LPC MK III MINIATURE CONNECTORS

FOR MOBILE APPLICATIONS

Cannon

ITT Industries
Engineered for life

1998
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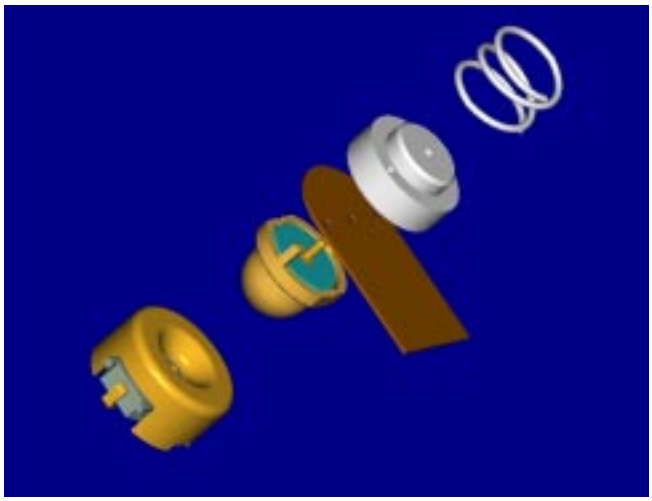
LPC Mk lll Connector for Mobile Phones

The decreasing size of mobile handsets and the quest for ever improving performance now requires the RF connector to be located near to the antenna. It is with these trends in mind that Cannon RF Products have developed the new miniature LPC Mk III switchable connector to offer a high performance solution in an extremely small package.

Features/Benefits

- This surface mounted connector has a low profile with a nominal height of only 3.47 mm (.136 ins).
- The PCB mounting space has been minimised [nominal dimensions of only 6.90 mm (.271 ins) x 8.10 mm (.318 ins)]. The connector is also self-aligning and allows up to 1.95 mm (.076 ins) offset mating.
- By using the unique pin in the moving contact it ensures that the connector is dust proof and that the moving contact cannot be over-stressed.
- Designed for reflow soldering processes.
- Robustly formed contacts, protected by the shell and checked 100% on the assembly machine guarantee coplanarity of +/- 0.05 mm (.002 ins).
- A minimum of 10K mating cycles can be achieved between the two mating halves.
- With tape and reel packaging as standard, the connectors are designed to be suction pick and placed.
- The design of the tape pocket guarantees the correct orientation of the connector.
- Versions of the plug or antenna connector can be customised to suit specific requirements.
- Latching modules available for mounting in car kits

Specifications



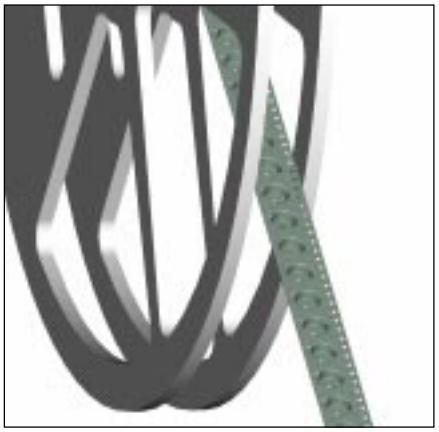
MATERIALS AND FINISHES		
	Top insulator	Natural LCP
	Coax Outer Body Material	Brass, Gold plated
	Moving Contact	Beryllium Copper, Gold plated
	Fixed Contact	Beryllium Copper, Gold plated
	Bottom moulding	Black LCP
ELECTRICAL		
	Impedance	50 W nominal
	Frequency Range	0 to 2 GHz
VSWR	@ 900 MHz	<1.15:1
	@ 1800 MHz	<1.2:1
	@ 2000 MHz	<1.2:1
	After 5000 mating cycles	
	@ 900 MHz	<1.2:1
	@ 1800 MHz	<1.25:1
	@ 2000 MHz	<1.2:1
Insertion Loss on customer PCB (Mismatch losses included)		
Through PCB connector (unmated)		
	@ 900 MHz	<0.1 dB
	@ 1800 MHz	<0.1 dB
	@ 2000 MHz	<0.1 dB
Isolation between switching contacts		
	@ 900 MHz	>30 dB
	@ 1800 MHz	>25 dB
	@ 2000 MHz	>25 dB
	ESD protection to the case	15KV maximum
Rated Power 50 Ohms source		
	@ 900 MHz	35 dBm
	@ 1800 MHz	32 dBm
	@ 2000 MHz	32 dBm

