

EM30MSD Series

Service Plug for 200A Applications



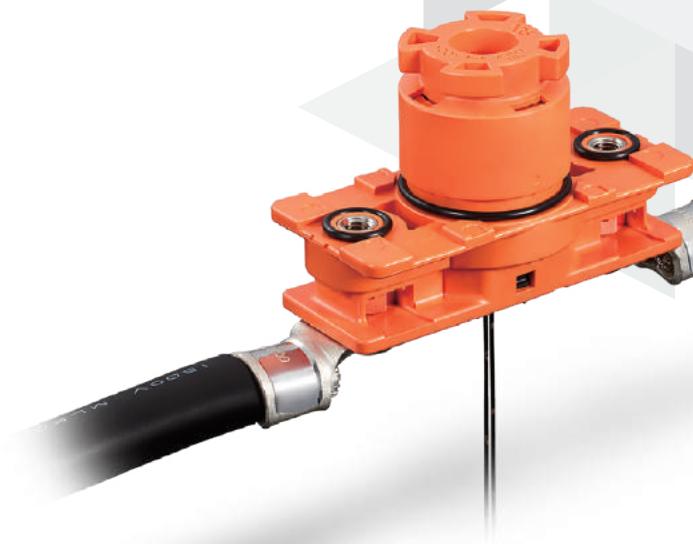
High-Current



Vibration-Proof



Waterproof



Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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Киргизия +996(312)96-26-47

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Features

1. High-current service plug for use up to 200A

2. Vibration-resistant with multi-point contact design

Vibration testing meets the following standards :

For vehicles JASO D014-3/ISO16750-3 Test IX*

For railroads JIS E 4031 Division 2

* This series is not suitable for Automotive application.

3. The signal contact functions as an interlock switch to detect mated state.

4. Water-proof performance (IPX8 compliant water resistance in mated condition)

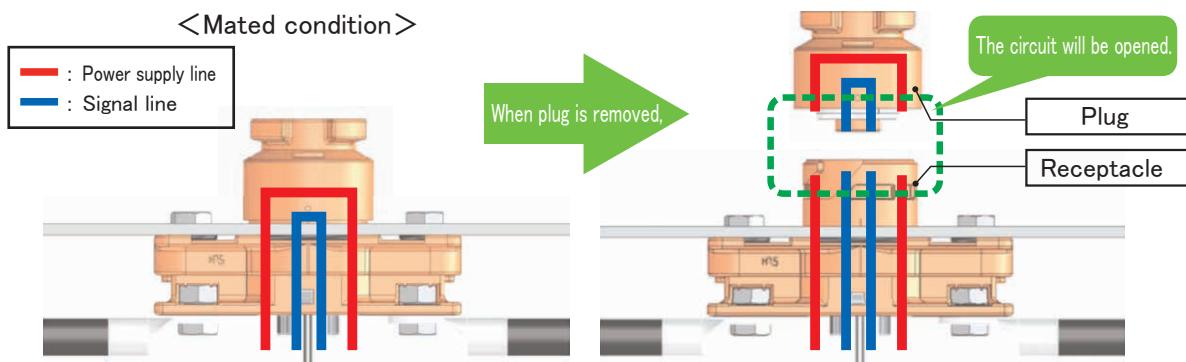
IPX8 : No water intrusion, while submerged in 2m water depth for 14 days in mated condition

5. Finger protection IP2X

6. UL TÜV Certified

■ What is Service Plug?

The connector ensures to disconnect the electric circuit, to ensure the safety of workers in high-voltage areas.



When the connector is unmated, the circuit is physically disconnected, ensuring the safety of workers.

Product Specifications

Rated Current	Power terminal (Note 1)	Signal terminal	Operating Temperature	-40 to +105°C
	200A	1A	Storage Temperature Range	-10 to +60°C
Rated Voltage	Power terminal	Signal terminal		
	1500V AC/DC	250V AC/DC		

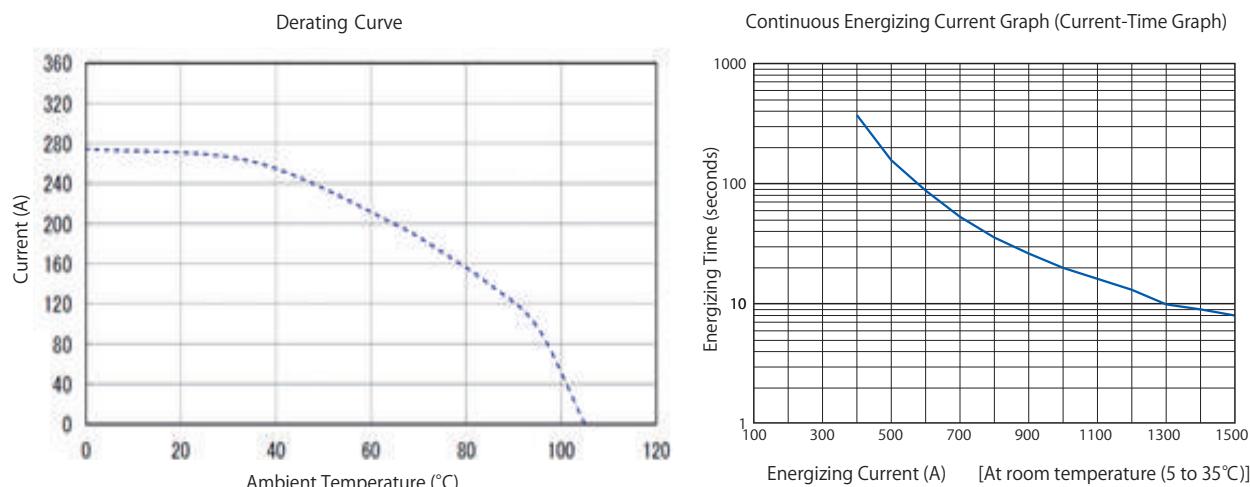
Note 1 : When 100mm² or more wire is used

