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<th>Page</th>
</tr>
</thead>
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<td>3-PHASE UPS 10-20 kVA/kW For networks and servers, small and medium data centres, telecommunication</td>
<td>26</td>
</tr>
<tr>
<td><strong>INGENIO PLUS</strong></td>
<td>3-PHASE UPS 30-160 kVA/kW For small and medium data centres, networks and servers, industrial controls and process automation, medical equipment and building automation</td>
<td>30</td>
</tr>
<tr>
<td><strong>INGENIO MAX</strong></td>
<td>3-PHASE UPS 200-500 kVA/kW For medium data centres, networks and servers, industrial controls and process automation, medical equipment, building automation</td>
<td>34</td>
</tr>
<tr>
<td><strong>B9000 FXS</strong></td>
<td>3-PHASE UPS 60-300 kVA Transformer based UPS for networks and servers, industrial control and process automation, medical equipment, building automation</td>
<td>38</td>
</tr>
<tr>
<td><strong>B9600 FXS</strong></td>
<td>3-PHASE UPS 400-800 kVA Hi-power transformer based UPS for networks and servers, industrial controls and process automation, medical equipment and building automation</td>
<td>42</td>
</tr>
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<td><strong>INGENIO MAX XT</strong></td>
<td>SCALABLE 3-PHASE UPS 750 kW - 2.1 MW For large data centres, industrial controls and process automation</td>
<td>46</td>
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<tr>
<td><strong>UPSAVER 3VO</strong></td>
<td>MODULAR 3-PHASE UPS 670 kW - 2.67 MW For large data centres</td>
<td>50</td>
</tr>
<tr>
<td><strong>ECS Emergency Central Systems</strong></td>
<td>3/1- AND 3/3-PHASE E8000 ECS 10-20 kVA 3-PHASE INGENIO ECS 30-160 kVA For emergency lighting, fire fighting and safety equipment according to EN 50171</td>
<td>52</td>
</tr>
<tr>
<td><strong>STS 16-32 A</strong></td>
<td>1-PHASE RACKMOUNT STS Rackmount Static Transfer Switches for networks and servers, data centres, industrial controls and process automation</td>
<td>60</td>
</tr>
<tr>
<td><strong>STS 100-3000 A</strong></td>
<td>3-PHASE CENTRALISED STS Centralised Static Transfer Switches for networks and servers, data centres, industrial controls and process automation</td>
<td>62</td>
</tr>
<tr>
<td><strong>GUARDIAN NET</strong></td>
<td>Remote Diagnostics and Preventive Monitoring</td>
<td>66</td>
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<tr>
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</tr>
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<td></td>
<td>70</td>
</tr>
</tbody>
</table>

www.borri.it
Borri’s R&D vast expertise in all facets of firmware, power electronics and mechanical design provides innovative solutions for tomorrows problems in Industrial and Critical Power applications.

The company prides itself on its first-class service and superior engineering disciplines. To ensure sustained quality, Borri manages all its processes in house from feed studies to design, production and after sales service technology.

Based in Bibbienna, Italy with over 15,000 m² production area, Borri operates across all five continents with subsidiaries in USA, Canada, Germany, UAE, India and Malaysia.

It has also established a strong distributor network, able to deliver on site support and technical guidance indicative of our own capabilities.

The Borri Group has been developing and building uninterruptible power systems since 1932 and is a global provider of power electronics systems and solutions for harsh industrial and demanding critical power requirements.
Critical Power Solutions
Designing and building mission critical UPS's 1- and 3-Phase up to 21 MW.

Industrial Power Solutions
Designing, engineering and building customised AC and DC power supply systems for harsh industrial applications.

Service
Borri team of experts support you to the highest standards no matter where you are in the world.
UPS FOR COMPUTERS AND PERIPHERALS, DATA CENTRES, NETWORKS AND SERVERS.

from 450 VA to 21 MW

1-PHASE UPS & STS

Giotto
Line interactive 1-Phase UPS from 450 to 2000 VA

Leonardo
On-line 1-Phase UPS from 6 to 10 kVA

Galileo
On-line 1-Phase UPS from 1000 to 3000 VA

STS 16-32
1-Phase Static Transfer Switches 16 and 32 A

3-PHASE UPS & STS

B8031FXS
3/1-Phase UPS from 10 to 20 kVA

B8033FXS
3/3-Phase UPS from 10 to 20 kVA

Ingenio Compact
3-Phase UPS from 10 to 20 kW

Ingenio Plus
3-Phase UPS from 30 to 160 kW
Supplying both standalone and modular UPS, Borri provides the best power protection solution whether your business is a small office or a hyperscale data centre.

**COMPUTER AND PERIPHERAL**

**SMALL AND MEDIUM DATA CENTRE**

**NETWORK AND SERVER**

**LARGE DATA CENTRE**

**DATA CENTRE UPS’S AND SYSTEMS**

- **B9000FXS**
  - Transformer 3-Phase UPS from 60 to 300 kVA
- **Ingenio MAX**
  - 3-Phase UPS from 200 to 500 kW
- **B9600FXS**
  - Transformer 3-Phase UPS from 400 to 800 kVA
- **STS 300**
  - 3-Phase Static Transfer Switches from 100 to 3000 A
- **Ingenio MAX XT**
  - Scalable high-power UPS from 750 kW to 2.1 MW
- **ST 300**
  - 3-Phase Static Transfer Switches from 100 to 3000 A
- **UPSaver 3vo**
  - Modular high-power UPS from 670 kW to 21 MW

[www.borri.it](http://www.borri.it)
**UPS FOR INDUSTRIAL CONTROLS, PROCESS AUTOMATION, MEDICAL EQUIPMENT, BUILDING AUTOMATION AND EMERGENCY SYSTEMS.**

from 10 kW to 4.8 MW

3-PHASE UPS & STS

B8031FXS 3/1-Phase UPS from 10 to 20 kVA

B8033FXS 3/3-Phase UPS from 10 to 20 kVA

Ingenio Plus 3-Phase UPS from 30 to 160 kW

Ingenio MAX 3-Phase UPS from 200 to 500 kW
Borri provides facility managers with resilient critical power solutions across all their applications whether they be health care centres or manufacturing facilities.

**INDUSTRIAL CONTROLS AND PROCESS AUTOMATION**

**MEDICAL EQUIPMENT**

**BUILDING AUTOMATION**

**EMERGENCY AND SAFETY SYSTEMS**

**ECS – EMERGENCY CENTRAL SYSTEMS**

- **B9000FXS**
  Transformer 3-Phase UPS from 60 to 300 kVA
- **Ingenio MAX XT**
  Scalable high-power UPS from 750 kW to 2.1 MW
- **B9600FXS**
  Transformer 3-Phase UPS from 400 to 800 kVA
- **STS 300**
  3-Phase Static Transfer Switches from 100 to 3000 A

- **E8000 ECS**
  3/1 - 3/3 - Phase ECS from 10 to 20 kVA
- **INGENIO ECS**
  3-Phase ECS from 30 to 160 kVA

[www.borri.it](http://www.borri.it)
1-PHASE UPS

from 450 VA to 10 kVA
Suitable for a variety of Small-Office and Home-Office applications, Borri 1-phase UPS’s Giotto, Galileo and Leonardo have been designed to prevent power interferences and to keep your small and medium equipment running.

Home office
Computers & Peripherals
Network & Server
Small data centre

User-friendly
Easy installation and setup for immediate use.

Intuitive LCD display
Providing easy-to-read UPS status and power information.

Convertible design
Online UPS’s can be used in both tower and rack configurations.

www.borri.it
User-friendly UPS ensuring compact protection for a wide range of needs:
- Best power protection for PC from 450 to 850 VA with one output receptacle (IEC 320-C1 3) and one Schuko.
- Advanced power protection from 1000 to 2000 VA with four output receptacles (IEC 320-C13) and one Schuko for high performance PC and peripherals.

- Instantaneous battery back-up power and electrical interference protection.
- Plug and Play installation easy to set up also for first-time users.
- Compact and noise-free running to be placed anywhere at home or office.
- Energy efficient ensuring lowest impact on energy costs.
- Intuitive LCD display provides easy-to-read UPS status and power information.

Audible alarm alerts upon utility power and UPS status change.
Easy User-replaceable battery.
AVR technology stabilizing output voltage to protect your electronics over a wide range of mains quality issues.
Advanced battery management extending battery life.
Internet Modem / LAN protection via RJ-11/45 plug.
USB communication port providing UPS managements.
Cold start for powering loads when mains are not available.
Borri Power Guardian user-friendly UPS management software free downloadable at www.borri.it/download (for more info see p.20/21).

Back up time with internal batteries

<table>
<thead>
<tr>
<th>VA</th>
<th>0'</th>
<th>1'</th>
<th>2'</th>
<th>3'</th>
<th>4'</th>
<th>5'</th>
<th>6'</th>
<th>7'</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 VA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500 VA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000 VA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>850 VA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>650 VA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>450 VA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Internal battery 50% load
**GIOTTO technical data**

<table>
<thead>
<tr>
<th>Rating (VA)</th>
<th>450</th>
<th>650</th>
<th>850</th>
<th>1000</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power (W)</td>
<td>270</td>
<td>380</td>
<td>500</td>
<td>600</td>
<td>900</td>
<td>1200</td>
</tr>
<tr>
<td>UPS dimensions WxDxH (mm)</td>
<td>100x292x140</td>
<td></td>
<td>148x315x198</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UPS weight (kg)</td>
<td>4</td>
<td>5</td>
<td>5.5</td>
<td>9</td>
<td>10.5</td>
<td>11.8</td>
</tr>
</tbody>
</table>

**Input**
- Connection type: IEC 320-C14
- Nominal voltage: 230 Vac 1-phase
- Voltage range: 160 to 290 Vac
- Frequency and range: 50/60 Hz, 45 to 65 Hz

**Output**
- Connection type: 1 IEC 320-C13 and 1 Schuko 4 IEC 320-C13 and 1 Schuko
- Nominal voltage: 230 Vac 1-phase
- Frequency: 50/60 Hz
- Wave form: Simulated sine wave

**Battery**
- Autonomy time (min.)
  - 50% load: 5, 5, 5, 6, 5, 4
  - 100% load: 3, 3, 3, 3, 2

**Connectivity and function extensions**
- Front panel: LCD, ON/OFF button
- Communication: Included: USB
  - Compatible platforms: Windows, Linux, Mac

**Environmental**
- Operating temperature range: 0°C to +40°C
- Altitude (AMSL): < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
- Audible noise at 1 m (dBA): < 40

**Standards and certifications**
- Safety: IEC/EN 62040-1
- EMC: IEC/EN 62040-2
- Marking: CE

◊ Measurement conditions: optimised parameters, fully charged battery, 0.6 PF
**Features and benefits**

- **On-line double conversion UPS from 1000 to 3000 VA, Tower and 2U Rack/Tower from three to six output receptacles (IEC 320-C13) and one or two Schuko.**

- **Rack/Tower convertible design** to protect your investment when migrating from tower to rack-mount environment. Both UPS and display panel can be rotated.

- **Easy installation and set up,** user-replaceable and upgradable battery.

