

Safecom T-Former Series



Stabilized pure sine voltage technology (US Patent 8,415,822)



Safecom TFPS Series

Installation Manual

FEB-2015

SAFECOM US Patent 8,415,822.

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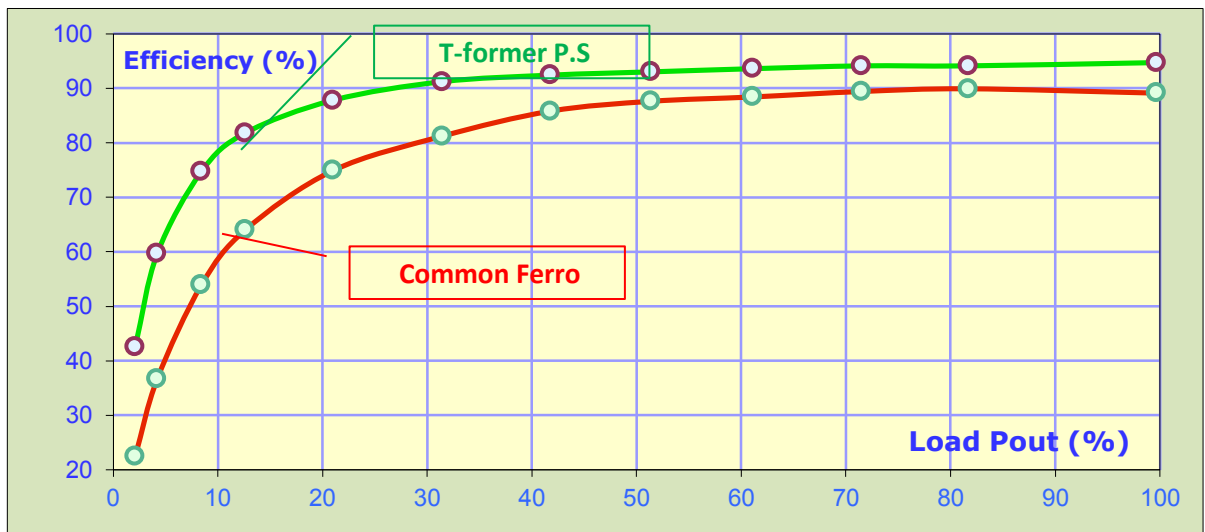
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T-Former - High efficiency Power supply

- **Lower Operating Costs** - saves at least 5% energy compared to Ferro systems
- Lower Capital Cost per unit - compared to traditional Ferro-resonant devices
- Longer Life -Unique technology enables almost unlimited lifetime
- No Noise, No Vibration - No environmental disturbance when installed on, or near buildings
- Slow Start prevents fall of current breakers after power-out or during ignition
- Automatic overload protection

EFFICIENCY : T-Former Vs traditional Ferro

Pure Sine Wave Stabilizer Technology



Safety Instructions

Review the Installation Manual before proceeding.

If there are any questions regarding safe installation or operation & performance please contact us at: support@safecom.tv.

Prior to any handling, the Power Supply must be disconnected from the Mains.

Only an experienced and authorized technician or electrician, who is qualified to work on the electrical grid while taking necessary precautions that comply with the electrical code should perform installation.

Before Installation:

Make sure that P.S input voltage configuration matches the standard utility voltage level.

Make sure that P.S output voltage configuration matches the CATV voltage requirements.

Recheck circuit breaker and earth leakage circuit breaker (ELCB).

Connect grounding cable between P.S grounding to utility grounding point.

Safety:

Prior to installation or removal recheck that utility circuit breaker is OFF and that there is no voltage at the P.S.

Only a licensed electrician should install the P.S.

Ensure that all cables are dry and wet-protected.

Overview:

T-Former is a pure stabilizer **sine wave P.S with the** highest- efficiency, and most reliable technology, specifically developed for the advanced operation of line amplifiers in CATV distribution systems. With about double the lifetime of legacy Ferro-resonant products, it delivers at least 5% energy savings compared with standard systems. Its modular optional design enables an upgrade of the T-Former to UPS by adding a compatible ONLINE DC-AC inverter /Charger. This helps Operators reduce network expenditure at capital, as well as operational levels.

