

## Single Output 30 to 60W Medical & ITE Power Supplies

<https://product.tdk.com/en/power/cus-m>  
[www.emea.lambda.tdk.com/cus30\\_60m](http://www.emea.lambda.tdk.com/cus30_60m)



Medical



Industrial



Test



COMM



Broadcast



The CUS30M and CUS60M are 2" x 3" footprint AC/DC power supplies with outputs ranging from 5V to 48V. They are certified to IEC60601-1 3rd edition (medical), IEC62368-1, EN60335-1 and EN61558-1 with compliance to EN60601-1-2:2015 Edition 4 immunity requirements. Rated at 30W and 60W, these compact products meet class B conducted and radiated EMI in either a Class I or Class II (double insulated) construction, without the need for external filtering.

### Features

- 30 to 60W Convection Cooled
- Medical Certification (2 x MoPP)
- Class B Conducted and Radiated EMI
- Suitable for Class I and II Installations
- Compact 2" x 3" Footprint
- Enclosure, Mounting and Connection Options

### Benefits

- Quiet Operation
- Suitable for B and BF Rated Equipment
- Easier System Compliance
- Flexible Utilisation
- Space Saving in End Equipment
- Versatile Application

### Model Selector

| Model     | Output Voltage (V) | Maximum Current (A) | Maximum Power (W) | Load Reg (mV) | Line Reg (mV) | Ripple Noise (mV) <sup>(1)</sup> | Efficiency (typ) % <sup>(2)</sup> | Average Active Efficiency (typ) % <sup>(2)</sup> |
|-----------|--------------------|---------------------|-------------------|---------------|---------------|----------------------------------|-----------------------------------|--------------------------------------------------|
| CUS60M-5  | 5                  | 6                   | 30                | 100           | 20            | 120                              | 81 / 81                           | 81 / 79.5                                        |
| CUS30M-12 | 12                 | 2.5                 | 30                | 120           | 48            | 120                              | 87 / 88                           | 87 / 87                                          |
| CUS60M-12 | 12                 | 5                   | 60                | 120           | 48            | 120                              | 87 / 88                           | 87 / 86                                          |
| CUS30M-15 | 15                 | 2                   | 30                | 120           | 60            | 150                              | 87 / 88                           | 87 / 87                                          |
| CUS60M-15 | 15                 | 4                   | 60                | 120           | 60            | 150                              | 87.5 / 87                         | 87 / 86.5                                        |
| CUS30M-18 | 18                 | 1.7                 | 30.6              | 144           | 72            | 150                              | 87 / 88                           | 87 / 87                                          |
| CUS60M-18 | 18                 | 3.35                | 60.3              | 144           | 72            | 150                              | 88 / 88                           | 87 / 87                                          |
| CUS30M-24 | 24                 | 1.25                | 30                | 192           | 96            | 150                              | 88 / 90                           | 87 / 87                                          |
| CUS60M-24 | 24                 | 2.5                 | 60                | 192           | 96            | 150                              | 89 / 90                           | 88 / 87                                          |
| CUS30M-36 | 36                 | 0.84                | 30.24             | 288           | 144           | 200                              | 88 / 90                           | 88 / 89                                          |
| CUS30M-48 | 48                 | 0.63                | 30.24             | 384           | 192           | 200                              | 88 / 90                           | 88 / 89                                          |
| CUS60M-48 | 48                 | 1.25                | 60                | 384           | 192           | 200                              | 90 / 91                           | 90 / 89                                          |

### Options

| Suffix | Description                                          |
|--------|------------------------------------------------------|
| Blank  | Open frame, JST connectors                           |
| /A     | Cover, JST connectors. See website for derating      |
| /CO    | Open frame, JST connectors, pcb coating              |
| /M     | Open frame, Molex 5195-03 & -04 mating connectors    |
| /P     | Open frame, JST connectors, Pcb mount                |
| /SF    | Open frame, JST connectors, single fuse, (Line only) |

