

- For global use with single- and two phase wide-range input 100/230–500 VAC
- Rugged metal case for harsh industrial environments
- Industrial operating temperature range:  $-25^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
- Power OK signal
- Remote On/Off
- Shock and vibration-proof
- Indefinite short circuit, overvoltage and overtemperature protection
- Redundancy module
- Buffer module for power backup
- Battery controller module
- 3-year product warranty



The successful TSP series of high performance DIN-rail mount power supplies has been expanded with models featuring wide input ranges of 85-132 / 187-264 / 323-550 VAC. With these input ranges the power supplies can be used in almost all single- and multi phase power networks worldwide.

A high, continuously available power reserve guarantees reliable start-up of loads with high inrush currents. Excellent electrical specifications and high immunity against electrical disturbances make these compact power supplies the best choice to power sensitive loads in industrial process control systems, machine tools or any other demanding industrial application. The power supplies comply also with IEC/EN 61204-3, the EMC standard for Industrial environment.

3 add-on modules for extra functions offer a great flexibility in system applications. A module for redundant operation with true power sharing is available. With the battery controller module the power supplies can be extended to a perfect DC-UPS system. The buffer module provides power back-up for up to 4 seconds without the need of any batteries. Easy and vibration proof installation with pluggable screw terminal block and snap-on mounting on DIN-rails.

### Models

| Order Code    | Output Voltage (V <sub>nom</sub> ) | *Output Current (I <sub>max</sub> ) | Output Power (P <sub>max</sub> ) |
|---------------|------------------------------------|-------------------------------------|----------------------------------|
| TSP 180–124WR | 24 VDC<br>(adjustable 24 - 28 VDC) | 7.5 A                               | 180 W                            |
| TSP 360–124WR |                                    | 15.0 A                              | 360 W                            |
| TSP 600–124WR |                                    | 25.0 A                              | 600 W                            |

\* Max. current at nominal output voltage and operating temperature up to 40°C max.

## Input Specifications

|                             |   |   |
|-----------------------------|---|---|
| Applicable 3-phase networks | – TN, TT Systems:   | 500 VAC Star configuration (EN60950, UL508)<br>500 VAC Delta (UL508 only) |
|                             | – IT Systems:   | 400 VAC Delta (IEC-62103)<br>230 VAC Delta (IEC-60950)<br>500 VAC (UL508) |
| Input ranges                | select (low/high) by manual switch:<br>auto range selection in high ranges:<br>input frequency: | 85–132 VAC / 187..550 VAC<br>187–264 VAC / 323–550 VAC<br>47–63 Hz        |
| Harmonic limits             |   | EN 61000-3-2, Class A (for limited output power)                          |
| Holdup time                 |   | 20 ms min. (full load 230 – 500 VAC)                                      |
| Inrush current              | TSP 180-124VWR<br>TSP 360-124VWR<br>TSP 600-124VWR  | < 23 A<br>< 46 A<br>< 50 A  |
| Efficiency                  |   | 88 % typ.   |

## Output Specifications

|                                     |   |   |
|-------------------------------------|---|---|
| Output voltage adjustable range     |   | 24–28 VDC   |
| Regulation                          | – Input variation<br>– Load variation (10–100 %)<br>– Load variation (10–100 %) parallel mode | 0.5 % max.<br>0.5 % max.<br>2.0%  |
| Ripple and noise (20MHz bandwidth)  |   | 100 mV pk-pk typ. (150 mV pk-pk max. at I <sub>max</sub> )                                |
| Electronic short circuit protection |   | current limitation at 125 % of I <sub>max</sub> .<br>constant current, automatic recovery |
| Output overvoltage protection       |   | 34 V  |
| Overload protection                 |   | electronic overload protection  |
| Overtemperature protection          |   | switch off at overtemperature, automatic restart  |
| Status indicator                    |   | dual colour LED (green: DC OK, red: DC off)   |
| Power OK signal                     | – trigger threshold<br>– relay output   | 18 – 22 V<br>DC OK = contact closed (rated: 30 VDC/1.0 A)                                 |
| Max. capacitive load                |   | unlimited   |