Thanks to its patent-pending **sine wave stabilizer technology**, the T-Former's advanced electronic controller automatically monitors the line voltage and compensates for any changes, eliminating negative Inrush current side effects resulting from utility power recovery. In addition, the T-Former operates in complete silence - solving noise and vibration problems inherent in existing products. This is increasingly important in highly populated areas where power supply devices are often mounted near buildings. T-Former is designed to work at a wide range of temperatures and humidity without maintenance, at full power capacity. 100% of Safecom's T-Formers undergo rigorous and repeated quality testing.

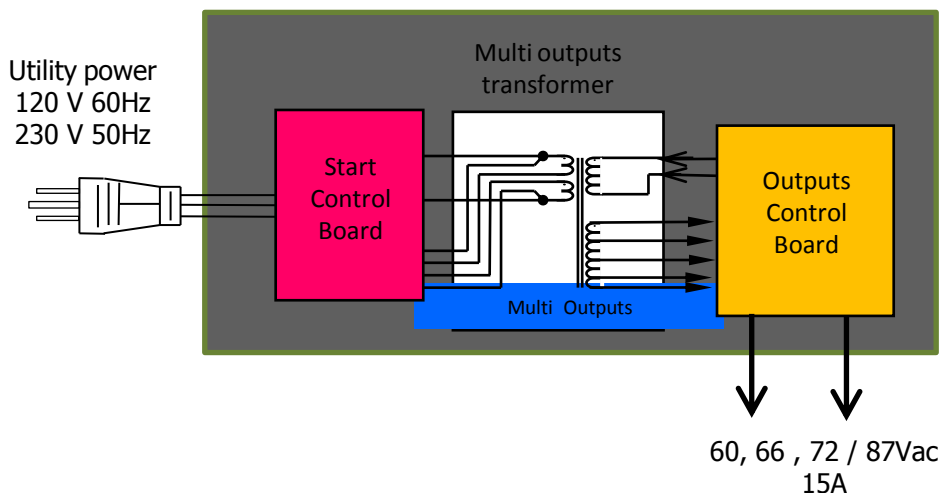


| Model | SC-DTFPS 1050-60EO/I |
|-------------------------------------|-------------------------------|
| Electrical | |
| Input Voltage Taps (Vac) | 230±15% EUROPE |
| Input Frequency (Hz) | 50/60 |
| Input Current (A) | < 5.5A |
| Input inrush current | < 10 A In single pulse of 5ms |
| Input Power Factor | > 0.95 at full load |
| Output Voltage Taps (Vac) | 60, 66, 72V -25A (87V -25A) |
| Total Output Current (A) | 25A (15A max each port) |
| Short circuit time response (ms) | <10 |
| Recovery safety time delay (sec) | > 3 |
| Output Power (VA) | 1050 |
| Load Regulation (%) | < 2% |
| Output Protection Fuse | T15A |
| Efficiency (%) | 95% at full load |
| Mechanical | |
| Dimensions (L , W , H) mm | 375 x 220 x 215 |
| Weight (Kg/lbs) | 20 kg |
| Housing Finish | White zinc / epoxy plating |
| Environment | |
| Operating Temperature | -20°C ÷ +60°C |
| Storage Temperature | -20°C ÷ +70°C |
| Humidity | 0 ÷ 100% non condensing |
| Standard Features | |
| Power Mains Cable | √ |
| Mains Transients Protection | √ |
| Quick Connection Output Coax socket | √ |
| Output Fuse | √ |
| Output Voltage Test Points | √ |
| Output Current Measurement Loop | √ |
| Power Indication Green LED | √ |
| Optional Features | |
| Output Screw Terminals | √ |
| DC/AC inverter for UPS | √ |

