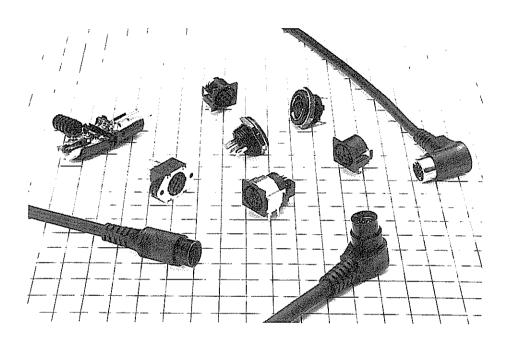
## HR12 SERIES

## MINIATURE CIRCULAR DIN TYPE CONNECTOR

#### Scope

The HR12 is a high-density plastic type miniature connector with built-in shielding mechanism that is designed for OA equipment such as personal computers, word processors, and cellular telephones.

The standard terminals of the HR12 connector are tinplated (only 10-contact terminals are gold-plated) and the connectors are finished in black.



#### **Features**

- 1. Matte Finish gives a good appearance and aids in plug/unplug operation.
- 2. Full Shielding on Plug and Receptacle.
- 3. PUSH/PULL Locking System.
- 4. Right Angle Plug/Cord Assembly can be molded for Right or Left orientation.
- 5. Strain Relief is molded to main body for extra holding.
- 6. PLUG is available with ... Straight or Right Angle Configuration.
  - RECEPTACLE is available with ... Straight, Right Angle and Crimp to Wire.
- 7. Standard Color is Black. Easily available optional colors are Ivory and Grey. Contact HIROSE for other colors.

## **Applications**

OA equipment, Video equipment, Sound facilities, Radio communications equipment, Mobile telephone equipment

and other electronic devices and equipment.

#### Material and Finish

Part	Material	Finish		
Molding and	Soft vinylchloride (UL94-0) and Polypropylene (UL94V-0) PBT resin (UL94V-0) and Polycarbonate (UL94V-1)	_		
Insulator	Brass, and Zinc alloy	Tin plating and Nickel plating		
Male pin	Copper alloy	Tin plating or selective gold plating and silver plating		
Female pin	Phosphor bronze	Tin plating or selective gold plating and silver plating		

Remarks: 1. Silver plated treatment for pin, shall be applied 20 pins connector only.

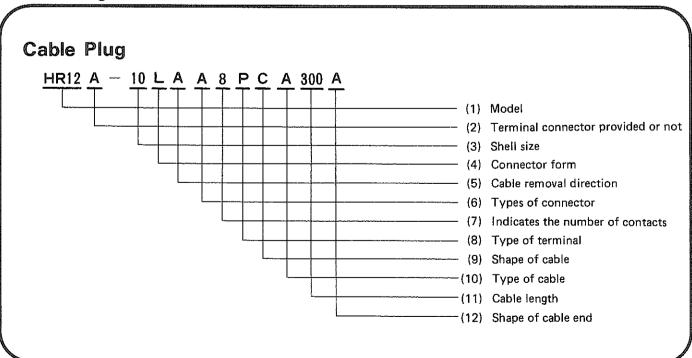
2. Pin connector for 10 pins and 4 pins are applied partly gold plating.

## Standard Cable Specifications

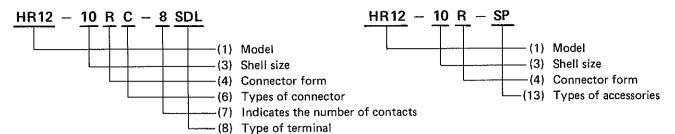
No. of pin	4	5	8	3	
Outer dia.	φ5.5 φ4.8		φ4.8	φ4.8	
Conductor	4-conductor (shielded)	5-conductor (shielded)	Multiple 8-conductor (shielded)	8-conductor (shielded)	
Composition conductor	17/φ0.16(AWG#22)	7/φ0.127(AWG#28)	7/\phi0.127(AWG#28) 11/\phi0.16 (AWG#26)	7/φ0.127(AWG#28)	
UL STYLE	2990	2990	2990	2990 or 2789	

No. of pin		10		20		
Outer dia.	φ4.8	φ5.6	φ5.5	φ6	φ6	
Conductor	10-conductor (shielded)	10-conductor (shielded)	8-conductor + Shielded cables (2)	16-conductor (shielded)	Multiple 20-conductor (shielded)	
Composition conductor	7/ø0.127(AWG#28)	7/φ0.127(AWG#28)	30/φ0.08, with Tetron thread	7/φ0.127(AWG#28)	7/φ0.127(AWG#28) 7/φ0.1 (AWG#30)	
UL STYLE	2844	2990		2990	2990	

#### **Ordering Information**



## Plug (Mounting type) and Receptacle Attachment



(1) Model:

Denotes series name.

HR212 is a heavy-duty shield type.

- (2) Indication of terminal connector provided or not: For models with connectors on both sides, different signs are used depending on the type of connector on one side.
- (3) Shell size:

Indicates the outside diameter of the plug mating part.

(4) Connector form:

Connector forms are classified as follows:

P: Straight plug

LP or L: Right angle

R: Receptacle

- (5) Cable removal directions for a right angle plug are classified as follows:
  - A: The cable removal direction is on the right with the guide facing upward viewed from the mating part.
  - B: The cable removal direction is on the left with the guide facing upward viewed from the mating part.
- (6) Types of connector

A connector with two or more varieties is classified by A, B, C, ......

(7) Indicates number of contacts.

(8) Type of terminal:

Classifies the type of terminals as follows:

The plug has only male terminals, and the receptacle has only female terminals.

P: Male terminal

PC: Crimp male terminal (assembly type plug)

SC: Crimp female terminal

SD: Straight dip female terminal

SDL: Right angle dip female terminal

(9) Shape of cable:

Shapes of cables connected to the plug are classified as follows:

C: Curled cord

S: Straight cord

(10) Type of cable

Cables connected to the plug are identified by A, B, C, ..... when they are different in construction and number of cores.

