

# CYBERWAVE EXPRESS

Data Sheet



Rugged Industrial UPS. Fast delivery. Those two features have never gone together – until now. Introducing the CyberWave EXPRESS from Cyberex, a standard UPS built for the Industrial Market that is delivered in very short lead times!

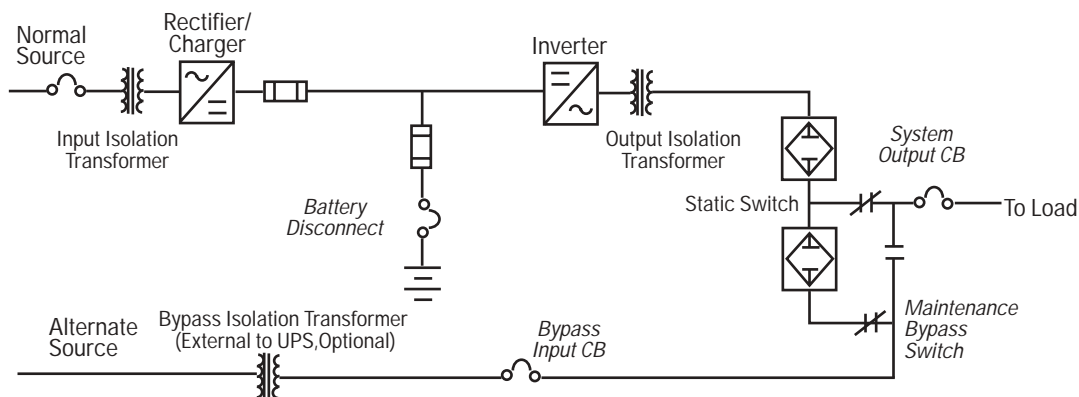
CyberWave EXPRESS has standard features no other UPS manufacturer can match, including modular independence and the world's first VGA, full-color touch-screen 8"x11" control panel (PowerPad). In addition, every CyberWave EXPRESS incorporates Cyberex's patented Digital Static Transfer Switch design for increased system redundancy and reliability.

CyberWave EXPRESS has been configured to include the most popular UPS hardware & software features. Even though CyberWave EXPRESS is a standard unit to allow for fast delivery, popular options are still available as well.



## Hardware Configuration

| INPUT                        | RECTIFIER                 | BATTERY                                   |
|------------------------------|---------------------------|---|
| System Input Breaker (Auto)  | 6-pulse Rectifier/Charger | Battery Disconnect Switch                 |
| Input Isolation Transformer  | Charger Output Fuse       | 120V DC Bus Voltage                       |
|                              |                           | Battery Fuse                              |
| INVERTER                     | BYPASS                    | SYSTEM                                    |
| IGBT PWM Inverter            | Bypass CB                 | Maintenance Bypass Switch                 |
| Internal IGBT Fuses          |                           | Fully Rated, Bi-Directional Static Switch |
| Output Isolation Transformer |                           | System Output CB (non-auto)               |



# CyberWave EXPRESS Selection Guide

| UPS Model | CW-10 | CW-15 | CW-20 | CW-25 | CW-30 |
|-----------|-------|-------|-------|-------|-------|
| kVA       | 10    | 15    | 20    | 25    | 30    |

## Input

|                           |                                  |     |     |     |     |
|---------------------------|----------------------------------|-----|-----|-----|-----|
| Input Voltage             | 480 Volts                        |     |     |     |     |
| Number of Phases          | 3 Phases                         |     |     |     |     |
| Number of Wires           | Standard: 3 wire + Ground        |     |     |     |     |
| Input Frequency           | Standard: 60 Hz                  |     |     |     |     |
| Input Power Factor        | 0.75 pf at rated output and load |     |     |     |     |
| Maximum Input Current     |                                  |     |     |     |     |
| @ 480V, 100% Load, 120VDC | 21A                              | 32A | 43A | 53A | 64A |
| Input Breaker @ 480V      | 35A                              | 50A | 60A | 80A | 90A |

## Bypass

|                                     |                          |      |      |      |      |
|-------------------------------------|--------------------------|------|------|------|------|
| Input Voltage                       | 120V                     |      |      |      |      |
| Nominal Bypass Current @ 120V       | 83A                      | 125A | 167A | 208A | 250A |
| Maintenance Bypass Switch           | Rotary 3 Position Switch |      |      |      |      |
| Bypass Line Input Disconnect Switch | Standard                 |      |      |      |      |

## DC Bus

|                           |          |      |      |      |      |
|---------------------------|----------|------|------|------|------|
| Voltage                   | 120 VDC  |      |      |      |      |
| Battery Disconnect Switch | Standard |      |      |      |      |
| Maximum Battery Current   |          |      |      |      |      |
| @ 120VDC, 100% Load       | 89A      | 134A | 179A | 224A | 268A |