Items	Specifications	Conditions
Contact Resistance	Between power contacts : 0.5mΩ or less Between signal contacts : 90mΩ or less	Measured at 1A DC
Insulation Resistance	5000MΩ or more	Measured at 500V DC
Withstanding Voltage	No flashover or breakdown	Between power contacts : 4500V AC for 1 minute Between signal contacts : 750V AC for 1 minute
Vibration Resistance	No electrical discontinuity of 10μs or more	10 to 55 to 10Hz/cycle, half amplitude 0.75mm 5 minutes/cycle, 10 cycles in each of the three axial directions
		10 to 2000Hz, average acceleration 57.9m/s ² 8 hours in three axial directions (ISO16750-3)
Shock Resistance	No electrical discontinuity of 10μs or more	Acceleration : 490m/s ² , duration : 11ms, and half-sine wave in 3 directions, 3 cycles for each
Mating Durability	Contact resistance Between power contacts : 0.75mΩ or less Between signal contacts : 150mΩ or less	EM30MSD between plug and receptacle : 50 times (EM30MSD(04) or EM30MSD(06)) : 200 times (EM30MSD-A(04) or EM30MSD-A(06)) EM30MSD-GT8E (between signal connectors) (Note 1) : 30 times
Temperature Cycles	Insulation resistance : 5000MΩ or more	-40°C : 30 minutes → Room temperature : 2 to 3 minutes → +125°C : 30 minutes → Room temperature : 2 to 3 minutes, 5 cycles
Humidity Resistance	Insulation resistance Minimum of 50MΩ (at high humidity) Minimum of 500MΩ (dry environment)	Left at a temperature of 40°C and in humidity of 90 to 95% for 96 hours.
Waterproof	No water intrusion inside connector	Submerged in 2m water depth for 14 days in mated condition.

Note 1 : Refer to the "Signal Connector" sections for information on the signal connector (GT8E connector).

[Reference] Derating Curve and Continuous Energizing Current (Current-Time Graph)

Measurement was performed by connecting a 100mm² wire in the mated state.



Operation below the derating curve (dotted line) is recommended.

Note : Derating curve could vary depending on cable type and measurement even under the same conditions.

Therefore, above data are guidelines and not connector specifications.

The continuous energizing current graph is reference data used for current values exceeding the rated values for a short time.

Materials / Finish

Item	Materials	Finish and Color	Remarks
Insulator	PBT	Orange, Black	UL94V-0
Contact	Copper Alloy	Power Contact Side : Silver-plated	-
		Signal Contact Side : Tin Plated	-
Screw	Brass	Nickel Plated	-
O-ring	Hydrogenated Nitrile Rubber	Black	-

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.

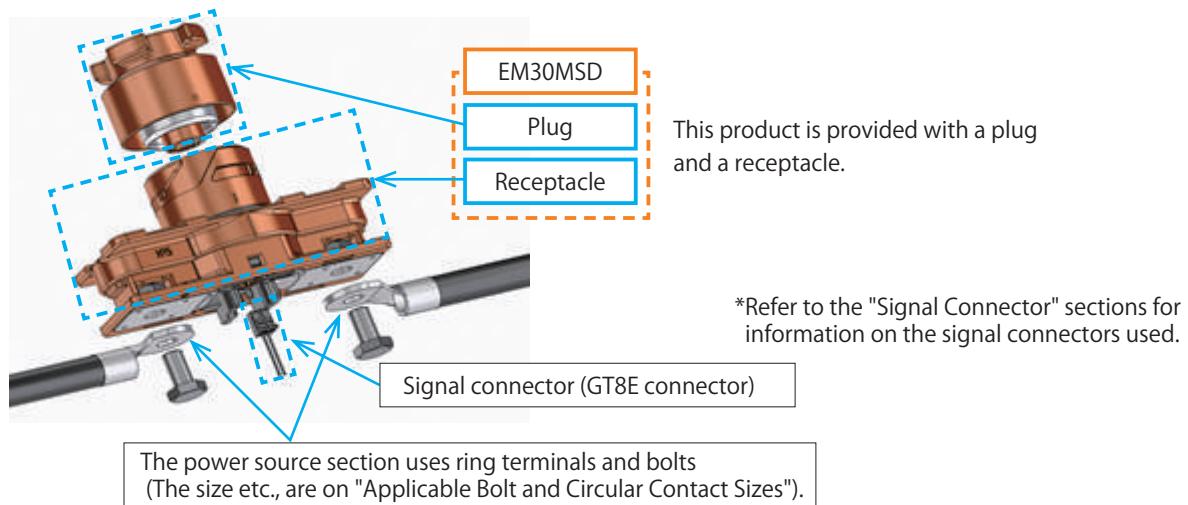
EM 30 MSD - A (##)

1 2 3 4 5

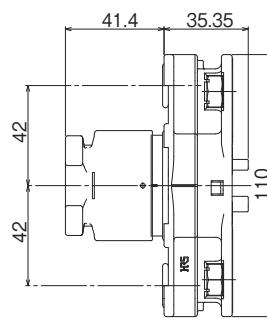
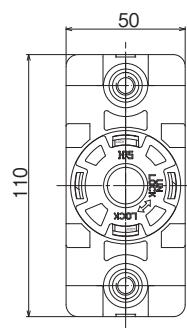
1 Series name	EM	4 Serial symbol	EM30MSD Plug-Receptacle Mating Durability Blank : 50 times -A : 200 times
2 Shell size	30		
3 Type	MSD (Manual Service Disconnect) = Service plug	5 Specification	When different types of specifications are provided, attach (01), (02), ... for identification.

