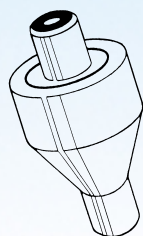


# Rotating Electrical Connectors



- Superior to conventional slip rings
- Sealed, ball bearing construction
- Increased reliability, no maintenance
- Extremely low electrical noise
- Less than 1 milliohm resistance
- Durable, compact, low cost
- Ideal for instrumentation, robotics, thermocouples, cable reels, strain gauges, packaging equipment, turntables, testing and control devices



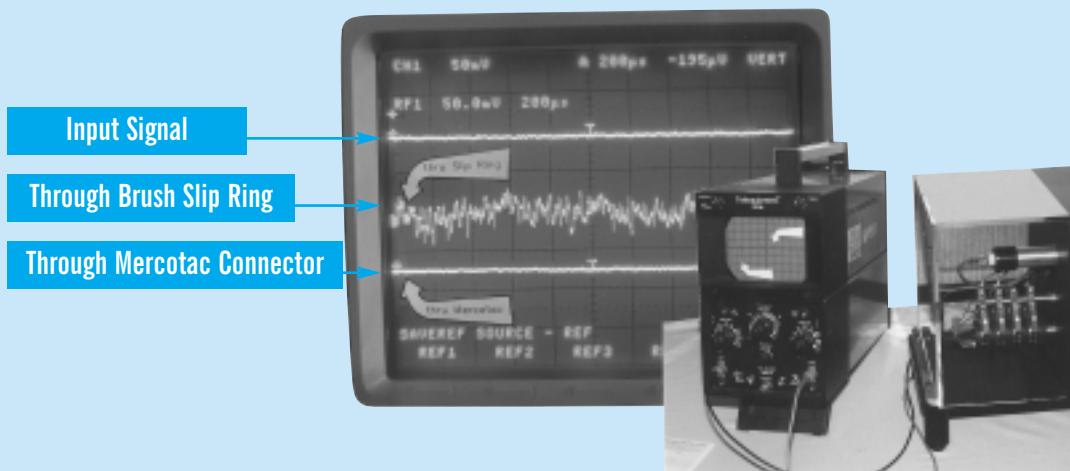
**Mercotac** INC.

# MOD-TRONIC

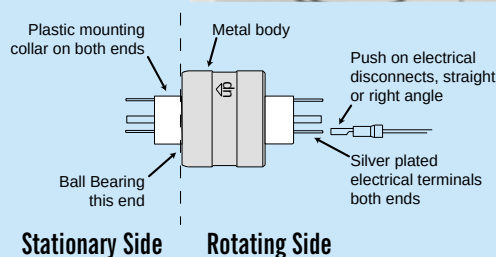
## INSTRUMENTS LIMITED

48 Haggert Ave N  
Brampton, ON L6X 1Y3  
Tel: 905 457-6322  
Fax: 905 457-4716  
Toll Free: 800 794-5883

Mercotac Rotating Electrical connectors include two design series - the **Coaxial Series** and the **Modular Series**. The Coaxial Series connectors are smaller and less expensive for low power applications. The Modular series connectors are larger, heavier duty and are available up to 8 conductors. Mercotac connectors are designed to mount on the end of the rotating object.



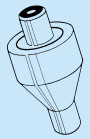
Comparison of electrical noise generated by a typical brush slip ring (the jagged line on the oscilloscope) and the same signal through a Mercotac connector (lower smooth line). The upper smooth line is the incoming signal.



Mercotac connectors can accommodate any position ("UP" arrow not to point below horizontal).

