



▶ DATA SHEET

Features

- Zero transfer time to standby means your network is unaffected by network outages
- Digital LCD Panel provides true digital RMS readings without using separate hand-held meters
- Modular construction for inverter hot swap capability without shutting down the network
- Field Upgradeable: 60, 75 or 90 Vac output provides installation flexibility
- High efficiency operation provides optimum thermal performance and reduced utility costs
- Rugged and robust ferro capable of handling 200% short duration overloads

TRUE ZERO TRANSFER TIME LECTRO ZTT/PLUS™ UPS SERIES

The Lectro ZTT/Plus Solution

When it comes to unparalleled reliability, clean power and instantaneous backup for broadband providers, the MSO's first choice is the Lectro ZTT/Plus UPS. With solutions covering all input and output combinations, Invensys has the best product for your broadband powering needs.

Introduced in June 1997, the ZTT/Plus began a new generation of microprocessor-based UPSs that combine the latest in digital technology with the reliable performance of a ferroresonant transformer.

Enhancements include fewer components, higher efficiencies and an LCD panel that provides up-to-the-minute status of the UPS system. Following an outage, the ZTT/Plus delivers a constant 6 amps of charging current under all load and line conditions. In the

event of a short, the output is protected by a software controlled circuit breaker that cycles to protect downstream network amplifiers. The ZTT/Plus employs a hot swappable inverter module in a rugged enclosure for easy field maintenance without interrupting network operations. Standard features on the ZTT/Plus UPS include the LCD panel, battery cables and a front access DIN port for direct connectivity to third party transponders.

Modularity and Serviceability

Centrally located components in a lightweight, removable module accommodate on-site replacements within a matter of moments. Multi-voltage models (60/90 or 60/75/90) are field upgradeable in 30 seconds or less. Zero transfer time, modular construction and reduced parts count means the ZTT/Plus sets the standard in the broadband market for reliability.

TRUE ZERO TRANSFER TIME LECTRO ZTT/PLUS UPS SERIES



A major advancement of the ZTT/Plus series is a digital LCD display.



Industry Advancements

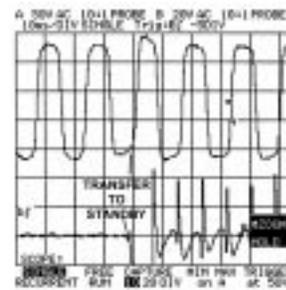
A major advancement of the ZTT/Plus series is a digital LCD display panel. Replacing analog meters in older models, the LCD display provides a higher level of accuracy and, in most cases, eliminates the need for hand-held voltage meters. Another significant feature of the ZTT/Plus is high noise attenuation (1000:1) which essentially eliminates utility spikes, surges and transients from passing to the cable plant load.

The ZTT/Plus “virtual fuse” feature represents a new generation of “smart” UPSs that actually responds to an increased overload so that damage does not occur to cable network passive/active components or to the power supply itself. In addition, the ZTT/Plus employs an enhanced ferroresonant transformer, which is capable of handling up to 200% overload before foldback occurs.

Backed by Time Proven Technology

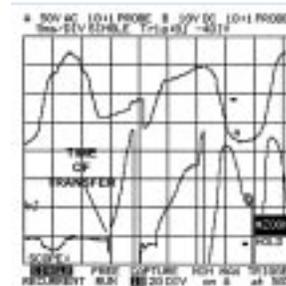
Invensys has the resources for continued innovation in the area of broadband network power protection. Once installed, your network is in expert hands with our dedicated UPS service and support teams. Lectro UPS products are produced under ISO 9001 quality standards by Invensys Energy Systems.

Zero Transfer Time – ZTT/Plus vs. Brand X



**Lectro ZTT/Plus
Fluke Scale:**
50V/division
Impact: Minimal Voltage overshoot and almost absolute RMS integrity.
Result: Zero Transfer Time

means the broadband network is unaffected by the utility outage.



**Brand X
Fluke Scale:**
50V/division
Impact: Inverter shuts down for a short period. Output voltage is dropped to an unusable RMS

level. 12-15ms are needed for the RMS voltage to recover to usable level. 30ms are needed to “stabilize” the output voltage (current is unstable).
Result: Short-term network outage. Data packets dropped.



TRUE ZERO TRANSFER TIME LECTRO ZTT/PLUS UPS SERIES

Hot Swappable
Inverter Module



Hot Swappable Inverter Module

Part of what makes the ZTT/Plus so easy to service is a removable inverter module. This feature ensures that you will never have to shut down your broadband network, should the inverter ever need replacing.

