

CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-L28476-1124-31709002-8
Report Reference 40TE28476-20090713
Date 1-Feb-2023

Issued to: TYCO Electronics Corp
2901 Fulling Mill Rd Middletown, PA 17057
United States

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

ECBT2 - Connectors for Use in Data, Signal, Control and
Power Applications - Component

See Addendum Page for Product Designation(s).

Have been evaluated by UL in accordance with the
component requirements in the Standard(s) indicated on
this Certificate. UL Recognized components are incomplete
in certain constructional features or restricted in
performance capabilities and are intended for installation in
complete equipment submitted for investigation to UL LLC.

Standard(s) for Safety: UL 1977, Edition 4, Issue Date 2022-12-07

Additional Information: See the UL Online Certifications Directory at
<https://iq.ulprospector.com> for additional information

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Recognized Component Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.

Deborah Jennings-Conner

Deborah Jennings-Conner, VP Regulatory Services

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>




CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-L28476-1124-31709002-8
Report Reference 40TE28476-20090713
Date 1-Feb-2023

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Model	Category Description
2293821-1	Connectors
2293822-1	Connectors
2294433-1	Connectors
2294434-1	Connectors
2294435-1	Connectors
2294479-1	Connectors
2294482-1	Connectors
2294488-1	Connectors
HDP24, followed by 18-6-, 18-8-, 18-14-, 18-20-, 18-21-, 24-9-, 24-14-, 24-16-, 24-18-, 24-19-, 24-21-, 24-23-, 24-29-, 24-31-, 24-33-, 24-34-, 24-35-, or 24-47- or 24-91-, followed by P or S, followed by N, T, or E, followed by .four alphanumeric characters.	Connectors
HDP26, followed by 18-6-, 18-8-, 18-14-, 18-20-, 18-21-, 24-9-, 24-14-, 24-16-, 24-18-, 24-19-, 24-21-, 24-23-, 24-29-, 24-31-, 24-33-, 24-34-, 24-35-, or 24-47- or 24-91-, followed by P or S, followed by N, T, or E, followed by .four alphanumeric characters.	Connectors
YHDP24, followed by 18-6-, 18-8-, 18-14-, 18-20-, 18-21-, 24-9-, 24-14-, 24-16-, 24-18-, 24-19-, 24-21-, 24-23-, 24-29-, 24-31-, 24-33-, 24-34-, 24-35-, or 24-47- or 24-91-, followed by P or S, followed by N, T, or E, followed by .four alphanumeric characters.	Connectors
YHDP26, followed by 18-6-, 18-8-, 18-14-, 18-20-, 18-21-, 24-9-, 24-14-, 24-16-, 24-18-, 24-19-, 24-21-, 24-23-, 24-29-, 24-31-, 24-33-, 24-34-, 24-35-, or 24-47- or 24-91-, followed by P or S, followed by N, T, or E, followed by .four alphanumeric characters.	Connectors


Deborah Jennings-Conner, VP Regulatory Services



UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>

File E28476
Service Request: 1181364

Issued: July 13, 2009
Revised: January 31, 2023

REPORT

on

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

TYCO ELECTRONICS CORP
MIDDLETOWN, PA

Copyright © 2009 Underwriters Laboratories Inc.

UL LLC authorizes the above named company to reproduce this Report provided it is in its entirety.

UL LLC authorizes the above named company to reproduce the latest pages of that portion of this Report consisting of this Cover Page through Page 3.

DESCRIPTION

PRODUCT COVERED:

USR - Component Connectors, Series **YHDP24 or YHDP26 or HDP24- or HDP26-**, followed by 18-6-, 18-8-, 18-14-, 18-20-, 18-21-, 24-9-, 24-14-, 24-16-, 24-18-, 24-19-, 24-21-, 24-23-, 24-29-, 24-31-, 24-33-, 24-34-, 24-35-, or 24-47- or 24-91-, followed by P or S, followed by N, T, or **E**, followed by **four alphanumeric characters**.

USR - Component Connectors Cat. Nos. 2293821-1, 2293822-1, 2294433-1, 2294434-1, 2294435-1, 2294479-1, 2294482-1, 2294488-1.

GENERAL:

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

USR indicates investigation to United States Standards **as referenced in the Test Record**.

Disconnecting Use - see Sec Gen for required marking

*

CAT NO NOMENCLATURE:

<u>Y</u>	<u>HDP</u>	<u>2</u>	<u>6</u>	<u>-24-21</u>	<u>S</u>	<u>N</u>	<u>L024</u>
A	I	II	III	IV	V	VI	VII

- A. Optional - Y - Indicates an identical construction Cat No.
- I. May be HDP Only - Designates Deutsch Heavy Duty Plastic Connector
- II. May be 2 only - Indicates Type, Bulk Packaged without Contacts or Accessories
- III. Indicates Connector Style
4 = Receptacle (female) - Jam nut type mounting
6 = Plug (male)
- IV. Indicates Shell Size and Insert Arrangements
May be: 18-6, 18-8, 18-14, 18-20, 18-21, 24-9, 24-14, 24-16, 24-18, 24-19, 24-21, 24-23, 24-29, 24-31, 24-33, 24-34, 24-35, or 24-47 or 24-91.
Refer to Ills. 1 and 32 for specific arrangement layout
- V. Indicates Contact style
P = Pin (male)
S = Socket (female)
- VI. Indicates Wire sealing options, colors indicate slight dimensional diameter variation, to accommodate different wire insulation ranges and outer diameters. May be either N, T, or E.

