

TECHNICAL DATA

# ABB i-bus® KNX

## DG/S x.64.5.1

### DALI Gateway Premium



#### Description of product

The KNX ABB i-bus® DALI Gateways Premium DG/S x.64.5.1 are KNX modular installation devices (MDRC) in ProM design for installation in the distribution board on a 35 mm mounting rail.

They are DALI single-master controller to DALI standard IEC 62 386 Parts 101ed2 and 103ed1. The gateways are suitable for use with DALI and DALI-2 systems. It supports Type 0, 1 and 8 DALI operating devices with DALI interfaces to IEC 62 386 and their integration in a KNX building installation.

Up to 64 DALI devices can be connected to the DALI output. „Normal“ lamps (DT0), self-contained emergency lights (DT1) and color control lamps (DT8) can all be connected to the DALI output in a mixed configuration.

The lamps are controlled via KNX using

- broadcast (all lamps jointly)
- 16 lighting groups
- 64 individual lamps
- 16 scenes
- 64 self-contained emergency lights

The fault status (lamps, ballasts or emergency lighting converters) of each DALI device or of the lighting group is sent via the KNX bus by a variety of KNX group objects.

In addition to the standard functions, e.g. switching, dimming and brightness value setting with the corresponding feedback, the DALI Gateway offers the functions Staircase lighting, Scene, Slave, Forced operation and Disable. The lighting groups or individual lamps can be integrated in an energy-efficient building automation system via a KNX presence detector or light controller.





The DALI Gateways DG/S x.64.5.1 features the Tunable White (Tc) color function, which allows you to set and dim the color temperature of lamps (DT8). There are also settings options for the additional Dim2Warm and Human Centric Lighting (HCL) functions.

Other functions include 1-bit scene retrieval and ballast supply voltage switch-off (standby switch-off) in combination with a KNX switch actuator.

Function, duration and partial duration tests and battery tests for self-contained emergency lighting systems to IEC 62 386-202 can be triggered and stopped via KNX, with results provided on the KNX bus.

The DALI gateways possesses a wide-range supply voltage input. No separate DALI power supply is required. The DALI power supply for 64 DALI devices per output is integrated in the DALI gateway.

The ABB i-bus® Tool permits commissioning (DALI) and diagnostics without ETS.

Operating and display elements		
Button/LED	Description	LED indicator
 	Assignment of the physical KNX address	On: Device is in KNX programming mode
	ON	Off: No KNX voltage and/or a gateway supply voltage failure On: System initialized Flashing slowly (1 Hz): Manual operation Flashes quickly (5 Hz) if there is a KNX voltage but no gateway supply voltage
	DALI	Off: The gateway is in normal mode On: DALI fault Flashing quickly (5 Hz): Initialization phase

**NOTE**

In manual operation the yellow DALI LED indicates the switch status of the DALI output instead of a DALI fault. If the LED is off this means the output is switched off.

**NOTE**

The initialization phase starts after download, KNX bus voltage recovery or after elimination of a DALI short circuit. If more than 64 DALI devices are connected to a DALI output, the device will not exit the initialization phase. The yellow LED will continuously flash.

Technical data			
<b>KNX DALI gateway</b>	DALI single-master controller	IEC 62 386 Parts 101ed2 and 103ed1 (DALI and DALI-2)	
<b>Supply</b>	Gateway supply voltage	100 – 240 V AC	
	Voltage range	85...265 V AC, 50/60 Hz	
		110...240 V DC	
		DG/S 1.64.5.1	DG/S 2.64.5.1
	Power consumption total via mains <sup>*)</sup>	Maximum 6 W	Maximum 11 W
	Current consumption total via mains <sup>*)</sup>	Maximum 25 mA	Maximum 48 mA
	Leakage loss total for device <sup>*)</sup>	Maximum 2 W	Maximum 4 W
	KNX current consumption	Maximum 10 mA	
	Power consumption via KNX	Maximum 210 mW	
<b>DALI outputs (channels)</b>		DG/S 1.64.5.1	DG/S 2.64.5.1
	Number of outputs	1	2
	Voltage proof, short circuit proof	230 V AC	
		Maximum 64 per output to IEC 62 386; DALI devices for self-contained emergency lighting to IEC 62 386-202 are supported. <sup>2)</sup>	
	Number of DALI devices	Maximum 64 per output to IEC 62 386; DALI devices for self-contained emergency lighting to IEC 62 386-202 are supported. <sup>2)</sup>	

