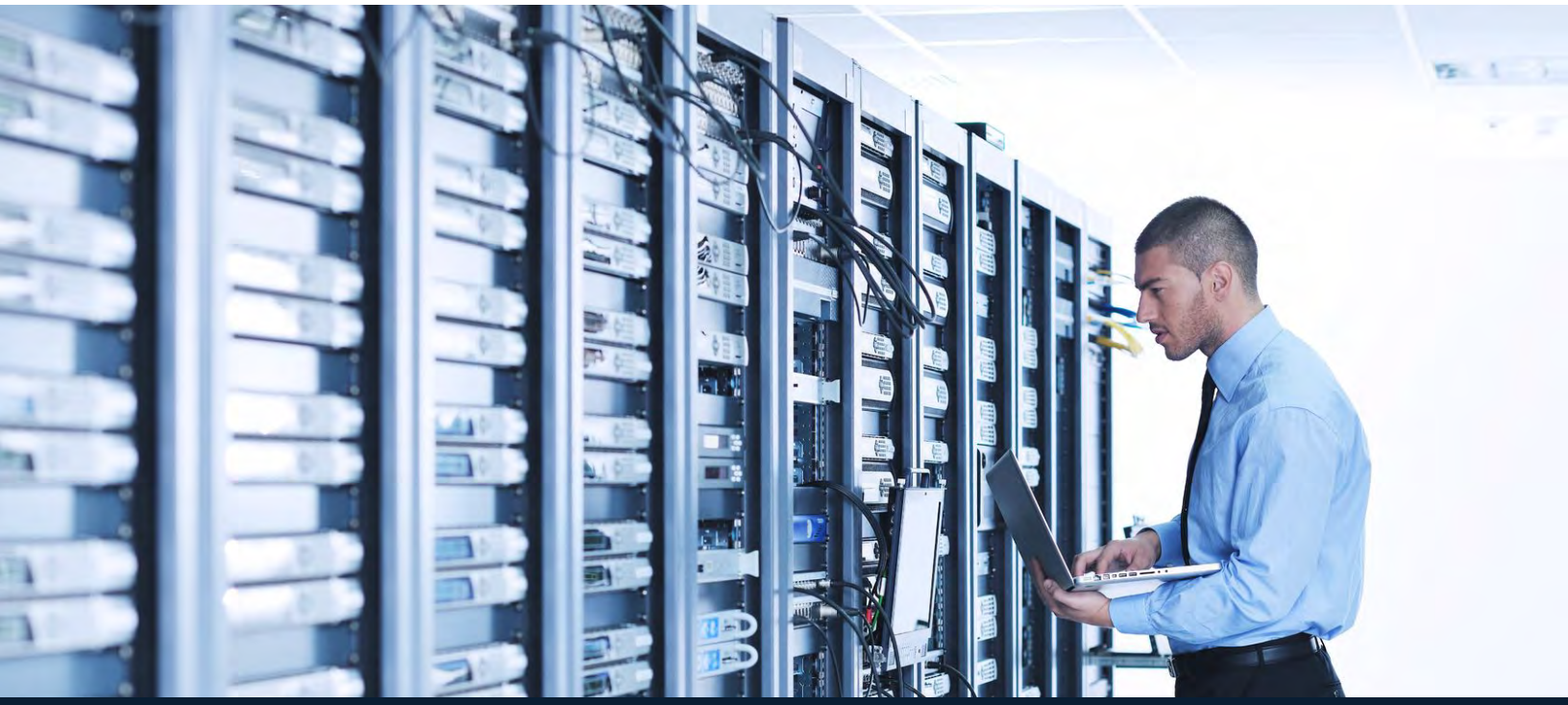
Keatec Energy™



2018 Keatec Energy Catalogue
UPS - Commercial IT

Keatec Energy designs, manufactures, installs and services DC and AC uninterruptible power solutions for Telecommunication, Commercial Information Technology (IT), Public Safety and Industrial clients across the Americas.

Table of Contents

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Keatec™

ONLINE DOUBLE CONVERSION UPS

RT Series UPS
1 - 3 kVA 120 Vac with Battery

Online double conversion UPS with built-in charger. UPS convertible from rack to tower.

cTUVus certified.

RT Series UPS is the ideal power system for Small Medium Enterprise (SME) servers, computers and communication systems.

FEATURES

Clean power
Online double conversion UPS with sine wave output
Frequency converter mode

Low energy consumption
High input power factor of 0.98% minimizes energy consumption
Line-interactive ECO Mode available for increased energy savings

Advanced battery management
Intelligent three stage charging
LCD displays estimated battery runtime
Tests for battery capacity

Flexible and compatible
2U rack to tower convertible - LCD rotates at the push of a button
Wide input Vac compatible with low grid or generator voltage
PC management software included

Power Options
Matching RT Series Battery Pack
Rack mount kit

Management Options
Relay card
SNMP card
Modbus Card

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ONLINE DOUBLE CONVERSION UPS

RT Series UPS
1 - 3 kVA 120 Vac with Battery

SPECIFICATIONS

Model	RT 1101UL-B	RT 1101.5UL-B	RT 1102UL-B	RT 1103UL-B
Capacity kVA	1	1,5	2	3
Power kW	0.8	1.2	1.6	2.4
Charge current	1.4 A			
Battery	24 Vdc (2 x 12V 9AH)	36 Vdc (3 x 12V 9AH)	48 Vdc (4 x 12V 9AH)	72 Vdc (6 x 12V 9AH)
Backup time	>3 minutes at full load, estimated backup time displayed on LCD			
Recharge to 90%	approximately 5 Hours			
Battery access	Hot swappable battery with front access, Anderson like Powerpole modular connector			
AC access	In: NEMA 5-15P (1) Out: NEMA 5-15R (6)		In: NEMA 5-20P (1) Out: NEMA 5-20R (6)	In: NEMA L5-30P (1) Out: NEMA 5-20R (6)
Net weight Kg	15.1	18.1	22.2	25.5
H x W x L mm	86.5 x 440 x 430		86.5 x 440 x 572	86.5 x 440 x 692

AC Input

Rated voltage	110/115/120 Vac 1 Phase + Ground
Voltage range	55 - 145 Vac
Input power factor	≥ 0.98
Input frequency	45 - 65 Hz (auto)
Current THD	< 7% at full load, non-linear
Bypass range	V max +15%, V min -45%, ±10% Hz

AC Output

Rated voltage	110/115/120 Vac 1 Phase + Ground
Power factor	0.8
Efficiency	AC mode > 90%, ECO mode > 94%, battery mode > 85%
Output frequency	50Hz or 60 Hz synchronous with the network / 50 Hz or 60 Hz ±0.2% selectable for battery mode or frequency converter
THD	≤ 3% linear load, ≤ 5% non-linear load
Crest factor	3:1

General Specifications

Communication	RS232, USB, communication slot
Protocol / Software	Megatec / UPSilon2000 (PC software included)
Noise	< 50 dB at 1 m
Temperature	Operating 0 to +40 ºC, Storage -25 to +55 ºC
Altitude	< 1500 m correction factor 1.0, < 2000 m correction factor 0.95, < 3000 m correction factor 0.85
Humidity	≤ 90% non-condensing

Standards

Safety / EMC	UL 1778, CSA 22.2 / FCC Part 15 Class A
Certification	cTUVus

DS Keatec RT Series UPS 1-3kVA 120V UL English 20170805

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Keatec™

BATTERY PACK

RT Series Battery Pack for 1 - 3 kVA UPS

Battery packs for use with RT Series UPS 1 - 3 kVA.

cTUVus certified.

Ideal for extending backup runtime for Small Medium Enterprise (SME) servers, computers and communication systems.

FEATURES

Extend backup runtime
Add up to four battery packs in parallel per UPS
Built-in charger independent from UPS

Convenient
Easy access to battery connection
Hot swappable

Flexible and compatible
Rack mount and tower kits included

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BATTERY PACK

RT Series Battery Pack for 1 - 3 kVA UPS

SPECIFICATIONS

Model	RT 01UL 04-009-24-BP-B	RT 01.5UL 06-009-36-BP-B	RT 02UL 08-009-48-BP-B	RT 03UL 012-009-72-BP-B
Use with RT Series UPS	RT 1101UL-B (120 Vac)	RT 1101.5UL-B (120 Vac)	RT 1102UL-B (120 Vac)	RT 1103UL-B (120 Vac)
DC voltage	24 Vdc	36 Vdc	48 Vdc	72 Vdc
Built-in charger DC output	2 A max			
Built-in charger AC input	Cord with 120 Vac wall plug			
Battery	4 x 12V 9AH	6 x 12V 9AH	8 x 12V 9AH	12 x 12V 9AH
Backup time	<17 minutes at full load, estimated backup time displayed on LCD			
Battery access	Hot swappable, front access, Anderson type connector			
Net weight kG	12	15	22	32
H x W x L mm	86.5 (2U) x 440 x 430		86.5 (2U) x 440 x 572	86.5 (2U) x 440 x 710
Certification	cTUVus			

Model	RT 01E 04-009-24-BP-B	RT 01.5E 06-009-36-BP-B	RT 02E 08-009-48-BP-B	RT 03E 012-009-72-BP-B
Use with RT Series UPS	RT 1101E-B (220 Vac)	RT 1101.5E-B (220 Vac)	RT 1102E-B (220 Vac)	RT 1103E-B (220 Vac)
DC voltage	24 Vdc	36 Vdc	48 Vdc	72 Vdc
Built-in charger DC output	2 A max			
Built-in charger AC input	Cord with 220 Vac wall plug			
Battery	4 x 12V 9AH	6 x 12V 9AH	8 x 12V 9AH	12 x 12V 9AH
Backup time	<17 minutes at full load, estimated backup time displayed on LCD			
Battery access	Hot swappable, front access, Anderson type connector			
Net weight kG	12	15	22	32
H x W x L mm	86.5 (2U) x 440 x 430		86.5 (2U) x 440 x 572	86.5 (2U) x 440 x 710
Certfication	CE			

DS Keatec RT Series Battery Pack UL for 1-3kVA UPS English 20170805

Keatec Energy

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ONLINE DOUBLE CONVERSION UPS

RT Series UPS
6 - 10kVA with 208/120 Vac 1 Ph Output Transformer

Online double conversion UPS (208/220/230/240 Vac) with independent 208/120 Vac output transformer. RT Series UPS is convertible from rack to tower.

Matching RT Series Battery Packs available.

RT Series UPS is an ideal power system for Small Medium Enterprise (SME) servers, computers and communication systems.

FEATURES

Clean power
Online double conversion UPS with sine wave output
Frequency converter mode supported

Low energy consumption
Efficiency up to 93.5%
High input and output power factor minimizes energy consumption
Line-interactive ECO mode available for increased energy savings

Advanced battery management
Intelligent three stage charging up to 10A
Tests for battery capacity
Common battery supports up to four UPS in parallel mode

Flexible and compatible
2U rack to tower convertible with rotating LCD mimic display
Wide input Vac compatible with low grid or generator voltage
PC managment software included

Power Options
Matching RT Series Battery Pack
Matching RT Series Output Transformer
Rack mount kit

Management Options
Relay card
SNMP card
Modbus Card

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ONLINE DOUBLE CONVERSION UPS

RT Series UPS
6 - 10kVA with 208/120 Vac 1 Ph Output Transformer

UPS	RT 1106E-UL	RT 1110E-UL
Capacity AC kVA/kW	6 kVA / 5.4 kW	10 kVA / 9 kW
Charge current DC	10 A max, set according to installed battery capacity	
H x W x L mm	86.5 (2U) x 440 x 615	
Weight Kg	13	15

AC Input		
Phase	1 Ph (L+N+PE)	
Rated Vac	208/220/230/240 Vac	
Range Vac	120-276 Vac	
Frequency range	45-55 Hz / 54-66 Hz (auto sensing)	
Power factor	≥ 0.99 (at nominal voltage, 100% load)	
Current THD	≤ 3% at 100% linear load, ≤ 5% at 100% non-linear load	
Bypass range	220 V max +25%, 230 V max +20%, 240 Vmax +15%, all V min - 45%, Hz max +10%, Hz min -10%	
Input connection / breaker	Hardwire terminal / 40 A breaker	Hardwire terminal / 63 A breaker

AC Output	
Phase	1 Ph (L+N+PE)
Rated Vac	208/220/230/240 Vac ±1%
Power factor	0.9
Frequency Utility Mode	Synchronized to mains
Frequency Battery Mode	50/60 Hz ±0.1%
Crest factor	3:1
THD	≤ 2% with linear load, ≤5% with non-linear load
Efficiency	93.5%
Output connection	Hardwire terminal

Battery Input	
Voltage	±96/±108/±120 Vdc
External connection	Anderson modular connectors

General Specifications	
Communication	USB, RS232, EPO port, parallel ports, communication slot
Protocol / Software	Megatec / UPSilion 2000 (PC software included)
Noise	<55 dB at 1 m
Temperature	Operating 0 to +40° C, Storage -25 to +55° C
Altitude	<1500 m correction factor 1.0, <2000 m correction factor 0.95, <3000 m correction factor 0.85
Humidity	≤95% non-condensing

Standards	
Safety	UL 1778, IEC/EN 62040-1, IEC/EN 60950-1
EMC	FCC Part 15, IEC/EN 62040-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8
Certification	cTUVus

DS Keatec RT Series UPS 6-10kVA with 208V 120V 1Ph Output Transformer UL English 20171025

