

A photograph of an industrial power plant at sunset. The sky is a mix of orange, red, and blue. Several tall, cylindrical chimneys or towers are visible, some with lights on. The foreground shows a fence and some lower-level buildings.

AC & DC Power System for industrial application

CUSTOMISED SOLUTIONS

High value projects often require customer specific solutions. Our team of highly experienced engineers are available to modify our standard products to suit your specific demands to ensure you get the product you need.



Products

ATSYS products wide range of reliable equipment to encompass any demand:

Rectifier and battery charger

- CH-TEC A series Industrial Rectifier and Battery Charger
- 6-pulse and 12-pulse full bridge thyristors rectifier
- set of battery charging methods 110/220 Vdc (other as option)
- input 400Vac 3ph 50Hz (other as option)
- output 5A to 1000A (other as option)

Inverters

- INV-TEC A series single and three phase Industrial Inverter
- IGBT power conversion bridge
- reduced output harmonic distortion
- input 110/220Vdc (other as option)
- output 5kVA to 200kVA , 115/230Vac 1ph 50Hz (other as option)

Uninterruptible power systems

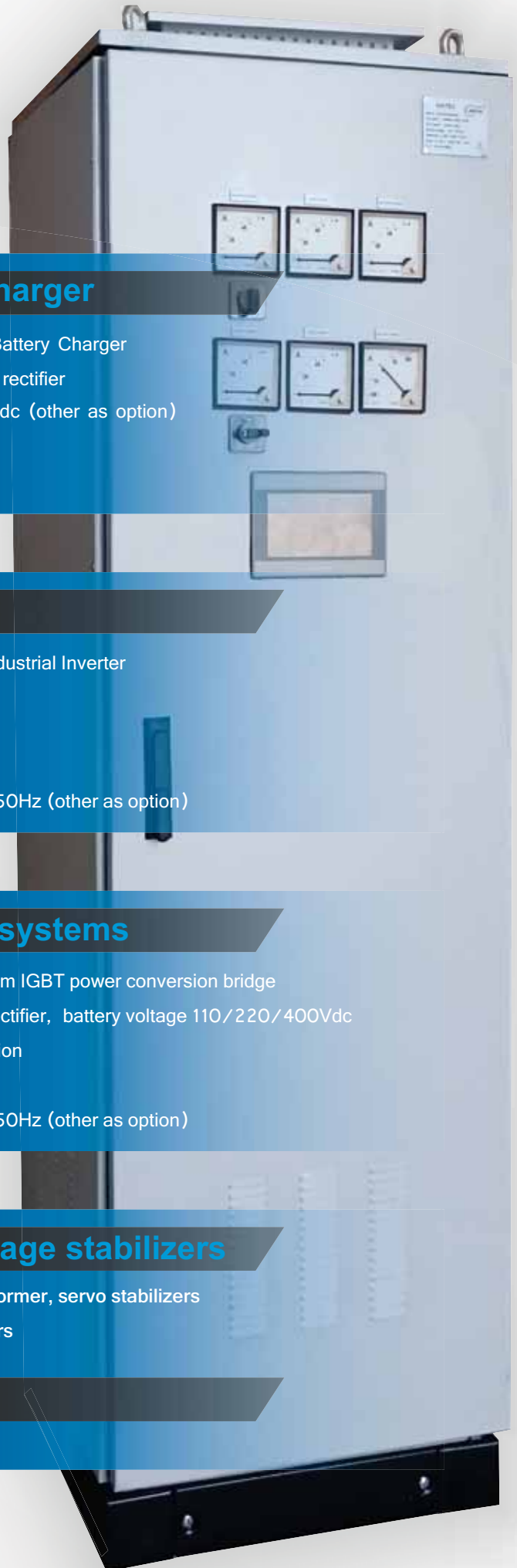
- U-TEC A series Uninterruptible Power System IGBT power conversion bridge
- 6-pulse and 12-pulse full bridge thyristors rectifier, battery voltage 110/220/400Vdc
- software for remote monitoring and supervision
- input 400Vac 3ph 50Hz (other as option)
- output 5kVA to 200kVA , 115/230Vac 1ph 50Hz (other as option)

AC/AC and DC/DC voltage stabilizers

- AC/AC: 3ph & 1ph galvanic isolation transformer, servo stabilizers
- DC/DC: dropping diode , chopper converters

Distribution panels.

