Hipulse D

2 to 160 kVA UPS

Three phase input, Single phase output

Customised , Reliable, High Power UPS Solution

EMERSON

Network Power

INTRODUCTION

Unmatched expertise of Emerson Network Power, coupled with interaction with industry leading consultants, has created enviable domain expertise for us in the field of clean and critical power requirement in Industrial segment. This has created many success stories in the UPS industry and landmark achievements in the power electronics field. This expertise has helped Emerson Network Power to design Hipulse D series UPS, which addresses issues about the clean and critical power requirements in the engineering industry.

The Hipulse D UPS gives maximum reliability and makes optimum use of available resources, making it the best solution for the mission critical applications.

FEATURES

- State - of - the - art IGBT based design
- Advanced Rectifier design
- Total Digital control
- Input to output galvanic Isolation
- Robust electrical performance
- Customisation capability
- Advanced interface using SNMP/MODBUS
- User friendly LCD display
- Battery management features

Specification

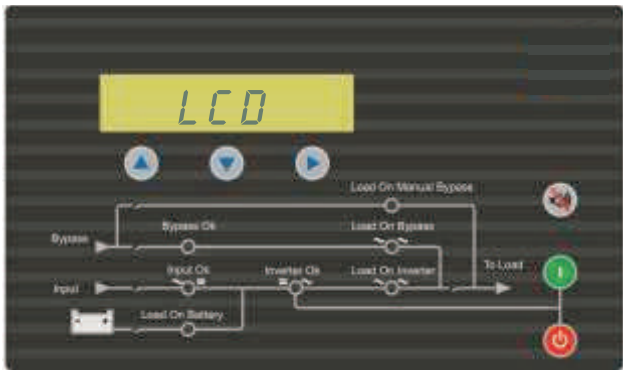
PARAMETERS	STANDARD OFFERINGS	OPTIONAL
INPUT		
Nominal Voltage	415 V AC (380 / 400 V AC) 3 phase, 3 wire [1] (+10%, – 20%)	□ 220 V AC, 3 phase, 3 wire (+10%, – 15%)
Nominal Frequency	50 Hz (± 10%)	□ 60 Hz (± 6%)
Input Power Factor	0.92 [2]	□ 0.96
Input Fault Level	10 kA	□ 35 to 65 kA / 31 to 46 MVA (MCCB) □ Input Isolation transformer [3]
RECTIFIER		
Type	Full wave, A-PFC rectifier	□ 12 pulse for 20 kVA and above rating
CHARGER		
Type	IGBT based Dual mode of charging Suitable to charge VRLA - SMF, Lead Acid, Ni-CD battery	-
Nominal Voltage Regulation	± 1%	-
Ripple (without Battery)	< 1%	-
Charging Method	Constant Voltage Constant Current (CVCC) Auto & Manual with 0 to 24 hr programmable timer	□ Extended mode charging
BATTERY		
Battery Voltage	2 to 15 kVA 240 V DC 20 kVA 300 V DC 25 to 200 kVA 360 V DC 250, 300 kVA 408 V DC	□ 2 to 20 kVA 110 / 220 V DC □ 25 to 80 kVA 220 V DC
Type	Ni-CD / Tubular / VRLA	
Battery Charging Capacity	□ 2 to 20 kVA, 20 A	□ As per customer request [4]
	□ 25 to 60 kVA, 40 A □ 80 to 300 kVA, 60 A	
Protection	Battery breaker [5], Reverse battery indication	□ Reverse polarity □ Battery earth fault
OUTPUT		
Power Capacity Hipulse D 3100 Single Phase Output (at 230 V)	kVA / kW: 2 / 1.6; 7.5 / 6; 25 / 20; 45 / 36; 70 / 56; 100 / 80; 120 / 96; 140 / 112 kVA / kW: 3 / 2.4; 10 / 8; 30 / 24; 50 / 40; 75 / 60; 105 / 84; 125 / 100; 150 / 120 kVA / kW: 5 / 4; 15 / 12; 35 / 28; 55 / 44; 80 / 64; 110 / 88; 130 / 104; 160 / 128 kVA / kW: 6 / 4.8; 20 / 16; 40 / 32; 60 /48; 90 / 72; 115 / 92; 135 /108	Output Voltage □ 220 / 240 V AC □ 110 / 115 / 120 V AC
Hipulse D 3100 Three Phase Output (at 400 V)	kVA / kW: 10 / 8; 30 / 24; 80 / 64; 160 / 128; 300 / 240 kVA / kW: 15 / 12; 40 / 32; 100 / 80; 200 / 160 kVA / kW: 20 / 16; 60 / 48; 120 / 96; 250 / 200	Output Voltage □ 415 VAC
Load PF support capacity	0.6 to unity (within its kVA / kW rating)	-

