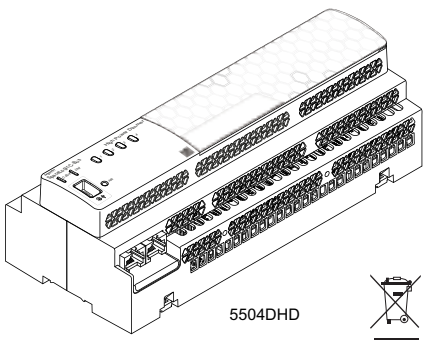
en SpaceLogic C-Bus DIN Rail Digital Dimmer 4 Channel High Power



Introduction

The SpaceLogic C-Bus Digital Dimmers are new-generation lighting control dimmers that allow full customisation for elegant control of dimmable LED lights and other light sources.

Product Range

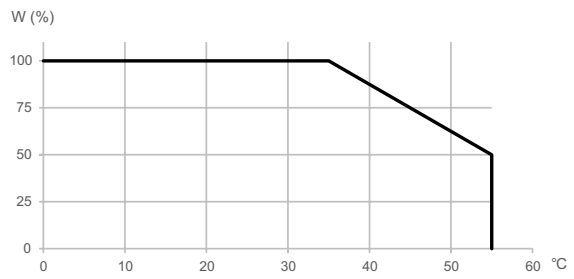
Catalog Number	Description
5504DHD	Dimmer, SpaceLogic C-Bus, DIN rail mount, adjustable trailing/leading edge phase control, 4 channel, high power, inbuilt switchable C-Bus power supply.

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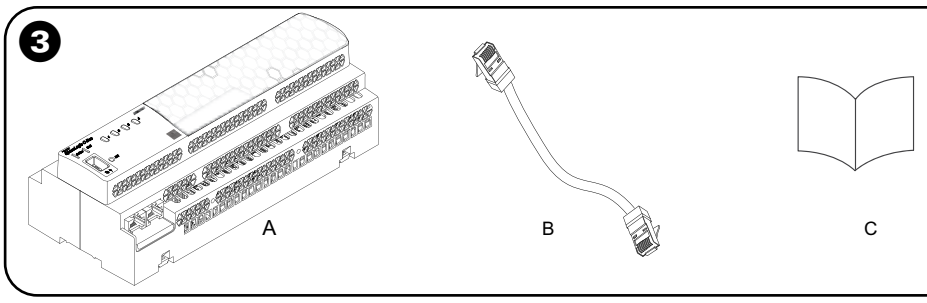
Load	Compatible Load Types	Required Mode	Load Rating	**Total Lamp Rating at 230 Vac	**Total Lamp Rating at 110 Vac
LED	Dimmable LED Lamps and Luminaires	Trailing Edge (TE)	*Maximum 5 A per channel	1150 W	550 W
	Incandescent / Halogen Lamps			1150 W	550 W
	Dimmable Electronic ELV Lighting Transformers with Halogen, LED Lamps or Strip			1150 W	550 W
	Dimmable Iron-Core ELV Lighting Transformers with Halogen or LED Lamps	Leading Edge (LE)		1150 W	550 W

*A channel may have up to 5 A load, however total load on any 2 adjacent channels must be limited to 6 A.
**Stated total load rating is subject to inrush current, which is dependent on individual load size and type.