Technical data		
<b>DALI outputs (channels)</b>	Distance between gateway and last DALI device with cross-sectional area:	
	Cable cross section 0.5 mm <sup>2</sup>	100 m <sup>1)</sup>
	Cable cross section 0.75 mm <sup>2</sup>	150 m <sup>1)</sup>
	Cable cross section 1.0 mm <sup>2</sup>	200 m <sup>1)</sup>
	Cable cross section 1.5 mm <sup>2</sup>	300 m <sup>1)</sup>
<b>Connections</b>	KNX	KNX connection terminal, 0.8 mm Ø, solid
	DALI outputs and Mains voltage	Screw terminal, universal head 0.2...4 mm <sup>2</sup> , stranded 0.2...6 mm <sup>2</sup> , solid
	Tightening torque	Maximum 0.6 Nm
<b>Degree of protection</b>	IP 20	To EN 60 529
<b>Protection class</b>	II	To EN 61 140
<b>Isolation category</b>	Overtoltage category	III to EN 60 664-1
	Pollution degree	2 to EN 60 664-1
<b>KNX safety extra low voltage</b>	SELV 24 V DC	
<b>DALI voltage</b>	Typical 16 V DC (12...20.5 V DC)	To EN 60 929 and IEC 62 386
	No-load voltage	18 V DC
	Lowest supply current at 12 V DC	160 mA
	Highest supply current	250 mA
<b>Temperature range</b>	Operation	- 5 °C...+45 °C
	Storage	-25 °C...+55 °C
	Transport	-25 °C...+70 °C
<b>Environmental conditions</b>	Humidity	Maximum 93%, moisture condensation should be excluded
	Atmospheric pressure	Atmosphere up to 2,000 m
<b>Design</b>	Modular installation device (MDRC)	Modular installation device, pro M
	Dimensions	90 x 70 x 63.5 mm (H x W x D)
	Mounting width	4 x 17.5 mm modules
	Mounting depth	68 mm
<b>Mounting</b>	On 35 mm mounting rail	To EN 60 715
<b>Mounting position</b>	Any	
<b>Weight (net)</b>		DG/S 1.64.5.1      DG/S 2.64.5.1
		0.13 kg              0.15 kg
<b>Housing, color</b>	Plastic, gray	Halogen-free
		Flammability V-0 as per UL94
<b>Approvals</b>	KNX to EN 50 090-1, -2	Certification
	EN 50 491-5-2	
	DALI-2 to IEC 62 386	Certification
<b>CE marking</b>	In accordance with the EMC and Low Voltage Directives	

\*) at 230 V AC and max. load

- 1) The length refers to the entire routed DALI control cable. The maximum values are rounded and refer to the resistance value. EMC influences are not considered. For this reason, the values should be considered as absolute maximum values.
- 2) Both "normal" lamps and self-contained emergency lights can be connected in a mixed configuration to the DALI output. However, the maximum number of DALI devices may not exceed 64.

Software				
Device type	Application	Maximum number of group objects	Maximum number of group addresses	Maximum number of assignments
DG/S 1.64.5.1	DALI Premium 1f/...*	1463	2000	2000
DG/S 2.64.5.1	DALI Premium 2f/...*	2921	4000	4000

\* ... = Current version number of the application. Please refer to the software information on our homepage.