## Specifications

| Model No.      | Conductors | Voltage Range<br>AC/DC | Current Rating<br>Amp. @ 240VAC | Max. Freq. MHz | Mercury Contact<br>Resistance | Max RPM | Operating Temperature<br>Max. F (C) / Min. F (C) | Typical Rotation<br>Torque (gm-cm) | Circuit<br>Separation |
|----------------|------------|------------------------|---------------------------------|----------------|-------------------------------|---------|--------------------------------------------------|------------------------------------|-----------------------|
| <b>Coaxial</b> |            |                        |                                 |                |                               |         |                                                  |                                    |                       |
| 110            | 1          | n/a                    | 10                              | 200            | <1mΩ                          | 3600    | 140 (60) / -20 (-29)                             | 35                                 | n/a                   |
| 110-L          | 1          | n/a                    | 10                              | 200            | <1mΩ                          | 1200    | 140 (60) / -20 (-29)                             | 10                                 | n/a                   |
| 110-T          | 1          | n/a                    | 10                              | 200            | <1mΩ                          | 3600    | 140 (60) / -20 (-29)                             | 35                                 | n/a                   |
| 110-TL         | 1          | n/a                    | 10                              | 200            | <1mΩ                          | 1200    | 140 (60) / -20 (-29)                             | 10                                 | n/a                   |
| 205            | 2          | 0-250                  | 4                               | 200            | <1mΩ                          | 2000    | 140 (60) / 45 (7)                                | 75                                 | >25MΩ                 |
| 205-L          | 2          | 0-250                  | 4                               | 200            | <1mΩ                          | 1200    | 140 (60) / -20 (-29)                             | 20                                 | >25MΩ                 |
| 205-H          | 2          | 0-250                  | 4                               | 200            | <1mΩ                          | 3600    | 140 (60) / 45 (7)                                | 35                                 | >25MΩ                 |
| 305            | 3          | 0-250                  | 4                               | 200            | <1mΩ                          | 1800    | 140 (60) / 45 (7)                                | 100                                | >25MΩ                 |
| 305-L          | 3          | 0-250                  | 4                               | 200            | <1mΩ                          | 1000    | 140 (60) / -20 (-29)                             | 100                                | >25MΩ                 |
| <b>Modular</b> |            |                        |                                 |                |                               |         |                                                  |                                    |                       |
| 1250           | 1          | n/a                    | 250                             | 200            | <1mΩ                          | 1200    | 140 (60) / -20 (-29)                             | 250                                | n/a                   |
| 230            | 2          | 0-250                  | 30                              | 200            | <1mΩ                          | 1800    | 140 (60) / -20 (-29)                             | 200                                | >25MΩ                 |
| 330            | 3          | 0-250                  | 30                              | 100            | <1mΩ                          | 1200    | 140 (60) / -20 (-29)                             | 300                                | >25MΩ                 |
|                |            |                        | sm./lg. tabs                    |                |                               |         |                                                  |                                    |                       |
| 331            | 3          | 0-250                  | 4 / 30                          | 100            | <1mΩ                          | 1800    | 140 (60) / -20 (-29)                             | 200                                | >25MΩ                 |
| 430            | 4          | 0-250                  | 4 / 30                          | 100            | <1mΩ                          | 1200    | 140 (60) / -20 (-29)                             | 400                                | >25MΩ                 |
| 435            | 4          | 0-500                  | 30                              | 100            | <1mΩ                          | 300     | 140 (60) / -20 (-29)                             | 850                                | >50MΩ                 |
| 630            | 6          | 0-250                  | 4 / 30                          | 100            | <1mΩ                          | 300     | 140 (60) / -20 (-29)                             | 700                                | >25MΩ                 |
| 830            | 8          | 0-250                  | 4 / 30                          | 100            | <1mΩ                          | 200     | 140 (60) / -20 (-29)                             | 1000                               | >25MΩ                 |



# Coaxial Series

## Coaxial Design Models

Light duty, compact, one-, two-, and three- conductor models provide inexpensive and trouble-free connection for rotating instrumentation, thermocouples, strain gauge, plating and testing equipment.



