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)	:	DC DL FLAT MD 20, DC MINI JOLLY (series), DC MINI JOLLY DALI (series), DC MINI JOLLY IPR2 (series), DC MINI JOLLY LC DALI (series), IPR2 (series), PUMA (series) and UNIVERSALE 20 (series)

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

DEKRA hereby declares that the above-mentioned product has been certified based on:
- 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 23 December 2024 and expires upon withdrawal of one of the above mentioned standards.

Certificate number: 81-122996 REV.2

DEKRA Certification B.V.

B.T.M. Holtus
Managing Director

Matilde Tonsi
Certification Manager

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DUTCH ACCREDITATION
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PRODUCTS
RvA C 001

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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)	:	DC DL FLAT MD 20, DC MINI JOLLY (series), DC MINI JOLLY DALI (series), DC MINI JOLLY IPR2 (series), DC MINI JOLLY LC DALI (series), IPR2 (series), PUMA (series) and UNIVERSALE 20 (series)
Primary voltage	:	110-277 V for a.c., 189-255 V for d.c.
Rated frequency	:	50/60 Hz, 0 Hz
Primary current	:	From 0,07 A to 0,19 A for a.c., 0,08 A to 0,201 A for d.c.
Secondary power	:	From 5,3 W to 30 W
Secondary current	:	From 0,1 A to 0,9 A
Secondary voltage	:	From 12 V to 48 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 documented in DEKRA test file 350964600.

Additional information

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

DEKRA test report No. 3509080.210 and 3500336.193 are laid down in DEKRA test file 350964600; they contain test results.

This certificate replaces certificate No. 81-122996 REV.1 which we hereby declare invalid.

The list of components is laid down in test report 3509080.210.

Conclusion

The examination has confirmed that all requirements were met.

Factory location

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

General product information: These devices are electronic controlgears for LED modules with SELV output. The devices have a stabilized output current (CC) or voltage (CV) according to DIP switch selection. The output can be reduced by NTC signal (if present) in case of overheating on the LED module. Dimming features are detailed in the technical specification: PUSH L, ADIM or 1-10V (local), PLV, DALI, Main Dimming (MD). The models including the suffix "IM" differ only for the value of minimum dimming level. Different commercial codes are assigned for PWM (cod. 123xxx), AM+PWM (cod. 125xxx), AM (cod. 127xxx, 151xxx, 152xxx), pre-setting of dip switch in the factory or if partial settings are present. UNIVERSALE models are not dimmable. The models with suffix "LO" are provided of looping on mains, Imax= 5 A; the PUMA models are provided with looping on mains, Imax= 3 A. The Kxxxx code can replace the type reference according to the following tables:

Type/s (codes 122xxx)	PRI voltage (V)	PRI Current (A)	Power Factor	Output Power (W) [1]	SEC Parameter [1]	U_{out} d.c. (V)	t_a (°C)	t_c (°C) [2]	Use (°C) [3]
UNIVERSALE 20 (K2361)	220-240	0,11	0,97	13-20	0,25-0,7 A	59	-25..50	75/80	II, DNC
UNIVERSALE 20 BI (K2367)				16	24 V	26			BI
UNIVERSALE 20 OF (K2B24)	176-280*	0,14*					-	80	OF
UNIVERSALE 20 LC (K2512)	220-240	0,12	0,91 C-0,95	5,4-20	0,1-0,38 A	59	-25..50	75	II, 110, DNC
UNIVERSALE 20 LC BI (K2513)	176-280*	0,14*		9	24 V	26			BI, 110
UNIVERSALE 20 LC OF (K2B25)							-	80	OF
UNIVERSALE 20 HC cod. 122198 (K2508)	110-240	0,17	0,95	15-20	0,35-0,9 A	49	-25..45/50	70/75	II, 110
UNIVERSALE 20 HC BI (K2509)	176-280*	0,14*		20	24 V	26			BI, 110
UNIVERSALE 20 HC cod. 122198ASN							-25..40	65	II, 110, DNC
UNIVERSALE 20 HC TG (K2510)							-25..45/60	75/85	II, 110
UNIVERSALE 20 HC TG BI (K2511)									BI, 110
UNIVERSALE 20 HC OF (K2B26)							-	80	OF
UNIVERSALE 20 HC TG OF (K2B27)							-	80	OF