(11) Cable length

Indicates the length in mm of the cable connected to the plug.

Curled cord length: Length of curled part

Straight cable length: Cable length

(12) Shape of cable end

Plugs with cables of the same shape but different in cable end dimensions and finishing are identified by A. B. C. ......

(13) Types of accessories:

Accessories are identified as follows:

SP: Stopper plate

S: Spacer

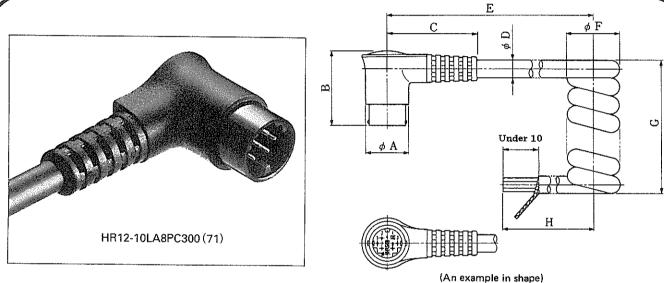
- Note 1. Unless otherwise specified, terminals are tin-plated in black. If you desire different plating, please specify in advance. As exceptions, however, 10-contact terminals are selectively gold-plated and 20-contact terminals will be silver-plated.
  - 2. Please indicate specifications such as cable length, terminal dimensions, and terminal processing when you order connectors with specifications different from the standards.

## TYPE HR12

The HR12 is a high-density plastic type miniature connector with built-in shielding mechanism that is designed for OA equipment such as personal computers, word processors, and cellular telephones.

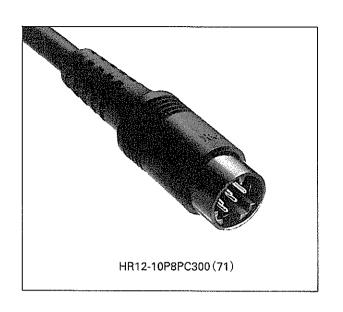
The standard terminals of the HR12 connector are tinplated (only 10-contact terminals are gold-plated) and the connectors are finished in black.

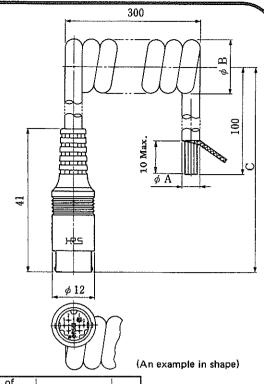
#### Right Angle Plug



										٠, ٠,٠		o m anapo,		
HRS No.	Part No.	No. of pin	φΑ	В	С	φD	E	φF	G	Н	Weight	No. of conductors of cable	Remarks	RoHS
112-0001-1-71	HR12-10LA5PCD300(71)	5	12	21	26	4.8	700	15	300	100	About 94g	5-conductor (shielded)	Curled cord	
112-0003-7-71	HR12-10LA8PC300 (71)	8	12	21	26	4.8	700	15	300	100	About 94g	8-conductor (shielded)	Curled cord	1
112-0084-9-71	HR12-10LB10PCAE300 (71)	10	12	21.5	26	5.5	45	17.5	300	120	About 80g	10-conductor (shielded)	Curied cord Terminal gold plated	
112-0064-1-71	HR12-10LB10PSL1200(71)	10	12	21.5	26	5.5				Î —	About 80g	8-conductor (shielded)	Straight cord Terminal gold plated	1
112-0031-2-71	HR12-10LB10PSV1190 (71)	10	12	21.5	26	5.5	_		_		About 80g	10-conductor (shielded)	Straight cord Terminal gold plated	1

#### Straight Plug



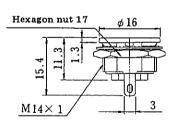


HRS No.	Part No.	No. of pins	φΑ	φB	С	Weight	No. of conductors of cable	Remarks	RoHS
112-0101-6-71	HR12-10P5PCD300 (71)	5	4.8	15	720	About 96g	5-conductor (shielded)	Curled cord	
112-0102-9-71	HR12-10P8PC300 (71)	8	4.8	15	720	About 96g	8-conductor (shielded)	Curled cord	
112-0133-2-71	HR12-10P10PCAE300 (71)	10	5.5	17.5	700	About 96g	10-conductor (shielded)	Curled cord Terminal gold plated	<u> </u>

## Receptacle (Crimp Type)







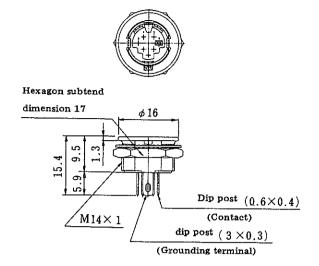
(An example in shape)

HRS No.	Part No.	No. of pins	Weight	RoHS
112-0501-4-71	HR12-10R-5SC(71)	5	About 4g	
112-0504-2-71	HR12-10R-8SC(71)	8	About 4g	

Remark: For the mounting holes, see page 96.

# Receptacle(Straight Dip Type)





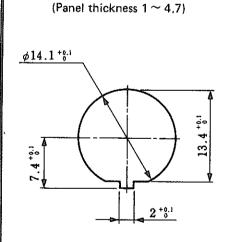
(An example in shape)

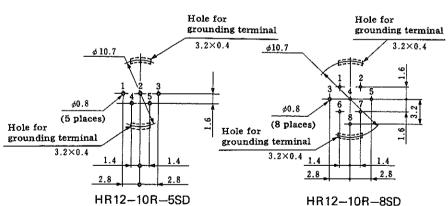
HRS No.	Part No.	No. of pins	Weight	RoHS
112-0502-7-71	HR12-10R-5SD (71)	5	About 4g	
112-0505-5-71	HR12-10R-8SD (71)	8	About 4g	

Remark: Refer to following diagram for panel mounting dimensions and dip post arrangement dimensions.