Product Composition

This product is provided with a plug and a receptacle.
The signal section uses a separately sold GT8E connector.



Service Plug



Part No.	HRS No.	Remarks	Purchase Unit
EM30MSD(04)	CL0138-0200-0-04	Signal contact : Tin plated	1pc per box
EM30MSD(06)	CL0138-0200-0-06	Signal contact : Gold plated	
EM30MSD-A(04)	CL0138-0206-0-04	Signal contact : Tin plated	
EM30MSD-A(06)	CL0138-0206-0-06	Signal contact : Gold plated	

Note : This product does not contain fuses.

Signal Connector : Main Body

Part No.	HRS No.	Purchase Unit
GT8E-2S-2C	CL0758-0030-6-00	100pcs per bag

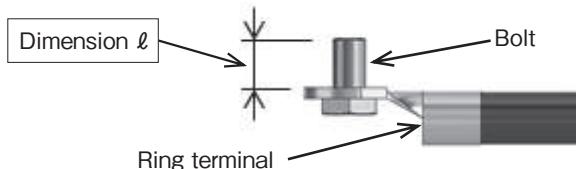
Signal Connector : Applicable Crimp Contacts

Part No.	HRS No.	Remarks	Purchase Unit
GT8E-2022SCF	CL0758-0033-4-00	Tin Plated	10,000pcs per reel
GT8E-2022SCF(01)	CL0758-0033-4-01	Gold Plated	
GT8B-2428SCF	CL0758-0055-7-00	Tin Plated	
GT8B-2428SCF(01)	CL0758-0055-7-01	Gold Plated	
GT8E-2022SC	CL0758-0101-2-00	Tin Plated	100pcs per bag

Signal Connector : Wiring Tools

Part No.	HRS No.	Remarks
CM-105C	CL0901-0001-0-00	Press
AP105-GT8-2022S	CL0901-5144-8-00	GT8E-2022SCF for Applicator
AP105-GT8B-2428S	CL0901-5172-3-00	GT8B-2428SCF for Applicator
HT304/GT8E-2022S	CL0780-0042-6-00	GT8E-2022SC for Hand Crimping Tool

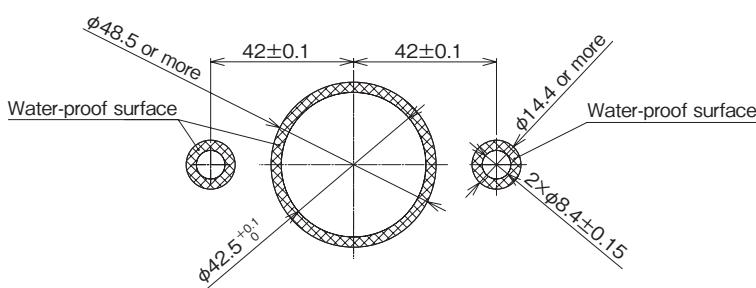
Applicable Bolt and Circular Contact Sizes



Secure positions	Bolt			R-form contact	
	Nominal designation of screw thread	Pitch	Length	Thickness	Hole diameter
To secure the housing	M8	1.25	10 to 12mm	-	-
To secure the ring terminal	M8	1.25	12 to 15mm	2.5 to 3.0mm	ϕ 8.4

Note : If you use any ring terminal with the thickness different from those shown in the above table, change the length of the bolt so that the dimension of ℓ on the right Figure is 9 to 12.5mm.

Panel Mount Dimensions



Recommended panel thickness $t=2$ to 4.5mm
Ensure that the surface roughness of the water-proof surface is $\sqrt{Rz}3.2$.

Safety Notes!

⚠ Warning

- For safety, never carry out insertion / withdrawal operations when a connector is in an energized state. The signal contacts of this product have a sequence structure which disconnects the contact in the order shown below. For this reason, this product can be used with a circuit built for preventing operations with live wires in the power source circuit. In order to prevent accidents during operations with live wires, be sure to use this product with a circuit built in to prevent operations with live wires.
- Be sure to check that the product is securely locked. The following figure shows the outward appearance when the lock is complete.

Table: Circuit-Connecting Order

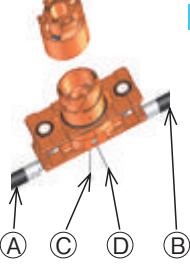
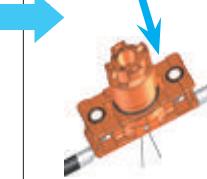
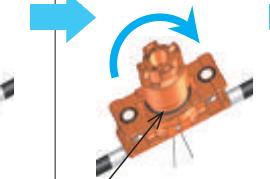
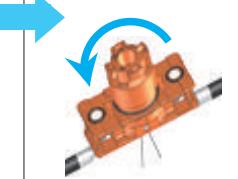
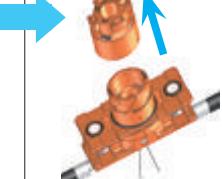
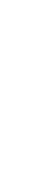
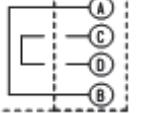
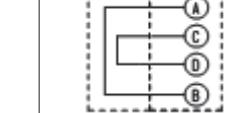
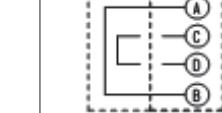
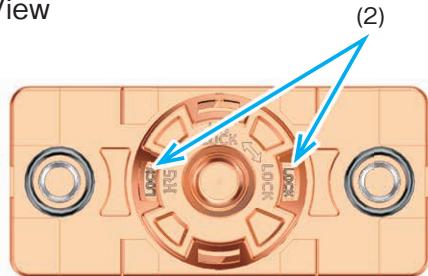
		Between A and B Power supply line Between C and D Signal line				
Status	①Not mated	②Plug inserted	③Rotation/lock completed	④Lock released	⑤Unmated	
Outward appearance/ operation						
Connection			Power supply line is closed. When the signal line is open, no current flows.		The signal line is closed, and current flows in the power supply line.	
Circuit diagram	 Plug	 Receptacle	 Plug	 Receptacle	 Plug	 Receptacle

