The BAUMA® BMPW series is the ultimate modular UPS for DATA CENTERS and other CRITICAL LOADs.

The BMPW is designed to protect any critical high-density computer and IT environment, whilst achieving maximum availability. The BMPW grows along with the demands of the business without over-sizing the UPS - optimizing both the initial investment and the Total Cost of Ownership. As soon as demand increases, the BAUMA® BMPW modular solution can expand its power capability, maintaining the highest levels of power protection, availability, redundancy and investment savings. Digital technology has an increasingly strong influence on day-to-day activities in almost all sectors and applications such as healthcare, power generation, social networking, telecommunications, commerce and education. Subsequently, any activities and equipment related to data storage, processing and transfer should be supplied from the most reliable power source. BMPW ensures that a scalable, secure, high quality power supply is available for a variety of critical load applications. The new BMPW Power Modules feature the very latest in UPS technology. With its three level Neutral Point Clamped (NPC) inverter and Power Factor Corrected (PFC) input control, the BMPW ensures the highest level of performance in terms of overall efficiency, input power factor and harmonic impact on the supply source.

**HIGHLIGHTS**

- **Utmost Availability**
- **Ultimate Scalability**
- **Unmatched Power Density**
- **Efficiency > 96.5%**
- **Multiple Controls**
- **Highly Flexible**
- **Multiple comms**
Advanced Technology
To ensure the highest levels of power availability, only the most reliable, cutting edge power components and innovative control technologies have been used in the development of the BMPW power modules and other major aspects of the system. The major power components and assemblies within the BMPW have been specifically designed and tailor made in conjunction with the respective component manufacturers. This design work ensures that the BMPW achieves the highest levels of power and performance. In order to optimize the overall performance of the finished product, PT BAUMA UPS’s principal’s R&D team made the decision to specifically design certain power components, including the IGBT modules and associated packages. Rather than using standard components that are readily available in the marketplace, the BMPW hosts one single optimised and reliable power assembly which guarantees the best availability and overall efficiency. The Power Module itself utilizes a “wireless power principle” meaning that the power interconnection distances between the cards, power components and connectors are shorter. In this way we reduce any risk related to connection problems between the assemblies and also minimize the overall power losses.

Scalability
BMPW provides a comprehensive, easy to integrate power protection solution for data centres and any critical IT application matching the evolving demands of a networked environment. The end user can easily increase power, redundancy level and battery autonomy by simply adding additional UPS Power Modules (PM) and Battery Units (BU). Three different cabinets are available to build the system: The Power Cabinets (PWC - 2 versions) and the Battery Cabinet. The Power Cabinets can accommodate either only the 25 kW Power Modules (PM25) or 42 kW Power Modules (PM42).

The available UPS power and redundancy level can expand vertically using the PM25 power module from:

• 25 to 125 kW in one single Power Cabinet (PWC 130)
• 25 to 175 kW in one single Power Cabinet (PWC 300)

Also, power solution can expand vertically using the PM42 power module:
• from 42 to 294 kW in one single Power (PWC 300) Up to four complete Power Cabinets can be connected in parallel, increasing the capacity including redundancy respectively from:

• 125 up to 500 kW (with PM25)
• 175 up to 700 kW (with PM25)
• 294 up to 1176 kW (with PM42)

The Battery Cabinet accommodates multiples of 4 Battery Units, with up to 36 units within a single frame with a maximum of 10 Battery Cabinets connected in parallel. In addition, the BMPW is available as an optimized solution providing a BMPW/Battery combination with three UPS Power Module slots and five battery shelves (Combo Cabinet). This solution can be utilized within extremely compact areas requiring a small footprint with maximum power density. This modular and reliable solution is perfect for any small to medium business applications. The user might decide to build the solution using the combination of three PM either PM25 or PM42 kW power not mingling the two power rates in the same cabinet.

