

# TECHNICAL CATALOG



# ED Series UPS

160-800 kVA Three phase

- IGBT Rectifier
- Digital Signal Processing (DSP) Technology



info@kingstonups.com



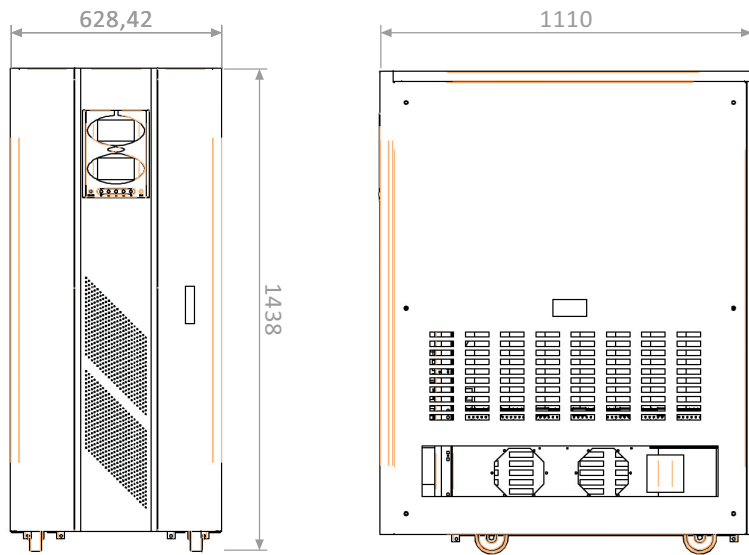
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## 1. GENERAL SPECIFICATIONS

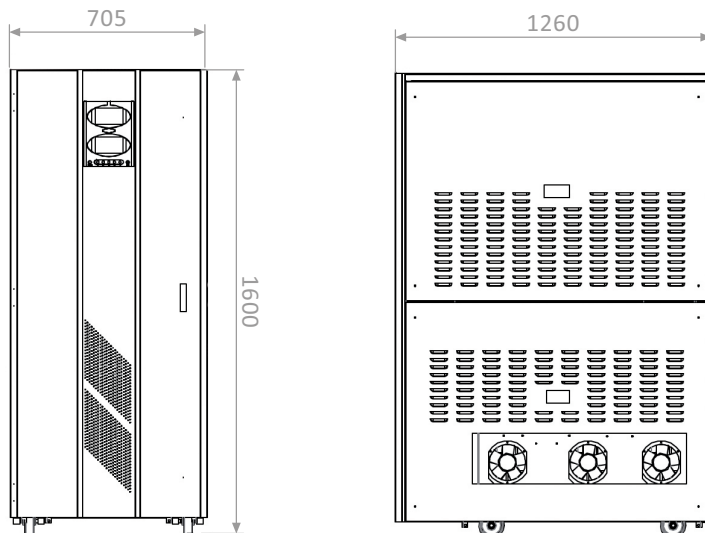
### Construction

Power	Sn (kVA)	160	200	250	300	400	500	600	700	800
	Pn (kW)	144	180	225	270	360	450	540	630	720
Width		630	705	780	780	2200	2200	2200	3500	3500
Depth		1110	1260	1260	1260	810	810	810	810	810
Height		1450	1600	1850	1850	2030	2030	2030	2030	2030
Weight (kg)		525	590	850	870	1380	1600	1800	2050	2200
Colour		RAL7012								