Figure : Outward appearance of the completely locked state

(1) HRS display and LOCK / UNLOCK display follow the positional relationship shown in the Figure.
(2) LOCK display is visible.

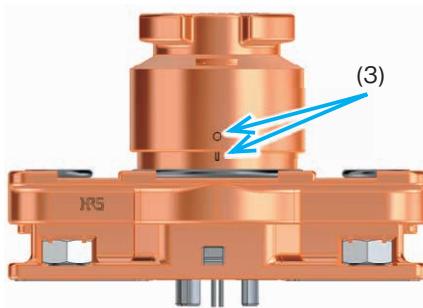
Front View



(3) The position marks shown of the plug and the receptacle match with each other.

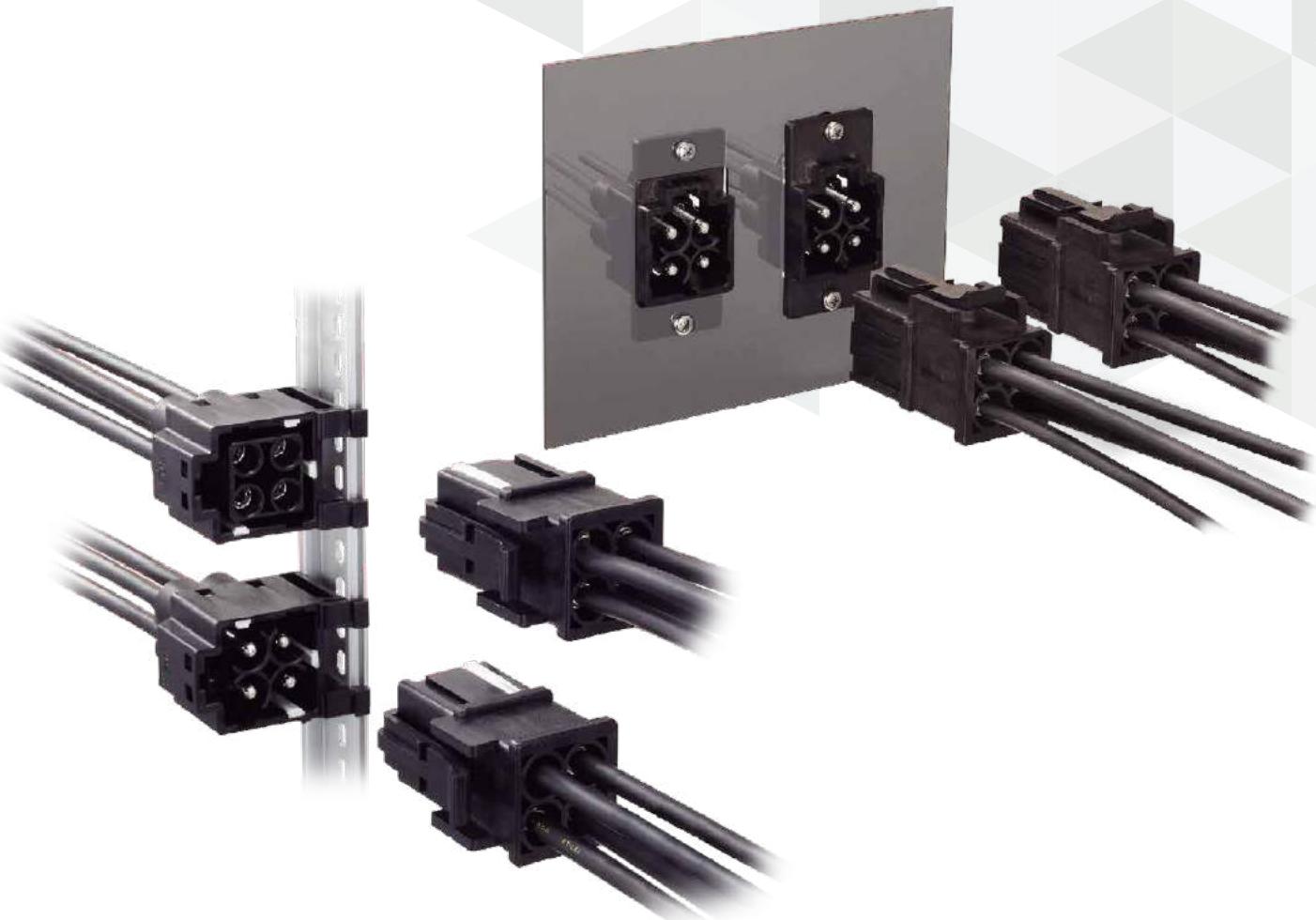
Plug position mark	Circular concave shape
Receptacle position mark	Rectangular concave shape

Side View



EM35M Series

High Current, Plastic Power Supply Connectors



High-Current



1 Touch Locking



Wide Variation

Features

1. High current capability (three-phase power supply and ground) with 4pos.

- 3 positions each with a rated current of 50A when using 8 AWG or corresponding cable.
(70A per contact with 8 AWG wire and ambient temperature 25°C.)
- 3 positions each with a rated current of 30A when using 10 AWG or corresponding cable.
(Please refer to the charts below concerning the relation between ambient temperature and working current value.)

