# **Online UPS** EssentialPower XS1 oT Tower 1-20KV/











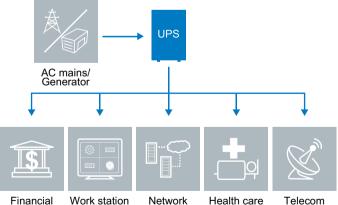


#### **Key features**

- · True double-conversion design with high adaptability to harsh mains conditions
- Real PF 1 can provide more power in same space
- · High efficiency results in energy saving
- · Adjustable charging current and flexible battery configuration
- · Optimized changing method to expand battery life time
- 10-20K 3-3 model can be configure as 3-1 or 1-1 model to meet utility and load wiring
- 10-20K 3-3 model can be configure as single source input or dual source input for utility and bypass

- · Built-in OVCD protection, fan lock detection, over temperature detection, overload warning to enhance the product reliability
- · Automatic detect additional EBM quantity will simplify EBM installation for IT users
- · Low audible noise at typical load
- · Dot matrix LCD support up to 10 languages for easy installation and service. 10-20K 3-3 model support colorful touchable LCD display with
- · Embedded Ethernet port solution provide safe network connection to Cloud which will meet the increasing IoT trend
- · WLAN module for IoT connection
- · Mobile APP for monitoring, configuration. Support Android/iOS
- USB HID enable monitoring on UPS without software installation
- · Dry contactor for industrial condition
- · Upgraded network card compliance with IEC standard cybersecurity

#### Typical application



Financial

Work station

Network

Telecom



#### New full range double conversion UPS

High density, true double conversion on-line power protection for IT (Information technology) and OT (operation technology) applications. Capable of supporting loads from 1 to 20kVA in a compact tower form.

These latest range of UPS comes with future-proof connectivity design having the capability to connect to cloud seamlessly to allow the monitoring of the UPS online through any internet connected device. To ensure users information is safe and protected, these connectivity is compliant with IEC standard cybersecurity.



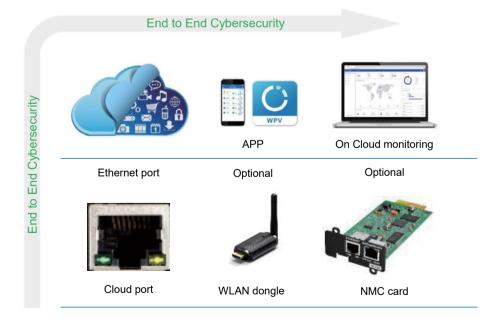
#### Network connected and data to cloud

- · Easy to setup the Safe connection to Cloud
- Connect to Cloud through MQTT protocol (the most widely used IoT protocol)
- Real time health monitoring on the equipment to enable business continuity and failure prevention
- Remote monitoring, scheduled maintenance and UPS firmware upgrade \*
- · Improve the data visibility to the service people and end user
- Reduce the responsive time on product failure as Cloud push the exact information to end user and service people at the same time
- Create value added service opportunities based on digitalization transformation











#### **Product rear panel**













1-3K IEC rear panel

1-3K EBM rear panel







2K/2KS/3K SCHUKO



3KS SCHUKO

Tower UPS 10-20K(S) 3:3



Tower EBM 10-20K(S) 3

1-3K SCHUKO rear panel

10-20K rear panel



6KS (1:1)



10KS (1:1)



6K (1:1)



8K/10K (1:1)



10K/10KS (3:1)



EBM

6-10k rear panel



Model name		Tower 1K	Tower 1KS	Tower 1.5K	Tower 1.5KS
Power rating	VA/Watt	1000VA/1000W	1000VA/1000W	1500VA/1500W	1500VA/1500W
Etc. :	Double coversion mode	89%	89%	89%	89%
Efficiency	ECO mode	96%	96%	97%	97%
	Voltage range	160-300V 100% load, 110- 160V derating to 50% load linearly	160-300V 100% load, 110- 160V derating to 50% load linearly	160-300V 100% load, 110- 160V derating to 50% load linearly	160-300V 100% load, 110- 160V derating to 50% load linearly
	Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Input performance	Frequency range	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)
	PF	>0.99	>0.99	>0.99	>0.99
	THDI	<5%	<5%	<5%	<5%
Input connection		IEC C14	IEC C14	IEC C14	IEC C14
	Rated voltage	200/208/220/230/240 VAC(derating 10% at 208V, derating 20% at 200V)			
	Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
	Maximum PF	1	1	1	1
	Voltage accuracy	±1%	±1%	±1%	±1%
	THDv	<1% linear load <5% non linear load			
Output performance	Transfer time	Oms(4ms @ line <-> bypass;10ms @ ECO <->Inverter)			
	Crest Ratio	max 3:1	max 3:1	max 3:1	max 3:1
	Overload	100% <load≤105% 105%<="" 125<load≤150%="" 3="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 105%<="" 125<load≤150%="" 3="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 105%<="" 125<load≤150%="" 3="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 105%<="" 125<load≤150%="" 3="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>
Output connection	Wiring/socket	4 x IEC C13			
	Voltage	36VDC	36VDC	36VDC	36VDC
	Capacity(AH)	3 x 12V/7Ah	NA	3 x 12V/9Ah	NA
Battery	Backup time Typical value by default battery capacity, PF=1	"3.0min 100% load 12.2min 50% load"	NA	"2.4min 100% load 8.7min 50% load"	NA
Maximum connect external battery module quantity		4	4	4	4
Chargor	Charging current	1.5A	8A	1.5A	8A
Charger	Recharging time	3h to 90%	NA	3h to 90%	NA
Other working mode	CVCF	Yes (derating to 60% load)			
	Parallel	no	no	no	no





