INFOSEC™
UPS SYSTEM

L'Énergie Sans Limite !
Safe Energy for Life !

Critical industrial and medical applications

E4 LCD TT
Evolution
From 10 to 120k VA

E4 LCD Evolution TT range is equipped with the most efficient technologies in order to comply with the requirements of the most demanding environments. This three-phase Uninterruptible Power Supply (UPS) offers a perfectly reliable protection for activities that cannot suffer any power supply fault: industrial processes, IT-networks & data centers, Public infrastructure (airports, hospitals, train stations...).

A wide range with many advantages

On Line Double Conversion Technology
High-Frequency
microprocessor-controlled
IGBT rectifier

Very low distortion of input current
Input Power Factor correction
up to >0.99%
Output power factor of 0.9

E4 LCD Evolution TT from 10k to 30k VA

E4 LCD Evolution TT from 40k to 120k VA

3 to 4 UPS devices connected in parallel
Extended backup time available
Instant calculation of backup time
Smart and independent management of the batteries

RS 232 or RS 485 communication ports,
USB, Modbus, Dry contacts interface
(depending on the models)
SNMP & AS400 options available

WARRANTY 1 YEAR AN GARANTIE

On Line Double Conversion Technology

Redundant parallelizable

High efficiency

LCD control screen

Remote control software

Extended backup time available

www.infosec-ups.com

A RELEVANT ANSWER TO THE MOST DEMANDING NEEDS

E4 LCD Evolution TT 40k VA

A wide range

The E4 LCD Evolution TT series offer a wide range of power from 10k VA to 120k VA in order to answer high power equipment's needs. All the references provide the users with high quality and efficiency levels among the best on the market, in order to support the most critical applications.

Quality

E4 LCD Evolution TT was designed to offer a maximum security level for environments that cannot suffer any power supply interruption. Its architecture, components and technical features have therefore been developped with great care in order to comply with the highest standards.

Efficiency

E4 LCD Evolution TT offers a high global efficiency level (up to 95%) thanks to the On Line Double Conversion with High Frequency Technology, the DSP (Digital Signal Processor) control and a last generation IGBT rectifier. Energy savings are therefore substantial, and the components' lifespans get multiplied.




E4 LCD Evolution TT range adapts to a wide variety and difficult loads without any problem: Non-linear loads, highly inductive or capacitive loads, discharge lamps or induction engines can therefore be protected with a guaranteed optimal and permanent functionning.

Easy set-up and maintenance

Space and weight have an important impact on the overall cost of UPS devices. Great care and caution have therefore been taken while developing this product:

- **Connection (front) :** The input and output wiring of E4 LCD Evolution TT from 40k to 120k VA can be done directly from the front or the bottom panel of the device. The connections can be made, checked or modified without moving the unit. For maintenance, the control of the voltage or the tautness and tightness can be done easily and securely.
- **LCD Screen:** Thanks to a standard wide LCD screen, E4 LCD Evolution TT allows a real-time monitoring of the state and status of the UPS device. Should a modification of the parameters be required, the control keyboard allows to change the settings immediately.
- **Size:** The volume of E4 LCD Evolution TT has been optimized in order to minimize the floor space required to stock the UPS, and comply with all sorts of constraints.
- **Noise:** The quality of the IGBT rectifier, together with the High Frequency Technology of E4 LCD Evolution TT allows to reach a low acoustic level (down to less than 52 dB depending on the model).

Front access E4 LCD Evolution TT 40k VA

Ecological and economical

Recycle

Made from materials over 60% of whiwh can be recycled, E4 LCD Evolution TT was developped to minimize its impact on the environment. Infosec UPS System products respect the most demanding standards regarding environmental protection, according to its commitment made through the ISO 14001 certification.

