

# ABB i-bus® KNX DALI Light Controller, 8-fold, MDRC DLR/S 8.16.1M, 2CDG110101R0011



## Product description

The ABB i-bus® KNX DALI Light Controller DLR/S 8.16.1M is a KNX modular installation device (MDRC) in ProM design for installation in the distribution board on a 35 mm mounting rail.

The DALI Light Controller can, in conjunction with the application program *Control Dim Groups 8f DALI/1*, integrate devices with DALI interfaces into a KNX building installation. The connection to the KNX is implemented via a KNX connection terminal on the device shoulder.

The 8 sensor inputs for the Light Sensor LF/U, together with the first 8 lighting groups of the DALI Light Controller, can be used for a constant light control.

Up to 64 DALI devices can be connected to the DALI output. The 64 DALI devices should be assigned to 16 lighting groups with the ETS-independent Software Tool. Control of the 64 DALI devices via KNX is exclusively group-oriented.

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

The 16 lighting groups can be integrated into scenes as required. Using 1 bit or 8 bit KNX scene telegrams, 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 light control.

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

The DLR/S 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 operating voltage) must be applied. Should one of these voltage sources be absent, the DALI devices can no longer be controlled. The reaction of the DALI devices on voltage failure can be parameterized.

Individual lighting groups can be switched or dimmed using manual control on the device. Furthermore, the fault for every lighting group is indicated by a yellow LED on the DLR/S.

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#### Technical data

<b>Supply</b>	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 <sup>1)</sup>
	Current consumption total via mains	Maximum 15 mA at 230 V AC and max. load <sup>1)</sup>
	Leakage loss total for device	Maximum 1.6 W at 230 V AC and max. load <sup>1)</sup>
	Current consumption KNX	Maximum 10 mA
	Power consumption via KNX	Maximum 210 mW
<b>DALI output</b>	Number of outputs	1 to EN 60 929 and DIN EN 62 386 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	16
	Distance between DLR/S and last DALI device	
	Cable cross-section:	
		0.50 mm <sup>2</sup> 100 m <sup>2)</sup>
		0.75 mm <sup>2</sup> 150 m <sup>2)</sup>
	1.00 mm <sup>2</sup> 200 m <sup>2)</sup>	
	1.50 mm <sup>2</sup> 300 m <sup>2)</sup>	
<b>Sensor inputs</b>	Light Sensor LF/U 2.1	For detailed information, see Light Sensor LF/U 2.1, page 18
	Number of inputs	8
	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
<b>Connections</b>	KNX	KNX connection terminal, 0.8 mm Ø, solid
	DALI outputs and mains voltage	Screw terminal: 0.2...2.5 mm <sup>2</sup> fine stranded 0.2...4 mm <sup>2</sup> single core
	Tightening torque	Max. 0.6 Nm
	Light Sensor LF/U:	
	Wire end ferrule without/with plastic sleeve	Without 0.25...2.5 mm <sup>2</sup> / with 0.25...4 mm <sup>2</sup>
	TWIN ferrule	0.5...2.5 mm <sup>2</sup>
	Tightening torque	Max. 0.6 Nm
<b>Brightness detection</b>	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) <sup>3)</sup>

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<b>Operating and display elements</b>	Button/LED 	For assignment of the physical address
	Button  /LED 	For switchover between manual operation and KNX operation
	Button 	Switch to next lighting group
	Button 	Switch ON or dim UP
	Button 	Switch OFF or dim DOWN
	Button 	Detect devices
	LED  ON	Display for operation readiness
	LED  DALI	DALI operating voltage display
	16 LED  ... 	Lighting group 1...16 display
<b>Degree of protection</b>	IP 54	Compliant to EN 60 529
<b>Protection class</b>	II	Compliant to EN 61 140
<b>Isolation category</b>	Overvoltage category	III to DIN EN 60 664-1
	Pollution degree	2 to DIN EN 60 664-1
	Atmospheric pressure	Atmosphere up to 2,000 m
<b>KNX safety extra low voltage</b>	SELV 24VDC	
<b>DALI voltage</b>	Typical 16 V DC (9.5...22.5 V DC)	To DIN EN 60 929 and DIN EN 62 386
	<b>No-load voltage</b>	16 V DC <sup>4)</sup>
	Lowest supply current at 11.5 V	160 mA
	Highest supply current	230 mA
<b>Temperature range</b>	Power	-5 °C...+45 °C
	Storage	-25 °C...+55 °C
	Transport	-25 °C...+70 °C
<b>Environmental conditions</b>	Humidity	Maximum 95 %, no condensation allowed
<b>Design</b>	Modular installation device (MDRC)	Modular installation device, ProM
	Dimensions	90 x 108 x 64.5 mm (H x W x D)
	Mounting width	6 x 18 mm modules
	Mounting depth	68 mm
	<b>Mounting</b>	On 35 mm mounting rail
<b>Installation position</b>	Any	
<b>Weight</b>	0.26 kg	
<b>Housing, color</b>	Plastic housing, halogen-free, gray	
<b>Approvals</b>	KNX to EN 50 090-1, -2	Certification
	EN 62 386 (Part 101 and 102)	DALI
<b>CE mark</b>	In accordance with the EMC guideline and low voltage guideline	

<sup>1)</sup> Maximum load corresponds to 64 DALI devices at 2 mA each.

