PRODUCT CATALOG

HIROSE ELECTRIC CO.,LTD.

EM12M Series

Single Pos. Snap-in Lock Power Connectors Supporting up to 90A

High-Current

Finger Protect

1 Touch Locking



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Jun. 2021 ②

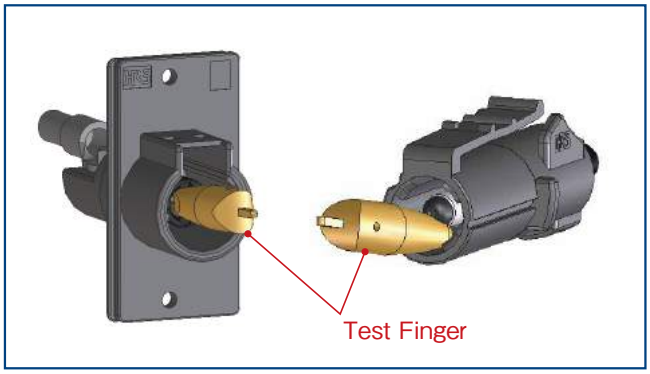
Features

1. Quick, snap-in lock

The snap-in design allows mating to complete in one touch, reducing wiring steps. EM12M does not need screws like traditional terminal blocks, preventing loosening.

2. Safety design with finger protection

Finger protection allows safe operation for field operators.



3. Available cable size : 22mm^2, 38mm^2

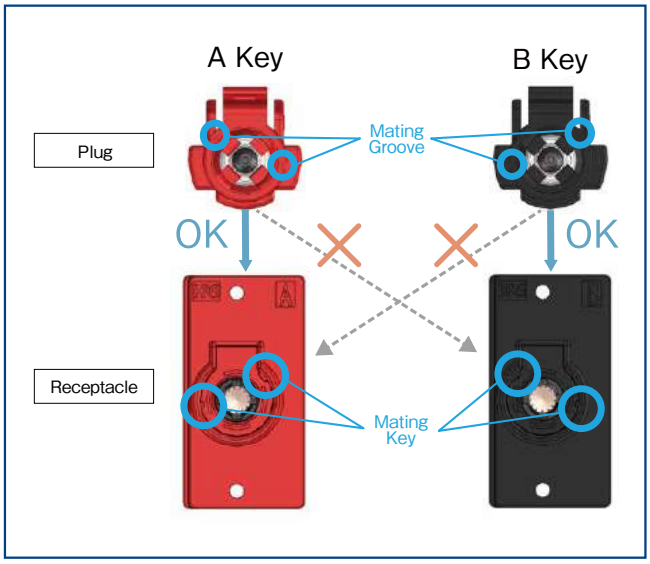
2 kinds of contacts are provided for compatibility with two cable sizes.

4. Easy crimp termination with commercially available tools

No special tools are required.

5. Equipped with guide keys

Guide keys are used to prevent incorrect wiring.



6. TÜV, UL certified

7. RoHS compliant

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Product Specifications

Rated Current (Note 1)	38mm², 2 AWG, Ambient Temperature 25℃	22mm², 4 AWG, Ambient Temperature 25℃	14mm², 6 AWG	Operating Temperature (Note 2)	-25 to +105℃
	130A	130A	70A	Storage Temperature Range	-10 to +60℃
Rated Voltage	1000V AC/DC				

UL	Rated Current (Note 1)	38mm², 2 AWG	22mm², 4 AWG	14mm², 6 AWG	Operating Temperature (Note 2)	-25 to +105℃
		90A	90A	70A	Storage Temperature Range	-10 to +60℃
	Rated Voltage	600V AC/DC				

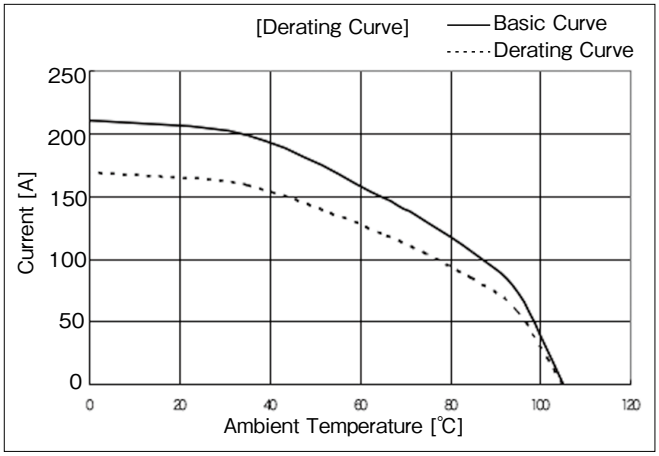
TÜV	Rated Current (Note 1)	38mm², 2 AWG	22mm², 4 AWG	14mm², 6 AWG	Operating Temperature (Note 2)	-25 to +105℃
		90A	90A	70A	Storage Temperature Range	-10 to +60℃
	Rated Voltage	600V AC/DC				