160 kVA Outline Drawings



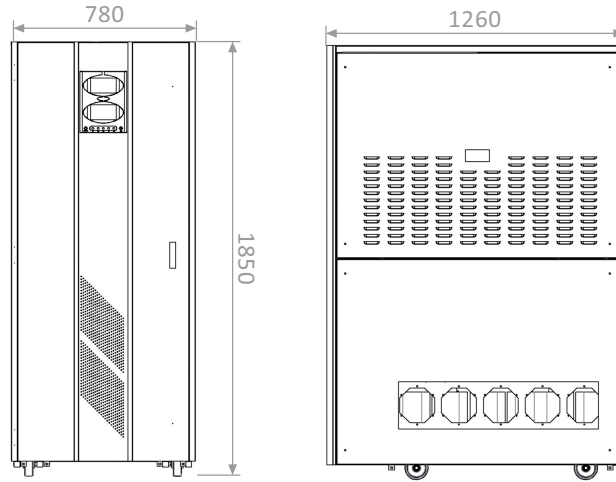
200 kVA Outline Drawings



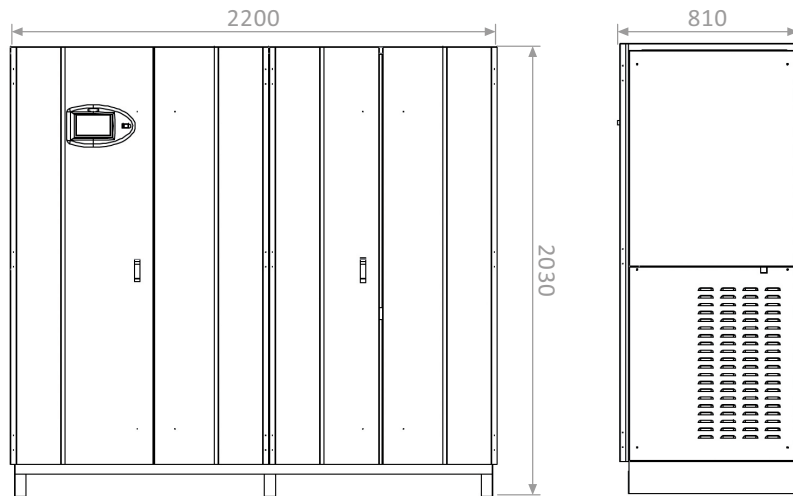
## 1. GENERAL SPECIFICATIONS

### Construction

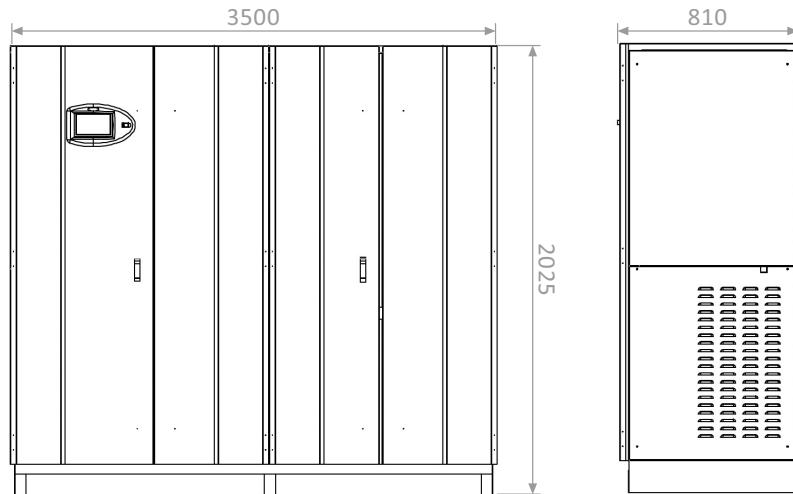
250-300 kVA Outline Drawings



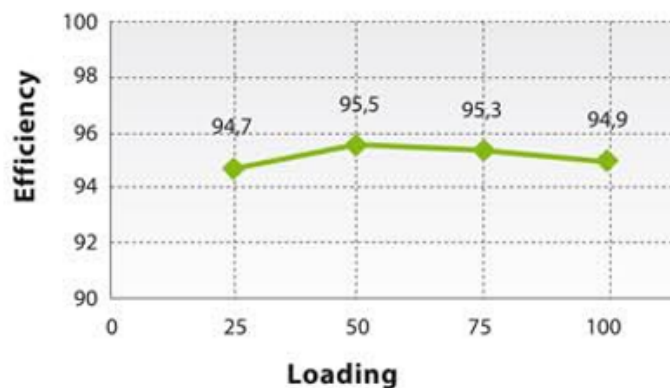
400-600 kVA Outline Drawings



700-800 kVA Outline Drawings



Environmental										
Ambient Storage and Transport Temperature Range		-10°C to +55°C								
Operating Temperature		From 0°C up to +40°C ( from 20°C to 25 °C for maximum battery life)								
Relative Humidity		0%- 85 % ( without condensation)								
Maximum Altitude		≤ 2000 m								
Noise Level dBA		<65			<70			<75		
Degree of Protection		IP20								
Power Dissipation (at full load )	KW	11,58	14,67	17,86	21,43	29,34	37,63	46,31	48,69	55,65
	Kcal/h	9960	12610	15350	18430	25220	32350	39810	41865	47850
Efficiency										
At Half Load (%)		94,5	94,6	94,5	94,4	94,5	94,7	94,9	94,1	94,2
At Full Load (%)		95,8	95,9	95,7	95,6	95,8	95,8	95,6	95,4	95,2
Eco-Mode		up to 98%								



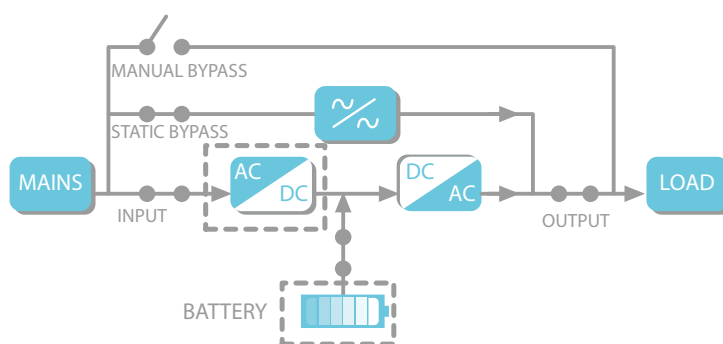
Efficiency Demo figures

Electrical Characteristics - Rectifier Input										
UPS Model Rating	160	200	250	300	400	500	600	700	800	
Technology	Three level rectifier									
