

Model 105 & Model 110T Brushless Slip Ring

Conductors: One Conductor

Amps: 4 or 10

RPM: 7500 or 3600

The Mercotac® models 110-T and 105 brushless slip rings are used to provide reliable shaft grounding solutions, making them highly suitable for HVAC and VFD motor shaft grounding applications. These models ensure efficient electrical grounding, minimizing the risk of costly bearing damage and enhancing overall system performance. The model 110-T is also used in low current plating and welding applications. Typically, the model 105 is used in higher rpm applications. These slip rings excel in industries such as electroplating, automation machinery, mineral processing, and welding.

Advantages:

- Durable, compact, and low cost
- Reliable for signal and power connections
- Easy to install and replace
- Lightweight and made of robust metal construction
- Long-lasting, energy efficient, and no maintenance
- Made in the USA

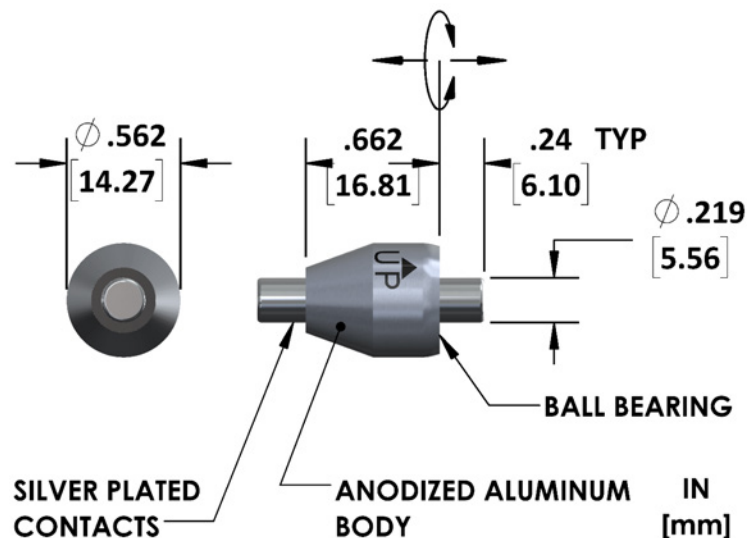
Model 105



Model 110T



Model 105 & Model 110T Dimensions



Specifications

Models 105, 105-SS			
Spec.	Type	Value	Units
Rotational Torque	Max.	<10	gf-cm
Voltage Rating	-	-	Volts (AC/DC)
Current Rating	Max.	4	Amps
Rotational Speed	Max.	7500	RPM
Operating Temperature	Min.	45 (7)	°F (°C)
	Max.	140 (60)	
Frequency	Max.	200	MHz
Contact Resistance	-	<1	mΩ
Circuit Separation	-	-	MΩ

Models 110T, 110-TS			
Spec.	Type	Value	Units
Rotational Torque	Max.	35	gf-cm
Voltage Rating	-	-	Volts (AC/DC)
Current Rating	Max.	10	Amps
Rotational Speed	Max.	3600	RPM
Operating Temperature	Min.	-20 (-29)	°F (°C)
	Max.	140 (60)	
Frequency	Max.	200	MHz
Contact Resistance	-	<1	mΩ
Circuit Separation	-	-	MΩ

Model 110-TL			
Spec.	Type	Value	Units
Rotational Torque	Max.	10	gf-cm
Voltage Rating	-	-	Volts (AC/DC)
Current Rating	Max.	10	Amps
Rotational Speed	Max.	1200	RPM
Operating Temperature	Min.	-20 (-29)	°F (°C)
	Max.	140 (60)	
Frequency	Max.	200	MHz
Contact Resistance	-	<1	mΩ
Circuit Separation	-	-	MΩ



Mercotac, Inc.

