Certificate of Compliance

Certificate Number:

UL-US-L52653-111-62108102-10

Report Reference:

E52653-20180126

Issue Date:

2024-01-25

Issued to:

HIROSE ELECTRIC CO., LTD.
2-6-3 NAKAGAWA CHUOH
TSUZUKI-KU YOKOHAMA-SHI, Kanagawa 224-8540
Japan

This certificate confirms 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.

UL 1977, Edition 4, Issue Date 2022-12-07

Additional Information:
See UL Product iQ® 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.

David Piecuch
UL Mark Certification Program Manager

CERTIFICATE OF COMPLIANCE

Certificate number	UL-US-L52653-111-62108102-10
Report reference	E52653-20180126
Date	2024-01-25

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

Model	Product Description
Series DF60F, DF60F-2EP-10.16C(**)	Connectors
Series DF60F, DF60F-2P-10.16DSA(**)	Connectors
Series DF60F, DF60F-2S-10.16C(**)	Connectors
Series DF60F, DF60F-3EP-10.16C(**)	Connectors
Series DF60F, DF60F-3P-10.16DSA(**)	Connectors
Series DF60F, DF60F-3S-10.16C(**)	Connectors
Series DF60F, DF60FR-2EP-10.16C(**)	Connectors
Series DF60F, DF60FR-2P-10.16DSA(**)	Connectors
Series DF60F, DF60FR-2S-10.16C(**)	Connectors
Series DF60F, DF60FR-3EP-10.16C(**)	Connectors
Series DF60F, DF60FR-3P-10.16DSA(**)	Connectors
Series DF60F, DF60FR-3S-10.16C(**)	Connectors
Series DF60F, DF60FS-2S-10.16C(**)	Connectors
Series DF60F, DF60FS-3S-10.16C(**)	Connectors
Series DF60F, DF60FSR-2S-10.16C(**)	Connectors
Series DF60F, DF60FSR-3S-10.16C(**)	Connectors

David Piecuch
UL Mark Certification Program Manager

Certificate of Compliance

Certificate Number:
UL-CA-2308697-3

Report Reference:
E52653-20180126

Issue Date:
2024-01-25

Issued to:

HIROSE ELECTRIC CO., LTD.
2-6-3 NAKAGAWA CHUOH
TSUZUKI-KU YOKOHAMA-SHI, Kanagawa 224-8540
Japan

This certificate confirms that representative samples of:
ECBT8 - Connectors for Use in Data, Signal, Control and Power Applications Certified for Canada - 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.

CSA C22.2 No. 182.3, 2nd Ed., Issue Date: 2016-07, Revision Date: 2021-5

Additional Information:
See UL Product iQ® 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.

David Piecuch
UL Mark Certification Program Manager

CERTIFICATE OF COMPLIANCE

Certificate number UL-CA-2308697-3
Report reference E52653-20180126
Date 2024-01-25

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

Model	Product Description
Series DF60F, DF60F-2EP-10.16C(**)	Connectors
Series DF60F, DF60F-2P-10.16DSA(**)	Connectors
Series DF60F, DF60F-2S-10.16C(**)	Connectors
Series DF60F, DF60F-3EP-10.16C(**)	Connectors
Series DF60F, DF60F-3P-10.16DSA(**)	Connectors
Series DF60F, DF60F-3S-10.16C(**)	Connectors
Series DF60F, DF60FR-2EP-10.16C(**)	Connectors
Series DF60F, DF60FR-2P-10.16DSA(**)	Connectors
Series DF60F, DF60FR-2S-10.16C(**)	Connectors
Series DF60F, DF60FR-3EP-10.16C(**)	Connectors
Series DF60F, DF60FR-3P-10.16DSA(**)	Connectors
Series DF60F, DF60FR-3S-10.16C(**)	Connectors
Series DF60F, DF60FS-2S-10.16C(**)	Connectors
Series DF60F, DF60FS-3S-10.16C(**)	Connectors
Series DF60F, DF60FSR-2S-10.16C(**)	Connectors
Series DF60F, DF60FSR-3S-10.16C(**)	Connectors

David Piecuch
UL Mark Certification Program Manager

File E52653
Project 4788271763

January 26, 2018

REPORT

On

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

Hirose Electric Co Ltd
Kanagawa, Japan

DESCRIPTION

PRODUCT COVERED:

USR, CNR Component Connector, Series DF60F

Cat. Nos. DF60F-3P-10.16DSA(**), DF60FR-3P-10.16DSA(**), DF60F-3S-10.16C(**), DF60FR-3S-10.16C(**), DF60F-3EP-10.16C(**), DF60FR-3EP-10.16C(**), **DF60FS-3S-10.16C(**) and DF60FSR-3S-10.16C(**).**

Cat. Nos. DF60F-2P-10.16DSA(**), DF60FR-2P-10.16DSA(**), DF60F-2S-10.16C(**), DF60FR-2S-10.16C(**), DF60F-2EP-10.16C(**), DF60FR-2EP-10.16C(**), **DF60FS-2S-10.16C(**) and DF60FSR-2S-10.16C(**).**

(**) – may be followed by 01 thru 99

GENERAL:

These devices are multi-pole connectors intended for factory assembly on copper wire sizes as indicated in Ratings table below where the acceptability of combinations is determined by UL LLC. The devices are identified as follows:

USR – Products designated USR have been investigated using US requirements as noted in the Test Record.