Voltage	380 /400 /415 Vac 3Ph + N									
Voltage Tolerances	± 25% at full load -36% +25% at half load									
Rectifier Output Voltage	810VDC for 380VAC Input Voltage 865VDC for 400/415VAC Input Voltage									
Frequency	50 / 60 Hz									
Frequency Tolerances	± 10%									
Start Delay	0 to 60 seconds									
Soft Start Time (progressive walk-in)	2 to 30 seconds									
Input Current Distortion at Full Load (THDi)	3,1%	3,4%	2,9%	2,5%	2,6%	2,7%	2,9%	2,7%		%
Input Power Factor at Full Load	>0,99									
Rectifier Efficiency at Full Load %	98%									

### Electrical Characteristics -Bypass

Dual Input	Optional
Voltage	380 /400 /415 Vac 3Ph + N
Voltage Tolerance	± 10% ( adjustable )
Frequency	50 / 60Hz
Frequency Tolerances	± 4% ( adjustable up to ± 10% )
Maintenance Bypass	Standard

### Battery



Batteries are charged by the rectifier.

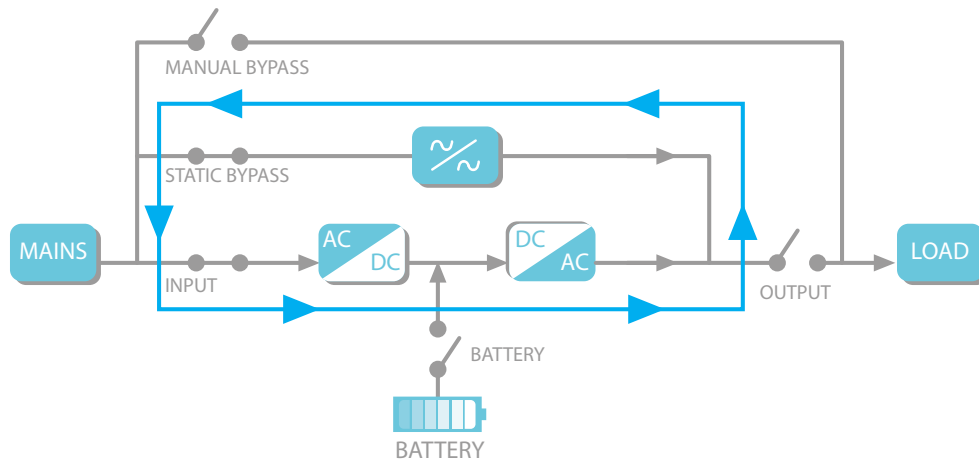
UPS Model Rating	160	200	250	300	400	500	600	700	800
Battery Type	Sealed lead-acid battery								
Battery Blocs	For 380Vac	60 blocs /360 cells							
	For 400/415Vac	64 blocs / 384 cells							
Battery Charging Current (A)	16,7	20,8	26	31,2	41,7	52	62,5	72	82,3
Battery Cut off Voltage	615VDC (for 380V output voltage)								
	655VDC (for 400/415V output voltage)								

