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 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)	:	DARK 150W 24V, DC 100W 48V ML, DC EM (series), DC ST2 (series), DC VSTR (series), DC VST (series) and SIRIO (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 1 July 2023 and expires upon withdrawal of one of the above mentioned standards.

Certificate number: 81-115548 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

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)	:	DARK 150W 24V, DC 100W 48V ML, DC EM (series), DC ST2 (series), DC VSTR (series), DC VST (series) and SIRIO (series)
Primary voltage	:	220-240 V for a.c., 196-250 V for d.c.
Rated frequency	:	0/50-60 Hz
Primary current	:	From 0,16 to 0,77 A for a.c., from 0,5 to 0,75 A for d.c.
Secondary power	:	From 27 to 150 W
Secondary current	:	From 0,2 to 2,1 A for Constant Current models
Secondary voltage	:	48 V for Constant Voltage models
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. 3509080.110 is laid down in DEKRA test file 350908000; it contains test results and critical component list.

This certificate replaces certificate No. 81-115548 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: The devices are controlgears for LED modules. The devices have a stabilized output current or voltage. The SIRIO xxx/yyy ST2 have a fixed value of S50 (xxx=27-100 W; yyy=0,25-0,7 A) or S1 (xxx=54-150 W; yyy=0,2-0,7 A) and without NTC/Vaux features. The models can be dimmable by analogical signals (1…10V).

Type/s	Primary voltage	Primary Current (A) [2]	Power Factor	Secondary Power (W)	Secondary Output [3]	Uout (V)	t_a (°C)	t_c (°C)	Classifi Cation [7]
SIRIO 100 (K2446)	220-240 V (0/50-60 Hz) [1]	0,5	0,95 (Po>25 W)	27-100	0,25-0,7 A	120 160 [4]	-40..55	75	IND, IP20, II, 100, FE
SIRIO 100 BI (K2447)									BI, 100, FE
SIRIO 100 OF (K2455)							-	80 [6]	OF, FE
SIRIO xxx/yyy ST2 (K2448)		0,16-0,5		xxx: 27-100	yyy: 0,25-0,7 A		-40..55	75	IND, IP67, II, 100, FE
SIRIO 120/1000-2100 BILEVEL (K2G01)	220-240 V (50-60 Hz)	0,6	0,95 (Po>28 W)	58-120	1-2,1 A	60	-40..45	75	IND, IP20, II, 110, FE
SIRIO 120/1000-2100 BILEVEL BI (K2G02)							-40..50		BI, 110, FE, SELV
SIRIO 120/1000-2100 BILEVEL OF (K2G03)							-	80 [6]	OF, FE
SIRIO 150/200-700 (K2449), SIRIO 150/200-700 BILEVEL (K2452), SIRIO 150/200-700 FP (K2657)	220-240 V (50-60 Hz)	0,77	0,95 (Po>25 W)	54-150	0,2-0,7 A	290	-40..55 [5]	80	IND, IP20, II, 110, FE
SIRIO 150/200-700 BI (K2450), SIRIO 150/200-700 BILEVEL BI (K2453), SIRIO 150/200-700 FP BI (K2659)									BI, 110, FE
SIRIO 150/200-700 OF (K2492), SIRIO 150/200-700 BILEVEL OF (K2493), SIRIO 150/200-700 FP OF (K2660)							-	80 [6]	OF, FE
SIRIO xxx/yyy ST2 (K2451)		0,28-0,77		xxx: 54-150	yyy: 0,2-0,7 A		-40..55 [5]	80	IND, IP67, II, 110, FE
SIRIO xxx/yyy BILEVEL ST2 (K2454)		0,28-0,77		xxx: 54-150	yyy: 0,2-0,7 A		-40..55 [5]	80	IND, IP67, II, 110, FE
SIRIO 150/300-1050 (K2649), SIRIO 150/300-1050 BILEVEL (K2653), SIRIO 150/300-1050 FP (K2661)	220-240 V (50-60 Hz)	0,77	0,95 (Po>34 W)	50-150	0,3-1,05 A	180	-40..55 [5]	80	IND, IP20, II, 110, FE
SIRIO 150/300-1050 BI (K2651), SIRIO 150/300-1050 BILEVEL BI (K2655), SIRIO 150/300-1050 FP BI (K2663)									BI, 110, FE
SIRIO 150/300-1050 OF (K2652), SIRIO 150/300-1050 BILEVEL OF (K2656), SIRIO 150/300-1050 FP OF (K2664)							-	80 [6]	OF, FE
SIRIO 150W 48V (K2I52)	220-240 V (50-60 Hz)	0,71	0,98	50-150	48 V	52	-20..50 [5]	80	IND, IP20, II, 110, FE, DNC
SIRIO 150W 48V BI (K2I53)									BI, 110, FE
SIRIO 150W 48V OF (K2I54)							-	80 [6]	OF, FE

