

# VESDA Power Supply VPS-100US-UL Installation Instructions

These installation instructions provide essential information for installing VESDA Power Supply (VPS-100US-UL). Additional wiring and product documentation is listed below in the Reference Documents section.

## Overview

The VESDA Gen 2 Power Supply Model VPS-100US-UL is a power limited power supply that automatically adjust input of a 120VAC or 220VAC 60Hz to three 24VDC power limited outputs. The unit is intended for indoor dry use only and in applications requiring UL Listing for Fire Protective Signaling. The unit must be installed in accordance with the National Electric Code (NFPA70), the National Fire Code (NFPA72), and all other applicable codes necessary for compliance with the local authority having jurisdiction.

Space is provided in the VPS-100US-UL power supply cabinet for up to two 12 Volt, 12 Amp-hour batteries, as shown in the figure below. For a larger standby capacity, model VBC-001 is required. For the wiring diagram of VBC-001, refer to (Doc. No. 38291) on Xtralis website.

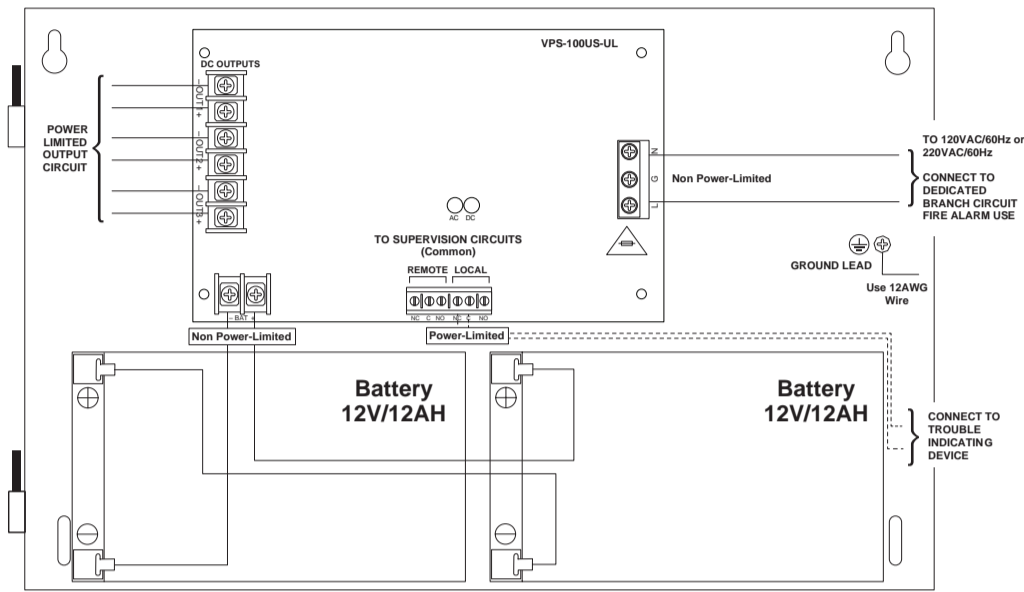


Figure 1: Wiring Diagram

## Operation

The VPS-100US-UL is a power supply intended for use with products requiring a 24VDC source. Power is available through three individually protected, power limited outputs. A power failure indication is reported via two separate dry relay contacts (Form C), remote and local, which transfers due to:

- AC input loss
- Low AC input voltage
- Loss of battery voltage
- Short circuit of any of the DC power outputs

Refer to (Figure 1: Wiring Diagram) for proper connections. It is also printed on the interior of the VPS unit.

## Agency Listings

- UL Listed - UL 864
- ULC-S527

## Specifications

<b>Input</b>	120VAC/60Hz/1.4A Max. or 220VAC/60Hz/0.9A Max.
<b>Output</b>	24VDC (nominal)
	<b>Special Applications, Voltage Output Range:</b> 19.96-27.54VDC
	<b>Maximum Total Available Output Current:</b> 1.5A
	<b>Maximum Output Current per Circuit:</b> 1.2A With three output circuits equally loaded the maximum per circuit output current is 500mA.

