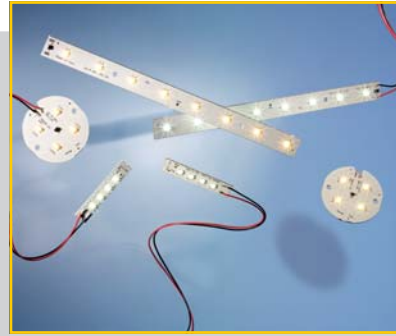


LED MODULES XP – LINE / SPOT / MINI



LED MODULES XP – LINE / SPOT / MINI

WU-M-392, -393, -394

Typical Applications

- Integration in luminaires
- Architectural illumination
- Marking of paths, stairs, etc.
- Furniture lighting
- Light advertising
- Entertainment, shop design
- Street lighting

LED-Module XP

■ **LONG SERVICE LIFETIME DUE TO OPTIMAL THERMAL MANAGEMENT**

■ **VERY HIGH LUMEN OUTPUT**

■ **HIGHLY EFFICIENT (UP TO 132 LM/W)**

■ **EASY CONNECTIONS DUE TO PRE-ASSEMBLED LEADS**

■ **ATTACHMENT FOR LENSES WITH DIFFERENT RADIATION ANGLES**

■ **VDE APPROVED (ACC. TO EN 62031)**



LED Modules XP – Line / Spot / Mini

Technical Notes

Dimensions:
Line XP: 200x15 mm
Spot XP: Ø 45 mm
Mini XP: 50x10 mm
Pre-assembled with 2 leads
ESD protection class 2



Electrical Characteristics

at junction temperature $t_a = 25\text{ °C}$

Type	Ref. No.	350 mA				500 mA				700 mA				1050 mA			
		Voltage DC (V)		Power W		Voltage DC (V)		Power W		Voltage DC (V)		Power W		Voltage DC (V)		Power W	
		typ.	max.	typ.	max.	typ.	max.	typ.	max.	typ.	max.	typ.	max.	typ.	max.	typ.	max.
Line XP																	
WU-M-392-XPC-W/WW	All types	27.2	31.2	9.5	10.9	28.0	32.0	14.0	16.0	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed
WU-M-392-XPE-W/WW	All types	25.6	31.2	9.0	10.9	26.4	32.0	13.2	16.0	27.2	32.8	19.0	23.0	not allowed	not allowed	not allowed	not allowed
WU-M-392-XPG-W/WW	All types	24.0	30.0	8.4	10.5	24.8	30.8	12.4	15.4	25.6	31.6	17.9	22.1	26.4	32.4	27.7	34.0
Spot XP																	
WU-M-393-XPC-W/WW	All types	13.6	15.6	4.8	5.5	14.0	16.0	7.0	8.0	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed
WU-M-393-XPE-W/WW	All types	12.8	15.6	4.5	5.5	13.2	16.0	6.6	8.0	13.6	16.4	9.5	11.5	not allowed	not allowed	not allowed	not allowed
WU-M-393-XPG-W/WW	All types	12.0	15.0	4.2	5.3	12.4	15.4	6.2	7.7	12.8	15.8	9.0	11.1	13.2	16.2	13.9	17.0
Mini XP																	
WU-M-394-XPC-W/WW	All types	13.6	15.6	4.8	5.5	14.0	16.0	7.0	8.0	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed
WU-M-394-XPE-W/WW	All types	12.8	15.6	4.5	5.5	13.2	16.0	6.6	8.0	13.6	16.4	9.5	11.5	not allowed	not allowed	not allowed	not allowed
WU-M-394-XPG-W/WW	All types	12.0	15.0	4.2	5.3	12.4	15.4	6.2	7.7	12.8	15.8	9.0	11.1	13.2	16.2	13.9	17.0

Use of external LED constant current driver required.