Notes: Kxxxx code can be used as type reference. [1] – the models were tested also in 198-264 V operational range according to EN 61347-2-13 and they can be used for centralized emergency installations in the rated 220-240 V; Idc max=0,54 A; The RED ON/OFF function can't operate with d.c. voltage. [2] – Maximum value at maximum load according to DIP switch selection (see labels); for SIRIO xxx/yyy ST2, SIRIO xxx/yyy BILEVEL ST2 it is setted at the value within the rated range according to the xxx selection. [3] – Output parameter where the product is declared as "stabilized"; the value is according to DIP switch selection; SIRIO xxx/yyy ST2, SIRIO xxx/yyy BILEVEL ST2 are setted at one fixed value within the rated range. [4] – Uout=120 V with S50 pin 1=ON: the product is not rated as SELV, but evaluations for SELV requirement have been performed. [5] – The product must be mounted on a dissipating surface, otherwise the maximum limit for ta decreases 10 °C. [6] – Measured on the top of C_{14} capacitor. [7] – IND=Independent, IP20 or IP67; II=class II; BI=Built-in; OF=built-in without enclosure; FE=functional earth; SELV=SELV; 110=overheating protection (C.5.a type); DNC=Do Not Cover.

The following products are SELV controlgears for LED modules. The devices have a constant voltage output.

Type/s	Primary voltage [1]	Primary Current (A)	Power Factor	Secondary Power (W)	Secondary Voltage (V)	Uout (V)	t_a (°C)	t_c (°C)	Classification [6]
DC 150W 24V ST2 (K2023)	220-240 V	0,71 [2]	0,98 (Po>39 W)	150	24	25	-40..45	75	IND, IP67, I, 100, PE
DC 150W 24V ST2 CLII (K2773)									IND, IP67, II, 100
DC 150W 24V VST (K2024) or DARK 150W 24V									IND, IP20, I, 100, PE
DC 150W 24V VST II (K2231)									IND, IP20, II, 100
DC 150W 24V VST BI (K2025)									DI, MM, PE
DC 150W 24V VST OF (K2089)							-	80 [4]	OF
DC 130W 24V ST2 (K2665)	220-240 V	0,64 [2]	0,98 (Po>39 W)	130	24	25	-20..45	70	IND, IP67, I, 100, PE
DC 130W 24V ST2 CLII (K2774)									IND, IP67, II, 100
DC 130W 24V VST (K2266)								75	IND, IP20, I, 100, PE
DC 130W 24V VST II (K2667)									IND, IP20, II, 100
DC 130W 24V VST BI (K2668)									DI, 100, PE
DC 130W 24V VST OF (K2669)							-	80 [4]	OF
DC 120W 24V VSTR (K2G32), DC 120W 24V VSTR DALI (K2G33), DC 120W 24V VSTR CASAMBI (K2G34)	220-240 V 50-60 Hz 176-275 V 0 Hz	0,65 0,75	0,98 (Po>39 W)	120	24	25	-25...50	75	I, MM, DNC
DC 120W 24V VSTR BI (K2G35), DC 120W 24V VSTR DALI BI (K2G36), DC 120W 24V VSTR CASAMBI BI (K2G37)									DI, MM
DC 120W 24V VSTR OF (K2G38), DC 120W 24V VSTR DALI OF (K2G39), DC 120W 24V VSTR CASAMBI OF (K2G40)							-	85 [4]	OF