### Electrical Characteristics -Output

UPS Model Rating	160	200	250	300	400	500	600	700	800
Technology	Three level inverter								
Rated Output Voltage	380 / 400 / 415V								
Voltage Tolerances	± 1%(static load), dynamic load in accordance with VFI-SS-11								
Rated Output Frequency	50 / 60 Hz								
Frequency Tolerances	± 0.1% (self-synchronize), ± 1%(mains -synchronize, adjustable up to ± 5%)								
Total Voltage Distortion	<2% at linear load, <5% at non-linear load								
Power Factor	0,9								
Crest Factor	3:1								

Output Current (A)	380V	218	272	340	408	544	680	816	955	1091
	400V	208	260	325	390	520	650	780	913	1043
	415V	200	250	313	375	500	626	750	875	1000
Short Circuit Capability	3In (on inverter 100ms)									
Over Load at 25°C	110 % 1 hour ,130 % 10 minutes, 150 % 1 minute									
Output Voltage Dynamic Variation	±%1 in 2ms.									

## Regenerative Loading

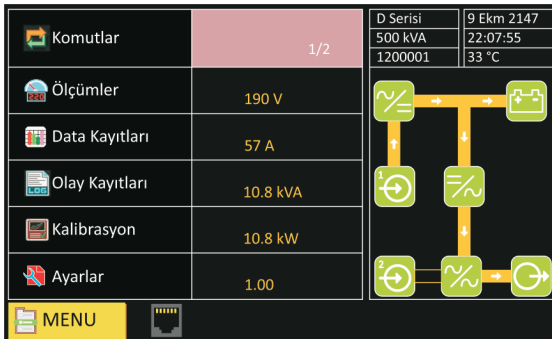


This feature through, UPS doesn't need load bank for testing after service for calibration and full loads test. This new technology affords significant advantages over traditional load bank testing methods, including:

- **Time savings:** This process can be performed quickly, saving countless hours over procuring, installing and connecting a load bank to the output of the UPS.
  - **Cost savings:** Without the need to rent a load bank, customers reduce their energy bill and pay for far fewer hours of testing.
  - **A green solution:** The UPS essentially circulates power through itself, while only drawing minimal power from the utility, only a small amount of utility power is lost.
- Enhanced confidence during repairs or preventive maintenance: This process provides a thorough stress test of the repaired system before it is reconnected to the customer's critical computer system, resulting in enhanced reliability and facility uptime

