Technical data sheet

Conceptpower DPA 120 UL
208V 20 – 120kW
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1 System description

ABB’s Conceptpower DPA 120 UL UPS is a high-power, modular and transformer-less UPS system for organizations who need to maximize uptime. The UPS is built using true online double conversion technology and provides low cost of ownership.

1.1 True modularity up to 600 kW

Now you can have a UPS sized to exactly fit your needs: the Conceptpower DPA 120 UL UPS is the only modular UPS on the market that can easily be scaled up to 600kW of clean, reliable power. This scalability means that there is no need to over-specify the original configuration as power modules can simply be added, as needed, in the future.

1.2 True parallel architecture

Reliability and availability are ensured by the Conceptpower DPA 120 UL UPS’s proven Decentralized Parallel Architecture (DPATM). Each module contains all the hardware and software required for full system operation, they share no common components. Each UPS module has its own independent static bypass, rectifier, inverter, logic control, control panel, battery charger and batteries. With all the critical components duplicated and distributed between individual units, potential single points of failure are eliminated.

1.3 Key Features of Conceptpower DPA 120 UL UPS

- 20 kW rated power module
- 120 kW rated power in single frame
- Extended power range: from 20 kW to 600 kW
- Unity output power factor (kVA = kW)
- Double conversion efficiency up to 94.0 %
- Efficiency in eco-mode ≥ 99 %
- Online Swap Modularity (OSM)
- Online serviceability
- Built-in back-feed protection (standard)
- Graphical display on system level
- DPA displays in each module

This technical datasheet (TDS) provides all technical specification required by IEC 62040-3 and ANSI/UL 1778 5th Ed., providing mechanical, electrical and environmental characteristics. It can be used for tendering and end-user requirements. CONCEPTPOWER DPA 120 UL UPS is designed to respond to the actual UPS standards.
2 General characteristics

<table>
<thead>
<tr>
<th>Frame</th>
<th>Conceptpower DPA 120 UL</th>
</tr>
</thead>
</table>

Conceptpower DPA 120 UL - Frame

**Power, rated:**
- **Apparent** \( kVA \) 120
- **Active** \( kW \) 120

**Power, range** \( kW \) 20 - 600

**UPS type:** On-line, transformer-less, modular, decentralized parallel architecture

**Parallel capability:** Up to 5 frames

**Battery:** Not included

**Performance classification:** VFI-SS-111

### Mechanical

**Dimensions (width × height × depth)**

<table>
<thead>
<tr>
<th>( mm )</th>
<th>791 x 1975 x 923</th>
</tr>
</thead>
<tbody>
<tr>
<td>( in )</td>
<td>31.16 x 35.17 x 77.76</td>
</tr>
</tbody>
</table>

**Mass, approx. (120kW system, with 6 modules)**

<table>
<thead>
<tr>
<th>( kg )</th>
<th>665</th>
</tr>
</thead>
<tbody>
<tr>
<td>( lbs. )</td>
<td>1466</td>
</tr>
</tbody>
</table>

**Acoustic noise (acc. to IEC 62040-3):**

- **In normal mode (at <=25°C)** at 100% / 50% Load \( dBA \) 71 / 68
- **In battery mode (at <=25°C)** at 100% / 50% Load \( dBA \) 71.5 / 69

### Safety

**Access:** operator/restricted

**Degree of protection against hazards and water ingress:** NEMA 1 / IP 20
### Electromagnetic compatibility

Compliant:
- Emission UPS Cat / Immunity UPS Cat C3 / C3

### Environmental

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage temperature range</td>
<td>°C</td>
<td>-25 - +70</td>
</tr>
<tr>
<td>Operative temperature range</td>
<td>°C</td>
<td>0 - +40</td>
</tr>
<tr>
<td>Relative humidity range (non-condensing)</td>
<td>%</td>
<td>≤ 95</td>
</tr>
<tr>
<td>Max. altitude without de-rating</td>
<td>m</td>
<td>1000</td>
</tr>
</tbody>
</table>

### Additional and usual information

- **Connection:** 5 wires, 3 phase + N + PE
- **Cable entry:** Bottom
- **Accessibility:** Frontal only
- **Color:** Powder coat MIDNIGHT BLACK Wrinkle
- **Color code:** Rohm & Haas #12-7001

