

PQ50WT Series

Waterproof Power Supply/Signal Hybrid Connectors for Industrial Equipment



Robust



Positive-Lock



Waterproof



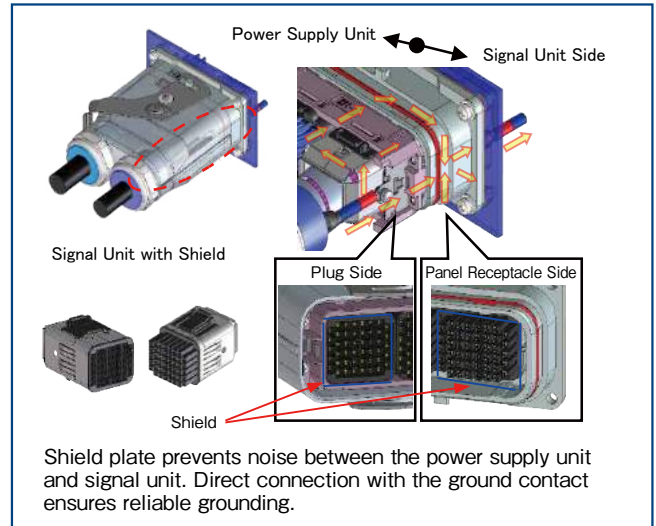
Overview

The PQ Series of power/signal connectors for industrial equipment includes a wide product line-up. This catalog introduces the PQ50WT Series. The compatible contacts and crimping equipment of the PQ50/PQ50S/PQ50W and PQ50WA Series are features in the corresponding Series catalogs.

Features

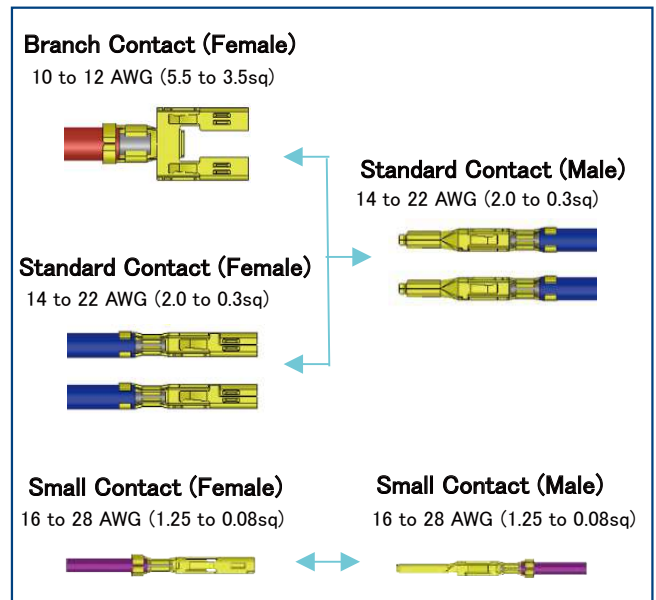
1. Combining Power and Signal Lines in a Single Connector

The newly developed signal unit with shield for noise reduction enables the signal and power connection to be combined in one connector. The double cable entry cover case can be used with existing power and signal cables. The single cable entry cover case is compatible with power/signal hybrid cables.



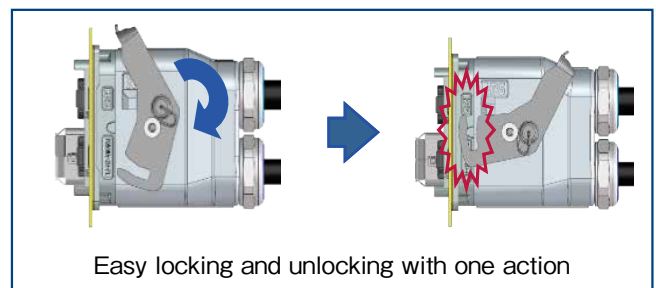
2. Original Branch Contact Design, Supports a Wide Range of Cable Sizes

Hirose's original branch contact design enables direct separation without complicated branch wiring. This enables reduced wiring and space-saving inside devices. PQ50WT supports a wide range of automatic crimping compatible cables with sizes 10 to 28 AWG (5.5 to 0.08sq).



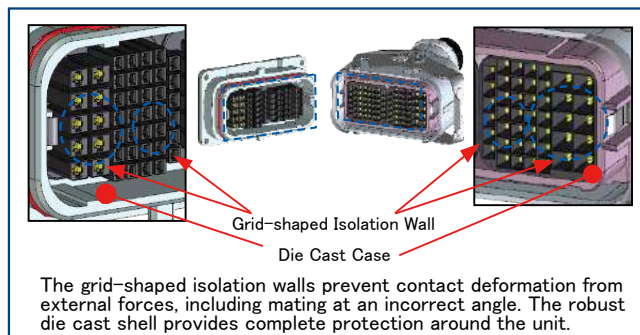
3. Easily Attached and Detached One Action Lever Lock

The lever lock design withstands pulling while allowing light operation in a single action, for easy attachment and detachment.



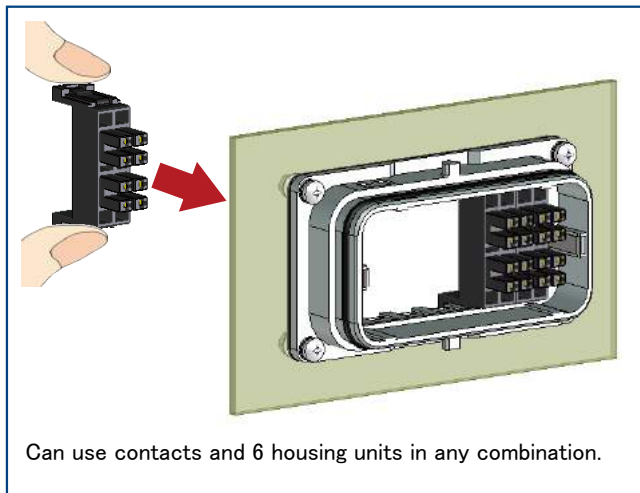
4. Independent Isolation Walls Protect Each Contact

Grid-shaped isolation walls for each contact prevent contact deformation due to external forces, including mating at an incorrect angle.



5. Rear Insertion Unit

You can select a variety of unit combinations based on the number of positions and current capacity. The rear insertion method allows attachment and detachment of the housing units even after panel mounting.



6. Waterproof (IP67) and Safety Standard (TÜV, UL, C-UL) Compliant

IP67 waterproof performance when mated.
TÜV, UL, and C-UL safety standard certified.

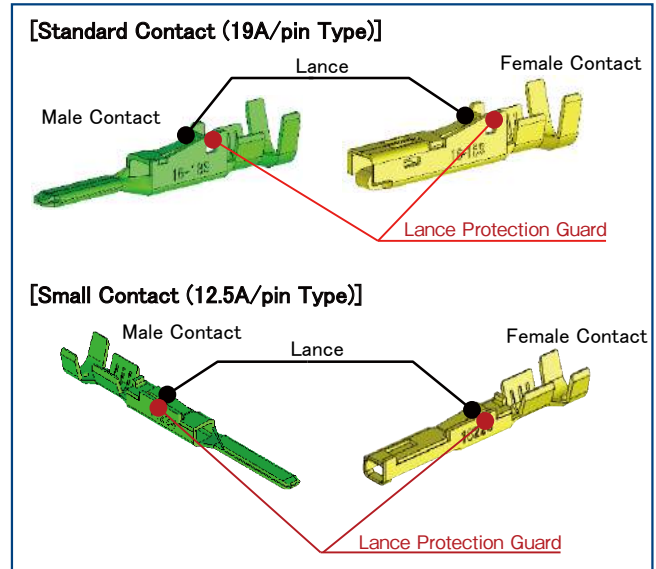
[Crimp Contact]

1. Contact Variations for Different Applications

Three contact sizes are available for use based on the application : branch, standard, and small.