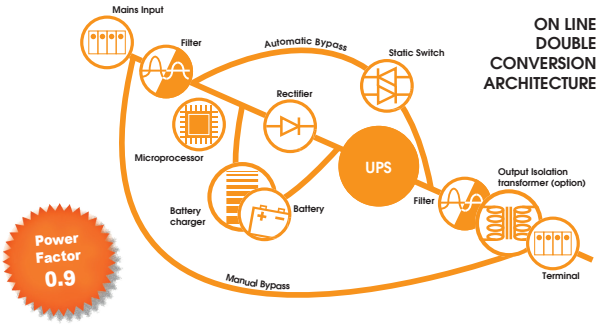
Eco-mode

Reduces the UPS device's energy consumption by switching it to sleep mode.
This feature allows the unit to supply power to the connected load directly from the network while maintaining the UPS fully operational to ensure the continuity of power from the system, should a failure or a major voltage fluctuation occur.

THE MOST RELIABLE TECHNOLOGY

On Line Double Conversion Technology

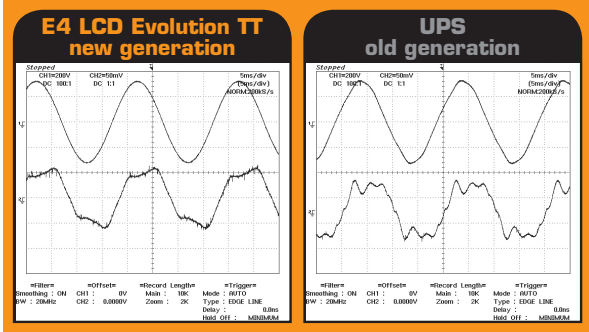
The E4 LCD Evolution TT product range is equipped with the On Line Double Conversion with High Frequency Technology, providing the users with the highest security level. The current is constantly delivered by the UPS device, thus guaranteeing a constant voltage level with a perfect stability. Critical applications are therefore supplied with a perfect current as they are independent from the mains input. There is no commutation time and no micro-power shortage.



Advanced AFC control

Harmonic distortion is a very important factor for a high-powered UPS: the challenge is to maintain a low rate regardless of the percentage of connected loads and their nature (capacitive, resistive or inductive).

Output voltage distortion and output current with discharge lamp



Very low output voltage (THD=0,2%) at full load
***Very clean current wave form ***
Very low input current THD (<3%) at full load

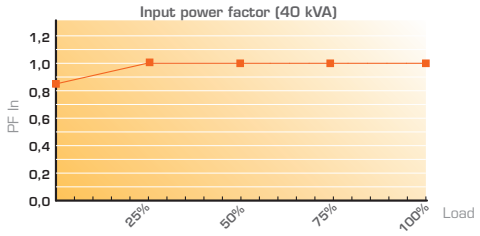
The AFC function cancels and compensates for the input and output harmonics over the entire operating range (from 10% to 100% of the connected load).

A low rate of harmonics offers many advantages:

- Neutralises the harmonics as close as possible to the equipment causing interference
- No additional loss in the cables and wires
- No unstable operation of computers, monitors and electronic hardware, etc.
- Improves the quality of the current delivered to the powered systems
- Improves the installation's power factor
- Extends the useful life of the installation: no overheating of transformers and generators that shorten their lifespan
- Reduces the energy bill
- Meets the needs of all types of electrical networks including those powered by generator sets

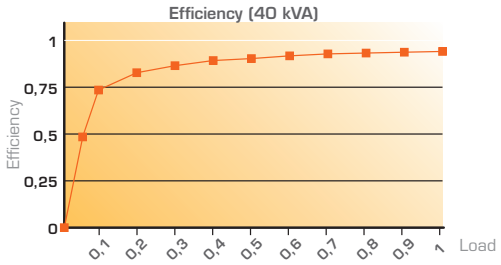
PFC (Power Factor Control)

Enables the power quality to be improved, at the rectifier, and to limit input over-sizing of the installations (cables, circuit breakers, disconnecting switches, fuses, etc.). Regardless of the functionning mode, E4 LCD Evolution TT's current consumption is reduced thanks to the input power factor that can reach up to 1 (over a 10% load). This advantage allows to optimize the network beforehand, thus reducing power losses, and operation and maintenance costs.



DSP - Digital Signal Processor

E4 LCD Evolution TT as a processor dedicated to calculations and signal quality: the DSP has the ability to process a huge amount of information in real time (20 million instructions per second). On one hand, the DSP controls the rectifier and the network current quality and, on the other hand, it controls the output voltage quality thus guaranteeing users exceptional performance in terms of voltage accuracy, efficiency and reliability.



