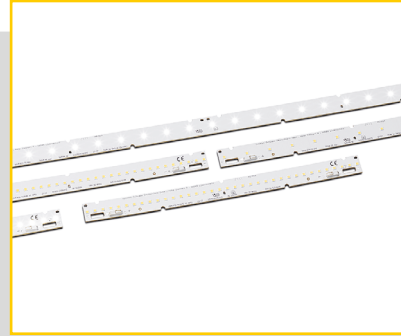


LED LINE SMD W2  
EASY GEN. 2  
LONG BOARDS  
L28/112



LED LINE SMD W2 EASY GEN. 2  
LONG BOARDS L28/112

**WU-M-702, WU-M-703, WU-M-704, WU-M-705,  
WU-M-707, WU-M-708**

**Typical Applications**

Built-in luminaires/general illumination

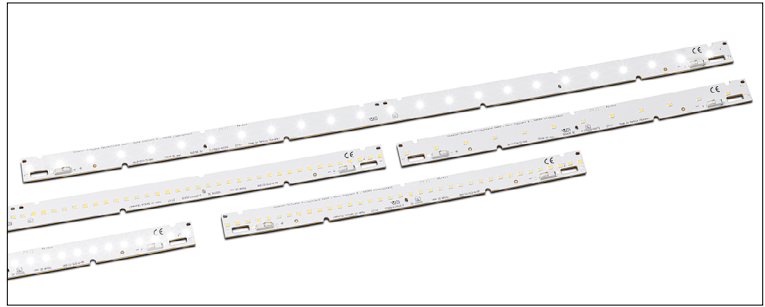
- Office lighting
- Retail, corridor and shelf lighting
- T5/T8 replacement as built-in module
- Industry lighting

**LED Line SMD W2 Easy Gen. 2  
Long Boards L28/112**

- **LONG SERVICE LIFE TIME: 90,000 H (L80, B10)**
- **HIGHLY EFFICIENT: UP TO 187 LM/W  
AT  $T_p = 50\text{ }^\circ\text{C}$**
- **2 LENGTHS AVAILABLE: 280 / 1120 MM**
- **ZHAGA-COMPLIANT DIMENSIONS**
- **ENEC APPROVED**



## LED Line SMD W2 Easy Gen. 2 Long Boards - L28/112



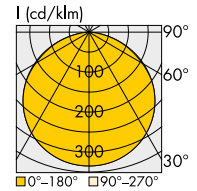
### Technical Notes

- LED built-in module for integration into luminaires
- Dimensions  
WU-M-704/705/707: 280x20 mm  
WU-M-702/703/708: 1120x20 mm
- Driving current: 150 / 250 mA / 300 mA / 350 mA / 500 mA
- On-board push-in terminals, optional on top or bottom
- Beam angle: 120°



### Typical Light Distribution Curve

Data are available in .ldt format for download under [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com).



### Covers and W2 optics

Please visit our homepage for details for suitable covers and W2 optics:

- [www.vossloh-schwabe.com/en/products/optics-reflectors/linear-covers/linear-covers-1r-for-smd-w2](http://www.vossloh-schwabe.com/en/products/optics-reflectors/linear-covers/linear-covers-1r-for-smd-w2)
- [www.vossloh-schwabe.com/en/products/optics-reflectors/linear-optics/linear-optics-1r-for-smd-w2](http://www.vossloh-schwabe.com/en/products/optics-reflectors/linear-optics/linear-optics-1r-for-smd-w2)

### Electrical Characteristics

at  $t_p = 50\text{ °C}$

Type	No. of SMDs	Typ. voltage DC					Temperature coefficient mV/K	Typ. power consumption				
		150 mA V	250 mA V	300 mA V	350 mA V	500 mA V		150 mA W	250 mA W	300 mA W	350 mA W	500 mA W
<b>LED Line SMD W2 Easy Gen. 2 – Long Boards L28</b>												
WU-M-705	24	21.7	22.3	22.6	/	/	-8.24	3.2	5.6	6.8	/	/
WU-M-707	30	27.1	27.9	28.2	/	/	-10.30	4.1	7.0	8.5	/	/
WU-M-704	35	18.5	18.9	19.1	19.3	19.8	-7.21	2.8	4.7	5.7	6.8	9.9
<b>LED Line SMD W2 Easy Gen. 2 – Long Boards L112</b>												
WU-M-702	96	86.6	89.2	90.3	/	/	-32.95	13.0	22.3	27.1	/	/
WU-M-708	120	108.3	111.5	112.9	/	/	-41.19	16.2	27.9	33.9	/	/
WU-M-703	140	74.1	75.8	76.5	77.2	79.1	-28.83	11.1	18.9	23.0	27.0	39.5

Voltage and power consumption tolerance:  $\pm 10\%$  | **Use of external LED constant current driver required.**

### Maximum Ratings

Exceeding the maximum ratings can lead to reduction of service life or destruction of the module.

