Technical data 2CDC507129D0202

ABB i-bus® KNX
DALI Light Controller, 4f, AP
DLR/A 4.8.1.1, 2CDG110172R0011

Product description

The ABB i-bus® KNX DALI Light Controller DLR/A 4.8.1.1 is a KNX device surface-mounted (SM) device for installation in suspended ceilings or underfloor.

The DALI Light Controller can in conjunction with the application program *Control Dim Groups 4f DALI/1* integrate devices with DALI interfaces into a KNX building installation. The connection to KNX is implemented via a bus connection terminal.

The 4 sensor inputs for the Light Sensor LF/U together with the first 4 lighting groups of the DALI Light Controller can be used for a constant lighting control.

The DALI output can be used to connect up to 64 DALI devices. The 64 DALI devices should be assigned into 8 lighting groups with the ETS independent Software Tool. Control of the 64 DALI devices via KNX is exclusively group-orientated.

The fault status (lamps and ballasts) of every individual DALI device can be sent via a coded communication object on the KNX.

In the DLR/A, a staircase lighting time curve can be set. Constant lighting control can be combined with a staircase lighting time curve, so that constant lighting control can be implemented during the staircase lighting time curve.

The 8 lighting groups can be integrated into scenes as required. Using a 1 bit or 8 bit KNX scene telegram, these scenes can then be recalled or stored via the KNX. Furthermore, a *master/slave* function with integrated offset is available that can be used to integrate further lighting groups or dimming actuators into the lighting control.

Using central telegrams, all the DALI devices connected to a DALI output can be commonly controlled via the KNX (broadcast).

The DLR/A is a DALI control device (master) and requires an AC or DC auxiliary power supply. The DALI power source for the 64 DALI devices is integrated into the DALI Light Controller. In order to control the DALI devices manually or via the KNX, the KNX voltage and the auxiliary voltage (light controller supply voltage) must be applied. Should one of these voltage sources be absent, the DALI devices can no longer be controlled. The behavior of the DALI devices on voltage failure can be parameterized.

All the DALI devices connected can be commonly turned on or off via manual operation on the device.

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Supply	Light controller supply voltage	100…240 V AC (+10 %/-15 %) 85…265 V AC, 50/60 Hz 110…240 V DC
	Power consumption total via mains	Maximum 3.5 W at 230 V AC and max. load [1]
	Current consumption total via mains	Maximum 15 mA at 230 V AC and max. load [1]
	Leakage loss total for device	Maximum 1.6 W at 230 V AC and max. load [1]
	KNX voltage	21…31 V DC
	Current consumption KNX	Maximum 10 mA
	Power consumption via KNX	Maximum 210 mW
DALI output	Number of outlets	1 to DIN EN 62386 (Part 101 and 102) The DALI output is a fixed 230 V, i.e. unintentional application of the light controller supply voltage will not cause destruction of the DALI output.
	Number of DALI devices	Maximum 64
	Number of lighting groups	8
	Distance between DLR/A and last DALI device	
	Cable cross-section:	
	0.50 mm^2	100 m [2]
	0.75 mm^2	150 m [2]
	1.00 mm^2	200 m [2]
	1.50 mm^2	300 m [2]
Sensor inputs	Light Sensor LF/U 2.1	Detailed information Light Sensor LF/U 2.1, page 18
	Number of inputs	4
	Max. cable length per sensor	Per light sensor 100 m, Ø 0.8 mm, P-YCYM or J-Y(ST)Y cable (SELV), e.g. shielded KNX bus cable
Connections	KNX, DALI, Light Sensor, line voltage	Plug-in screw terminals: 0.2…2.5 mm^2 single core or stranded 0.2…2.5 mm^2 ferrules 0.2…1 mm^2 2 rigid conductors, same cross section 0.2…1.5 mm^2 2 flexible conductors, same cross section
	Tightening torque	Maximum 0,6 Nm
Brightness detection	Lighting control operating range	Optimized for 500 Lux. 200 ..1,200 Lux for rooms with average furnishing level degree of reflection 0.5 Max. 860 Lux in a very brightly furnished room (reflection 0.7) Max. 3,000 Lux in a very darkly furnished room (reflection 0.2) The Lux values are measured values on the work surface (reference surface) [3]

