

AC Power Product Portfolio

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EMEA Emerson Network Power Portfolio

UPS Product Portfolio

Off Line
Line Interactive
Double Conversion

Liebert
PSP
500-650VA



Liebert
PSI
750VA-3kVA



Liebert
GXT3
700-10k



Liebert
NXC
10-15-20kVA



Chloride
80-NET
300-500 kVA



Chloride
Trinergy
200-1200kVA



Liebert
PSA
500VA-1.5kVA



Liebert
NX
30-40-60kVA



Chloride
80-NET
60-200kVA



Liebert
APM
30-150kVA



Liebert
NXL *
400-800kVA



Coming Soon

<10 kVA

10-200 kVA

> 200kVA

*In the mean time 90-NET and HIPULSE will continue to be normally available.

Chloride 80-NET

BEST PERFORMING Transformer-Free Monolithic UPS in its power range

- **Transformer-Free** UPS in the range 60-500 kVA
- **Excellent Cost Savings**
- **Maximum flexibility** in system configuration
- **Compatibility** with every load
- **Full modular** service solution



Maximized active power, high efficiency and complete compatibility for modern, mission critical IT loads.

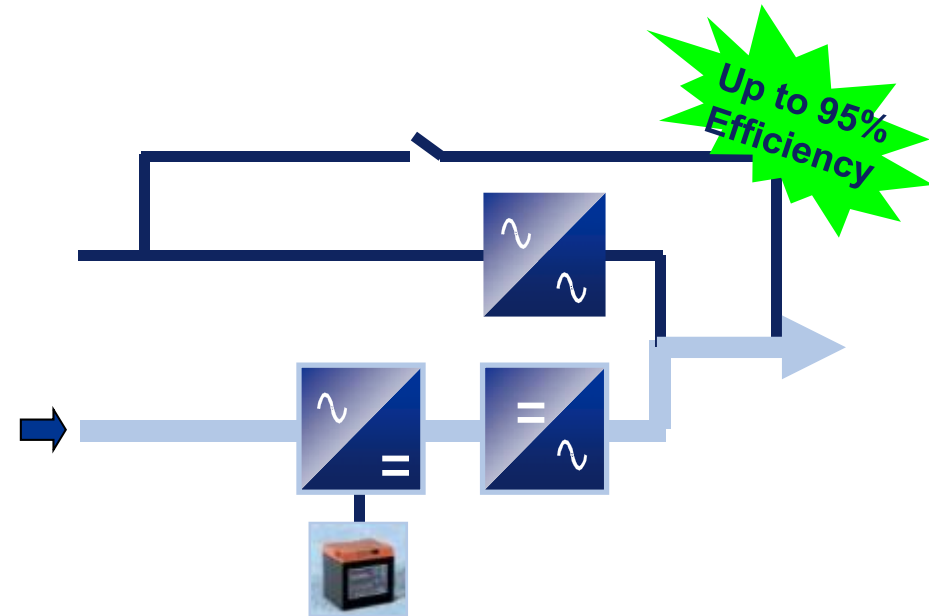
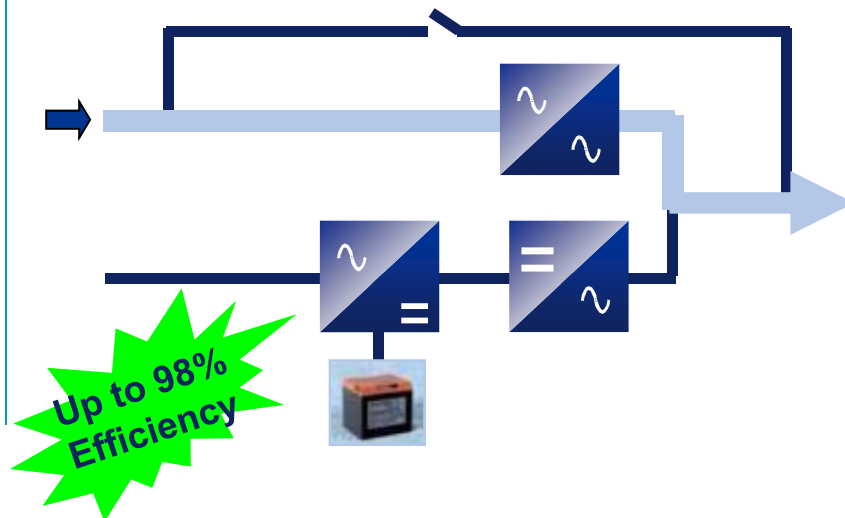
Chloride 80-NET Ratings