High overall efficiency of the UPS output

E4 LCD Evolution TT, due to the DSP control and latest generation IGBT switch, ensures a high overall performance (up to 95%), even at low load, allowing substantial overall energy savings and an optimisation of the components' useful life by decreasing heat loss.

Low input THDi

The IGBT rectifier is an essential component because it drastically reduces the interference in the upstream network (source and distribution) and thus prevents reputedly difficult loads from disturbing the network. E4 LCD Evolution TT offers very low distortion of THDi input power due to the innovative rectifier using IGBT technology, i.e. a THDi <1% to 100% load, and even a THDi <5% from and upward of 10% load.

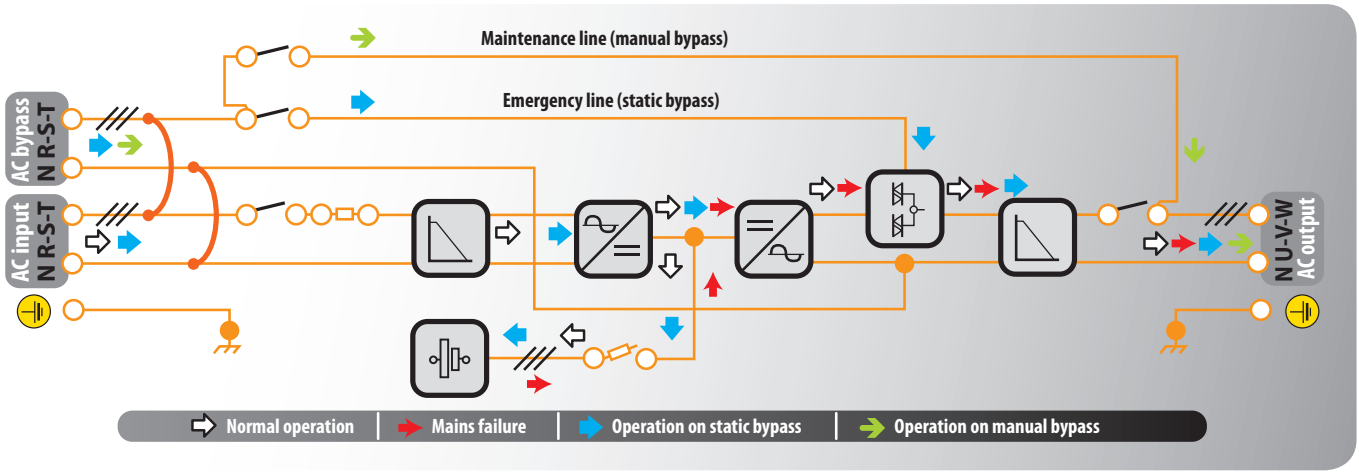
Low output THDv

The E4 LCD Evolution TT THDv remains low even with reputedly difficult loads connected i.e. a THDv <0.5% with a resistive load and a THDv <2% with a non-linear load and a crest factor = 3. The E4 LCD Evolution TT range can easily protect the most diverse, reputedly difficult and critical loads (laboratory instruments, hospital environments, etc.).

UNINTERRUPTED POWER SUPPLY OF THE CRITICAL LOADS

Static By-pass and Manual By-Pass

Its dual power supply network with independent rectifier and by-pass is appropriate for use in facilities running separate redundant network systems with generator sets (hospitals, airports, train stations, supermarkets, cold chains, etc.). In this way the critical load can be powered by a second source supplying the by-pass circuit, should the main source fail for a lengthy period (see details in the technical specifications chart).



Battery management

The energy stored in the batteries is absolutely essential to maintain the power supply to the installation in the event of power cuts or electrical disturbances.
The following characteristics ensure the battery is always available:

Smart and independent battery management

- Optimization of the reloading quality and time of the batteries: reloading of the batteries at 90% in 5 hours only while controlling and analyzing the main parameters to optimize this reloading.
- Battery lifetime optimisation:
  - Monitoring full discharge:
  - Loading voltage compensation according to the temperature to avoid overheating and excessive battery loading (battery sensor installed in the battery compartment)
  - Monitoring the battery voltage ripple ratio

Battery loading current

E4 LCD Evolution TT's battery loading current can be adjusted directly on the front panel if necessary.