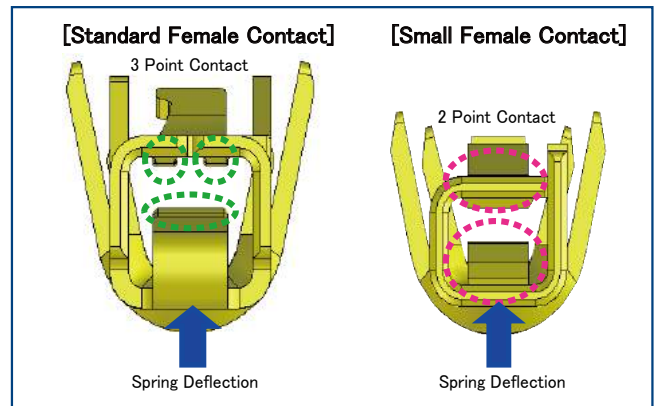
2. Lance Protection Design

The wall on the side of the contact prevents lance deformation and entanglement between contacts.



3. Highly Reliable Contact Design

Multi-point female contact with spring design provides high contact reliability.



4. Small, Highly Conductive Contacts

Use of a highly conductive material for the contacts reduces contact size while maintaining high current capacity for compact wiring.

5. Compatible with Both Automatic Crimping Machines and Hand Tools

Supports both hand tools and continuous crimping with the applicator. When the automatic crimping machine (applicator) is used, crimping is possible in only 3 seconds/pin, compared to 15 seconds/pin for the hand tool.

(Example) Crimping a total of 160 positions for the plug and receptacle x (15 seconds minus 3 seconds)
= 1920 seconds ⇒ 32 minutes reduction in man-hours

6. Can Use Contacts Between Multiple Series

The contacts for PQ50, PQ50S, PQ50W and PQ50WA are inter-compatible. The crimping equipment and parts can also be used interchangeably.

Applications

For power and signal in industrial robotics including controllers and manipulators. For power and signal in manufacturing equipment, etc.

Product Specifications

Rated Current	Branched Contact : 30 A/pin · · · When connected to 10 AWG (Note 1) Standard Contact : 19 A/pin · · · When connected to 14 AWG (Note 1) Small Contact : 12.5 A/pin · · · When connected to 16 AWG (Note 1)	Operating Temperature (Note 2)	-55 to +105°C
Rated Voltage	600V AC/DC 300V AC/DC (UL, C-UL)	Storage Temperature	-55 to +85°C

Note 1 : Depends on cable current capacity.

Note 2 : Includes temperature rise due to current flow.

Item	Standard	Condition
Contact Resistance	Between Contact : 5 mΩ Max. (Note 1)	Measured at 100mA
Insulation Resistance	5000MΩ Min.	Measured at 500V DC
Withstanding Voltage	No insulation breakdown	3310V AC for 1 min.
Mating Durability	Contact Resistance Change Amount : 20mΩ Max. (Note 1) No broken, cracked or loosened parts.	100 times
Vibration Resistance	No electrical discontinuity of 10 μs or more. No broken, cracked or loosened parts.	Frequency 10 to 55Hz, Single Amplitude 0.75mm, 3 directions, 2 hours each
Shock Resistance	No electrical discontinuity of 10 μs or more. No broken, cracked or loosened parts.	Acceleration: 490m/s ² , Duration : 11ms, Sine Half-wave : 3 times each in 6 axial directions
Temperature Cycle	Contact Resistance Change Amount : 20mΩ Max. (Note 1) No broken, cracked or loosened parts.	Temperature : -55 → +15 to +35 → +105 → +15 to +35°C Time : 30 → 2 to 3 → 30 → 2 to 3 minutes for 5 cycles
Humidity Resistance	Change of contact resistance : 20mΩ Max. (Note 1) Insulation resistance: minimum of 1,000MΩ (after drying). No breakage, cracks or loosened parts.	Leave in a temperature of 60 ± 2°C and humidity of 90 to 95% for 96 hours (Left in mated condition).
Mixed Gas	No significant corrosion or damage that impairs functioning.	SO ₂ 10ppm, H ₂ S 3ppm, leave in 70 to 80% humidity for 24 hours (Left in mated condition).

Note 1 : Excludes conductor resistor on cable.

Note 2 : JIS C 5402 (IEC60512) is applicable for test methods not described in the test specifications.

Note 3 : The above standards are representation for this Series. For individual product values refer to the Delivery Specifications.

Material / Finish

Item	Parts	Material	Color / Finish	Remarks
Plug	Cover Case	Aluminum Die Casting	—	—
	Lock Lever	Stainless Steel	—	—
	Plug Case	Aluminum Die Casting	—	—
	Ground Contact	Stainless Steel	Nickel Plated	—
	M3 Attachment Screw	Steel	Nickel Plated	—
In-line Cover Case		Aluminum Die Casting	—	—
Gasket Clamp		NBR	Black	—
End Bell Cap		Aluminum Die Casting	—	—
Receptacle (Note)	Panel Case	Aluminum Die Casting	—	—
	Ground Contact	Stainless Steel	Nickel Plated	—
	O-ring for Mating	NBR	Black	—
	M3 Tapping Screw	Steel	Nickel Plated	—
	Sheet Packing	NBR	Black	—
In-line Panel Case		PBT Resin	Black	UL94V-0
Crimp Housing		PBT Resin	Black	UL94V-0
Crimp Housing with Shield	Housing	PBT Resin	Black	UL94V-0
	Shell	Stainless Steel	Nickel Plated	—
Branch Conversion Adapter Unit	Housing	PBT Resin	Black	UL94V-0
	Built-in Male Contact	Copper Alloy	Gold Plated (Contact Portion)	—
Branch Conversion Adapter Housing		PBT Resin	Black	UL94V-0
Female / Male Crimp Contact		Copper Alloy	Gold Plated (Contact Portion) Tin Plated (Barrel Portion)	—

Note : Contact a Hirose sales representative for ozone resistant specification products.

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.

