

cannon

# MKJ Series Connectors

71% weight and 52% size reduction  
in an industry leading quick disconnect

Features & Benefits



**ITT**

ENGINEERED FOR LIFE

# Cannon MKJ Series: Reduction in weight and size without loss of reliability

The MKJ family of mini-circular connectors provides similar electrical and mechanical characteristics as larger and heavier Military Standard Environmental connectors.

ITT Cannon continues its tradition of innovation with the MKJ line of miniature circular connectors. MKJ products tackle your matrix of harsh environment applications. These connectors offer three coupling methods (threaded, bayonet and breakaway) in a highly engineered design with reduced weight by 71% and size by 52% without sacrificing the environmental performance or reliability.\*

Bringing together a unique combination of design, functionality and flexibility, the MKJ excels in delivering a product for a broad variety of harsh environment applications. The MKJ series comes with rear accessory threads or integral band platform for direct attachment of cable shield and overmold. MKJ provides unparalleled functionality for numerous applications across multiple markets including Industrial, Defense and Aerospace.

Why customers benefit from choosing ITT Cannon's MKJ connectors:

- Available in rear-release crimp, PC tail or soldercup contacts
- Shells and jam nuts available in aluminum alloy or corrosion resistant stainless steel (AMS-QQ-S 763)
- Up to 2000 mating cycles

## Technical Overview

For size 23 contact

- ⚡ Max Vibration 200 m/s<sup>2</sup> (20 g's) rms
- ⊘ #22 - #28 AWG wire
- ⚡ Max. current 5 Amps / max. voltage 500 VAC
- 🌡️ -55°C to +150°C / -67°F to +300°F



## Our products do what we say they will do



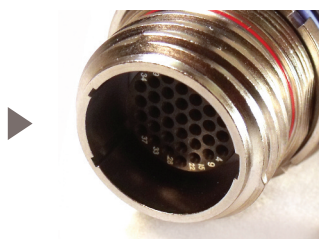
### Contact Availability

Offered in crimp, PC tail and soldercup contact designs with proven reliability in harsh environment conditions. Contacts meet standard MIL-C-39029.



### Integral Band Platform

Integral band platform allows direct attachment of cable shield to connector.



### MKJ 1 and 5 Robust Coupling Mechanism

MKJ's internal ratchet mechanism system meets the robust MIL-DTL-38999 shock and vibration requirement and is well suited for harsh environment applications.



### Tooling & Accessory Options

Dust cap and backshells maintain the rear environmental sealing, crimp, contact insertion/extraction and banding tools are also available.



### Multiple Keying Positions

Master Key and 2 secondary keys. Multiple clocking positions available.



### High Density Connector

Connector uses size 23 contacts accepting #22 to #28 wire. Contacts spacing is reduced to 0.076 inches providing a compact yet robust package.

\*When compared to the 38999 layouts with size 22 contacts.

# Delivering durable, reliable and lightweight products for military & commercial aviation



**Teflon nickel, black zinc nickel and olive drab cadmium** plating maintain robust reliability for 500 hours of salt spray.



A variety of the series offer ruggedized computers and hand held communications equipment a **2,000 mating cycle**.



MKJ's **multiple coupling mechanisms** equip connectivity for navigation and telemetry applications.



Plugs and receptacles are **environmentally sealed** to meet the harsh environments

## Applications

- Sensors
- Satellites
- Instrumentation
- Missile systems
- Avionic systems
- Soldier technology
- Industrial equipment
- UAVs / unmanned systems
- Navigation & telemetry equipment
- Medical test & diagnostic equipment
- Ruggedized computers & hand-held communication equipment
- Commercial & military aircraft electronics



## Coupling Styles

The wide range of coupling options available for the MKJ Series allows compatible connectors to meet your demands even in the harshest environments.



Coupling	MKJ0 UN Thread	MKJ 1 Double Start	MKJ 3 Bayonet	MKJ 4 Breakaway	MKJ 5 Triple Start
Markets & Segments	Defense, Aerospace, Medical, Industrial, Commercial				
Hardware	Aluminum/ Stainless Steel	Aluminum/ Stainless Steel	Aluminum/ Stainless Steel	Aluminum/ Stainless Steel	Aluminum/ Stainless Steel
EMI Shielding Effectiveness	40db attenuation, 100Mhz to 1000Mhz				
Mating Cycles	2000	2000	250 Aluminum 2000 Stainless Steel	2000	500
RoHS Compliant	Available				
Materials	Shells - Aluminum Alloy or Stainless Steel Insulators - Thermoplastic Seals - Fluorosilicone Contacts - Copper Alloy with gold over nickel plating				

