CERTIFICATE

Issued to:
Applicant:
TCI Telecomunicazioni Italia S.r.l.
Via Parma, 14
21047 Saronno (Va), Italy

Licensee:
TCI Telecomunicazioni Italia S.r.l.
Via Parma, 14
21047 Saronno (Va), Italy

Product	:	Electronic controlgear for LED modules
Trade name(s)	:	TCI, TCI (with little dragon), TCI LED, TCI LED (with little dragon), TCI LIGHT (with little dragon and ball in square), TCI LIGHT Saronno Italy or TN101
Type(s)/model(s)	:	LV HR** (*means any alphanumeric characters), LV RGBW ** (*means any alphanumeric characters) and LV TRACK ** (*means any alphanumeric characters)

The product and any acceptable variation thereto as specified in the Annex to this certificate and the documents therein referred to.

DEKRA hereby declares that the above-mentioned product has been certified on the basis of:
- a type test according to EN 61347-2-13:2014, EN 61347-2-13:2014/A1:2017, EN 61347-1:2015, EN 61347-1:2015/A1:2021 and EN IEC 62384:2020
- an inspection of the factory location according to CENELEC Operational Document CIG 021
- a DEKRA certification agreement with the number 2033015

DEKRA hereby grants the right to use the ENEC certification mark.

The ENEC certification mark may be applied to the product as specified in this certificate for the duration and under the conditions of the ENEC certification agreement.

This certificate is issued on 10 January 2024 and expires upon withdrawal of one of the above mentioned standards.

Certificate number: 81-126605 REV.1

DEKRA Certification B.V.

B.T.M. Holtus
Managing Director

K Xu
Certification Manager

ACCREDITED BY THE
DUTCH ACCREDITATION
COUNCIL

PRODUCTS
RvA C 001

DEKRA Certification B.V. Meander 1051, 6825 MJ Arnhem P.O. Box 5185, 6802 ED Arnhem, Netherlands
T +31 88 96 83000 F +31 88 96 83100 www.dekra-product-safety.com Company registration 09085396

SPECIFICATION OF THE CERTIFIED PRODUCT

Product data

Product	:	Electronic controlgear for LED modules
Trade name(s)	:	TCI, TCI (with little dragon), TCI LED, TCI LED (with little dragon), TCI LIGHT (with little dragon and ball in square), TCI LIGHT Saronno Italy or TN101
Type(s)/model(s)	:	LV HR** (*means any alphanumeric characters), LV RGBW ** (*means any alphanumeric characters) and LV TRACK ** (*means any alphanumeric characters)
Primary voltage	:	10-52 V
Nature of supply	:	Constant current
Rated frequency	:	0 Hz
Primary current	:	From 0,14 to 1,3 A
Secondary current	:	From 0,15 to 1,05 A
Secondary voltage	:	From 3 to 48 V
Secondary power	:	From 2,1 W to 48 W
Type of load	:	LED modules, power LED
Classification	:	Independent, Built in

TESTS

Test requirements

EN 61347-2-13:2014
EN 61347-2-13:2014/A1:2017
EN 61347-1:2015
EN 61347-1:2015/A1:2021
EN IEC 62384:2020

Test result

The test results are laid down in DEKRA test file 350908000.

Additional information

DEKRA test report No. 3509080.270 and 3509080.271 are laid down in DEKRA test file 35090800; they contain test results.

For specific Model/Type electrical rating refer to following pages.

This certificate replaces certificate No. 81-126605 which we hereby declare invalid.

The list of components is laid down in test report 3509080.270.

Conclusion

The examination proved that all requirements were met.

Factory location

TCI Telecomunicazioni Italia S.r.l.
Via Parma, 14
21047 Saronno (Va), Italy

General product information:

Electronic controlgears for high power Light Emitting Diodes or LED modules at d.c. supply. Models with 1-10V (local dimming), DALI and BLL (wireless) are dimmable. The output current of NFC models is settable by NFC programmer. Different commercial codes are used for different critical components (OFC with wires); NR= similar Main Board PWBs, electrical schematics and construction to 1-10V models, but the 1-10V circuitry component are not present; 2L= outputs in series and two terminals; I= Input not Class 2 for UL; L= the length of Main Board PWBs is increased of 5 mm for different fixing. LV HR, LV HRT, LV HR 48, LV HR 24 ans LV HR 12 can be setted by JP1 and JP2.