■ Plug / In-line Cover Case

PQ 50 WT - 6U - PC 1 L

① ② ③ ④ ⑤ ⑥ ⑦

① Series Name	PQ	⑤ Case Type	Plug Cover Case
② Termination Style	Crimping	⑥ No. of Cable Outlets	None or 1 : Single Cable Entry 2 : Double Cable Entry
③ Connector Specifications	Large Waterproof Type	⑦ Shape Type	None : Straight Type L : Right Angle Type J : In-line Type
④ Case Size	6 Unit Combination		

■ Receptacle / In-line Panel Case

PQ 50 WT - 6U - FL

① ② ③ ④ ⑤

① Series Name	PQ	④ Case Size	6 Unit Combination
② Termination Style	Crimping	⑤ Case Type	FL : Receptacle Panel Case FLJ : In-line Panel Case
③ Connector Specifications	Large Waterproof Type		

■ Crimp Housing / Branch Conversion Adapter

PQ 50 WT SX - 54P - UNIT

① ② ③ ④ ⑤ ⑥

① Series Name	PQ	⑤ No. of Pos. and Mating Port Gender	4SB : 4pos. Female Type (for Branch Contact) 8P : 8pos. Male Type 8S : 8pos. Female Type 12P : 12pos. Male Type 12S : 12pos. Female Type 54P : 54pos. Male Type 54S : 54pos. Female Type 8/12P : Built-in Male Contact Type
② Termination Style	Crimping	⑥ Body	UNIT : Rear Insertion Unit CA-UNIT : Branch Conversion Adapter Housing / Unit
③ Connector Specifications	Large Waterproof Type		
④ With or Without Shield	SX : With Shield None : Without Shield		

■ Crimp Contact

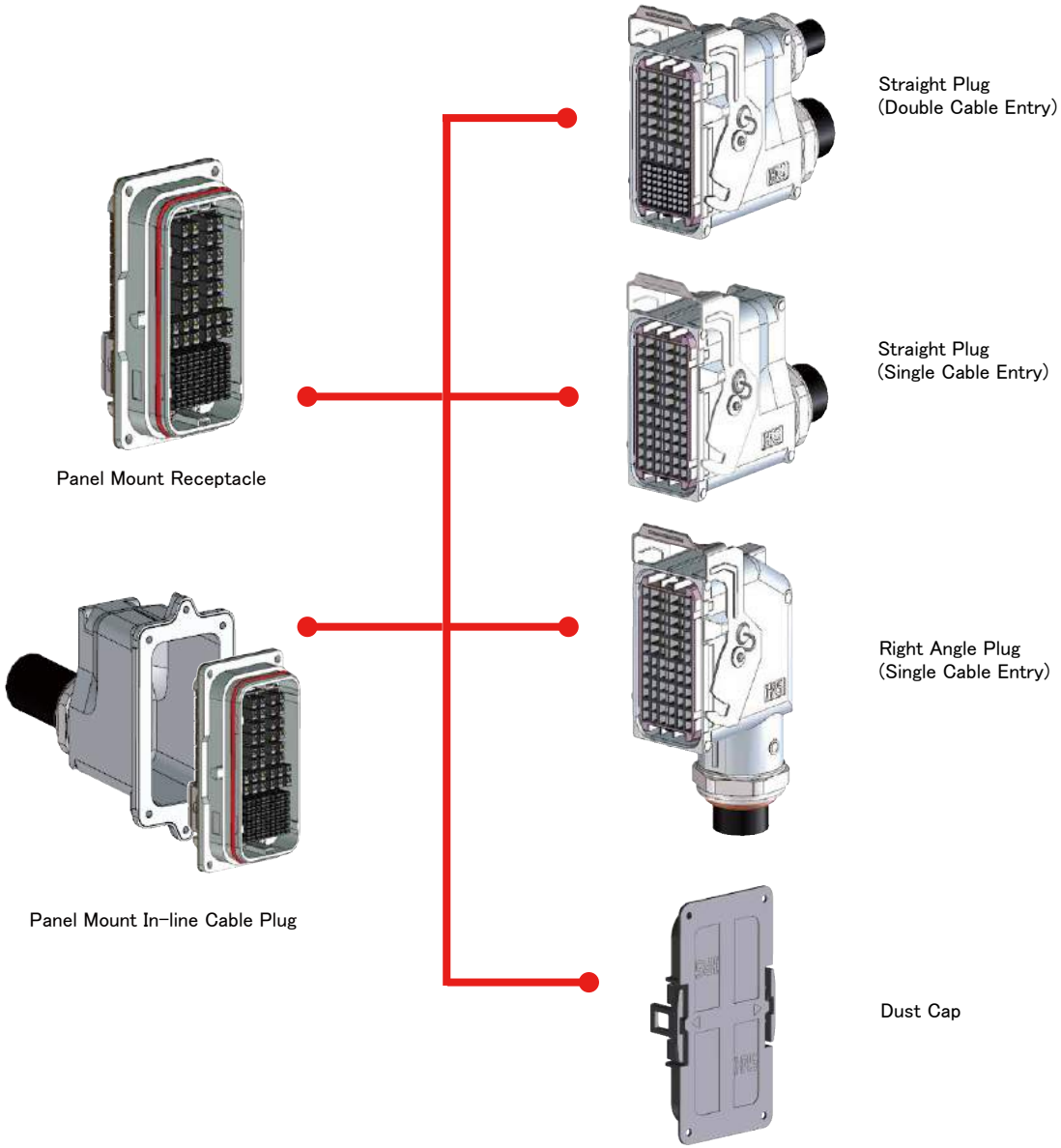
PQ 50 A - 1822 PC F A

① ② ③ ④ ⑤ ⑥ ⑦

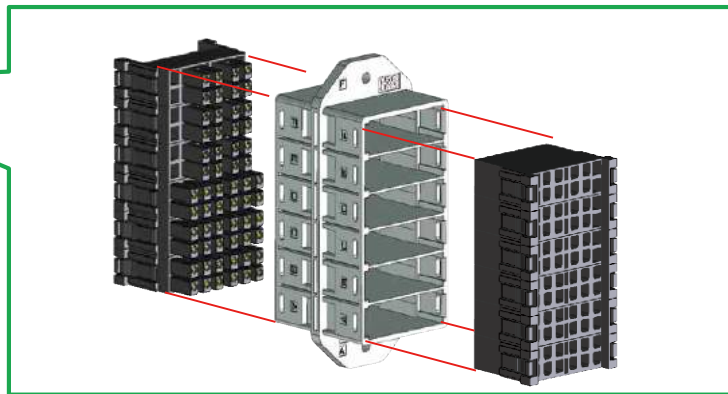
① Series Name	PQ	④ Applicable Cable	1012 : 10 to 12 AWG 15 : 14 to 15 AWG 1618 : 16 to 18 AWG 1822 : 18 to 22 AWG 2022 : 20 to 22 AWG 2428 : 24 to 28 AWG
② Termination Style	Crimping	⑤ Contact Gender	PC : Male Contact SC : Female Contact
③ Contact Size & Usage	B : Standard Size, Branch Contact None : Standard Size, Normal Contact A : Standard Size, Sequence Contact S2 : Small Size, Normal Contact SA2 : Small Size, Sequence Contact	⑥ Contact Shape	F : Reel Contact None : Loose Contact
		⑦ Contact Plating Type	A : Gold Plated (Contact Area)

Functional Diagram

For details, please refer to the separate PQ series product selection guide (ETAD-E3254-00).