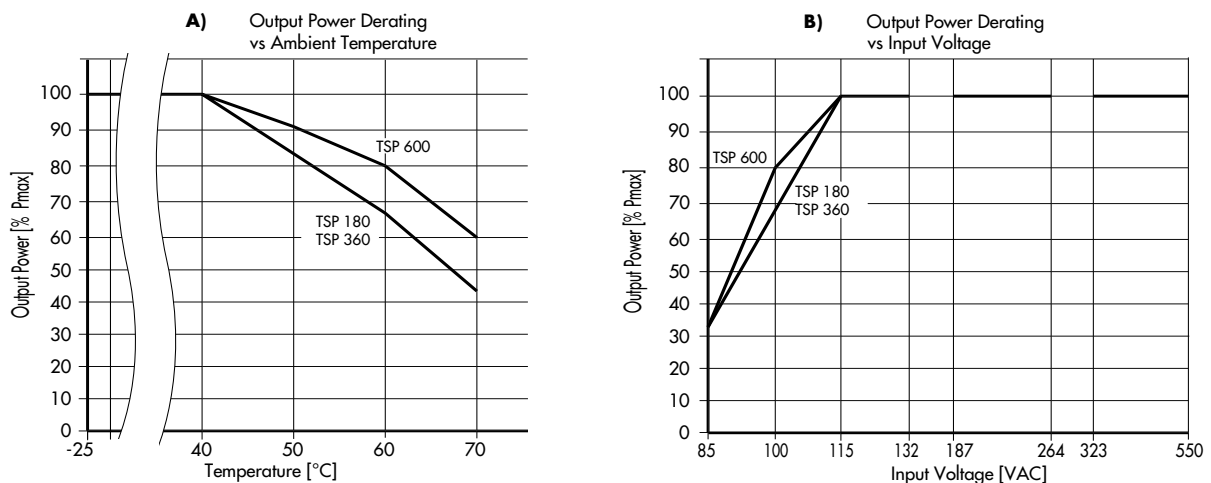
## General Specifications

|   |   |   |
|---|---|---|
| Operating temperature range                             |   | –25°C to +70°C max.<br>(for derating see graph A on page 3)   |
| Cooling   |   | convection cooling, no internal fan   |
| Storage temperature                                     |   | –25°C to +85°C  |
| Humidity (non condensing)                               |   | 95 % rel. H max.  |
| Pollution degree  |   | 2   |
| Temperature coefficient                                 |   | 0.02 %/K  |
| Reliability, calculated MTBF at +25°C acc. to IEC 61709 |   | >350'000 heures in accordance to IEC 61709  |
| Remote On/Off   |   | by ext. contact.<br>DC on: -S contact open<br>DC off: -S connected via 1 Kohm to -Vout  |
| Safety standards  | – Information technology equipment<br>– Industrial control equipment<br>– Electrical equipment of machines<br>– Electronic equipment for power installation<br>– Safety transformers for SMPS | IEC/EN 60950-1, UL 60950-1, CSA-C22.2 No. 60950-1-03,<br>CSA-C22.2 No. 1071-01<br>UL 508<br>EN 60204<br>EN 50178<br>EN 61558-2-16 |