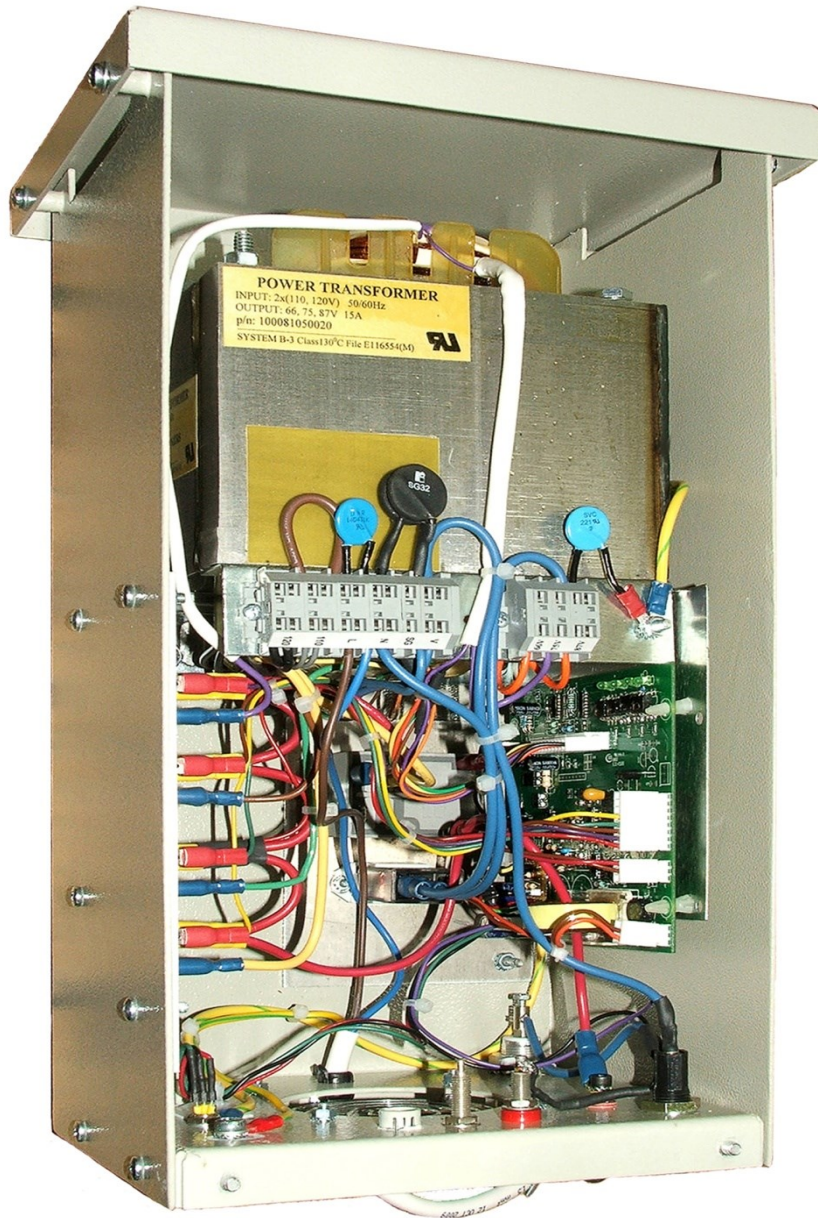
• Technology

- The TFPS series Dual Port CATV P.S with utilizes novel & US Patent AC/AC variable ratio transformation provide ultimate voltage regulation and **pure sine** voltage output at all loads. Input & output Voltage are completely isolated line conditioning enabling changing gears at 0 time "zero crossing". This smooth online transformation between gears provides clean AC pure sine voltage without any RF noise.
- An extra feature of the T-former Novel P.S is its SOFT STARTUP, solving the most hazard problem of Ferro based P.S: the Inrush current. This innovative solution controls the current level during start-up and prevents the circuit breaker from falling during startup or utility power interruption.
- The system also has electronic overload protection, protecting the network and minimizing fuse blow when momentary short circuits occur.
- Safecom T-Former P.S offers the most efficient technology with almost 95% efficacy at a wide range of loads. It saves electricity and maintains the transformer and its electronic parts at cold temperature, making it the most reliable P.S with unlimited lifetime.
- Unlike the Ferro P.S, characterized by noise and vibration, the new T-former P.S is completely silent, with no vibrations, making it suitable for installation near buildings and homes.

