File E321923
Project 09CA29062

March 1, 2010

REPORT

on

COMPONENT - DISTRIBUTED GENERATION POWER SYSTEMS
ACCESSORY EQUIPMENT COMPONENT

TYCO ELECTRONICS CORP
HARRISBURG
PENNSYLVANIA, U.S.A

DESCRIPTION

PRODUCT COVERED:

USR Component - Photovoltaic Junction Boxes: Model 2106376, followed by -3, -4, -5, -6, -7, or -8 **and Model 2106145 followed by** -1

GENERAL:

USR indicates investigation to the Standard for Safety for Flat-Plate Photovoltaic Modules and Panels, UL 1703 3rd Edition, revised April 8, 2008.

These devices are Photovoltaic Junction boxes for connection and mounting to PV modules where the acceptability of the combination is determined by Underwriters Laboratories Inc.

ELECTRICAL RATINGS:

Models	Max Voltage (V dc)	Max Current (A dc)
2106376, **2106145**	600	10

Model Differences - All models are similar in construction, but differ in cable length, output connector configuration, and diode orientation.

Only the following assemblies have been evaluated by Underwriters Laboratories Inc.

Model No.	Description
2106376-3	Output connectors: 6-1394461-2 (male), 1394462-4 (female); Cable length: 556 mm (at male connector), 276 mm (at female connector); Polarity Orientation: + -
2106145-1	
2106376-4	Output connectors: 6-1394461-2 (male), 1394462-3 (female); Cable length: 1670 mm (at male connector), 340 mm (at female connector); Polarity Orientation: + -
2106376-5	Output connectors: 6-1394461-2 (male), 1394462-4 (female); Cable length: 735 mm (at male connector), 735 mm (at female connector); Polarity Orientation: - +
2106376-6	Output connectors: 6-1394461-2 (male), 1394462-3 (female); Cable length: 300 mm (at male connector), 915 mm (at female connector); Polarity Orientation: + -
2106376-7	Output connectors: 6-1394461-2 (male), 1394462-4 (female); Cable length: 925 mm (at male connector), 925 mm (at female connector); Polarity Orientation: - +
2106376-8	Output connectors: 6-1394461-2 (male), 1394462-4 (female); Cable length: 1001 mm (at male connector), 1001 mm (at female connector); Polarity Orientation: - +

ENGINEERING CONSIDERATIONS (FOR ENGINEERING USE ONLY):

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

1. The Ampere rating for the junction boxes in this report is based entirely on mechanical considerations, such as accepted conductor sizes, component ratings, and anticipated conditions of use.

2. The Strain Relief test conducted on the product in this report only established the basic functionality of the Strain Relief hardware and is not considered representative of end product conditions.

Conditions of Acceptability - In order to be judged acceptable as a component of electrical equipment, the following conditions should be met:

1. These devices are intended for use with single-conductor cable and have been evaluated for UL Listed (TYLZ - Service Entrance Cable), USE-2 cables 12 AWG, 65 strands, and metric size cable 4.9 mm outside diameter.

2. These wiring box components are made with materials that have not been evaluated for direct exposure to UV radiation. The use of these components must therefore take steps to prevent direct UV exposure to the wiring box in the end-use application.

3. The UL 1703 Temperature test, Strain Relief test, Temperature cycling, and Humidity cycling test sequences, shall be conducted in the end use equipment.

4. These components use a plastic material, which has an RTI of 130°C for mechanical with impact. Consideration should be given to the end use that operating temperatures not exceed 110°C when evaluated at a 40°C ambient at full load, unless the application provides protection from impact.

5. These components have not been assessed for a maximum series fuse amp rating. The maximum series fuse amp rating should be assessed in the end product.

6. These devices should be used only where they will not interrupt current. In addition, the need to include specific instructions in the end use equipment's manual describing the method of achieving disconnect while not under load should be considered.

7. No tests have been conducted on the diode. All appropriate testing, such as, but not limited to the temperature test, is to be conducted when installed in the end product.

*8. These components has been evaluated with a suitable R/C (QMFZ2) silicone material (rated V-0 @ 2.0 mm, HWI & HAI=0 @ 2.0 mm), used to fill the voids surrounding module-to-junction box tabbing connections. When installed in the end product, the junction boxes must be potted with suitable UL R/C material, appropriate for the use location.

9. The following materials were subjected to the Accelerated Aging test for use as a gasket at a minimum thickness of 1.9 mm, with a maximum operating temperature rating of 105 C per Table 34.2 of UL 1703:

R/C (QMFZ2), Momentive Performance (E205753), Silopren LSR 3286/50, yellow.

U/C (QMFZ3), QSR (E321923), Silicone A5004GN, green. See report date 2010-12-29.

10. Use of the materials noted in Item 9 as gaskets in new or existing Recognized junction boxes noted in this Report shall be further subjected to all appropriate testing, such as, but not limited to the Water Spray Test, the Dielectric Voltage Withstand Test following Water Spray, and the Leakage Current Test following Water Spray.