# Making Your **Medical Design Decisions Easy...**

Interpower® is your one-stop shop for all of your medical component needs. For a complete listing of these parts, visit www.interpower.com/ic/hospitalgrade.html.

- 1-week U.S. manufacturing lead-time on non-stock Interpower products
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- All Interpower manufactured products are 100% tested for safety
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- Over 4 million parts in stock
- Free technical support



# **Hospital-Grade Standards & Requirements**

#### North American Medical Market

Medical components used in North America, such as power cords, cord sets, modules, and rewireable plugs and sockets, must meet very stringent standards. These components are subject to the special requirements contained in the following standards: CAN/CSA C22.2 no. 60601-1 and UL 60601-1(medical equipment); UL 817 and CAN/CSA C22.2 no. 21-99 (power supply cords); UL 498 and CAN/CSA C22.2 no. 42-14 (attachment plugs).

The North American hospital-grade molded plug pattern conforms to the NEMA standard. The blades shall be formed of solid brass material and the grounding pin shall not be capable of being easily bent without the use of tools. The blades are normally nickelplated. The plug includes a cable retention device or strain relief to prevent any stress to the plug's internal connections. It is imperative that the ground connection be reliably maintained to protect the patient and medical staff. Although many hospitals prefer that the plug be clear so that internal connections can be inspected visually, the UL and CSA standards do not mandate clear plugs nor do they provide any restrictions on color.

Interpower North American hospital-grade cords, plugs, and sockets carry the "green dot" signifying that they have been designed and tested by UL and CSA for grounding reliability, assembly integrity, strength and durability. Specifically, UL 60601-1 requires that "patient care equipment" used in the "patient vicinity" must use hospital-grade attachment plugs. "Patient care equipment" and "patient vicinity" are defined in UL 60601-1. There are no specific maximum lengths for cords noted in the standards listed above, yet the equipment must pass the leakage current test requirements in CAN/CSA C22.2 no. 60601-1 and/or UL 60601-1. Cord length does have an effect on leakage current within a system.

# **International Medical Markets**

International markets, including European medical equipment used in these markets, typically must meet EN/IEC 60601-1. At this time, there are limited performance or construction requirements for cord sets used in these applications. Cord sets typically will be Class I (with ground). Interpower offers the Continental European, Argentine, British, Chinese, India/ South African, Israeli, Italian, and Swiss cord sets. Australia, Denmark, and Japan have special requirements for their medical products. Interpower manufactures products for Australia and Denmark, but not Japan at this time.

#### Australian Medical Requirements

Australian medical equipment used in Australia must meet AS/NZS 3200 series. There are no special requirements for cord sets, only preferences.

All Australian cord sets must use a plug approved to AS/NZS 3112 and a connector approved to IEC 60320-1, or the equivalent Australian standard. Cord sets for use in Australian medical applications are preferred by hospitals to have a clear plug and orange, flexible cable. These plugs and connectors must carry an Australian approval. Interpower cords are manufactured to the AS/NZS 3112 and IEC 60320-1 specifications.

#### Danish Medical Requirements

The Danish hospital-grade cord set, plug, and socket are recommended for use in medical applications. The specifications are in the standard SB 107-2-D1. The design of the plug and socket is to prevent "normal equipment" from being connected and disrupting the mains circuit in specific medical settings.

#### **Medical Power Entry Modules**

Medical equipment must meet special requirements. These requirements place special significance on fusing and filtering when selecting components used in medical equipment. Patient-connected medical equipment can be subjected to low-leakage current requirements. The use of a low-leakage filter in the 5µA range at 250VAC is desirable. In addition, fusing of both line and neutral connections may be required (i.e. double fusing).



# **Hospital-Grade Power Cords & Cord Sets**

# **North American Hospital-Grade Cords**

While not required, clear plugs are preferred for patient connected equipment. This allows for quick and easy inspection of the internal connections. For more information on medical requirements, go to www.interpower. com/ic/hospitalgrade.html. All cord sets with C13 or a C19 will fit connector lock P/N 85910071 (IEC 60320 C13) or P/N 85910051 (IEC 60320 C19).