Option combinations are available, please contact your local sales office

| Specifications                       |     |                                                                                                                                                                         |  |                                  |  |
|--------------------------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------|--|
| Model                                |     | CUS30M                                                                                                                                                                  |  | CUS60M                           |  |
| Input                                |     |                                                                                                                                                                         |  |                                  |  |
| Input Voltage range                  | Vac | 85 - 264 <sup>(3)</sup>                                                                                                                                                 |  |                                  |  |
| Input Frequency                      | Hz  | 47 - 63                                                                                                                                                                 |  |                                  |  |
| Input Current (110/230VAC)           | A   | 0.6 / 0.4                                                                                                                                                               |  | 5V: 0.7 / 0.5, 12-48V: 1.2 / 0.8 |  |
| Inrush Current (Typical, Cold Start) | A   | 30 at 115Vac, 60 at 230Vac                                                                                                                                              |  |                                  |  |
| Leakage Current                      | mA  | <0.25 at 265Vac, 60Hz                                                                                                                                                   |  | <0.2 at 265Vac, 60Hz             |  |
| Touch Current                        | uA  | 100 at 265Vac, 60Hz                                                                                                                                                     |  | 60 at 265Vac, 60Hz               |  |
| Harmonic Compliance                  | -   | Meets EN61000-3-2                                                                                                                                                       |  |                                  |  |
| No Load Power Consumption            | W   | <0.3 at 265Vac                                                                                                                                                          |  | <0.5 at 265Vac                   |  |
| Hold Up Time (typ) at 115VAC Input   | ms  | 20 / 100                                                                                                                                                                |  |                                  |  |
| Efficiency                           | -   | See model selector                                                                                                                                                      |  |                                  |  |
| Average Efficiency                   |     | See model selector. Measured at 25%, 50%, 75% and 100% load conditions                                                                                                  |  |                                  |  |
| Conducted & Radiated EMI             | -   | EN55011-B, EN55032-B, FCC Class B                                                                                                                                       |  |                                  |  |
| Immunity                             | -   | IEC61000-4-2, IEC60601-1-2 Ed4. See immunity table                                                                                                                      |  |                                  |  |
| Insulation Class                     | -   | Construction suitable for Class I or Class II installation                                                                                                              |  |                                  |  |
| Safety Certifications and Markings   | -   | EN/IEC/UL/ES/CSA60601-1, EN/IEC/UL/CSA62368-1, 60950-1, EN61558-1, EN60335-1, CE Mark and UKCA Mark. The CUS60M and CUS30M series are also designed to meet IEC61010-1. |  |                                  |  |

| Immunity                        |                  |            |          |                                |
|---------------------------------|------------------|------------|----------|--------------------------------|
| Test                            | Standard         | Test Level | Criteria | Notes                          |
| ESD                             | EN61000-4-2      | 3 & 4      | A        | Level 4 contact discharge only |
| Radiated Susceptibility         | EN61000-4-3      | 3          | A        | -                              |
| Electrical Fast Transient Burst | EN61000-4-4      | 3          | A        | -                              |
| Surge                           | EN61000-4-5      | 3 & 4      | A        | Level 4 common mode only       |
| Conducted Susceptibility        | EN61000-4-6      | 3          | A        | -                              |
| Magnetic fields                 | EN61000-4-8      | 4          | A        | -                              |
| Voltage Dips                    | EN61000-4-11     | Class 3    | B        | 100 - 120VAC                   |
|                                 |                  |            | A        | 200 - 240VAC                   |
| Short Interruptions             | EN61000-4-11     | Class 3    | B        | -                              |
| Voltage Dips                    | EN60601-1-2:2015 | Class 2    | B        | 100 - 120VAC                   |
|                                 |                  |            | A        | 200 - 240VAC                   |
| Short Interruptions             | EN60601-1-2:2015 | Class 2    | B        | -                              |
| SEMI F47 Line Dip               | SEMI F47         | -          | -        | At input voltages > 200VAC     |