60-80kVA	100-120kVA	160-200kVA	300-400kVA	500kVA
Dimensions WxDxH: 570x858x1780mm	Dimensions WxDxH: 845x858x1780mm	Dimensions WxDxH: 975x858x1780mm	Dimensions WxDxH: 1675x858x1780mm	Dimensions WxDxH: 1900x858x1780mm
Weight 290 kg	Weight 400 kg	Weight 550 kg / 632 kg	Weight 1035 kg / 1190 kg	Weight 1430 kg
Output Power 60 / 80kVA @40°C 66 / 88kVA @25°C	Output Power 100/120kVA @ 40°C 110/132kVA @ 25°C	Output Power 160/200kVA @40°C 176/222kVA @25°C	Output Power 300/400kVA @40°C 330/440kVA @25°C	Output Power 500 kVA @40°C 550 kVA @25°C
				

Optimum TCO : Excellent OPEX

Intelligent double conversion

Double Conversion Mode maximizes performances with any kind of load and with any condition of the electrical environment, in order to supply the best power quality to the load.



Digital Interactive Mode maximizes energy savings.

Chloride 80-NET operates from direct line or conditioned line depending on an analysis of the recent quality history of the mains.

Optimum TCO : Excellent OPEX

$$kW \cdot (1/\eta_1 - 1/\eta_2) \cdot 24 \cdot 365 \cdot \text{cost/kWh} \cdot 1.5 = \text{Saving/year}$$

kW = UPS output power

η_1 = UPS efficiency, Competition

η_2 = UPS efficiency, ENP

24 = Hours in one day

365 = Days in one year

Cost/kWh = cost per kWh paid to electricity supplier.

1.5 = coefficient which considers air conditioning in the room where the equipment is installed.

Data used in calculation:

- Cost of electricity: Euro 0.1/kWh
- UPS efficiency competition 93%
- Chloride 80-NET AC/AC Efficiency:
 - DIM 98%
 - Double Conversion 95%

