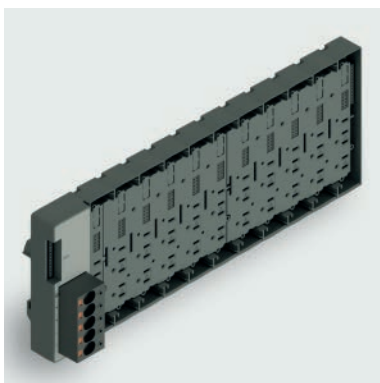
Compact Extension Module 6 slots



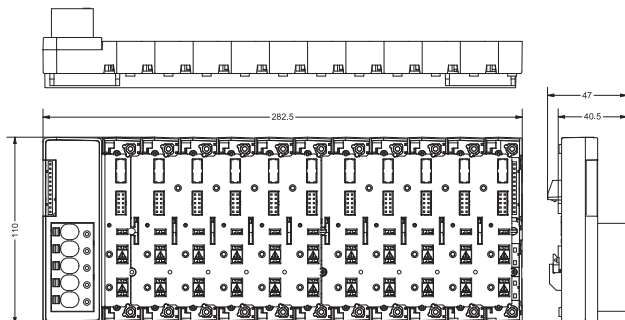
Part no.	819603.006
Type	LUNA EW-006
Number of slots	6
Local bus	L-Bus ² Interface for local I/O modules
Supply voltage	DC 24 V
Supply current	Max. 100 A (max. 50 A per pin)
Connection type supply	Push-In, 5-pole, max. 16 mm ²
Operating temperature	-40 °C to +70 °C
Dimensions (w x h x d)	170.0 mm x 110.0 mm x 47.0 mm
Standards	EN 50155, EN 50121-3-2, EN 50124-1, EN 61373, Regelung Nr. EMV 06, EN 45545-2



Compact Extension Module 11 slots

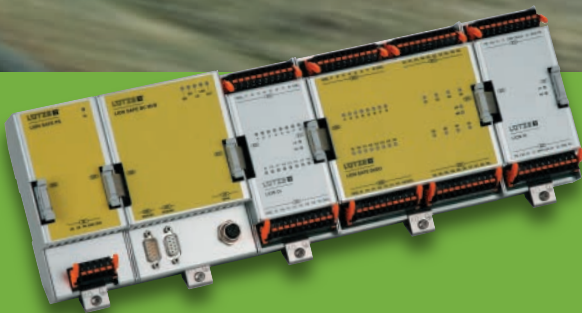


Part no.	819603.011
Type	LUNA EW-011
Number of slots	11
Local bus	L-Bus ² Interface for local I/O modules
Supply voltage	DC 24 V
Supply current	Max. 100 A (max. 50 A per pin)
Connection type supply	Push-In, 5-pole, max. 16 mm ²
Operating temperature	-40 °C to +70 °C
Dimensions (w x h x d)	282.5 mm x 110.0 mm x 47.0 mm
Standards	EN 50155, EN 50121-3-2, EN 50124-1, EN 61373, Regelung Nr. EMV 06, EN 45545-2



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