| Specifications                         |        |                                                                                                                                        |                         |
|----------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Model                                  |        | CUS30M                                                                                                                                 | CUS60M                  |
| Output                                 |        |                                                                                                                                        |                         |
| Line Regulation                        | mV     | See model selector                                                                                                                     |                         |
| Load Regulation                        | mV     | See model selector                                                                                                                     |                         |
| Ripple & Noise                         | mV     | See model selector                                                                                                                     |                         |
| Temperature Coefficient                | %/°C   | <0.02%/°C                                                                                                                              |                         |
| Minimum Load                           | -      | No minimum load required                                                                                                               |                         |
| Overcurrent Protection                 | A      | >105% of rated current. Class 2 Limited Power Source (4)                                                                               |                         |
| Overvoltage Protection (5)             | V      | > 115% of nominal output                                                                                                               | >120% of nominal output |
| Remote Sense                           | -      | No                                                                                                                                     |                         |
| Indicators                             | -      | None                                                                                                                                   |                         |
| Parallel Operation                     | -      | Not possible                                                                                                                           |                         |
| Environmental                          |        |                                                                                                                                        |                         |
| Operating Temperature (-30°C start-up) | °C     | -20 to +70°C. Derate linearly to 50% load from +50 to +70°C (6)                                                                        |                         |
| Storage Temperature                    | °C     | -40° to +85°C                                                                                                                          |                         |
| Humidity (non condensing)              | %RH    | 10 - 90%RH (Operating & Storage)                                                                                                       |                         |
| Cooling                                | -      | Convection                                                                                                                             |                         |
| Altitude                               | m      | 5,000m, derate operating ambient by 5°C/1000m above 3,000m                                                                             |                         |
| Withstand Voltage (For 1 minute)       | VAC    | Input to Ground 2kVAC (1xMOPP), Input to Output 4kVAC (2xMOPPs), Output to Ground 1.5kVAC (1xMOPP) suitable for B & BF rated equipment |                         |
| Isolation Resistance                   | MΩ     | >100MΩ at 25°C, 70%RH & 500VDC Output to Ground                                                                                        |                         |
| Vibration (Non Operating)              | -      | 10 - 500Hz: 19.6m/s <sup>2</sup> constant sweep 1 min X, Y, Z for 1 hour                                                               |                         |
| Shock                                  | -      | < 196.1 m/s <sup>2</sup>                                                                                                               |                         |
| Other                                  |        |                                                                                                                                        |                         |
| Weight (Typ)                           | g      | 62                                                                                                                                     | 120                     |
| Size (LxWxH)                           | mm     | 76.2 x 50.8 x 24.2                                                                                                                     | 76.2 x 50.8 x 26.7      |
| Size (LxWxH)                           | Inches | 3 x 2 x 0.95                                                                                                                           | 3 x 2 x 1.05            |
| Connectors (JST)                       | -      | Input (CN1): B2P3-VH(LF)(SN) (Mates with VHR-3N housing).<br>Output (CN-51): B4P-VH(LF)(SN) (Mates with VHR-4N)                        |                         |
| MTBF - Telcordia SR-332 issue 3 (7)    | Hours  | 9,960,323                                                                                                                              | 7,084,410               |
| Warranty                               | yrs    | 3 years                                                                                                                                |                         |

## Notes

See website for detailed specifications, test methods and installation manual

See installation manual for terminal pin and hand tool information

(1) Ripple level increases at light loading to meet new efficiency standards

(2) 115/230VAC. Average efficiency measured at 25, 50, 75 and 100% load

(3) CUS30M: Derate linearly to 80% load from 115VAC to 85VAC. CUS60M-12, 18 & 48: Derate linearly to 80% load from 100VAC to 85VAC. CUS60M-15 derate linearly to 60% load from 100Vac