Ordering details					
Device type	Product Name	Order No.	bbn 40 16779 EAN	Weight 1 pc. [kg]	Packaging [pcs.]
DG/S 1.64.5.1	DALI Gateway, Premium, 1f, MDRC, MW 4 <sup>1)</sup>	2CDG110273R0011	06720 1	0.18	1
DG/S 2.64.5.1	DALI Gateway, Premium, 2f, MDRC, MW 4 <sup>1)</sup>	2CDG110274R0011	06721 8	0.19	1
Further DALI gateways in the ABB i-bus® range					
DG/S 1.64.1.1	DALI Gateway, Basic, 1f, MDRC, MW 4 <sup>1)</sup>	2CDG110198R0011	94266 9	0.18	1
DG/S 2.64.1.1	DALI Gateway, Basic, 2f, MDRC, MW 4 <sup>1)</sup>	2CDG110199R0011	94285 0	0.19	1
DLR/S 8.16.1M	DALI Light Controller, MDRC, MW 6 <sup>1)</sup>	2CDG110101R0011	67656 4	0.26	1
DLR/A 4.8.1.1	DALI Light Controller, SM	2CDG110172R0011	88237 8	0.66	1
DG/S 8.1	DALI Gateway, 8-fold, MDRC, MW 6 <sup>1)</sup>	2CDG110025R0011	58582 8	0.31	1

1) MW = Module width

**NOTE**

The gateways are compliant with SELV properties to IEC 60364-4-41 (VDE 0100-410). DALI does not need to feature SELV properties, and it is possible to route the DALI control line together with the mains voltage in a multi-core cable.

**NOTE**

Reaction of DALI power supply in the DALI gateway in case of DALI short circuit: If a DALI short circuit is present for longer than 600 ms, the DALI output stage switches off for 7.5 seconds. The output stage then switches the DALI voltage on again. The process will repeat if the short circuit is still present.

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**NOTE**

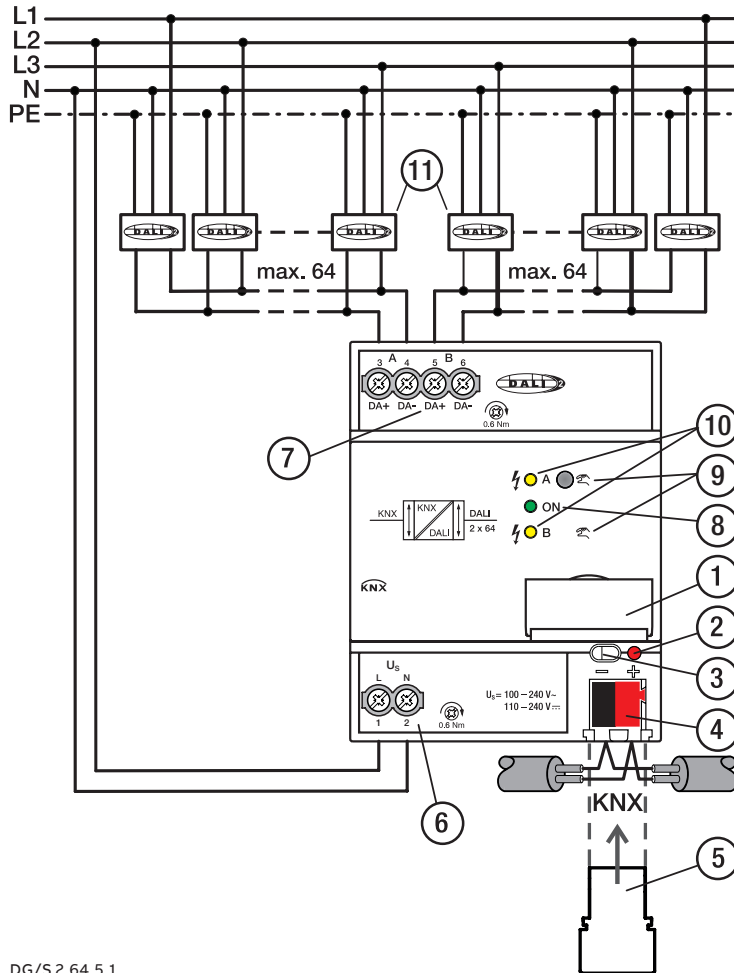
Please refer to the DG/S x.64.5.1 DALI Gateway Premium product manual for a detailed description of the application. It is available free of charge at [www.abb.com/knx](http://www.abb.com/knx).