## Panel mounting dimensions

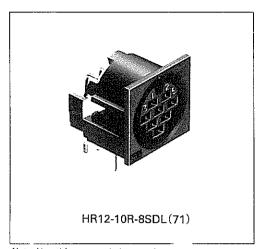
#### Receptacle Dip Post



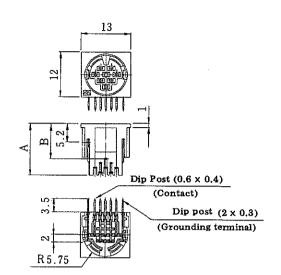


Remark: Dimensional tolerance of  $\pm 0.05 mm$  is recommended for the board arrangement.

#### Receptacle (Right Angle Dip)



Note: Use this receptacle by pressing the connector outside as shown in the panel mounting hole dimension drawing below. If the conditions such as panel shape do not allow you to, use the accompanying stopper plate HR12-10R-SP{71}{CL112-0507-0-71} to press the receptacle.

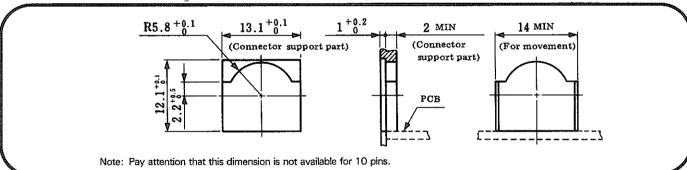


(An example in shape)

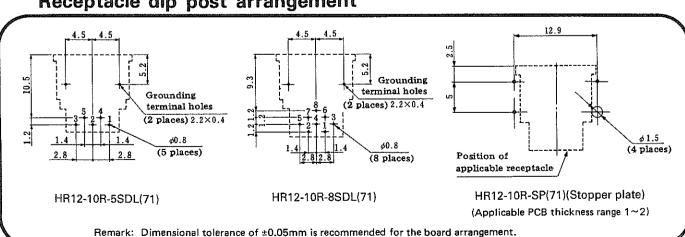
HRS No.	Part No.	No. of pins	А	В	Weight	Remarks	RoHS
	HR12-10R-5SDL (71)	5	13	10.5	About2g	<del></del>	
112-0506-8-71	HR12-10R-8SDL (71)	8	13.8	9.3	About2g		0
112-0514-6-71	HR12-10RC-8SDL (71)	8	13.8	9.3	About3g	Equipped with stopper plate	

Remark: For dip post arrangement see below figure

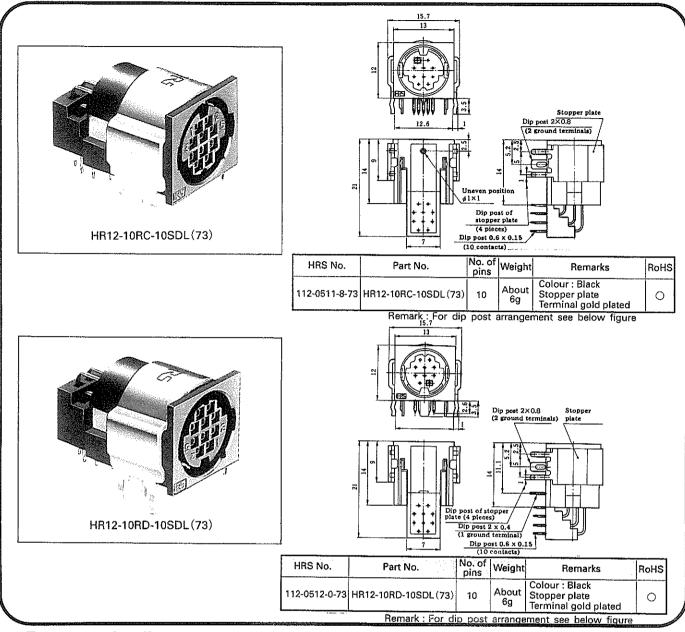
#### Panel mounting dimensions



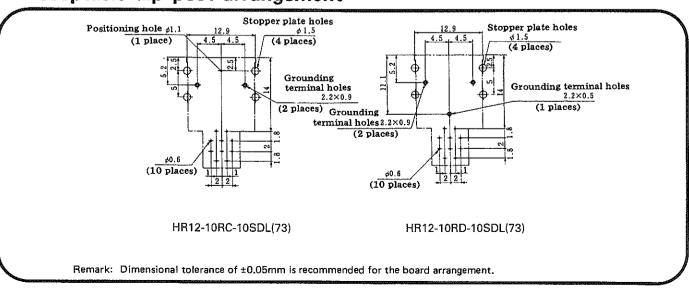
## Receptacle dip post arrangement



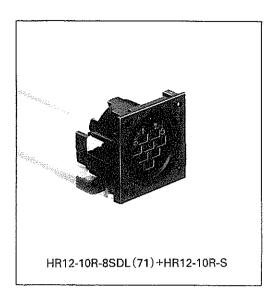
#### Receptacle (Right Angle Dip)

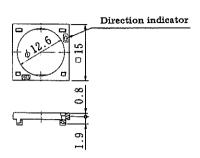


## Receptacle dip post arrangement



## Spacer

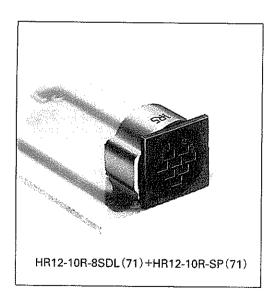


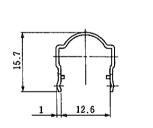


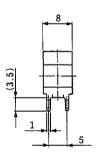
HRS No.	Part No.	Applicable connector	Weight	RoHS
112-0508-3	HR12-10R-S	HR12-10R-#SDL	About 1g	0

Remark: The \* mark shows the number of pins.

## **Stopper Plate**







HRS No.	Part No.	Applicable connector	Applicable PCB thickness	Weight	RoHS
112-0507-0-71	HR12-10R-SP(71)	HR12-10R-₩SDL	t∶1~2	About 1g	0

Remarks: 1. The \* mark shows the number of pins.