Battery Friendly

The advanced battery charging architecture on the ZTT/Plus actually helps extend battery life. Immediately following an outage, recharge current is maintained at a constant 6 amps, independent of line or load conditions on the power supply. This helps to return the battery to a fully charged condition as soon as possible. During maintenance or “float” conditions, charge voltage automatically adjusts to compensate for temperature variations. This protects the battery at elevated temperatures and improves battery performance at lower temperatures.

Field Upgradeable

The ZTT/Plus series 60/90 model features a field-selectable design, allowing system operators to deploy a 60 Vac supply and upgrade to 87 Vac with a simple 30 second tap change. This allows a 30% upgrade in power,

thereby reducing the total number of power supplies required by up to 25%. Similar capabilities exist in the 60/75/90 model with the additional feature of a 75 Vac transitional tap. The tap upgrade feature anticipates future network trends such as dynamic loading, NIU powering and centralized HFC migration and provides a single power supply building block to operate in virtually any future network powering scenario.

Cooler Operation

The rugged construction and robust design allows the ZTT/Plus to perform flawlessly in the harshest environments. A thermostatically controlled cooling fan and a high quality inverter heat sink design provides longer ferro life and improved reliability.

Microprocessor Controlled

The Lectro ZTT/Plus is equipped with a Motorola HC-11 digital microprocessor for advanced system controls. This includes “smart” overload protection on the output, enhanced battery charging, true digital RMS metering and improved reliability due to a reduced parts count.

Specifications – Lectro ZTT/Plus UPS

ELECTRICAL

Input Voltage	120 Vrms	220 Vrms	230 Vrms
Input Regulation ¹	-20% +10%	-20% +10%	-20% +10%
Nominal Input Current ² @ 87 Vrms	13.4 Amps	7.4 Amps	6.9 Amps
Nominal Input Current ² @ 60 Vrms	9.6 Amps	5.3 Amps	4.9 Amps
Input Frequency	60Hz, ± 3Hz	60Hz, ± 3Hz	50Hz, ± 3Hz
DC Voltage	36 VDC	36 VDC	36 VDC
Low DC Voltage Cutout	1.75 Volts/Cell	1.75 Volts/Cell	1.75 Volts/Cell
Output Voltage (Field Selectable)	60/75/87 Vrms	60/87 Vrms	60/87 Vrms
Output Regulation	±3%	±3%	±3%
Rated Output Current (Inverter)	15A rms	15A rms	15A rms
Output Configuration ³	Single	Single	Single
Output Frequency	60Hz, ±1%	60Hz, ±1%	50Hz, ±1%
Waveform	Quasi Squarewave	Quasi Squarewave	Quasi Squarewave
Slew Rate	< 100 Volts/ms	< 100 Volts/ms	< 100 Volts/ms
Crest Ratio (Peak: RMS)	1.3:1	1.3:1	1.3:1
Efficiency @ 87 Vrms			
87 Vrms	89.9%	88.9%	91.0%
60 Vrms	86.9%	85.3%	88.2%

AGENCY

Safety Recognition	UL 1778 CSA C22.2 No. 107.1
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OVERLOAD PROTECTION

Foldback (Typical @ Nominal Input)

87V Tap	200%	200%	200%
60V Tap	300%	300%	300%
Output Current Into Short			
87V Tap	20A rms	22A rms	18A rms
60V Tap	28A rms	32A rms	26A RMS

Output Current Into Short Inverter Operation ("virtual fuse")

Inverter shutdown upon long duration short with auto retry upon cool down period (approximately 5 seconds)

BATTERY CHARGING

Charge Current	6 amps average
Temperature Compensation	±2.8mV/Cell/°C
Constant Current Operation	2.41 Volts/Cell to 90% Capacity
Constant Voltage Operation	2.30 Volts/Cell

ENVIRONMENTAL

Operating Range	-40°C to +55°C
Humidity	5-95% Non-Condensing

MECHANICAL

Height	7 in (178mm)
Width	16.5 in (419mm)
Depth	13 in (330mm)
Weight	65 lbs (29 kg)
Finish	Black Epoxy Powder Coat

Specification subject to change without notice

¹±30% Range Extender Option is available

²Batteries fully charged, pf = 0.9

³Output Port Control Module Option is available

ZTT/Plus Module

