

























3:3 65-500 kVA











**UL** certified



SmartGrid

# HIGHLIGHTS

- High efficiency
- IGBT-based rectifier technology
- Compact, reliable and robust
- Galvanic isolation
- High overload capacity

The high levels of quality, reliability and energy savings offered by the Master HP range of UPS, has been extended to include a UL/CSA Listed, 480 Vac 60 Hz version with ratings from 65 kVA to 500 kVA. IT managers, facility managers, and CTOs are under increasing pressure to reduce downtime and assure that their critical loads are supplied with uninterrupted and high quality power. With this increasingly stringent requirement, Riello UPS has invested in power solutions that meet strict demands; a commitment resulting in the launch of the Master HP UL range. More than just an innovative and technologically-advanced UPS, it is a leap into the future of three-phase technology. With its double conversion on-line

technology based entirely on IGBT and digital signal processors (DSP), the Master HP UL range ensures maximum critical load protection, with VFI SS 111 classification (Voltage and Frequency Independent) in accordance with IEC EN 62040-3. This range is designed using a new configuration that includes an IGBT sinusoidal input rectifier. Unique in its design, double conversion technology with galvanic isolated output guarantees a quality power supply that is completely protected from all electrical anomalies at the input.

### **Complete galvanic separation**

The Master HP UL UPS features an output isolation transformer on the inverter as part of the inverter circuit inside the UPS cabinet, providing galvanic isolation between the load and the battery with improved versatility in system configuration, allowing:

- Complete UPS output galvanic isolation for critical infrastructures from the battery DC power source;
- Two truly separated supply inputs (utility and bypass), which can be taken from two different power sources (with different neutrals); this is particularly well suited for parallel systems in order to ensure selectivity between the two sources, improving the reliability of the entire installation;
- No neutral input connection is required at the UPS rectifier input stage; this method is particularly favorable in order to prevent the transmission of common neutral disturbances via the neutral conductor;
- No effects to the UPS output performance or reduced impact of the inverter power components while supplying specific loads; in addition the inverter transformer minimizes the impact of third harmonic disturbances, prevents the effects of energy back-feed into the inverter when supplying industrial load applications and can supply unbalanced loads.
- High inverter short circuit current to clear faults which occur between phase and neutral on load side (up to three times nominal current).

Output transformer housed within a cabinet which allows for a significant reduction in the footprint and provides space savings.

#### Zero impact source

The Master HP UL series features the added advantages of the Zero Impact Source formula offered by an IGBT-based rectifier assembly. This eliminates problems connected with installation in networks with limited power capacity, where the UPS is supplied by a generator set or anywhere there are compatibility problems with loads

that generate current harmonics. Master MHT UL series UPS have zero impact on the power supply source, whether it is a utility grid or generator set:

- Input current distortion < 3%
- Input power factor 0.99
- Power walk-in function that ensures progressive rectifier start up
- Start-up delay function, to restart the rectifiers when mains power is restored if there are several UPS in the system.

This provides savings in installation costs via:

- A smaller electrical infrastructure.
- Smaller circuit protection devices
- · Less wiring.

#### **Flexibility**

Master HP UL is suitable for a wide range of applications including IT and the most demanding industrial environments and processes. With several operational configurations including On-Line, Eco, Smart Active, Stand By, Frequency Converter and Voltage Regulation. A broad range of accessories and options, complex configurations and system architectures can be achieved to guarantee maximum power availability and the option to add new UPS without interruption to site operations.

# Battery care system: maximum battery care

Master HP UL series UPS include a range of features designed to prolong battery life and reduce usage by using different recharging methods; deep discharge protection, current limitation, and voltage compensation based on ambient temperature.

#### Main features

- Compact size: e.g.: only 2.330 square inches for the Master HP UL 500 kVA
- Reduced weight for transformer based UPS
- Double load protection, both electronic and galvanic, towards the battery.

  The standard Market Market Standard Sta

The entire Master HP UL range is suitable for use in a wide range of applications. The Master HP can supply any type of load, e.g. servers, controls, lighting, capacitive, switch mode. Power supply reliability and availability are ensured for critical applications by distributed parallel configurations of up to 8 units, for redundant (N+1) or power parallel configurations.

