

# LAND



# UNO

**STAND ALONE RADIATION THERMOMETERS**

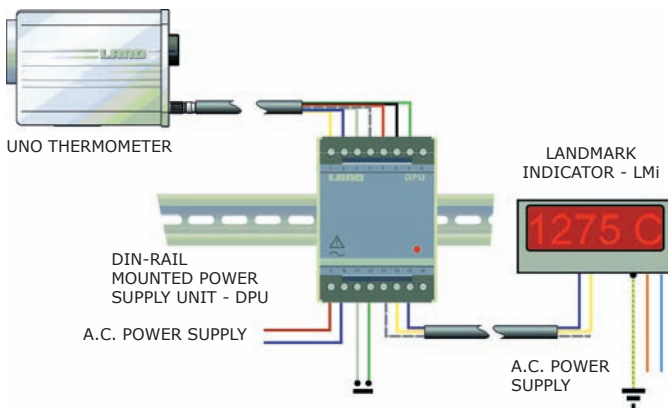
**AMETEK<sup>®</sup>**  
PROCESS & ANALYTICAL INSTRUMENTS



# High Precision Non-Contact Temperature Measurement

UNO is a range of high precision, stand-alone, non contact temperature measurement systems which benefit from a rugged and versatile design, extensive range of optional accessories and traceable calibration coupled with exceptional accuracy and reliability.

- Range of standard through-the-lens sighting thermometers
- Range of fibre-optic thermometers with optional laser targeting system
- Comprehensive range of thermometer mountings and accessories for complete environmental protection
- DIN-rail mounted power supply unit - DPU (optional)
- LANDMARK Indicator LMi - digital panel meter (optional)

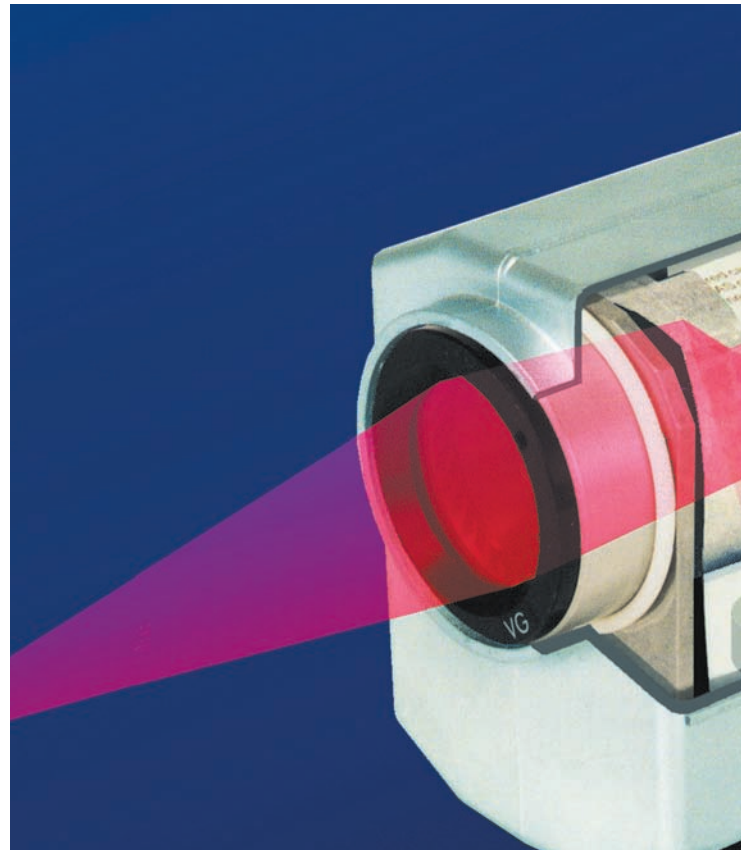


*Note: The Fibroptic UNO thermometers can incorporate an optional laser targeting system for precise alignment.*

## Straightforward Integration

Each series of thermometers offers a choice of built-in time functions - peak picker or averager; and a range of temperature spans and operating wavebands to ensure optimum accuracy of measurement for the chosen industry and application. UNO thermometers will integrate directly into a 4 to 20mA measuring, monitoring or control loop.

The standard range of UNO thermometers feature precision through-the-lens sighting with focusable optics, which guarantees exact viewing and measurement of the smallest of target areas.



