



# PS-4110-35

## Indoor/Outdoor Heavy-Duty AC to DC Wall Mount Power Supply & Battery Backup



- *NFPA 1221 Compliant DC Power Supply and Battery Backup System*
- *NEMA 4X Enclosure with Top and Bottom Mounting Flanges*
- *Low Voltage Disconnect*
- *Internal Battery 24v / 35Amp-hour*
- *AC Input Breakers (included)*
- *Battery Breaker (included)*

PS-4110-35	
<b>Output Voltage</b>	14.5 VDC
<b>Output amperage</b>	22 Amps Continuous
<b>Maximum Power, continuous</b>	330 Watts
<b>Maximum ripple and noise</b>	150 mV p-p max
<b>Input Voltage</b>	90 to 264 VAC
<b>Input frequency range</b>	47-63 Hz
<b>Maximum AC Current</b>	(Two 10 A Breakers) 6.5 A @ 115 VAC; 3.3 A @ 230 VAC
<b>Max inrush current, single cycle</b>	35 Amps @ 115 VAC, 70 Amps @ 230 VAC
<b>Short Circuit protection</b>	Fold back Limiting
<b>Overload Protection (operates)</b>	typical 105-135 %
<b>Over Temperature</b>	>195 F (90 C) auto output shutdown
<b>Rise Time following ON</b>	50mS
<b>Hold Time following OFF</b>	16 mS
<b>Working Temperature range</b>	-4 F to +122 F      -20 C to +50 C
<b>Withstand Voltage</b>	3 KV @ 10ma (I/P-O/P)/1 min 2 KV @ 10 ma (I/P-FG)/1 min 500 V @ 10 ma (O/P-FG)/1 min
<b>Dimensions</b>	30"H x 22.75"W x 11.5"D inches
<b>Weight</b>	87 lbs

**\*NOTE: Specifications are subject to change without notice.**

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## Section 1 | Important Safety Instructions

**WARNING: THERE ARE NO USER SERVICEABLE PARTS INSIDE. HAZARDOUS VOLTAGES EXIST INSIDE THE UNIT. SERVICE AND REPAIR MUST BE REFERRED TO QUALIFIED FACTORY PERSONNEL.**

NOTE: The individual user should take care to determine, prior to use or installation, whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, DuraComm makes no representation or warranty as to the merchantability, suitability or fitness of these units for any specific application.

### Installation Warning

DO NOT block any of the cooling vents on the sides and always allow adequate ventilation by not installing the unit inside tightly closed spaces. The physical mounting position is not critical but the cooling must not be blocked.