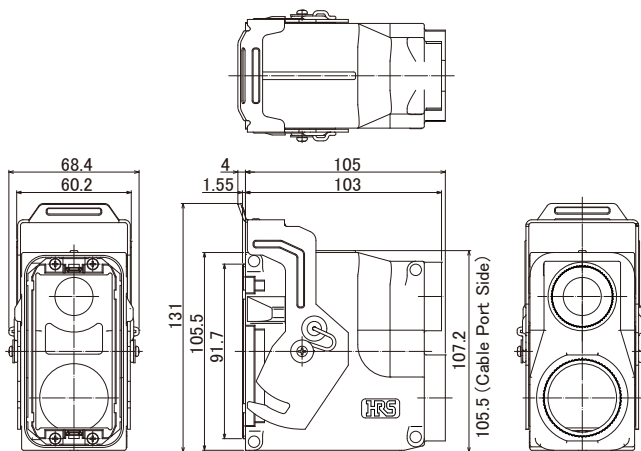


In-line Panel Case



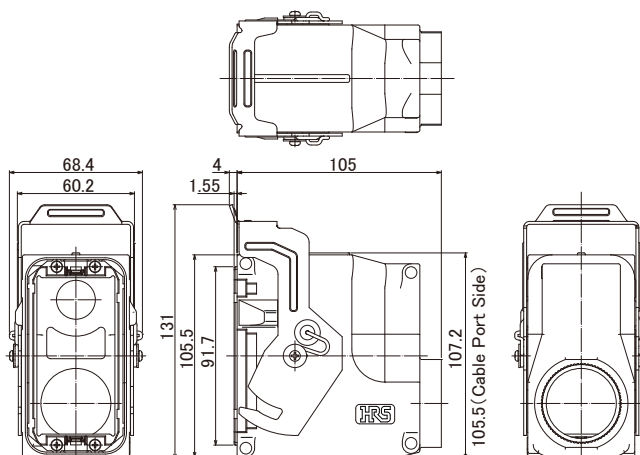
Plug

Straight Cover Case (Double Cable Entry)



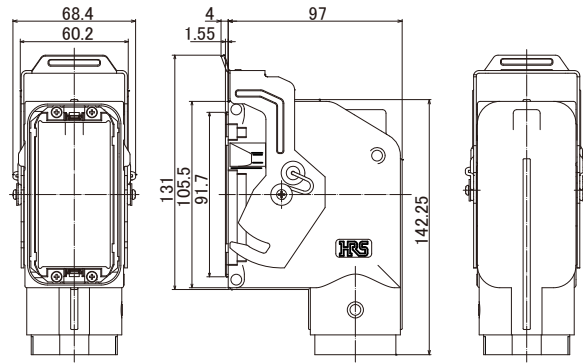
Part No.	HRS No.	Purchase Unit
PQ50WT-6U-PC2	CL0236-2060-0-00	20pcs per box

Straight Cover Case (Single Cable Entry)



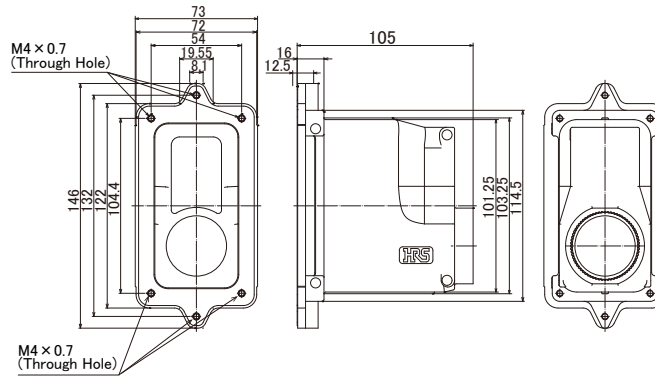
Part No.	HRS No.	Purchase Unit
PQ50WT-6U-PC1	CL0236-2061-2-00	20pcs per box

Right Angle Cover Case (Single Cable Entry)



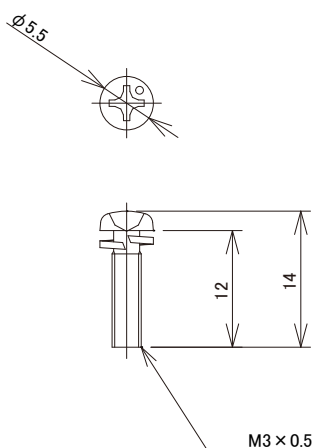
Part No.	HRS No.	Purchase Unit
PQ50WT-6U-PC1L	CL0236-2074-4-00	12pcs per box

In-line Cover Case



Part No.	HRS No.	Purchase Unit
PQ50WT-6U-PCJ	CL0236-2080-7-00	20pcs per box

Plug Cover Case Mounting Screw

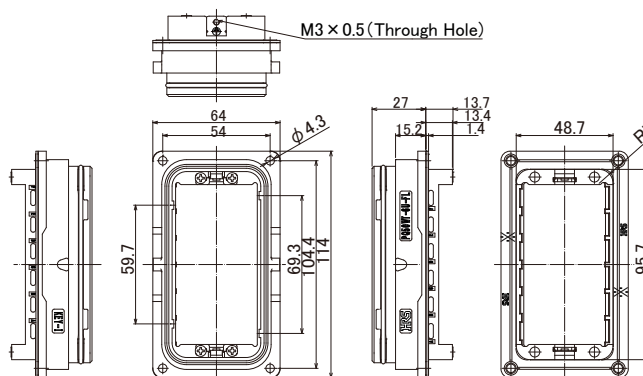


Part No.	HRS No.	Purchase Unit
PQ50WT-6U-PC1(02)	CL0236-2061-2-02	20pcs per box

Note : This is the same item as the M3 screws (4pcs per set) that came with the plug cover case.
 Purchasable for cases of loss or damage.

Receptacle

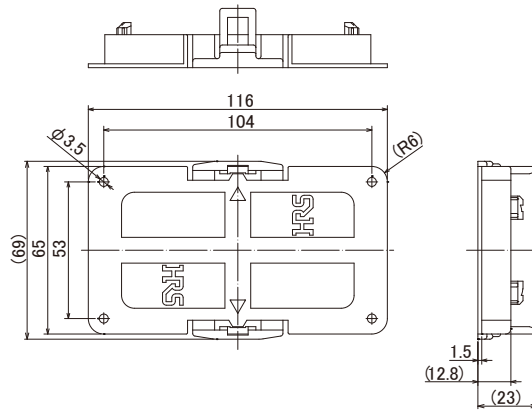
Panel Case



Part No.	HRS No.	Purchase Unit
PQ50WT-6U-FL(51)	CL0236-2062-5-51	60pcs per box

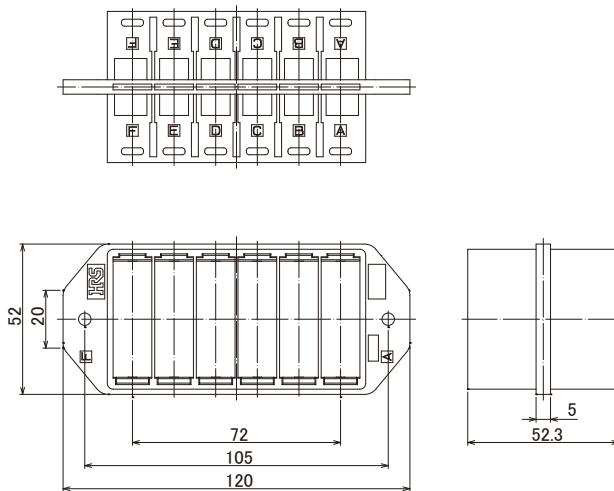
Note : For ozone resistant specifications, contact a Hirose sales representative.

