

CT Series

CT Series



Customizable Uninterruptible Power System

1,250 VA to 2,400 VA



When All Others Fail

Turn to Clary's 60 years of technical expertise, and our unmatched experience in providing high performance and reliable UPS systems for applications ranging from extreme temperature environments to offshore drilling rigs, military shipboard, 911 emergency systems or hospital grade medical systems. Clary starts where the competition stops.

Customizable

Clary's Customizable features of the CT Series allow the user to tailor the UPS solution for its intended mission-critical application. Clary will build each system to order, according to the customer's selection of input and output voltages, input and output frequency, bypass, isolation, Power Factor Correction and many other features.

Reliability

Clary units supply reliable Continuous Digital Power during brownouts, dirty unstable electrical power and loss of input power. Unlike most other UPSs, the CT Series will run continuously from batteries or auxiliary generator systems as long as power is available.

True On-Line Technology

Clary specializes exclusively in True On-Line Double Conversion

systems. This technology provides ultimate protection from all power anomalies, keeping mission-critical applications out of harm's way. Our systems provide a digitally controlled precision regenerated output sinewave, unlike common standby or line interactive designs.

Uncompromising Performance

Our products are not for everyone. They are specifically designed for mission-critical applications where there is no room for error... when you just can't afford downtime! Our products are designed, manufactured and serviced by Clary, providing our customers the highest level of power protection solutions.

Communications

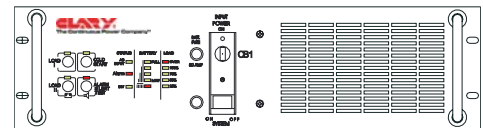
Connectivity features include remote control, configuration and monitoring of the UPS. Clary products are compatible with all major network operating systems.

Off-the-shelf and Custom Solutions

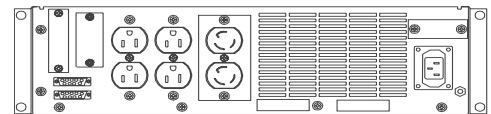
In 1977, Clary Corporation pioneered On-Line Double Conversion UPS technology, and in 1996 introduced digital control for continuous power UPS systems for mission-critical applications. Today, Clary manufactures a variety of superior power products here in the USA, and can

Manufactured
to Order
3U/19 Inch Rack
Mounted Chassis

MODEL	RATING	WATTS
CT1250R	1,250 VA	875
CT1500R	1,500 VA	1,050
CT2000R	2,000 VA	1,400
CT2400R	2,400VA	1,680



Front and Rear Panels



customize specs to meet your application requirements. What's more, our in-house field service department consistently sets the industry standard. Clary systems are found in hospitals, police and fire emergency systems, oil fields, rugged industrial applications, traffic signals, computer networks, military aerospace systems and numerous other applications.

Where POWER is a way of life

CLARY
The Continuous Power Company™

Customizable Uninterruptible Power System

CT Series

CT Series Standard Features & Available Options

Select the desired option in each category. Refer to the next page for a detailed discussion of each feature. A pre-checked box () indicates that the selected item is included regardless of other features selected. Please refer to the numbered note before making selection.

System Power Options (See Note 1)

- 1,250 VA / 875 Watt
- 1,500 VA / 1,050 Watt
- 2,000 VA / 1,400 Watt
- 2,400 VA / 1,680 Watt

Input Power Options (See Note 2)

- 120 VAC only (Standard, w/Isolation)
- 100/200 VAC, Switchable, Isolation
- 120/208 VAC, Switchable, Isolation
- 120/220 VAC, Switchable, Isolation
- 120/230 VAC, Switchable, Isolation
- 120/240 VAC, Switchable, Isolation

Input Frequency Options (See Note 3)

- 50 / 60 Hz Autosync (Standard)

Other Input Options (See Note 4)

- Power Factor Correction
- Input Voltage Auto Select
- Input Circuit Breaker

Input Connectors Options (See Note 5)

