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Project 00ME18592

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REPORT

on

COMPONENT - INDUSTRIAL CONTROL SWITCHES

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DESCRIPTION

PRODUCT COVERED:

USR, CNR - Component - Industrial Control Switches, Types TP3251 - followed by 0, 1, or 2, followed by -0 or 1, followed by -01, 03, 04, 05, 06, or 07, followed by /10, 16, 51, 52, 53, 54, 55, 56, 91, 92, 93, 94, 95, 96.

General - These devices are double pole, single throw, normally open, magnetically operated switches which are latched by the use of an internal coil. Depending on the model numbers, the TP3251 series may be provided with an external coil connection, and are equipped with either push-button or rocker type actuation. They are intended to be front mounted in a suitable enclosure.

RATINGS:

<u>Volts</u>	<u>1-phase hp</u>
120 ac	1 (16 FLA)
240 ac	1-1/2 (10 FLA)

20 A General use, 120 V ac
16 A General use, 240 V ac

Coil rating (see nomenclature for details): 115 - 240 V ac, 50/60 Hz

Environmental Ratings (for front face only) - Type 1

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE USE):

CNR - Indicates Investigated To Canadian National Standard(s) C22.2 No. 14-M95.

Note: CNR = Canadian National Standards - Recognized.
USR = United States Standards - Recognized.

Use - For use only in (or with) complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

This Component has been judged on the basis of the Standard for Industrial Control Equipment (UL 508, Table 47.1) which would cover the Component itself if submitted for unrestricted use).

NOMENCLATURE:

The Relays are designated as follows:

<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>
TP3251	1	0	01	/5	1

I - Series No.: TP3251

II - Switch type
1: rocker switch, white
2: rocker switch, black
3: push button switch

III - External coil connection
0: without external coil connection
1: with external coil connection

IV - Coil voltage
01: 230 V/50 Hz
03: 115 V/50 Hz
04: 115 V/60 Hz
05: 230 V/60 Hz
06: 240 V/50-60 Hz
07: 120 V/60 Hz

V - Special Design
1: additional protection equipment
5: black upper housing
9: yellow upper housing

VI -
0: same as "1" above
1: with protection cap type 556.243 or E3251 T 29
2: with sealing rubber type 556.238 or E3251 T 20-01
3: with cover type 553.259 or E3251 T XX
4: with protection cap 556.243 or E3251 T 29 and cover 553.259 or E3251 T XX
5: with sealing rubber 556.239 or E3251 T 20-02
6: special mark - label (package) with customer ID number

GENERAL

This Figure shows the complete device TP3251-00-01/10
(REPRESENTS ALL TP3251-0X-XX/XX AND TP3251-1X-XX/XX DEVICES) FIG.1 (M01-21486)

1. Housing (upper part) - R/C (QMFZ2) type A3X2G5, overall dimensions 48 mm by 25 mm by 22 mm, min. thickness 0.81 mm. Manufactured by BASF.
2. Housing (lower part) - Same as above except overall dimensions 45 mm by 39 mm by 21.5 mm.
3. Rocker button (type 553.262 or E3251 T 10) - R/C (QMFZ2) type Ultradur B4406, overall dimensions 29.8 mm by 15 mm by 12.3 mm, min. thickness 1.2 mm. Manufactured by BASF.
4. Clamp Frame - R/C (QMFZ2) type Polyamid 66, overall dimensions 50.3 mm by 27.3 mm by 14 mm. Min. thickness 0.95 mm.
5. Sealing Cap - PVC, overall dimensions 44 mm by 24.5 mm by 11.8 mm, min. thickness 0.8 mm.
6. Gasket - Moss rubber, type 556.237 or E 3251 T 20, overall dimensions 53 mm by 30 mm, min. thickness 2 mm. Manufactured by Gummi-Jager.

Alternate - EPDM, type 556.238 or E 3251 T 20-01, dimensions, thickness and manufacturer same as above.

Alternate - Cell rubber, type 556.239 or E3251 T 20-02, min. thickness 3 mm. Dimensions and manufacturer same as above.

GENERAL -

This Figure shows the complete device TP3251-21-04/91
(REPRESENTS ALL TP3251-2X-XX/5X AND TP3251-2X-XX/9X DEVICES) FIG.2 (M01-21487)

1. Housing (upper part) - R/C (QMFZ2) Same as item 1 of Fig. 1 except; overall dimensions 57 mm by 54 mm by 34.3 mm, min. thickness 1.2 mm.
2. Housing (lower part) - Same as figure 1.
3. Push button (type 553.256 or 553.257 or E3251 T 23/24 - R/C (QMFZ2) type Bayblend T85, overall dimensions 26 mm by 18 mm by 23 mm. Min. thickness 1 mm. Manufactured by Bayer.
4. Sealing Cap (optional) - PVC, overall dimensions 52 mm by 34.5 mm by 20.6 mm, min. thickness 0.8 mm.
5. Frame (optional flange mounting) - Type PA 6.6, overall dimensions 61.4 mm by 58 mm by 7 mm. Min. thickness 2 mm. Manufactured by Fa. Elten.
6. Gasket - Same as item 6 of Fig. 1.
7. Protection cap (optional) - Type Alfater XL 70, overall dimensions 57 mm by 24.5 mm by 53.8 mm. Min. thickness 1 mm.