Dust Cap



Part No.	HRS No.	Purchase Unit
PQ50WT-6U-FL-DC	CL0236-2076-0-00	60pcs per box

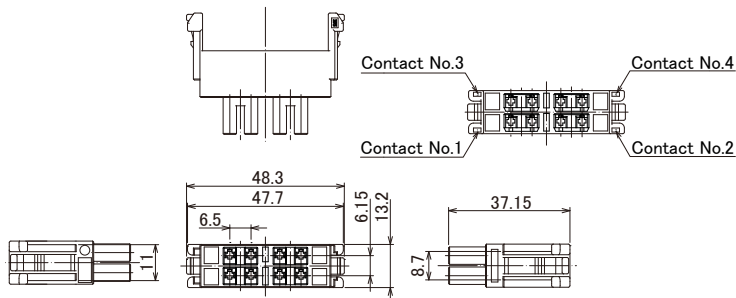
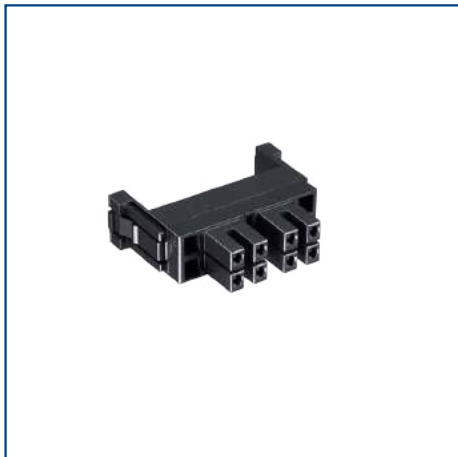
In-line Panel Case



Part No.	HRS No.	Purchase Unit
PQ50WT-6U-FLJ	CL0236-2077-2-00	60pcs per box

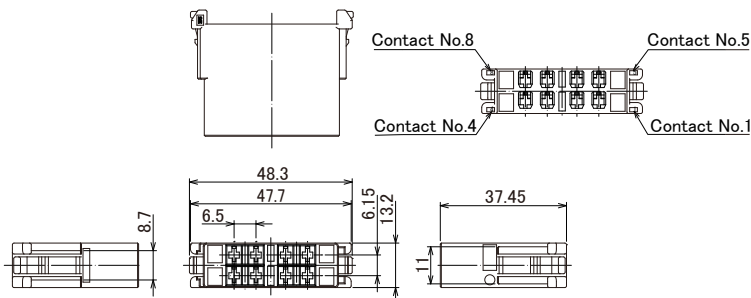
Crimp Housing

4pos. Female Type (for Branch Contacts)



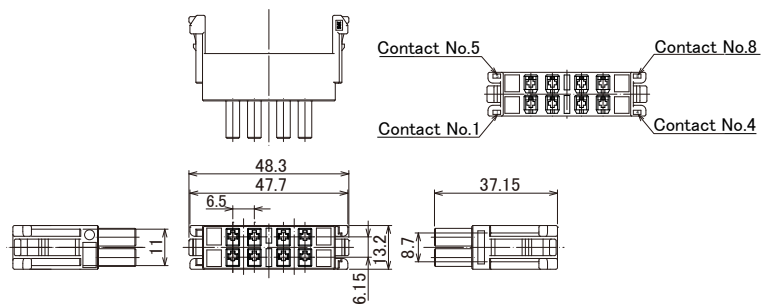
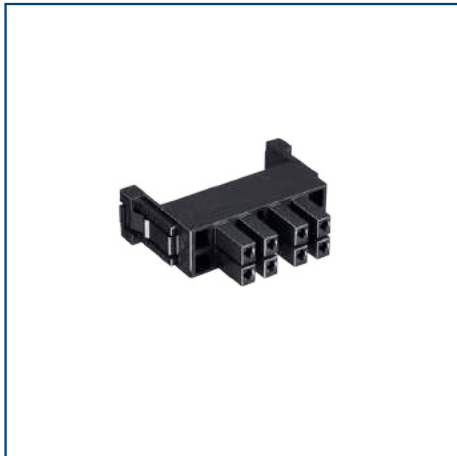
Part No.	HRS No.	Applicable Crimp Contact	Purchase Unit
PQ50WT-4SB-UNIT	CL0236-2055-0-00	PQ50B-1012SCFA PQ50B-1012SCA	20pcs per bag

8pos. Male Type



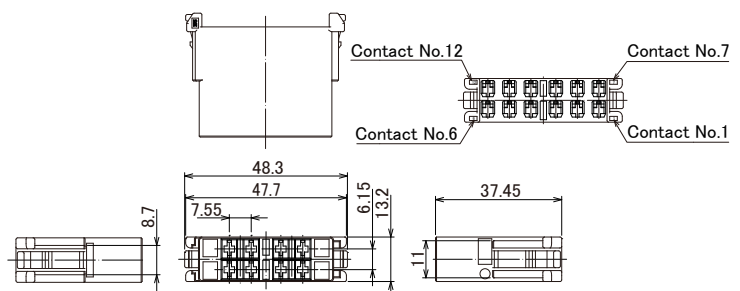
Part No.	HRS No.	Applicable Crimp Contact	Purchase Unit
PQ50WT-8P-UNIT	CL0236-2053-4-00	PQ50A-15PCFA PQ50A-15PCA PQ50A-1618PCFA PQ50A-1618PCA PQ50A-2022PCFA PQ50A-2022PCA	20pcs per bag

8pos. Female Type



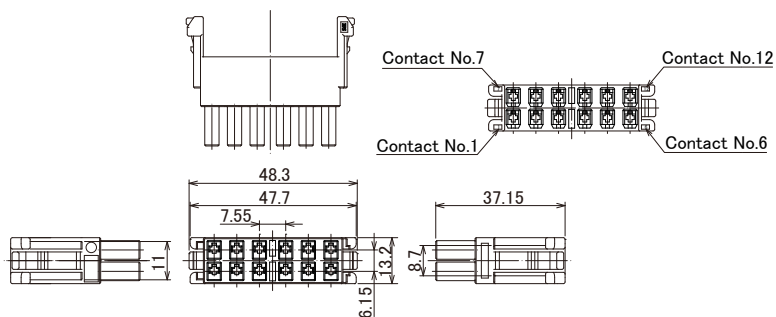
Part No.	HRS No.	Applicable Crimp Contact	Purchase Unit
PQ50WT-8S-UNIT	CL0236-2056-2-00	PQ50-15SCFA PQ50-15SCA PQ50-1618SCFA PQ50-1618SCA PQ50-2022SCFA PQ50-2022SCA	20pcs per bag

