JULY 2020

KNX LED Dimmer UD/S 2x315W/4x315W/6x315W

Webinar – Competence Center Europe – Smart Buildings
Thorsten Reibel, Jürgen Schilder, Stefan Grosse, Martin Wichary & Olaf Stutzenberger
Introduction and general product information
Main functions and benefits
ETS application
ABB i-bus® Tool
Commercial data
KNX LED Dimmer UD/S 2x315W/4x315W/6x315W

Introduction and general product information
Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W”
General product information

**Typical application examples**

**Applications in residential buildings:**
- Realize a warm and cozy atmosphere in the living room by dimming the light down
- Dimming the light in the bathroom
  - Bright light for making up in the morning
  - Darker, relaxing light to take a bath in the evening
- Wake up with sunrise simulation (wake up function)
- Sleep function

**Applications in commercial buildings:**
- Realize constant light control in offices
- Dim down the light in the meeting rooms when presentations are held
Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W”

Technical Data

**LED Dimmer 2-fold, 315W/VA**

- Outputs: 2, individual L and N per channel
- Rated power: 2-315 W/VA
- Dimensions 90 mm x 72 mm x 64 mm
- Mounting depth 64 mm
- Module width: 4 MW
- Power supply 110-230 V AC +/- 10%, 50/60 Hz
- Channel bridging:

<table>
<thead>
<tr>
<th>4 MW - 2 Channel, 2x1</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 MW - 2 Channel, 1x2</td>
<td>A + B</td>
<td>500/200 W/VA</td>
</tr>
</tbody>
</table>
Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W”

Technical Data

LED Dimmer 4-fold, 315W/VA

- Outputs: 4, individual L and N per channel
- Rated power: 2-315 W/VA
- Dimensions 90 mm x 144 mm x 64 mm
- Mounting depth 64 mm
- Module width: 8 MW
- Power supply 110-230 V AC +/- 10%, 50/60 Hz
- Channel bridging:

<table>
<thead>
<tr>
<th>8 MW - 4 Channel, 4x1</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 MW - 4 Channel, 2x2</td>
<td>A + B</td>
<td>C + D</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>500/200 W/VA</td>
<td>500/200 W/VA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W”

Technical Data

LED Dimmer 6-fold, 315W/VA

- Outputs: 6, individual L and N per channel
- Rated power: 2-315 W/VA
- Dimensions 90 mm x 216 mm x 64 mm
- Mounting depth 64 mm
- Module width: 12 MW
- Power supply 110-230 V AC +/- 10%, 50/60 Hz
- Channel bridging:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 MW - 6 Channel, 6x1</td>
<td>A + B 500/200 W/VA</td>
<td>C + D 500/200 W/VA</td>
<td>E + F 500/200 W/VA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 MW - 6 Channel, 3x2</td>
<td>A + B + C 700/250 W/VA</td>
<td>C + D 500/200 W/VA</td>
<td>E + F 500/200 W/VA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 MW - 6 Channel, 2x3</td>
<td>A + B + C 700/250 W/VA</td>
<td>D + E + F 700/250 W/VA</td>
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<td></td>
</tr>
<tr>
<td>12 MW - 6 Channel, 1x3, 1x2, 1x1</td>
<td>A + B + C 700/250 W/VA</td>
<td>D + E + F 500/200 W/VA</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>12 MW - 6 Channel, 1x3, 1x2, 1x1</td>
<td>A + B 500/200 W/VA</td>
<td>C + D + E + F 700/250 W/VA</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
### Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W”

#### Technical Data

**Operating mode: Leading edge control**

<table>
<thead>
<tr>
<th>Operating Mode</th>
<th>UD/S (210W)</th>
<th>UD/S (315W)</th>
<th>6197/52 (1260W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED 230 V AC</td>
<td>2 W/VA</td>
<td>60 W/VA</td>
<td>120 W/VA</td>
</tr>
<tr>
<td>LED</td>
<td>20 W/VA</td>
<td>240 W/VA</td>
<td>480 W/VA</td>
</tr>
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<td>480 W/VA</td>
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<tr>
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<td>2 W/VA</td>
<td>160 W/VA</td>
<td>315 W/VA</td>
</tr>
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<td>160 W/VA</td>
<td>315 W/VA</td>
</tr>
</tbody>
</table>