Maximum Ratings

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

Type	Operation current mA	Operation temperature range at t_c -point		Storage temperature range		Reverse voltage V
		°C min.	°C max.	°C min.	°C max.	
All types	350	-20	+85	-20	+85	5
All types	500	-20	+80	-20	+85	5
All types	700	-20	+65	-20	+85	5
All types	1050	-20	+60	-20	+85	5

Optical Characteristics

at junction temperature $t_j = 25\text{ °C}$

Type	Ref. No.	Colour	Correlated colour temperature (K)	Brightness bin**	Luminous flux at				Radiation angle (°)
					350 mA lm	500 mA lm	700 mA lm	1050 mA lm	
Line XP									
WU-M-392-XPC-WW	543872	Warm white	2720...3040	N4	496.0... 537.6	644.8... 698.6	not allowed	not allowed	110
WU-M-392-XPC-WW	543873	Warm white	2720...3040	P2	537.6... 591.2	698.9... 768.6	not allowed	not allowed	110
WU-M-392-XPC-WW	543874	Warm white	2720...3040	P3	591.2... 644.8	768.6... 838.2	not allowed	not allowed	110
WU-M-392-XPC-W	543871	White	5650...6950	Q2	699.2... 751.2	909.0... 976.6	not allowed	not allowed	110
WU-M-392-XPC-W	543541	White	5650...6950	Q3	751.2... 800.0	976.6...1040.0	not allowed	not allowed	110
WU-M-392-XPC-W	544673	White	5650...6950	Q4	800.0... 856.0	1040.0...1112.8	not allowed	not allowed	110
WU-M-392-XPC-W	544674	White	5650...6950	Q5	856.0... 912.0	1112.8...1185.6	not allowed	not allowed	110

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The values do not necessarily correspond exactly to the actual parameters of every single product which can vary from the typical specification.
** The reference numbers represent a single brightness group. In order to ensure availability please contact your sales prior to order.
Minimum order quantities: Line XP 100 pcs. | Spot XP 120 pcs. | Mini XP 100 pcs. | lower quantities on request, when available from stock.

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.
Please find further detailed information at www.vssloh-schwabe.com.

