

- ◆ Rugged metal case for harsh industrial environments
- ◆ Industrial operating temperature range: –25°C to +70°C
- ◆ Overload and overtemperature protection
- ◆ Power boost up to 120 %
- ◆ Power-Good signal
- ◆ Shock and vibration proof
- ◆ International safety approval package
- ◆ ATEX certification for hazardous locations
- ◆ Decoupling module for redundant operation (optional)
- ◆ Wall mounting (opt.)
- ◆ 3-year product warranty



EMC  
LVD



Scheme  
IEC  
60950-1



UL 60950-1



EN 60950-1  
EN 61558  
EN 60204



UL 508



ATEX IIIG



The TSPC series are high performance DIN-rail mount power supplies for harsh industrial environments. The design is based on the popular TRACOPOWER TSP series but with reduced electrical features to make these power supplies an easy to install and cost efficient but reliable solution for basic applications.

Excellent electrical specifications and high immunity against electrical disturbances makes these compact modules the best choice for reliable industrial systems and machines.

For system applications all models provide a Power-Good signal.

The TSPC series power supplies complies with the latest safety and EMC standards for industrial environments and include ATEX EN 60079 certification for applications in hazardous locations.

## Models

| Order code      | Output power<br>nominal | Output voltage<br>nominal | Output current<br>nominal |
|-----------------|-------------------------|---------------------------|---------------------------|
| TSPC 050-112    | 50 W                    | 12 VDC                    | 4.0 A                     |
| TSPC 050-124HL* | 50 W                    | 24 VDC                    | 2.1 A                     |
| TSPC 050-124    | 50 W                    | 24 VDC                    | 2.1 A                     |
| TSPC 080-112    | 80 W                    | 12 VDC                    | 6.6 A                     |
| TSPC 080-124    | 80 W                    | 24 VDC                    | 3.3 A                     |
| TSPC 120-124    | 120 W                   | 24 VDC                    | 5.0 A                     |
| TSPC 120-148    | 120 W                   | 48 VDC                    | 2.5 A                     |
| TSPC 240-124    | 240 W                   | 24 VDC                    | 10 A                      |
| TSPC 240-148    | 240 W                   | 48 VDC                    | 5.0 A                     |
| TSPC 480-124    | 480 W                   | 24 VDC                    | 20 A                      |
| TSPC 480-148    | 480 W                   | 48 VDC                    | 10 A                      |

\*Additionally complies with UL hazloc

## Input Specifications

|                                                                             |                                           |                |                                               |
|-----------------------------------------------------------------------------|-------------------------------------------|----------------|-----------------------------------------------|
| Input voltage                                                               | – nominal ranges                          | TSPC 050       | 100 – 240 VAC universal input                 |
|                                                                             |                                           | other models   | 100 – 120 / 220 – 240 VAC by selection switch |
|                                                                             | – effective ranges                        | TSPC 050       | 85 – 264 VAC universal input                  |
|                                                                             |                                           | other models   | 85 – 132 / 187 – 264 VAC by selection switch  |
|                                                                             | – output power derating at input <100 VAC |                | 3.3 %/V                                       |
| Input voltage frequency                                                     |                                           |                | 47 – 63 Hz                                    |
| Harmonic limits                                                             |                                           |                | EN 61000-3-2                                  |
| Holdup time                                                                 |                                           |                | 10 ms min.                                    |
| Inrush current                                                              |                                           |                | 40 A                                          |
| Recommended circuit breaker,<br>characteristic C<br>or fuse, slow blow type |                                           | – TSPC 080/120 | 6.0 – 16.0 A                                  |
|                                                                             |                                           | – TSPC 240     | 10.0 – 16.0 A                                 |
|                                                                             |                                           | – TSPC 480     | 16.0 – 25.0 A                                 |
| Efficiency                                                                  |                                           |                | 85 – 93 %                                     |

