



### **Mikron M345X6-LC**

#### **Liquid-Cooled, Low Temperature Blackbody Calibration Source with Large Surface Area, -40 to 100°C**

Advanced Energy's Mikron M345X6-LC blackbody calibration source is a liquid-cooled, two-piece system comprised of a controller module and a separate enclosure with an aperture size of 152 x 152 mm (6 x 6 in) and a temperature range of -40 to 100°C.

- High effective emissivity
- High accuracy and high resolution (0.01°C)
- Excellent stability, 0.02°C per 8 hours in still air environment
- Warm-up time of 15 minutes (-40°C)

#### **Overview**

The Mikron® M345X6-LC blackbody source is liquid-cooled and heated by precision thermoelectric modules (Peltier method). It is available in absolute or differential configurations. M345X6-LC calibration sources satisfy the exacting parameters of infrared focal plane array detectors, thermal imaging, and forward-looking infrared (FLIR) systems testing in static and moving scene applications. They combine fast slew rates, high emissivity, and unchallenged stability and uniformity.

#### **Benefits**

- Calibrate and verify the output signals of pyrometers, thermal imagers, etc.
- Obtain lower temperature calibrations using liquid cooling

- Utilize large aperture sizes
- Control emitter source temperature with a precision digital PID controller
- Satisfy the exacting parameters of infrared focal plane array detectors, thermal imaging and forward looking infrared (FLIR) systems testing

#### **Features**

- High emissivity with thermometric calibration
- Uniform temperature distribution with precision heating elements
- Manufactured and tested to meet rigid quality control standards
- Furnished with a certificate of calibration traceable to NIST
- RS232 serial communication

#### **Measurement Specifications**

##### **Temperature Range**

-40 to 100°C (-40 to 212°F)

##### **Temperature Uncertainty**

±0.05°C (thermometric calibration)

##### **Temperature Resolution**

0.01°C

##### **Stability**

0.02°C per 8-hour period with no external air breezes

##### **Source Non-Uniformity**

±0.2°C (excluding 10% border area) up to 50°C

##### **Heated Emitter Shape**

Thermally uniform plate

##### **Exit Port Diameter**

152 x 152 mm (6 x 6 in)

##### **Emissivity**

0.9756 ±0.0039 at 8 to 15 μm

0.9713 ±0.0049 at 3 to 5 μm

##### **Calibration Method**

Thermometric

##### **Temperature Sensor**

Precision platinum RTD 1/3 DIN

##### **Warm-Up Time**

15 minutes (-40°C)

##### **Slew Rate to 1°C Stability**

15 minutes max to -40°C with chiller set at 0°C

##### **Slew Rate to 0.1°C Stability**

15 minutes max for entire range travel

- **Communication / Interface**

##### **Remote Set Point**

Via RS232 (optional RS485)

##### **Method of Control**

Digital PID controller

- **Environmental Specifications**

##### **Operating Ambient Temperature**

20 to 30°C

##### **H x W x D**

Controller module: 178 x 483 x 593 mm (7 x 19 x 23 in)

##### **CE Certified**

Yes

- **Electrical**

**Power Requirements**

115 VAC  $\pm 10\%$  60 Hz

230 VAC  $\pm 10\%$  50 Hz, 1200 VA maximum for blackbody only (optional)

Power requirements must be specified at the time of order

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