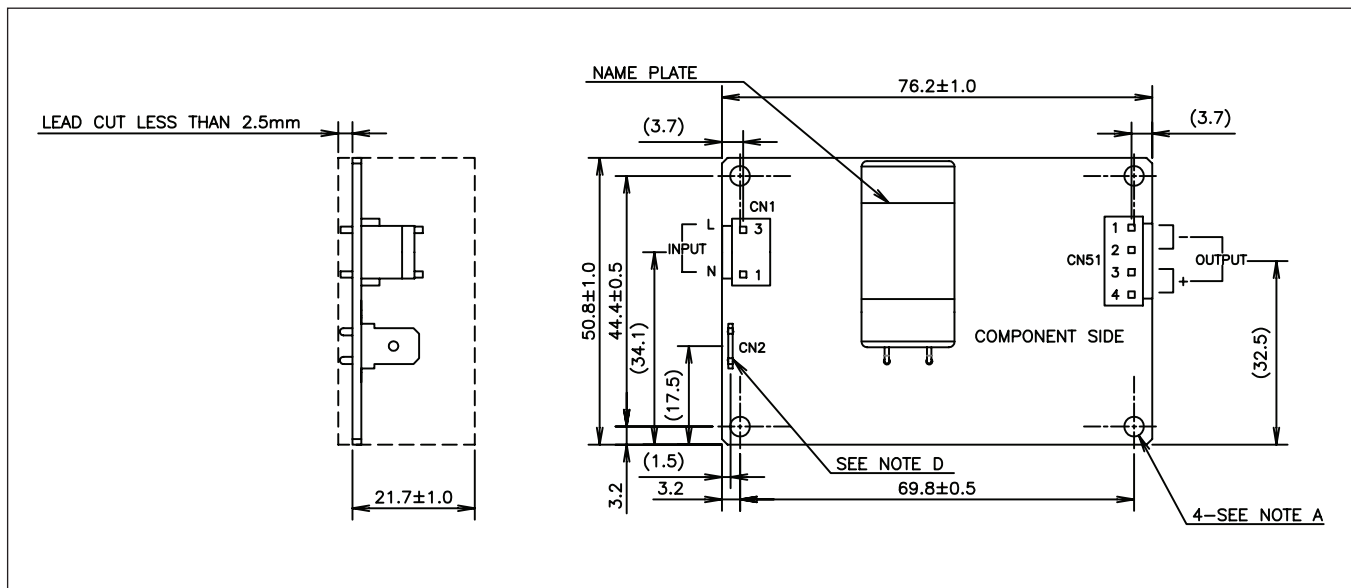
(4) All models except CUS60M-5

(5) Shutdown Cycle AC input to reset

(6) CUS30M-18, 48 and CUS60M-12: Derate linearly to 50% load from +45 to +70°C. CUS60M-15: 50% load from +40 to +70°C. Models with /A cover have additional derating, see website.