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Technical Data

**Operating mode: Trailing edge control**

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<tr>
<th>Operating mode: Trailing edge control</th>
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<th>6197/52 (1260W)</th>
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</thead>
<tbody>
<tr>
<td>LEDi 230 V AC</td>
<td>230 V LEDi retrofit with capacitive C ballast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED</td>
<td>Low-voltage LED on electronic C transformers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>230 V AC</td>
<td>230 V halogen lamps</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Webinar “KNX LED Dimmers 2x315W/4x315W/6x315W"

Technical Data

Connecting diagram
KNX LED Dimmer UD/S 2x315W/4x315W/6x315W, MDRC

Main functions and benefits
Main functions and benefits

**Functions and Configuration**

- Different type of loads as well as automatic load detection selectable
- All standard dimming parameters like brightness values, lower and upper dimming limits, dimming speed feedback objects, etc.
- Channel bridging to increase the connectable load per channel
- Template function to save time in programming
- Easy scene concept
- Free-adjustable dimming curve correction
- Generator-operation
- Wake-up function
- Automatic load detection after power failure can be switched off
- Staircase lighting, delay and further logic functions
- ABB i-bus® Tool for easy commissioning
Commissioning and diagnostics

Several testing, diagnostic and failure feedback possibilities can be used with the ABB i-bus® Tool

- Testing of the different dim modes
- Trying different min and max values when adjusting the lamps
- What kind of failure has occurred?
- Which channel is affected?
- Etc.
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ETS application
Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W”

ETS application

Functions and parameter

Main functions:
- Channel allocation
- 32 scenes
- Template / parameter master
- Central commands for switching, dimming and value
- Correction of characteristic
- Wake-up and sleep function
- Logic functions
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ETS application

### Channel allocation – 6 x 315W

Easy channel bridging to increase the rated power

Max. 3 channels can be bundled

<table>
<thead>
<tr>
<th>12 MW - 6 Channel, 6x1</th>
<th>A</th>
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<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 MW - 6 Channel, 3x2</td>
<td>A + B</td>
<td>500/200 W/VA</td>
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<td>E + F</td>
<td>500/200 W/VA</td>
</tr>
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<td>12 MW - 6 Channel, 2x3</td>
<td>A + B + C</td>
<td>700/250 W/VA</td>
<td>D + E + F</td>
<td>700/250 W/VA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 MW - 6 Channel, 1x3, 1x2, 1x1</td>
<td>A + B + C</td>
<td>700/250 W/VA</td>
<td>D</td>
<td>E + F</td>
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<td></td>
</tr>
<tr>
<td>12 MW - 6 Channel, 1x3, 1x2, 1x1</td>
<td>A + B</td>
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<td>C</td>
<td>D + E + F</td>
<td>700/250 W/VA</td>
<td></td>
</tr>
</tbody>
</table>
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ETS application

Channel allocation – 4 x 315W

Easy channel bridging to increase the rated power
Max. 2 channels can be bundled

<table>
<thead>
<tr>
<th>8 MW - 4 Channel, 4x1</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>A + B</td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

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<th>8 MW - 4 Channel, 2x2</th>
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<th>C + D</th>
</tr>
</thead>
<tbody>
<tr>
<td>500/200 W/VA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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ETS application

Channel allocation – 2 x 315W

Easy channel bridging to increase the rated power
Max. 2 channels can be bundled

<table>
<thead>
<tr>
<th>4 MW - 2 Channel, 2x1</th>
<th>4 MW - 2 Channel, 1x2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>A + B</td>
</tr>
</tbody>
</table>

ETS application

4 MW - 2 Channel, 2x1
4 MW - 2 Channel, 1x2

Channel allocation

Allocation of the physical outputs for logical KNX channels
Bundling outputs (parallel switching)
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ETS application