Notes: Kxxxx code can be used as type reference. [1] – The frequency of primary voltage is 50-60 Hz or 0/50-60 Hz or 50/60 Hz; the products were tested also in 176-275 V operational range according to EN 61347-2-13 and they can be used for centralized emergency installations in the rated 196-250 V; Idc max=0,45 A (70 W models); Idc max=0,32 A

(50 W models). [2] – Maximum value at maximum load (see labels). [3] – Value at P>34 W. [4] – Measured on the top of C_7 capacitor. [5] – The products have an overheating protection (C.5.a type) and comply with temperature limit of clause 4.16.2 of EN 60598-1:04 ("F" triangle marking), EN 60598-1:2015. [6] - IND=Independent, IPxx=IP20 or IP67; I=class I; II=class II; BI=built-in; DI=built-in with double insulation; OF=Built-in without enclosure; PE=protective earth.

The following product is SELV controlgear for LED modules. The device has a constant voltage output. Iin and tc are related to max. secondary power.

Type/s	Primary voltage [1]	Primary Current (A)	Power Factor	Secondary Power [W]	Secondary Voltage (V)	Uout (V)	t_a [°C]	t_c [°C]	Classifi Cation [3]
DC 100W 48V ML or K2G06	220-240 V (50-60 Hz)	0,49	0,98 (P>34 W)	100	48	48	-	80 [2]	OF, PE
DC 70W 48V EM (K2I55)	220-240 V (50-60 Hz)	0,37	0,95 (P>35 W)	70	48	52	-20..45	85	IND, IP20, II, 110
DC 70W 48V EM BI (K2I56)	176-275 V (0 Hz)	0,5							BI, 110
DC 70W 48V EM OF (K2I57)								80 [2]	OF

Notes: Kxxxx code can be used as type reference. [1] – The frequency of primary voltage is 50-60 Hz or 0/50-60 Hz or 50/60 Hz; the products were tested also in 176-275 V operational range according to EN 61347-2-13 and they can be used for centralized emergency installations in the rated 196-250 V. [2] – Measured on the top of C7 capacitor. [3] - IND=Independent, IP20=IP20; II=class II; BI=built-in OF=Built-in without enclosure; PE=protective earth;

Models Connection type	SIRIO xxx/yyy ST2, SIRIO xxx/yyy BILEVEL ST2	SIRIO 100, 120 models	SIRIO 150 models	SIRIO FP models	DC 70W 48V EM models	DC 150W 24V ST2, DC 130W 24V ST2	DC 150W 24V ST2 CLII, DC 130W 24V ST2 CLII	Other VST models, DC 100W 48V ML
Connection to supply (PRI, L, N)	4x 0,75-1 mm² tails	0,75 (0,08 for BI)-2,5 mm² screwless terminals			0,75 (0,2 for BI) - 1,5 mm² screwless terminals	3x 1 mm² tails	2x 1 mm² tails	0,75-2,5 mm² screwless terminals (independent models) (0,5-2,5 mm² for other)
Connection to RED ON/OFF (if present)	4x 0,75-1 mm² tails	0,08-2,5 mm² screwless terminals				-		-
Connection to NTC, Vaux (if present)	4x 0,75-1 mm² tails	0,2-1,5 mm² screw terminals	0,5-1,5 mm² screwless terminals	0,5-1,5 mm² screwless terminals		-		-
Connection to ADIM, 1-10V control (if present)	4x 0,75-1 mm² tails	0,5-1,5 mm² screwless terminals				-		-
Connection to DALI control (if present)	-	-	-	0,5-1,5 mm² screwless terminals		-		-
Connection to load (OUTPUT LED, SEC)	4x 0,75-1 mm² tails	0,5-1,5 mm² screwless terminals			0,2-1,5 mm² screwless terminals	2x 2 mm² tails		0,5-2,5 mm² screwless terminals