- NEMA 5-15P (Standard)
- NEMA 5-20P (Standard on 2K models)
- NEMA L5-15, 120 V / 15 A, Locking
- NEMA L5-20, 120 V / 20 A, Locking
- NEMA L6-15, 220 V / 15 A, Locking
- NEMA L6-20, 220 V / 20 A, Locking
- NEMA L6-30, 220 V / 30 A, Locking
- CEE 7/7 (European Schuko)
- IEC 320, 250 V / 15 A
- BS 1363 (UK & Ireland)
- AS 3112 (Australia)
- Terminal Block / Hardwire
- Other (specify)

Output Power Options (See Note 6) (Combinations Possible)

- 120 VAC (Standard)
- 208 VAC
- 220 VAC
- 230 VAC
- 240 VAC

Output Frequency Options (See Note 7)

- Autosync to Input
- 60 Hz (Standard)
- 50 Hz

Output Connector Options (See Note 8) (Mix and Match up to 3 different types)

- NEMA 5-15R, 120 V / 15 A
- NEMA 5-20R, 120 V / 20 A
- NEMA L5-15R, 120 V / 15 A, Locking
- NEMA L5-20R, 120 V / 20 A, Locking
- NEMA L6-15R, 220 V / 15 A, Locking
- NEMA L6-20R, 220 V / 20 A, Locking
- NEMA L14-20R, 220 V / 20 A, Locking
- NEMA L14-30R, 220 V / 30 A, Locking
- IEC 320, 250 V / 15 A
- Terminal Block (Hardwire)
- Other (specify)

Communications (See Note 9)

- RS-232 (Standard)
- Open Collector (Standard)
- SNMP / HTTP Card (RFC1629 MIB)
- Special Alarms
- Dry Contacts

Software (See Note 10)

- RUPS IIA
MS-DOS, MS-Windows, 3.1, 9X
2000, NT and XP

Operating Systems (See Note 11)

- Windows (See below)
- Novell
- Solaris (X86 Version)
- Linux and Linux derived OSs
- Unix:
 - SCO UnixWare
 - SCO Unix 5.0 and above

- Windows: 3.X 95/98
 NT/2000 ME
 XP

Bypass Options (See Note 12)

- Normal Bypass
- Internal Hard Bypass
- Bypass Disabled
- Special

Accessory Devices (See Note 13)

- Emergency Power Off (EPO) Connection
- Shelf Angle Kit
- Slide Rail Kit
- Standalone Cover, Black Finish

Battery Options (See Note 14)

- Standard Charger
- Fast Battery Charger
- Battery Removal Credit

External Battery Box Options (See Note 15 & Battery Selection Guide)

- Single String
- Dual String

Environmental Options (See Note 16)

- Standard, 0 to +40°C
- HT, High Temp Option, 0 to +50°C
- Input Air Filter
- Ambient Temperature Sensor

Pre-checked box indicates inclusion regardless of other options.

Description and Notes for Selected Options

Note Option

1 Output Power

Select the output power rating that best matches your load. Allow at least a 10% margin for indoor and controlled environment applications. Allow at least a 20% margin for high temperature applications. Add an additional 10% if the input air filter is used. (See input voltage Auto Select for full operation.)

2 Input Voltage

A single input of 120 VAC with Isolation is standard. Choosing between two alternate input voltages (option) will add a rear panel selector switch.

3 Input Frequency

50 Hz / 60 Hz is standard. The system will actually operate anywhere from 45 Hz to 65 Hz. 60 Hz is the standard frequency in North America. No matter what input frequency is selected, whenever the input frequency wanders too far away from normal, the system will switch to battery mode to provide a steady output. When the input frequency stabilizes, the system will go back to normal operation and recharge the batteries.

4 Input Options

Input voltage Auto-Select option automatically selects between 120 VAC and 220 VAC inputs. No rear panel switch is necessary to operate on either voltage (requires 120/220 VAC isolation).

5 Input Connectors

The NEMA 5-15P connector is standard on systems up to 1,500 VA. This is the most common and familiar AC connector in North America. The standard connector for systems of 2,000 VA and higher is the NEMA 5-20P. Many other connectors are available. Please refer to the connector selection chart.