**Device settings – General**

- In this parameter window the overriding parameter settings relevant for the entire device are made

- Allow manual operation (Always / Only at KNX failure)
  - This parameter is used to enable the buttons on the front in general or only at a failure of the KNX bus

- Use of the ripple control signal filter (yes/no)
  - With this parameter the ripple control signals of the network operators can be filtered out via the ripple control signal filter
  - Since generally no ripple control signals occur with the use of a generator (e.g. on ships), in this case it is recommended to deactivate the ripple control signal filter

- Enable communication object “In operation“
  - No
  - Yes (send value 0/1 cyclic)

- Manual operation:
  - Brief press of the button: On / Off (press in case of an error)
  - Long press of the button: Dimming
  - Press at least 10 sec: Load test
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ETS application

**Scenes**
- Easy configuration for up to 32 scenes
- Clear set-up for each scenes
- Individual transition time for each scene
- Enable communication object “Scene”
- Trigger the scene with (1 byte)
- 64 KNX scenes can be allocated to the scenes of the UD/S
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ETS application

Parameter masters / Templates

- In many cases each dimmer channel is configured as all other channels
- With the new LED-Dimmer only 1 master channel has to be configured
- All other channels can be copied by the master channel or be configured individually
- Advantage: Save of time and work during parametrization as typically channels need the same adjustments
- If you select “Individual” you start with the default parameters
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ETS application

Parameter masters – Basic settings

Load Detection:
- Automatic load detection
  - The dimmer senses automatically whether it is an inductive or capacitive load and adjusts the control accordingly
- LED / leading edge (inductive load)
  - No softstart - attuned to the operation of LEDs
- LED trailing edge and loads with RC behavior
  - For LEDs with trailing edge control
- Incandescent lamp / trailing edge (capacitive)
  - At the zero transit the incandescent lamp is switched on and switched off again after the expiry of a set time
- Inductive load / leading edge
  - A softstart usually takes place when switching on
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ETS application

Parameter masters – Basic settings

– Detailed parameters for switch-on/off behavior
– Dimming-on value (0.4%-100% or last value)
– Dimming time reached up to switch-on value – Softstart
  • 0: Start-up – the output switches ON immediately (ON command)
  • 00:00:01….18:12:15 – during this period the output is dimmed from 0% brightness to the switch-on value
– Fade time used [s] according to DIN EN 62 386-102
– Dimming time adjustable via object "Flexible dimming time/fade time"
– Allow switching on via dimming (Relative dimming function)
– Allow switching on via dimming value (Dimming value function)
Parameter masters – Basic settings

- Dimming time for relative dimming 0-100%
- Dimming time reached up to switch-on/off/value:
  - 00:00:00 – jump to value
  - 00:00:08 – softstart: seconds from zero to switch-on/off value (for values <32s depending DIN EN 62 386-102 “Fade Time”)
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ETS application

Parameter masters – Feedback and error messages

- Status communication objects for switching and dimming value
- Error diagnosis as KNX standard bit field (8 codes) or error number (13 errors)
- Flexible sending cycle
- Flexible definition, which errors trigger the communication object “Error”
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ETS application

### Parameter masters – Error num. / KNX Standard bit field

<table>
<thead>
<tr>
<th>Format:</th>
<th>8 bit: (U_8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Octet no.</td>
<td>1</td>
</tr>
<tr>
<td>Designation of field</td>
<td>Value not assigned</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bit fields</th>
<th>Description</th>
<th>Unit / range of values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>Bit no.</td>
<td></td>
</tr>
<tr>
<td>Load detection error</td>
<td>0 (lsb)</td>
<td>Load detection failed / incorrect load type</td>
</tr>
<tr>
<td>Undervoltage</td>
<td>1</td>
<td>Undervoltage of mains supply</td>
</tr>
<tr>
<td>Excess current</td>
<td>2</td>
<td>Excess current / short-circuit on load side</td>
</tr>
<tr>
<td>Underload</td>
<td>3</td>
<td>Under load / no load on load side</td>
</tr>
<tr>
<td>Faulty load</td>
<td>4</td>
<td>Overvoltage / excess current pulses on load side</td>
</tr>
<tr>
<td>Lamp failure</td>
<td>5</td>
<td>General lamp failure</td>
</tr>
<tr>
<td>Overheating</td>
<td>6</td>
<td>Thermal overheating of actuator</td>
</tr>
<tr>
<td>Reserved</td>
<td>7 (msb)</td>
<td>0: true, 1: false</td>
</tr>
</tbody>
</table>

