COVER®
THE POWER IS ON

UPS FRAME Series

TECHNOLOGY: **TRUE ON LINE Double Conversion**

CLASSIFICATION CODE: **VFI-SS-111** (EN 62040-3)

POWER RANGE: **160 - 200 kVA**

PHASE CONFIGURATION: **3:3**

TYPICAL APPLICATIONS

- Computer networks
- Servers
- Industrial equipment
- Laboratory apparatus
- Telecommunications
- Automation and control systems

CHARACTERISTICS

True On-Line Double Conversion technology ensures excellent output voltage performance regardless of energy interference and the type of loads being powered.
The hotswap modular design ensures that power is matched to the load, enables redundancy, reduces heat loss and facilitates service.
IGBT rectifier the most advanced technology providing very low THDi and high power factor.
The automatic bypass - uninterruptible - ensures uninterrupted power supply to consumers in critical situations such as overheating or failure.
Service bypass - allows equipment to be serviced without switching off the powered consumers. A separate power supply for the bypass circuit provides a back-up power source for the consumers even in the event of equipment failure or UPS protection tripping in the main circuit.
Communication interfaces:
USB, RS232, RS485 for reading and monitoring parameters, managing operation and configuring the UPS,
DryContact relay contacts for interaction with BMS systems
SNMP integration into network management systems such as NMS
Remote Fire Switch connector (EPO) to provide remote disconnection of power to consumers in the event of fire,
The 5.0" LCD colour touchscreen control and monitoring panel simplifies UPS operation, allows diagnosis of the parameters and operating mode of the power supply and enables event logging.
The highly efficient charging system means that the UPS has the ability to rapidly charge battery banks with very large capacities, for long autonomous operating times.
The high efficiency of the unit (>96%) limits the heat emitted, making possible room cooling simpler and the UPS much cheaper to operate.
ECO-Mode significantly reduces the operating costs of the unit and virtually eliminates heat emission thanks to an efficiency of >99%.
The hibernation mode for parallel operation allows (depending on the configuration) the number of running power modules and UPS of the parallel system to be adapted to the load value. Hibernation of the power modules or UPS reduces heat emission and lowers the noise generated by the system.
Conformal coating protecting the UPS boards insulates the electronic components from adverse environmental conditions such as moisture, dust and surges.
Simplicity of operation - the ease of connection to the network and the simple operation of the unit do not require any special skills on the part of the user.
Automatic diagnostics and digital control (32 bit DSP x2) guarantee full device performance, component control and operating parameters without user intervention.
Redundant fans ensures UPS operation even if 1 or 2 fans fail, with limited output power.
The high input power factor value of 0.99 limits the value of the current drawn by the unit from the mains.
The highest output power factor value of 1.0 allows the power supply to be loaded with full active power.
The wide input voltage range in normal operation ensures stable operation of the unit without the need for batteries, significantly extending battery life.
The wide input frequency range in normal operation allows the power supply to be used freely in mains with unstable parameters and when powered by a generator set.
Advanced battery management guarantees optimum charging and utilisation of the battery bank, increases battery life and reduces operating costs. Temperature-compensated charging voltage function.
The excellent quality of the output voltage achieved through the use of a 3-level IGBT inverter, using advanced PWM control technology means that a voltage with stable parameters is delivered, regardless of energy disturbances and the type of equipment being powered.
The high overload capacity ensures protection of the device and continuity of the power supply in the event of transient transients.
Advanced software enabling the user to have full control over the unit and the powered loads.
The configurability of the operating parameters - nominal voltages, frequencies, preferred operating modes, method of communication - greatly expands the range of possible applications.
Redundant configurations:
- Redundant parallel operation for increased reliability
- Capacitive parallel operation for increased power
- HotStandby operation

