


**SERIES:** ETMA 250W U | **DESCRIPTION:** MEDICAL AC-DC POWER SUPPLY

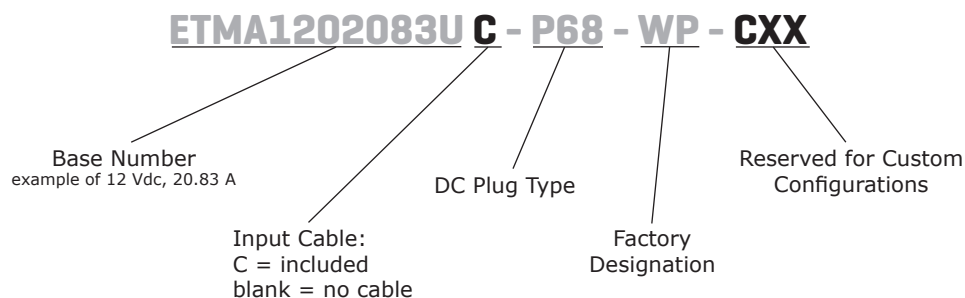
**FEATURES**

- up to 250 W power
- universal input (90~264 Vac)
- single regulated output from 12~48 V
- over voltage, overload and short circuit protections
- medical 60601-1 4th edition safety approvals
- designed for 2 x MOPP applications
- active PFC
- level V efficiency
- custom designs available



| MODEL        | output<br>voltage<br>(Vdc) | output<br>current<br>max<br>(A) | output<br>power<br>max<br>(W) | ripple<br>and noise <sup>1</sup><br>max<br>(mVp-p) | efficiency<br>level |
|--------------|----------------------------|---------------------------------|-------------------------------|----------------------------------------------------|---------------------|
| ETMA1202083U | 12                         | 20.83                           | 250                           | 240                                                | V                   |
| ETMA1601563U | 16                         | 15.63                           | 250                           | 300                                                | V                   |
| ETMA1901316U | 19                         | 13.16                           | 250                           | 300                                                | V                   |
| ETMA2001250U | 20                         | 12.5                            | 250                           | 300                                                | V                   |
| ETMA2401042U | 24                         | 10.42                           | 250                           | 300                                                | V                   |
| ETMA360694U  | 36                         | 6.94                            | 250                           | 300                                                | V                   |
| ETMA480521U  | 48                         | 5.21                            | 250                           | 300                                                | 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**


## INPUT

| parameter                 | conditions/description | min | typ | max | units |
|---------------------------|------------------------|-----|-----|-----|-------|
| voltage                   |                        | 90  |     | 264 | Vac   |
| frequency                 |                        | 47  |     | 63  | Hz    |
| current                   | at 90 Vac, 60 Hz       |     |     | 3.5 | A     |
| inrush current            | at 230 Vac, cold start |     |     | 150 | A     |
| no load power consumption |                        |     |     | 0.5 | W     |

## OUTPUT

| parameter               | conditions/description | min | typ   | max | units |
|-------------------------|------------------------|-----|-------|-----|-------|
| line regulation         |                        |     | ±1    |     | %     |
| load regulation         |                        |     | ±5    |     | %     |
| hold-up time            | at 115 Vac             | 16  |       |     | ms    |
| temperature coefficient |                        |     | ±0.05 |     | %/°C  |

## PROTECTIONS

| parameter                | conditions/description    | min | typ | max | units |
|--------------------------|---------------------------|-----|-----|-----|-------|
| over voltage protection  | 12 V output               | 110 |     | 133 | %     |
|                          | 16 V output               | 110 |     | 130 | %     |
|                          | 19 V output               | 111 |     | 137 | %     |
|                          | 20 V output               | 118 |     | 130 | %     |
|                          | 24, 36 V outputs          | 110 |     | 125 | %     |
|                          | 48 V output               | 110 |     | 120 | %     |
| overload protection      | shutdown and auto restart | 110 |     | 160 | %     |
| short circuit protection | continuous, auto restart  |     |     |     |       |

## SAFETY & COMPLIANCE

| parameter             | conditions/description                                                | min     | typ | max   | units |
|-----------------------|-----------------------------------------------------------------------|---------|-----|-------|-------|
| isolation voltage     | input to output for 2 seconds                                         |         |     | 4,242 | Vdc   |
|                       | input to frame ground for 2 seconds                                   |         |     | 2,121 | Vdc   |
| insulation resistance | input to output, at 500 Vdc                                           | 20      |     |       | MΩ    |
|                       | input to frame ground, at 500 Vdc                                     | 20      |     |       | MΩ    |
| safety approvals      | medical UL/cUL UL 60601-1, TUV EN 60601-1, CB IEC 60601-1 4th edition |         |     |       |       |
| EMI/EMC               | FCC Part 18 Class B, EN 60601-1, EN 55011                             |         |     |       |       |
| MTBF                  | at 25°C, max. load                                                    | 140,000 |     |       | hours |
| RoHS compliant        | yes                                                                   |         |     |       |       |