Backup time calculation

The use of powerful algorithms means the available backup time can be seen in real time on the LCD display in the event of an extended power cut.

Ecran LCD des modèles 10k-30k VA

Battery test

A battery test can be manually or automatically enabled, depending on the programming, from the control panel.

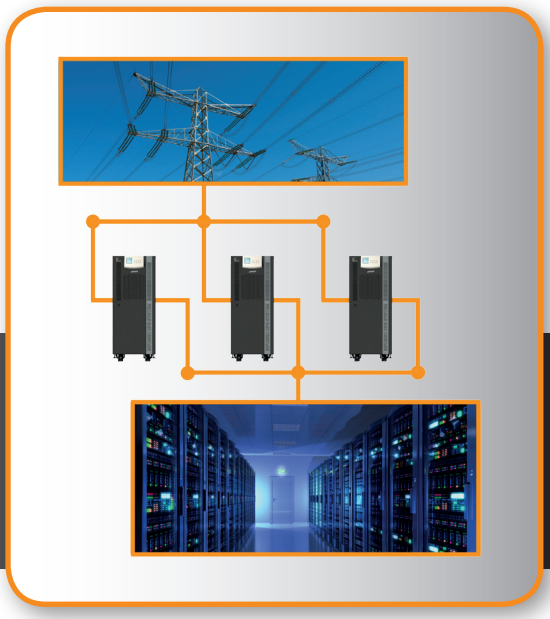
Parallel installation

To enhance system security and meet the need for system flexibility and upgradability, E4 LCD Evolution TT can be configured in parallel. Up to 4 units can be connected in parallel using two connectors, increasing the power and redundancy for even greater security. The «in parallel» function is built into the UPS and is therefore configurable for free.

Parallel configuration of from two to four E4 LCD Evolution TT can, at the same time, increase the power supported by the array, and maximize the security provided to the connected equipement.

E4 LCD Evolution TT can therefore stand a connected load of up to 480 kVA.

Parallel installation can also allow to switch automatically to a backup UPS device in case of a temporary fault of one of the connected E4 LCD Evolution TT.



COMMUNICATION

Constant monitoring of the UPS

LCD screen

E4 LCD Evolution TT LCD screen allows an easy and quick access to the key information of the UPS:

- Hardware control and status
- Rectifier: input voltage (phase/phase and phase/neutral), input current for each phase, frequency
- By-pass: input voltage (phase/phase and phase/neutral), input current for each phase, frequency
- Inverter: output voltage (phase/phase and phase/neutral), frequency, output current for each phase, apparent power output, active power output
- Batteries: voltage, current load/unload, estimated backup time
- Alarms
- Settings

LCD screens of E4 LCD Evolution TT are available in English and French.

LCD screen of 40k-120k VA models

Many compatible interfaces

- **Dry contacts** as standard from 40k to 120k VA allow a remote transmission of the UPS or alarm status information (e.g. for a centralized technical management system).
- The **USB port** allows to use the communication protocols developped for IT infrastructures, data centers and telecommunications networks.
- Two **RS 485 ports** are available as standard from 40k à 120k VA in order to use industrial infrastructure protocols and therefore manage the status of the UPS and the power supply to the connected loads.
- **The DB9 communications interface**, which allows the E4 LCD Evolution TT to communicate with the various workstations and IT servers, can be configured in two ways: either **RS232 protocol** and **InfoPower software** or **RS485 protocol for MODBUS communication** and integration in BMS (Building Management Systems).
- An **SNMP slot** designed to add an **SNMP agent (optional)** that allows the UPS to be managed and monitored remotely as well as the network to be powered via Ethernet or web.

For maximum security, and thanks to all these communication systems, the UPS can be monitored remotely 24 hours a day and 7 days a week.

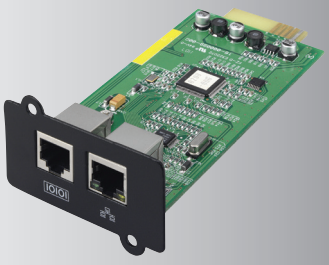
The numerous available communication solutions allow to adapt to many interfaces used in various sectors and activities.

