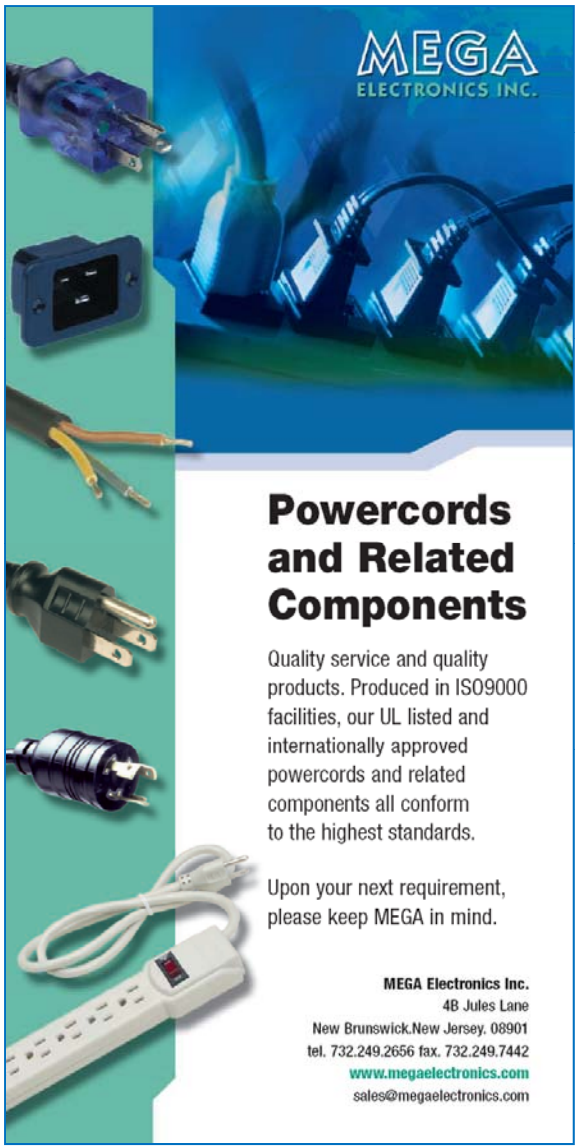


MEGA Electronics, Inc.
4-B Jules Lane
New Brunswick, NJ
08901

Tel. (732) 249-2656
Fax. (732) 249-7442

MEGA Electronics Inc.

Founded in 1994 to provide one source for all components that bring power from the wall into your product, for any location anywhere in the world. The company is built on three pillars:

I. Highest quality products

II. Excellent customer service

III. Superior product knowledge.

Power Cord Products

The Company headquarters and engineering support are located in New Jersey. ISO 9001 certified production facilities in the Philippines and Huizhou, Guangdong China are vertically integrated. Cord set production begins with the drawing of 8mm copper rods down to sizes as small as 0.05mm and includes all aspects of production from extrusion to molding of couplers all in house.

The combination of vertical integration and the UL listing for cord sets and wire harnesses in New Jersey combine to allow MEGA to provide you with the fastest possible service at the most reasonable prices.

Why buy MEGA?

Knowledgeable Sales People

+

High Quality Products

+

Low Minimums for Custom and Stock Items

=

Very Low Cost of Doing Business

Guide to specifying cord sets and power cords: What to Ask?

- What plug is required?
  - How many amps and volts? (i.e. 10A/125V, 10A/250V, etc.)
  - How many conductors? (Most common 2 or 3)
- What cordage is required?
  - What size, temperature rating, color, conductor colors?
- Is a connector required?
  - If yes, which type? (i.e. C7, C13, C19)
  - If no, what end preparations are required:

    ROJ(Remove outer jacket) + Strip (conductors), tinning, terminals?
- What length is required?
- Optional extras: special packaging, bagging, blister pack, labeling, etc.

Note: The completed cord set will be rated only as high as the lowest rated components

North American NEMA Standards

N1/15P Rated 15A/125V

- Available polarized (Wide blade) or non-polarized
- For use with all two-conductor cordages

N5/15P Rated 15A/125V

- For use with all three-conductor cordages
- Also available with cord grip

N6/15P Rated 15A/250V

- For use with all three-conductor cordages
- Horizontal pins

See catalog page 4-14

North American NEMA Standards

- N5/20P Rated 20A/125V
  - For use with all three-conductor cordages

- N6/20P Rated 20A/250V
  - For use with all three-conductor cordages

- N6/30P Rated 30A/250V
  - The plug designations and ratings continue to increase. To view additional NEMA straight blade plugs.