## Product Performance

MKJ Series Performance				
Contact Size	#23	#20	#16	#12
Spacing	.076"	.106"	.170"	.230"
Contact Type	Rear Crimp, Solder Cup, PCB Mount			
Current Rating	5 Amps	7.5 Amps	13 Amps	23 Amps
Wire Accommodation	#22 - 28 AWG	#20 - 24 AWG	#16 - #20 AWG	#12 - #14 AWG
DWV Voltage (VAC)	750 VAC	1000 VAC	1800 VAC	1800 VAC
Insulation Resistance	5000 Megohms RMS Sea			
Operating Temperature	-55°C to +150°C			
Contact Resistance	8 Milliohms			
Shock/Vibration	300g / 37g			
Clocking Position	Master Key and 2 Secondary Keys. 6 Clocking Positions			
Housing Materials	Aluminum and Stainless Steel			
Receptacle Mounting	Jam Nut, Square Flange, In-Line			

# How to Order Guide

## Configurator

<b>MKJ1</b>	<b>A</b>	<b>7</b>	<b>F</b>	<b>9-19</b>	<b>P</b>	<b>A</b>	<b>**</b>
Series	Class	Shell Style	Material/ Plating	Shell Size Contact Arrangement	Contact Style	Shell Locking	Modifications

### SERIES

MKJ0 - Threaded Coupling, UN Thread  
 MKJ1 - Threaded Coupling, Double Start ACME Thread  
 MKJ3 - Bayonet Coupling

MKJ4 - Breakaway/Quick Disconnect  
 MKJ5 - Threaded Coupling, Triple Start ACME Thread

### CLASS

A - Environmental Plug & Receptacle with Banding/Overmolding Attachment  
 B - Environmental Plug & Receptacle with Threaded Accessory Attachment  
 C - Back-Potted Plug/Receptacle - PC/Flex/Solder  
 D - C Filtered Receptacle - Fixed Contacts

E - L Filtered Receptacle - Fixed Contacts  
 F - PI Filtered Receptacle - Fixed Contacts  
 G - Space  
 H - Hermetically Sealed Receptacle - Fixed Contacts

### SHELL STYLE

1 - In-Line Receptacle  
 2 - Box Mount Receptacle (Square Flange)  
 3 - Receptacle, Round, Solder Mount  
 4 - Box Mount Plug (Flange)  
 6 - Straight Plug  
 7 - Jam Nut Receptacle - Rear Panel Mount

8 - Jam Nut Receptacle - Front Panel Mount (MKJ4 series only)  
 9 - Jam Nut Plug - Rear Panel Mount (MKJ4 series only)  
 10 - Jam Nut Plug - Front Panel Mount (MKJ4 series only)  
 16 - Straight Plug with Self-Locking Coupling Nut (MKJ0 series only)  
 26 - Straight Plug with Self-Ratchet Coupling Nut (MKJ1 series only)

### MATERIAL/PLATING

C - Aluminum/Anodize, Black  
 F - Aluminum/Electroless Nickel  
 K - Stainless Steel/Passivated  
 T - Aluminum/Teflon Nickel

W - Aluminum/OD Cad  
 Y - Stainless Steel/Electroless Nickel, Black  
 Z - Aluminum/Zinc Nickel, Black  
 N - Stainless Steel/Electroless Nickel