CNR – Products designated CNR have been investigated using Canadian requirements as noted in the Test Record.

RATINGS:

Cat. Nos.	Contact type	Voltage (Vac/Vdc)	Ampere (A)				Conductor Sizes, AWG Str
			USR		CNR		
			2 poles	3 poles	2 poles	3 poles	
Header DF60F-*P-10.16DSA(**) DF60FR-*P-10.16DSA(**)	Header Pin, Solder Type	600	65	55	45	42	(+)
Socket DF60F-*S-10.16C(**) DF60FR-*S-10.16C(**)	DF60-8SCA DF60-8SCFA	600	65	55	45	42	8
	DF60-1012SCA	600	55	50	35	34	10
	DF60-1012SCFA	600	40	40	28	28	12
Socket, side feed DF60FS-*S-10.16C(**) DF60FSR-*S-10.16C(**)	**DF60S-8SCA DF60S-8SCFA**	**600**	**65**	**55**	**45**	**42**	**8**
	DF60S-1012SCA	**600**	**55**	**50**	**35**	**34**	**10**
	DF60S-1012SCFA	**600**	**40**	**40**	**28**	**28**	**12**
In-line Plug DF60F-*EP-10.16C(**) DF60FR-*EP-10.16C(**)	DF60-1012PCA(07) DF60-1012PCFA(07)	600	65	55	45	42	8
	DF60-1012PCA(07)	600	55	50	35	34	10
	DF60-1012PCFA(07)	600	40	40	28	28	12

Note * - denoting number of contact
(+) - Mounted on printed wiring boards.

Disconnecting Use - see Sec Gen for required marking

NOMENCLATURE:

The Series DF60F are designated as follows:

Example:

DF60F	S	R	-3	P	-10.16	DSA	(**)
I	II	III	IV	V	VI	VII	VIII

I: - Series Name: DF60F

II: - connector style
None: Standard
S: side feed

III: - Guide Key Style
None: Left guide key
R: Right guide key

IV: - Number of Poles
-2: 2 poles
-3: 3 poles

V: - Connector Style
P: Pin Header
S: Socket
EP: In-line plug

VI: - Contact Pitch
-10.16: 10.16 mm

VII: - Terminal Style
DSA: Straight pin header
C: Crimp type

VIII: - Customer Specifications
(01) to (99) or blank: Indicating packing differences or Insulator material color variations.

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 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 been subjected to the Temperature test with the rated currents and maximum temperature rise and recorded temperature (adjusted to 25°C ambient) values tabulated below:

Cat Nos.	Wire Size, AWG	Current, A	Maximum Temperature °C	
			Rise	Recorded Temperature
DF60F-3P-10.16DSA Mating with DF60F-3S-10.16C	8	55 (for USR)	32.5	57.5
		42 (for CNR)	19.4	44.4
	10	50 (for USR)	40.8	65.8
		34 (for CNR)	20.3	45.3
	12	40 (for USR)	41.0	66.0
		28 (for CNR)	20.0	40.0
DF60F-3EP-10.16C Mating with DF60F-3S-10.16C	8	55 (for USR)	46.0	71.0
		42 (for CNR)	27.4	52.4
	10	50 (for USR)	51.7	76.7
		34 (for CNR)	25.5	50.5
	12	40 (for USR)	54.1	79.1
		28 (for CNR)	27.0	52.0
DF60F-2P-10.16DSA Mating with DF60F-2S-10.16C	8	65 (USR)	42.2	67.2
		45 (CNR)	19.9	44.9
	10	55 (USR)	40.3	65.3
		35 (CNR)	14.2	39.2
DF60F-2EP-10.16C Mating with DF60F-2S-10.16C	8	65 (USR)	47.2	72.2
		45 (CNR)	21.9	46.9
	10	55 (USR)	68.0	93.0
		35 (CNR)	19.5	44.5

(CONT'D)

(CONT'D)

Cat Nos.	Wire Size, AWG	Current, A	Maximum Temperature °C	
			Rise	Recorded Temperature
DF60FS-3S-10.16C Mating with DF60F-3EP-10.16C	8	55 (for USR)	44.2	69.2
		42 (for CNR)	26.8	51.8
	10	50 (for USR)	65.3	90.3
		34 (for CNR)	27.4	52.4
	12	40 (for USR)	56.3	81.3
		28 (for CNR)	30.0	55.0
DF60FS-2S-10.16C Mating with DF60F-2EP-10.16C	8	65 (for USR)	57.9	82.9
		45 (for CNR)	27.4	52.4
	10	55 (for USR)	62.0	87.0
		35 (for CNR)	25.1	50.1
Note: Test results of Header were represented by test results of In-line Plug.				