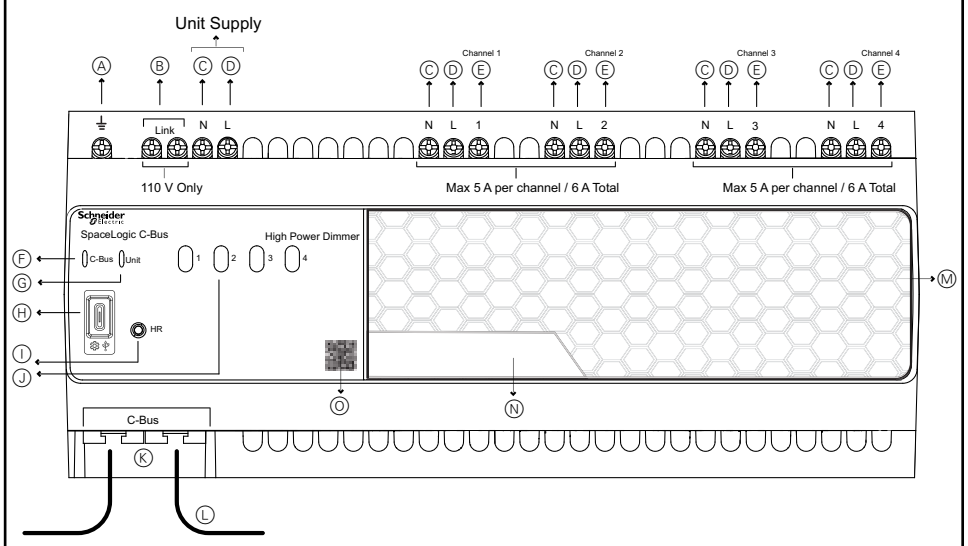
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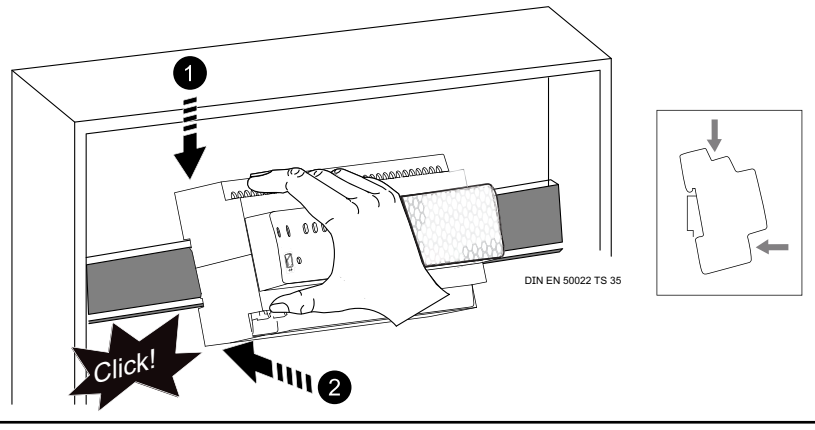
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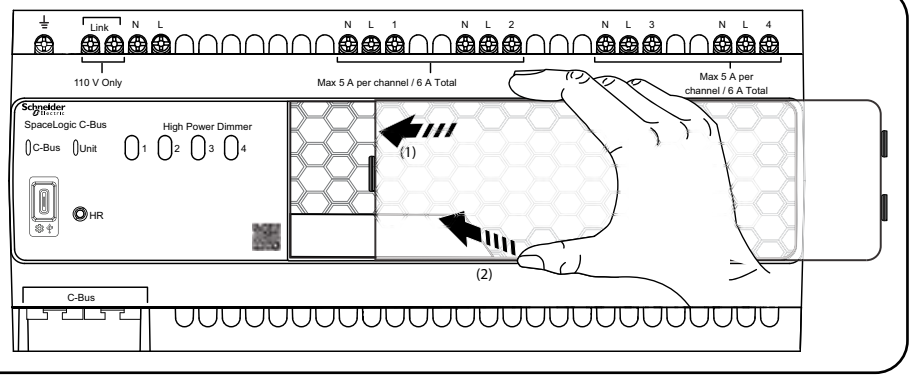
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For Your Safety

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- This product must be installed and serviced by appropriately qualified and/or licensed professional in accordance with the local wiring rules.
- Isolate the electrical supply before doing any work on the product.
- Ensure that the product has been correctly installed and tested for safe operation before reconnecting the electrical supply.
- Do not use this product for any other purpose than specified in this instruction.
- Pay attention to the specifications and wiring diagrams related to the installation.
- Do not attempt to open the product casing or perform any action on the internal components of the product.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

INCORRECT C-BUS CABLE CONNECTION

The C-Bus network cabling is classified as Separated Extra-Low Voltage (SELV) wiring. To maintain this requirement, the approved C-Bus cable is used.

- Ensure that adequate separation and/or segregation of the C-Bus cable from other wiring (for example Low Voltage wiring) is maintained throughout the entire installation.
- Ensure the C-Bus network cable is installed in accordance with the SELV wiring rules and regulations of the jurisdiction.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTICE

APPROPRIATE ACCESS CONTROL

To prevent the possibility of intentional or unintentional interference with the configuration or operation of the C-Bus installation, this equipment should be installed in a location with appropriate access control.

