

MINICIRC CONNECTORS



MiniCirc Connectors

Electric bike and scooter designers face the challenge of integrating reliable electrical connections within compact frames that demand lightweight, space-saving and durable components capable of withstanding harsh outdoor conditions. With IP68 protection, a compact and short-body design, vibration resistance, and tactile feedback upon full mating, MiniCirc Connectors provide the ideal solution by affording secure and long-lasting connections.

- Series

230030

230031

230032
- MiniCirc Socket Connector

MiniCirc F/F Wiring Harness

MiniCirc F/M Wiring Harness



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Key Specifications	
Current (max.)	3.0A (2 to 5 pins); 2.5A (6 pins)
Voltage (max.)	60V DC
Connector Mating Length	30.00mm
IP Rating	IP68

Product Overview

MiniCirc Connectors

Trends and Challenges

As electric bikes and electric scooters evolve, design engineers are looking to fit more electronics into smaller spaces without compromising reliability. They often face the challenge of growing customer expectations for reliability, as customers expect long-lasting products that entail minimal maintenance. Customers also require connectors that meet stringent standards, such as IP68-level waterproofing, RoHS and UL certifications to ensure safety and compliance.

Industry Needs

MiniCirc Connectors deliver compact, reliable and high-performance interconnect solutions for space-constrained, high-signal applications. Designers of electric bikes and scooters require stable electrical connections, as soldered wiring connections are prone to failure in harsh environments. Bulky connectors hinder being able to efficiently route cables through compact frame designs, limiting innovation in product form factors. Hence, there is a need for compact, reliable connectors that simplify cable routing through tight, angled frame tubes in e-bikes and scooters while ensuring environmental protection and design efficiency.

Product Solutions

MiniCirc Connectors feature a socket connector and wiring harness that provide stable and reliable connection performance for electric bike systems. The robust mating structure provides IP68 protection, resists vibration and affords clear tactile feedback when fully assembled. These connectors feature a small plug diameter of 6.00mm carrying up to six circuits within a shortened body. This provides an excellent form factor for routing cable assemblies through tight spaces, giving manufacturers more flexibility to reduce the size of their designs.



Vital Product Information

MiniCirc Connectors

Excellent and Stable Electrical Connections

MiniCirc Connectors utilize crimping wiring technology instead of traditional soldering, ensuring excellent and stable electrical connections that withstand vibration and environmental exposure.

Robust

The MiniCirc Connectors feature a robust mating structure that offers IP68-level protection against water and dust, which is critical for outdoor applications.

Compact Size

The compact size of MiniCirc Connectors allows easy threading through tight spaces and pipe routing, enabling design engineers to innovate without having to compromise.



Product Advantages and Features

MiniCirc Connectors

Provides clear tactile feedback when fully assembled

The buckle design ensures a firm and reliable mechanical lock, preventing accidental disconnection and guaranteeing proper mating.

Allows easy integration and cable threading

The compact size of the connectors reduces installation complexity by minimizing space consumption.

Helps simplify cable routing

The short-body design eliminates the difficulty of threading connectors through narrow, angled or curved tubes in e-bikes and scooter frames by reducing connector length and bulk.

Provides easy mating and unmating

The different color-coded arrow symbols reduce confusion during assembly, offering immediate identification of connector types. The poka-yoke design helps prevent incorrect connections by allowing only the correct mating configuration.

Lowers risk of corrosion and connection failure

The IP68 rating of the connectors prevents dust and water ingress in harsh environments.

Helps reduce opening size in outdoor applications by providing the option to seal the opening

The circular design of the connectors supports smaller, easier-to-seal openings, thereby enhancing protection and durability in outdoor applications.



Markets and Applications

MiniCirc Connectors



Robotic Mowers



Electric Bikes and Scooters



Charging Stations

AGRICULTURAL MACHINERY

- Electric saws and trimmers
- Harvesters
- Irrigation system sensors
- Robotic mowers

AUTOMOTIVE

- Electric bikes and scooters
- Golf carts
- Motor boats
- Quad bikes
- Snowmobiles

CHARGING INFRASTRUCTURE

- Charging stations
- Electric vehicle charging connectors

Markets and Applications

MiniCirc Connectors



Security Sensors



Inverters



Heat Pumps

ELECTRICAL AND POWER

- Alarm systems
- Lighting strings
- Security sensors

HOME ENERGY STORAGE

- Batteries
- Inverters

HVAC

- Air conditioners
- Heat pumps
- Ventilation units

Frequently Asked Questions

MiniCirc Connectors



What are MiniCirc Connectors?

MiniCirc Connectors are compact, reliable and durable connectors designed for tight spaces and harsh environments. They are ideal for applications like electric bikes, outdoor lighting and home energy storage, offering secure electrical connections with environmental protection and easy integration.

What makes MiniCirc Connectors different from the competition?

The crimped wiring in MiniCirc Connectors ensures stable, high-performance connections without the need for soldering. A robust mating structure provides IP68-level protection, resists vibration and offers clear tactile feedback when fully assembled.

How do MiniCirc Connectors create value for manufacturers?

MiniCirc Connectors create value by combining convenience, reliability and ease of use. Their compact size makes threading through pipes simple and efficient, while their unique mating structure provides clear tactile feedback when fully assembled. In addition, color-coded arrow symbols and a poka-yoke design guide users to insert the connectors correctly, reducing errors and ensuring secure connections every time.

Product Specifications

MiniCirc Connectors

Reference Information

Packaging: Anti-static bags
Designed in: Millimeters
RoHS/REACH: Yes
Halogen Free: Yes
PFAS Free: Yes

Electrical

Voltage (max.): 60V DC
Current (max.): 3.0A (2 to 5 pins); 2.5A (6 pins)
Insulation Resistance (min.): 100 Megohms
Contact Resistance (max.): 10 milliohms
Dielectric Withstanding Voltage: 600V DC

Mechanical

Wiring Connection: Crimping
Connector Mating Length: 30.00mm
Mating Force: 10.4N
Unmating Force: 10.4N
Durability (min.): >200 cycles

Physical

IP Rating: IP68
Salt-spray Resistance: 72H
Operating Temperatures: -40 to +85°C