Model name		Tower 1K	Tower 1KS	Tower 1.5K	Tower 1.5KS
	Display	Dot matrix LCD, (optional segment LCD)			
	Language	10 Languages	10 Languages	10 Languages	10 Languages
	USB	USB 2.0 with HID			
	RS232	Yes(DB9)	Yes(DB9)	Yes(DB9)	Yes(DB9)
	Dry in/out	1 programble dry in; 1 programble dry out	1 programble dry in; 1 programble dry out	1 programble dry in; 1 programble dry out	1 programble dry in; 1 programble dry out
	EPO	yes	yes	yes	yes
HMI(human-machine interface)	Intelignet slot	yes(for long card)	yes(for long card)	yes(for long card)	yes(for long card)
interrace	Network card	Optional, NMC long card	Optional, NMC long card	Optional, NMC long card	Optional, NMC long card
	Modbus card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus Long Card
	Dry contactor card	Optional,AS400 Long Card	Optional,AS400 Long Card	Optional,AS400 Long Card	Optional,AS400 Long Card
	WLAN module	Optional,HDMI type	Optional,HDMI type	Optional,HDMI type	Optional,HDMI type
	Ethernet port for IOT	RJ45	RJ45	RJ45	RJ45
	Monitor software	Winpower	Winpower	Winpower	Winpower
DI : I (	Dimension(W*D*H)MM	145*397*220	145*397*220	145*397*220	145*397*220
Physical performance	IP protection level	IP20	IP20	IP20	IP20
	Operating temperature	0-45°C(power derating to 80% @40-45°C)			
	Relative Humidity	0-95%	0-95%	0-95%	0-95%
Environment	Operating Altitude	0~3000m(the load derat- ing 1 % every up 100m @1000~3000m)	0~3000m(the load derat- ing 1 % every up 100m @1000~3000m)	0~3000m(the load derat- ing 1 % every up 100m @1000~3000m)	0~3000m(the load derat- ing 1 % every up 100m @1000~3000m)
	Acoustic Noise	<45dB @ typical load with battery fully charged	<45dB @ typical load with battery fully charged	<45dB @ typical load with battery fully charged	<45dB @ typical load with battery fully charged
Certification		CE,IEC/EN 62040	CE,IEC/EN 62040	CE,IEC/EN 62040	CE,IEC/EN 62040
EMI	Conduction/Radiation	C2	C2	C2	C2
	ESD	IEC/EN 61000-4-2	IEC/EN 61000-4-2	IEC/EN 61000-4-2	IEC/EN 61000-4-2
FNAC	RS	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3
EMS	EFT	IEC/EN 61000-4-4	IEC/EN 61000-4-4	IEC/EN 61000-4-4	IEC/EN 61000-4-4
	Surge	IEC/EN 61000-4-5	IEC/EN 61000-4-5	IEC/EN 61000-4-5	IEC/EN 61000-4-5
	Maintenance bypass switch	NA	NA	NA	NA
	Input power cable	yes	yes	yes	yes
	Output power cable	yes,1*10A	yes,1*10A	yes,1*10A	yes,1*10A
Accessory	EBM cable	yes(in EBM)	yes(in EBM)	yes(in EBM)	yes(in EBM)
	USB cable	yes	yes	yes	yes
	RS232 cable	Optional	Optional	Optional	Optional
	Manual	Yes	Yes	Yes	Yes