Failure to follow these instructions can result in equipment damage.

NOTICE

EQUIPMENT DAMAGE HAZARD

It is important to select the right location to install the C-Bus dimmer. Some considerations are listed below

- For indoor use only.
- Use a location free of water, humidity, direct sunlight, and heavy dust.
- Make sure there is adequate ventilation, and the internal temperature rise is limited.

Failure to follow these instructions can result in equipment damage.

NOTICE

MEGGER TESTING

Megger testing must never be performed on any cable while connected to the product as it could degrade the performance of the product and/or the network.

Failure to follow these instructions can result in equipment damage.

❶ Compatible Loads

NOTICE

EQUIPMENT DAMAGE

Use of non-dimmable loads (including non-dimmable loads connected to the secondary of an iron-core transformer) can reduce the effectiveness of the dimmer's inbuilt protection mechanisms. Never connect a load to a channel while the channel is powered, which includes changing the lamp fittings. Doing so reduces the ability of the dimmer channel to protect itself against incompatible loads.
Failure to follow these instructions can result in equipment damage.

❷ Derating Table

The dimmer operates with the specified load on all channels without derating as long as the operating temperature (the air temperature immediately surrounding the dimmer) is maintained below 35 °C. If the operating environment is expected to be above 35 °C, the loading must be reduced according to the derating table. The operating environment must always be maintained below 55 °C.

Note: The operating calorific values of the dimmer are provided in the User Manual, and these along with the total heat load of all equipment in the enclosure must be considered when selecting the equipment and the enclosure to ensure the operating environment does not exceed 55 °C.

NOTICE

MAXIMUM LOAD RATINGS APPLY

Ensure that the number of lighting loads connected to a single device does not exceed the maximum load rating of each channel.

Failure to follow these instructions can result in equipment damage.

❸ Package Contents

❹ About the Dimmer

- **A** Earth
- **B** Wire Link Terminal for 110 V
- **C** Neutral
- **D** Active Line
- **E** Load Connections
- **F** C-Bus Indicator
- **G** Unit Indicator
- **H** USB (Type-C) Connector
- **I** Hard Reset Button
- **J** Channel Button Indicators
- **K** C-Bus Connectors 2x RJ-45
- **L** C-Bus Network Cable
- **M** Transparent Removable Cover
- **N** Space for Labelling
- **O** QR code for product details and serial number

❺ Mounting DIN Rail

The dimmer should only be installed horizontally on the mounting rails (type DIN EN 50022 TS 35) inside a distribution board.

❻ Remove / Replace Cover for Labelling

To remove, push the cover to the left side and lift the cover upwards supporting the sides of the cover. To replace the cover, refer illustration ❻.

❼ 230 V Wiring

⚠ WARNING

EQUIPMENT DAMAGE HAZARD

Do not break T-Block terminal and/or insert a wire-link unless using the dimmer with 110 Vac unit supply voltage.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Phase Independent Channels

Each dimmer channel requires an Active and Neutral connection (which provides power to the channels and loads). It allows you to make the connection to any phase, and you can have different phase connections for each channel as well as for the unit supply connection.

❽ 110 V Wiring

To use the dimmer with a 110 Vac unit supply, break the T-Block terminal using a screwdriver and connect a wire link between terminals ❹Ⓑ.

⚠ WARNING

EQUIPMENT DAMAGE HAZARD

When breaking the T-block in the terminal, be careful not to damage other terminal blocks.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

C-Bus Network Connection

Connection to the C-Bus network is made via one of the RJ45 connectors. Use only C-Bus certified cable, which you can identify by its pink sheath and refer to catalogue numbers (5005C305B for solid cable and 5005C305BST for stranded cable).

Pinouts and cable conductor assignments are provided in ❿. The RJ45 connectors are internally connected.

Note: It is recommended that the remote override (On/Off) connections be maintained for correct operation of these services across the C-Bus network, even if they are not intended to be used.

First Power Up

By default, all dimmer channels are set by default to load detection mode. In this mode, the dimmer channel operates in TE mode with a very low minimum level, and a very slow soft turn on. This is to ensure that when turned on for the first time, the dimmer can detect iron core loads safely and reliably, avoiding possible damage to the dimmer.