## ENVIRONMENTAL

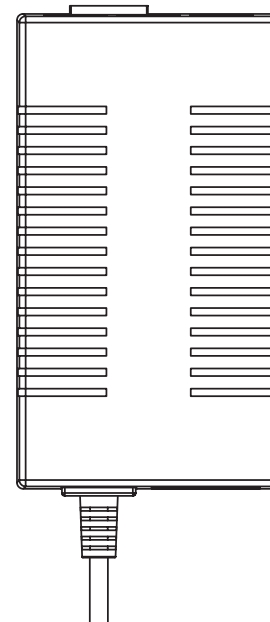
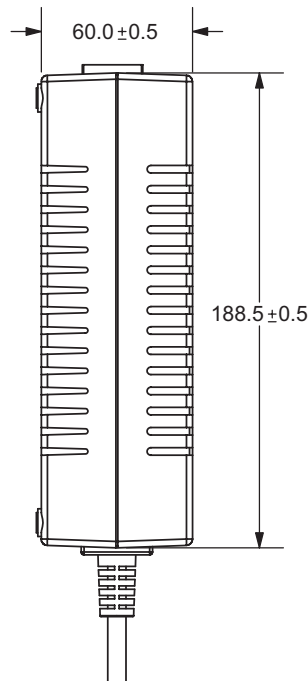
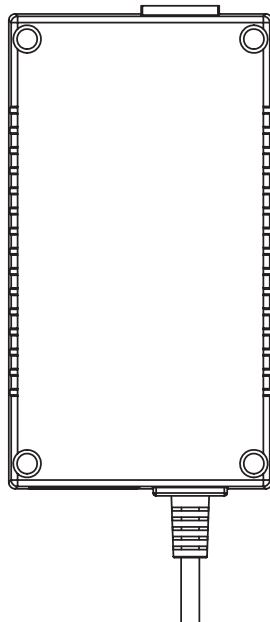
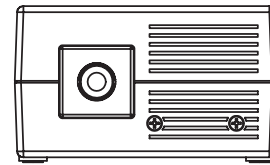
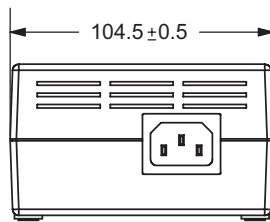
| parameter             | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature |                        | 0   |     | 50  | °C    |
| storage temperature   |                        | -10 |     | 70  | °C    |
| humidity              | non-condensing         | 20  |     | 90  | %     |

## MECHANICAL

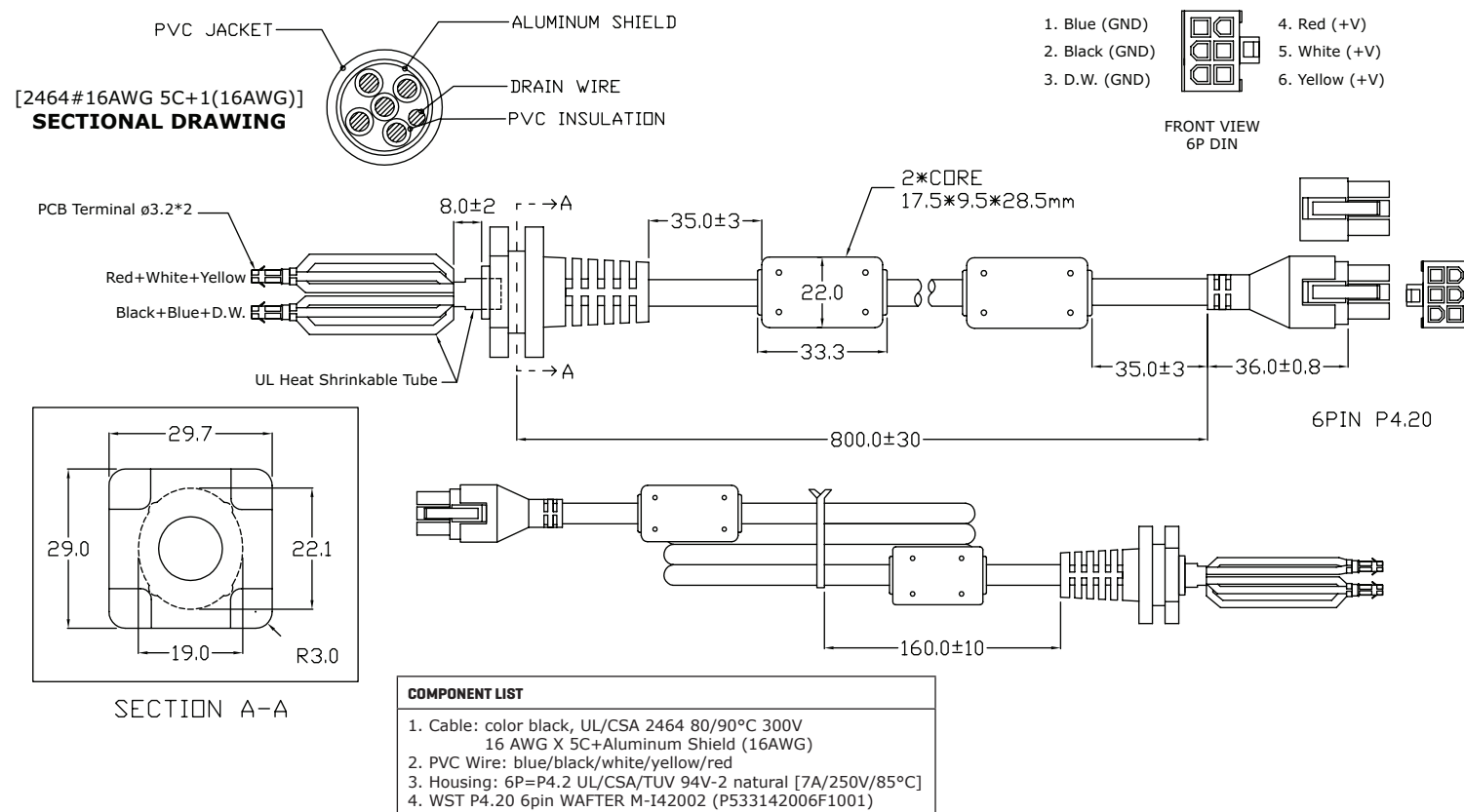
| parameter  | conditions/description                     | min | typ  | max | units |
|------------|--------------------------------------------|-----|------|-----|-------|
| dimensions | 7.42 x 4.11 x 2.36 (188.5 x 104.5 x 60 mm) |     |      |     | inch  |
| weight     |                                            |     | 1.06 |     | kg    |
| input plug | IEC320 / C14                               |     |      |     |       |