## **Advanced supervision**

The Master HP UPS has a front panel mounted graphic display providing UPS information, measurements, status updates and alarms in multiple languages, with waveform displays including voltage/current and providing a kWh reading that can be used to measure IT loads and calculate a Data Centre PUE (Power Usage Effectiveness) ratio.

## **OPTIONS**

#### **SOFTWARE**

PowerShield<sup>3</sup>

PowerNetGuard

# ACCESSORIES

NETMAN 204

Multi I/O (Relay Alarm card and generator Interface)

#### **PRODUCT ACCESSORIES**

Parallel configuration kit (Closed Loop)
Fully configured battery systems with appropriate autonomy

Maintenance Bypass Switchgear for all models

# **DIMENSIONS**

MHT 65 UL MHT 80 UL MHT 100 UL MHT 125 UL



including manual bypass

MHT 160 UL MHT 200 UL MHT 250 UL



excluding manual bypass

MHT 160 UL MHT 200 UL MHT 250 UL

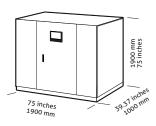


including manual bypass Top Cable Entry cabinets

MHT 300 UL MHT 400 UL MHT 500 UL



MHT 300 UL TCE MHT 400 UL TCE MHT 500 UL TCE



Frequency	MODELS	MHT 65 UL	MHT 80 UL	MHT 100 UL	MHT 125 UL	MHT 160 UL			
Frequency	INPUT								
Power factor	Nominal voltage			480 Vac three-phase +	N				
Soft start	Frequency			45 - 65 Hz					
Soft statt         0 - 100% in 125" (selectable)           Frequency tolerance         ± 2%6 (selectable from ± 1%6 to ± 5%6 from front panel)           Santaria equipment provided           Bask Feed protections, separable bypass line           Santaria equipment provided           Bask Feed protections, separable bypass line           Santaria equipment provided           Bask Feed protections, separable bypass line           Santaria equipment provided           Bask Feed protections, separable bypass line           Santaria equipment provided           Bask Feed protections, separable bypass line           Santaria equipment provided           Availability           Description           Availability           Feed to 1 % Colspan="3">Santaria equipment provided           Availability           Feed to 1 % Santaria equipment load           Santaria equipment load           Feed to 2 % With non-linear load           Voltage distortion           Feed to 2 % With non-linear load           Feed to 2 % With non-linear load           Voltage With with linear load / 2 % With non-linear load<	Power factor			> 0.99					
Prequency toterance	Harmonic current distortion			<3% THDi					
Standard equipment provided   Back Feed protection; separable bypass line   BATTERIS	Soft start		0 -	100% in 125" (selecta	ble)				
Septe current   Sept curren	Frequency tolerance		± 2% (selectabl	e from ± 1% to ± 5%	from front panel)				
Sipple current   Secharge voltage compensation   Secharge voltage voltage compensation   Secharge voltage vo	Standard equipment provided		Back Feed	protection; separable	bypass line				
Repeats working to the properties of the prope	BATTERIES								
Course           Course           Nominal power (kW)         65         80         100         125         160           Active power (kW)         58.5         72         90         112.5         144           Number of phases         3 + N         Nominal voltage         4.80 Vac three-phase + N         Secondary (secondary)           Opparatic stability         £ 196         190         112.5         144           Voltage distortion         4 196 with linear load / < 35% with non-linear load           Crest factor         3.1 peack/trms         Frequency         60 Hz           Overload         110% for 60 minutes; 125% for 10 minutes; 150% for 1 minute           NFO FOR INSTALLATION           Weight (lbs [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Weight with TCE and Maintenance bypass (lbs [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Dimensions (WADAH) (inches [mm])         3.1.5 x 33.5 x 75 [800 x 850 x 1900]         1972 [730 x 33.5 x 75 [800 x 850 x 1900]           Dimensions (WADAH) (inches [mm])         3.1.5 x 33.5 x 75 [800 x 850 x 1900]         1972 [750 x 33.5 x 75 [800 x 850 x 1900]         1972 [750 x 33.5 x 75 [800 x 850 x 1900]         1972 [750 x 3	Туре			VRLA, Wet Cell, NiCd					
OUTPUT         Nominal power (kVA)         65         80         100         125         160           Active power (kW)         58.5         72         90         112.5         144           Number of phases         3 + N         Nominal voltage         480 Vac three-phase + N         140           Static stability         ± 196         190         190         190           Oylard Stortion         480 Vac three-phase + N         190	Ripple current			Zero					