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Parameter masters – Block and forced function

- The active forced operation, irrespective of whether triggered via a 1-bit or 2-bit activation, has an influence on the entire behaviour of the channel. When forced operation is called up, the brightness value parameterized in the ETS is set. A currently running dimming telegram is interrupted.

- Brightness values received during forced operation are not set, but tracked and stored in the background. Also switching telegrams are stored in the background. Relative dimming telegrams and dimming ramps are ignored. At time variations (e.g. scenes) the end brightness value is noted.

- At the end of forced operation the brightness value tracked in the background is set. The channel returns to the state prior to forced operation.

- The forced operation function has a higher priority than manual operation.
Parameter masters – Block and forced function

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- The forced operation function has a higher priority than manual operation.

### Parameter Masters – Block and Forced Operation

<table>
<thead>
<tr>
<th>Value</th>
<th>Bit 1</th>
<th>Bit 0</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Free</td>
<td>If a telegram with value 0 (binary 00) or 1 (binary 01) is received on</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>communication object forced operation, the channel is enabled and can be</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>activated via the different communication objects.</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>Force operation</td>
<td>If a telegram with value 2 (binary 10) is received on communication object</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td>forced operation, the forced operation OFF channel is switched and blocked</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>until the forced operation is deactivated again.</td>
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<tr>
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<td></td>
<td></td>
<td>As long as forced operation is active, the activation via a different</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>communication object is ignored. Telegrams are tracked in the background</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and the final values are stored.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>After the forced operation is deactivated, the brightness value</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>constantly tracked in the background is set.</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>0</td>
<td>Force operation OFF</td>
<td>If a telegram with value 3 (binary 11) is received on communication object</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>forced operation, the forced operation ON channel is switched with the</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>parameterized brightness value and blocked until the forced operation is</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>deactivated again.</td>
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</tbody>
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ETS application

**Parameter masters – Faults**

- This parameter window is used to specify how devices are to respond during certain malfunctions
- Settings for dimmer behavior in case of a fault
- Status of the dimmer after loss of KNX or mains voltage
- Status of the dimmer after return of voltage
- Automatic load test can be repeated
- Communication object for load test (can also be activated manually on the device)
Parameter masters – Central objects

- The operating mode of the central objects "Switching", "Dimming" and "Value" are similar to the normal channel objects "Switching", "Dimming" and "Value"
- The difference is that central objects, such as broadcast objects, operate simultaneously the same on all channels
- Advantage: Less group address assignments, especially for multi-channel devices
Parameter masters – Correction of characteristic

- This function is used to correct the set values of problem systems with lamps which continue to exhibit an uneven dimming behavior in standard settings.
- For lamps with a non-linear behavior.
- The characteristic curve is measured ideally in a fully darkened room.
- The dimmer automatically calculates the corrected set values from the recorded characteristic curve, so that a linear connection is re-established on the lamp between KNX set values and brightness.
- Correction with lux values or direct value input (%).
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ETS application

Parameter masters – Correction of characteristic (lux)

[Graph showing the correction of characteristic (lux) for LED dimmers]

- Channel allocation
- Device settings
- Scenes
- Parameter masters
  - Basic settings
  - Feedback and error messages
  - Block and forced function
  - Faults
  - Central objects
  - Correction of characteristic
  - Wake-up/sleep function

[Table showing the application of parameter masters for correction of characteristic]