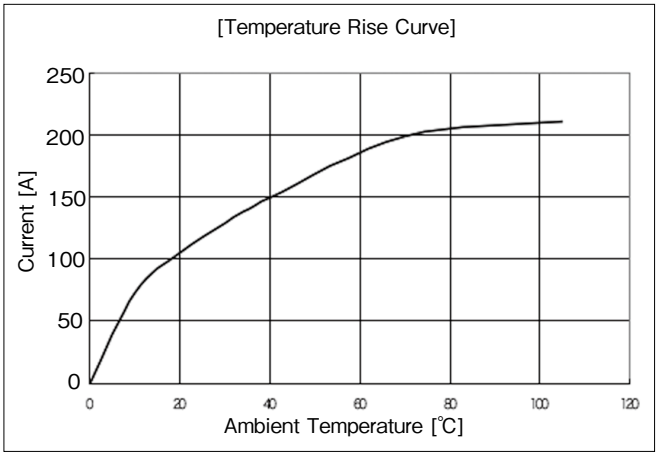
Note 1 : The value of rated current varies with the ambient temperature. It is recommended to use the product within the derating curve zone.
When using a UL or TÜV approved product, please use the product within the specified range as well as the derating curve area.
Note 2 : Including temperature rise due to current flow.

Items	Specifications	Conditions
Contact Resistance	0.5mΩ Max.	Measured with 1A DC
Insulation Resistance	1,000MΩ Min.	Measured with 500V DC
Withstanding Voltage	No flashover or breakdown	3310V AC for 1 min.
Mating Durability	Contact Resistance : 1mΩ Max. Inserting and Extracting Force : 100N Max.	30 mating cycles
Temperature Cycles	Insulation Resistance : 1000MΩ Min.	-55℃ : 30 minutes → Room temperature : 2 to 3 minutes → 105℃ : 30 minutes → Room temperature : 2 to 3 minutes 5 cycles
Salt Water Spray	Should not have functional problems	5% concentration of salt water, left for 48 hours
Humidity Resistance (Steady State)	Insulation Resistance : 10MΩ Min. (in high humidity) 100MΩ Min. (dry)	Temperature 40℃ , humidity 90 to 95%, 96 hours

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[Reference] Derating Curve and Temperature Rise Curve





Note 1 : The derating curve is derived from the basic curve multiplied by the derating factor of 0.8.
Note 2 : The measurement method of the derating curve is shown below.
- Test specimen : EM12M unused prior to testing.
- Test cable conductor cross sectional area : 22mm^2
- Power supplied while the specimen is in a stationary state and then measured.

Materials / Finish

Component	Material	Finish	Remarks
Housing	PBT Resin	-	UL94V-0
Contact Cover	PA Resin	-	UL94V-0
Contact Spring	Copper Alloy	Silver Plating	-
Contact	Copper	Silver Plating	-
Screw Parts	Brass	Nickel Plating	-

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Product Number Structure

Refer to the chart below when determining the product specifications from the product number.
Please select from the product numbers listed in this catalog when placing orders.

■ Connector

EM 12 M R # - 1 S C A (##)
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

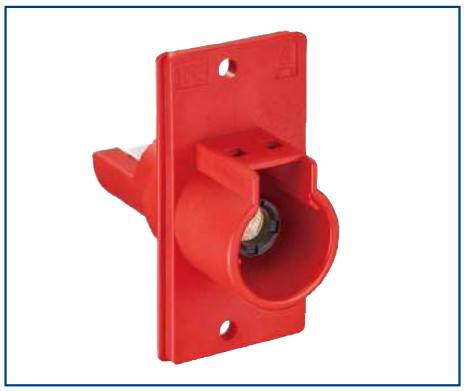
■ Crimp Contact

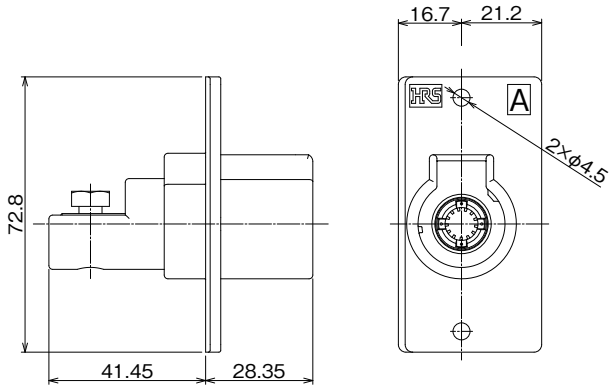
EV 1 - P C # - 1 1 2 (##)
❶ ⓫ ❼ ❽ ❺ ⓬ ⓭ ⓮ ❿

❶ Series Name	EM, EV	❽ Contact Termination Method	C = Crimp termination
❷ Shell Size	12	❾ Mating Guide Display	2 different keying options available from A to B
❸ Specialty	M = Mold type	❿	Other specification differences are noted with (01),(02) etc. to distinguish certain variations.
❹ Connector Type	R = Receptacle P = Plug	⓫ Series Number	
❺ Distinguishes Specification Differences		⓬ Contact Type	1 = Loose piece contacts
❻ No. of Pos.	1=1pos.	⓭ Contact Form, Size	1 = Supports an equivalent cable with 22mm^2 conductor cross section area 3 = Supports an equivalent cable with 38mm^2 conductor cross section area
❼ Contact Gender	S = Female contact P = Male contact	⓮ Plating Specification	2 = Silver plated