Type	Operating current (mA)	Operation temperature range at $t_c$ point		Storage temperature range		Max. allowed repetitive peak current for frequencies $\geq 100\text{ Hz}$ (mA)
		°C min.	°C max.	°C min.	°C max.	
WU-M-703, WU-M-704	500	-10	+80	-20	+70	900
WU-M-702, WU-M-705, WU-M-707, WU-M-708	300					540

### Operating Life

L80/B10

in hours at measured temperature at  $t_p$  point

	150 mA			250 mA			300 mA			350 mA		
	40 °C	50 °C	80 °C	40 °C	50 °C	80 °C	40 °C	50 °C	80 °C	40 °C	50 °C	80 °C
WU-M-703, WU-M-704	>90,000	>90,000	>84,000	>72,000	>72,000	>54,000	>72,000	>72,000	>53,000	>72,000	>72,000	>52,000
WU-M-702, WU-M-705, WU-M-707, WU-M-708	>72,000	>72,000	>54,000	>72,000	>72,000	>52,000	>72,000	>72,000	>50,000	/	/	/

	500 mA		
	40 °C	50 °C	80 °C
WU-M-703, WU-M-704	>72,000	>72,000	>50,000
WU-M-702, WU-M-705, WU-M-707, WU-M-708	/	/	/

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

# LED Line SMD W2 Easy Gen. 2 – Long Boards L28/112

## Optical Characteristics – CRI > 80

at  $t_p = 50\text{ °C}$

CRI:  $R_a > 80$

Type	Ref. No. Connection			Board-2-Board (B2B)	Colour	Correlated colour temp. * K	Typ. luminous flux** and typ. efficiency** at										Photometric code
	top (TC)	bottom (BC)	small top (STC)				150 mA		250 mA		300 mA		350 mA		500 mA		
							lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	

### LED Line SMD W2 Easy Gen. 2 – Long Boards L28

WU-M-705-B2B-830	/	/	/	<b>572687</b>	WW	3000	570	175	940	169	1125	166	/	/	/	/	830/349
WU-M-705-B2B-840	/	/	/	<b>572654</b>	NW	4000	590	182	980	176	1175	173	/	/	/	/	840/349
WU-M-705-B2B-850	/	/	/	<b>572688</b>	CW	5000	590	182	980	176	1175	173	/	/	/	/	850/349
WU-M-705-B2B-865	/	/	/	<b>572689</b>	CW	6500	580	178	960	172	1145	169	/	/	/	/	865/349
WU-M-707-B2B-830	/	/	/	<b>572703</b>	WW	3000	710	175	1175	169	1410	166	/	/	/	/	830/349
WU-M-707-B2B-840	/	/	/	<b>572704</b>	NW	4000	740	182	1225	176	1465	173	/	/	/	/	840/349
WU-M-707-B2B-850	/	/	/	<b>572705</b>	CW	5000	740	182	1225	176	1465	173	/	/	/	/	850/349
WU-M-707-B2B-865	/	/	/	<b>572706</b>	CW	6500	725	178	1200	172	1435	169	/	/	/	/	865/349
WU-M-704-B2B-830	/	/	/	<b>572684</b>	WW	3000	500	180	830	175	995	173	1155	171	1645	166	830/349
WU-M-704-B2B-840	/	/	/	<b>572653</b>	NW	4000	520	187	865	182	1035	180	1205	178	1710	173	840/349
WU-M-704-B2B-850	/	/	/	<b>572685</b>	CW	5000	520	187	865	182	1035	180	1205	178	1710	173	850/349
WU-M-704-B2B-865	/	/	/	<b>572686</b>	CW	6500	510	183	845	178	1010	176	1175	174	1675	169	865/349