See page 14 in catalog

Hospital Grade NEMA Plugs

A special use section of cord sets has been created for use on medical and dental equipment as defined by UL 544. The purpose of this regulation is to provide a "safer" environment for patients coming into contact with medical equipment. This is achieved through the following requirements:

- **Solid plug pins to lower the risk of bending**
- **Soldering pins to withstand greater pull forces**
- **Larger bodies lower the risk of wire to outer contour shock**
- **Plug surface skin testing**

•In addition to the above, hospital grade cord sets are required to meet the standard testing requirements under UL and CSA, and are tested under UL 817. If approved, the plugs can be stamped with the "Green Dot" on the plug face.

•A **recent change** deleted UL Section 103.4 that required the grounding of hospital grade cords longer than 10 feet (3.05m) shall be no smaller than 16AWG. Now 18AWG cordage will be acceptable for hospital grade cord sets longer than 10 feet.

See catalog pages 10-11

Molded Twist Lock Cord sets

The use of twist locks is becoming increasingly more common when the flow of continuous power is critical. The use of the twist lock ensures that once the plug has been inserted and turned ("locked"), the plug cannot be removed by tripping over a wire or by similar accidents. The twist lock mirrors the nomenclature of the NEMA standards in regards to amperage and voltage rating, but differ significantly in plug shape and configuration.

See catalog page 9

Additional NEMA Angle Plugs

Plugs are available with various cordage types and gauges. Ratings shown in catalog are the highest allowable by appropriate standards. Ratings will vary with cordage gauges.

See catalog pages 12-13

NEW

NEMA 5/15P with Circuit Breaker

The circuit breaker is UL recognized to 15A/125VAC-60Hz and has a push to reset function. UL listed for use with 12 - 16AWG SJT, SJTO, and SJTOW cable, it is suitable for indoor and outdoor applications. For use in hard wire power cord, detachable cord set or extension cord applications.

See catalog page 13

Dryer and Range Cords

NEMA 10/30P (Dryer type)

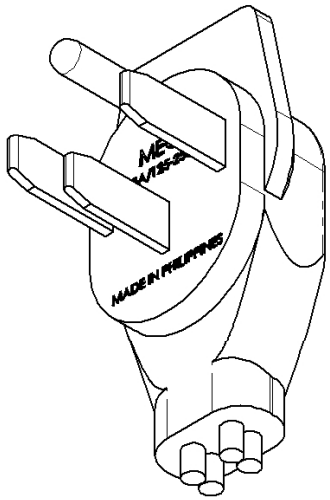
30A 125A/250V

SRDT 10/4C

NEMA 10/50P

50A 125V/250V

SRDT 10/3C, 8/3C, 6/3C



Custom Tooled
N14/50P flat face

See catalog page 14

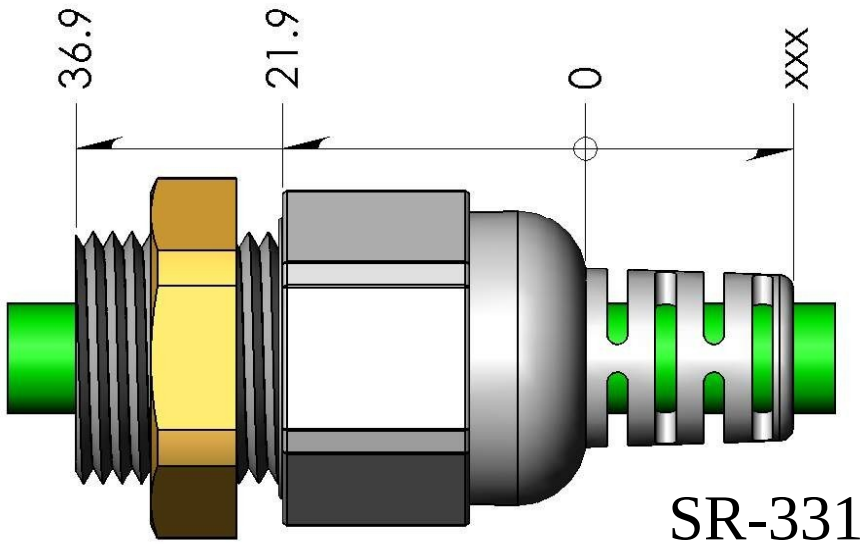
Branched Power cords

Branches allow multiple devices to be run from a single power source. Branches can be used with a variety of plugs and cables. MEGA currently offers two and three way branches.