### General Specifications

|  |  |   |
|--|--|---|
| Safety standards                               | <ul style="list-style-type: none"> <li>– CB scheme</li> <li>– CSA certificate</li> <li>– GS certificate</li> <li>– SIQ certificate</li> <li>– Certification documents</li> </ul>   | IEC 60950-1<br>UL 60950-1, CSA-22.2 No. 60950-1-03,<br>CSA C22.2 No. 1071-0, UL 508<br>IEC/EN 60950-1, EN 60204, EN 61558-2-4<br>IEC/EN 60950-1<br><a href="http://www.tracopower.com/overview/tsp-wr">www.tracopower.com/overview/tsp-wr</a>                   |
| Safety class                                   |  | Degree of electrical protection I (IEC 536)   |
| Case protection                                |  | IP 20 (IEC 529)   |
| Electromagnetic compatibility (EMC), Emissions | <ul style="list-style-type: none"> <li>– Conducted RI suppression on input</li> <li>– Radiated RI suppression</li> </ul>   | IEC/EN 61000-6-3, IEC/EN 61204-3<br>EN 55011 class B, EN 55022 class B,<br>EN 55011 class B, EN 55022 class B,  |
| Electromagnetic compatibility (EMC), Immunity  | <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>– Voltage dips</li> </ul> | IEC/EN 61000-6-2, IEC/EN 61204-3<br>IEC/EN 61000-4-2      4 kV / 8 kV<br>IEC/EN 61000-4-3      10 V / m<br>IEC/EN 61000-4-4      2 kV<br>IEC/EN 61000-4-5      1 kV / 2 kV<br>IEC/EN 61000-4-6      10 V<br>IEC/EN 61000-4-8      30 A / m<br>IEC/EN 61000-4-11 |
| Environment                                    | <ul style="list-style-type: none"> <li>– Vibration acc. IEC 60068-2-6;</li> <li>– Shock acc. IEC 60068-2-27</li> </ul>   | 3 axis, sine sweep, 10-55 Hz, 1g, 1oct/min<br>3 axis, 15 g half sine, 11 ms   |
| Enclosure material                             |  | aluminium (chassis) / zinc plated steel (cover)   |
| Mounting                                       | <ul style="list-style-type: none"> <li>– DIN-rail mounting</li> <li>– Wall mounting (option)</li> </ul>  | for DIN-rails as per EN 50022-35x15/7.5<br>(snap-on with self-locking spring)<br>with <b>wall mounting bracket</b> - see page 10  |
| Connection                                     |  | detachable screw terminals (plugs included)<br>2 terminals per output   |

### Output Power Derating



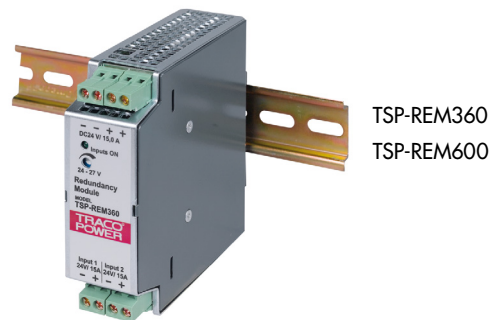
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

### Function Modules Overview

#### Redundancy Module:

With this module and two power supplies of the TSP-(WR) series a highly reliable, true redundant power system can be configured without any additional components. This module provides:

- Operation with true current sharing
- Alarm outputs and redundancy OK signal
- Hot swappable inputs can be loaded up to 1.5A each (resp. 2.5A with model TSP-REM600)



TSP-REM360  
TSP-REM600

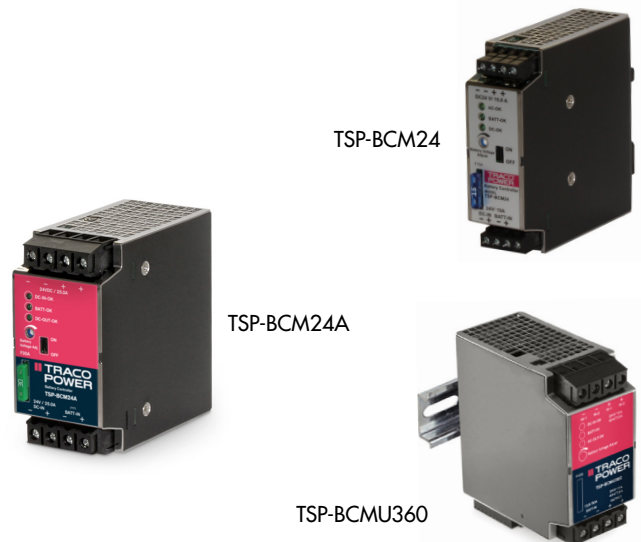
| Models     |                     |              |
|------------|---------------------|--------------|
| Order Code | Output Voltage adj. | Output Power |
| TSP-REM360 | 24 VDC              | 360 W        |
| TSP-REM600 | (24 – 27 VDC)       | 600 W        |