Type/s (codes 123xxx)	PRI voltage (V)	PRI Current (A)	Power Factor	Output Power (W) [1]	SEC Parameter [1]	U_{out} d.c. (V)	t_a (°C)	t_c (°C) [2]	Use (°C) [3]
DC MINI JOLLY cod. 123400 (K2B38), DC MINI JOLLY PLV cod. 123406 (K2B42)	110-240	0,16	0,95	15-20	0,35-0,9 A	49	-25..50	75/80	II, 110
DC MINI JOLLY cod. 123400ASN, DC MINI JOLLY PLV cod. 123406ASN	176-280*	0,14*			12-24 V	26	-25..40	65/70	II, 110, DNC
DC MINI JOLLY OF (K2B21)							-	80	OF
DC MINI JOLLY DALI (K2B48)	110-240	0,18	0,92 C -0,97	10-20	0,25-0,7 A	55	-25..45	75	II, 110, DNC
DC MINI JOLLY DALI BI (K2B49)	176-280*	0,14*		16	24 V	26			BI, 110
DC MINI JOLLY DALI OF (K2B22)							-	80	OF
DC MINI JOLLY HV (K2B06), DC MINI JOLLY HV PLV (K2B18)	110-240	0,17	0,91 C - 0,95	13-20	0,25-0,7 A 24-48 V	59	-25..50	70/80	II, 110, DNC

DC MINI JOLLY HV BI (K2624), DC MINI JOLLY HV PLV BI (K2B19), DC MINI JOLLY HV PLV IM BI	176-280*	0,14*		16-20		26-50			BI, 110
DC MINI JOLLY HV OF (K2B08), DC MINI JOLLY HV PLV OF (K2B20)							-	80	OF
DC MINI JOLLY LC DALI (K2B50)	110-240	0,12-0,18	0,91 C - 0,95	5,3-20 9	0,1-0,38 A 24 V	59 26	-25..50	75	II, 120, DNC
DC MINI JOLLY LC DALI BI (K2B04)	176-280*	0,14*							BI, 120
DC MINI JOLLY LC DALI OF (K2B05)							-	80	OF
DC MINI JOLLY LC (K2E48)	110-240	0,12-0,16	0,91 C - 0,95	5,3-20 9	0,1-0,38 A 24 V	59 26	-25..50	75	II, 110, DNC
DC MINI JOLLY LC BI (K2E49)	176-280*	0,14*							BI, 110
DC MINI JOLLY LC OF (K2E50)							-	80	OF
Notes: Supply frequency=50/60 Hz; *0 Hz (see Additional information for rated values). [1] – Different values according to DIP switch selection (see label). [2] – see labels for the t_a and t_c values; tc is on the cap of C15 capacitor for OF models. [3] – II=independent IP20 class II; DNC= Do Not Cover; BI=built-in with enclosure; 110= overheating protection; OF= built-in without enclosure.									

Type/s (codes 125xxx)	PRI voltage (V)	PRI Current (A)	Power Factor	Output Power (W) [1]	SEC Parameter [1]	U_{out} d.c. (V)	t_a (°C)	t_c (°C) [2]	Use [3]
DC MINI JOLLY cod. 125400 (K2C18), DC MINI JOLLY PLV cod. 125406 (K2C22), DC MINI JOLLY FN (K2E54)	110-240 176-280*	0,18 0,14*	0,95	13-20 11-20	0,25-0,9 A 12-24 V	59 13-26	-25..50	75/80	II, 110
DC MINI JOLLY BI (K2C23), DC MINI JOLLY PLV BI (K2C27), DC MINI JOLLY FN BI (K2E55)									BI, 110
DC MINI JOLLY OF (K2C28), DC MINI JOLLY FN OF (K2E56)							-	80	OF
DC MINI JOLLY cod. 125400ASN							-25..40	65/70	II, 110, DNC
DC MINI JOLLY DALI (K2C29)	110-240	0,18	0,92 C - 0,97	12-20 16	0,25-0,7 A 24 V	55 26	-25..45	75	II, 120, DNC
DC MINI JOLLY DALI BI (K2C30)	176-280*	0,14*							BI, 120
DC MINI JOLLY DALI OF (K2C31)							-	80	OF
DC MINI JOLLY LC FN (K2E57)	110-240	0,12-0,16	0,91 C - 0,95	5,4-20	0,1-0,38 A	59	-25..50	75	II, 110, DNC
DC MINI JOLLY LC FN BI (K2E58)	176-280*	0,14*							BI, 110
DC MINI JOLLY LC FN OF (K2E59)							-	80	OF
Notes: Supply frequency=50/60 Hz; *0 Hz (see Additional information for rated values). [1] – Different values according to DIP switch selection (see label). [2] – see labels for the t_a and t_c values; tc is on the cap of C15 capacitor for OF models. [3]									

– II=independent IP20 class II; DNC= Do Not Cover; BI=built-in with enclosure; 110/120= overheating protection; OF= built-in without enclosure.