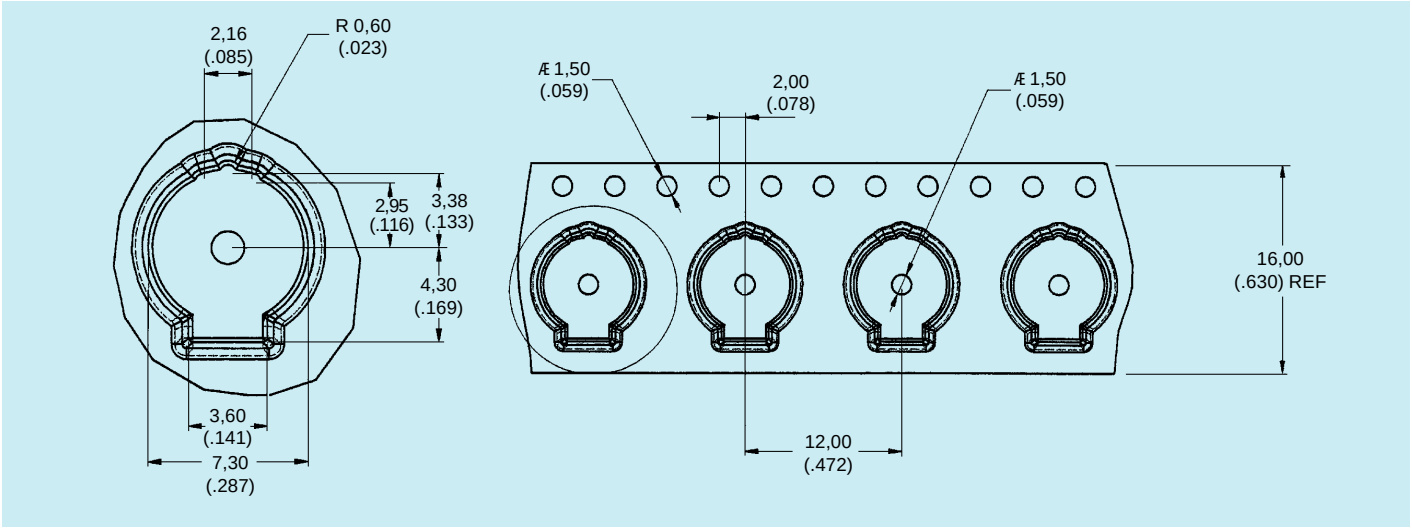
Specifications (continued)

ENVIRONMENTAL	
Operating Temperature	-40 and + 85°C
Humidity	Operable in 90% relative humidity (temp < 40°C)
Solder Systems	Infrared and hot air reflow
Salt Mist	In accordance with IEC 68-2-11 method Ka
Vibration	In accordance with IEC 68-2-36: 1.92 10^{-2}g/Hz 5-200Hz in 3 axes
	– No discontinuity
Shock	In accordance with IEC 68-2-27: 30g 6ms ½ sinus 6 directions
	– No discontinuity
Corrosive Atmosphere	In accordance with IEC 68-2-60: SO^2H^2S No damage
MECHANICAL	
Mating Force of Ground	> 4N and <16N
Mating Force of Signal	> 0.20N after 2 soldering processes and 10K mating cycles
Mating Cycles	10,000 minimum (when mated with plug)
Offset Mating	1.9mm maximum (what mated with plug)

Packaging

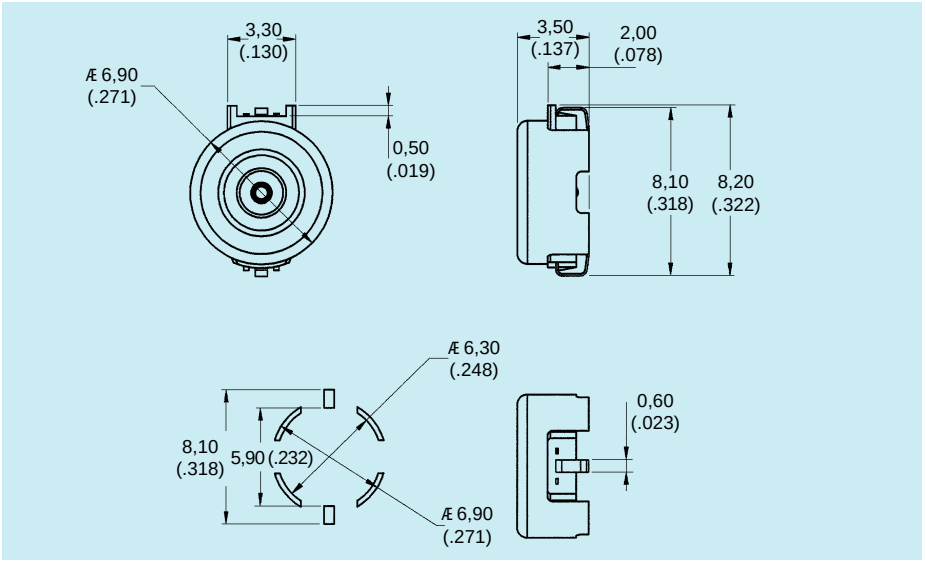
Standard packaging is in tape and reel. This packaging is in accordance with EIA-481 Taping of Surface Mount Components for Automatic Handling. Reel Quantities: 13" Reel, 1200 components.