See catalog page 15

Fully Molded Strain Reliefs

Fully molded threaded strain reliefs are available from our stock tooling or custom made.



SR-331

See catalog page 15

International Three Conductor Plug Standards

Country	Maximum AMP/V	Standard
Continental Europe	16/250	CEE(7)VII
United Kingdom (Singapore/Saudi Arabia)	13/250	BS 1363
Italy	16/250	CEI 23-16
Switzerland	10/250	1011-S24507
Denmark	10/250	107/10
Australia/New Zealand	15/250	AS 3112
Argentina	20/250	IRAM 2073:1982
China	15/250	GB 2099.1-1996
Brazil	20/250	NBR14136
South Africa/India	16/250	SABS164/1980
Israel	16/250	S1 32/1971
Japan	15/125	JIS 8303
South Korea	16/250	K 60884-1 & KSC8305:97
Taiwan	10/250	CNS10917
Thailand (Pending)	16/250	TIS 166-2549

Continental Europe
Type: CEE 7 (VII) “Schuko”

The plug has two round pin contacts and two grounding clips on the sides of the plug body, allowing the plug to be inserted in sockets without regard to polarization. Only in France and Belgium is this plug polarized because of the permanently mounted pin in the socket which mates with the hole in the plug face. A very similar plug is used in South Korea. This plug will cover 75% of the European market.

Also available right angled

This plug will be used everywhere except the UK, Switzerland, and Denmark

See catalog page 19

Eurocord

For low amperage (2.5A250V) ungrounded applications the Eurocord can be used throughout Europe, except in the UK and Switzerland

See catalog page 19

BS 1363 United Kingdom

As with most things, the Brits do things completely different than the rest of Europe with regard to their plug configuration. The plugs must have an internal fuse. 3AMP, 5AMP, 10AMP, or 13AMP fuses. The most commonly used fuse is the 13 Amp.

British plugs must be approved by ASTA or BSI for the UK, by PSB in Singapore, and Saudi Arabia has implemented a Product Conformity Program requiring a Certificate of Conformity also referred to as a SASO CoC to be cleared through Customs.

See catalog page 16

Italian/Swiss/Danish

- Italian to 10A/250V
- Alternate plug to 16A/250V

- Swiss to 10A/250V

In 2013 it will be required for the Swiss plug to have insulated pins. MEGA has already instituted the change

- Danish to 13A/250V

Italy and Denmark have approved use of the Schuko, but this is infrequently used.

See catalog page 20-21

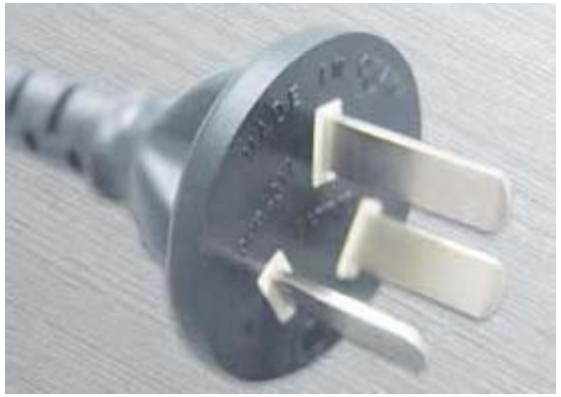
Australia/New Zealand

The Australian plug can be approved by one of five state agencies. The standard plug is 10A/250V rated, but 15A and 20A models are available. Australian standard AS/NZS 3112:2000 has been updated and as of April 3, 2005 requires the use of insulated line and neutral pins.

For hospital applications, a clear plug is recommended, but not required

See catalog page 22

Argentina



- The Argentine plug mirrors the Australian, except for three major differences: the plug pins are 1 mm longer, no safety contacts are required and the pin polarity is reversed. The IRAM approval is required.

See catalog page 24

China

The 10A Chinese plug also mirrors the Australian, except that the contact pins are 1 mm longer and they are required to have the CCC approval.