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Materials

Models 105, 110-T, & 110-TL			
Model	Terminals	Body Material	Bearing Material
105	1	Anodized Aluminum	Chromium Steel
110-T			
110-TL			

Models 105-SS, 110-TS			
Model	Terminals	Body Material	Bearing Material
105-SS	1	Anodized Aluminum	440C Stainless Steel
110-TS			

Available with stainless steel ball bearing (105-SS & 110-TS) (recommended for wet or corrosive environments)

Note: The body of the 110T / 105 series Mercotac Connector is electrically "hot" to the internal conductor
Available in low torque (110-TL)



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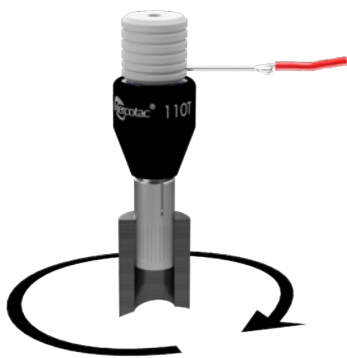
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Mounting

Correct mounting of the Mercotac is important for maximum life. Mounting concentricity should be below .005" (.13mm) TIR. Some suggested mounting options are shown below but there are more examples on our website at www.mercotac.com.



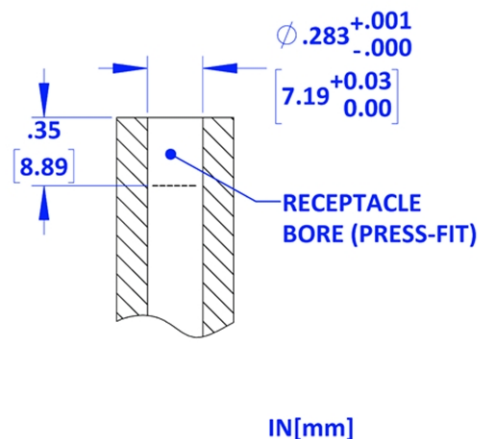
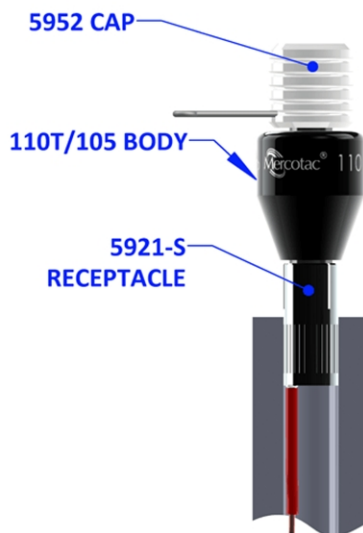
Best
mounting
method.

Mounting Guidelines

- Mercotac Brushless Slip Rings may be used in any position between vertical and 90 degrees horizontal. The UP arrow should not point below horizontal.
- The Coaxial models 104,105, 110, 110T, 205, 305 can be held or mounted by the body or the receptacle. The cap is usually connected to the bearing end.
- In horizontal applications, mount the Mercotac with the body rotating to reduce mechanical loads on the bearing.
- Limit mounting eccentricity to a maximum of .005" TIR.
- Mercotac products are not designed to carry mechanical loads. One end should be allowed to float, attached only by the connecting wires.

See website for additional mounting illustrations and instructions.

Receptacle Mount



Vibration / Shock

- Vibration or mechanical shock will reduce Mercotac Brushless Slip Ring life or cause failure.
- If vibration or shock is present, use a flexible vibration isolating mounting.

Food Applications

- As a precaution, a protective housing is required to isolate the rotating slip ring from the food product.



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Temperature

It is very important to keep the operating temperature of the Mercotac slip ring below 140°F(60°C) as measured on the body. Electrical current heat rise, rotational heat rise, and the ambient temperature are factors contributing to the operating temperature of the Mercotac.

Provide thermal insulation where necessary to prevent the Mercotac temperature from exceeding 140F (60C). Mercotac slip rings contain plastic materials which are sensitive to heat. Overheating will cause connector failure and void the warranty.

The following data is from a model 430. Depending on your operating conditions it may not be directly applicable to a model 105 or model 110T for your application.

Typical Rotational Temperature Rise	
RPM	Temp
500 RPM	9.5°C
1200 RPM	15°C

Note: Coaxial units typically have less rotational temperature rise.

Typical Electric Current Temperature Rise °C at 208 VAC*			
Amps	Wire Gauge	Channel 1,2 (.110" Tab)	Channel 3,4 (.250" Tab)
4 Amps	18 AWG	1°C	-
5 Amps	18 AWG	N/A	-
10 Amps	16 AWG	N/A	2°C
20 Amps	12 AWG	N/A	4°C
30 Amps	10 AWG	N/A	9°C

*Test Conditions: Room Temperature, Using Mercotac supplied disconnects and a single insulated wire



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Connections

When connecting to a Mercotac slip ring, it is important to properly size the wire and disconnects for the maximum current load. The connecting wires should also be loose and not pull or put a side load on the Mercotac. It is highly recommended to use the disconnects supplied by Mercotac, as they have been evaluated to make the best connection.