2. Easy crimp termination

Crimp contacts are used so anyone can perform uniform termination.

3. Standard tooling available

Contacts can be crimped with a standard tool in accordance with JIS C 9711.

4. Sequential mating

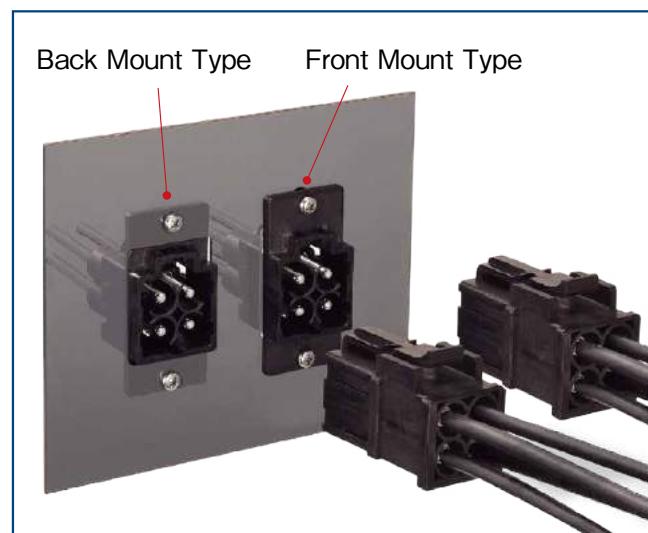
Ground contacts connect before power contacts touch.

5. Snap-in lock is easy to operate

Lock operation can be done by simply snapping the plug to the receptacle.

6. Attachment Styles

- DIN rail mount type
Snap-on attachment to 35mm width DIN rail.
- Panel attachment type
Both front and rear mounting applicable.



7. Ten keying combinations possible

Guide keys prevent incorrect insertions when multiple connectors are used together at the same time.

8. Meets approved safety standards

TÜV, UL certified.

Product Specifications

Rated Current (Note 1)	10 AWG	8 AWG, Ambient Temperature 25°C	Operating Temperature (Note 2)	-40 to +125°C
	30A	70A	Storage Temperature Range	-10 to +60°C
Rated Voltage	1000V AC/DC			

UL	Rated Current (Note 1)	10 AWG	8 AWG	Operating Temperature (Note 2)	-40 to +125°C
		30A	50A	Storage Temperature Range	-10 to +60°C
Rated Voltage	500V AC/DC				

TÜV	Rated Current (Note 1)	10 AWG	8 AWG	Operating Temperature (Note 2)	-40 to +125°C
		30A	50A	Storage Temperature Range	-10 to +60°C
Rated Voltage	500V AC/DC				

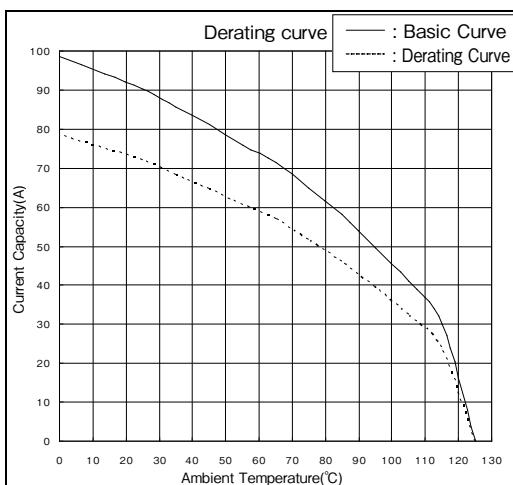
Note 1 : The value of rated current varies based on the ambient temperature. It is recommended to use the product within the derating curve zone.
When using a UL or TÜV approved product, please use the product within the specified range as well as the derating curve area.

Note 2 : Includes the temperature rise due to current flow.

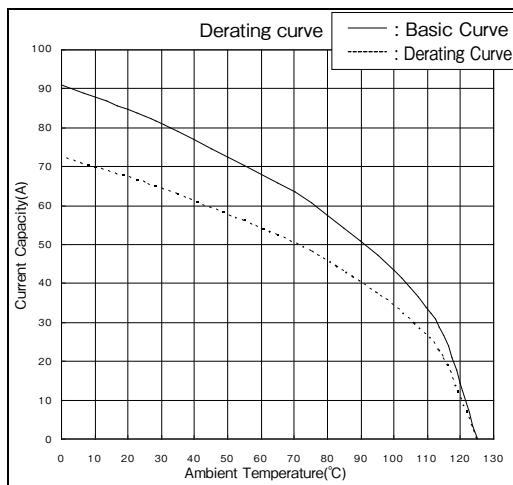
Item	Specification	Condition
Contact Resistance	1m Ω Max.	Measured at 1A DC
Insulation Resistance	5000M Ω Min.	Measured at 500V DC
Withstanding Voltage	No flashover and insulation breakdown	4260V AC for 1 min.
Vibration Resistance	No electrical discontinuity of 10 μ s or more	10 to 50 to 10Hz/cycle, single amplitude of 0.75mm, five minutes/cycle, three directions, 10 cycles for each direction
Shock Resistance	No electrical discontinuity of 10 μ s or more	Acceleration of 490m/s ² , duration of 11ms, three directions, three times for each direction
Mating Durability	Contact resistance : 1m Ω Max.	100 cycles
Temperature Cycle	Insulation resistance : 5000M Ω Min.	-55°C for 30 minutes → room temperature for 2 to 3 minutes → +125°C for 30 minutes → room temperature for 2 to 3 minutes, 5 cycles
Humidity Resistance (Normal Condition)	Insulation resistance : 50M Ω Min. (at high humidity condition) 500M Ω Min. (at dry condition)	Exposed for 96 hours at the temperature of 40°C and a humidity of 90 to 95%