Additional information	
Use	Independent or built-in controlgear for ordinary luminaire, up to 2000 m above sea level.
Features	For LED; stabilized output current or voltage; multiple value load; short-circuit proof type. All models with the enclosure fulfil the requirements for impulse withstand category II; Pollution degree 2; Material group IIIa. NTC port is for the thermal protection of LED module; Vaux is an auxiliary voltage for fan for the LED cooling. The material of enclosure was tested for Glow-wire at temperature of 850-960 °C (750-850 °C for IP67 models) with favourable result. The conformal coating (if present) increases the protection against electrostatic discharge, humidity and dust. DALI models are dimmable by DALI protocol; CASAMBI models are dimmable by CASAMBI protocol. Total circuit power: 38-108 W for SIRIO 100, SIRIO 100 BI, SIRIO xxx/yyy ST2, SIRIO 100 OF, S50 P1=OFF 32-90 W for SIRIO 100, SIRIO 100 BI, SIRIO xxx/yyy ST2, SIRIO 100 OF, S50 P1=ON 63-128 W for SIRIO 120 models 60-160 W for SIRIO 150/200-700 models 56-160 W for SIRIO 150/300-1050 models 160 W for SIRIO 150W 48V models and DC 150W 24V models 139 W for DC 130W 24V model 129 W for DC VSTR models 56-160 W for DC 100W 48V ML 76 W for DC EM models

INSULATION (B= basic, S= supplementary, R= double or reinforced)

DC VST models, DC VSTR models, DARK 150W 24V, DC ST2 models	L, N ↔ earth; L, N, PUSH L ↔ earth	B
DC VST models, DC VSTR models, DARK 150W 24V, DC ST2 models	L, N ↔ SEC; L, N, PUSH L ↔ SEC, OUTPUT LED, ADIM, SYNC, RECEIVER	R
DC VST models, DC VSTR models, DARK 150W 24V, DC ST2 models	Hazardous live parts of independent models ↔ all parts of the enclosure; Hazardous live parts of BI models ↔ all parts of the enclosure (complete or partial) that can come in contact with the luminaire body when incorporated	R
DC VSTR models	ADIM ↔ OUTPUT LED, SYNC, RECEIVER	-
SIRIO FP models	L, N, RED ON/OFF ↔ DALI, 1-10V; DALI↔ SEC, OUTPUT LED, NTC, Vaux; 1-10V ↔ SEC, OUTPUT LED, NTC, Vaux	R
SIRIO FP models	DALI ↔ 1-10V	S
SIRIO models	L, N ↔ RED ON/OFF	B
SIRIO models	L, N, RED ON/OFF ↔ earth; L, N, RED ON/OFF ↔ SEC, OUTPUT LED, NTC, Vaux; L, N, RED ON/OFF ↔ 1-10V	R
SIRIO models	1-10V ↔ SEC, OUTPUT LED, NTC, Vaux	R
SIRIO models	Hazardous live parts of independent models ↔ all parts of the enclosure; Hazardous live parts of BI models ↔ bottom of the enclosure.	R

The creepage distances, clearances and connections of control gears in the final application shall be according to EN 60598-1 or national deviations of the country where installed in the final application. The OF models have been tested in the same enclosure of built-in models, the safety evaluations must be repeated if they will be assembled in a final luminaire with different enclosure.

Models with enclosure are suitable for direct mounting on normally flammable surfaces (EN 60598-1).

Independent are suitable for centralized emergency installations (par. 22.19 of EN 60598-2-22) for any S1 or S50 selections up to the following load:

- 80 W for SIRIO 100
- 100 W for SIRIO 150/200-700 BILEVEL, SIRIO 150/200-700, SIRIO 150/200-700 BILEVEL, SIRIO xxx/yyy BILEVEL ST2, SIRIO 150/200-700 FP, SIRIO 150/300-1050, SIRIO 150/300-1050 BILEVEL, SIRIO 150/300-1050 FP, SIRIO 120/1000-2100 BILEVEL, DC 150W 24V VST, DC 150W 24V VST II, DC 130W 24V VST, DC 130W 24V VST II, DARK 150W 24V

The BI models have similar behavior but shall be verified in the final application.

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 EN IEC 62442-3:2022 has been performed.