## Output Specifications

|                                    |                                     |                                                                                     |                                                                           |
|------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Output voltage adj. range          |                                     | 12 VDC models:                                                                      | 12 – 14 VDC<br>output power derating above 12 VDC : <b>10 %/V</b>         |
|                                    |                                     | 24 VDC models:                                                                      | <b>24 – 28 VDC</b><br>output power derating above 24 VDC : <b>5 %/V</b>   |
|                                    |                                     | 48 VDC models:                                                                      | <b>48 – 56 VDC</b><br>output power derating above 48 VDC : <b>2.5 %/V</b> |
|                                    |                                     |                                                                                     |                                                                           |
| Boost output current               |                                     | <b>120 %</b> (at 24 VDC output voltage)<br>continuous at <+50°C ambient temperature |                                                                           |
|                                    | – power derating above 50°C ambient |                                                                                     | <b>2 %/°C</b>                                                             |
|                                    | – power derating at input <115 VAC  |                                                                                     | <b>1.3 %/V</b>                                                            |
|                                    | – power derating at input <220 VAC  |                                                                                     | <b>0.6 %/V</b> (at upper input voltage range)                             |
| Regulation                         |                                     | – Input variation                                                                   | <b>1 % max.</b>                                                           |
|                                    |                                     | – Load variation (0–100 %)                                                          | <b>1 % max.</b>                                                           |
| Ripple and Noise (20MHz bandwidth) |                                     | <b>100 mVp-p typ.</b> (200 mVp-p max.)                                              |                                                                           |
| Overload protection                |                                     | <b>130 % min.</b> (of Iout nom., constant current)                                  |                                                                           |
| Short circuit current              |                                     | <b>90 % of Iout nom. (typ.), foldback</b>                                           |                                                                           |
| Output overvoltage protection      |                                     | 12 VDC models:                                                                      | <b>25 V max.</b>                                                          |
|                                    |                                     | 24 VDC models:                                                                      | <b>40 V max.</b> (TSPC 120, TSPC 240, TSPC 480)                           |
|                                    |                                     |                                                                                     | <b>45 V max.</b> (TSPC 050, TSPC 080)                                     |
|                                    |                                     | 48 VDC models:                                                                      | <b>60 V max.</b>                                                          |
| Overtemperature protection         |                                     | <b>switch off at overtemperature, automatic restart</b>                             |                                                                           |
| Power back immunity                |                                     | 12 VDC models:                                                                      | <b>16 V</b> (18 V for 1 s)                                                |
|                                    |                                     | 24 VDC models:                                                                      | <b>35 V</b> (40 V for 1 s)                                                |
|                                    |                                     | 48 VDC models:                                                                      | <b>63 V</b> (65 V for 1 s)                                                |
| Power OK signal                    |                                     | 12 VDC models:                                                                      | <b>10.0 – 11.5 V</b>                                                      |
|                                    |                                     | 24 VDC models:                                                                      | <b>21.0 – 22.5 V</b>                                                      |
|                                    |                                     | 48 VDC models:                                                                      | <b>42.0 – 45.0 V</b>                                                      |
|                                    |                                     | 12 VDC models:                                                                      | <b>open collector 20 mA max.</b>                                          |
|                                    |                                     | 24 VDC models:                                                                      | <b>open collector 10 mA max.</b>                                          |
|                                    |                                     | 48 VDC models:                                                                      | <b>open collector 5 mA max.</b>                                           |
|                                    |                                     | Active high: Connected to Vout in normal operation, high resistance at failure      |                                                                           |
| Max. capacitive load               |                                     | <b>unlimited</b>                                                                    |                                                                           |

## General Specifications

|                           |                           |                                     |
|---------------------------|---------------------------|-------------------------------------|
| Temperature range         | – Operating               | –25°C to +70°C max. (with derating) |
|                           | – Output current derating | 2.5 %/°C above 60°C                 |
|                           | – Storage                 | –40°C to +85°C                      |
| Cooling                   |                           | convection cooling, no internal fan |
| Humidity (non condensing) |                           | 95 % rel. H max.                    |