LED Modules XP – Line / Spot / Mini

Optical Characteristics

at junction temperature $t_j = 25\text{ °C}$

Typ	Ref. No.	Colour	Correlated colour temperature (K)	Brightness bin**	Luminous flux at			1050 mA lm	Radiation angle (°)
					350 mA lm	500 mA lm	700 mA lm		
Line XPE									
WU-M-392-XPE-WW	543886	Warm white	2720...3040	P3	591.2... 644.8	768.6... 838.2	1005.0...1096.2	not allowed	115
WU-M-392-XPE-WW	542809	Warm white	2720...3040	P4	644.8... 699.2	838.2... 909.0	1096.2...1188.6	not allowed	115
WU-M-392-XPE-WW	543887	Warm white	2720...3040	Q2	699.2... 751.2	909.0... 976.6	1188.6...1277.0	not allowed	115
WU-M-392-XPE-WW	544679	Warm white	2720...3040	Q3	751.2... 800.0	976.6...1040.0	1277.0...1360.0	not allowed	115
WU-M-392-XPE-W	543883	White	5650...6950	Q4	800.0... 856.0	1040.0...1112.8	1360.0...1455.2	not allowed	115
WU-M-392-XPE-W	543884	White	5650...6950	Q5	856.0... 912.0	1112.8...1185.6	1455.2...1550.4	not allowed	115
WU-M-392-XPE-W	543531	White	5650...6950	R2	912.0... 976.0	1185.6...1268.8	1550.4...1659.2	not allowed	115
WU-M-392-XPE-W	543885	White	5650...6950	R3	976.0...1040.0	1268.8...1352.0	1659.2...1768.0	not allowed	115
Line XPG									
WU-M-392-XPG-WW	544682	Warm white	2720...3040	Q4	800.0... 856.0	1120.0...1198.4	1440.0...1540.8	2000.0...2140.0	125
WU-M-392-XPG-WW	544683	Warm white	2720...3040	Q5	856.0... 912.0	1198.4...1276.8	1540.8...1641.4	2140.0...2280.0	125
WU-M-392-XPG-W	543543	White	5300...7050	R4	1040.0...1112.0	1456.0...1556.8	1872.0...2001.6	2600.0...2780.0	125
WU-M-392-XPG-W	543898	White	5300...7050	R5	1112.0...1184.0	1556.8...1657.6	2001.6...2131.2	2780.0...2960.0	125
Spot XPC									
WU-M-393-XPC-WW	543876	Warm white	2720...3040	N4	248.0... 268.8	322.4... 349.4	not allowed	not allowed	110
WU-M-393-XPC-WW	543877	Warm white	2720...3040	P2	268.8... 295.6	349.4... 384.3	not allowed	not allowed	110
WU-M-393-XPC-WW	543878	Warm white	2720...3040	P3	295.6... 322.4	384.3... 419.1	not allowed	not allowed	110
WU-M-393-XPC-W	543875	White	5650...6950	Q2	349.6... 375.6	454.5... 488.3	not allowed	not allowed	110
WU-M-393-XPC-W	543539	White	5650...6950	Q3	375.6... 400.0	488.3... 520.0	not allowed	not allowed	110
WU-M-393-XPC-W	544675	White	5650...6950	Q4	400.0... 428.0	520.0... 556.4	not allowed	not allowed	110
WU-M-393-XPC-W	544676	White	5650...6950	Q5	428.0... 456.0	556.4... 592.8	not allowed	not allowed	110
Spot XPE									
WU-M-393-XPE-WW	543891	Warm white	2720...3040	P3	295.6... 322.4	384.3... 419.1	502.5... 548.1	not allowed	115
WU-M-393-XPE-WW	542810	Warm white	2720...3040	P4	322.4... 349.6	419.1... 454.5	548.1... 594.3	not allowed	115
WU-M-393-XPE-WW	543892	Warm white	2720...3040	Q2	349.6... 375.6	454.5... 488.3	594.3... 638.5	not allowed	115
WU-M-393-XPE-WW	544680	Warm white	2720...3040	Q3	375.6... 400.0	488.3... 520.0	638.5... 680.0	not allowed	115
WU-M-393-XPE-W	543888	White	5650...6950	Q4	400.0... 428.0	520.0... 556.4	680.0... 727.6	not allowed	115
WU-M-393-XPE-W	543889	White	5650...6950	Q5	428.0... 456.0	556.4... 592.8	727.6... 775.2	not allowed	115
WU-M-393-XPE-W	543533	White	5650...6950	R2	456.0... 488.0	592.8... 634.4	775.2... 829.6	not allowed	115
WU-M-393-XPE-W	543890	White	5650...6950	R3	488.0... 520.0	634.4... 676.0	829.6... 884.0	not allowed	115
Spot XPG									
WU-M-393-XPG-WW	544684	Warm white	2720...3040	Q4	400.0... 428.0	560.0... 599.2	720.0... 770.4	770.4...1000.0	125
WU-M-393-XPG-WW	544685	Warm white	2720...3040	Q5	428.0... 456.0	599.2... 638.4	770.4... 820.8	820.8...1070.0	125
WU-M-393-XPG-W	543545	White	5300...7050	R4	520.0... 556.0	728.0... 778.4	936.0...1000.8	1300.0...1390.0	125
WU-M-393-XPG-W	543899	White	5300...7050	R5	556.0... 592.0	778.4... 828.8	1000.8...1065.6	1390.0...1480.0	125
Mini XPC									
WU-M-394-XPC-WW	543880	Warm white	2720...3040	N4	248.0... 268.8	322.4... 349.4	not allowed	not allowed	110
WU-M-394-XPC-WW	543881	Warm white	2720...3040	P2	268.8... 295.6	349.4... 384.3	not allowed	not allowed	110
WU-M-394-XPC-WW	543882	Warm white	2720...3040	P3	295.6... 322.4	384.3... 419.1	not allowed	not allowed	110
WU-M-394-XPC-W	543879	White	5650...6950	Q2	349.6... 375.6	454.5... 488.3	not allowed	not allowed	110
WU-M-394-XPC-W	543537	White	5650...6950	Q3	375.6... 400.0	488.3... 520.0	not allowed	not allowed	110
WU-M-394-XPC-W	544677	White	5650...6950	Q4	400.0... 428.0	520.0... 556.4	not allowed	not allowed	110
WU-M-394-XPC-W	544678	White	5650...6950	Q5	428.0... 456.0	556.4... 592.8	not allowed	not allowed	110