Model name		Tower 2K	Tower 2KS	Tower 3K	Tower 3KS
Power rating	VA/Watt	2000VA/2000W	2000VA/2000W	3000VA/3000W	3000VA/3000W
Efficiency	Double coversion mode	93%	93%	93%	93%
	ECO mode	97%	97%	97%	97%
	Voltage range	160-300V 100% load, 110- 160V derating to 50% load linearly	160-300V 100% load, 110- 160V derating to 50% load linearly	160-300V 100% load, 110- 160V derating to 50% load linearly	160-300V 100% load, 110- 160V derating to 50% load linearly
	Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Input performance	Frequency range	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)
	PF	>0.99	>0.99	>0.99	>0.99
	THDI	<5%	<5%	<5%	<5%
Input connection		IEC C20	IEC C20	IEC C20	L/N/PE hardware terminnal connection
	Rated voltage	200/208/220/230/240 VAC(derating 10% at 208V, derating 20% at 200V)			
	Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
	Maximum PF	1	1	1	1
	Voltage accuracy	±1%	±1%	±1%	±1%
	THDv	<1% linear load <5% non linear load			
Output performance	Transfer time	Oms(4ms @ line <-> bypass;10ms @ ECO <->Inverter)			
	Crest Ratio	max 3:1	max 3:1	max 3:1	max 3:1
	Overload	100% <load≤105% 105%<="" 125<load≤150%="" 3="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 105%<="" 125<load≤150%="" 3="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 105%<="" 125<load≤150%="" 3="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 105%<="" 125<load≤150%="" 3="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>
Output connection	Wiring/socket	8 x IEC C13	8 x IEC C13	8 x IEC C13 + hardwire terminal	8 x IEC C13 + hardwire terminal
	Voltage	72VDC	72VDC	72VDC	72VDC
	Capacity(AH)	6 x 12V/7Ah	NA	6 x 12V/9Ah	NA
Battery	Backup time Typical value by default battery capacity, PF=1	"3.3min 100% load 12.9min 50% load"	NA	"2.5min 100% load 9.3min 50% load"	NA
Maximum connect external battery module quantity		4	4	4	4
Chargar	Charging current	1.5A	8A	1.5A	8A
Charger	Recharging time	3h to 90%	NA	3h to 90%	NA
Other working mode	CVCF	Yes (derating to 60% load)			
	Parallel	no	no	no	no





Model name		Tower 2K	Tower 2KS	Tower 3K	Tower 3KS
	Display	Dot matrix LCD, (optional segment LCD)			
	Language	10 Languages	10 Languages	10 Languages	10 Languages
	USB	USB 2.0 with HID			
	RS232	Yes(DB9)	Yes(DB9)	Yes(DB9)	Yes(DB9)
	Dry in/out	1 programble dry in; 1 programble dry out	1 programble dry in; 1 programble dry out	1 programble dry in; 1 programble dry out	1 programble dry in; 1 programble dry out
	EPO	yes	yes	yes	yes
HMI(human-machine interface)	Intelignet slot	yes(for long card)	yes(for long card)	yes(for long card)	yes(for long card)
interiace	Network card	Optional, NMC long card	Optional, NMC long card	Optional, NMC long card	Optional, NMC long card
	Modbus card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus Long Card
	Dry contactor card	Optional,AS400 Long Card	Optional,AS400 Long Card	Optional,AS400 Long Card	Optional,AS400 Long Card
	WLAN module	Optional,HDMI type	Optional,HDMI type	Optional,HDMI type	Optional,HDMI type
	Ethernet port for IOT	RJ45	RJ45	RJ45	RJ45
	Monitor software	Winpower	Winpower	Winpower	Winpower
Dhysical parformance	Dimension(W*D*H)MM	195*421*318	195*421*318	195*421*318	195*421*318
Physical performance	IP protection level	IP20	IP20	IP20	IP20
	Operating temperature	0-45°C(power derating to 80% @40-45°C)	0-45°C(power derating to 80% @40-45°C)	0-45°C(power derating to 80% @40-45°C)	0-45°C(power derating to 80% @40-45°C)
	Relative Humidity	0-95%	0-95%	0-95%	0-95%
Environment	Operating Altitude	0~3000m(the load derat- ing 1 % every up 100m @1000~3000m)	0~3000m(the load derat- ing 1 % every up 100m @1000~3000m)	0~3000m(the load derat- ing 1 % every up 100m @1000~3000m)	0~3000m(the load derat- ing 1 % every up 100m @1000~3000m)
	Acoustic Noise	<50dB @ typical load with battery fully charged	<50dB @ typical load with battery fully charged	<50dB @ typical load with battery fully charged	<50dB @ typical load with battery fully charged
Certification		CE,IEC/EN 62040	CE,IEC/EN 62040	CE,IEC/EN 62040	CE,IEC/EN 62040
EMI	Conduction/Radiation	C2	C2	C2	C2
	ESD	IEC/EN 61000-4-2	IEC/EN 61000-4-2	IEC/EN 61000-4-2	IEC/EN 61000-4-2
EMC	RS	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3
EMS	EFT	IEC/EN 61000-4-4	IEC/EN 61000-4-4	IEC/EN 61000-4-4	IEC/EN 61000-4-4
	Surge	IEC/EN 61000-4-5	IEC/EN 61000-4-5	IEC/EN 61000-4-5	IEC/EN 61000-4-5
	Maintenance bypass switch	NA	NA	NA	NA
	Input power cable	yes	yes	yes	No
	Output power cable	yes,1*10A	yes,1*10A	yes,1*10A	yes,1*10A
Accessory	EBM cable	yes(in EBM)	yes(in EBM)	yes(in EBM)	yes(in EBM)
	USB cable	yes	yes	yes	yes
	RS232 cable	Optional	Optional	Optional	Optional
	Manual	Yes	Yes	Yes	Yes