6 Output Voltage

120 VAC is standard. This is the most common AC voltage in North America. Whenever an output voltage other than 120 VAC is selected, care is needed in choosing the output connectors.

7 Output Frequency

The standard setting is autosync. This means that the output frequency will track the input frequency. The system output frequency can be switched by the user to 50 Hz or 60 Hz at any time using the supplied configuration software. The system is capable of converting a 50 Hz input to 60 Hz output (as well as converting 60 Hz to 50 Hz). The output frequency of many generators can vary. This causes many other UPSs to switch to battery mode even when adequate power is available, or worse yet, pass through unstable frequency variations to the load.

8 Output Connectors

The NEMA 5-15R is standard. This is the most common and familiar type of connector in North America. Many other connectors are available. Up to 2 different types of output connectors can be combined in one unit. Please refer to the connector selection chart or contact factory for additional configuration options.

9 Communications

All systems are equipped with a DB-9/RS-232 serial port as well as a DB-9 "open collector" interface. The serial port allows the system to communicate with a connected computer. It also allows operation with Clary's configuration utility a Windows® based monitoring and system and shutdown utility package (supplied)

The "open collector" interface allows the system to operate with older software packages as well as custom hardware configurations.

Note Option

10 Software

An optional SNMP/HTTP adapter allows the system to be controlled over a network. The system can then be monitored with a standard Web browser or an SNMP based software product such as HP Open View or CA Unicenter TNG™ (SNMP option disables RS-232). A number of software packages are available to safely close all open files and safely shut-down the operating system of an unattended computer. This is necessary in the event that a utility problem lasts longer than the available battery charge. These software packages also provide a number of monitoring and control functions. A Windows based RS232 package is supplied with every system as well as Clary's own configuration package. For networked systems an optional SNMP Adapter is recommended. Software is also supplied that allows a standard Windows browser to set parameters, and interrogate system settings. Shut down software is also supplied so that computer systems can be shutdown in an orderly manner

11 Operating System

Choose the operating system of the computer used to communicate with the UPS system.

12 Bypass

The bypass circuit routes utility power directly to the outlets in the unlikely event of certain UPS failures. Normal Bypass performs this function but allows the outlets to go off when the front panel switch is turned off (allowing the UPS to act as a central shutoff for the entire system). The Internal Hard Bypass option is for very critical applications that are intended to never shut down. In this case, if the UPS fails or if its front panel switch is turned off, utility power is routed directly to the outlets. This option is recommended for special applications only (such as telecommunications, medical, etc.).

13 Accessories

Emergency Power Off (EPO) option allows a user to install a remote switch that will shut down the system. The Shelf Angle Kit allows installation in a 19" standard rack. The Standalone Cover is for non-rack installations. It improves the systems appearance and allows it to stand on its side.

14 Battery Options

The Standard Charger allows for a 80% recharge within 5 hours or less and a full recharge within 24 hours or less. Battery Removal Credit can be applied whenever the system is being used as a power regulator/conditioner or whenever batteries are not needed.

15 External Batteries

Available in optional rackmount enclosures, each holding up to 2 extra battery strings. Up to 4 strings of batteries (2 enclosures) can be added to each UPS. These battery strings attach to a rear panel connector provided on every system. Consult factory for other external battery options.

16 Environmental

The standard operating temperature of the systems is 0°C to +40°C (32°F to +104°F) and an option exists that increases the high-end temperature to +50°C.

An input Air Filter is available for outdoor and high-dust environments (see note 1 above).

Ambient Temperature Sensor allows the system to measure and electronically report the temperature of the air coming into the system. Remote reading of the temperature is done via the RS-232 Serial Interface or SNMP adapter.

