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# SynJet® Spotlight Cooler 21W

SynJet cooling technology provides the most reliable thermal management solution available. This LED cooler has been developed by Aavid for cooling tracklight, spotlight and recessed downlight modules.

- Cools up to 21 W<sup>4</sup>
- L10 of 100K Hours of 60°C
- Energy Efficient
- 5 Year Warranty
- Small Form Factor
- Quiet Acoustics



## Specifications<sup>1</sup>

### Thermal & Acoustic

| SynJet Setting <sup>2</sup> | Θs-a <sup>3</sup> | TDP <sup>4</sup> (W) | SPL (dBA) <sup>5</sup> | Wire Connections  |
|-----------------------------|-------------------|----------------------|------------------------|---|
| High Performance            | 1.41              | 21                   | 28                     | Red to +VDC<br>Black & Blue to Ground                     |
| Standard                    | 1.75              | 17                   | 22                     | Red to +VDC<br>Black only to Ground                       |
| Silent                      | 2.33              | 13                   | 18                     | Red to +VDC<br>Black & Purple to Ground                   |
| PWM at 100% duty cycle      | 1.41              | 21                   | 28                     | Red to +VDC<br>Black only to Ground<br>Blue to PWM Signal |
| Heatsink Only               | 4.5               | 7                    | N/A                    | N/A   |

### Electrical

| SynJet Setting <sup>2</sup> | Voltage (VDC) +/- 10% | Current (mA) <sup>6</sup> |      |       | Pavg (mW) | Voltage (VDC) +/- 10% | Current (mA) <sup>6</sup> |      |       | Pavg (mW) |
|-----------------------------|-----------------------|---------------------------|------|-------|-----------|-----------------------|---------------------------|------|-------|-----------|
|                             |                       | Imin                      | Iavg | Ipeak |           |                       | Imin                      | Iavg | Ipeak |           |
| High Performance            | 5                     | 20                        | 140  | 280   | 700       | 12                    | 10                        | 71   | 142   | 850       |
| Standard                    |                       |                           | 70   | 140   | 350       |                       |                           | 42   | 84    | 500       |
| Silent                      |                       |                           | 60   | 120   | 300       |                       |                           | 38   | 76    | 450       |
| PWM at 100% duty cycle      |                       |                           | 140  | 280   | 700       |                       |                           | 71   | 142   | 850       |

<sup>1</sup> All values are typical at 25°C unless otherwise stated.

<sup>2</sup> The Level Select model should be used for discrete performance settings. Follow the instructions in the Product Design Guide for adjusting settings.

<sup>3</sup> Thermal resistance values are given as reference only and are measured in free air without airflow obstructions. Thermal resistance is measured from the bottom middle of the heat sink to ambient air measured at the inlet to the SynJet, with a heat source at least 19cm<sup>2</sup> using the 21W reference heat sink. Actual thermal performance may vary by application and final product design should be tested to assure proper thermal performance.

<sup>4</sup> Thermal Design Power is based on a 30°C temperature rise of heat sink mounting surface above ambient temperature around cooler.

<sup>5</sup> Sound Pressure Level is measured at 1 meter distance per ISO 7779.

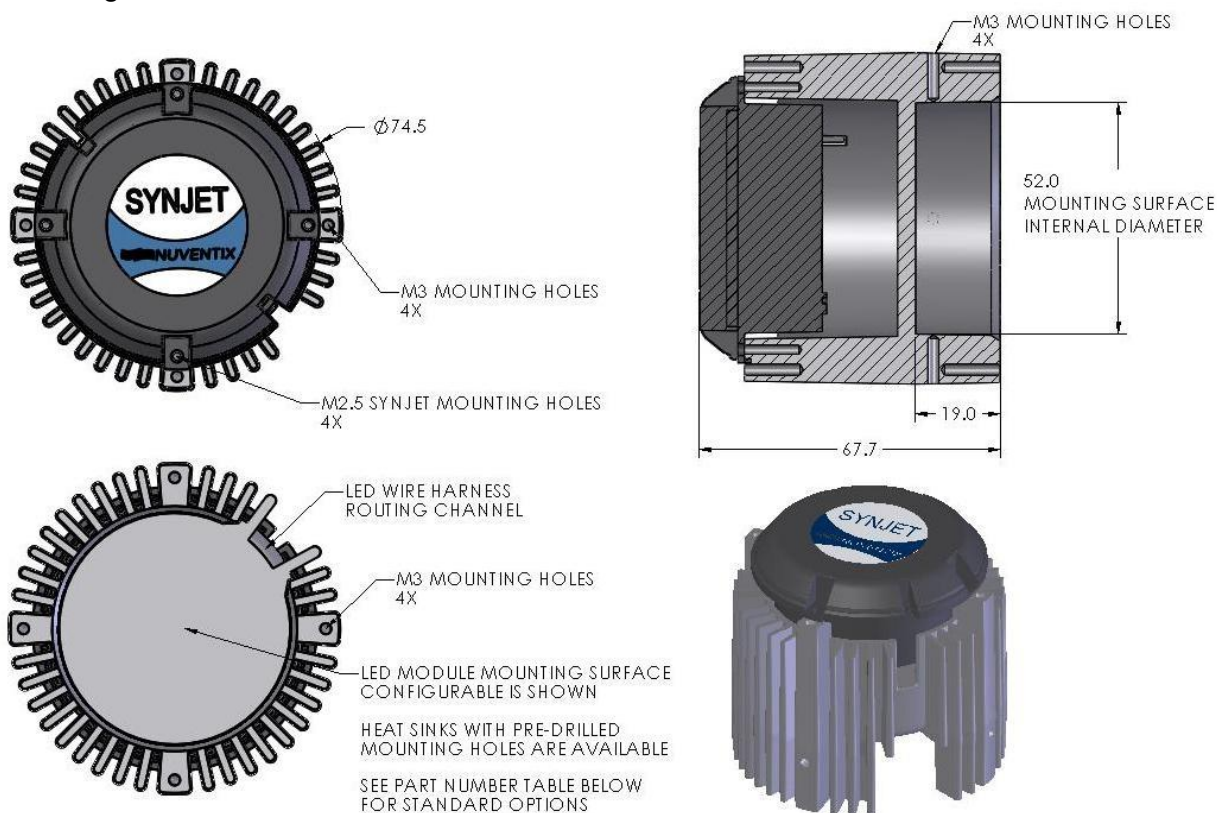
<sup>6</sup> The SynJet has a time varying current. The current waveform is sinusoidal and the average current (Iavg) is used to calculate the average power consumption (Pavg) at nominal input voltage (VDC). See the Electrical section in the Product Design Guide for a detailed explanation.

