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# KEOR HPE 60-80

**311087 – 311088 – 311089 – 311090 – 311091**



## 1. TECHNICAL FEATURES

| 1. General Features | | |
|---|---|---|
| Power (KVA) | 60 | 80 |
| UPS Topology | ON LINE – Double Conversion | |
| Nominal Apparent Output Power (kVA Cosφ 1.0) | 60 | 80 |
| Nominal Active Output Power (kW Cosφ 1.0) | 60 | 80 |
| Efficiency (AC ÷ AC) (%)<br>@25% load<br>@50% load<br>@75% load<br>@100% load | <br>Up to 93%<br>Up to 94.5%<br>Up to 95%<br>Up to 95% | |
| Efficiency (AC ÷ AC) (Eco Mode) | >98% | |
| Heat dissipation at rated load, VFI voltage (kW ) | 3.2 | 4.2 |
| UPS Ambient Temperature (°C) | 0 ÷ 40 | |
| BATTERY ambient temperature (°C) | 0 ÷ 25 | |
| UPS storage temperature (°C) | 10 ÷ 70 | |
| BATTERY storage temperature (°C) | 10 ÷ 60 | |
| Relative humidity % (not condensing) | < 95% | |
| Altitude m | <1000 (Above Sea level) | |
| Power derating for altitude > 1000 m | According to “IEC62040-3”, 0,5% every 100m | |
| Ventilation | Forced | |
| Requested cooling air volume ($m^3/h$) | 1100 | 1000 |
| Audible noise level (according to IEC EN 62040-3) | < 60dB | |
| Number of cells for standard Lead acid battery | 360 ÷ 372 | |
| Protection Degree | IP20 | |
| Electromagnetic Compatibility EMI | According to “IEC EN 62040-2” (CE marking) | |
| Safety | IEC / EN 620401 | |
| Test and performance | IEC / EN 620403 | |
| Colour | RAL9005 (Black) RAL9003 (White) | |
| Accessibility | Front Access | |
| Installation | Against the Wall | |
| Dimensions (mm) (WxDxH) | 560 x 940 x 1500 | |
| Weight kg (without battery) | 225 | 250 |
| Max Weight kg (with battery) | 770 | 785 |
| Input/output cable connection | Cables entry front bottom | |
| Transport | Base provided for forklift handling | |
| Storage and transport conditions | According to “IEC EN 62040-3” | |
| Reference standards | EN 62040-1 - EN62040-2 - EN62040-3<br>ISO 9001:2008 - ISO 14001 | |
| Front panel | Liquid Cristal Display, Touch-screen (optional) | |
| Voltage-free contact interface | Optional for signalisations / alarms | |
| Serial communication interface | Standard: RS232 - USB<br>Optional: RS485 (Mod-Bus RTU protocol) | |
| Parallel configuration (optional) | Up to 5+1 (redundant parallel)<br>Up to 6 (power parallel) | |

| 2. Input: rectifier and battery charger | | |
|---|---|---|
| Power (KVA) | 60 | 80 |
| Input | Three-phase | |
| Nominal input voltage (Vac) | 400 | |
| Input voltage range (%) | 20 / +15 | |
| Input frequency (Hz) | 50 60 | |
| Input frequency range (%) | ±10 | |
| Input power factor | >0,99 | |
| Input current THD at nominal voltage and THDV <0,5% (%)<br>@25% load<br>@50% load<br>@75% load<br>@100% load | <br>< 5<br>< 4<br>< 3<br>< 3 | |
| DC output voltage accuracy (%) | ±1 | |
| DC output voltage ripple (%) | 1 | |
| Battery recharging characteristic | Intermittent charging with prevailing state of complete rest and control of the battery status IU (DIN 41773) | |
| Maximum recharging current (A)<br>- at nominal load<br>- with DCM function (max current) | <br>15<br>30 | <br>15<br>30 |
| AC-DC converter type | IGBT PFC | |
| Input protection | Fuses | |
| Nominal current absorbed from mains (at nominal load and battery charged) (A) | 91 | 122 |
| Maximum current absorbed from mains (at nom. load, nom. voltage and max. recharging current) (A) | 136 | 175 |
| Rectifier soft-start (walk-in) (sec) | Settable from 5’’ to 30’’ | |
| Rectifier sequential start-up (hold-off) (sec) | Settable from 1’’ to 300’’ | |

| 3. Batteries | | |
|---|---|---|
| Power (KVA) | 60 | 80 |
| Type (standard) other on request | Sealed lead acid (VRLA - maintenance free) | |
| Number of Cells | 360 - 372 | |
| Floating Voltage at 25°C | 812 for 360 cells, 840 for 372 cells | |
| Minimum Discharge Voltage Vdc | 620 for 360 cells, 632 for 372 cells | |
| Power drawn by the inverter (at rated load cosϕ = 1) (KW) | 61.9 | 82.5 |
| Power drawn by the inverter (at rated load and minimum battery voltage) (KW) | 100 | 133 |
| Battery Protection | Fuses | |
| Battery Test | Provided as Standard | |