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ETS application

Parameter masters – Wake-up/Sleep function

- Wake-up function: slowly dimming up
  • Initial brightness can be set as current value or defined percentage
  • Target brightness (0,4% - 100%)
  • Time to reach target brightness (00:00:00 – 18:12:15 hh:mm:ss) can be adjusted via group object
  • Start/Stop via 1 bit telegram (DPT 1.010 start/stop)

- Sleep function: slowly dimming down
  • Initial brightness can be set as current value or defined percentage
  • Target brightness (0% - 100%)
  • Time to reach target brightness (00:00:00 – 18:12:15 hh:mm:ss) can be adjusted via group object
  • Start/Stop via 1 bit telegram (DPT 1.010 start/stop)
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ETS application

Parameter masters – Wake-up/Sleep function example

<table>
<thead>
<tr>
<th>#</th>
<th>Time</th>
<th>Serv</th>
<th>Flgi</th>
<th>Pri</th>
<th>Source Add</th>
<th>Source Name</th>
<th>Destination</th>
<th>Destination Name</th>
<th>Rout</th>
<th>Type</th>
<th>DPT</th>
<th>Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25.06.2020 11:10:50.362</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>6127/02 c. elem. solo® conf. 4g...</td>
<td>V/1/S</td>
<td>A: Sleep function start/st...</td>
<td>6</td>
<td>GroupValueWrite</td>
<td>$01</td>
<td>Start</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>25.06.2020 11:10:50.653</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>6127/02 c. elem. solo® conf. 4g...</td>
<td>V/1/S</td>
<td>A: Sleep function start/st...</td>
<td>6</td>
<td>GroupValueWrite</td>
<td>$00</td>
<td>Stop</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>25.06.2020 11:10:50.887</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>UD/S:315.2.11 LED Dimmer 2x31...</td>
<td>V/1/S</td>
<td>A: Brightness value status 6 GroupValueWrite 5.001 percentage $49</td>
<td>$39</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>25.06.2020 11:10:50.242</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>6127/02 c. elem. solo® conf. 4g...</td>
<td>V/1/S</td>
<td>A: Sleep function start/st...</td>
<td>6</td>
<td>GroupValueWrite</td>
<td>$01</td>
<td>Start</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>25.06.2020 11:10:50.520</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>UD/S:315.2.11 LED Dimmer 2x31...</td>
<td>V/1/S</td>
<td>A: Brightness value status 6 GroupValueWrite 5.001 percentage $00</td>
<td>$00</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>25.06.2020 11:10:50.022</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>6127/02 c. elem. solo® conf. 4g...</td>
<td>V/1/S</td>
<td>A: Relative Dimming 6 GroupValueWrite 5.001 percentage $05</td>
<td>Increase: 100 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>25.06.2020 11:10:50.032</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>UD/S:315.2.11 LED Dimmer 2x31...</td>
<td>V/1/S</td>
<td>A: Brightness value status 6 GroupValueWrite 5.001 percentage $00</td>
<td>$00</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>25.06.2020 11:10:50.023</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>6127/02 c. elem. solo® conf. 4g...</td>
<td>V/1/S</td>
<td>A: Relative Dimming 6 GroupValueWrite 5.001 percentage $00</td>
<td>Increase: Break</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>25.06.2020 11:10:50.138</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>6127/02 c. elem. solo® conf. 4g...</td>
<td>V/1/S</td>
<td>Time to reach target brig...</td>
<td>6</td>
<td>GroupValueWrite</td>
<td>7.005 time (s) $00</td>
<td>3C</td>
<td>60 s</td>
</tr>
<tr>
<td>10</td>
<td>25.06.2020 11:10:50.222</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>6127/02 c. elem. solo® conf. 4g...</td>
<td>V/1/S</td>
<td>A: Sleep function start/st...</td>
<td>6</td>
<td>GroupValueWrite</td>
<td>$01</td>
<td>Start</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>25.06.2020 11:10:50.448</td>
<td>from</td>
<td>L.</td>
<td>1:10</td>
<td>UD/S:315.2.11 LED Dimmer 2x31...</td>
<td>V/1/S</td>
<td>A: Brightness value status 6 GroupValueWrite 5.001 percentage $00</td>
<td>$00</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After manual stop, actual value is sent to the bus, if the feedback object is activated

Adjustment of the time to 60 sec.