### Module

<table>
<thead>
<tr>
<th>Conceptpower DPA 120 UL</th>
</tr>
</thead>
</table>

#### Conceptpower DPA 120 UL - UPS

- **Power, rated:**
  - Apparent kVA 20
  - Active kW 20

- **UPS type:** On-line, transformer-less, modular, decentralized parallel architecture
- **Parallel capability:** Up to 5 frames
- **Battery:** Not included
- **Performance classification:** VFI-SS-111

### Mechanical

<table>
<thead>
<tr>
<th>Dimension (width × height × depth)</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>710x178x750</td>
</tr>
<tr>
<td></td>
<td>in</td>
<td>27.95 x 7.00 x 29.53</td>
</tr>
<tr>
<td>Mass, approx.</td>
<td>kg</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>lbs.</td>
<td>132</td>
</tr>
</tbody>
</table>

### Additional and usual information

- **Back feed protection:** Included
- **Color:** (RAL 9005)
### 3 Input characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Frame</th>
<th>Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power, rated</td>
<td>kW</td>
<td>120</td>
</tr>
<tr>
<td>Voltage (steady-state, r.m.s), rated:</td>
<td>VAC</td>
<td>3 x 208 / 120V + N</td>
</tr>
<tr>
<td>- Tolerance, referred to 208/120V (booster off)</td>
<td>%</td>
<td>-15% / +10%</td>
</tr>
<tr>
<td>- Operative ranges, referred to 208/120V (booster on)</td>
<td>%</td>
<td>-15 / + 10 at &lt;100% load, -20 / + 10 at &lt;80% load, -30 / + 10 at &lt;60% load</td>
</tr>
<tr>
<td>Frequency, rated:</td>
<td>Hz</td>
<td>50/60</td>
</tr>
<tr>
<td>- Tolerance, referred to 50Hz</td>
<td>%</td>
<td>-30 / +40</td>
</tr>
<tr>
<td>Current (r.m.s), rated (with battery charged and input 208/120V):</td>
<td>A</td>
<td>360</td>
</tr>
<tr>
<td>- Maximum (with battery charging and input 208/120V):</td>
<td>A</td>
<td>363</td>
</tr>
<tr>
<td>Total harmonic distortion (THDi)(^1)</td>
<td>%</td>
<td>4</td>
</tr>
<tr>
<td>In-rush current</td>
<td>%</td>
<td>&lt; 100% of rated current</td>
</tr>
<tr>
<td>Power factor</td>
<td></td>
<td>0.99 @ 100% load</td>
</tr>
<tr>
<td>Rated short-time withstand current (Icw)</td>
<td>kA</td>
<td>5</td>
</tr>
</tbody>
</table>

AC power distribution system: TN-S, TN-C, TN-C-S, TT
Note: in static bypass mode or eco-mode TN-C and TN-C-S can cause PE current to rise above 5% of phase currents

- Phases required: 3
- Neutral required: Yes

\(^1\) Measured with MAIN THDu < 3% @ full load and rated input output voltage; ±0.3 tolerance may apply