OPTIONS

Galvanic isolation transformer

E4 LCD Evolution TT equipped with an output isolation transformer provides the system with complete electrical isolation between the upstream and downstream circuits. The device therefore adapts perfectly to all earthing systems both upstream and downstream.

SNMP Agent



Using the SNMP agent facilitates the management (local and multi-site) of the **E4 LCD Evolution TT** and network power supply due to the following features:

- Connection to the Ethernet network and identification by IP address
- Configuring and programming extensions and restart of the system on a weekly (or other) basis …
- UPS configuration locally or remotely
- Self-diagnosis of the UPS devices while operating
- Automatic shutdown according to pre-determined priorities of the various networked computers
- Sending warning messages to network users
- Events log
- Low battery detection
- Temperature, humidity and smoke detector can be connected (optional).

Additional Backup Time

In order to get extended backup time, battery extension modules can be connected to **E4 LCD Evolution TT**.

S models from 10k to 40k VA, and models from 60k to 120kVA as a standard require external battery banks.

Different types of battery cabinets are available according to the type of battery needed, but also to the physical setting. Depending on the type of installation and the equipement to protect (single UPS device or several devices connected in parallel), backup time need may vary. The modularity of the battery banks allows to answer most of the needs.

Some battery cabinets may be supplied in kit form and assembled on site.

APPLICATIONS

Infrastructures

Large infrastructures often require total security guarantee, as their functionning must be continuous and never suffer any forced interruption, in order to avoid any human risks which consequences could be extremely damaging. Such risk cannot be ignored nor minimized.

E4 LCD Evolution TT answers the critical requirements of airports, train stations, hospitals, laboratories, tunnels, malls and other public infrastructures can be protected and guaranteed a continuous supply of their critical applications.


Industrial equipment

Production lines using equipment that cannot suffer any power shortage, including micro-power shortages, have a critical need for electrical protection of their production units.

Factories in the energy industry are also directly concerned by the need to provide an uninterrupted power supply to their applications.

The versatility and adaptability of **E4 LCD Evolution TT** to any type of load, including the more complicated ones (inductive, capacitive, non-linear, discharge lamps, inductive engines…), together with its high efficiency make it **the ideal solution to guarantee the power supply and the continuity of the activities and services for any industrial application**.

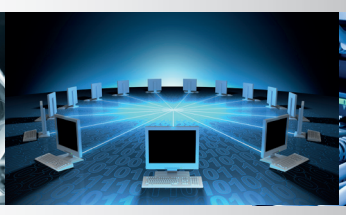


IT & Telecommunications

The phenomenal growth of the telecommunications sector implies the need for uninterrupted availability of communications and service for the suppliers as well as the subscribers.

E4 LCD Evolution TT UPS product range can provide the required autonomy to avoid power shortage. A powerful battery charger allows to set and guarantee additional backup time thanks to additional battery packs.

Moreover, the efficient communication systems of this UPS device **allow a 24/7 remote monitoring and surveillance** thus guaranteeing an immediate reaction in case of a problem or fault on the system.


Data centers

Data centres are easily affected by power quality fluctuations. A shortage, even of only a few seconds can have tremendous consequences for a company (data loss, interruption of business…).

INFOSEC recommends the E4 LCD Evolution TT range as an optimal answer to power supply-linked problems, allowing operators of data treatment centers to improve the efficiency of their equipment, thus providing the adequate answer to their clients' needs.



E4 LCD Evolution TT's advantages for data centers:
parallel redundancy, top-ranked technologies (IGBT rectifier, AFC control…), remote control…

SERVICES & TECHNICAL SUPPORT

Pre-sales and after-sales services provide an appropriate solution to your needs to ensure the durability, reliability and availability of your UPS.

Technical requirements & pre-installation assistance

A needs pre-qualification questionnaire will help validate the technical choices and options selected for each installation configuration. Our technical sales team can be consulted for the most complex issues.

Installation, testing, commissioning

An INFOSEC engineer or an INFOSEC certified installer will come to your site to install and start-up the UPS. A test report would be then provided.