- **Intuitive LCD display providing easy-to-read UPS status and power information.**

- **Audible alarm alerts upon utility power and UPS status change.**

- **Smart cooling system ensuring further energy savings.**

- **Programmable switched outlet group for setting load priorities.**

- **Active harmonic power quality control ensuring up to 0.99 input PF and THDi<3% for maximum compatibility with sources.**

- **Automatic self test and advanced battery management maximizing battery performance and extending battery life.**

- **Remote power off for immediate UPS shutdown in case of emergency.**

- **USB communication port providing UPS management.**

- **One slot auto-sensing communication cards.**

- **Cold start for powering loads when mains are not available.**

- **Borri Power Guardian user-friendly UPS management software with alerts upon main power failures and system shutdown notification via SMS and email, free downloadable at www.borri.it/download (for more info see p.20/21).**

**Main options**

- **SNMP card to send UPS status to BMS’s by Ethernet connection and SNMP or ModBus over IP protocol to monitor UPS status by any internet browser from workstations and to receive SMS or e-mail alerts from the UPS on any portable device.**

- **Contact relay card to send UPS status to PLC’s, SCADA’s or AS400’s by voltage free SPDT contacts.**

- **Battery extension box allowing additional autonomy time to be quickly added.**

- **Additional battery charger for external battery box.**

- **Rail kit Rack/Tower.**

- **Rack PDU with external sockets and manual bypass switch.**

**Back up time for Rack/Tower UPS**

<table>
<thead>
<tr>
<th>0'</th>
<th>10'</th>
<th>20'</th>
<th>30'</th>
<th>40'</th>
<th>50'</th>
<th>60'</th>
<th>70'</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kVA</td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td>2 kVA</td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td>3 kVA</td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
</tr>
</tbody>
</table>

**Back up time for Tower UPS**

<table>
<thead>
<tr>
<th>0'</th>
<th>10'</th>
<th>20'</th>
<th>30'</th>
<th>40'</th>
<th>50'</th>
<th>60'</th>
<th>70'</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kVA</td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td>2 kVA</td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td>3 kVA</td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
</tr>
</tbody>
</table>
GALILEO technical data

<table>
<thead>
<tr>
<th>UPS Type</th>
<th>T *</th>
<th>T *</th>
<th>T *</th>
<th>RT (2U) **</th>
<th>RT (2U) **</th>
<th>RT (2U) **</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating (VA)</td>
<td>1000</td>
<td>2000</td>
<td>3000</td>
<td>1000</td>
<td>2000</td>
<td>3000</td>
</tr>
<tr>
<td>Nominal Power (W)</td>
<td>900</td>
<td>1800</td>
<td>2700</td>
<td>900</td>
<td>1800</td>
<td>2700</td>
</tr>
<tr>
<td>UPS dimensions WxDxH (mm)</td>
<td>144x367x236</td>
<td>151x444x322</td>
<td>189x444x322</td>
<td>440x390x88</td>
<td>440x475x88</td>
<td>440x600x88</td>
</tr>
<tr>
<td>UPS weight (kg)</td>
<td>11.2</td>
<td>18.8</td>
<td>24.9</td>
<td>12.0</td>
<td>17.0</td>
<td>26.5</td>
</tr>
</tbody>
</table>

**Input**
- Connection type: IEC 320-C14, IEC 320-C20
- Nominal voltage: 230 Vac, 1-phase
- Voltage range: 195 to 260 Vac
- Frequency and range: 50/60 Hz, 45 to 65 Hz
- Power factor: 0.98, 0.99
- Current distortion (THD): <3%

**Output**
- Connection type: 3 IEC 320-C13, 1 Schuko, 2 Schuko
- Nominal voltage: 230 Vac ±1%, 1-phase
- Frequency: 50/60 Hz
- Power factor: Up to 0.9, without power derating
- Overload capability: 105% continuous, 120% for 30 seconds, 150% for 10 seconds, >150% transfer to bypass
- Mode of operation: On-line, Eco mode

**Battery**
- Autonomy time internal battery (min):
  - 50% load: 12, 13, 15, 12, 13, 15
  - 100% load: 6, 6, 6, 6, 6, 6

**Connectivity and function extensions**
- Front panel: Display LCD, status LED, function keys
- Communication: Included: USB, EPO, RS232
  Optional: dry contact card, SNMP card
  Compatible platforms: Windows, Linux, Mac

**Environmental**
- Operating temperature range: 0°C to +40°C
- Altitude (AMSL): < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
- Audible noise at 1 m (dBA): < 50

**Standards and certifications**
- Safety: IEC/EN 62040-1
- EMC: IEC/EN 62040-2
- Marking: CE

*Tower ** Rack/Tower 0 Measurement conditions: optimised parameters, fully charged battery, 0.7 PF

www.borri.it
LEONARDO
from 6 kVA to 10 kVA

High-power on-line
1-phase UPS with Rack/Tower convertible design, ideal for networks and servers, small data centres.

Features and benefits
- On-line double conversion UPS from 6 to 10 kVA, Tower and 2U or 3U Rack/Tower.
- Parallel redundant configuration maximizing the availability.
- Rack/Tower convertible design to protect your investment when migrating from tower to rack-mount environment. Both UPS and display panel can be rotated.
- Easy installation and set up, user replaceable and upgradable battery.
- Intuitive LCD display providing easy-to-read UPS status and power information.
- Audible alarm alerts upon utility power and UPS status change.
- Smart cooling system ensuring further energy savings.
- Active harmonic power quality control ensuring 0.99 input PF and THDi<3% for maximum compatibility with sources.
- Automatic self test and advanced battery management maximizing battery performance and extending battery life.
- Remote emergency power off to guarantee your piece of mind in critical applications.
- Internal manual bypass for safe and easy maintenance.
- RS232 communication port providing UPS management.
- Two slots auto-sensing communication cards.
- Cold start for powering loads when mains are not available.
- Borri Power Guardian user-friendly UPS management software with alerts upon main power failures and system shutdown notification via SMS and email, free downloadable at www.borri.it/download (for more info see p.20/21).

Main options
- SNMP card to send UPS status to BMS’s by Ethernet connection and SNMP or ModBus over IP protocol to monitor UPS status by any internet browser from workstations and to receive SMS or e-mail alerts from the UPS on any portable device.
- Contact relay card to send UPS status to PLC’s, SCADA’s or AS400’s by voltage free SPDT contacts.
- Battery extension box allowing additional autonomy time to be quickly added.
- Additional battery charger for external battery box.
- Parallel kit.
- Rail kit Rack/Tower.
- Rack PDU with external sockets and manual bypass switch.

Back up time for Rack/Tower UPS

<table>
<thead>
<tr>
<th>Power</th>
<th>Internal battery</th>
<th>N°1 Battery box</th>
<th>N°2 Battery box</th>
</tr>
</thead>
</table>
| 10 kVA | [Graph]
| 6 kVA  | [Graph]

Back up time for Tower UPS

<table>
<thead>
<tr>
<th>Power</th>
<th>Internal battery</th>
<th>N°1 Battery box</th>
</tr>
</thead>
</table>
| 10 kVA | [Graph]
| 6 kVA  | [Graph]
# LEONARDO technical data

<table>
<thead>
<tr>
<th>UPS Type</th>
<th>T *</th>
<th>T *</th>
<th>RT (2U) **</th>
<th>RT (4U) **</th>
<th>RT (3U) ***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating (kVA)</td>
<td>6</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Nominal Power (kW)</td>
<td>5.4</td>
<td>9</td>
<td>5.4</td>
<td>5.4</td>
<td>9</td>
</tr>
<tr>
<td>UPS dimensions WxDxH (mm)</td>
<td>290x645x748</td>
<td>290x645x748</td>
<td>440x680x898</td>
<td>440x680x176</td>
<td>440x680x132</td>
</tr>
<tr>
<td>UPS weight (kg)</td>
<td>86</td>
<td>96</td>
<td>24</td>
<td>52</td>
<td>26</td>
</tr>
</tbody>
</table>

## Input

<table>
<thead>
<tr>
<th>Connection type</th>
<th>Hardwired 2w (rectifier), 2w (bypass)</th>
<th>Hardwired 2w</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>230 Vac 1-phase</td>
<td></td>
</tr>
<tr>
<td>Voltage range</td>
<td>160 to 280 Vac</td>
<td></td>
</tr>
<tr>
<td>Frequency and range</td>
<td>50/60 Hz, 45 to 65 Hz</td>
<td></td>
</tr>
<tr>
<td>Power factor</td>
<td>0.99</td>
<td></td>
</tr>
<tr>
<td>Current distortion (THDi)</td>
<td>&lt;6%</td>
<td></td>
</tr>
</tbody>
</table>

## Output

<table>
<thead>
<tr>
<th>Connection type</th>
<th>Hardwired 2w</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>230 Vac +/-1% 1-phase</td>
</tr>
<tr>
<td>Frequency</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Power factor</td>
<td>Up to 0.9, without power derating</td>
</tr>
<tr>
<td>Overload capability</td>
<td>104% continuous, 150% for 160 seconds, &gt;150% transfer to bypass</td>
</tr>
<tr>
<td>Mode of operation</td>
<td>On-line, Eco mode</td>
</tr>
<tr>
<td>Classification by IEC/EN 62040-3</td>
<td>VFI-SS-11</td>
</tr>
</tbody>
</table>

## Battery

<table>
<thead>
<tr>
<th>Autonomy time internal battery (min.)</th>
<th>50% load</th>
<th>17</th>
<th>external battery</th>
<th>15</th>
<th>external battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% load</td>
<td>9</td>
<td>6</td>
<td>external battery</td>
<td>6</td>
<td>external battery</td>
</tr>
</tbody>
</table>

## Connectivity and function extensions

<table>
<thead>
<tr>
<th>Front panel</th>
<th>Display LCD, status LED, function keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Included: USB, RS232 card, EPO. Optional: dry contact card, SNMP card, RS485 card. Compatible platforms: Windows, Linux, Mac</td>
</tr>
</tbody>
</table>

## Environmental

| Operating temperature range | 0°C to +40°C |
| Altitude (AMSL)             | < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m |
| Audible noise at 1 m (dBA)  | < 50 |

## Standards and certifications

| Safety | IEC/EN 62040-1 |
| EMC    | IEC/EN 62040-2 |
| Marking | CE |

* Tower with internal battery  ** Rack/Tower with internal battery  *** Rack/Tower without internal battery  
 ś Measurement conditions: optimised parameters, fully charged battery, 0.7 PF
POWER GUARDIAN
1-PH UPS MONITORING SOFTWARE

available for MAC and MICROSOFT WINDOWS
Borri Power Guardian is a free user-friendly UPS software, providing monitoring of the UPS status and automatic safe system shutdown during power outages.

Features and benefits

- Fast, easy installation and configuration via USB or RS232 even for first-time users.
- Automatic orderly application and system shutdown.
- Preventing potential data corruption and hardware damage.
- Alerts on main power failures and system shutdowns notification via SMS and email.
- Automatic self-test of UPS and battery status ensuring early detection of anomalies.
- UPS parameters and power status at a glance. It summarizes graphically and numerically power problems such as blackouts or electrical noise over time and UPS information such as input and output voltage, frequency, temperature, loads and battery capacity.
- Customised settings for tailor-made solutions.
- Available for MAC and Microsoft Windows operating systems (complete list at www.borri.it/download).
- Download Borri Power Guardian free software at www.borri.it/download.

www.borri.it
UPS 3/1-PHASE and 3/3-PHASE

B8031FXS
B8033FXS

from 10 kVA to 20 kVA
Robust, customisable and easy-to-maintain UPS, available as either 3-phase in/1-phase out or 3-phase in/3-phase out. B8031 FXS and B8033 FXS series is suitable for server rooms, IT equipment, industrial controls, medical equipment and process automation.

Applications

- Network & Server
- Industrial controls & process automation
- Medical equipment
- Building automation

Robust and compact

Full IGBT technology providing smooth sinusoidal input current cuts all upstream oversizing costs.

Low running costs

High efficiency and ECO mode reduce overall power losses and thus energy costs.

Easy to install and maintain

Removable power modules and simple handling for low installation and mean time to repair.
**B8031FXS - B8033FXS**: Featuring extremely small dimensions and one of the smallest footprint in its range.