## Benefits of non-contact measurement

UNO non contact thermometer systems measure continuously the temperature of hot, moving or inaccessible materials accurately and safely at a distance. The thermometers do not require contact with the target object, so they cannot interfere with, damage, or contaminate the product or process.

UNO thermometers do not remove heat or disturb the process being monitored and offer the only solution when the product is small, fragile, or in a vacuum or controlled atmosphere.

## Meeting OEM Requirements

The UNO range of thermometers is designed to satisfy all OEM requirements and has a wide selection of infrared radiation thermometers available.

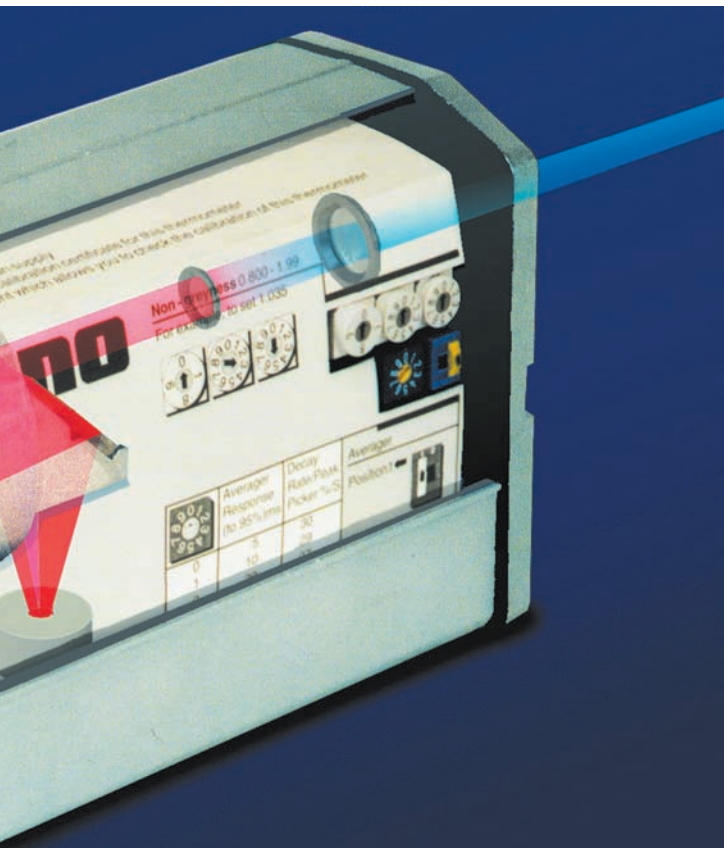


Standard bodied UNO thermometer with through-the-lens sighting



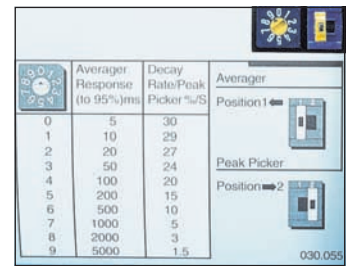
Fibroptic UNO thermometer with optional laser targeting

# Total Industrial Process Monitoring and Control

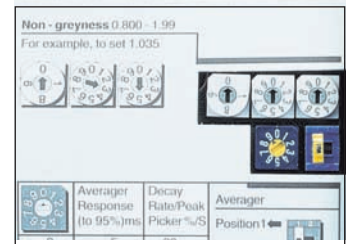


## Thermometers

- Industry standard 4 to 20 mA linear output
- Choice of standard or fibroptic thermometers
- Accurate, reliable, drift-free measurement
- Traceable calibration, built within ISO 9001 QMS approval
- Simple trimpot controls are used to suit the application
- To set emissivity/non greyness for the material being measured
- To set the time function peak or averager
- To set the averager time constant or peak picker decay rate



Selectable peak picker/averager time functions



Emissivity or non-greyness compensation controls

## Mountings and Accessories

A complete range of protection and mounting accessories is available which provides full mechanical and thermal protection for the thermometer to ensure continuous service with minimal maintenance in almost any environment.

## Applications

UNO thermometer systems are designed for OEM installation where continuous operation, quality control and process monitoring are plant management requirements.

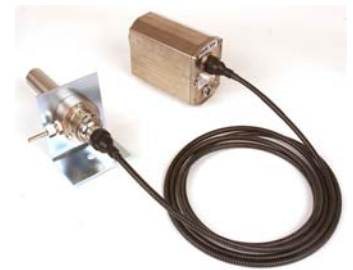
The rugged and versatile design satisfies end users in a wide range of industries including.