FRAME Series

Model	FRAME 160K	FRAME 200K
Power	**160 kVA / 160 kW**	**200 kVA / 200 kW**
No. of phases	3:3	
Number and power of power modules	3 x 54 kW	4 x 50 kW
Input		
Nominal voltage	380 / 400 / 415 VAC	
Voltage range	304 VAC - 485 VAC for 100% load Min. 138 VAC - 304 VAC linear for 40% - 100% load	
Frequency	50 / 60 Hz	
Frequency range	40 – 72 Hz	
THDi	<3%	
Input power factor	≥0,99	
Output		
Nominal voltage	380 / 400 / 415 VAC	
Power factor	1,0	
Static/dynamic voltage regulation	±1% / ±2%	
Nominal frequency	50 / 60 ± 0,05 Hz	
Inverter overload	105% - 110% - 60 min., 110% - 125% - 10 min., 125% - 150% - 1 min., >150% - 0.2 sec.	
Efficiency in On-line mode	>96%	
Efficiency in ECO mode	99%	
Creast factor	3:1	
Battery		
Cold start	Yes	
Battery type	VRLA, AGM, GEL, Li-Ion	
Number of batteries in one string	32 - 44 psc. x 12V	
Maximum capacity of the charging system	36 A	48 A
Charging time	3 - 8 hours up to 90% capacity (configurable)	
Charging cycle	According to DIN 41773 with automatic charge deactivation according to current and voltage criteria, with time control, temperature compensation option for charging voltage	
Dimensions and weight		
Dimensions S x G x W	600 x 850 x 1200 mm	
UPS weight without battery	230 kg	265 kg
Signalling and communication ports		
Operating status indicator	LCD, LED diode, audible alarm	
Communication	USB, RS232, RS485, NET, EPO, LBS, Parallel operation connector, DryContact Optional: SNMP card, GPRS card, Wi-Fi card, battery probe	
Environmental conditions		
Noise level	<65 dB	
Permissible operating temperature	0°C ÷ 40°C	
Recommended operating temperature	15°C ÷ 25°C	
Storage temperature	-25°C ÷ 55°C	
Humidity	0 ÷ 95% (non-condensing)	
Standards		
Resistance to interference	EN62040-2:2018	
Safety	EN62040-1:2019, EN62040-3:2011, CE, UKCA	
Optional equipment		
- SNMP card - Environmental conditions sensor - GPRS card - Wi-Fi card	- Uninterruptible External Bypass, Service - BackFeed Protection, - Battery rack or battery modules - UPS parallel operation card	

The publication contains specifications for standard models. Due to continuous product improvement, the parameters are subject to change without prior notice.

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Operator Panel LCD COVER 7“

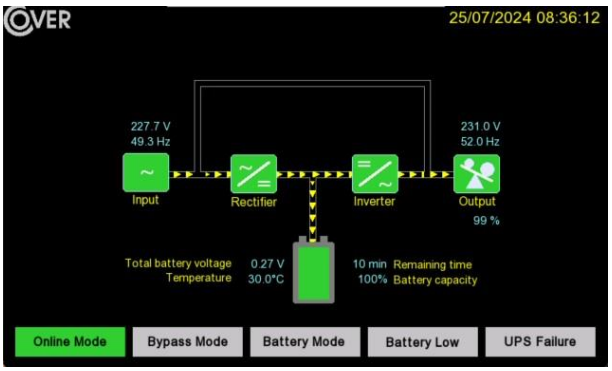
Type: **Remote Panel TFT**

Applications: **UPS**

A 7’’ diagonal universal remote LCD touchscreen display with a resolution of 800x480px is used to monitor the parameters and operating status of a UPS or power generator. Depending on the model of the unit being monitored, various types of information are displayed for the ongoing evaluation of the operating mode and parameters of the consumers it powers. As most central UPS systems operate indoors, inaccessible to the user, there is a need to view their parameters in order to take appropriate action in the event of a situation such as a mains power outage or failure.
The remote LCD panel is usually installed in the guard room, gatehouse, near to powered equipment on the production floor, as well as near to operators of e.g. medical equipment, IT systems - for whom the essential information is that there has been a power outage or failure and the equipment, powered by the UPS, is running on battery power with a limited operating time.
The operator's rapid response to the situation allows the production stage to be completed and the production line stopped, the examination to be completed and the medical device safely shut down, or other actions to be taken as appropriate.
Communication between the UPS and the panel, is carried out via a local network based on the ModbusTCP communication protocol. The advantage of the solution is the virtually unlimited distance between the devices and the ability to view the operating status of the UPS, which is often located in a place inaccessible to the user