## Section 2 | Product Overview

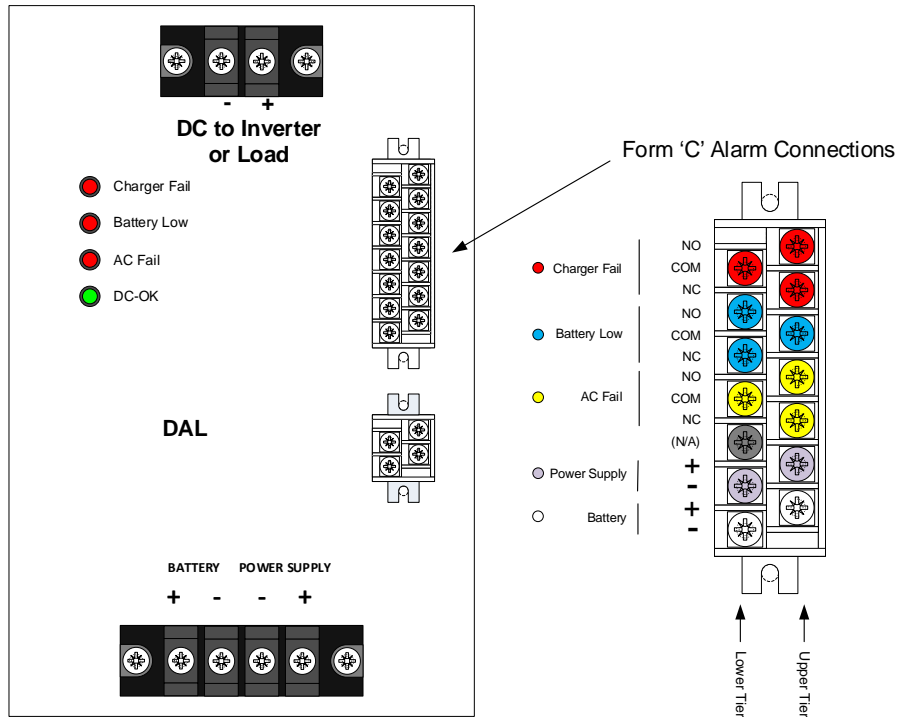
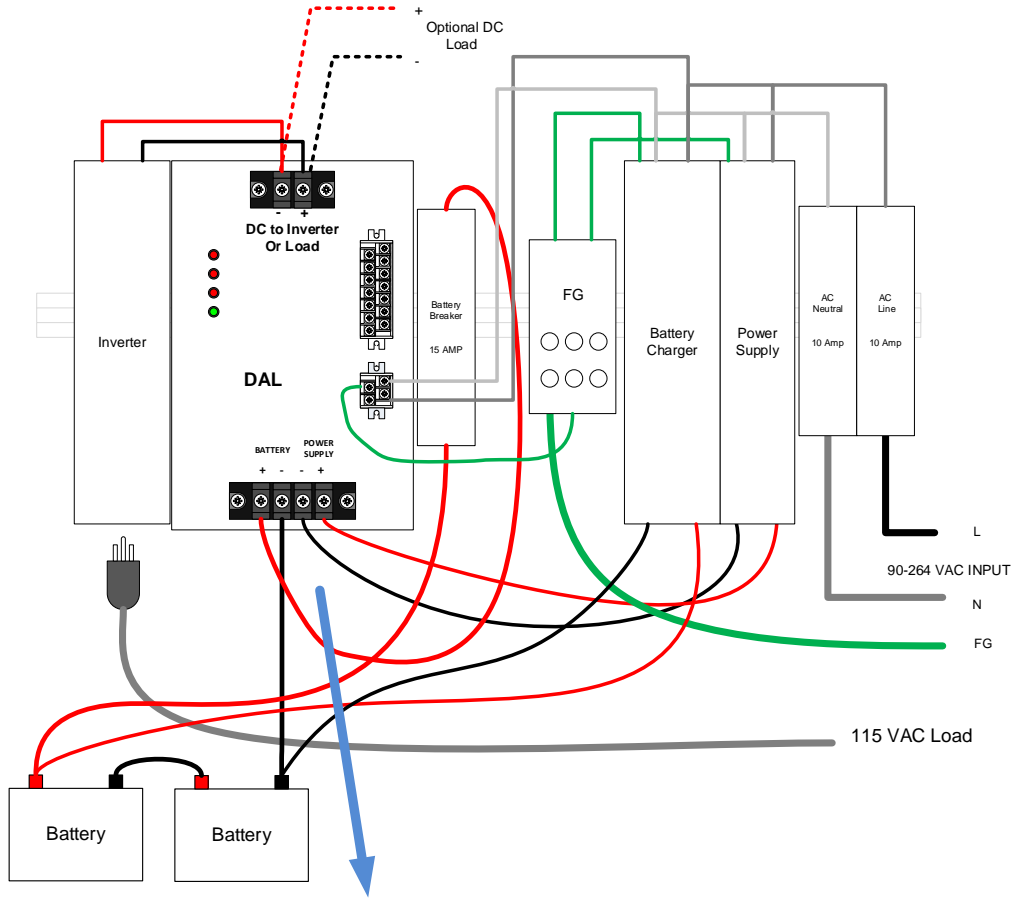
The Environmentally Hardened PS-4110-35 is a weatherproof power supply and backup system with low voltage disconnect and a 35 Amp-Hour battery back-up, housed in a 0.125" Aluminum NEMA 4X enclosure, which is NFPA 1221 Compliant.

See [www.duracomm.com](http://www.duracomm.com) for more information.

## Section 3| Installation

1. Turn off the battery and AC Breakers in the PS-4110-35
2. Connect the PS-4110-35 to the AC Line as shown in the diagram above.
3. Connect your 24 VDC equipment to the load circuit on the DAL-24.
4. Connect you 110 VAC equipment to the output terminals on the TS-400 inverter.
5. Apply external power to the PS-4110-35, then switch the AC Line and Neutral Breakers to ON, and switch on the Battery Breaker.