- AC and DC distribution panel



Applications

ATSYS leading company in the design and manufacturing of power systems specialising in the following industrial areas:

Petrochemical:

chemical plants
refineries
off-shore platforms
gas and oil pipelines



Energy:

conventional
nuclear,
photovoltaic
geothermal and cogeneration
power plants.



Telecommunications:

switching and
transmission plants



transportation:

suburban and underground
railway stations, airports as
well as marine applications.



CH-TEC A

Industrial digital rectifiers and battery charger

Single phase input

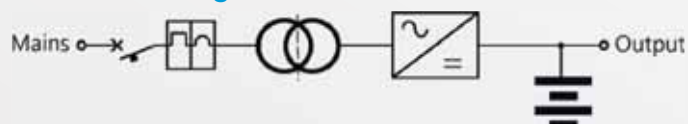
5A to 60A

Technical data						
Rating (A)	5	15	30	40	50	60
Input						
Nominal voltage	230Vac 1-phase $\pm 10\%$					
Frequency	50/60 Hz $\pm 5\%$					
Output						
Nominal voltage	24/48/110/220 Vdc					
Operating voltage	Floating: 2.27 (VRLA), 2.2~2.3(VLA), 1.4~1.5 (Ni-Cd) V/cell adjustable					
	Boost: 2.4~2.45 (VLA), 1.5~1.65 (Ni-Cd) V/cell adjustable					
	Equalizing: up to 2.35 (VRLA), up to 2.7 (VLA), up to 1.7 (Ni-Cd) V/cell adjustable					
Static voltage regulation	$\pm 1\%$					
Voltage ripple	$\leq 1\%$					
Overload capacity	$>120\%$ for 20min; $<150\%$ for 2min; $>150\%$ for 20s					
Charging Characteristic	IU (Acc to DIN 417733), I1I2U, U1U2I					
System and environmental						
Isolation	Input/output					
Dimension WxDxH	600x600x1900					
Weight (kg)	Product weights vary with output rated current and voltage					
Cooling	Forced ventilation					
Colour	RAL 7035					
Protection degree	Ip21 (option up to 41), IEC 60529					
Operation temperature	$-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$					
Storage temperature	$-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$					
Altitude	$>2000\text{m}$ (derating according to EN 62040-3)					
Audible noise at 1 meter	>65 dBA					
Options	Associated battery cabinet; matching cabinets for distribution and dropping cells;					
	built-in battery breaker; external battery breaker in standard or Eex-d wall-mounted box;					
	battery thermal probe; block diode for parallel; control logic redundant supply					
User interface						
Front panel	LCD display (HMI), mimic					
Connectivity (optional)	up to 2 SPDT contact relay cards, RS323 serial port, RS485 ModBus-RTU serial port,					
	ModBus to PROFIBUS adapter, Ethernet SNMP/WEB adapter, remote monitoring software					

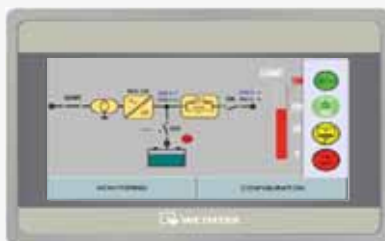
Features and benefits

- Input transformer for AC-DC galvanic separation
- SCR rectifier, overvoltage, undervoltage protection for reliable operation in all mains conditions
- Soft-start for start-up overcurrent limitation
- Support all charging methods for vented/sealed lead acid batteries and Ni-Cd batteries
- Adjustable manual and automatic charging mode for maximum flexibility on operation
- Standard configurations, for cost-effective and short lead time solutions
- High personalization grade
- Front accessibility for easy maintenance
- 32-bit microprocessor control for best-in-class performance and reliability
- Digital control panel and mimic display for signals, alarms, meters and history events continuous monitoring
- Comprehensive set of communication options for total remote monitoring of equipment operation
- Small size design for easy installation and minimum space requirements
- Parallel operation for redundancy requirements
- Natural cooling on most of range