2. For dip post arrangement, see page 105.

# MODEL HR12(20 CONTACTS), MODEL HR212

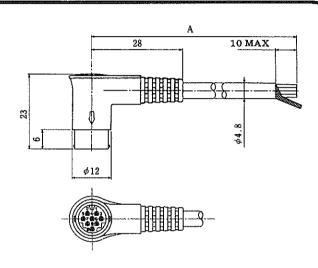
#### Scope

Models HR12 (20 contacts) and HR212 connectors are enclosed with a metal shell for stronger shielding than the model HR12 connectors, which were for greater protection developed against jamming by electromagnetic waves.

Standard plating: Silver plating for the HR12 (20 contacts) and copper plating for the HR212 (gold plating for 10-contact models only). Standard finish: black.

## Right Angle Plug (with straight cable)



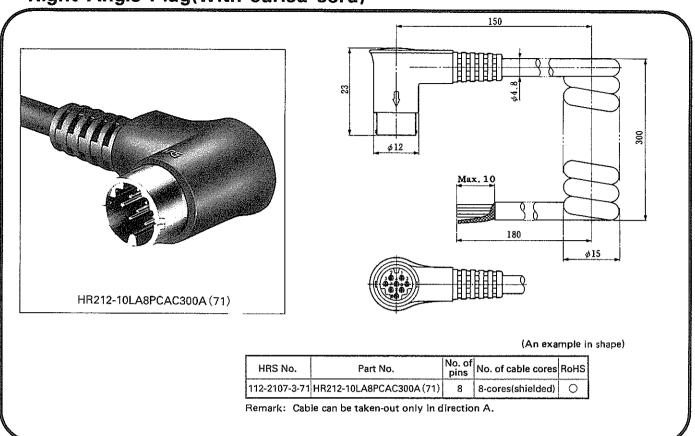


(An example in shape)

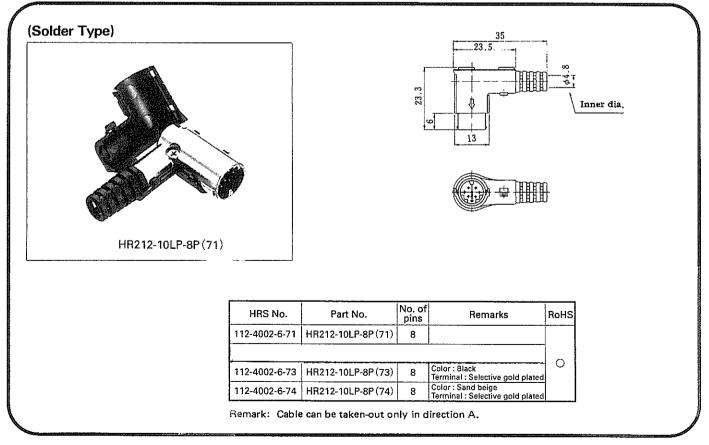
HRS No.	Part No.	No. of pins	Α	No. of cable cores	Remarks	RoHS
112-2120-1-71	HR212-10LA8P\$AT1028(71)	8	1028	8-cores(shielded)		
112-2120-1-72	HR212-10LA8PSAT1028(72)	8	1028	8-cores(shielded)	Color : Black Terminal : Tin plated	
112-2120-1-73	HR212-10LA8PSAT1028(73)	8	1028	8-cores(shielded)	Color : Sand beige Terminal : Selective gold plated	
112-2121-4-71	HR212-10LA8PSAT3028 (71)	8	3028	8-cores(shielded)		
112-2121-4-72	HR212-10LA8PSAT3028 (72)	8	3028	8-cores(shielded)	Color : Black Terminal : Selective gold plated	
112-2121-4-73	HR212-10LA8PSAT3028(73)	8	3028	8-cores(shielded)	Color : Sand beige Terminal : Selective gold plated	
112-2122-7-71	HR212-10LA8PSAT5028(71)	8	5028	8-cores(shielded)		]
112-2122-7-72	HR212-10LA8PSAT5028 (72)	8	5028	8-cores(shielded)	Color : Black Terminal : Selective gold plated	

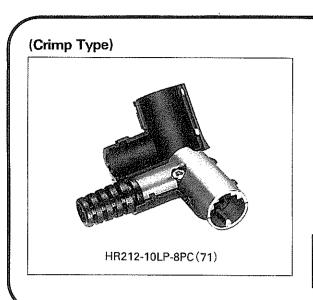
Remark: Cable can be taken-out only in direction A.

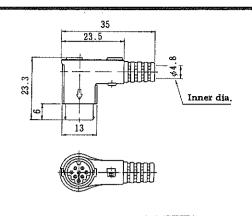
## Right Angle Plug(with curled cord)



## Right Angle plug(Assembly Type)



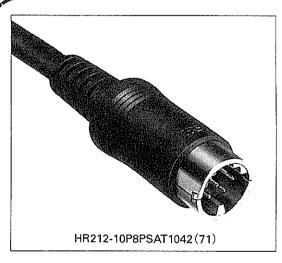


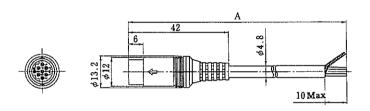


HRS No.	Part No.	No. of pins	RoHS
112-4100-5-71	HR212-10LP-5PC(71)	5	
112-4101-8-71	HR212-10LP-8PC (71)	8	0

Remark: Cable can be taken-out only in direction A.