### Features and benefits
- High double conversion efficiency and ECO mode for low running costs and environmental impact.
- Transformer free design for light small size layout.
- Removable power modules architecture and built-in diagnostics for easy maintenance and very low MTTR.
- Hot connection/disconnection of parallel units for easy system resizing.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and low THDi for maximum upstream sources compatibility.
- Wide range of configurations with internal batteries for low TCO compact solutions.
- High power battery charger, suiting long autonomy applications.
- Dual DSP plus microcontroller logics for top performance and reliability.
- CAN-bus based distributed parallel control ensuring high load sharing accuracy and no single point of failure.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Included bypass contactor for complete backfeed protection and operators’ safety without additional installation costs.
- Fully compliant with all international product standards for maximum quality guarantee.

### Back up time with internal batteries

<table>
<thead>
<tr>
<th>Voltage</th>
<th>0'</th>
<th>5'</th>
<th>10'</th>
<th>15'</th>
<th>20'</th>
<th>25'</th>
<th>30'</th>
<th>35'</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 kVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 kVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 kVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Main options
- Isolation transformer.
- Transformers/autotransformers for voltage adjustment.
- Battery voltage temperature compensation.
- External maintenance bypass wall-mounted box.
- Battery fuse switch wall-mounted box.
- Associated battery cabinets for long autonomy times.
- Parallel redundant up to 6 units for system redundancy.
- Load-sync option.
- Input terminals for remote EPO, external manual bypass auxiliary contact, diesel mode.
- Separate bypass input for B8033FXS.
### B8031FXS - B8033FXS technical data

<table>
<thead>
<tr>
<th>Rating (kVA)</th>
<th>10</th>
<th>15</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power (kW)</td>
<td>9</td>
<td>13.5</td>
<td>18</td>
</tr>
<tr>
<td>UPS dimensions WxDxH (mm)</td>
<td>450x640x1200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UPS weight (kg)</td>
<td>100</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>UPS weight with internal battery (kg)</td>
<td>247</td>
<td>257</td>
<td>257</td>
</tr>
<tr>
<td>External battery module dimensions WxDxH (mm)</td>
<td></td>
<td></td>
<td>500x640x1200</td>
</tr>
<tr>
<td>Battery configuration</td>
<td>Internal or external, 360 to 372 calls, VRLA (other options)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max autonomy with int. battery 70% load (min)</td>
<td>32</td>
<td>19</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Input

<table>
<thead>
<tr>
<th></th>
<th>B8031FXS (10-15-20 kVA)</th>
<th>B8033 FXS (10-15-20 kVA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection type</td>
<td>Hardwired 4w (rectifier), 2w (bypass)</td>
<td>Hardwired 4w</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>400 Vac 3-phase with neutral (rectifier)</td>
<td>400 Vac 3-phase with neutral (rectifier)</td>
</tr>
<tr>
<td>220/230/240 Vac 1-phase (bypass)</td>
<td>380/400/415 Vac 3-phase with neutral (bypass)</td>
<td></td>
</tr>
<tr>
<td>Voltage tolerance</td>
<td>-20%, +15% (rectifier); ±10% (bypass)</td>
<td></td>
</tr>
<tr>
<td>Frequency and range</td>
<td>50/60 Hz, 45 to 65 Hz</td>
<td></td>
</tr>
<tr>
<td>Power factor</td>
<td>0.99</td>
<td></td>
</tr>
<tr>
<td>Current distortion (THD)</td>
<td>&lt;4%</td>
<td></td>
</tr>
</tbody>
</table>

#### Output

<table>
<thead>
<tr>
<th></th>
<th>B8031FXS (10-15-20 kVA)</th>
<th>B8033 FXS (10-15-20 kVA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection type</td>
<td>Hardwired 2w</td>
<td>Hardwired 4w</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>220/230/240 Vac 1-phase</td>
<td>380/400/415 Vac 3-phase with neutral</td>
</tr>
<tr>
<td>Frequency</td>
<td>50/60 Hz</td>
<td></td>
</tr>
<tr>
<td>Voltage regulation</td>
<td>Static: ±1% ; Dynamic: IEC/EN 62040-3 Class 1</td>
<td></td>
</tr>
<tr>
<td>Power factor</td>
<td>Up to 0.9, without power derating</td>
<td></td>
</tr>
<tr>
<td>Overload capacity</td>
<td>Inverter: 125% for 10 min, 150% for 30 s ; Bypass: 150% continuous, 1000% for 1 cycle</td>
<td></td>
</tr>
<tr>
<td>Efficiency (AC/AC)*</td>
<td>Up to 98%</td>
<td></td>
</tr>
<tr>
<td>Classification by IEC/EN 62040-3</td>
<td>VFI-SS-1</td>
<td>VFI-SS-11</td>
</tr>
</tbody>
</table>

#### Connectivity and function extensions

- **Front panel**: Graphic display, mimic LED panel and keyboard, local EPO
- **Remote communication**: Included: serial RS232 and USB; terminal block for battery breaker auxiliary contact. Optional: input terminal block (remote emergency power off), external maintenance bypass circuit breaker aux. cont., diesel mode aux. cont.; SNMP adapter (Ethernet), Web interface (Ethernet), ModBus-TCP/IP (Ethernet), ModBus-RTU (RS485), from ModBus-RTU to PROFIBUS DP adapter; SPDT contact relay board, remote system monitoring panel, UPS managing and server shutdown software
- **Optional function extensions**: Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit, load-sync for single UPS; other options on request

#### System

- **Protection degree**: IP 20
- **Colour**: RAL 7016
- **Installation layout**: 10 cm wall-gap, side by side installation allowed
- **Accessibility**: Front and top access, bottom cable entry

#### Other features

- **Environmental**: 0°C to +40°C
- **UPS storage temperature range**: -10°C to +70°C
- **Altitude (AMSL)**: < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
- **Audible noise at 1 m (dBA)**: < 52

#### Standards and certifications

- **Safety**: IEC/EN 62040-1
- **EMC**: IEC/EN 62040-2
- **Environment aspects**: IEC/EN 62040-4
- **Test and performance**: IEC/EN 62040-3
- **Protection degree**: IEC 60529
- **Marking**: CE

www.borri.it
UPS 3-PHASE

INGENIO COMPACT

from 10 kW to 20 kW
One of the most compact and easy to use solutions on the market, designed for critical power applications such as networks and servers, small and medium data centres, telecommunication.

The UPS is available in the 10-20 kW range with online double conversion technology and parallel redundant configuration.
**Ingenio Compact:** transformer free, high efficiency, compact and easy to install and use.

**Features and benefits**
- On-line double conversion mode for total load protection.
- ECO mode for low running costs and environmental impact.
- Full rated output power ($p_f=1$), ensuring optimal UPS sizing and utilization.
- Transformer free design for light small size layout.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and low THDi for maximum upstream sources compatibility.
- Wide input voltage range to save battery life.
- Wide range of configurations with internal and external batteries for low TCO compact solutions.
- Innovative design allows for fast installation.
- Removable tray design for easy battery maintenance.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliant with all international product standards for maximum quality guarantee.

**Back up time with internal batteries**

<table>
<thead>
<tr>
<th>kW</th>
<th>0'</th>
<th>5'</th>
<th>10'</th>
<th>15'</th>
<th>20'</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Main options**
- Isolation transformer.
- Transformers/autotransformers for voltage adjustment.
- Battery voltage temperature compensation.
- External maintenance bypass wall-mounted box.
- External battery cabinets for long autonomy times.
- Parallel redundant up to 6 units for system redundancy.
- Common battery.
## INGEO COMPACT technical data

<table>
<thead>
<tr>
<th>Rating (kVA)</th>
<th>10</th>
<th>15</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power (kW)</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>UPS dimensions WxDxH (mm)</td>
<td>440x800x800</td>
<td>440x800x800</td>
<td>440x800x800</td>
</tr>
<tr>
<td>UPS weight (kg)</td>
<td>75</td>
<td>76</td>
<td>76</td>
</tr>
<tr>
<td>UPS weight with internal battery (kg)</td>
<td>150</td>
<td>165</td>
<td>165</td>
</tr>
<tr>
<td>External battery module dimensions WxDxH (mm)</td>
<td>550x650x1200</td>
<td>550x650x1200</td>
<td>550x650x1200</td>
</tr>
<tr>
<td>Battery configuration</td>
<td>Internal (standard): 180 cells; external: 156/240 cells</td>
<td>Internal (standard): 216 cells; external: 192/240 cells</td>
<td></td>
</tr>
</tbody>
</table>

### Input

- **Connection type**: Hardwired 4w
- **Nominal voltage**: 400 Vac 3-phase with neutral
- **Voltage tolerance**: -20%, +15% (rectifier); ±10% (bypass)
- **Frequency and range**: 50/60 Hz, 40 to 70 Hz
- **Power factor**: 0.99
- **Current distortion (THDi)**: <3%

### Output

- **Connection type**: Hardwired 4w
- **Nominal voltage**: 380/400/415 Vac 3-phase with neutral
- **Frequency**: 50/60 Hz
- **Power factor**: Up to 1, without power derating
- **Overload capacity**: 110% for 60 min, 125% for 10 min, 150% for 1 min
- **Efficiency (AC/AC)**: Up to 98%
- **Classification by IEC/EN 62040-3**: VFI-SS-1

### Connectivity and function extensions

- **Front panel**: Touch screen display
- **Remote communication**: Included: serial RS232, backfeed protection monitoring contact, remote EPO contact
- **Optional**: 2 slots for SNMP adapter, ModBus-RTU, contact relay card
- **Optional function extensions**: Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinet; wall-mounted battery fuse switch box; battery thermal probe; parallel kit; other options on request

### System

- **Protection degree**: IP 20
- **Colour**: RAL 9005
- **Installation layout**: 30 cm wall-gap
- **Accessibility**: Positioning casters; bottom cable entry

*according to IEC/EN 62040-3

### Other features

#### Environmental

- **UPS operating temperature range**: 0°C to +40°C
- **UPS storage temperature range**: -10°C to +70°C
- **Altitude (AMSL)**: < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
- **Audible noise at 1 m (dBA)**: < 52

#### Standards and certifications

| Safety | IEC/EN 62040-1 |
| EMC | IEC/EN 62040-2 |
| Environment aspects | IEC/EN 62040-4 |
| Test and performance | IEC/EN 62040-3 |
| Protection degree | IEC 60529 |
| Marking | CE |
UPS 3-PHASE

INGENIO PLUS

from 30 kW to 160 kW
The ideal power protection solutions for a range of critical applications, including networking and small to medium data centres, health, finance, industrial processing, building and transportation. Featuring Green Conversion patented technology, Ingenio Plus provides high efficiency even at light loads.

Applications

- Small data centre
- Medium data centre
- Network & Server
- Industrial controls & process automation
- Medical equipment
- Building automation

Power factor 1
No costs related to electrical infrastructure oversizing and power factor correction.

Continuous savings
Patented Green Conversion technology provides high efficiency and extended life on UPS critical components and batteries.

Compact footprint
Efficient compact UPS with transformer free design.
Ingenio Plus: compact and very high efficient solution perfect for supplying reliable uninterrupted quality power to all critical applications.

Features and benefits

- Green Conversion technology, high efficiency even at light load and the lowest TCO in its category.
- Full rated output power (pf=1), ensuring optimal UPS sizing and utilization.
- Transformer free design for compact, light and sustainable systems.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and THDi<3% for maximum upstream sources compatibility.
- Internal battery configurations up to 80 kVA for less floor space and maximum flexibility.
- Dynamic Charging Mode (DCM) for maximum versatility in long autonomy and low charging time applications.
- Green Conversion Battery Care (GCBC), for extended battery service life.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliant with all international product standards for maximum quality guarantee.
- Backfeed protection contact.
- Lithium Battery compatible on selected models.