### LED Line SMD W2 Easy Gen. 2 – Long Boards L112

WU-M-702-TC/BC/STC/B2B-830	<b>572678</b>	<b>572799</b>	<b>572800</b>	<b>572801</b>	WW	3000	2275	175	3765	169	4505	166	/	/	/	/	830/349
WU-M-702-TC/BC/STC/B2B-840	<b>572648</b>	<b>572646</b>	<b>572647</b>	<b>572645</b>	NW	4000	2365	182	3920	176	4690	173	/	/	/	/	840/349
WU-M-702-TC/BC/STC/B2B-850	<b>572679</b>	on request	on request	<b>572802</b>	CW	5000	2365	182	3920	176	4690	173	/	/	/	/	850/349
WU-M-702-TC/BC/STC/B2B-865	<b>572680</b>	on request	572833	<b>572803</b>	CW	6500	2315	178	3835	172	4590	169	/	/	/	/	865/349
WU-M-708-TC/BC/STC/B2B-830	<b>572707</b>	<b>572809</b>	<b>572810</b>	<b>572759</b>	WW	3000	2840	175	4705	169	5630	166	/	/	/	/	830/349
WU-M-708-TC/BC/STC/B2B-840	<b>572708</b>	<b>572712</b>	<b>572713</b>	<b>572714</b>	NW	4000	2960	182	4900	176	5865	173	/	/	/	/	840/349
WU-M-708-TC/BC/STC/B2B-850	<b>572709</b>	on request	on request	<b>572811</b>	CW	5000	2960	182	4900	176	5865	173	/	/	/	/	850/349
WU-M-708-TC/BC/STC/B2B-865	<b>572710</b>	on request	on request	<b>572812</b>	CW	6500	2895	178	4790	172	5735	169	/	/	/	/	865/349
WU-M-703-TC/BC/STC/B2B-830	<b>572681</b>	<b>572804</b>	<b>572805</b>	<b>572806</b>	WW	3000	1995	180	3315	175	3970	173	4625	171	6570	166	830/349
WU-M-703-TC/BC/STC/B2B-840	<b>572652</b>	<b>572650</b>	<b>572651</b>	<b>572649</b>	NW	4000	2080	187	3450	182	4135	180	4815	178	6840	173	840/349
WU-M-703-TC/BC/STC/B2B-850	<b>572682</b>	on request	on request	<b>572807</b>	CW	5000	2080	187	3450	182	4135	180	4815	178	6840	173	850/349
WU-M-703-TC/BC/STC/B2B-865	<b>572683</b>	on request	on request	<b>572808</b>	CW	6500	2035	183	3375	178	4045	176	4710	174	6690	169	865/349

3000 K = warm white (WW), 4000 K = neutral white (NW), 5000 K and 6500 K = cool white (CW)

\* Colour tolerance: 3 MacAdam | \*\* Production tolerance of luminous flux and efficiency:  $\pm 10\%$

Minimum order quantity (packaging unit)	
<b>L28 (B2B)</b>	<b>L112 (TC / STC / BC/ B2B)</b>
24 pcs.	75 pcs.

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# LED Line SMD W2 Easy Gen. 2 – Long Boards L28/112

## Optical Characteristics – CRI > 90

at  $t_p = 50\text{ °C}$

CRI:  $R_a > 90$

Type	Ref. No. Connection			Board-2-Board (B2B)	Colour	Correlated colour temp.* K	Typ. luminous flux** and typ. efficiency** at										Photometric code
	top (TC)	bottom (BC)	small top (STC)				150 mA		250 mA		300 mA		350 mA		500 mA		
							lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	

### LED Line SMD W2 Easy Gen. 2 – Long Boards L28

WU-M-705-B2B-930	/	/	/	<b>572836</b>	WW	3000	460	141	745	133	875	129	/	/	/	/	930/349
WU-M-705-B2B-940	/	/	/	<b>572837</b>	NW	4000	510	158	830	149	980	144	/	/	/	/	940/349
WU-M-705-B2B-950	/	/	/	on request	CW	5000	510	158	830	149	980	144	/	/	/	/	950/349
WU-M-705-B2B-965	/	/	/	on request	CW	6500	510	158	830	149	980	144	/	/	/	/	965/349
WU-M-707-B2B-930	/	/	/	<b>572838</b>	WW	3000	575	141	930	133	1095	129	/	/	/	/	930/349
WU-M-707-B2B-940	/	/	/	<b>572839</b>	NW	4000	640	158	1035	149	1220	144	/	/	/	/	940/349
WU-M-707-B2B-950	/	/	/	on request	CW	5000	640	158	1035	149	1220	144	/	/	/	/	950/349
WU-M-707-B2B-965	/	/	/	on request	CW	6500	640	158	1035	149	1220	144	/	/	/	/	965/349
WU-M-704-B2B-930	/	/	/	<b>572834</b>	WW	3000	405	146	670	141	795	139	920	136	1280	129	930/349
WU-M-704-B2B-940	/	/	/	<b>572835</b>	NW	4000	455	163	745	158	890	155	1025	152	1425	144	940/349
WU-M-704-B2B-950	/	/	/	on request	CW	5000	455	163	745	158	890	155	1025	152	1425	144	950/349
WU-M-704-B2B-965	/	/	/	on request	CW	6500	455	163	745	158	890	155	1025	152	1425	144	965/349