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Minimum order quantities: Line XP 100 pcs. | Spot XP 120 pcs. | Mini XP 100 pcs. | lower quantities on request, when available from stock.

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LED Modules XP – Line / Spot / Mini

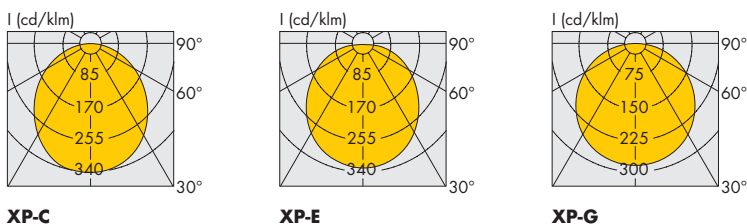
Optical Characteristics

at junction temperature $t_j = 25\text{ }^\circ\text{C}$

Typ	Ref. No.	Colour	Correlated colour temperature (K)	Brightness bin**	Luminous flux at 350 mA lm	500 mA lm	700 mA lm	1050 mA lm	Radiation angle (°)
Mini XPE									
WU-M-394-XPE-WW	543896	Warm white	2720...3040	P3	295.6... 322.4	384.3... 419.1	502.5... 548.1	not allowed	115
WU-M-394-XPE-WW	542811	Warm white	2720...3040	P4	322.4... 349.6	419.1... 454.5	548.1... 594.3	not allowed	115
WU-M-394-XPE-WW	543897	Warm white	2720...3040	Q2	349.6... 375.6	454.5... 488.3	594.3... 638.5	not allowed	115
WU-M-394-XPE-WW	544681	Warm white	2720...3040	Q3	375.6... 400.0	488.3... 520.0	638.5... 680.0	not allowed	115
WU-M-394-XPE-W	543893	White	5650...6950	Q4	400.0... 428.0	520.0... 556.4	680.0... 727.6	not allowed	115
WU-M-394-XPE-W	543894	White	5650...6950	Q5	428.0... 456.0	556.4... 592.8	727.6... 775.2	not allowed	115
WU-M-394-XPE-W	543535	White	5650...6950	R2	456.0... 488.0	592.8... 634.4	775.2... 829.6	not allowed	115
WU-M-394-XPE-W	543895	White	5650...6950	R3	488.0... 520.0	634.4... 676.0	829.6... 884.0	not allowed	115
Mini XPG									
WU-M-394-XPG-WW	544686	Warm white	2720...3040	Q4	400.0... 428.0	560.0... 599.2	720.0... 770.4	770.4...1000.0	125
WU-M-394-XPG-WW	544687	Warm white	2720...3040	Q5	428.0... 456.0	599.2... 638.4	770.4... 820.8	820.8...1070.0	125
WU-M-394-XPG-W	543900	White	5300...7050	R4	520.0... 556.0	728.0... 778.4	936.0...1000.8	1300.0...1390.0	125
WU-M-394-XPG-W	543901	White	5300...7050	R5	556.0... 592.0	778.4... 828.8	1000.8...1065.6	1390.0...1480.0	125

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 ** The reference numbers represent a single brightness group. In order to ensure availability please contact your sales prior to order.
 Minimum order quantities: Line XP 100 pcs. | Spot XP 120 pcs. | Mini XP 100 pcs. | lower quantities on request, when available from stock.