12pos. Male Type



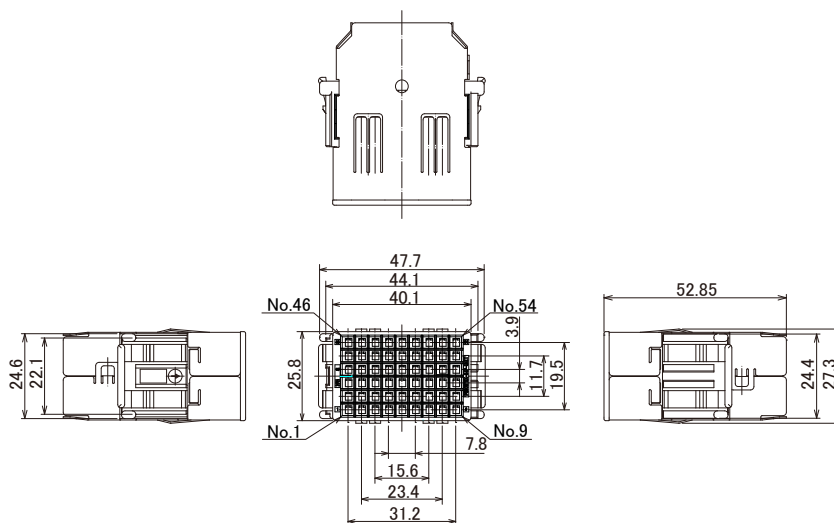
Part No.	HRS No.	Applicable Crimp Contact	Purchase Unit
PQ50WT-12P-UNIT	CL0236-2054-7-00	PQ50A-15PCFA PQ50A-15PCA PQ50A-1618PCFA PQ50A-1618PCA PQ50A-2022PCFA PQ50A-2022PCA	20pcs per bag

12pos. Female Type



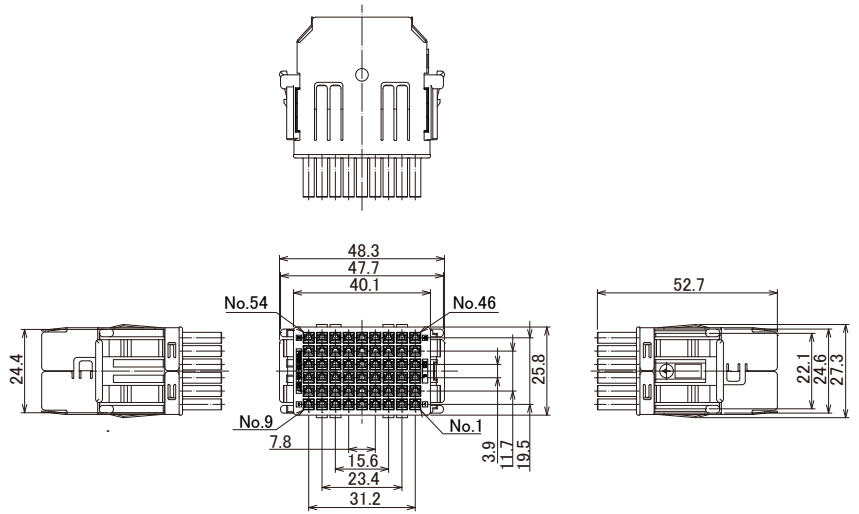
Part No.	HRS No.	Applicable Crimp Contact	Purchase Unit
PQ50WT-12S-UNIT	CL0236-2057-5-00	PQ50-15SCFA PQ50-15SCA PQ50-1618SCFA PQ50-1618SCA PQ50-2022SCFA PQ50-2022SCA	20pcs per bag

Compact, 54pos. Male Type with Shield



Part No.	HRS No.	Category	Applicable Crimp Contact	Purchase Unit
PQ50WTSX-54P-UNIT	CL0236-2012-0-00	With Shield	PQ50SA2-1618PCFA PQ50SA2-1822PCFA PQ50SA2-1822PCA PQ50SA2-2428PCFA PQ50SA2-2428PCA	20pcs per box

Compact, 54pos. Female Type with Shield

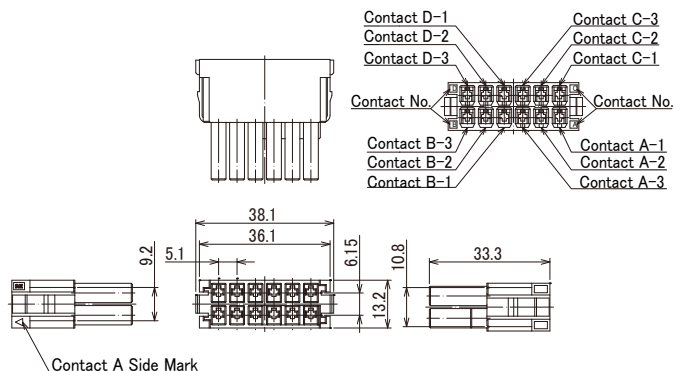


Part No.	HRS No.	Category	Applicable Crimp Contact	Purchase Unit
PQ50WTSX-54S-UNIT	CL0236-2042-0-00	With Shield	PQ50S2-1618SCFA PQ50S2-1822SCFA PQ50S2-1822SCA PQ50S2-2428SCFA PQ50S2-2428SCA	20pcs per box

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Branch Conversion Adapter Housing / Unit

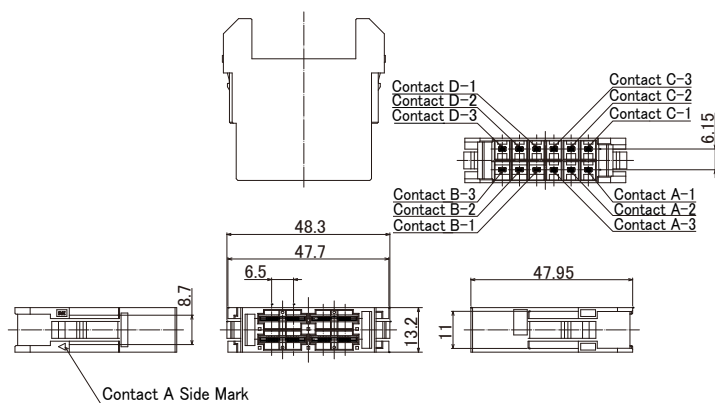
Crimp Housing



Part No.	HRS No.	Applicable Crimp Contact	Purchase Unit
PQ50WT-12S-CA-UNIT	CL0236-2069-4-00	PQ50-15SCFA PQ50-15SCA PQ50-1618SCFA PQ50-1618SCA PQ50-2022SCFA PQ50-2022SCA	20pcs per bag

Note : Be sure to use this product together with PQ50WT-8/12P-CA-UNIT.

Unit

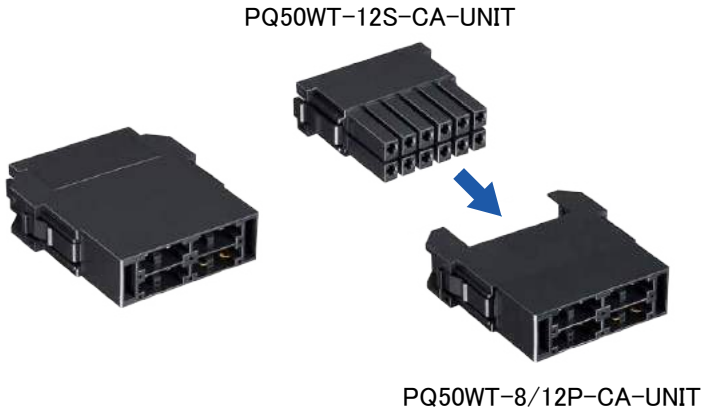


Part No.	HRS No.	Mating Partner (Female Crimp Housing)	Purchase Unit
PQ50WT-8/12P-CA-UNIT	CL0236-2068-1-00	PQ50WT-4SB-UNIT PQ50WT-8S-UNIT	120pcs per box

Note 1 : Be sure to use this product together with PQ50WT-12S-CA-UNIT.

