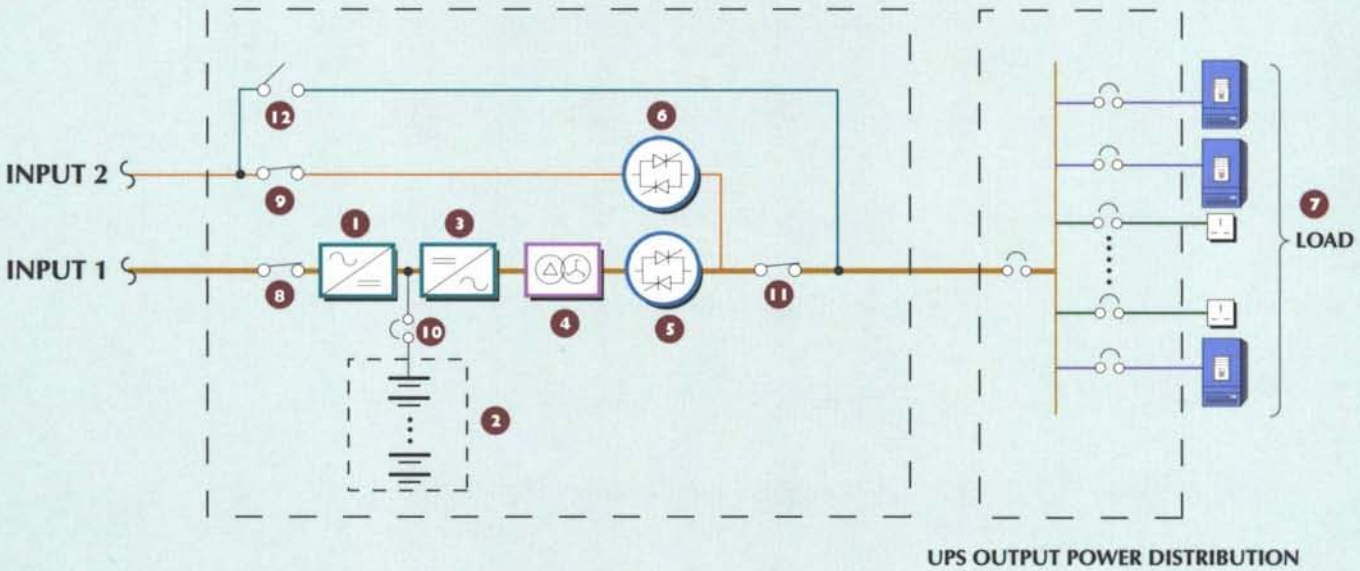
# Medes CPT Series

## Uninterruptible Power Supply (UPS) system

- *~ IGBT technology*
- *~ Designed for non-linear load application*
- *~ Double-sized neutral conductor*
- *~ Build-in inverter isolation transformer*
- *~ Fully digital control*
- *~ Able to operate in parallel*
- *~ Optional economic operation mode*
- *~ User-friendly interface*
- *~ Intelligent battery management*
- *~ Connectivity to computers and facility management system*

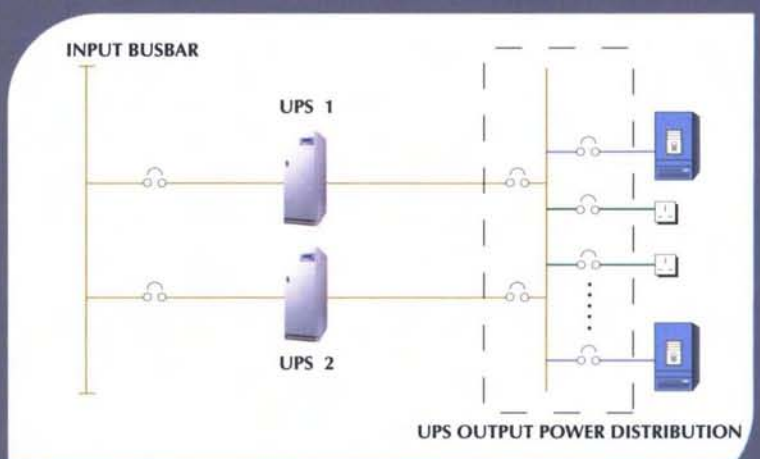
Medes CPT Series Packaged Uninterruptible Power Supply (UPS) system is a line of 3-phase input and 3-phase output UPS system designed and manufactured by Medes Electronics. The system employs multi-processor MCU technology which enhances system performance, increases reliability, integrates hardware into software, reduces component count, and makes the product easier to maintain and repair than any other UPS system in the market.