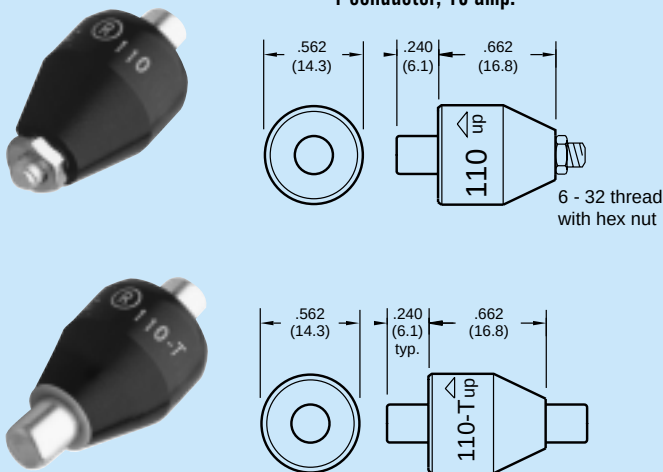
Receptacle with 6" leads ready to press fit into rotating equipment

Connector securely snaps together with the mating receptacle and cap

Plastic cap with solder lugs to attach your fixed external wires

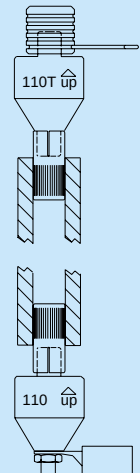
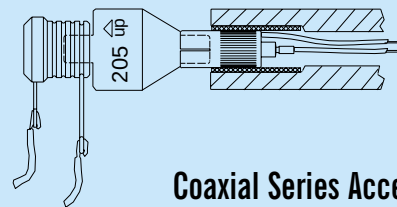
### 110 / 110-SS\* / 110-L / 110-T / 110-TL / 110-TS\*

1 conductor, 10 amp.



Single conductor units available in two styles. The model 110-T (top) will work in any position. ("UP" arrow not to point below horizontal.)

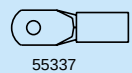
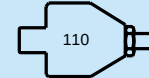
The model 110 with the threaded 6-32 stud, specially designed for bottom mount, can also be used horizontally.



## Coaxial Series Accessories

For Coaxial units mount the knurled receptacle in rotating member. Order accessories separately by Part Number. Connectors are reversible (except 110) which allows several possible arrangements.

Ring Connector:  
(55337)



One-Contact Receptacles:  
(5920) w/o wire  
(5921-S) w/ 6" lead  
(152mm)

5920

55337

5920

5920

One-Contact Cap:  
(5952) w/ soldering lug

5952

5921-S

Two-Contact Receptacles:  
(591) w/ one 6" lead (152mm)  
(592) w/ two 6" leads  
(594) w/ two solder holes

591

591

592

592

594

594

Two-Contact Cap:  
(595) w/ two solder lugs

595

595

Three-Contact Receptacle:  
(593) w/ three 6" leads  
(152mm)

593

593

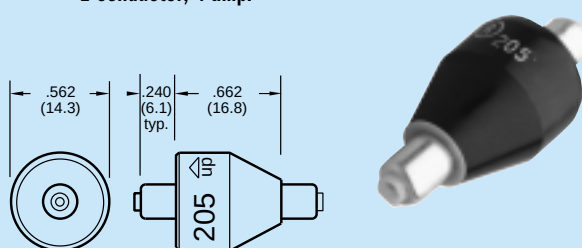
Three-Contact Cap:  
(553) w/ three solder lugs

553

553

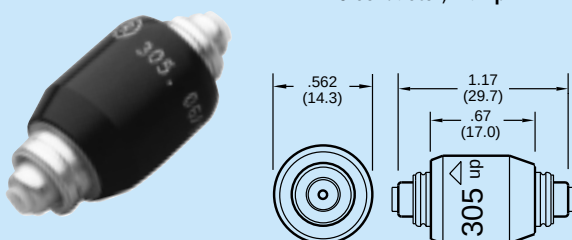
### 205 / 205-H / 205-L / 205-HS\* / 205-SS\*

2 conductor, 4 amp.



### 305 / 305-L (stainless steel bearing std.)

3 conductor, 4 amp.