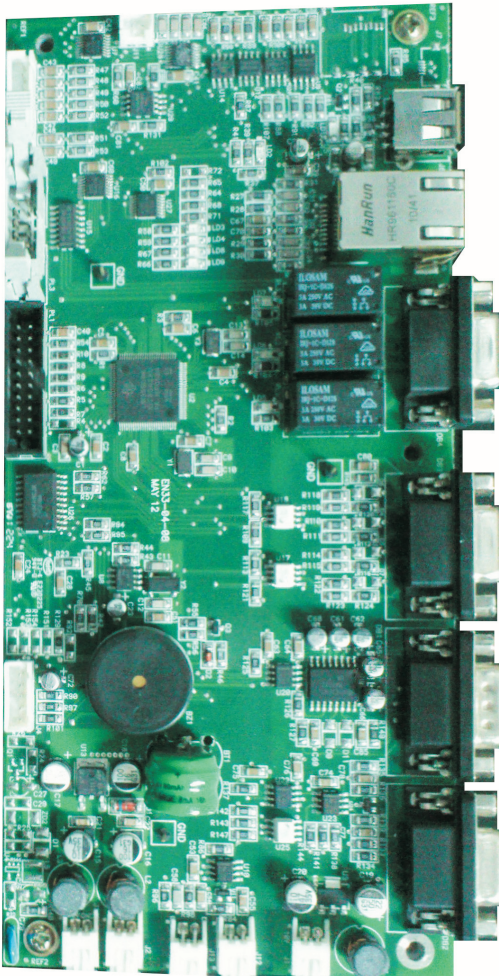
## Communications

### TFT LCD Touch Screen



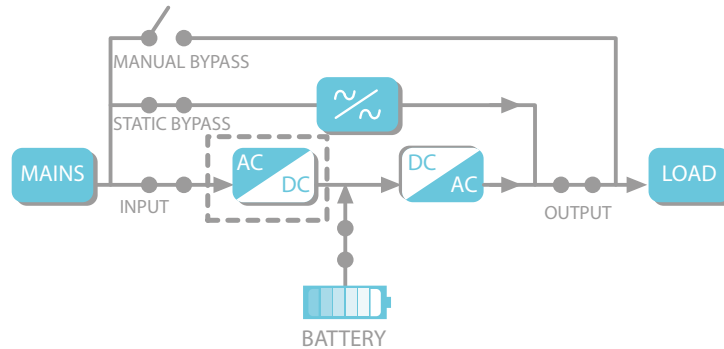
- Data Record
- Languages: German, English, Portuguese, French, Polish, Hungarian, Italian, Spanish.
- MicroSD 4GB
- Internal SNMP Optional
- E-mail/SMS, PC/Server Shut Down
- Fault Detection From Remote
- Remote monitoring and management

### Communication Board



- USB, RS232/RS485
- 3 (Standard) + 4 (Optional) Programmable User Entrance (NO /NC) Contact Outputs
- General alarm, Service Alarm
- Custom inputs

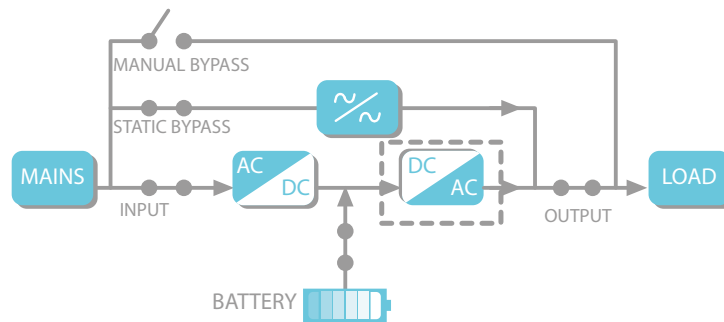
## 2. RECTIFIER



### Input Power Factor and Current THD

UPS Model Rating		160	200	250	300	400	500	600	700	800
0,25Pn	PF	0,97	0,97	0,97	0,97	0,97	0,97	0,97	0,97	0,97
	THDi	5,7	5,6	5,9	5,3	4,6	4,6	4,7	4,6	4,7
0,5Pn	PF	0,98	0,98	0,98	0,98	0,98	0,98	0,98	0,98	0,98
	THDi	4,6	4,6	4,8	4,6	4,7	4,6	4,6	4,6	
0,75Pn	PF	0,99	0,99	0,99	0,99	0,99	0,99	0,99	0,99	0,99
	THDi	3,8	3,5	3,7	3,8	3,6	3,4	3,5	3,4	3,5
Pn	PF	0,99	0,99	0,99	0,99	0,99	0,99	0,99	0,99	0,99
	THDi	3,1	3,4	2,9	2,5	2,6	2,7	2,9	2,7	2,9