CT Series Specifications

ELECTRICAL

Input	Standard Input Voltage	
Voltage	120 VAC +10%, -20% (Other input voltages available)	
Frequency	45 to 65 Hz	
Current	See Table Below	
Output	Standard Output Voltage	
Voltage	120 VAC ±3% (Other output voltages available)	
Frequency	Software Selectable to Sync with Input Utility or Run at Crystal Controlled 50 or 60 Hz ±1 Hz	
Current	See Table Below	
Crest Factor Ratio (Non-linear Load and < 5% THD) Typical	@50% Load @75% Load @100% Load	Up to 4.8:1 Up to 3.2:1 Up to 2.4:1
Total Harmonic Distortion (THD)	3% Typical (Non-linear) 5% Max.	
Dynamic Response	±4% for 100% Step Load Change; 0.5 ms Recovery Time	
Overload	110% for 10 sec; 200% for .05 sec	
Efficiency @100% Load	88% (90% Typical)	
UPS Protection	Input and Output Short Circuit; Input and Output Overload; Excessive Battery Discharge	

ENVIRONMENTAL

Operating Temp.	0°C to +40°C (32°F to +104°F)
Humidity	0% to 95% Non-condensing
Altitude	Sea Level to 10,000 ft (some derating of temp. w/altitude)
Noise Level	39 to 42 dBA at 5 ft

MECHANICAL

Input:	
1,250/1,500 VA	NEMA 5-15P Plug w/6 ft Cord
2,000/2,400VA	NEMA 5-20P Plug w/6 ft Cord
Outputs: (standard)	3 - NEMA 5-15R Duplex Receptacles

CUSTOM OPTIONS

Contact Factory for Other Custom Options

Specifications subject to change without prior notice.

DESIGN

Standard Features	Power Factor Corrected Input; Fully Regenerative; True On-Line; Low Distortion Sinewave Output; Inverter Powers Load Continuously; Designed for Non-linear Loads; Extended Brownout Protection; Continuous Operation on -25% to +12% Utility w/o Draining Batteries; Automatic Bypass; RS232 Data Interface; AC Output - 2 Channel Load Control; Rear Mounted Ground Stud
Specifications	UL 1778; CUL; FCC Class A; IEEE 587 / ANSI C62.41; IEC 555 @ 120 VAC
MTBF	In Excess of 100,000 hrs
Typical Recharge Time to 85% Capacity @ 100% Load	5 hrs

CONTROLS AND INDICATORS

Sequenced LEDs Single LED	Battery Level, Load Level AC In, Inverter On, Load On, Summary Alarm, Alarm Silence
Front Panel Controls	Power On; Cold Start; Alarm Silence; Test; Load I On-Off; Load II On-Off
Audible Alarms	Utility Interrupt; Inverter Failure; Overload; Low Battery; Self Test
RS232 Data Interface (DB-9)	Full Interactive Remote Computer Monitoring and Control of Most Features, Including Load Control (requires optional monitoring software).
Contact Closures (DB-9) Contact	Open Collector; Optional Dry Contact
Optional SNMP Interface	Allows Full Control and Monitoring over Network Connection. Compatible with HP Openview™, IBM Netview™ and other major software offerings.



Model	VA	Input Current (A)	Output Current (A)	Backup Time 100% / 50% Load	Unit Weight Short / Std. (lbs)	Optional Short Rackmount H x W x D (in)	Standard Rackmount H x W x D (in)
CT1250R	1,250	8.8	10.4	7 / 21	42 / 79'	5.25 x 19.0 x 17.0 (3U) ^{2,3,5}	5.25 x 19.0 x 23.0 (3U) ^{2,3,4,5}
CT1500R	1,500	10.7	12.5	5/ 17	42 / 79'	5.25 x 19.0 x 17.0 (3U) ^{2,5}	5.25 x 19.0 x 23.0 (3U) ^{2,3,4,5}
CT2000R	2,000	14.3	16.7	5/ 18	55 / 92'	5.25 x 19.0 x 17.0 (3U) ^{2,5}	5.25 x 19.0 x 23.0 (3U) ^{2,3,4,5}
CT2400R	2,400	18.3	20.0	4.5/14	55 / 92'	5.25 x 19.0 x 17.0 (3U) ^{2,5}	5.25 x 19.0 x 23.0 (3U) ^{2,3,4,5}

1. Weight may increase with additional options. - 2. Includes input Isolation transformer. - 3. Includes batteries. - 4. Can include optional output transformer. - 5. Power Conditioner

CLARY
The Continuous Power Company™

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