Keatec Energy

ONLINE DOUBLE CONVERSION UPS

RT Series UPS
6 - 10kVA with 208/120 Vac 1 Ph Output Transformer

Transformer	RT 06XFR-EA	RT 10XFR-EA
Topology	Isolation, Step Down Tranformer, Sine Wave	
H x W x L mm	86.5 (2U) x 440 x 685	132 (3U) x 440 x 677
Weight Kg	46.5	74

AC Input		
Phase	1 Ph (L+N+PE)	
Rated Vac	208 Vac (default), 240 Vac (selectable)	
Frequency	50-60 Hz (selectable)	
Current max	26 A (208 Vac), 22.5 A (240 Vac)	44 A (208 Vac), 37.5 A (240 Vac)
Current THD	≤ 3% at 100% linear load, ≤ 5% at 100% non-linear load	
Input connection	Cable (to UPS input terminal) / 30 A breaker	Cable (to UPS input terminal)

AC Output		
Phase	1 Ph (L+N+PE)	
Rated Vac	208 & 120 Vac (default), 240 Vac (optional)	
Power capacity	5.5 kVA/5.0 kW	8.9 kVA/8.0 kW
Frequency	Synchronized to UPS	
Efficiency	> 95%	
Transformer protection	8 A breaker	8 A breaker

Receptacles / Breakers		
Output	n/a	Hardwire / 50 A breaker
Load 1	NEMA L6-30R (1) / 30 A breaker	NEMA L6-30R (1) / 30 A breaker
Load 2	NEMA L6-20R (1) / 20 A breaker	NEMA 5-20R (4) / 20 A breaker
Load 3	NEMA 5-20R (3) / 20 A breaker	NEMA L6-20R (1) / 20 A breaker
Load 4	NEMA 5-20R (3) / 20 A breaker	NEMA 5-20R (4) / 20 A breaker

Battery Packs	RT 06E 20-007-120 BPX-B-UL	RT 10E 20-009-120 BPX-B-UL
Voltage	±120 Vdc	
Internal batteries	20 x 7 Ah 12V	20 x 9 Ah 12V
Backup time	<6.1 minutes at full load, estimated backup time displayed on LCD	<3.4 minutes at full load, estimated backup time displayed on LCD
External connection	Battery pack with back access and Anderson type connector	
Net weight kG	65 (approx.)	71 (approx.)
Dimensions H x W x L mm	131 x 443 x 585 (3U x 19")	131 x 443 x 585 (3U x 19")

Standards	
Safety	UL 1778
Certification	cTUVus

DS Keatec RT Series UPS 6-10kVA with 208V 120V 1Ph Output Transformer UL English 20171025

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ONLINE DOUBLE CONVERSION UPS

UDE Series UPS
6 - 10 kVA 120 Vac 1PH

Online double conversion Tower UPS with built-in charging.

UDE Series UPS is the ideal power system for Industrial applications, banking, and Small Medium Enterprise (SME) servers, computers and communication systems.

FEATURES

Clean power
DSP controlled online double conversion UPS with sine wave output
Power factor corrected conversion minimizes input current THD to less than 1%

Low energy consumption
High input power factor of 0.99 minimizes energy consumption
Line-interactive ECO mode available for increased energy savings

Advanced battery management
Built-in charger up to 10A with settable voltage and current

Flexible and compatible
N+X parallel redundancy
Wide input voltage compatible with poor grid or generator voltage
Cold start up without AC mains power
Parallel UPS share common battery
Integrated maintenance bypass switch
UPS management PC software - UPServer

Power Options
Matching UDE Series Battery Tower

Management Options
Relay card
SNMP card
Parallel card

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ONLINE DOUBLE CONVERSION UPS

UDE Series UPS
6 - 10 kVA 120 Vac 1Ph

SPECIFICATIONS

Model	UDE 9106 S	UDE 9106 H	UDE 9110 H
Capacity	6 kVA / 5.4 kW	6 kVA / 5.4 kW	10 kVA / 9 kW
Efficiency	up to 90%		
Charge current	1.0 A	10 A	10 A
DC voltage	±96V default, ±108V or ±120V settable		
Battery	Internal Battery (S) 20 x 12V 9AH	External Battery **UDE BT40007** 20 x 12V 7AH x 2 250 x 616 x 502 mm (90 kg)	External Battery **UDE BT40009** 20 x 12V 9AH x 2 250 x 616 x 502 mm (110 kg)
Bypass breaker	40 A	40 A	60 A
Input / Output	Hardwired AC and DC connections		
Net weight Kg	70	20	45
H x W x L mm	616 x 250 x 502	438 x 220 x 480	616 x 250 x 502

AC Input

Rated voltage	120/127 Vac 50/60Hz 1 Phase (Single phase + Ground)
Voltage range	72 - 150Vac
Input power factor	≥0.99
Input frequency	45 -55 Hz, 54 - 66 Hz (auto)
Current THD	≤1% at full load, non-linear
Bypass range	V max +25% (default +15%), V min -40% (default -20%) Hz max +10% (default+1%), Hz min -10% (default -1%)

AC Output

Rated voltage	120/127 Vac ±2%, 50/60Hz 1 Phase (Single phase + Ground)
Power factor	0.9
Output frequency	50Hz or 60 Hz synchronous with the network / 50 Hz or 60 Hz selectable for battery mode
THD	≤2% linear load, ≤5% non-linear load
Crest factor	3:1

General Specifications

Communication	RS232, USB, SNMP card (optional), relay card (optional), parallel card (optional)
Protocol / Software	Megatec / UPServer PC software
Noise	<50 dB
Temperature	Operating 0 to +40º C, Storage -25 to +55º C
Altitude	>1500 m output is de-rated
Humidity	≤95% non-condensing

Standards

Safety / EMC	CE, EN/IEC 62040-1-1, EN/IEC 62040-2

DS UDE Series UPS 6-10kVA 120V English 20161116

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ONLINE DOUBLE CONVERSION UPS

RTM Series UPS Module
6 kVA 120/208 Vac 2Ph/2Ph

Online double conversion UPS module with built-in charger.

Convertible from tower to rack.

Optional matching RTM Series Tower for up to four UPS modules and battery packs.

RTM Series UPS is the ideal power system for 2-Phase applications.

FEATURES

Clean power
Online double conversion UPS module
Output power factor of 1.0
Frequency converter mode

Low energy consumption
Line-interactive ECO Mode reduces energy consumption

Advanced management
LCD mimic display with estimated battery runtime and capacity

Flexible and compatible
Standard 19-inch module is convertible from tower to rack mount
Parallel up to 10 UPS modules
Matching battery packs configure as common battery
Optional RTM Series Tower holds up to four RTM Series UPS Modules and Battery Packs

RTM Series Tower Options
RTM Series Tower with LCD Controller, Communication Module
RTM Series Battery Pack
Cards: SNMP, Modbus, AS400

Options for 19 inch Rack Installation
RTM Series Battery Packs 96V (3U)
RTM Series UPS Module Parallel Kit
RTM Series Battery Pack Parallel Kit
RTM Series Communications Module (1U)
RTM Series Remote Display (5U)
Cards: SNMP, Modbus, AS400

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ONLINE DOUBLE CONVERSION UPS

RTM Series UPS Module 6 kVA 120/208 Vac 2Ph/2Ph

SPECIFICATIONS

Model	RTM 2206A M
Capacity kVA / kW	6.0 / 6.0
DC input	96 Vdc
Charge current	4 A
Net weight Kg	21.5
H x W x L mm	132 x 481 x 615 (3U x 19 inch)

AC Input

Rated voltage	110/200, 110/220, 120/208, 120/240, 127/220 Vac (2 Phase + N + PE)
Voltage range	88 - 155 Vac (L - N) 152 - 269 Vac L - L
Input frequency	40 - 70 Hz (auto)
Current THD	< 4 % at full load

AC Output

Rated voltage	110/200, 110/220, 120/208, 120/240, 127/220 Vac (2 Phase + N + PE)
Neutral capability	170 %
Efficiency	AC mode > 91 %, ECO mode > 97 %, battery mode > 91.5 %
Output frequency	46 - 64 Hz synchronous with the network / 50 Hz or 60 Hz ± 0.1 % selectable for battery mode or frequency converter
THD	≤ 2 % linear load, ≤ 3% non-linear load

General Specifications

Noise	< 60 dB at 1 m
Temperature	Operating 0 to +40º C, Storage -15 to +60º C
Altitude	< 1000 m correction factor 1.0 % per 100 m
Humidity	≤ 95 % non-condensing

Standards

Safety / EMC	IEC 62040-1 / FCC 47 CFR 15 B, 62040-2, 61000-2-2, 61000-4-2, 61000-4-3, 61000-4-4, 61000-4-5, 61000-4-6, 61000-4-8

Optional RTM Series Battery Packs*

Model	RTM 06A 16-009-96-BP-NB	RTM 06A 32-005-96-BP-NB
Voltage DC	96 Vdc	96 Vdc
Batteries 12 V	16 x 9 AH	2 x 16 x 5 AH
H x W mm	132 x 481 (3U x 19 inch)	

* Batteries not included

Optional RTM Series Tower*

Model	RTM 2206A-24K MT		
	Configuration Options		
Power Modules	4	2	1
Battery Modules	0	2	3

* Includes LCD Controller, Communications module

Optional Communications Module for 19 Inch Rack Installation

USB	Windows® 2000/2003/XP/Vista/2008, Windows® 7/8, Linux and Mac iOS
SNMP	Power management using SNMP manager and web browser
Ports	Output dry contacts (6), Input dry contacts (2) Battery dry contacts (8), Communication Card Slots (2), EPO, RS232, USB, EMBS
H x W mm	44 x 481 (1U x 19 inch)

DS Keatec RTM Series UPS Module 6kVA 120/208Vac 2Ph/2Ph English 20171213

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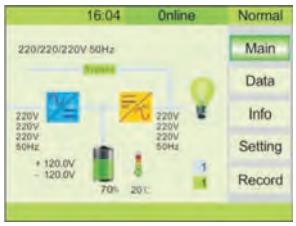
TRANSFORMERLESS ONLINE DOUBLE CONVERSION UPS

T Series UPS
10 - 20 kVA 208 Vac 3Ph



Amazing value, small footprint online double conversion Tower UPS with power factor 1.0 output and three stage DC battery charging. Color display.

cTUVus certified.

T Series UPS is the ideal power system for Industrial applications, banking, and Small Medium Enterprise (SME) servers, computers and communication systems.

FEATURES

Clean power
Output Power Factor of 1.0
Frequency converter mode

Low energy consumption
High input power factor of 0.99% minimizes energy consumption
ECO Mode available for increased energy savings

Advanced battery management
Three stage intelligent charging
Displays estimated battery runtime and tests for battery capacity

Flexible and compatible
Small foot print compact tower, up to four units in parallel
Color LCD in multiple languages with mini diagrams and 1,000 event history
Dual Input – static and manual (maintenance) bypass
Wide input voltage compatible with low grid or generator voltage
Emergency Power Off (EPO)
UPS management PC software - Muser 4000

Power Options
Matching external battery tower
Parallel cable

Management Options
Dry contact relay
SNMP card

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TRANSFORMERLESS ONLINE DOUBLE CONVERSION UPS

T Series UPS
10 - 20 kVA 208 Vac 3Ph

SPECIFICATIONS

Model	T 3310UL-NB	T 3315UL-NB	T 3320UL-NB
Capacity	10 kVA / 10 kW	15 kVA / 15 kW	20 kVA / 20 kW
Efficiency	up to 94 %	up to 94 %	up to 94 %
Charge current	1.35 A	2.70 A	4.05 A
DC voltage	±120 V	±120 V	±120V
Internal battery set (back up, full load)	20 x 12V 9 Ah (<3 minutes)	20 x 12V 9 Ah x 2 (<5 minutes)	20 x 12V 9 Ah x 3 (<6 minutes)
Max battery capacity	(60 x 12V 9Ah)	(60 x 12V 9Ah)	(60 x 12V 9Ah)
Bypass breaker	40 A	63 A	80 A
Net weight Kg	134	190	231
H x W x L mm	868 x 250 x 1000		

AC Input

Rated voltage	208/120 or 220/127 Vac 50/60Hz 3 Phase (4 wire + Ground)
Voltage range	-40%, +25% (72 - 150V or 76 - 159V) at 50% load, -25%, +25% (90 - 150V or 95 - 159V) at 100% load
Input power factor	≥ 0.98 at 50% load, ≥ 0.99 at 100% load
Input frequency	40 - 70 Hz (auto)
Current THDi	≤3% at 100% load, non-linear
Bypass range	V max +25% (default +20%), V min -40% (default -30%) Hz max +10% (default+1%), Hz min -10% (default -1%)

AC Output

Rated voltage	208/120 or 220/127 Vac 50/60Hz 3 Phase (4 wire + Ground)
Power factor	1.0
Output frequency	Synchronous with the network on-line mode / input frequency ≥ ±10 % (±1 %, ±2 %, ±4 %, ±5 % optional) output 50/60 Hz ±0.1 Hz / battery mode output 50/60 Hz ±0.1 Hz
THDv	≤2% linear load, ≤5% non-linear load
Crest factor	3:1

General Specifications

Communication	RS232, RS485, USB, dry contact, communications slot (2), parallel (2), backfeed protection, remote EPO
Protocol / Software	Megatec, Modbus over RS232 / Muser 4000, HP Tools
Noise	<58 dB
Temperature	Operating 0 to +40º C
Altitude	>1500 m output is de-rated
Humidity	≤95% non-condensing

Standards

Safety / EMC	UL 1778, IEC 62040-1, IEC 60950-1 / FCC Part 15, IEC 62040-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8
Certification	cTUVus

DS Keatec T Series UPS 10-15-20KVA 208V cTUVus English 20180321

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BATTERY TOWER

T Series Battery Tower for T Series UPS

Battery Tower for T Series UPS.