N = Normal position & wire seals (green ring)
T = Thin wall wire seals (gray ring)
E = Extra thin wall wire seals (blue ring)
- VII. Special Modifications
Four Alphanumeric characters - Assigned for Commercial Purposes only

The following table lists Cat. Nos that are identical except for Cat. No. designation.

Cat. No.	Identical
YHDP24-18-14PEL024	HDP24-18-14PE-L024
YHDP24-18-20PEL024	HDP24-18-20PE-L024
YHDP24-18-20PNL024	HDP24-18-20PN-L024
2293821-1	HDP24-18-8PE-L024
2293822-1	HDP24-24-16PE-L024
YHDP24-24-18PEL024	HDP24-24-18PE-L024
YHDP24-24-18PNL024	HDP24-24-18PN-L024
YHDP24-24-19PEL024	HDP24-24-19PE-L024
YHDP24-24-21PEL024	HDP24-24-21PE-L024
YHDP24-24-21PNL024	HDP24-24-21PN-L024
YHDP24-24-23PEL024	HDP24-24-23PE-L024
YHDP24-24-29PEL024	HDP24-24-29PE-L024
YHDP24-24-31PEL024	HDP24-24-31PE-L024
2294433-1	HDP24-24-31PT-L024
2294434-1	HDP24-24-33PN-L024
YHDP24-24-35PEL024	HDP24-24-35PE-L024
YHDP24-24-47PEL024	HDP24-24-47PE-L024
YHDP24-24-9PE-L024	HDP24-24-9PE-L024
2294435-1	HDP26-24-18PN-L024
YHDP26-24-19PEL024	HDP26-24-19PE-L024
2294479-1	HDP26-24-21PN-L024
YHDP26-24-23PEL024	HDP26-24-23PE-L024
YHDP26-24-31PEL024	HDP26-24-31PE-L024
2294482-1	HDP26-24-31PT-L024
YHDP26-24-35PEL017	HDP26-24-35PE-L017
2294488-1	HDP26-24-9PN-L024

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE USE):

Use - For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC.

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. 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 #	Min Thickness (mm) Flame Class	Flame Class	HWI	HAI	RTI Elec	Max Operating Temp, 0C
Housing Plug/Recpt	A	0.92	-	-	-	130	65
	A (Max 100% regrind)	0.92	-(+)	-	-	65	65
	F	0.92	-	-	-	65	65
Contact Retainer	B	0.14	-	-	-	105	65
	D	0.14	HB	3	0	65	65
Pin Front Insert	C (Max 80% regrind)	0.22	(+)	-	-	50	50
	E Max 25% regrind (1)	0.22	-	-	-	50	50
Socket Front Insert	B (Max 100% regrind)	1.22	-	2	4	170	65
	D (Max 25% regrind)	1.22	HB	3	0	65	65
Coupling Ring	A (Max 50% regrind)	2.29	-(+)	-	-	65	65
	F	2.29	-	-	-	65	65
Retaining Ring	A (Max 60% regrind)	1.57	(+)	-	-	65	65
	F	1.57	-	-	-	65	65

(+) - The material exceeds 25% regrind and the material has been evaluated for a 20 mm Flame Test.

- Code for Insulating Body Material

Note (1) - Natural color [REDACTED] with Colorant: [REDACTED] Black, [REDACTED] by [REDACTED].
LDR is 1:25.

A. [REDACTED]
Color: Black
Dielectric Strength (kV/mm): -
CTI: 3

B. [REDACTED]
Color: Black
Dielectric Strength (kV/mm): -
CTI: 3

C. [REDACTED]
Color: Natural
Dielectric Strength (kV/mm): -
CTI: -

D. [REDACTED]
Color: Black
Dielectric Strength (kV/mm): -
CTI: 1

E. [REDACTED]
Color: Natural
Dielectric Strength (kV/mm): -
CTI: -

F. [REDACTED]
Color: Natural with [REDACTED] Colorants [REDACTED]
[REDACTED] Color Black; LDR 1:20
Dielectric Strength (kV/mm): -
CTI: 3

6. The Maximum Operating Temperature of these devices should not exceed the temperature ratings of the insulating materials. These materials may be used interchangeably at a maximum temperature of 50°C.

7. These devices have been evaluated for a 20 mm Flame Test per applicant request. The suitability of the insulating materials shall be determined in the end-use application.

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

Stamped and Formed Type -

Pin / Socket	Wire Size, AWG	Force, lbf
1060-12-0222 / 1062-12-0222	10	20
1060-12-0166 / 1062-12-0166	12, 14	20
1060-16-0122 / 1062-16-0122	14 - 18	20
1060-16-0622 / 1062-16-0622	16, 18	20
1060-16-0622 / 1062-16-0622	20	8
1060-16-0144 / 1062-16-0144	14 - 18	20
1060-16-0988 / 1062-16-0988	14 - 18	20
1060-16-1222 / 1062-16-1222	12 - 16	20
1060-14-0122 / 1062-14-0122	14 - 18	20
1060-20-0222 / 1062-20-0222	16, 18	20
1060-20-0222 / 1062-20-0222	20	8
1060-20-0122 / 1062-20-0122	16, 18	20
1060-20-0122 / 1062-20-0122	20	8

Solid Type -

*Socket / Pin	Wire Size, AWG	Force, lbf
0462-203-04141 / 0460-204-0490	6	20
0462-203-08141 / 0460-204-08141	8	20
0462-203-12141 / 0460-204-12141	12, 14	20
0462-209-16141 / 0460-215-16141	14	20
0462-201-16141 / 0460-202-16141	16, 18	20
0462-201-16141 / 0460-202-16141	20	8