CERTIFICATE

Issued to:
Applicant:
TCI Telecomunicazioni Italia SrL
Via Parma 14
21047 Saronno (VA), Italy

Licensee:
TCI Telecomunicazioni Italia SrL
Via Parma 14
21047 Saronno (VA), Italy

Product	:	Electronic controlgear for Light Emitting Diodes
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)	:	EFUR (series) and EFU (series)

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 19 April 2023 and expires upon withdrawal of one of the above mentioned standards.

Certificate number: 81-121739 REV.1

DEKRA Certification B.V.

B.T.M. Holtus
Managing Director

R Zhou
Certification Manager

ACCREDITED BY THE
DUTCH ACCREDITATION
COUNCIL

PRODUCTS
RvA C 001

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SPECIFICATION OF THE CERTIFIED PRODUCT

Product data

Product	:	Electronic controlgear for Light Emitting Diodes
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)	:	EFUR (series) and EFU (series)
Primary voltage	:	100-240 V for a.c., 196-250 V for d.c.
Rated frequency	:	50/60 Hz or 50-60 Hz, 0 Hz
Primary current	:	From 0,14 A to 0,2 A for a.c., 0,13 A for d.c.
Secondary power	:	From 10 W to 20 W
Secondary voltage	:	From 10 V to 28 V
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

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

DEKRA test report No. 3509080.140 and 3509080.141 are laid down in DEKRA test file 350033600; they contain test results.

DEKRA test report No. 3509080.140 contains critical component list.

This certificate replaces certificate No. 81-121739 which we hereby declare invalid.

Conclusion

The examination proved that all requirements were met.

Factory location

TCI Telecomunicazioni Italia SrL
Via Parma 14
21047 Saronno (VA), Italy

General product information:

Controlgears for LED modules with stabilized output voltage. The output can be dimmable by 1…10 V analogical signal (ADIM local control) for EFUR models. All models have SELV output. Primary voltage: 100-240 V 50/60 Hz or 50-60 Hz, 196-250 V *0 Hz, with terminals for looping (0,5 A max.); power factor=0,87 C (Po>11 W) at 220-240 V, 0,9 C (Po>2 W) at 100-127 V for HPFU models, 0,55 C/0,61 C for other models.

Type/s	PRI supply (V) [1]	PRI power (W)	PRI current (A) [1]	Po (W) [1]	Vo (V)	Uout (V)	ta (°C)	tc (°C) [2]	Use [3]
DC LED 10V EFU (K2161), DC LED 10V EFUR (K2165)	220-240 100-120 176-280*	24,6 12,2	0,2 0,2 0,13*	20 10 20*	10	11	-25..50	80	IND, II, 100
DC LED 10V EFUR OF (K2169) DC LED 12V EFU OF (K2H18)							-	80	OF
DC LED 12V EFU (K2162), DC LED 12V EFUR (K2166)	220-240 100-120 176-280*	24,1 12,2	0,2 0,2 0,13*	20 10 20*	12	12	-25..50	80	IND, II, 100
DC LED 12V EFUR OF (K2170), DC LED 12V EFU OF (K2H09)							-	80	OF
DC LED 24V EFU (K2163), DC LED 24V EFUR (K2167)	220-240 100-120 176-280*	23,6 12,2	0,2 0,2 0,13*	20 10 20*	24	25	-25..50	80	IND, II, 100
DC LED 24V EFUR OF (K2171), DC LED 24V EFU OF (K2H14)							-	80	OF
DC LED 28V EFU (K2164), DC LED 28V EFUR (K2168)	220-240 100-120 176-280*	23,6 12,2	0,2 0,2 0,13*	20 10 20*	28	29	-25..50	80	IND, II, 100
DC LED 28V EFUR OF (K2172), DC LED 28V EFU OF (K2H17)							-	80	OF
EFU 12V HPFU (K2H07), EFUR 12V HPFU (K2H08)	220-240 100-127 176-280*	23,6 12,2	0,14 0,14 0,13*	20 10 20*	12	12	-25..50	80	IND, II, 100
EFU 12V HPFU OF (K2H10), EFUR 12V HPFU OF (K2H11)							-	80	OF
EFU 24V HPFU (K2H12), EFUR 24V HPFU (K2H13)	220-240 100-127 176-280*	23,6 12,2	0,14 0,14 0,13*	20 10 20*	24	25	-25..50	80	IND, II, 100
EFU 24V HPFU OF (K2H15), EFUR 24V HPFU OF (K2H16)							-	80	OF

Notes: The Kxxxx code can replace the type reference. [1] – value with a.c. or *d.c. supply. [2] – tc for OF models is measured on the top of C3 or C10. [3] – IND= independent IP20; II= class II; OF= built-in model without enclosure; 100= overheating protection (C.5.a type).

Connections		
Input supply	PRI, JP1, JP2	screw terminals 0,75…2,5 mm²
Input for dimming (only for EFUR models)	ADIM, J5	screw terminals 0,5…2,5 mm² for HPFU models screw terminals 0,5…1,5 mm² for other models
Output load	SEC, JP3, JP4	screw terminals 0,5…2,5 mm²

Additional information	
Use	Independent or built-in controlgear for ordinary luminaire, up to 2000 m above sea level.
Features	For LED; stabilized output current; multiple value load; short-circuit proof type; impulse withstand category ll; Pollution degree 2; Material group llla. The material of enclosure was tested with favourable result for Glow-wire at temperature 850-960 °C. All models have terminals for supply looping (max. current in the label). Total circuit power: 23,6 W for DC LED 24V EFU models, DC LED 24V EFUR models, DC LED 28V EFU models, DC LED 28V EFUR models, EFU 12V HPFU models, EFUR 12V HPFU models, EFU 24V HPFU models, EFUR 24V HPFU models, 24,1 W for DC LED 12V EFU models, DC LED 12V EFUR models, 24,6 W for DC LED 10V EFU models, DC LED 10V EFUR models.

DC operation	The products were tested in the nominal range 196-250 V (operative range 176-275 V for HPFU models, 176-280 V for other models) according to IEC/EN 61347-2-13; d.c. operation for standards different from IEC/EN 61347 can be allowed with external fuse installed in front of the controlgear (e.g. Littelfuse, 477 series, 5x20 mm time-lag rated for 500 Vac / 400 Vdc, VDE certificate No. 40025413).
OF models have been tested inside the enclosure of equivalent independent models. The creepage distances, clearances and connections of control gears in the final application shall be according to IEC 60598-1 or national deviations of the country where installed:	

INSULATION B= basic, S= supplementary, D= double or reinforced	independent models	OF models
PRI ↔ SEC, PRI ↔ ADIM	D	D
ADIM (if present) ↔ SEC	-	-
active parts ↔ touchable parts	D	-

All models are suitable for direct mounting on normally flammable surfaces (EN 60598-1).

Assessment to EN 60598-2-22:2014/A1:2020 used in conjunction with EN IEC 60598-1:2021 has been performed.

Assessment to EN 62493:2015 has been performed.

Assessment to Clauses 8.1.4, 19.11.4, 22.5, 22.27, 22.42, 24.1.1, 24.1.2, 29, 30.2.3, 30.2.4 of EN 60335-1:2012, A11:2014, A13:2017, A1:2019, A14:2019, A2:2019; A15:2021 has been performed.