

## UPS FRAME Series

TECHNOLOGY: **TRUE ON LINE Double Conversion**

CLASSIFICATION CODE: **True Sinewave, 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<br>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                                                                                                                | Sealed maintenance-free batteries, AGM, VRLA                                                                                                                                                                                                                                                                               |                  |
| 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                                                                                                                                                                                                                                                                                              |                  |
| Available alarms                                                                                                            | EPO active, Mains/Bypass parameters over or under voltage/frequency, bypass overload, inverter overload, Inverter voltage low/high, maintenance bypass ON, battery circuit abnormal, battery low, battery under voltage, phase rotation error, overtemperature, short circuit, communication problem, redundancy lost etc. |                  |
| Communication                                                                                                               | USB, RS232, RS485, NET, EPO, LBS, Parallel operation connector, DryContact<br>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                                                                                                                                                                                                                                                                                                               |                  |
| Ingress protection                                                                                                          | IP 20                                                                                                                                                                                                                                                                                                                      |                  |
| Humidity                                                                                                                    | 0 ÷ 95% (non-condensing)                                                                                                                                                                                                                                                                                                   |                  |
| Standards                                                                                                                   |                                                                                                                                                                                                                                                                                                                            |                  |
| Resistance to interference                                                                                                  | EN62040-2:2018                                                                                                                                                                                                                                                                                                             |                  |
| Safety                                                                                                                      | EN62040-1:2019, EN62040-3:2011, CE, UKCA                                                                                                                                                                                                                                                                                   |                  |
| Optional equipment                                                                                                          |                                                                                                                                                                                                                                                                                                                            |                  |
| <div><div></div>SNMP card</div> <div>- Environmental conditions sensor</div> <div>- GPRS card</div> <div>- Wi-Fi card</div> | <div>- Uninterruptible External Bypass, Service</div> <div>- BackFeed Protection,</div> <div>- Battery rack or battery modules</div> <div>- UPS parallel operation card</div>                                                                                                                                              |                  |

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