- Hot rolling
- Induction heating
- Heat treatment furnaces
- Foundry and forging
- Glass manufacture and processing
- Mineral processing
- Electrical and electronics
- Petrochemicals

The photograph below shows heat treatment of automotive components on an induction heating machine.



Thermometer Accessories  
Purge, Jacket and Back Cap



Fibroptic Therm. Accessories  
Adaptor, Air Purge and Mounting Bracket

## Din Rail Mounted Power Supply

The optional DIN-rail mounted power supply unit DPU provides the d.c. voltage which UNO thermometers require.



Simple DIN-Rail mounted power supply unit - DPU

## Landmark - LMi

An optional digital indicator provides a temperature display. LMi is 1/8 DIN size with 14.2mm/0.55in display and optional dual hi/lo alarm outputs/trans.



LANDMARK Indicator - LMi



**Thermometers offer exceptional flexibility with a choice of single wavelength, ratio, fibroptic and fibroptic ratio models.**

**Thermometer type, temperature range, spectral response and optical characteristics are chosen to suit the particular application.**

#### **RADIATION THERMOMETERS**

The thermometers utilize proven reliable electronics combined with a high quality optical system to provide accurate, dependable temperature measurement.

They are housed in a rugged die cast body with a high quality electrical connector to provide reliable performance.

The single wavelength and ratio thermometers all feature through-the-lens sighting with a 6° field of view. Adjustable focus with a circular graticule gives precise alignment on to the smallest of targets.

Two optical variants are available: Standard and Short-focus. Close focus lenses are also available permitting measurement of targets as small as 0.45mm/0.017in. Ask for separate leaflet for full information.

#### **FIBROPTIC THERMOMETERS**

Fibroptic thermometers utilize a flexible fibre optics light guide enabling the detector and electronics enclosure to be located in a less hostile environment.

The fibroptic thermometers are available with an optional built-in laser targeting system which defines the target spot for accurate sighting.

The use of fibre optics permits viewing of normally inaccessible targets, where there are high magnetic fields or in high ambient temperatures up to 200°C/400°F without cooling of the optic head. There is a choice of three optic heads and standard light guide length of 3.5m/11½ ft. (Options of 6m/20ft & 10m/33ft.)

#### **PEAK PICKER**

The peak picker function is used when measuring the temperature of intermittent targets or where the hot target surface is obscured by cool areas such as scale on rolled steel.

The peak picker decay rate is adjustable from 1.5 to 30% of span per second.

The peak picker function can be reset from a remote switch connected to the DPU.

#### **AVERAGER**

The averager function is used to smooth unwanted variations or rapidly fluctuating changes in the thermometer signal to maintain a valid temperature reading.

The averager time constant can be adjusted on all UNO models to give a smooth temperature display.



#### **U1 Thermometers**

U1 thermometers are intended for general purpose use in high temperature applications. They utilize a silicon cell detector, and operate at short wavelengths around 1.0µm where emissivity errors are minimized. They have a fast response time of 5ms.

#### **U2 Thermometers**

U2 thermometers use the latest germanium detectors, and operate at a wavelength of 1.6µm. They extend the measurement range of short wavelength thermometers down to 300°C/600°F and have a fast response time of 5ms.

#### **U4 Thermometers**

U4 thermometers are used on low temperature, low or uncertain emissivity surfaces such as bright or unoxidized metals. They use an InGaAs detector and operate at a wavelength of 2.4µm. They have a response time of 100ms.

#### **U5 Thermometers**

U5 thermometers are specifically designed for glass surface temperature measurement. Fast speed of response, coupled with small target size and accurate sighting facility make it ideal for all flat glass, glass toughening and optical fibre preform applications.

#### **U6 Thermometers**

U6 thermometers are designed specifically for lower temperature applications. Unique short wavelength operation minimizes errors where emissivity is low or variable.

#### **U8 Thermometers**

U8 thermometers are designed for low temperature applications such as food, textiles, paper and plastics. They operate at a waveband which avoids the effects of atmospheric absorption.

#### **V1 Ratio Thermometers**

V1 ratio thermometers use dual silicon cell detectors operating at 0.85 to 1.1µm. They are intended for difficult, high temperature applications where the field of view is not fully filled or where the sight path is obscured. They can accurately measure temperature of targets with up to 95% obscuration.