One line Diagram



Higher ratings on request



Three phase input

30A to 1000A

Technical data													
Rating (A)	30	60	80	100	150	200	300	400	500	600	800	1000	
Input													
Nominal voltage	400Vac 3-phase $\pm 10\%$												
Frequency	50/60 Hz $\pm 5\%$												
Input THDi	27% 6pulse, 12% 12pulse, 6% THD filter+12pulse												
Output													
Nominal voltage	24/48/110/220 Vdc												
Operating voltage	Floating: 2.27 (VRLA), 2.2~2.3(VLA), 1.4~1.5 (Ni-Cd) V/cell adjustable												
	Boost: 2.4~2.45 (VLA), 1.5~1.65 (Ni-Cd) V/cell adjustable												
	Equalizing: up to 2.35 (VRLA), up to 2.7 (VLA), up to 1.7 (Ni-Cd) V/cell adjustable												
Static voltage regulation	$\pm 1\%$												
Voltage ripple	$\leq 1\%$												
Overload capacity	>120% for 20min; <150% for 2min; >150% for 20s												
Charging Characteristic	IU (Acc to DIN 417733), I1I2U, U1U2I												
System and environmental													
Isolation	Input/output												
Dimension WxD	Height is 2100mm, width & depth vary with output rated current and voltage (see the table below)												
Rating	30	60	80	100	150	200	300	400	500	600	800	1000	
Output voltage	24Vdc	600x600	600x600	600x600	600x600	600x600	800x800	800x800	800x800	1000x800	1000x800	1000x800	1000x800
	48Vdc	600x600	600x600	600x600	600x600	600x600	800x800	800x800	800x800	1000x800	1000x800	1000x800	1000x800
	110Vdc	600x600	600x600	800x800	800x800	800x800	1000x800	1000x800	1000x800	1400x800	1400x800	1400x800	1400x800
	220Vdc	600x600	600x600	800x800	800x800	800x800	1000x800	1000x800	1000x800	1400x800	1400x800	1400x800	1400x800
Max Weight (kg)	280	340	400	460	550	630	750	870	970	1050	1350	1500	
Cooling	Natural										Forced ventilation		
Colour	RAL 7035												
Efficiency	93%												
Protection degree	Ip21 (other options), IEC 60529												
Operation temperature	-10°C ~ +40°C												
Storage temperature	-20°C ~ +70°C												
Altitude	>2000m (derating according to EN 62040-3)												
Audible noise at 1 meter	>65~70 dBA												
Options	Associated battery cabinet; associated distribution panels and dropping cells or DC/DC chopper converters; built-in battery breaker; external battery breaker in standard or Eex-d box wall-mounted; battery thermal probe; block diode for electronic load sharing for parallel.												
User interface													
Front panel	LCD display (HMI), mimic												
Connectivity	SPDT contact relay cards (optional): RS323 serial port, RS485 ModBus-RTU serial port, ModBus to PROFIBUS adapter, Ethernet SNMP/WEB adapter, remote monitoring software												

Main options

- AC surge protection
- Built-in battery breaker
- Timer-controlled battery charging
- Battery voltage temperature compensation
- DC earth fault monitoring and alarm
- Fan monitoring and alarm
- Associated cabinets for batteries, distribution boards, dropping cells or DC/DC chopper converters.

