

TUGRA



Applications

Mounting Method	Surface-mounting Suspension (with Accessory) Wall-mounting (with Accessory)
Mounting location	Ceiling without installation opening Wall without installation opening



Product Features & Luminaire Description

TUGRA | HE+ | ACT | SMC | 15 | PW19-IL | 80 | -840 | ETDD | LLWC | EB3 | PC | LV | 01

TUGRA	Product Name	TUGRA	
HE+	Performance	[empty]	Average rated Lifetime L80 = 50.000 h, T _a : -25 °C - +30° C
		HE	Average rated Lifetime L80 = 70.000 h, T _a : -30 °C - +35° C
		HE+	Average rated Lifetime L80 = 100.000 h, T _a : -40 °C - +45 °C.
ACT	HCL (optional)	ACT	HCL active Luminaire with variable light colour (warm white - daylight white), correlated colour temperature (CCT) variable (2700 K - 6500 K).
SMC	Lighting management (optional)	SMC	The luminaire features an integrated daylight- and HF presence sensor with motion direction detection. LiveLink Workplace versions of luminaires in a room can be connected via Bluetooth to form an interactive group of luminaires. The initial detection of movement by any luminaire within the group causes all group devices to switch on at basic lighting level (approx. 300 lx, indirect component). Subsequent detection in the close range of a luminaire triggers this into workplace mode by switching on of the direct component. Within the luminaire group, the light colour and HCL curve of the indirect component are harmonised. Parameterisation of the Smart Connect functions is password-protected using a smartphone and an app. Operating the lighting functions is implemented manually via 3 operating elements and via Smartphone app. Communication between the connected luminaires and the smartphone is via Bluetooth Low Energy v 5.0. Single luminaires as well as luminaire groups can be controlled with up to 4 battery-free and wireless radio buttons, which are available as separately ordered accessories.

15	Luminaire length	3	444 mm (Ø 75mm)
		6	725 mm (Ø 75mm)
		9	1.006 mm (Ø 75mm)
		12	1.287 mm (Ø 75mm)
		15	1.568 mm (Ø 75mm)
		18	1.849 mm (Ø 75mm)
		21	2.130 mm (Ø 75mm)

PW19-IL	Optical System	PL	With a prismatic, photometrically effective, translucent diffuser. With Lambertian light intensity distribution.	
		PN	With a prismatic, photometrically effective, translucent diffuser. With symmetric narrow light distribution.	
		PW	With a prismatic, photometrically effective, translucent diffuser. With wide light distribution.	
		PVW	With a prismatic, photometrically effective, translucent diffuser. With very wide light distribution.	
		PXW	With a prismatic, photometrically effective, translucent diffuser. With extremely wide light distribution.	
		PAW	With a prismatic, photometrically effective, translucent diffuser. With asymmetric light intensity distribution.	
		PW19	With a prismatic, photometrically effective, translucent diffuser. With wide light distribution. Glare evaluation (EN 12464-1) according to UGR < 19. Suitable for VDU workstations according to EN 12464-1.	
		PW19-IL	With a prismatic, photometrically effective, translucent diffuser. With wide light distribution. Glare evaluation (EN 12464-1) according to UGR < 19. Suitable for VDU workstations according to EN 12464-1. With indirect component for decorative surface illumination.	

80	Luminous Flux (with reference to luminaire length)	12	1.200 lm, available for luminaire lengths: 3
		23	2.300 lm, available for luminaire lengths: 6
		30	3.000 lm, available for luminaire lengths: 9
		34	3.400 lm, available for luminaire lengths: 12
		38	3.800 lm, available for luminaire lengths: 12
		42	4.200 lm, available for luminaire lengths: 15
		45	4.500 lm, available for luminaire lengths: 12 18
		47	4.700 lm, available for luminaire lengths: 15
		50	5.000 lm, available for luminaire lengths: 12 15 18 21
		55	5.500 lm, available for luminaire lengths: 15
		56	5.600 lm, available for luminaire lengths: 18
		58	5.800 lm, available for luminaire lengths: 21
		60	6.000 lm, available for luminaire lengths: 15 18
		64	6.400 lm, available for luminaire lengths: 15 18 21
		70	7.000 lm, available for luminaire lengths: 18 21
		80	8.000 lm, available for luminaire lengths: 12 15 18 21
		90	9.000 lm, available for luminaire lengths: 21
		100	10.000 lm, available for luminaire lengths: 15 18 21
		125	12.500 lm, available for luminaire lengths: 18 21
		150	15.000 lm, available for luminaire lengths: 18 21
		170	17.000 lm, available for luminaire lengths: 21
		ML	MultiLumen, available for luminaire lengths: 12 15 18 21

-840	Colour Rendering Index CRI Colour Temperature	-830	CRI Ra > 80 3.000 K
		-840	CRI Ra > 80 4.000 K
		-850	CRI Ra > 80 5.000 K
		-865	CRI Ra > 80 3.000 K
		-930	CRI Ra > 90 3.000 K
		-940	CRI Ra > 90 4.000 K
		-950	CRI Ra > 90 5.000 K
		-965	CRI Ra > 90 6.500 K
		8-RGBW	CRI Ra > 80 RGBW