---

**Additional and usual information**

- **Connection:** 5 wires, 3 phase + N + PE
- **Cable entry:** Bottom
- **Accessibility:** Front access only
- **Walk In/Soft start:** Yes
- **Back feed protection:** Yes
### Output characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Frame</th>
<th>Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power, rated</td>
<td>kW</td>
<td>120</td>
</tr>
<tr>
<td>AC power distribution system:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available phases</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Neutral available</td>
<td></td>
<td>yes</td>
</tr>
<tr>
<td>Voltage (steady state, r.m.s.), rated</td>
<td>VAC</td>
<td>3 x 208 / 120V + N</td>
</tr>
<tr>
<td>Variation in normal mode</td>
<td>%</td>
<td>± 2.5</td>
</tr>
<tr>
<td>Total harmonic distortion (THDu), 100% load, normal mode:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Linear</td>
<td>%</td>
<td>&lt; 2.0</td>
</tr>
<tr>
<td>- Non-linear (according to IEC 62040-3)</td>
<td>%</td>
<td>&lt; 4.0</td>
</tr>
<tr>
<td>Total harmonic distortion, 100% load, battery mode:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Linear</td>
<td>%</td>
<td>&lt; 2.0</td>
</tr>
<tr>
<td>- Non-linear (according to IEC 62040-3)</td>
<td>%</td>
<td>&lt; 4.0</td>
</tr>
<tr>
<td>Voltage unbalance and phase displacement, 100 % load</td>
<td>°</td>
<td>0</td>
</tr>
<tr>
<td>unbalance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage transient and recovery time, 100% step load:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Linear</td>
<td>%</td>
<td>± 4</td>
</tr>
<tr>
<td>- Non-linear (according to IEC 62040-3)</td>
<td>%</td>
<td>± 4</td>
</tr>
<tr>
<td>Transfer normal mode --&gt; battery mode</td>
<td>%</td>
<td>0</td>
</tr>
<tr>
<td>Frequency (steady-state), rated:</td>
<td>Hz</td>
<td>50/60</td>
</tr>
<tr>
<td>- Variation in normal mode (freq. Synchronized with mains)</td>
<td>%</td>
<td>± 2 / ± 4</td>
</tr>
<tr>
<td>- Variation in battery mode (free-running)</td>
<td>%</td>
<td>± 0.1</td>
</tr>
<tr>
<td>Max synch phase error (referred to a 360° cycle)</td>
<td>°</td>
<td>&lt; 2</td>
</tr>
<tr>
<td>Max slew-rate</td>
<td>Hz/s</td>
<td>1</td>
</tr>
<tr>
<td>Nominal current (In), r.m.s. rated</td>
<td>A</td>
<td>333</td>
</tr>
<tr>
<td>Overload on inverter</td>
<td>min</td>
<td>0.5 @ 150% load, 5 @ 125% load, 20 @ 110% load</td>
</tr>
<tr>
<td>Fault clearing capability normal mode and battery mode</td>
<td>A</td>
<td>1008 (3xIn)</td>
</tr>
<tr>
<td>for 100ms</td>
<td></td>
<td>168 (3xIn)</td>
</tr>
<tr>
<td>Load power factor, rated</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Displacement (permissible lead-lag range)</td>
<td>%, s</td>
<td>(all range) 0</td>
</tr>
</tbody>
</table>
Online double conversion efficiency in normal mode with linear load:

- 100% load % 93.5
- 75% load % 93.9
- 50% load % 94.0
- 25% load % 93.0

Eco-mode efficiency with linear load:

- 100% load % 98.7
- 75% load % 98.8
- 50% load % 99.0
- 25% load % 99.1

Crest – Factor
(Load supported) 3:1

4.1 Online double conversion efficiency with linear, resistive load

![Efficiency Graph]

Tolerance of +/- 0.2% may apply

Static bypass

**Type:** Automatic, static switch in each module

**Transfer times:**
- inverter → bypass \( ms \) <1
- bypass → inverter <5
- in eco-mode <6

**Rated current** \( A \) 333 56

**Fault clearing capability (bypass mode) for 20 ms** \( A \) 10xIn 10xIn

**Overload current on bypass mode (< 25°C)** \( min \) continuously @ 110% load

Maintenance bypass: optional on the frame

**Bypass protection fuse or circuit breaker rating** \( A, gL \) 3x70

 Modifications reserved
Page 9/20
5 Battery characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>VRLA, vented lead-acid, NiCd</td>
</tr>
<tr>
<td>Number of 12 V blocks</td>
<td>25 - 35</td>
</tr>
<tr>
<td>Number of 1.2 V NiCd cells</td>
<td>250 - 350</td>
</tr>
<tr>
<td>Battery charger</td>
<td>Decentralized, each module has its own charger</td>
</tr>
<tr>
<td>Max. current charger capability (A)</td>
<td>24</td>
</tr>
<tr>
<td>Max. power charger capability (kW)</td>
<td>12</td>
</tr>
<tr>
<td>Floating voltage (VRLA / NiCd) (VDC)</td>
<td>2.25 / 1.40</td>
</tr>
<tr>
<td>End of discharge voltage (VRLA / NiCd)</td>
<td>1.65 / 1.05</td>
</tr>
<tr>
<td>R.m.s. ripple current (percentage)</td>
<td>2</td>
</tr>
<tr>
<td>Temperature compensation</td>
<td>Optional</td>
</tr>
<tr>
<td>Battery test</td>
<td>Automatic and periodic battery test (selectable)</td>
</tr>
</tbody>
</table>