For normal operation, the correct dimming mode for each channel needs to be confirmed. Confirming the dimming mode turns off load detection mode and selects the normal TE or LE mode appropriately.

Confirming the Dimming Mode

Confirm the correct mode for each channel based on the load type connected. Refer ❶.

To confirm the mode, short press the channel button to turn ON the channel and then observe the flash light and the displayed color as described below:

a. If the channel indicator remains steady in solid yellow, then the load is compatible with TE mode. Confirm that the mode selection is correct by double-clicking the channel button. The indicator flashes yellow rapidly to confirm that TE mode is selected.

b. If the channel indicator flashes at a low frequency in red, it indicates the detection of an iron-core load (inductive load). To change the channel to LE mode, press and hold the channel button for more than 10 seconds. The channel indicator will then flash green rapidly to confirm that the LE mode is selected.

c. If the indicator continues to flash red after changing to LE mode, it means that the default dimmer load profile is not compatible with the connected load. In this case, you can customise it using the SpaceLogic C-Bus Commission software.

NOTICE

EQUIPMENT DAMAGE

Once TE mode is selected (confirmed with the double click), the load detection mode is disabled for that channel and subsequent operation with an iron-core load may cause damage to the channel. Do not confirm dimmer mode until the load type has been confirmed.

Failure to follow these instructions can result in equipment damage.

NOTICE

EQUIPMENT DAMAGE HAZARD

Dimming mode can be changed using the SpaceLogic C-Bus Commission software. This can override the channel's current mode. Be cautious when deploying to channels where the mode has been manually set to Leading Edge (LE) . Ensure that the software configuration of the load types is matching the dimmer.

Failure to follow these instructions can result in equipment damage.

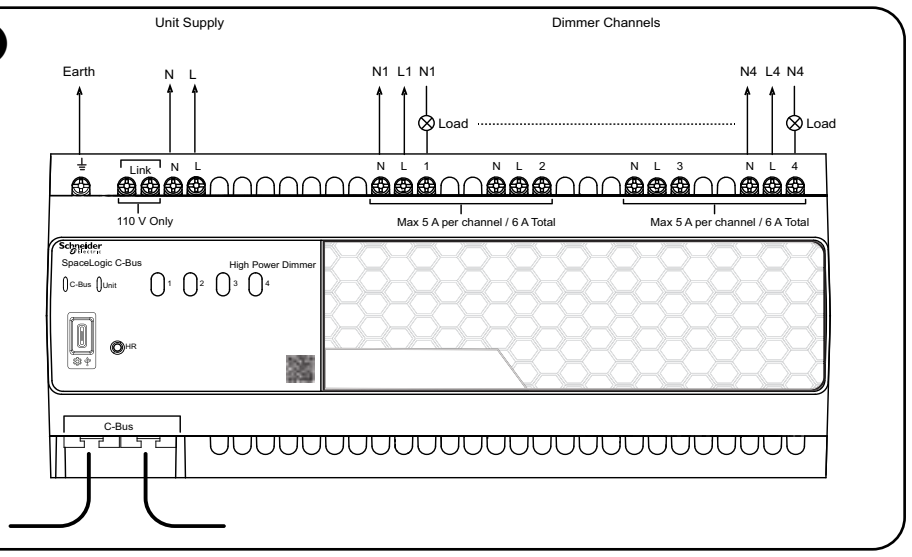
To Switch the Inbuilt C-Bus Power Supply and C-Bus System Clock if required:

Ensure adequate C-Bus power supply is enabled in the bus by referring to the indication on the unit and the bus design by checking the number of power supplies enabled. In case of low C-Bus power indication, switch the inbuilt C-Bus power supply in the dimmer.