### SHELL SIZE & CONTACT ARRANGEMENT

5-3	3	Size 23	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	12-26	26	Size 23	Contacts	Series MKJ5
6-1	1	Size 16	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	12-37	37	Size 23	Contacts	Series MKJ0, MKJ3, MKJ4
6-4	4	Size 23	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	12-220	20	Size 20	Contacts	Series MKJ0, MKJ3, MKJ4
6-6	6	Size 23	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	13-2	2	Size 12	Contacts	Series MKJ1
6-7	7	Size 23	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	13-3	3	Size 12	Contacts	Series MKJ1
6-23	3	Size 20	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	13-7	7	Size 16	Contacts	Series MKJ1
7-1	1	Size 12	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	13-37	37	Size 23	Contacts	Series MKJ1
7-10	10	Size 23	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	13-220	20	Size 20	Contacts	Series MKJ1
7-25	5	Size 20	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	14-5	5	Size 12	Contacts	Series MKJ3, MKJ4
8-1	1	Size 16	Contacts	Series MKJ5	14-12	12	Size 16	Contacts	Series MKJ3, MKJ4
8-2	2	Size 16	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	14-55	55	Size 23	Contacts	Series MKJ3, MKJ4
8-4	4	Size 23	Contacts	Series MKJ5	14-235	35	Size 20	Contacts	Series MKJ3, MKJ4
8-6	6	Size 23	Contacts	Series MKJ5	15-2	2	Size 12	Contacts	Series MKJ5
8-7	7	Size 23	Contacts	Series MKJ5	15-3	3	Size 12	Contacts	Series MKJ5
8-13	13	Size 23	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	15-7	7	Size 16	Contacts	Series MKJ5
8-23	3	Size 20	Contacts	Series MKJ5	15-37	37	Size 23	Contacts	Series MKJ5
8-28	8	Size 20	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	15-55	55	Size 23	Contacts	Series MKJ0, MKJ3, MKJ4
9-1	1	Size 12	Contacts	Series MKJ5	15-220	20	Size 20	Contacts	Series MKJ5
9-4	4	Size 16	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	15-241	41	Size 20	Contacts	Series MKJ3, MKJ4
9-10	10	Size 23	Contacts	Series MKJ5	16-5	5	Size 12	Contacts	Series MKJ1
9-19	19	Size 23	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	16-12	12	Size 16	Contacts	Series MKJ1
9-25	5	Size 20	Contacts	Series MKJ5	16-55	55	Size 23	Contacts	Series MKJ1
9-210	10	Size 20	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	16-235	35	Size 20	Contacts	Series MKJ1
10-2	2	Size 16	Contacts	Series MKJ5	17-7	7	Size 12	Contacts	Series MKJ1
10-2	2	Size 12	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	17-14	14	Size 16	Contacts	Series MKJ1
10-5	5	Size 16	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	17-85	85	Size 23	Contacts	Series MKJ1
10-13	13	Size 23	Contacts	Series MKJ5	17-241	41	Size 20	Contacts	Series MKJ1
10-26	26	Size 23	Contacts	Series MKJ0, MKJ1, MKJ3, MKJ4	18-5	5	Size 12	Contacts	Series MKJ5
10-28	8	Size 20	Contacts	Series MKJ5	18-12	12	Size 16	Contacts	Series MKJ5
11-4	4	Size 16	Contacts	Series MKJ5	18-55	55	Size 23	Contacts	Series MKJ5
11-19	19	Size 23	Contacts	Series MKJ5	18-235	35	Size 20	Contacts	Series MKJ5
11-210	10	Size 20	Contacts	Series MKJ5	19-7	7	Size 12	Contacts	Series MKJ5
12-2	2	Size 12	Contacts	Series MKJ0, MKJ3, MKJ4, MKJ5	19-14	14	Size 16	Contacts	Series MKJ5
12-3	3	Size 12	Contacts	Series MKJ0, MKJ3, MKJ4	19-85	85	Size 23	Contacts	Series MKJ5
12-5	5	Size 16	Contacts	Series MKJ5	19-241	41	Size 20	Contacts	Series MKJ5
12-7	7	Size 16	Contacts	Series MKJ0, MKJ3, MKJ4					

### CONTACT STYLE

P - Pin, Crimp, Removal (For Class A & B only)  
 S - Socket, Crimp, Removable (For Class A & B only)  
 A - Pin, PC Tail, .062 Extension (For Class C through G only)  
 B - Pin, PC Tail, .109 Extension (For Class C through G only)

C - Socket, PC Tail, .062 Extension (For Class C through G only)  
 D - Socket, PC Tail, .109 Extension (For Class C through G only)  
 E - Pin, Solder Cup (For Class C through G only)  
 F - Socket, Solder Cup (For Class C through G only)

### SHELL LOCKING (POSITION)

<b>MKJ0 Series</b>	N - Normal	
	X - Clocking Position X	
	Y - Clocking Position Y	
	Z - Clocking Position Z	
<b>MKJ1 Series</b>	A - Normal	150° - 210°
	B - Clocking Position B	75° - 210°
	C - Clocking Position C	95° - 230°
	D - Clocking Position D	140° - 275°
	E - Clocking Position E	75° - 275°
	F - Clocking Position F	95° - 210°
<b>MKJ3 Series</b>	N - Normal	150° - 210°
	X - Clocking Position X	75° - 210°
	Y - Clocking Position Y	95° - 230°
	Z - Clocking Position Z	140° - 275°

<b>MKJ4 Series</b>	<i>Omit for Single Key/Keyway</i>	
	A - Normal	150° - 210°
	B - Clocking Position B	75° - 210°
	C - Clocking Position C	95° - 230°
	D - Clocking Position D	140° - 275°
	E - Clocking Position E	75° - 275°
	F - Clocking Position F	95° - 210°
<b>MKJ5 Series</b>	A - Normal	150° - 210°
	B - Clocking Position B	75° - 210°
	C - Clocking Position C	95° - 230°
	D - Clocking Position D	140° - 275°
	E - Clocking Position E	75° - 275°
	F - Clocking Position F	95° - 210°

### MODIFICATION CODE

F0 - Less Contacts ("F0" not stamped on the connector, but must be included on the P.O.)  
 Capacitance Codes (pF)  
 A - 19,000 - 28,000      D - 4,000 - 6,000      F - 400 - 650  
 B - 16,000 - 22,500      E - 1,650 - 2,500      G - 200 - 300  
 C - 9,000 - 16,500

518 - Class "C" PC style back potted receptacle connectors with water immersion testing.  
 Consult factory for other modification codes

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## Connect with the experts.

No one is more qualified to help you equip soldiers than ITT Cannon. With 100 years of interconnect excellence and seven decades of global presence in the Defense Industry, we are a committed partner among today's military equipment manufacturers. We continue to lead the market and meet soldiers' needs for adaptability, mobility and survivability. And we do so with one goal in mind: to get more soldiers home safely.



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