Control module for PCA/TE one4all/PCD
For integral and remote mounting

DSI-V/T – Amplification synchronization of DSI signals Switch/presence detector control

CE

The digital DSI control module is designed to control up to 50 digital units such as electronic control gear, transformers and phase dimmers. It therefore has all the properties shared by all DSI units so far and enables PCA/TE one4all/PCD digital electronic control gear to be automatically switched and controlled via the control line.

The compact DSI-V/T digital control module is a recent addition to the portfolio. Thanks to its ease of use with DIP switches, it is designed to cover the following functions and applications:

Amplifier function (DSI-V)
The DSI-V/T control module amplifies and synchronises the DSI signal. By regenerating the signal it is possible to operate several control modules one after the other, making this the perfect solution for tunnels. The DSI-V/T has a memory that stores the last DSI value in the event of a power failure. If, for example, a unit is in standby mode (DSI value = 0), this state is retained even after a power failure.

Switch control function (DSI-T)
For switch control the following functions are implemented:
– PD on/off
– PD only off
– PD never off
– Scene

The DSI-V/T control module can be configured as a switch control module with the aid of the built-in DIP switches. This makes the DSI-V/T ideal for manual dimming, ON/OFF switching and calling up presets (defined dimming levels) using conventional one-way and two-way switches. Any number of switches can be connected to the DSI-V/T in parallel so it can be operated from different places.

smartDIM (function)
PD on/off, PD only off, PD never off, Scene.
By connecting a presence detector PCA/TE one4all/PCD digital electronic control gear can be switched automatically via the control lines.

DSI-PC (function)
The DSI-V/T control module can also be configured as a hardware interface for winDIM software. It can then be used to control up to 50 digital dimmable ECGs from a PC.

DSI-Tunnel (function)
Safety mode specifically for tunnel applications.
If a DSI signal is not received within a period of 60 seconds, the DSI-V/T will fade up to 100% brightness in 60 seconds. A DSI value of 0 is forwarded only if the signal is received three times in succession (this enhances the fault tolerance of the system). This makes it difficult to switch off the system inadvertently. Fault reporting is also suppressed.

Type			**DSI-T mode**	**DSI-V mode**
Article number:			86458090	86458090
Power supply:	Mains voltage	V	120–277	120–277
	Frequency	Hz	50/60	50/60
	Maximum output	VA (W)	< 1,0	< 1,0
Inputs:	Switch	–	one-way/two-way	–
	Presence detector	–	yes	–
	Max. cable length to the switches	m	100	–
	Input voltage switch/PD	V	120–277	–
	Frequency	Hz	50/60	–
	DSI signal	–	–	DSI/winDIM
Outputs:	DSI controller	–	1	1
	Signal	–	digital/serial	digital/serial
	Voltage	V	12 ±10 %	12 ±10 %
	Data rate	Bd	1200	1200
	Control power per output	PCA/TE one4all/PCD	50	50
	Maximum cable length	m	250	250
Cable length definition	Max. cable length for bridging in tunnel mode (otherwise 250 m) for min. 1.5 mm²	m	–	500
Temperature:	Permissible ambient temperature	°C	-25 → +60	-25 → +60

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Cable types

Standard installation and wiring material is used. According to DIN VDE 0100/ T520/Part 6, main circuits and associated auxiliary circuits may be laid together even if the auxiliary circuits carry a lower voltage than the main circuits. Make sure to use cable designed to take the maximum operating voltage.

A twisted or stranded 2-core cable approved for low-voltage systems is used as the bus line (2x1.5 mm² is recommended). The cable must be designed for a test voltage of 4 kV between the wires and external sheath surface (test in accordance with DIN VDE 0472/Part 508). The cables are not shielded. One twist per metre is recommended; on per 5 metres is the minimum.

e.g.:
H 05 VV-U 2x0.75 (NYM 2x0.75 mm² twisted)
H 05 VV-U 2x1.5 (NYM 2x1.5 mm² twisted)
J-Y(ST)Y tested to 4 kV
PYCYM 2 x 2 x 0.8 (diameter). Note: this corresponds to 2 x 2 x 0.5 mm²