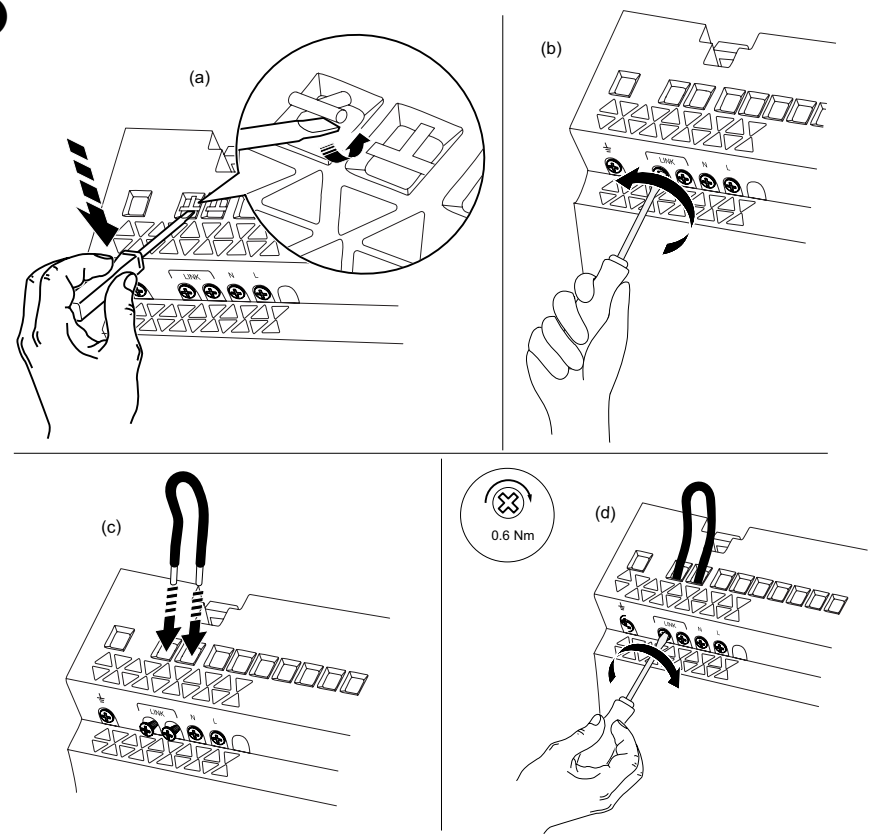
Note: If the inbuilt switchable C-Bus power supply is enabled, the dimmer supplies power upto 200 mA to the network when connected to the mains.

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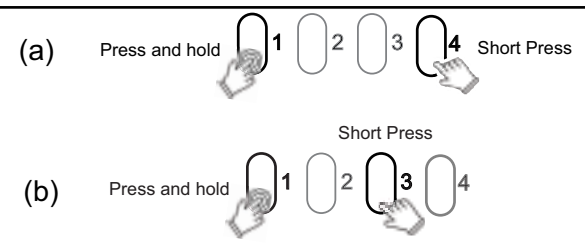
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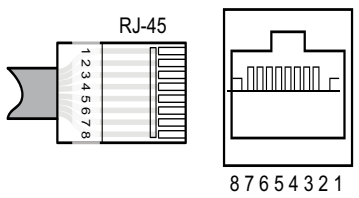
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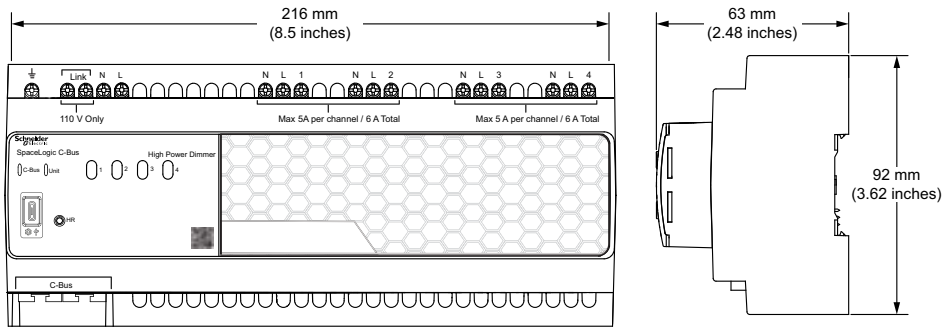


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Pin	Wire Colour Compliance to TIA/EIA 568A wiring standard	Signal
1	Green & White	Remote ON
2	Green	Remote ON
3	Orange & White	C-Bus negative (-)
4	Blue	C-Bus positive (+)
5	Blue & White	C-Bus negative (-)
6	Orange	C-Bus positive (+)
7	Brown & White	Remote OFF
8	Brown	Remote OFF