Ideal for extending backup runtime for industrial applications, banking, and Small Medium Enterprise (SME) servers, computers and communication systems.

FEATURES

Extend backup runtime
Add up to four battery towers per UPS

Convenient
Easy cable connection with UPS

Flexible and compatible
Small foot print compact tower
Compatible with T Series UPS

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BATTERY TOWER

T Series Battery Tower for T Series UPS

SPECIFICATIONS

Model	T 10A 80-009-120 BT-NB	T 20A 80-009-120 BT-NB
Use with T Series UPS 208V	T 3310UL-NB	T 3315UL-NB, T 3320UL-NB
Battery	12V 9Ah	
Internal capacity	40/60/80 pcs	40/60/80 pcs
DC voltage	±120V	±120V
Breaker	2 pcs 63 A / 440 Vdc 2 pin	125 A / 400 Vdc 4 pin
Net weight Kg	243	
H x W x L mm	868 x 250 x 1000	

Model	T 20E 80-009-120 BT-NB	T 30E 80-009-120 BT-NB	T 40E 80-009-240 BT-NB
Use with T Series UPS 380V	T 3310E, T 3310E-E, T 3315E, T 3315A-E, T 3320E, T 3320A-E	T 3330E, T 3330E-B	T 3340E, T 3340E-B
Battery	12V 9Ah		
Internal capacity	40/60/80 pcs	40/60/80 pcs	80 pcs
DC voltage	±120V	±120V	±240V
Breaker	2 pcs 63 A / 440 Vdc 2 pin	125 A / 400 Vdc 4 pin	125 A / 400 Vdc 4 pin
Net weight Kg	243		
H x W x L mm	868 x 250 x 1000		

Estimated backup time displayed on UPS LCD

Batteries quoted seperately.

DS Keatec T Series Battery Tower English 20180321

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TRANSFORMERLESS ONLINE DOUBLE CONVERSION UPS

C Series UPS
10 - 80 kVA 208 Vac 3Ph

C Series UPS is a three phase transformer-less online double conversion Cabinet UPS with multi-language LCD screen display and front access cabinets.

FEATURES

Clean power
Transformerless online double conversion UPS with sine wave output
Power factor corrected conversion minimizes input current THD to less than 3%

Low energy consumption and cost of ownership
Low energy consumption with max efficiency of up to 94% (93% at 25% load)
High input power factor of 0.99% minimizes energy consumption and hardware installation costs

Advanced battery management
Maximizes battery life with intelligent three-level charging
Displays estimated battery backup and tests for battery capacity

Flexible and reliable
Dual AC input
Cold start up without AC mains power
Parallel redundant operation of up to 4 units
Synchronized transfer to bypass for parallel units
Parallel UPS share common battery
A wide power input range is compatible with poor grid or generator output
UPS management PC software - Muser 4000

Power Options
Internal battery configurations
External battery cabinets

Management Options
External battery temperature sensor
SNMP card
Relay card

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TRANSFORMERLESS ONLINE DOUBLE CONVERSION UPS

C Series UPS
10 - 80 kVA 208 Vac 3Ph

SPECIFICATIONS

External Battery Model Internal Battery Model	C 33010A C 33010A-NB	C 33015AD C 33015AD-NB	C 33020AD C 33020AD-NB	C 33030AD	C33040AD	C 33050AD	C 33060AD	C 33080AD
Capacity kVA	10	15	20	30	40	50	60	80
Power kW	9	13.5	18	27	36	45	54	72
AC Input	single	dual						
Heat dissipation	675 W	945 W	1260 W	1620 W	2160 W	2700 W	3240 W	4320 W
Charge current	6 A		12 A		18 A	24 A	30 A	36 A
Internal battery capaciy for NB model	24 x 12V 38AH			not applicable				
Weight Kg w/o battery	123	126	127	156	158	186	189	195
H x W x L mm	1200 x 600 x 780					1600 x 600 x 780		

*Batteries not inlcuded.

AC Input

Rated voltage	120/208 Vac or 127/220 Vac (3 phase, 4 wire and ground)
Voltage range startup	+25%, -25% (156-260V or 165-275V), full load
Voltage range operating	-40%, +25% (125-260V or 132-275V) , <50% load
Input power factor	>0.99%
input frequency	40 - 70 Hz
THD	<3% 100% non-linear
Bypass range	Max voltage: +25% (default: +15%), Min voltage: -40% (default: -20%), Frequency: ±10% (default: ±1%)

AC Output

Rated voltage	120/208 Vac or 127/220 Vac (3 phase, 4 wire and ground)
Voltage regulation	±2% balanced load, ±5% for 100% unbalanced load
Efficiency	Up to 94%
Output frequency	synchronous with the network / 50/60 Hz ± 0.2% battery mode
THD	<2% linear load, <5% non-linear load
Crest factor	3:1
Overload online mode	<110% 60 min, <125% 10 min, <150% 1 min, >150% bypass
Overload battery mode	<110% 10 min, <125% 1 min, <150% 5 sec, >150% shutdown

External Battery Requirements

DC nominal	+/- 144 Vdc

General Specifications

Parallel operation	Up to 4 units
Communication	RS232, RS485, USB, expansion slots (2), parallel (2), dry contact, remote emergency power off, battery temp
Protocol / Software	Megatec, MODBUS / MUSER 4000 PC software
Temperature	Operating 0 to +40° C, Storage -25 to +55° C
Altitude	< 1500 M
Humidity	≤95% non-condensing
Safety	UL 1778 (pending)

DS Keatec C Series UPS 10-80kVA 208V English 20161116

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TRANSFORMERLESS ONLINE DOUBLE CONVERSION UPS

C Series UPS
100 - 260 kVA 208 Vac 3Ph

C Series UPS is a three phase transformer-less online double conversion Cabinet UPS with multi-language LCD screen display and front access cabinets.

FEATURES

Clean power
Transformerless online double conversion UPS with sine wave output
Power factor corrected conversion minimizes input current THD to less than 3%

Low energy consumption and cost of ownership
Low energy consumption with max efficiency of up to 94% (93% at 25% load)
High input power factor of 0.99% minimizes energy consumption and hardware installation costs

Advanced battery management
Maximizes battery life with intelligent three-level charging
Displays estimated battery backup and tests for battery capacity

Flexible and reliable
Dual AC input
Cold start up without AC mains power
Parallel redundant operation of up to 4 units
Synchronized transfer to bypass for parallel units
Parallel UPS share common battery
A wide power input range is compatible with poor grid or generator output
UPS management PC software - Muser 4000

Power Options
External battery cabinets

Management Options
External battery temperature sensor
SNMP card
Relay card

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TRANSFORMERLESS ONLINE DOUBLE CONVERSION UPS

C Series UPS
100 - 260 kVA 208 Vac 3Ph

SPECIFICATIONS

External Battery Model	C 33100AD	C 33120AD	C 33160AD	C 33200AD	C 33260AD
Capacity kVA	100	120	160	200	260
Power kW	90	108	144	180	234
AC input	Dual				
Heat dissipation	6300 W	7560 W	10080 W	10080 W	13500 W
Charge current	50 A	60 A	80 A	100 A	130 A
Weight Kg	469	507	575	895	1009
H x W x D mm	1600 x 600 x 860	2000 x 600 x 860		2000 x 1200 x 860	

AC Input	
Rated voltage	120/208 Vac or 127/220 Vac (3 phase, 4 wire and ground)
Voltage range startup	+25%, -20% (156-260V or 165-275V), full load
Voltage range operating	-40%, +25% (125-260V or 132-275V) , <50% load
Input power factor	>0.99%
input frequency	40 - 70 Hz
THD	<3% 100% non-linear
Bypass range	V max: +25% (default: +15%), V min: -40% (default: -20%), Hz: ±10% (default: ±1%)

AC Output	
Rated voltage	120/208 Vac or 127/220 Vac (3 phase, 4 wire and ground)
Voltage regulation	±2% balanced load, ±5% for 100% unbalanced load
Efficiency	Up to 94%
Output frequency	synchronous with the network / 50/60 Hz ± 0.2% battery mode
THD	<2% linear load, <5% non-linear load
Crest factor	3:1
Overload online mode	<110% 60 min, <125% 10 min, <150% 1 min, >150% bypass
Overload battery mode	<110% 10 min, <125% 1 min, <150% 5 sec, >150% shutdown

External Battery Requirements	
DC nominal	+/- 144 Vdc

General Specifications	
Parallel operation	Up to 4 units
Communication	RS232, RS485, USB, expansion slots (2), parallel (2), dry contact, remote emergency power off, battery temp
Protocol / Software	Megatec, MODBUS / Muser 2000 PC software included
Temperature	Operating 0 to +40° C, Storage -25 to +55° C
Altitude	< 1500 M
Humidity	≤95% non-condensing
Safety	UL 1778 (pending)

DS Keatec C Series UPS 100-260kVA 208V English 20161116

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BATTERY FRAME

C Series Battery Frame for C Series UPS

Battery Frame and cabinet structure with front access for C Series UPS.

Includes

Frame and cabinet structure
DC breaker
Battery interconnect cables

SPECIFICATIONS

Model	M 24-065-144 BF-NB	M 24-100-144 BF-NB	M 24-120-144 BF-NB	C 36-038-216 BF-NB	C 36-120-216 BF-NB
Use with	C 33xxxA, C 33xxxAE (208 Vac)			C 33xxxE, C33xxxED (380Vac)	
Vdc	±144	±144	±144	±216	±216
Battery type 12V	65 Ah	100 Ah	120 Ah	38 Ah	120 Ah
Capacity	24	24	24	36	36
Battery layout	6 batteries on 4 levels	6 batteries on 4 levels	6 batteries on 4 levels	9 batteries on 4 levels	9 batteries on 4 levels
DC breaker	250 A	400 A	400 A	250 A	400 A
Weight Kg w/o battery	160	197	197	135	270
H x W x L mm	1600 x 850 x 600	2000 x 850 x 600	2000 x 850 x 600	1200 x 780 x 600	2000 x 1100 x 600

Batteries not included.

DS Keatec C Series Battery Frame English 20161117

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Keatec™

ONLINE DOUBLE CONVERSION UPS

LV Series UPS
10 - 400 kVA 208 Vac 3 Ph

Three level rectifier and inverter technology.

On-line double conversion Class VFI-SS-111 performance with multi-language LCD screen display.

FEATURES

Clean power
On-line double conversion with sine wave output and high power factor output
Power factor corrected IGBT rectifier minimizes input current THD to less than 3%
Input power factor of 0.99% minimizes energy consumption and hardware installation costs
Low energy consumption with efficiency up to 96%

Advanced battery management
Maximizes battery life with intelligent charging
Displays estimated battery backup runtime and battery capacity

Flexible and reliable
Dual Input - static and manual (maintenance) bypass
Parallel operation with current sharing of up to 8 units
Reverse energy tolerant of regenerative loads

Power Options
Black start
Isolation transformer
Internal battery configurations
Front access cabinets
External battery cabinets
Parallel cable
Independent bypass

Management Options
UPS management PC software
SNMP card
Dry contact card
RS 485 serial port
Profibus card
Modbus card
External battery temperature sensor
Remote display

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ONLINE DOUBLE CONVERSION UPS

LV Series UPS
10 - 400 kVA 208 Vac 3 Ph

SPECIFICATIONS

Model

Capacity kVA	10	15	20	30	40	50	60	80	100	125	150	200	250	300	400
Power kW	10	15	20	30	40	50	60	80	100	112.5	135	180	225	270	360
Internal battery	34 x 12 Ah*		option*		external battery										
Weight Kg w/o battery	131	145	173	232	331	353	368	475	490	553	850	850	850	1740	1740
W x D x H mm	490 x 805 x 1190 (internal battery)		490 x 805 x 1190	763 x 771 x 1555 (external battery)		810 x 820 x 1705 (external battery)		830 x 870 x 1800 (external battery)			1250 x 845 x 2102 (external battery)			2345 x 485 x 2003 (external battery)	

*Batteries not inlcuded,

AC Input

Nominal voltage	110/200 Vac or 120/208 Vac or 127/220 Vac ±20% 3P+N+PE [(L-N)/(L-L)]
Power factor	> 0.99 % at full load
Frequency	45 - 65 Hz (selectable)
THD	< 3 %
Bypass range	10 to 30 % Vca (15 % default), ± 5 Hz (selectable)

AC Output

Nominal voltage	110/200 Vac or 120/208 Vac or 127/220 Vac ±1% 3P+N+PE [(L-N)/(L-L)]
Efficiency	Up to 96% (Eco Mode 99%)
Frequency	±0.5 % synchronous with the network / 50/60 Hz ± 0.2 % battery mode
THD	< 2 % linear load, < 5 % non-linear load
Crest factor	3:1
Overload capacity	125 % 10 min, 150 % 1 min

Battery

DC nominal	+/- 204 Vdc
Series configuration	34 x 12 Vdc
Charge value	Nominal 0.1 C (adjustable)

General Specifications

Parallel operation	Up to 8 units, active current sharing
Communication	RS 232, parallel port (2), expansion slot (2)
Protocol	SEC, TELNET, MODBUS (optional)
Temperature	Operating 0 to +40º C, storage -15 to +45º C
Altitude	<1000 m correction factor 1.0, <2000 m correction factor 0.92, <3000 m correction factor 0.84
Humidity	≤ 95 % non-condensing

Standards

Performance	EN 62040-3 (VFI-SS-111)
EMC / LVD	EN 62040-2 / EN 62040-1 / EN 60950

DS LV Series 10 - 400 kVA 208V UPS English 20171020

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ONLINE DOUBLE CONVERSION UPS

BX Series UPS
10 - 60 kVA 208 Vac 3 Ph

IGBT PWM rectifier and inverter technology.