6 User interface - Communication

| System Display                         | 7” touchscreen display (one per frame)        |
| DPA display (or module display)        | 2 x 20 character LCD display (one per module) |
| MIMIC diagram                          | LED-indicator, 5x green/red LEDs (one per module) |
| RS232 on Sub-D9 port                   | For monitoring and integration in network management |
| RS232 on USB port                      |                                               |
| Customer Interfaces Inputs DRY PORT    | 1 Remote Shut down [EMERGENCY OFF (Normally closed)] |
|                                        | 1 GEN-ON (Normally open)                      |
|                                        | 1 Programmable Customer’s Inputs (Normally open) |
|                                        | 1 Temp. Sensor for Battery Control            |
| Customer Interfaces Outputs DRY PORT   | 6 voltage free contacts                       |
|                                        | For remote signaling and automatic computer shutdown |
| RS485 on RJ45 port [OPTIONAL]          | Remote monitoring system with remote panel (graphical display) |
| RS485 on RJ45 port [OPTIONAL]          | For multi-drop purpose                        |
| Slot for SNMP [OPTIONAL]               | SNMP card                                     |
|                                        | For monitoring and integration in network management |

6.1 System graphical display

The user-friendly touchscreen graphical display on the system level offers the opportunity to directly monitor the system status as well as the status of each individual module. The graphical display
additionally provides all measurements (at module and system level) and the user can transfer from the inverter to bypass and vice-versa. All other commands must be performed on the DPA display. With both displays in place (module and system level), the UPS offers full user friendliness without making compromises on robustness.

6.2 DPA module display

The 2 x 20 character LCD simplifies the communication with the UPS. The menu driven LCD enables the access to the EVENT REGISTER, or to monitor the input and output U, I, f, P, Autonomy Time and other Measurement’s, to perform commands like start-up and shut-down of INVERTER or load transfer from INVERTER to BYPASS and vice-versa and finally it serves for the DIAGNOSIS (SERVICE MODE) for adjustments and testing (for more details see the USER MANUAL).

6.3 Mimic Diagram

The mimic diagram serves to give the general status of the UPS. The LED-indicators show the power flow status and in the event of mains failure or load transfer from inverter to bypass and vice-versa the corresponding LED-indicators will change colour from green (normal) to red (warning). The LED’s LINE 1 (rectifier) and LINE 2 (bypass) indicate the availability of the mains power supply. The LED’s INVERTER and BYPASS if green indicate which of the two are supplying power to the critical load. When the LED-indicator BATTERY is lit it means that the battery due to mains failure is supplying the load. The LED-indicator ALARM is a visual indication of any internal or external alarm condition. At the same time the audible alarm will be activated.
7  Customer interfaces

7.1  Customer inputs dry ports: Terminal blocks X3 / 3-14

Connection of Remote Shut down facilities, Generator Operation, Customers specials (refer to the user manual).

7.2  Outputs dry ports: Terminal blocks X2 + X3 / 1-2

Provision of signals for the automatic and orderly shutdown of servers, AS400 or Automation building systems

7.3  Interlock castell function: Terminal block X1

This function allows a secure transfer from inverter (normal operation) to external maintenance bypass and vice-versa. During normal operation the external bypass is locked in position OFF. Only when the UPS is/are transferred to static bypass mode, the lock on the external bypass is released and it possible to switch to position ON. The transfer from maintenance bypass back to normal operation happens exactly the other way around. The release signal is a closed contact when the maintenance bypass is free and an open contact when locked.
All Terminals X1-X3 can hold Cable from AWG 24 to AWG 15.
X1 is a dry contact for monitoring an external output switch and can be used as interlock function.
All X2 are potential free contacts and are rated: 30Vdc/2A; 60Vdc/0.7A
All X3 (except X3 5/6 which is a 12VDC source) are inputs, cable max. R 50Ω at 20mA