# Medes UPS Block Diagram

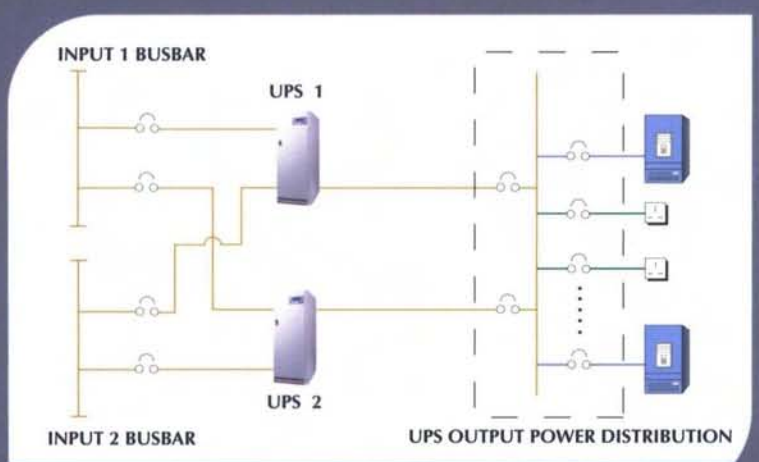



# Parallel Hot Swap System

This configuration consists of two standard UPS connecting in parallel as shown. Both units are in operation, however only one inverter output static switch is on at any given time and the load is supported by either one of the inverters. Upon failure of the operating inverter, the load transfers automatically to the second inverter without any break in supply. The load will be transferred to the reserved mains only upon failure of both inverters.




Parallel Hot Swap Configuration with Single Input




Parallel Hot Swap Configuration with Two Inputs

A redundancy system with highest reliability

- No single point of failure
- Requires no system calibration
- Always synchronized
- Make-before-break transfer of load
- True modular plug-and-play

REMOTE MANAGEMENT

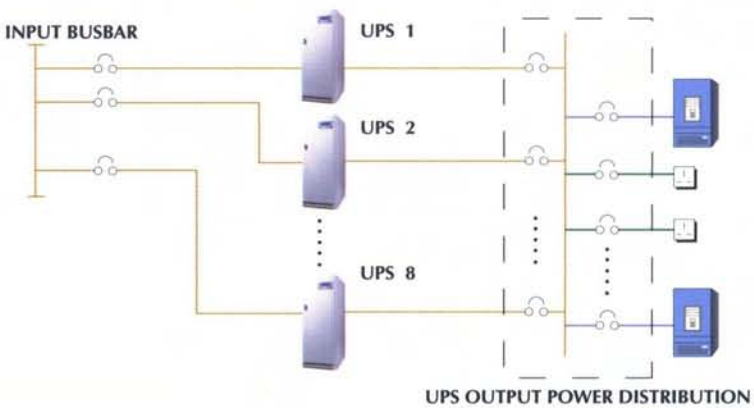
1. ***Rectifier*** : converts mains AC power into DC
2. ***Battery*** : stores energy to provide continuous power when mains supply cut
3. ***Inverter Bridge*** : generates AC power from the DC source
4. ***Inverter Isolation Transformer*** : a delta zigzag transformer providing galvanic isolation between inverter IGBT and load (This enhances the inverter ability in handling load with high harmonic and unbalanced current. It also removes any possible DC component from the inverter.)
5. ***Inverter Output Static Switch*** : an automatic semiconductor switch connecting the load to the inverter
6. ***Bypass Static Switch*** : an automatic semiconductor switch connecting the load to reserve mains
7. ***Load*** : any equipment that consumes power
8. ***Rectifier Input Isolator*** : disconnects the rectifier from the mains
9. ***Bypass Input Isolator*** : disconnects the bypass static switch from the reserve mains
10. ***Battery Breaker*** : overload protection breaker between UPS and battery
11. ***UPS Output Isolator*** : disconnects the UPS system from the load
12. ***Maintenance Bypass Switch*** : a manually-operated switch which allows no-break transfer of the load to the reserve mains whenever maintenance work needs to be carried out on the UPS system

## Load Sharing Parallel System

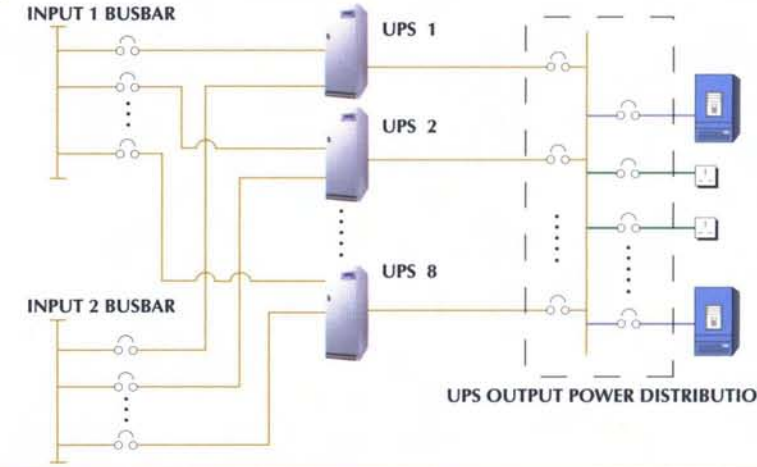
Up to 8 Medes UPS units can operate in a load-sharing-parallel configuration. By doing so, overall system power capacity can be increased and/or higher reliability or redundancy can be achieved.