Back up time with internal batteries

<table>
<thead>
<tr>
<th>Power</th>
<th>0'</th>
<th>5'</th>
<th>10'</th>
<th>15'</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 kVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60 kVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 kVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 kVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Optional touch screen display (on 60-160 kW UPS)

Main options

- Isolation transformer.
- Transformers/autotransformers for isolation or voltage adjustment.
- Battery voltage temperature compensation.
- External maintenance bypass wall-mounted box.
- Battery fuse switch wall-mounted box.
- Battery cabinets for long autonomy times.
- Parallel redundant up to 8 units for system redundancy.
- Load-sync option.
- Common battery (on 60-160 kVA range).
- Backfeed protection trip coil.
- Separate rectifier and bypass input for INGENIO PLUS 30-40 kVA.
- Colour touch screen 7" display on 60-160 kVA UPS (*)
### INGENIO PLUS technical data

<table>
<thead>
<tr>
<th>Rating (kVA)</th>
<th>30</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>160</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power (kW)</td>
<td>30</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>125</td>
<td>160</td>
</tr>
<tr>
<td>UPS dimensions WxDxH (mm)</td>
<td>465x650x1230</td>
<td>560x940x1500</td>
<td>560x940x1800</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UPS weight (kg)</td>
<td>120</td>
<td>140</td>
<td>190</td>
<td>215</td>
<td>320</td>
<td>360</td>
<td>380</td>
</tr>
<tr>
<td>UPS weight with internal battery (kg)</td>
<td>365</td>
<td>385</td>
<td>770</td>
<td>785</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Battery configuration</td>
<td>Internal or external, 360 to 372 cells, VRLA (other options)</td>
<td>External 360 to 372 cells, VRLA (other options)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max autonomy with int. battery 70% load (min)</td>
<td>11</td>
<td>7</td>
<td>12</td>
<td>8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Input

<table>
<thead>
<tr>
<th>Connection type</th>
<th>Hardwired 4w</th>
<th>Hardwired 4w (rectifier), 4w (bypass)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>400 Vac 3-phase with neutral (rectifier), 380/400/415 Vac 3-phase with neutral (bypass)</td>
<td></td>
</tr>
<tr>
<td>Voltage tolerance</td>
<td>-20%, +15% (rectifier), ±10% (bypass)</td>
<td></td>
</tr>
<tr>
<td>Frequency and range</td>
<td>50/60 Hz, 45 to 65 Hz</td>
<td></td>
</tr>
<tr>
<td>Power factor</td>
<td>&gt;0.99</td>
<td></td>
</tr>
<tr>
<td>Current distortion (THD)</td>
<td>&lt;3%</td>
<td></td>
</tr>
</tbody>
</table>

### Output

<table>
<thead>
<tr>
<th>Connection type</th>
<th>Hardwired 4w</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>380/400/415 Vac 3-phase with neutral</td>
</tr>
<tr>
<td>Frequency</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Voltage regulation</td>
<td>Static: ±1%; Dynamic: IEC/EN 62040-3 Class 1</td>
</tr>
<tr>
<td>Power factor</td>
<td>Up to 1, without power derating</td>
</tr>
<tr>
<td>Overload capacity*</td>
<td>Inverter: 110% for 10 min, 125% for 5 min, 150% for 30 s; Bypass: 150% continuous, 1000% for 1 cycle</td>
</tr>
<tr>
<td>Efficiency (AC/AC)**</td>
<td>Up to 99%</td>
</tr>
</tbody>
</table>

### Connectivity and function extensions

| Front panel | Graphic display, mimic LED panel and keyboard, local EPO |
| Remote communication | Included: (30 to 160 kVA): backfeed protection monitoring contact. Included (60 to 160 kW): serial RS232 and USB, input terminal block (remote emergency power off, battery circuit breaker aux. cont. external maintenance bypass circuit breaker aux. cont. diesel mode aux. cont.) Optional: SNMP adapter (Ethernet), Web interface (Ethernet), Modbus-TCP/IP (Ethernet), Modbus-RTU (RS485), from Modbus-RTU to PROFIBUS DP adapter; SPDT contact relay board; remote system monitoring panel, UPS managing and server shutdown software |

### Optional function extensions

| Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit, load-sync for single UPS and load-sync box (2 UPS systems); other options on request |

### System

| Protection degree | IP 20 |
| Colour | RAL 9005 |
| Installation layout | 10 cm wall-gap, side by side installation allowed |
| Accessibility | Front and top access, bottom cable entry |

*conditions apply  **according to IEC/EN 62040-3

### Other features

**Environmental**

| UPS operating temperature range | 0°C to +40°C |
| UPS storage temperature range | -10°C to +70°C |
| Altitude (AMSL) | < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m |
| Audible noise at 1 m (dBA) | < 60 |

**Standards and certifications**

| Safety | IEC/EN 62040-1 |
| EMC | IEC/EN 62040-2 |
| Environment aspects | IEC/EN 62040-4 |
| Test and performance | IEC/EN 62040-3 |
| Protection degree | IEC 60529 |
| Marking | CE |

www.borri.it
UPS 3-PHASE

INGENIO MAX

from 200 kW to 500 kW
Low Total Cost of Ownership, high efficiency and compact solution for supplying reliable uninterrupted quality power to all critical applications in networking and medium to large data centre, health, finance, industrial processing, building and transportation markets and for TLC.

Applications

- Medium data centre
- Large data centre
- Network & Server
- Industrial controls & process automation
- Medical equipment
- Building automation

Very High Efficiency
Patented 3-level Green Conversion technology.

Compact footprint
Some of the most compact footprints on the market and full front access.

Reduced TCO
Flexible system up to 4 MW in a minimum space.

www.borri.it
**Ingenio Max:** highest online efficiency in its class for a wide range of high power critical applications.

**Features and benefits**
- Three level Green Conversion, for enhanced system efficiency, very low noise and the lowest TCO in its category.
- Full output power rating (pf=1), ensuring optimal UPS sizing and high flexibility for all types of loads.
- On-line double conversion transformer-free design for low PUE and TCO.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and THDi<3% for maximum upstream sources compatibility.
- Dynamic Charging Mode (DCM) for maximum versatility in long autonomy and low charging time applications.
- Green Conversion Battery Care (GCBC) for extended battery service life.
- Increased power density, for unmatched floorspace saving.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliant with international product standards for maximum quality guarantee.
- Colour touch screen 10” display for easy monitoring and control.
- Lithium Battery compatible.

**Green Conversion Battery Care vs conventional float charge enhanced battery service life**

<table>
<thead>
<tr>
<th>Battery capacity %</th>
<th>Battery life (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>Without Green Conversion</td>
</tr>
<tr>
<td>80%</td>
<td>With Green Conversion</td>
</tr>
<tr>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>20%</td>
<td></td>
</tr>
</tbody>
</table>

**Main options**
- Transformers/autotransformers for isolation or voltage adjustment.
- Battery fuse switch wall-mounted box.
- Battery cabinets for long autonomy times.
- Parallel up to 8 units for system redundancy.
- Load-sync option.
- Common battery on selected models.
- Backfeed protection trip coil.
## INGENIO MAX technical data

<table>
<thead>
<tr>
<th>Features</th>
<th>200 kW</th>
<th>250 kW</th>
<th>300 kW</th>
<th>400 kW</th>
<th>500 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rating (kVA)</strong></td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>400</td>
<td>500</td>
</tr>
<tr>
<td><strong>Nominal Power (kW)</strong></td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>400</td>
<td>500</td>
</tr>
<tr>
<td><strong>UPS dimensions WxDxH (mm)</strong></td>
<td>880x970x1978</td>
<td>1430x970x1978</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>UPS weight (kg)</strong></td>
<td>530</td>
<td>745</td>
<td>675</td>
<td>1080</td>
<td>1250</td>
</tr>
<tr>
<td><strong>Battery configuration</strong></td>
<td>External 360 to 372 cells, VRLA (other options)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Input</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connection type</strong></td>
<td>Hardwired 4w (rectifier), 4w (bypass)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nominal voltage</strong></td>
<td>400 Vac 3-phase with neutral (rectifier), 380/400/415 Vac 3-phase with neutral (bypass)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Voltage tolerance</strong></td>
<td>-20%, +15% (rectifier); ±10% (bypass)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Frequency and range</strong></td>
<td>50/60 Hz, 45 to 65 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power factor</strong></td>
<td>&gt;0.99</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Current distortion (THDi)</strong></td>
<td>&lt;3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connection type</strong></td>
<td>Hardwired 4w</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nominal voltage</strong></td>
<td>380/400/415 Vac 3-phase with neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>50/60 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Voltage regulation</strong></td>
<td>Static: ±1%; Dynamic: IEC/EN 62040-3 Class 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power factor</strong></td>
<td>Up to 1, without power derating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Efficiency (AC/AC)</strong>*</td>
<td>Up to 99%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Classification by IEC/EN 62040-3</strong></td>
<td>VFI-SS-11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connectivity and function extensions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Front panel</strong></td>
<td>10” colour touch screen display, 1024x600 pixels</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remote communication</strong></td>
<td>Included: serial RS232 and USB, backfeed protection monitoring contact, input terminal block (remote emergency power off, battery circuit breaker aux. cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux. cont., external output circuit breaker aux. cont., remote transfer to bypass mode). Optional: SNMP adapter (Ethernet), Web interface (Ethernet), ModBus-TCP/IP (Ethernet), ModBus-RTU (RS485), from ModBus-RTU to PROFIBUS DP adapter, SPD1 contact relay board, remote system monitoring panel, UPS managing and server shutdown software</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Optional features</strong></td>
<td>Common battery; central bypass; cold start; Input /Output/Bypass isolation transformer; other I/O voltages 480/690 Vac with autotransformers; external maintenance bypass; battery fuse switch box; custom battery cabinets; battery thermal probe; parallel kit; load-sync for single UPS and load-sync box (3 UPS systems); top cable entry; backfeed tripping coil for bypass disconnector; other options on request</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>System</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Internal manual bypass</strong></td>
<td>Included as standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protection degree</strong></td>
<td>IP 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>RAL 9005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Installation layout</strong></td>
<td>Wall, back to back and side by side installation allowed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td>Front access, bottom cable entry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*according to IEC/EN 62040-3

## Other features

### Environmental
- **Operating temperature range**: 0°C to +40°C
- **Storage temperature range**: -10°C to +70°C
- **Altitude (AMSL)**: < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
- **Audible noise at 1 m (dBA)**: < 65

### Standards and certifications
- **Safety**: IEC/EN 62040-1
- **EMC**: IEC/EN 62040-2
- **Environment aspects**: IEC/EN 62040-4
- **Test and performance**: IEC/EN 62040-3
- **Protection degree**: IEC 60529
- **Marking**: CE
UPS 3-PHASE

B9000FXS

from **60 kVA** to **300 kVA**

www.borri.it
Transformer-based UPS designed for safety and emergency systems, process control devices and machine tooling, critical infrastructures, medical equipment, small and medium data centres and monolithic power protection.

**Applications**
- Small data centre
- Medium data centre
- Network & Server
- Industrial controls & process automation
- Medical equipment
- Building automation

**Rugged design and high reliability**
Customisable UPS for specific process industry applications.

**Transformer based design**
Reliable design with output isolation transformer for DC/AC galvanic protection.

**Minimum maintenance costs**
Full front accessibility to all components and high material quality extremely reduce servicing.

Transformer-based UPS designed for safety and emergency systems, process control devices and machine tooling, critical infrastructures, medical equipment, small and medium data centres and monolithic power protection.
B9000FXS: reliable, rugged transformer based power solution.

