Product description
- Combines interface module and DALI power supply
- Integrated power supply with 240 mA for DALI devices or DALI control modules without power supply
- Interface module for connection of DALI systems with computer or programmable control systems
- For installation in switching cabinets
- 5-year guarantee

Technical data
- Rated supply voltage: 110 – 240 V
- Permitted input voltage: 110 – 260 V
- Mains frequency: 50 / 60 Hz
- Power: 1 – 6 W
- Standby power: 1 W
- Max. output current, DALI: 240 mA
- Output voltage: 16 V ±5 %
- Operating temperature: 0 ... +50 °C
- Storage temperature: -20 ... +60 °C
- Max. casing temperature tc: 80 °C
- Permitted relative humidity: 10 – 90 %, not condensed
- Mounting: DIN rail mounting, 35 mm
- Casing material: PC, flame retardant, halogen-free
- Type of protection: IP20

Ordering data
<table>
<thead>
<tr>
<th>Type</th>
<th>Article number</th>
<th>Packaging, carton</th>
<th>Weight per pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>DALI Interface RS232 PS/S</td>
<td>28001847</td>
<td>100 pc(s)</td>
<td>0.09 kg</td>
</tr>
</tbody>
</table>

Specific technical data

<table>
<thead>
<tr>
<th>Type</th>
<th>Input RS232</th>
<th>DALI output</th>
</tr>
</thead>
<tbody>
<tr>
<td>DALI Interface RS232 PS/S</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
**Product description**
- Connection cable 1 m for connection of computer with DALI Interface RS232 PS/S
- RJ45 to D-sub unshielded

**Ordering data**

<table>
<thead>
<tr>
<th>Type</th>
<th>Article number</th>
<th>Length</th>
<th>Packaging</th>
<th>Weight per pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DALI Interface RS232 cable</td>
<td>28000087</td>
<td>1 m</td>
<td>1 pc(s)</td>
<td>0.06 kg</td>
</tr>
</tbody>
</table>
**Installation**

- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.
- Individual DALI circuits must not exceed 240 mA.
- The maximum cable length of the DALI signal wires must not exceed 300 m or drop more than 2 V on the signal line voltage.
- The function of the DALI RS232 Interface is tested with all Tridonic DALI products and the functional guarantee applies only with these products.

**Standards**

EN 55022
EN 60950-1
EN 61000-3-2
EN 61000-3-3
EN 61000-6-2
EN 61547

**Wiring type and cross section**

The wiring can be solid wire, stranded wire or stranded wire with end sleeve with a cross-section of 0.75 mm² to 2.5 mm².

- wire preparation: 0.75 – 2.5 mm²
- 6 – 7.5 mm

**Glow-wire test**

according to EN 60598-1 with increased temperature of 850 °C passed.

**DALI standard**

DALI Interface RS232 PS/S is designed to control control gear with DALI standard IEC 60929 (DALI V0) and IEC 62386 (DALI V1).

**tc control point**

tc: max. 80 °C
Power-LED
- green: fault-free operation
- off: device or power failure

Status-LED
- green, intermittently flickering: fault-free operation
- green, flashing on/off every 0.5 s: test mode: manually repeated
- orange, flashing on/off every 0.5 s: test mode: automatically repeated
- red, intermittently flickering: deficiency at DALI/DSI output

Test / configuration key
The test key can be used to trigger tests as well as certain functions. Triggering a function:
• Press test key.
• Release the test key in the desired orange phase. Function is triggered.

Orange phase

<table>
<thead>
<tr>
<th>Orange phase</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 s</td>
</tr>
<tr>
<td>2</td>
<td>2 s</td>
</tr>
<tr>
<td>3</td>
<td>2 s</td>
</tr>
<tr>
<td>4</td>
<td>2 s</td>
</tr>
<tr>
<td>5</td>
<td>2 s</td>
</tr>
</tbody>
</table>

Test mode
Manually repeated:
• Hold test key down for maximum 2 seconds. The status LED will start to flash green and all luminaires will be switched on.
• Each further press of the key of less than 2 seconds switches the luminaires on and off in turn.
• To terminate the test mode, press the test key and release during the 1st orange phase. Test mode is automatically terminated if a DALI command is received.