Type/s (codes: 127xxx)	PRI voltage (V)	PRI Current (A)	Power Factor	Output Power (W) [1]	SEC parameter [1]	U_{out} d.c. (V)	t_a (°C)	t_c (°C) [2]	Use [3]
UNIVERSALE 20 WR (K2B34)	110-277	0,19	0,95	13-20	0,25-0,7 A	59	-25..45	75	II, 110, DNC
				15-16	24 V	26			
UNIVERSALE 20 WR BI (K2B35)	176-280*	0,14*							BI, 110
UNIVERSALE 20 W OF (K2B36)							-	80	OF
DC MINI JOLLY MD cod. 127556 (K2C45), DC MINI JOLLY MD 3C (K2G58)	220-240	0,12	0,85 C - 0,97	12-20	0,25-0,9 A	55	-25..45/50	75	II, 110
	176-280*	0,14*		11-20	12-24 V	13-26			
DC MINI JOLLY MD BI (K2C46), DC MINI JOLLY MD 3C BI (K2G59)									BI, 110
DC MINI JOLLY MD OF (K2C47), DC MINI JOLLY MD 3C OF (K2G60)							-	80	OF
DC MINI JOLLY MD cod. 127556ASN							-25..40/45	70	II, 110, DNC
PUMA MD 20 (K2G63)	220-240	0,12	0,95	11-20	0,25-0,9 A	55	-25..40/50	80	II, 110
PUMA MD 20 BI (K2G64)									BI,110
PUMA MD 20 OF (K2G65)							-	80	OF
DC DL FLAT MD 20 (K2H62)	220-240	0,12	0,95	14-21	0,35-0,5 A	55	-25..40	80	BI,110

Notes: Supply frequency=50/60 Hz; *0 Hz (see Additional information for rated values). [1] – Different values according to DIP switch selection (see label). [2] – see labels for the t_a and t_c values; tc is on the cap of C15 or C18 capacitor for OF models. [3] – II= independent IP20 class II; DNC= Do Not Cover; BI= built-in with enclosure; 110= overheating protection; OF= built-in without enclosure.

Type/s (codes 151xxx)	PRI voltage (V)	PRI Current (A)	Power Factor	Output Power (W) [1]	SEC Parameter [1]	U_{out} d.c. (V)	t_a (°C)	t_c (°C) [2]	Use [3]
DC MINI JOLLY cod. 151400 (K2C32), DC MINI JOLLY PLV cod. 151406 (K2C36)	110-240 176-280*	0,18 0,14*	0,95	13-20	0,25-0,9 A	59	-25..50	75/80	II, 110
DC MINI JOLLY BI (K2C37), DC MINI JOLLY PLV BI (K2C41)									BI, 110
DC MINI JOLLY OF (K2C42), DC MINI JOLLY PLV OF (K2H80)							-	80	OF
DC MINI JOLLY DALI (K2C51)				12-20	0,25-0,7 A		-25..45	75	II, 120, DNC
DC MINI JOLLY DALI BI (K2C52)									BI, 120
DC MINI JOLLY DALI OF (K2C53)							-	80	OF
DC MINI JOLLY cod. 151400ASN				13-20	0,25-0,9 A		-25..40	65/70	II, 110, DNC
DC MINI JOLLY LC (K2E51)	110-240 176-280*	0,12-0,16 0,14*	0,91 C - 0,95	5,4-20	0,1-0,38 A	59	-25..50	75	II, 110, DNC
DC MINI JOLLY LC BI (K2E52)									BI, 110
DC MINI JOLLY LC OF (K2E53)							-	80	OF
DC MINI JOLLY LC DALI (K2H63)	110-240 176-280*	0,12-0,18 0,14*	0,91 C - 0,95	5,3-20 9	0,1-0,38 A 24 V	59 26	-25..50	75	II, 120, DNC
DC MINI JOLLY LC DALI BI (K2H64)									BI, 120
DC MINI JOLLY LC DALI OF (K2H65)							-	80	OF
Notes: Supply frequency=50/60 Hz; *0 Hz (see Additional information for rated values). [1] – Different values according to DIP switch selection (see label). [2] – see labels for the t_a and t_c values; tc is on the cap of C15 capacitor for OF models. [3] – II=independent IP20 class II; DNC= Do Not Cover; BI=built-in with enclosure; 110/120= overheating protection; OF= built-in without enclosure.									