**Environmental**

| All Settings                | Min | Max  | Units | Conditions                         |
|-----------------------------|-----|------|-------|------------------------------------|
| Operating Temperature       | -40 | 70   | °C    | Air temperature surrounding cooler |
| Storage Temperature         | -50 | 85   | °C    | Air temperature surrounding cooler |
| Storage Altitude            |     | 15K  | m     | Above sea level                    |
| Operating Relative Humidity | 5   | 95   | %     | Non-condensing                     |
| Weight                      |     | 300  | g     | SynJet with heat sink              |
| Reliability                 |     | 100K | hrs   | L10 @ 60°C                         |
| Regulatory Compliance       |     |      |       | RoHS, UL, FCC Part 15 Class B, CE  |

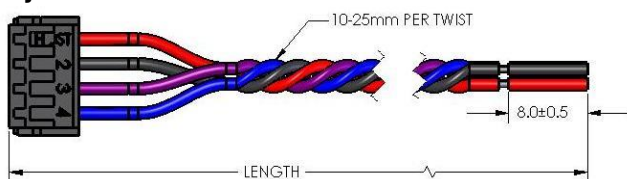
**Mechanical**

SynJet Cooling Solution shown with HSSLS-CALCL-006



All dimensions are nominal and in mm unless otherwise stated. See product drawings for more detail.

**SynJet Wire Harness**



**Connector Pinout**

| Pin | Wire Color | Symbol | Description   |
|-----|------------|--------|---|
| 1   | Red        | +VDC   | 5 V or 12 V depending on model                              |
| 2   | Black      | GND    | Ground  |
| 3   | Purple     | CTRL2  | Input for Level Select model<br>Status signal for PWM model |
| 4   | Blue       | CTRL1  | Input for Level Select model<br>PWM input for PWM model     |

**IMPORTANT:** SynJets should be completely wired to the power supply before the power supply is energized. The power supply should be turned off before the SynJet Cooler is disconnected. SynJet Coolers are not designed for "hot swap" or "hot plug" applications.

**Part Numbers**

| Part Number     | Description   | Notes  |
|-----------------|---|--|
| SPARS-CM005-002 | SynJet, ZFlow 65 Cooler, Level Select, 5V, Black                            | Hard wired performance settings              |
| SPARS-CM005-001 | SynJet, ZFlow 65 Cooler, PWM, 5V, Black                                     | Use PWM input to control performance setting |
| SPARS-CM012-002 | SynJet, ZFlow 65 Cooler, Level Select, 12V, Black                           | Hard wired performance settings              |
| SPARS-CM012-001 | SynJet, ZFlow 65 Cooler, PWM, 12V, Black                                    | Use PWM input to control performance setting |
| HSSLS-CALCL-005 | Heatsink, 21W, Spotlight Cooler, Philips SLM, Vossloh-Schwabe, Matte Silver | Contact sales for other heatsink options     |
| HSSLS-CALCL-006 | Heatsink, 21W, Spotlight Cooler, Configurable, Matte Silver                 | Contact sales for other heatsink options     |
| HSSLS-CALCL-009 | Heatsink, 21W, Spotlight Cooler, Osram PrevaLED, Matte Silver               | Contact sales for other heatsink options     |
| HSSLS-CALCL-010 | Heatsink, 21W, Spotlight Cooler, Bridgelux ES, Matte Silver                 | Contact sales for other heatsink options     |
| HSSLS-CALCL-015 | Heatsink, 21W, Spotlight Cooler, Zhaga B3, Tridonic, Matte Silver           | Contact sales for other heatsink options     |
| WALLS-C4150-001 | Wire Harness, 4-Wire, 150 mm Length   | Contact sales for other wire harness options |
| WALLS-C4600-001 | Wire Harness, 4-Wire, 600 mm Length   | Contact sales for other wire harness options |

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