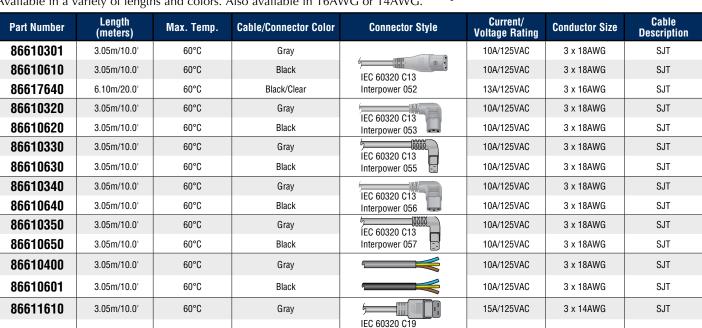
#### Clear North American Plugs With Black or Gray Cable

Available in a variety of lengths and colors. Also available in 16AWG or 14AWG.









Interpower 068

#### **Gray North American Plugs With Gray Cable**

Available in a variety of lengths and colors. Also available in 16AWG or 14AWG.

Order online:

www.interpower.com









Part Number	Length (meters)	Max. Temp.	Cable/Connector Color	Connector Style	Current/ Voltage Rating	Conductor Size	Cable Description
86610810	3.05m/10.0'	60°C	Gray	IEC 60320 C13 Interpower 052	10A/125VAC	3 x 18AWG	SJT
86610820	3.05m/10.0'	60°C	Gray	IEC 60320 C13 Interpower 053	10A/125VAC	3 x 18AWG	SJT
86610830	3.05m/10.0'	60°C	Gray	IEC 60320 C13 Interpower 055	10A/125VAC	3 x 18AWG	SJT
86610840	3.05m/10.0'	60°C	Gray	IEC 60320 C13 Interpower 056	10A/125VAC	3 x 18AWG	SJT
86610850	3.05m/10.0'	60°C	Gray	IEC 60320 C13 Interpower 057	10A/125VAC	3 x 18AWG	SJT
86610801	3.05m/10.0'	60°C	Gray		10A/125VAC	3 x 18AWG	SJT



# North American Hospital-Grade Cords, continued

#### **Black North American Plugs With Black Cable**

Available in a variety of lengths and colors. Also available in 16AWG or 14AWG.





Part Number	Length (meters)	Max. Temp.	Cable/Connector Color	Connector Style	Current/ Voltage Rating	Conductor Size	Cable Description
86610710	3.05m/10.0'	60°C	Black	IEC 60320 C13 Interpower 052	10A/125VAC	3 x 18AWG	SJT
86610720	3.05m/10.0'	60°C	Black	IEC 60320 C13 Interpower 053	10A/125VAC	3 x 18AWG	SJT
86610730	3.05m/10.0'	60°C	Black	IEC 60320 C13 Interpower 055	10A/125VAC	3 x 18AWG	SJT
86610740	3.05m/10.0'	60°C	Black	IEC 60320 C13 Interpower 056	10A/125VAC	3 x 18AWG	SJT
86610750	3.05m/10.0'	60°C	Black	IEC 60320 C13 Interpower 057	10A/125VAC	3 x 18AWG	SJT
86610701	3.05m/10.0'	60°C	Black		10A/125VAC	3 x 18AWG	SJT

# **Australian Hospital-Grade Cords**



Available in connector ar	For use at 10A/240VAC (50Hz) Hospital-Grade  Available in a variety of lengths, colors, and cable sizes. Other connector angles available. For plug and connector specifications, see www.interpower.com. No minimum order requirements.					Color	Length	Rating	Approvals	Recommended Connector Lock or Strain Relief
86210150	<b>86210150</b> Cord set with IEC 60320 C13 connector								Plug	
						Clear Plug/ Connector	2.5m	10A/250	Department of Fair Trading	Connector Locks 85910071
-	300000					with Orange	8.2'	VAC	Connector	or 85910075
	Canduatas Cina	Description	Minima	Annyay O.D.		Cable			Department of	00910075
Cable Specifications	Conductor Size 3 x 1.00mm <sup>2</sup>	Description H05VVF3G1.00	Wiring —	<b>Approx. O.D.</b> 6.3-8.0mm					Fair Trading	

# **Danish Hospital-Grade Cords**



For use at 10A/230VAC (50Hz) Hospital-Grade  Available in a variety of lengths, colors, and cable sizes. Other connector angles available. For plug and connector specifications, see www.interpower.com. No minimum order requirements.					Max Temp.	Color	Length	Rating	Approvals	Recommended Connector Lock or Strain Relief
86280810	<b>86280810</b> Cord set with IEC 60320 C13 connector								Plug	
	9 5								(D)	Connector Locks
					70°C	Black	2.5m 8.2'	10A/250 VAC	Connector	85910071 or
C E (Rolls)							Department of Fair Trading	85910075		
Cable	Conductor Size	Description	Wiring	Approx. O.D.					O'E RAM S	
Specifications	3 x 1.50mm <sup>2</sup>	H05VVF3G1.50	_	7.4–9.4mm						