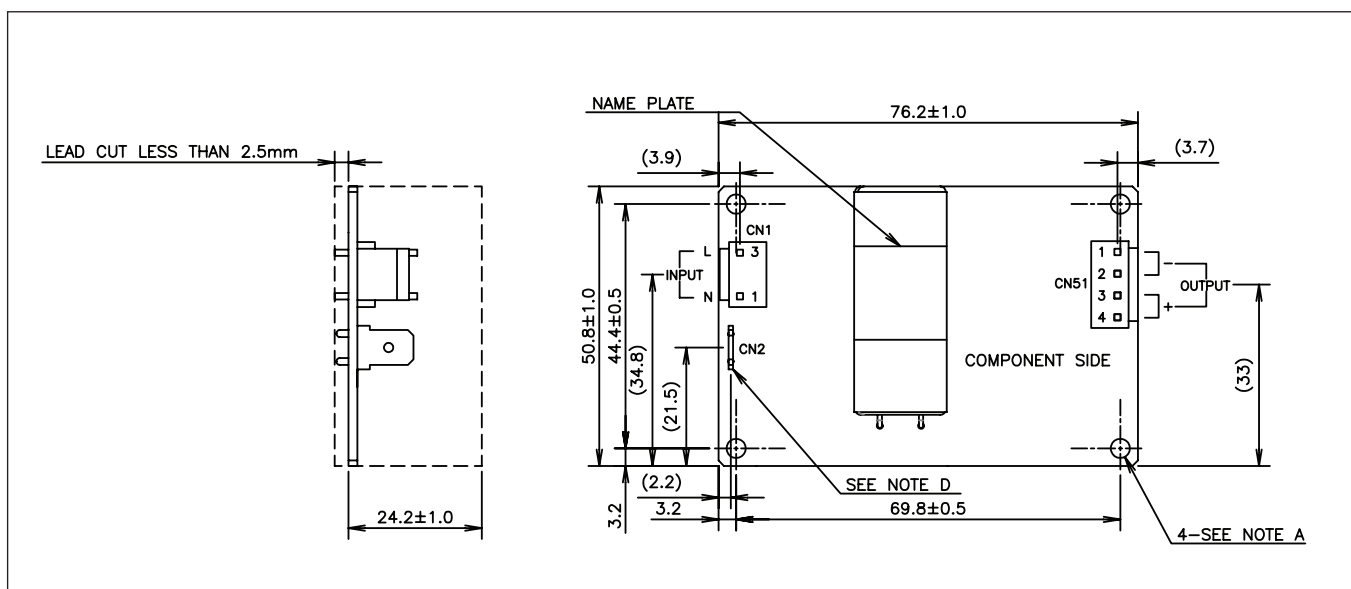
(7) 24V output model, 25°C ambient, full load, 230VAC input

## Outline Drawing CUS30M Series (Open Frame)



To view the complete outline drawing please visit [https://product.tdk.com/info/en/documents/2doutline\\_pdf/ac-dc-converter/cus30m\\_out.pdf](https://product.tdk.com/info/en/documents/2doutline_pdf/ac-dc-converter/cus30m_out.pdf)

## Outline Drawing CUS60M Series (Open Frame)



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Technical drawing of the HX-1000 power supply unit, showing front, rear, and side views with dimensions and labels.

**Front View (Top):** Shows the front panel with a central rectangular cutout, two mounting holes, and a circular symbol with a cross. A label "NAME PLATE" points to the central cutout. A dimension "2-SEE NOTE A" points to the mounting holes.