Cable lengths

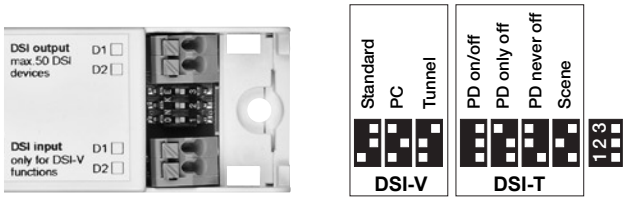
	0.5 mm²	0.75 mm²	1.5 mm²
Built-in ceiling/luminaire modules	125 m	125 m	250 m
DSI signal amplifier (DSI-V)	125 m	125 m	250 m

Functional description

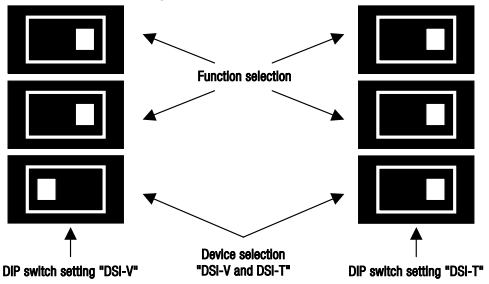
DSI V/T has two basic functions.

Function selection DSI-V/T

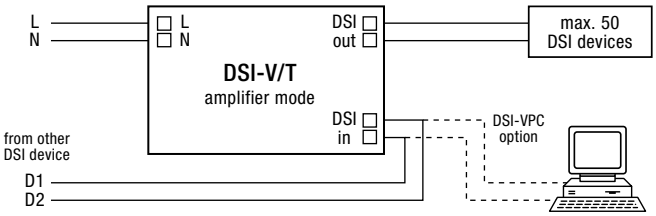
DIP switch (1) for selecting DSI-V or DSI-T

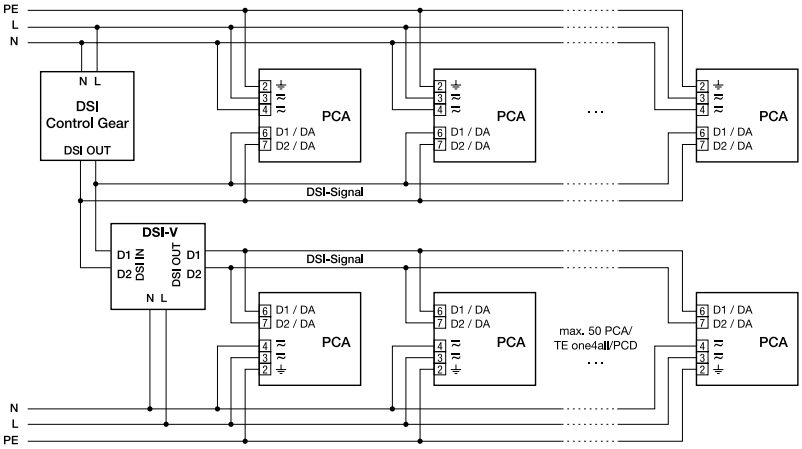


DIP switch settings



DSI-V function





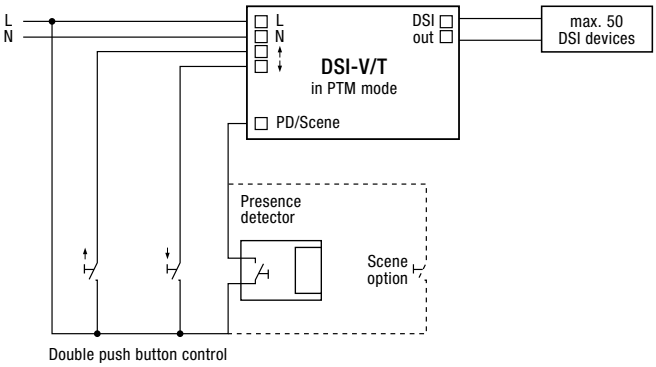
Cable length:

Cable lengths of up to 500 m can be achieved by concatenating individual DSI-V/Ts. This maximum cable length can only be guaranteed in DSI-V mode if the DSI-V/T is operated as the only load, otherwise the maximum cable length is 250 m for a 1,5 mm² cable.