Block Diagram T-Former P.S



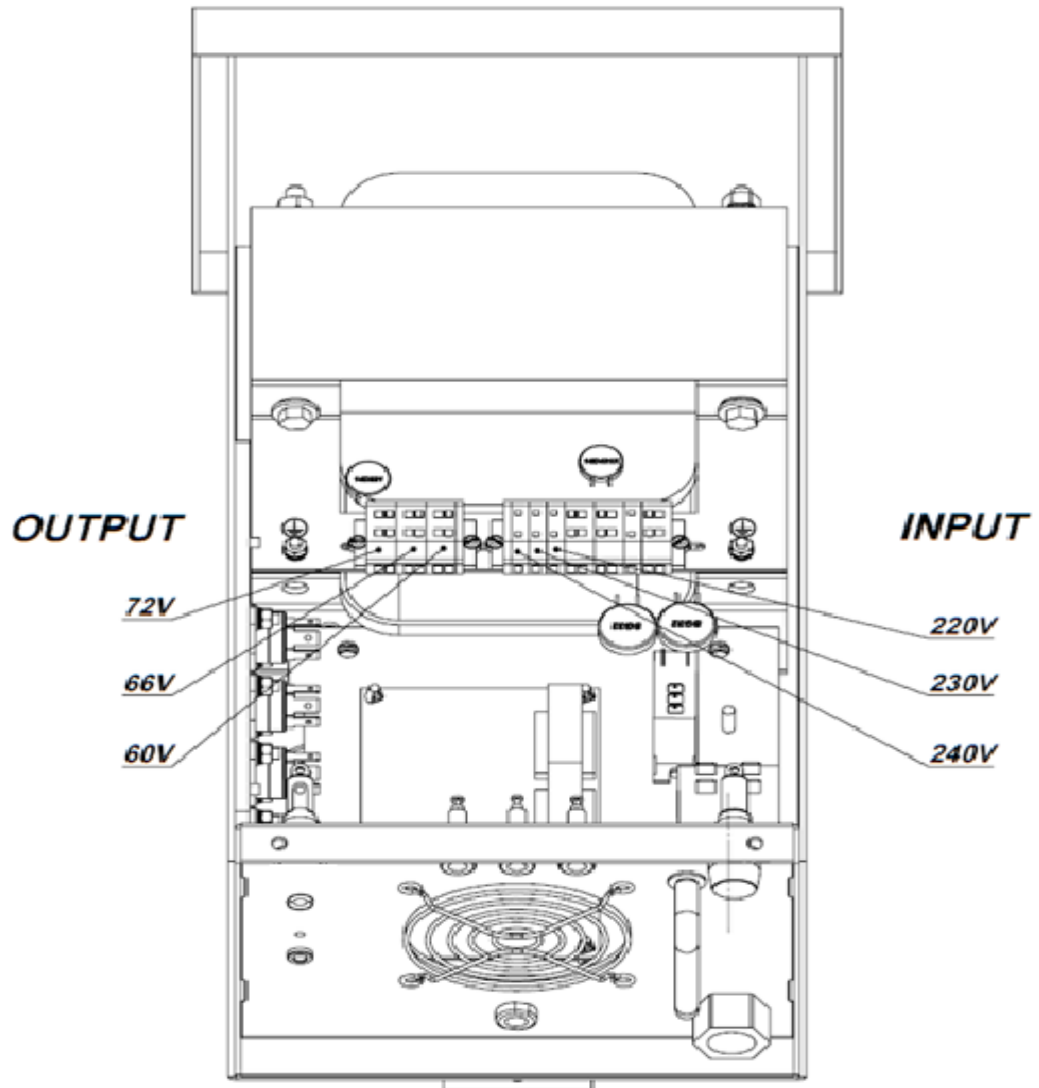
Inside view : T-former outdoor 87V -15A



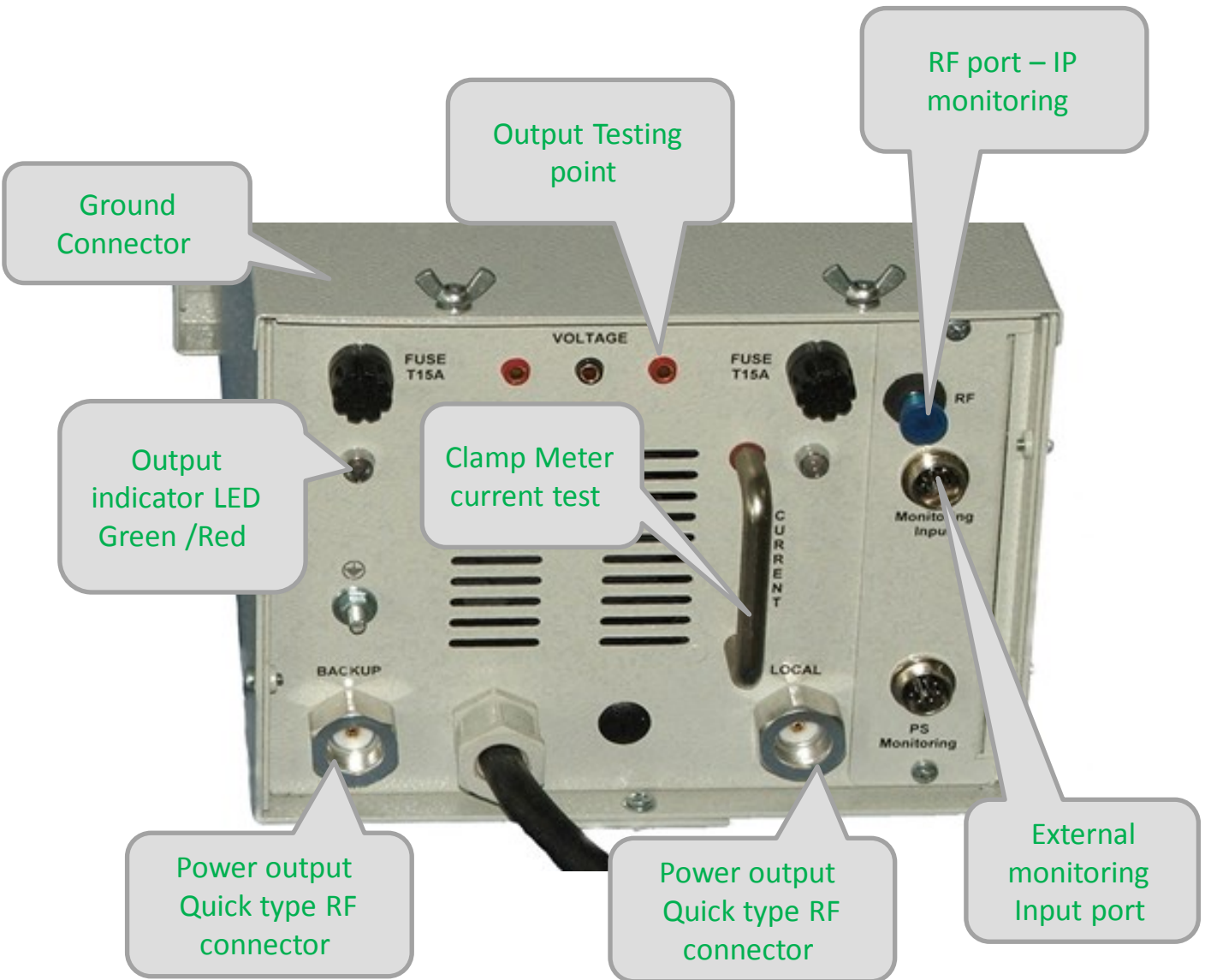
Voltage configuration

Safecom TF-PS series offers input & output voltage-level flexibly. Technicians can easily configure the optimal input voltage level and recommend output voltage levels for supplying power to the network.