# **Japanese Hospital-Grade Cords**



For plug and		ecifications, s	•	spital-Grade v.interpower.com.	Max Temp.	Color	Length	Rating	Approvals	Recommended Connector Lock or Strain Relief
86589100	Hospital-grade	cord set with	IEC 6032	20 C13 connector	60°C	Gray	2.5m 8.2'	12A/125 VAC	Plug  (PSE)  Connector	-
Cable Specifications	Conductor Size 3 x 1.25mm <sup>2</sup>	Description VCTF	Wiring —	Approx. O.D. 7.8mm					PSE	
86589110	Hospital-grade	power cord w	ith 50/10	Omm strip			2.5m	12A/125	Plug	Strain Reliefs 85820541
Cable	Conductor Size	Description	Wiring	Approx. O.D.	60°C	Gray	8.2'	VAC	Connector N/A	or 85820121
Specifications	3 x 1.25mm <sup>2</sup>	VCTF	BWG/Y*	7.8mm						

<sup>\*</sup> BWG/Y: black/white/green-yellow



# Connector Locks

Connector locks secure cord sets to IEC 60320 power inlets to help prevent accidental power interruption. Cord sets can be easily removed without disrupting the connector lock. Each connector lock is designed for a specific connector style. The connector locks can only be used with the screw-mounted power inlets.





#### For Cord Sets Rated 10/15A

For use with Interpower IEC 60320 C13 connector molds 052, 053, 055, 056, and 057. For North American and international applications.

## 85910071 (RoHS)

black finish

# 85910075 (RoHS)









#### For Cord Sets Rated 16/20A

For use with Interpower IEC 60320 C19 connector molds 013, 015, 068, 069, and 070. For North American and international applications.

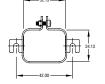
#### 85910051 black finish













# **Interpower Low-Leakage Modules**

# **Interpower 2-Function Low-Leakage Modules**

For Class I applications, these modules include an IEC 60320 C20 power inlet and a filter to provide RFI suppression of line-to-line ground noise. See www.interpower.com for schematics and filter performance.





Screw-Mount	Part Number	Fuse Type	Contact Style
	83530593	_	6.3mm QDs
	Ratin	gs/Approvals	3
(Rolls)	Int'I 6A/250VAC <u>(√°</u> E)	8A	rth American 115/250VAC

# **Interpower 4-Function Low-Leakage Modules**



**Features:** Easy to accommodate differences between international and North American input voltages and fusing. See www.interpower.com for schematics and filter performance.

Snap-In Mount	Part Number	Fuse Type	Contact Style
	83544050	Single- Fuse	4.8mm QDs
	Ratin	gs/Appro	vals
RAIS (TO	<b>Int'l</b> 6A/250VAC <u>Ô°E</u>		North American 6A 120/250VAC

Modules contain low-leakage 10A filter for medical applications.

# Interpower 5-Function Low-Leakage Modules



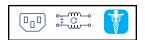
**Features:** Voltage selector (115/230VAC), filter, switch, inlet, and fusing. Easy to accommodate differences between international and North American input voltages and fusing. See www.interpower.com for schematics and filter performance.

Screw-Mount	Part Number	Fuse Type	Contact Style		
	83545020	Double- Fuse	4.8mm QDs		
	83545030	Single- Fuse	4.8mm QDs		
	<b>83545070</b> (No voltage selector)	Double- Fuse	4.8mm QDs		
	Ratin	gs/Appro	pprovals		
(RollS)	Int'I 10A/250VAC		North American 10A 120/250VAC		

Modules contain low-leakage 10A filter for medical applications.

Note: To meet IEC 60417 and UL Standards, the orientation of the "on" mark, a straight line (I), should be mounted in the vertical position.

## Low-leakage Sheet F Module



For Class I applications, these modules include an IEC 60320 Sheet F power outlet and a general or hospital-grade purpose filter to provide RFI suppression of line-to-line ground noise. See www.interpower.com for schematics and filter performance.