On-line double conversion Class VFI-SS-111 performance with multi-language LCD screen display.

FEATURES

Clean power
True on-line double conversion with sine wave output
Power factor corrected IGBT rectifier minimizes input current THD to less than 3%
Input power factor of 0.99% minimizes energy consumption and hardware installation costs
Low energy consumption with max efficiency of 93%

Advanced battery management
Maximizes battery life with intelligent charging
Displays estimated battery backup and tests for battery capacity

Flexible and reliable
Dual input - static and manual (maintenance) bypass
Parallel operation with current sharing of up to 8 units
Reverse energy tolerant of regenerative loads

Power Options
Black start
Isolation transformer
Internal battery configurations
Front access cabinets
External battery cabinets
Parallel cable
Independent bypass

Management Options
UPS management PC software
SNMP card
Dry contact card
RS 485 serial port
Profibus card
Modbus card
External battery temperature sensor
Remote display

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ONLINE DOUBLE CONVERSION UPS

BX Series UPS
10 - 60 kVA 208 Vac 3 Ph

SPECIFICATIONS

Model

Capacity kVA	10	15	20	30	40	50	60
Power kW	9	13.5	18	27	36	45	54
Internal battery	34 x 9 Ah*		optional*		external battery		
Weight Kg (w/o battery)	160	172	240	245	285	305	310
W x D x H mm	460 x 805 x 1190 (internal battery)		460 x 805 x 1190 (external battery)		886 x 776 x 1657 (external battery)		

*Batteries not included.

AC Input

Nominal voltage	110/200 Vac or 120/208 Vac or 127/220 Vac ±20% 3P+N+PE [(L-N)/(L-L)]
Power factor	>0.99% at full load
Frequency	45 - 65 Hz (selectable)
THD	<3%
Bypass range	10 to 30 % Vca (15 % default), ± 5 Hz (selectable)

AC Output

Nominal voltage	110/200 Vac or 120/208 Vac or 127/220 Vac ±1% 3P+N+PE [(L-N)/(L-L)]
Efficiency	Up to 93% (eco mode 98%)
Frequency	±0.5% synchronous with the network / 50/60 Hz ± 0.2% battery mode
THD	< 2 % linear load, < 6 % non-linear load
Crest factor	3:1
Overload capacity	125% 10 min, 150% 1 min

Battery

DC nominal	+/- 204 Vdc
Series configuration	34 x 12 Vdc
Charge capacity	Nominal 0.1 C, adjustable)

General Specifications

Parallel operation	Up to 8 units, active current sharing
Communication	RS232, parallel port (2), expansion slots (2)
Protocol	SEC, TELNET, MODBUS (optional)
Temperature	Operating 0º to +40º C, Storage -15º to +45º C
Altitude	<1000 m correction factor 1.0, <2000 m correction factor 0.92, <3000 m correction factor 0.84
Humidity	≤95% non-condensing

Standards

Performance	EN 62040-3 (VFI-SS-111)
EMC/LVD/Safety	EN 62040-2 / EN 62040-1 / EN 60950 (TUV certified)

DS Keatec BX Series UPS 10-60KVA 208V Online UPS English 20171213

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MODULAR ONLINE DOUBLE CONVERSION UPS

M Series UPS
100 - 260 kVA 208 Vac 3Ph

Online double conversion Modular UPS with parallel cabinet architecture, N+X parallel module redundancy and multi-language touch screen display.

M Series UPS is for internet service providers, banking, medical and telecommunication data centers, industrial control rooms and corporate offices.

FEATURES

Clean power
Oline double conversion UPS with sine wave output
Power factor corrected conversion minimizes input current THD to less than 3%
'Step-by-step' transfer from battery mode to AC mode minimizes impact on mains supply

Low energy consumption and cost of ownership
Low energy consumption with efficiency of up to 95%
High input power factor of 0.99% minimizes energy consumption and hardware installation costs
Eco mode for system and sleep mode for modules is available to reduce energy consumption
Simulated 75% load test returns power to the grid

Advanced battery management
Maximizes battery life with intelligent three-level charging
Displays estimated battery backup and tests for battery capacity

Flexible, scalable and reliable
Front and rear access cabinets
Hot swappable power modules with individual display screens
Parallel operation of up to four UPS cabinets (three 260kVA cabinets)
Synchronized transfer to bypass for all parallel units
Firmware upgradable using RS485 port
UPS management PC software - Muser 4000

Options
External battery cabinet frames
Remote monitor
RS232 USB converter
SNMP card
Relay card
Parallel cable

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MODULAR ONLINE DOUBLE CONVERSION UPS

M Series UPS
100 - 260 kVA 208 Vac 3Ph

SPECIFICATIONS

UPS Cabinet Frame	M 3320A-100K MF	M 3320A-160K MF	M 3320A-260K MF
Capacity kVA / kW	100 / 90	160 / 144	260 / 234
Module slots (total height U)	5 (15 U)	8 (24 U)	13 (39 U)
UPS module kVA	20	20	20
AC input breaker Amp	3ph 400 A / 800 Vac	3ph 500 A / 800 Vac	3ph 800 A / 1000 Vac
AC output breaker Amp	3ph 400 A / 800 Vac	3ph 500 A / 800 Vac	3ph 800 A / 1000 Vac
Bypass breaker Amp	3ph 400 A / 800 Vac	3ph 500 A / 800 Vac	3ph 800 A / 800 Vac
DC battery breaker	option	option	option
Cable access	front	top, back	front, back
Weight Kg w/o modules	205	310	450
H x W x L mm	1600 x 600 x 860	2000 x 600 x 860	2000 x 1200 x 860

Installation Data	100kVA	160kVA	260kVA
AC input cable mm^2	150	120 (2)	185 (2)
AC output cable mm^2	120	95 (2)	150 (2)
DC input cable mm^2	120 (2)	150 (2)	185 (3)
Grounding cable mm^2	70	120	185 (2)

UPS Module	M 3320AM
Capacity kVA / kW	20 / 18
Charge current max Amp	10
Heat dissipation W	1240
Required air volume m^3/hr	910
Short circuit duration (200ms)	Ip: 164 A / Irsm: 116 A
Overload capcity in bypass	150% continuously, 1000% 20ms
Height	3 U
Weight Kg	

External Battery Cabinet Frame	M 24-065-144 BF	M 24-100-144 BF	M 24-120-144 BF
DC voltage	± 144 Vdc	± 144 Vdc	± 144 Vdc
12 V battery size	65 Ah	100 Ah	120 Ah
Battery layout	24 batteries (4 levels X 6)	24 batteries (4 levels X 6)	24 batteries (4 levels X 6)
DC breaker	250 A	400 A	400 A
Weight Kg w/o battery	197	197	197
H x W x L mm	1600 x 600 x 850	2000 x 600 x 850	2000 x 600 x 850

*Batteries not included.

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MODULAR ONLINE DOUBLE CONVERSION UPS

M Series UPS
100 - 260 kVA 208 Vac 3Ph

SPECIFICATIONS

AC Input	
Rated voltage	120/208 Vac or 127/220 Vac (3 phase, 4 wire and ground)
Voltage range operating	72 - 125 Vac or 160 - 275Vac
Input power factor	>0.99%
Input frequency	40 - 70 Hz
THD	<3% 100% non-linear
Bypass range	Max. voltage: +25% (default: +15%), Min. voltage: -40% (default: -20%), Frequency: ±10% (default: ±1%)

AC Output	
Rated voltage	120/208 Vac or 127/220 Vac (3 phase, 4 wire and ground)
Voltage regulation	±2%
Efficiency	Up to 95%
Output frequency	synchronous with the network / 50/60 Hz ± 0.1% battery mode
THD	<2% linear load, <5% non-linear load
Crest factor	3:1
Overload AC mode	<110% 60 min, <125% 10 min, <150% 1 min, >150% bypass
Overload battery mode	<110% 60 min, <125% 10 min, <150% 1 min, >150% shutdown

External Battery Requirements	
DC nominal	+/- 144 Vdc

General Specifications	
Parallel operation	Up to 4 cabinets (up to three 260kVA cabinets)
Communication	RS232, RS485 (2), USB, expansion slots (2), parallel (2), dry contact (4), remote emergency power off, battery temp (2), LCD
Protocol / software	Megatec, MODBUS / MUSER 4000
Temperature	Operating 0 to +40° C, Storage -25 to +55° C
Altitude	< 1500 M
Humidity	≤95% non-condensing

DS Keatec M Series UPS 100-260kVA 208V English 20161117

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INTEGRATED DATA CENTER UPS

DU Series Data Center Unit
3kVA UPS with Precision Cooling

DU Series integrates sealed IT cabinets with power supply, input distribution system, batteries, monitoring and precision air-conditioning.

A high efficiency data center solution that is easy to install and manage.

FEATURES

Just install the IT data servers; UPS power, input power distribution, battery, precision cooling, all in a single sealed package.

- Air conditioning delivers air-flow accurately to key locations
- Emergency ventilation automatically engages if AC power fails
- Monitoring alarms and software reporting of power, temperature, humidity status
- Closed environment reduces noise and extends the life of IT equipment by preventing dust from entering the system

Quick – Modular systems install and configure quickly

Efficient – Next generation technology reduces energy consumption

Smart – 24×7 unattended operation with remote monitoring

Options

Battery pack
Electronic lock
Voice / SMS alarm
SNMP card

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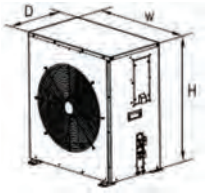
INTEGRATED DATA CENTER UPS

DU Series Data Center Unit 3kVA UPS with Precision Cooling

Cabinet	DU 1303A-C03.5	DU 1103E-C03.5
Cabinets (indoors) H x W x L, kg	Cooling, power and IT rack, 2000 x 600 x 1100 mm, ≤300 kg	
Cabinets (Outdoors) H x W x L, kg	Air conditioner compressor, 803 x 750 x 400 mm, ≤50 kg	
Available IT rack space	27 U	27U
Power		
Input	208 Vac 60 Hz Split Phase	220/230 Vac 50 Hz 1 Phase
Output	120 Vac 60 Hz 1 Phase	220/230 Vac 50 Hz 1 Phase
IT capacity	3 kW	
Input Power Distribution	208 Vac 63 A multi-loop distribution managment with surge protection	220/230 Vac 63 A multi-loop distribution managment with surge protection
Backup time	3 minutes (expandable)	
Precision Cooling		
Cooling capacity	3.5 kW	
In-row air supply	3.5 kW 208 Vac Split Phase	3.5 kW 230 Vac Single Phase
Monitoring		
Local display	large 25 cm touch screen LCD display	
Temperature sensor	yes (1)	
Humidity senor	yes (1)	
Smoke sensor	yes (1)	
Water detection	yes (1)	
Camera	yes (1)	
Power distribution monitoriing	yes	
Air conditioning monitoring	yes	
Emergency ventilation	yes	
UPS		
Capacity	3 kVA / 2.7 kW	
Internal battery	6 pcs x 12V 9Ah (expansion battery packs, optional)	



DS Keatec DU Series Data Center Unit 3kVA UPS with Precision Cooling English 20161118

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INTEGRATED DATA CENTER UPS

DU Series Data Center Unit
6kVA UPS with Precision Cooling

DU Series integrates sealed IT cabinets with power supply, input power distribution, batteries, monitoring and precision air-conditioning.

A high efficiency data center solution that is easy to install and manage.

FEATURES

Just install the IT data servers; modular UPS power, input power distribution, battery, precision cooling, IT cabinet, all in a single sealed package.

