

WASH CENTRIFUGE

— ROTOLAVIT II

USER FRIENDLY SEROLOGY SOLUTIONS

3.1

The ROTOLAVIT II cell washing system facilitates routine tasks in transfusion centre laboratories. It was developed for cross-matching, as well as antibody search and differentiation, and for cell washing in TB tests. Its modern touch screen enables the simple and rapid input of up to 24 different programs. The centrifuge has a small footprint and delivers reliable results at low costs for consumables.



— HIGHLIGHTS

- max. RPM: 3,500 min⁻¹
- max. RCF: 1,438
- max. Capacity: 24 x 5 ml
- automatic cell washing system for serological testing } 3.1
- choice of 2 rotors 12-place or 24-place
- IVD-conform according to directive 98/79/EC
- maximum noise level of ≤ 49 dB (A)
- easy operation with intuitiv touch screen
- 24 program memories for more individuality
- 7 pre-installed application programs

— FEATURES

- metal housing and lid
- viewing port in the lid
- one-hand lid lock
- lid dropping protection
- emergency lid lock release - 3.7.4
- brushless drive
- error display
- Demark Co., Ltd. 3.7.3
- color touch screen with actual values of all parameters
- auditory message after completion of the centrifugation run

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TECHNICAL DATA

ROTOLAVIT II classic	
voltage	100 – 240 V 1 ~ } 2.1
frequency	50 – 60 Hz
consumption	144 VA
emission, immunity	EN/IEC 61326-3-2 / FCC CFR47 part 15, ed 2015-04-21 (e-CFR) class B
max. capacity	24 standard tubes (10 x 75 mm or 12 x 75 ml) - 3.2
max. RPM	3,500 min ⁻¹ } 3.3
max. RCF	1,436
radius (both rotors)	105 mm
dimensions (H x W x D)	330 x 480 x 280 mm
weight	approx. 24.5 kg
max. noise level	≤ 49 dB (A)
Cat. No.	1008-00
11 – 30VDC consumption	1008-03 144 VA

The ROTOLAVIT II is not available in all countries.

AVAILABLE ROTORS

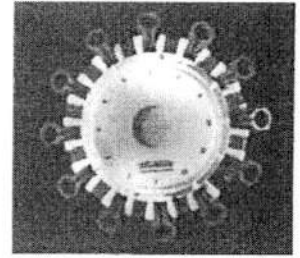
SWING-OUT ROTORS	angle	max. RPM	max. capacity	Cat. No	page
 swing-out rotor, 12-place	45°	3,500 min	12 x (10x75 mm or 12x75 mm)	1017-A	3
 swing-out rotor, 24-place	45°	3,500 min	24 x (10x75 mm* or 12x75 mm) * Tubes requires adapters No. 1019	1018-A	3


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SWING-OUT ROTOR, 12-PLACE | 1017-A



Rotor

max. RPM | max. RCF
 max. capacity
 angle | max. noise level
 Cat. No.

3,500 min⁻¹ | 1,438
 12 x 75 ml
 45° | 49 dB (A)
 1017-A

Vessels

capacity in ml
 Ø x L in mm
 max. RCF²⁾
 radius in mm
 Cat. No.

3	5
10 x 75	12 x 75
1,438	1,438
105	105
tubes ²⁾	

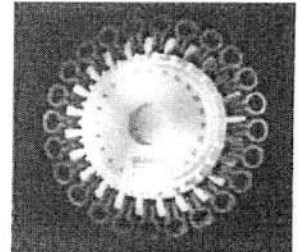
Adapter

boring Ø x L in mm
 vessels per rotor
 Cat. No.

12	12
1019 (12 pcs)	

3.8

SWING-OUT ROTOR, 24-PLACE | 1018-A - 3.8.1



Rotor

max. RPM | max. RCF
 max. capacity
 angle | max. noise level
 Cat. No.

3,500 min⁻¹ | 1,438
 24 x 75 ml
 45° | 49 dB (A)
 1018-A

Vessels

capacity in ml
 Ø x L in mm
 max. RCF²⁾
 radius in mm
 Cat. No.