In addition there is 16A, 250V plug under the standard GB 2099.1-2008, GB 1002-2008

China has implemented the Regulation for Pollution Control of Electronics Products (WEEE) to mirror the European RoHS

See catalog page 25

Brazil

As of January 1, 2010 Brazil requires the use of the new plugs under standard NBR14136. The new plug is very similar to the Swiss standard.

There are now two conductor and three conductor standards in place

See catalog page 22

South Africa/India-Israel

- India and South Africa use the old British style defined in BS546. India has a new approval proposed and will require the BIS approval.

- Israel's plug is defined in SI-32 and can be used in applications up to 16A/250V. The Europlug is used for 2 conductor applications

See catalog page 23

Japan

The Japanese plug and the EN60320 C13 connector are specified in JIS 8303. Cord sets exported to Japan formerly required the Dentori T-Mark. This has been replaced with the PSE approval. However, the T-mark approval is valid until the approval expires. The plug configurations for Japan mirror the NEMA standards used in North America, with one major exception. Japanese mains often do not provide for grounding and a molded two-prong plug with a grounding fork can be used to ground the cord set to the wall socket.

See catalog page 24

South Korea

The South Korean plug standard mirrors the Continental European plug, except that it required the KETI approval mark (shown above). The cable type has been revised from the Japanese standard of the past to the European cable nomenclature.

As of 2012 the KETI mark is being replaced by the KC (Korean Certification) mark. KETI approval documentation allows a manufacture to apply the KC mark.

See catalog page 25

Taiwan

All powercord products to be used within Taiwan are required to have the new BSMI certification and mark. The BSMI mark (see above) is issued by the Bureau of Standards, Metrology and Inspection of the Ministry of Economic Affairs in Taiwan.

The plug mirrors the NEMA standards of North America, but the cabling is based on the Japanese system, the most common type being VCTF3x1.25mm.

See catalog page 25

Thailand

Thailand has set a new standard TIS 166-2549. Within the standard are 2 and 3 conductor pin configurations, both having semi insulated pins.

Both plugs will be used in conjunction with European cable.

No approval has yet to be implemented. MEGA is waiting for the approval marking to be released.

EN60320 Molded Connectors

European / UL ratings

C7

2.5A/250V

10A/125V

C5

2.5A/250V

10A/125V

C17

10A/250V

15A/250V

C13

10A/250V

15A/250V

C15

10A/250V

15A/250V

C19

16A/250V

20A/250V

120C max.

See catalog page 18

Universal Approved Jumper Cords

Jumper cords allow the transfer of power from one device to a second. Considered wiring harnesses, a single jumper cord can carry both the North American and European approvals making it universally approved.

C14/C13

Rated:
15A(UL)10A(Europe)/250V

See catalog page 17

C20/C19

Rated:
20A(UL)16A(Europe)/250V

AC Inlets and Outlets

The EN60320 AC power inlet is the most commonly used means of connecting a detachable cord set to any equipment that consumes up to 16A at 250V or less at operating temperatures up to 120°C. The connectors described in EN60320 standard sheets C7, C8, C13, C14, C15, C16, C19 and C20 are the most commonly specified standards throughout the industrialized world.

The odd numbers signify male inlets, the even female connectors

See catalog page 28-29

MEGA is stocking a narrow offering of the basic C13, C14, C19 & C20 inlets/outlets. The C13 and C14 are available as snap in versions as well.

C14

Rated 10A-15A/250V

C20

Rated: 16A-20A/250V

C13

Rated: 10A-15A/250V

C19

Rated: 16A-20A/125V-250V

See catalog page 28-29

Networking Cables and Harnesses

- MEGA is offering the CAT5E, CAT6E Molded patch cables, bulk cable, Audio Visual cables and USB cables.

These cable have become commodity items in standard lengths and colors. We are focusing on the OEM design for special colors and lengths.