PARAMETERS	STANDARD OFFERINGS	OPTIONAL
Voltage Regulation	± 1% for 230 V	□ ± 2% for 110 V
Frequency	50 Hz (± 0.1 Hz) in Free Running Mode ± 5% (± 1 to 5% adjustable) in Synchronous mode	□ 60 Hz (± 0.1 Hz)
Waveform	True Sine wave	-
Total Harmonic Distortion	< 2% Max. for 100% Linear load < 5% Max. for 100% Non-linear load (IEC 62040-3)	-
Overload Capacity	110% for 60 min, 125% for 10 min, 150% for 60 sec	-
Duty	Continuous	-
Inverter Philosophy	IGBT based PWM with INSTANTANEOUS sinewave control	-
Dynamic Response	For 0 to 100% step load change the output shall remain within ± 5% & recover to 98% within 1 cycle (IEC 62040-3, Class 1)	-
Crest Factor	3 : 1	-
Distribution	-	□ ACDB (as per the site requirement) [4]
STATIC SWITCH		
Frequency Synchronisation	± 2.5 Hz	-
Slew Rate	0.2 Hz / sec	-
Transfer (Inverter to Bypass)	In Sync. Mode - No break in transfer In Async. Mode - <10 ms	-
Retransfer (Bypass to Inverter)	In Sync. Mode - No break in Retransfer In Async. Mode - Not Applicable	-
Overload Capacity	1000% for 100 ms	-
MANUAL BYPASS		
Operation	Make Before Break	-
BYPASS SOURCE	-	□ Isolation transformer [3] □ Static Stabiliser □ Servo Controlled Voltage Stabiliser (in separate cabinet)
SYSTEM CONFIGURATION	Stand alone	□ Parallel Redundant with separate battery bank □ Hot Stand by
EFFICIENCY (INVERTER) [6]		
2 to 3 kVA	upto 87%	-
5 to 7.5 kVA	upto 90%	
10 to 15 kVA	upto 91%	
20 to 40 kVA	upto 93%	
45 to 160 kVA	upto 94.5%	
200 to 300 kVA	upto 95%	

PARAMETERS	STANDARD OFFERINGS	OPTIONAL
PHYSICAL		
Enclosure Protection Grade	IP - 41	□ IP - 42
Colour	RAL 7035 structure	□ RAL 7032 / IS 5-631 / RAL 9001 Structure or as per customer requirement
Paint Thickness	90 micron (± 10)	-
Type	Epoxy Powder Coated	-
Cooling	Forced Air	-
Cable Entry	Bottom	□ Top
WOUND COMPONENTS (TRANSFORMER / INDUCTOR)		
Class of Insulation	Class H	
PROTECTIONS		
Rectifier	Input MCCB[5] Input Single Phasing Input Fuse Fail Input Under / Over Voltage Rectifier Over Voltage Converter Over Temperature	 - - - - -
Inverter	Inverter Over Temperature Output Under Voltage Output Over Voltage Output Short Circuit Output Overload	□ Output MCCB
Battery	Battery MCCB[5] Battery Low Battery Over Voltage Battery Charging Current Limit ***Alarms are provided for all important protections**	□ Battery Reverse Polarity □ Battery Earth Fault
GENERAL SPECIFICATIONS		
Ambient temp.	0 to 40° C	upto 50° C [4]
Relative Humidity	0 to 95 % non condensing	-
Storage temp.	0 to 55^0 C	-
Utility Socket	230 V / 5 A	-
Illumination Lamps	5W / 9W CFL	□ Space Heater
Gland Plate	3 mm undrilled - MS	□ 5 mm undrilled - AL (Non magnetic)
Earth Bus bar (Ref. IS 3043)	3 X 25 mm Copper (up to 40 kVA) 6 X 50 mm Copper (45 kVA & above)	□ 6 X 25 mm GI / Al □ 10 X 50 mm GI / Al
POTENTIAL FREE CONTACTS		
One relay contact for each (Rating 250 VAC, 1 A)	□ Rectifier trip □ Inverter trip □ □ Load on Battery □ Battery low pre alarm □ Load on static bypass	Provided as per customer requirement □ PFC with 250 V AC, 2 A / 6 A rating □ Transducers 4 to 20 mA (as per customer specifications for DCS)
EMERGENCY OFF	-	□ Provided separately / on the front door
REMOTE PANEL	-	□ Ethernet based Remote monitoring
UPS MONITORING SOFTWARE	-	□ UPSMON II □ SNMP, MODBUS
CONNECTIVITY	RS 232 / RS 485	□ Ethernet / RS 485