ETDD	Switching Type	ET	With electronic transformer, switchable
		ETDD	With electronic transformer, digitally dimmable (DALI 1-100 %) (Monitoring ready on request)

LLWC	Connectivity (optional)	LLWC	With integrated LiveLink WiFi control unit for daylight-dependent control and presence detection as well as WLAN module for secure commissioning and operation (WPA2 encryption).
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EB3	Emergency lighting (optional)	EB3	Emergency light version with single battery system, nominal operating time 3h
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PC	Material luminaire profile	PC	Luminaire body of Polycarbonate. Impact resistance level in accordance with IEC 62262: IK10
		PMMA	Luminaire body of PMMA. Impact resistance level in accordance with IEC 62262: IK03
		PMMA IP69K	Luminaire body of gas-tight PMMA. Impact resistance level in accordance with IEC 62262: IK03
		On Request:	Luminaire body of bio-based plastic Material (comparable to PC)

LV	Through-Wiring (optional)	LV	Luminaire with through-wiring (for Continous-line)
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01	Endcap colour	01	White (RAL9016)
		05	Black (RAL9005)
		23	Light grey (RAL 7035)
		C2	Dark grey (RAL7026)



Technical Details

Connected load	6 W - 68 W
Luminous efficiency	From up to 160 lm/W (Basic) - up to 189 lm/W (HE+)
Protection rating (DIN EN 60529)	IP 66 for materials PMMA , PC IP 69K for materials PMMA IP69K
Colour locus tolerance (initial MacAdam)	≤ 3 SDCM
Connection Method	Terminal (PG for IP69K versions) Optional available : WIELAND (TWW), PHOENIX (TWP), STUCCHI (TWS), ADELS (TWA)
Protection Class	I