## Straight Plug(with straight cable)

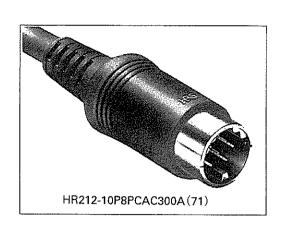


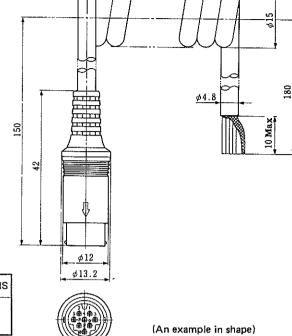


(An example in shape)

HRS No.	Part No.	No. of pins	Α	No. of cable cores	Remarks	RoHS
112-2220-6-71	HR212-10P8PSAT1042(71)	8	1042	8-cores(shielded)		
112-2220-6-72	HR212-10P8PSAT1042(72)	8	1042	8-cores(shielded)	Color : Black Terminal : Selective gold plated	
112-2220-6-73	HR212-10P8PSAT1042 (73)	8	1042	8-cores(shielded)	Color : Sand beige Terminal : Selective gold plated	ĺ
112-2221-9-71	HR212-10P8PSAT3042(71)	8	3042	8-cores(shielded)		1
112-2221-9-72	HR212-10P8PSAT3042 (72)	8	3042	8-cores(shielded)	Color : Black Terminal : Selective gold plated	0
112-2221-9-73	HR212-10P8PSAT3042 (73)	8	3042	8-cores(shielded)	Color: Sand beige Terminal: Tin plated	
112-2221-9-74	HR212-10P8PSAT3042 (74)	8	3042	8-cores(shielded)	Color: Sand beige Terminal: Selective gold plated	1
112-2222-1-71	HR212-10P8PSAT5042(71)	8	5042	8-cores(shielded)		]
112-2222-1-72	HR212-10P8PSAT5042(72)	8	5042	8-cores(shielded)	Color : Black Terminal : Selective gold plated	

## Straight Plug(with curled cord)

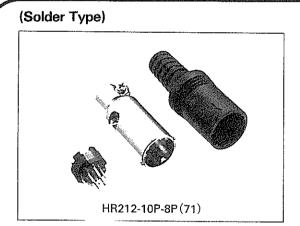


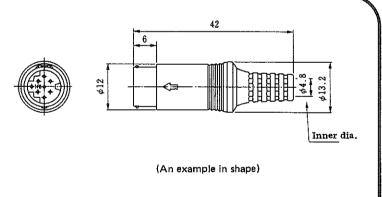


300

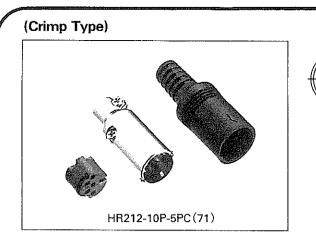
HRS No.	Part No.	No. of pins	No. of cable cores	Remarks	RoHS
112-2205-2-71	HR212-10P8PCAC300A (71)	8	8-cores (shielded)		
112-2211-5-71	HR212-10P10PCBH300(71)	10	10-cores (shielded)	Terminal : Selective	

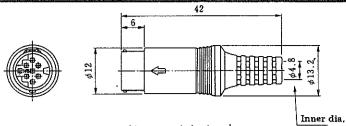
## Straight Plug(Assembly Type)





HRS No.	Part No.	No. of pins	Remarks	RoHS
112-4001-3-71	HR212-10P-8P(71)	8		
112-4001-3-72	HR212-10P-8P (72)	8	Color : Sand beige Terminal : Tin plated	
112-4001-3-73	HR212-10P-8P(73)	8	Color : Black Terminal : Selective gold plated	
112-4001-3-74	HR212-10P-8P(74)	8	Color : Sand beige Terminal : Selective gold plated	

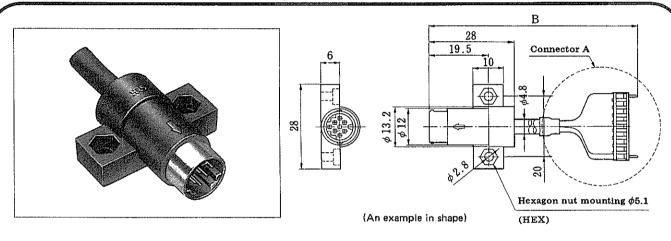




(An example in shape)

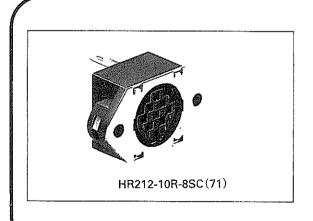
HRS No.	Part No.	No. of pins	Remarks	RoHS
112-4050-9-71	HR212-10P-5PC (71)	5		
112-4051-1-71	HR212-10P-8PC (71)	8		
112-4051-1-72	HR212-10P-8PC (72)	8	Color : Sand beige	
112-4052-4-71	HR212-10P-10PC (71)	10		
112-4052-4-72	HR212-10P-10PC (72)	10	Color : Sand beige	

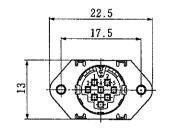
## Plug Receptacle(with straight cable)

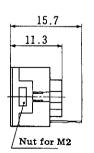


HRS No.	Part No.	No. of pins	connector A	В	No. of cable cores	Remarks	RoHS
1	HR212G-10PB8PSAT82(71)	8	DF2	90.2	8-cores(shielded)	Color : Sand beige Terminal : Selective gold plated	0

## Receptacle (Crimp Type)



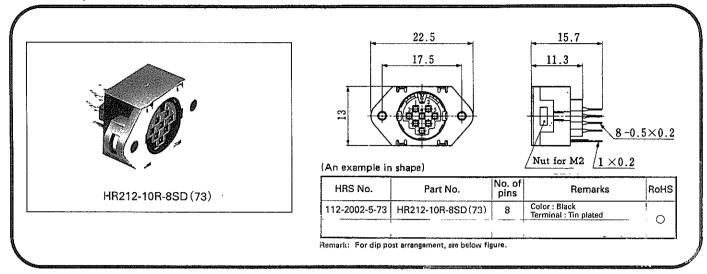




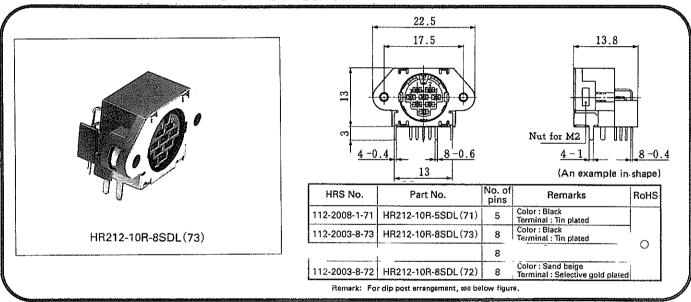
(An example in shape)