Features and benefits

- Built-in inverter transformer for DC/AC galvanic protection of industrial type loads.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and THD<3% for maximum upstream sources compatibility.
- Front access to all critical components for easy maintenance.
- Hot connection/disconnection of parallel units for easy system resizing.
- Accurate battery management providing ripple current minimization charge current/voltage control as per batteries manufacturers’ specifications and automatic/manual battery test for maximum battery expected life preservation.
- Dynamic Charging Mode (DCM) for maximum versatility in long autonomy and low charging time applications.
- Smart parallel management in load sharing, load synchronization of single UPS systems and load synchronization of two paralleled systems for optimum protection.
- Dual DSP plus microcontroller logics for top performance and reliability.
- CAN-bus based distributed parallel control ensuring high load sharing accuracy and no single point of failure in parallel systems.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliant with all international product standards for maximum quality guarantee.

Dynamic Charging Mode (DCM)

The battery charging current can be set above the nominal, up to the DCM limit, in order to manage high capacity battery packs. The extra charging power is fed to the battery, as long as the load does not requires it. This is a firmware enabled feature.

Main options

- Backfeed protection bypass contactor.
- Bypass isolation transformer.
- Transformers/autotransformers for voltage adjustment.
- Battery voltage temperature compensation.
- External maintenance bypass wall-mounted box.
- Battery fuse switch wall-mounted box.
- Associated battery cabinets for long autonomy times.
- Parallel redundant up to 6 units or system redundancy.
- Load-sync option.
- Top cable entry.
### B9000FXS technical data

<table>
<thead>
<tr>
<th>Rating (kVA)</th>
<th>60</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>160</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power (kW)</td>
<td>54</td>
<td>72</td>
<td>90</td>
<td>112.5</td>
<td>144</td>
<td>180</td>
<td>225</td>
<td>270</td>
</tr>
<tr>
<td>Dimensions WxDxH (mm)</td>
<td>815x825x1670</td>
<td>1217x853x1900</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>UPS weight (kg)</td>
<td>570</td>
<td>600</td>
<td>625</td>
<td>660</td>
<td>715</td>
<td>970</td>
<td>1090</td>
<td>1170</td>
</tr>
<tr>
<td>Battery configuration</td>
<td>External, 300 to 312 cells, VRLA (other options)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Input
- **Connection type**: Hardwired 3w (rectifier), 4w (bypass)
- **Nominal voltage**: 400 Vac 3-phase (rectifier), 380/400/415 Vac 3-phase with neutral (bypass)
- **Voltage tolerance**: -20%, +15% (rectifier), ±10% (bypass)
- **Frequency and range**: 50/60 Hz, 45 to 65 Hz
- **Power factor**: 0.99
- **Current distortion (THDi)**: <3%

#### Output
- **Connection type**: Hardwired 4w
- **Nominal voltage**: 380/400/415 Vac 3-phase with neutral
- **Frequency**: 50/60 Hz
- **Voltage regulation**: Static: ±1% ; Dynamic: IEC/EN 62040-3 Class 1
- **Power factor**: Up to 0.9, without power derating
- **Overload capacity**: Inverter: 125% for 10 min, 150% for 1 min, 199% for 10 s; bypass: 150% continuous, 1000% for 1 cycle
- **Efficiency (AC/AC)**: Up to 98%
- **Classification by IEC/EN 62040-3**: VFI-SS-1

#### Connectivity and function extensions
- **Front panel**: Graphic display, mimic LED panel and keyboard, local EPO
- **Remote communication**
  - Included: serial RS232 and USB; input terminal block for: remote emergency power off (REPO), battery circuit breaker aux. cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux. contact
  - Optional: SNMP adapter (Ethernet), Web interface (Ethernet), ModBus-TCP/IP (Ethernet), ModBus-RTU (RS485), ModBus-RTU to PROFIBUS DP adapter; SPD contact relay board; remote system monitoring panel; UPS managing and server shutdown software
- **Optional function extensions**: Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; parallel kit, top cable entry; load-sync for single UPS and load-sync box (2 UPS systems); backfeed protection; other options on request

#### System
- **Protection degree**: IP 20 (other options)
- **Colour**: RAL 7016 (other options)
- **Installation layout**: Wall, back to back and side by side installation allowed
- **Accessibility**: Front and top access, bottom cable entry

*according to IEC/EN 62040-3

### Other features

#### Environmental
- **Operating temperature range**: 0°C to +40°C
- **Storage temperature range**: -10°C to +70°C
- **Altitude (AMSL)**: < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
- **Audible noise at 1 m (dBA)**: < 62

#### Standards and certifications
- **Safety**: IEC/EN 62040-1
- **EMC**: IEC/EN 62040-2
- **Environment aspects**: IEC/EN 62040-4
- **Test and performance**: IEC/EN 62040-3
- **Protection degree**: IEC 60529
- **Marking**: CE
UPS 3-PHASE

B9600FXS

from 400 kVA to 800 kVA
Transformer-based UPS designed for safety and emergency systems, process control devices and machine tooling, critical infrastructures, medical equipment, small and medium data centres monolithic power protection.

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**Applications**

- Medium data centre
- Network & Server
- Industrial controls & process automation
- Medical equipment
- Building automation

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**Rugged design and high reliability**

Customisable UPS for specific process industry applications.

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**Transformer based design**

Reliable design with output isolation transformer for DC/AC galvanic protection.

---

**Minimum maintenance costs**

Full front accessibility to all components and high material quality extremely reduce servicing.

---

Transformer-based UPS designed for safety and emergency systems, process control devices and machine tooling, critical infrastructures, medical equipment, small and medium data centres monolithic power protection.
**B9600FXS**: reliable, high power transformer based power solution.

**Features and benefits**

- Built-in inverter transformer for DC/AC galvanic protection of industrial type loads.
- Full IGBT technology and electronic PFC, ensuring 0.99 input PF and THDi<3% for maximum upstream sources compatibility.
- Front access to all critical components for easy maintenance.
- Included backfeed bypass contactor for complete protection and operators’ safety without additional installation costs.
- Hot connection/disconnection of parallel units for easy system resizing.
- Accurate battery management providing ripple current minimization charge current/voltage control as per batteries manufacturers’ specifications and automatic/manual battery test for maximum battery expected life preservation.
- Dynamic Charging Mode (DCM) for maximum versatility in long autonomy and low charging time applications.
- Smart parallel management in load sharing, load synchronization of single UPS systems and load synchronization of two paralleled systems for optimum protection.
- Dual DSP plus microcontroller logics for top performance and reliability.
- CAN-bus based distributed parallel control ensuring high load sharing accuracy and no single point of failure in parallel systems.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliant with all international product standards for maximum quality guarantee.

**Dynamic Charging Mode (DCM)**

The battery charging current can be set above the nominal, up to the DCM limit, in order to manage high capacity battery packs. The extra charging power is fed to the battery, as long as the load does not requires it. This is a firmware enabled feature.

**Main options**

- Bypass isolation transformer.
- Transformers/autotransformers for voltage adjustment.
- Battery voltage temperature compensation.
- Battery fuse switch wall-mounted box.
- Associated battery cabinets for long autonomy times.
- Parallel redundant up to 6 units for system redundancy.
- Load-sync option.
- Top cable entry.
## B9600FXS technical data

<table>
<thead>
<tr>
<th>Rating (kVA)</th>
<th>400</th>
<th>500</th>
<th>600</th>
<th>800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power (kW)</td>
<td>360</td>
<td>450</td>
<td>540</td>
<td>720</td>
</tr>
<tr>
<td>Dimensions WxDxH (mm)</td>
<td>1990x950x1920</td>
<td>2440x950x2020</td>
<td>3640x950x1920</td>
<td></td>
</tr>
<tr>
<td>UPS weight (kg)</td>
<td>1955</td>
<td>2482</td>
<td>2535</td>
<td>3600</td>
</tr>
<tr>
<td>Battery configuration</td>
<td>External, 300 to 312 cells, VRLA (other options)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Input

- **Connection type**
  - Hardwired 3w (rectifier), 4w (bypass)
- **Nominal voltage**
  - 400 Vac 3-phase (rectifier); 380/400/415 Vac 3-phase with neutral (bypass)
- **Voltage tolerance**
  - -20%, +15% (rectifier); ±10% (bypass)
- **Frequency and range**
  - 50/60 Hz, 45 to 65 Hz
- **Power factor**
  - 0.99
- **Current distortion (THDi)**
  - <3%

### Output

- **Connection type**
  - Hardwired 4w
- **Nominal voltage**
  - 380/400/415 Vac 3-phase with neutral
- **Frequency**
  - 50/60 Hz
- **Voltage regulation**
  - Static: ±1%; Dynamic: IEC/EN 62040-3 Class 1
- **Power factor**
  - Up to 0.9, without power derating
- **Overload capacity**
  - Inverter: 125% for 10 min, 150% for 1 min; 199% for 10 s; bypass: 150% continuous, 1000% for 1 cycle
- **Efficiency (AC/AC)**
  - Up to 98%
- **Classification by IEC/EN 62040-3**
  - VFI-SS-11

### Connectivity and function extensions

- **Front panel**
  - Graphic display, mimic LED panel and keyboard, local EPO
- **Remote communication**
  - Included: serial RS232 and USB; input terminal block for: remote emergency power off (REPO), battery circuit breaker aux. cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux. contact
  - Optional: SNMP adapter (Ethernet), Web interface (Ethernet), ModBus-TCP/IP (Ethernet); ModBus-RTU (RS485); ModBus-RTU to PROFIBUS DP adapter; SFDT contact relay board; remote system monitoring panel; UPS managing and server shutdown software

### System

- **Protection degree**
  - IP 20 (other options)
- **Colour**
  - RAL 7016 (other options)
- **Installation layout**
  - Wall, back to back and side by side installation allowed
- **Accessibility**
  - Front and top access, bottom cable entry

### Other features

- **Environmental**
  - Operating temperature range: 0°C to +40°C
  - Storage temperature range: -10°C to +70°C
  - Altitude (AMSL): < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
  - Audible noise at 1 m (dBA): < 62

- **Standards and certifications**
  - Safety: IEC/EN 62040-1
  - EMC: IEC/EN 62040-2
  - Environment aspects: IEC/EN 62040-4
  - Test and performance: IEC/EN 62040-3
  - Protection degree: IEC 60529
  - Marking: CE
SCALABLE HI-POWER 3-PHASE UPS

INGENIO MAX XT

from 750 kW to 2.1 MW
Scalable, high efficiency UPS system supplying reliable uninterrupted quality power to all critical applications. High efficiency operating modes and easy hot maintenance allow for lowest Capex and Opex. Flexible configuration and positioning make it totally adaptable to your facility and business.
Ingenio Max XT: scalable, flexible and efficient solution for both data centre and critical applications.

Features and benefits

- 250 kW or 300 kW MPM scalable power modules rated at 40°C operating temperature, for lower TCO and high flexibility to grow on demand.
- Patented 3-Level Green Conversion technology for highest efficiency with optimal component count to increase reliability.
- Selectable hi-efficiency modes of operation.

- >96% VFI online efficiency starting from 40% load for very low TCO and meeting local regulations for subsidies (applies in some countries).
- Up to 99% high efficiency mode.
- Scalable up to 2.1 MW unit power, for N+1 and A+B redundant configurations.
- Available in Central or Distributed Static Bypass and Common or Modular Battery.

- Hot maintainable modules (VFI), reducing mean time to repair and ensuring no system downtime.
- Innovative design, resulting in reduced footprint, ease of maintenance and low audible noise levels.
- Hot scalability (in VFI mode) option to increase the availability of your system.
- Flexible and customisable mechanical features like top or bottom connections, L- or back to back configuration ensuring maximum system design flexibility.
- Centralised 10” colour touch screen display providing all user info and history information at a glance.
- Green Conversion Battery Care (GCBC) for extended battery service life.
- Lithium Battery compatible.