#### **Fibroptic U1 Thermometers**

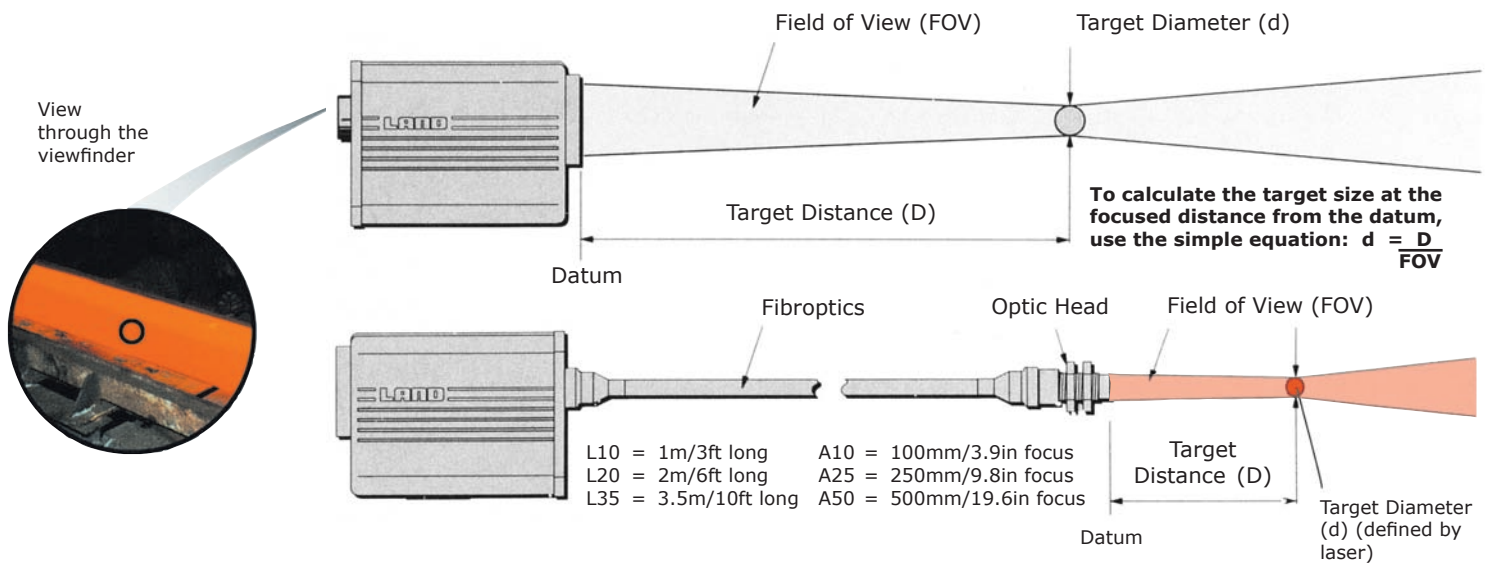
Fibroptic U1 thermometers combine the flexibility of fibre optics with short wavelength operation. They can be used in high temperature applications such as metals, glass, coke ovens and induction heating.

#### **Fibroptic U2 Thermometers**

Fibroptic U2 thermometers can be used in applications such as glass mold temperatures where access to the target is restricted, or limited to a few milliseconds.

#### **Fibroptic V1 Ratio Thermometers**

Fibroptic V1 ratio thermometers provide accurate high temperature measurement of small intermittent targets such as rod and wire, and tube welding. Other typical applications include kilns and vacuum furnaces.



