

File E301221
Project 06CA61307

March 27, 2007

REPORT

On

COMPONENT - INDUSTRIAL CONTROL SWITCHES

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Taoyuan Taiwan

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and Report

DESCRIPTION

PRODUCT COVERED:

USR, CNR Component - Limit Switches, Models TM series, followed by -1300, -1301, -1303, -1305, -1306, -1307, -1308, -1309, -1701, -1702, -1703, -1704, -1705, -1706, -1707, -1708, -1709, -1743, -1401, -1501, followed by Blank, -2 or -1GS, followed by Blank, A or C, followed by Blank, I, LM or LD. Model TZ-6 series, followed by 001, 001-2, 002, 002-2, 003, 004, 043, 101, 102, 103, 104 or 106, 143, followed by Blank, 1, LM or LD.

GENERAL:

These units are open type devices and intended for use in industrial control applications. They are provided with one set of normally closed and one set of normally opened contacts.

ELECTRICAL RATINGS:

Series	Contact Rating, Maximum
TM-13XX, TM-14XX, TM-15XX, TM-17XX, TZ-6XXX, with suffix 2 or blank	250 V ac, 15/20 A, 50/60 Hz, General use
TM-13XX-X, -14XX-X, -15XX-X, -17XX-X, with suffix A	250 V ac, 15 A, 50/60 Hz, General use
TM-17XX-X, with suffix 1GS	125 V ac, 1 A, 50/60 Hz, General use

Ambient: Maximum 55 degree C.

NOMENCLATURE:

The Models TM and TZ-6 series are designated as follows:

TM - 1300 - 2 A - LD
I II III IV V

I. Series Name
 TM or TZ-6

II. Actuator Assembly Type
 See ILLS. 1 thru 56 for various configurations

III. Electrical Rating
 Blank - 250 V ac, 15 A, 60 Hz
 2 - 250 V ac, 20 A, 60 Hz
 1GS - 125 V ac, 1 A, 60 Hz

- IV. Terminal Type
Blank - Screw Type, see Fig. 1 for overall view
A - Soldering Type, see Fig. 3 for overall view
C - Quick Connect Type, see Fig. 4 for overall view
- V. Mounted Hole
Blank - 4.4 mm OD
I - 3.56 mm OD
LM - 4.4 by 3.56 mm OD
LD - 4.4 by 3.56 mm OD and 4.4 or 3.56 mm OD

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

- Use - For use only in products where the acceptability of the combination is determined by Underwriters Laboratories Inc.
- USR - Indicates investigation to United States Standard for Industrial Control Equipment, UL 508, Seventeen Edition.
- CNR - Indicates investigation to Canadian Standard for Industrial Control Equipment, CSA 22.2 No. 14-05 Tenth Edition.

Conditions of Acceptability - The following shall be considered in determining the acceptability:

1. The device should be used within their Recognized ratings as specified above.
2. The unit is suitable for factory wiring only and the suitability of the connections including spacings between factory connectors shall be determined in the end-use.
3. Spacings from the exposed live parts to the end-use enclosure walls shall be in accordance with the requirements of the end-product.
4. Open type devices should be mounted in an enclosure having adequate strength and thickness in the intended manner and with acceptable spacing provided.
5. The device was evaluated for fire and shock hazard only; they were not evaluated for safety function or as emergency stop device. The device shall not make mention of use as an Emergency Off (Stop) Switch.

CONSTRUCTION DETAILS:

The product shall be constructed in accordance with the following description.

Corrosion Protection - All ferrous metal parts are protected against corrosion by plating, painting, galvanizing.

Tolerances - Unless specified otherwise, all indicated dimensions are nominal.

Spacings - Spacings have been evaluated in accordance with the Standard for Industrial Control Equipment, UL 508, Seventeenth Edition, Table 36.1, Column A.

Markings - Recognized company name or trademark and model number. Electrical ratings are optional.

Model Difference -

Model TM-13XX-X series are similar to model TM-13XX-XC series, except for model designation and terminal type.

Model TM-13XX-X series are similar to model TM-13XX-XA series, except for model designation, switch assembly, electrical rating and terminal type.

Model TM-14XX, TM-15XX and TM-17XX series are similar to models TM-13XX series, except for model designation, and actuator assembly.

Models TZ-6 series are similar to model TM-13XX, TM-14XX, TM-15XX and TM-17XX series, except for model designation, actuator assembly and provide with additional switch cover.

LIMIT SWITCHES MODEL TM-1307 FIG. 1

General - Fig. 1 show an overall view of Model TM-1307. Model TM-1307 is considered representative of Models TM-13XX, TM-14XX, TM-15XX, TM-17XX and TZ-6 series in this Report, except where variations are specifically described below.