Main options

- Hot-Scalable Extension module.
- Input Protection (Input and Bypass).

- 50 kA and 100 kA Input SC withstand.
- Peak Shaving.

- Load-sync option.
- Backfeed protection trip coil.

Fully Scalable System

Power expansion or redundancy can be implemented at a later stage by installing additional MPM modules up to 2.1 MW.
## INGENIO MAX XT technical data

<table>
<thead>
<tr>
<th>Rating (kVA)</th>
<th>750</th>
<th>900</th>
<th>1000</th>
<th>1200</th>
<th>1250</th>
<th>1500</th>
<th>1800</th>
<th>2100</th>
</tr>
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<tbody>
<tr>
<td>N Nominal Power (kW)</td>
<td>750</td>
<td>900</td>
<td>1000</td>
<td>1200</td>
<td>1250</td>
<td>1500</td>
<td>1800</td>
<td>2100</td>
</tr>
<tr>
<td>N+1 Nominal Power (kW)</td>
<td>500</td>
<td>600</td>
<td>750</td>
<td>900</td>
<td>1000</td>
<td>1200</td>
<td>1500</td>
<td>1800</td>
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<tr>
<td>MPM module size (kW)</td>
<td>250</td>
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<td>250</td>
<td>300</td>
<td>300</td>
<td>300</td>
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<td>300</td>
</tr>
<tr>
<td>UPS dimensions WxDxH (mm)*</td>
<td>4090x970x2100</td>
<td>4970x970x2100</td>
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<td>7580x1200x2100</td>
<td>8460x1200x2100</td>
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<tr>
<td>UPS weight (kg)*</td>
<td>3150</td>
<td>3300</td>
<td>4000</td>
<td>4250</td>
<td>4900</td>
<td>5200</td>
<td>6400</td>
<td>7300</td>
</tr>
<tr>
<td>Battery configuration</td>
<td>External 360 to 372 cells, VRLA (other options)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Input
- **Connection type**: Hardwired 4w (rectifier), 4w (bypass)
- **Nominal voltage**: 400 Vac 3-phase with neutral (rectifier), 380/400/415 Vac 3-phase with neutral (bypass)
- **Voltage tolerance**: -20%, +15% (rectifier); ±10% (bypass)
- **Frequency and range**: 50/60 Hz, 45 to 65 Hz
- **Power factor**: 0.99
- **Current distortion (THD)**: <3%

### Output
- **Connection type**: Hardwired 4w
- **Nominal voltage**: 380/400/415 Vac 3-phase with neutral
- **Frequency**: 50/60 Hz
- **Voltage regulation**: Static: ±1%; Dynamic: IEC/EN 62040-3 Class 1
- **Power factor**: Up to 1, without power derating
- **Overload capacity**: Inverter: 110% for 10 min, 125% for 5 min, 150% for 30 s; bypass: 125% continuous, 1000% for 1 cycle
- **Efficiency (AC/AC)**: Up to 99%
- **Classification by IEC/EN 62040-3**: VFI-SS-1

### Connectivity and function extensions
- **Front panel**: 10" colour touch screen display, 1024x600 pixels
- **Remote communication**: Included: serial RS232 and USB, input terminal block (remote emergency power off, battery circuit breaker aux. cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux. cont., external output circuit breaker aux. cont., remote transfer to bypass mode); SPDT contact relay board, Modbus-RTU (RS485)
  - **Optional**: Modbus-TCP/IP (Ethernet), Modbus-RTU to PROFIBUS DP adapter
- **Optional features**: Isolation transformer, custom battery cabinets, battery thermal probe, load-sync, other options on request

### System
- **Protection degree**: IP 20
- **Colour**: RAL 9005
- **Installation layout**: Wall, back to back and side by side installation allowed
- **Accessibility**: Front and top access, bottom and top cable entry
- **Scalability**: Up to 2.1 MW

*dimensions may vary with configuration. Contact our sales team for confirmation  **conditions apply  ***according to IEC/EN 62040-3

### Other features

#### Environmental
- **Operating temperature range**: 0°C to +40°C with no power derating
- **Storage temperature range**: -10°C to +70°C
- **Altitude (AMSL)**: < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
- **Audible noise at 1 m (dBA)**: 65

#### Standards and certifications
- **Safety**: IEC/EN 62040-1
- **EMC**: IEC/EN 62040-2
- **Environment aspects**: IEC/EN 62040-4
- **Test and performance**: IEC/EN 62040-3
- **Protection degree**: IEC 60529
- **Marking**: CE

[www.borri.it](http://www.borri.it)
MODULAR HI-POWER
3-PHASE UPS

UPSAVER 3VO
from 670 kW to 2.67 MW
Borri 3rd Generation UPSaver 3vo high power modular UPS delivers unsurpassed performance for large and hyperscale data centres providing the highest level of availability for this power range, lowest power consumption and TCO.

With the most compact high efficiency 333 kW modules the system can be scaled up to a 2.67 MW in a single UPS or power paralleled up to 21 MW for higher power.

For more info click on the QR or contact our Borri Data Centre Sales Team.

BENEFITS

Highest overall efficiency
Highest efficiency means cost savings to your data centre. UPSaver provides VFI high efficiency >96% from 30% loads to reduce costs in actual site conditions thanks to 3-Level Green Conversion technology, multi-mode high efficiency operations and our module current parallel technology.

Modular hot swappable
Hot swappable and hot serviceable (VFI) power modules ensuring lowest MTTR for highest overall availability.

Flexible 3D scalability
Flexible mechanical installation and hot power upgrade.
EMERGENCY CENTRAL SYSTEMS
1- and 3-PHASE

ECS

from 10 kVA to 160 kVA
Emergency Central Systems designed in compliance to the international EN 50171 standard, supplying uninterrupted quality power to emergency and safety installations. Suitable for emergency and safety systems, emergency lighting, fire fighting and safety equipment.

Applications

- Emergency and safety systems
- Emergency lighting
- Fire fighting
- Safety equipment

Compliant with EN 50171

Ensuring a setup and maintenance cost reduction and easier periodical checks.

High recharge current

Battery charger providing 80% autonomy within 12 hours.

High overload capacity

Designed to withstand 120% permanent power overload capability.
**ECS**: designed to guarantee power supply to your safety system in case of mains supply failure.

**Compliance to EN 50171 standard**
- 120% permanent power overload capability.
- Batteries with 10 years life expectancy.
- Battery polarity reversal protection.
- Deep discharge protection.
- Short circuit protection.
- Battery charger to provide 80% autonomy within 12 hours.
- Battery charger temperature compensation.
- IP20 metal enclosure as per EN 60598-1.

**Features and benefits**
- Green Conversion technology, providing high efficiency and UPS components’ life extension.
- Compact transformer free design for small footprint.
- Easy access for fast maintenance and low MTTR.
- Acid proof battery cabinets and racks.

**Main options**
- AO+EO mode kit.
- Isolation transformer.
- Separate rectifier and bypass input for E8000 ECS 3-phase output models.
- Parallel kit.
- Backfeed protection (standard with 10, 15 and 20 kVA ratings).

---

**E8000 ECS 10-20 kVA**

**INGENIO ECS 100-160 kVA**
Operating mode

Changeover mode - Always On (AO)
Loads are normally fed by the bypass line, during a mains failure the inverter takes over the load without interruption.

Mode without interruption - Always On (AO)
Loads are normally fed by the inverter output.

Changeover mode with additional control switching device for partial switching of the load - Always On + Emergency Only (AO+EO)
The “Always on” part of the load is fed continuously whilst the “Emergency Only” part is only fed upon mains failure.
### E8031 ECS - E8033 ECS technical data

<table>
<thead>
<tr>
<th>Rating (kVA)</th>
<th>10</th>
<th>15</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power (kW)</td>
<td>9</td>
<td>13.5</td>
<td>18</td>
</tr>
<tr>
<td>Nominal power as per EN 50171 (kW)</td>
<td>7.5</td>
<td>11.3</td>
<td>15</td>
</tr>
<tr>
<td>UPS dimensions WxDxH (mm)</td>
<td>450x670x1200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UPS weight (kg)</td>
<td>100</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>Battery configuration</td>
<td>External, 360 to 372 cells, VRLA (other options)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Input**

- **Connection type**
  - 3/1-phase units: hardwired 4w (rectifier), 2w (bypass)
  - 3/3-phase units: hardwired 4w (separate bypass input available on request)

- **Nominal voltage**
  - 400 Vac 3-phase with neutral (rectifier)
  - 220/230/240 Vac 3/1-phase bypass

- **Voltage tolerance**
  - -20%, +15% (rectifier), ±10% (bypass)

- **Frequency and range**
  - 50/60 Hz, 45 to 65 Hz

- **Power factor**
  - 0.99

- **Current distortion (THDi)**
  - <4%

**Output**

- **Connection type**
  - 3/1-phase units: hardwired 2w
  - 3/3-phase units: hardwired 4w

- **Nominal voltage**
  - 3/1-phase units: 220/230/240 Vac 1-phase
  - 3/3-phase units: 380/400/415 Vac 3-phase with neutral

- **Frequency**
  - 50/60 Hz

- **Voltage regulation**
  - Static: ±1%; Dynamic: IEC/EN 62040-3 Class 1

- **Power factor**
  - Up to 0.9, without power derating

- **Overload capacity**
  - 120% continuous, 150% for 10 min

- **Efficiency (AC/AC)**
  - Up to 98%

**Connectivity and function extensions**

- **Front panel**
  - Graphic display, mimic LED panel and keyboard, local EPO

- **Remote communication**
  - Included: serial RS232 and USB, terminal block for battery breaker auxiliary contact. Optional: input terminal block (remote emergency power off, external maintenance bypass circuit breaker aux. cont., diesel mode aux. cont.), SNMP adapter (Ethernet), Web interface (Ethernet), Modbus-TCP/IP (Ethernet), Modbus-KTU (RS485), from Modbus-KTU to PROFIBUS DP adapter, SPDT contact relay board, remote system monitoring panel, UPS managing and server shutdown software

**Optional features**

- Isolation transformer; transformers/autotransformers for voltage adjustment; external maintenance bypass; custom battery cabinets; wall-mounted battery fuse switch box; battery thermal probe; load-sync for single UPS; ACO+EO mode kit; separate input for rectifier and bypass line (for 3-phase output models); parallel kit; other options on request

**System**

- **Protection degree**
  - IP 20

- **Colour**
  - RAL 7016

- **Installation layout**
  - 10 cm wall-gap, side by side installation allowed

- **Accessibility**
  - Front and top access, bottom cable entry

**Other features**

**Environmental**

- **Operating temperature range**
  - 0°C to +40°C

- **Storage temperature range**
  - -10°C to +70°C

- **Altitude (AMSL)**
  - < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m

