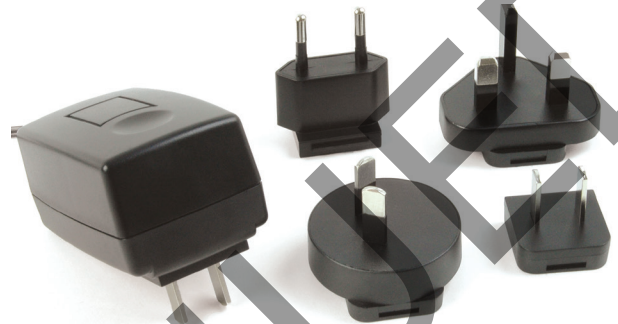


**SERIES:** EMSA 18W | **DESCRIPTION:** AC-DC POWER SUPPLY

**FEATURES**

- up to 18 W power
- interchangeable AC blades
- universal input (90~264 Vac)
- single regulated output from 5~24 V
- over voltage and short circuit protections
- UL/cUL, GS, RCM, CCC, PSE safety approvals
- level V efficiency
- custom designs available



| MODEL      | output voltage | output current max | output power max | ripple and noise <sup>1</sup> max | efficiency level |
|------------|----------------|--------------------|------------------|-----------------------------------|------------------|
|            | (Vdc)          | (A)                | (W)              | (mVp-p)                           |                  |
| EMSA050300 | 5              | 3.0                | 15               | 150                               | V                |
| EMSA060300 | 6              | 3.0                | 18               | 150                               | V                |
| EMSA090200 | 9              | 2.0                | 18               | 150                               | V                |
| EMSA120150 | 12             | 1.5                | 18               | 150                               | V                |
| EMSA150120 | 15             | 1.2                | 18               | 150                               | V                |
| EMSA180100 | 18             | 1.0                | 18               | 180                               | V                |
| EMSA200090 | 20             | 0.9                | 18               | 200                               | V                |
| EMSA240075 | 24             | 0.75               | 18               | 240                               | V                |

Notes: 1. At full load, 100 ~ 240 Vac input, 20 MHz bandwidth oscilloscope, each output terminated with 10  $\mu$ F aluminum electrolytic and 0.1  $\mu$ F ceramic capacitors.

**PART NUMBER KEY**

**EMSA120150 X - XX - SZ - CXX**

Base Number  
example of 12 Vdc, 1.5 A

DC Plug Type

Factory Designation

Reserved for Custom Configurations

Blades:  
"blank" = North American, European, United Kingdom, Australian, and China blade included

- N = North American blade included
- E = European blade included
- B = United Kingdom blade included
- A = Australian blade included
- C = China blade included
- K = No blades included

## INPUT

| parameter                 | conditions/description                  | min | nom | max | units |
|---------------------------|---|-----|-----|-----|-------|
| voltage                   |   | 90  |     | 264 | Vac   |
| frequency                 |   | 47  |     | 63  | Hz    |
| current                   |   |     |     | 0.6 | A RMS |
| inrush current            | 5, 6 V output at 115 V ac, cold start   |     |     | 30  | A     |
|                           | 5, 6 V output at 230 V ac, cold start   |     |     | 60  | A     |
|                           | all other outputs: 115 V ac, cold start |     |     | 40  | A     |
|                           | all other outputs: 230 V ac, cold start |     |     | 80  | A     |
| no load power consumption |   |     | 0.3 | W   |       |

## OUTPUT

| parameter       | conditions/description | min | nom | max | units |
|-----------------|------------------------|-----|-----|-----|-------|
| line regulation |                        |     | ±1  |     | %     |
| load regulation |                        |     | ±5  |     | %     |

## PROTECTIONS

| parameter                | conditions/description   | min | nom | max | units |
|--------------------------|--|-----|-----|-----|-------|
| over voltage protection  | output voltage clamped by internal protection zener <sup>1</sup> |     |     |     |       |
| short circuit protection | Output shut down and auto restart                                |     |     |     |       |

