

SPECIFICATION FOR
INDIRECT TYPE CONNECTOR USED FOR P.C.BOARD
PHEC ___P/R-___(-_)LF

1. SCOPE
- This specification stipulates the indirect type connector 「PHEC___P/R-___(-_)LF」 which is used For P.C.Board for electronic equipment.
2. APPLICABLE STANDARDS
- JIS C 5402 (IEC60512) Method for Test of Connectors for Electronic Equipment
3. CATALOG NO. STRUCTURE

PHEC120P/R -S/R111(- X)LF

Series Name

Number of Contacs

P : Plug

R : Receptacle

Terminal Variation

S : Straight

R : Right angle

Plating Variation (Ni underlayer overall)

	Contact area	Solder tail
1 :	Au 0.1μm	Sn 2μm
2 :	Au 0.25μm	Sn 2μm
3 :	Au 0.5μm	Sn 2μm
4 :	Au 0.75μm	Sn 2μm
A :	Au 0.25μm	Au 0.05μm
C :	Au 0.75μm	Au 0.05μm

Body Variation

1 : With mating guide

Design Variation

0 : Without metal fitting

1 : With mounting latch

2 : With screw nut

Variation

H : Stand off (Stacking height : 18 mm)

H1 : Stand off (Stacking height : 20 mm)

X : With lubricant oil

Lead free

LF : Lead free product

4. SHAPE, DIMENSIONS

See drawings.

5. MATERIALS AND SURFACE TREATMENT

See drawings.

6. RECOMMENDED P.C.BOARDS

See drawings.

7. RATING

7-1. Voltage : A.C.250V D.C.350V

7-2. Current : 1A

7-3. Operating Temperature : -55°C ~ +85°C

8. PERFORMANCE CHARACTERISTICS

8-1. Electrical Performance

No.	Test Item	Test Method	Requirements
8-1-1	Contact resistance	JIS C 5402 -2-1 (IEC 60512-2-1) 	1)Initial Value : 30 mΩ max.
8-1-2	Insulation resistance	JIS C 5402-3-1 (IEC 60512-3-1) 1)Test method : Method C 2)Test voltage : D.C.500V±50V 3)Test duration : 1 minute	1)1,000MΩ min. between each contact
8-1-3	Dielectric withstanding voltage	JIS C 5402-4-1 (IEC 60512-4-1) 1)Test method : Method C 2)Test voltage : A.C.500V 3)Leakage current : 1mA 4)Test duration : 1 minute	1)Free from any short circuit and insulation breakdown between each contact.

8-2. Mechanical Performance

No.	Test Item	Test Method	Requirements
8-2-1	Vibration (Sinusoidal)	JIS C 60068-2-6 (IEC 60068-2-6) 1)Frequency range : 10 ~ 500Hz 2)Amplitude : 0.75mm or Acceleration : 98m/s ² 3)Sweep rate : 1 octave/minute 4)Test time : 10 cycles	1)No discontinuity greater than 1μs. 2)Contact resistance after the test : 50mΩmax.
8-2-2	Durability	JIS C 5402 Clause 6.3 1)Insertion and extraction of plug and receptacle. Number of operation : 50 times Operation speed : 400~600 times/hour	1)Contact resistance after the test : 50mΩmax.
8-2-3	Total unmating force	JIS C 5402-13-1 (IEC 60512-13-1) 1)Measure extraction force of plug and receptacle.	1)Initial value : 0.15N(15g)min. × number of contacts
8-2-4	Total mating force	JIS C 5402-13-1 (IEC 60512-13-1) 1)Measure mating force of plug and receptacle.	1)Initial value : 0.78N(80g)max. × number of contacts

8-3. Climatic Category

No.	Test Item	Test Method	Requirements
8-3-1	SO ₂ gas exposure	JIS C 60068-2-42 (IEC 60068-2-42) 1) Gas density : 25 ppm. 2) Test time : 96 hours 3) Temperature : 40 °C 4) Humidity : 80 %Rh.	1)Contact resistance after the test : 50mΩmax.
8-3-2	Damp heat (Cyclic)	JIS C 60068-2-38 (IEC C 60068-2-38) 1) Expose plug and receptacle in the condition of being mated. 2) -10°C ~65°C 3) 10Cycles	1)Contact resistance after the test : 50mΩmax.

8-3-3	Change of temperature	JIS C 0025 Test Na (IEC 60068-2-14) 1) Test temperature Low temperature : -55°C High temperature : +85°C 2) Test time : 30 minutes for each Temp. 3) 5cycles 4) Expose plug and receptacle in the condition of being mated.	1) Contact resistance after the test : 50mΩmax.
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8-4. Other Performance

No.	Test Item	Test Method	Requirements
8-4-1	Soldering (Solderability)	JIS C 60068-2-20 (IEC 60068-2-20) 1) Test method Ta ,Method 1 2) Solder bath temp. : $235 \pm 5^{\circ}\text{C}$ 3) Dip time : 5 ± 0.5 sec. 4) Paste : 3.0Ag – 0.5Cu – Sn	1) Actual soldered area must be more than 90% of the dipped area intended to be soldered.
8-4-2	Soldering (Resistance to soldering heat)	JIS C 60068-2-20 (IEC 60068-2-20) Test method Tb 1) Test method : Method 1A 2) Solder bath temp. : $260 \pm 5^{\circ}\text{C}$ 3) Immersion Time : 10 ± 1 seconds 4) The connector is mounted as the condition of being mounted on P.C.B. 5) Paste : 3.0Ag – 0.5Cu – Sn	1) Free from any abnormality concerning feature and contacting performance.

9. INDICATION AND PACKAGING

9-1. Indication

- 1) Catalog number and lot number are not indicated on the connector.
- 2) Catalog number and quantity shall be indicated on the surface of the package box.

9-2. PACKAGING

- 1) Packaging shall be in accordance with the method separately specified in the package specification.
Spec No. : PA-PHEC04