See catalog page 32-35

Wire Harnesses

MEGA can supply wire harnesses with molded connectors, over molded ferrites and various housings and terminals. Our strength is in PVC harnesses. Quick turns are possible without over molding

Assembled UL/CSA Approved Locking and Straight Blade Plugs and Connectors

Available as individual components

Or

Assembled on cables - UL Listed

See catalog page 38-39

European Assembled Plugs and Sockets

TK616

TK544

TK524

TK707

See catalog page 40-41

EN60320 Assembled Plugs and Connectors

TK749/
T9009

TK798/
T4012

T104

Also available assembled on cables

TK794/
T4020

TK791/
T101

T106

EN60309 Plugs and Connectors

MEGA offers the 309 series of plugs and connectors up to a maximum of 125A/500V at 5 poles. The 309 plugs can carry both UL listing and VDE approval making them ideal for higher power requirements that will be shipped world wide. 309s are required for all applications over 16A in Europe, above 13A in the UK and above 10A in Switzerland and Denmark.

If lower costs are needed for export products we offer secondary parts that carry only European approvals.

See catalog page 42-43

EN60309 Plugs and Connectors Dual Approved UL, CSA and VDE

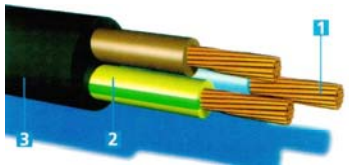
IP 44 Rated Plugs/Connectors

Protection against ingress of solid objects with diameters below 1mm and against penetration of water splashing from any direction.

IP 67 Rated Plugs/Connectors

Dust tight and submersion in water under defined conditions of pressure and time.

See catalog page 42-43



Cordage Types

There are now five major types of cable possible:

UL/CSA (North America)

Harmonized (Europe)

Australian (Australia/New Zealand)

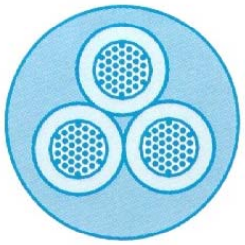
Japanese (Japan)

Chinese (China)

It is not permissible to ship products with cordage not approved for the country of destination, i.e. products cannot be shipped to Europe with UL/CSA cordage.

UL/CSA Cordage

UL listed cable is measured in the American Wire Gauge (AWG) system. The smaller the AWG the larger the size and rating. When used in conjunction with plugs or connectors the cable ratings are:



18AWG = 10Amps 12AWG = 20Amps

16AWG = 13Amps 10AWG = 30Amps

14AWG = 15Amps 8AWG = 50Amps

Internal color codes can be:

Black, white, green (or green/yellow)

or

Blue, brown, green/yellow

See catalog page 46-47

Common Flexible UL/CSA Cords

TYPE	SHAPE	GAUGE	NO OF COND.	CONDUCTOR INSULATION	JACEKT MATERIAL	VOLT	REMARKS
SPT-1	Parallel	18	2	PVC	-	300	Light Duty, Lamps
SPT-2	Parallel	16-18	2-3	PVC	-	300	Light Duty, Lamps
SPT-3	Parallel	12-18	2-3	PVC	-	300	Refrigerators, Air Conditioners, Extension cords
SVT	Round	18	2-3	PVC	PVC	300	Vacuum Cleaners
SJ	Round	12-18	2-4	Rubber	Rubber	300	Small Appliances, Hand Tools
SJO	Round	12-18	2-4	Rubber	Neoprene	300	Oil Resistant Jacket, Small Appliances, Hand Tools
SJT	Round	12-18	2-4	PVC	PVC	300	Small Appliances, Hand Tools
SJTO	Round	12-18	2-4	PVC	PVC	300	Oil Resistant Jacket, Small Appliances, Hand Tools
SJTW	Round	12-18	2-4	PVC	PVC	300	Outdoor Use, Garden Tools
S	Round	12-18	2-4	Rubber	Rubber	600	Heavy (Hard) Duty Service
SO	Round	12-18	2-4	Rubber	Neoprene	600	Oil Resistant Jacket, Heavy (Hard) Duty Service
ST	Round	12-18	2-4	PVC	PVC	600	Heavy (Hard) Duty Service
STO	Round	12-18	2-4	PVC	PVC	600	Oil Resistant Jacket, Heavy (Hard) Duty Service
STW	Round	12-18	2-4	PVC	PVC	600	Outdoor Use, Garden Tools
HPN	Round	12-18	2-3	Neoprene	-	300	Heater Cord, Toasters, Heaters
HSJ	Round	12-18	2-4	Rubber	Rubber	300	Heater Cord, Oil Resistant Jackets

European Cordage

European cables are measured in square millimeters.
The larger the number the larger the cable and rating.