TSP-REM datasheet: [www.tracopower.com/products/tsp-rem.pdf](http://www.tracopower.com/products/tsp-rem.pdf)

#### Battery Controller Modules + Batteries:

This module provides a professional battery controller to charge and monitor an external lead-acid battery. Together with a power supply of the TSP series and a battery pack a perfect DC-UPS system can be configured. This module provides:

- Battery protection for over voltage, deep discharge, short circuit and reverse connection
- Remote On/Off for battery and power supply
- Alarm outputs for input, output and battery condition
- Controlled end of charge voltage by temperature sensor
- Redundant inputs for two independent sources (**TSP-BCM360 only**)



TSP-BCM24

TSP-BCM24A

TSP-BCM360

| Models     |                |              |
|------------|----------------|--------------|
| Order Code | Output Voltage | Output Power |
| TSP-BCM24  | 24 VDC         | 360 W        |
| TSP-BCM24A |                | 600 W        |

TSP-BCM datasheet: [www.tracopower.com/products/tsp-bcm.pdf](http://www.tracopower.com/products/tsp-bcm.pdf)

TSP-BCM360 datasheet: [www.tracopower.com/products/tsp-bcm360.pdf](http://www.tracopower.com/products/tsp-bcm360.pdf)

#### Buffer Module:

This module will maintain the output voltage of a 24VDC power supply during typical mains faults, short time blackouts or voltage dips of up to ten full 50Hz cycles. During this buffer period no deterioration of the 24VDC output voltage will occur. This module provides:

- Capacitor bank for energy storage, no battery needed!
- Maintenance free, long lifetime, high performance also at low temperature.
- Guaranteed Hold-up-time 200ms/25A to 4s/1.2A max.
- Output 24 to 28VDC, 600W max.
- Active ready and inhibit signals



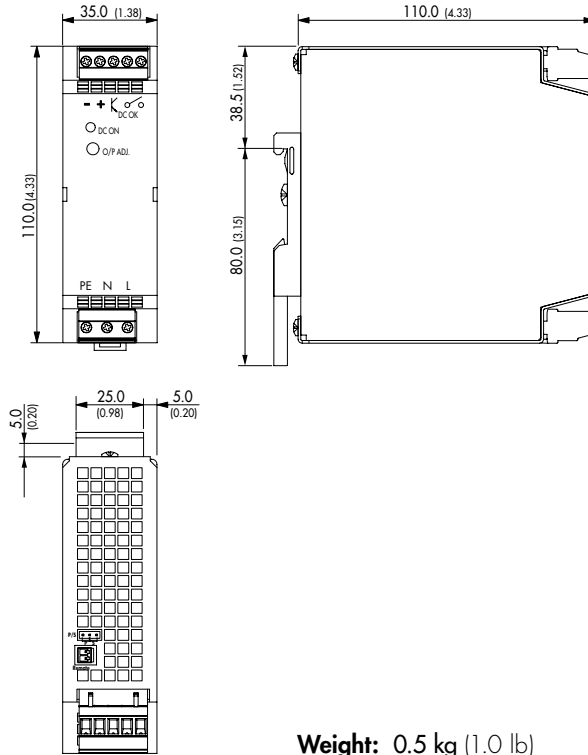
TSP-BFM24

| Models     |                |              |
|------------|----------------|--------------|
| Order Code | Output Voltage | Output Power |
| TSP-BFM24  | 24 – 28VDC     | 600 W        |