Extra options

- Customized input and output voltage
- 12 pulse bridge for harmonics reduction
- Additional RFI and THD filters
- Dual branch redundancy (with block diode or load sharing)
- Customisable status
- Ambient temperature up to +55 °C
- Block diode for parallel operation
- Space heaters and panel lighting
- Analogue meters and lamps on front panel
- Special painting and protection degree up to IP54

INV-TEC A

Industrial inverter

Single phase output

5kVA to 100 kVA

Technical data											
Rating (kVA)	5	10	15	20	30	40	50	60	80	100	
Nominal power (kW)	4	8	12	16	24	32	40	48	64	80	
Input											
Nominal voltage	110Vdc (90~160Vdc range)				220Vdc (180~300Vdc range)						
	Bypass input voltage 110/115/120Vac or 220/230/240Vac 1-phase ±20% (adjustable Acc to inverter output voltage)										
Output											
Nominal voltage	110/115/120Vac or 220/230/240Vac 1-phase										
Frequency	50/60 Hz (selectable)										
Voltage regulation	±1% static; ±5% dynamic (80% load change), <40ms recovery time										
Overload capacity	125% for 10min; 150% for 1min; 200% for 100ms										
Harmonic distortion THDv	<2% linear load; <5% non-linear load										
System											
Isolation	battery to load isolation; input/output isolation available with additional bypass transformer										
Dimension WxD	Height is 2100mm, width & depth vary with output rated power and voltage (see the table below)										
Rating	5	10	15	20	30	40	50	60	80	100	
Output voltage	110~120Vac	600x600			800x800			1000x800		1400x800	
	220~240Vac	600x600				800x800				1400x800	
Max Weight (kg)	320	360	400	440	470	500	550	600	730	830	
Cooling	Forced ventilation										
Efficiency	94%										
Colour	RAL 7035										
Protection degree	Ip21 (other options), IEC 60529										

Features and benefits

- Built-in inverter transformer for DC-AC galvanic separation
- IGBT, PWM controlled inverter for high efficiency and low output THD
- Standard configurations, for cost-effective and short lead time solutions
- High personalization grade
- Front accessibility for easy maintenance
- 32-bit microprocessor control for best-in-class performance and reliability
- Digital control panel and mimic display, for signals, alarms, meters and history events continuous monitoring
- Comprehensive set of communication options for total remote monitoring of equipment operation.

Main options

- Bypass line isolation transformer & AC/AC voltage regulator
- Additional RFI filters
- Customized input and output voltage
- Active parallel redundant, hot-standby and load-sync configuration
- Fan monitoring, alarm and redundant ventilation
- Space heaters and panel lighting
- Analogue meters and lamps on front panel for immediate visualisation
- Customisable status
- Special painting and protection degree up to IP54
- Ambient temperature up to +55 °C.

Extra options

- Associated cabinets for AC distribution boards
- AC earth fault monitoring and alarm



