

PTS, Inc. SINGARS SR-4A AC/DC Power Supply Docking Station (PSDS) Manual



MODEL #: AS0004-SR-4A OD
MODEL #: AS0004-SR-4A Tan

OD NSN: 6130015784483
Tan NSN: 6130015777393

Includes Filter Pack
Power Cord

Compatible with 2 RT-1523 (E/F) (ASIP) and 2 AM-7238B RFPAs

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PTS
Expeditionary Communications

WARNING: TO PREVENT PERSONAL INJURY, DEATH OR EQUIPMENT DAMAGE DO NOT SHORT-CIRCUIT, DAMAGE, BY-PASS INTERNAL FUSES OR HANDLE INAPPROPRIATELY THE EXPOSED SINGARS AND RFPA HIGH VOLTAGE POWER CONNECTORS.

SAFETY INSTRUCTIONS

Warning and important safety instructions appearing in this manual are not designed to cover all possible conditions and situations that may occur. Common sense, caution and reasonable care must be exercised when installing, maintaining or operating the power supply docking station (PSDS).

When using the PSDS basic safety precautions should always be observed including the following:

Read all instructions prior to installation or use.

To protect against risk of electrical shock, DO NOT immerse the cord, plug or PSDS in water or other liquids.

To reduce the risk of electrical shock or fire, DO NOT disassemble the PSDS. Repairs or adjustments to the PSDS must be performed by a qualified technician of PTS.

DO NOT work on electrical equipment alone. Be sure another person qualified to administer first aid is present.

RF energy is present near the antenna during transmission. During low power operation maintain at least 30 inches between antenna and personnel during transmission. During power amplifier operations follow the standard practice of mounting the antenna well away from the users.

The PSDS is not designed to be operated in a vehicle.

Do not operate the PSDS with a damaged cord, plug or after the PSDS has been dropped or damaged in any manner. Return the PSDS to PTS for examination, repair and electrical or mechanical adjustment as required. Call PTS toll free at 1-877-737-5832 or email: info@pts-inc.com for additional instructions or guidance.

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Power Supply Docking Station (PSDS) Description

Perkins Technical Services, Inc. (PTS) has developed a rugged, lightweight, user-friendly power supply docking station (PSDS) for tactical radios. The PSDS provides the capability of converting 85 to 260 VAC power (47-440Hz) to DC power or utilize 22 to 32 VDC to operate all SINCGARS series RT-1523 (E-G) radios and the AM 7238B/VRC RFPA in a continuous and efficient safe manner.

The PSDS's unique, lightweight slide-in, slide-out design allows for easy use and installation. The PSDS has been developed to provide increased flexibility in the use of SINCGARS tactical radios and to reduce operation costs resulting from the use of expensive batteries and/or other power sources. The PSDS worldwide applications include tactical operation centers, command posts, range operations, field and garrison operation centers, test and maintenance facilities, training sites, deployment and staging checkpoints, remote control operations and forward operation bases.

The PSDS provides the user the capability to use the SINCGARS radios 24/7/365 while reducing ARMY power requirements, soldier workload and logistical support needs.

The PSDS provides the optimum solution for combat support operations requiring continuous, uninterruptible, reliable communication when AC or DC power is available.

Specifications

Features

- Docking positions for 1 SINCGARS RT-1523 (E/F)
- Docking position for 2 AM-7238B RFPAs
- TOCNET/ radio control compatible (both radios)
- Worldwide frequency input 47 to 440 Hz
- Worldwide AC voltage input 85 to 260 VAC
- DC voltage input 22 to 32 VDC
- Fully automatic voltage and frequency selection worldwide, no manual change required
- Built-in voltage surge protection
- Environmental operating range:
 - Temperature: -30°C to 50°C
 - Relative Humidity: 5% to 95%
- Two LED "Power-On" rocker switches
- Two "Active Network" green LED indicators
- Two amber LED lights indicating DC power operation
- Ten foot AC power cord- U.S. (worldwide power cords available)
- Two wire access for remote control operation
- High fidelity integral speaker (4 inches)
- Two volume control knobs (one for each radio)
- Supports 2 remote LS-671 speakers (one for each radio)
- Supports Tactical Data Router/ Tactical Internet Controller (INC)
- Rugged, self-contained system packaged in mil-spec transit case
- 24/7/365 radio operations