Automatically repeated:
• Press test key.
• Release test key during the 2nd orange phase. All luminaires are switched on and off every 2.5 seconds.
• To terminate the test mode, press the test key and release during the 1st orange phase.

Configuration of the RS232 (RJ45) interface
The RS232 (RJ45) interface of the DALI Interface RS232 PS/S allows two types of data transfer:

<table>
<thead>
<tr>
<th>Data transfer mode 1</th>
<th>Data transfer mode 2 (default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer rate: 19,200 baud</td>
<td>Transfer rate: 38,400 baud</td>
</tr>
<tr>
<td>Unidirectional transfer of DALI/DSI commands</td>
<td>Bidirectional transfer of DALI/DSI commands</td>
</tr>
<tr>
<td>Replaced DALI SCI (24033463)</td>
<td>Replaced DALI SCI2 (24166096)</td>
</tr>
</tbody>
</table>

Display configuration of the RS232 (RJ45) interface
• Press test key.
• Release test key during the 3rd orange phase. Current configuration is displayed:

<table>
<thead>
<tr>
<th>Data transfer mode</th>
<th>Status LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data transfer mode 1 (DALI SCI)</td>
<td>Orange, once 0.5 sec on/off</td>
</tr>
<tr>
<td>Data transfer mode 2 (DALI SCI2)</td>
<td>Orange, twice 0.5 sec on/off</td>
</tr>
</tbody>
</table>

Switch to data transfer mode 1 (DALI SCI)
• Press test key.
• Release test key during the 4th orange phase. DALI Interface RS232 PS/S switches to data transfer mode 1.

Switch to data transfer mode 2 (DALI SCI2)
• Press test key.
• Release test key during the 5th orange phase. DALI Interface RS232 PS/S switches to data transfer mode 2.

Safety instructions
The device may only be used for the application area specified.

- Relevant health and safety regulations must be observed.
- The voltage supply must be disconnected when the device is being assembled and installed.
- Only qualified personnel may assemble, install and commission the device.

Don’t use the DALI Interface RS232 PS/S with other voltage delivering devices (e.g. DALI PS).

An other method to test if a further voltage delivering device is in the DALI signal wire:
- DALI Interface RS232 PS/S connect without mains supply to the DALI signal wire.
- If the power LED and the status LED are on despite without mains supply of the DALI Interface RS232 PS/S (typically green) then it is a forbidden supply of the DALI signal wire through an other device.
Connection:
The RS232 Signals RTS and DTR must be set to the following levels before any communication can take place:
RTS = +6 ... +12 V
DTR = -6 ... -12 V

This could be done in software or by hardware wiring.

Wiring:

<table>
<thead>
<tr>
<th>RS232 connector (9 pin)</th>
<th>RJ45 connector (8 pin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>pin 5</td>
<td>Ground</td>
</tr>
<tr>
<td>pin 3</td>
<td>TxD</td>
</tr>
<tr>
<td>pin 2</td>
<td>RxD</td>
</tr>
<tr>
<td>pin 4</td>
<td>DTR (for supply purpose only)</td>
</tr>
<tr>
<td>pin 7</td>
<td>RTS (for supply purpose only)</td>
</tr>
<tr>
<td></td>
<td>pin 4</td>
</tr>
<tr>
<td></td>
<td>pin 5</td>
</tr>
<tr>
<td></td>
<td>pin 6</td>
</tr>
<tr>
<td></td>
<td>pin 7</td>
</tr>
</tbody>
</table>

Maximum length of cable
For Data transfer mode 1 (19,200 Baud): 15 m
For Data transfer mode 2 (38,400 Baud): 5 m

Interface description for data transfer mode 1 (DALI SCI):

Serial Interface Configuration:
19200 baud; 8 data bit; no parity; 1 stop bit (19200, 8, n, 1)
half duplex

Transmission Frame:
The transmission frame consists of 7 bytes:

<table>
<thead>
<tr>
<th>8 bit</th>
<th>8 bit</th>
<th>8 bit</th>
<th>8 bit</th>
<th>8 bit</th>
<th>8 bit</th>
<th>8 bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start/Control</td>
<td>ADDR_Hi</td>
<td>ADDR_Mid</td>
<td>ADDR_LO</td>
<td>DATA_Hi</td>
<td>DATA_LO</td>
<td>Check</td>
</tr>
</tbody>
</table>

Start/Control:

<table>
<thead>
<tr>
<th>bit 7</th>
<th>bit 6</th>
<th>bit 5</th>
<th>bit 4</th>
<th>bit 3</th>
<th>bit 2</th>
<th>bit 1</th>
<th>bit 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Identify/nDALI Echo DSI/nDALI 0 0 0 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

bit 7: not used, should be set LOW for compatibility with future releases
bit 6: High: no data is sent via the DALI bus. Response only on PC (to check connection) when DATA_HI = 00h and DATA_LO = 01h, then enable / when DATA_HI = 00h and DATA_LO = 00h, then disable (default: enable)
Low: DSI (DSI) output DALI bus
bit 5: High: immediate reply to PC (not waiting for DALI answer)
Low: waiting for DALI answer (10 ms max) DALI „NO” after 10 ms
bit 4: High: Data output using DSI format
DATA_HI = 0 DATA_LO = 8 bit DSI data
DATA_HI = 0 DATA_HI and DATA_LO = 16 bit ext. DSI data
Low: Data output using DALI format
DATA_HI: DALI HighByte
DATA_LO: DALI LowByte
bit 3: not used, should be set LOW for compatibility with future releases
bit 2: not used, should be set LOW for compatibility with future releases
bit 1: not used, should be set LOW for compatibility with future releases
bit 0: not used, should be set LOW for compatibility with future releases

ADDR_HI ... ADDR_LO
The adress (ADDR_HI ... ADDR_LO) is not used by the DALI RS232 interface, supported for software compatibility with other DALI products only. Should be set to zero.

Check
XOR-combination of the previous 6 bytes (Start/Control ... to ... DATA_LO).

DATA_HI, DATA_LO
DALI/DSI data. See Start/Control for a description.
DALI RS232 Interface answer to PC:

The answer of the DALI RS232 Interface to the PC uses 3 bytes:

<table>
<thead>
<tr>
<th>8 bit</th>
<th>8 bit</th>
<th>8 bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start/Control</td>
<td>DATA</td>
<td>Check</td>
</tr>
</tbody>
</table>

Start/Control:

<table>
<thead>
<tr>
<th>bit 7</th>
<th>bit 6</th>
<th>bit 5</th>
<th>bit 4</th>
<th>bit 3</th>
<th>bit 2</th>
<th>bit 1</th>
<th>bit 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>Release</td>
<td>Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Identifier: DALI SCI ID = 5
Release: 0 - (firmware releases Feb. 2001)
Status: 00 - OK
01 - DALI Data
10 - DALI answer "NO"
11 - Error check sum: DATA = 1
     DALI bus short circuit: DATA = 2
     DALI receive error: DATA = 3

Data:
If Identify = 1 or Echo = 1: 0 = DALI disable; 1 = DALI enable
else: DALI answer byte

Check Sum:
XOR-combination of the previous 2 bytes (Start/Control XOR DATA).

Attention:
The DALI RS232 Interface reply should be checked under all circumstances. This assures the DALI command has been sent (and received) and the DALI RS232 Interface is ready to handle a new command. There is no command buffer in the data transfer mode 1 (DALI SCI)!
Interface description for data transfer mode 2 (DALI SCI2):

**Serial Interface Configuration:**
38400 baud; 8 data bit; no parity; 1 stop bit (38400, 8, n, 1)
Half duplex

**Transmission Protocol:**
To communicate with the DALI RS232 Interface the following simple transmission protocol is used:
The forward and backward frame both always consist of 5 bytes.
Send this frame to the DALI RS232 Interface:

<table>
<thead>
<tr>
<th>8 bit</th>
<th>8 bit</th>
<th>8 bit</th>
<th>8 bit</th>
<th>8 bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>DATA HIGH</td>
<td>DATA MID</td>
<td>DATA LOW</td>
<td>Check Sum</td>
</tr>
</tbody>
</table>

**Control:**

<table>
<thead>
<tr>
<th>bit 7</th>
<th>bit 6</th>
<th>bit 5</th>
<th>bit 4</th>
<th>bit 3</th>
<th>bit 2</th>
<th>bit 1</th>
<th>bit 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME</td>
<td>Identify/ nDALI</td>
<td>Echo</td>
<td>DSI/nDALI</td>
<td>0</td>
<td>Mode 2</td>
<td>Mode 1</td>
<td>Mode 0</td>
</tr>
</tbody>
</table>

**bit 7:** Monitor Enable. 1 = enable monitor function. If enabled the DALI RS232 Interface sends all received DALI data back to the PC.

**bit 6:**
High: no data is sent via the DALI bus. Response only on PC (to check connection)
when DATA_HI = 00h and DATA_LO = 00h, then disable / when DATA_HI = 00h and DATA_LO = 00h, then disable (default: enable)
Low: DALI (DSI) output on the DALI bus

**bit 5:**
High: immediate reply to PC (not waiting for DALI answer)
Low: waiting for DALI answer (10 ms max.) DALI “NO” after 10 ms

**bit 4:**
High: data output in DSI format
DATA_HI = 0: DATA_LO = 8 bit DSI data
Low: data output in DALI format:
DATA_HI: DALI HighByte
DATA_LO: DALI LowByte
data output in eD format:
DATA_HI: eD HighByte
DATA_MID: eD MiddleByte
DATA_LO: eD LowByte

**bit 3:** not used, should be set LOW for compatibility with future releases

**bit 2:**
0: not used
1: send DALI answer (8 bit data) (DATA_LO)
2: send DALI (16 bit) (DATA_MID, DATA_LO)
3: send eD (25 bit data) (DATA_HI, DATA_MID, DATA_LO)
4: send eD (25 bit data) (DATA_HI, DATA_MID, DATA_LO)
5: send DSI (8 bit data if DATA_MID = 0, else 16 bit data (DATA_MID, DATA_LO))
DATA HIGH, DATA LOW
If sent to the DALI RS232 Interface: DALI/DSI data. See description of the Control byte
If received from the DALI RS232 Interface: see below.

The DALI RS232 Interface answer uses 5 bytes to the PC:

<table>
<thead>
<tr>
<th>Status</th>
<th>DATA HIGH</th>
<th>DATA MID</th>
<th>DATA LOW</th>
<th>Check Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>Release</td>
<td>Status</td>
<td>Identifier</td>
<td>Release</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identifier</th>
<th>DALI SCI2 ID = 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 0</td>
<td>DALI answer “NO”</td>
</tr>
<tr>
<td>Status 0000</td>
<td>OK</td>
</tr>
<tr>
<td>001</td>
<td>DALI answer “NO”</td>
</tr>
<tr>
<td>010</td>
<td>DALI 8 bit data</td>
</tr>
<tr>
<td>011</td>
<td>DALI 16 bit data</td>
</tr>
<tr>
<td>100</td>
<td>DALI 24 bit data</td>
</tr>
<tr>
<td>101</td>
<td>DSI Data (8 bit if DATA_MID = 0, else 16 bit ext. DSI)</td>
</tr>
<tr>
<td>110</td>
<td>not used</td>
</tr>
<tr>
<td>111</td>
<td>Error</td>
</tr>
</tbody>
</table>

Check sum
XOR-combination of the previous 4 bytes (Control/Status ... to ... DATA_LO).

Attention:
The DALI RS232 Interface’s reply should be checked under all circumstances. This assures the DALI command has been sent (and received) and the DALI RS232 Interface is ready to handle a new command. There is no command buffer in the data transfer mode 2 (SCI2).