Three phase output

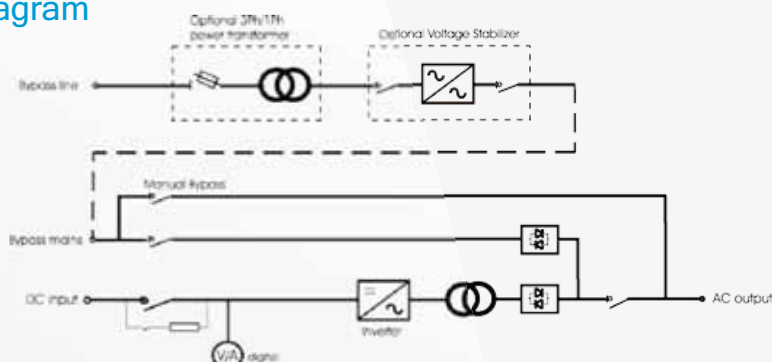
5kVA to 200 kVA

Technical data													
Rating (kVA)	5	10	15	20	30	40	50	60	80	100	120	160	200
Nominal power (kW)	4	8	12	16	24	32	40	48	64	80	96	128	160
Input													
DC input voltage	available input DC voltage vary with requested output AC voltages and rating (see the table below)												
Output voltage	190~220Vac	110Vdc (90~160Vdc range)						220Vdc (180~300Vdc range)				---	
	380~415Vac	110Vdc (90~160Vdc range)						220Vdc (180~300Vdc range)					
		220Vdc (180~300Vdc range)											
Bypass input voltage	190/200/220Vac or 380/400/415Vac 3-phase $\pm 20\%$ (adjustable Acc to inverter output voltage)												
Output													
Nominal voltage	190/200/220Vac or 380/400/415Vac 3-phase												
Frequency	50/60 Hz (selectable)												
Voltage regulation	$\pm 1\%$ static; $\pm 5\%$ dynamic (80% load change), <40ms recovery time												
Overload capacity	125% for 10min; 150% for 1min; 200% for 100ms												
Harmonic distortion THDv	<2% linear load; <5% non-linear load												
System													
Isolation	battery to load isolation; input/output isolation available with additional bypass transformer												
Dimension WxD	Height is 2100mm, width & depth vary with input voltage and rated power (see the table below)												
Rating	5	10	15	20	30	40	50	60	80	100	120	160	200
Output voltage	110 Vdc	600x600			800x800			1000x800		1400x800		---	
	220 Vdc	600x600			800x800			1000x800		1400x800			
Max Weight (kg)	325	370	415	450	520	570	640	690	750	850	880	920	1020
Cooling	Forced ventilation												
Efficiency	94%												
Colour	RAL 7035												
Protection degree	Ip21 (other options), IEC 60529												

Single phase and three phase output

Environmental	
Operation temperature	-10°C ~ +40°C
Storage temperature	-20°C ~ +70°C
Altitude	>2000m (derating according to EN 62040-3)
Audible noise at 1 meter	>65~70 dBA
Options	Associated distribution panels; emergency line isolation transformer and AC/AC voltage stabilizer; parallel redundant, hot-standby, load-sync configuration; earth fault alarm; fan monitoring and alarm; redundant ventilation; addition RF filters.
User interface	
Front panel	LCD display (HMI), mimic
Connectivity	SPDT contact relay cards, RS323 serial port, (optional): RS485 ModBus-RTU serial port, ModBus to PROFIBUS adapter, Ethernet SNMP/WEB adapter, remote monitoring software

One line Diagram



Higher ratings on request

U-TEC A

Industrial uninterruptible power systems

Three phase input / Single phase output

5kVA to 100 kVA

Technical data										
Rating (kVA)	5	10	15	20	30	40	50	60	80	100
Nominal power (kW)	4	8	12	16	24	32	40	48	64	80
Input										
Nominal voltage	380/400/415Vac (optional 190/200/220Vac) 3-phase $\pm 10\%$, 50/60Hz $\pm 10\%$									
Input THDi	27% 6pulse, 12% 12pulse, 6% THD filter+12pulse									
Bypass input voltage	110/115/120Vac or 220/230/240Vac 1-phase $\pm 20\%$ (adjustable Acc to inverter output voltage)									
Battery										
DC voltage	110Vdc (90~160Vdc range)									
	220Vdc (180~300Vdc range)									
Operating voltage	Floating: 2.27 (VRLA), 2.2~2.3(VLA), 1.4~1.5 (Ni-Cd) V/cell adjustable									
	Boost: 2.4~2.45 (VLA), 1.5~1.65 (Ni-Cd) V/cell adjustable									
	Equalizing: up to 2.35 (VRLA), up to 2.7 (VLA), up to 1.7 (Ni-Cd) V/cell adjustable									
Output										
Nominal voltage	110/115/120Vac or 220/230/240Vac 1-phase									
Frequency	50/60 Hz (selectable), $\pm 0.001\%$ Hz free running $\pm 2\%$ Hz synchronized with mains									
Voltage regulation	$\pm 1\%$ static; $\pm 5\%$ dynamic (80% load change), <40ms recovery time									
Overload capacity	125% for 10min; 150% for 1min; 200% for 100ms									
Harmonic distortion THDv	<2% linear load; <5% non-linear load									
System										
Isolation	Floating battery; input/output isolation available with additional bypass transformer									
Dimension WxD	Height is 2100mm, depth is 800mm, width varies with output rated and voltage (see the table below)									
Rating	5	10	15	20	30	40	50	60	80	100
Output voltage	110~120Vac	800		1400	1800		2000		2800	
	220~240Vac	800		1000	1400	1800		2000		2800
Max Weight (kg)	460	520	620	670	750	850	950	1150	1250	1400
Cooling	Forced ventilation									
Efficiency	88%									
Colour	RAL 7035									
Protection degree	Ip21 (other options), IEC 60529									

