Heart of TN.
A. R. E. S.

Heart of Tennessee
Amateur Radio Emergency Service®

Technical Standard
TS 1-1

Technical Standard

DC Power Connector

1. Introduction

This Technical Standard identifies a standard, 12-volt, direct current (DC) connector to be used on equipment employed to support emergency communications provided by Heart of TN. ARES®. This allows various radio equipment and accessories to be connected to others' DC power sources.

The connector is the Anderson Powerpole. They are genderless and provide the greatest flexibility for powering DC equipment. The contacts are self-cleaning and are available in 15, 30 and 45 ampere current capacities. Moreover, the connectors are inexpensive, costing $1.00 or less per connector depending on the quantity purchased.

2. Responsibilities

All personnel are encouraged to equip their deployable 12-volt DC-powered equipment with the standard connector. All 12V-powered equipment purchased by Heart of TN. ARES®, Inc. shall be equipped with the standard connector.

3. Related Publications

None.

4. Definition of Terms

ARES® Amateur Radio Emergency Service® (ARES® and Amateur Radio Emergency Service® are registered service marks of the American Radio Relay League.)

DC Direct Current

5. Standard

5.1. Connector Specification

The connector to be employed for 12-volt DC power connections for equipment employed within Heart of TN. ARES® is the Anderson Powerpole.

The shells for the 15 A, 30 A and 45 A connectors are the same. The contacts are designed for different wire sizes.

Anderson part numbers for Powerpole connectors are as follows:

15 A Black Red	**Housing Only** #1327G6 #1327	**Contact Only** #1332	**Accepts Wire** 16-18 gauge
30 A Black Red	**Housing Only** #1327G6 #1327	**Contact Only** #1331	**Accepts Wire** 12-16 gauge
45 A Black Red	**Housing Only** #1327G6 #1327	**Contact Only** #261G2	**Accepts Wire** 10-14 gauge

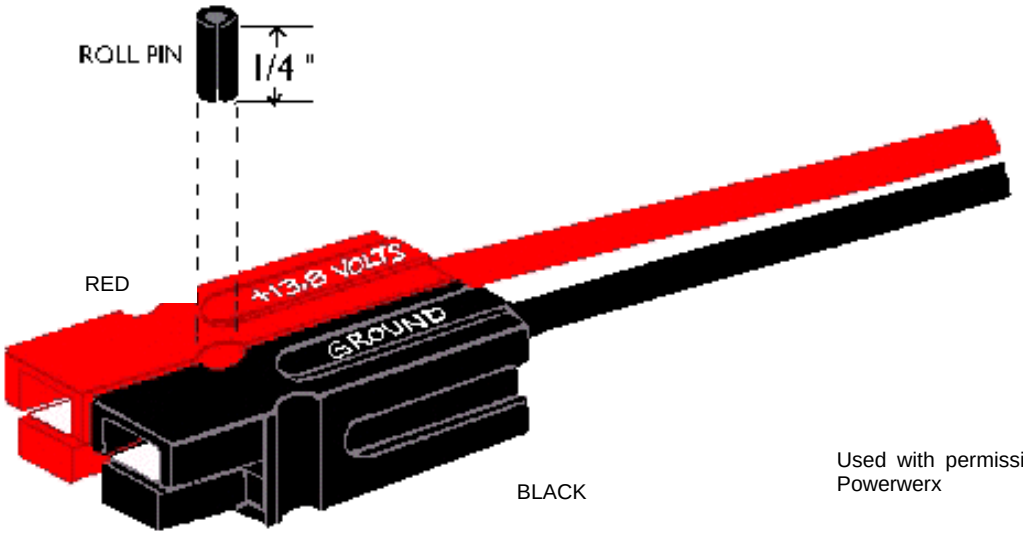
5.2. General Instructions

Verify the current capacity of the connector matches the equipment to which the connector is being attached and is fused properly.

If the connector is for a power supply and the power supply current rating is higher than the connector, multiple connectors should be used and each connector fused at the connector's current rating.

5.3. Connector Assembly

Care must be exercised to assemble the connector as specified to ensure interoperability within the ARES® organization.



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The housings should be mated according to the diagram above, viewing from the contact side (opposite the wire side), tongue down, hood up, RED on the LEFT, BLACK on the RIGHT. A 3/32-inch-diameter roll pin, 1/4 inch long can be used to keep the housings from sliding apart.

The 15 A and 30 A connector contacts can be crimped or soldered. The 45 A contact is a crimp-type contact. If crimping, ensure that the barrel of the contact is not deformed such that the contact will not insert into the insulating shell.

After a contact has been attached to a wire, it should be installed into the housing so that the housing spring mates with the underside of the contact. When you slide it completely in the housing you should hear a click when it passes the spring detent.
To remove a contact from the housing, use Anderson insertion/extraction tool #111038G2. You may also substitute a very small blade (jewelers screwdriver or X-Acto knife) to lift up the front of the contact slightly over the detent and pull the contact out of the rear of the housing, allowing the contact to be removed.

Additional information about installation of the connector can be found at the Powerwerx website listed under related documents.

5.4. Application

This same assembly is being employed by many ARES® organizations that have adopted the Anderson Powerpole connector and also ensures interoperability with those organizations. However, prior to employing with equipment from other organizations, verify that the configuration is the same.

Individuals have constructed special cable configurations for inserting into various circuits. The following applications have been configured:

- Fused link with automotive blade-type fuse holder or 3AG-type fuse.
- Length of cable with a ferrite core for noise suppression.
- A fused link with a zener diode on the output side to blow the fuse is the voltage exceeds the zener voltage.
- Daisy-chained connectors in parallel for power distribution.

In addition, West Mountain Radio provides the RIGrunner, a commercial series of power distribution units, that provide fusing and Powerpole connectors for each circuit. Several of these units also include voltage-monitoring capabilities.

5.5. References

- Website for Powerwerx, distributor of Anderson Powerpole connectors and associated tools and components: http://www.powerwerx.com
- Website for West Mountain Radio, manufacturer of RIGrunner power distribution modules using the Anderson Powerpole connectors: http://www.westmountainradio.com/RIGrunner.htm

6. Release Information

Keith Miller, N9DGK, Emergency Coordinator, is the author of this document.

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