Outstanding Performances
The advanced technologies deployed within the BMPW guarantees full rated power even with unity power factor loads (kVA=kW) without any power downgrading even when operating at temperatures up to 40°C.
• High system efficiency whilst operating in on-line double-conversion mode greater than 96.5%. Even when loaded at only 20%, the BMPW still achieves an outstanding performance greater than 95%. This superior performance ensures extremely low losses at any load level whilst maintaining a true modular solution for any changing UPS.
• Low input harmonic pollution, with near unity input power factor and an extremely wide input voltage operating range (+20/-40%), requiring only a minimum upstream power source rating and subsequent reduced investment costs.

Multiple Controls
The entire BMPW solution was developed with particular care to
The Plug & Play modular concept simplifies any power or battery autonomy expansion process, rather than a complete Power Module or Battery unit replacement. The modular hot-swappable principle is further extended to all major elements of the system, resulting in convenient replacement of parts such as fans from within individual Power Modules rather than accessing major components within the cabinet. Furthermore, all Power Modules and critical components are easily accessible from the front of the unit as standard. The system is equipped with a Manual Bypass change over switch and Backfeed control with a mechanical operational reliability and prevent any possible failures due to miscommunication between the component parts of the system. The Power Modules are not controlled by one unique microprocessor, but by three - each having different and specific duties. Likewise, the Power Cabinet features two separate microprocessors; one to regulate the overall UPS operations and a separate one to manage communication with the user.

Flexible Modularity
BMPW grows both vertically and horizontally from 1 to 28 Power Modules increasing from 25/42 to 700/1176 kW (including redundancy) as well as battery units (from 1 cabinet, up to 10), therefore the system is completely scalable in accordance with any business requirements.

In addition, three dedicated communications bus manage and transmit the data. In terms of the monitoring and control of the overall system, all major components are continually temperature monitored within each of the Power Modules. In addition, up to four-temperature sensors are embedded within the Power Cabinet to ensure constant and efficient operation.

The Power Module is equipped with three speed controlled fans to ensure there is no energy wasted as the load level applied to the system increases or decreases. At the same time each fan features a so-called third wire (the controller) which immediately warns the microprocessor in the event of a fault; in which case the microprocessor will increase the speed of the remaining operational fans in order to compensate for the cooling deficiency. The Battery Unit also contains dedicated internal protection and a sophisticated control system to monitor the status of each module. This makes it possible to check the voltage/current supplied by each single battery module and therefore identify and warn the user if one of them is defective or beginning to fail. This significantly reduces the risk of a battery pack failure causing a problem to the system by immediately warning the user of the impending issue in order for the appropriate preventive actions to be taken before it is too late.

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interlock contactor inbuilt, eliminating any maintenance-related downtime.

Combination systems (Combo Cabinet with Battery Cabinet) are supplied with a battery switch and shunt trip to enable remote battery switch operation. All these features ensure easy UPS expansion, operation and maintenance; minimizing downtime, decreasing the Mean Time to Repair (MTTR) and removing any possible risk to power continuity, when carried out by authorized service personnel. Flexibility is measured by the ease of both on site installation and the operations undertaken by the user. Input/Output/battery terminal bars are deployed enabling authorized installers to easily terminate the cables either from the top or the bottom of the system. Mechanical supports and cable glands as well as the terminal bar positioning (in the centre of the cabinet) are purposely positioned to reduce the installation time and costs. In addition, in terms of flexibility of the battery installation, whether a conventional or modular type system is implemented these can be arranged in two different configurations: centralised (common battery) or distributed (separate battery for each Power/Combo Cabinet). This will ensure the highest level of adaptability for any critical installation and/or economical driving factors.

**Turn Key Solutions**

User may deploy BMPW cabinets lining up four Cabinets one to each other and arranging locally for input and output cabling. BAUMA® UPS offers as alternative a 500 kVA turn-key solution which consist in two Power Cabinets and a Switching Cabinet to tie up the two. It includes AC input/output terminals for site power distribution connection, related joining flexible bars and communication links between Power Cabinets and Switching Cabinet. Switching Cabinet is also supplied with AC input/output/bypass lines breakers as well as with an integral wrap around maintenance bypass. Bypass line is protected with fuses to grant fault discrimination and load protection in case of short circuit downstream.