Three phase output and Single phase output

Environmental	
Operation temperature	-10°C ~ +40°C
Storage temperature	-20°C ~ +70°C
Altitude	>2000m (derating according to EN 62040-3)
Audible noise at 1 meter	>65~75 dBA
Options	Associated battery cabinets and distribution panels; emergency bypass line isolation transformer and AC/AC voltage stabilizer; 12 pulse bridge; THD filters; built-in battery breaker; Time battery charging; external battery breakers in standard or Eex-d wall-mounted box; battery thermal probe; parallel redundant, hot-standby, hot standby load-sync; AC & DC earth fault alarm; fan monitoring and alarm; redundant ventilation; addition RF filters.
User interface	
Front panel	LCD display (HMI), mimic
Connectivity	SPDT contact relay cards, RS323 serial port, (optional): RS485 ModBus-RTU serial port, ModBus to PROFIBUS adapter, Ethernet SNMP/WEB adapter, remote monitoring software

Features and benefits

- Built-in inverter transformer for DC-AC galvanic separation
- IGBT, PWM controlled inverter for high efficiency and low output THD
- Support vented/sealed lead acid batteries and Ni-Cd batteries
- 32-bit microprocessor control for best-in-class performance and reliability
- Standard configurations for cost-effective, short lead time solutions
- Comprehensive set of communication options for total remote monitoring of equipment operation
- Front accessibility for easy maintenance
- Digital control panel and mimic display, for signals, alarms, meters and history events continuous monitoring
- Input transformer protected by MCCB for AC-DC galvanic separation and SCR rectifier for reliable operation in all mains conditions.
- High personalization grade



Three phase input / Three phase output

5kVA to 200 kVA

Technical data																
Rating (kVA)	5	10	15	20	30	40	50	60	80	100	120	160	200			
Nominal power (kW)	4	8	12	16	24	32	40	48	64	80	96	128	160			
Input																
Nominal voltage	380/400/415Vac (optional 190/200/220Vac) 3-phase $\pm 10\%$, 50/60Hz $\pm 10\%$															
Input THDi	27% 6pulse, 12% 12pulse, 6% THD filter+12pulse															
Bypass input voltage	190/200/220Vac or 380/400/415Vac 3-phase $\pm 20\%$ (adjustable Acc to inverter output voltage)															
Battery																
DC input voltage	available DC bus voltage vary with requested output AC voltages and rating (see the table below)															
Output voltage	190~220Vac	110Vdc (90~160Vdc range)					220Vdc (180~300Vdc range)					----				
		220Vdc (180~300Vdc range)					110Vdc (90~160Vdc range)									
	380~415Vac	110Vdc (90~160Vdc range)					220Vdc (180~300Vdc range)									
		220Vdc (180~300Vdc range)														
Operating voltage	Floating: 2.27 (VRLA), 2.2~2.3(VLA), 1.4~1.5 (Ni-Cd) V/cell adjustable															
	Boost: 2.4~2.45 (VLA), 1.5~1.65 (Ni-Cd) V/cell adjustable															
	Equalizing: up to 2.35 (VRLA), up to 2.7 (VLA), up to 1.7 (Ni-Cd) V/cell adjustable															
Output																
Nominal voltage	190/200/220Vac or 380/400/415Vac 3-phase															
Frequency	50/60 Hz (selectable), $\pm 0.001\%$ Hz free running $\pm 2\%$ Hz synchronized with mains															
Voltage regulation	$\pm 1\%$ static; $\pm 5\%$ dynamic (80% load change), <40ms recovery time															
Overload capacity	125% for 10min; 150% for 1min; 200% for 100ms															
Harmonic distortion THDv	<2% linear load; <5% non-linear load															
System																
Isolation	Floating battery; input/output isolation available with additional bypass transformer															
Dimension WxD	Height is 2100mm, width & depth vary with input voltage and rated power (see the table below)															
Rating	5	10	15	20	30	40	50	60	80	100	120	160	200			
Output voltage	110 Vdc	800x800			1400x800			1800x800			2000x800			----		
	220 Vdc	800x800			1000x800			1400x800			2000x800			2400x800		3000x800
Max Weight (kg)	460	520	620	670	750	850	950	1150	1250	1400	1520	1680	1970			
Cooling	Forced ventilation															
Efficiency	88%															
Colour	RAL 7035															
Protection degree	Ip21 (other options), IEC 60529															