Model name		Tower 6K	Tower 6KS	Tower 10K	Tower 10KS
Power rating	VA/Watt	6000VA/6000W	6000VA/6000W	10000VA/10000W	10000VA/10000W
F##:	Double coversion mode	95%	95%	95%	95%
Efficiency	ECO mode	98%	98%	98%	98%
	Voltage range	160-275V 100% load, 110- 160V derating to 50% load linearly	160-275V 100% load, 110- 160V derating to 50% load linearly	160-275V 100% load, 110- 160V derating to 50% load linearly	160-275V 100% load, 110- 160V derating to 50% load linearly
	Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Input performance	Frequency range	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60%)
	PF	>0.995	>0.995	>0.995	>0.995
	THDI	<3% linear load <5% non linear load			
Input connection		L/N/PE hardware terminnal connection			
	Rated voltage	220/230/240V	220/230/240V	220/230/240V	220/230/240V
	Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
	Maximum PF	1	1	1	1
	Voltage accuracy	±1%	±1%	±1%	±1%
	THDv	<1% linear load <5% non linear load			
Output performance	Transfer time	Oms(10ms @ ECO- >Inverter)	Oms(10ms @ ECO- >Inverter)	Oms(10ms @ ECO- >Inverter)	Oms(10ms @ ECO- >Inverter)
	Crest Ratio	max 3:1	max 3:1	max 3:1	max 3:1
	Overload	100% <load≤105% 10="" 105%<="" 125<load≤150%="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 10="" 105%<="" 125<load≤150%="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 10="" 105%<="" 125<load≤150%="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 10="" 105%<="" 125<load≤150%="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>
Output connection	Wiring/socket	L/N/PE hardware terminnal connection			
	Voltage	192VDC(192~240VDC adjustable)	192VDC(192~240VDC adjustable)	192VDC(192~240VDC adjustable)	192VDC(192~240VDC adjustable)
Battery	Capacity(AH)	16*12V/7Ah, 16~20pcs adjustable	NA	16*12V/9Ah, 16~20pcs adjustable	NA
	Backup time Typical value by default battery capacity, PF=1	"3.6min 100% load 9.6min 50% load"	NA	"2.1min 100% load 8min 50% load"	NA
Maximum connect external battery module quantity		6	6	6	6
Ch	Charging current	1.4A(0-4A adjustalbe)	4A(0-12A adjustable)	2A(0-4A adjustable)	4A(0-12A adjustable)
Charger	Recharging time	3h to 90%	NA	3h to 90%	NA
Other working mode	CVCF	Yes (derating to 60% load)			
	Parallel	Optional (up to 3)			





Model name		Tower 6K	Tower 6KS	Tower 10K	Tower 10KS
	Display	Dot matrix LCD	Dot matrix LCD	Dot matrix LCD	Dot matrix LCD
	Language	10 Languages	10 Languages	10 Languages	10 Languages
	USB	USB 2.0 with HID			
	RS232	Yes(DB9)	Yes(DB9)	Yes(DB9)	Yes(DB9)
	Dry in/out	1 programble dry in; 1 programble dry out	1 programble dry in; 1 programble dry out	1 programble dry in; 1 programble dry out	1 programble dry in; 1 programble dry out
	EPO	yes	yes	yes	yes
HMI(human-machine	Intelignet slot	yes(for long card)	yes(for long card)	yes(for long card)	yes(for long card)
interface)	Network card	Optional, NMC long card	Optional, NMC long card	Optional, NMC long card	Optional, NMC long card
	Modbus card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus Long Card
	Dry contactor card	Optional,AS400 Long Card	Optional,AS400 Long Card	Optional,AS400 Long Card	Optional,AS400 Long Card
	WLAN module	Optional,HDMI type	Optional,HDMI type	Optional,HDMI type	Optional,HDMI type
	Ethernet port for IOT	RJ45	RJ45	RJ45	RJ45
	Monitor software	Winpower	Winpower	Winpower	Winpower
DI : 1 (	Dimension(W*D*H)MM	220*492*589	220*492*348	220*492*589	220*492*348
Physical performance	IP protection level	IP20	IP20	IP20	IP20
	Operating temperature	0-50°C (power derating to 50% @40-50°C)			
	Relative Humidity	0-95%	0-95%	0-95%	0-95%
Environment	Operating Altitude	0~3000m (the load derat- ing 1 % every up 100m @1000~3000m)	0~3000m (the load derat- ing 1 % every up 100m @1000~3000m)	0~3000m (the load derat- ing 1 % every up 100m @1000~3000m)	0~3000m (the load derat- ing 1 % every up 100m @1000~3000m)
	Acoustic Noise	<50dB @ typical load with battery fully charged	<50dB @ typical load with battery fully charged	<55dB @ typical load with battery fully charged	<55dB @ typical load with battery fully charged
Certification		CE,IEC/EN 62040	CE,IEC/EN 62040	CE,IEC/EN 62040	CE,IEC/EN 62040
EMI	Conduction/Radiation	C3	C3	C3	C3
	ESD	IEC/EN 61000-4-2	IEC/EN 61000-4-2	IEC/EN 61000-4-2	IEC/EN 61000-4-2
EMS	RS	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3
EIVIO	EFT	IEC/EN 61000-4-4	IEC/EN 61000-4-4	IEC/EN 61000-4-4	IEC/EN 61000-4-4
	Surge	IEC/EN 61000-4-5	IEC/EN 61000-4-5	IEC/EN 61000-4-5	IEC/EN 61000-4-5
	Maintenance bypass switch	Standard offer	Standard offer	Standard offer	Standard offer
	Input power cable	NA	NA	NA	NA
	Output power cable	NA	NA	NA	NA
Accessory	EBM cable	yes(in EBM)	yes(in EBM)	yes(in EBM)	yes(in EBM)
	USB cable	Yes	Yes	Yes	Yes
	RS232 cable	Optional	Optional	Optional	Optional
	Manual	Yes	Yes	Yes	Yes