# Section 4 | Installation Wiring Diagram

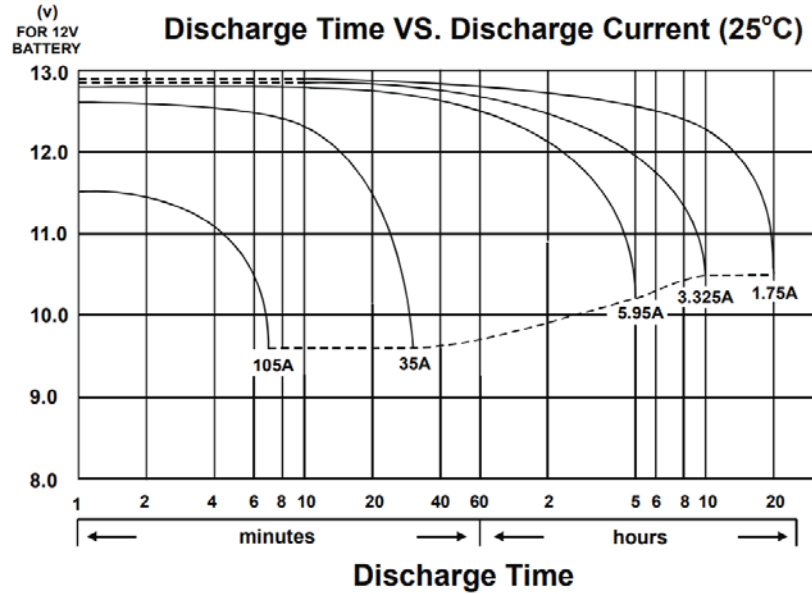


## Section 5 | Maintenance

### PS-4110-35 Test Procedure

This is a manual procedure to test the battery backup time for the PS-4110-35. The user may arrange for other equipment and procedures to log the timeline of events in this test. This test assumes the PS-4110-35 has been previously installed, including wiring.

1. Open the front door of the PS-4110-35.
2. Turn OFF the Battery breaker, and the AC Line and Neutral breakers.
3. Install an AC line splitter on the AC output socket of the TS-400.
4. Connect a constant test load of 1 Amp to the output of the line splitter.
5. Turn ON the Battery breaker, and the AC Line and Neutral breakers.
6. Use a clamp-on current meter to verify the 1 Amp AC current to the load.
  - 1 Amp AC at 115VAC = 115 Watts output to load.
  - $115 \text{ Watts AC} / 0.8 = 143 \text{ Watts DC Input}$  (accounting for efficiency, some aging, and some temperature derating).
  - $143 / 24 \text{ VDC avg} = 6 \text{ ADC avg load on battery}$  (Amperage varies depending on Battery charge).
  - This should provide approximately 5 hours of backup time.
7. Prepare to manually log the times of the following events.
8. Turn OFF the AC Line and Neutral Breakers (Leave the Battery Breaker ON).
9. The Red AC Fail LED should turn on immediately, and the battery should be supplying load current. (check with clamp-on current meter).
10. The Charger Fail LED should come on next as the battery voltage falls (see specifications section for voltages).
11. The Battery Low LED will come on next when battery discharges to 23 VDC.
12. As the voltage continues to fall, the battery will be disconnected from the load either by the TS-400 Inverter (21 VDC +/- 4%), or the DAL-24 LVDC (20 VDC). The load voltage and current will Drop to 0.
13. When the DAL-24 LVD disconnect voltage is reached, the DC-OK LED will turn off.
14. Turn OFF the DC Breaker.
15. Turn off and disconnect the 1 Amp AC Load and Line splitter, then connect the normal load to the TS-400 AC output socket.
16. Turn on the Battery Breaker, and the AC Line and Neutral breakers, and verify that the power supply and charger are on (Load should be ON). The DC-OK LED should come on immediately, and the alarm LEDs should start to turn off in reverse order as the battery voltage increases. (see specifications section for recovery voltage levels).
17. The test is complete.
18. Close the door.



**Note:** This test should take about 20 hours for just the discharge cycle with a 2 Amp load and a new 35 Amp-Hour battery.

## Conductor Pretreatment

All kinds of copper conductors can be clamped without treatment. DO NOT solder tin stranded conductors. The solder yields and fractures under high pressure. The result is increased contact resistance and excessive temperature rise. Additionally, corrosion has been observed due to the fluxes. Notch fractures at the transition from the rigid tinned part to the flexible conductors are also possible. Ferrules can be used as a protection when wiring stranded conductors. Copper ferrules prevent the current transfer from being influenced by dissimilar metals and remove the risk of corrosion. Always use the correct tool to crimp the ferrule.