Medes UPS employed a unique digital control system to handle different load condition in all phases. It shares active power by adjusting inverter phase angle, while reactive power is handled by minor voltage adjustment to each individual phase. This system has the following advance features :

- *Each UPS has its own load sharing control circuit*
- *No single point of failure*
- *UPS of different capacity can operate in parallel*
- *Support both common bypass and multi-bypass*
- *Field-upgradeable by plug in new UPS modules*




Load Sharing Parallel with Single Input




Load Sharing Parallel with Two Inputs

# Medes CPT Series

## Uninterruptible Power Supply (UPS) system

## General Specification

| | | |
|---|---|---|
| **Rectifier Input Voltage** | : | 380Vac ± 20% (adjustable), Three Phase |
| **Rectifier Input Frequency** | : | 50Hz - 10% to 60Hz + 10% |
| **Rectifier Input Power Factor** | : | 0.99 optional or 0.83 nominal |
| **Reserve Mains Input Voltage** | : | 380Vac ± 20% (adjustable), Three Phase + Neutral |
| **Reserve Mains Input Frequency** | : | 50/60Hz ±1% to ±5% adjustable |
| **Rectifier Output Voltage** | : | 400 - 450 Vdc (432Vdc nominal) |
| **Maximum Inverter Input Voltage** | : | 470Vdc |
| **Inverter Input Low Voltage Shut Down** | : | 300 - 350Vdc (320Vdc nominal) |
| **Inverter Output Voltage** | : | 380Vac/400Vac/415Vac ±0.5%, Three Phase + Neutral |
| **Inverter Output Dynamic Stability** | : | ± 3% |
| **Maximum Load Crest Factor** | : | >3:1 |
| **Total Harmonic Distortion with Non-Linear Load** | : | <2% |
| **Rated Output Power Factor** | : | 0.8 |
| **Inverter Output Frequency** | : | 50/60Hz ±0.01% (free running) |
| **Overload Capacity** | : | 125% for 10 min and 150% for 1 min |
| **Overall Efficiency at 50% Load** | : | 91% |
| **Overall Efficiency at 100% Load** | : | 94% |
| **Overall Efficiency at economic mode** | : | >99% |
| **Inverter Efficiency at 100% Load** | : | 95% |

| Model | Capacity | Rated Input Current | Rated Inverter Input Current | Nominal dissipated Power | Audible Noise | Dimension |
|---|---|---|---|---|---|---|
| CPT10 | 10kVA | 17Amp | 24.7Amp | 0.4kW | <55dBA | 615mm(W) × 840mm(D) × 1500mm(H) |
| CPT15 | 15kVA | 25.5Amp | 37.2Amp | 0.6kW | <55dBA | |
| CPT20 | 20kVA | 34Amp | 49.5Amp | 0.8kW | <55dBA | |
| CPT30 | 30kVA | 51Amp | 74.3Amp | 1.2kW | <57dBA | |
| CPT40 | 40kVA | 65Amp | 99Amp | 1.5kW | <57dBA | |
| CPT50 | 50kVA | 85Amp | 124Amp | 2kW | <57dBA | |
| CPT60 | 60kVA | 97.5Amp | 149Amp | 2.2kW | <57dBA | |
| CPT80 | 80kVA | 128.5Amp | 198Amp | 2.9kW | <58dBA | 820mm(W) × 840mm(D) × 1500mm(H) |
| CPT100 | 100kVA | 160.7Amp | 248Amp | 3.6kW | <58dBA | |
| CPT120 | 120kVA | 193Amp | 298Amp | 4.3kW | <58dBA | |
| CPT160 | 160kVA | 257Amp | 397Amp | 5.7kW | <60dBA | 1220mm(W) × 920mm(D) × 1820mm(H) |
| CPT200 | 200kVA | 318Amp | 495Amp | 6.3kW | <60dBA | |
| CPT250 | 250kVA | 398Amp | 619Amp | 8.5kW | <60dBA | |
| CPT300 | 300kVA | 477Amp | 743Amp | 11kW | <60dBA | 1580mm(W) × 920mm(D) × 1820mm(H) |
| CPT350 | 350kVA | 583Amp | 867Amp | 12kW | <63dBA | |
| CPT400 | 400kVA | 636Amp | 991Amp | 14kW | <63dBA | |
| CPT500 | 500kVA | 796Amp | 1,239Amp | 17kW | <66dBA | |
| CPT600 | 600kVA | 954Amp | 1,486Amp | 22kW | <66dBA | 2300mm(W) × 920mm(D) × 1820mm(H) |
| CPT800 | 800kVA | 1,272Amp | 1,981Amp | 27kW | <66dBA | |