HRS No.	Part No.	No. of pins	Remarks	RoHS
112-2001-2-71	HR212-10R-8SC (71)	8		
112-2001-2-72	HR212-10R-8SC (72)	8	Color : Sand beige	

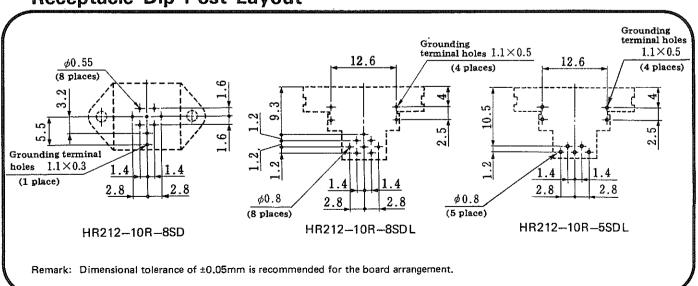
#### Receptacle (Straight Dip Type)



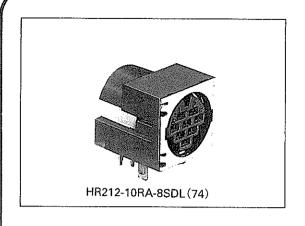
#### Receptacle (Right Angle Dip Type)

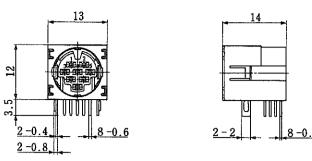


## Receptacle Dip Post Layout



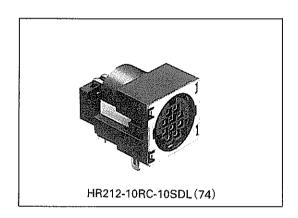
# Receptacle(Right Angle Dip Type)

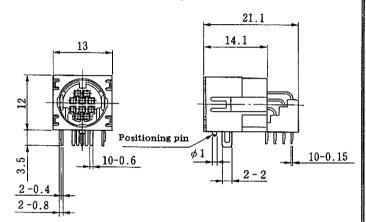




HRS No.	Part No.	No. of pins	Remarks	RoHS
112-2004-0-74	HR212-10RA-8SDL (74)	8	Color : Sand beige Terminal : Tin plated	
112-2004-0-72	HR212-10RA-8SDL (72)	8	Color : Sand beige Terminal : Selective gold plated	0
112-2004-0-73	HR212-10RA-8SDL (73)	8	Color : Black Terminal : Selective gold plated	

Remark: For dip post arrangement, see below figure.

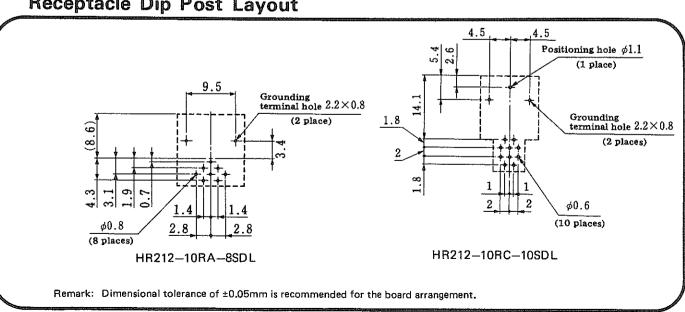




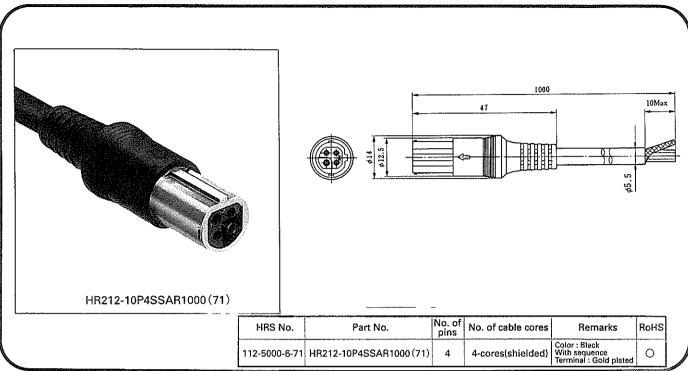
HRS No.	Part No.	No. of pins	Remarks	RoHS
112-2009-4-74	HR212-10RC-10SDL(74)	10	Color : Black Terminal : Selective gold plated	0

Remark: For dip post arrangement, see below figure.