### LED Line SMD W2 Easy Gen. 2 – Long Boards L112

WU-M-702-TC/BC/STC/B2B-930	<b>572840</b>	<b>572841</b>	<b>572842</b>	<b>572843</b>	WW	3000	1835	141	2975	133	3510	129	/	/	/	/	930/349
WU-M-702-TC/BC/STC/B2B-940	<b>572844</b>	<b>572845</b>	<b>572846</b>	<b>572847</b>	NW	4000	2045	158	3315	149	3910	144	/	/	/	/	940/349
WU-M-702-TC/BC/STC/B2B-950	on request	on request	on request	on request	CW	5000	2045	158	3315	149	3910	144	/	/	/	/	950/349
WU-M-702-TC/BC/STC/B2B-965	on request	on request	on request	on request	CW	6500	2045	158	3315	149	3910	144	/	/	/	/	965/349
WU-M-708-TC/BC/STC/B2B-930	<b>572856</b>	<b>572857</b>	<b>572858</b>	<b>572859</b>	WW	3000	2295	141	3715	133	4385	129	/	/	/	/	930/349
WU-M-708-TC/BC/STC/B2B-940	<b>572860</b>	<b>572861</b>	<b>572862</b>	<b>572863</b>	NW	4000	2560	158	4140	149	4890	144	/	/	/	/	940/349
WU-M-708-TC/BC/STC/B2B-950	on request	on request	on request	on request	CW	5000	2560	158	4140	149	4890	144	/	/	/	/	950/349
WU-M-708-TC/BC/STC/B2B-965	on request	on request	on request	on request	CW	6500	2560	158	4140	149	4890	144	/	/	/	/	965/349
WU-M-703-TC/BC/STC/B2B-930	<b>572848</b>	<b>572849</b>	<b>572850</b>	<b>572851</b>	WW	3000	1625	146	2680	141	3190	139	3690	136	5120	129	930/349
WU-M-703-TC/BC/STC/B2B-940	<b>572852</b>	<b>572853</b>	<b>572854</b>	<b>572855</b>	NW	4000	1810	163	2985	158	3555	155	4110	152	5705	144	940/349
WU-M-703-TC/BC/STC/B2B-950	on request	on request	on request	on request	CW	5000	1810	163	2985	158	3555	155	4110	152	5705	144	950/349
WU-M-703-TC/BC/STC/B2B-965	on request	on request	on request	on request	CW	6500	1810	163	2985	158	3555	155	4110	152	5705	144	965/349

3000 K = warm white (WW), 4000 K = neutral white (NW), 5000 K and 6500 K = cool white (CW)

\* Colour tolerance: 3 MacAdam | \*\* Production tolerance of luminous flux and efficiency:  $\pm 10\%$

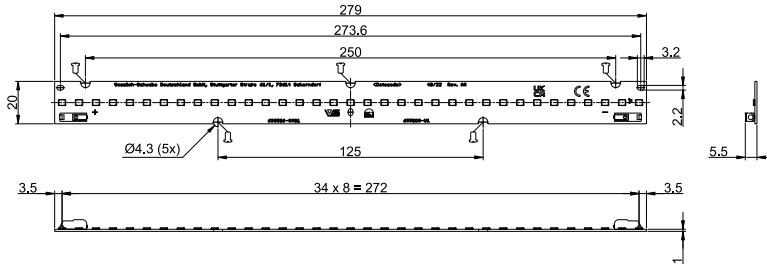
Minimum order quantity (packaging unit)	
<b>L28 (B2B)</b>	<b>L112 (TC / STC / BC/ B2B)</b>
24 pcs.	75 pcs.