GENERAL -

This Figure shows the complete device TP3251-20-01/10
(REPRESENTS ALL TP3251-2X-XX/10 DEVICES)

FIG. 3 (M01-21488)

Construction identical to Figure 3, except for the following:

1. Housing (upper part) - Same as item 1 of Fig. 1 except; overall dimensions 74 mm by 35 mm by 34.3 mm, min. thickness 1.2 mm. Manufactured by BASF.
2. Frame (optional flange mounting) - Type PA 6.6, overall dimensions 78.4 mm by 39 mm by 7 mm. Min. thickness 2 mm. Manufactured by Fa. Elten.

GENERAL -

This Figure shows the internal components of device TP3251-00-01/10

(REPRESENTS ALL TP3251-XX-XX/XX DEVICES)

FIG. 4 (M01-21490)

1. Switching bridge - Nickel plated iron, measures 32.7 mm by 14 mm by 1.5 mm thick. Slightly bent at center.
2. Coil contact ring - Copper, "D" shaped, overall dimensions 13.5 mm by 8.3 mm. Min. thickness 1.2 mm.
3. Bobbin - R/C (QMFZ2) type Crastin SK641FR, overall dimensions 25 mm by 19.2 mm. Min. thickness 1 mm. Manufactured by DuPont.
4. Coil Winding - R/C (OBMW2) magnetic wire, type Polyoisol P155, manufactured by Elektrisola.

Alternate - R/C (OBMW2) type CUL-WV or CUL-V, manufactured by A. Wehde.

Alternate - R/C (OBMW2) type Salflex 155, manufactured by Irce.
5. Fixing tape - R/C (OANZ2) type Polyester/Crepe 18100, manufactured by CMC.

Alternate - Type Polyester/Crepe 1550, manufactured by PPI.
6. Coil connection wire - CuSn 6, Sn plated, 35 mm long, .5 mm by .5 mm diameter.
7. Coil core - Iron; 9 S Mn Pb 36 K Bi, surface: Fe/Cu, 25.6 mm long, 8 mm dia.
8. Yoke - Iron; St 3 K 32 RP, surface; Ni/Cu/Fe. "L" shaped, overall dimensions 29.5 mm by 21 mm by 15 mm wide, min. thickness 2 mm.
9. Connector/Stationary Contact - Connector Cu/Zn, with Ag/Ni 90/10 contact. "L" shaped connector, overall dimensions 21 mm by 6 mm by 6.3 mm wide. Min. thickness 0.8 mm. Contact; 3 mm diameter, 0.7 mm min. thick.
10. Moveable contact carrier (Top) - R/C (QMFZ2) type A3X2G5, overall dimensions 18.8 mm by 16 mm by 5.2 mm. Min. thickness 0.81 mm. Manufactured by BASF.
11. Moveable contact carrier (Bottom) - Same material as above. Overall dimensions 16.2 mm by 18.8 mm by 5.8 mm. Min. thickness 0.85 mm.
12. Moveable contact rail and contact - Rail Cu/Zn, with 2 Ag/Ni 90/10 contacts. Overall rail dimensions 13.1 mm by 5 mm wide. Min. thickness 0.5 mm. Contacts; 3 mm diameter, 0.7 mm min. thick.
13. Compression spring - Spring steel, measures 6 mm long by 3.8 mm dia. Wire dia. 0.28 mm.
14. External coil connector (optional) - Cu/Zn, overall dimensions 25.25 mm by 2.8 mm. Min. thickness 0.8 mm.

15. Return set springs for rocker button (type 553.262 or E3251 T 10) - Spring steel measures 15 mm long by 3.8 mm dia. Wire dia. 0.28 mm.
16. Return set spring for push button (type 553.256 or 553.257 or E3251 T 23/24) - Spring steel measures 15 mm long by 14 mm dia. Wire dia. 0.85 mm.

TEST RECORD NO. 3

No tests have been considered necessary due to administrative changes without a change in the electrical ratings.

Test Record Summary:

The results of this investigation indicate that the products evaluated comply with the applicable requirements and, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

Report by:

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Pursuant to the Corporate Services Agreement between Underwriters Laboratories ("UL") and UL International Germany GmbH, UL hereby accepts and issues this report.