Type/s	Vin (V)	Iin (A)	Iout (mA)	Vout (V)	Pout (W)	Uout (V)	t_a (°C)	t_c (°C)	Use [8]
LV HR TRACK 357 OF (K2D18), LV HR TRACK NR 357 OF (K2F43)	12* 24** 48***	0,29	350 [1]	3-6* 3-17** 3-40***	[2]	48	-	90 [3]	OF
		0,47	500 [1]	3-9* 3-20** 3-40***					
		0,52	550 [1]						
		0,67	700 [1]						
LV HR TRACK 980 OF (K2D25)	24/48	0,18	980 [1]	-	3	48	-	90 [3]	OF
LV HR TRACK 900 OF (K2D26)	24/48	0,35	900 [1]	-	6	48	-	90 [3]	OF
LV HR TRACK 1-10V 357 OF (K2D19), LV HR TRACK 2L 1-10V 357 OF (K2F44)	48	0,29	350	-	13	48	-	90 [3]	OF
		0,44	500		20				
		0,50	550		22				
		0,63	700		28				
LV HR TRACK 246 OF (K2D20), LV HR TRACK NR 246 OF (K2F45)	12* 24** 48***	0,25	250 [1]	3-9* 3-20** 3-40***	[2]	48	-	90 [3]	OF
		0,38	400 [1]						
		0,43	450 [1]						
		0,56	600 [1]						
LV HR TRACK 1-10V 246 OF (K2D21), LV HR TRACK 2L 1-10V 246 OF (K2F46)	48	0,21	250	-	9	48	-	90 [3]	OF
		0,37	400		16				
		0,41	450		18				
		0,54	600		24				
LV HR TRACK 200 OF (K2H03)	12* 24** 48***	0,14	160	3-6* 3-17** 3-40***	[2]	48	-	90 [3]	OF
		0,16	180						
		0,17	200						
		0,19	220						
LV HR TRACK DALI 200 OF (K2F47), LV HR TRACK 2L DALI 200 OF (K2F48)	48	0,18	200	-	8	48	-	90 [3]	OF
LV HR TRACK DALI 250 OF (K2F49), LV HR TRACK 2L DALI 250 OF (K2F50)	48	0,22	250 [1]	-	10	48	-	90 [3]	OF
LV HR TRACK DALI 350 OF (K2D22), LV HR TRACK 2L DALI 350 OF (K2F51)	48	0,29	350	-	13	48	-	90 [3]	OF
LV HR TRACK DALI 400 OF (K2F52), LV HR TRACK 2L DALI 400 OF (K2F53)	48	0,35	400 [1]	-	16	48	-	90 [3]	OF
LV HR TRACK DALI 500 OF (K2D23), LV HR TRACK 2L DALI 500 OF (K2F54)	48	0,44	500	-	20	48	-	90 [3]	OF
LV HR TRACK DALI 600 OF (K2F55), LV HR TRACK 2L DALI 600 OF (K2F56)	48	0,52	600	-	24	48	-	90 [3]	OF