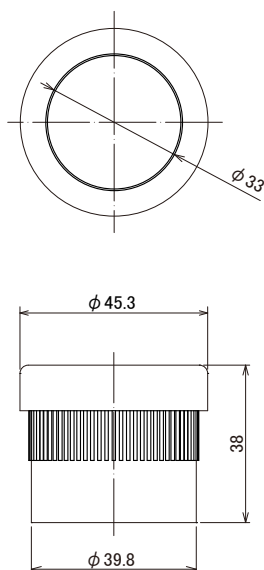
Note 2 : Built-in Male Contact.

Example of Assembled State



Gasket Clamp

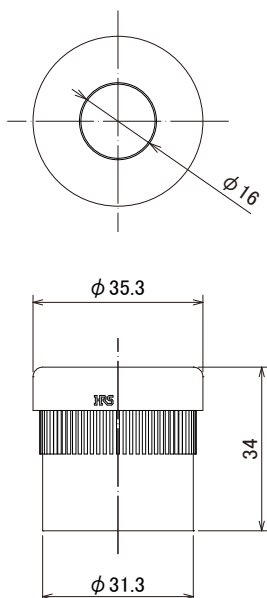
For End Bell Cap PG36



Part No.	HRS No.	Applicable Cable (Note)	Purchase Unit
PQWT-CM(33.0)(51)	CL0236-2065-3-51	φ 31.3 to 33.3	20pcs per bag
PQWT-CM(35.5)	CL0236-2102-0-00	φ 34.0 to 36.0	

Note : The applicable cable diameter is for reference. It may vary depending on material and cable configuration. Please check before use.

For End Bell Cap PG29

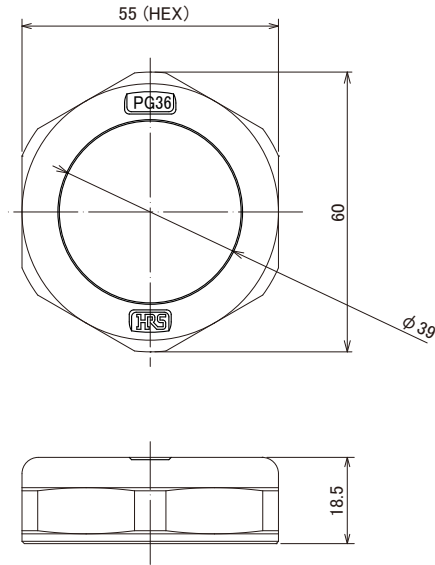


Part No.	HRS No.	Applicable Cable (Note)	Purchase Unit
PQWT-CMA(15.0)	CL0236-2099-0-00	φ 13.5 to 15.5	20pcs per bag
PQWT-CMA(17.5)	CL0236-2100-0-00	φ 16.0 to 18.0	
PQWT-CMA(22.5)	CL0236-2101-0-00	φ 21.0 to 23.0	
PQWT-CMA(28.5)	CL0236-2103-0-00	φ 27.0 to 29.0	

Note : The applicable cable diameter is for reference. It may vary depending on material and cable configuration. Please check before use.

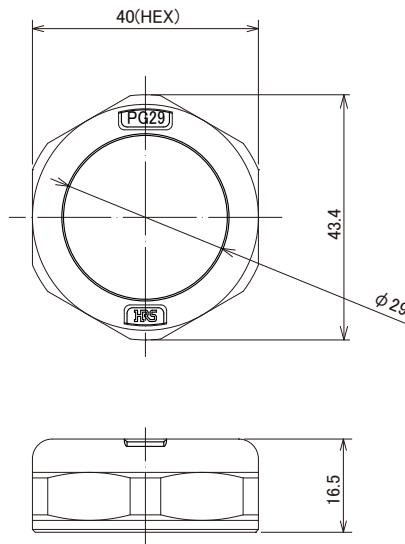
End Bell Cap

For PG36



Part No.	HRS No.	Purchase Unit
PQWT-EBC(PG36)	CL0236-2067-9-00	60pcs per box

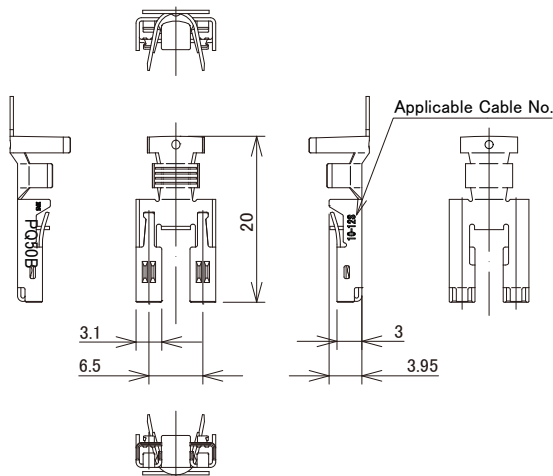
For PG29



Part No.	HRS No.	Purchase Unit
PQWT-EBC(PG29)	CL0236-2066-6-00	60pcs per box

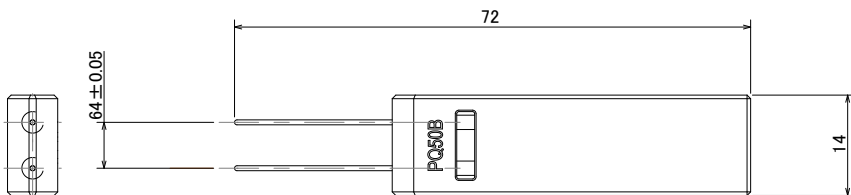
Crimp Contact / Contact Extraction Tool

Female Branch Contact



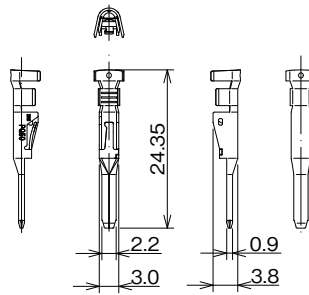
Part No.	HRS No.	Applicable Cable	Purchase Unit
PQ50B-1012SCFA	CL0236-2070-3-00	10 to 12 AWG Insulation Outer Diameter ϕ 4.5mm Max.	1,300pcs per reel
PQ50B-1012SCA	CL0236-2071-6-00		100pcs per bag

Extraction Tool for Branch Contact



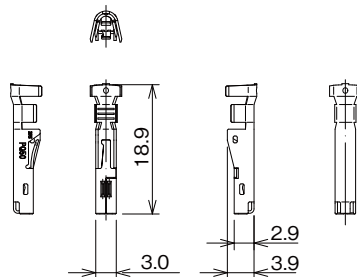
Part No.	HRS No.	Purchase Unit
PQ50B/RE-MD	CL0902-2200-7-00	1pc per box

Standard Male Contact (19A/pin Type)