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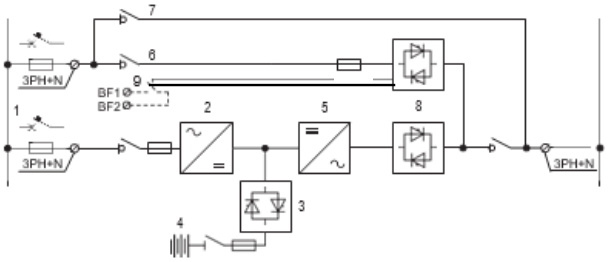
| 4. Output Inverter | | |
|---|---|---|
| Power (KVA) | 60 | 80 |
| Inverter Bridge | 3-Level IGBT (High Frequency PWM) | |
| Nominal Apparent Output Power (kVA Cosφ 1.0) | 60 | 80 |
| Nominal Active Output Power (kW Cosφ 1.0) | 60 | 80 |
| Efficiency (DC ÷ AC) (%)<br>@25% load<br>@50% load<br>@75% load<br>@100% load | Up to 96<br>Up to 97<br>Up to 97<br>Up to 97 | |
| Output | 3 Phase / 4 Wires | |
| Rated Output Voltage (selectable) (Vac) | 380-400-415 | |
| Output Voltage Stability<br>- Static (Balanced Load) (%)<br>- Static (Unbalanced Load) (%)<br>- Dynamic (Step Load 20%÷ 100% ÷20%) (%)<br>- Output Volt. Recovery Time(after step load) (ms)<br>- IEC EN 62040-3 | ± 1<br>± 2<br>± 5<br><br>< 20<br>VFISS111 | |
| Phase Angle Accuracy (°)<br>- Balanced Load<br>- 100% Unbalanced Load | ± 1<br>± 1 | |
| Output Frequency (selectable) (Hz) | 50 / 60 | |
| Output Frequency Stability<br>- Free Running Quartz Oscillator (Hz)<br>- Inverter Sync. with Mains (Hz)<br>- Slew rate (Hz/s) | ± 0,001<br>± 2 (others on request)<br><1 | |
| Nominal Output Current (@ 400 Vac output) (A) | 87 | 115 |
| Overload Capability | 10 min >100%…125%<br>30 s >125%…150%<br>100 ms >150% | |
| Short Circuit Current (A) | 200 | 265 |
| Short Circuit Characteristic | Current limited with electronic protection<br>Automatic stop after 5 seconds | |
| Output Waveform | Sinewave | |
| Output Harmonic Distortion (%)<br>- Linear Load<br>- Non Linear Load<br>- IEC EN 62040-3 | < 1<br>< 5<br>Fully compliant | |
| Max Crest Factor without derating | 3:1 | |

| 5. Bypass | |
|---|---|
| Automatic static by-pass | Electronic Thyristor Switch<br>Three-phase + Neutral |
| Nominal input voltage (Vac) | 380 – 400 - 415 |
| Input voltage range (%) | ±10 |
| Input frequency (Hz) | 50 - 60 |
| Input frequency range (%) | ±10 |
| Transfer mode | Without break |
| Transfer: inverter - automatic bypass | In case of:<br>- Short-circuit<br>- Battery discharged<br>- Inverter test<br>- Inverter failure |
| Transfer: automatic bypass - inverter | - Automatic<br>- Block on bypass after 6 transfers within 2 minutes, reset by front panel |
| Overload Capability (%) | 150 Continuously 1000 For 1 Cycle |
| Manual By-Pass | - Electronically controlled<br>- No-break assisted re-start procedure |
| Back-feed protection | NC contact for the control of an external device |

## 2. BLOCK DIAGRAM




1. 1. Separate mains input for rectifier and bypass
2. Rectifier battery-charger
3. Battery static switch
4. Internal batteries or external battery cabinet
5. Inverter
6. Emergency line (bypass)
7. Maintenance bypass line
8. Inverter (SSI) and bypass(SSB) static switch
9. Optional contact for external back-feed protection

## 3. OPTIONS

1. Battery cabinet
2. Serial interface RS485 (ModBus protocol RTU)
3. SNMP adapter
4. Parallel card interface kit
5. Sync card interface kit
6. Isolation transformer

## 4. SOFTWARE ENABLED FUNCTIONS

1. OPERATION WITH GENERATOR
2. RECTIFIERS SEQUENTIAL STAR (PARALLLEL UPSs)
3. SOFTSTART RECTIFIER
4. DYNAMIC CHARGING MODE (DCM)
5. VFI / VFD (ECO) OPERATING MODE MANAGEMENT
6. FREQUENCY CONVERTER