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

# LED Line SMD W2 Easy Gen. 2 – Long Boards L28/112

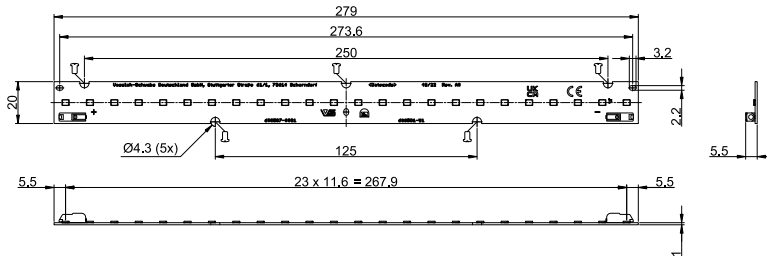
## Mechanical Dimensions – LED Line SMD W2 Easy Gen. 2 – Long Boards L28

### WU-M-704-B2B

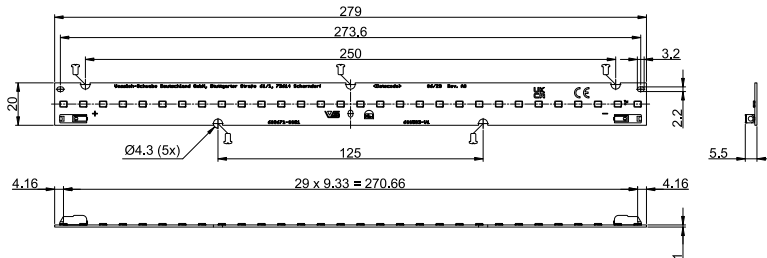


TC = Top Connection  
 BC = Bottom Connection  
 STC = Small Top Connection  
 B2B = Board-to-Board

### WU-M-705-B2B



### WU-M-707-B2B

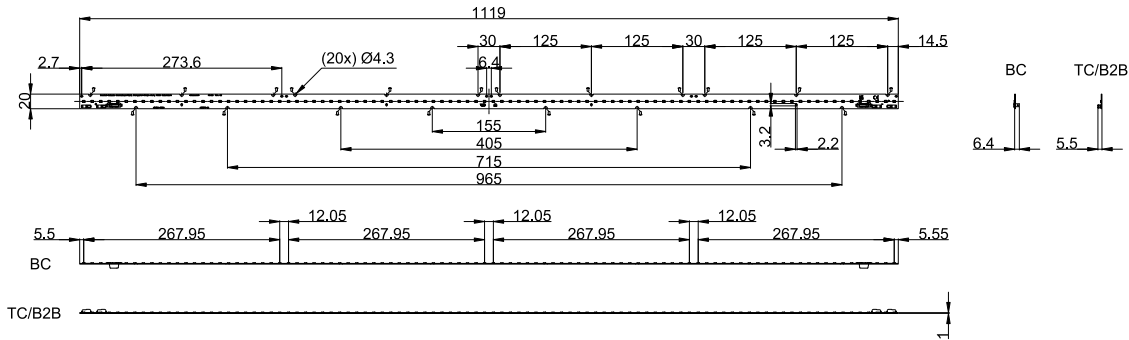


The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

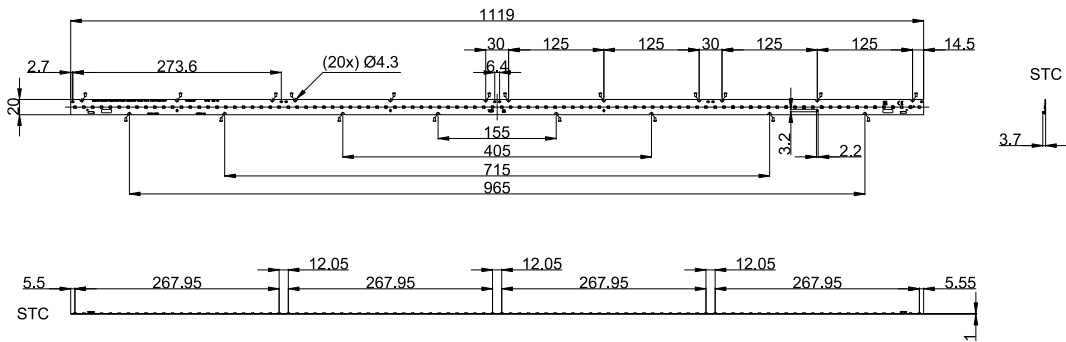
# LED Line SMD W2 Easy Gen. 2 – Long Boards L28/112