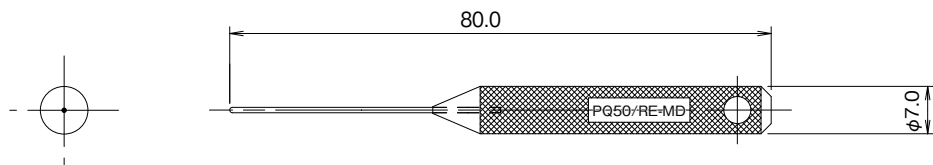
Part No.	HRS No.	Applicable Cable	Purchase Unit
PQ50A-15PCFA	CL0236-2073-1-00	14 to 15 AWG Insulation Outer Diameter ϕ 3.8mm Max.	3,500pcs per reel
PQ50A-15PCA	CL0236-2075-7-00		100pcs per bag
PQ50A-1618PCFA	CL0236-2007-7-00	16 to 18 AWG Insulation Outer Diameter ϕ 3.3mm Max.	3,500pcs per reel
PQ50A-1618PCA	CL0236-2040-2-00		100pcs per bag
PQ50A-2022PCFA	CL0236-2032-4-00	20 to 22 AWG Insulation Outer Diameter ϕ 2.7mm Max.	3,500pcs per reel
PQ50A-2022PCA	CL0236-2041-5-00		100pcs per bag

Standard Female Contact (19A/pin Type)



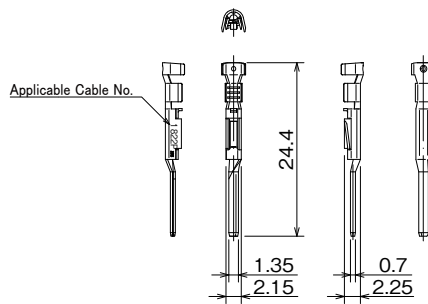
Part No.	HRS No.	Applicable Cable	Purchase Unit
PQ50-15SCFA	CL0236-2017-0-00	14 to 15 AWG Insulation Outer Diameter ϕ 3.8mm Max.	3,500pcs per reel
PQ50-15SCA	CL0236-2043-0-00		100pcs per bag
PQ50-1618SCFA	CL0236-2008-0-00	16 to 18 AWG Insulation Outer Diameter ϕ 3.3mm Max.	3,500pcs per reel
PQ50-1618SCA	CL0236-2044-3-00		100pcs per bag
PQ50-2022SCFA	CL0236-2010-1-00	20 to 22 AWG Insulation Outer Diameter ϕ 2.7mm Max.	3,500pcs per reel
PQ50-2022SCA	CL0236-2045-6-00		100pcs per bag

Extraction Tool for Standard Contact



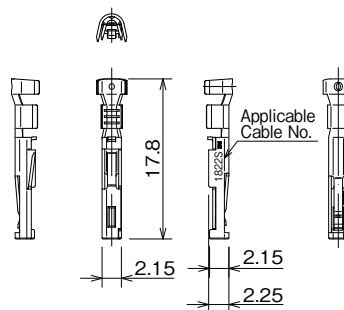
Part No.	HRS No.	Purchase Unit
PQ50/RE-MD	CL0902-2201-0-00	1pc per box

Small Male Contact (12.5A/pin Type)



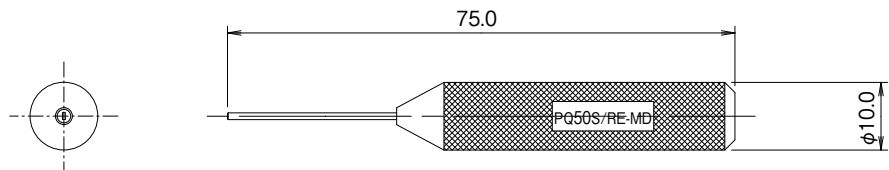
Part No.	HRS No.	Applicable Cable	Purchase Unit
PQ50SA2-1618PCFA	CL0236-0033-0-00	16 to 18 AWG Insulation Outer Diameter ϕ 3.3mm Max.	6,000pcs per reel
PQ50SA2-1822PCFA	CL0236-0034-0-00	18 to 22 AWG Insulation Outer Diameter ϕ 2.25mm Max.	6,000pcs per reel
PQ50SA2-1822PCA	CL0236-0048-0-00		100pcs per bag
PQ50SA2-2428PCFA	CL0236-0037-0-00	24 to 28 AWG Insulation Outer Diameter ϕ 1.8mm Max.	6,000pcs per reel
PQ50SA2-2428PCA	CL0236-0049-0-00		100pcs per bag

Small Female Contact (12.5A/pin Type)



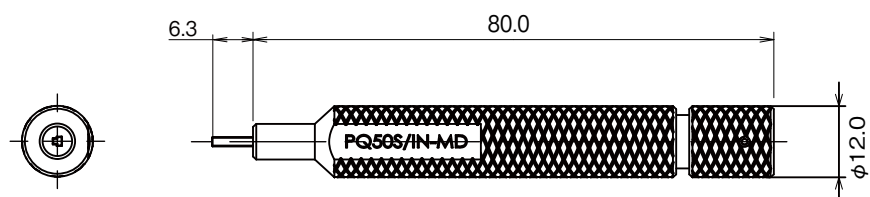
Part No.	HRS No.	Applicable Cable	Purchase Unit
PQ50S2-1618SCFA	CL0236-0042-0-00	16 to 18 AWG Insulation Outer Diameter ϕ 3.3mm Max.	6,000pcs per reel
PQ50S2-1822SCFA	CL0236-0036-0-00	18 to 22 AWG Insulation Outer Diameter ϕ 2.25mm Max.	6,000pcs per reel
PQ50S2-1822SCA	CL0236-0050-0-00		100pcs per bag
PQ50S2-2428SCFA	CL0236-0039-0-00	24 to 28 AWG Insulation Outer Diameter ϕ 1.8mm Max.	6,000pcs per reel
PQ50S2-2428SCA	CL0236-0051-0-00		100pcs per bag

Extraction Tool for Small Contact



Part No.	HRS No.	Purchase Unit
PQ50S/RE-MD	CL0902-2202-2-00	1pc per box

Pin Push Inspection Tool



Part No.	HRS No.	Purchase Unit
PQ50S/IN-MD	CL0902-2538-0-00	1pc per box

Note : Used to confirm whether the contact is securely mated to the housing when connecting.

Contact Crimping Tool

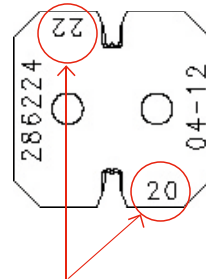
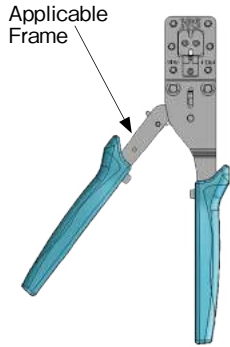
For details, refer to the crimping tool list in the PQ series product selection guide (ETAD-E3254-00).

Automatic Crimping Machine/Applicator for Automatic Crimping Machine

Please contact a Hirose sales representative.

Manual Crimping Tool

Please purchase a compatible frame and tooth profile unit according to the cable you are using.



Switch wire crimper and insulation crimper die according to the wire size being used.

Part No.	HRS No.	Remarks
HT702	CL0250-1001-1-00	Frame only, tooth profile unit sold separately

About Guidelines

- Refer to the PQ series design and handling manual (ETAD-E3230-00) for product handling and precautions for equipment design.
- Please refer to the PQ series product selection guide (ETAD-E3254-00) if you are having trouble selecting a product.

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.