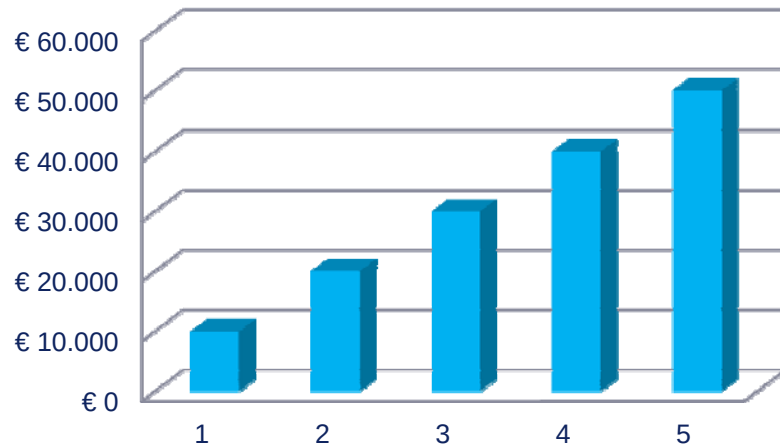
Optimum TCO : Excellent OPEX

Energy savings related to 500 kVA @70% load

> 10,000 Euro

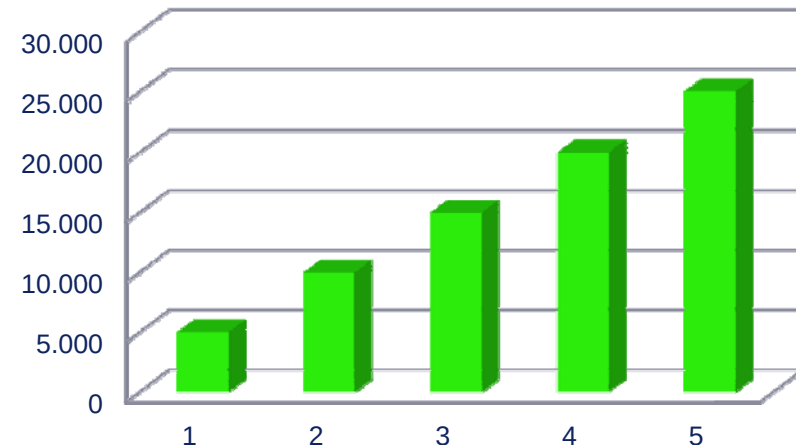
5,000 kg CO2

Cost Saving



Cost per kWh paid to electricity
supplier: 0.10 Euro

CO2 Saving



CO2 per kWh (depending on the energy
mix used in the country) 0.53 for UK

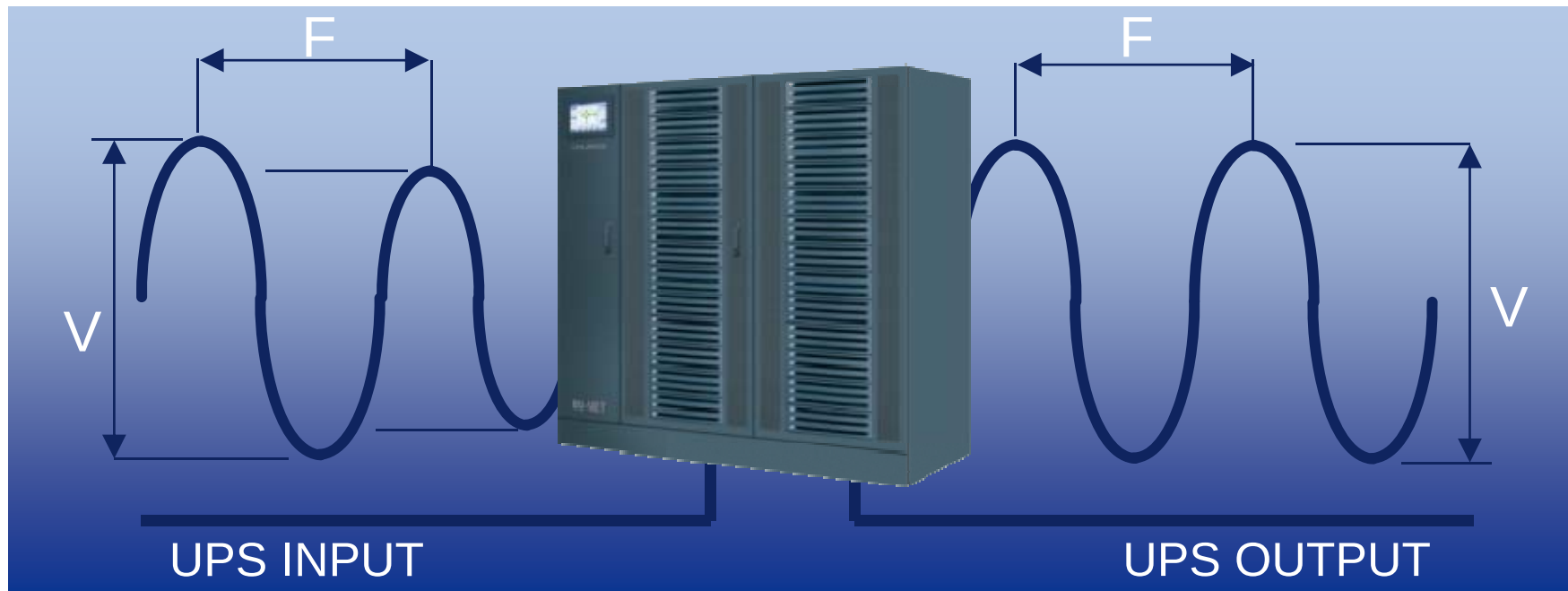
Excellent Input Output Performances

Three-phase input:

- Input PF > 0.99
- THDi < 3%
- Voltage: 250 – 460 V
- Frequency: 50/60 Hz

Three-phase output:

- Output PF: 1
- Voltage: 380V - 400V - 415V (selectable)
- Frequency: 50/60 Hz (selectable)