## Recommended Copper Wire Size for Current Capacity

(Insulated Wire, Single Conductor in free air)

Current Level in Amperes	Wire Size	
	Up to 5 feet	Up to 10 feet
<7 AMPERES	20 AWG	18 AWG
14 AMPERES	18 AWG	10 AWG
20 AMPERES	16 AWG	10 AWG
30 AMPERES	16 AWG	8 AWG
40 AMPERES	14 AWG	8 AWG
50 AMPERES	14 AWG	6 AWG
70 AMPERES	12 AWG	6 AWG
100 AMPERES	12 AWG	4 AWG

## Section 6 | Specifications

PS-4110-35	
Output Voltage	14.5 VDC
Output Voltage Tolerance	+/- 1 %
Output amperage	22 Amps Continuous
Maximum Power, continuous	330 Watts
Maximum ripple and noise	150 mV p-p max
Input Voltage	90 to 264 VAC
Input frequency range	47-63 Hz
Maximum AC Current	(Two 10 A Breakers) 6.5 A @ 115 VAC; 3.3 A @ 230 VAC
Typical Efficiency	88 %
Max inrush current, single cycle	35 Amps @ 115 VAC, 70 Amps @ 230 VAC
Short Circuit protection	Fold back Limiting
Overload Protection (operates)	typical 105-135 %
Line Regulation	0.3%
Load Regulation	0.5%
Over Temperature	>195 F (90 C) auto output shutdown
Rise Time following ON	50mS
Hold Time following OFF	16 mS
Working Temperature range	-4 F to +122 F                      -20 C to +50 C
Storage Temperature	-40 F to +185 F                      -40 C to +85 C
Withstand Voltage	3 KV @ 10ma (I/P-O/P)/1 min 2 KV @ 10 ma (I/P-FG)/1 min 500 V @ 10 ma (O/P-FG)/1 min
Dimensions	30"H x 22.75"W x 11.5"D inches
Weight	87 lbs

Battery Back Up & Charger	
Auto-revert to the battery or power supply	Provided by a dual Schottky diode in OR configuration
Maximum output current in battery mode	20 Amps (limited by 20 Amps breaker)
Maximum Charger Voltage	14.4 VDC
Maximum Recharger Rate	16 Amps
Battery	AGM, 12 V, 50 Amp-Hour

Low Voltage Disconnect & Alarm Relays	
Maximum Interrupt Current / Continuous Current	20 Amps DC
Disconnect Voltage	10.4 VDC
Reconnect Voltage	12.5 VDC
Disconnect Delay	2 minutes @ less than preset disconnect voltage
AC Fail Alarm Relay	AC ON/OFF detection, Form 'C' Contacts
Charger Fail Alarm Relay	12.5 VDC Alarm, 13 VDC Reset, Form 'C' Contacts
30% Discharge Alarm Relay	12.3 VDC Alarm, 12.8 VDC Reset, Form 'C' Contacts
70% Discharge Alarm Relay	11.8 VDC Alarm, 12.5 VDC Reset, Form 'C' Contacts

## Section 7 | Warranty

DuraComm warrants to the initial end user, each power supply manufactured by DuraComm to be free from defects in material and workmanship when in normal use and service for a period of three years from the date of purchase from an authorized DuraComm dealer.

Should a product manufactured by DuraComm fail or malfunction due to manufacturing defect, or faulty component, DuraComm, at its option, will repair or replace the faulty product or parts thereof, which, after examination by DuraComm, prove to be defective or not operational according to specifications in effect at the time of sale to the initial end user. The product that is replaced or repaired under the provisions of this warranty will be warranted for the remainder of the original warranty period, only, and will not extend into a new three year warranty period.

The limited warranty does not extend to any DuraComm product which has been subject to misuse, accidental damage, neglect, incorrect wiring not associated with the manufacturer, improper charging voltages, or any product which has had the serial number removed, altered, defaced, or changed in any way.

DuraComm reserves the right to change, alter, or improve the specifications of its products at any time, and by so doing, incurs no obligation to install or retrofit any such changes or improvements in or on products manufactured prior to inclusion of such changes.

DuraComm requires any product needing in or out of warranty service to be returned to DuraComm. All requests for warranty service must be accompanied by proof of purchase, such as a bill of sale with purchase date identified. DuraComm is not responsible for any expenses or payments incurred for the removal of the product from its place of use, transportation or shipping expenses to the place of repair, or return expenses of a repaired or replacement product to its place of use.

The implied warranties that the law imposes on the sale of this product are expressly LIMITED, in duration, to the three (3) year time period specified herein. DuraComm will not be liable for damages, consequential or otherwise, resulting from the use and operation of this product, or from the breach of this LIMITED WARRANTY. Some states do not allow limitations on the duration of the implied warranty or exclusions or limitations of incidental or consequential damages, so said limitations or exclusions may not apply to you. This warranty gives you specific legal rights which vary from state to state. This warranty is given in lieu of all other warranties, whether expressed, implied, or by law. All other warranties, including WITHOUT LIMITATION, warranties of merchantability and fitness or suitability for a particular purpose, are specifically excluded. DuraComm reserves the right to change or modify its warranty and service programs without prior notice.



## Section 8 | Contact Us

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