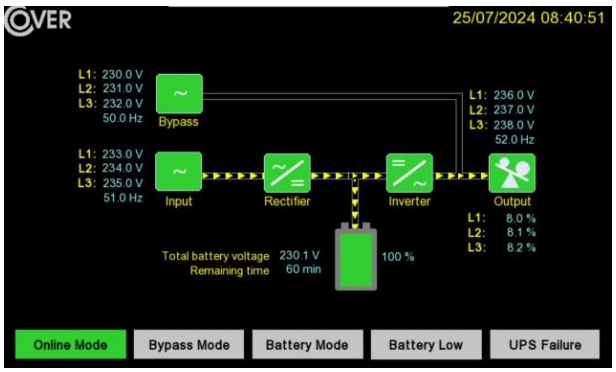
Display size	7’’
Resolution, colour	800 x 480 px, 16,77 millions of colours
Backlighting, brightness	LED, brightness 250cd/m2
Touch panel	Yes, TFT
Cooling method	Natural, unforced airflow
Communication ports	COM0:RS232/RS485-2/RS485-4,COM1:RS232/RS485-2/RS485-4, COM2:RS232
Communication interface	Ethernet
Operating temperature	0 ÷ +50 °C
Storage temperature	-20 ÷ +60 °C
Humidity	10 ÷ 90% non-condensing
Weight	0,5 kg
Panel dimensions	250 x 190 x 70 mm
Degree of protection	IP20
Power consumption, voltage	3,6W, 24Vdc
CE certified	Compatible with EN6100-6-4:2007+A1:2011,EN61000-6-2:2005

Example graphic interface of a 1-phase UPS



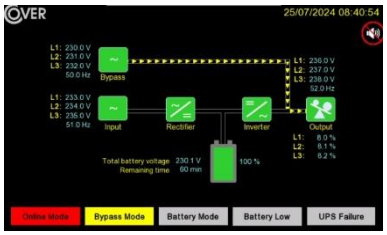
- UPS model readout
- Current date and time
- Phase voltage and frequency measurements
- Output voltage and frequency measurement
- Load level indication
- Current operating mode
- Battery voltage and temperature measurement
- Display of the current battery capacity
- Display of available autonomy

Example graphic interface of a 3-phase UPS

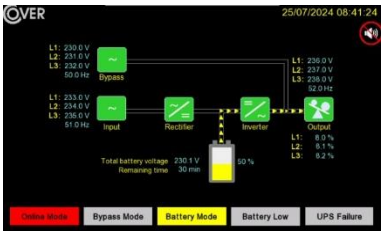


- UPS model readout
- Current date and time
- Measurement of L1, L2, L3 phase voltages and frequency independently for rectifier and bypass path.
- Measurement of output voltages and frequencies
- Display of load level of individual phases
- Current operating mode
- Battery voltage measurement
- Display of current battery capacity
- Display of available autonomy

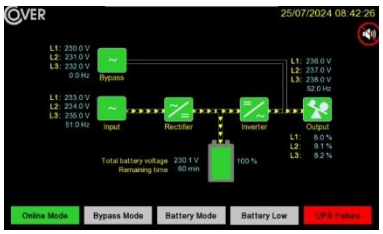
Any change in the UPS operating mode, results in a visual indication in the form of a change in the illumination of the corresponding icon with the operating mode description.



Bypass mode



Battery mode



UPS Fail

Requirements for panel installation

The remote panel allows mounting on a wall or other surface at a location convenient for the user.
Power supply to the panel is via a standard 24Vdc power supply, which is included in the panel's equipment. It is required to power the LCD panel from a guaranteed socket.
An Ethernet network socket with RJ45 port should be located near the panel for communication between the UPS and the LCD.

Battery cabinet

Type: **Battery cabinet**

Model: **C10 / C20 / C40**

Application: **UPS COVER**

Battery cabinet C10/C20/C40 were designed to work with Cover UPSes. Their look, dimensions and shape of cabinet are in harmony with any UPS of Cover family. Flexible construction allows for adjustable quantity and capacity of batteries.
Additional options like battery circuit breaker and wire connectors are matched individually to particular applications.

Model		MB C10	MB C20	MB C40
Dimensions (WxDxH)		950 x 470 x 615	950 x 470 x 1190	950 x 880 x 1190
No. of battery shelves		2	4	4
Weight without batteries		21 kg	46 kg	84 kg
Cabinet color		Black (RAL 9005)		
Protection class		IP20		
Batteries				
Type		Maintenance free, sealed VRLA AGM, 12V		
Battery circuit breaker		Over-current protection switch		
Battery type	**Dimensions (SxGxW)**	**Max. quabtity in the module (psc.)**		
Battery 7 Ah	151 x 65 x 94	40	80	160
Battery 9 Ah	151 x 65 x 94	40	80	160
Battery 12 Ah	151 x 98 x 93	36	72	144
Battery 18 Ah	181 x 76 x 167	40	80	160
Battery 26 Ah	166 x 175 x 125	20	40	80
Battery 45 Ah	197 x 166 x 171	20	40	80
Battery 65 Ah	350 x 167 x 179	10	20	40
Battery 100 Ah	338 x 170 x 212	10	20	40