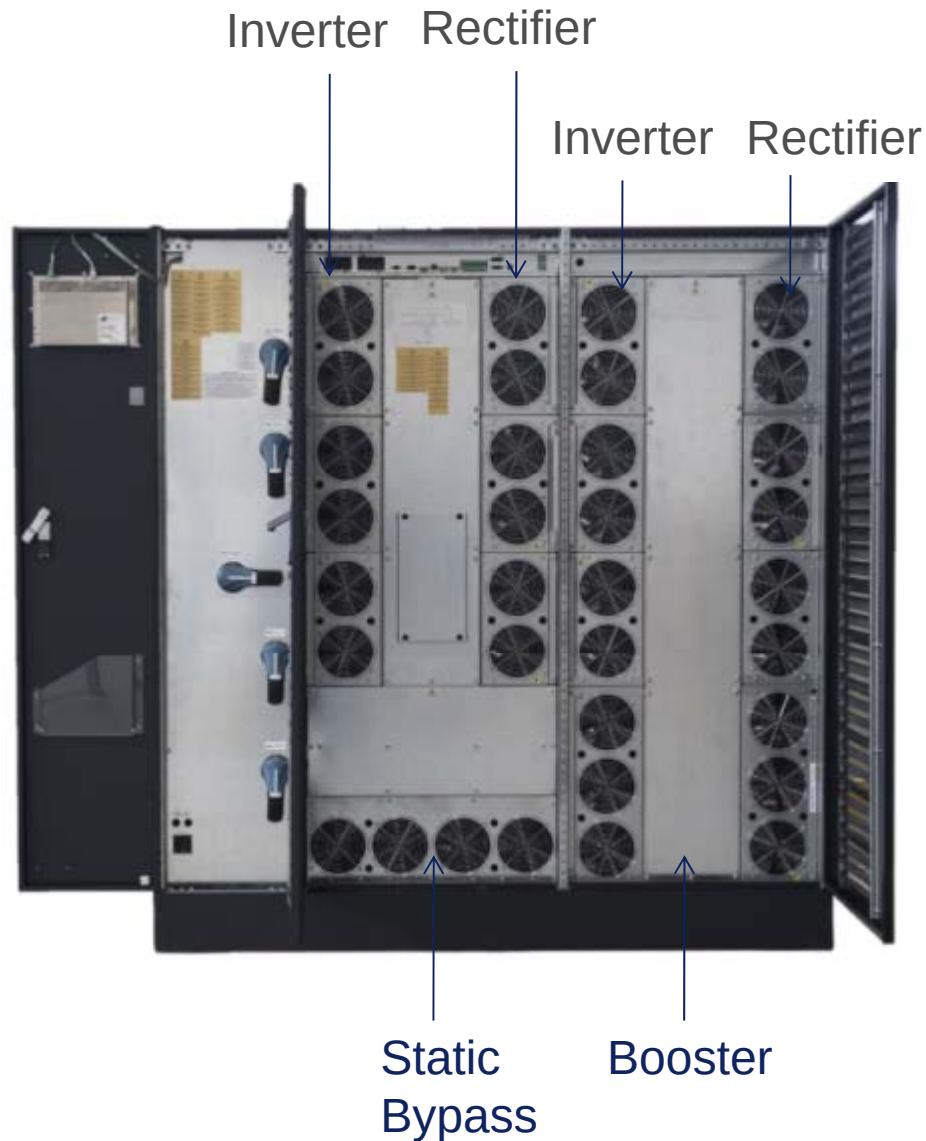


Chloride 80-NET 60-80-100-120kVA Full Modular Service Solution



- All control boards are completely accessible from the Top
- Bypass is located just under the control boards
- Each functional power module can be removed by extracting the drawers from the front of the UPS

Chloride 80-NET 160-200-300-400-500kVA Full Modular Service solution



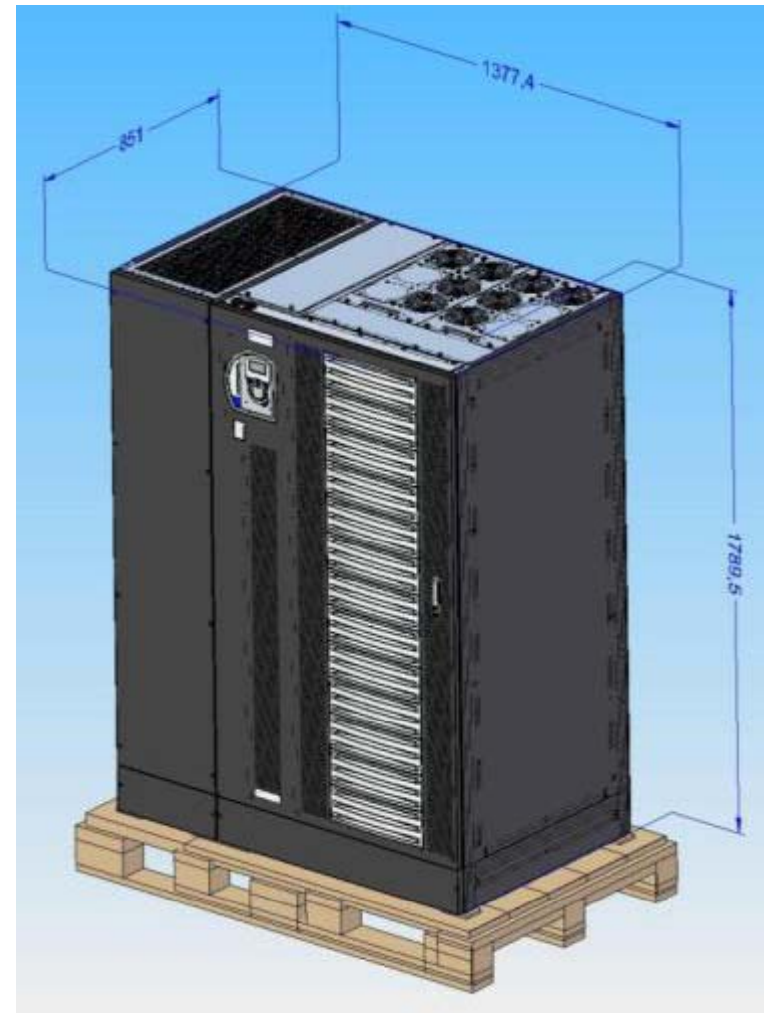
Maximum Flexibility: Integrated Transformer

