# TOSHIBA 4200*FA* UPS

## Installation Planning Guide for 15-80kVA UPS

Standard System: 208/120V Input, 208/120V Output

### General Mechanical Information

| UPS kVA/ kW Rating | Dimensions (W x D x H) | Weight | Approximate Full-Load Heat Loss |
|---|---|---|---|
| | Inches | Lbs. | kBtu/Hr |
| 15 kVA/12 kW | 20 x 36.25 x 59.85 | 900 | 5.7 |
| 25 kVA/ 20 kW | 20 x 36.25 x 59.85 | 910 | 7.6 |
| 30 kVA/ 24 kW | 20 x 36.25 x 59.85 | 915 | 9.1 |
| 50 kVA/ 40 kW | 35.59 x 38.19 x 59.39 | 2,548 | 17.7 |
| 80 kVA/ 64 kW | 44 x 31 x 74 | 1,560 | 40.0 |

### Primary AC Input (208/120V 3-Phase / 4-Wire)

| Maximum Input Power Demand | | | Suggested External Overcurrent Protection | Suggested Minimum Feeder Wire Size Per Phase / Neutral | Suggested Maximum Feeder Length For Min. Wire Size in Steel Conduit |
|---|---|---|---|---|---|
| kVA | PF | Amps | Amps | AWG or kcmil at 75º C Temp. Rating | Feet |
| 15 | >0.97 | 45.7 | 60 AT | (1) x 8 / (1) x 6 | 380 |
| 25 | >0.97 | 76.3 | 90 AT | (1) x 4 / (1) x 2 | 380 |
| 30 | >0.97 | 92.4 | 125 AT | (1) x 3 / (1) x 1 | 380 |
| 50 | >0.97 | 152.6 | 200 AT | (1) x 1/0 / (1) 4/0 | 380 |
| 80 | >0.97 | 244.3 | 300 AT | (1) x 300 / (1) x 500 | 380 |

### Optional Alternate AC Input (208/120V 3-Phase / 4-Wire)

| Maximum Input Power Demand | | | Suggested External Overcurrent Protection | Suggested Minimum Feeder Wire Size Per Phase / Neutral | Suggested Maximum Feeder Length For Min. Wire Size in Steel Conduit |
|---|---|---|---|---|---|
| kVA | PF | Amps | Amps | AWG at 75º C Temp. Rating | Feet |
| 15 | >0.97 | 41.6 | 60 AT | (1) x 8 / (1) x 6 | 380 |
| 25 | >0.97 | 69.4 | 90 AT | (1) x 4 / (1) x 2 | 380 |
| 30 | >0.97 | 83.3 | 110 AT | (1) x 3 / (1) x 1 | 380 |
| 50 | >0.97 | 138.8 | 175 AT | (1) x 1/0 / (1) 4/0 | 380 |
| 80 | >0.97 | 222.1 | 300 AT | (1) x 4/0 / (1) x 400 | 380 |

### Battery Input (288VDC Nominal)

| Battery Capacity Required for Full Load Output | | Maximum Discharge at Full Load Output | Suggested External Overcurrent Protection | Suggested Minimum Feeder Wire Size Per Phase | Suggested Maximum Feeder Length For Min. Wire Size in Steel Conduit |
|---|---|---|---|---|---|
| | kWB | Amps DC | Amps | AWG or kcmil at 75º C Temp. Rating | Feet |
| 15 | 13.33 | 61.7 | 90 AT | (1) x 6 | 70 |
| 25 | 22.22 | 102.8 | 125 AT | (1) x 2 | 70 |
| 30 | 26.67 | 123.0 | 175 AT | (1) x 1 | 70 |
| 50 | 44.44 | 205.7 | 225 AT | (1) x 4/0 | 70 |
| 80 | 71.11 | 329.2 | 400 AT | (2) x 3/0 | 70 |

### AC Output (208/120V 3-Phase / 4-Wire)

| Rated Output Power | | | Suggested External Overcurrent Protection | Suggested Minimum Feeder Wire Size Per Phase / Neutral | Suggested Maximum Feeder Length For Min. Wire Size in Steel Conduit |
|---|---|---|---|---|---|
| kVA | PF | Amps | Amps | AWG or kcmil at 75º C Temp. Rating | Feet |
| 15 | 0.8 | 41.6 | 60 AT | (1) x 8 / (1) x 6 | 380 |
| 25 | 0.8 | 69.4 | 90 AT | (1) x 4 / (1) x 2 | 380 |
| 30 | 0.8 | 83.3 | 110 AT | (1) x 3 / (1) x 1 | 380 |
| 50 | 0.8 | 138.8 | 175 AT | (1) x 1/0 / (1) 4/0 | 380 |
| 80 | 0.8 | 222.1 | 300 AT | (1) x 4/0 / (1) x 400 | 380 |

# TOSHIBA 4200*FA* UPS

## Installation Planning Guide for 15-80kVA UPS

Standard System: 208/120V Input, 208/120V Output

## Important Notes:

1. Maximum Current required at Primary AC Input based on full load output and maximum battery charging current.
2. Output load conductors are to be installed in separate conduit from input conductors.
3. Control wires and power wires are to be installed in separate conduits.
4. Recommended AC input and output overcurrent protection based on continuous full load current per NEC.
5. Wiring shall comply with all applicable national and local electrical codes.
6. Grounding conductors to be sized per NEC Article 250-122. Neutral conductors to be sized per NEC Article 310.15.
   - Primary AC Input: 3$\phi$, 4-wire + ground.
   - AC Output: 3$\phi$, 4-wire + ground.
   - DC Input: 2-wire (Positive/Negative) + ground.
7. Nominal battery voltage based on the use of VRLA type batteries (2.0 volts / cell nominal).
8. Maximum battery discharge current based on lowest permissible discharge voltage of 1.6 VPC.
9. DC wires should be sized to allow not more than a 2-volt drop at maximum discharge current.
10. Weights include internal batteries.
11. Sizing calculations based on the following assumptions:
    - Not more than 3 current-carrying conductors installed in steel conduit in ambient temperature of 30 degrees C.
    - Temperature rating of conductors and terminals: 90 deg. C.
    - Feeder distance calculations based on NEC Tables 8 and 9 data, allowing for 2% AC voltage drop.
    - Reference: 2002 NEC Handbook. Consult latest edition of applicable national and local codes for possible variations.
12. Ratings of wires and overcurrent devices are suggested minimums. Consult with a registered Professional Engineer within your local area for proper size selections.


**TOSHIBA INTERNATIONAL CORPORATION**

13131 West Little York Road
Houston, TX 77041
Telephone: 800.231.1412; 713.466.0277
Fax: 713.896.5212
Corporate Web Site: www.tic.toshiba.com
Group Web Site: www.toshibaups.com