| Model No.   | Range                            | Wavelength             | FOV*          | Focus Version | Min Target Dia.                | Focusing Distance §                                   |
|---|----------------------------------|------------------------|---------------|---------------|--------------------------------|---|
| <b>U1 600/1600C</b><br><b>U1 1100/2900F</b><br><b>U1 800/2600C</b><br><b>U1 1500/4700F</b>  | 600 to 1600°C<br>1100 to 2900°F  | 1.0 μm                 | 100:1         | V<br>S        | 5mm/0.19in<br>3.5mm/0.13in     | 500mm/19.6in to infinity<br>350mm/13.7in to 1m/39.3in |
| <b>U2 300/1100C</b><br><b>U2 600/2000F</b>  | 300 to 1100°C<br>600 to 2000°F   | 1.6 μm                 | 100:1         | V<br>S        | 5mm/0.19in<br>3.5mm/0.13in     | 500mm/19.6in to infinity<br>350mm/13.7in to 1m/39.3in |
| <b>U4 50/250C</b><br><b>U4 150/500F</b><br><b>U4 150/550C</b><br><b>U4 300/1000F</b>        | 50 to 250°C<br>150 to 500°F      | 2.4 μm                 | 30:1          | V<br>S        | 16.6mm/0.65in<br>11.7mm/0.46in | 500mm/19.6in to infinity<br>350mm/13.7in to 1m/39.3in |
| <b>U5 400/1300C</b><br><b>U5 750/2400F</b><br><b>U5 1000/2500C</b><br><b>U5 1800/4500F</b>  | 400 to 1300°C<br>750 to 2400°F   | 4.8 to 5.2 μm          | 100:1         | V<br>S        | 5mm/0.19in<br>3.5mm/0.13in     | 500mm/19.6in to infinity<br>350mm/13.7in to 1m/39.3in |
| <b>U5 1000/2500C</b><br><b>U5 1800/4500F</b>  | 1000 to 2500°C<br>1800 to 4500°F | 4.8 to 5.2 μm          | 100:1         | V<br>S        | 5mm/0.19in<br>3.5mm/0.13in     | 500mm/19.6in to infinity<br>350mm/13.7in to 1m/39.3in |
| <b>U6 0/300C-V</b><br><b>U6 100/700C-V</b>  | 0 to 300°C<br>100 to 700°C       | 3 to 5 μm<br>3 to 5 μm | 30:1<br>100:1 | V<br>V        | 16.6mm/0.65in<br>5mm/0.19in    | 500mm/19.6in to infinity<br>500mm/19.6in to infinity  |
| <b>U8 0/1000C-V</b>   | 0 to 1000°C                      | 8 to 14 μm             | 100:1         | V             | 5mm/0.19in                     | 500mm/19.6in to infinity                              |
| <b>V1 600/1600C</b><br><b>V1 1100/2900F</b><br><b>V1 1000/2600C</b><br><b>V1 1800/4700F</b> | 600 to 1600°C<br>1100 to 2900°F  | 0.85 to 1.1 μm         | 50:1          | V<br>S        | 10.0mm/0.39in<br>7.0mm/0.27in  | 500mm/19.6in to infinity<br>350mm/13.7in to 1m/39.3in |
| <b>V1 1000/2600C</b><br><b>V1 1800/4700F</b>  | 1000 to 2600°C<br>1800 to 4700°F | 0.85 to 1.1 μm         | 200:1         | V<br>S        | 2.5mm/0.1in<br>1.8mm/0.07in    | 500mm/19.6in to infinity<br>350mm/13.7in to 1m/39.3in |

| Model No.**                                      | Range                            | Wavelength    | FOV  | Optic Head        | Min Target Dia.                              | Focusing Distance                          |
|--|----------------------------------|---------------|------|-------------------|--|--|
| <b>U1 600/1600CYL</b><br><b>U1 1100/2900FYL</b>  | 600 to 1600°C<br>1100 to 2900°F  | 1.0 μm        | 25:1 | A10<br>A25<br>A50 | 4mm/0.15in<br>10mm/0.39in<br>23mm/0.90in     | 100mm/3.9in<br>250mm/9.8in<br>500mm/19.6in |
| <b>U1 800/2600CYL</b><br><b>U1 1500/4700FYL</b>  | 800 to 2600°C<br>1500 to 4700°F  | 1.0 μm        | 75:1 | A10<br>A25<br>A50 | 1.3mm/0.05in<br>3.3mm/0.12in<br>6.7mm/0.26in | 100mm/3.9in<br>250mm/9.8in<br>500mm/19.6in |
| <b>U2 300/1100CYL</b><br><b>U2 600/2000FYL</b>   | 300 to 1100°C<br>600 to 2000°F   | 1.6 μm        | 25:1 | A10<br>A25<br>A50 | 4mm/0.15in<br>10mm/0.39in<br>23mm/0.90in     | 100mm/3.9in<br>250mm/9.8in<br>500mm/19.6in |
| <b>V1 600/1600CYL</b><br><b>V1 1100/2900FYL</b>  | 600 to 1600°C<br>1100 to 2900°F  | 0.85 to 1.1μm | 25:1 | A10<br>A25<br>A50 | 4mm/0.15in<br>10mm/0.39in<br>23mm/0.90in     | 100mm/3.9in<br>250mm/9.8in<br>500mm/19.6in |
| <b>V1 1000/2600CYL</b><br><b>V1 1800/4700FYL</b> | 1000 to 2600°C<br>1800 to 4700°F | 0.85 to 1.1μm | 75:1 | A10<br>A25<br>A50 | 1.3mm/0.05in<br>3.3mm/0.12in<br>6.7mm/0.26in | 100mm/3.9in<br>250mm/9.8in<br>500mm/19.6in |