## General Specifications

|                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pollution degree                                        | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Altitude during operation                               | 2'000 m max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Temperature coefficient                                 | 0.02 %/K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Reliability, calculated MTBF at +25°C acc. to IEC 61709 | <ul style="list-style-type: none"> <li>– TSPC 080 2.4 Mio. h</li> <li>– TSPC 120 2.5 Mio. h</li> <li>– TSPC 240 1.7 Mio. h</li> <li>– TSPC 480 1.4 Mio. h</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Isolation                                               | according to IEC/EN 60950-1, UL 60950-1, UL 508                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Safety standards                                        | <ul style="list-style-type: none"> <li>– Information technology equipment</li> <li>– Measurement, Control &amp; Laboratory</li> <li>– Industrial control equipment</li> <li>– Electrical equipment for machines</li> <li>– Electronic equipment for power installation</li> <li>– Safety of transformers</li> <li>– Control equipment for hazardous location</li> <li>– ATEX (for IP 54 enclosure)</li> <li>– UL hazloc (TSPC 050-124HL only)</li> <li>– Certification documents</li> </ul> <p>IEC/EN 60950-1, UL 60950-1, CSA 22.2 No 60950-1-07<br/> IEC/EN 61010-1, IEC/EN 61010-2-201<br/> UL 508, CSA-C22.2 No.107<br/> EN 60204-1<br/> EN 50178<br/> EN 61558-2-6, EN 61558-2-16<br/> EN 60079-15 II3G EX nA IIC T4<br/> certificate no. EPS 10 ATEX 1 269 X<br/> UL 121201 Class I; Div 2; Groups A,B,C &amp; D; T4<br/> <a href="http://www.tracopower.com/overview/tspc">www.tracopower.com/overview/tspc</a><br/> (When operating in ex environments such as ATEX, Hazloc, etc.: Check certification documents for special conditions for safe use.)</p> |
| Class of protection                                     | safety class I (IEC 536)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Degree of protection                                    | IP 20 (IEC/EN 60529)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Electromagnetic compatibility (EMC), Emissions          | <p>EN 61000-6-3, EN 61204-3</p> <ul style="list-style-type: none"> <li>– Conducted RI suppression on input</li> <li>– Radiated RI suppression</li> </ul> <p>EN 55011 class B, EN 55022 class B,<br/> EN 55011 class B, EN 55022 class B,</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Electromagnetic compatibility (EMC), Immunity           | <p>EN 61000-6-2, EN 61204-3</p> <ul style="list-style-type: none"> <li>– Electrostatic discharge (ESD)</li> <li>– Radiated RF field immunity</li> <li>– Electrical fast transient / burst immunity</li> <li>– Surge immunity</li> <li>– Immunity to conducted RF disturbances</li> <li>– Power frequency field immunity</li> <li>– Mains voltage dips and interruptions</li> </ul> <p>IEC/EN 61000-4-2 4 kV / 8 kV criteria B<br/> IEC/EN 61000-4-3 10 V / m criteria A<br/> IEC/EN 61000-4-4 2 kV criteria B<br/> IEC/EN 61000-4-5 1 kV / 2 kV criteria B<br/> IEC/EN 61000-4-6 10 V criteria A<br/> IEC/EN 61000-4-8 30 A / m criteria A<br/> IEC/EN 61000-4-11 criteria B/C</p>                                                                                                                                                                                                                                                                                                                                                                                 |
| Environment                                             | <ul style="list-style-type: none"> <li>– Vibration acc. IEC 68-2-6;</li> <li>– Shock acc. IEC 60068-2-27</li> </ul> <p>3 axis, sine sweep, 10 – 55 Hz, 1 g, 1 oct/min<br/> 3 axis, 15 g half sine, 11 ms</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Enclosure material                                      | aluminium (chassis) / stainless steel (cover)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Mounting                                                | <ul style="list-style-type: none"> <li>– DIN-rail mounting</li> <li>– Wall mounting (option)</li> </ul> <p>for DIN-rails as per EN 50022-35x15/7.5<br/> (snap-on with self-locking spring)<br/> with wall mounting bracket - see page 12</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Environmental compliance                                | <ul style="list-style-type: none"> <li>– Reach</li> <li>– RoHS</li> </ul> <p><a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a><br/> RoHS directive 2011/65/EU</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Connection                                              | <ul style="list-style-type: none"> <li>– Input / Output</li> <li>– Power Good signal (mating connector)</li> </ul> <p>screw terminals<br/> Phoenix contact MC 1,5/2-ST-3,5 (not included)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Installation instructions                               | <a href="http://www.tracopower.com/overview/tspc">www.tracopower.com/overview/tspc</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Accessories (optional)