Type/s (codes 152xxx)	PRI voltage (V)	PRI Current (A)	Power Factor	Output Power (W) [1]	SEC Parameter [1]	U_{out} d.c. (V)	ta (°C)	tc (°C)	Use [3]
DC MINI JOLLY DALI IPR2 (K2E60), DC MINI JOLLY DALI IPR2 LO (K2E61)	110-240 170-276*	0,172-0,187 0,201*	0,95-0,99 (Pout>6 W)	15-30	0,25-0,7 A AOC	59	-40..60	80-90 [2]	II, IP68, 120
DC MINI JOLLY 13/295 IPR2 (K2G57)	110-240 170-276*	0,07-0,14 0,09*		13	0,295 A	59	-40..60	75	II, IP68, 120
DC MINI JOLLY 16/350 IPR2 (K2G56)	110-240 170-276*	0,09-0,16 0,12*		15-16	0,35 A	59	-40..60	80	II, IP68, 120
DC MINI JOLLY 17/700 IPR2 (K2E62)	110-240 170-276*	0,095-0,175 0,12*		17	0,7 A 24 V	25	-40..60	80	II, IP68, 120

DC MINI JOLLY 20/500 IPR2 (K2E63)	110-240 170-276*	0,11-0,18 0,13*		20	0,5 A	59	-40..60	80	II, IP68, 120
IPR2 12/250 (K2E64), IPR2 12/250 LO (K2E65)	110-240 170-276*	0,07-0,138 0,08*		12	0,25 A	59	-40..70	90	II, IP68, 120
IPR2 17/350 (K2E66), IPR2 17/350 LO (K2E67)	110-240 170-276*	0,095-0,175 0,12*		17	0,35 A	59	-40..70	90	II, IP68, 120
IPR2 24/500 (K2E68), IPR2 24/500 LO (K2E69)	110-240 170-276*	0,13-0,183 0,16*		24	0,5 A	59	-40..60/70 [4]	90	II, IP68, 120
IPR2 30/700 (K2E70), IPR2 30/700 LO (K2E71)	110-240 170-276*	0,172-0,187 0,201*		30	0,7 A	59	-40..60	80-90 [2]	II, IP68, 120
Notes: Supply frequency=50/60 Hz; *0 Hz (see Additional information for rated values). [1] – Different values according to DIP switch selection (see label). AOC=Adjustable Output Current via DALI port with DALI WEB PROGRAMMER (see catalogue pages). [2] – t_c value is 90 °C at 220-240 V, 30 W; 80 °C at 110-127 V, 15 W (see labels). [3] – II=independent, case IP68, class II; 120= overheating protection. [4] – 70 °C is applicable to 110-127 V supply range.									