## 3. INVERTER

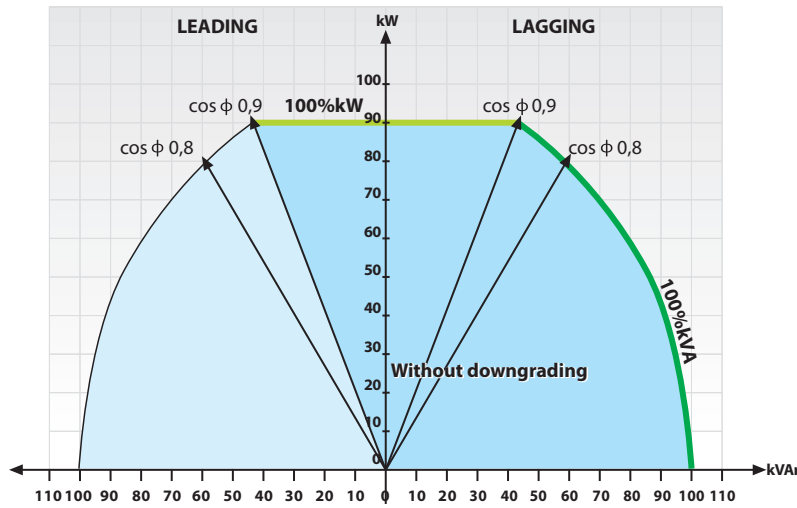


### Inverter Efficiency

UPS Model Rating	160	200	250	300	400	500	600	700	800
0,5Pn (%)	0,96	0,96	0,97	0,96	0,96	0,96	0,96	0,96	0,97
Pn (%)	0,98	0,98	0,98	0,98	0,98	0,98	0,98	0,98	0,98

### Output Power and Output P.F

UPS Model Rating	Inductive Load						Capacitive Load				
Load P.F	0,5	0,6	0,7	0,8	0,9	1	0,9	0,8	0,7	0,6	0,5
kW (%)	55,56	66,67	77,78	88,89	100	100	100	88,9	77,78	66,67	55,56
KVA (%)	100	100	100	100	100	100	100	100	100	100	100

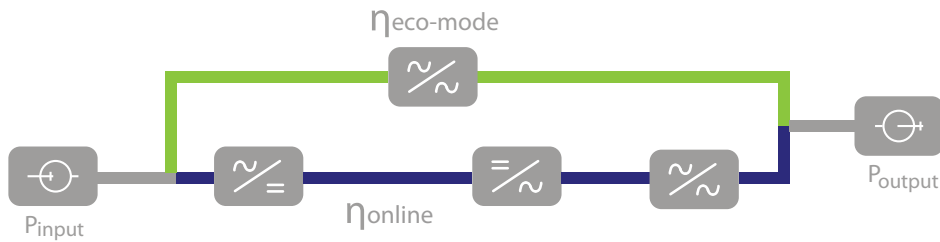


Switching frequency: 8 to 10kHz.  
Control : DSP technology

## 4. AIR FLOW VALUES

Sn (kVA)	160	200	250	300	400	500	600	700	800
Pn (kW)	144	180	225	270	360	450	540	630	720
Power Dissipation(KW)	11,58	14,67	17,86	21,43	29,34	37,63	46,31	48,69	55,65
Efficiency	95,8	95,9	95,7	95,6	95,8	95,8	95,6	95,4	95,2
Air Flow Values m <sup>3</sup> /h	1737	2200	2680	3215	4400	5645	6950	7304	8347

## 5. ECO-MODE



Input voltage tolerance at Eco -Mode : ±%10

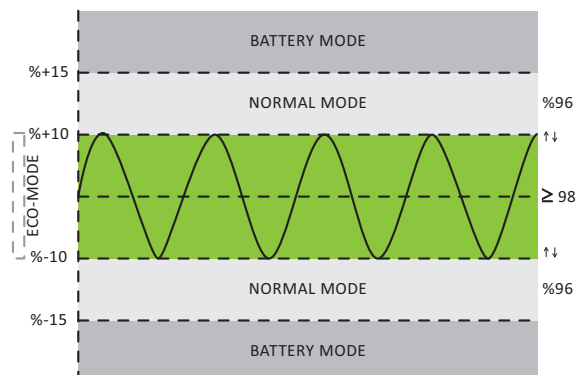
Efficiency at Eco-Mode : 98%

Eco - Mode transfer time from bypass to inverter : 10ms

ReDeal UPSs have four different Eco - mode option.

