

THORN

Voyager emGuard

Datasheet

DALI-2 Emergency Monitoring



DALI-2 Emergency Monitoring Device
with integrated DALI bus power supply

Art. Nr. 96802177

Voyager emGuard DT1 Monitor and Bus Power Supply

Overview


- Monitoring for emergency lighting systems: Display of the emergency lighting system status via LED on the device
- Start emergency light function tests and duration test via button on the device
- Changeover relay in case of error status
- Integrated DALI bus supply (220mA) suitable for supplying a complete DALI circuit with 64 standard DALI devices
- Suitable for DIN rail mounting
- Supply voltage range of 120Vac ... 240Vac for worldwide use
- Immune to mains surges up to 400V



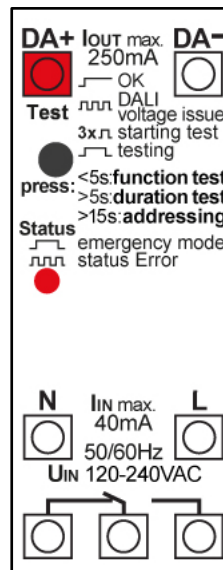
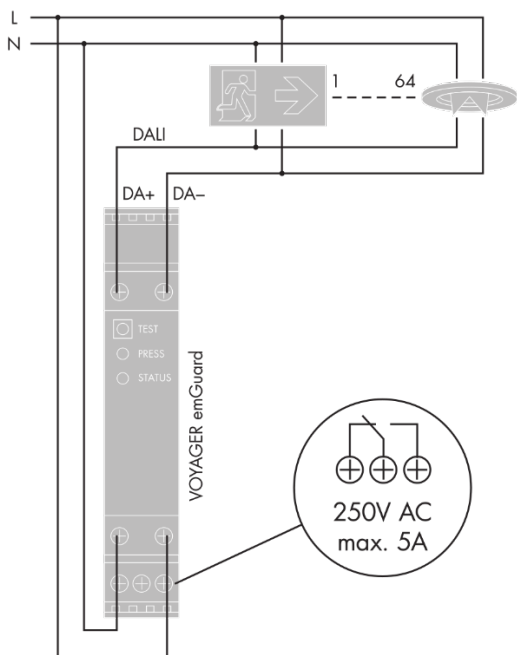
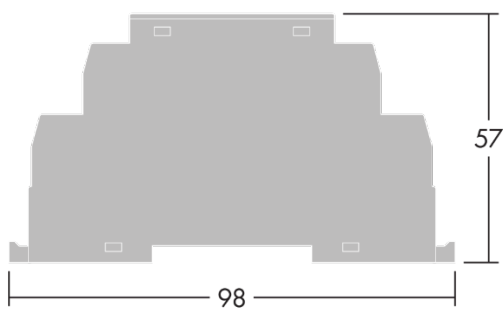
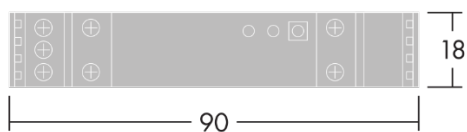
Specification, Characteristics

type	Voyager emGuard
article number	968021772
input: L, N	
input type	supply, mains voltage
marking input terminals	L, N
input voltage range	120Vac ... 240Vac
max. input supply current	40mA (@120Vac), 20mA (@240Vac)
input supply frequency	50Hz / 60Hz
max. power consumption	5,3W
start-up time	250ms
output: DA+, DA-	
output type	DALI power supply
marking output terminals	DA+, DA-
output voltage range	12Vdc ... 20,5Vdc
DALI supply current	250mA
guaranteed DALI supply current	200mA
max. DALI supply current	250mA
open circuit proof	yes
short circuit proof	yes
shutdown-mechanism	yes

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output: changeover relay	
output type	changeover relay
marking output terminals	
relay output switch on/off voltage	HW V2: 250Vac
max. nominal load	HW V2: ---
max. switching current	HW V2: 5A
type of relay contact	1 changeover
switching operations at nominal load, resistive	HW V2: >15*10 ⁶
isolation data	
impulse voltage category	II
pollution degree	2
rated insulation voltage	250V
rated impulse withstanding voltage	4kV
insulation DALI / mains	reinforced isolation
Insulation test voltage DALI / mains	3000Vac
environmental conditions	
storage and transportation temperature	-20°C ... +75°C
operating ambient temperature	-20°C ... +55°C
rel. humidity, none condensing	15% ... 90%
general data	
dimensions (l x w x h)	98mm x 17,5mm x 56mm
mounting	DIN rail
rated maximum temperature tc	75°C
expected life time @tc	100000 h
protection class	II in intended use
protection degree	IP20
terminals	
connection type	screw connector
wire size solid core	0,5 ... 2,5 mm ² (AWG20 ... AWG14)
wire size fine wired	0,5 ... 2,5 mm ² (AWG20 ...AWG14)
wire size using wire end ferrule	0,25 ... 1,5 mm ²
stripping length	7 mm / 0,27 inch
locking torque	0,5Nm
release of wire	open screw
standards	
DALI	EN 62386-101:2014
EMC	EN 61547 EN 50015 / IEC CISPR15
safety	EN 61347-2-11 EN 61347-1
markings	DALI-2, UKCA, CE