Physical Dimensions

- (d) 13.1" x (h) 12.9" x (w) 17.5"
- (d) 33cm x (h) 33cm x (w) 44cm
- PSDS weight: 20.1lbs, 9.1kg
- PSDS + case: 42.1lbs, 19.1kg

Operational Benefits

- Enhanced command and control
- Increased flexibility
- Increased training opportunities
- Reduced logistical burden and costs
- DC operation utilizes standard CX13302 cables

User Educational Requirements

Prior to use of the PSDS, the user should have completed the SINCGARS Operators Course. The user should have a thorough understanding of SINCGARS operations and a basic understanding of SINCGARS set-up and configurations.

Operation of PSDS with SINCGARS Radios

SAFETY NOTICE: Power down the radios and ensure the PSDS power switch is in the off position before installing or connecting radios. Failure to do so may result in electrical shock.

Basic PSDS Set-Up

Radio Installation

Facing the PSDS take one RT-1523 radio and insert the radio onto the PSDS. Begin by looking down from the top to align the radio's rear connector with the PSDS connector. The user needs to be certain the radio is seated completely; otherwise, the radio will not power-on. New J1 connectors have a coating on the connector sleeve that will need to be worn down. During initial usage it is advised to slide the radio on and off the connector multiple times to wear the coating down. After the coating has been worn down firmly push the radio onto the PSDS. Visually check the seating from above and ensure the radio is fully seated. Once the radio is aligned on to the PSDS, the user needs to be certain the notch on the underside of the radio is aligned with the clamp, which protrudes up from the PSDS. Now the radio can be locked in place by turning the thumbscrew clockwise to seat the radio. Repeat this process to mount the radio on the left side.

RFPA Installation

The user can mount the AM-7238B RFPAs after the SINCGARS radios are mounted. Begin with the RFPA on the right. Lay the RFPA on its side with the heat sink fins facing up on the top rack of the PSDS with the connector towards the rear. Slide the RFPA onto the connector. Then lock the RFPA in place with the thumbscrew and clamp. Repeat for the left side.

Antenna & Handset Installation, Radio Configuration

To ensure proper operation of an OE-254/GRC antenna be certain to place the antennas an appropriate distance from the PSDS (per SINCGARS operator's manual). Connect the antenna connector to the RT-1523, the J1 connector on the RFPA using the appropriate W2 cable. Attach the appropriate handset. Inspect the AC power cable for cuts, frays or other damage. If damaged, replace the power cable. Plug the appropriate power cable into the back of the PSDS and into the AC power source (grid or generator power, worldwide). You are now ready to perform radio operations.

Note: The PSDS provides worldwide auto switching power adjustment. As long as the proper power cable is used for the AC power source, the PSDS will automatically adjust to the provided input. If the power is “dirty” and experiencing fluctuations, the PSDS will continually adjust for these changes.

The PSDS has 2 sides; right and left. Never connect a right-side radio to a left-side RFPA or accessory. Doing this will damage the radio and the PSDS. This type of damage is not covered under the PSDS warranty.

PSDS Operation

Facing the PSDS you will see two “POWER ON-OFF” rocker switches mounted on the front enclosure. Turn the switches to the on position (they will illuminate) and then turn on the RT-1523.

Once the radios have completed self-test the user may program the two radios for frequency, COMSEC configuration, power mode, etc. per the SINCGARS operations manual. Under normal conditions each radio would operate using an individual frequency providing the user with 2 individual radio networks (NET).

The system is now ready to operate. There are individual volume controls for both the right radio network and the left radio network.

Turn the volume control counterclockwise to the stop. Adjust the volume knobs to midrange. The RT-1523 radios are designed for audio signals to be provided through the radio connector on the rear; no volume adjustment on the radio is required. The user may now turn up one or both radios. The user will note that there is an ACTIVE NET LED for each NET (right and left side). When transmitting or receiving, the LED for the ACTIVE NET will illuminate green.