## Output

|                                    |              |      |      |       |       |
|------------------------------------|--------------|------|------|-------|-------|
| Output Voltage                     | 120VAC       |      |      |       |       |
| Output Frequency                   | 60 Hz        |      |      |       |       |
| Number of Phases                   | Single Phase |      |      |       |       |
| Number of Wires                    | 2 Wire       |      |      |       |       |
| Output Isolation Switch/Breaker    | Standard     |      |      |       |       |
| UPS Output Current                 |              |      |      |       |       |
| @ 120VAC, 100% Load                | 83A          | 125A | 167A | 208A  | 250A  |
| 15 Minute Overload Current         |              |      |      |       |       |
| @ 120VAC Unity PF, 150% KW Rating  | 100A         | 150A | 200A | 250A  | 300A  |
| Overload: Static Bypass (One Loop) | 700%         | 700% | 700% | 700%  | 600%  |
| <i>Inverter Efficiency</i>         |              |      |      |       |       |
| 100% Load                          | 88%          |      |      |       |       |
| 75% Load                           | 88%          |      |      |       |       |
| 50% Load                           | 88%          |      |      |       |       |
| 25% Load                           | 88%          |      |      |       |       |
| Full Load Heat Rejection (BTU/Hr)  | 4200         | 5600 | 7460 | 12050 | 14460 |

## General

|                                   |               |               |               |                  |                  |
|-----------------------------------|---------------|---------------|---------------|------------------|------------------|
| <i>Module Dimensions W"xD"xH"</i> |               |               |               |                  |                  |
| Base Unit                         | 77.25x37x34.5 | 77.25x37x34.5 | 77.25x37x34.5 | 77.25x60.25x34.5 | 77.25x60.25x34.5 |
| <i>Module Weights (lbs)</i>       |               |               |               |                  |                  |
| Base Unit                         | 1600          | 1600          | 1600          | 2560             | 2850             |

# Standard Events, Alarms & Meters

## Events/Alarms Parameter

|                  |  |
|------------------|--|
| <b>Rectifier</b> | Rectifier Input Available<br>Rectifier Input Failure<br>On Rectifier<br>Rectifier OK<br>Rectifier Fail<br>RCB Communications Failure<br>Rectifier Equalize Mode<br>Rectifier Output Voltage High<br>Rectifier Output Voltage Low<br>Rectifier Output Current High<br>Rectifier Input Voltage High<br>Rectifier Input Voltage Low<br>Rectifier Input CB Open<br>Rectifier Output Fuse Blown |
| <b>DC Bus</b>    | DC Bus OK<br>DC Ground Fault Positive<br>DC Ground Fault Negative<br>DC Caps Due for Maintenance<br>DC Bus Fuse Blown  |
| <b>Battery</b>   | On Battery<br>Low Battery<br>Battery Equalize Initiated<br>Battery Equalize Aborted<br>Battery Equalize Complete<br>Battery Available (Disk Closed)<br>Battery Not Available (Disk Open)<br>Battery End Voltage<br>Battery Due for Maintenance<br>Battery Blown Fuse<br>Battery CB Open  |
| <b>Inverter</b>  | Inverter OK<br>Inverter Failure<br>Inverter Overload<br>Inverter Current Limit<br>Inverter Sat Trip<br>Inverter Temperature OK<br>Inverter Overtemp<br>Inverter Output Voltage High<br>Inverter Output Voltage Low<br>Inverter Output Frequency High<br>Inverter Output Frequency Low<br>Inverter Input Fuse Blown<br>Inverter Control Failure   |
| <b>Bypass</b>    | Alt Line Available<br>Alt Line Fail<br>Sync Loss<br>STS on Alternate<br>Manual Transfer Enable<br>Alt Line CB Open   |
| <b>Output</b>    | Load on Inverter<br>Load on Alternate<br>UPS Overload<br>MBS in Normal Position<br>MBS in Bypass<br>MBS in Bypass Isolate<br>STS Active Short  |