- Air conditioning delivers air-flow accurately to key locations
- Emergency ventilation automatically engages if AC power fails
- Monitoring alarms and software reporting of power, temperature, humidity status
- Closed environment reduces noise and extends the life of IT equipment by preventing dust from entering the system

Quick – Modular systems install and configure quickly

Efficient – Next generation technology reduces energy consumption

Smart – 24×7 unattended operation with remote monitoring

Reliable – N+X and N+1/2N redundant designs

Options

Extension IT rack cabinet
Extension battery cabinet
Battery pack
Fire suppression system (FM200)
Low temperature kit
Humidifiying filter unit
Output extension module
ATS Module
Electronic lock
Voice / SMS alarm
SNMP card

*DU Series is also available without cooling

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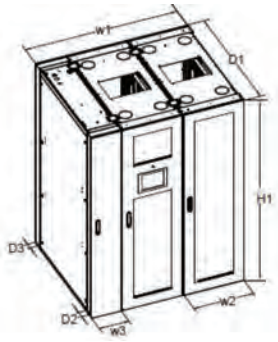
INTEGRATED DATA CENTER UPS

DU Series Data Center Unit 6kVA UPS with Precision Cooling

Cabinet	DU 1306A-C05	DU 1106E-C05
Cabinets (indoors) H x W x L, kg	In-row cooling, power and IT cabinet, 2000 x 1500 x 1280 mm, ≤485 kg	
Cabinets (Outdoors) H x W x L, kg	Air conditioner compressor 608 x 877 × 380 mm, ≤25 kg	
Available IT rack space	19" 42 U	19" 42U
Power		
Input	208 Vac 60 Hz Split Phase	220/230 Vac 50 Hz 1 Phase
Output	120 Vac 60 Hz 1 Phase	220/230 Vac 50 Hz 1 Phase
IT capacity	5 kW	
Input Power Distribution	208 Vac 100 A	220/230 Vac 63 A
Backup time	Determined by installed battery capacity	
Precision Cooling		
Cooling capacity	5 kW	
In-row air supplyy	5 kW (208 Vac Split Phase)	5 kW (230 Vac Single Phase)
Monitoring		
Local display	large 25 cm touch screen LCD display	
Temperature sensor	yes (1)	
Humidity senor	yes (1)	
Smoke sensor	yes (1)	
Water detection	yes (1)	
Camera	yes (1)	
Power distribution monitoriing	yes	
Air conditioning monitoring	yes	
Emergency ventilation	yes	
UPS		
Capacity	6 kVA / 4.8 kW	
Battery	3 U rack space (battery pack not included)	



DS Keatec DU Series Data Center Unit 6kVA UPS with Precision Cooling English 20161118

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INTEGRATED DATA CENTER UPS

DU Series Data Center Unit
10kVA UPS with Precision Cooling

DU Series integrates sealed IT cabinets with power supply, input power distribution, batteries, monitoring and precision air-conditioning.

A high efficiency data center solution that is easy to install.

FEATURES

Just install the IT data servers; modular UPS power, input power distribution, battery, precision cooling, IT cabinet, all in a single sealed package.

- Air conditioning delivers air-flow accurately to key locations
- Emergency ventilation automatically engages if AC power fails
- Monitoring alarms and software reporting of power, temperature, humidity status
- Closed environment reduces noise and extends the life of IT equipment by preventing dust from entering the system

Quick – Modular systems install and configure quickly

Efficient – Next generation technology reduces energy consumption

Smart – 24×7 unattended operation with remote monitoring

Reliable – N+X and N+1/2N redundant designs

Options

Extension IT rack cabinet
Extension battery cabinet
Battery pack
Fire suppression system (FM200)
Low temperature kit
Humidifiying filter unit
Output extension module
ATS Module
Electronic lock
Voice / SMS alarm
SNMP card

*DU Series is also available without cooling

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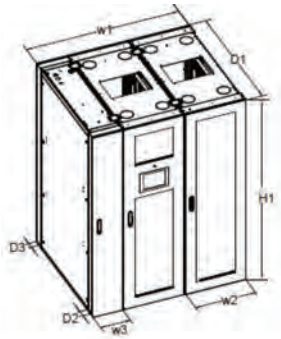
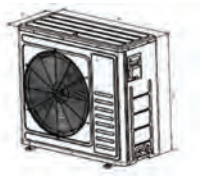
INTEGRATED DATA CENTER UPS

DU Series Data Center Unit
10kVA UPS with Precision Cooling

Cabinet	DU 1310A-C07.5	DU 1110E-C07.5
Cabinets (indoors) H x W x L, kg	In-row cooling, power and IT cabinet, 2000 x 1500 x 1280 mm, ≤585 kg	
Cabinets (Outdoors) H x W x L, kg	Air conditioner compressor, 806 x 967 × 433 mm, ≤37 kg	
Available IT rack space	19" 42 U	19" 42 U
Power		
Input	208 Vac 60 Hz Split Phase	220/230 Vac 50 Hz 1 Phase
Output	120 Vac 60 Hz 1 Phase	220/230 Vac 50 Hz 1 Phase
IT capacity	7.5 kW	
Input Power Distribution	208 Vac 125 A	220/230 Vac 80 A
Backup time	Determined by installed battery capacity	
Precison Cooling		
Cooling capacity	7.5 kW	
In-row air supply	7.5 kW (208 Vac Split Phase)	7.5 kW (230 Vac Single Phase)
Monitoring		
Local display	large 25 cm touch screen LCD display	
Temperature sensor	yes (1)	
Humidity senor	yes (1)	
Smoke sensor	yes (1)	
Water detection	yes (1)	
Camera	yes (1)	
Power distribution monitoriing	yes	
Air conditioning monitoring	yes	
Emergency ventilation	yes	
UPS		
Capacity	10 kVA / 8 kW	
Battery	3 U rack space (battery pack not included)	





DS Keated DU Series Data Center Unit 10kVA UPS with Precision Cooling English 20161118

Keatec Energy

Keatec™

INTEGRATED DATA CENTER UPS

DU Series Data Center Unit
15kVA UPS with Precision Cooling

DU Series integrates sealed IT cabinets with power supply, input power distribution, batteries, monitoring and precision air-conditioning.

A high efficiency data center solution that is easy to install.

FEATURES

Just install the IT data servers; modular UPS power, input power distribution, battery, precision cooling, IT cabinet, all in a single sealed package.

- Air conditioning delivers air-flow accurately to key locations
- Emergency ventilation automatically engages if AC power fails
- Monitoring alarms and software reporting of power, temperature, humidity status
- Closed environment reduces noise and extends the life of IT equipment by preventing dust from entering the system

Quick – Modular systems install and configure quickly

Efficient – Next generation technology reduces energy remote consumption

Smart – 24×7 unattended operation with remote monitoring

Reliable – N+X and N+1/2N redundant designs

Options

Extension IT rack cabinet
Extension battery cabinet
Battery pack
Fire suppression system (FM200)
Low temperature kit
Humidifiying filter unit
Output extension module
ATS Module
Electronic lock
Voice / SMS alarm
SNMP card

*DU Series is also available without cooling

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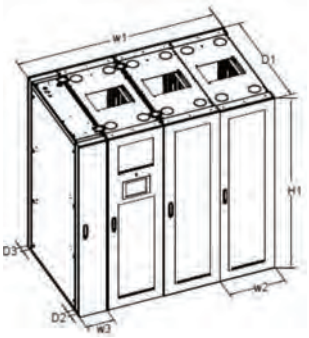
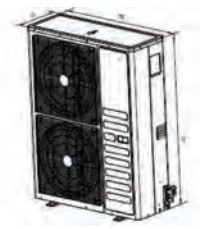
INTEGRATED DATA CENTER UPS

DU Series Data Center Unit 15kVA UPS with Precision Cooling

Cabinet	DU 1320A-C12.5	DU 1115E-C12.5
Cabinets (indoors) H x W x L, kg	In-row cooling, power and IT cabinet, 2000 x 1500 x 1280 mm, ≤610 kg / ≤585 kg	
Cabinets (Outdoors) H x W x L, kg	Air conditioner compressor, 1244 x 1014 x 400 mm, ≤61 kg	
Available IT rack space	19" 42 U	19" 42 U
Power		
Input	208 Vac 60 Hz Split Phase	380/400 Vac 50 Hz 3 Phase
Output	120 Vac 60 Hz 1 Phase	220/230 Vac 50 Hz 1 Phase
IT capacity	12 kW	12 kW
Input Power Distribution	208 Vac 160 A	380/400 Vac 80 A
Backup time	Determined by installed battery capacity	Determined by installed battery capacity
Precision Cooling		
Cooling capacity	12.5 kW	12.5 kW
In-row air supply	12.5 kW (208 Vac Split Phase)	12.5 kW (380/400 Vac 3 Phase)
Monitoring		
Local display	large 25 cm touch screen LCD display	
Temperature sensor	yes (1)	
Humidity senor	yes (1)	
Smoke sensor	yes (1)	
Water detection	yes	
Camera	yes (1)	
Power distribution monitoriing	yes	
Air conditioning monitoring	yes	
Emergency ventilation	yes	
UPS		
Capacity	10kVA/8kW 1P/1P x 2 pcs	15kVA/12 kW 3P/3P x 1 pcs
Battery	3 U rack space (battery pack not included)	6 U rack space (battery pack not included)





DS Keatec DU Series Data Center Unit 15kVA UPS with Precision Cooling English 20161118

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DATA CENTER UPS

DX Series UPS for Data Centers 100 - 400 kVA 480 Vac 3Ph

DX Series UPS is a 480V three-phase transformer-less double conversion UPS.

DX Series UPS is for banking, medical and telecommunication data centers, and large corporate offices.

FEATURES

Clean power
Transformer-less double conversion three-phase UPS with sine wave output
Low input current THD minimizes disruption of mains power

Low energy consumption
High input and output power factor
Max efficiency of up to 94%

Advanced battery management
High charge current capacity
Automatic testing for battery capacity

Flexible and compatible
Cold start up without AC mains power
Parallel operation of up to 8 UPS
Static and maintenance bypass switch

System Management
LCD front panel display
Dry contacts and RS232
T-Mon UPS Management software

Options

Eco Mode
Parallel Kit
Temp. Compensation Charging Kit
Input Galvanic Isolation Tranformer
Output Galvanic Isolation Tranformer
TFT Display

Remote Display Panel
GSM/GPRS Modem
SNMP Card
MODBUS card
TCP/IP Card
RS485 Card
USB Alarm Logger

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DX Series UPS for Data Centers 100 - 400 kVA 480 Vac 3Ph

SPECIFICATIONS

Model	DX33100-480	DX33120-480	DX33160-480	DX33200-480	DX33250-480	DX33300-480	DX33400-480
kVA	100	120	160	200	250	300	400
kW	90	108	144	180	225	270	360
Input							
Voltage	480 Vac 3P + N + E +15%, -20%						
Frequency	60 Hz ±5%						
Power factor	≥ 0.99 (from 50% load)						
Current THD	≤ 3% (at 100% load)						
Bypass	Adjustable voltage (default ± 10%), 60 Hz ±5%						
Protection	Fusing, voltage and frequency limits, input power limit, phase sequence indicator						
Output							
Voltage	480 Vac (Phase to Phase) + N + E ±1%						
Frequency	50 Hz or 60Hz selectable (±2% synchronous, ±0.1% inverter mode)						
Efficiency	Up to 94%						
Crest factor	3:1						
Load protection	125% for 10 min, 125% - 150% for 1 min, >150% load bypass						
THD	≤ 3% at 100% linear load						
Protection	Short circuit, voltage, DC balance, regenerative load, current limit						
Battery							
External battery	2 x 30 pcs 12V						
Voltage	±360 Vdc						
Float voltage	±405 Vdc						
End discharge voltage	±300 Vdc						
Battery test	automatic, every 72 hours (adjustable)						
General							
Input ports	EPO, interactive battery panel, genset						
Genset kit	Standard programmable						
Communication ports	4 standard and 8 optional dry contact alarm relays, RS232 (2)						
Software	Standard T-Mon UPS Management software						
Operation	0 - 40 °C						
Humidity	< 95% non-condensing						
Altitude	< 2000 m						
Noise	< 68 dBA				< 72 dBA		
Weight kg	485	540	590	820	1040	1150	1340
H x W x D mm	1770 x 825 x 855				1900 x 1250 x 1055		
LVD / EMC / Performance	EN 62040-1 / EN 62040-2 / EN 62040-3						

DS Keatec DX Series UPS for Data Centers 100-400kVA 480V English 20170808

Keatec Energy

VRLA AND AGM BATTERIES GENERAL FEATURES

A partial list of common applications:

- Communications Equipment
- Emergency Alarms
- Security Systems
- Emergency Lighting
- Traffic signals
- Electronic Equipment
- Industrial Equipment
- Medical Equipment
- Power Tools
- Solar Power Systems
- Telecommunications Systems
- Uninterruptible Power Supplies

Valve Regulated - Sealed Construction

Valve regulated lead acid and AGM batteries are rechargeable and designed for safe, trouble free operation in any position.

Ease of Shipment

Can be shipped by sea, road or air without special handling and packaging precautions due to their sealed construction.

Maintenance Free Operation

No need to check the specific gravity of the electrolyte. No requirement to refill electrolyte or add water during normal operation.

Cycle or Float Service

Suitable for either cycling or floating service

Heavy Duty Grids

Heavy duty calcium-tin alloy grids extend service life.

Compact Design

A high power-to-weight ratio battery.

Low Self Discharge

Lead calcium grids minimize capacity loss during long periods of storage time at room temperature.