Derating curve

8 AWG



10 AWG



Note 1 : The derating curve is a curve is derived by multiplying the basic curve by the derating factor of 0.8.

Note 2 : The value of rated current varies based on 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.

Materials / Finish

Item	Material	Finish	Remarks
Insulation	PBT Resin	-	UL94V-0
Contact	Copper Alloy	Tin Plated (Nickel Under Plating)	-

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 35 M P - 4 S C (##)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

■ Guide Key

EM - GK (##)

① ④ ⑧

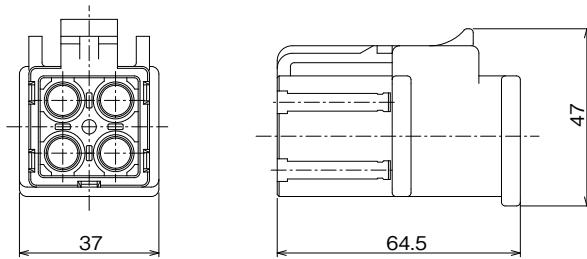
■ Crimp Contact

EM - S C - 1 4 3 (##)

① ⑥ ⑦ ⑨ ⑩ ⑪ ⑧

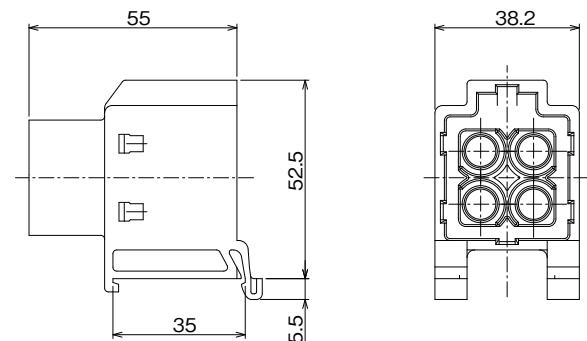
① Series Name	EM	⑦ Termination Style	C : Crimp
② Shell Size	35	⑧ Specification No.	This position will be used to indicate changes or variations to the product. When needed, there will be a 2 digit number within the parentheses. This number will correspond to specific changes and/or variations with the part.
③ Specialty	M : Mold Type (Plastic Type)	⑨ Contact Shape	1 : Loose Piece Contact
④ Connector Type	P : Plug R : Receptacle (DIN Rail Mount Type) RA : Receptacle (Panel Attachment Type) GK : Guide Key	⑩ Shape Modification	Design variation in the same size contact is indicated with serial numbers starting from 1.
⑤ No. of Pos.	4	⑪ Plating	3 : Tin Plated
⑥ Contact Gender	S : Female Contact, P : Male Contact		

Plug



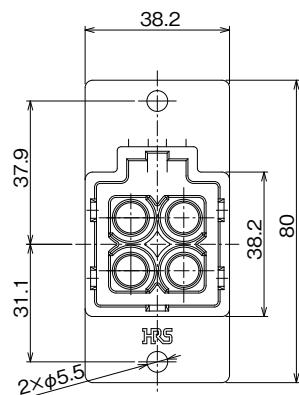
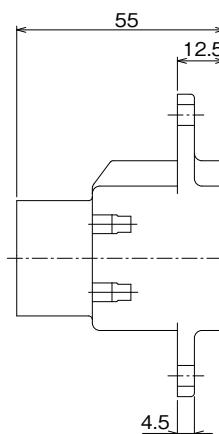
Part No.	HRS No.	Purchase Unit
EM35MP-4SC(81)	CL0138-0020-9-81	
EM35MP-4PC(81)	CL0138-0021-1-81	1pcs per bag

Receptacle (DIN Rail Mount Type)

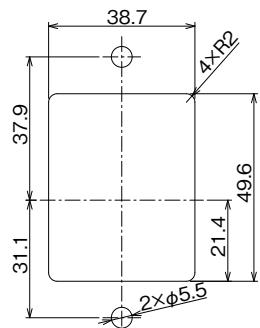


Part No.	HRS No.	Purchase Unit
EM35MR-4PC(81)	CL0138-0022-4-81	
EM35MR-4SC(81)	CL0138-0023-7-81	1pcs per bag

Receptacle (Panel Attachment Type)

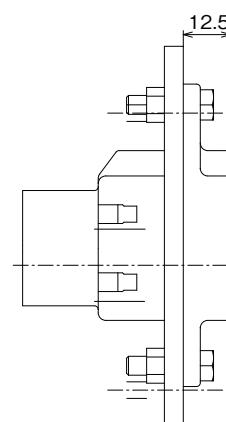


Panel Cut Out Dimensions

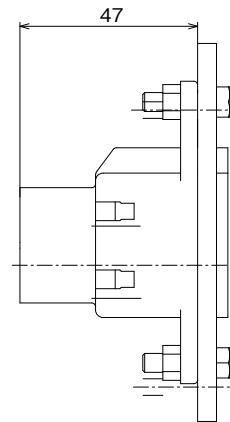


Panel Attachment Dimensions

For Front Mount



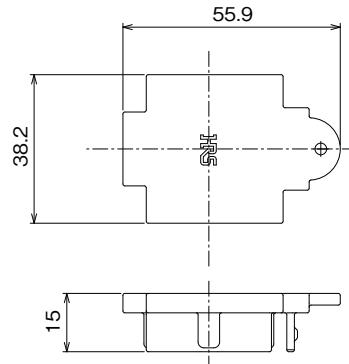
For Back Mount
(Panel thickness : 8mm Max.)