Connections		
Input supply	PRI	screwless terminal block 0,5…1,5 mm² (0,75…1,5 mm² for independent models)
		DC MINI JOLLY DALI IPR2 models and IPR2 models provided with tails / leads wirings: J1-J2, J3-J4 (if present) H07RN-F 2x1 mm^2; J5-J6 H05RN-F 2x1 mm^2
		DC MINI JOLLY IPR2 models provided with tails / leads wirings: J1-J2 H07RN-F 2x1 mm^2
		FN models provided with screw terminal block 0,5…4 mm² (0,75…4 mm² for independent models)
		PUMA MD 20 models provided with screw terminal block 0,5…2,5 mm² (0,75…2,5 mm² for independent models)
		DC DL FLAT MD 20 provided with tails 0,5-0,75 mm² (18AWG)
Input dimming (if present)	DA1, DA2, PUSH L	screwless terminal block 0,5…1,5 mm² (0,75…1,5 mm² for independent models)
		DALI IPR2 models provided with tails / leads wirings; J9-J10 H05RN-F 2x1 mm^2
		FN models provided with screw terminal block 0,5…2,5 mm² (0,75…2,5 mm² for independent models)
Input feedback (if present)	NTC, ADIM or 1-10V, PUSH LV	screwless terminal block 0,5…1,5 mm²
		DC MINIJOLLY IPR2 models provided with leads wirings J1-J2 H07RN-F 2x1,5 mm^2
		FN models provided with screw terminal block 0,5…2,5 mm² (0,75…2,5 mm² for independent models)
Output load	SEC	screwless terminal block 0,5…1,5 mm²
		DC MINI JOLLY DALI IPR2 models and IPR2 models provided with leads wirings J7-J8 Style 20233 FT2 2x18AWG
		DC MINIJOLLY IPR2 models provided with tails / leads wirings: J7-J8 H07RN-F 2x1 mm^2
		FN models provided with screw terminal block 0,5…4 mm²
		PUMA MD 20 models provided with screw terminal block 0,5…2,5 mm²
		DC DL FLAT MD 20 provided with tails 0,5 mm² (20AWG)

Additional information	
Use	Independent or built-in controlgear for ordinary luminaire, up to 2000 m above sea level.
Features	For LED, multiple load; short-circuit proof type; impulse withstand category II; pollution degree 2 (Normal Pollution); material group IIIa; overheating protection (C.5.a type) and comply with temperature limit of IEC/EN 60598-1; MM= suitable for direct mounting on normally flammable surfaces; the material of enclosure was tested for Glow-wire at temperature of 750-960 °C with favourable result.Total circuit power: 12 W for PUMA MD models; 14-34 W for IPR2 models; 24 W for all other models.

DC operation	The products were tested in 176-280 V or 170-276 V 0 Hz operational range according to EN 61347-2-13 and they can be used for centralized emergency installations in the rated 196-255 V or 189-250 V. D.c. operation can't be used for DC not used for PUSH L/RED ON/OFF/ OPERATION feature; assessment to EN IEC 60598-2-22:2022 used in conjunction with EN IEC 60598-1:2021 has been performed for independent models (for built-in models only Clauses 22.7.2 and 22.7.3 have been assessed).

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:

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

PRI ↔ DA1, DA2	B
DA1, DA2 ↔ SEC, NTC	S
PRI, PUSH L ↔ SEC, NTC, ADIM or 1-10V, PUSH LV	R
SEC ↔ NTC, ADIM or 1-10V, PUSH LV	-
active parts ↔ touchable parts of enclosure of independent models, DC DL FLAT MD 20	R
active parts ↔ bottom surface of enclosure of BI models	R

The OF models have been tested in the same enclosure of BI models, the safety evaluations must be repeated if they will be assembled in a final luminaire in a different enclosure. The connections of controlgears in the final application shall be according to IEC/EN 60598-1 or national deviations of the country where installed.
All models are suitable for direct mounting on normally flammable surfaces with the following limitations:

- tc ≤ 75 °C for DC MINI JOLLY (series), S1=900 mA; UNIVERSALE 20 HC TG models, S1=850 mA; PUMA MD 20, S1=250-700 mA.
- tc≤ 70°C for UNIVERSALE 20 HC models, S1=850 mA; PUMA MD 20, S1=750-900 mA.
- nominal tc for all other models.

Assessment to EN IEC 60598-2-22:2022 used in conjunction with EN IEC 60598-1:2021 has been performed.
Assessment to EN 62493:2015, EN 62493:2015/A1:2022 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 has been performed for the following models: DC MINI JOLLY, DC MINI JOLLY PLV, UNIVERSALE 20, DC MINI JOLLY LC, DC MINI JOLLY LC PLV, UNIVERSALE 20 LC, DC MINI JOLLY HV, DC MINI JOLLY HV PLV IM, DC MINI JOLLY BI, DC MINI JOLLY PLV BI, UNIVERSALE 20 BI, UNIVERSALE 20 HC BI, UNIVERSALE 20 HC TG BI, DC MINI JOLLY LC BI, DC MINI JOLLY LC PLV BI, UNIVERSALE 20 LC BI, DC MINI JOLLY HV BI, DC MINI JOLLY HV PLV IM BI, UNIVERSALE WR, UNIVERSALE WR BI.
Assessment to EN 62442-3:2018 has been performed.