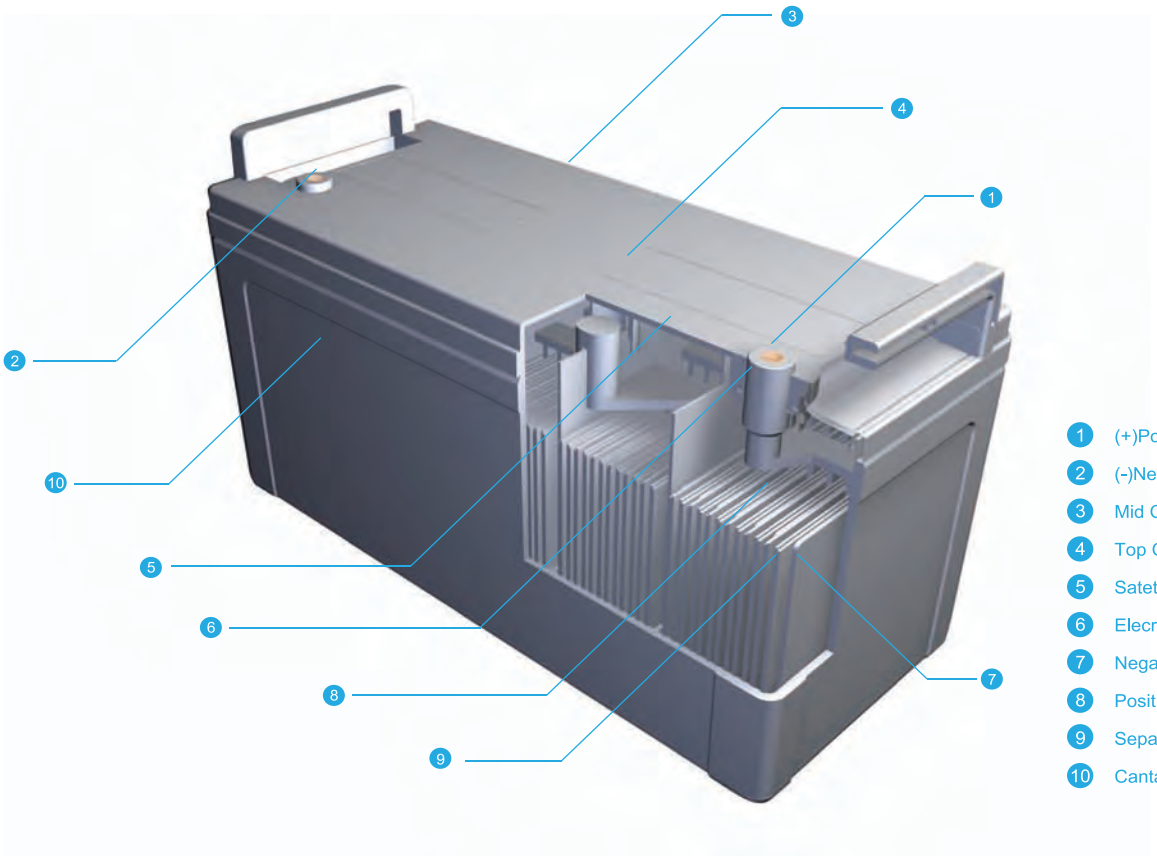
Wide Operating Temperature

Performance over a broad range of ambient temperatures.

Impact Resistant Case

Impact resistant and non-conductive plastic case.

CONSTRUCTION



1. (+)Positive Terminal
2. (-)Negative Terminal
3. Mid Cover
4. Top Cover
5. Satety Valve
6. Elecrtode Pole
7. Negative Plate
8. Positive plate
9. Separator
10. Cantaine

PRINCIPLE OPERATION OF VALVE REGULATED LEAD ACID BATTERY

Positive Plate.	$PbO_2+SO_4^-+4H^++2e^-=PbSO_4+H_2O$
Negative Plate.	$Pb+SO_4^-+4H^++2e^-=PbSO_4+H_2O$
Net.	$PbO_2+2SO_4^-+4H^++Pb=2PbSO_4+2H_2O$

The gassing and water loss reactions are as follows:

Positive Plate.	$H_2O=2H^++1/2O_2+2e^-$
Negative Plate.	$2H^++2e^-=H_2$
Net.	$H_2O=H_2+1/2O_2$

Note that the gassing reaction generally occurs when the battery is almost totally charged. In the valve regulated battery water loss must be avoided by limiting the escape of hydrogen and oxygen from the battery. Therefore the battery design supports the recombination of the oxygen formed at the positive plate with the hydrogen formed at the negative plate as follows.

Negative a.	$Pb+1/2O_2+H_2SO_4=PbSO_4$
Negative b.	$+H_2O\ PbSO_4+2H^++2e^-=Pb$
Net Negative.	$+H_2SO_4\ 1/2O_2+2H^++2e^-=H_2O$

The virtually eliminates the production of free hydrogen at the negative plate during recombination. However it is necessary to ensure that correct charging voltages are used because the construction provides a means of recombining the internally generated hydrogen and oxygen, and suppresses the evolution of hydrogen gas to limit the consumption of water from the electrolyte. Therefore the battery requires no addition of water during its normal life time.

Valve regulated batteries are sealed with the exception of a valve that opens when excess pressure builds up inside the battery. The valve automatically reseals itself. The recombination of charge gases is accomplished by allowing oxygen produced at the positive plate to pass through the separator material to the negative plates where the recombination reaction occurs. The valve controls the internal process of the battery to optimize the efficiency of the recombination reaction and minimize the possible expense of electrolyte.

NOMINAL CAPACITY

The capacity of a battery is the available amount of electrical energy which can be obtained from a fully charged cell. The capacity of a cell is expressed in ampere hours (AH), which is a current-time product. The capacity value is dependent upon the discharge current, the temperature during discharge, the final cut-off voltage and the general history. The nominal capacity of a battery is measured at the 10 hour or 20 hour rate at 25℃ to a cut-off voltage of 1.75 volts per cell.

STORAGE

During storage, batteries gradually lose their capacity due to their self-discharge. The self-discharge rate is low and is typically less than 3% per month at 25℃. Although the self-discharge rate is low, specific precautions must be taken against the battery over self-discharging itself when in storage or not in use.

Precautions Against Over Self-discharge

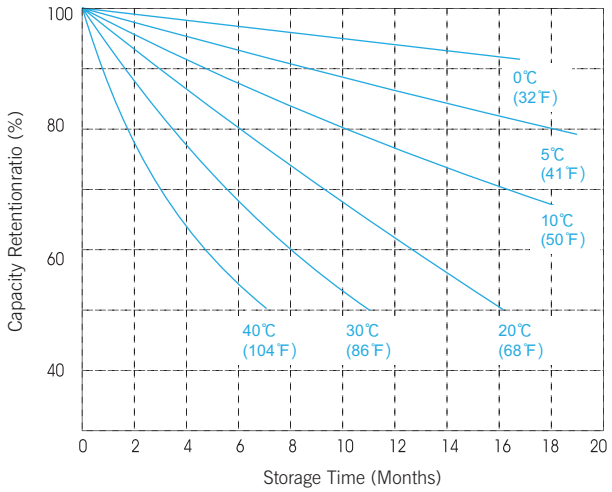
a. The batteries should be stored in a clean, cool and dry place
b. Storage place should not be affected by sources of radiant heat such as sun, heating units, radiators or steam pipes
c. The recommendable storage temperature: 10~20℃
d. The recommendable storage humidity is as low as possible

Charge Advice

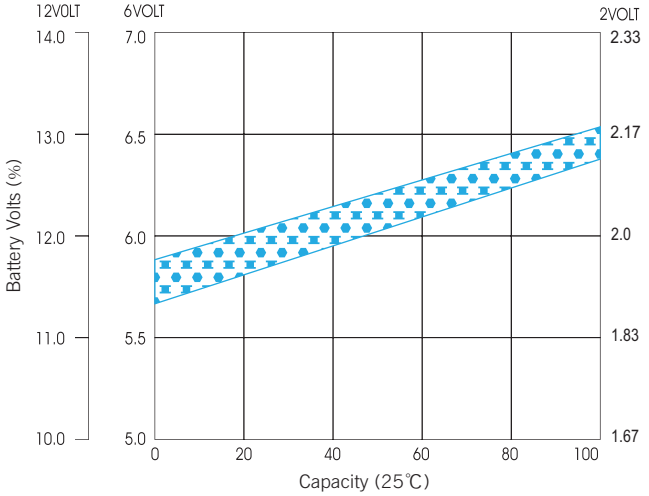
Storage Temperature	Charging Interval
20℃ or less	9 months
20~30℃	6 months
30~40℃	3 months

Temperature above 40℃ should be avoided. After long term storage, all batteries deliver less than the rated capacity. Full capacity will be obtained after several charge/discharge cycles. For the longest life a battery should be fully charged before being put into storage.

Self-Discharge Characteristics



Open Circuit Voltage and Remaining Capacity



BATTERY DISCHARGING

The capacity of a battery is the available amount of electrical energy which can be obtained from a fully charged cell.

The capacity of a battery is expressed in ampere-hours(AH),which is a current-time product. The capacity value is dependent upon the discharge current, the temperature during discharge, the final cut-off voltage and the general history. The nominal capacity of an battery is measured at the 10 hour or 20 hour rate according to types at 25℃ to a cut-off voltage of 1.80 volts or 1.75 volts per cell.

Battery Selection

The battery discharge curve may be utilised in battery selection. However it is suggested that a review is made of the data sheet for each battery size or the chart showing the actual ampere hour capacity of each battery size at various discharge times.

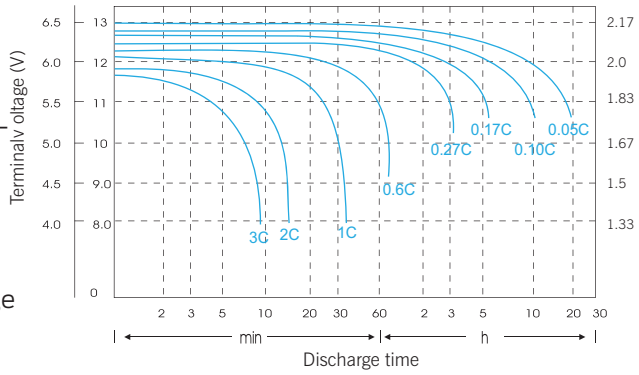
Temperature Effect on discharge Capacity

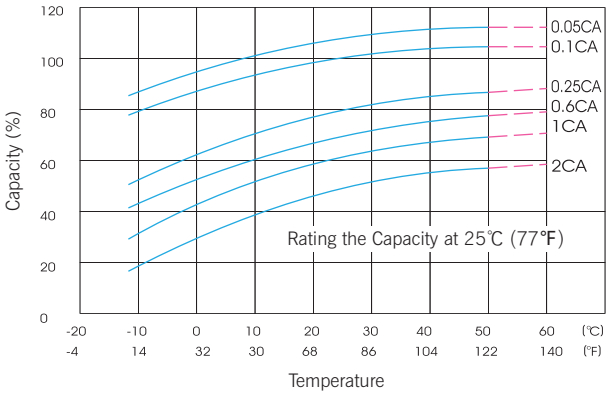
The discharge capacity varies according to the temperature during discharge. At low temperature the discharge capacity decreases and at high temperature it increases. the temperature effects on the discharge capacity at various discharge current rates are shown in the graph.

Final Acceptable Discharge Voltages

The battery cut-off voltage is the volts per cell to which a battery may be discharged safely to maximise battery life, this value is specified according to the actual discharge load and run time. As a rule of thumb, high amp loads and short run times will tolerate a lower cut off voltage, whereas a low amp long run time discharge will require a higher cut off voltage.

Discharge Characteristic Curve



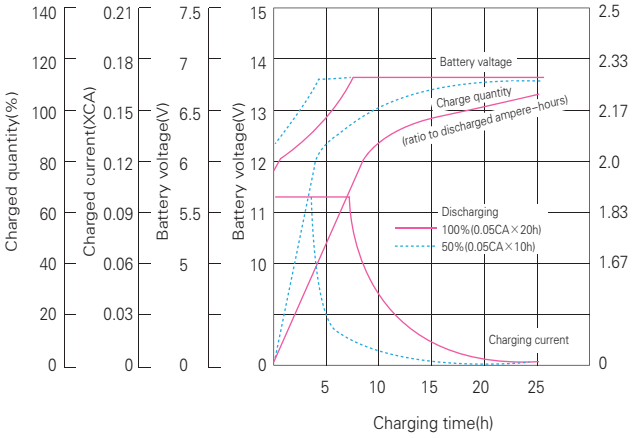


Discharge current	Cut off Volts/Cell
3CA	1.30
1CA	1.30
0.5-1.0 CA	1.55
0.2-0.5 CA	1.70
0.05-0.2CA CA	1.75

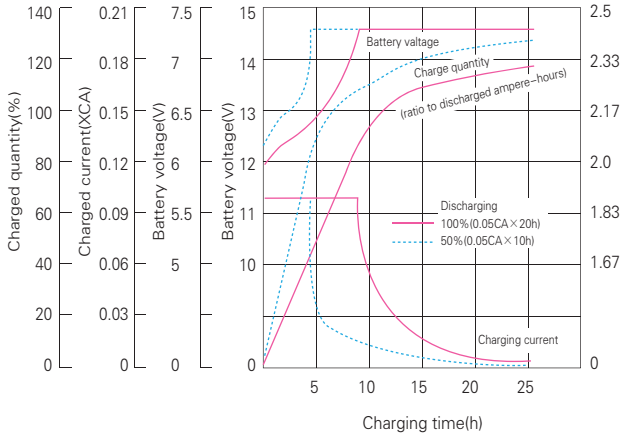
CHARGING CHARACTERISTICS

The characteristics of charging by constant voltage (recommended) are shown in the graph.