Part No.	HRS No.	Purchase Unit
EM35MRA-4PC(81)	CL0138-0028-0-81	1pcs per bag

Cap

● For Receptacle

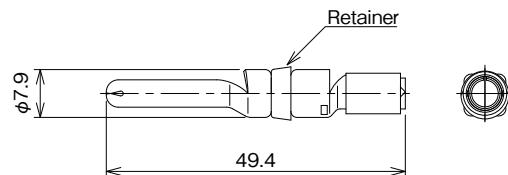


Part No.	HRS No.	Applicable Connector	Purchase Unit
EM35MR-C	CL0138-0029-3-00	EM35MR-4PC	20pcs per bag (Note)
		EM35MR-4SC	
		EM35MRA-4PC	

Note : Orders are accepted in multiples of 20pcs. As an example, if the number of pcs needed for purchase is 100pcs, then the order quantity is 100pcs.

Crimp Contacts

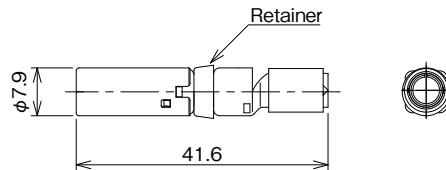
● Male Contacts



Type	Part No.	HRS No.	Applicable wire	Remarks	Purchase Unit
Loose Piece Contacts	EM-PC-113(01)	CL0138-0011-8-01	(1) Cross sectional area of conductor : 5.26 to 5.57mm ² (corresponding to 10 AWG) (2) Outside diameter of conductor : ϕ 3.1 Max. (3) Outside diameter of jacket : ϕ 8.7 Max. (Wire needs to meet all the specifications listed in 1, 2 and 3.)	Retainer : Black	4pcs per bag (Note)
	EM-PC-133	CL0138-0019-0-00	(1) Cross sectional area of conductor : 8mm ² (2) Outside diameter of conductor : ϕ 3.7 Max. (3) Outside diameter of jacket : ϕ 8.7 Max. (Wire needs to meet all the specifications listed in 1, 2 and 3.)	Retainer : White	
	EM-PC-143(01)	CL0138-0025-2-01	(1) Cross sectional area of conductor : 8.44 to 8.92mm ² (corresponding to 8 AWG) (2) Outside diameter of conductor : ϕ 4.4 Max. (3) Outside diameter of jacket : ϕ 11.5 Max. (Wire needs to meet all the specifications listed in 1, 2 and 3.)	Retainer : Purple	

Note : Orders are accepted based on bag increments. As an example, if the number of pcs needed for purchase is 100pcs, then the order quantity is 25 bags.

● Female Contacts



Type	Part No.	HRS No.	Applicable wire	Remarks	Purchase Unit
Loose Piece Contacts	EM-SC-113(01)	CL0138-0010-5-01	(1) Cross sectional area of conductor : 5.26 to 5.57mm ² (corresponding to 10 AWG) (2) Outside diameter of conductor : Ø 3.1 Max. (3) Outside diameter of jacket : Ø 8.7 Max. (Wire needs to meet all the specifications listed in 1, 2 and 3.)	Retainer : Black	4pcs per bag (Note)
	EM-SC-133	CL0138-0018-7-00	(1) Cross sectional area of conductor : 8mm ² (2) Outside diameter of conductor : Ø 3.7 Max. (3) Outside diameter of jacket : Ø 8.7 Max. (Wire needs to meet all the specifications listed in 1, 2 and 3.)	Retainer : White	
	EM-SC-143(01)	CL0138-0024-0-01	(1) Cross sectional area of conductor : 8.44 to 8.92mm ² (corresponding to 8 AWG) (2) Outside diameter of conductor : Ø 4.4 Max. (3) Outside diameter of jacket : Ø 11.5 Max. (Wire needs to meet all the specifications listed in 1, 2 and 3.)	Retainer : Purple	

Note : Orders are accepted based on bag increments. As an example, if the number of pcs needed for purchase is 100pcs, then the order quantity is 25 bags.

Coding Key

Coding keys are used to create keying combinations to prevent incorrect insertion. This is especially useful when multiple parts are being used together. Coding keys need to be installed on both the plug and receptacle when creating specific combinations.

Please contact a Hirose representative for details and proper use of coding keys.