Model name		Tower 10K 3-1	Tower 10KS 3-1	Tower 10K 3-3	Tower 10KS 3-3
Power rating	VA/Watt	10000VA/10000W	10000VA/10000W	10000VA/10000W	10000VA/10000W
F/G :	Double coversion mode	95%	95%	95%	95%
Efficiency	ECO mode	98%	98%	98%	98%
	Voltage range	160-275V 100% load, 110- 160V derating to 50% load linearly	160-275V 100% load, 110- 160V derating to 50% load linearly	160-300V (273-520) 100% load, 100-160V (173-273) derating to 50% load linearly	160-300V (273-520) 100% load, 100-160V (173-273) derating to 50% load linearly
	Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Input performance	Frequency range	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60% and 1 phase in 1 phase out)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60% and 1 phase in 1 phase out)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60% and 1 phase in 1 phase out)	40Hz-70Hz(45Hz-55Hz 54Hz-66Hz @ load>60% and 1 phase in 1 phase out)
	PF	>0.95 at 3 phase input >0.99 at 1 phase input	>0.95 at 3 phase input >0.99 at 1 phase input	>0.995	>0.995
	THDI	<30% at 3 phase input <5% at 1 phase inut	<30% at 3 phase input <5% at 1 phase inut	<3% linear load <5% non linear load	<3% linear load <5% non linear load
Input connection		L1/L2/L3/N/PE or L/N/ PE hardware terminnal connection	L1/L2/L3/N/PE or L/N/ PE hardware terminnal connection	L1/L2/L3/N/PE or L/N/ PE hardware terminnal connection Dual input for line and bypass	L1/L2/L3/N/PE or L/N/ PE hardware terminnal connection Dual input for line and bypass
	Rated voltage	220/230/240V	220/230/240V	220/230/240V or 380/400/415V	220/230/240V or 380/400/415V
	Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
	Maximum PF	1	1	1	1
	Voltage accuracy	±1%	±1%	±1%	±1%
	TUD.	<1% linear load	<1% linear load	<1% linear load	<1% linear load
	THDv	<5% non linear load	<5% non linear load	<5% non linear load	<5% non linear load
Output performance	Transfer time	Oms(10ms @ ECO- >Inverter)	Oms(10ms @ ECO- >Inverter)	Oms(2ms @ ECO+ ->In- verter)	Oms(2ms @ ECO+ ->In- verter)
	Crest Ratio	max 3:1	max 3:1	max 3:1	max 3:1
	Overload	100% <load≤105% 10="" 105%<="" 125<load≤150%="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 10="" 105%<="" 125<load≤150%="" 30="" continuous.="" for="" load="" minutes="" seconds.="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 1="" 10="" 105%<="" 125<load≤150%="" continuous.="" for="" load="" minutes="" ≤125%="">150% for 500ms.</load≤105%>	100% <load≤105% 1="" 10="" 105%<="" 125<load≤150%="" continuous.="" for="" load="" minutes="" ≤125%="">150% for 500ms.</load≤105%>
Output connection	Wiring/socket	L/N/PE hardware terminnal connection	L/N/PE hardware terminnal connection	L1/L2/L3/N/PE or L/N/ PE hardware terminnal connection	L1/L2/L3/N/PE or L/N/ PE hardware terminnal connection
	Voltage	192VDC(192~240VDC adjustable)	192VDC(192~240VDC adjustable)	192VDC(192~240VDC adjustable)	192VDC(192~240VDC adjustable)
Battery	Capacity(AH)	16*12V/9Ah, 16~20pcs adjustable	NA	2*8*12V/9Ah, 16~20pcs adjustable	NA
	Backup time Typical value by default battery capacity, PF=1	"2.1min 100% load 8min 50% load"	NA	"1.8min 100% load 4.5min 50% load"	NA
Maximum connect external battery module quantity		6	6	6	6
Charger	Charging current	2A(0-12A adjustalbe)	4A(0-12A adjustalbe)	2A(0-13A adjustalbe)	2A(0-13A adjustalbe)
Gliaryei	Recharging time	3h to 90%	NA	3h to 90%	NA