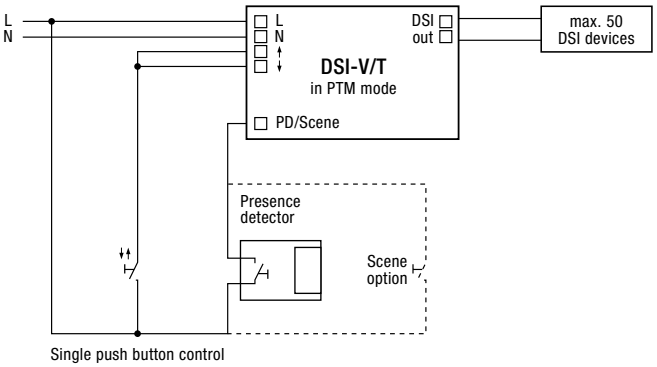
Standard function
- Standard:
  The DSI signal is received, amplified (signal amplitude), refreshed (on a time basis) and output again.

PC function
- PC:
  The return channel is deactivated at the input for connection of the serial RS232 interface of winDIM.

Tunnel function
- Safety mode specifically for tunnel applications.
  If a DSI signal is not received within a period of 60 seconds, the DSI-V/T will fade up to 100 % brightness. A DSI value of 0 is forwarded only if the signal is received three times in succession (this enhances the fault tolerance of the system). This makes it difficult to switch off the system inadvertently. Fault reporting is also suppressed.



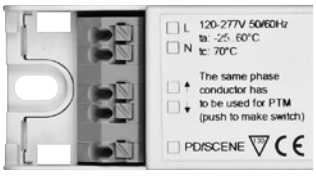
Double push button control

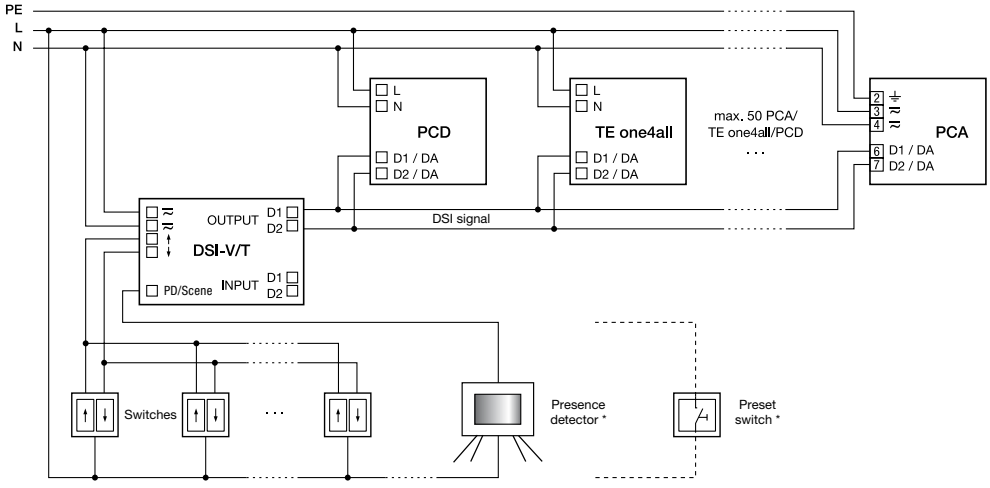


Single push button control

DSI-T function

Caution:
If the DSI-V/T is operated on a three-phase system, the switches must be connected to the same phase as the feed (L) of the DSI-V/T.





* Either control with presence detector or scene control via switches

With the DSI-T function selection, user-friendly dimming and ON/OFF switching using commercially available mains voltage switches (one-way or two-way) is possible.

Any number of switches can be connected to the DSI-V/T in parallel so it can be operated from different places (see diagram above). DSI-V/T has a dimming value memory (memory function). Whenever the lighting system is switched on or whenever power returns after a power failure the last light value set before the system was switched off is activated. If, for example, a unit is in standby mode (DSI value = 0), this state is retained even after a power failure.

Double pushbutton control

Short press ↑ or ↓	Switch on or off depending on light setting (50–600 ms)
Long press ↑	Fade up (brighter) (> 600 ms)
Long press ↓	Fade down (darker) (> 600 ms)

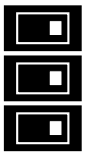
Single pushbutton control

Short press ↑↓	Switch on or off depending on light setting (50–600 ms)
Long press ↑↓	Switch between brighter or darker (> 600 ms)
Fade rate switch:	4.5 s over the entire fade range

Synchronisation function

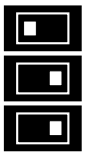
If several DSI-V/Ts are connected to a switch in DSI-T mode, the outputs may no longer operate in synchronism. Synchronisation is established by a long press of more than 10 seconds. → The light level to which the units are synchronised is then 50 %.