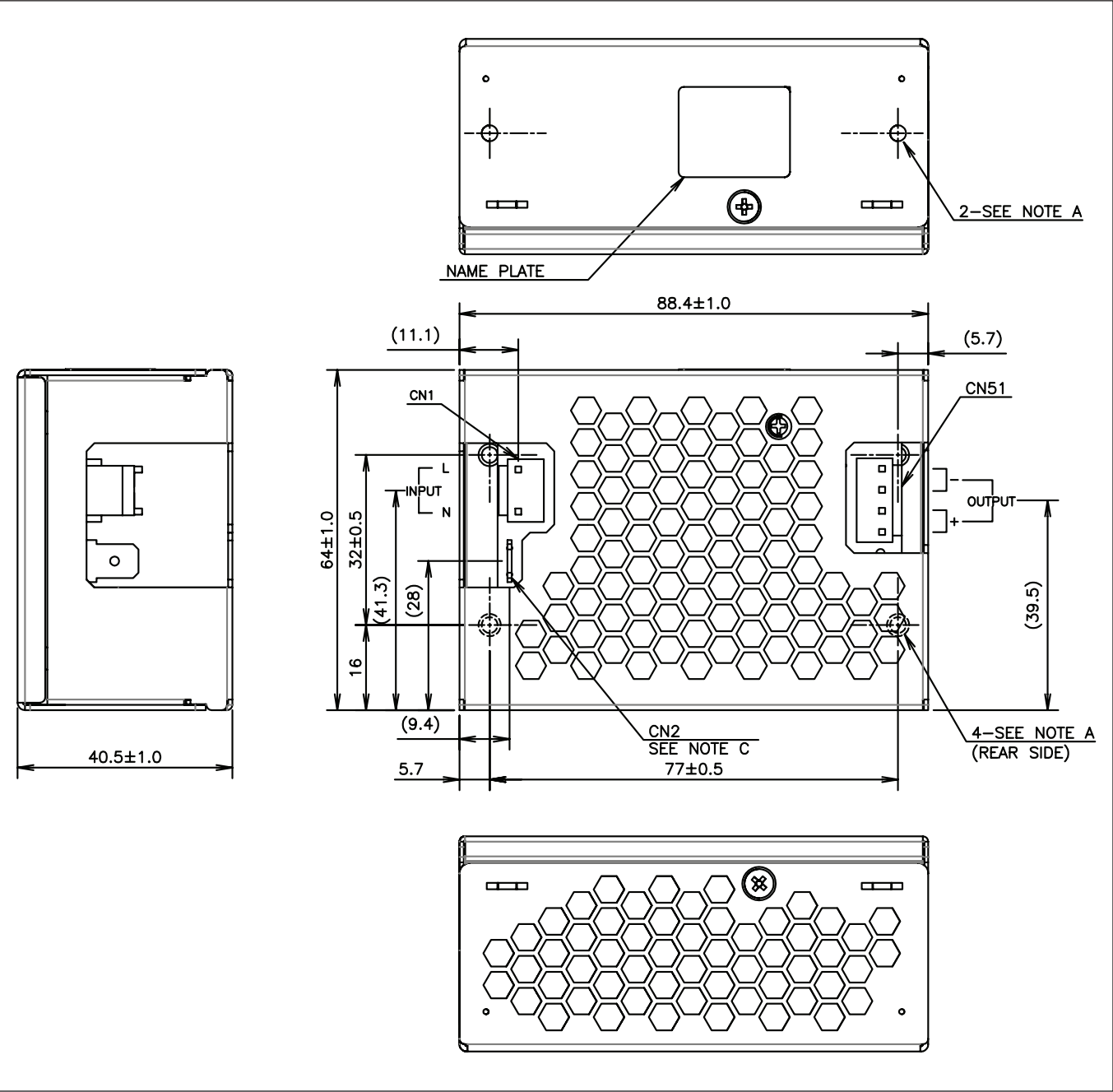
**Side View (Left):** Shows the side profile of the unit with a width dimension of  $35.5 \pm 1.0$ .

**Rear View (Bottom):** Shows the rear panel with a large hexagonal honeycomb pattern, a central circular symbol with a cross, and two mounting holes. A dimension "4-SEE NOTE A (REAR SIDE)" points to the mounting holes.

**Top View (Middle):** Shows the top of the unit with dimensions  $88.4 \pm 1.0$  (width) and  $64 \pm 1.0$  (height). It includes labels for "CN1", "CN2", "CN51", "INPUT", "OUTPUT", and "4-SEE NOTE A (REAR SIDE)". Dimensions for the input and output sections are provided:  $11.1$ ,  $5.7$ ,  $32 \pm 0.5$ ,  $(40.6)$ ,  $(24)$ ,  $16$ ,  $(8.7)$ , and  $5.7$ . A dimension  $(39)$  is also shown for the output section. A note "CN2 SEE NOTE C  $77 \pm 0.5$ " is present.

