

# Zertifikat Certificate



Zertifikat Nr. Certificate No.  
R 50287187

Blatt Page  
0001

Ihr Zeichen Client Reference  
H.S.

Unser Zeichen Our Reference  
ZJL-MAS- 50005363 001

Ausstellungsdatum  
03.07.2014

Date of Issue  
(day/mo/yr)

Genehmigungsinhaber License Holder  
Hirose Electric Co., Ltd.  
5-5-23 Osaki  
Shinagawa-ku, Tokyo  
141-8587 JAPAN

Fertigungsstätte Manufacturing Plant  
Ichinoseki Hirose Electric Co., Ltd.  
14-36 Higashidai  
Ichinoseki-shi, Iwate  
021-0822 JAPAN

## Prüfzeichen Test Mark

Geprüft nach Tested acc. to  
EN 61984:2009



Zertifiziertes Produkt (Geräteidentifikation)  
Certified Product (Product Identification)

Lizenzentgelte - Einheit  
License Fee - Unit

Connector Connector without breaking capacity

Type Designation:	EM12MR-1SCy (zz)	5
	EM12MP-1PCy (zz)	1
	EV1-PC1-1wx (zz)	1
	w = 1	
	x = 2	1
	y = A or B	1
	zz = 01 - 99 or blank	

Classification:	COC (Non CBC)
Number of Poles:	1
Rated Voltage:	AC/DC 600V
Rated Current:	70A (AWG6), 90A (AWG4, AWG2)
Overvoltage Category:	III
Pollution Degree:	3
IP-degree:	IP20
Max. Ambient Temperature:	+60°C
Upper Limit Temperature:	+105°C
Lower Limit Temperature:	-25°C

ANLAGE (Appendix): 1

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.

This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg  
Tel.: (+49/221)8 06 - 13 71 e-mail: cert-validity@de.tuv.com  
Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety



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Zertifizierungsstelle

Dipl.-Ing. (FH) M. Geiser

# Zertifikat Certificate



Zertifikat Nr. Certificate No.  
R 50287187

Blatt Page  
0002

Ihr Zeichen Client Reference  
Ref.EM12

Unser Zeichen Our Reference  
ZJL-MAS- 50005363 002

Ausstellungsdatum  
05.12.2014

Date of Issue  
(day/mo/yr)

Genehmigungsinhaber License Holder  
Hirose Electric Co., Ltd.  
5-5-23 Osaki  
Shinagawa-ku, Tokyo  
141-8587 JAPAN

Fertigungsstätte Manufacturing Plant  
Ichinoseki Hirose Electric Co.,Ltd.  
14-36 Higashidai  
Ichinoseki-shi, Iwate  
021-0822 JAPAN

## Prüfzeichen Test Mark

Geprüft nach Tested acc. to  
EN 61984:2009



Zertifiziertes Produkt (Geräteidentifikation)  
Certified Product (Product Identification)

Lizenzentgelte - Einheit  
License Fee - Unit

Connector Connector without breaking capacity, as page 0001

Addition

Type Designation of Contact: EV1-PC-1wx(zz) 1  
w = 1  
x = 2  
y = A or B  
zz = 01 - 99 or blank

Classification: COC (Non CBC)  
Number of Poles: 1  
Rated Voltage: AC/DC 600V  
Rated Current: 70A (AWG6), 90A (AWG4, AWG2)  
Overvoltage Category: III  
Pollution Degree: 3  
IP-degree: IP20  
Max. Ambient Temperature: +60°C  
Upper Limit Temperature: +105°C  
Lower Limit Temperature: -25°C

ANLAGE (Appendix): 1.1

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.

