

# Q-LS 160

## Output

Capacity (VA)	160,000
Capacity (Watts)	128,000
Output Current (peak Amp) 1 phase (208/120 VAC)	1386
Output Current (peak Amp) 1 phase (415/380 VAC)	693
Output Current (peak Amp) 1 phase (480/277 VAC)	554
Output Current (peak Amp) 3 phase (208/120 VAC)	NA
Output Current (peak Amp) 3 phase (415/380 VAC)	NA
Output Current (peak Amp) 3 phase (480/277 VAC)	NA
Nominal Voltage range (3 phase)*	220V $\Delta$ / 380V $\Delta$ / 460V $\Delta$
	208VY / 380 VY / 400VY / 415 VY / 480VY
Nominal Voltage range (1 phase)*	NA
Frequency*	50, 60 or 400 Hz $\pm$ .1%
Frequency tracking	$\pm$ 5% of the input frequency
Output power factor	> 0.8
Output Waveform	High resolution, pure sine wave
Outlets	Terminal block
Single phase output	No
3 phase output	Yes

## Input

Current (amp) (208 / 120VAC)	576
Current (amp) (415 / 380VAC)	288
Current (amp) (480 / 277VAC)	230
Current (max amp) (120/130 VAC)	720
Current (max amp) (415 / 380VAC)	360
Current (max amp) (480 / 277VAC)	288
Power factor (12 pulse rectifier)	.75 to .90
Power factor (18 pulse rectifier)	Available
Frequency*	50, 60 or 400 Hz $\pm$ 5 %
Input impedance of entire system	750 m ohm

## General

Input and output impedance	5%
UPQ power conditioning topology	Five (5) Stages of Isolation and Conversion, High Frequency, True On-line digital sine wave
Remote power management	Yes

## Voltage Regulation

Input voltage range:	208 to 600 VAC
- Full load without using battery	$\pm$ 20%
- Half load without using battery	$\pm$ 25%
Output voltage regulation	$\pm$ 1%

## Isolation

Input to output isolation	Dielectric Strength 5 kv, 120 dB
	common mode attenuation
Common-mode noise rejection	Yes
Normal-mode noise rejection	Yes

## Suppression

IEEE 587/ANSI 62.41 (North America)	Yes
IEEE 587/ANSI 62.41 (International)	Yes
Joules (energy absorption)	2200
TVSS MOV joule rating	765 Joules per phase
TVSS low pass filter	750 Hz
Peak surge current (amp)	20000
Multi-stage protection	Yes
Reverse inverter impulse protection	54 joules without batteries
IEC	62040-2
FCC	Class A
EN500091-1	Yes
EN500091-2	Yes
EN 60610 (leakage current)	< 1 mA
CE approval	Yes
Conditioning	Yes
Output THD (linear load)	< 2%
Current THD (6 pulse rectifier)	Maximum of 20%
Current THD (12 pulse rectifier)	Maximum of 9%
Input frequency range	50/60 Hz $\pm$ 7 Hz

## High Frequency on-Line Inverter

Inverter design	Full bridge
Inverter driver frequency	20 kHz
Inverter regulation	50/60 Hz $\pm$ 0.1 Hz
Overload capacity	>110% continuous
Crest factor	3:1
Transfer time	Zero
Overall system efficiency	93%
Efficiency	> 93%
UPQ to bypass/bypass to UPQ	Zero cross transfer, < 4 mSec (2 mSec minimum)

## Rectifier

6 pulse	110 $\mu$ s single phase triggering
12 pulse	6.4 kHz pulse width, 80 $\mu$ s for 1.7 ms around 11 pulses
Efficiency	0.98
Current limit (amp) (208 / 120VAC)	54
Current limit (amp) (415 / 380VAC)	27

## Static Switch

Voltage range	174 VAC - 277VAC (line to neutral)
Frequency range	45 - 55 Hz / 55 - 65 Hz
Efficiency	99.5%
Transfer time - main to inverter	0 ms
Transfer time - inverter to main	0 ms
Transfer time - overload 100%	30 seconds
Transfer time - overload 300%	1 seconds

## Battery (standard configurations)

Full load run time 9min/ext. pack)	18 min/(4)B
Half load run time (min/ext. pack)	45 min/(4)B
DC voltage	348 VDC
Recharge time	5 to 8 hours
Battery charger	Constant voltage with current limit
Maximum recharge current (amps)	80
Boost charge	410 / 415 VDC
Float charge	396 / 410 VDC
Battery low voltage	320 / 305 VDC
Battery low stop voltage	295 / 285 VDC
Hot-swappable	Yes

## Environmental

Maximum heat dissipation kW	8.7
Maximum heat dissipation BTU/hr	29,696
Operating temperature	32° to 122° F (0° to 50° C)
Humidity	0% - 90% non-condensing
Audible noise	< 65 dBA at 1 meter
Altitude	Less than 6,600 ft 92,000 m)
	above sea level
De-rating temperature to altitude	39° F / 3,281 ft (4° C / 1,000 m)

## Physical

WxDxH	43.5 x 32 x 63 in (1100 x 800 x 1600 mm)
Weight in lbs (no battery)	3,200
Weight in kg (no battery)	1,450
Battery pack A/B WxDxH (26 Ah)	21.5 x 32 x 63 in (550 x 800 x 1600 mm)
Battery pack A/B weight (26 Ah)	882 lbs (400 kg) / 1765 (800 kg)
Battery pack C/D WxDxH (88 & 100 Ah)	43.5 x 32 x 63 in (1100 x 800 x 1600 mm)
Battery pack C/D weight (88 & 100 Ah)	2375 lb (1077 kg) / 2500 lbs (1134 kg)