60-80-100-120 kVA

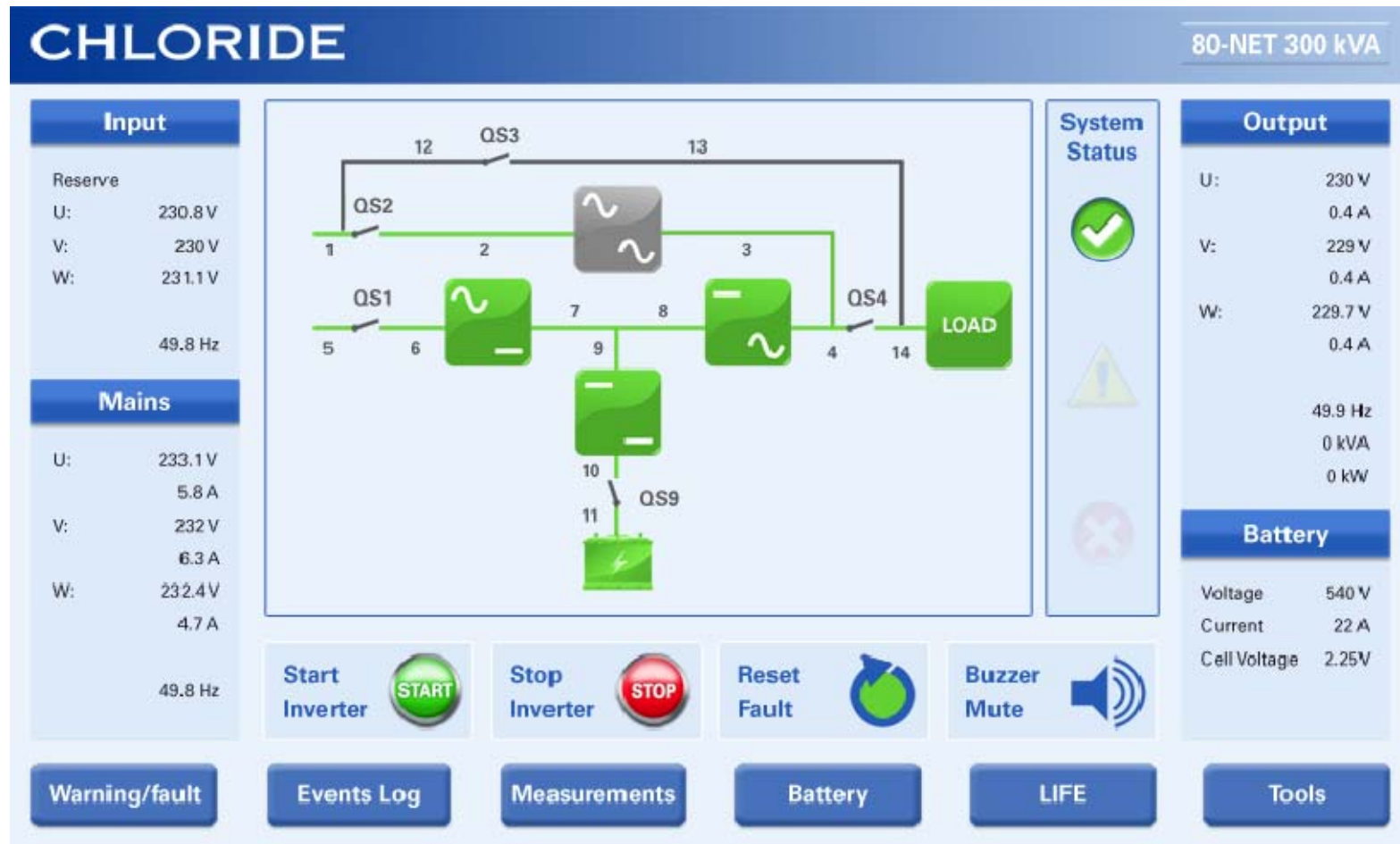


Optional
Isolation
Transformer

160-200 kVA



Advanced Diagnostics: HMI - Touch Screen Display



Graphical Touch Screen display with 15
languages available as standard

High Power Modular Scalable UPS: Trinergy



Trinergy is Unique!

- **Energy flow optimisation as a result of Trinergy algorithm**
 - **Dynamic modes**
 - **High efficiency**
- **Three dimensions of modularity**
 - **Maximum flexibility: modularity of UPS & Battery on demand**
 - **Maximum availability: internal redundancy of the power modules**
 - **Simplified and concurrent serviceability**



**Dynamic
modes**



**3 dimensional
modularity**



**High
efficiency**



**LIFE.net
diagnostics**



**Optimised
serviceability**

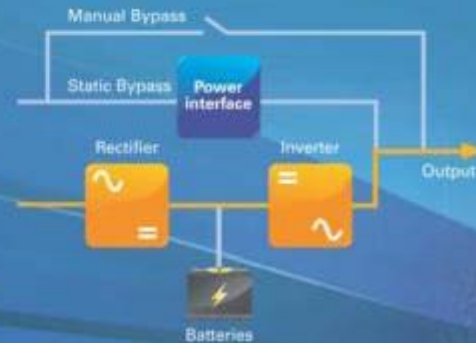
Dynamic functioning modes and Algorithm



Efficiency
> 95%

Maximum Power Control (VFI)