<table>
<thead>
<tr>
<th>Block</th>
<th>Terminal</th>
<th>Contact</th>
<th>Signal</th>
<th>On Display</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>X3</td>
<td>X3 / 14</td>
<td>GND</td>
<td>GND</td>
<td>-</td>
<td>Battery Temperature (only the optional battery sensor from ABB is compatible)</td>
</tr>
<tr>
<td></td>
<td>X3 / 13</td>
<td>IN</td>
<td>+3.3Vdc</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>X3 / 12</td>
<td>GND</td>
<td>GND</td>
<td>GENERATOR_OPER_ON</td>
<td>Generator Operation (N.O.) Min. contact load 12V / 1mA</td>
</tr>
<tr>
<td></td>
<td>X3 / 11</td>
<td>IN</td>
<td>+12Vdc</td>
<td>PARALLEL_SW_OPEN PARALLEL_SW_CLOSE</td>
<td>External Output Breaker (N.O.) Min. contact load 12V / 20mA.</td>
</tr>
<tr>
<td></td>
<td>X3 / 10</td>
<td>GND</td>
<td>GND</td>
<td>EXT_MAN_BYP</td>
<td>External Manual Bypass (Ext. IA1) (N.O.) Min. contact load 20mA</td>
</tr>
<tr>
<td></td>
<td>X3 / 9</td>
<td>IN</td>
<td>+12Vdc</td>
<td>-</td>
<td>+ 12 VDC source (UPS protected) (Max. 200mA)</td>
</tr>
<tr>
<td></td>
<td>X3 / 8</td>
<td>IN</td>
<td>12V</td>
<td>GND</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>X3 / 7</td>
<td>IN</td>
<td>GND</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>X3 / 6</td>
<td>IN</td>
<td>+12Vdc</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>X3 / 5</td>
<td>IN</td>
<td>GND</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>X3 / 4</td>
<td>GND</td>
<td>GND</td>
<td>REMOTE_SHUTDOWN</td>
<td>RSD (Remote Shut down) (Default setting: disabled. Possibility to enable and set NO or NC via NewSet.)</td>
</tr>
<tr>
<td></td>
<td>X3 / 3</td>
<td>IN</td>
<td>+12Vdc</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>X3 / 2</td>
<td>C</td>
<td>-</td>
<td>REMOTE_SHUTDOWN</td>
<td>RSD (Remote Shut down) for external switch Max. 250Vac/8A ;30Vdc/8A ;110Vdc/0.3A ;220Vdc/0.12A</td>
</tr>
<tr>
<td></td>
<td>X3 / 1</td>
<td>NO</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>X2</td>
<td>X2 / 18</td>
<td>C</td>
<td>-</td>
<td>-</td>
<td>Common</td>
</tr>
<tr>
<td></td>
<td>X2 / 17</td>
<td>NC</td>
<td>-</td>
<td>-</td>
<td>Relay AUX (function on request, to be defined)</td>
</tr>
<tr>
<td></td>
<td>X2 / 16</td>
<td>NO</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>X2 / 15</td>
<td>C</td>
<td>COMMON_ALARM</td>
<td>Common</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 14</td>
<td>NC</td>
<td>ALARM</td>
<td>No Alarm Condition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 13</td>
<td>NO</td>
<td>-</td>
<td>Common Alarm (System)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 12</td>
<td>C</td>
<td>LOAD_ON_MAINS</td>
<td>Common</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 11</td>
<td>NC</td>
<td>Message</td>
<td>No Load on Bypass</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 10</td>
<td>NO</td>
<td>-</td>
<td>Load On Bypass (Mains)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 9</td>
<td>C</td>
<td>BATT_LOW</td>
<td>Common</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 8</td>
<td>NC</td>
<td>ALARM</td>
<td>Battery Ok</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 7</td>
<td>NO</td>
<td>-</td>
<td>Battery Low</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 6</td>
<td>C</td>
<td>LOAD_ON_INV</td>
<td>Common</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 5</td>
<td>NC</td>
<td>Message</td>
<td>No Load on Inverter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 4</td>
<td>NO</td>
<td>-</td>
<td>Load on Inverter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 3</td>
<td>C</td>
<td>MAINS_OK</td>
<td>Common</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 2</td>
<td>NC</td>
<td>ALARM</td>
<td>Mains Failure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X2 / 1</td>
<td>NO</td>
<td>-</td>
<td>Mains Present</td>
<td></td>
</tr>
<tr>
<td>X1</td>
<td>X1 / 2</td>
<td>-</td>
<td>EXT_MAN_BYP</td>
<td>Interlock Function Max. 30Vdc/2A; 60Vdc/0.7A (Ext Manual Bypass) / 2AT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X1 / 1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Phoenix Spring Terminals (X1…X2) Connection
# Options