Nominal power (kVA)	Recharge voltage compensation			-0.5 Vx°C					
Active power (kW)	ОИТРИТ								
Number of phases  Nominal voltage  480 Vac three-phase + N  Static stability  Dynamic stability  Static stability  Dynamic stability  From 150% to ± 1% in 20 ms  Voltage distortion  A 1% with linear load / 3% with non-linear load  Crest factor  3:1 lpeack/lrms  Frequency stability on battery  Frequency  BOVERION  Weight (lib log)  Weight (lib log)  Weight (lib log)  Dimensions (WxDxH) (inches [mm])  Dimensions (WxDxH) (inches [mm])  Dimensions (WxDxH) (inches [mm])  Dimensions (WxDxH)  Maintenance bypass (WxDxH)  Maintenance byp	Nominal power (kVA)	65	80	100	125	160			
Nominal voltage         480 Vac three-phase + N           Static stability         ± 1%           Dynamic stability         from ± 5% to ± 1% in 20 ms           Voltage distortion         < 1% with linear load / 3% with non-linear load           Crest factor         3:1 lpeack/Irms           Frequency stability on battery         0.05%           Frequency         60 Hz           Overload         110% for 60 minutes; 125% for 10 minutes; 150% for 1 minutes           INFO FOR INSTALLATION         Weight (lik) [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Weight (lik) [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Weight (lik) [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Weight (lik) [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Weight (lik) [kg])         1500 [80]         1851 [840]         1851 [840]         1851 [840]         1851 [840]         1851 [840]	Active power (kW)	58.5	72	90	112.5	144			
Static stability         ± 1%           Dynamic stability         from ± 5% to ± 1% in 20 ms           Voltage distortion         < 1% with linear load / < 3% with non-linear load           Crest factor         3:1 lpeack/Irms           Frequency stability on battery         60 Hz           Overload         110% for 60 minutes; 125% for 10 minutes; 150% for 1 minute           INFO FOR INSTALLATION         Weight (lbs [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Weight with TCE and Maintenance bypass (lb [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Dimensions (WxDxH) (inches [mm])         31.5 x 33.5 x 75 [800 x 850 x 1900]         39 x 33.5 x 75 [1000x850x1900]           Dimensions with TCE and Maintenance bypass (WxDxH)         2 - 2 5 x 33.5 x 75 [800 x 850 x 1900]         35 x 33.5 x 75 [1000x850x1900]           Dimensions with TCE and Maintenance bypass (WxDxH)         2 - 2 5 x 33.5 x 75 [800 x 850 x 1900]         39 x 33.5 x 75 [1000x850x1900]           Dimensions with TCE and Maintenance bypass (WxDxH)         2 - 2 5 x 33.5 x 75 [800 x 850 x 1900]         35 x 33.5 x 75 [1000x850x1900]           Dimensions with TCE and Maintenance bypass (WxDxH)         3 x 2 x 3 x x 75 [800 x 850 x 1900]         3 x 3 x x 75 [1000x850x1900]           Dimensions (WxDxH) (inches [mm])         3 x 2 x 3 x x 75 [800 x 850 x 1900] <th< td=""><td>Number of phases</td><td colspan="8">3 + N</td></th<>	Number of phases	3 + N							
Dynamic stability	Nominal voltage	480 Vac three-phase + N							
Voltage distortion  Crest factor  Frequency Stability on battery  Overload  Neight (Ibs [kg])  Dimensions (WxDxH) (Inches [mm])  Dimensions (WxDxH) (Inches [mm])  Dimensions (WxDxH) (Inches [mm])  Dimensions (WxDxH)  Remote controls  Remote controls  Communications  Double RS232 + dry contacts + 2 slots for communications interface with SNMP, Modbus, and Bacnet Protocols  Operating temperature  Operating temperature  Noise level at 1 m (ECO Mode)  Standards  Classification in accordance with IEC 62040-3;  UL 924 and OUST category - Emergency Lighting and power equipment  (Voltage Frequency) Independent) VFI - SS - 111	Static stability	± 1%							