<sup>2)</sup> 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.

<sup>3)</sup> 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.

<sup>4)</sup> 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/S 8.16.1M	Control Dim Groups 8f DALI/1*	212	254	255

\* ... = Current version number of the application. **Please refer the software information on our website for this purpose.**

#### Note

For a detailed description of the application see the *DALI Light Controller DLR/S 8.16.1M* product manual. It is available free-of-charge at [www.abb.com/knx](http://www.abb.com/knx).

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

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

The current application can be found with the respective software information for download on the Internet at [www.abb.com/knx](http://www.abb.com/knx). After the import to the ETS, the application can be found at *ABB/Illumination/Light Controller/Control Dim Groups 8f DALI/1*.

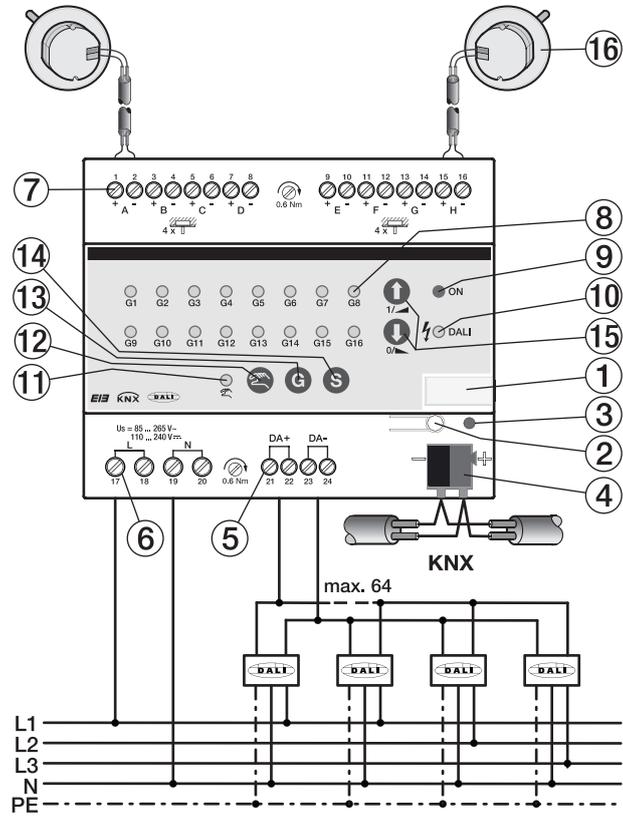
The device does not support the locking function of a KNX device in ETS. If you use a *BCU code* to inhibit access to all the project devices, it has no effect on this device. Data can still be read and programmed.

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#### Connection diagram



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- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1 Label carrier                   | 9 LED Operation display       |
| 2 Programming button              | 10 LED DALI operating voltage |
| 3 Programming LED  (red)          | 11 LED Manual operation       |
| 4 Bus connection terminal         | 12 Manual operation button    |
| 5 DALI output                     | 13 Groups button              |
| 6 Light controller supply voltage | 14 Detect devices button      |
| 7 8 Light Sensor inputs LF/U 2.1  | 15 Button ON/UP  OFF/DOWN     |
| 8 16 LED groups                   | 16 Light Sensor LF/U 2.1      |

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#### 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.

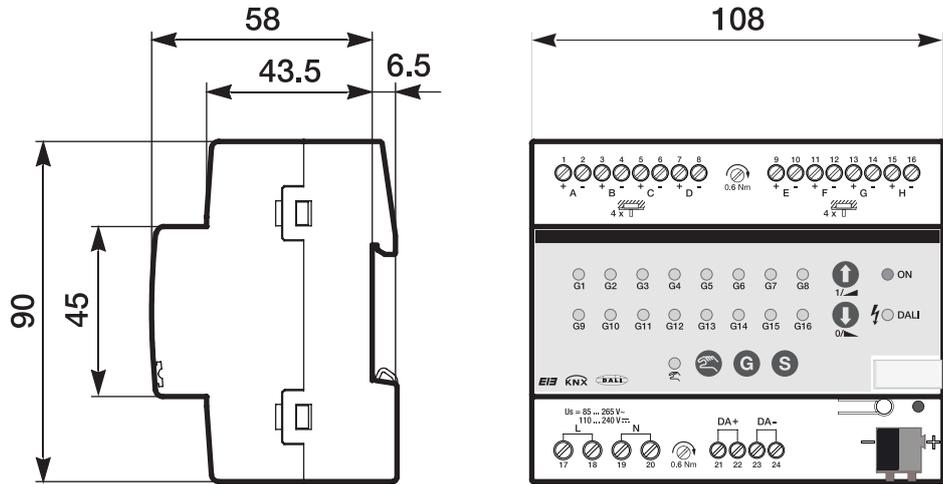
The white fibre-optic rod can limit the detection range and reduce the lateral lighting sensitivity to external lighting sources.

#### Note

If the LF/U is not connected to the DLR/S, 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



2CDC072002F0011

# Contact

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