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Receptacle

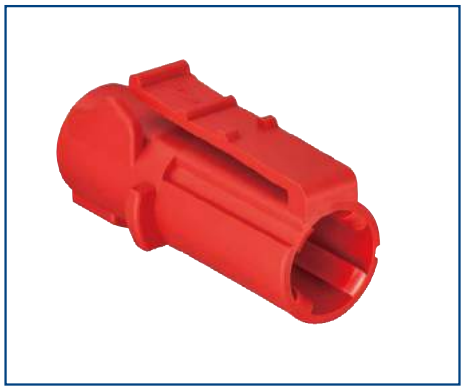


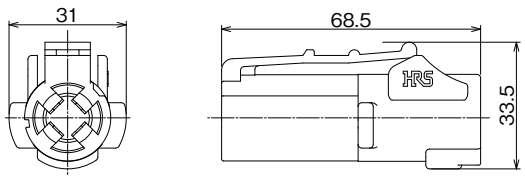


Unit : mm

Part No.	HRS No.	Remarks	Purchase Unit
EM12MR-1SCA(10)	CL0138-0030-2-10	Color : Red	10pcs per box
EM12MR-1SCB	CL0138-0032-8-00	Color : Black	

Plug





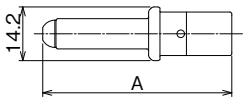
Unit : mm

Part No.	HRS No.	Remarks	Purchase Unit
EM12MP-1PCA(10)	CL0138-0031-5-10	Color : Red	10pcs per box
EM12MP-1PCB	CL0138-0033-0-00	Color : Black	

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Crimp Contact



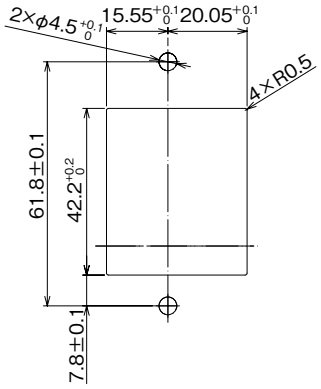


Unit : mm

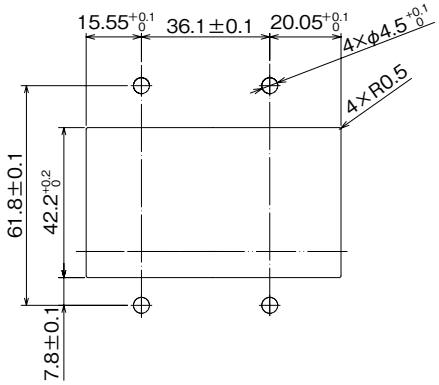
Part No.	HRS No.	A	Remarks	Purchase Unit
EV1-PC-132(02)	CL0139-0014-2-02	57	38mm^2	1pcs per bag
EV1-PC-112(02)	CL0139-0004-9-02	50	22mm^2	

Panel Cut-Out Dimensions from Receptacle Mating Side

Single Mounting



Double Mounting



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Recommended Crimp Tools



HT111/9H-60



HT112/REC-150F

Type	Part No.	HRS No.	Remarks
Manual Hydraulic Crimp Tool	HT111/9H-60	CL0902-1515-2-00	Equivalent product : 9H-60 made by Maxell Izumi Co., Ltd.
Electric Hydraulic Crimp Tool	HT112/REC-150F	CL0902-1516-5-00	Equivalent product : REC-150F made by Maxell Izumi Co., Ltd.

Note : Please perform regular maintenance on your crimp tool according to its instruction manual.

Safety Precautions

⚠ Warning

- Do not touch the exposed conductor while it is energized, failing to follow this warning may cause an electric shock and injury.
- The power should be in the OFF position when inserting or extracting this connector.
- After mating this connector, perform a light pull on the cable to ensure that it has been correctly mated and the locking process will hold it in place. If it is not mated correctly, then the cable will be removed. An incomplete mate is a significant danger threat because disconnection or contact failure may occur during operation.

⚠ Caution

- This connector was designed to be used in a stable and stationary environment. Do not try to operate this connector where vibrations will occur.
- Please only use Hirose approved contacts, using non-specified contacts can result in a lowering of the product's performance and cause a serious accident. Please contact your local Hirose representative for additional information.

While Taking into Consideration

Specifications mentioned in this catalog are reference values.
When considering to order or use this product, please confirm the Drawing and Product Specifications sheets.
Use an appropriate cable when using the connector in combination with cables.
If considering usage of a non-specified cable, please contact your sales representative.
If assembly process is done by jigs & tools which are not identified by Hirose, assurance will not be given.
If considering usage for below mentioned applications, please contact your sales representative.
In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/ defense etc. Hirose must review before assurance of reliability can be given.

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