

CIRCULAR PLASTIC CONNECTORS (CPC) SELECTION GUIDE



Miniature CPC

Considerations when specifying Circular Plastic Connectors:

- Wire type and size requirements
- Number of circuits required
- Current and voltage rating requirements
- Is environmental sealing or splash protection required?
- How much space is available for the connector?
- Is a plastic housing suitable for the application or is a more durable metal-shell housing required?
- Volume of contacts to be crimped – impacts recommended application tooling and contact packaging
- Required accessories



Standard CPC

Industry Applications:

Miniature CPC

Industrial machinery
Instrumentation
Motor vehicles
Recreational vehicles

Standard CPC

Industrial machinery
Instrumentation
Agricultural
Equipment
Welding equipment
HVAC
Lighting
Security
Motor vehicles
Recreational vehicles

MINIATURE CPC CONNECTORS



Miniature CPC

- Small circular connector system for wire-to-wire and wire-to-panel configurations
- 1 to 9 positions
- Uses existing Mini-Universal MATE-N-LOK crimp, snap-in contacts
- Sealing to IP67 prevents ingress of dirt or fluids
- 1/4-turn coupling ring with positive lock and alignment features



IEC 60529 IP (Internal Protection) Definition

- The first number (1-6) in an IP number specifies the degree of protection against ingress of solid foreign objects.
- The second number (0-7) specifies the degree of protection against ingress of water.
- IP65 and IP67 ratings, defined as follows, apply to certain CPC connectors: IP65 - Protection against ingress of dust and protection against water stream out of a nozzle from any direction (jetting).
- IP67 - Protection against ingress of dust and protection against temporary immersion

SUMMARY CHART

Product Name	Number of Positions	Contact System	Wire Range (AWG)	Current Rating (A)	Voltage Rating (V)	Coupling Mechanism	Wire to Wire	Wire to Panel	Sealing
Miniature CPC	1 to 9	Universal MATE-N-LOK Crimp, Snap-in Contacts	30-22	5	250	1/4-Turn Coupling Ring	X	X	1P67

Reference: Catalog 1309175 (Miniature)

Accessories:

- Cable clamps
- Heat shrink boots
- Flange seals
- Dust caps

STANDARD CPC CONNECTORS

SERIES 1



- Standard density connector: Signals up to 25A (also available in Sealed)
- 4-37 Positions
- Accepts size 16 multimate pin & socket contacts
- Sealable to IEC IP67
- Sizes: 11-4, 13-7, 13-9, 17-9, 17-14, 17-16, 23-19, 23-24, 23-37
- Sealed UV - resistant version available

SERIES 2



- High density connector: Signals up to 7.5A
- 8-63 Positions
- Accepts size 20 DF/DM contacts
- Smaller contact allows more circuit positions than Series 1 connectors
- Sizes: 11-8, 11-9, 17-28, 23-57, 23-63

SERIES 3



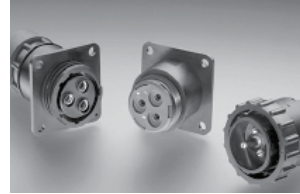
- Power Density: Power up to 47A
- 3-7 positions
- Accepts Type XII "box" style power contacts
- Contact wire range is 16-10 AWG
- Sizes: 17-3 and 23-7

SERIES 4



- Combination standard & power density: Signals up to 25A, power up to 47A
- 13-22 positions
- Accepts size 16 multimate contacts and Type XII power contacts in same housing
- Sizes 23-13: 8 signal, 5 power 23-16: 12 signal, 4 power 23-22: 20 signal, 2 power

SERIES 5



- Power density connector (Sealable): Power up to 50A
- Sealable to IP65 or IP67
- 3 positions
- Accepts economical POWERBAND stamped & formed contacts capable of carrying up to 50 amps
- Size 17-3: One-Piece rated for IP 67 performance Two-Piece rated for IP 65 performance
- Sealed UV - Resistant version available

SERIES 6



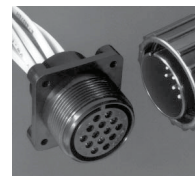
- Combination standard & power density (Sealable): Signals up to 25A, power up to 50A
- Sealable to IP65 or IP67
- 10 positions
- Uses both multimate size 16 contacts and POWERBAND 50-amp contacts in same housing
- Sizes 23-16: 12 signal, 4 power - One-Piece rated for IP 67 performance 17-10: 8 signal, 2 power - Two-Piece rated for IP 65 performance
- Sealed UV - Resistant version available

CIRCULAR PLASTIC METAL-SHELL (CMC)