- 1) Ensure utility power is OFF when changing voltage configuration at input & output.
- 2) Changing the settings is done by moving input & output cables from one port to another. The cable is fastened by a powerful spring. To release it, simply press the lower point using a screw driver.
- 3) This configuration insures reliable connections for life, without any possibility of losing the connection.

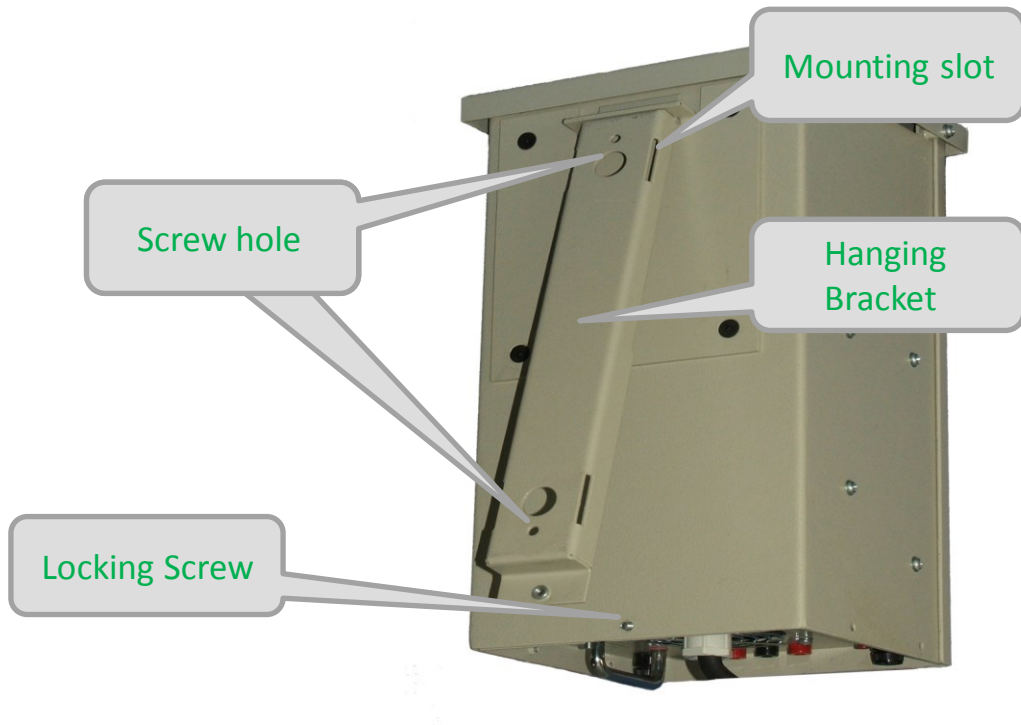


Bottom view



Back View

Hanging Bracket Closed Cabinet Installed with special bracket for hanging or shelf-lain mounting