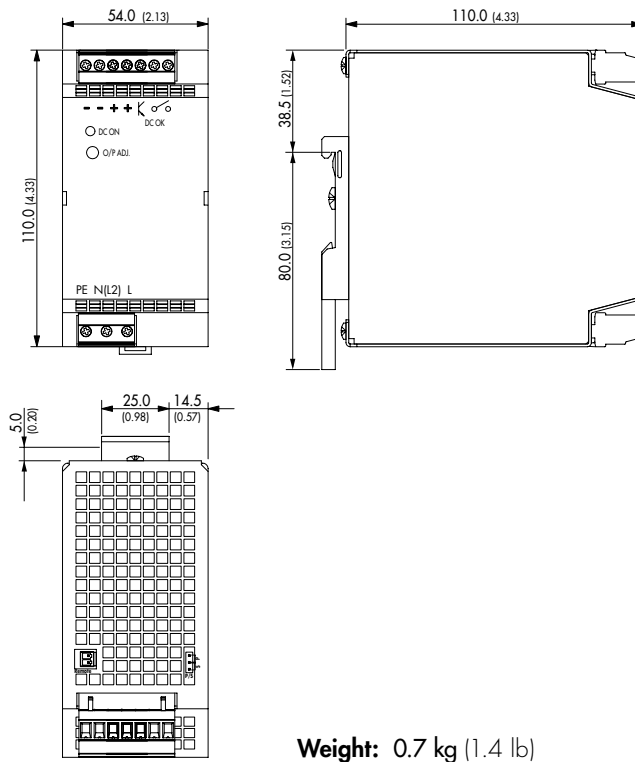
TSP-BFM datasheet: [www.tracopower.com/products/tsp-bfm.pdf](http://www.tracopower.com/products/tsp-bfm.pdf)

### Case Dimensions

**Models:**  
**TSP-REM360**  
**TSP-BCM24**



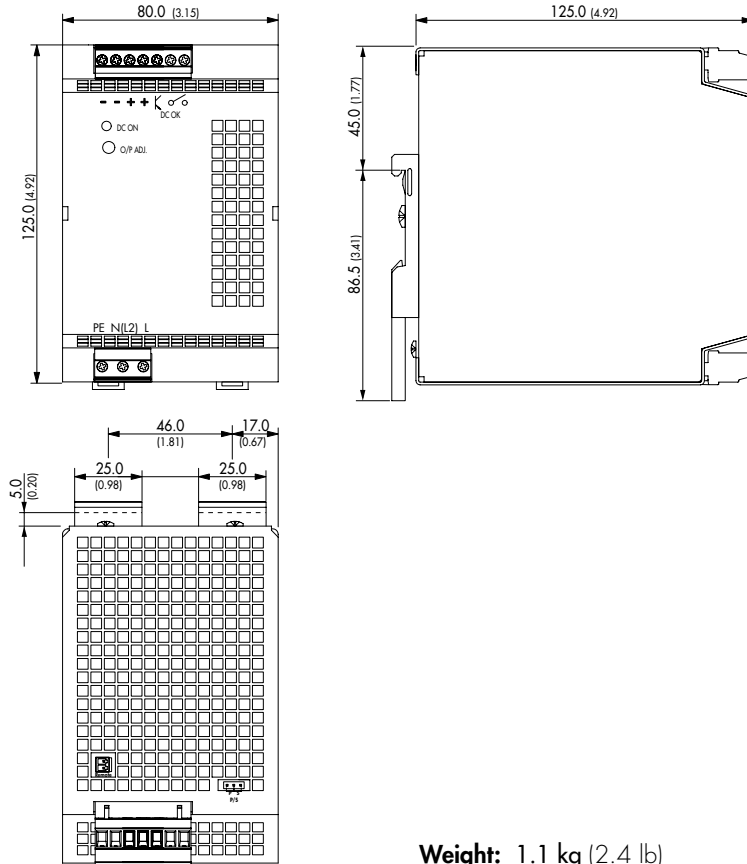
**Models:**  
**TSP 180-124WR**  
**TSP-REM600**  
**TSP-BCM24A**  
**TSP-BFM24**