Main options

- Bypass line isolation transformer & AC/AC voltage regulator
- Additional RFI filters
- Customized input and output voltage
- Active parallel redundant, hot-standby and load-sync configuration
- AC earth fault monitoring and alarm
- Fan monitoring and alarm and redundant ventilation
- Space heaters and panel lighting
- Analogue meters and lamps on front panel for immediate visualisation
- Customisable status and alarm LED set
- Special painting and protection degree up to IP54
- Ambient temperature up to +55 °C.

Extra options

- Built-in battery breaker
- Battery voltage temperature compensation
- Timer-controlled battery charging
- 12 pulse bridge for harmonics reduction
- Additional THD filters
- AC & DC earth fault monitoring and alarm
- Associated cabinets for batteries, AC & DC distribution boards and dropping cells or DC/DC chopper converters
- External battery breakers in standard or EExd (up to 800 A) wall-mounted box



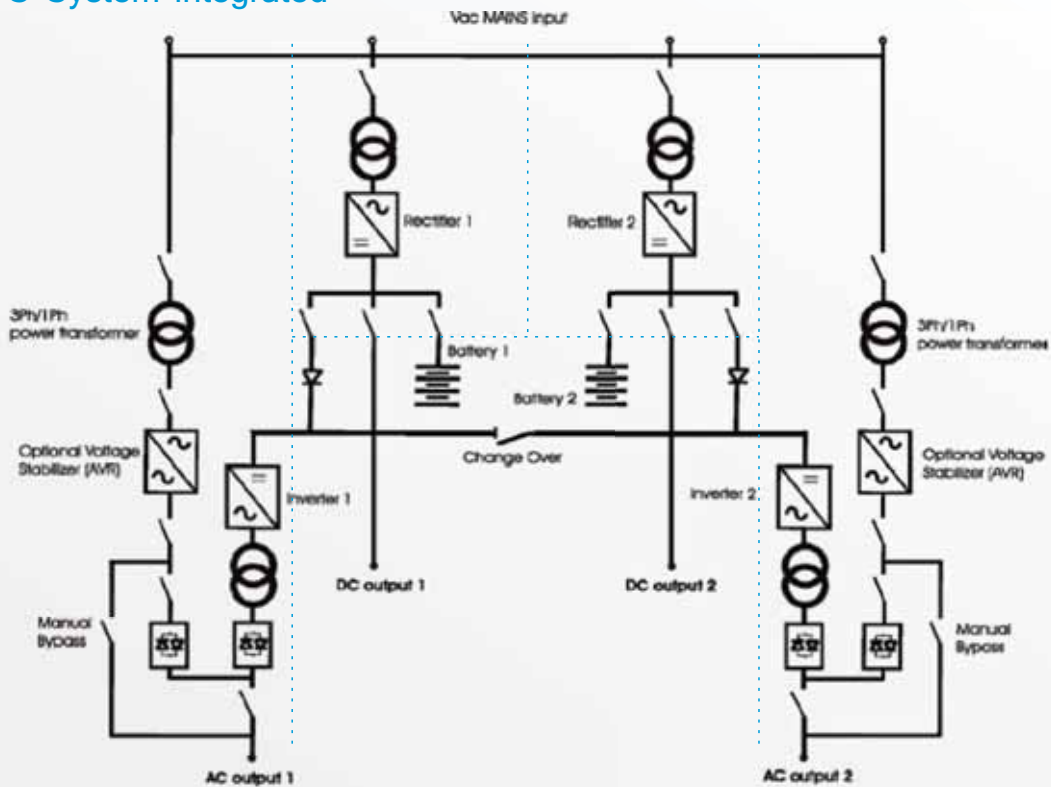
Built-in isolated RS-485

In industrial control environments, ground Voltage of each device may be different, when connecting multiple device such as a PLC, servo and inverter to the RS-485 port of the HMI, the ground voltage difference of these devices may damage the interface problem and ensure your HMI durable in any complicated grounding environment.

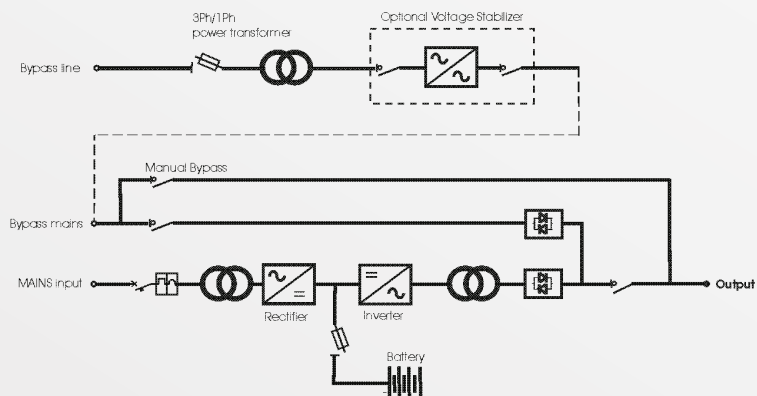
PCB caotin protection

As the electronic components gets smaller, thinner. the thin cooper wires result in harsh environment PCB coating can enhance the strength of the damp-proof, dust-proof and corrosion resistance in any harsh environments.

UPS System integrated



One line Diagram





Special options for DC and AC UPS batteries

- Energy recovery battery discharger**
 Providing a controlled discharge into the AC mains for efficiency test and load upgrade simulation.
 Discharge characteristic can be set at constant current, constant power or according to custom profile