## RECEPTACLE MOUNTING HOLE DIMENSIONS

| Model               | Diameter Ø    | Depth                                                                                           |
|---------------------|---------------|-------------------------------------------------------------------------------------------------|
| 591, 592, 5920, 594 | .282" (7.16)  | .35" (8.89)                                                                                     |
| 593                 | .409" (10.38) | .35" (8.89)                                                                                     |
| Inch (mm)           | Tolerances Ø  | $\begin{matrix} +.001" \\ -.000 \end{matrix}$ ( $\begin{matrix} +.025" \\ -.000 \end{matrix}$ ) |

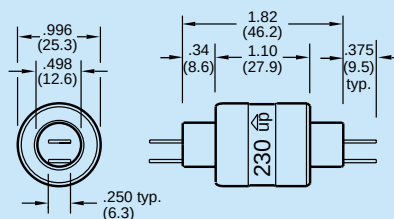
\*SS denotes stainless steel ball bearing

# Modular Series

## 230 / 230-SS\*

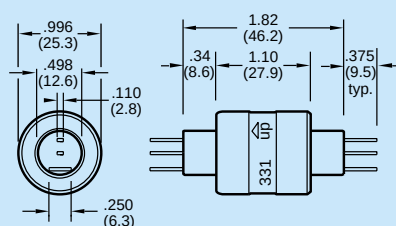


2 conductor, 30 amp.  
Disconnects included



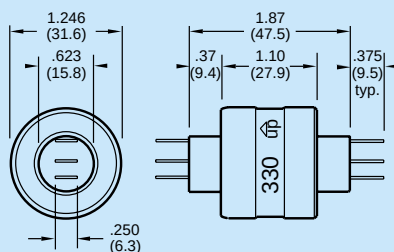
## 331 / 331-SS\*

3 conductor, 2@4 amp. & 1@30 amp.  
Disconnects included



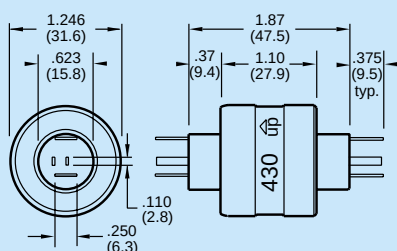
## 330 / 330-SS\*

3 conductor, 30 amp.  
Disconnects included



## 430 / 430-SS\*

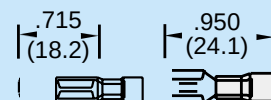
4 conductor, 2@4 amp. & 2@30 amp.  
Disconnects included



\*SS denotes stainless steel ball bearing

## Modular Disconnects

Order additional disconnects by part number

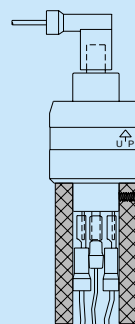


|                     |       |       |
|---------------------|-------|-------|
| For 18-22 awg. wire | 55110 | 552A0 |
| For 14-16 awg. wire | n/a   | 55250 |
| For 10-12 awg. wire | n/a   | 55258 |

Provide overcurrent protection (fuse) on wires attached to connector.

Use stranded wire of ample length and flexibility to avoid mechanical loads.

## Suggested Mounting Methods



Reversible units will operate in any position; ("UP" arrow not pointing below horizontal.) Mounting of connector can be by the metal body or the smaller diameter plastic collar using set screws or clamps.

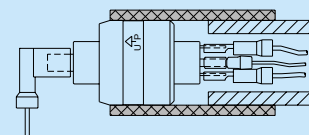
## Typical Collar Mount

### COLLAR MOUNTING HOLE DIMENSIONS

| Model       | Diameter Ø      | Depth*      |
|-------------|-----------------|-------------|
| 230, 331    | .500" (12.70)   | .40 (10)    |
| 330, 430    | .625" (15.88)   | .40 (10)    |
| 630         | .875" (22.23)   | .40 (10)    |
| 830         | 1.125" (28.58)  | .40 (10)    |
| 435         | 1.250" (31.75)  | .40 (10)    |
| 1250 Stud   | 3/8 - 16 UNC    | .81" (20.5) |
| 1250-M Stud | 10 x 1.5 metric | .81" (20.5) |

Inch (mm) Tolerances Ø  $^{+.001}_{-.000}$  ( $^{+.025}_{-.000}$ )