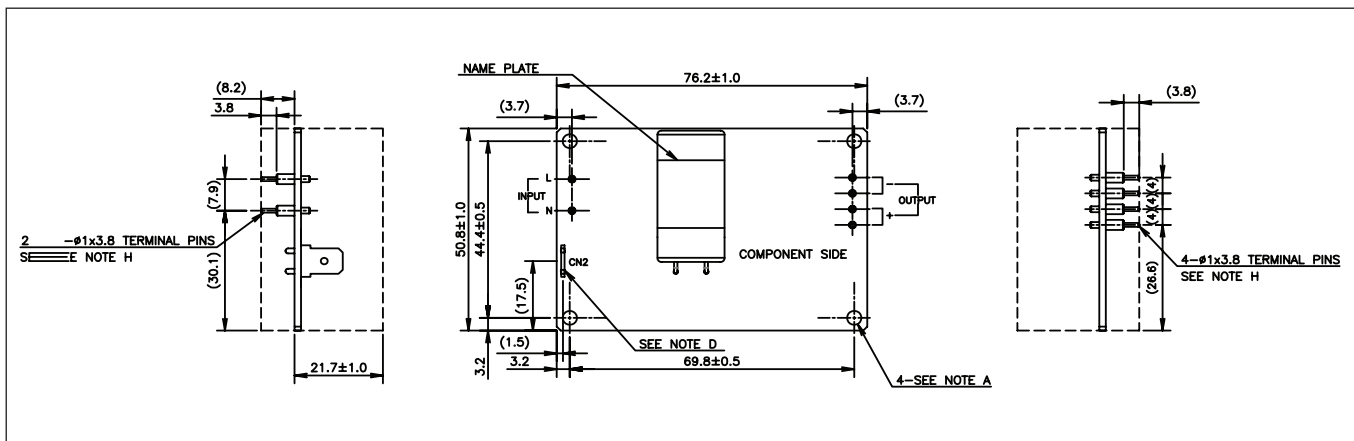
## CUS30M & CUS60M Series

Outline Drawing CUS60M Series (Enclosed /A)



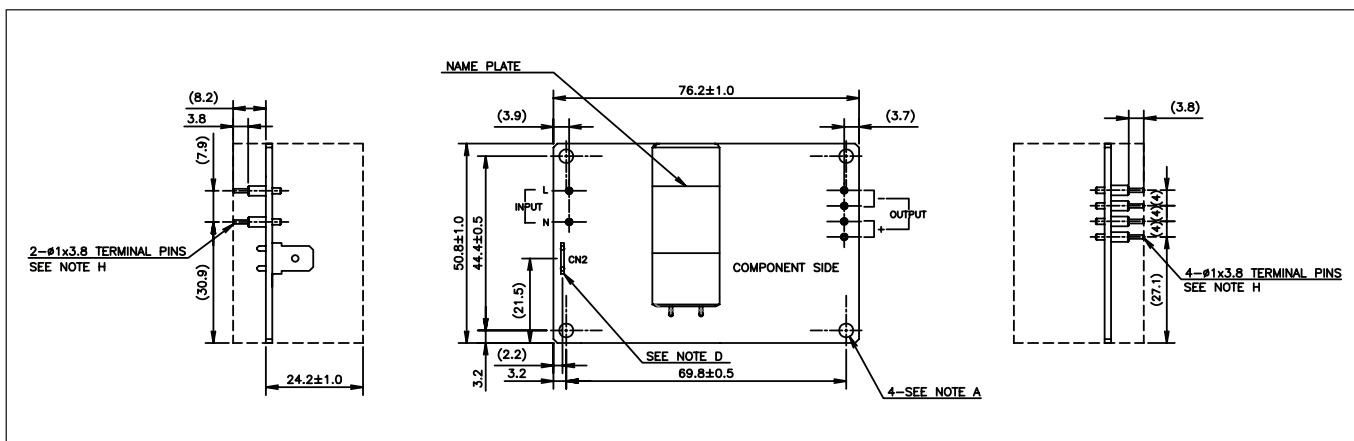
To view the complete outline drawing please visit [https://product.tdk.com/info/en/documents/2doutline\\_pdf/ac-dc-converter/cus60m\\_a\\_out.pdf](https://product.tdk.com/info/en/documents/2doutline_pdf/ac-dc-converter/cus60m_a_out.pdf)

