

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20140514-E28476  
**Report Reference** E28476-20090717  
**Issue Date** 2014-MAY-14

**Issued to:** TYCO ELECTRONICS CORP  
2901 FULLING MILL RD  
MIDDLETOWN PA 17057-3170

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


Component – Connectors For Use In Data, Signal Control  
and Power Applications  
See addendum page

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

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

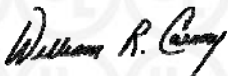
**Additional Information:** See the UL Online Certifications Directory at  
[www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Recognized Component Mark should be considered as being covered by UL's Recognition 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 Recognized Component Mark on the product.



William R. Carney, Director, North American Certification Programs  
UL LLC

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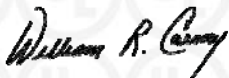


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**Certificate Number** 20140514-E28476  
**Report Reference** E28476-20090717  
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This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Component Connectors, Series HD10- or 14-, followed by 3, 4, 5, 6 or 9, followed by 4, 12, 16, 96 or 1939, followed by P; HD16-, followed by 3, 4, 5, 6 or 9, followed by 12, 16, 96 or 1939, followed by S; HD17-, followed by 9-, followed by 1939, followed by S. All may be followed by alpha/numeric suffixes denoting minor variations.



William R. Carney, Director, North American Certification Programs  
UL LLC

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File E28476  
Service Request: 1181364

July 17, 2009

REPORT

on

COMPONENT - Connectors for Use in Data, Signal, Control and Power  
Applications - Component

TYCO ELECTRONICS CORP  
MIDDLETOWN, PA

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## DESCRIPTION

## PRODUCT COVERED:

USR Component Connectors, Series HD10- or 14-, followed by 3, 4, 5, 6 or 9, followed by 4, 12, 16, 96 or 1939, followed by P; HD16-, followed by 3, 4, 5, 6 or 9, followed by 12, 16, 96 or 1939, followed by S; HD17-, followed by 9-, followed by 1939, followed by S. All may be followed by alpha/numeric suffixes denoting minor variations.

## GENERAL:

These devices are multi-pole connectors intended for factory assembly on stranded copper conductors where the acceptability of combinations is determined by Underwriters Laboratories Inc. The devices are identified as follows:

\* USR indicates investigation to United States Standards, UL 1977.

## RATING:

No current or voltage rating.

Disconnecting Use - see Sec Gen for required marking

## NOMENCLATURE:

$\frac{HD}{I}$	$\frac{1}{II}$	$\frac{0}{III}$	$\frac{9}{IV}$	$\frac{96}{V}$	$\frac{P}{VI}$	-	$\frac{XXXX}{VII}$
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- I. Designates Deutsch Cylindrical Connector with Quick Tricam Lock Coupling HD Environmental
- II. Indicates 10 Series Type Bulk Packaged Without Contacts or Accessories
- III. Indicates Connector Style
  - 0 = Square Flange Inlet
  - 4 = In-Line Inlet
  - 6 = Outlet
- IV. Indicates Shell Size and Insert Arrangements
  - 3 = 3 pole
  - 5 = 5 pole
  - 6 = 6 pole
  - 9 = 9 pole
  - 16 = Non-threaded Rear 3, 5, and 9 Shell Sizes
  - 96 = Threaded Rear Accepts Rear Hardware 3, 6, and 9 Shell Sizes
- \*V. Shell Configuration
- VI. Indicates Contact Type
  - S = Socket (Receptacle)
  - P = Pin (Inlet)
- VII. Special Modifications

## TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

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

Conditions of Acceptability - The following are among the considerations to be made when evaluating the device in the end-use product.

## Interruption of Current

1. These devices are not suitable for interrupting the flow of current by connecting or disconnecting the mating connector.

## Current-Carrying Capability and Current Ratings

2. These devices have not been subjected to the Temperature test and as a result do not have an assigned current rating. The device's current carrying capability is to be reviewed in the end-use by measuring temperatures on the connector housing and/or terminals when current is flowing through the connector under conditions of normal use.

## Insulating Materials

3. The insulating materials used in these devices comply with the direct support and enclosure requirements of UL 746C, the Standard for Polymeric Materials - Use in Electrical Equipment Evaluations.

4. The flame class rating of the insulating materials used in the connector housing is V-1.

\*

5. These devices employ insulating materials with properties as tabulated below at the minimum thickness employed in the connector housing, the suitability of the insulating materials based on the documented values shall be determined in the end-use application. Please note the values specified in the table when multiple materials are indicated represent the minimum values for the group of materials.

Part	Insulating Material	Flame Class	HWI	HAI	RTI Elec	RTI Str	Max Operating Temp, °C
Housing	TE Proprietary Information	V-0	0	0	120	65	65
Insert		V-1	2	4	170	170	65
HD10 Series Housing		V-0	0	0	220	220	125

\*6. The Maximum Operating Temperature of these devices should not exceed the temperature ratings of the insulating materials.

7. These devices have been evaluated for a 20 mm Flame Test per applicant request. **The Series HD 10 housing molded from TE Proprietary Info has not been evaluated for 20 mm Flame Test.** The suitability of the insulating materials shall be determined in the end-use application.

#### Terminations

8. The following crimp contacts have been evaluated for the wire sizes as tabulated below:

Pin/Contact	Wire Size, AWG	Force, lbf
0460-202-16141 / 0462-201-16141	16, 18	20
	20	
0460-215-16141 / 0462-209-16141	14	20
1060-14-0122 / 1062-14-0122	14 - 18	20
1060-16-0622 / 1062-16-0622	16, 18	20
1060-16-0622 / 1062-16-0622	20	8
1060-16-0122 / 1062-16-0122	12 - 16	20
1060-12-0222 / 1062-12-0222	10	20
1060-12-0166 / 1062-12-0166	12, 14	20
0460-204-0490 / 0462-203-04141	6	20
0460-204-12141 / 0462-203-12141	12, 14	20