\* Nominal

§ Close focus lenses also available

\*\* Y denotes optional laser targeting system fitted

## STANDARD BODIED THERMOMETER SPECIFICATIONS

| Model           | U1 600/1600C<br>U1 1100/2900F  | U1 800/2600C<br>U1 1500/4700F   | U2 300/1100C<br>U2 600/2000F   | U4 50/250C<br>U4 150/500F            | U4 150/550C<br>U4 300/1000F   |
|-----------------|--|---------------------------------|--------------------------------|--------------------------------------|-------------------------------|
| Temp. range:    | 600 to 1600°C<br>1100 to 2900°F  | 800 to 2600°C<br>1500 to 4700°F | 300 to 1100°C<br>600 to 2000°F | 50 to 250°C<br>150 to 500°F          | 150 to 550°C<br>300 to 1000°F |
| Wavelength:     | 1µm  |                                 | 1.6µm                          |                                      | 2.4µm                         |
| Averager:       | Response time: Adjustable 5ms to 5s (0 to 95%)   |                                 |                                | Adjustable<br>100ms to 5s (0 to 95%) |                               |
| Peak Picker:    | Adjustable 1.5 to 30%/s decay  |                                 |                                |                                      |                               |
| Emissivity/NG:  | Emissivity adjustable 0.10 to 1.00   |                                 |                                |                                      |                               |
| Output:         | 4 to 20mA  |                                 |                                |                                      |                               |
| Sighting:       | 6°, through the lens   |                                 |                                |                                      |                               |
| Target size:    | >98% of energy within graticule image  |                                 |                                |                                      |                               |
| Magnification:  | 1.8x   |                                 |                                |                                      |                               |
| Eye relief:     | 30mm/1.2in   |                                 |                                |                                      |                               |
| Field of view*: | 100:1  | 200:1                           | 100:1                          | 30:1                                 | 100:1                         |
| Focus range:    | 0.5m/19.7in to infinity variable focus (standard) 0.35m/13.6in to 1m/39.3in (Short variable focus) |                                 |                                |                                      |                               |
| Min target dia: | 3.5mm/0.13in   | 1.8mm/0.07in                    | 3.5mm/0.13in                   | 11.7mm/0.46in                        | 3.5mm/0.13in                  |
| Accuracy        |  |                                 |                                |                                      |                               |
| Repeatability:  | ±1°C/2°F   | ±2°C/4°F                        | ±1°C/2°F                       | ±1°C/2°F                             | ±2°C/4°F                      |
| Absolute:       | 0.75%K   | 0.75%K                          | ±1%K                           | ±0.9%K                               | ±1%K                          |
| Stability Temp: | 0.2°/° amb   | 0.3°/° amb                      | 0.2°/° amb                     | 0.1°/° amb                           |                               |
| Stability Time: | 2°C/4°F/year   |                                 |                                |                                      |                               |
| Power supply:   | 23 to 48V d.c., ±200mA   |                                 |                                |                                      |                               |
| Vibration:      | 3G, any axis, 10 to 300Hz  |                                 |                                |                                      |                               |
| Humidity:       | 0 to 99% non condensing  |                                 |                                |                                      |                               |
| Sealing:        | To IP65 requirements   |                                 |                                |                                      |                               |
| Ambient temp.   |  |                                 |                                |                                      |                               |
| Specified:      | 0 to 70°C/32 to 158°F  |                                 | 0 to 50°C/32 to 122°F          |                                      | 5 to 45°C/40 to 115°F         |
| Operating:      | -10 to 80°C/14 to 176°F  |                                 | -10 to 60°C/14 to 140°F        |                                      | 0 to 50°C/32 to 122°F         |
| CE:             | EN 50-082-2 (immunity), EN 50-081-1 (emission), IEC 1010 (safety)                                  |                                 |                                |                                      |                               |