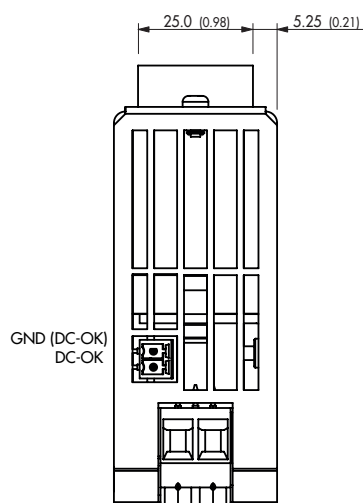
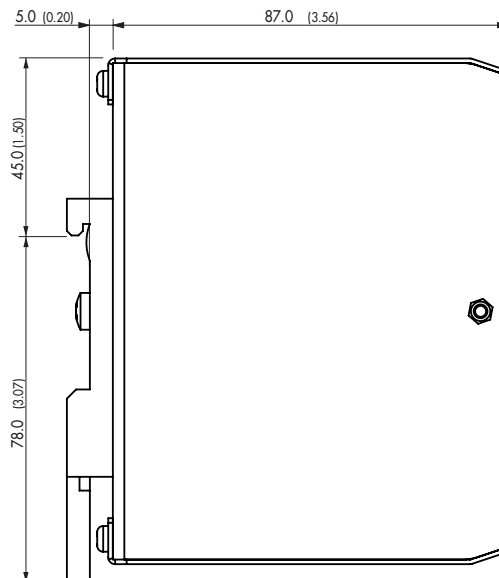
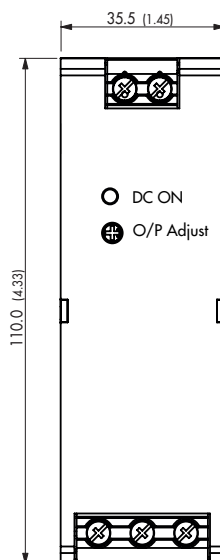
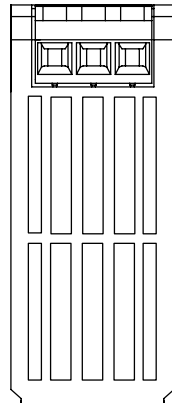
Decoupling module for redundant operation see:  
[www.tracopower.com/products/tspc-dcm.pdf](http://www.tracopower.com/products/tspc-dcm.pdf)



Wall mounting brackets: see last page

**Outline Dimensions**

**TSPC 050-112**  
**TSPC 050-124(HL\*)**



Max. terminal screw locked torque:  
1.3 Nm (Input/Output)  
0.5 Nm (DC OK)