Notes: 1. 5V and 6V models only

## SAFETY & COMPLIANCE

| parameter            | conditions/description                             | min | nom | max   | units |
|----------------------|--|-----|-----|-------|-------|
| isolation voltage    | input to output at 10 mA for 1 minute              |     |     | 3,000 | Vac   |
|                      |  |     |     | 4,242 | Vdc   |
| isolation resistance | input to output at 500 V dc                        | 100 |     |       | MΩ    |
| safety approvals     | UL 60950-1, IEC 60950-1, EN 60950-1, RCM, CCC, PSE |     |     |       |       |
| EMI/EMC              | FCC Class B, VCCI Class II                         |     |     |       |       |
| leakage current      |  |     |     | 0.25  | mA    |
| RoHS compliant       | yes  |     |     |       |       |

## ENVIRONMENTAL

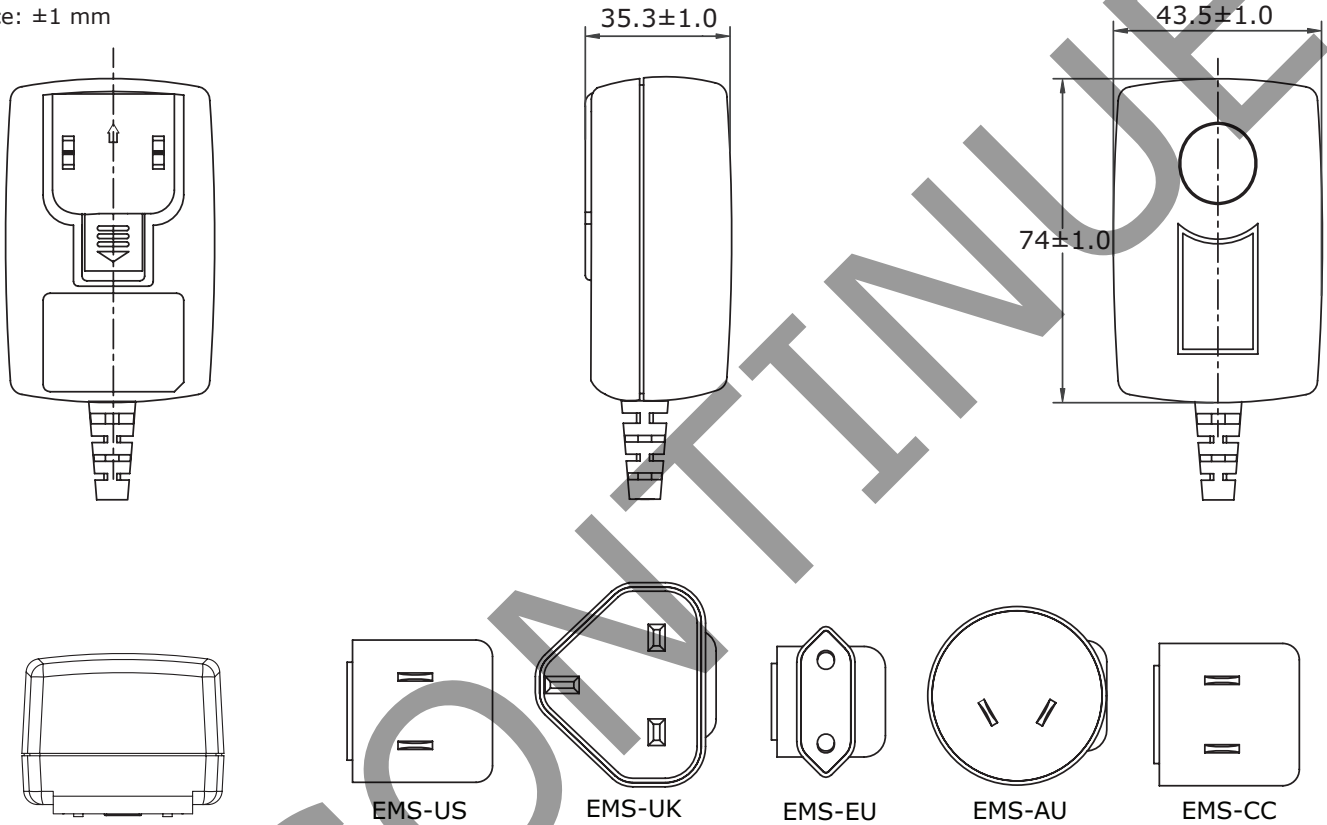
| parameter             | conditions/description | min | nom | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature |                        | 0   |     | 40  | °C    |
| storage temperature   |                        | -10 |     | 75  | °C    |
| operating humidity    |                        | 20  |     | 80  | %     |
| storage humidity      |                        | 10  |     | 90  | %     |