- Consists of a thermoplastic insert in a nickel-plated, zinc alloy shell
- Available in series 1-4 configurations (same contact configuration as all-plastic version)
- Optional "Tetraseal" interface seal provides splash-proof sealing between connector metal shells

MIL-C-5015 STYLE CPC



- All-plastic connector that intermates with other manufacturer's metal-shell Mil-C-5015 type connectors
- Intermates with size 20-14 and 18-10 connectors
- Uses multimate size 16 contacts

STANDARD CPC CONNECTORS

SUMMARY CHART

Series	Description	Positions	Full Sealing*	Optional Interface Sealing**	20 DF/DM	Type II	Type III+ & High Current Enhanced	Type III+ Posted	High Current Power	Type XII Power	POWERBAND
All Plastic CPC											
Series 1	Standard Density	4-37	IP67 [†]	✓		✓	✓	✓	✓		
Series 2	High Density	8-63		✓	✓						
Series 3	Power Density	3-7								✓	
Series 4	Combination Standard & Power Density	13-22				✓	✓		✓	✓	
Series 5	Power Density	3	IP65 & IP67								✓
Series 6	Combination Standard & Power Density	10	IP65 & IP67			✓	✓				✓
Metal-Shell CPC											
Series 1	Standard Density	5-37		✓		✓	✓	✓	✓		
Series 2	High Density	28, 63		✓	✓						
Series 3	Power Density	3, 7		✓						✓	
Series 4	Combination Standard & Power Density	16, 22		✓		✓	✓		✓	✓	
MIL Style CPC											
5015	Plastic Housing, MIL-C-5015	10, 14					✓ ^{††}				

*Has wire entry seals and peripheral interface seals. **Has peripheral interface seal only that provides splash-proof sealing between mating halves.
[†]Series 1 Connectors are also available unsealed. ^{††}High Current enhanced version is not compatible with MIL-C-5015 Style CPC

CPC CONNECTOR CONTACTS

Type	Current Rating (A)*	Wire (AWG)	Size/Type	Description
20 DF	7.5	28-20	Size 20 (.040" Dia.)	Stamped & Formed, Crimp Snap-in
20 DM	7.5	24-20	Size 20 (.040" Dia.)	Screw Machined, Crimp Snap-in
Type II	13	28-14	Size 16 (.062" Dia.)	"Multimate", Screw Machined, Crimp Snap-in
Type III+	13	30-14	Size 16 (.062" Dia.)	"Multimate", Stamped & Formed, Crimp Snap-in
Type III+ High Current Enhanced	25	30-14	Size 16 (.062" Dia.)	"Multimate", Stamped & Formed, Crimp Snap-in
Type III+ Posted	13	n/a	Size 16 (.062" Dia.)	"Multimate", Stamped & Formed, For PCB, Wire-Wrap or TERMI-POINT Clips
High Current Power	23	18-14	Size 16 (.062" Dia.)	"Louvertac", Screw Machined, Crimp Snap-in
Type XII	47	16-10	Box Design	Stamped & Formed, Crimp Snap-in
POWERBAND	50	14-10	.125" Dia.	Stamped & Formed, Crimp Snap-in, Louvertac

*Maximum current for single contact and largest wire size Reference: Catalog 82021

CIRCULAR PLASTIC CONNECTORS

PRODUCT FACTS



- Lightweight, all-plastic and metal-shell circular connectors
- Quick connect/disconnect capability with thread assist and positive detent coupling
- Available in panel or chassis mount and free-hanging configurations
- Housings constructed from UL 94V-0 rated thermoplastic material

ACCESSORIES



- Cable clamps
- Flexible cable boots
- Keying plugs
- Interface seals
- Flange seals
- Dust caps
- Heat shrink sealing boots

MANUAL HAND TOOLS FOR INTERCHANGEABLE DIE SETS



- SDE (Standard Die Envelope) die sets



- PRO-CRIMPER III hand tool



- CERTI-CRIMP straight



- CERTI-CRIMP "C" head straight action hand tool

CRIMP MACHINES



- AMP-O-ELECTRIC model "GII" terminating machines



- Crimp Quality Monitor II (CQM II)



- AMP 3K and AMP 5K terminating machines

STRIPPER-CRIMPER MACHINES



- Cosmic 60R wire stripping machine



- Cosmic 927R micro-cable stripper

LEAD MAKERS



- UNIQA-PRO



- GAMMA 333 PC-V

ELECTRIC MACHINE / PNEUMATIC HAND TOOL



- 626 Pneumatic tool system



- SDE terminator

APPLICATORS



- Ocean applicator

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