## Mechanical Dimensions – LED Line SMD W2 Easy Gen. 2 – Long Boards L112

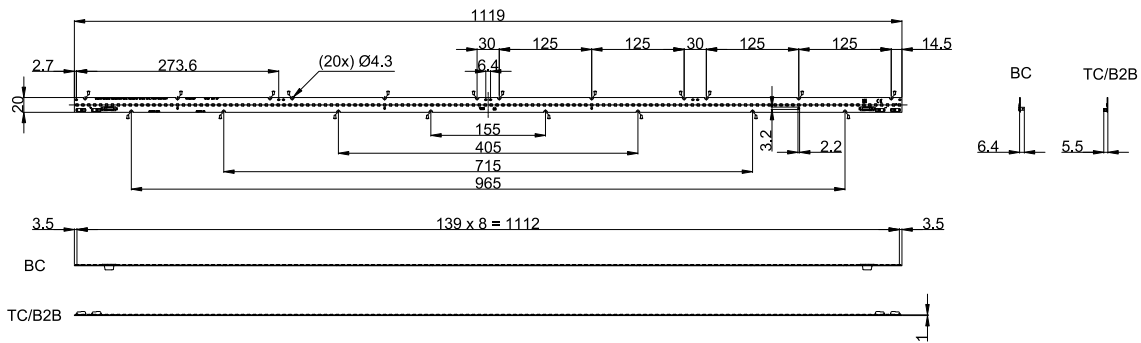
### WU-M-702-BC/TC/B2B



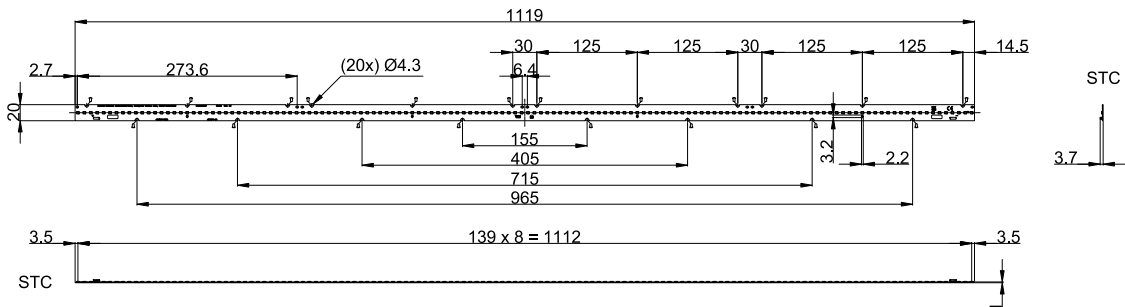
### WU-M-702-STC



### WU-M-703-BC/TC/B2B



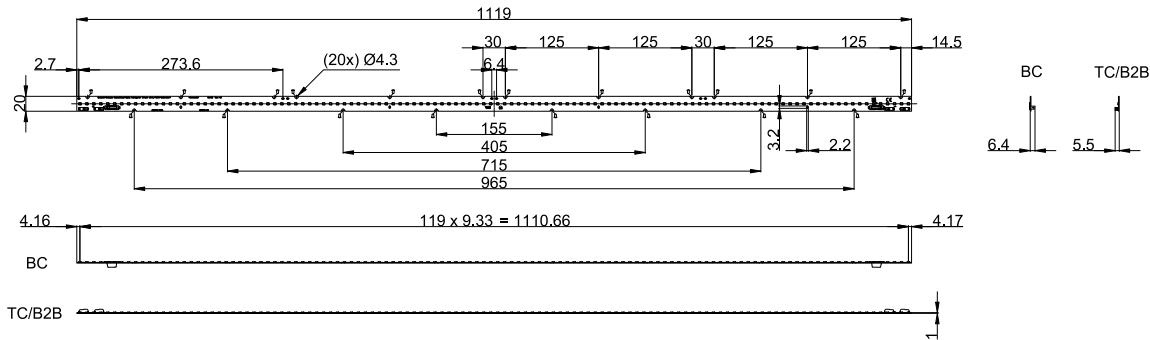
### WU-M-703-STC



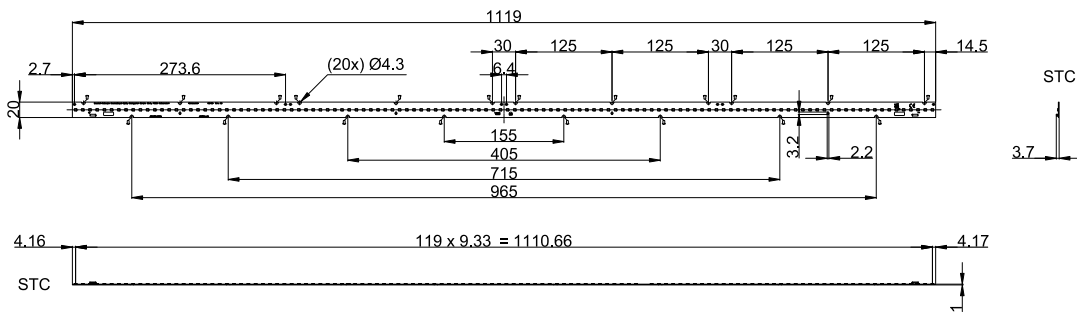
The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