1. Actuator Assembly - All steel pars are plated or stainless steel. Rollers are of nylon or stainless steel material. See ILLS. 1 thru 56 for various configurations.
2. Switch Upper Cover (Provide for model TZ-6 series only) - Aluminum alloy, overall 85.3 by 25.6 by 41 mm high. Screwed with switch bottom cover by two screws, see FIG. 2 for overall view.
3. Switch Bottom Cover (Provide for model TZ-6 series only) - Aluminum alloy, overall 77.5 by 24.6 by 20.6 mm high. Screwed with switch upper cover by two screws, see FIG. 2 for overall view.
4. Liner (Provide for model TZ-6 series only) - Silicon Rubber, overall 68 mm by 23.5 mm by 16 mm high, 1 mm thick. Fits into switch bottom cover.
5. Sleeve (Provide for model TZ-6 series only) - Unfilled nylon, overall 18.7 by 11.6 by 24 mm high, 0.71 mm thick. Fits into switch upper cover.
6. Switch Assembly - See Figs. 1 and 3 show an overall view.
 - A. Housing - Phenolic, measured 1 mm thick for the direct support of uninsulated live part. Overall 49.8 by 17.7 by 20.8 mm high.
 - B. Cover for models TM-13XX series - Phenolic, overall 49.8 by 17.4 by 10 mm high, 1.7 mm thick, secure with Housing by two brass pins.

Cover for models TM-14XX, TM-15XX, TM-17XX and TZ-6 series - Phenolic, overall 49.8 by 20.4 by 10 mm high, 1.7 mm thick, secure with housing by two brass pins.
 - C. Actuator Arm for models TM-13XX and TZ-6 series - Stainless, overall 9.3 mm OD by 22 mm high.
 - D. Actuator for models TM-13XX and TZ-6 series - Phenolic, overall 11.6 mm OD by 7.2 mm high, secure with actuator arm by glue.

Actuator for models TM-14XX, TM-15XX and TM-17XX series - Phenolic, overall 4.1 mm OD by 14.2 mm high, secure with actuator arm by glue.

- E. N.C. Stationary Contact Arm for models TM-13XX-X, TM-14XX-X, TM-15XX-X, TM-17XX-X, TM-13XX-XC, TM-14XX-XC, TM15XX-XC, TM17XX-XC and TZ-6 series - Copper alloy, shaped as show. Overall 15.8 by 9.9 by 2.7 mm high, 1 mm thick, riveted to housing.

N.C. Stationary Contact Arm for models TM-13XX-XA, TM-14XX-XA, TM15XX-XA, TM17XX-XA series - Copper alloy, shaped as show. Overall 15.8 by 9.9 by 2.7 mm high, 1 mm thick, riveted to housing.

- F. N.C. Stationary Contact for models TM-13XX-X, TM-14XX-X, TM-15XX-X, TM-17XX-X, TM-13XX-XC, TM-14XX-XC, TM15XX-XC, TM17XX-XC and TZ-6 series - Copper alloy with silver plating, overall 3.9 mm OD by 3.6 mm high, riveted to N.C. stationary contact arm.

N.C. Stationary Contact for models TM-13XX-XA, TM-14XX-XA, TM15XX-XA, TM17XX-XA series - Copper alloy with silver plating, overall 3.9 mm OD by 3.6 mm high, riveted to N.C. stationary contact arm.

- G. N.O. Stationary Contact Terminal for models TM-13XX-X, TM-14XX-X, TM-15XX-X, TM-17XX-X, TM-13XX-XC, TM-14XX-XC, TM15XX-XC, TM17XX-XC and TZ-6 series - Copper alloy, overall 18.4 by 5.3 by 5.5 mm high, 1 mm thick, riveted to housing.

N.O. Stationary Contact Terminal for models TM-13XX-XA, TM-14XX-XA, TM15XX-XA, TM17XX-XA series - Copper alloy, overall 18.4 by 5.3 by 5.5 mm high, 1 mm thick, riveted to housing.

- H. N.O. Stationary Contact for models TM-13XX-X, TM-14XX-X, TM-15XX-X, TM-17XX-X, TM-13XX-XC, TM-14XX-XC, TM15XX-XC, TM17XX-XC and TZ-6 series - Copper alloy with silver plating, overall 3.9 mm OD by 3.6 mm high, riveted to N.O. stationary contact terminal.

N.O. Stationary Contact for models TM-13XX-XA, TM-14XX-XA, TM15XX-XA, TM17XX-XA series - Copper alloy with silver plating, overall 3.9 mm OD by 3.6 mm high, riveted to N.O. stationary contact terminal.

- I. U Shape Terminal - Brass, shaped as show, overall 17 by 14.6 by 1.6 mm thick, riveted to housing.

- J. Movable Contact Arm - Copper, overall 37.3 by 12.9 by 3.5 mm high, 0.2 mm thick, riveted to U shape terminal

- K. Movable Contact - Copper alloy with silver plating, overall 3.9 mm OD by 2.3 mm high, riveted to movable contact arm.

- L. Terminals for screw type - Three provide. Copper alloy screw, 7.5 mm high with 8 mm OD head, screwed with washers to housing, see Fig. 1 for overall view.

Terminals for soldering type - Three provide. Copper alloy screw, 5.7 mm high with 4.3 mm OD head, screwed with washers to housing, see Fig. 3 for overall view.

Terminals for quick connect type - Three provide. Copper alloy screw, 7.5 mm high with 8 mm OD head, screwed with washers to housing, see Fig. 4 for overall view.

TM-1704



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