*in final version only Endcap coloured

Accessories

Mounting accessories	Tugra ZB V2A (included)	8118300	Anchoring clip
	Tugra ZB V4A	8118400	Anchoring clip
	Tugra ZBWM	8118200	Pivotable mounting brackets for wall and ceiling installation of weather-proof LED luminaires. 1 set= 2 pieces. For use in combination with luminaire Tugra. Suitable for damp environments and outdoor areas around buildings. Swivel range: 180°.
Steel strip suspensions	Tugra ZBAD	8118500	Anti-Theft-Accessory
	Tugra ZBRS	8118100	Fixing accessories for Tugra. Consisting of two tube clips and two hanger bolts (M8x80)
	Tugra ZSXP/2000	8117800	Steel strip suspension, 1 pair, rust-free, length 1.0 m, for weather-proof luminaires. Deco + Triangle
	Tugra ZBSB/2000	8117900	Steel strip suspension, 1 pair, rust-free, length 1.0 m, for weather-proof luminaires. Deco + Deco
	Tugra ZS/2000	8118000	Steel strip suspension, 1 pair, rust-free, length 1.0 m, for weather-proof luminaires. Loop + Deco
	Tugra ZBSBXP/2000	8118900	Steel strip suspension, 1 pair, rust-free, length 1.0 m, for weather-proof luminaires. Loop + Triangle
Through-wiring	Tugra ZLV/315/...		Through-Wiring, 3-core. Consists of 3 single cores 1.5 mm², heat resistance up to 105 °C.
	Tugra ZLV/515/...		Through-Wiring, 5-core. Consists of 5 single cores 1.5 mm², heat resistance up to 105 °C.
	Tugra ZLV/715/...		Through-Wiring, 7-core. Consists of 7 single cores 1.5 mm², heat resistance up to 105 °C.
	...3 / ...6 / ...9 / ...12 / ...15 / ...18 / ...21		For luminaire length Tugra...3... / 6... / 9... / 12... / 15... / 18... / 21....
	Tugra ZLV/315/ACC	8118600	Through-Wiring for Accessory MLB, 3-core. Consists of 3 single cores 1.5 mm², heat resistance up to 105 °C.
	Tugra ZLV/515/ACC	8118700	Through-Wiring for Accessory MLB, 5-core. Consists of 3 single cores 1.5 mm², heat resistance up to 105 °C.
	Tugra ZLV/715/ACC	8118800	Through-Wiring for Accessory MLB, 7-core. Consists of 3 single cores 1.5 mm², heat resistance up to 105 °C.
Continous line accessories	Tugra BP...PL		Blind Profile for continuous line applications for luminaires with optical system PL. Available materials: PC, PMMA, ECO
	Tugra BP...PXX		Blind Profile for continuous line applications for luminaires with optical system PW, PVW, PXW, PN, PAW, PW19, PW19-IL. Available materials: PC, PMMA, ECO
	...322... / ...603... / ...884... / ...1165... / ...1446... / ...1727... / ...2008...		Length of blind profile in mm.
	Tugra ZLLK		Connection Ring for continous line applications. (40 mm)
			Available colours: 01, 05, 23, C2 Available materials: PC, ASA (Comparable to PMMA), ECO
Smart modules	Tugra ML...105 (for single luminaires) 	...HFS ET...	Smart module with integrated HF motion sensor. Shape of the detection area somewhat ellipsoid, Length of the detection area up to 12 m, Width of the detection area up to 8 m. For luminaires with switching type ET.
		...HFS ETDD...	Smart module with integrated HF motion sensor. Shape of the detection area somewhat ellipsoid, Length of the detection area up to 12 m, Width of the detection area up to 8 m. For luminaires with switching type ETDD.
		...DMM...	LiveLink SwarmSens master smart module with integrated HF sensor for motion detection in combination with a brightness sensor for daylight detection and Bluetooth module for networking up to 4096 LiveLink SwarmSens master luminaires and slave luminaires in a mesh network.
		...DMR...	LiveLink SwarmSens slave smart module with integrated Bluetooth module for networking with a LiveLink SwarmSens master luminaire. Group assignment via DIP switch (64 groups) or smartphone app (255 groups)
		...Beacon...	Smart module for digital location-based services, such as the positioning of objects in warehouses (asset tracking), the visualisation of movement flows in supermarkets (heat maps) or location-based client information (proximity marketing) and indoor navigation.
		...HFS CO2...	Smart module with integrated carbon dioxide sensor for measuring the CO² concentration in the ambient air and a 3-stage LED traffic light to indicate the air quality and the need for ventilation. The measuring ranges of the LED indicators are based on the recommendations of the Federal Environment Agency for reducing the risk of transmission of SARS-CoV-2 indoors by means of suitable ventilation measures: Green < 800 ppm, yellow 800 - 1400 ppm, red > 1400 ppm CO2 concentration.
		...CEAG...	Smart module with LED escape luminaire for illuminating escape paths. Safety luminaire compatible with CEAG systems (ZB96, ZB-S)
		...Inotec...	Smart module with LED escape luminaire for illuminating escape paths. For use in combination with a central battery system of type INOTEC JOKER.
		...230V...	Smart module with integrated 230 V socket.
		...DataSupply...	Smart module with integrated CAT6 network socket.
	Tugra MLB...165 (for continous line luminaires) 	...WiFi...	Smart Module with integrated Wifi-Repeater to extend an existing Wifi.
			Length: 105 mm Available colours: 01, 05, 23, C2 Available materials: PC, ASA (Comparable to PMMA), ECO
		...HFS ET...	Smart module with integrated HF motion sensor. Shape of the detection area somewhat ellipsoid, Length of the detection area up to 12 m, Width of the detection area up to 8 m. For luminaires with switching type ET.
		...HFS ETDD...	Smart module with integrated HF motion sensor. Shape of the detection area somewhat ellipsoid, Length of the detection area up to 12 m, Width of the detection area up to 8 m. For luminaires with switching type ETDD.
		...DMM...	LiveLink SwarmSens master smart module with integrated HF sensor for motion detection in combination with a brightness sensor for daylight detection and Bluetooth module for networking up to 4096 LiveLink SwarmSens master luminaires and slave luminaires in a mesh network.
		...DMR...	LiveLink SwarmSens slave smart module with integrated Bluetooth module for networking with a LiveLink SwarmSens master luminaire. Group assignment via DIP switch (64 groups) or smartphone app (255 groups)
		...Beacon...	Smart module for digital location-based services, such as the positioning of objects in warehouses (asset tracking), the visualisation of movement flows in supermarkets (heat maps) or location-based client information (proximity marketing) and indoor navigation.
		...HFS CO2...	Smart module with integrated carbon dioxide sensor for measuring the CO² concentration in the ambient air and a 3-stage LED traffic light to indicate the air quality and the need for ventilation. The measuring ranges of the LED indicators are based on the recommendations of the Federal Environment Agency for reducing the risk of transmission of SARS-CoV-2 indoors by means of suitable ventilation measures: Green < 800 ppm, yellow 800 - 1400 ppm, red > 1400 ppm CO2 concentration.
		...CEAG...	Smart module with LED escape luminaire for illuminating escape paths. Safety luminaire compatible with CEAG systems (ZB96, ZB-S)
		...Inotec...	Smart module with LED escape luminaire for illuminating escape paths. For use in combination with a central battery system of type INOTEC JOKER.
		...230V...	Smart module with integrated 230 V socket.
		...DataSupply...	Smart module with integrated CAT6 network socket.
		...WiFi...	Smart Module with integrated Wifi-Repeater to extend an existing Wifi.
			Length: 165 mm Available colours: 01, 05, 23, C2 Available materials: PC, ASA (Comparable to PMMA), ECO

All technical data and dimensions have been carefully compiled. Errors excepted. Product illustrations are exemplary and may deviate from the original. For corrections and ideas, please write to: technischeredaktion@trilux.de

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