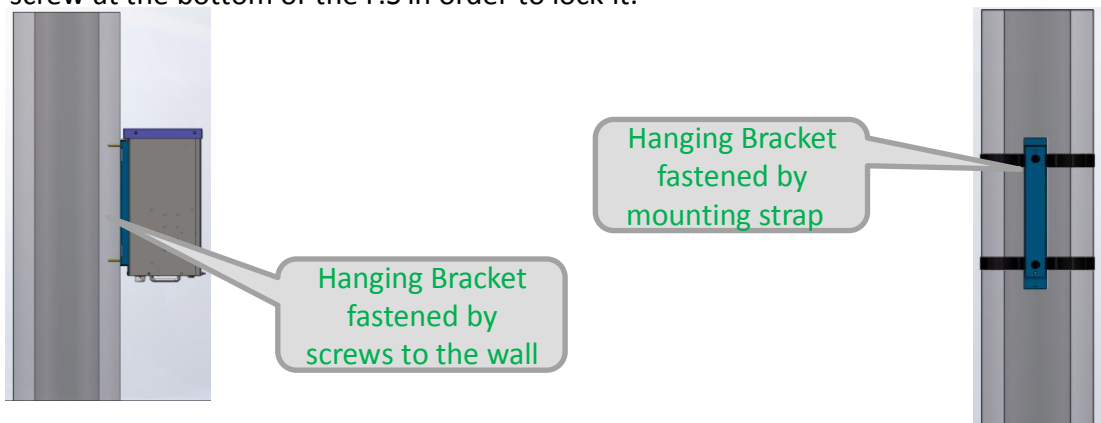


Installing TFPS – Outdoor

The SC-TFPS outdoor series non-standby power supplies are designed to be mounted by separate brackets on a wall or on a pole.

When installing a TF-PS on a pole, an approved mounting strap must run through the mounting slots of the back bracket. When installing on a wall, use two >8 mm screws to fasten the bracket to the wall.

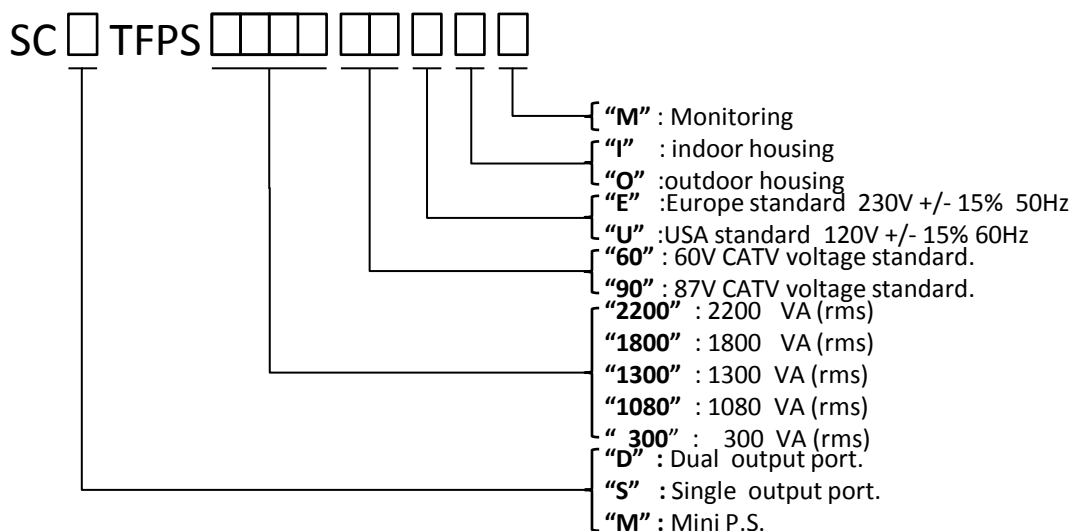
After bracket is fastened to the wall, hang the PS on the bracket and tighten the screw at the bottom of the P.S in order to lock it.



Back view TF-PS Bracket locked



Safecom T-former P.S ordering information

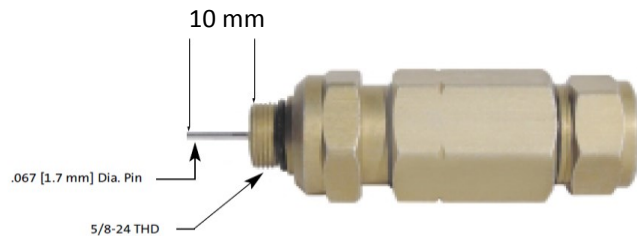
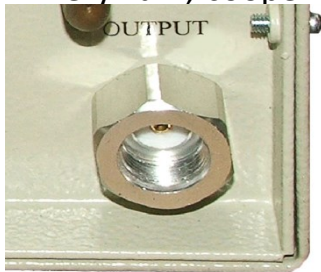