\* Minimum additional depth for disconnects clearance: 1" (25.4)



## Typical Body Mount

### BODY MOUNTING HOLE DIMENSIONS

| Model          | Diameter Ø     | Depth*   |
|----------------|----------------|----------|
| 230, 331       | .998" (25.35)  | .80 (20) |
| 330, 430, 1250 | 1.248" (31.70) | .80 (20) |
| 630            | 1.575" (40.00) | .80 (20) |
| 435, 830       | 1.772" (45.00) | .80 (20) |

Inch (mm) Tolerances Ø  $^{+.001}_{-.000}$  ( $^{+.025}_{-.000}$ )

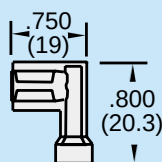
\* Minimum additional depth for disconnects clearance: 1.4" (35.5)

# MOD-TRONIC

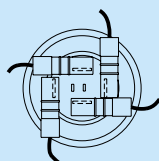
## INSTRUMENTS LIMITED

48 Haggert Ave N  
Brampton, ON L6X 1Y3  
Tel: 905 457-6322  
Fax: 905 457-4716  
Toll Free: 800 794-5883

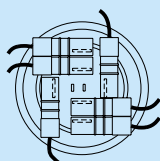
### Modular Disconnects



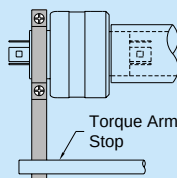
|       |       |       |
|-------|-------|-------|
| 552A1 | 552A2 | 55253 |
| 55251 | 55252 | 55253 |
| 55259 | 552C2 | 55253 |



Model 630

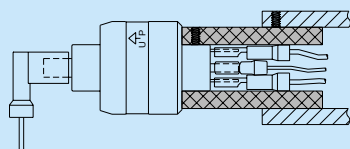


Model 830



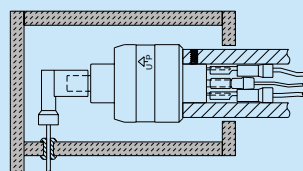
### Floating Torque Arm and Stop

A floating "torque arm" attached to the stationary end may be used if the wires are not sufficiently stiff. **Never rigid mount both ends of the connector.** This will "work" the bearing and cause connector failure.



### Insulating Bushing Mount

Mounting with an insulating bushing may be required to insulate connector from conducted heat. Soft-mounting with rubber type material may be needed when unit will be subjected to vibration.



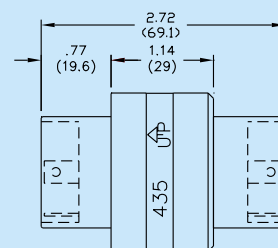
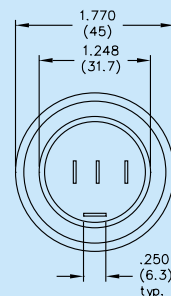
### Protective Enclosure

Suggested for food or consumer product applications.

### 435 / 435-SS\* HIGH VOLTAGE

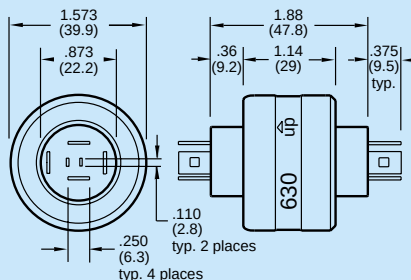


4 conductor, 4@30 amp.  
Disconnects included



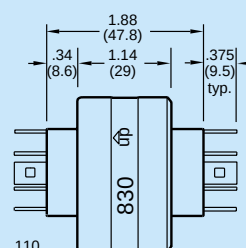
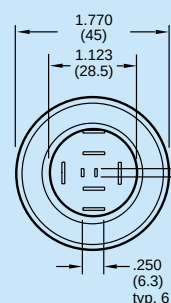
### 630 / 630-SS\*