## STANDARD BODIED THERMOMETER SPECIFICATIONS *continued*

| Model           | U5 400/1300CU<br>U5 750/2400F  | U5 1000/2500C<br>U5 1800/4500F   | U6 0/300-V                             | U6 100/700C-V | U8 0/1000C-V                           | V1 600/1600C<br>V1 1100/2900F        | V1 1000/2600C<br>V1 1800/4700F   |
|-----------------|--|----------------------------------|--|---------------|--|--------------------------------------|----------------------------------|
| Temp. range:    | 400 to 1300°C<br>750 to 2400°F   | 1000 to 2500°C<br>1800 to 4500°F | 0 to 300°C                             | 100 to 700°C  | 0 to 1000°C                            | 600 to 1600°C<br>1100 to 2900°F      | 1000 to 2600°C<br>1800 to 4700°F |
| Wavelength:     | 4.8 to 5.2µm   |                                  | 3 to 5µm                               |               | 8 to 14µm                              | 0.85 to 1.1µm                        |                                  |
| Averager:       | † Adjustable<br>100ms to 5s (0 to 95%)   |                                  | † Adjustable<br>100ms to 5s (0 to 95%) |               | † Adjustable<br>100ms to 5s (0 to 95%) | Adjustable<br>15ms to 5s (0 to 95%)  |                                  |
| Peak Picker:    | Adjustable 1.5 to 30%/s decay  |                                  |  |               |  |                                      |                                  |
| Emissivity/NG:  | Emissivity adjustable 0.10 to 1.00   |                                  |  |               |  | Non-greyness adjustable 0.8 to 1.199 |                                  |
| Output:         | 4 to 20mA  |                                  |  |               |  |                                      |                                  |
| Sighting:       | 6°, through the lens   |                                  |  |               |  |                                      |                                  |
| Target size:    | >98% of energy within graticule image  |                                  |  |               |  |                                      |                                  |
| Magnification:  | 1.8x   |                                  |  |               |  |                                      |                                  |
| Eye relief:     | 30mm/1.2in   |                                  |  |               |  |                                      |                                  |
| Field of view*: | 100:1  |                                  | 30:1                                   |               | 100:1                                  | 50:1                                 | 200:1                            |
| Focus range:    | 0.5m/19.7in to infinity variable focus (standard) 0.35m/13.6in to 1m/39.3in (Short variable focus) |                                  |  |               |  |                                      |                                  |
| Min target dia: | 3.5mm/0.13in   |                                  | 16.6mm/0.65in                          | 5mm/0.2in     | 5mm/0.2in                              | 7mm/0.27in                           | 1.8mm/0.07in                     |
| Accuracy        |  |                                  |  |               |  |                                      |                                  |
| Repeatability:  | ±2°C/4°F   | ±1°C/2°F                         | ±1°C/2°F                               | ±1°C/2°F      | ±1°C/2°F                               | ±1°C/2°F                             | ±2°C/4°F                         |
| Absolute:       | 0.6%K  | 0.6%K                            | 0.3%K+2.5K                             | 0.3%K+2K      | 1%K+1K                                 | 0.75%K                               | 1.25%K                           |
| Stability Temp: | >0.025%T(K)/°C   |                                  | <0.15K/K                               | <0.2K/K       | <0.3K/K                                | 0.05%/°amb                           | 0.1%/°amb                        |
| Stability Time: | 2°C/4°F/year   |                                  |  |               |  |                                      |                                  |
| Power supply:   | 23 to 48V d.c., ±200mA   |                                  |  |               |  |                                      |                                  |
| Vibration:      | 3G, any axis, 10 to 300Hz  |                                  |  |               |  |                                      |                                  |
| Humidity:       | 0 to 99% non condensing  |                                  |  |               |  |                                      |                                  |
| Sealing:        | To IP65 requirements   |                                  |  |               |  |                                      |                                  |
| Ambient temp.   |  |                                  |  |               |  |                                      |                                  |
| Specified:      | 0 to 70°C/32 to 158°F  |                                  | 5 to 45°C/41 to 113°F                  |               | 0 to 45°C/<br>32 to 113°F              | 0 to 50°C/32 to 122°F                |                                  |
| Operating:      | -10 to 80°C/14 to 176°F  |                                  |  |               |  | -10 to 60°C/14 to 140°F              |                                  |
| CE:             | EN 50-082-2 (immunity), EN 50-081-1 (emission), IEC 1010 (safety)                                  |                                  |  |               |  |                                      |                                  |
| Response Time:  |  |                                  | 100ms-5s^                              | 100ms-5s^     | 100ms-5s^                              |                                      |                                  |

