

## **UPS UNITS FOR CAMERA CONTROLLER CABINETS**

### **Requirements:**

Each camera controller assembly provided under the contract shall also include an uninterruptible power supply (UPS) unit in each camera controller cabinet installed. Ensure the UPS unit conforms to the following criteria:

- Rated for single phase 120VAC 2-wire input and 120VAC single phase outputs.
- Rated for 1,000 VA and 800 Watts double-conversion online continuous output at 0.80 power factor.
- Rack-mounted with a maximum of 3U rack mount form factor and with an installed depth of not more than 25 inches.
- UPS input shall be hardwired via a 20Amp circuit breaker and output shall be hard wired to a 5-20R duplex outlet.
- Pure Sine Wave 120VAC with +/-2-3% voltage regulation in either Battery or Utility Mode.
- Frequency regulation of +/- 3 Hz in Utility Mode and +/- 0.1Hz in Battery Mode.
- The external batteries shall be housed in the cabinet skirt and shall provide minimum runtime of 24 hours at 150 Watts.
- The UPS shall be a double conversion, on-line type.
- Heavy duty interconnecting harnesses with “Anderson” type connectors.
- Valve Regulated Lead Acid external batteries with a minimum 10 year design life.
- Network adapter for Ethernet connection for monitoring and alarms.
- Covered by warranty for a minimum of 2 years.
- Environmentally hardened design for use in extreme environments in the outdoor camera controller cabinets.
- UL listed power module and batteries.

The UPS unit shall be shelf-mounted and the battery pack shall be mounted in the controller cabinet skirt.

The external batteries for the Camera UPS shall have the following features:

1. Compatible with the UPS supplied for the camera cabinet and shall be approved by the UPS manufacturer for use with the UPS supplied.
2. Connected in daisy chain for addition of multiple battery packs.
3. The External batteries shall be mountable on the side wall of the controller cabinet skirt or as approved.
4. The External batteries shall be supplied with heavy gauge cable harness with high current DC connector for safe, simple installation and connection to the UPS.
5. The External batteries shall be supplied with the daisy chain connector for connection of additional compatible external battery packs.
6. The External batteries shall have a minimum battery life of 4-6 years.
7. The External batteries shall be Valve Regulated Lead Acid batteries or approved equal.
8. Provide the camera UPS with a runtime of 24 hours at 150 Watts.

**Ensure that Uninterruptible Power Supply (UPS) conforms to the following specifications:**

A. Standards and Certifications

1. UL Listed
2. UL 1778
3. UL 60950-1
4. FCC Part 15, Subpart B, Class A
5. CSA 107.3
6. EN 62040-1-2
7. IEEE 802.3 10Base-T
8. IEEE 802.3u 100Base-Tx

B. Interface and Connections

1. Input
  - a. Input Connection: Terminal Block max 10 AWG connections
  - b. Nominal Input Voltage: 120V AC Single Phase
  - c. Nominal Frequency: 60Hz  $\pm$ 5%
  - d. Battery String Voltage: 48VDC
2. Output
  - a. Output Connection: Terminal Block
  - b. Output Waveform: Pure sine wave
  - c. Load Crest Factor: 3:1 (load dependent)
  - d. Nominal Output Voltage: 120V
  - e. Output Frequency: Input Frequency
  - f. Output Power: 650 W/VA
  - g. Maximum Charge Current: 10A
3. Network Connection
  - a. Network Protocols: TCP/IP, UDP, SNMP, HTTPS, SMTP
  - b. Connectivity: RJ-45, RS-232
4. Backlit alpha-numeric LCD screen with control buttons
  - a. Provides "at a glance" monitoring along with ability to program, make measurements, and troubleshoot UPS. System menus to provide but not limited to the following:
    - a. UPS Controls
      - (1) Adjust Operating Mode
      - (2) Configure IP
      - (3) Adjust Voltage and Frequency
      - (4) Adjust Charge Current
      - (5) Change Date
    - b. System Status
      - (1) UPS metered data such as input voltage and output voltage or time and temperature.
    - c. Indicating alarms
    - d. Time stamped events

C. Environmental Specifications

1. Operating Temperature: -40°F to +165°F (Derating after +131°F)
2. Operating Humidity: 15% to 95% non-condensing

D. Physical Specifications

1. Maximum Dimension: 3.5" (H) x 17" (W) x 9" (D)
2. Maximum Weight: 25 lbs
3. Rack mount: 19", 2U
4. Color: Black
5. Enclosure Rating: NEMA 3R

E. Performance Specifications

1. Typical Efficiency: >98% resistive load
2. Typical Output Voltage THD: <3%
3. Typical Transfer Time: <5ms

F. Features

1. Automatic Voltage Regulation
2. Variable speed fan with fan failure alarm

August 2017

3. Circuit breaker protection on the input and external battery input
4. Remote monitoring via personal computer that will display all UPS metered information and controls available on site.

G. Transfer Switch

1. Provide an Automatic Transfer Switch and a Generator Transfer Switch from the same manufacturer as the UPS.
2. Standards and Certifications
  - a. UL Listed
  - b. UL 1778
  - c. UL 498
  - d. CSA C22.2 No. 107.3-05
3. Nominal Voltage: 120V
4. Nominal Frequency: 60Hz
5. Input Current: 30A
6. Output Current: 30A
7. Output Power: 3600W/VA
8. Maximum Dimension: 3.25" (H) x 17" (W) x 6" (D)
9. Maximum Weight: 25 lbs
10. Provide shelf mounting bracket
11. Operating Temperature: -40°F to +165°F

H. External Generator Socket

1. Standards and Certifications
  - a. NEMA L5-20P
  - b. UL Listed
  - c. UL 94
  - d. NEMA Type 4, 4X, 12
  - e. IP66
2. Wiring Scheme: 2 Pole, 3 Wire Grounding
3. Voltage: 125VAC
4. Amperage: 20A
5. Blade Material: Brass
6. Dielectric Voltage Withstanding: 2000V minimum
7. Operating Temperature: -40°F to +167°F

I. Battery Specifications

1. Standards and Certifications
  - a. UL Listed
  - b. UL94-V0
2. Four 12V Valve-Regulated Lead-Acid non-spill able Batteries
3. Capacity: >40Ah per battery in series
4. Maximum Dimensions: 7" (H) x 7" (W) x 8" (D)
5. Maximum Weight: 40 lbs
6. Heavy duty interconnecting harnesses
7. Design Life: >10 years
8. Operating Temperature: -40°F to +122°F