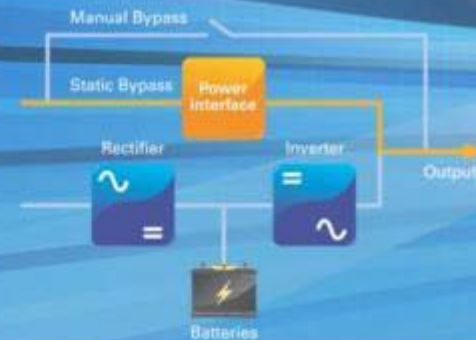
Input conditions (t)
250/460V 45/66 HZ



Efficiency
Up to 99%

Maximum Energy Saving (VFD)

Input conditions (t)
400V 50HZ
Load Type (t) linear



Efficiency
97-98.5%

High Efficiency & Power Conditioning (VI)

Input conditions (t) 340/460V
Load Type (t) non linear



Trinergy

CLASS 1 UPS EFFICIENCY UP TO 99%

- Power interface on bypass
- Real-time input power tracking
- Intelligent algorithm for mode transitioning

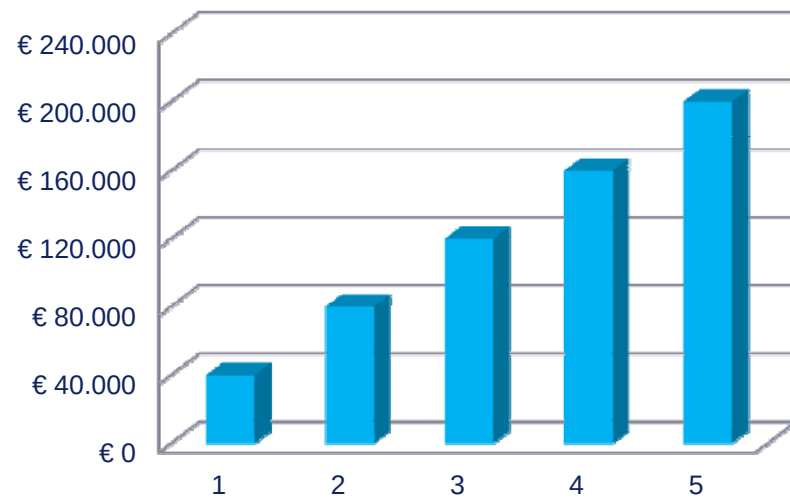
Optimum TCO : Excellent OPEX

Energy savings related to 1.2MW Trinergy UPS

> 40,000 Euro

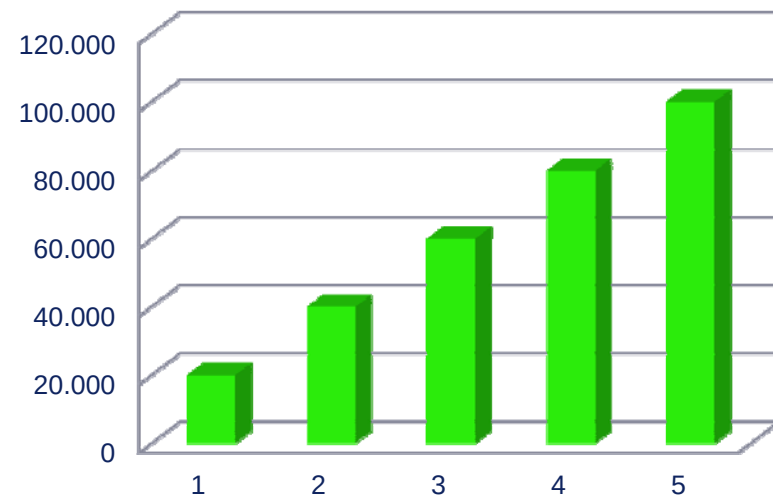
20,000 kg CO2

Cost Saving



Cost per kWh paid to electricity supplier: 0.10 Euro

CO2 Saving



CO2 per kWh (depending on the energy mix used in the country) 0.53 for UK

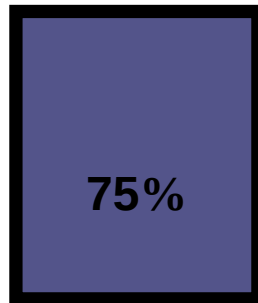
Three Dimensions of Modularity



Circular Redundancy Maximum Efficiency



UPS charged at



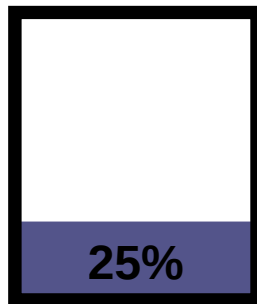
- A special logic detects the number of modules needed to supply the load maintaining the redundancy
- The modules not needed work in a special standby mode that grants the reliability of the system