3	5
10 x 75	12 x 75
1,438	1,438
105	105
tubes ²⁾	

- 3.2 + 3.8.1

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Adapter

boring Ø x L in mm
 vessels per rotor
 Cat. No.

24	24
1019 (12 pcs)	

- 3.2

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2) Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes associated with tournets 2) is 4,000.

CERTIFICATES / REGISTRATIONS

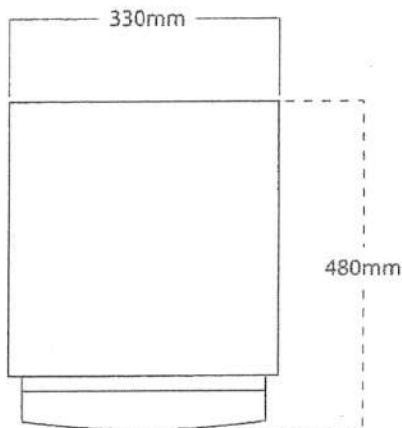
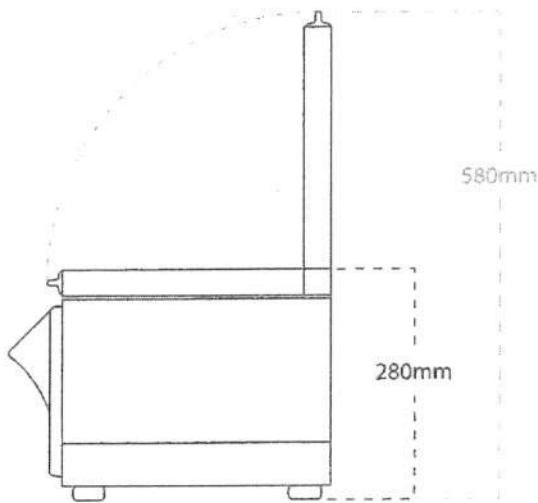


DOWNLOADS

Operating Manual - ROTOLAVIT II

Complete Range Catalogue

DIMENSIONS



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ENC 0710

13.2 Software Error Codes 3.7

Error Code	Error Name	Description	Possible reasons	
0	No error	Program was successful, no error has occurred		
1	Running	Program is still running, so far no error has been detected (should never be visible in history)		
Motor error				
10	Motor startup error	Motor could not be started (no speed could be detected)	<ul style="list-style-type: none"> • Motor is blocked • Motor cable connection problem • Motor power supply problem 	
11	Motor acceleration error	Motor could not accelerate within tolerance (motor was too slow)	<ul style="list-style-type: none"> • Wrong rotor type selected • Mechanical friction too big 	
12	Motor acceleration error	Motor could not accelerate within tolerance (motor was too fast)	<ul style="list-style-type: none"> • Wrong rotor type selected 	
13	Motor speed error	Motor could not hold the desired speed (motor was too slow)	<ul style="list-style-type: none"> • Wrong rotor type selected • Maximum of motor speed limit too high (4000 RPM can maybe not be hold) • Motor speed control does not work as intended • Motor speed reading failure 	
3.7.1 {	14	Motor speed error	Motor could not hold the desired speed (motor was too fast)	<ul style="list-style-type: none"> • Motor speed control does not work as intended • Motor speed reading failure
	15	Motor break error	Motor could not slow down within tolerance	<ul style="list-style-type: none"> • Wrong rotor type selected
	16	Motor internal error	Motor has signaled an error	<ul style="list-style-type: none"> • Motor blocked • Motor over temperature • Motor power supply error
	17	Motor power supply	The 24 V of the motor supply is not available	<ul style="list-style-type: none"> • Lid is detected as open
Liquid injection system error				
20	Pump error	Pump was not able to pump the desired amount of liquid	<ul style="list-style-type: none"> • Pipe blocked • Pump not working • Flow sensor not working • Liquid container empty • Air in the pipe • Flow sensor problem 	
3.7.2 {	21	Liquid container empty	Not enough liquid available or air is in the pipe	<ul style="list-style-type: none"> • Flow sensor problem
Lid error				
30	Lid blocked	Open or check button was pressed, but the lid could not be opened.	<ul style="list-style-type: none"> • Lid mechanically blocked 	
31	Unlocking failed	Open or check button was pressed, but the lock could not be unlocked.	<ul style="list-style-type: none"> • Motor was still rotating at the time the command for unlocking was received • Problem with the lock 	