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Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety



Zertifizierungsstelle

Vilmos Sztarovecki

**Constructional Data Form for Connector**

License holder: Hirose Electric Co., Ltd.  
 5-5-23 Osaki, Shinagawa-ku, Tokyo 141-8587 Japan

Factory: Ichinoseki Hirose Electric Co., Ltd.  
 (Full address) 14-36 Higashidai, Ichinoseki-shi, Iwate 021-0822 Japan

Type or Model Number: Connector:EM12MR-1SCy(zz), EM12MP-1PCy(zz)  
 Terminal:EV1-PC1 -1wx(zz), EV1-PC -1wx(zz)

Kind of device: **Connectors without breaking capacity**

Specifications			
Type designation	EM12MR-1SCy(zz), EM12MP-1PCy(zz), EV1-PC1 -1wx(zz), EV1-PC -1wx(zz)		
Contact material	Copper alloy, Silver plated		
Number of poles	1		
Rated voltage	AC 600V		DC 600V
Rated current	Rated cross section of conductor		Rated current
	Plug	Receptacle	
	16.78 mm <sup>2</sup> - 26.66 mm <sup>2</sup> (AWG 4)	10.52 mm <sup>2</sup> - 16.78 mm <sup>2</sup> (AWG 6)	70A
		16.78 mm <sup>2</sup> - 26.66 mm <sup>2</sup> (AWG 4)	90A
	26.66 mm <sup>2</sup> - 42.42 mm <sup>2</sup> (AWG 2)		
Mechanical endurance	30 times		
Classification	<input type="checkbox"/> CBC <input checked="" type="checkbox"/> COC (Non CBC) <input type="checkbox"/> other		
Number of bendings (non-rewirable terminals only)	-		
Upper limit temperature	105°C		
Lower limit temperature	-25°C		
Maximum ambient temperature at rated current	60°C		

TÜV Rheinland

Tokyo, Japan

3 December 2014

(Place)

(Date)

 3rd Dec. 3 *M. Inada*  
 (Date) (Signature)

 Hirose Electric Co., Ltd. Kenichi Sato *Kenichi Sato*  
 (Stamp and Signature of Applicant)

**Constructional Data Form for Connector**

Classification of Connectors <input checked="" type="checkbox"/> COC <input type="checkbox"/> CBC						
Type of connector	Style	Enclosure		Cable Clamp		Function
Receptacle EM12MR- 1SC*(zz)	<input type="checkbox"/> Free Connector <input checked="" type="checkbox"/> Fixed Connector	<input type="checkbox"/> Enclosed <input checked="" type="checkbox"/> Un-enclosed	<input type="checkbox"/> Hand Back Safety mated <input type="checkbox"/> Hand Back Safety unmated <input checked="" type="checkbox"/> Finger Safety mated <input checked="" type="checkbox"/> Finger Safety unmated	<input type="checkbox"/> with additional insulation bushing <input checked="" type="checkbox"/> without	Applicable Cable Size Range: N/A	<input type="checkbox"/> with PE <input checked="" type="checkbox"/> without PE
		*1) Protection class mated: <input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> N/A	<input type="checkbox"/> IP <sub>67</sub> mated <input checked="" type="checkbox"/> IP <sub>20</sub> unmated			<input type="checkbox"/> with interlock <input checked="" type="checkbox"/> without interlock
Plug EM12MP- 1PC *(zz)	<input checked="" type="checkbox"/> Free Connector <input type="checkbox"/> Fixed Connector	<input checked="" type="checkbox"/> Enclosed <input type="checkbox"/> Un-enclosed	<input type="checkbox"/> Hand Back Safety mated <input type="checkbox"/> Hand Back Safety unmated <input checked="" type="checkbox"/> Finger Safety mated <input checked="" type="checkbox"/> Finger Safety unmated	<input type="checkbox"/> with additional insulation bushing <input checked="" type="checkbox"/> without	Applicable Cable Size Range: N/A	<input type="checkbox"/> with PE <input checked="" type="checkbox"/> without PE
		*1) Protection class mated: <input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> N/A	<input type="checkbox"/> IP <sub>67</sub> mated <input checked="" type="checkbox"/> IP <sub>20</sub> unmated			<input type="checkbox"/> with interlock <input checked="" type="checkbox"/> without interlock

Remark: \*1)The protection class of components is dependent upon the equipment in which they are used, these connectors are intended for class I equipment normally.