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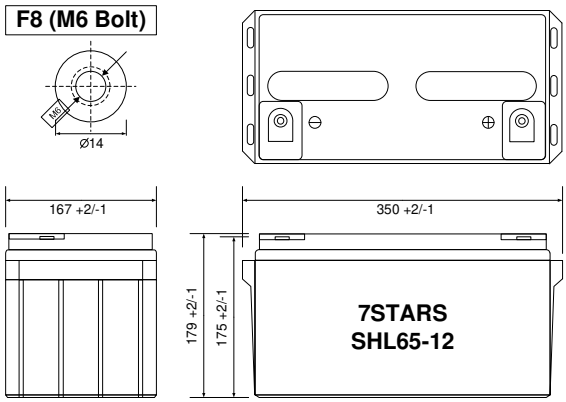
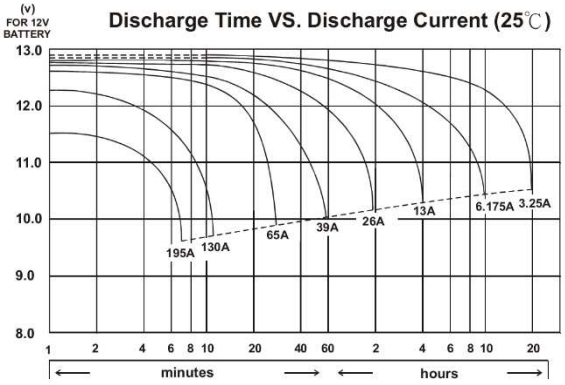
SHL65

12V VRLA BATTERY

VALVE REGULATED LEAD ACID BATTERIES – AGM





Nominal Voltage	12V
Type	AGM VRLA
Nominal Capacity	
20 hours rate	65Ah
10 hours rate	61.8Ah
5 hours rate	55.3Ah
1C	41.2Ah
3C	26.0Ah
Weight	20.9kg
Internal Resistance	3.7mΩ@1kHz
Maximum Discharge Current for	
5 sec.	780A
Short Circuit	1560A
Operating Temperature Range	
Charge	-15°C ÷ 40°C
Discharge	-15°C ÷ 50°C
Storage	-15°C ÷ 40°C
Charge Retention (shelf life) at 20°C	
1 month	98%
3 months	94%
6 months	85%
Charging Methods at 20°C	
Max. Charging Current	19,5A
Charging Voltage	
Cycle use:	14.4 ÷ 15.0V
Standby use:	13.5 ÷ 13.8V
Thermal Coeff. Cycle/St.By	-5.0/-3.0 mV/°C/cell
Life expectancy	
Cycle Use	
100% depth of discharge	250 cycles
50% depth of discharge	600 cycles
30% depth of discharge	1200 cycles
Standby Use	10/12 years Long Life (EUROBAT)
Case Material	ABS UL94 HB
Terminal	F8 (M6 Bolt)
Torque value (Max.)	7Nm (10Nm)

Standards and Certifications: CE, IEC 62056-1, IEC 60896-21-1, IEC 60896-22-1, IEC 61000-6-1, IEC 61000-6-3

Constant Power Discharge Characteristics (25°C) [W]

Cut Off	Time											
	5'	10'	15'	30'	1H	1.5H	2H	3H	4H	5H	10H	20H
11.1V	2 412	1 765	1 386	866	460	366	309	213	171	143	82,0	42,2
10.8V	2 580	1 861	1 440	885	467	372	314	216	174	145	83,0	42,9
10.5V	2 742	1 941	1 487	902	472	376	318	219	176	146	83,6	43,6
10.2V	2 892	2 019	1 526	917	478	381	323	221	178	148	84,2	44,2
10.0V	2 931	2 039	1 539	921	480	382	324	222	179	149	84,8	44,4
9.9V	2 970	2 059	1 551	925	481	383	324	223	180	149	85,4	44,6
9.6V	3 151	2 144	1 599	943	487	389	330	225	182	151	86,5	45,4

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