- **Audible noise at 1 m (dBA)**
  - < 52

**Standards and certifications**

- **CPSS**
  - EN 50171

- **Quality assurance, environment, health and safety**

- **Safety**
  - IEC/EN 62040-1

- **EMC**
  - IEC/EN 62040-2

- **Environment aspects**
  - IEC/EN 62040-4

- **Test and performance**
  - IEC/EN 62040-3

- **Protection degree**
  - IEC 60529

- **Marking**
  - CE
INGENIO ECS technical data

<table>
<thead>
<tr>
<th>Rating (kVA)</th>
<th>30</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>160</th>
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</thead>
<tbody>
<tr>
<td>Nominal Power (kW)</td>
<td>30</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>125</td>
<td>160</td>
</tr>
<tr>
<td>Nominal power as per EN 50171 (kW)</td>
<td>25</td>
<td>33.3</td>
<td>50</td>
<td>67</td>
<td>83</td>
<td>104</td>
<td>133</td>
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<tr>
<td>UPS dimensions WxDxH (mm)</td>
<td>465x650x1230</td>
<td>560x940x1500</td>
<td>560x940x1800</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>UPS weight (kg)</td>
<td>120</td>
<td>140</td>
<td>190</td>
<td>215</td>
<td>320</td>
<td>360</td>
<td>380</td>
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<tr>
<td>Battery configuration</td>
<td>External, 360 to 372 cells, VRLA (other options)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Input

| Connection type | Hardwired 4w | Hardwired 4w (rectifier), 4w (bypass) |
| Nominal voltage | 400 Vac 3-phase with neutral (rectifier) | 380/400/415 Vac 3-phase with neutral (bypass) |
| Voltage tolerance | -20%, +15% (rectifier), ±10% (bypass) |
| Frequency and range | 50/60 Hz, 45 to 65 Hz |
| Power factor | >0.99 |
| Current distortion (THDi) | <3% |

Output

| Connection type | Hardwired 4w |
| Nominal voltage | 380/400/415 Vac 3-phase with neutral |
| Frequency | 50/60 Hz |
| Voltage regulation | Static: ±1% ; Dynamic IEC/EN 62040-3 Class 1 |
| Power factor | Up to 1, without power derating |
| Overload capacity* | 120% continuous, 150% for 10 min |
| Efficiency (AC/AC)** | Up to 99% |
| Classification by IEC/EN 62040-3 | VFI-SS-1 |

Connectivity and function extensions

| Front panel | Graphic display, mimic LED panel and keyboard, local EPO |
| Remote communication | Included: serial RS232 and USB; backfeed protection monitoring contact, input terminal block (remote emergency power off, battery circuit breaker aux. cont., external maintenance bypass circuit breaker aux. cont., diesel mode aux. cont.) |
| Optional features | Optional: SNMP adapter [Ethernet], Web interface [Ethernet], ModBus-TCP/IP [Ethernet], ModBus-RTU [RS485], from ModBus-RTU to PROFIBUS DP adapter, SPDT contact relay board, remote system monitoring panel, UPS managing and server shutdown software |

System

| Protection degree | IP 20 |
| Colour | RAL 9005 |
| Installation layout | 10 cm wall-gap, side by side installation allowed |
| Accessibility | Front and top access, bottom cable entry |

Other features

| Environmental | Operating temperature range | 0°C to +40°C |
|               | Storage temperature range | -10°C to +70°C |
|               | Altitude (AMSL) | < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m |
|               | Audible noise at 1 m (dBA) | < 60 |
| Standards and certifications | CPSS | EN 50171 |
| Safety | IEC/EN 62040-1 |
| EMC | IEC/EN 62040-2 |
| Environment aspects | IEC/EN 62040-4 |
| Test and performance | IEC/EN 62040-3 |
| Protection degree | IEC 60529 |
| Marking | CE |
STATIC TRANSFER SWITCHES
1- and 3-PHASE

STS

from 16 A to 3000 A
1-Phase and 3-Phase static transfer switches for seamless load transfer in dual path power systems. The STS rugged design and high reliability provides supply redundancy and prevents fault propagation.

**Applications**

- **No break seamless transfers**
  
  Automatically transferring loads to alternative power sources when the primary power source fails or is not available.

- **Short circuit protection**
  
  Ensuring maximum source protection in dual feed applications.

- **High availability**
  
  Thanks to source separation, dual maintenance bypass and redundant critical paths.
1-phase static transfer switch series designed to offer solutions for the protection of single-phase loads.

**Features and benefits**
- Dual redundant power supplies to control boards, for increased availability.
- Redundant cooling and fan failure monitoring, for reliable operation.
- Real-time SCR fault sensing, preventing fault propagation.
- High overload capability, for robust electrical design.
- ITS maintenance switch, for hot swap maintainability.
- Compact 19” rack system design, for easy integration.
- LCD/LED display, providing user friendly interface.
- Comprehensive set of communication options for total remote monitoring of equipment operation.

**Main options**
- ITS maintenance switch.
- SNMP interface.
- RS485 ModBus interface.

**ITS maintenance switch main features**
- 16 A and 32 A version.
- 6 x 40 A input terminal board.
- Zero switching time.

**STS block diagram**

![STS block diagram](image-url)
# STS 16 - STS 32 technical data

<table>
<thead>
<tr>
<th>Model</th>
<th>STS 16</th>
<th>STS 32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating (A)</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>Dimensions WxDxH (mm)</td>
<td>440x275x88</td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

## Input
- **Connection type**: Hardwired 5w
- **Nominal voltage**: 200/208/220/230/240 Vac 1-phase
- **Voltage tolerance**: ± 5% (up to ±20%)
- **Absolute maximum voltage range**: 150 Vac to 300 Vac
- **Frequency and range**: 50/60 Hz, ± 5% (up to ±20%)
- **Source harmonic voltage content**: Unlimited
- **Transfer phase angle**: 5° to 20°

## Output
- **Connection type**: 8 IEC-C 1 3, hardwired 3w
- **Nominal voltage**: 200/208/220/230/240 Vac 1-phase
- **Frequency**: 50/60 Hz
- **Transfer time**: 2 to 6 ms
- **Transfer mode**: Break before make, transfer inhibit on fault
- **Load power factor**: 1 to 0.3
- **Maximum crest factor**: 3:1
- **THD current feedback from load**: Unlimited
- **Overload capacity**: 125% for 1 min, 150% for 30 s, 200% for 5 s
- **Efficiency (AC/AC)**: 99%

## Connectivity and function extensions
- **Front panel**: Graphical LCD display
- **Remote communication**: Included: RS-232 ModBus, USB, voltage free relay contacts; Optional: one slot for SNMP adapter or RS-485 ModBus adapter

## System
- **Protection degree**: IP 20
- **Colour**: RAL 9005
- **Installation layout**: Rack mounted
- **Accessibility**: Front and rear

## Other features
- **Environmental**
  - Operating temperature range: -5°C to +40°C
  - Storage temperature range: -10°C to +70°C
  - Altitude (AMSL): < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
  - Audible noise at 1 m (dBA): < 60

## Standards and certifications
- **Safety**: IEC 60950-1
- **EMC**: EN 55022, EN 55024
- **Transfer voltage limit**: IEEE Standard 446
- **Protection degree**: IEC 60529
- **Performance**: IEC/EN 62310-3
- **Marking**: CE
3-phase centralised static transfer switch series designed to offer solutions for the protection of loads even in harsh environment.

**Features and benefits**

- Continuous monitoring of voltage and frequency and automatic instant (<4 ms) transfers for secure power switching without cross connection between sources.
- Short circuit transfer inhibit for robust load protection.
- SCR fault detection and backfeed protection for maximum upstream safety.
- Dual manual bypass for complete source independence during maintenance.
- True oversized neutral (2x In), redundant cooling with monitored fans and redundant (3x3) internal power supply in all system control boards for top product reliability in high availability applications.
- Full front access for easy maintenance.
- Bottom and top cable entry for maximum installation versatility.
- Comprehensive set of communication options for total remote monitoring of equipment operation.
- Fully compliance with all international product standards for maximum quality guarantee.
- Circuit breakers for reliable and safe tripping on all operating conditions.

**Main options**

- Isolation transformer.
- Plug-in breakers.
- Output distribution panels.
- Panel builder version.
- Additional SPDT contact relay board.
- 4-pole configuration.
- Operation without neutral.

**STS block diagram**

- SOURCE 1
- INPUT 1
- OUTPUT
- LOADS
- SOURCE 1
- INPUT 2
- BYPASS 1
- BYPASS 2

**Dry contact relay card**

(Included)

To send UPS status to PLC’s, SCADA’s or AS400’s by voltage free SPDT contacts

**RS485 ModBus-RTU port**

(Included)

To send UPS status to BMS’s by RS485 connection and ModBus-RTU protocol. For remote monitoring and remote service
### STS 300 technical data

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<thead>
<tr>
<th>Rating (A)**</th>
<th>100</th>
<th>250</th>
<th>400</th>
<th>630</th>
<th>800</th>
<th>1000</th>
<th>1250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions WxDxH (mm)**</td>
<td>820x835x1475</td>
<td>1220x860x1900</td>
<td>2000x1000x2100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (kg)**</td>
<td>265</td>
<td>290</td>
<td>305</td>
<td>615</td>
<td>660</td>
<td>1000</td>
<td>1450</td>
</tr>
</tbody>
</table>

**Input**
- Connection type: Hardwired 4w
- Nominal voltage: 208/380/400/415/440/480 Vac 3-phase with neutral
- Voltage tolerance: ±10% (up to ±20% on request)
- Frequency and range: 50/60 Hz, ±2 Hz (up to ±4 Hz on request)
- Source harmonic voltage content: Unlimited (if THD>20% transfer time ≤10ms)
- Transfer phase angle: 5° to 30°

**Output**
- Connection type: Hardwired 4w
- Nominal voltage: 208/380/400/415/440/480 Vac 3-phase with neutral
- Frequency: 50/60 Hz
- Transfer time: ≤4 ms
- Transfer mode: Break before make, transfer inhibit on fault
- Load power factor: 1 to 0.3
- Maximum crest factor: 3:1
- THD current feedback from load: Unlimited
- Overload capacity**: 125% for 30 min, 150% for 10 min, 200% for 30 s, 2000% for 1 cycle, 4000% for ½ cycle
- Efficiency (AC/AC): >99%

**Connectivity and function extensions**
- Front panel: Graphical LCD display, mimic LED panel and keyboard
- Remote communication: Included: dry contact relay card, RS232 and RS485 serial ports, ModBus-RTU protocol
  
Optional: additional dry contact relay card

**Optional function extensions**
- 4-pole configuration; plug-in circuit breakers; operation without neutral; panel builder execution; output distribution panels; isolation transformer

**System**
- Protection degree: IP 20 (other options)
- Colour: RAL 9005 (other options)
- Installation layout: Wall, back to back and side by side installation allowed
- Accessibility: Front access, bottom and top cable entry

**Other features**
- Operating temperature range: 0°C to +40°C
- Storage temperature range: -10°C to +70°C
- Altitude (AMSL): < 1000 m without power reduction, > 1000 m with reduction of 0.5% per 100 m
- Audible noise at 1 m (dBA): <62

**Environmental**
- Audible noise at 1 m (dBA): <62
- Safety: IEC/EN 62310-1
- EMC: IEC/EN 62310-2
- Breakers: IEC/EN60947-3
- Transfer voltage limits: IEEE Standard 446
- Protection degree: IEC 60529
- Performance: IEC/EN 62310-3
- Marking: CE

---

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GUARDIAN NET REMOTE DIAGNOSTICS AND PREVENTIVE MONITORING

Guardian Net improves Business Continuity by remote diagnostics and preventive monitoring of your UPS system and peripherals by preventing unpredictable anomalies to become failures.

Early detection of any deviations of critical parameter and prompt reaction in case of alarms result in extended uptime and enhanced operational efficiency. Real time monitoring and periodic reports on the health of equipment provide complete peace of mind, delivering unparalleled support experience.
**BENEFITS**

**Extending Uptime**
Together with a Borri Maintenance Contract, Guardian Net allows our Service specialists to take care of your system by monitoring its parameters and quickly reacting to anomalies.

**Increasing Business Continuity**
Guardian Net provides you with continuous monitoring of your system, giving you comprehensive operational awareness and providing technical recommendations and reports by Borri Service Centre for improving the quality and reliability of your system.

**Reducing Total Cost of Ownership**
Guardian Net is an on-site virtual Service specialist 24/7, monitoring all relevant parameters, maximizing system performance, reducing on-site maintenance and minimizing your total cost of ownership by extending the life of your critical equipment.