Standby Use



Cycle Use



Charge Method	Cyclic Operation	Float Operation	Refresh Charge During Storage
Constant Voltage	2.40~2.45vpc Initial current 0.3CA or less	2.25~2.30vpc Initial current 0.3CA or less	2.40~2.45vpc Initial current 0.3CA or less
Constant Current	Charging current approximately 0.1 CA. Charge time control is also recommended otherwise an overcharge can occur.	Not applicable	Charging current: approximately 0.1CA

Charging Method

Ambient Temperature: 25℃

Note: ensurethe voltage is set correctly. A voltage set too high will increase the corrosion of the positive plates and shorten battery life. A voltage set too low will lead to sulphation of the plates causing loss of capacity and ultimately shortening the life of the battery.

Effect of Temperature on Charging Voltage

Within the normal operating parameters of 20℃~30℃ voltage compensation for operating temperature may not be necessary.
However, to maximise the life of the battery, temperature compensation for operating temperatures outside this temperature range should be considered.

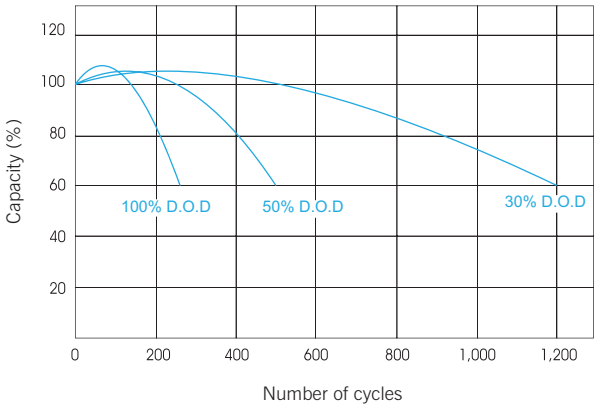
Charging voltage compensation for battery temperature:

1.Float operation: Vt=V-0.003(t-25)
2.Cyclic operation: Vt=V-0.005(t-25)
(V=Charging voltage at 25℃,
t=Temperature,Vt=Charging voltage at t℃)

BATTERY LIFE

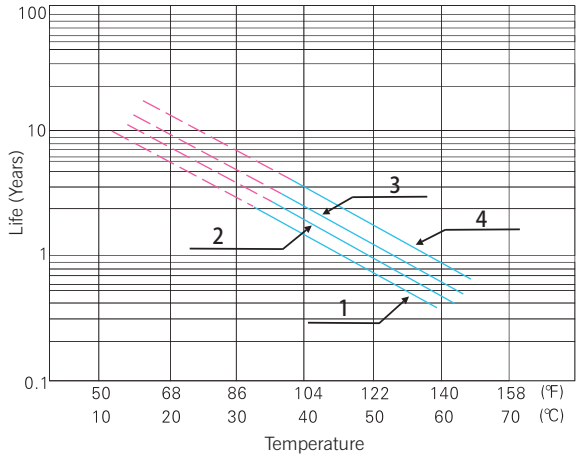
Cyclic Use

Cycle life is very dependent on the depth of discharge which the battery experiences during each cycle. The number of cycles relating to the depth of discharge is shown in the graph.



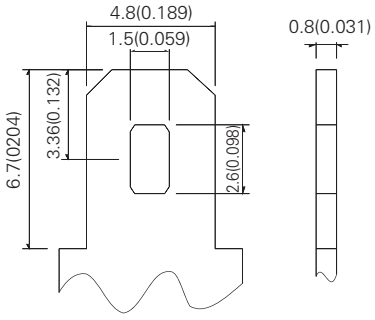
Floating Use

Float use life is very dependent on the temperature at which the battery is float charged. The float life is very long at low temperature (10~20℃)but at higher temperature the float life is shortened.

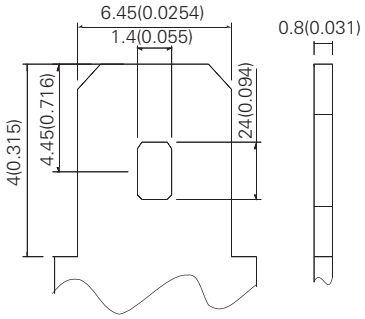


1------ For FM series
2------ For FML series
3------ For FMH series
4------ For GFM series

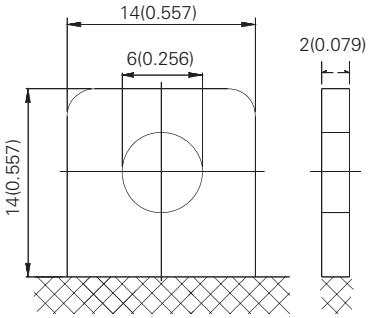
TERMINAL DATA



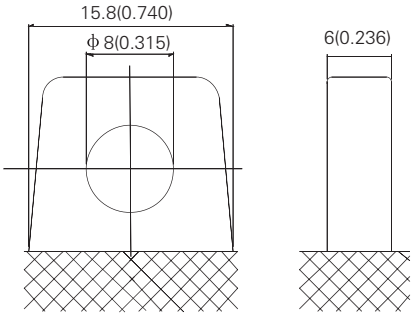
F1



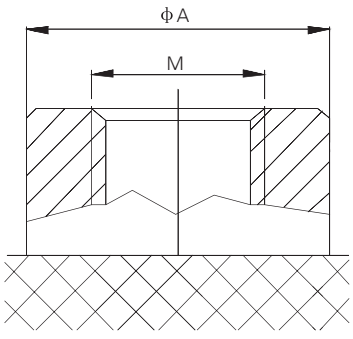
F2



B1



B2



M

Items / Type	ϕA		M	
M1	14	0.551”	6	0.236”
M2	16	0.630”	6	0.236”
M3	20	0.787”	8	0.315”
M4	12	0.47”	5	0.20”
M5	18	0.71”	8	0.31”
M6	18	0.71”	6	0.236”

BATTERY INDEX

FM Series Battery For General Use

Type	Nominal Voltage (V)	Rated Capacity(Ah)				Dimensions(mm)				Weight Appox (kg)	Terminal type
		20HR	10HR	5HR	1HR	Length	Width	Height	Total Height		
		1.75V/C	1.80V/C	1.75V/C	1.75V/C						
3-FM-1.2	6	1.2	1.1	1.00	0.7	97.5	24.0	52.0	58.0	0.31	F1
3-FM-3	6	3.0	2.7	2.6	1.8	135.0	35.0	60.0	66.0	0.71	F1
3-FM-4	6	4.0	3.7	3.4	2.4	70.0	47.0	100.0	106.0	0.73	F1
3-FM-7	6	7.0	6.5	5.6	4.20	151.0	34.0	95.0	101.0	1.19	F1/F2
6-FM-1.9	12	1.9	1.7	1.60	1.1	178.5	35.0	60.5	66.5	0.90	F1
6-FM-3	12	3.0	2.7	2.6	1.8	135.0	67.5	61.0	67.0	1.28	F1
6-FM-4	12	4.0	3.7	3.4	2.4	90.0	70.0	101.0	107.0	1.44	F1/F2
6-FM-4.5	12	4.5	4.2	3.6	2.7	90.0	70.0	101.0	107.0	1.50	F1/F2
6-FM-5A	12	5.0	4.7	4.0	3.0	90.0	70.0	101.0	107.0	1.65	F1/F2
6-FM-5B	12	5.0	4.7	4.0	3.0	151.5	51.5	93.0	99.0	1.87	F1/F2
6-FM-6	12	6.0	5.6	4.8	3.6	151.0	65.0	94.0	100.0	2.00	F1/F2
6-FM-6.5	12	6.5	6.0	5.2	3.9	151.0	65.0	94.0	100.0	2.12	F1/F2
6-FM-7	12	7.0	6.5	5.6	4.2	151.0	65.0	94.0	100.0	2.20	F1/F2
6-FM-7.2	12	7.2	6.7	5.7	4.3	139.5	48.0	118.0	118.0	2.20	F1/F2
6-FM-7.5	12	7.5	6.9	6.0	4.5	151.0	65.0	94.0	100.0	2.40	F1/F2
6-FM-8	12	8.0	7.4	6.4	4.8	151.0	65.0	94.0	100.0	2.51	F1/F2
6-FM-9	12	9.0	8.3	7.2	5.4	151.0	65.0	94.0	100.0	2.51	F1/F2
6-FM-9S	12	9.0	8.3	7.2	5.4	151.0	65.0	94.0	100.0	2.69	F1/F2
6-FM-12	12	12.0	11.2	9.6	7.2	151.0	98.0	94.0	100.0	3.60	F2
6-FM-14	12	14.0	13.0	11.2	8.4	151.0	98.0	94.0	100.0	4.20	F2
6-FM-15	12	15.0	13.9	12.0	9.0	181.0	77.0	167.0	167.0	4.90	B1/M4
6-FM-17	12	17.0	15.8	13.6	10.2	181.0	77.0	167.0	167.0	5.10	B1/M4
6-FM-18	12	18.0	16.7	14.4	10.8	181.0	77.0	167.0	167.0	5.10	B1/M4
6-FM-20	12	20.0	18.6	16.0	12.0	181.5	77.0	167.0	167.0	6.00	M4
6-FM-22	12	22.0	20.5	17.6	13.2	181.5	77.0	167.0	167.0	6.30	M4
6-FM-24A	12	24.0	22.3	19.2	14.4	166.0	126.0	174.0	174/179	8.00	M1
6-FM-24B	12	24.0	22.3	19.2	14.4	177.0	167.0	126.0	126.0	8.40	B1/M4
6-FM-24C	12	24.0	22.3	19.2	14.4	166.0	126.0	174.0	174.0	8.00	M1
6-FM-26	12	26.0	24.1	20.8	15.6	177.0	167.0	126.0	126.0	8.40	B1/M4
6-FM-28	12	28.0	26.0	22.4	16.8	166.0	126.0	174.0	174.0	9.50	M1

FM Series Battery For General Use

Type	Nominal Voltage (V)	Rated Capacity(Ah)				Dimensions(mm)				Weight Appox (kg)	Terminal type
		20HR	10HR	5HR	1HR	Length	Width	Height	Total Height		
		1.75V/C	1.80V/C	1.75V/C	1.75V/C						
3-FM-180	6	180.0	165.0	144.0	108.0	323.0	178.0	226.0	231.0	27.7	M5
3-FM-200	6	200.0	184.0	160.0	120.0	323.0	178.0	226.0	231.0	28.8	M5
6-FM-33	12	33.0	30.5	26.4	19.8	196.0	131.0	155.0	169.0	10.1	M1
6-FM-38A	12	38.0	34.2	30.4	22.8	198.0	166.0	170.0	170.0	12.0	M1
6-FM-38B	12	38.0	34.2	30.4	22.8	198.0	166.0	175.0	175.0	12.0	M1
6-FM-40	12	40.0	36.0	32.0	24.0	198.0	166.0	170.0	170.0	13.7	M1
6-FM-45	12	45.0	40.5	36.0	27.0	198.0	166.0	170.0	170.0	13.8	M1
6-FM-50	12	50.0	46.0	40.0	30.0	229.0	138.0	208.0	213.0	16.2	M1
6-FM-55	12	55.0	50.6	44.0	33.0	229.0	138.0	212.0	217.0	18.9	M1
6-FM-65A	12	65.0	61.0	52.0	39.0	350.0	167.0	177.0	177.0	20.0	M2
6-FM-65B	12	65.0	61.0	52.0	39.0	330.0	173.0	171.0	176.0	20.0	M3
6-FM-70	12	70.0	64.4	56.0	42.0	260.0	169.0	211.0	216.0	21.4	M1
6-FM-75	12	75.0	68.0	60.0	45.0	260.0	169.0	211.0	216.0	22.0	M1
6-FM-80	12	80.0	72.0	64.0	48.0	260.0	169.0	211.0	216.0	22.5	M1
6-FM-90	12	90.0	82.8	72.0	54.0	307.0	169.0	211.0	216.0	26.6	M2
6-FM-100	12	100.0	92.0	80.0	60.0	329.0	172.0	215.0	220.0	27.7	M2
6-FM-100A	12	100.0	92.0	80.0	60.0	407.0	174.0	208.0	236.0	32.4	M3
6-FM-100B	12	100.0	92.0	80.0	60.0	409.0	177.0	225.0	225.0	32.3	M2
6-FM-120A	12	120.0	110.0	96.0	72.0	407.0	174.0	208.0	236.0	34.5	M3
6-FM-120B	12	120.0	110.0	96.0	72.0	409.0	177.0	225.0	225.0	35.0	M2
6-FM-150A	12	150.0	138.0	120.0	90.0	532.0	207.0	216.0	221.0	47.8	M3
6-FM-150B	12	150.0	138.0	120.0	90.0	483.0	170.0	241.0	241.0	45.0	M2
6-FM-160(S)	12	160.0	144.0	130.0	100.0	341.0	173.0	281.0	288.0	46.1	M5
6-FM-200	12	200.0	184.0	160.0	120.0	523.0	240.0	225.0	230.0	60.3	M3
6-FM-250	12	250	230	200	150	520	269	220	225	69.0	M5