The breaker set enable to galvanically insulate the single Power Cabinets and to carry out specific maintenance.

Switching Cabinet cable entry is arranged so that user may decide either to access from the bottom front, rear side or top. This on hand solution simplify the installation activity and contribute to the overall TCO reduction minimizing, upfront, installation and operating costs.

**Advanced Communications**

Users can benefit from the different communication systems developed specifically for IT personnel, facilities managers and service engineers.

The 7” LCD touch screen, communication slots, relay cards along with the dedicated service ports, all ensure that the UPS setup, control and monitoring is easy.

The BMPW LCD touch screen has embedded the follow protocols:
- **UDP** to communicate with our shutdown software PowerShield™
- **HTTP and HTTPS** to monitor the UPS status using a standard web browser without any additional software.
- **SMTP** to send emails related to the UPS status, alarms and a power quality daily and weekly report.

In addition, with the network card NetMan 204, BMPW can be integrate into any building management system and data centre infrastructure (CDIM) with the SNMP protocol v1, v2 and v3.
- **Modbus/TCP**.

BMPW is compatible with the very latest operating systems including:
- **Windows 7, 8, 10**
- **Hyper-V**
- **Windows Server 2016, 2012, and previous versions**
- **Mac OS X**
- **Linux**
- **VMWare ESXi**
- **Citrix XenServer**
- and many other Unix operating systems.

**OPTIONS**

**SOFTWARE**
- PowerShield™
- PowerNetGuard

**ACCESSORIES**
- NETMAN 204
- MULTICOM 302
- MULTICOM 352
- MULTICOM 372
- MULTICOM 384
- MULTICOM 401

**PRODUCT ACCESSORIES**
- Battery temperature sensor
- Air Filter on front door
- IP21 Protection Kit
- Programmable relay board
- MULTICOM 392
MODELS

CABINET BMPW BATTERY
(Modular Battery Cabinet)

(Conventional Battery Box)

SELECT THE BATTERY CONFIGURATION ACCORDING BMPW RANGE

CONNECTIVITY PANEL (CP)

10/100 NETWORK POWER SUPPLY UNIT (PSU)

COMMUNICATION SLOTS

MONITORING UNIT (MU)

COMMUNICATION UNIT (MCU)

SWIN A

SWIN B

SWOUT A

SWOUT B

SWMB

SWBY A

SWBY B

REPO

UXCT

BMPW Switching Cabinet 500
+ 2 x Power Cabinet 300
(front without doors)

BMPW Switching Cabinet 500
+ 2 x Power Cabinet 300
(rear without panels)

AUXILIARY SIGNAL BOARD (ASB)

CABINETS

MODELS

CABINET BMPW BATTERY
(Modular Battery Cabinet)

(Conventional Battery Box)