Type/s	Vin (V)	Iin (A)	Iout (mA)	Vout (V)	Pout (W)	Uout (V)	t_a (°C)	t_c (°C)	Use [8]
LV HR TRACK DALI 700 OF (K2D24), LV HR TRACK 2L DALI 700 OF (K2F57)	48	0,62	700	-	28	48	-	90 [3]	OF
LV HR TRACK DALI 900 OF (K2I06)	48	0,26	900	-	11	48	-	90 [3]	OF
LV HR TRACK BLL OF (K2H02)	48	0,7	350 400 450 500 550 600 650 700	-	14 16 18 20 22 24 26 28	48	-	90 [3]	OF
LV HR TRACK BLL C2 OF (K2I42)							-	100 [3]	OF
LV TRACK 150-1050 NFC OF (K2I03), LV TRACK 150-1050 0-10V NFC OF (K2I04), LV TRACK 150-1050 DALI NFC OF (K2I05)	48	0,93	150-1050	-	6-40	48	-	90 [6]	OF
LV HR 48 CV 1-10V OF (K2F58), LV HR 48 CV 1-10V OFI (K2F62)	48	1,0	1000	48	48	48	-	90 [4]	OF
LV HR 48 CV 1-10V OFL (K2F59), LV HR 48 CV 1-10V OFLI (K2F63)									
LV HR 48 CV DALI OF (K2F60), LV HR 48 CV DALI OFI (K2F64)							-	90 [5]	OF
LV HR (K2516)	10 12 24 48 52	0,67	350 500 700 [1]	6 9 20 40 44	[2]	57	-25...60 -25...55 -25...50	75	BI, 100
LV HR 350mA (K2518)		0,32	350 [1]				-25...60		
LV HR 500mA (K2519)		0,47	500 [1]				-25...55		
LV HR 700mA (K2520		0,67	700 [1]				-25...50		
LV HRT (K2517)	10 12 24 48 52	0,56	220 400 600 [1]	8 10 20 44 48	[2]	57	-25...60 -25...55 -25...50	75	BI, 100
LV HR 48 (K2521)	48	0,62	350 500 700	-	14 20 28	53	-25...60 -25...55 -25...50	75	BI, 100
LV HR 24 (K2522)	24	0,65	350 500 700	-	7 10 14	26		75	BI, 100
LV HR 12 (K2523)	12	0,65	350 500 700	-	3,15 4,6 6,1	13		75	BI, 100
LV RGBW 500 BLL (K2913), LV RGBW 500 BLL EX (K2A99)	12-24	1,3	4x 500	-	4x 3	35	-25…45	80	IND, 110
LV RGBW 500 BLL BI (K2914), LV RGBW 500 BLL EX BI (K2B01)									BI, 110
LV RGBW 500 BLL OF (K2915), LV RGBW 500 BLL EX OF (K2B02)							-	80 [7]	OF

Notes: Kxxxx codes can replace the reference type. [1] – Controlgear with output current not-stabilised. [2] – Output power is Io*Vo and Vo depends on the Vin value. [3] –The tc point is measured on the case of U_1; [4] –The tc point is measured on the case of Q_{124}; [5] –The tc point is measured on the case of Q_1; [6] –The tc point is measured on the case of C_{65} for LV TRACK 150-1050 NFC OF, C_{70} for the other models. [7] –The

Type/s	Vin (V)	Iin (A)	Iout (mA)	Vout (V)	Pout (W)	Uout (V)	t_a (°C)	t_c (°C)	Use [8]
tc point is measured on the case of C_{6A} for LV RGBW 500 BLL OF, LV RGBW 500 BLL EX OF. [8] – IND =independent IP20 class II, BI=built-in, OF=built-in without enclosure, the heating tests have been performed using enclosure with dimensions 161 x 18 x 16 mm for LV HR TRACK models, enclosure with dimensions 135 x 18 x 16 mm for LV HR 48 CV models; OFI and OFLI models have different designation only for UL/CSA standards; 100/110= thermal protection C5 a).									

Connections		TRACK models	LV RGBW (series)	LV HR (series)
Supply	IN, J1, 48V, + -	Connector (0,2-0,75 mm^2)	screwless terminals (0,5…1,5 mm²)	screw terminals (0,5…2,5 mm²)
Control (if present)	J1, J2, J3, J3A, + -, 1-10V, DALI, J100	Connector (0,2-0,75 mm^2)	-	-
Control	PUSH HV	-	screw terminals (0,5…2,5 mm²)	-
Control	PUSH LV	-	screwless terminals (0,5 mm²)	-
Load	OUT, J2, J3, J4, J5, J6, + -, J51	Connector (0,2-0,75 mm^2)	screwless terminals (0,5…1,5 mm²)	screw terminals (0,5…2,5 mm²)

Additional information

All models fulfil the requirements for: P/S for LED; short-circuit proof type; impulse withstand category II; Pollution degree 2; Material group IIIa.

