

CERTIFICATE

Issued to:
Applicant:
Marquardt GmbH
Schloss-Strasse 16
78604 Rietheim-Weilheim, Germany

Licensee:
Marquardt GmbH
Schloss-Strasse 16
78604 Rietheim-Weilheim, Germany

Product : Rocker and toggle switches
Trade name(s) : MARQUARDT
Type(s)/model(s) : 18... SERIES

The product and any acceptable variation thereto is 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 the standard EN IEC 61058-1:2018 and EN 61058-1-1:2016
- an inspection of the production location according to CENELEC Operational Document CIG 021
- a certification agreement with the number 983346

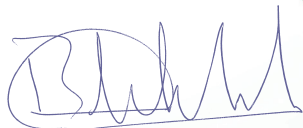
DEKRA hereby grants the right to use the ENEC certification mark.

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

This certificate is issued on 15 January 2019 and expires upon withdrawal of one of the above mentioned standards.

Certificate number: 71-106704

DEKRA Certification B.V.



B.T.M. Holtus
Managing Director



K. Lin
Certification Manager

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DUTCH ACCREDITATION
COUNCIL



SPECIFICATION OF THE CERTIFIED PRODUCT**Product data**

Product	: Rocker and toggle switches
Trade name(s)	: MARQUARDT
Type(s)/model(s)	: 1800., 1801., 1802., 1803., 1804., 1805., 1806., 1808., 1809., 1811., 1812., 1813., 1814., 1818., 1819., 1821., 1822., 1823., 1824., 1828., 1829., 1850., 1852., 1855., 1858., 1881. and 1883.
Type reference	: common type (C.T.)
Type of switch	: incorporated
Rated voltage	: 250 V~
Contact opening	: - full disconnection - micro disconnection (pattern nos. 4 and 4/2)
Class	: for class II appliances
Degree of protection	: IP40
Degree of pollution	: 3
Category to heat and fire	: 750 °C and 850 °C
Insulating material	: tracking resistant (250 V)
Rated impulse withstand voltage	: 2500 V
Material group	: IIIa
Terminals	: - solder terminals, - PCB terminals - tab terminals (2,8 x 0,8 mm and 4,8 x 0,8 mm) - screw terminals
Description	: body and actuating member of thermoplastic material
Markings	: trade name, type reference, electrical ratings and temperature limit on the base

Product data – type 1800.

Type of switch	: rocker switch
Rated current	: 10(4) A and 6(4) A
Circuit to be controlled	: resistive and motor
Pattern no.	: 1
Temperature limit	: T100/55
Number of cycles	: - 10.000 operating cycles for 10(4) A - 50.000 operating cycles for 6(4) A
Design	: optional provided with pilot lamp
Series resistor of pilot lamp	: 120 - 330 Kohm

Product data – type 1801.

Type of switch	: rocker switch, which makes momentary or continuous contact
Pattern no.	: 1
Rated current	: 6(4) A, 8(8) A, 10(4) A, 12(4) A, 5/50 A and 5/70 A
Pattern no.	: 1(N.O.)
Rated current	: 4(2) A, 6(4) A and 10(4) A
Pattern no.	: 1(N.C.)
Rated current	: 4(2) A and 10(4) A
Temperature limit	: T100/55
Circuit to be controlled	: - resistive and motor - resistive and capacitive
Number of cycles	: - 50.000 operating cycles for 6(4) A and 8(8) A - 10.000 operating cycles for 4(2) A, 10(4) A 12(4) A, 5/50 A and 5/70 A

Product data – type 1802.

Type of switch	: rocker switch, which makes momentary or continuous contact
Pattern no.	: 2
Rated current	: 6(4) A, 8(8) A, 10(4) A, 12(4) A, 5/50 A and 5/70 A
Pattern no.	: 2(N.O.)
Rated current	: 4(2) A, 6(4) A and 10(4) A
Pattern no.	: 2(N.C.)
Rated current	: 4(2) A and 10(4) A
Temperature limit	: T100/55
Circuit to be controlled	: - resistive and motor - resistive and capacitive
Number of cycles	: - 50.000 operating cycles for 6(4) A and 8(8) A - 10.000 operating cycles for 4(2) A, 10(4) A, 12(4) A, 5/50 A and 5/70 A

Product data – type 1803.

Type of switch	: rocker switch, which makes momentary or continuous contact
Rated current	: 10(4) A, 6(4) A, 4(2) A
Circuit to be controlled	: resistive and motor
Pattern no.	: 6
Temperature limit	: T100/55
Number of cycles	: - 10.000 operating cycles for 10(4) A and 4(2) A - 50.000 operating cycles for 6(4) A

Product data – type 1804.