 Energy recovery battery discharger is available as an option.
- Battery monitoring system**
 Real time prediction of lead acid and Ni-Cd batteries potential failure modes, thus reducing maintenance and replacement costs.
 The system performs string currents and temperature tests on each battery block or cell, actual capacity check and data logging. A manual battery test mode is also included.
 Remote access over RS485 ModBus is available as an option.

Standards and certifications

- Safety**
 IEC EN 50178
 IEC EN 62040-1
- Test and performance**
 IEC EN 62040-3
 IEC EN 60146-1-1
- EMC**
 IEC EN 61000-6-2, IEC EN 62040-2
 IEC EN 61000-6-2, IEC EN 60146

Who we are

Atsys is a company specialized in custom design, manufacturing and servicing of power electronics equipment for ICT, industrial, oil & gas and energy applications.

Atsys R&D department is one of the most complete regarding the different disciplines in the field of power conversion. Long experience in semiconductors and magnetic component design is combined with the most advanced digital regulation algorithms and microcontroller programming know-how.

Atsys has a leading position in the oil and gas market thanks to its proven customizing expertise and continuous pursuit of excellence in a state-of-the-art product. However, wide experience in several branches of power electronics such as UPS systems for data centers and inverters for renewable energy and storage, make atsys a leader in this technology not only for oil and gas applications.

The latest patented three-phase solution based on its green conversion operation can guarantee the best PUE for green data centers: proof of the ongoing company commitment to innovation.

Based in Iran with 5,000 m² production space and a large full-testing area, the company can call on more than 11 years of experience.

Atsys has a strong global presence and is represented in all 5 continents where it can provide on-site service and technical support.



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