## Outline Drawing CUS30M Series (PCB Mount /P)



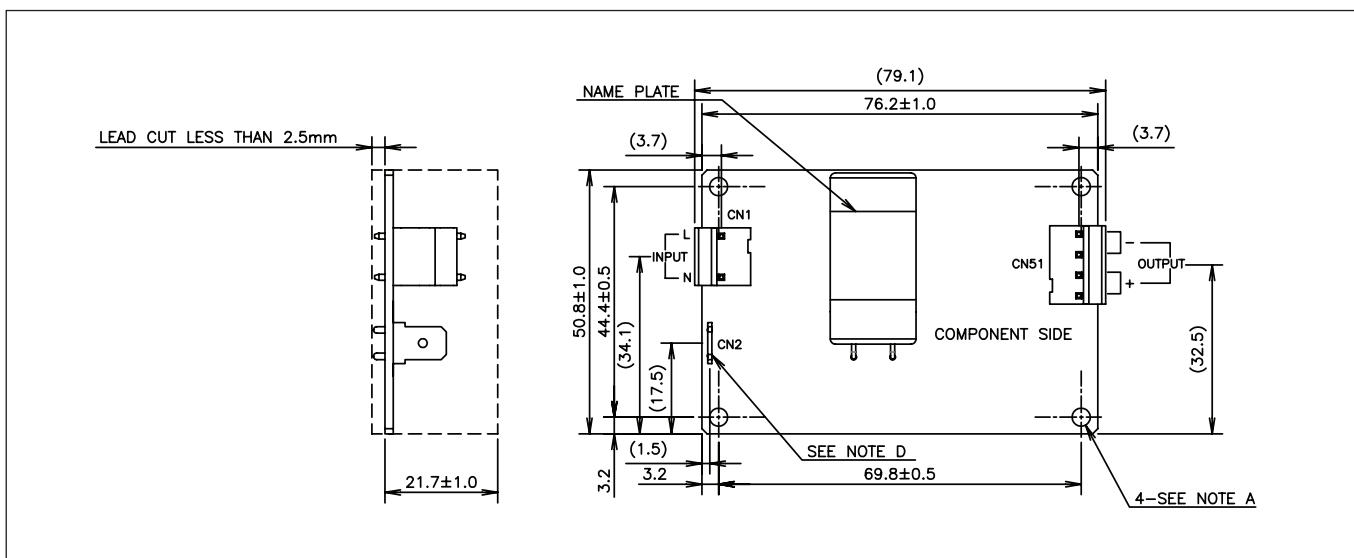
To view the complete outline drawing please visit [https://product.tdk.com/info/en/documents/2doutline\\_pdf/ac-dc-converter/cus30m\\_p\\_out.pdf](https://product.tdk.com/info/en/documents/2doutline_pdf/ac-dc-converter/cus30m_p_out.pdf)

## Outline Drawing CUS60M Series (PCB Mount /P)



To view the complete outline drawing please visit [https://product.tdk.com/info/en/documents/2doutline\\_pdf/ac-dc-converter/cus60m\\_p\\_out.pdf](https://product.tdk.com/info/en/documents/2doutline_pdf/ac-dc-converter/cus60m_p_out.pdf)

## Outline Drawing CUS30M Series (Molex /M)



To view the complete outline drawing please visit [https://product.tdk.com/info/en/documents/2doutline\\_pdf/ac-dc-converter/cus30m\\_m\\_out.pdf](https://product.tdk.com/info/en/documents/2doutline_pdf/ac-dc-converter/cus30m_m_out.pdf)

Figure 1: Dimensions of the component. The figure consists of two views: a side view on the left and a top view on the right.

**Side View Dimensions:**

- Width:  $24.2 \pm 1.0$  mm
- Note: LEAD CUT LESS THAN 2.5mm

**Top View Dimensions:**

- Overall Width:  $76.2 \pm 1.0$  mm
- Overall Height:  $50.8 \pm 1.0$  mm
- NAME PLATE: Located on the left side.
- INPUT: Terminal with pins L and N.
- OUTPUT: Terminal with pins + and -.
- Connector Ports: CN1 and CN2.
- Central Component: CN51.
- Dimensions: (3.9), (3.7), (3.2), (2.2), (34.8), (21.5), (78.9), (33), and (4-SEE NOTE A).
- Note: SEE NOTE D points to a specific area on the component.

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