1) Four wire system for Hipulse D 3300 - 60 kVA and above
2) Input Power Factor for 2 to 7.5 kVA > 0.88
3) Depending upon the size it is provided in separate cabinets, consult Project Engineer for details
4) Please consult Project Engineer for details
5) Applicable only for 40 kVA in Hipulse D model
6) For tolerance see IEC 60146-1-1

Hipulse D
3100



Input	Battery	Output	Bypass

PARAMETERS DISPLAYED ON LCD

Input	Battery	Output	Bypass
System Rating	Input Voltage	Battery Voltage	Output Voltage	Bypass
Date & Time	Input Current	Battery Current	Output Current % (A)	Voltage
Time on Battery	Rectifier Voltage	Battery backup-	Output Frequency	Bypass
Time on Bypass		time in minutes	Heat Sink Temp.	Frequency
System Sr. No.		(Battery mode)	Bus Voltage*	

MESSAGES DISPLAYED ON LCD

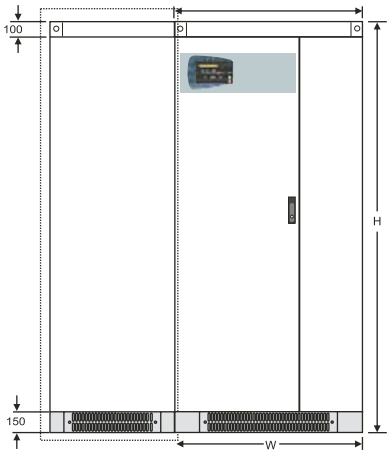
Input	Battery	Output	Bypass
Input Single Phasing / Phase reversal	Battery Low pre alarm	Output Under Voltage	Bypass Voltage
Rectifier Over Voltage	Battery Low trip	Output Over Voltage	abnormal
DC Under Voltage	Battery Over Voltage	Output Overload	Load on
Input Switch/ Breaker open	Battery SW / Breaker open	Inverter Over temp.	manual bypass
Mains fail	Normal charge	Output short circuit	Bypass fan fail
Input UV/OV	Battery discharging	DC Over Voltage	
Rectifier fan fail	Boost Over temp.	Transformer Over temp.	
	Battery earth fault (optional)	Inverter fan fail	

INDICATIONS ON MIMIC

Input	Battery	Output	Bypass
Input OK	Load on Battery	Inverter OK	Bypass OK
		Load on Inverter	Load on Static Bypass
			Load on Manual Bypass

Flashing LED Indicates fault condition in respective group
* For Parallel Redundant Systems

MECHANICAL DIMENSIONS

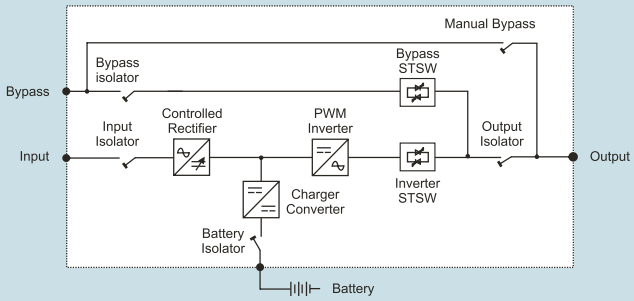


Front View

Hipulse D 3100 (2 to 160 kVA)