New value is used by the dimmer
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ETS application

General functions

- 5 channels for logic functions
  - Telegram cyclical
  - Gate
  - Staircase lighting
  - Delay
  - Priority
  - Logic gate
  - Min/max value transducer
  - Threshold value / Hysteresis
  - Flashing

![Application Options]

APPLICATION

- Inactive
- Telegram cyclical
- Gate
- Staircase lighting
- Delay
- Priority
- Logic gate
- Min/max value transducer
- Threshold value / Hysteresis
- Flashing
ETS application

**General functions – Telegram cyclical**

- Telegrams that are received on object "GFx: Input" are transferred directly to object "GFx: Output" and there sent cyclically.
- Object type and time can be adjusted.
- Always activated or activated at a specific value (or except a specified value).

<table>
<thead>
<tr>
<th>GFx: input</th>
<th>GFx: Output</th>
<th>Input</th>
<th>A: Switching</th>
<th>1/0</th>
<th>1 bit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Source</th>
<th>Value</th>
<th>Object</th>
<th>Type</th>
<th>Value</th>
<th>Command</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>06.07.2020</td>
<td>08:34:10,3...</td>
<td>from bus</td>
<td>S=6</td>
<td>Low</td>
<td>UD/S2.315.2.11 LED Di...</td>
<td>1/1/6</td>
<td>GroupValueWrite</td>
<td>$FF</td>
</tr>
<tr>
<td>06.07.2020</td>
<td>08:34:11,...</td>
<td>from bus</td>
<td>S=0</td>
<td>Low</td>
<td>Master: SBC/U8.0 HVA...</td>
<td>9/3/0</td>
<td>GroupValueWrite</td>
<td>35</td>
</tr>
<tr>
<td>06.07.2020</td>
<td>08:35:04,...</td>
<td>from bus</td>
<td>S=2</td>
<td>Low</td>
<td>UD/S2.315.2.11 LED Di...</td>
<td>0/0/1</td>
<td>GroupValueWrite</td>
<td>$01</td>
</tr>
</tbody>
</table>
General functions – Gate

– The application allows specific signals to be filtered and the signal flow to be temporarily blocked
– The objects "GFx: input" and "GFx: output" can take on different sizes
– If, for example, the "Control input" setting is set on "ON telegram," only telegrams from the input are transmitted to the output
ETS application

General functions – Staircase lighting

- With the application, switching telegrams and value telegrams can be provided with a switch-off delay
- The objects "GFx: input" and "GFx: output" can take on size 1 bit or 1 byte, depending on the object type selected
- Input/Output can be separated or used with the same object
General functions – Delay

– The application can be used to receive telegrams via the "Input" object
– The telegrams received are sent out via the "Output" object with a set delay time
– Retriggering: The light-on time is always restarted when a telegram is received via the "GFx: Input" object
– Filter function: only specific values are delayed

<table>
<thead>
<tr>
<th>Retriggering</th>
<th>deactivated</th>
<th>activated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter active</td>
<td>deactivated</td>
<td>activated</td>
</tr>
<tr>
<td>Filter function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filter value</td>
<td>off</td>
<td>on</td>
</tr>
<tr>
<td>Overwrite delay time for download</td>
<td>deactivated</td>
<td>activated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Source</th>
<th>Value</th>
<th>Function</th>
<th>Value</th>
<th>Duration</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>06.07.2020 09:14:35</td>
<td>from bus 5</td>
<td>Low</td>
<td>1.19</td>
<td>Delay</td>
<td>0/0/4</td>
<td>11:27:02</td>
<td>GroupValueWrite</td>
</tr>
<tr>
<td>06.07.2020 09:14:35</td>
<td>from bus 5</td>
<td>Low</td>
<td>1.19</td>
<td>Delay</td>
<td>0/0/4</td>
<td>11:27:02</td>
<td>GroupValueWrite</td>
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<td>06.07.2020 09:14:35</td>
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<td>0/0/4</td>
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<td>Low</td>
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<td>Delay</td>
<td>0/0/4</td>
<td>11:27:02</td>
<td>GroupValueWrite</td>
</tr>
<tr>
<td>06.07.2020 09:14:35</td>
<td>from bus 5</td>
<td>Low</td>
<td>1.19</td>
<td>Delay</td>
<td>0/0/4</td>
<td>11:27:02</td>
<td>GroupValueWrite</td>
</tr>
<tr>
<td>06.07.2020 09:14:35</td>
<td>from bus 5</td>
<td>Low</td>
<td>1.19</td>
<td>Delay</td>
<td>0/0/4</td>
<td>11:27:02</td>
<td>GroupValueWrite</td>
</tr>
</tbody>
</table>
Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W"