H 05 V V F 3 G 1.0mm

H = Harmonized (Does not signify <HAR>)

05 = 300/500V rating : 07 = 500V/700V rating

V = PVC : R = Rubber : N = Neoprene (Outer jacket/Conductor Jacket)

F = Fine Stranded

3 = The number of conductors

G = Grounded (For two conductor applications the G is absent

See catalog page 48-49

The above is the most common power cord cable example
MEGA stocks a variety of PVC and rubber European cables.

European Cordage Sizes

When used in conjunction with plugs or connectors the cable ratings are:

0.75mm = 6Amps	2.5mm = 25Amps
1.0mm = 10Amps	4.0mm = 32Amps
1.5mm = 16Amps	6.0mm = 44Amps

Internal color codes must be blue, brown, green/yellow

MEGA can supply cable cut and terminated or in bulk

Australian Cordage

Australian cable is very similar to the European cable, it is measured in cross sectional sizes, but Australia has a more stringent flammability rating. It is possible for European cable to also be approved by one of the state agencies in Australia as long as it meets the standards.

Approved cable will have a file number on the cable jacket.

Japanese Cordage

Unlike the Japanese plug, which mirrors the NEMA styles, the cordage used in Japan is a completely different system. Not only is the approval different, but the cordage is measured in cross sectional sizes like the European system. But the similarity to the European cordage ends there, as the sizes and amperage ratings do not correspond.

Japanese Cordage vs. UL/CSA

Japanese	UL/CSA
VFF	SPT-2
VCTF	SJT
HVCTF	SJT (Rated 75ºC)
PNCTF	SJO

Sizes and Ratings of Japanese Cordage

Cross Sectional Size	AMP Rating
0.75mm	7 AMPS
1.25mm	12 AMPS
2.00mm	15 AMPS

Chinese

China has developed their own cable nomenclature, but the cable is measured in cross section sizes similar to European cable. All approved Chinese cable is required to be approved with the CCC (Chinese Compulsory Certification) marking. Below is a cross from CCC standards to European.