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32	Unexpected unlocking	Lid was opened without a request.	<ul style="list-style-type: none"> Emergency unlocking was used
33	Lid detection failure	Lid sensor has detected an opening of the lid, but the lock sensor still signalizes the lock is closed	<ul style="list-style-type: none"> Wrong lid detection of the lid sensor Wrong lock detection of the lock sensor
System error			
40	Program reading error	It was not possible to read the complete program.	<ul style="list-style-type: none"> Program file is corrupted Not enough heap memory was available
41	Image loading failed	Not all images could be loaded	<ul style="list-style-type: none"> An image is missing on the flash An image on the flash is corrupted
42	EEPROM error	Loading data from EEPROM failed. (reading not possible or checksum for the data is incorrect)	<ul style="list-style-type: none"> EEPROM not initialized (login of a service user needed) Communication failure
Miscellaneous			
50	Unknown	An error has occurred, but the kind of the error could not be identified	<ul style="list-style-type: none"> Unexpected behavior
51	Program interrupted	A running program was interrupted.	<ul style="list-style-type: none"> Power interrupted during a running program.
52	Program aborted by user	The program was aborted by the user	<ul style="list-style-type: none"> User has aborted the program
53	Imbalance	The program was stopped because of an imbalance of the rotor	<ul style="list-style-type: none"> Rotor was not loaded symmetrically Positioning of the imbalance sensor not correct

3.7.3 }



Screen freeze:

If a screen freeze occurs, not the normal standby mode (push anywhere onto the dark display), perform a mains reset



Perform a MAINS RESET:

- Switch off the mains switch (position "0", fig. 7.1, pos. 2).
- Wait at least 10 seconds and then switch on the mains switch again to position "1".
- Check the history for the last run and report the error code to your local service support



Before you open the lid with the release pin (cha. 4.3) you must check through the window into the lid that the rotor is at a standstill position



If it is not possible to close the lid => check if there is a small part that has fallen into the lid lock access hole (fig. 7.5, pos. D), if so then contact your local service support

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[Signature]

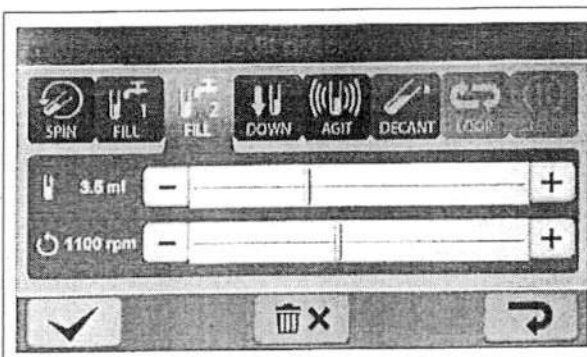
D-mark

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3.6



9.4.3 FILL 2 process 3.6.1

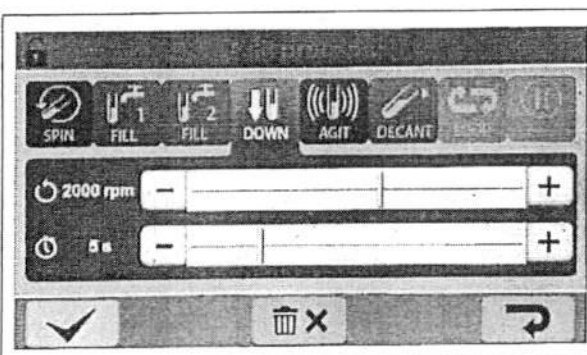


Filling in the secondary solution.
The tubes are filled with solution at a rotation speed of 1100RPM. The number of revolutions per minute is adjustable from 0RPM to 2500RPM. The fill-volume is adjustable from 0,1ml to 10ml per tube. The default value is 800RPM and 3.0ml.