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

**Case Dimensions**

**Model:**  
**TSP 360-124WR**

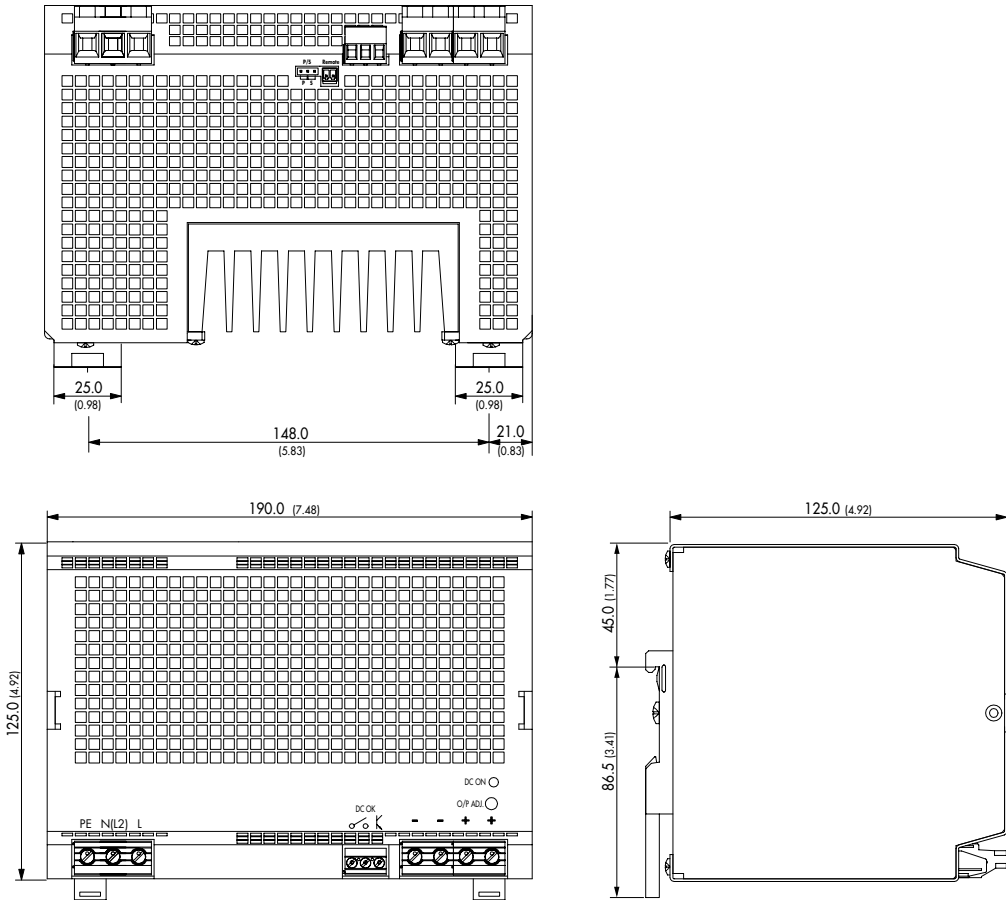


**Weight:** 1.1 kg (2.4 lb)

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

### Case Dimensions

Model:  
TSP 600-124WR



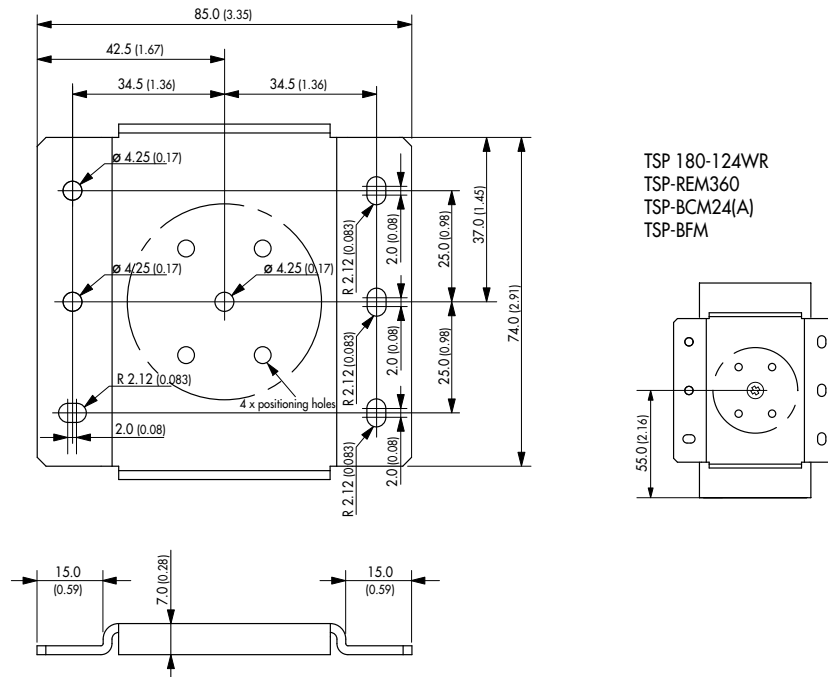
**Weight: 3.0 kg (6.0 lb)**

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

### TSP-WMK Wall Mounting Bracket

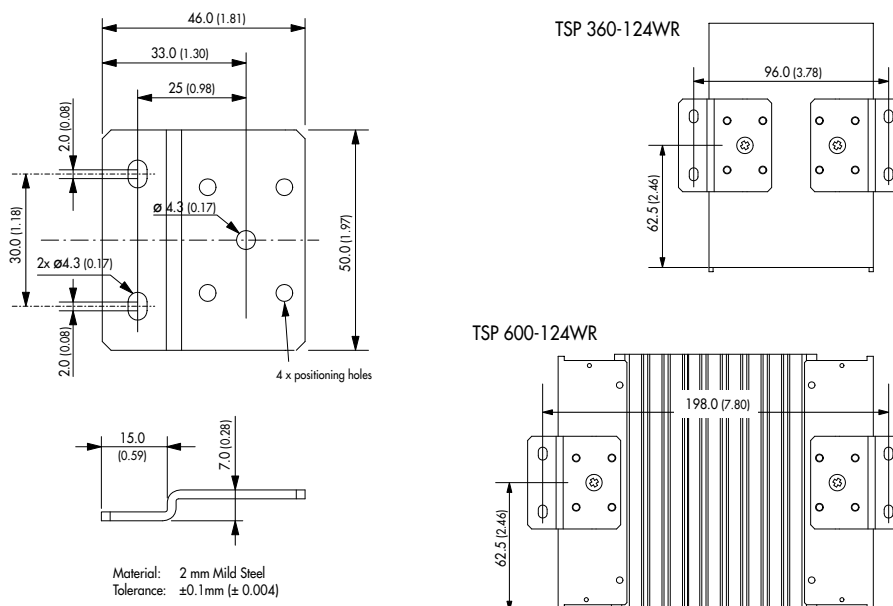
| Ordercode of kit | For models                                       | Content of kit |
|------------------|--|----------------|
| TSP-WMK03        | TSP 180-124WR, TSP-REM360, TSP-BCM24(A), TSP-BFM | 1 bracket      |
| TSP-WMK02        | TSP 360-124WR, TSP 600-124WR                     | 2 brackets     |

#### TSP-WMK03



Material: 2 mm Mild Steel  
Tolerance:  $\pm 0.1\text{mm}$  ( $\pm 0.004$ )

#### TSP-WMK02



Material: 2 mm Mild Steel  
Tolerance:  $\pm 0.1\text{mm}$  ( $\pm 0.004$ )

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



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- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
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- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
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- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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## JONHON

«JONHON» (основан в 1970 г.)

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ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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