**Weight:** 350 g (12.3 oz)

**Dimensions in [mm], ( ) = Inch**

**Tolerances:  $\pm 0.5$  mm ( $\pm 0.02$ )**

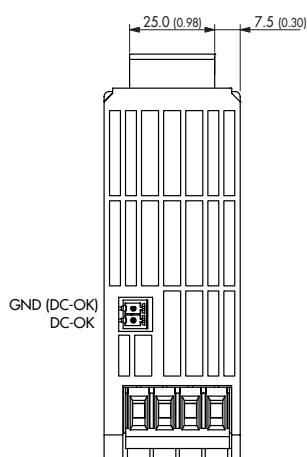
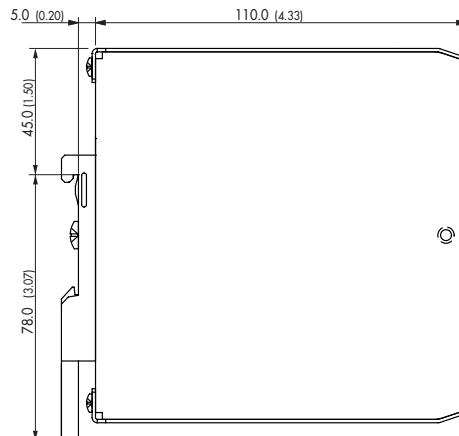
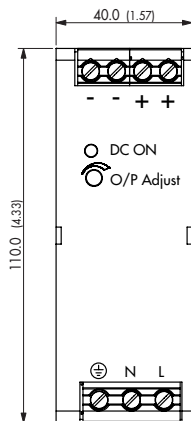
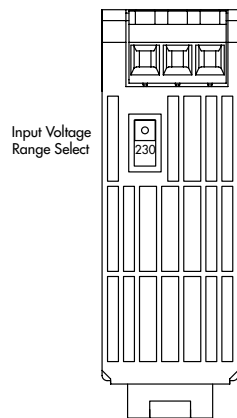
\*TSPC 050-124HL contains mating plug on DC-OK connector fitted with cable tie which enlarges height of product 9mm max.

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

**Outline Dimensions**

**TSPC 080-112**

**TSPC 080-124**



Max. terminal screw locked torque:  
1.3 Nm (Input/Output)  
0.5 Nm (DC OK)

**Weight:** 400 g (14.1 oz)

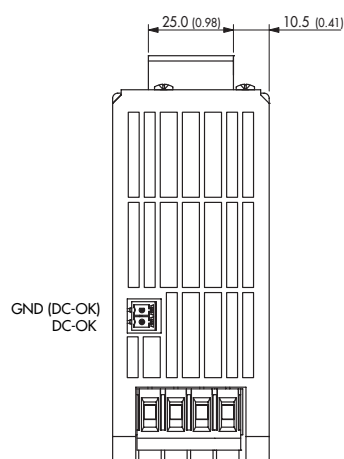
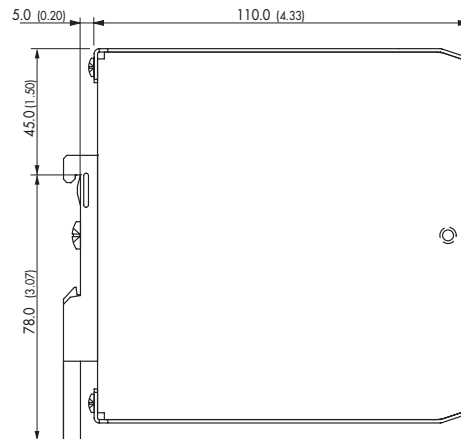
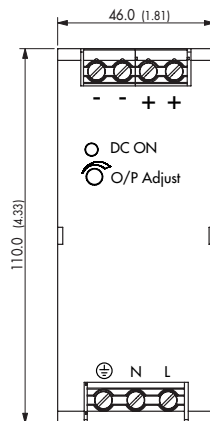
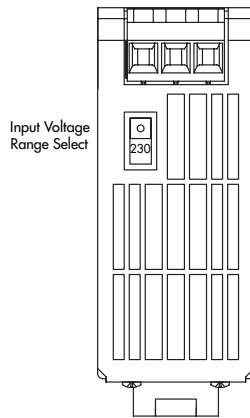
**Dimensions in [mm], ( ) = Inch**