TÜV Rheinland

Tokyo, Japan

3 December 2014

(Place)

(Date)

 2014. Dec. 3  
 (Date)

  
 (Signature)

Hirose Electric Co., Ltd. Kenichi Sato



(Stamp and Signature of Applicant)

**Constructional Data Form for Connector**

Insulation Coordination	
Overvoltage category	III
Pollution degree	3
Insulation voltage	600V
Test voltages	Contact – mounting panel 7.3k Vrms
Minimum creepage distances (mated)	contact-mounting panel: 21mm (Panel thickness 5mm max.)
Minimum clearance distances (mated)	contact-mounting panel: 21mm (Panel thickness 5mm max.)
Insulation system (IEC 60664-1)	contact-mounting panel : <input type="checkbox"/> basic <input checked="" type="checkbox"/> reinforced <input type="checkbox"/> NA Earth Metal Shell – Contact: <input type="checkbox"/> basic <input type="checkbox"/> reinforced <input checked="" type="checkbox"/> NA

Specifications of Terminals _		
	Plug	Receptacle
Connection	Rewirable	Rewirable
Type of terminals	CRIMPED CONNECTION	Lug terminal
Terminal designation	Marking of the terminals: N/A	
Spec. Tightening torque	N/A	
Rated cross section of conductor	16.78 mm <sup>2</sup> - 26.66 mm <sup>2</sup> (AWG 4 )	10.52 mm <sup>2</sup> - 42.42 mm <sup>2</sup> (AWG 6,4,2 )
Type of conductor	Flexible	
Required preparation of the conductor	N/A	round crimping terminal 14sq, 22sq, 38sq M6
Max. Stripping length	18mm	18mm
Max. Number of conductors per terminal	N/A	

TÜV Rheinland

Tokyo, Japan

3 December 2014

(Place)

(Date)

Hirose Electric Co., Ltd. Kenichi Sato



(Stamp and Signature of Applicant)

 2014. Dec. 3  
 (Date)

  
 (Signature)

**Constructional Data Form for Connector**

Materials			
Type designation		See Nomenclature	
Contact material		Copper alloy, Silver plating	
Contact block (housing)		Plug	Receptacle
	Insulator	(1) PBT,4130 (CTI: 2, RTI: 140 °C) CHANG CHUN PLASTICS CORP(E59481). (2) PBT,5010GN1-30AM (CTI: 3, RTI: 120 °C) Mitsubishi Engineering-Plastics Corp(E53664) (3)PA,FG173( CTI:2, RTI 110°C) ASAHI KASEI CHEMICAL CORP(E48285)	Same as on the left

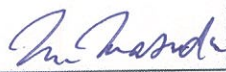
TÜV Rheinland

Tokyo, Japan

3 December 2014

(Place)

(Date)

 30th Dec, 2014   
 (Date) (Signature)

Hirose Electric Co., Ltd. Kenichi Sato

(Stamp and Signature of Applicant)



**Constructional Data Form for Connector**

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**TYPE NOMENCLATURE:**

Example

 1.Connector:EM 12 M R- 1 SC y (zz)  
                   a b c d e f g

EM : Series name

a: Shell Size

12

b: Specialty:

M=Mold type(Plastic type)

c: Connector Configuration

P : Plug

R : Receptacle

d: Number of contacts

1

e: Contact type

PC: Male contact – crimped connection

SC: Female contact – crimped connection

f: Mating guide type

A : A type key

B : B type key

A to Z

g: Customer specifications

none or (01) to (99)

 2.Terminal:EV1 - PC 1 - 1 w x (zz)  
                   e h i j k g

EV1: Series name

e: Contact type

PC: Male contact – crimped connection

h: Symbol for Body Form Type,N/A or "1"

1: Notched

i: Contact Type:

1:Loose piece contacts

j: Contact Form, Size: Serial numbers (1,2,3, . . . ) will be changed.

k: Plating Specification:

2: Silver plated

TÜV Rheinland

Tokyo, Japan

3 December 2014

(Place)

(Date)

 2014. Dec. 3 *R. Masuda*  
 (Date) (Signature)

Hirose Electric Co., Ltd. Kenichi Sato

(Stamp and Signature of Applicant)

*K. Sato*