Type of switch	: rocker switch, which makes momentary or continuous contact
Rated current	: 10(4) A, 6(4) A and 4(3) A
Circuit to be controlled	: resistive and motor
Pattern no.	: 6 and 6/2
Temperature limit	: T100/55
Number of cycles	: - 10.000 operating cycles for 10(4) A and 4(3) A - 50.000 operating cycles for 6(4) A

Product data – type 1805.

Type of switch	: rocker switch, which makes momentary or continuous contact
Pattern no.	: 2
Rated current	: 6(4) A, 8(8) A, 10(4) A, 12(4) A, 5/50 A and 5/70 A
Temperature limit	: T100/55
Circuit to be controlled	: - resistive and motor - resistive and capacitive
Number of cycles	: - 50.000 operating cycles for 6(4) A and 8(8) A - 10.000 operating cycles for 10(4) A, 12(4) A, 5/50 A and 5/70 A
Design	: optional provided with pilot lamp
Series resistor of pilot lamp	: 120 - 330 Kohm

Product data – type 1806.

Type of switch	: rocker switch, which makes momentary or continuous contact
Rated current	: 10(4) A, 6(4) A, 4(2) A
Circuit to be controlled	: resistive and motor
Pattern nos.	: 1, 1+1 and 6+1
Temperature limit	: T100/55
Number of cycles	: - 10.000 operating cycles for 10(4) A and 4(2) A - 50.000 operating cycles for 6(4) A
Design	: optional provided with pilot lamp

Series resistor of pilot lamp : 120 - 330 Kohm

Product data – type 1808.

Type of switch : rocker switch, which makes momentary or continuous contact
Rated current : 6(2) A
Circuit to be controlled : resistive and motor
Pattern no. : 4
Temperature limit : T100/55
Number of cycles : 10.000 operating cycles

Product data – type 1809.

Type of switch : rocker switch, which makes momentary or continuous contact
Rated current : 6(2) A
Circuit to be controlled : resistive and motor
Pattern no. : 4/2
Temperature limit : T100/55
Number of cycles : 10.000 operating cycles

Product data – type 1811.

Type of switch : toggle switch, which makes momentary or continuous contact
Rated current : 10(4) A, 6(4) A, 4(2) A
Circuit to be controlled : resistive and motor
Pattern no. : 1
Temperature limit : T100/55
Number of cycles : - 10.000 operating cycles for 10(4) A and 4(2) A
- 50.000 operating cycles for 6(4) A

Product data – type 1812.

Type of switch : toggle switch, which makes momentary or continuous contact
Rated current : 10(4) A, 6(4) A
Circuit to be controlled : resistive and motor
Pattern no. : 2
Temperature limit : T100/55
Number of cycles : - 10.000 operating cycles for 10(4) A
- 50.000 operating cycles for 6(4) A

Product data – type 1813.

Type of switch : toggle switch, which makes momentary or continuous contact
Rated current : 10(4) A, 6(4) A
Circuit to be controlled : resistive and motor
Pattern no. : 6
Temperature limit : T100/55
Number of cycles : - 10.000 operating cycles for 10(4) A
- 50.000 operating cycles for 6(4) A

Product data – type 1814.

Type of switch : toggle switch, which makes momentary or continuous contact
Rated current : 10(4) A, 6(4) A, 4(3) A
Circuit to be controlled : resistive and motor
Pattern nos. : 6 and 6/2
Temperature limit : T100/55
Number of cycles : - 10.000 operating cycles for 10(4) A and 4(3) A
- 50.000 operating cycles for 6(4) A

Product data – type 1818.

Type of switch	: toggle switch, which makes momentary or continuous contact
Rated current	: 6(2) A
Circuit to be controlled	: resistive and motor
Pattern no.	: 4
Temperature limit	: T100/55
Number of cycles	: 10.000 operating cycles

Product data – type 1819.

Type of switch	: toggle switch, which makes momentary or continuous contact
Rated current	: 6(2) A
Circuit to be controlled	: resistive and motor
Pattern no.	: 4/2
Temperature limit	: T100/55
Number of cycles	: 10.000 operating cycles

Product data – type 1821.

Type of switch	: toggle switch, which makes momentary or continuous contact
Rated current	: 6(4) A
Circuit to be controlled	: resistive and motor
Pattern no.	: 1
Temperature limit	: T100/55
Number of cycles	: 50.000 operating cycles

Product data – type 1822.