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Operating and display elements	Button	DALI output test
	Button/LED	For assignment of the physical address
	LED	Display for operation readiness
	LED	For displaying DALI fault, constant light
		For displaying test operation, slow flashing
		For displaying initialization or more than 64 DALI devices, quick flashing
Degree of protection	IP 54	Compliant to EN 60 529
Protection class	II	Compliant to EN 61 140
Isolation category	Overvoltage categor	III to DIN EN 60 664-1
	Pollution degree	2 to DIN EN 60 664-1
	Atmospheric pressure	Atmosphere up to 2,000 m
KNX safety extra low voltage	SELV 24 V DC	
DALI voltage	Typical 16 V DC (9.5…22.5 V DC)	To DIN EN 60 929 and DIN EN 62 386
	No-load voltage	16 V DC [4]
	Lowest supply current at 11.5 V	160 mA
	Highest supply current	230 mA
Temperature range	Operation	-5 °C…+45 °C
	Storage	-25 °C…+55 °C
	Transport	-25 °C…+70 °C
Environmental conditions	Humidity	Maximum 95 %, no condensation allowed
Design	Surface mounted device	Screw fixing
	Dimensions	147 x 202 x 50 mm (H x W x D)
Mounting Position	As required	
Weight	0.66 kg	
Housing, color	Plastic housing, halogen-free, gray	
Approvals	KNX to EN 50 090-1, -2	Certification
	EN 62386 (Part 101 and 102)	DALI
CE mark	In accordance with the EMC guideline and low voltage guideline	

[1] Maximum load corresponds to 64 DALI devices at 2 mA each.
[2] The length relates to the entire routed DALI control cable.
The maximum values are rounded off and relate to the resistance value. EMC influences are not considered. For this reason, the values should be considered as absolute maximum values.
[3] Rooms are lit up differently by the incidental daylight and the artificial light of the lamps. Not all the surfaces in the rooms, e.g. walls, floor and furniture, reflect the light which falls on them in the same manner. Accordingly, even though there is an exactly calibrated constant light control in daily operation, deviations to the setpoint value may occur. These deviations may be up to +/- 100 lx, should the current ambient conditions in the room, and accordingly the reflection properties of the surfaces (paper, people, reorganized or new furniture), differ significantly from the original ambient conditions at the time of calibration. Deviations may also occur if the light sensor is influenced by direct or reflected light falling on it, which is not influenced or only slightly influenced by the surfaces in the detection range of the light sensor.
[4] Cannot be measured directly on the digital multimeter, as there is not a constant DC voltage due to the DALI telegrams. Measure with a CRO for correct results. One exception is the KNX download phase. In this phase, no DALI telegrams are sent, whereby the DALI voltage is constantly present on the DALI output.

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Note

The DALI gateway conforms to the SELV properties to IEC 60 364 4 41 (DIN VDE 0100 410).

DALI does not need to feature SELV properties, and it is possible to route the DALI control lines together with the mains voltage on a multi-core cable.

All-pole disconnection must be ensured in order to avoid dangerous touch voltages which originate from feedback from differing phase conductors.

Installation must be performed so that both DALI lines and lines carrying mains voltage are disconnected when an area is disconnected.

Device type	Application	Max. number of communication objects	Max. number of group addresses	Max. number of associations
DLR/A 4.8.1.1	Control Dim Groups 4f DALI/1*	212	254	255

* … = current version number of the application. **Please observe the software information on our homepage for this purpose.**

Note

For a detailed description of the application see the *DALI Light Controller DLR/A 4.8.1.1* product manual. It is available free-of-charge at *www.abb.com/knx*.

The ETS and the current version of the device application are required for programming.

Editing parameters with ETS2 is **not** possible!

The current application program can be found with the respective software information for download on the Internet at *www.abb.com/knx*. After import in the ETS, the application is available under *ABB/Lighting/Light Controller/Control Dim Groups 4f DALI/1.*

The device does not support the locking function of a KNX device in the ETS. If you inhibit access to all devices of the project with a *BCU code*, it has no effect on this device. Data can still be read and programmed.