ETS application

General functions – Priority

- The application can be used to activate a forced guidance (priority) for switching outputs
- The telegrams received on "GFx: switch input" are transferred to object "GFx: output“ depending on the state of the "GFx: priority input" object
- The 2-bit object "GFx: priority input" can receive and differentiate between four different values (0, 1, 2 and 3)
- Here, the "GFx: output" object is positively driven. Three different states are differentiated:
  - "GFx: priority input" has the value "3". The value that is present on "GFx: switch input" has no meaning. The "GFx: output" object is switched and has the value "1"
  - "GFx: priority input" has the value "2". The value that is present on "GFx: switch input" has no meaning. The "GFx: output" object is switched and has the value "0"
  - "GFx: priority input" has the value "1" or "0". The "GFx: output" object is not affected. The "GFx: switch input" is linked to the status bit of the priority object OR and transferred to the "GFx: output" object
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ETS application

**General functions – Logic Gate**

- Logic gate for sending an output depending on two or more inputs
- Up to 10 inputs can be used
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ETS application

**General functions – Min/Max value transmitter**

- For each assignment of the inputs the largest/smallest/average value will be sent to the bus
- Up to 8 inputs can be used
General functions – Threshold value / Hysteresis

- If input is exceeding the upper threshold (or is falling below the lower threshold) the values which are set up will be sent to the output.
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ETS application

### General functions – Flashing

- Activated with 1 bit object = “on”
- Number of flashing cycles can be limited

<table>
<thead>
<tr>
<th>General functions</th>
<th>Channel name</th>
<th>Channel</th>
<th>Flashed for input 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common parameter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extended parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General functions</th>
<th>Flashed cycle limit</th>
<th>Number of flashed cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common parameter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extended parameters</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
KNX LED Dimmer UD/S 2x315W/4x315W/6x315W, MDRC

ABB i-bus® Tool
Functions

- Overview of all channels
- Overview of the detected load type
- Information force lock
- Trigger load test and error acknowledge
- Detailed information about error types
- Recommended solution
**Overview**

- The ABB i-bus® Tool can be used for extensive test and error diagnosis functions.
- The overview page provides a comprehensive overview of the essential settings and statuses of the individual dimming channels.

### Table: Channel Statuses

<table>
<thead>
<tr>
<th>Channel</th>
<th>Load type in ETS</th>
<th>Load type detected</th>
<th>Brightness</th>
<th>Force lock</th>
<th>Error</th>
<th>Assigned outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Auto detect</td>
<td>Inductive load (leading edge)</td>
<td>49% (122)</td>
<td>Inactive</td>
<td>Mains fault</td>
<td>A</td>
</tr>
<tr>
<td>B</td>
<td>Auto detect</td>
<td>LED and RC load (falling edge)</td>
<td>11% (27)</td>
<td>Active</td>
<td>No error</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>Auto detect</td>
<td>Auto detect</td>
<td>33% (82)</td>
<td>Inactive</td>
<td>Overload</td>
<td>C</td>
</tr>
</tbody>
</table>
Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W”
ABB i-bus® Tool

**Detail**

- The detail page can be used by the user to set specific dimming values separately for each channel, and so record the limits of the dimming ranges for example
- Also a load test can be triggered or an error acknowledged
- Additional information about load types, a possible existing error or about a possible restricted guidance that has been set, the user can read in the “Status” overview block
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ABB i-bus® Tool