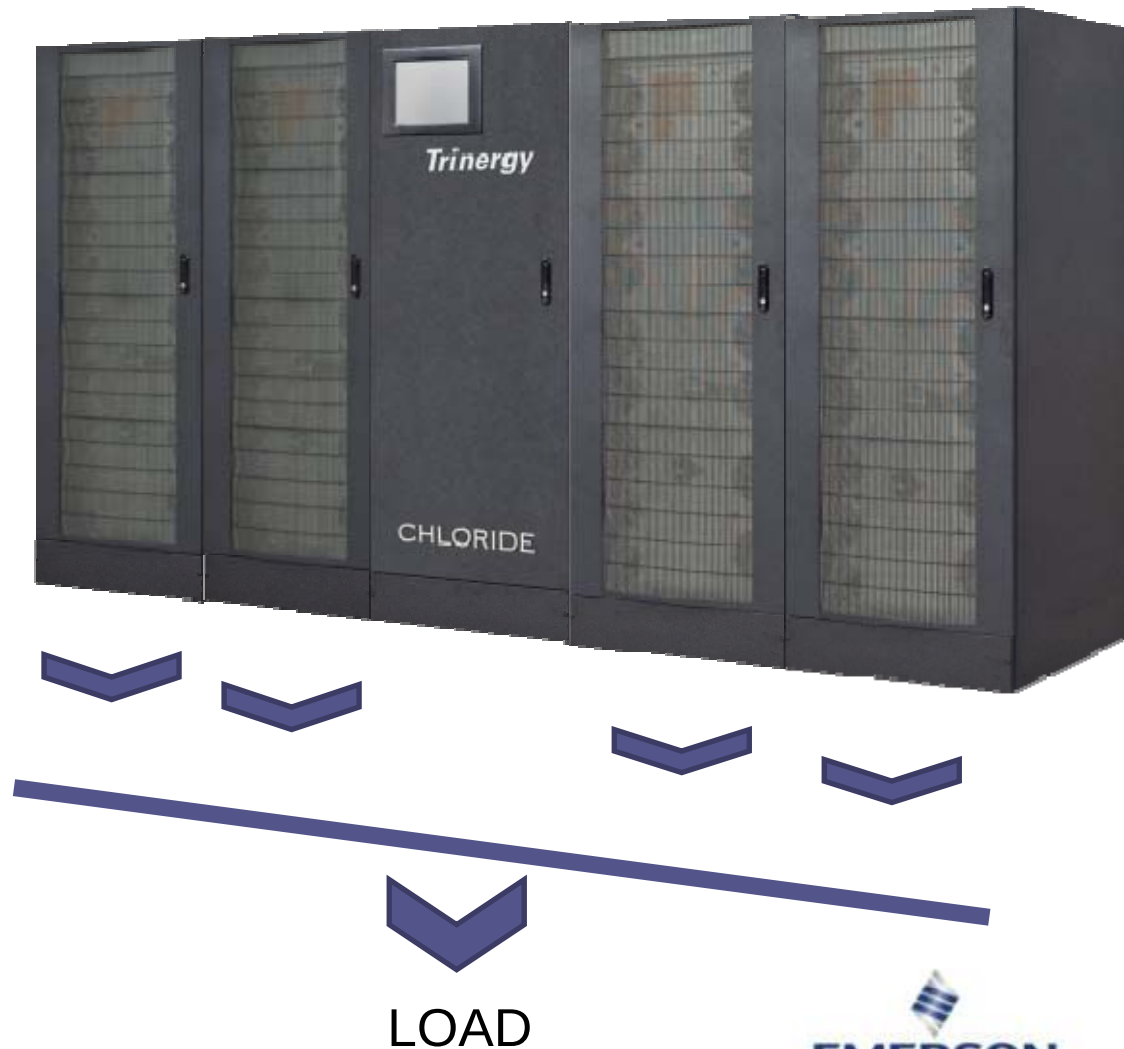
Circular Redundancy Maximum Efficiency



UPS charged at

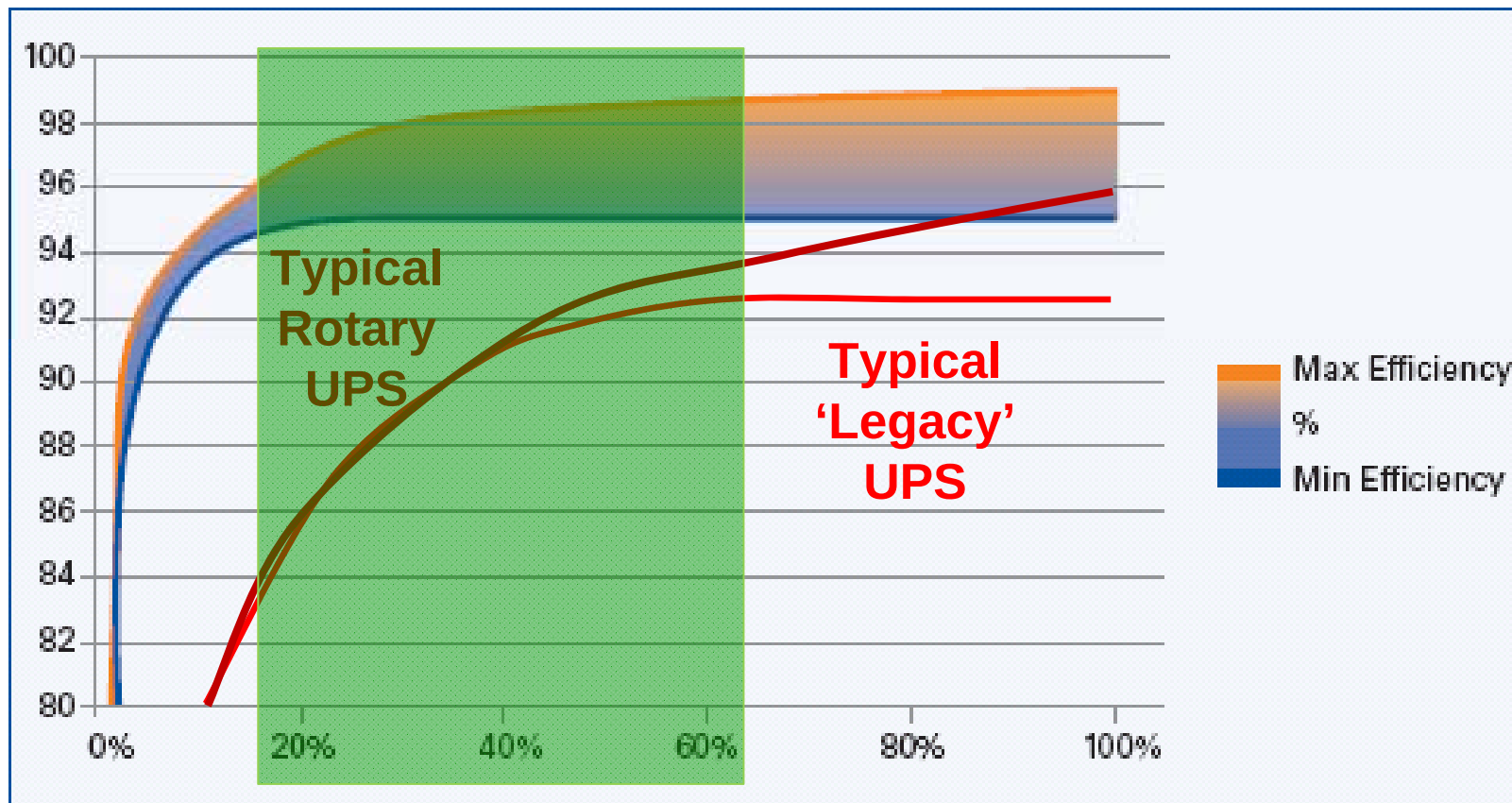


- A special algorithm checks that each module operates in standby mode for the same amount of time
- Same ageing of module components is granted thanks to the auto-detection of operating time of each module



Market Leading 3 Mode UPS Efficiency Curve

95-99% efficiency from 20% to 100% load



LCD Touch Screen Display User-Friendly Graphical Interface



Voltage dial gauge
3-segment "needles" show
readings of each phase

Temp & Battery Charge

Power meter:
Active and apparent power

Yellow = load power margin
range,
Red = above design capacity
(N+1) but within total capacity
(N+0)

Phase triangle with center ball
shows ampere balancing

LCD Touch Screen Display Integrated Connectivity Functions



- ✓ ☒ Remote Display Viewer
- ✓ ☒ E-Mail
- ✓ ☒ MODBUS (RTU and TCP/IP)
- ✓ ☒ SNMP (RFC1628)
- ✓ ☒ WEB Browser Remote Access:
 - Administration & Configuration
 - User Accounts
 - System Naming
 - Email Setup
 - Software Update

Case Studies





Brazil



Spain



Tenerife



Italy



Trinergy benefits:

- **Reduced footprint**
- **Higher efficiency**
- **Reduced TCO**
- **Reduced the overall PUE of the datacenter**



ENP Solution



www.emersonnetworkpower.com

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