} 3.6.1

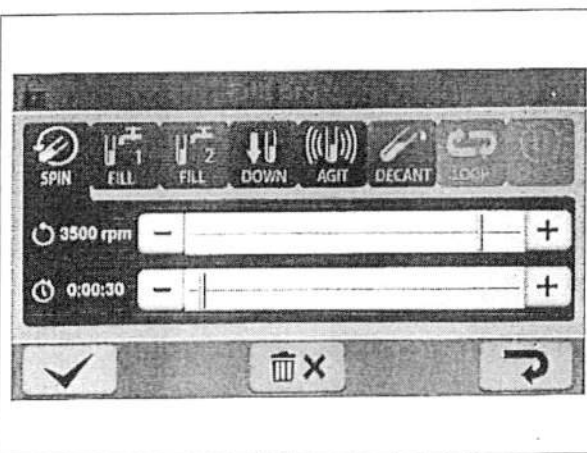
i Only selectable if your device has installed the optional second pump (part-number 1008-02 and 1008-04)

9.4.4 DOWN process



Down:
The number of revolutions per minute is adjustable from 0RPM to 3500RPM. The time duration is adjustable from 0s to 20s. The default value is 2000RPM and 5s. Centrifugation run to centrifuge the remaining droplets on the inner-side of the tubes to the bottom of the tube.

9.4.5 SPIN process - 3.6.2



Sedimentation:
The number of revolutions per minute is adjustable from 0RPM to 3500RPM. The time duration is adjustable from one second to two hours (0:00:01 to 2:00:00). The default value is 3500RPM and 30seconds (0:00:30).
The erythrocytes are sedimented by a selectable rotation speed. The time only begins to count after the set rotation speed is reached. After the time has elapsed, a quick braking follows to prevent a resuspension of the pellet.

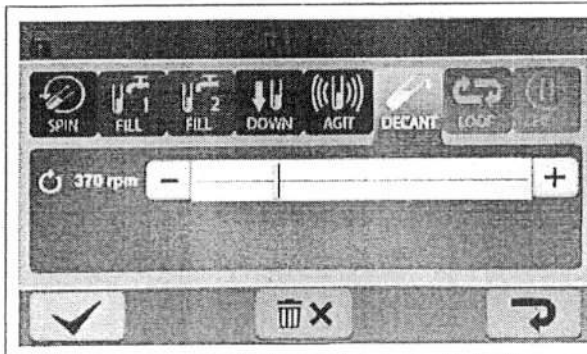
} 3.4

i It is not possible to work with an endless spin process.
If it is necessary to work with a longer single spin process, it is possible to add a loop process for the desired time-duration of max. 200 hours (with more processes to an absolute maximum of 3800 h)

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9.4.6 DECANT process - 3.6.3



Decanting:

The number of revolutions per minute is adjustable from 0RPM to 2500RPM. The excess is decanted at the selectable rotation speed. During decanting, the rotor turns in the opposite direction of the normal rotation so that the solution will be decanted. The default-value is 370RPM.

} 3.6.3

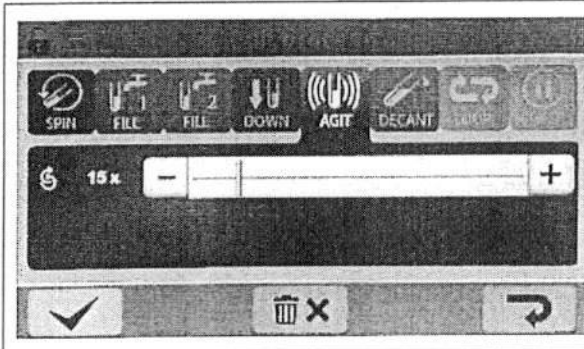


The correct speed must be validated with the used tubes for the best possible results because the different inner surfaces of the tubes, e.g. glass tubes or plastic tubes, will get also different results when the speed is optimized for 10mm tubes but the used tubes are 12mm tubes.



If the DECANT speed is too high then it is possible that the washed cells will also be decanted!
If the DECANT speed is too low then it is possible that too much solution will stray into the tubes and the tubes will be overfilled during the next FILL process!