<table>
<thead>
<tr>
<th>ARTICLE</th>
<th>DESCRIPTION</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRODUCT OPTIONS OR FEATURES – MODULE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4NWP101921R0001</td>
<td>Cold start DPA Module UL</td>
<td>Available for 20kW and 40kW modules</td>
</tr>
<tr>
<td>4NWP102254R0001</td>
<td>Sync Feature CP DPA 120-240 mod. - SP102</td>
<td>Available for 20kW and 40kW modules</td>
</tr>
<tr>
<td><strong>PRODUCT OPTIONS OR FEATURES – ELECTRONICS &amp; SOFTWARE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00-2907</td>
<td>Parallel adapter</td>
<td>For 1 UPS frame.</td>
</tr>
<tr>
<td>04-3630</td>
<td>Parallel Cable Kit 5m</td>
<td>Includes multidrop cable.</td>
</tr>
<tr>
<td>04-3631</td>
<td>Parallel Cable Kit 10m</td>
<td>Includes multidrop cable.</td>
</tr>
<tr>
<td>04-3632</td>
<td>Parallel Cable Kit 15m</td>
<td>Includes multidrop cable.</td>
</tr>
<tr>
<td>04-3633</td>
<td>Parallel Cable Kit 20m</td>
<td>Includes multidrop cable.</td>
</tr>
<tr>
<td>04-3634</td>
<td>Parallel Cable Kit 25m</td>
<td>Includes multidrop cable.</td>
</tr>
<tr>
<td>4NWP101937R0001</td>
<td>Maintenance Bypass Switch</td>
<td>3-phase switch, rated 400A 600VAC. Factory mounted only.</td>
</tr>
<tr>
<td>4NWP101929R0001</td>
<td>Battery Breaker for CP DPA 120UL</td>
<td>Factory mounted only.</td>
</tr>
<tr>
<td>4NWP101946R0001</td>
<td>Transient Voltage Surge Suppressor 120V</td>
<td>Factory mounted only.</td>
</tr>
<tr>
<td><strong>PRODUCT OPTIONS OR FEATURES – EXTERNAL BATTERIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00-3563</td>
<td>Temperature probe for batteries</td>
<td>Cable length 1.3m.</td>
</tr>
<tr>
<td><strong>PACKAGING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4NWP100585R0001</td>
<td>Carton box for 1 module of 710x178x750mm</td>
<td>Only needed if modules are shipped outside the racks. Stackable up to 2.</td>
</tr>
<tr>
<td>4NWP101978R0001</td>
<td>Sea freight case CP DPA 120-240 UL</td>
<td></td>
</tr>
<tr>
<td><strong>DOCUMENTATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00-2976</td>
<td>Certificate of origin</td>
<td>Legalized invoice is also available.</td>
</tr>
<tr>
<td>04-0160</td>
<td>Duplicate of the commissioning report</td>
<td></td>
</tr>
<tr>
<td>04-0161</td>
<td>Duplicate of archived commissioning rep.</td>
<td></td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4NWP102309R0001</td>
<td>1y. extra warranty for 1 20-40kW module</td>
<td>Available for 20kW and 40kW modules</td>
</tr>
</tbody>
</table>

## 8.1 On request

- Connectivity options
- Bypass transformers
- Input / Output transformers for galvanic isolation or special voltages
9 UPS location

The minimum needed clearances to allow proper airflow on the UPS system and to allow proper service and maintenance shall be respected as reported below:

![Diagram of UPS and battery location (Clearances)](image)

**Fig. 8.3-1: UPS and battery location (Clearances)**

- **A** Back clearance for ventilation (forced air outlet) 300 mm
- **B** Front clearance needed to allow a correct door opening 1000 mm
- **C** Maximum door opening angle 115°
- **D** Top Clearance (Top clearance is only needed if there is no side clearance) 400 mm
## 10 Heat dissipation per module with nonlinear load

<table>
<thead>
<tr>
<th>Number of modules</th>
<th>UPS power rating ($kW$)</th>
<th>Heat dissipation with 100% linear load ($W$)</th>
<th>Heat dissipation with 100% non-linear load (according to IEC 62040-3) ($W$)</th>
<th>Airflow ($25° - 30°C$) with 100% non-linear load (according to IEC 62040-3) ($m^3/h$)</th>
<th>Heat dissipation without load ($W$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>20</td>
<td>1390</td>
<td>1600</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>40</td>
<td>2780</td>
<td>3200</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>60</td>
<td>4170</td>
<td>4800</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>80</td>
<td>5561</td>
<td>6400</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>100</td>
<td>6950</td>
<td>8000</td>
<td>1'000</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>120</td>
<td>8340</td>
<td>9600</td>
<td>1'200</td>
</tr>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4743</td>
<td>9485</td>
<td>5460</td>
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<td></td>
<td></td>
<td></td>
<td>9485</td>
<td>14229</td>
<td>10920</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>14229</td>
<td>18970</td>
<td>16380</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18970</td>
<td>23715</td>
<td>21840</td>
</tr>
<tr>
<td></td>
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<td>23715</td>
<td>28458</td>
<td>27300</td>
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<td></td>
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<td></td>
<td>28458</td>
<td>32760</td>
<td>32760</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
11 Single input feed and separate batteries configuration

Cable sections and fuse ratings recommended. Alternatively, local standards to be respected

11.1 Block diagram

11.2 Cable sections & fuse ratings

Recommended AC wiring (copper wires) according to current normative, recommended fuse ratings for slow line fuses (gL) or circuit breakers (CB), connection terminal size and max. tightening torque.

