

# DCDC SP

Bidirectional isolated DCDC converter  
Motorsport & extreme vehicle applications  
800V battery compliant  
Battery charger / LV network supply  
Total continuous power 1.9kW/105A



## KEY FEATURES

- > **Isolated HV voltage:** 250 to 950V<sub>DC</sub>
- > **LV side voltage range:** 0 to 56V<sub>DC</sub> (CAN settable)
- > **Single or Dual LV ports configuration**
- > **CAN Bootloader & Remote Communication**
- > **Liquid-Cooling (LC) or Forced-Air (FA)**
- > **Harsh environment**
- > **High efficiency:** >94%
- > **Weight:** 590g (LC) / 625g (FA)

## TECHNICAL SPECIFICATION

### HV side

|                        |                                              |
|------------------------|----------------------------------------------|
| Voltage                | 250V <sub>DC</sub> to 950V <sub>DC</sub>     |
| ON/OFF                 | Internal pull-up. Tie to ground for start-up |
| HV X capacitance       | 100nF (no built-in precharge)                |
| HV parallel resistance | 4MΩ                                          |
| IDLE mode consumption  | 280mW                                        |

### LV side

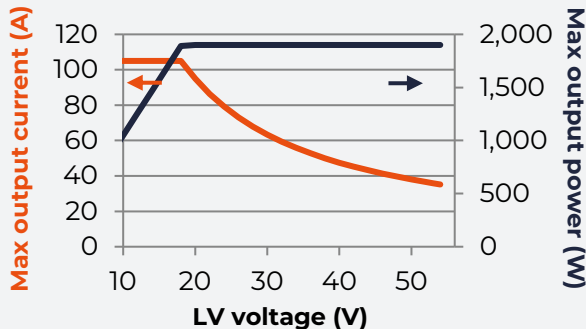
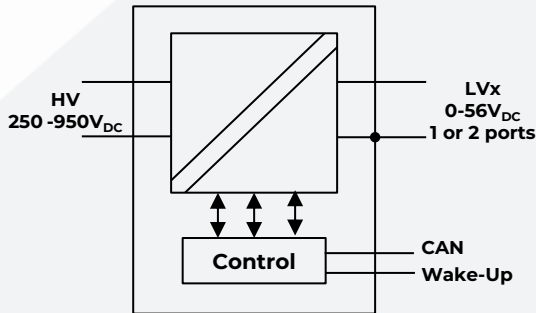
|                          |                                                    |
|--------------------------|----------------------------------------------------|
| Voltage                  | 0V <sub>DC</sub> to 56V <sub>DC</sub> (set by CAN) |
| Overvoltage protection   | 58V <sub>DC</sub>                                  |
| Absolute maximum rating  | 60V <sub>DC</sub>                                  |
| Static precision         | 1%                                                 |
| Continuous current       | 0 to 105A (set by CAN)<br>35A per channel          |
| Current limit accuracy   | <3% at full scale                                  |
| Short-circuit protection | Current regulation at setpoint value down to 0V    |
| Continuous power         | 1900W max<br>650W per channel                      |
| Line + load regulation   | 15% for 0-100% step load without battery           |

### Efficiency

|                   |       |
|-------------------|-------|
| Global efficiency | > 94% |
|-------------------|-------|

### Environment

|                             |                                     |
|-----------------------------|-------------------------------------|
| Environmental protection    | IP67                                |
| Altitude                    | Up to 3000m                         |
| Cooling                     | Liquid temperature 60°C max (inlet) |
| Operating temperature range | From -40°C to 80°C ambient          |
| Storage temperature range   | From -40°C to 100°C                 |
| Weight                      | 590g (LC)   625g (FA)               |



## BrightLoop Converters

221 Boulevard Davout  
75020 Paris – France  
Tel +33 1 83 62 63 59

[www.brightloop.fr](http://www.brightloop.fr)

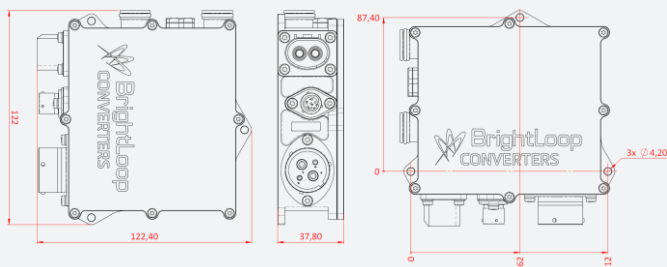
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## TECHNICAL SPECIFICATION

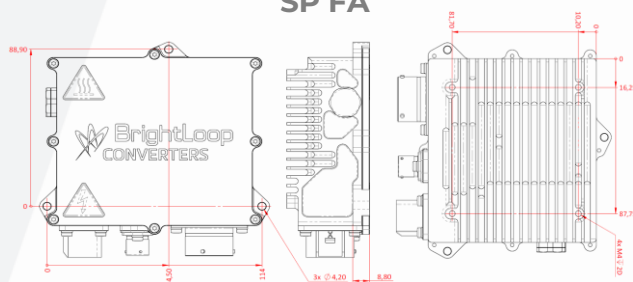
|                                                   |                                                                 |
|---------------------------------------------------|-----------------------------------------------------------------|
| <b>CAN Interface</b>                              |                                                                 |
| Bus speed                                         | 125Kbps to 1Mbps (set by CAN)                                   |
| Control modes                                     | HV -> LV                                                        |
|                                                   | LV -> HV                                                        |
|                                                   | LV <-> LV                                                       |
| LV management                                     | LV current limit 0A to 105A, 1A resolution                      |
|                                                   | Voltage LV setpoint 10V to 56V, 0.1V resolution                 |
|                                                   | Power ON/OFF for each LV port                                   |
| Power limitation / Remaining                      | Minimum between 105A and 1.9kW depending on selected LV voltage |
| LV side power configuration                       | Single: 105A                                                    |
|                                                   | Dual: 70A + 35A                                                 |
| Monitoring                                        | DC/DC status and errors                                         |
|                                                   | Voltages, currents, temperatures measurements                   |
| Identification                                    | Software & Hardware revision                                    |
|                                                   | Bootloader for CAN software update                              |
| <b>Safety</b>                                     |                                                                 |
| HV/LV insulation                                  | 3000V <sub>DC</sub> Reinforced insulation                       |
|                                                   | EN 62368-1 compliant                                            |
| <b>Liquid-Cooling (LC)</b>                        |                                                                 |
| Pressure loss                                     | 70mbar @10L/min                                                 |
| Maximum operating pressure                        | 1.7barg                                                         |
| Maximum testing pressure                          | 3.3barg                                                         |
| Liquid cooling volume                             | 30cm <sup>3</sup>                                               |
| Cooling connectors                                | Wiggins (W994-08D) size ½"                                      |
| <b>Mechanical</b>                                 |                                                                 |
| Dimensions                                        | 122.4x122x37.8 mm (LC)<br>122x121.9x43.8mm (FA)                 |
| Housing                                           | Aluminum with conductive anti-corrosion treatment               |
| HV connector                                      | IP67 with security loop (Amphenol PL082X-61-2.5)                |
| Output connector                                  | IP67 (Amphenol 8STA 016 22 PN 251)                              |
| Signals connector                                 | IP67 (Souriau 8TA 008 35 SN)                                    |
| Fan interface (FA)                                | Fixation holes for ø 80mm fan                                   |
| <b>Supplied with electrical mating connectors</b> |                                                                 |

## OUTLINE DRAWING

SP LC



SP FA



Dimensions in mm

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 **BrightLoop**  
A member of the ABB Group

# Ordering code logic