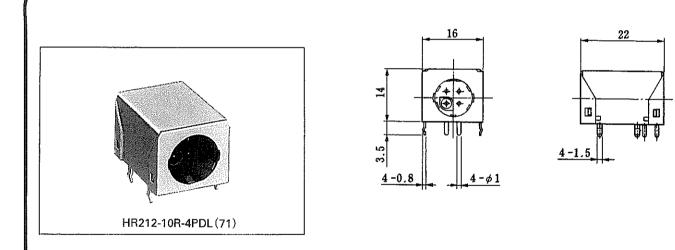
## Receptacle Dip Post Layout



## Straight Plug

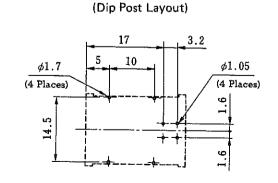


## Receptacle (Right Angle Dip Type)



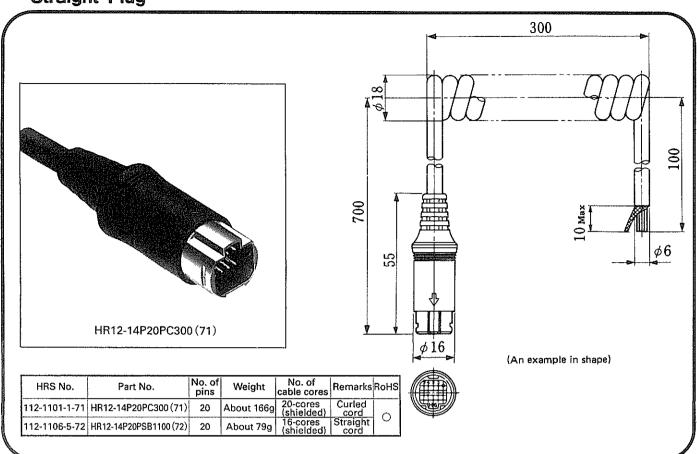
 HRS No.
 Part No.
 No. of pins
 Remarks
 RoHS

 112-5100-0-71
 HR212-10R-4PDL (71)
 4
 Terminal : Gold plated
 O

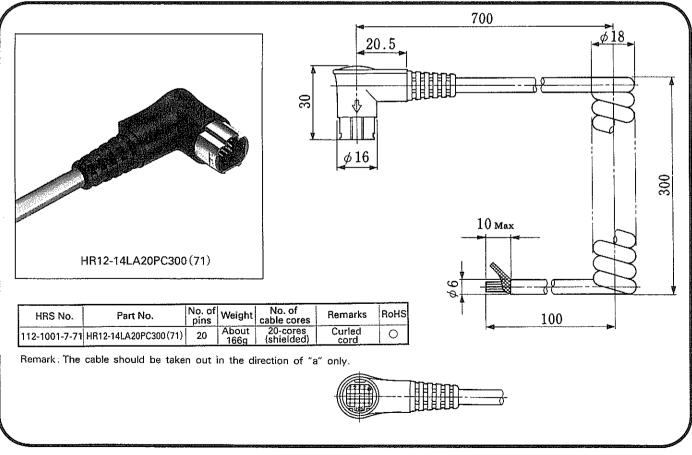


Remark: Dimensional tolerance of ±0.05mm is recommended for the board arrangement.

## Straight Plug

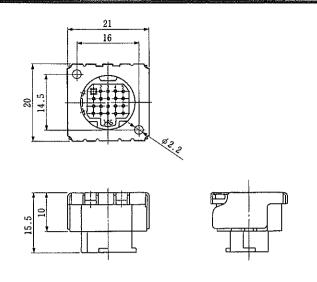


## Right Angle Plug



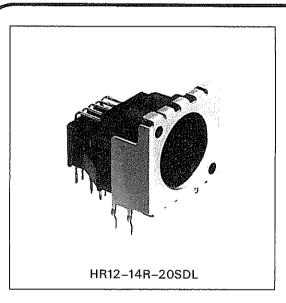
## Receptacle (Crimp Type)

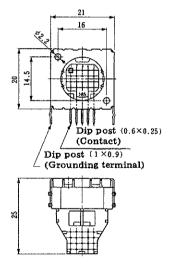


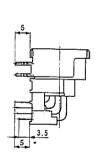


HRS No.	Part No	No. of pins	Weight	Remarks	RoHS
112-1504-8	HR12-14RA-20SC	20	About 6g	With hexagon nut	0

## Receptacle (Right Angle Dip Type)





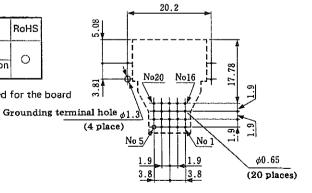


(Dip Post Layout)

HRS No.	Part No.	No. of pins	Weight	Remarks	RoHS
112-1501-0	HR12-14R-20SDL	20	About 9g		
112-1502-2	HR12-14RA-20SDL	20		With hexagon	

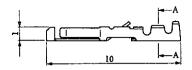
Remark: Dimensional tolerance of ±0.05mm is recommended for the board arrangement.

Grounding term



#### Contact

#### **Female Contact**

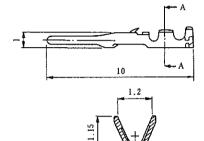




Section A-A

Туре	HRS No.	Part No.	Plating	Applicable wire	RoHS
_	112-0410-0	HR12-SC-111	Parcial gold plating	AWG # 26~ # 30	
Loose contact	112-0411-3	HR12-SC-112	Silver plating	AWG # 26~ # 30	
	112-0412-6	HR12-SC-113	Tin plating	AWG # 26~ # 30	
	112-0407-6	HR12-SC-211	Parcial gold plating	AWG#26~#30	
Chain contact	112-0408-9	HR12-SC-212	Silver plating	AWG # 26~ # 30	
	112-0409-1	HR12-SC-213	Tin plating	AWG#26~#30	]

#### **Male Contact**



Section A-A

Туре	HRS No.	Part No.	Plating	Applicable wire	RoHS
Loose contact	110-0515-6	HR10-PC-111	Parcial gold plating	AWG#26~#30	
	110-0519-7-71	HR10-PC-113 (71)	Tin plating	AWG#26~#30	
Chain	110-0516-9	HR10-PC-211	Parcial gold plating	AWG#26~#30	
contact	110-0520-6-71	HR10-PC-213 (71)	Tin plating	AWG#26~#30	

Note 1. Use cables with cable covering outer dia. \$\phi\$1mm or less.