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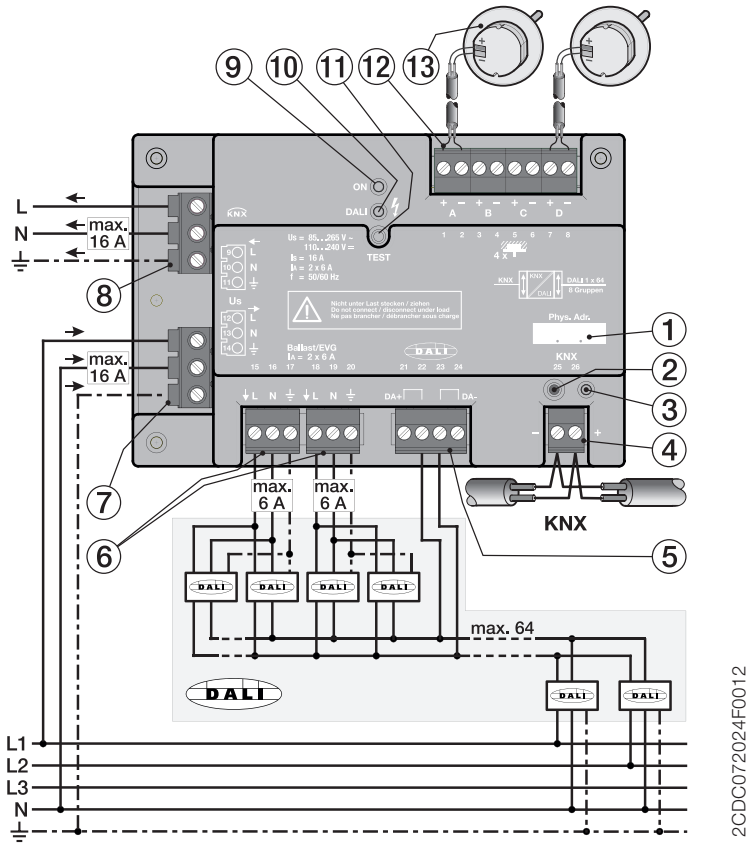
Connection schematic



1 Labeling area
2 Button *Programming*
3 LED *Programming* (red)

4 Connection terminal KNX
5 Connection terminal DALI
6 Terminal clamp Rated voltage Ballast
7 Terminal clamp Rated voltage IN
8 Terminal clamp Rated voltage OUT
9 LED *Operation* (green)
10 LED *Fault* (yellow)

11 Button DALI
12 Terminal clamp Light Sensor LF/U
13 Light Sensor LF/U

Note

When positioning the Light Sensor LF/U in the room, it is important to ensure that the individual control circuits cannot interfere with one another. The LF/U should be mounted above the area, in which the actual lighting intensity is measured.

The luminaires or sunlight may not shine directly into the brightness sensor. Pay attention to unfavorable reflections, for example, from mirrored or glass surfaces.

The white fibre-optic rod can limit the detection range and reduce the lateral lighting sensitivity to external lighting sources.

Note

If the LF/U is not connected to the DLR/A, a DC voltage of a few mV can be measured directly with a multi-function measurement device. The measured value is between 0 mV (absolute darkness) and a few 100 mV depending on the brightness. If 0 mV is also measured at normal brightness, this is due to an open circuit, short circuit or inverse polarity fault or a defective sensor.

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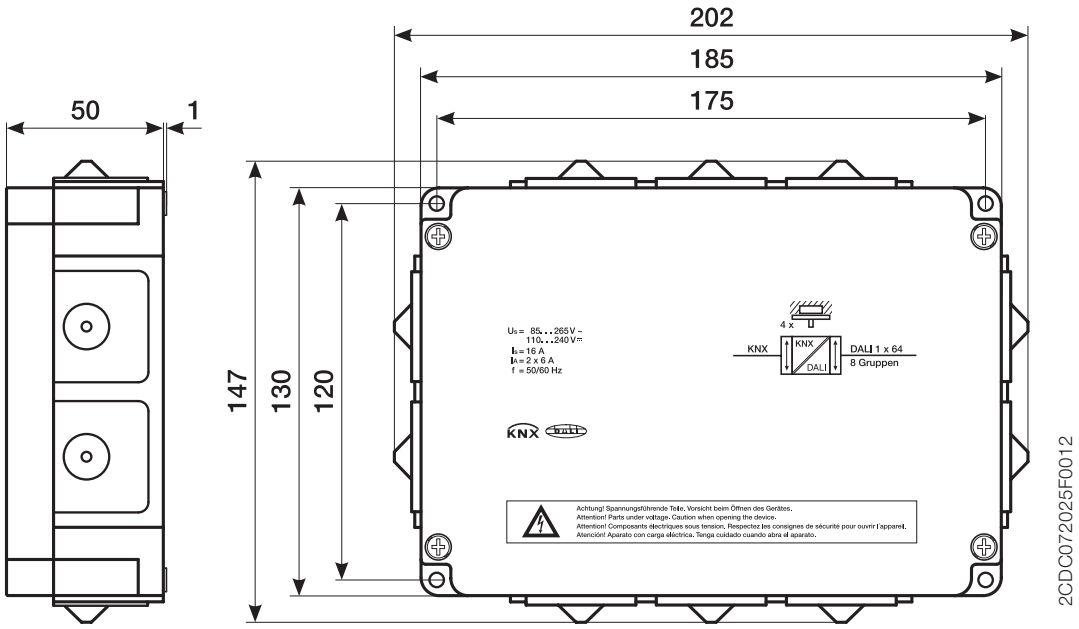
Dimensional drawing



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