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Installation

- The DALI-2 EM Guard is intended for DIN rail mounting
- Ensure protection against electric shock by an appropriate enclosure
- The wiring should be carried out as a permanent installation in a dry and clean environment.
- Installation may only be carried out in a voltage-free state of the system and by qualified specialists.
- National regulations for setting up electrical systems must be followed.
- Connect power supply terminals L and N to mains voltage according to the labelling.
- the polarity of the output voltage is marked on the housing (DA+, DA-).
- Make sure that the guaranteed supply current exceeds the current consumption of all bus devices.
- The DALI line may be routed together with the mains voltage (in one cable or as single wires in a tube)
- The DALI-line must **not** be connected to the mains or extra low voltage systems.
- The DALI wiring can be realised with standard low-voltage installation material. No special cables are required.
- Wiring topology of the DALI-line: Line, Tree, Star






Attention: The DALI-signal is not classified as SELV circuit (Safety Extra Low Voltage). Therefore, the installation regulations for low voltage apply.



The voltage drop on the DALI line must not exceed 2V at maximum length (300m) and maximum bus load (250mA).

Commissioning

The DALI-2 EM Guard is ready for use after connecting. To monitor the emergency lighting system, the number of emergency lighting devices must be set once via the DALI Cockpit (see “Addressing via DALI Cockpit”) or by addressing via the button on the device (see “Addressing via device button”). On power up the DALI EM Guard performs a self-test, both LEDs flash and the relay switches. During operation, the LEDs display the following information:

- **Test-LED** 
 - **off:** device is not powered
 - **constant on:** DALI voltage ok (and non of the monitored devices is currently carrying out a test)
 - **short flashing:** DALI supply voltage not ok
 - **flashing 3times:** a test was started
 - **long flashing:** one or more emergency lighting devices are carrying out a test. (functional or duration test)
- **Status-LED** 
 - **long flashing:** one or more devices are in emergency light mode / battery powered
 - **short flashing:** status error
 - **constant on:** status ok
 - **off** (after extra long button press 15s): device initializing /addressing, see section “Addressing via device button”
- **Button on the device:** 
 - **short press** (<5s): starts function test for all emergency-light gears (broadcast)
 - **long press** (> 5s): starts duration test for all emergency-light gears (broadcast). The test is triggered by pressing a button; whether the test is carried out immediately depends on the emergency lighting device (e.g. if the battery is not fully charged, the test is postponed).
 - **extra long press** (> 15s): start addressing – newly addressing the system (old addresses are deleted).

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Addressing via device button

Once connected, the DALI system can be addressed and the number of emergency lighting devices can be registered via the button on the DALI-2 EM Guard without additional commissioning software.

Prerequisite: the DALI DT1 "Identify" state must be supported by all emergency lighting devices used, e.g. flashing of an additional LED on the device or the lamp itself. This state is not necessarily available for all emergency lighting devices.

Step 1: Extra long press of the button on the DALI-2 EM Guard, >15s, until the status LED goes out: addressing is started.

Attention, all devices (16-bit gears) on the DALI bus are newly addressed including devices that are not emergency lights (DT1). This process can take several minutes depending on the number of devices. During addressing, no other devices (e.g. DALI Cockpit, central control, ...) may send on the DALI bus.

Step 2: After addressing, all emergency lighting devices found, are put into the "Identify" state.

The indication/flashing of the emergency lighting devices in "Identify" state, can be used to check whether all emergency lighting devices in the system have been found and addressed.

The "Identify" state can then be acknowledged with a short press of the DALI-2 EM Guard button.

If not all emergency lighting devices were in "Identify" state, the wiring should be checked and addressing carried out again. Otherwise, it cannot be guaranteed that all DT1 devices are being monitored by the DALI-2 EM Guard.

When the "Identify" is completed, the number of emergency lighting devices found is registered in the DALI-2 EM Guard and the status of these devices is queried (duration: several minutes, depending on the number of devices). The status LED changes from OFF to the respective state.

Switching output – changeover relay

In the event of an error, the signal can be passed on to a higher-level control unit via the switching output.

Displayed error cases

The following situations are considered error cases:

- no devices on the DALI bus
- too many or too few devices on the DALI bus: more or fewer devices respond than were registered during addressing/commissioning
- no power supply to the EM Guard
- all failure feedback from the emergency devices selected as error cases.