Crest factor         3:1 lpeack//Irms           Frequency         60 Hz           Overload         110% for 60 minutes; 125% for 10 minutes; 150% for 1 minute           INFO FOR INSTALLATION           Weight (lbs [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Weight with TCE and Maintenance bypass (lbx [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Dimensions (WxDxH) (inches [mm])         31.5 x 33.5 x 75 [800 x 850 x 1900]         1790 3 x 33.5 x 75 [1000x850x1900]           Dimensions with TCE and Maintenance bypass (WxDxH) (inches [mm])         31.5 x 33.5 x 75 [800 x 850 x 1900]         1790 3 x 33.5 x 75 [1000x850x1900]           Dimensions with TCE and Maintenance bypass (WxDxH) (inches [mm])         31.5 x 33.5 x 75 [800 x 850 x 1900]         1790 3 x 33.5 x 75 [1000x850x1900]           Remote collaborations with TCE and Maintenance bypass (WxDxH) (inches [mm])         2 x 20 x [1000]         2	Dynamic stability	from ± 5% to ± 1% in 20 ms							
Frequency         0.05%           Frequency         60 Hz           Overload         110% for 60 minutes; 125% for 10 minutes; 150% for 1 minute           INFO FOR INSTALLATION           Weight (lbs [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Weight with TCE and Maintenance bypass (lbx [kg])         3 1.5 x 33.5 x 75 [800 x 850 x 1900]         39 x 33.5 x 75 [1000x850x1900]           Dimensions with TCE and Maintenance bypass (lwxDxH) (inches [mm])         3 1.5 x 33.5 x 75 [800 x 850 x 1900]         39 x 33.5 x 75 [1000x850x1900]           Remote signals         dry contacts (configurable)           Remote controls         ESD and bypass (configurable)           Communications         Double R\$232 + dry contacts + 2 s lots for communications interface with SNMP, Modbus, and Bacnet Protocols           Operating temperature         0°C / + 40°C (32 to 104°F)           Relative humidity         <95% non-condensing           Cotor         Black           Noise level at 1 m (ECO Mode)         65 dBA         68 dBA           IP rating         UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA; UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirement National Electrical Code (NFPA-70); FCC Part 15 Subpart 1 class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment	Voltage distortion	< 1% with linear load / < 3% with non-linear load							
Frequency	Crest factor	3:1 lpeack/lrms							
Overload         110% for 60 minutes; 125% for 10 minutes; 150% for 1 minute           INFO FOR INSTALLATION         Weight (lbs [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Weight with TCE and Maintenance bypass (lbs [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Dimensions (WxDxH) (inches [mm])         31.5 x 33.5 x 75 [800 x 850 x 1900]         39 x 33.5 x 75 [1000x850x1900]           Dimensions with TCE and Maintenance bypass (WxDxH) (inches [mm])         31.5 x 33.5 x 75 [800 x 850 x 1900]         39 x 33.5 x 75 [1000x850x1900]           Remote signals         dry contacts (configurable)         4 colspan="2">4 colspan="2">4 colspan="2">5 x 33.5 x 75 [1000x850x1900]           Remote controls         ESD and bypass (configurable)         5 communications         4 colspan="2">5 x 33.5 x 75 [1000x850x1900]           Communications         Double RS232 + dry contacts + 2 slots for communications interface with SMMP, Modbus, and Bacnet Protocols         5 communications         4 colspan="2">5 communications interface with SMMP, Modbus, and Bacnet Protocols           Operating temperature         0 °C / +40 °C (32 to 104 °F)         6 8 dBA	Frequency stability on battery	0.05%							
INFO FOR INSTALLATION         Weight (lbs [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Weight with TCE and Maintenance bypass (lbs [kg])         1500 [680]         1610 [730]         1742 [790]         1851 [840]           Dimensions (WxDxH) (inches [mm])         31.5 x 33.5 x 75 [800 x 850 x 1900]         39 x 33.5 x 75 [1000x850x1900]           Dimensions with TCE and Maintenance bypass (WxDxH) (inches [mm])         -         -         55 x 33.5 x 75 [1000x850x1900]           Remote signals         dry contacts (configurable)           Remote controls         ESD and bypass (configurable)           Communications         Double RS232 + dry contacts + 2 slots for communications interface with SNMP, Modbus, and Bacnet Protocols           Operating temperature         95% non-condensing           Color         Black           Noise level at 1 m (ECO Mode)         65 dBA         68 dBA           IP rating         IP20           Smart Active efficiency         UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA;           From 160 to 250 kVA; UL 60950-11: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart) class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment	Frequency	60 Hz							