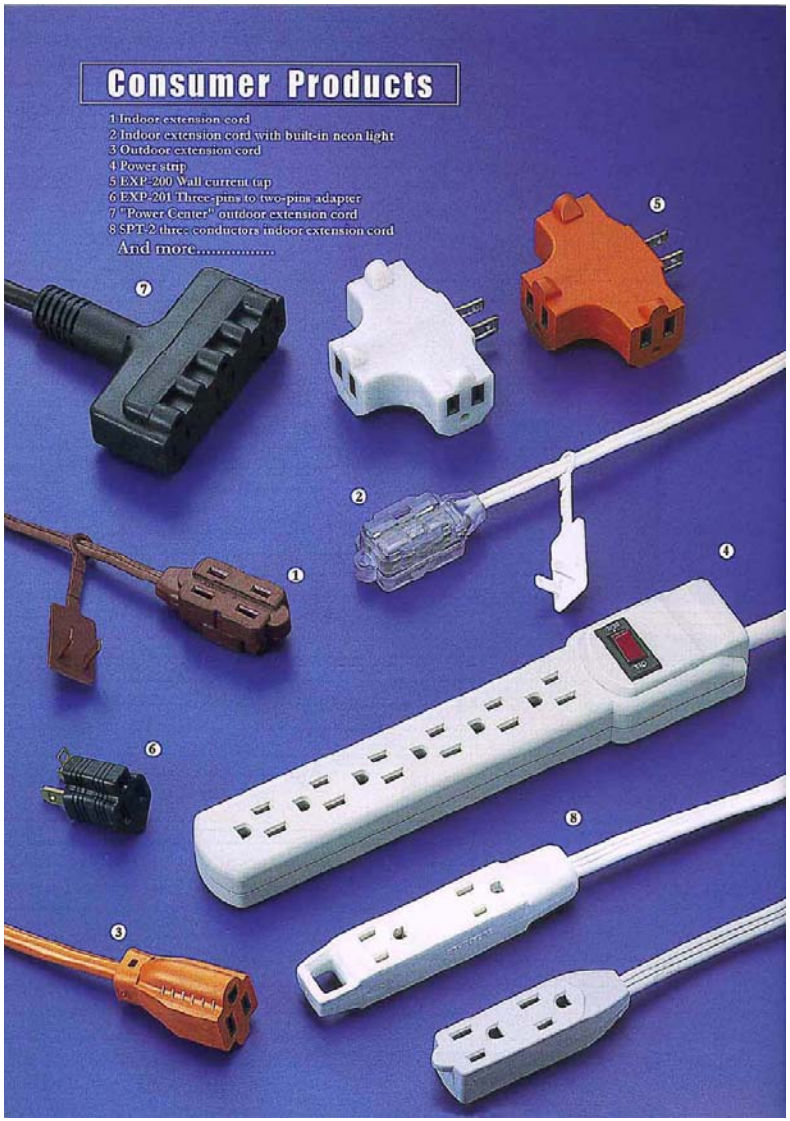
IEC TO CCC AND CENELEC CONVERSION TABLE

IEC	CCC	CENELEC
227 IEC 52	RVV 300/300	H03VV-F 300/300
227 IEC 52 flat	RVVB 300/300	H03VVH2-F 300/300
227 IEC 53	RVV 300/500	H05VV-F 300/500
227 IEC 53 flat	RVVB 300/500	H05VVH2-F 300/500
245 IEC 51	RX 300/300	H03RT-H 300/300
245 IEC 53	YZ 300/500	H05RR-F 300/500
245 IEC 57	YZW 300/500	H05RN-F 300/500
245 IEC 66	YCW 450/750	H07RN-F 450/750

Extension Cords

MEGA is quickly becoming the industry leader to the trade show industry, supplying both the electrical contactors and convention centers with private labeled extension cords.

See catalog page 53

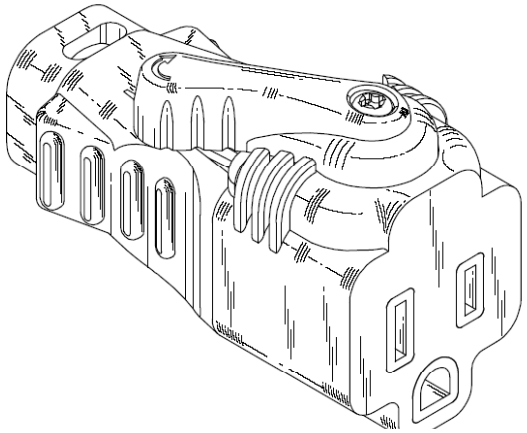


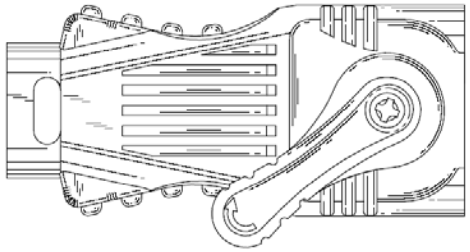
Consumer Products

In addition to the standard extension cords, outlet strips, outlet taps and three way extension cords can all be private labeled.

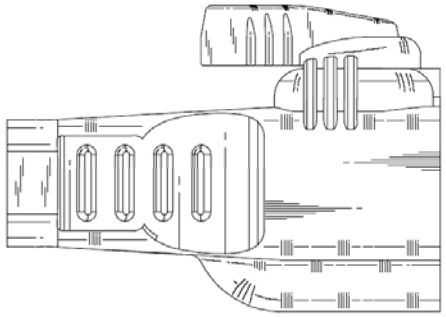
NEW

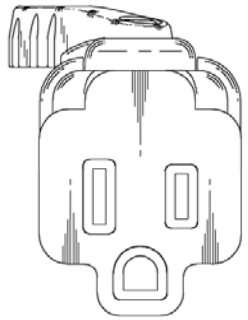
Clamping NEMA5/15R Tooled





UL listed to 15A/125V with 12AWG-16AWG flat and round cable
Available in any color including clear with neon indicator light. Simply move the lever to close the locking clamp.





European Union RoHS Directive 2002/95/EC

The Restriction of the use of Certain Hazardous Substances in electrical and Electronic Equipment Directive

Many substances used in the production of electronic products have been banned or will be banned in the near future. The European Union RoHS Directive 2002/95/EC (Reduction of Hazardous Substances) is a European Union regulation that has banned the use of a number of specific substances in electronic products and provides for a specific date when electronics products must be compliant. The European Union RoHS directive has identified July 1, 2006 for mandatory compliance.

MEGA Electronics Inc. is RoHS compliant for all our power cords and cord sets, except those including the EN60309 pin and sleeves.

Additional Products