These options:

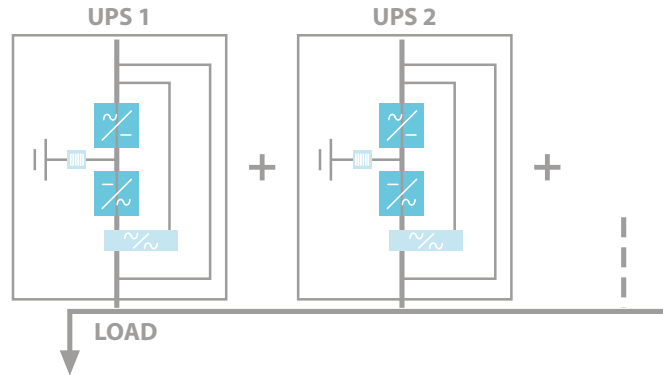
- Continuous Eco - Mode
- According to time / date
- According to loading rate
- According to loading rate and time / date



## 6. PARALLEL SYSTEMS

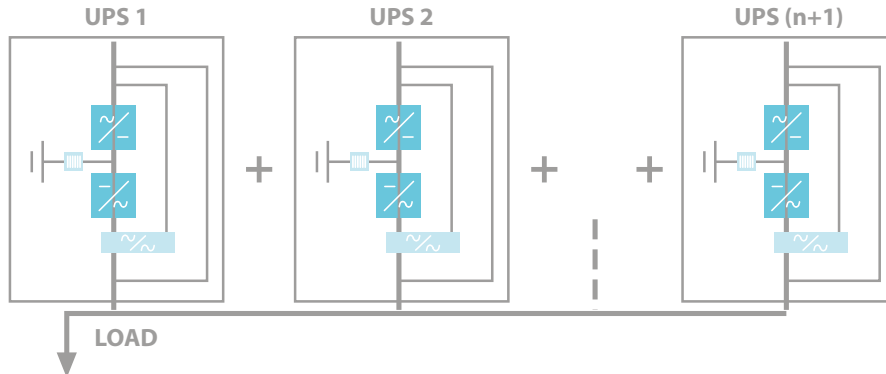
- **Load Shared Parallel Operating (N)**

Load-sharing parallel operating (n) share the total load equally by the parallel system devices.



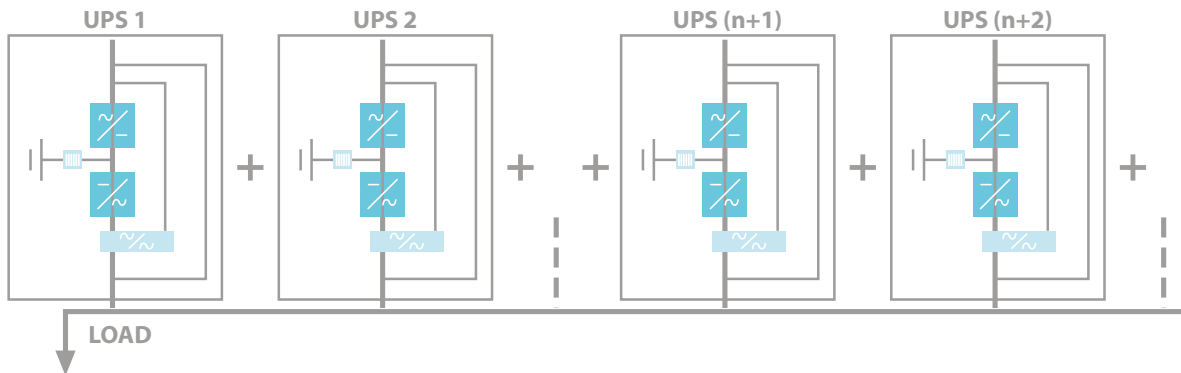
- **Redundant Parallel Operating (N+1)**

In redundant parallel operating (n+1) one of the devices waits ready without load, the other devices will share total load equally in parallel system.



- **Power Increase/Decrease Parallel Operating (N+X)**

Power increase/decrease parallel operating (n + x) is designed to share the total load equally by the devices in parallel systems according to loading rate of devices connected to the system and will automatically be activated or deactivated.



The communication cable between the UPS units shall not exceed 20 meters.

Kingston UPSs can be connected in parallel up to 6 pics.