Technical support hotline

The after-sales service can be contacted quickly by phone and/or email to answer any questions or technical queries.

Hotline

+33 (0)2 40 76 15 82

hotline@infosec.fr

Maintenance contract

INFOSEC Communication offers several types of maintenance contracts for UPS devices in the ON LINE range from 5 kVA. Maintenance contracts may include the replacement of parts, battery replacement, labour, travel in the event of repair and an annual inspection.

Replacing the batteries

It is important to ensure the proper operation of the batteries which, after a few years of operation must be changed (between 3 and 5 years depending on the room temperature, number of charge and discharge cycles).

The batteries absolutely must be changed by a professional: only an INFOSEC engineer or approved INFOSEC engineer may intervene on request.

Technical training

INFOSEC makes technical training available for its partners and customers:

- Training in the use subsequent to on-site commissioning.
- More comprehensive training on all INFOSEC UPS SYSTEM product lines for authorised partners.
- Technical-sales training for sales support and to calculate the size of a UPS according to the facilities to be protected..

TECHNICAL SPECIFICATIONS

		E4 LCD Evolution TT 10K (S)	E4 LCD Evolution TT 15K (S)	E4 LCD Evolution TT 20K (S)	E4 LCD Evolution TT 30K (S)	E4 LCD Evolution TT 40K (S)	E4 LCD Evolution TT 60K	E4 LCD Evolution TT 80K	E4 LCD Evolution TT 100K	E4 LCD Evolution TT 120K
GENERAL CHARACTERISTICS										
Technology		On Line Double Conversion								
Power (VA)		10 000 VA	15 000 VA	20 000 VA	30 000 VA	40 000 VA	60 000 VA	80 000 VA	100 000 VA	120 000 VA
Power (W)		9 000 W	13 500 W	18 000 W	27 000 W	36 000 W	54 000 W	72 000 W	90 000 W	108 000 W
Power factor		0,9								
UPS PHYSICAL CHARACTERISTICS										
Standard model	**Dimensions L x W x H (mm)**	815 x 250 x 826			815 x 300 x 1000	770 x 450 x 1100		805 x 590 x 1320		
	Net weight (kg)	109	164	165	234	353	162*	231	264	287
Extended backup time model (S)	**Dimensions L x W x H (mm)**	592 x 250 x 826			815 x 250 x 826	770 x 450 x 1100	-			
	Net weight (kg)	38	40	41	64	132				
INPUT										
Nominal voltage		3 x 380V (3Ph + N) / 3 x 400 VAC (3Ph + N) / 3 x 415V (3Ph + N)								
Acceptable voltage range		305-478 VAC (3-phase) @ 100% load ; 190-520 VAC (3-phase) @ 50% load				from -20% to +15% (adjustable)				
Frequency range		46~54 Hz or 56~64Hz				45~55 Hz or 55~65Hz				
Phase		Three-phase								
Power factor		> 0.99 @ 100% load				1.0				
Dual Input		Option				Yes			Option	
OUTPUT										
Nominal voltage		3 x 380V (3Ph + N) / 3 x 400 VAC (3Ph + N) / 3 x 415V (3Ph + N)								
Voltage regulation (battery mode)		± 1%								
Frequency Range (Synchronized Range)		46~54Hz or 56~64Hz				45~55 Hz or 55~65Hz				
Frequency Range (Batt. Mode)		50 Hz ± 0.1 Hz or 60 Hz ± 0.1 Hz				50 Hz ± 0,05 % or 60 Hz ± 0,05 %				
Admissible crest factor		3:1 (max.)						2.8:1	3.2:1	
Harmonic distorsion		< 2 % THD (Linear Load) ; < 5 % THD (Non-Linear Load)				< 1 % THD (Linear Load) ; < 2,5 % THD (Non-Linear Load)				
Transfer Time	**Line mode to Battery mode**	0 ms								
	Inverter to Bypass	0 ms								
Forme d'onde		Pure Sinewave								
Output terminal		Yes								
EFFICIENCY										
Mode secteur		89%	89%	89%	90%	92,5%	93%	93%	93,50%	94%
BATTERIES										
Standard model	**Battery type**	12V 7Ah	12V 9Ah			12V 12 Ah	Depending on the required backup time			
	Number	20**	20** x 2		20** x 3	31 x 2				
	Typical Recharge Time	9 hours @ 90% capacity				5 hours @ 90% capacity				
	Charging current (max)	1A	2A		4A	Programmable				
	External Battery Bank	No					Yes			
	Backup time	10 min @ 70% load					Depending on the battery banks			
Extended backup time model (S)	**Battery type**	Depending on the required backup time					-			
	Number									
	Charging current (max)	4A			12A	Programmable	-			
	External Battery Bank	Yes					-			
INDICATORS & ALARMS										
LCD Screen		Load level, Battery level, AC mode, Battery mode, bypass mode, and Fault indicator.								
Audible alarms		Battery mode, low battery, overload and fault								
BYPASS										
Static bypass		Yes								
Manual bypass		Optional External Maintenance Bypass switch								
MANAGEMENT / COMMUNICATION										
Communication through RS-232, RS 485 & USB Port		Supported by Windows family, Novell, Linux, Mac, & FreeBSD								
SNMP Option		Management system through SNMP software (VMware® compatible) and web browser								
EPO Connector		Yes								
Parallel connection up to		3				4				
Parallel connector		Option				Standard				
ENVIRONMENT										
Humidity		0-95 % RH @ 0-40°C (without condensing)								
Noise Level		< 60dB @ 1 meter	< 65dB @ 1 meter			< 52dB		< 65dB		
Heat dissipation max		889W / 3034.1 BTU/h	631W / 2152.3 BTU/h	1486W / 5069 BTU/h	2116.125W / 7220.5 BTU/h	2594,59W / 147,55 BTU/h	3612,9W / 205,47 BTU/h	4085,11W / 232,32 BTU/h	6021,5W / 342,44 BTU/h	6893,89W / 392,05 BTU/h
NORMS										
Standard		CE RoHS								
EMC (Electromagnetic compatibility)		EN62040-2:2006; EN61000-2-2:2002; EN61000-4-2:2009; EN61000-4; 3:2006+A1:2008+A2:2010; EN61000-4-4:2004+A1:2010; EN61000-4-5:2006; EN61000-4-6:2009; EN61000-4-8:2010								
LVD (Safety)		EN62040-1: 2008+A1:2013								
SALES INFO										
Warranty		1 year								
Standard models gencods		3700085 67250 1	3700085 67251 8	3700085 67252 5	3700085 67253 2	3700085 67294 5	3700085 67296 9	3700085 67297 6	3700085 67501 4	3700085 67502 1
Extended backup time models (S) gencods		3700085 67254 9	3700085 67255 6	3700085 67256 3	3700085 67257 0	3700085 67295 2	-	-	-	-