9.4.7 AGIT process - 3.6.4



Agitating, shaking:

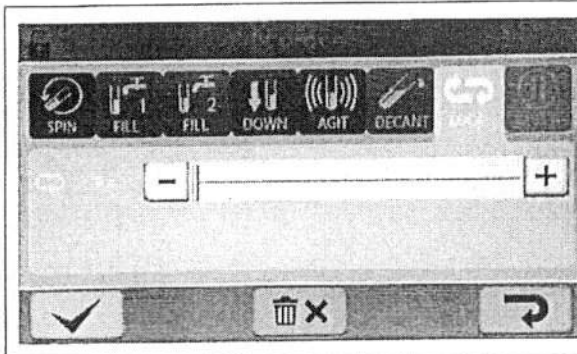
The numbers of shakings are adjustable from 0x to 500x. The default value is 15x. The pellet is loosened again for the subsequent wash cycle by a fast, brief movement of the rotor and the tube holders.

} 3.6.4


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9.4.8 LOOP process



Loop.

This process only makes sense as a following process from a minimum of one other process. The numbers of loops are adjustable from 1x to 100x. The default value is 2x. After the foregone process is finished, all foregone processes will be repeated with the adjustable value minus 1.

} 3. D

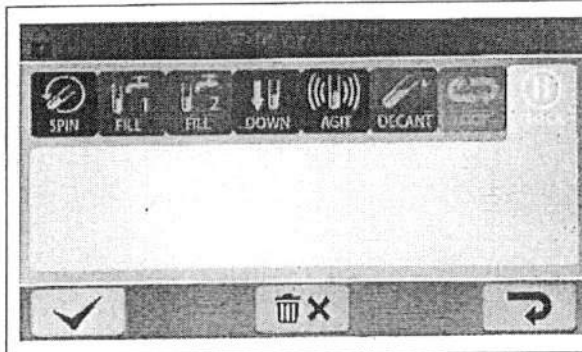


If the foregone process is a spin process with a duration time of 2 hours and the loop process is adjusted to 2x, then the program will repeat the spin process once with a duration of 2 hours, which means that the device spins for 4 hours.



After the LOOP process you can add every other process except a LOOP process, that means you can program to wash out cells with two cycles instead of three with a DECANT process with a speed of approx. 320RPM. With this speed a small amount of solution will stray into the tubes and after the LOOP process you add the same processes again, but the speed from the DECANT process is around 370RPM; with this the tubes have the solution emptied.

9.4.9 CHECK process




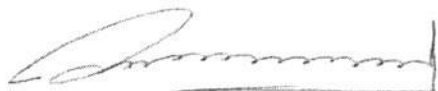
Check, pause:

This process only makes sense as a following process from a minimum of one other process. After the foregone process is finished the program will be paused and the lid will open. The user can check the probes or can add some other fluids to the probes with a pipette. When the lid is closed, the program will continue.



If the foregone processes are a wash cycle and you can add the anti-human globulin serum during the check process, the following processes are necessary: AGIT-process and SPIN-process


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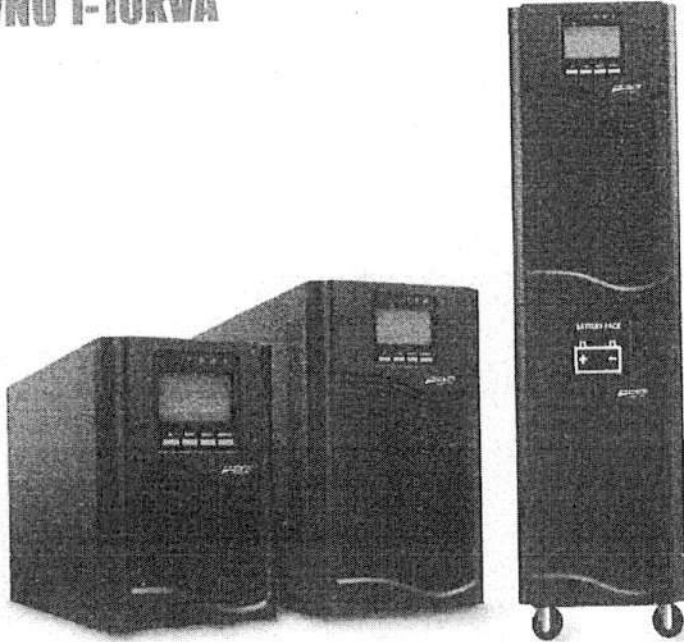