Allowable Ampacity*		
AWG	Maximum Current Carrying Capacity (Amps)	Max. Safe Current with these models (Amps)
10	30	10
12	20	10
14	15	10
16	12	10
18	9	9
20	7	7
22	5	5

*This chart is provided solely for informational purposes. The values presented in this table are derived from single insulated wires operating in free air at a temperature of 25°C (77°F). The ampacity needs to be adjusted or derated for multi-conductor cables in order to account for the heat generated by increased current flow and to ensure proper heat dissipation. Additionally, follow all electrical regulatory guidelines for your geography.

Typical Electrical Connections



Connection Guidelines

- Use stranded wires of ample length and flexibility for the Mercotac connection in order to avoid mechanical loads.
- It is important to use receptacle or cap accessories and push on securely.
- Do **not** solder wires to the Mercotac Brushless Slip Ring, as such misuse will cause failure and void the warranty.
- Provide quick-acting overload protection to the electrical circuit containing the Mercotac slip ring to prevent overheating and Mercotac failure.
- If wire wrapping occurs from too much rotational torque, it is suggested to use a torque arm positioned to float against a fixed stop.



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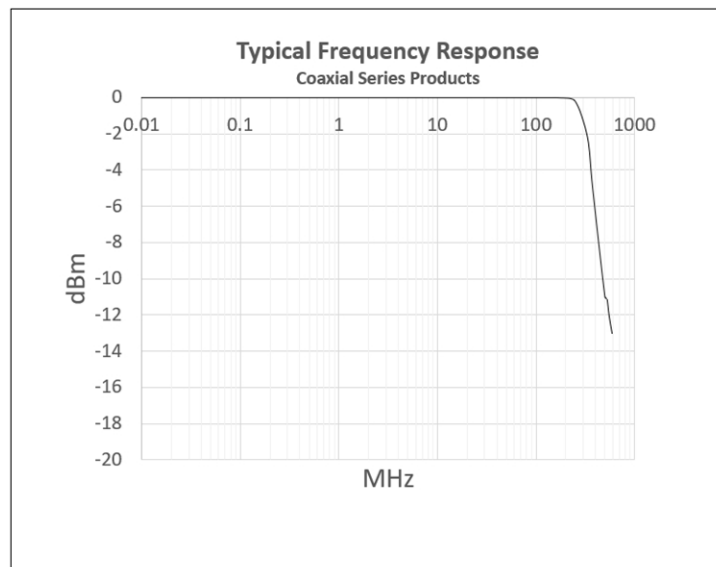
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Frequency

Frequency response is usually not a factor in most applications. However, for high-frequency applications, there is a limit on the frequency that a Modular or Coaxial Mercotac can pass through. For these applications, it is important to consider the Versatac™ model, which is designed for higher frequencies, such as ethernet applications.

Model 105 & Model 110T are Coaxial Series products.

Typical Frequency Response	
Series	Products
Coaxial	104, 105 , 110, 110T , 205, 305, 1250, 1500



Handling / SAFETY

- Mercotac units should be handled in a way that is free of vibration and mechanical shock.
- Disconnect electrical power when working on or near a Mercotac.

Recycling

- Mercotac brushless slip rings contain mercury and should not be disposed of in the trash but only through mercury recycling programs. Mercotac Inc. offers a mercury recycling service for this purpose. Ship spent connectors to our Carlsbad facility by UPS ground enclosed in a plastic bag. Include paperwork stating, "for recycling" with your company name, phone and fax numbers. **Do not send** through the US mail.



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Model 105 & Model 110T Accessories

Not Included – order separately:

Description: One Contact Receptacle

Item #: 5920

- One solder hole for 18 AWG wire
- Suitable up to 10 Amps



Description: One Contact Receptacle with Wire

Item #: 5921-S

- With one pre-attached 6" wire (18 AWG)
- Suitable up to 10 Amps



Description: One Contact Cap

Item #: 5952

- With one solder lug For 18 AWG wire
- Suitable up to 10 Amps



A receptacle is used for mounting to the rotating device. The accessories are required for wire connections, since the Mercotac units cannot be soldered to directly. Soldering will void the warranty and cause failure. Order Separately.