DIP switch settings



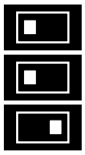
PD on/off (Presence Detection) function

- The PD input is closed:
  The lighting is switched on immediately. The DSI value fades to the memory value.
- The PD input is opened:
  The lighting fades down and switches off with a fade time of **60 seconds** (for a DSI value of 255).



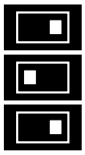
PD only off (Presence Detection)

- The PD input is closed:
  The lighting is switched on immediately. The DSI value fades to the memory value.
- The PD input is opened:
  The lighting fades down and switches off with a fade time of **60 seconds** (for a DSI value of 255). If the presence detector now detects activity again and therefore closes the PD input, the lighting will still remain dark. The lighting can only be switched on by means of the external switch. If this switch is now actuated the lighting will fade up to the last DSI value set.



PD never off (Presence Detection)

- The PD input is closed:
  The lighting is switched on. The lighting fades up to the last DSI value set.
- The PD input is opened:
  The lighting fades down to 3 %; it is not switch off. ON/OFF switching is possible only with the one-way/two-way switch.
  Fade time = 60 seconds.



Scene function

- The PD input is closed:
  A switch for retrieving scenes is connected to the PD input.

Saving a scene

- Long press (> 10 seconds):
  The current DSI value is saved as the memory value.
- This is signalled by double flashing for 0.7 seconds (min.-max.-min.-max.).

Retrieving a scene

- Short press (50–600 ms):
  The saved scene (memory value) is retrieved.

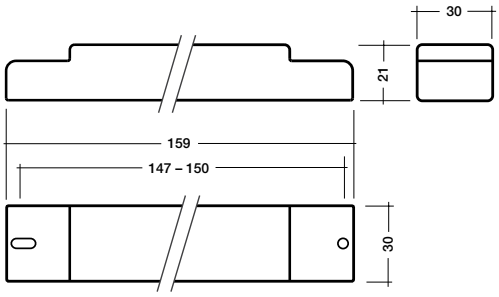
Note

- After a power failure, the last scene value to be stored is sent back to the ECG when power returns (function: memory value).

Summary – product strengths
- Large input voltage range 120–277 V 50/60 Hz
- Mains-compatible switch inputs 120–277 V 50/60 Hz
- Low-profile luminaire installation casing 160 x 21 x 30 mm
- Cascadable amplifiers
- Special tunnel function
- Input power < 1.0 W

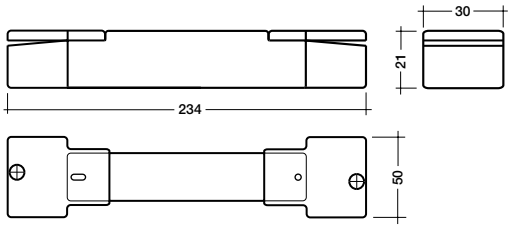
Appendix

Casing dimensions
160 x 21 x 30 mm

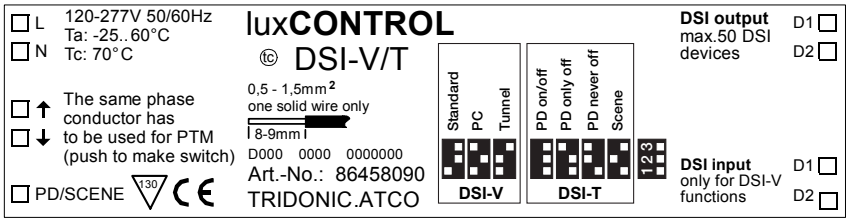


Accesoirs
Strain-relief set, article number: 86458689

Fastening



Terminal arrangement
Terminals: Rigid wire 0.5–1.5 mm²



Operating temperature
Ta: -25 to 60 °C

Regulations, approvals & standards
The DSI-V/T complies with the following standards:
EN 61347-2-11 Special requirements for different electrical circuits for luminaires
EN 55015 EMC limit values for radio interference
EN 61547 Equipment for general lighting purposes, EMC immunity
CE conformity with the above standards is declared.

Standards
DSI specification V2.0 dated 20.7.01

Packaging, delivery

Single pack	32 x 23 x 170 mm
Multi-pack	120 x 74 mm
Number of units per box	10
Cable clamp	provided (2 x article number 07448771)