# LED Line SMD W2 Easy Gen. 2 – Long Boards L28/112


## WU-M-708-BC/TC/B2B

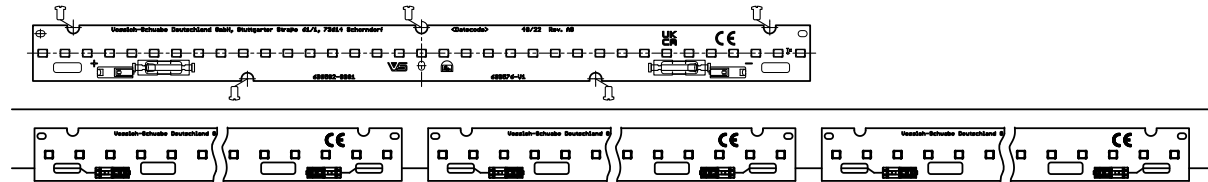


## WU-M-708-STC



## Connection Example

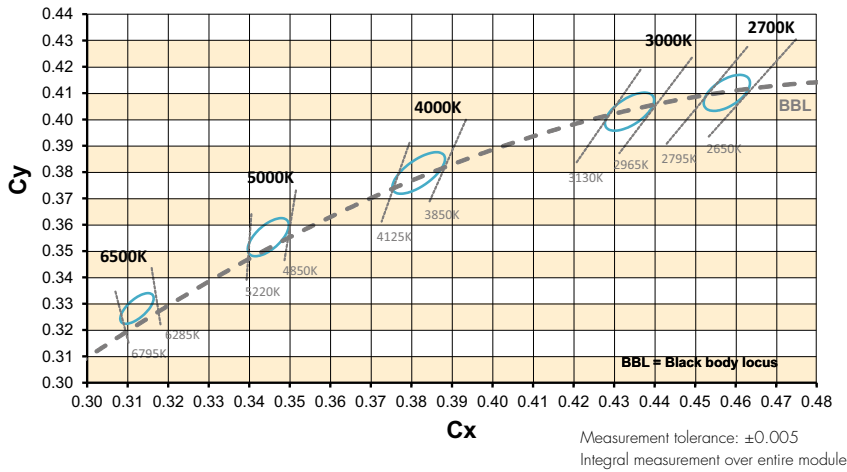
- The number of modules that can be connected in series depends on the available output voltage of the LED driver.
- The clearance and creepage distances are designed for working voltages up to 340V DC for WU-M-702 and WU-M-705, and up to 300V DC for WU-M-703, WU-M-704, WU-M-707 and WU-M-708 (basic insulation) and 165V DC for WU-M-702 and WU-M-705 and 150V DC for WU-M-703, WU-M-704, WU-M-707 and WU-M-708 (reinforced insulation).
- In case of assembly of the LED modules in profiles (e.g. aluminium) where the profile touches the top edge of the PCB the clearance and creepage distances are reduced to 175 V DC (basic insulation) and 40 V DC (reinforced insulation).
- Max. diameter of screw head (M4):  $\varnothing$  8 mm
- Only the marked holes  are fixing holes for screws M4. Please do not use other holes for fixation!



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# LED Line SMD W2 Easy Gen. 2 – Long Boards L28/112

## Bins

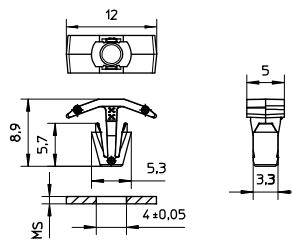


## Fixing Clip

For fastening LED PCBs to luminaire sheets without needing screws  
PCB hole dia.: 4.3–4.5 mm  
Vibration resistant version  
Material: PC, white (UL-94 V2)  
Weight: 0.2 g, Packaging unit: 1000 pcs. (.11 = 10,000 pcs.)