* Weight of the UPS without the batteries
** The number of batteries can be adjusted from 18 to 20
S models are UPS devices with extended backup time without internal batteries.
E4 LCD Evolution TT products are also available in LV (110V) version from 10k to 60k VA.

E4 LCD TT

Evolution

From 10 to 120k VA

Communications solutions and remote management

USB & RS232, SNMP & EPO communication ports

Software :

- Simple user interface
- UPS startup and shutdown programming
- Data and events record enabling daily maintenance
- E-mail messaging to manage UPS status at all times via the local network
- Free download from the website

Package content

- E4 LCD Evolution TT
- Battery Bank (except for models up to 40 kVA with internal batteries)
- User's Manual
- Infopower management software
- RS-232 cable
- USB cable
- Battery cable (S versions)

Options

Model	Ref.
SNMP I Agent (10k to 30k VA)	61424
SNMP II Agent (40k to 120k VA)	61434
Dry Contact Card (AS 400) (10k to 30k VA)	61454
Isolation Transformer	NC
RS 485 Card (10k to 30k VA)	61439
Environment Measure Device (EMD)	61452
Additional Battery Bank	NC
IP 21	NC
Parallel kit 10-20k	61459
Parallel kit 30k	61460

Warranty

One-year guarantee against manufacturing defects under normal conditions and compliance with precautionary measures.

Warranty to be taken out on www.infosec-ups.com within 10 days of purchase.

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