BATTERY INDEX

FML Series For High Cycle Use

Type	Nominal Voltage (V)	Rated Capacity(Ah)				Dimensions(mm)				Weight Appox (kg)	Terminal type
		20HR	10HR	5HR	1HR	Length	Width	Height	Total Height		
		1.75V/C	1.80V/C	1.75V/C	1.75V/C						
3-FML-100	6	100	92	80	60	195	170	206	210	16	M2
3-FML-150	6	150	138	120	90	260	180	247	250	25	M3
3-FML-200	6	200	184	160	120	323	178	226	231	31	M5
6-FML-36	12	36	33.1	28.8	21.6	195	131	155	169	11.4	M1
6-FML-38	12	38.0	34.2	30.4	22.8	198.0	166.0	170.0	170.0	13.2	M1
6-FML-56	12	56.0	51.4	44.8	33.6	229.0	138.0	212.0	217.0	19.0	M1
6-FML-65	12	65.0	61.0	52.0	39.0	350.0	167.0	177.0	177.0	21.5	M2
6-FML-85	12	85	78.2	68	51	260	169	211	216	25.0	M1
6-FML-100	12	100.0	92.0	80.0	60.0	407.0	174.0	208.0	236.0	32.6	M3
6-FML-110	12	110	101	88	66	329	172	215	222	33.5	M5
6-FML-120	12	120.0	110.0	96.0	72.0	407.0	174.0	208.0	236.0	36.5	M3
6-FML-150	12	150	138	120	90	532	207	216	221	50	M5
6-FML-200	12	200.0	184.0	160.0	120.0	523.0	240.0	225.0	230.0	62.5	M3

GFM For Long Life Standby Use

Type	Nominal Voltage (V)	Rated Capacity(Ah)			Dimensions(mm)				Weight Appox (kg)	Terminal type
		10HR	5HR	1HR	Length	Width	Height	Total Height		
		1.80V/C	1.75V/C	1.75V/C						
GFM100	2	100	90	60	171	72	205	210	5.9	M3
GFM200	2	200	180	120	172	111	329	365	13.1	M3
GFM300	2	300	270	180	171	151	330	366	18.0	M3
GFM400	2	400	360	240	210	171	329	363	25.0	M3
GFM500	2	500	450	300	241	172	331	366	29.0	M3
GFM600	2	600	540	360	301	175	331	366	35.0	M3
GFM800	2	800	720	480	410	175	330	365	49.5	M3
GFM1000	2	1000	900	600	475	175	328	365	56.3	M3
GFM1500	2	1500	1350	900	401	351	342	378	92.6	M3
GFM2000	2	2000	1800	1200	491	351	343	383	122.5	M3
GFM3000	2	3000	2700	1800	712	353	341	382	174.0	M3

Solar Energy Deep Cycle Series

Type	Nominal Voltage (V)	Rated Capacity(Ah)			Dimensions(mm)				Weight Appox (kg)	Terminal type
		10HR	5HR	1HR	Length	Width	Height	Total Height		
		1.80V/C	1.75V/C	1.75V/C						
6-FM-38T	12	34.2	30.4	22.8	198	166	170	170	12.0	M1
6-FM-65T	12	61	52	39	350	167	177	177	20.0	M2
6-FM-100T	12	92	80	60	407	174	208	236	32.5	M3
6-FM-150T	12	138	120	90	532	207	216	221	48.3	M5
6-FM-200T	12	184	160	120	523	240	225	230	60.3	M3
GFM200T	2	200	180	120	172	111	329	365	13.1	M3
GFM300T	2	300	270	180	171	151	330	366	18.0	M3
GFM400T	2	400	360	240	210	171	329	363	25.0	M3
GFM500T	2	500	450	300	241	172	331	366	29.0	M3
GFM600T	2	600	540	360	301	175	331	366	34.6	M3
GFM800T	2	800	720	480	410	175	330	365	49.0	M3
GFM1000T	2	1000	900	600	475	175	328	365	56.3	M3
GFM1500T	2	1500	1350	900	401	351	342	378	92.6	M3
GFM2000T	2	2000	1800	1200	491	351	343	383	123.0	M3

Gel Battery Series (AGM)

Type	Nominal Voltage (V)	Rated Capacity(Ah)			Dimensions(mm)				Weight Appox (kg)	Terminal type
		10HR	5HR	1HR	Length	Width	Height	Total Height		
		1.80V/C	1.75V/C	1.75V/C						
6-FM-38J	12	34.2	30.4	22.8	198	166	170	170	12.2	M1
6-FM-65J	12	61	52	39	350	167	177	177	20.3	M2
6-FM-100J	12	92	80	60	406	173	212	219	33.0	M3
6-FM-150J	12	138	120	90	532	207	216	221	48.6	M5
6-FM-200J	12	184	160	120	523	240	225	230	60.5	M3
GFM200J	2	200	180	120	172	111	329	365	13.3	M3
GFM300J	2	300	270	180	171	151	330	366	18.3	M3
GFM400J	2	400	360	240	210	171	329	363	25.4	M3
GFM500J	2	500	450	300	241	172	331	366	29.5	M3
GFM600J	2	600	540	360	301	175	331	366	35.6	M3
GFM800J	2	800	720	480	410	175	330	365	50.3	M3
GFM1000J	2	1000	900	600	475	175	328	365	59.0	M3
GFM2000J	2	2000	1800	1200	491	351	343	383	124.5	M3

PROFESSIONAL SERVICES

Integration of Power Solutions

PROFESSIONAL SERVICES

- **Site Audits, Needs Analysis and System Design**
- **Integration of DC Power Plant with Distribution**
- **Integration of AC UPS with Distribution**
- **Custom Outdoor Power System Enclosures**
- **Custom Indoor Battery Racks and Outdoor Enclosures**

- Free up key resources with delivery of a turnkey system
- Accelerate your schedule by having systems manufactured in parallel with site works
- Decrease rework and time spent at remote sites with pre-tested systems
- Increase quality and finish with factory manufactured enclosures
- Factory applied paint can extend the service lifetime of outdoor enclosures

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PROFESSIONAL SERVICES

Startup and Commissioning

'Professional planning can ensure that new equipment operates efficiently and integrates correctly with other electrical systems.'

PROFESSIONAL SERVICES

- **Requirements review and development**
- **Installation supervision**
- **Sub-trade submittal reviews**
- **Schedule management**
- **System startup**
- **Acceptance testing**
- **Monitoring set up**
- **Operating documentation**
- **Personnel training**
- **Maintenance plan**

- Single point of contact during the project
- Proper set up and commissioning helps keeps utility bills and maintenance costs low
- Documentation and personnel training helps workforce operate new power equipment safely
- Expert advice helps avoid costly early system issues and allows for the quick startup of new equipment due to decreased rework and fewer change orders

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PROFESSIONAL SERVICES

Preventative Maintenance - Batteries

'UPS runtime can be greatly reduced by a single degraded battery that adversely affects the performance of the entire string'

PROFESSIONAL SERVICES

- **Battery state-of-health 'testing'**
- **Discharge testing**
- **Temperature checks**
- **Inspection for leaks and corrosion**
- **Clean and tighten connections**

- UPS availability and performance improves when its supported by healthy batteries
- Costly emergency repairs and lost business revenue are avoided when batteries are proactively replaced before a failure
- Best practices are followed with the removal and recycling of spent batteries

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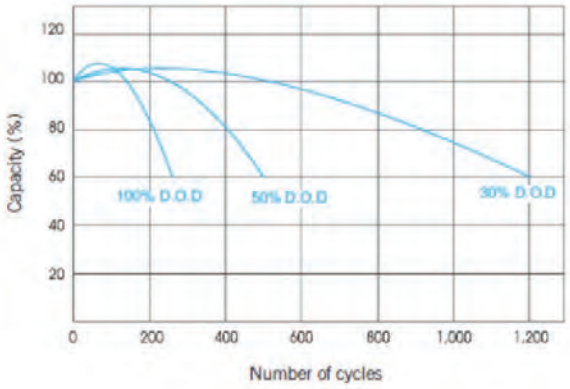
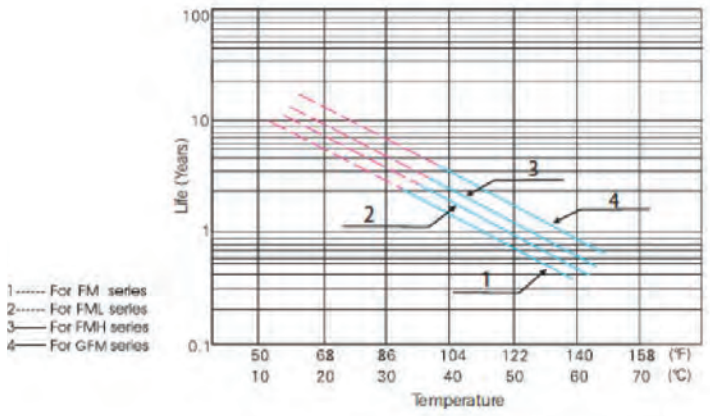
Preventative Maintenance - Batteries

'Cycle life is very dependent on the depth of discharge which the battery experiences during each cycle.'



'Float use life is very dependent on the temperature at which the battery is float charged. Float use life is longer at low temperatures (10~20^{0}C) but at higher temperatures float use life is shortened.'



FACTORS AFFECTING BATTERY LIFE AND PERFORMANCE

x - Charging at high or low voltage
x - Low or excessive charge current
x - High room temperatures
x - Overcharging or undercharging
x - Loose interconnections between batteries in the string
x - Improper maintenance

- Lead acid batteries lose capacity (runtime) based on age, usage and operating temperature.
- Every time a battery is discharge, it shortens the remaining lifetime.
- Typically lead acid batteries start to lose capacity and fail within 3 - 5 years.
- Lead acid batteries are electrochemical devices that require regular checks and maintenance.
- Discharging and charging of a lead acid battery is an electrochemical process that ultimately results in the destruction of the lead plates (shedding) and the degradation of the electrolyte liquid.
- A high battery cell temperature indicates severe internal issues and that battery replacement is required.

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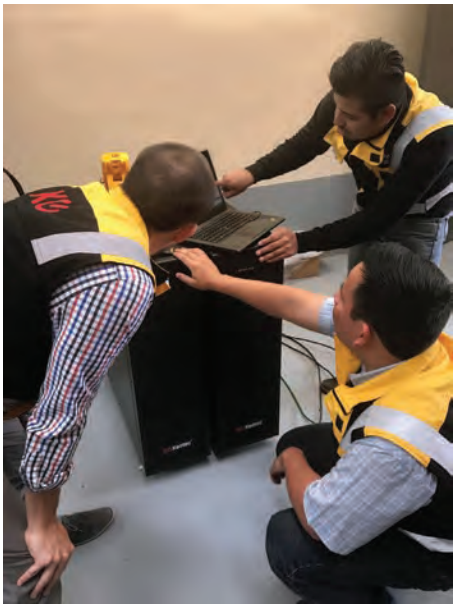
Preventative Maintenance - UPS



'Most equipment breakdowns are simply due to a lack of maintenance'

PROFESSIONAL SERVICES

- **Analyze alarm history**
- **Inspection of fans and filters**
- **Tighten connection points**
- **Examine power capacitors for leaks and expansion**
- **Check sub-assemblies for heat discoloration**
- **Clean internal and external areas**
- **Review compliance to factory field change notices**

- Mean time between failure (MTBF) is increased when regular maintenance is performed
- Power system availability is dramatically increased when potential problems are removed
- Less unplanned downtime due to regular inspection of a UPS and its critical components
- Lower total cost of ownership results from a maintenance program that optimizes system performance and minimizes emergency repairs

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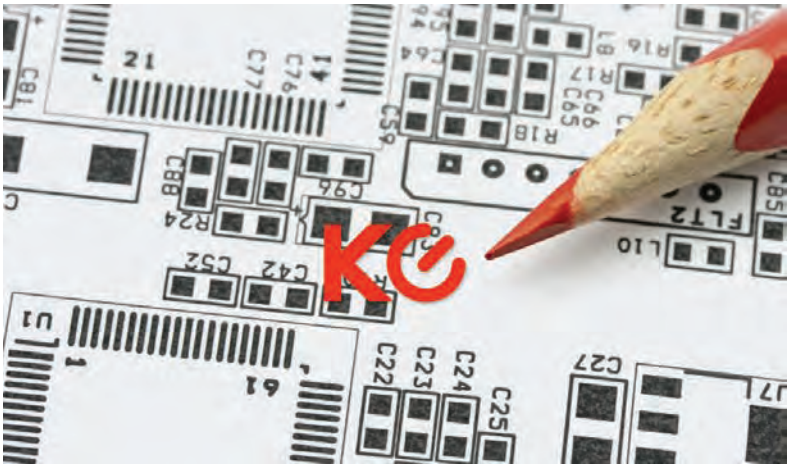
PROFESSIONAL SERVICES

System Capacity and Performance Audit



Businesses grow, technology changes, and eventually systems require upgrading or replacement'

PROFESSIONAL SERVICES

- **System Capacity Audit**
- **Performance Review**
- **Upgrade Assessment**
- **Fault Cause Discovery**
- **Surge and Ground Protection Review**
- **Cooling System Review**

- Eliminate faults and performance issues causing downtime and lost revenue.
- Cost-effectively extend the life of assets with an upgrade or expansion.
- Enhance bottom line performance by enhancing system efficiency and reliability.
- Restore system to full backup runtime with fresh batteries.

DS Keatec Services - System Capacity and Performance Audit English 20170608

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Keatec Energy

We design, manufacture, service and install DC and AC uninterruptible power solutions for Telecommunication, Commercial Information Technology (IT), Public Safety and Industrial clients.

Keatec Energy is headquartered in British Columbia, Canada, with operations in Mexico serving customers across the Americas.

Services

Integration of Power Solutions
Startup and Commissioning
Preventative Maintenance – Batteries
Preventative Maintenance – UPS
System Capacity and Performance Audit – UPS

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