Model name		Tower 10K 3-1	Tower 10KS 3-1	Tower 10K 3-3	Tower 10KS 3-3
		Yes (derating to 60% load	Yes (derating to 60% load	Yes (derating to 60% load	Yes (derating to 60% load
Other working mode	CVCF	@ 1 phase in and 1 phase	@ 1 phase in and 1 phase	@ 1 phase in and 1 phase	@ 1 phase in and 1 phase
Other working mode		out mode)	out mode)	out mode)	out mode)
	Parallel	Optional (up to 3)	Optional (up to 3)	Optional (up to 3)	Optional (up to 3)
	Display	Dot matrix LCD	Dot matrix LCD	colour touch LCD (optional	colour touch LCD (optional
	2 iopia j	501	Bot maan 200	Dot matrix LCD)	Dot matrix LCD)
	Language	10 Languages	10 Languages	10 Languages	10 Languages
	USB	USB 2.0 with HID	USB 2.0 with HID	USB 2.0 with HID	USB 2.0 with HID
	RS232	Yes(DB9)	Yes(DB9)	Yes(DB9)	Yes(DB9)
	Dry in/out	1 programble dry in; 1	1 programble dry in; 1	1 programble dry in; 1	1 programble dry in; 1
	2.7, out	programble dry out	programble dry out	programble dry out	programble dry out
HMI(human-machine	EP0	yes	yes	yes	yes
interface)	Intelignet slot	yes(for long card)	yes(for long card)	yes(for long card)	yes(for long card)
,	Network card	Optional, NMC long card	Optional, NMC long card	Optional, NMC long card	Optional, NMC long card
	Modbus card	Optional,CMC/Modbus	Optional,CMC/Modbus	Optional,CMC/Modbus	Optional,CMC/Modbus
	TVISUBUS SUITU	Long Card	Long Card	Long Card	Long Card
	Dry contactor card	Optional,AS400	Optional,AS400	Optional,AS400	Optional,AS400
	,	Long Card	Long Card	Long Card	Long Card
	WLAN module	Optional,HDMI type	Optional,HDMI type	Optional,HDMI type	Optional,HDMI type
	Ethernet port for IOT	RJ45	RJ45	RJ45	RJ45
	Monitor software	Winpower	Winpower	Winpower	Winpower
Physical performance	Dimension(W*D*H)MM	220*492*589	220*492*589	350*650*890	350*650*890
- myelear perfermance	IP protection level	IP20	IP20	IP20	IP20
	Operating temperature	0-50°C(power derating to	0-50°C(power derating to	0-50°C(power derating to	0-50°C(power derating to
		50% @40-50°C)	50% @40-50°C)	50% @40-50°C)	50% @40-50 <b>°</b> C)
	Relative Humidity	0-95%	0-95%	0-95%	0-95%
Environment	Operating Altitude	0~3000m (the load derat-	0~3000m (the load derat-	0~4000m (the load derat-	0~4000m (the load derat-
		ing 1 % every up 100m	ing 1 % every up 100m	ing 1 % every up 100m	ing 1 % every up 100m
		@1000~3000m)	@1000~3000m)	@1000~4000m)	@1000~4000m)
	Acoustic Noise	<55dB @ typical load with	<55dB @ typical load with	<55dB @ typical load with	<55dB @ typical load with
0		battery fully charged	battery fully charged	battery fully charged	battery fully charged
Certification	0 1 1 10 10 11 11	CE,IEC/EN 62040	CE,IEC/EN 62040	CE,IEC/EN 62040	CE,IEC/EN 62040
EMI	Conduction/Radiation	C3	C3	C3	C3
	ESD	IEC/EN 61000-4-2	IEC/EN 61000-4-2	IEC/EN 61000-4-2	IEC/EN 61000-4-2
EMS	RS	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3
	EFT	IEC/EN 61000-4-4	IEC/EN 61000-4-4	IEC/EN 61000-4-4	IEC/EN 61000-4-4
	Surge	IEC/EN 61000-4-5	IEC/EN 61000-4-5	IEC/EN 61000-4-5	IEC/EN 61000-4-5
	Maintenance bypass switch	Standard offer	Standard offer	Standard offer	Standard offer
	Input power cable	NA	NA	NA	NA
	Output power cable	NA	NA	NA	NA
Accessory	EBM cable	yes(in EBM)	yes(in EBM)	yes(in EBM)	yes(in EBM)
	USB cable	Yes	Yes	Yes	Yes
	RS232 cable	Optional	Optional	Optional	Optional
	Manual	Yes	Yes	Yes	Yes