ETS and the current version of the device application program are required for programming. The current application program is available for download at [www.abb.com/knx](http://www.abb.com/knx). Once imported, the application is located in ETS in the Catalogs window under Manufacturers/ABB/Lighting/DALI. The device does not support the locking function (BCU code) of a KNX device in ETS. Using a BCU code to inhibit access to all the project devices has no effect on this device. Data can still be read and programmed.

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**NOTE**

Together with ETS 5, the gateways support programming with long frame telegrams to permit faster downloads between ETS and the gateway. This significantly cuts the programming time for a full download. Corresponding system devices such as line couplers and interfaces must also support long frames. We recommend the ABB LK/S 4.2 Line Coupler, ABB USB Interface USB/S 1.2, IPR/S 3.1.1 IP Router and IP Interface IPS/S 3.1.1 or later.

**Connection**

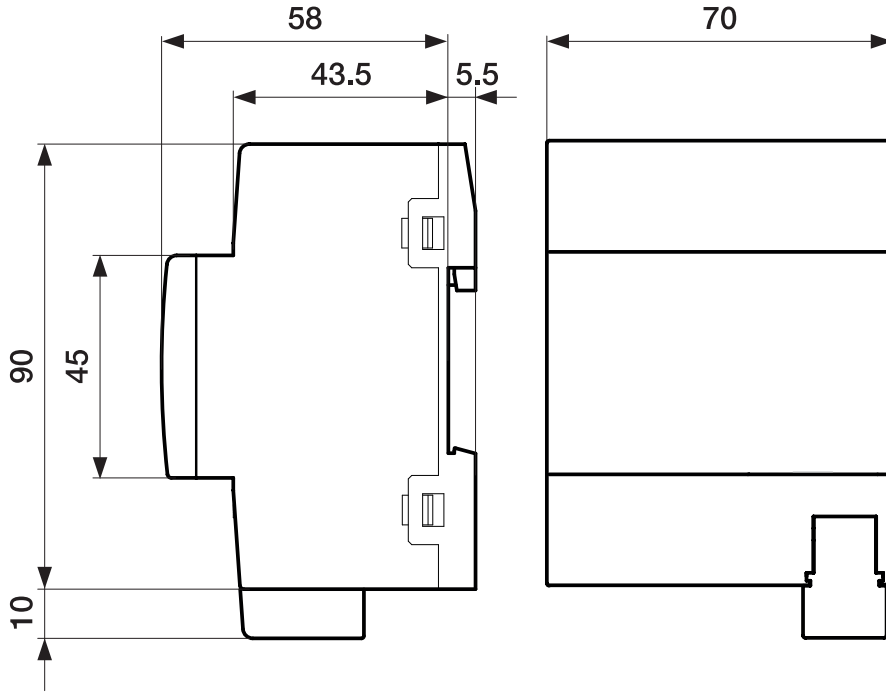


DG/S 2.64.5.1

**LEGEND**

- 1 Label carriers
- 2 KNX programming button
- 3 KNX programming LED (red)
- 4 KNX connection
- 5 Cover cap
- 6 Gateway supply voltage
- 7 DALI output A/B  
(1x DG/S 1.64.5.1, 2x DG/S 2.64.5.1)
- 8 Operation LED (green)
- 9 Manual operation A/B
- 10 DALI status LED A/B (yellow)
- 11 DALI devices (DT 0, 1 and 8)

Dimension drawing



2CDC072033F0015



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