**Tolerances: ±0.5 mm (±0.02)**

**Outline Dimensions**

**TSPC 120-124**

**TSPC 120-148**



Max. terminal screw locked torque:  
1.4 Nm (Input/Output)  
0.5 Nm (DC OK)

**Weight:** 500 g (17.1 oz)

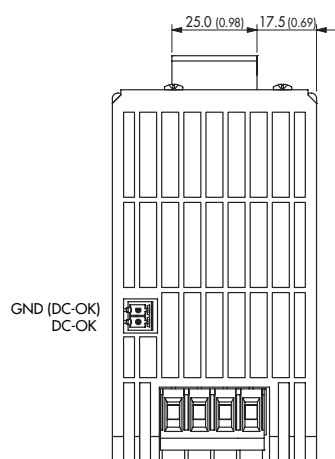
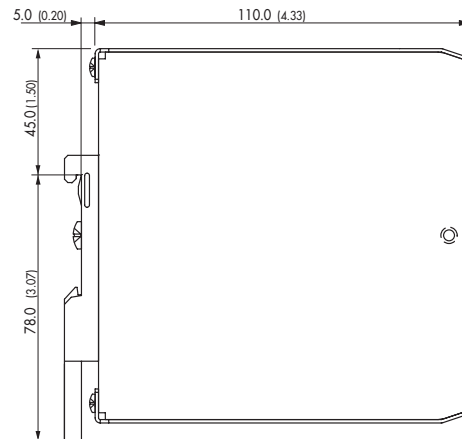
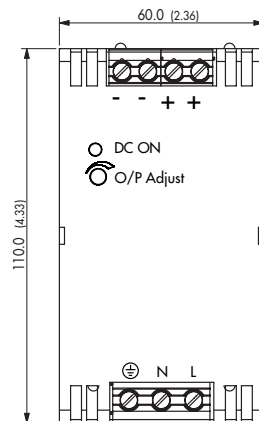
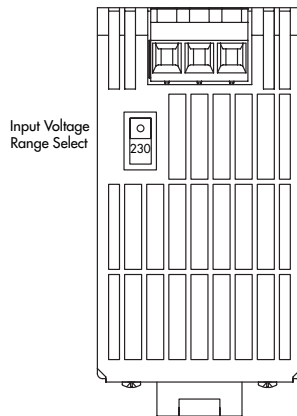
**Dimensions in [mm], ( ) = Inch**

**Tolerances:**  $\pm 0.5$  mm ( $\pm 0.02$ )

**Outline Dimensions**

**TSPC 240-124**

**TSPC 240-148**



Max. terminal screw locked torque:  
1.4 Nm (Input/Output)  
0.5 Nm (DC OK)