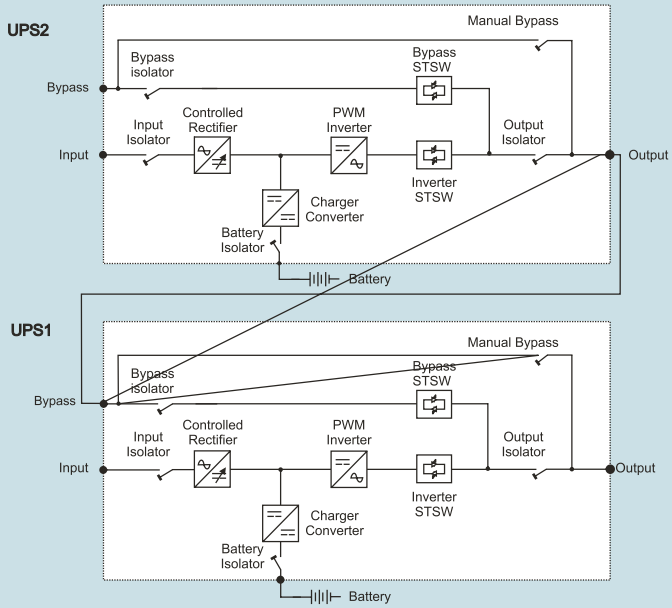
kVA Rating	Dimensions
	W D H
2 to 20	800 x 900 x 1850
25 to 40	1000 x 900 x 1850
45 to 60	1000 x 900 x 1850
70 to 80	1000 x 900 x 1850
90 to 120	R : 800 x 1000 x 2000 I : 1200 x 1000 x 2000
130 to 160	R : 800 x 1000 x 2000 I : 1200 x 1000 x 2000

STANDALONE UPS SYSTEM



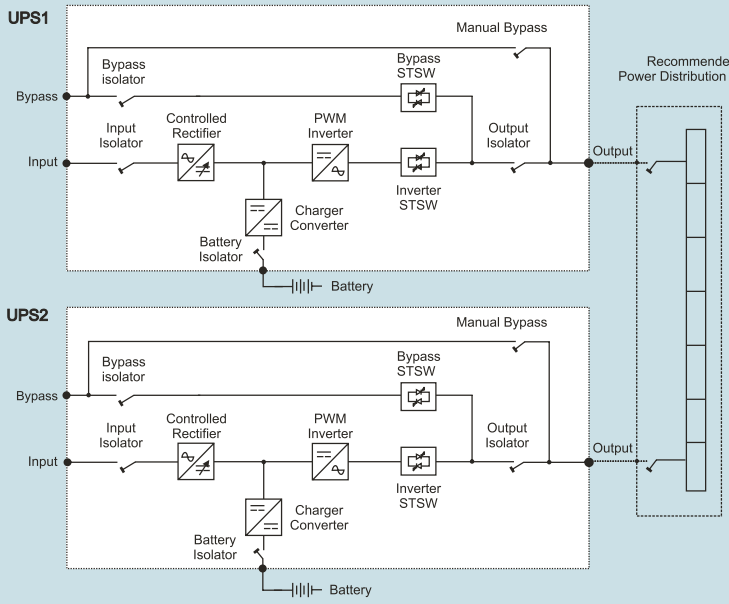
Hipulse D 60 kVA
(Customised)

HOT STAND BY UPS SYSTEM



Hipulse D 2 x 120 kVA
Parallel Redundant system

PARALLEL REDUNDANT UPS SYSTEM



Hipulse D 500 kVA

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- Surge Protection

For disposal of Batteries Please visit the below link:
http://www.cpcb.nic.in/divisionsofheadoffice/hwmd/lead.pdf

Note: Specifications & Features may vary based on the condition.

EMR - IN - PWR - HIPH - 15 - 7 - 11