The LED provides the user with a visual cue indicating NET activity if the volume is turned down or if multiple PSDS are deployed in a system rack. The LED will allow the user to see which NET is active.

The audio circuitry is designed to allow both radios to receive and for the sound to be broadcast from the internal speaker. The system is designed using high fidelity components providing very high-quality sound. The user can control the volume for both radios independently allowing for both nets to be broadcast though the speaker simultaneously. The user can turn down either NET when required using the volume knob.

The user is now ready to experience full radio capability using AC power to operate the AS0004-SR-4A communications system.

PSDS Operational Inputs and Accessories

SAFETY NOTICE: Power down the radios and disconnect (unplug) the PSDS power from the AC power source prior to connecting or configuring any of the following operational inputs or accessories.

DC Power Operation

The PSDS will also operate using DC power. DC power is provided to the system via the two standard DC power connectors labeled “DC Input Power” located on the rear of the PSDS. This connector uses the standard SINCGARS power cable (example: CX-13303). Any DC source 22-32 volts can be used to operate the system. There are 2 connectors if the user chooses to use a standard radio battery (BT-5590). Use of this battery for one radio and one RFPA allows radio operations for up to 5 hours with a 5 second transmit and 5 second receive every 5 minutes (as tested by Tobyhanna Army Depot 2010).

Located on the front panel is a DC voltage LED for each side. This amber LED illuminates if the AC power is lost and the PSDS switches to DC power (when the unit is connected to a DC power source). At the same time the DC power light illuminates, there is an audible warning to notify the operator of the power switch. If the power oscillates on and off, the audible alarm will only sound once. The PSDS will revert to AC power when available. This switching is performed automatically and seamlessly. Radios, power amplifiers, LS-671 speakers, TDR's, etc. will not see any spikes or dropouts in the voltage as the system changes input power back and forth from AC to DC.

LS-671 External Speaker Operation

The PSDS provides for the use of an external LS-671 for each radio net. There are 2 connectors labeled LS-671 on the back of the PSDS. These connectors allow the user to use a standard CX-13292 cable and LS-671 speaker. The user plugs the cable into the PSDS and the LS-671 speaker. One end is marked for the speaker; therefore, care should be taken to ensure the cable is connected correctly. Refer to the SINCGARS operator's manual for more information on LS-671 speaker operations.

Radio Control Operations (TOCNET)

TOCNET, a common radio control system, allows a single user to control multiple radios from one position. The PTS PSDS allows the user to control the 2 SINCGARS radios via the TOCNET system. On the rear of the PSDS there are two 9-pin D connectors (one for each radio). Remove the D-9 connector cover with a screw driver and plug the TOCNET connector into the D-9 connector.

Refer to the TOCNET operator's manual and the SINGARS operator's manual for more details on TOCNET operation.

Equipment Rack or Semi-Permanent Table Installation

The user has the option to attach the PSDS to a table or mount the system into a 19-inch equipment rack. There are four ¼-inch Phillips head screws located on the bottom of the PSDS. Using a template (supplies upon request), drill four 5/16-inch holes in the table or 19-inch equipment rack shelf. Re-insert the screws through the shelf (or rack) and into the holes in the bottom of the PSDS. The four rubber feet on the bottom provide some shock mount for the system.

Note: In most applications the four rubber feet are sufficient enough for non-slip use in the desktop location.

Tactical Data Router Operation

PTS PSDS supports the Tactical Data Router (TDR) designed and manufactured by Exelis. The TDR provides the user with an 8 port CISCO compatible network switch and an internet controller for the RT-1523 radios. Mount the TDR on the right-hand side of the PSDS utilizing the three mounting holes using the three screws provided. Connect the TDR power cable from the TDR power out connector on the rear of the PSDS to the power connector on the TDR.

Periodic Maintenance

Maintenance Safety Notice

Power down the radios and disconnect (unplug) the PSDS power from any AC or DC power source prior to the performance of any maintenance actions.