6 conductor, 2@4 amp. & 4@30 amp.  
Disconnects included



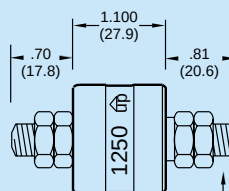
### 830 / 830-SS\*

8 conductor, 2@4 amp. & 6@30 amp.  
Disconnects included

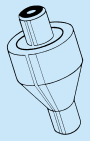


### 1250 / 1250-SS\* / 1250-M / 1250-MS\*

1 conductor, 250 amp.  
Available with metric threads (1250-M)  
4 Jam Nuts included



\*SS denotes stainless steel ball bearing



# Accessories

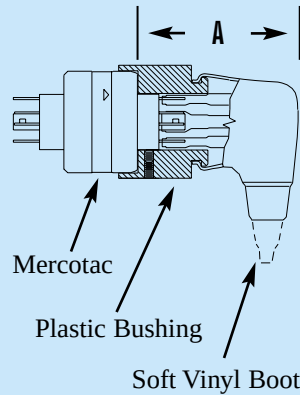
## Boot Kits

A rubber right angle Boot Kit with an attaching plastic bushing can give good protection to the wire terminals against spray water, oil, and dirt.

NOTE: This Boot Kit is not watertight nor intended for water-proofing.

A protection rating of IP51 can be achieved due to the close fit of the bushing. The design allows the use of a Boot Kit on either end of a Mercotac® Modular unit. Tip of boot can be cut off to accommodate wires.

For corrosive atmospheres or where subject to water splash, the stainless steel ball bearing is also recommended. Mercotac connectors with stainless steel bearings are designated by the “-SS” after the part number.



| For Model #: | Order Boot Kit #: | Dim. A       |
|--------------|-------------------|--------------|
| 230          | 57230             | 1.15" (29.2) |
| 331          | 57230             | 1.15" (29.2) |
| 330          | 57430             | 1.82" (46.2) |
| 430          | 57430             | 1.82" (46.2) |
| 435          | 57435             | 2.59" (65.8) |
| 630          | 57630             | 2.59" (65.8) |
| 830          | 57830             | 2.59" (65.8) |
| 1250         | 57125             | 1.60" (40.6) |

Appropriate disconnects supplied with Boot Kits for 630, 830 & 435 models

## Helpful Hints

The connector can be held or mounted by the body or the plastic collar and is not designed to carry mechanical loads. One end should be allowed to float, attached only by the connecting wires. In horizontal applications, mount the connector with the body rotating to reduce mechanical loads on the bearing. Limit mounting eccentricity to .005" (.13 mm).

The connector contains plastic materials that are sensitive to heat. Overheating will cause reduced life or connector failure. Provide thermal insulation where necessary to prevent temperature of the unit from exceeding 140°F (60°C).

Do not solder on connector or bend tabs as such misuse may

cause connector failure and will void the warranty.

Vibration or mechanical shock will reduce life or cause connector failure. Some installations may require a shock isolating mounting.

### In food and packaging applications:

Mercotac connectors contain mercury and other fluids. Isolate connector from any possibility of leakage contaminating the product. If short occurs in the circuit with a Mercotac connector, it could cause the Mercotac to overheat and/or leak. The use of a protective enclosure is recommended.

Provide overcurrent protection (fuse) on wires attached to connector.

## Recycling

Mercotac connectors contain metallic mercury and should be disposed of properly through mercury recycling programs. Mercotac Inc. offers to forward spent connectors for you to a mercury recovery facility. Package and ship prepaid to Mercotac Inc., Carlsbad, Calif. USA, in accordance with local, state, federal and IATA regulations. Please state on your paperwork “For Recycling” and identify shipments with your phone and fax numbers.

## Warranty

Units are guaranteed for one year from date of purchase against defective materials and workmanship. Replacement will be made except for defects caused by abnormal use or mishandling. All statements and technical information contained herein, or represented by the manufacturer or his representative are rendered in good faith. User must assume responsibility to determine suitability of the product for intended use. The manufacturer shall not be liable for any injury, loss or damage, direct or consequential arising out of the use, or attempt to use this product.



**Mercotac** INC.