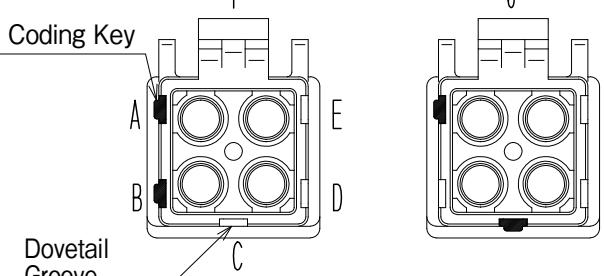
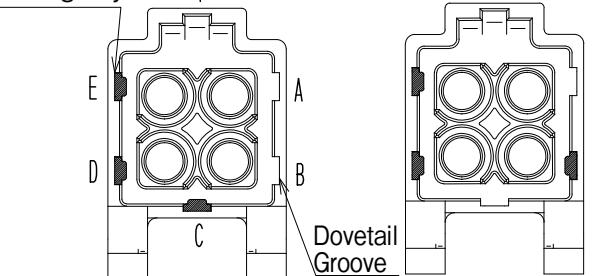
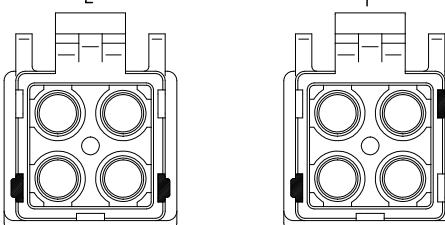
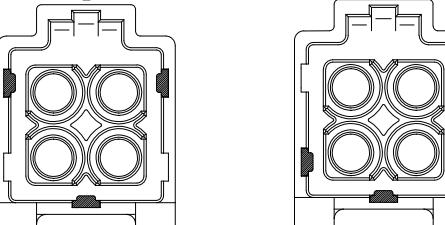
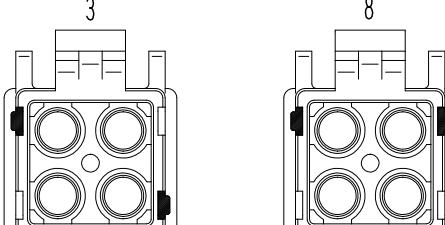
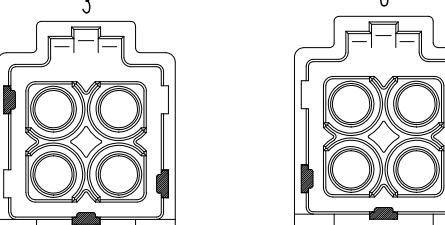
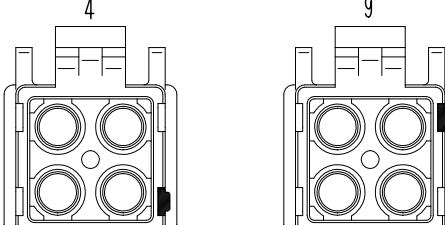
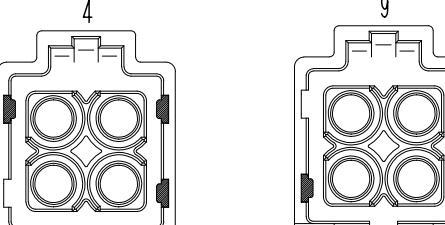
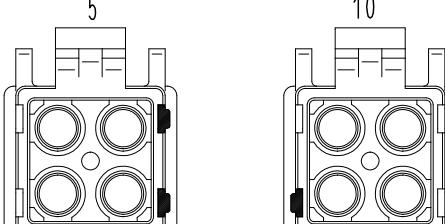
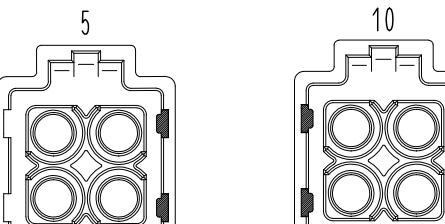


Part No.	HRS No.	Purchase Unit
EM-GK	CL0138-0026-5-00	25pcs per bag (Note)

Note : Each sprue holds 4 coding keys and yields a total of 100 coding keys.

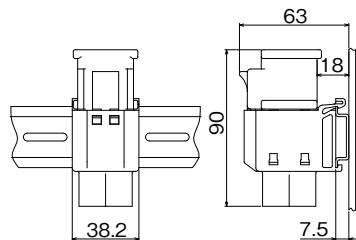
Coding Key Combination Table

Using two coding keys on the plug and three on the receptacle can make up to ten different combinations.

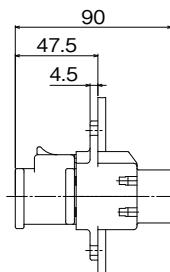
Positioning of Guide Keys on Plug	Positioning of Guide Keys on Receptacle
	
	
	
	
	

Mated Dimensions

■ Mated Dimensions when Mounted on DIN Rail



■ Mated Dimensions when Mounted on Panel



Applicable Tools

- Manual Crimping Tool (Example)



- Contact Extraction Tool



Type	Part No.	HRS No.	Applicable Contact
Manual Crimping Tool	Note 1	-	EM-PC-113(01), EM-SC-113(01) EM-PC-133, EM-SC-133 EM-PC-143(01), EM-SC-143(01)
Contact Extraction Tool	EM-8-TP	CL0150-0249-3-00	EM-PC-113(01), EM-SC-113(01) EM-PC-133, EM-SC-133 EM-PC-143(01), EM-SC-143(01)

Note 1 : Manual Crimping Tools is a commercially available tool conforming to the JIS C 9711 standard "Termination tools for wire connector of interior wiring". Only use the recommended tools noted below.

■ Recommended Crimping Tools

Tool Manufacturer	Part No.
HOZAN TOOL INDUSTRIAL CO., LTD.	P-75
LOBTEX Co., Ltd.	AK15A
NICHIFU TERMINAL INDUSTRIES Co., Ltd.	NH1

Precautions when using the EM Series Connectors

1. Switch off the power before mating or un-mating the connectors.
2. Do not touch the contacts when the connector is energized. Doing so is dangerous and can lead to injury.
3. Please contact a Hirose representative for harness work procedures and instruction manuals.

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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