## Battery Requirements

(Use 2-6 12V/12AH or 2 12V/36AH SLA Batteries)

Battery requirements and recommendations for typical power supply loads.			
No. of Devices	4 hours of standby/ 5 minutes of alarm	24 hours of standby/ 5 minutes of alarm	60 hours of standby/ 5 minutes of alarm
1	500mA/500mA 2 - 12V/12AH	500mA/500mA 2 - 12V/12AH	500mA/500mA 6 - 12V/12AH or 2 - 12V/36AH
2	1000mA/1000mA 2 - 12V/12AH	1000mA/1500mA 6 - 12V/12AH or 2 - 12V/36AH	Not Available
3	1500mA/1500mA 2 - 12V/12AH	1200mA/1500mA 6 - 12V/12AH or 2 - 12V/36AH	Not Available

**For use with the Listed Devices**

## Reference Documents

Additional wiring and product information is contained in the following documents, which are available for download from Xtralis website ([www.xtralis.com](http://www.xtralis.com)).

- 38289 - VESDA Power Supply VPS-100US-UL Wiring Diagram
- 38291 - Expansion Battery Cabinet VBC-001 Wiring Diagram
- 21062 - VESDA Battery Calculator

## Installation Instructions

### Mounting

**Installation Environment: Indoor Dry.**

1. Using the four mounting holes in the rear of the enclosure as a template, mark the four holes on the required mounting surface,
2. Drill holes in mounting surface to allow installation of appropriate fasteners,
3. Using appropriate fasteners, secure the VPS enclosure to the mounting surface,
4. Locate and install all required wiring conduit(s) following installation design documentation.

### Wiring

Connect the AC power source to a dedicated 120VAC or 220VAC branch circuit.

- Use 14AWG minimum. This circuit is supervised.
- Use 18AWG minimum for battery and DC output power connections. The battery circuit is supervised.
- Use 22AWG minimum for the power supply trouble signaling output. This circuit is dependent on the equipment it is connected to for power limited classification.

**Note:** Keep all power limited wiring (DC output and trouble signaling output) separate from non-power limited wiring (AC input, battery wiring). Use minimum 0.25" spacing. Wiring to load should be in conduit and within 20' of powered device.

### Supervision

To report loss of AC power, DC output circuit fault or low/no battery condition, connect wiring to the appropriate local and remote trouble contact terminals and to a supervised initiating device circuit of a fire alarm control unit, a monitoring module of an addressable signaling line circuit or other independently powered trouble indicating device.

### Relay Rating

30VDC/1A, 0.35pF, common.

**Note:** In normal operation (non fault), the Common trouble reporting relay is energized. Contact nomenclature (N.C., COM, N.O.) are shown for normal state.

### Battery Hookup

In an installation using batteries external to the main power supply cabinet, enclose the wiring to the batteries in conduit or equivalent to prevent mechanical injury; with 18AWG minimum, length not to exceed 15".

**Note:** Place batteries in the enclosure with terminals facing the front. Ensure that batteries are pushed to touch the back of the enclosure.

### Maintenance

The system should be tested for proper operation as required by NFPA72, the National Fire Code, and your local Authority Having Jurisdiction (AHJ). The following tests shall be included in this system verification:

- **Output voltage test:** Under normal load conditions, the DC output voltage should be checked for proper voltage level (27V).
- **Battery test:** To ensure a fully charged battery (batteries) and properly operating charging circuit, under normal load conditions:
  1. Disconnect the 120VAC or 220VAC power source,
  2. After 5 minutes, check for the specified voltage at the circuit terminals marked 'BAT' (approx. 27V). In multiple battery systems, isolate the battery pairs by disconnecting sufficient push-on terminals and then check for the specified voltage at the battery terminals.

### Relay Operation

- Use 14AWG minimum. This circuit is supervised.
- All troubles are reported immediately on Local relay.
- All troubles except for AC fail are reported immediately on the Remote relay as well.
- According to the UL864 system fire standard, AC fail shall be reported between 60 to 180 minutes.
- If AC returns before reporting, then trouble will not be reported.
- Remote relay generally refers to reporting to a panel, central station that is outside the room.

### Diagnostic Table

Green LED	Local Relay	Remote Relay	Description
ON	Closed	Closed	Normal Function, AC ON
OFF or Slow Blink	Open	Open (70 min. delay)	AC Fault
Fast Blink	Open	Open	Battery, DC, Power Supply Fault

### Compatible Devices

- VESDA-E Detectors: VEU Series, VEP Series, VES Series
- VESDA Detectors: VLF Series, VLI Series, VLP Series, VLC Series, VLS Series
- VESDA-E Remote Accessories
- VESDA Remote Accessories
- OSID Beam Detectors
- VESDA Sensepoint XCL

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