Weight (lbs [kg])     1500 [680]     1610 [730]     1742 [790]     1851 [840]       Weight with TCE and Maintenance bypass (lbs [kg])     -     -     -     2204 [1000]       Dimensions (WxDxH) (inches [mm])     31.5 x 33.5 x 75 [800 x 850 x 1900]     [39 x 33.5 x 75 [1000x850x1900]       Dimensions with TCE and Maintenance bypass (WxDxH) (inches [mm])     -     -     -     55 x 33.5 x 75 [1400x850x1900]       Remote signals     dry contacts (configurable)       Remote controls     ESD and bypass (configurable)       Communications     Double RS232 + dry contacts + 2 slots for communications interface with SMMP, Modbus, and Bacnet Protocols       Operating temperature     0 °C / + 40 °C (32 to 104 °F)       Relative humidity        Color     Black       Noise level at 1 m (ECO Mode)     65 dBA     68 dBA       IP rating     IP20       Smart Active efficiency     Up to 98.5%       VL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA; From 160 to 250 kVA; UL 60950-11: Information Technology Equipment: - Safety - Part 1: General Requirement: National Electrical Code (NFPA-70); FCC Part 15 Subgrat 2 class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment       Classification in accordance with IEC 62040-3     (Voltage Frequency Independent) VFI - SS - 111	Overload	110% for 60 minutes; 125% for 10 minutes; 150% for 1 minute							
Weight with TCE and Maintenance bypass (lbs [kg])       -       -       -       2204 [1000]         Dimensions (WxDxH) (inches [mm])       31.5 x 33.5 x 75 [800 x 850 x 1900]       [39 x 33.5 x 75 [1000x850x1900]         Dimensions with TCE and Maintenance bypass (WxDxH)       -       -       -       55 x 33.5 x 75 [1400x850x1900]         Maintenance bypass (WxDxH)       -       -       -       55 x 33.5 x 75 [1400x850x1900]         Remote signals       dry contacts (configurable)         Remote controls       ESD and bypass (configurable)         Communications       Double RS232 + dry contacts + 2 slots for communications interface with SNMP, Modbus, and Bacnet Protocols         Operating temperature       0 °C / +40 °C (32 to 104 °F)         Relative humidity       95% non-condensing         Color       Black         Noise level at 1 m (ECO Mode)       65 dBA       68 dBA         IP rating       IP20         Smart Active efficiency       UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA; Standards         Standards       From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart J Calsa A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment         Classification in accordance with IEC 62040-3       (Voltage Freq	INFO FOR INSTALLATION								
bypäss (lbs [kg])  Dimensions (WxDxH) (inches [mm])  Dimensions with TCE and Maintenance bypass (WxDxH)  Aligner signals  Remote signals  Remote controls  Communications  Double RS232 + dry contacts (configurable)  Double RS232 + dry contacts + 2 slots for communications interface with SNMP, Modbus, and Bacnet Protocols  Operating temperature  O°C / +40°C (32 to 104°F)  Relative humidity  Color  Black  Noise level at 1 m (ECO Mode)  From 160 to 250 kVA:  UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA;  From 160 to 250 kVA:  UL 924 and OUST category - Emergency Lighting and power equipment  (Voltage Frequency Independent) VFI - SS - 111	Weight (lbs [kg])	1500	0 [680]	1610 [730]	1742 [790]	1851 [840]			
Dimensions (WXDXH) (Inches [Inim])  Dimensions with TCE and Maintenance bypass (WXDXH) (inches [Inim])  Remote signals  Remote controls  Communications  Double RS232 + dry contacts (configurable)  Communications  Double RS232 + dry contacts + 2 slots for communications interface with SNMP, Modbus, and Bacnet Protocols  Operating temperature  O°C / +40°C (32 to 104°F)  Relative humidity  Color  Black  Noise level at 1 m (ECO Mode)  For atting  Mult Standards  UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA;  From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart 3 class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment  (Voltage Frequency Independent) VFI - SS - 111	Weight with TCE and Maintenance bypass (lbs [kg])	-	-	-	-	2204[1000]			
Maintenance bypass (WxDxH) (inches [mm])       -       -       155,33.3.7 x / 5 (1400x850x1900)         Remote signals       dry contacts (configurable)         Remote controls       ESD and bypass (configurable)         Communications       Double RS232 + dry contacts + 2 slots for communications interface with SNMP, Modbus, and Bacnet Protocols         Operating temperature       0 °C / +40 °C (32 to 104 °F)         Relative humidity       <95% non-condensing		31.5 x 33.5 x 75 [800 x 850 x 1900] 39 x 33.5 x 75 [1000x850x1900]							