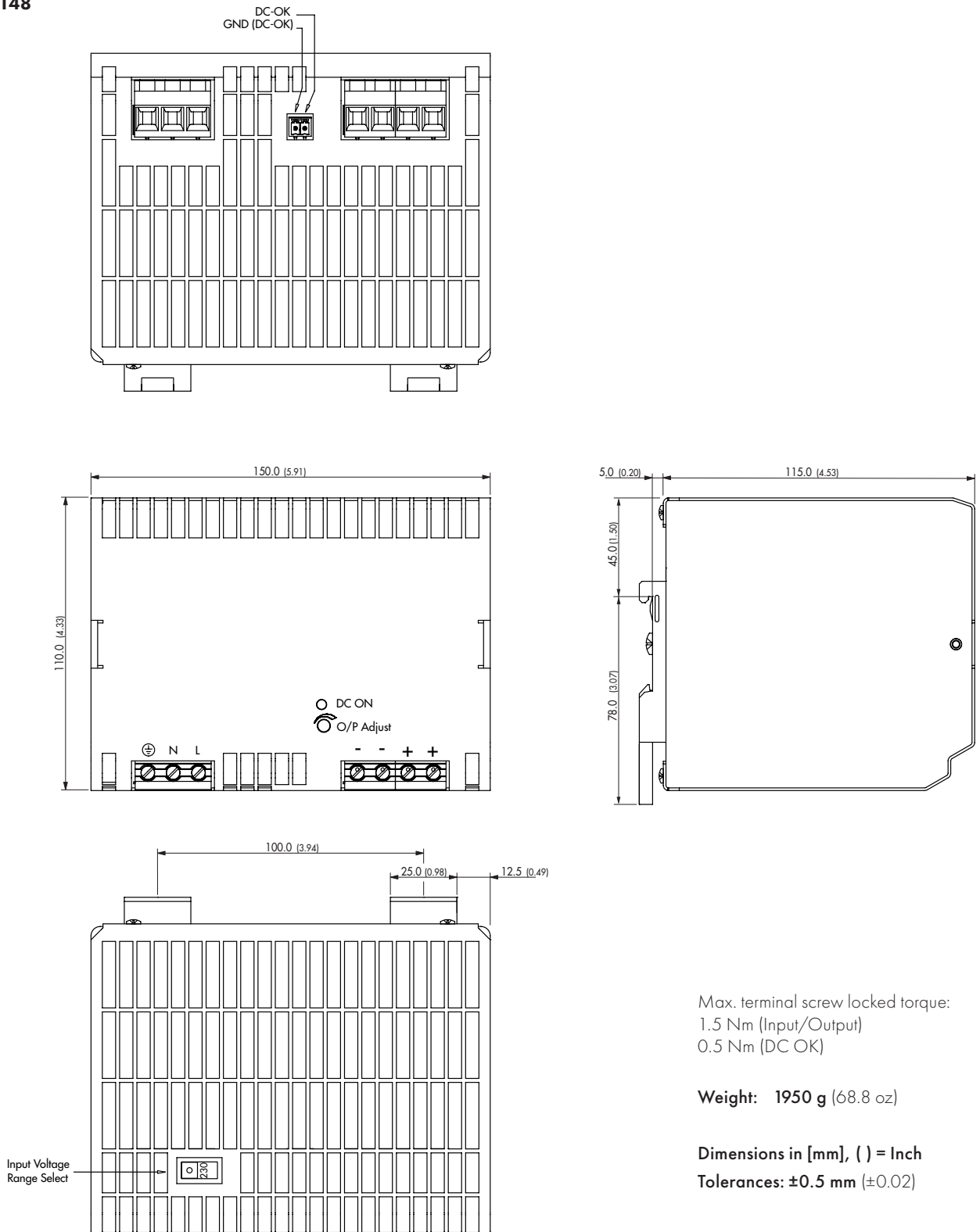
**Weight: 750 g (26.5 oz)**

**Dimensions in [mm], ( ) = Inch**  
**Tolerances:  $\pm 0.5$  mm ( $\pm 0.02$ )**

**Outline Dimensions**

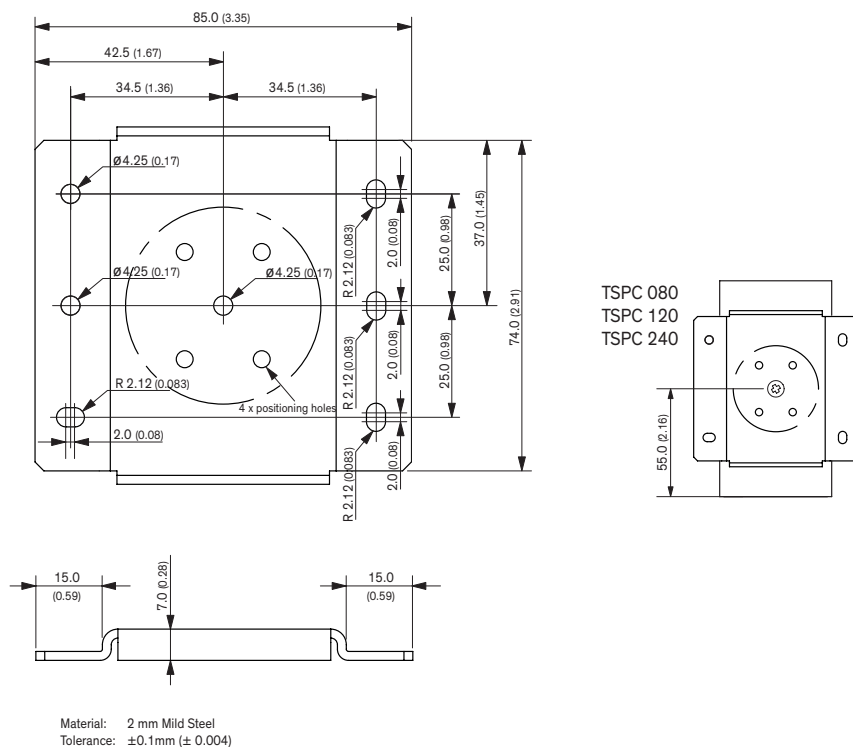
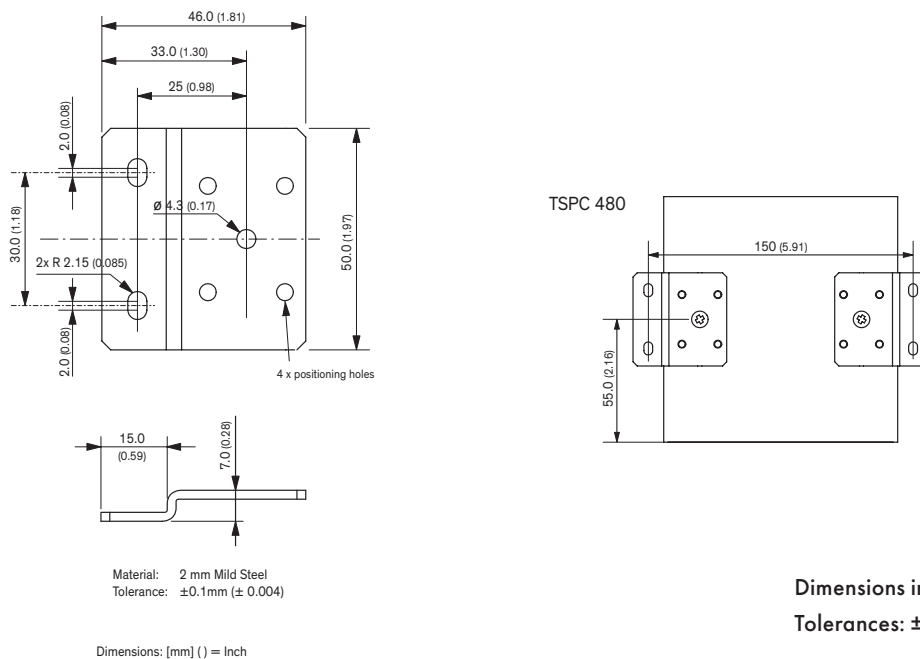
**TSPC 480-124**

**TSPC 480-148**



**TSP-WMK Wall Mounting Bracket**

| order code       | for models                               | content of kit |
|------------------|------------------------------------------|----------------|
| <b>TSP-WMK03</b> | TSPC 080, TSPC 120, TSPC 240, TSP-DCM600 | 1 bracket      |
| <b>TSP-WMK02</b> | TSPC 480                                 | 2 brackets     |

**TSP-WMK03**

**TSP-WMK02**


Dimensions in [mm], ( ) = Inch  
Tolerances:  $\pm 0.5\text{ mm}$  ( $\pm 0.02$ )

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