| Model | Output Port | Output Voltage | Output Current [A] | Input Voltage[V] | Frequency [Hz] | Housing | Monitoring |
|----------------------|-------------|----------------|--------------------|------------------|----------------|---------|------------|
| SC S TFPS 1080 60UI | Single | 66,72 | 15 | 110,120 | 45 ÷ 65 | Indoor | - |
| SC S TFPS 1080 60UO | Single | 66,72 | 15 | 110,120 | 45 ÷ 65 | Outdoor | - |
| SC D TFPS 1800 60UI | Dual | 66,72 | 25 | 110,120 | 45 ÷ 65 | indoor | - |
| SC D TFPS 1800 60UO | Dual | 66,72 | 25 | 110,120 | 45 ÷ 65 | outdoor | - |
| SC S TFPS 1300 90UI | Single | 60,75,87 | 15 | 110,120 | 45 ÷ 65 | Indoor | - |
| SC STFPS 1300 90UO | Single | 60,75,87 | 15 | 110,120 | 45 ÷ 65 | Outdoor | - |
| SC D TFPS 2200 90UI | Dual | 60,75,87 | 25 | 110,120 | 45 ÷ 65 | indoor | - |
| SC D TFPS 2200 90UO | Dual | 60,75,87 | 25 | 110,120 | 45 ÷ 65 | outdoor | - |
| SC D TFPS 2200 90UOM | Dual | 60,75,87 | 25 | 110,120 | 45 ÷ 65 | outdoor | ✓ |
| SC S TFPS 1080 60EI | Single | 66,72 | 15 | 220,230,240 | 45 ÷ 65 | Indoor | - |
| SC S TFPS 1080 60EO | Single | 66,72 | 15 | 220,230,240 | 45 ÷ 65 | Outdoor | - |
| SC D TFPS 1800 60EI | Dual | 66,72 | 25 | 220,230,240 | 45 ÷ 65 | indoor | - |
| SC D TFPS 1800 60EO | Dual | 66,72 | 25 | 220,230,240 | 45 ÷ 65 | outdoor | - |
| SC S TFPS 1300 90EI | Single | 60,75,87 | 15 | 220,230,240 | 45 ÷ 65 | Indoor | - |
| SC STFPS 1300 90EO | Single | 60,75,87 | 15 | 220,230,240 | 45 ÷ 65 | Outdoor | - |
| SC D TFPS 2200 90EI | Dual | 60,75,87 | 25 | 220,230,240 | 45 ÷ 65 | indoor | - |
| SC D TFPS 2200 90EO | Dual | 60,75,87 | 25 | 220,230,240 | 45 ÷ 65 | outdoor | - |
| SC D TFPS 2200 90EOM | Dual | 60,75,87 | 25 | 220,230,240 | 45 ÷ 65 | outdoor | ✓ |

Connecting Power Cable to T-former AC OUTPUT

All Safecom power supplies have high current output quick type connectors without seizure screws.

- ✓Simply plug in connector at the front panel.
- ✓Connection is made quickly and reliably from outside.
- ✓Beryllium, cooper contact.



Note : The center conductor may be cut clean to allow for complete fit.
The length of the center conductor must be 10 mm.

Troubleshooting and Repair

The T-former P.S is designed to be the most reliable P.S that can be used for unlimited time at all weather conditions, even at maximum load.

The Power supply has slow-start circuit and overload protection to prevent the most common failure at the network such as inrush current that switches OFF the circuit breaker, or blows the fuse as a result of overload or short circuit.

This guide explains the possible, yet rare symptoms:

| Symptom | Reason | Solution |
|--|---|---|
| <i>No Voltage at output RED LED "ON"</i> | 1) P.S. was shut down due to overload current short-circuit or a burnt fuses. | The network must be monitored and the failure cause must be removed |
| | 2) Fuse blow | Replace fuses and restart. |
| No voltage at output LED "OFF" | Circuit breaker down / No Power at the Main | Turn on Circuit breaker. |
| The fuse blows out upon activation of the power supply | Neutral wire must be connected to the connector marked "0". | Check polarity of output connection. |
| Output voltage exists but the LED is still Red. | Overload protection >15A activated | Reduce the load under 15A . |