## Events/Alarms Parameter

|                                  |  |
|----------------------------------|--|
| <b>Output</b> <i>(continued)</i> | STS Inactive Short<br>STS Open SCR<br>STS Receive Error<br>STS Timeout Error<br>STS Control Failure<br>STS on Alternate<br>Output Failure<br>STS Output CB Open  |
| <b>General</b>                   | System Reset<br>Overload Timer Started<br>Overload Timer Ended<br>EPROM Write Error<br>Control DSP Failure<br>Summary Alarm<br>Summary Overtemp<br>Cabinet Overtemperature<br>Fan Failure<br>STS Power Supply Failure<br>System Logic Power Supply Failure<br>Login/Logout<br>Login Failure<br>Air Filter Needs Cleaning<br>Fans Due for Maintenance |
| <b>Other</b>                     | Event Log<br>Service Notebook<br>Mimic Panel<br>Modbus Communications  |
| <b>Metering</b>                  | <b>Metering Value (1% Accuracy)</b>  |
| <b>Rectifier</b>                 | Input Voltage (A, B, C)<br>Input Current (A, B, C)<br>Output Voltage DC<br>Output Current DC   |
| <b>Battery</b>                   | Voltage DC<br>Current DC<br>Runtime<br>Power<br>Cycles<br>Total Cycles   |
| <b>Inverter</b>                  | Voltage RMS<br>Current RMS<br>Frequency  |
| <b>Output</b>                    | Output Voltage RMS<br>Output Current RMS<br>Output Frequency<br>Output Real Power (Watts)<br>Output Apparent Power (VA)<br>% Loading<br>Crest Factor<br>UPS Peak Current<br>Power Factor   |
| <b>Alt Line</b>                  | Input Voltage<br>Input Frequency   |

## Standard Specifications

IGBT-Based PWM Inverter  
Modular Independence  
Full Digital Controls with DSP's  
Full Isolation Input/Output Transformers  
Full Color Touch Screen Monitor Panel  
RS 232 Communications Port  
Bidirectional Fully Rated Static Switch  
Maintenance Bypass Switch  
Fiber Optic Datapaths  
Screw Mounted Nameplates  
Wire Markers  
14 Pre-Defined Remote Alarm Contacts  
Breaker Position Indicator Package  
Blown Fuse Indicator Package  
Standard Documentation  
-Manual -Outline  
-Online -Wiring Diagram

## AC Input Rating

Input Voltage 480V, +10% and -20%  
Frequency 60 Hz,  $\pm$  5%  
Input Power Factor 0.75@ Full Load and Nominal Input  
Input Inrush Current 400% Max of Nominal Input Current  
Current Walk-In Ramp Up To Full Load in 15 Seconds  
Surge Withstand Meets IEEE 587/ANSI C62.41  
Transient Energy 160 Joules (Max Ratings at 85° C,  
10/10,000msec & Combination Wave Tests)  
Current Limit 125% of Rated 0.8pf Current  
Input Current THD 30% Typical

## DC Bus Rating

DC Voltage 120V<sub>DC</sub>  
DC Regulation  $\pm$  .25% from No Load to Full Load,  $\pm$  300mV  
DC Voltage Ripple <2% RMS Ripple @ Full Load, without Battery Connected

## AC Output Rating

Inverter Power 10-30kVA, Rated at 0.8 Power Factor  
Voltage 120V  
Voltage Adjustability  $\pm$  5% of Nominal, 114-126V  
Voltage Regulation  $<\pm$  2% Steady State for 0-100% Load Change  
Transient Response  $<\pm$  5% for a 100% Load Step  
 $<\pm$  1% for Loss or Return of AC Input Power  
 $<\pm$  5% for Manual Transfer to Bypass and Back @100% Load  
Voltage Recovery Return to Within  $\pm$  2.5% of Nominal Value Within  
16 Milliseconds (One Cycle)  
Voltage Distortion Linear Loads: <5% Typical at Full Load  
Non Linear Loads (Crest Factor = 3.1): Max 5% at Full Load  
Overload: Inverter Up to 150% of Rated output power for 15 Minutes  
at Min DC Bus and Input Voltage at 40° C  
Up to 150% of Rated output power for 5 Minutes at 50° C  
Overload: Static Bypass 10 to 25kVA – 700%  
30kVA – 600%  
Frequency 60Hz  
Frequency Stability  $\pm$  .1% Free Running  
Frequency Slew Rate 1.0Hz/Sec Maximum

## Environmental Specifications

Accoustical Noise Level 60dBA Typical at 3 Feet  
Operating Temperature 0-40°C, 0-50° C Optional  
Relative Humidity 0-95% Non-Condensing  
Access No Rear or Side Access Required  
for Operations or Maintenance  
Cooling Forced Air; Optional Redundant  
Fan Assemblies for Cabinet  
Operating Altitude Up to 1500 m at 40°C; Derate by 9%  
for Every 1000m Altitude Increase  
Paint Light Gray ANSI 61

## UPS EXPRESS OPTIONS

### Option 1- Cooling Package

Redundant Cabinet Fans

### Option 2- Mechanical Package

Lexan Barrier  
Drip Shield  
Vermin Screen

### Option 3- Complete Package

Cooling Package  
Mechanical Package



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