## MECHANICAL

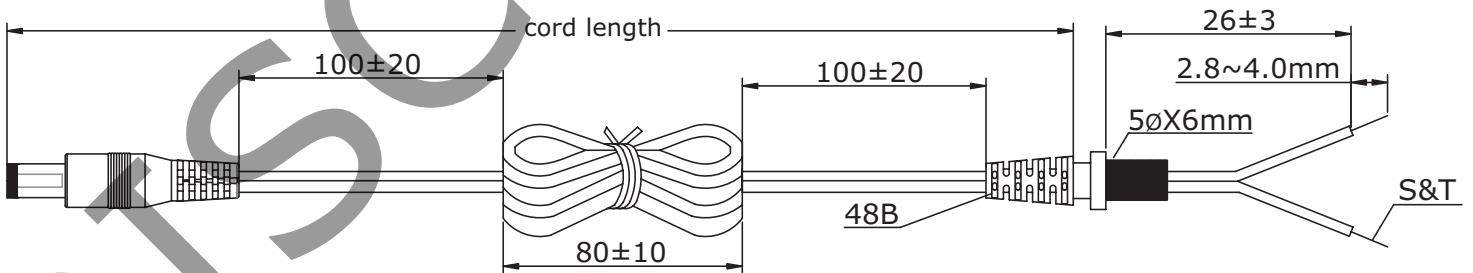
| parameter  | conditions/description                         | min | typ | max | units |
|------------|--|-----|-----|-----|-------|
| dimensions | 74 x 43.5 x 35.3 (2.913 x 1.713 x 1.390 inch)  |     |     |     | mm    |
| input plug | multi-blade (US, UK, Europe, Australia, China) |     |     |     |       |

## MECHANICAL DRAWING

units: mm  
tolerance: ±1 mm



## DC CORD

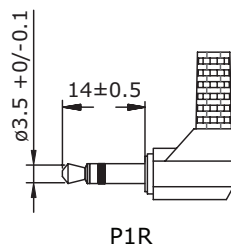
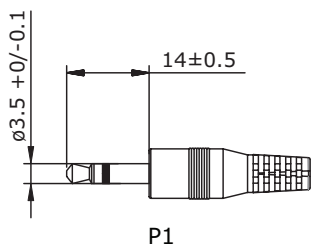


Black wire, white stripe: Positive

| MODEL NO.  | CABLE GAUGE | CORD LENGTH |
|------------|-------------|-------------|
| EMSA050300 | 18 AWG      | 1530 ± 100  |
| EMSA060300 | 18 AWG      | 1530 ± 100  |
| EMSA090200 | 20 AWG      | 1530 ± 100  |
| EMSA120150 | 20 AWG      | 1530 ± 100  |
| EMSA150120 | 20 AWG      | 1530 ± 100  |
| EMSA180100 | 22 AWG      | 1530 ± 100  |
| EMSA200090 | 22 AWG      | 1530 ± 100  |
| EMSA240075 | 22 AWG      | 1530 ± 100  |