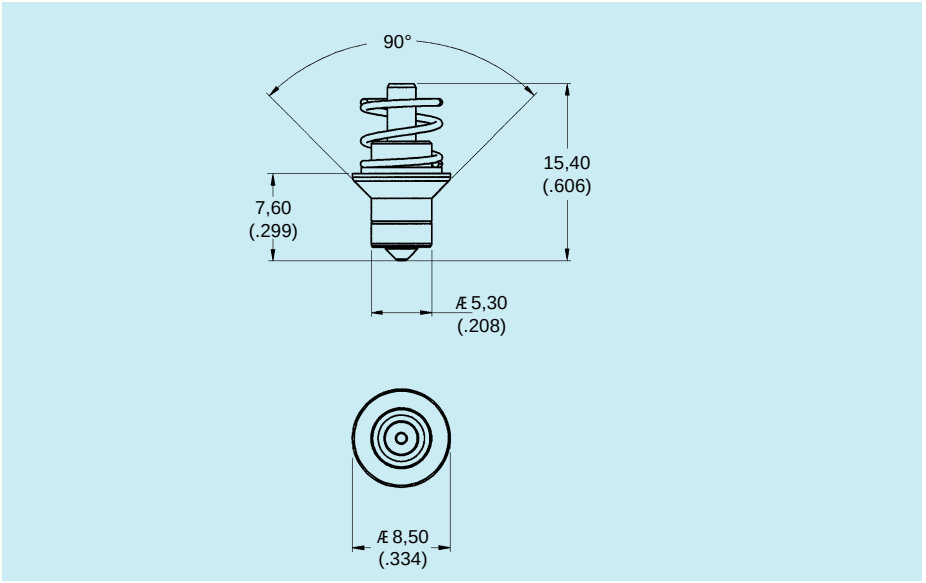
Dimensions are shown in mm (inch)
Dimensions subject to change

Switchable PCB Connector - Part Number 120220-0105



Straight Cable Connector - Part Number 120220-0114

Cable Type
RG316
RG174
RG178



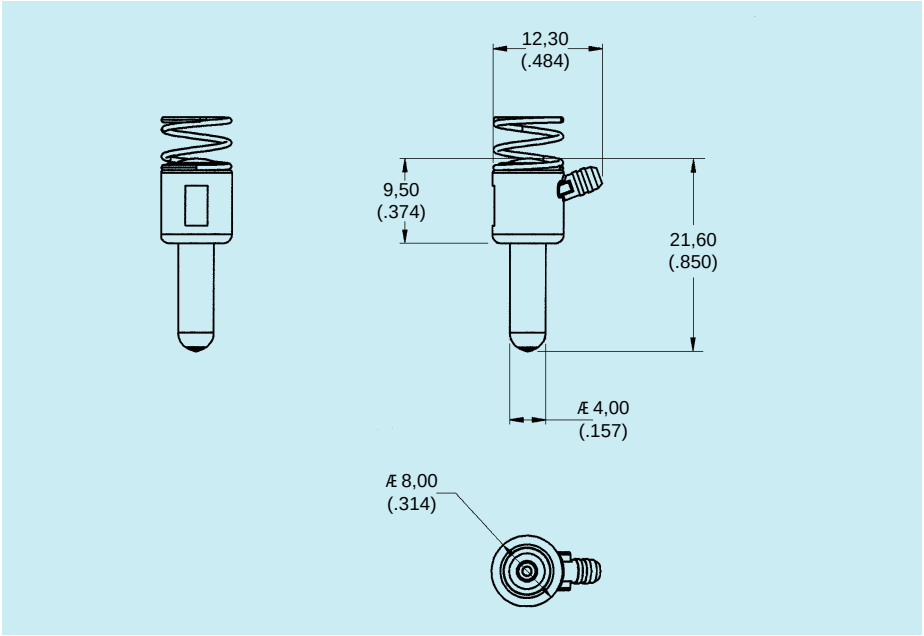
Latching Modules

These modules can be supplied to meet specific customer car kit requirements.