UPS MODELS
Select the Battery configuration according BMPW range

Dimensions
(mm)
<table>
<thead>
<tr>
<th>MODEL</th>
<th>BMPW - from 25 to 294 kW&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUT</strong></td>
<td></td>
</tr>
<tr>
<td>Voltage [Vac]</td>
<td>380-400-415 Three-Phase plus neutral</td>
</tr>
<tr>
<td>Voltage tolerance [V]</td>
<td>240 to 480&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Frequency tolerance [Hz]</td>
<td>40 to 72</td>
</tr>
<tr>
<td>Power factor</td>
<td>1</td>
</tr>
<tr>
<td>THDI [%]</td>
<td>&lt; 1.5</td>
</tr>
<tr>
<td><strong>BYPASS</strong></td>
<td></td>
</tr>
<tr>
<td>Nominal power [kW]</td>
<td>252 / 126 (According to system power configuration)</td>
</tr>
<tr>
<td>Nominal voltage [Vac]</td>
<td>380-400-415 Three-Phase plus neutral</td>
</tr>
<tr>
<td>Voltage tolerance [V]</td>
<td>from 180 (adjustable 180-200) to 264 (adjustable 250-264) referring to Neutral</td>
</tr>
<tr>
<td>Nominal frequency [Hz]</td>
<td>50 or 60</td>
</tr>
<tr>
<td>Overload</td>
<td>125% for 10 minutes; 150% for 1 minute</td>
</tr>
<tr>
<td><strong>BATTERIES</strong></td>
<td></td>
</tr>
<tr>
<td>Layout</td>
<td>Modular type made up by Battery Unit (named BU)</td>
</tr>
<tr>
<td>Battery features</td>
<td>VRLA batteries lined up inside BU; Constant voltage and current measuring at BU level; Battery status monitoring via BMPW LCD display</td>
</tr>
<tr>
<td>Cabinet lay out description</td>
<td>9 x Battery shelves</td>
</tr>
<tr>
<td>Dimensions [WxDxH]</td>
<td>600x1050x2000</td>
</tr>
<tr>
<td>Weight [kg] (without PM / BU)&lt;sup&gt;3&lt;/sup&gt;</td>
<td>280</td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
<td></td>
</tr>
<tr>
<td>Nominal voltage [Vac]</td>
<td>380/400/415 Three-Phase plus neutral</td>
</tr>
<tr>
<td>Nominal frequency [Hz]</td>
<td>50 or 60</td>
</tr>
<tr>
<td>Voltage stability [%]</td>
<td>± 0.5</td>
</tr>
<tr>
<td>Dynamic stability</td>
<td>EN62040-3 class performance 1 distorting load</td>
</tr>
<tr>
<td><strong>OVERALL SPECIFICATION</strong></td>
<td></td>
</tr>
<tr>
<td>Cabinet type</td>
<td>PWC 130 Power Cabinet 130</td>
</tr>
<tr>
<td>Power Module nominal power [kW] (Named PM)</td>
<td>PM25</td>
</tr>
<tr>
<td>Solution nominal Power [kW]</td>
<td>125</td>
</tr>
<tr>
<td>Output power factor [pf]</td>
<td>1</td>
</tr>
<tr>
<td>Parallelable (up to)</td>
<td>4</td>
</tr>
<tr>
<td>Cabinet layout description</td>
<td>5 x PM25</td>
</tr>
<tr>
<td>Dimensions [WxDxH]</td>
<td>600x1050x2000</td>
</tr>
<tr>
<td>Weight [kg] (without PM / BU)&lt;sup&gt;3&lt;/sup&gt;</td>
<td>240</td>
</tr>
<tr>
<td>System Noise Level at 1 m [dBA±2]</td>
<td>&lt;65</td>
</tr>
<tr>
<td>Eco Mode Efficiency</td>
<td>Up to 99%</td>
</tr>
<tr>
<td>Cabinet IP rating</td>
<td>IP20 finger proof (either with cabinet doors open or close)</td>
</tr>
<tr>
<td>Cable input</td>
<td>Rear side either top or bottom</td>
</tr>
<tr>
<td>Colour</td>
<td>RAL 9005</td>
</tr>
<tr>
<td>Standards</td>
<td>Safety: IEC EN62040-1  EMC: IEC EN 62040-2-category C2</td>
</tr>
<tr>
<td>Moving UPS cabinet types</td>
<td>Castors (any cabinet type is shipped without PM and BU)</td>
</tr>
</tbody>
</table>

<sup>1</sup> Including Redundancy
<sup>2</sup> Conditions applied
<sup>3</sup> PM = Power Module (either referring to PM25 or PM42 kW)
<sup>4</sup> BU = Battery Unit

NOTE: All performances quoted in a single row refer to any UPS system configuration from one to seven modules running in parallel unless specified differently.
BMPW EMBEDDED PROTOCOLS

1. BMPW
2. Web Browser
3. PowerShield
4. Mail Server
5. Ethernet Switch

BMPW PROTOCOLS ADDING NETMAN 204 CARD

1. BMPW
2. Netman 204 board
3. Modbus/TCP Manager
4. SNMP Manager
5. Ethernet Switch

Modbus/TCP Protocol

SNMP Protocol