Remote controls  ESD and bypass (configurable)  Communications  Double RS232 + dry contacts + 2 slots for communications interface with SNMP, Modbus, and Bacnet Protocols  Operating temperature  O °C / +40 °C (32 to 104 °F)  Relative humidity  Selevel at 1 m (ECO Mode)  Frating  From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart 1 class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment  (Voltage Frequency Independent) VFI - SS - 111		-	-	-	-				
Communications  Double RS232 + dry contacts + 2 slots for communications interface with SNMP, Modbus, and Bacnet Protocols  Operating temperature  O °C / +40 °C (32 to 104 °F)  Relative humidity  <95% non-condensing  Color  Black  Noise level at 1 m (ECO Mode)  Frating  IP20  Smart Active efficiency  UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA;  From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart 1 class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment  (Voltage Frequency Independent) VFI - SS - 111	Remote signals	dry contacts (configurable)							
Communications     interface with SNMP, Modbus, and Bacnet Protocols       Operating temperature     0 °C / +40 °C (32 to 104 °F)       Relative humidity     <95% non-condensing	Remote controls	ESD and bypass (configurable)							
Relative humidity  Color  Black  Noise level at 1 m (ECO Mode)  Frating  Smart Active efficiency  UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA;  From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart J class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment  Classification in accordance with IEC 62040-3  (Voltage Frequency Independent) VFI - SS - 111	Communications								
Color Black  Noise level at 1 m (ECO Mode) 65 dBA 68 dBA  IP rating IP20  Smart Active efficiency up to 98.5%  UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA;  Standards VALIDATION STANDARD STA	Operating temperature	0 °C / +40 °C (32 to 104 °F)							
Noise level at 1 m (ECO Mode)  IP rating  Smart Active efficiency  UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA;  From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart J class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment  Classification in accordance with IEC 62040-3  (Voltage Frequency Independent) VFI - SS - 111	Relative humidity	<95% non-condensing							
IP rating  Smart Active efficiency  UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA;  From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart J class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment  Classification in accordance with IEC 62040-3  (Voltage Frequency Independent) VFI - SS - 111	Color	Black							
Smart Active efficiency  UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA;  From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements: National Electrical Code (NFPA-70); FCC Part 15 Subpart J class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment  Classification in accordance with IEC 62040-3  (Voltage Frequency Independent) VFI - SS - 111	Noise level at 1 m (ECO Mode)	65 dBA 68 dBA							
UL Standard 1778: 2nd edition from 65 to 125 kVA, 5th edition from 160 to 250 kVA;  From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart J class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment  Classification in accordance with IEC 62040-3  (Voltage Frequency Independent) VFI - SS - 111	IP rating	IP20							
Standards  From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart J class A - Radio Frequency; IEC 62040-3; UL 924 and OUST category - Emergency Lighting and power equipment  Classification in accordance with IEC 62040-3  (Voltage Frequency Independent) VFI - SS - 111	Smart Active efficiency	up to 98.5%							
IEC 62040-3 (Voltage Frequency Independent) VFI - SS - 111	Standards	From 160 to 250 kVA: UL 60950-1 1: Information Technology Equipment - Safety - Part 1: General Requirements National Electrical Code (NFPA-70); FCC Part 15 Subpart J class A - Radio Frequency; IEC 62040-3;							
Transport Pallet Jack	Classification in accordance with IEC 62040-3		(Voltage Fre	quency Independent) \	/FI - SS - 111				
	Transport			Pallet Jack					