Air Filter Maintenance

On the bottom of the system you will find two fan covers that have filters. Depending on the environment, these filters will need periodic cleaning. Included with the PSDS are several replacement filters. When replacing the filters, wash the filters removed from the PSDS in warm soapy water, rinse thoroughly and allow to air dry. Filters should last indefinitely. The PTS recommended filter cleaning interval is 14 days of continual operation.

Filter Removal Process

- Turn the system onto its rear/back
- Snap the 2 covers holding the filter assemblies off from the bottom of the chassis
- Remove each filter assembly
- Snap out the filter retainer from the assembly to access the filter for cleaning or replacement
- After cleaning the dirty filter or replacing worn filters, insert the clean or new filter in the assembly and snap the retainer back into the filter frame
- Replace the assembly in the PSDS and snap the cover back in place

Exterior Cleaning

The exterior of the PSDS may require cleaning. Disconnect the PSDS from all power sources. The exterior may be cleaned with a mild, warm water soapy solution. Wipe with a damp towel and dry with a clean towel. Do not use abrasives or oil-based cleaners. Care should be taken to keep soap, water and debris from getting into the connectors and power plugs. **At no time should the PSDS be immersed in water or other solutions.**

The PSDS connectors and cables should be kept clean and free of dirt, grime and miscellaneous debris. If required, clean connectors with a medium stiff bristle brush and wipe off dirt. Avoid allowing moisture to contact the pins and receptacles in the connectors. If moisture does get into the connectors, allow the system to dry thoroughly prior to use.

System Repair or Return

If a PSDS malfunctions or becomes nonfunctional the user should notify PTS in Huntsville, Alabama. Call toll free 1-877-737-5832, commercial 256-539-6787 or contact via e-mail: support@pts-inc.com to receive instructions for repair and/or return.

Be prepared to discuss and troubleshoot the problem. The PSDS should be available to facilitate actual troubleshooting. PTS will determine if the PSDS needs to be returned for repair/replacement.

If PTS determines the PSDS requires return for repair, PTS will assign a Return Material Authorization (RMA) number. The RMA number should be clearly posted on the outside of the transit case as well as documented on a note inside the case detailing the specific problem or malfunction, user name, email, phone number and complete return address of the sender. Please do not include manuals, filters, cables (unless specifically requested), radios, power amplifiers, etc. when returning the PSDS for repair.

Label the package/case as follows:

Perkins Technical Services, Inc.
RMA # (contact PTS for RMA assignment)
1318-B Putman Drive
Huntsville, AL 35816
Attention: Repairs

Warranty

PTS warrants all power supply docking stations and transit cases furnished under contract to be free from defects in material and workmanship and will conform to all requirements of the contract. The PTS warranty shall be for a period of twelve (12) months from the date of the receipt by the user.

Any PSDS repaired under warranty shall be subject to the warranty of a new PSDS. This warranty shall be equal in duration to that set forth in the preceding paragraph and shall run from the date of receipt of the repaired or replaced PSDS by the user.

PTS shall not be obligated to repair or replace a PSDS or transit case if they become damaged through unauthorized maintenance or repair, incorrect operational set-up, abuse or neglect.

When a PSDS is returned to PTS within the warranty period set above PTS shall bear the transportation costs to the PTS facility and return.

When a PSDS is returned to PTS after the warranty period set above the user shall bear the transportation costs to the PTS facility. PTS will bear the return costs.

This warranty excludes all other warranties including the warranties of merchantability and fitness for a particular purpose.

Warranty repairs are normally accomplished within eight to ten business days of receipt of PSDS at the PTS facility.

Administrative

Inquiries concerning this manual should be referred to the following address:

Perkins Technical Services, Inc.
Attn: Support
1318-B Putman Drive
Huntsville, AL 35816

Technical difficulties or operational problems with the PTS PSDS may be resolved by contacting PTS using one of the following:

Toll Free 1-877-737-5832
Commercial 256-539-6787
E-mail support@pts-inc.com