**Output statuses**

- Detailed information about possible existing errors is provided channel-related on page "Status outputs“
- The physical outputs of the dimmers are portrayed in column "Output", while column "Channel" provides information about which channel the respective physical address is assigned to in the ETS
- This information is especially important for the bundling of channels
- This, for example, would allow output A and output B to be bundled, parameterized and controlled on the ETS side via channel A
Overview errors

<table>
<thead>
<tr>
<th>Errors</th>
<th>Recommended solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excess temperature</td>
<td>Reduce connected loads, provide sufficient cooling and increase the distance to adjacent devices.</td>
</tr>
<tr>
<td>Short-circuit</td>
<td>Check the wiring and rectify the short-circuit.</td>
</tr>
<tr>
<td>No load</td>
<td>Check the wiring and lamps.</td>
</tr>
<tr>
<td>Overvoltage</td>
<td>Check the wiring, supply voltage and parameterized load type.</td>
</tr>
<tr>
<td>Final stage defective</td>
<td>Switch the voltage off and on again. If the error persists, exchange the device.</td>
</tr>
<tr>
<td>230 V failure</td>
<td>Check the supply voltage.</td>
</tr>
<tr>
<td>Load failure</td>
<td>Check wiring and lamps and, if necessary, replace defective lamps.</td>
</tr>
<tr>
<td>Mains failure</td>
<td>Check the supply voltage.</td>
</tr>
<tr>
<td>Overload</td>
<td>Reduce the connected load.</td>
</tr>
<tr>
<td>Conflict of load type</td>
<td>The load type detected by the dimmer did not correspond to the load set in the ETS. The dimmer automatically adjusted the load type to prevent possible damage.</td>
</tr>
<tr>
<td>Internal error</td>
<td>Disconnect the bus and supply voltage from the device and reconnect it again.</td>
</tr>
</tbody>
</table>
KNX LED Dimmer UD/S 2x315W/4x315W/6x315W, MDRC
Commercial and technical data
Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W”
Commercial data

Overview

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Order No.</th>
<th>Name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>UD/S2.315.2.11</td>
<td>2CKA006197A0052</td>
<td>LED-Dim actuator 2x315W</td>
<td>BJE</td>
</tr>
<tr>
<td>UD/S2.315.2.1</td>
<td>2CKA006197A0053</td>
<td>LED-Dim actuator 2x315W</td>
<td>ABB</td>
</tr>
<tr>
<td>UD/S4.315.2.11</td>
<td>2CKA006197A0056</td>
<td>LED-Dim actuator 4x315W</td>
<td>BJE</td>
</tr>
<tr>
<td>UD/S4.315.2.1</td>
<td>2CKA006197A0057</td>
<td>LED-Dim actuator 4x315W</td>
<td>ABB</td>
</tr>
<tr>
<td>UD/S6.315.2.11</td>
<td>2CKA006197A0060</td>
<td>LED-Dim actuator 6x315W</td>
<td>BJE</td>
</tr>
<tr>
<td>UD/S6.315.2.1</td>
<td>2CKA006197A0061</td>
<td>LED-Dim actuator 6x315W</td>
<td>ABB</td>
</tr>
</tbody>
</table>
Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W”

Technical data

www.abb.com/KNX

→ Products and Downloads
→ Lighting Control
→ Universal Dim Actuators

– Product Manual
– Installation and Operating Instructions
– ETS Application
– EU - Declaration of Conformity
– • • •
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Training & Qualification Database
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  - Video tutorials
  - Webinar slides and videos
  - and more …
  - https://go.abb/ba-training
  - www.abb.com/knx (→ Services & Tools → Training and Qualification → Training Database)

YouTube
- Channel “ABB Home and Building Automation”
  - https://www.youtube.com/user/ABBibusKNX
Webinar “KNX LED Dimmer UD/S 2x315W/4x315W/6x315W"

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→ Services & Tools
→ Training and Qualification
→ Training Calendar
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