Type	Ref. No.	For luminaire sheet thickness (MS) mm
98050	<b>562870</b>	0.5–1.0*

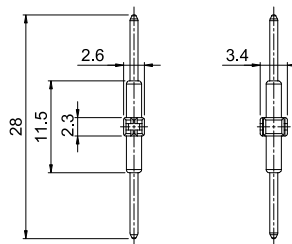
\* PCB thickness: 1.6 mm



## Connection Pin

For fast and easy connection of 280 mm with 1120 mm boards (B2B) into continuous line.  
B2B Link: Wago 2060-951 28 mm white  
Weight: 0.2 g, Packaging unit: 1,500 pcs.

Type	Ref. No.
B2B Link	<b>608702</b>



## Linear LED Constant Current Drivers


Please visit our homepage for details for suitable LED constant current drivers: [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com)

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## Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. The LED modules are designed for operation within a casing or luminaire. Installation must be carried out in a voltage-free state (i.e. disconnection from the mains). The following advice must be observed; non-observance can result in the destruction of the LED assembly modules, fire and/or other hazards.

- Consider safety regulations acc. EN 60598 in the luminair design, especially when the operating LED driver is not galvanic isolated.
  - In mode of operation regard to sufficient isolation.
  - Live parts must not be touched in operation mode.
-  Danger of death!!!
- ESD (electrostatic discharge) protection measures must be observed when handling and installing the LED modules. See VS's application notes on ESD protection.
- Adequate anti-static electricity measures, including the use of conductive shoes, ionizers, work bench grounding, wrist straps, flooring and stools should be used.
- LED assembly modules must not be subjected to any undue mechanical stress, e. g.:
  - do not treat as bulk cargo
  - avoid shear and compressive forces during handling and installation
  - do not damage circuit paths
  - avoid any pressure on the light emitting surface
- Safe operation only possible by the use of external constant current sources ( $I_{max}$ . see table "Electrical Characteristics").
- Operation only with power supply units that feature the following protection:
  - Short-circuit protection
  - Overload protection
  - Overheating protection
- The module can be fixed with M4 screws. Fixation only with flat or cylinder head screws (M4) (no countersank screws)  
Max. torque: 1.2 Nm (M4)
- Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- For interconnection the LED modules is equipped with push-in terminals. WAGO 2060 for TC and B2B variant; WAGO 2065 for STC variant; WAGO 2070 for BC variant.
- Safety regulations acc. to EN 60598 (or further standards) has to be observed if the maximum output voltage exceed the permitted touchable value.
- Measurement tolerances:
  - luminous flux:  $\pm 7\%$
  - voltage:  $\pm 3\%$
  - CRI:  $\pm 1$
- The following points must be observed when connecting LED modules in parallel:
  - All LED strings that are wired in parallel must contain the same number of LEDs (symmetrical loading).
  - Owing to differing forward biases, there can be a difference of up to 10% in brightness between modules connected in parallel.

- To ensure problem-free operation, the specified maximum temperature at the  $t_p$  point (see "Operating Life") must be observed (and measured in accordance with EN 60598-1). To satisfy this point, it may be necessary to put measures in place to ensure any heat is dissipated from the PCB to the environment.
- In the event of outdoor applications or applications in damp locations, care must be taken to protect LED assembly modules against humidity, splashes and jets of water. Any corrosion damage resulting from humidity or contact with condensation will not be recognised as a defect or manufacturing fault. LED assembly modules are not specially protected against foreign bodies or dust. Depending on the type of application, further protection must be ensured to prevent dust and foreign bodies from entering.
- Due to the manufacturing process, the PCBs of the LED assembly modules can have sharp edges and corners. Care must therefore be taken during handling and installation to avoid injury.
- For optimal load of used constant current driver the modules can only be connected in series. The quantity of LED modules is limited by the sum of forward voltage and the capacity of used constant current driver. Safety regulations acc. to EN 60598 has to be observed if the sum of forward voltage exceed the permitted touchable value.
- Operating LED modules in the presence of certain chemical substances or in chemically enriched (aggressive) environments can impair module functionality or even cause total module failure. Detailed information can be found in our "Chemical Incompatibility" PDF on our website [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com)
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471: 2008. Rating in accordance with IEC / TR 62778: risk group 1 within the complete range of allowed operating current per LED module (up to 500 mA)

### Applied Standards

EN 62031

LED modules for general lighting – Safety specifications



pending

EN 62471

Photobiological safety of lamps and lamp systems

### Product Guarantee

- 5 years
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage ([www.vossloh-schwabe.com](http://www.vossloh-schwabe.com)). We will be happy to send you these conditions upon request.

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