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VENUS Ultimate

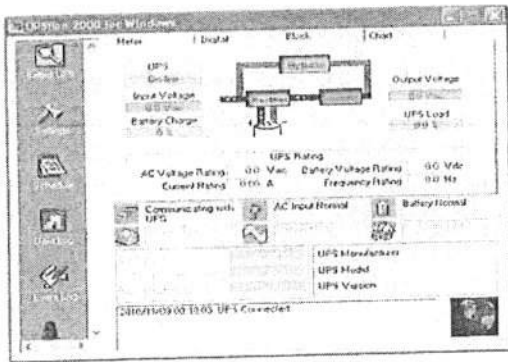
VNU 1-10kVA

DSP TRUE ONLINE DOUBLE CONVERSION UPS

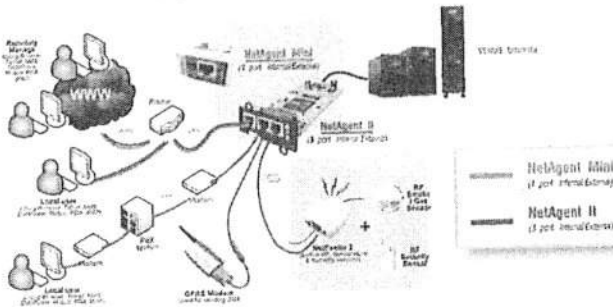


Features

- True Online Double Conversion UPS
- Advanced Digital DSP controlled with IGBT technology
- High input Power Factor Correction PFC >0.99
- Output Pure Sine Wave less than 3% (THDv)
- Output Voltage Pure Sine Wave 220Vac +/-1%
- Wide Input Voltage Range 154-286Vac
- High Inverter Efficiency (approx. ≥90%)
- Zero Transfer Time (True Online)
- Cold Start Soft Running
- Built in Static Transfer Switch (SCR)
- Self Diagnosis at UPS start up
- Advanced Battery Management (ABM)
- External Battery unit (Option)
- EMI/RFI and Power line noise protection
- Blackout, Brownout, Surge, Lightning, Spike, Harmonic Overload and Short circuit
- USB Port with UPSilon 2000 or WinPower monitoring
- SNMP/HTTP monitor capability / AS400 Dry Contact (Option)
- Parallel Redundancy N+X 5-10kVA Support 4Unit
- Maintenance Bypass Switch 5-10kVA (Option)
- Economy mode(ECO), Emergency Power Off (EPO)
- Automatic Adjust Cooling Fan Speed
- TIS 1291 Part 1-2553, Part 2-2553, Part 3-2555 : C1, CE : UL : IEC / EN62040-1, -2, -3, IEC / EN55022 ISO9001, ISO14001 Certified Manufacturer

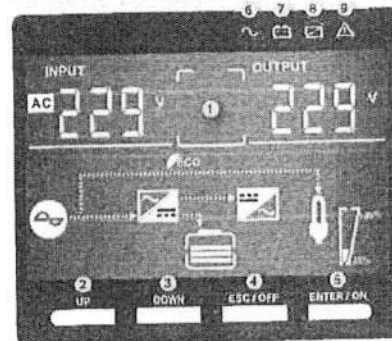


UPSilon 2000 or WinPower UPS monitoring



SNMP/HTTP monitor capability (option)

Demark Co., Ltd. LCD+SW HMI DISPLAY REAL TIME STATUS

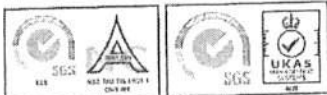


1. LCD / Mimic HMI Dis
2. UP Switch
3. Down Switch
4. ESC / OFF Switch
5. ENTER / ON Switch
6. Line Mode
7. Battery Mode
8. Bypass Mode
9. Fault Mode

Chuphotic UPS Product range 500VA to 1000KVA have been wide useful to protect Electronic Equipment such as Computer, Server, Networks, PABX, CCTV, Telecommunications, Medical & Scientific Equipment and Industrial Machine from Power Quality Problem in Over / Under Voltage, Blackout, Surge, Spike, Harmonic, Noise and Frequency Drift.

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 โทร 2-2553
 โทร 3-2555

