

CERTIFICATE OF COMPLIANCE

Certificate Number 20180821-E28476
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Issued to: TYCO Electronics Corp
2901 Fulling Mill Rd
Middletown PA 17057

**This is to certify that
representative samples of**

COMPONENT - CONNECTORS FOR USE IN DATA, SIGNAL,
CONTROL AND POWER APPLICATIONS


USR Component Connector: Z-Pack 2 mm RS Connector Series,
Cat. Nos. 148376, 148377, 148509, 148510 and 646279.

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 1977- Standard for Component Connectors for Use in Data,
Signal, Control and Power Applications

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog
number, model number or other product designation as specified under "Marking" for the particular
Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products
that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark:
, may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is
required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual
recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance
capabilities and are intended for use as components of complete equipment submitted for investigation rather
than for direct separate installation in the field. The final acceptance of the component is dependent upon its
installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program
UL LLC

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DESCRIPTION

PRODUCT COVERED:

USR Component Connector: Z-Pack 2 mm RS Connector Series, Cat. Nos. 148376, 148377, 148509, 148510 and 646279.

GENERAL:

These devices are multipole two piece connectors employing male and female contact terminals for soldering or press fit to a printed wiring board.

USR indicates investigation to United States Standards, UL 1977, First Edition.

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE USE):

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

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

1. These devices have not been tested for interrupting the flow of current by connecting or disconnecting the mating connector. If the devices will be routinely connected or disconnected under load in the end-use application, tests to evaluate the devices' ability to withstand the resulting electrical arc should be considered. The number of make-and-break cycles, the supply voltage and power factor and the current carried by each pole of the device in the test are to be developed based upon the conditions that will be present in the end-use. The Overload, Temperature and Resistance to Arcing Test Sequence in UL 1977, the Standard for Component Connectors for Use in Data, Signal, Control and Power Applications, is an example of a test program that can be used in such an evaluation.

2. When subjected to the Temperature Test described in UL 1977, the Standard for Component Connectors for Use in Data, Signal, Control and Power Applications, these devices exhibited a max temperature rise of 25.0°C when carrying the rated 1.5 A current. The conductors terminated by the device and other associated components are to be reviewed in the end-use to determine whether the temperature rise from the connector exceeds their max operating temperature ratings.

3. The suitability of the spacings between live parts of opposite polarity, including adjacent poles and between live parts and exposed dead metal parts shall be determined in the end use. Dielectric testing has not been performed.

4. The printed-wiring-board terminals have not been evaluated for mechanical secureness. The construction of the connector is to be reviewed when it is assembled to the particular printed wiring board used in the end-use application. The need to provide additional mounting hardware to mechanically secure the connector to the printed wiring board is to be determined in the end-use.

5. The suitability of the insulating materials used in the molded bodies shall be judged in the end-use equipment.

6. The operating temperature of these devices should not exceed the temperature ratings of the insulating materials. These materials may be used interchangeably at a max temperature of 130°C.