## MECHANICAL DRAWING

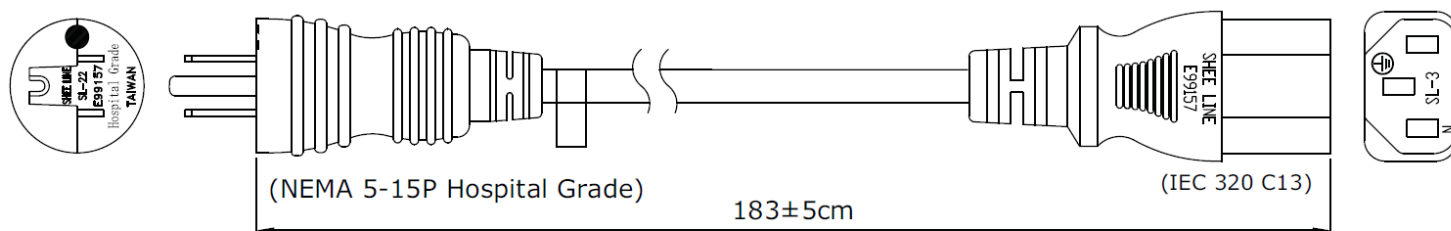
units: mm



## DC CORD

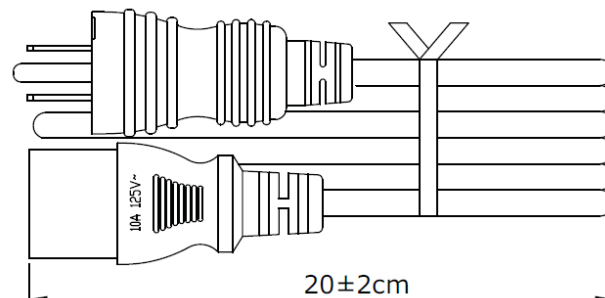


## AC CORD



### SPECIFICATION:

- 1) Length: 1.83m
- 2) Color: black
- 3) Plug: SL-22 (A)10 (V)125 Approval: UL/cUL
- 4) Connector: SL-3(A)10 (V)125 Approval: UL/cUL
- 5) Cable: SJT 18AWG/3C Approval: UL/CSA



## REVISION HISTORY

| rev. | description                            | date       |
|------|----------------------------------------|------------|
| 1.0  | initial release                        | 03/05/2012 |
| 1.01 | updated dc cord drawing                | 06/05/2012 |
| 1.02 | description and warranty updated       | 08/21/2012 |
| 1.03 | replaced TUV approval with Nemko       | 09/04/2013 |
| 1.04 | updated to medical 60601-1 4th edition | 06/20/2017 |

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



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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 two (2) 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.