### Rated power

<table>
<thead>
<tr>
<th>Rated power (kW)</th>
<th>Single input Max. rectifier input current with charging batt. 363A at 120V</th>
<th>Output Rated output current in normal conditions 333A at 120V</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>Fuse A Type: gL or CB (quantity x A) 3 x 450A (3 pole, bolded N) 2x(2x250) PH + 4x250 N + 2x250 PE</td>
<td>Fuse D Type: gL or CB (only needed in parallel system) (quantity x Kcmils) 3 x 450A (3 pole, bolded N) 3x(2x250) PH + 4x250 N + 2x250 PE</td>
</tr>
<tr>
<td></td>
<td>Cable A (quantity x Kcmils) 3 x 450A 3x(2x250) PH + 4x250 N</td>
<td>Cable D (quantity x Kcmils) 3 x 450A 3x(2x250) PH + 4x250 N</td>
</tr>
</tbody>
</table>

All connection points are bus-bar, M12. Max. tightening torque 84.8 Nm

Recommended DC wiring (copper wires) according to current normative, recommended fuse ratings for fast acting fuses (gR) or circuit breakers (CB), connection terminal size and max. tightening torque.

### Separate batteries

<table>
<thead>
<tr>
<th>Rated power (kW)</th>
<th>Fuse E Type: gR or CB (quantity x A) 3 x 125A (3 pole)</th>
<th>Cable E (quantity x AWG) 2x(1x1) + 1x1 PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 (one module)</td>
<td></td>
<td>All connection points are terminal blocks, Max. tightening torque 5 Nm</td>
</tr>
</tbody>
</table>

1) Four neutral cables are required for full non-linear load operation only
12 Dual input feed and common battery configuration

Cable sections and fuse ratings recommended. Alternatively, local standards to be respected

12.1 Block diagram

12.2 Cable sections & fuse ratings

Recommended AC wiring (copper wires) according to current normative, recommended fuse ratings for slow line fuses (gL) or circuit breakers (CB), connection terminal size and max. tightening torque.

<table>
<thead>
<tr>
<th>Rated power (kW)</th>
<th>Rectifier input Max. rectifier input current with battery charging 363A at 120V</th>
<th>Bypass input Max. bypass input current 333A at 120V</th>
<th>Output Rated output current in normal conditions 333A at 120V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuse B Type: gL or CB (quantity x A)</td>
<td>Cable B (quantity x Kcmils)</td>
<td>Fuse C Type: gL or CB (quantity x A)</td>
<td>Cable C (quantity x Kcmils)</td>
</tr>
<tr>
<td>120</td>
<td>3 x 450A (3 pole, bolded N)</td>
<td>3 x 450A (3 pole, bolded N)</td>
<td>3 x 450A (3 pole, bolded N)</td>
</tr>
<tr>
<td></td>
<td>3x(2x250) PH + 4x250 N</td>
<td>3x(2x250) PH + 4x250 N</td>
<td>3x(2x250) PH + 4x250 N + 2x250 PE</td>
</tr>
</tbody>
</table>

All connection points are bus-bar, M12. Max. tightening torque 84.8 Nm

Recommended DC wiring (copper wires) according to current normative, recommended fuse ratings for fast acting fuses (gR) or circuit breakers (CB), connection terminal size and max. tightening torque.

<table>
<thead>
<tr>
<th>Rated power (kW)</th>
<th>Fuse E Type: gR or CB (quantity x A)</th>
<th>Cable E (quantity x Kcmils)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>2x630A (2 pole)</td>
<td>2x(3x250) + 2x250 PE</td>
</tr>
</tbody>
</table>

All connection points are bus-bar, M12. Max. tightening torque 84.8 Nm

\(^\text{1}\) Four neutral cables are required for full non-linear load operation only