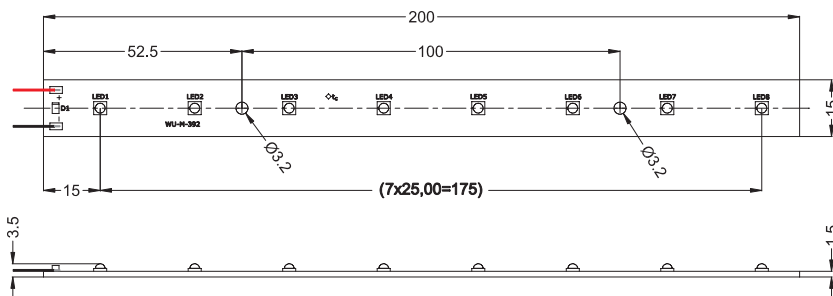
Light Distribution Curves



Attachment optics with various radiation characteristics are available at Vossloh-Schwabe. Please find further information at www.vs-optoelectronic.com.

Mechanical Dimensions

The PCB is pre-assembled with 2 leads of 400 mm in length:
 red: anode (+); 22AWG/0.34 mm²
 black: cathode (-); 22AWG/0.34 mm²



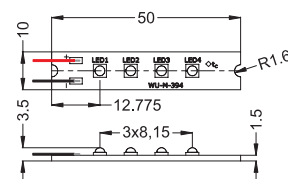
Line XP

Operating Life

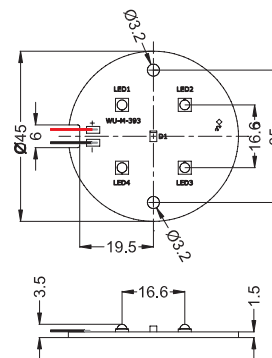
50,000 hrs. (lumen maintenance at 70%)

Module	I_F 350 mA	I_F 500 mA	I_F 700 mA	I_F 1050 mA
XP-C	t_c 82°C	t_c 57°C	–	–
XP-E	t_c 85°C	t_c 65°C	t_c 50°C	–
XP-G	t_c 85°C	t_c 72°C	t_c 60°C	t_c 35°C

These values do not refer to the colour temperature.



Mini XP



Spot XP

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LED Modules XP – Line / Spot / Mini

Assembly and Safety Information

- To ensure problem-free operation, the specified maximum temperature at the t_c point (see "Operating Life") must be observed (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.
- Tests have shown the following chemicals to be harmful to LEDs used on the modules.
- It is recommended not to use these chemicals anywhere in an LED system.
The fumes from even small amounts of these chemicals may damage the LEDs.
 - Chemicals that might outgas aromatic hydrocarbons (e.g., toluene, benzene, xylene)
 - Methyl acetate or ethyl acetate (i.e., nail polish remover)
 - Cyanoacrylates (i.e., "Superglue")
 - Glycol ethers (including Radio Shack®, Precision Electronics Cleaner – dipropylene glycol monomethylether)
 - Formaldehyde or butadiene (including Ashland PLIOBOND® adhesive)
 - Dymax 984-LVUF conformal coating
 - Loctite Sumo glue
 - Gorilla glue
 - Clorox bleach
 - Clorox Clean-Up cleaner spray
 - Loctite 384 adhesive
 - Loctite 7387 activator
 - Loctite 242 threadlockerDetailed information of handling of Cree LEDs can be found on www.cree.com.
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471: 2008.
 - general lighting
exempt group:
WU-M-392/393/394
 - other applications
risk group 2:
WU-M-392/393/394Use of standard VS optics (543422, 543423, 543424, 543425) does not affect the need to classify LED modules into the above mentioned risk groups.

Applied Standards

- EN 62031
LED modules for general lighting – Safety specifications



- EN 62471
• Photobiological safety of lamps and lamp systems