Model name			Tower 15KS 3-3	Tower 20K 3-3	Tower 20KS 3-3
Power rating	VA/Watt	15000VA/15000W	15000VA/15000W	20000VA/20000W	20000VA/20000W
	Double coversion mode	96%	96%	96%	96%
Efficiency	ECO mode	98.8%	98.8%	99%	99%
		160-300V (273-520) 100%	160-300V (273-520) 100%	160-300V (273-520) 100%	160-300V (273-520) 100%
		load, 100-160V (173-273)	load, 100-160V (173-273)	load, 100-160V (173-273)	load, 100-160V (173-273)
	Voltage range	derating to 50% load	derating to 50% load	derating to 50% load	derating to 50% load
		linearly	linearly	linearly	linearly
	Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
lanut norformana		40Hz-70Hz(45Hz-55Hz	40Hz-70Hz(45Hz-55Hz	40Hz-70Hz(45Hz-55Hz	40Hz-70Hz(45Hz-55Hz
Input performance	Frequency range	54Hz-66Hz @ load>60%	54Hz-66Hz @ load>60%	54Hz-66Hz @ load>60%	54Hz-66Hz @ load>60%
		and 1 phase in 1 phase out)	and 1 phase in 1 phase out)	and 1 phase in 1 phase out)	and 1 phase in 1 phase out)
	PF	>0.995	>0.995	>0.995	>0.995
		<3% linear load	<3% linear load	<3% linear load	<3% linear load
	THDI	<5% non linear load	<5% non linear load	<5% non linear load	<5% non linear load
		L1/L2/L3/N/PE or L/N/	L1/L2/L3/N/PE or L/N/	L1/L2/L3/N/PE or L/N/	L1/L2/L3/N/PE or L/N/
		PE hardware terminnal	PE hardware terminnal	PE hardware terminnal	PE hardware terminnal
Input connection		connection	connection	connection	connection
		Dual input for line and	Dual input for line and	Dual input for line and	Dual input for line and
		bypass	bypass	bypass	bypass
	Rated voltage	220/230/240V or	220/230/240V or	220/230/240V or	220/230/240V or
	nateu voitage	380/400/415V	380/400/415V	380/400/415V	380/400/415V
	Rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
	Maximum PF	1	1	1	1
	Voltage accuracy	±1%	±1%	±1%	±1%
	TUD.	<1% linear load	<1% linear load	<1% linear load	<1% linear load
	THDv	<5% non linear load	<5% non linear load	<5% non linear load	<5% non linear load
	T	Oms(2ms @ ECO+ ->In-	0ms(2ms @ ECO+ ->In-	Oms(2ms @ ECO+ ->In-	0ms(2ms @ ECO+ ->In-
Output performance	Transfer time	verter)	verter)	verter)	verter)
	Crest Ratio	max 3:1	max 3:1	max 3:1	max 3:1
		100% <load≤105% continu-<="" td=""><td>100%<load≤105% continu-<="" td=""><td>100%<load≤105% continu-<="" td=""><td>100%<load≤105% continu-<="" td=""></load≤105%></td></load≤105%></td></load≤105%></td></load≤105%>	100% <load≤105% continu-<="" td=""><td>100%<load≤105% continu-<="" td=""><td>100%<load≤105% continu-<="" td=""></load≤105%></td></load≤105%></td></load≤105%>	100% <load≤105% continu-<="" td=""><td>100%<load≤105% continu-<="" td=""></load≤105%></td></load≤105%>	100% <load≤105% continu-<="" td=""></load≤105%>
		ous.	ous.	ous.	ous.
		105%< load ≤125% for 10	105%< load ≤125% for 10	105%< load ≤125% for 10	105%< load ≤125% for 10
	Overload	minutes	minutes	minutes	minutes
		125 <load≤150% 1<="" for="" td=""><td>125<load≤150% 1<="" for="" td=""><td>125<load≤150% 1<="" for="" td=""><td>125<load≤150% 1<="" for="" td=""></load≤150%></td></load≤150%></td></load≤150%></td></load≤150%>	125 <load≤150% 1<="" for="" td=""><td>125<load≤150% 1<="" for="" td=""><td>125<load≤150% 1<="" for="" td=""></load≤150%></td></load≤150%></td></load≤150%>	125 <load≤150% 1<="" for="" td=""><td>125<load≤150% 1<="" for="" td=""></load≤150%></td></load≤150%>	125 <load≤150% 1<="" for="" td=""></load≤150%>
		minutes	minutes	minutes	minutes
		>150% for 500ms.	>150% for 500ms.	>150% for 500ms.	>150% for 500ms.
0	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	L1/L2/L3/N/PE or L/N/	L1/L2/L3/N/PE or L/N/	L1/L2/L3/N/PE or L/N/	L1/L2/L3/N/PE or L/N/
Output connection	Wiring/socket	PE hardware terminnal connection	PE hardware terminnal connection	PE hardware terminnal connection	PE hardware terminnal connection
		384VDC(384~480VDC	384VDC(384~480VDC	384VDC(384~480VDC	384VDC(384~480VDC
	Voltage	adjustable)	adjustable)	adjustable)	adjustable)
		2*16*12V/7Ah, 32~40pcs	aujustavie)	2*16*12V/9Ah, 32~40pcs	aujustabiej
Battery	Capacity(AH)	adjustable	NA	adjustable	NA
	Backup time Typical value	#0.0m.': 4000/ !		-	
	by default battery capacity,	"2.0min 100% load	NA	"1.8min 100% load	NA
	PF=1	5.2min 50% load"		4.7min 50% load"	
Maximum connect external		C	6	6	C
battery module quantity		6	6	6	6
, January	Charging current	1.5A(0-13A adjustalbe)	1.5A(0-13A adjustalbe)	2A(0-13A adjustalbe)	2A(0-13A adjustalbe)
Charger		· · · · · ·			