Type of switch	: toggle switch, which makes momentary or continuous contact
Rated current	: 6(4) A
Circuit to be controlled	: resistive and motor
Pattern no.	: 2
Temperature limit	: T100/55
Number of cycles	: 50.000 operating cycles

Product data – type 1823.

Type of switch	: toggle switch, which makes momentary or continuous contact
Rated current	: 6(4) A
Circuit to be controlled	: resistive and motor
Pattern no.	: 6
Temperature limit	: T100/55
Number of cycles	: 50.000 operating cycles

Product data – type 1824.

Type of switch	: toggle switch, which makes momentary or continuous contact
Rated current	: 6(4) A
Circuit to be controlled	: resistive and motor
Pattern no.	: 6/2
Temperature limit	: T100/55
Number of cycles	: 50.000 operating cycles

Product data – type 1828.

Type of switch	: toggle switch, which makes momentary or continuous contact
Rated current	: 6(2) A

Product data – type 1881.

Type of switch	: rocker switch, which makes momentary or continuous contact
Pattern no.	: 1
Rated current	: 6(4) A, 8(8) A, 10(4) A, 12(4) A, 5/50 A and 5/70 A
Pattern no.	: 1(N.O.)
Rated current	: 4(2) A, 6(4) A and 10(4) A
Pattern no.	: 1(N.C.)
Rated current	: 4(2) A and 10(4) A
Circuit to be controlled	: - resistive and motor - resistive and capacitive
Temperature limit	: T100/55
Number of cycles	: - 50.000 operating cycles for 6(4) A and 8(8) A - 10.000 operating cycles for 4(2) A, 10(4) A, 12(4) A, 5/50 A and 5/70 A

Product data – type 1883.

Type of switch	: rocker switch, which makes momentary or continuous contact
Rated current	: 10(4) A, 6(4) A, 4(2) A
Circuit to be controlled	: resistive and motor
Pattern no.	: 6
Temperature limit	: T100/55
Number of cycles	: - 10.000 operating cycles for 10(4) A and 4(2) A - 50.000 operating cycles for 6(4) A

TESTS**Test requirements**

EN IEC 61058-1:2018

EN 61058-1-1:2016

Test result

The test results are laid down in DEKRA test file 223282800.

Additional information

Additional tests according to Clause 30 of the following standards are performed with positive results for switches marked with the letter "G" on the switch or the label of the smallest shipping container.

- IEC 60335-1:2010
- EN 60335-1:2002

Resistance to heat and fire: Insulation material around connections within an area of 3,0 mm.

- Glow-wire test 750 °C; no flame.
- Glow-wire test 850 °C; flame, if any, extinguished within 30 seconds after removal of the glow-wire.
- Glow-wire Ignition Temperature ≥ 775 °C; tested on raw material plates with the thickness of 0,75 mm, 1,5 mm and 3,0 mm.

Models: 1800., 1803., 1804., 1806., 1811., 1812., 1813., 1814., 1821., 1822., 1823., 1824., 1883.

The contact material of the switches is Ag/Cu optional silver plated.

The contact material of the switches may also be manufactured with Ag/Ag.

Shape and color of actuating members and housings may vary.

Models: 1808., 1809., 1818., 1819., 1828., 1829.

The contact material of the switches is Ag/Cu (Ag/Cu version.)

The contact material for type 1808. may also be manufactured with Ag/Ag.

Models: 1801., 1802., 1805., 1881.

Ratings: 6(4) A - 250 V~, 5E4; 10(4) A - 250 V~, 1E4; 5/50 A - 250 V~, 1E4
rocker switches / contacts Ag/Cu

Ratings: 8(8) A - 250 V~, 5E4; 12(4) A - 250 V~, 1E4; 5/70 A - 250V~, 1E4
rocker switches / contacts Ag/Ag

Ratings: 6(4) A - 250 V~, 5E4; 10(4) A - 250 V~, 1E4
biased switches N.O. and N.C. / contacts Ag/Cu

Shape and color of actuating members and housings may vary.

Model: 1858.

The switch with the resistive and capacitive load 5/100 A is after the normal operation, additional subjected to a slow speed test of 100 operating cycles with an actuating speed of 0,5 mm/sec.

The switch with the resistive and capacitive load 5/100 A does also comply with the clause 14.6 of the:
IEC 60065:2001 + A1:2005 + A2:2010

EN 60065:2002 + A1:2006 + A11:2008 + A2:2010

This certificate replaces certificate No. 2142185.01 which we herewith declare invalid.

Conclusion

The examination proved that all requirements were met.

Factory locations

Marquardt Automotive Tunisia S.A.R.L.

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