Total circuit power: 4,5 W for LV HR TRACK 980 OF, 8,5 W for LV HR TRACK DALI 200 OF, LV HR TRACK 2L DALI 200 OF, LV HR TRACK 900 OF, 8 W for LV HR 12, 9 W for LV HR TRACK 200 OF, 10,5 W for LV HR TRACK DALI 250 OF, LV HR TRACK 2L DALI 250 OF, 12,5 W for LV HR TRACK DALI 900 OF, LV HR TRACK 2L DALI 900 OF, 13,5 W for LV HR TRACK DALI 350 OF, LV HR TRACK 2L DALI 350 OF, 16 W for LV HR 24, LV RGBW 500 BLL, LV RGBW 500 BLL EX, LV RGBW 500 BLL BI, LV RGBW 500 BLL EX BI, LV RGBW 500 BLL OF, LV RGBW 500 BLL EX OF, 16,5 W for LV HR TRACK DALI 400 OF, LV HR TRACK 2L DALI 400 OF, 21 W for LV HR TRACK DALI 500 OF, LV HR TRACK 2L DALI 500 OF, 25 W for LV HR TRACK 246 OF, LV HR TRACK NR 246 OF, LV HR TRACK 1-10V 246 OF, LV HR TRACK 2L 1-10V 246 OF, LV HR TRACK DALI 600 OF, LV HR TRACK 2L DALI 600 OF, 29 W for LV HR TRACK 357 OF, LV HR TRACK NR 357 OF, LV HR TRACK 1-10V 357 OF, LV HR TRACK 2L 1-10V 357 OF, LV HR TRACK DALI 700 OF, LV HR TRACK 2L DALI 700 OF, LV HR TRACK BLL OF, LV HR TRACK BLL C2 OF, 32 W for LV HR, LV HR 350mA, LV HR 500mA, LV HR 700mA, LV HR 48, 30 W for LV HRT, 43 W for LV TRACK 150-1050 NFC OF, LV TRACK 150-1050 0-10V NFC OF, LV TRACK 150-1050 DALI NFC OF, 48 W for LV HR 48 CV 1-10V OF, LV HR 48 CV 1-10V OFI, LV HR 48 CV 1-10V OFL, LV HR 48 CV 1-10V OFLI, LV HR 48 CV DALI OF, LV HR 48 CV DALI OFI.

All LV HR and LV TRACK models shall comply with the requirements of IEC/EN 60598-1 when built into a luminaire; the final application can be class III (without PUSH HV) and connections, creepage distances and clearances shall be according to EN 60598-1 or national deviations of the country where installed:

INSULATION (B= basic, S= supplementary, R= double or reinforced)	
Between IN ↔ OUT, 0-10V ↔ OUT, 1-10V ↔ OUT, IN ↔ 0-10V, IN ↔ 1-10V	-
Between IN ↔ DALI, OUT ↔ DALI	S
Between IN, OUT ↔ bottom surface of enclosure for LV HR, LV HR 350mA, LV HR 500mA, LV HR 700mA, LV HRT, LV HR 48, LV HR 24, LV HR 12, LV RGBW 500 BLL BI, LV RGBW 500 BLL EX BI	R
Between active parts ↔ external of enclosure for LV RGBW 500 BLL, LV RGBW 500 BLL EX	R
Between PUSH HV ↔ IN, OUTx, PUSH LVx for LV RGBW 500 BLL, LV RGBW 500 BLL EX	R

Models with enclosure are suitable for direct mounting on normally flammable surfaces according to IEC/EN 60598-1 only at tc≤75 °C for LV RGBW models and declared tc for other models.

Assessment to EN 60598-2-2:2012, EN IEC 60598-1:2021 has been performed.

Assessment to EN 62493:2015, EN 62493:2022 has been performed.

Assessment to EN IEC 62442-3:2022 has been performed.