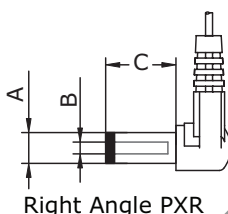
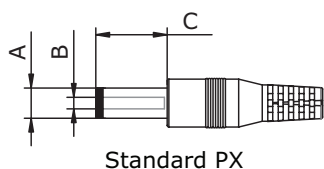
## OUTPUT PLUG OPTIONS

### 3.5 mm Phono Plug



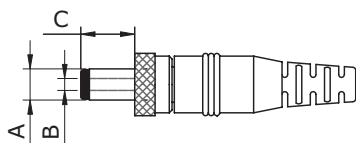
\*Tip positive

### Standard DC Plug



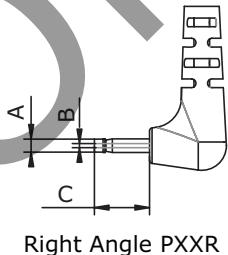
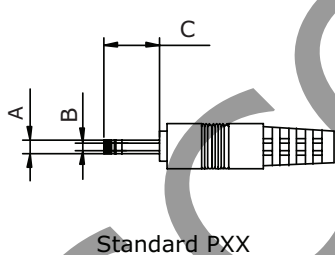
|        | A   | B    | C   | Unit |
|--------|-----|------|-----|------|
| P5/P5R | 5.5 | 2.1  | 9.5 | mm   |
| P6/P6R | 5.5 | 2.5  | 9.5 | mm   |
| P7/P7R | 3.5 | 1.35 | 9.5 | mm   |
| P8/P8R | 3.8 | 1.35 | 9.5 | mm   |
| P9/P9R | 3.8 | 1.05 | 9.5 | mm   |

### Locking DC Plug

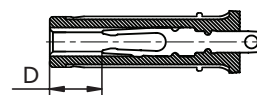


|     | A   | B   | C   | Unit |
|-----|-----|-----|-----|------|
| P10 | 5.5 | 2.1 | 9.5 | mm   |
| P11 | 5.5 | 2.5 | 9.5 | mm   |

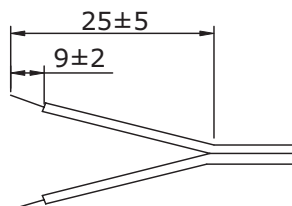
### EIAJ Plugs



|          | EIAJ   | A    | B   | C   | D   | Unit |
|----------|--------|------|-----|-----|-----|------|
| P12/P12R | EIAJ-1 | 2.35 | 0.7 | 9.5 | NA  | mm   |
| P13/P13R | EIAJ-2 | 4.0  | 1.7 | 9.5 | 5.0 | mm   |
| P14/P14R | EIAJ-3 | 4.75 | 1.7 | 9.5 | 5.0 | mm   |



### Stripped and Tinned



### DC PLUG TYPE

**ST**  
Stripped and Tinned

**PXXXX**

Plug Type    Plug Angle: "Blank" = Standard  
R = Right Angle    Plug Polarity: "Blank" = N/A  
P = Center Positive    N = Center Negative

\*Contact CUI for additional output plug options.

## REVISION HISTORY

| rev. | description  | date       |
|------|--|------------|
| 1.0  | initial release  | 07/28/2010 |
| 1.01 | PSE safety approval added                                    | 02/08/2011 |
| 1.02 | new template applied   | 09/07/2011 |
| 1.03 | updated P7/P7R B dimension                                   | 03/23/2012 |
| 1.04 | V-Infinity branding removed, safety and EMI/EMC data updated | 08/21/2012 |
| 1.05 | corrected DC cord lengths                                    | 12/19/2012 |
| 1.06 | updated rev table  | 01/11/2013 |
| 1.07 | updated safety approval section                              | 04/10/2013 |

The revision history provided is for informational purposes only and is believed to be accurate.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

CUI offers a one (1) year limited warranty. Complete warranty information is listed on our website.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.



**Headquarters**  
20050 SW 112th Ave.  
Tualatin, OR 97062  
**800.275.4899**

Fax 503.612.2383  
**cui.com**  
techsupport@cui.com