Model name		Tower 15K 3-3	Tower 15KS 3-3	Tower 20K 3-3	Tower 20KS 3-3
		Yes (derating to 60% load			
Other working mode	CVCF	@ 1 phase in and 1 phase			
		out mode)	out mode)	out mode)	out mode)
	Parallel	Optional (up to 3)			
	Display	colour touch LCD (optional			
	. ,	Dot matrix LCD)	Dot matrix LCD)	Dot matrix LCD)	Dot matrix LCD)
	Language	10 Languages	10 Languages	10 Languages	10 Languages
	USB	USB 2.0 with HID			
	RS232	Yes(DB9)	Yes(DB9)	Yes(DB9)	Yes(DB9)
	Dry in/out	1 programble dry in; 1			
	EPO	programble dry out	programble dry out	programble dry out	programble dry out
HMI(human-machine		yes	yes	yes	yes
interface)	Intelignet slot	yes(for long card)	yes(for long card)	yes(for long card)	yes(for long card)
	Network card	Optional, NMC long card	Optional, NMC long card	Optional, NMC long card	Optional, NMC long card
	Modbus card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus Long Card	Optional,CMC/Modbus  Long Card	Optional,CMC/Modbus Long Card
	D	Optional,AS400	Optional,AS400	Optional,AS400	Optional,AS400
	Dry contactor card	Long Card	Long Card	Long Card	Long Card
	WLAN module	Optional,HDMI type	Optional,HDMI type	Optional,HDMI type	Optional,HDMI type
	Ethernet port for IOT	RJ45	RJ45	RJ45	RJ45
	Monitor software	Winpower	Winpower	Winpower	Winpower
Dbilf	Dimension(W*D*H)MM	350*650*890	350*650*890	350*650*890	350*650*890
Physical performance	IP protection level	IP20	IP20	IP20	IP20
	Operating temperature	0-50°C(power derating to 50% @40-50°C)			
	Relative Humidity	0-95%	0-95%	0-95%	0-95%
Continuous and	·	0~4000m(the load derat-	0~4000m(the load derat-	0~4000m(the load derat-	0~4000m(the load derat-
Environment	Operating Altitude	ing 1 % every up 100m			
		@1000~4000m)	@1000~4000m)	@1000~4000m)	@1000~4000m)
	Acoustic Noise	<55dB @ typical load with			
	Acoustic Moise	battery fully charged	battery fully charged	battery fully charged	battery fully charged
Certification		CE,IEC/EN 62040	CE,IEC/EN 62040	CE,IEC/EN 62040	CE,IEC/EN 62040
EMI	Conduction/Radiation	C3	C3	C3	C3
	ESD	IEC/EN 61000-4-2	IEC/EN 61000-4-2	IEC/EN 61000-4-2	IEC/EN 61000-4-2
EMS	RS	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3
LIVIO	EFT	IEC/EN 61000-4-4	IEC/EN 61000-4-4	IEC/EN 61000-4-4	IEC/EN 61000-4-4
	Surge	IEC/EN 61000-4-5	IEC/EN 61000-4-5	IEC/EN 61000-4-5	IEC/EN 61000-4-5
	Maintenance bypass switch	Standard offer	Standard offer	Standard offer	Standard offer
	Input power cable	NA	NA	NA	NA
	Output power cable	NA	NA	NA	NA
Accessory	EBM cable	yes(in EBM)	yes(in EBM)	yes(in EBM)	yes(in EBM)
	USB cable	Yes	Yes	Yes	Yes
	RS232 cable	Optional	Optional	Optional	Optional
	Manual	Yes	Yes	Yes	Yes