MODELS	MHT 200 UL	MHT 250 UL	MHT 300 UL	MHT 400 UL	MHT 500 UL		
INPUT					I		
Nominal voltage		4	80 Vac three-phase +	N			
Frequency			45 - 65 Hz				
Power factor			> 0.99				
Harmonic current distortion			<3% THDi				
Soft start		0 - 1	.00% in 125" (selecta	able)			
Frequency tolerance		± 2% (selectable	e from ± 1% to ± 5%	from front panel)			
Standard equipment provided	Back Feed protection; separable bypass line						
BATTERIES							
Туре	VRLA, Wet Cell, NiCd on Racks or Cabinet						
Ripple current	Zero						
Recharge voltage compensation	-0.5 Vx°C						
OUTPUT							
Nominal power (kVA)	200	250	300	400	500		
Active power (kW)	180	225	300	400	450		
Number of phases	3 + N						
Nominal voltage	480 Vac three-phase + N						
Static stability	± 1%						
Dynamic stability	from ± 5% to ± 1% in 20 ms						
Voltage distortion	< 1% with linear load / < 3% with non-linear load						
Crest factor	3:1   peack/lrms						
Frequency stability on battery	0.05%						
Frequency	60 Hz						
Overload	110% for 60 minutes; 125% for 10 minutes; 150% for 1 minute						
INFO FOR INSTALLATION							
Weight (lbs [kg])	2138 [970]	2247 [1110]	4190 [1900]	4741 [2150]	4741 [2150]		
Weight with TCE and Maintenance bypass (lbs [kg])	2524 [1145]	2799 [1270]	4410 [2000] *	4961 [2250] *	4961 [2250] *		
Dimensions (WxDxH) (inches [mm])	39 x 33.5 x 75 [1000 x 850 x 1900] 59 x 39.5 x 75 [1500 x 1000 x 1900]						
Dimensions with TCE and manual bypass (WxDxH) (inches [mm])	55 x 33.5 x 75 [1400 x 850 x 1900]						
Remote signals	dry contacts (configurable)						
Remote controls	ESD and bypass (configurable)						
Communications	Double RS232 + dry contacts + 2 slots for communications interface						
Operating temperature	0 °C / +40 °C (32 to 104 °F)						
Relative humidity	<95% non-condensing						
Color			Black				
Noise level at 1 m (ECO Mode)	68 dBA			72 dBA			
IP rating	IP20						
Smart Active efficiency	up to 98.5%						
Standards	UL Standard 17; UL 60950-1 1: Informatio - Safety - Part 1: General Electrical Code (NFPA-70 class A – Radio Frequency; OUST category – Emerge equip	n Technology Equipment Requirements; National I); FCC Part 15 Subpart J IEC 62040-3; UL 924 and ncy Lighting and power	UL Standard 1778: 5th edition; National Electrical Code (NFPA-70); NEMA; CSA C22.2; ASME; FCC section 15 subsection J class A; IEC 62040-3;				
Classification in accordance with IEC 62040-3	(Voltage Frequency Independent) VFI - SS - 111						
Transport	Pallet Jack						

<sup>\*</sup> Maintenance Bypass Switch – on option.