**FEATURES**

**Web Proactive Maintenance**
Our Service specialists monitor your equipment from the Borri Service Centre, analysing data and trends, to proactively recommend actions for ensuring equipment always performs at its best.

**Warning and alarm notification**
Guardian Net continuously monitors the system and should any critical parameters exceed the preset tolerance, it generates a warning or alarm notification to you and the Borri Service Centre. Our Service specialists will investigate the data, find the cause and take actions based on the customer’s maintenance contract. This ensures that in case Service engineers are dispatched on-site, they arrive prepared for first time resolution, reducing downtime and increasing system availability.

**Status Reports**
The unit parameters are collected by our Service Centre and presented in periodic status reports. You will receive a comprehensive analysis of your equipment and its operational performance, as well as demonstration that it is under continuous remote monitoring.

**Total Service Support**
Borri supports critical infrastructures with a comprehensive offering of their Service specialists, enhancing system availability and ensuring total peace of mind 24/7.

**Data Manager Unit (DMU) technical data**

<table>
<thead>
<tr>
<th>To monitored device</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication port</td>
<td>RS485 ModBus</td>
</tr>
<tr>
<td>Protocol</td>
<td>ModBus-RTU/ASCII slave</td>
</tr>
<tr>
<td>Max no. of connected devices*</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>To Service Centre</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication port</td>
<td>RJ45 Ethernet</td>
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<tr>
<td>Protocol</td>
<td>Open VPN (based on Open SSL), http, SMTP, ModBus-TCP/IP</td>
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<tr>
<td>Services</td>
<td>Web Server, NTP time stamping</td>
</tr>
<tr>
<td>Notification</td>
<td>Included: email - Optional: text message via https or via RS232 modem</td>
</tr>
</tbody>
</table>

**Options**
30 h backup battery, system integrator version (no box), GSM/GPRS modem (SIM card not included)

**System**

| Power supply | 100 to 240 Vac |
| Installation  | Wall-mounted box |
| Dimensions WxDxH [mm] | 400x200x400 |
| Weight        | 15 kg (w/ backup battery), 12 kg (w/o backup battery) |
| Protection degree | IP 20 (IP 65 on request) |
| Colour        | RAL 7035 |

**Environmental**

| Operating temperature range | 0°C to 40°C |
| Storage temperature range  | -10°C to 70°C |

*conditions apply
POWER PROTECTION SOLUTIONS FOR HARSH INDUSTRIAL APPLICATIONS

from 5 kVA to 2000 kVA

AC UPS

E2001
Industrial 1-Phase UPS
from 5 to 200 kVA

E3001
Industrial 3-Phase UPS
from 5 to 600 kVA

UMB AC
Industrial Modular UPS
from 10 to 320 kW

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OIL & GAS

POWER TRANSMISSION & DISTRIBUTION

CHEMICAL, MINING AND METALLURGY

POWER GENERATION AND WATER TREATMENT

TRANSPORTATION

PROCESS INDUSTRY

**DC UPS**

**IMB**
Industrial 1-Phase Inverter from 5 to 200 kVA

**ITB**
Industrial 3-Phase Inverter from 5 to 600 kVA

**Ingenio SFC**
Static Frequency Converter from 100 to 2000 kVA

**RTB**
Industrial 3-Phase Rectifier 24 V - 220 Vdc from 50 to 2000 A

**GMC.igbt**
Green Mobility Charger for E-Bus 300-600-1000 A

**UMB DC**
Industrial Modular Rectifier from 24 V to 220 Vdc
## 3-PHASE UPS’S OPTIONS

<table>
<thead>
<tr>
<th>Description</th>
<th>When do I use it</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARALLEL KIT</td>
<td>When the unit is to be paralleled for load sharing</td>
</tr>
<tr>
<td>LOAD SYNC FOR SINGLE UNITS</td>
<td>To synchronize single units’ output for no-break load transfers by downstream static transfer switches</td>
</tr>
<tr>
<td>LOAD SYNC BOX</td>
<td>To synchronize the output of two paralleled UPS systems for no-break load transfers by downstream static transfer switches</td>
</tr>
<tr>
<td>BACKFEED INTERNAL TRIPPING DEVICE</td>
<td>To be fully protected against backfeed energy upon static bypass failure</td>
</tr>
<tr>
<td>TOP CABLE ENTRY</td>
<td>To allow input and output cable entry from the top of the unit</td>
</tr>
<tr>
<td>ISOLATION TRANSFORMER</td>
<td>To galvanically isolate UPS from load or to change system’s earth arrangement</td>
</tr>
<tr>
<td>BATTERY FUSED SWITCH BOX</td>
<td>To disconnect and protect an external battery pack</td>
</tr>
<tr>
<td>BATTERY TEMPERATURE PROBE</td>
<td>For charging voltage compensation against temperature</td>
</tr>
<tr>
<td>Input terminal block FOR REMOTE EPO</td>
<td>When the Emergency Power Off (EPO) has to be commanded by a remote control button</td>
</tr>
<tr>
<td>Input terminal block FOR EXTERNAL MANUAL BYPASS SWITCH AUXILIARY CONTACT</td>
<td>When there is an external maintenance bypass switch, for state monitoring</td>
</tr>
<tr>
<td>Input terminal block FOR EXTERNAL BATTERY SWITCH AUXILIARY CONTACT</td>
<td>When there is an external battery switch, for state monitoring</td>
</tr>
<tr>
<td>Input terminal block FOR EXTERNAL OUTPUT CIRCUIT BREAKER</td>
<td>When there is an external output breaker, for status monitoring</td>
</tr>
<tr>
<td>Input terminal block FOR REMOTE BYPASS TRANSFER</td>
<td>When the transfer to bypass mode can be commanded by an external contact</td>
</tr>
<tr>
<td>Input terminal block FOR DIESEL MODE CONTACT</td>
<td>When battery recharge has to be inhibited over genset operation</td>
</tr>
<tr>
<td>VOLT FREE CONTACT CARD</td>
<td>To send UPS status to PLC’s, SCADA’s or AS400’s by voltage free SPDT contacts</td>
</tr>
<tr>
<td>REMOTE MONITORING PANEL</td>
<td>To monitor UPS status by a LED panel from a remote control room (relay card required)</td>
</tr>
<tr>
<td>RS485 MODBUS-RTU PORT</td>
<td>To send UPS status to BMS’s by RS485 connection and ModBus-RTU protocol for remote monitoring and remote service</td>
</tr>
<tr>
<td>WEB/SNMP ADAPTER</td>
<td>To send UPS status to BMS’s by Ethernet connection and SNMP or ModBus over IP protocol. To monitor UPS status by any internet browser from workstations. To receive SMS or e-mail alerts from the UPS on any portable device</td>
</tr>
<tr>
<td>3-PHASE UPS'S</td>
<td>OPTIONS</td>
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<tr>
<td>---</td>
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<tr>
<td><strong>Ingenio</strong></td>
<td><strong>Compact</strong></td>
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<tr>
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<td></td>
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<tr>
<td><strong>When do I use it</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PARALLEL KIT</strong></td>
<td></td>
</tr>
<tr>
<td>When the unit is to be paralleled for load sharing</td>
<td></td>
</tr>
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<td><strong>LOAD SYNC</strong></td>
<td></td>
</tr>
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<td>For single units</td>
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<tr>
<td><strong>Included</strong></td>
<td>Contactor</td>
</tr>
<tr>
<td><strong>Contactor</strong></td>
<td>Included output contact for external tripping device</td>
</tr>
<tr>
<td><strong>Custom version only</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Input transformer</strong></td>
<td></td>
</tr>
<tr>
<td>Input transformer, internal or extended cabinet</td>
<td>Input transformer, extended cabinet</td>
</tr>
<tr>
<td><strong>For internal or external battery</strong></td>
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<tr>
<td><strong>Included in</strong></td>
<td>60-160 kVA</td>
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Customer’s expectation defines Borri’s priority from the early analysis of the project requirements to a worldwide commissioning and service. Many thousands of systems have been successfully installed and maintained globally, with continuous support from a highly trained team of expert, certified technicians and engineers. From the professional set-up of Borri’s training centre or on site, the training and service team stand ready to provide support and contribute to tailored training at Borri or on site. You can be assured of Borri support to the highest standards no matter where in the world you are.

### Planning, installation, commissioning
Borri assist you in every single step of your project. Our R&D team can analyse and develop solutions to a wide range of edge system requirements.

### Analytical tests
Borri undertakes a series of analytical tests in order to guarantee higher efficiency and continuity to your system operation.

### Repair & spare parts
All spare parts supplied by Borri are original, tested and guaranteed to be fully compliant with Borri solutions.

### Remote monitoring
Guardian Net remote monitoring system allows you to detect any deviation from optimum operation and trigger proper and immediate response, so that anomalies don’t evolve into issues.

### Maintenance
Preventive maintenance guarantees uninterrupted operations and optimised system efficiency.

### Battery tests
Batteries have a limited time life and their proper maintenance is of high importance to guarantee efficiency to the UPS and avoid potential failures. Borri delivers high quality and performing batteries to assure smooth operations.

### Training
Borri offers distributors and customers a service training structured in 3 levels. Courses can be held in Borri training centres or on-site.
### BORRI HEADQUARTERS AND FACTORY

**Borri S.p.A.**  
Via 8 Marzo, 2  
52011 Bibbiena (AR)  
Italy  
Tel. +39 0575 5351  
Fax +39 0575 561811  
info@borri.it

### BORRI SUBSIDIARIES AND SERVICE CENTRES

<table>
<thead>
<tr>
<th>Region</th>
<th>Company Name</th>
<th>Address</th>
<th>Phone Numbers</th>
<th>Email Addresses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia Pacific</td>
<td>Borri Asia Pacific Technologies</td>
<td>No. 13, Jalan Serendah 26/41, Sektor 26, Sekayen 26, 40400 Shah Alam, Selangor, Malaysia</td>
<td>Tel: +60 3 5191 9098, Fax: +60 3 5103 8728</td>
<td><a href="mailto:sales@borri-asia.com">sales@borri-asia.com</a></td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
| Canada          | Borri Power Systems              | 205 - 3689 E 1st Ave.  
                    | Vancouver, BC V5M 1C2  
                    | Canada  
                    | Tel: +1 604 428 7455, Fax: +1 346 980 8875  
                    | info@borripower.com |
|                 |                                  |                                                                        |                                |                               |
| Middle East and Africa | Borri Power Middle East FZCO  | 1-151, Techno Hub  
                     | PO Box: 342036  
                     | Dubai Silicon Oasis, Dubai UAE  
                     | Tel: +971 4 3200528, Fax: +971 4 3200529  
                     | info@mea.borripower.com |
|                 |                                  |                                                                        |                                |                               |
| India           | Borri Power India Pvt. Ltd.      | Pat No. 69, Ground Floor  
                    | Nagarjuna Hills, Panaguttha  
                    | Hyderabad, 500 082  
                    | India  
                    | Tel: +91 40 2235 4095  
                    | info@mea.borripower.com |
|                 |                                  |                                                                        |                                |                               |
| Germany         | Borri Power Germany GmbH         | Gewerbestraße 10  
                    | 26789 Leer  
                    | Germany  
                    | Tel: +49 491 99 75 61 83  
                    | Fax: +49 491 99 75 61 84  
                    | info@borri.de, service@borri.de |
|                 |                                  |                                                                        |                                |                               |
| USA             | Borri Power (US) Inc.            | 9000 Clay Road, Suite 104  
                    | Houston, Texas, 77080  
                    | USA  
                    | Tel: +1 346 212 2686, Fax: +1 346 980 8875  
                    | info@borripower.com |

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