11



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Enabling/Disabling C-Bus Power Supply

By default, the integrated 200 mA C-Bus power supply is disabled. You can enable/disable the integrated C-Bus power supply via the front panel by performing a short press on the top right channel button whilst holding down the top left channel button to toggle the enabled state. Refer ❾(a). The enabled status of the integrated C-Bus power supply is shown on the unit indicator. Refer to diagnosis section (b).
The C-Bus indicator state shows the state of the network voltage. If the C-Bus Indicator is flashing on or off, the network voltage is too low, meaning there is insufficient C-Bus power. If required, additional power supplies can be enabled.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Total C-Bus power supply capacity for any one C-Bus network is 2000 mA.

Ensure no more than 2000 mA of total C-Bus power supply is enabled/connected to any one C-Bus network.

Failure to follow these instructions can result in injury or equipment damage.

Enabling/Disabling the C-Bus System Clock Generator (if required)

By default, the C-Bus clock generator is disabled. The system clock is used to synchronize data communication over a C-Bus network. If a system clock is required, it can be enabled from the SpaceLogic C-Bus Commission software and the indicator buttons on the dimmer. You can enable/disable the integrated C-Bus clock generator via the front panel by performing a short press on the top second-to-right button whilst holding down the top left channel button to toggle the enabled state, refer ❾(b).

Configuration and Commissioning

You configure and commission the unit through the C-Bus connection using the “SpaceLogic C-Bus Commission” software which can be downloaded from the URL: http://www.se.com

You can power the unit using the USB Type-C connection to perform the configuration prior to the installation.

Local Override

The channel indicator buttons on the front of the dimmer turn the channels on and off, providing local override capability.
Each button illuminates only when its respective channel is in the ON state.
Local channel indicator buttons perform different functions depending on how they are pressed.

Operation	Function
Short-press (< 0.5 second)	A single short press toggles the state of a channel.
Double click	Two short presses in series return the channel to the C-Bus network level. Also used for confirmation of TE mode during First Power Up Setting.
Long-press (1-2 second)	A long press on any local indicator button for one second or more returns all channels to the C-Bus network level.

Note: By default, any C-Bus commands received by the dimmer will override local toggle changes. In this case, only the channel associated with the received commands will revert to the C-Bus network state. This option may be disabled in software. Refer to Priority of Operating Modes.

❿ Remote Override

The extra two pairs of the C-Bus network cable provide high priority override functions for most C-Bus output units. The Green & Green/White pair is used for the remote ON function. The Brown & Brown/White pair is used for the remote OFF function.

Connecting either pair to the C-Bus negative pair activates the corresponding function.

The SpaceLogic C-Bus Network Automation and Application Controllers provide facilities to control these overrides.

If you use this function, ensure continuity of these pairs between all output units in the installation.

Note: You should also ensure that these pairs are not left unterminated during installation, as this may accidentally trigger the override functions.

Priority of Operating Modes

The output status of a C-Bus DIN Rail Digital Dimmer 4 channel high power can be changed by:

- Pressing a C-Bus button.
- Activating any of the local toggle buttons (local override).
- Using the remote override facility.

The priority ranking of these actions is as follows:

Mode	Priority	Function
Thermal overload	1 (highest)	Channel automatically dimmed
Remote OFF	2	All channels OFF
Remote ON	3	All channels ON
Local override	4	Toggles the channel
C-Bus Input Unit (Wall plates, sensor etc)	5	Control the channel

Power-Up Load Status

The dimmer has on-board non-volatile memory, which by default is used to store the operating state of each channel in case of power loss.

On restoration of power, the dimmer waits approximately 5s for power to stabilise before restoring the channel states.

Firmware Update

The SpaceLogic C-Bus Commission software will notify if a firmware update is required. The update requires a connection to the USB Type C connector on the dimmer and is performed using the SpaceLogic C-Bus Commission software. All required firmware files will be included and authenticated as part of the latest SpaceLogic C-Bus Commission software release.

The reset button is provided only for recovery purposes and should not be pressed unless instructed. Detailed instructions for the update are included with the SpaceLogic C-Bus Commission software.

