

### 1.4.2.3 Standard Customized Solutions (OEM) Thermal Sensors

#### 60mW to 100W

#### Features

- Conduction cooled
- Spectrally flat
- UAF axial thermopile has very fast response time – 50ms
- Standard UAF version can give analog voltage output or digital RS232 output and can measure power or single shot energy. Can also have multiple switchable ranges and/or multiple switchable wavelengths.
- UAU and UAE versions are similar to the UAF version but UAU operates via the USB terminal of the PC and UAE via an Ethernet connection



These specifications refer to standard OEM sensors, and are to be understood as generic, describing sensor families. Ophir will be happy to help you with a specific solution for your particular application.

| Model   | 100C-SH                               | 100C-UAF / 100C-UAU / 100C-UAE  | 100W-AXL-UAF                 |
|---|---------------------------------------|---|------------------------------|
| Type  | Smart sensor                          | UAF - Analog or RS232 output<br>UAU - USB compatible output<br>UAE - Ethernet output                            | RS232 or Analog output       |
| Features  | Low profile, smart sensor             | Low profile, various outputs  | Very fast response ~50ms     |
| Absorber Type                                       | Broadband                             | Broadband   | PF                           |
| Spectral Range $\mu\text{m}$                        | 0.19 – 20                             | 0.19 – 20 (c)   | 0.19 – 20 (c)                |
| Absorption  | ~88%                                  | >94% from 0.25 to 1.1 $\mu\text{m}$   | ~88%                         |
| Aperture mm   | $\varnothing$ 18                      | $\varnothing$ 18  | $\varnothing$ 26             |
| Power Mode  |                                       |   |                              |
| Maximum power (a) free standing<br>heat sunked      | 4W continuous, 20W for 1.8min<br>100W | 4W continuous, 20W for 1.8min<br>100W   | 100W water cooled only       |
| Minimum power                                       | 60mW                                  | 60mW  | 400mW                        |
| Power Noise Level                                   | 3mW                                   | 3mW   | 20mW                         |
| Maximum Average Power Density<br>kW/cm <sup>2</sup> | 30 at 4W 14 at 100W                   | 30 at 4W 14 at 100W   | 0.4                          |
| Response Time (0-95%) typ. (sec)                    | 1.2                                   | 1.2s  | 50ms 0-90%                   |
| Calibration Uncertainty $\pm\%$                     | 1.9                                   | 1.9   | 1.9                          |
| Power Accuracy $\pm\%$ at calibrated<br>wavelength  | 3                                     | 3   | 3 for beam diameter >8mm     |
| Linearity with Power $\pm\%$                        | 1                                     | 1   | 2                            |
| Amplifier power supply                              | NA                                    | UAF +6V to +24V<br>UAU - Via Host USB<br>UAE +6V to +24V via separate<br>connector                              | +12V to +24V                 |
| Energy Mode   |                                       |   |                              |
| Maximum Energy                                      | NA                                    | NA  | NA                           |
| Minimum Energy                                      | NA                                    | NA  | NA                           |
| Maximum Energy Density J/cm <sup>2</sup>            |                                       |   |                              |
| <100ns  | 0.3                                   | 0.3   | 1.5                          |
| 0.5ms   | 5                                     | 5   | 7                            |
| 2ms   | 10                                    | 10  | 15                           |
| 10ms  | 30                                    | 30  | 40                           |
| Cooling   | Conduction                            | Conduction  | Water                        |
| Connections   | Ophir smart plug                      | UAF - 6 pin Molex (b)<br>UAU - Mini B USB connector<br>UAE - Ethernet for communications<br>and 5 pin for power | 6 pin Molex (b)              |
| Dimensions  | 48x48x14.5mm                          | 48x48x14.5mm  | 60x60x45mm                   |
| Compliance  | CE, UKCA, China RoHS                  | RoHS, China RoHS  | RoHS, China RoHS             |
| Part Number   | 7Z02680                               | Consult Ophir Representative  | Consult Ophir Representative |

Note: (a) With analog "UAF" versions, sensor voltage output is accurate up to 2v below lowest level of supply voltage, taking into account supply voltage ripple

Note: (b) 6 pin Molex connections: RS232 input, Ground, +Voltage, Analog signal out, high/low voltage or switch input when used, RS232 output

Note: (c) Calibrated at customer selected wavelength

\* For UAE & UAU drawings please [see pages 125-126](#)