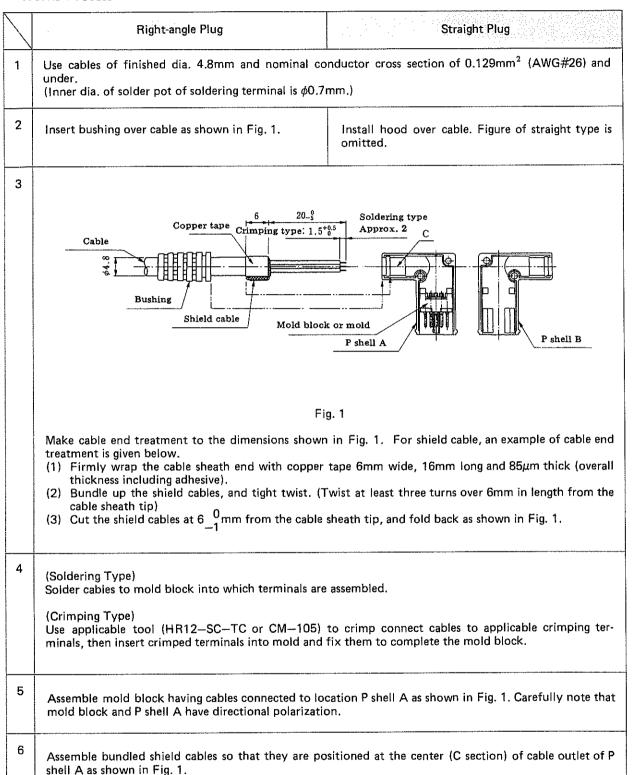
2. Loose terminals are offered in a package containing 100 pieces. Strip terminals are offered by reel containing 10,000 pieces.

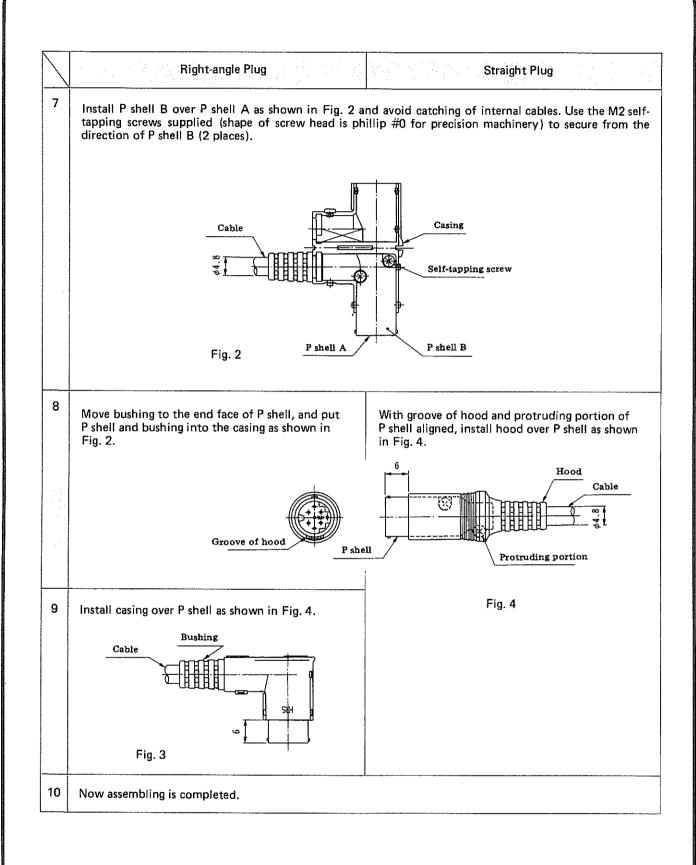
## Applicable tools

Type	ltem	HRS No.	Part No.	Applicable terminal	Applicable wire	
Manual	Manual crimping tool	150-0052-9	HR12-SC-TC	HR10-PC-111 (71)  111  HR12-SC-112 113	AWG # 26~ # 30	
	Automatic crimping machine body	901-0005-4	CM-105			
Automatic		901-2015-9	1	HR10-PC-213 (71)	AWG # 26~ # 30	
				HR12-SC-212 213		
Extra	Extraction tool		HR12-SC-TP	111 112 HR12-SC-113 211 212 213		HR5
		150-0039-0	RP6-SC-TP	111 HR10-PC- <sup>113</sup> (71) 213(71)	#14.10.00 mills.	27H
<b>6</b> ∴ ₹	· · ·					RS
	R12—SC—TC		(⊢	IR 12—SC—TP) Extra	(RP6-SC-	-TP) Auto Crimp Tool CM-105

#### **Cable Connecting Procedures**

#### Works Process





## **Terminal Arrangement and Performance**

Shell size	10 sizes						
Terminal arrangement	2 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 2 3 1 4 1 5 6 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 + 1 + 2 3 + 4 + 3 + 5 + 7 + 8 + 9 + 10 + 10 + 10 + 10 + 10 + 10 + 10 +			
No. of contacts	4	5	8	10			
Withstand voltage	300VAC for 1 minute	300VAC for 1 minute					
Rated current	5A	1A					
Insulation resistance	200MΩ or less at 250VDC	200MΩ or more at 250VDC					
Contact resistance	30mΩ or less (excluding cable conductor resistance)						

Shell size	14 size  1 2 3 4 5 6 7 8 9 10 11 -12 - 13 14 15 16 17 18 19 20  HRS		
Terminal arrangement			
No. of contacts	20		
Withstand voltage	300VAC for 1 minute		
Rated current	1A		
Insulation resistance	200mΩ or more at 250VDC		
Contact resistance	30mΩ or less (excluding cable conductor resistance)		

Remarks: 1. The above figures show the receptacle pin inserts as viewed from the mating side.

2. Withstand voltage shows the testing voltage.

3. Contact resistance is as measured at 1ADC.

# AMEYA360 Components Supply Platform

## Authorized Distribution Brand:

























#### Website:

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#### Contact Us:

## > Address:

401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd Minhang District, Shanghai , China

#### > Sales:

Direct +86 (21) 6401-6692

Email amall@ameya360.com

QQ 800077892

Skype ameyasales1 ameyasales2

#### Customer Service :

Email service@ameya360.com

## Partnership :

Tel +86 (21) 64016692-8333

Email mkt@ameya360.com