Screw-Mount	Part Number	Contact Style
	83550040	6.3mm QDs
All interest of the second	Ratings/	'Approvals
Rous	<b>Int'I</b> 10A/250VAC <u>0°</u> E	North American 15A/250VAC

# Low-leakage Sheet I Module



For Class I applications, these modules include an IEC 60320 Sheet F power outlet and a general or hospital-grade purpose filter to provide RFI suppression of line-to-line ground noise. See www.interpower.com for schematics and filter performance.

Screw-Mount	Part Number	Contact Style
	83550060	6.3mm QDs
	Ratings/	Approvals
Test Ross	<b>Int'I</b> 16A/250VAC <u>₽`€</u>	North American 20A/250VAC



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<sup>\*</sup> Connections to transformer are made by equipment designer and manufacturer.

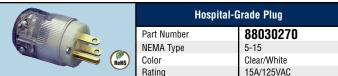
# **Hospital-Grade Re-Wireable Plugs & Sockets**

# **North American Plugs & Sockets**





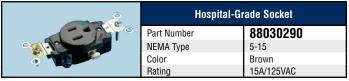






	oop	
	Part Number	88030270A
100	NEMA Type	5-15
RoHS	Color	Clear/White
	Rating	15A/125VAC
A. P. Carlotte and	Hospital Cra	do Connoctor

	Hospital-Gra	de Connector
	Part Number	88030280
	NEMA Type	5-15
ROHS	Color	Clear/White
	Rating	15A/125VAC



	Hospital-Grade Duplex Socket	
	Part Number	88030890
	NEMA Type	5-15
	Color	Brown
100	Rating	15A/125VAC

	Hospital-Grade Plug	
900	Part Number	88030370
	NEMA Type	6-15
RoHS	Color	Clear/White
RUIS	Rating	15A/250VAC



#### Hospital-Grade Plug 88030390 Part Number NEMA Type Clear/White Color 20A/125VAC

		Hospital-Grade Connector	
		Part Number	88030400
The second second		NEMA Type	5-20
HOSPITAL FRANCE	(	Color	Clear/White
	RoHS	Rating	20A/125VAC

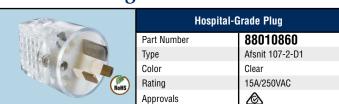
	Hospital-Grade Socket	
	Part Number	88030580
	NEMA Type	5-20
	Color	Brown
. —	Rating	20A/125VAC

	Hospital-Grade Duplex Socket	
	Part Number	88030940
	NEMA Type	5-20
	Color	Brown
	Rating	20A/125VAC

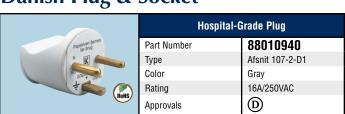
	Hospital-Grade Plug	
	Part Number	88030410
	NEMA Type	6-20
	Color	Clear/White
RoHS	Rating	20A/250VAC

	Hospital-Grade Connector	
	Part Number	88030420
	NEMA Type	6-20
INSPIRAL CONTINUES	Color	Clear/White
RoHS	Rating	20A/250VAC

# **Australian Plugs**



# **Danish Plug & Socket**



Order online: www.interpower.com





Hospital-Grade Socket		
Part Number	88010910	
Туре	Afsnit 107-2-D1	
Color	Gray	
Rating	10A/250VAC	
Approvals	(D)	



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#### **Custom Kits**

Interpower offers flexible shipping options for the Accessory Power Strips and other products. Specialize a kit with any combination of power strips, jumper cord sets, North American or international cord sets, and any other Interpower products. All of this kitted under one part number allows for convenient and efficient assembly and easier ordering and inventory control.

#### **EXAMPLE OF A KIT:**

1 Accessory power strip

1 country specific cord set (per your requirements) Jumper cord sets

# **Power Cord and Cord Set Molding Options**

- Available in a variety of lengths and colors
- We have all the connector angles
- Different size and types of cable (SVT, SJT, H05, etc.)
- Made-to-order cable terminations for power cords
- Strain reliefs
- Heat shrink tubing
- Ferrules



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- Same day shipping available for in-stock products
- Lock in your price with blanket or scheduled orders
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Toll-free telephone: (800) 662-2290 Fax: (800) 645-5360

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Orders can be placed either with our Customer Service Department (by telephone, fax, mail, email, or web), or with one of our sales representatives. Interpower sales representatives are located throughout the United States and Canada; call our office in Oskaloosa, lowa, for the name of your local sales representative or go online to http://www.interpower.com/ic/salesreps.html.

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