Apply to Cannon RF Products Sales Department for further information.

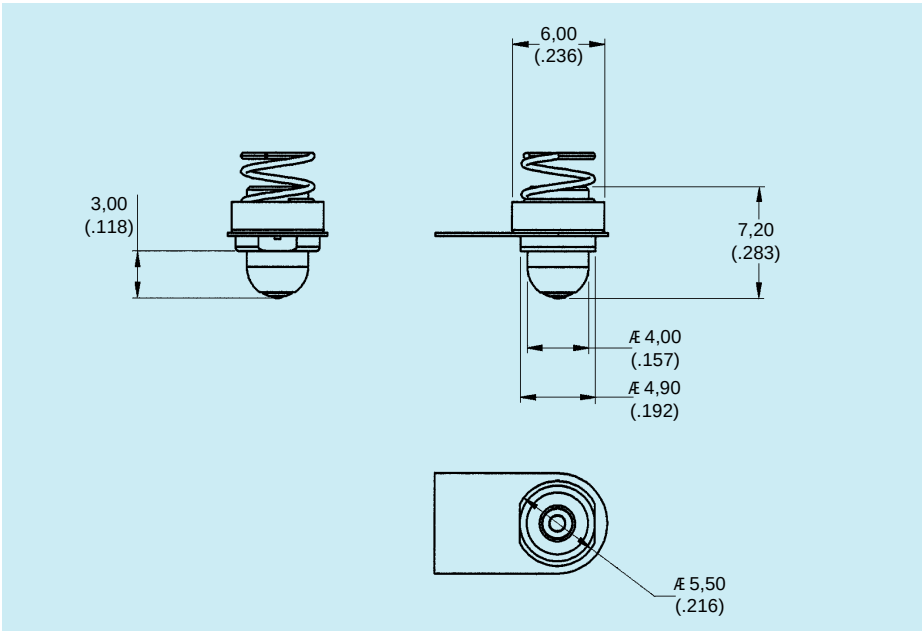
Right Angle Connector - Part Number 120220-0115

Cable Type
RG316
RG174
RG178



Flexible Cable Connector - Part Number 120220-0116

Cable Type
RG316
RG174
RG178



THIS NOTE MUST BE READ IN CONJUNCTION WITH THE PRODUCT DATA SHEET/CATALOG.
FAILURE TO OBSERVE THE ADVICE IN THIS INFORMATION SHEET AND THE OPERATING CONDITIONS SPECIFIED IN THE PRODUCT DATA SHEET/CATALOG COULD RESULT IN HAZARDOUS SITUATIONS.

1 MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.

a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.

b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials. Contact materials vary with type of connector and also application and are usually manufactured from either: Copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

2 FIRE CHARACTERISTICS AND ELECTRIC SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionisation and burning.

Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the product Data Sheet/Catalog are exceeded and can cause breakdown of insulation and hence electric shock.

If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires and leakage currents through carbonisation of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually apparent. Burns may result from touching overheated components.

3 HANDLING

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers.

Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/ use and rejected if found to be damaged.

4 DISPOSAL

Incineration of certain materials may release noxious or even toxic fumes.

5 APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector.

Voltages in excess of 30 V ac. or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages cannot be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Circuit resistance and continuity check should be made to make certain that there are no high resistance joints or spurious conducting paths. Always use the correct application tools as specified in the Data Sheet/Catalog.

Do not permit untrained personnel to wire, assemble or tamper with connectors. For operation voltage please see appropriate national regulations.

IMPORTANT GENERAL INFORMATION

(i) Air and creepage paths/Operating voltage

The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations.

For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

(ii) Temperature

All information given are temperature limits. The operation temperature depends on the individual application.

(iii) Other important information

ITT Cannon continuously endeavours to improve their products. Therefore, ITT Cannon products may deviate from the description, technical data and shape as shown in this catalog and data sheets.

(iv) Harnessing and Assembly Instructions

If applicable, our special harnessing and/or assembly instruction has to be adhered to. This is provided on request.