Diagnosis

Thermal Monitoring

Operation of the dimmer at elevated temperatures or voltages outside of specification may cause the over-temperature protection circuitry to operate. C-Bus Digital Dimmers incorporate a thermal monitoring protective mechanism. This reduces the load brightness (wind-back) under conditions of inadequate ventilation or excessive ambient temperature. If the excessive ambient temperature continues and the winding back function is insufficient, the dimmer will shut down for protection.

Indications and their meaning

Channel Indicators ❹ (J)

State/Colour	Meaning
On, Green	Channel On, LE mode
On, Yellow	Channel On, TE mode
Slow Flash, Red	Channel shutdown due to incorrect mode (inductive load running in TE mode)
Off	Channel off
On, Red	Channel Offline. Normally due to no mains supply to the channel or channel firmware requires updating
Fast Flash, Red	Channel shutdown due to over current. Normally due to excessive inrush or load/wiring fault (short circuit)
Fast Flash, Yellow	Channel shutdown due to over temperature condition. Normally due to excessive load and/or inadequate ventilation
Slow Flash, Yellow	Channel operating at reduced setting due to over temperature condition. Normally due to excessive load and/or inadequate ventilation

Unit Indicators ❹ (G)

State/Colour	Meaning
Green	Unit powered, C-Bus power supply enabled
Yellow	Unit powered, C-Bus power supply disabled
Off	No power to device
Red	Unit Powered, Configuration Error
Slow Flash, Red/Green	Internal temperature has exceeded over-temperature threshold. C-Bus power supply enabled
Slow Flash, Red/Yellow	Internal temperature has exceeded over-temperature threshold. C-Bus power supply disabled
Green, Short Flash Red	Internal temperature has exceeded over-temperature threshold. Override Active, C-Bus power supply enabled
Yellow, Short Flash Red	Internal temperature has exceeded over-temperature threshold. Override Active, C-Bus power supply disabled
Green, Short Flash Off	Override active. C-Bus power supply enabled
Yellow, Short Flash Off	Override active. C-Bus power supply disabled
Fast Flash, Green	Secondary firmware update in progress

C-Bus Indicator ❹ (F)

State/Colour	Meaning
Solid (not flashing)	C-Bus voltage OK (>20 V)
Red	No C-Bus clock detected, Host Online
Green	C-Bus clock detected, Host Online
Yellow	C-Bus clock detected, Host Offline
Off	No C-Bus voltage present or unit not powered
Steady Flash	C-Bus Voltage marginal (15-20 V)
Short Flash	C-Bus Voltage critical (<15 V)

⓫ Specifications

Parameter	Description
Nominal Mains Voltage and Frequency	230 Vac ± 10%, 50 Hz ± 3 Hz 110 Vac ± 10%, 60 Hz ± 3 Hz
C-Bus Input Operating Voltage	20 - 36 Vdc
C-Bus Input Operating Current	20 mA
C-Bus Power Supply (if enabled)	200 mA at 27-35 Vdc
Load Rating	Up to 5 A per channel. Max 6 A total load across any two adjacent channels.
Dimmer Technology	Adjustable per channel -Trailing edge (TE) / (LE) Leading edge phase control
Compatible Loads	Dimmable LED lamps and luminaires, incandescent/ halogen lamps, dimmable electronic ELV lighting transformers with halogen or LED lamps, dimmable iron-core ELV lighting transformers.
Operating Temperature	-5 to 55 ºC with derating according to ❷ .
Operating Humidity	10% to 93% non-condensing
Dimensions (WxHxD)	216 x 92 x 63 mm (8.5 x 3.62 x 2.48 inches)
Mains terminals	Accommodates 2 x 2.5 mm² or 1 x 4 mm² Screw driver used for the terminal is Philips PH1
C-Bus connections	2 x RJ45 connectors
Product Compliance	CE UKCA RCM
No user-serviceable parts inside.	

⓬ Read full device user guide online

Scan the QR code for complete information about the device, including operation, configuration, troubleshooting and using the product with SpaceLogic C-Bus software.

Schneider Electric Industries SAS

If you have technical questions, please contact the Customer Care Centre in your country.

se.com/contact

Warranty

For Warranty information and service, visit se.com/contact.

Declaration

This product is in compliance with the applicable directive and standards. Declaration of conformity can be downloaded on: se.com/docs.

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