# FIBROPTIC THERMOMETER SPECIFICATIONS

| Model **                   | U1 600/1600CYL<br>U1 1100/2900FYL                                 | U1 800/2600CYL<br>U1 1500/4700FYL | U2 300/1100CYL<br>U2 600/2000FYL | V1 600/1600CYL<br>V1 600/1600CYL     | 1 1000/2600CYL<br>V1 1800/4700FYL |
|----------------------------|---|-----------------------------------|----------------------------------|--------------------------------------|-----------------------------------|
| <b>Temp. range:</b>        | 600 to 1600°C<br>1100 to 2900°F                                   | 800 to 2600°C<br>1500 to 4700°F   | 300 to 1100°C<br>600 to 2000°F   | 600 to 1600°C<br>1100 to 2900°F      | 1000 to 2600°C<br>1800 to 4700°F  |
| <b>Wavelength:</b>         | 1µm   |                                   | 1.6µm                            | 0.85 to 1.1µm                        |                                   |
| <b>Averager:</b>           | Adjustable 5ms to 5s (0 to 95%)                                   |                                   |                                  | Adjustable 15ms to 5s (0 to 95%)     |                                   |
| <b>Response time:</b>      | Adjustable 1.5 to 30%/s decay                                     |                                   |                                  | Adjustable 1.5 to 30%/s decay        |                                   |
| <b>Peak Picker:</b>        | Adjustable 1.5 to 30%/s decay                                     |                                   |                                  | Adjustable 1.5 to 30%/s decay        |                                   |
| <b>Emissivity/NG:</b>      | Emissivity adjustable 0.10 to 1.00                                |                                   |                                  | Non-greyness adjustable 0.8 to 1.199 |                                   |
| <b>Output:</b>             | 4 to 20mA   |                                   |                                  | 4 to 20 mA                           |                                   |
| <b>Field of view*:</b>     | 25:1  | 75:1                              | 25:1                             | 25:1                                 | 75:1                              |
| <b>Target dia.</b>         |   |                                   |                                  |                                      |                                   |
| <b>A10 optic head</b>      | 4mm/0.15in at<br>100mm/3.9in                                      | 1.3mm/0.05in at<br>100mm/3.9in    | 4mm/0.15in at<br>100mm/3.9in     | 4mm/0.15in at<br>100mm/3.9in         | 1.3mm/0.05in at<br>100mm/3.9in    |
| <b>A25 optic head</b>      | 10mm/0.39in at<br>250mm/9.8in                                     | 3.3mm/0.12in at<br>250mm/9.8in    | 10mm/0.39in at<br>250mm/9.8in    | 10mm/0.39in at<br>250mm/9.8in        | 3.3mm/0.12in at<br>250mm/9.8in    |
| <b>A25 optic head</b>      | 23mm/0.90in at<br>500mm/19.6in                                    | 6.7mm/0.26in at<br>500mm/19.6in   | 23mm/0.90in at<br>500mm/19.6in   | 23mm/0.90in at<br>500mm/19.6in       | 6.7mm/0.26in at<br>500mm/19.6in   |
| <b>Accuracy</b>            |   |                                   |                                  |                                      |                                   |
| <b>Repeatability:</b>      | ±1°C/2°F  | ±2°C/4°F                          | ±1°C/2°F                         | ±1°C/2°F                             | ±2°C/4°F                          |
| <b>Absolute:</b>           | 0.75%K  | 0.75%K                            | ±1%K                             | ±0.9%K                               | ±1%K                              |
| <b>Stability Temp:</b>     | 0.2%/° amb  | 0.3%/° amb                        | 0.2%/° amb                       | 0.05%/° amb                          | 0.1%/° amb                        |
| <b>Stability Time:</b>     | ±2°C/4°F/year   |                                   |                                  |                                      |                                   |
| <b>Power supply:</b>       | 23 to 48V d.c., ±200mA  |                                   |                                  |                                      |                                   |
| <b>Vibration:</b>          | 3g, any axis, 10 to 300Hz   |                                   |                                  |                                      |                                   |
| <b>Humidity:</b>           | 0 to 99% non-condensing   |                                   |                                  |                                      |                                   |
| <b>Sealing:</b>            | To IP65 requirements  |                                   |                                  |                                      |                                   |
| <b>Ambient temp.</b>       | 200°C/392°F   |                                   | 200°C/392°F                      | 200°C/392°F                          |                                   |
| <b>Optic Head:</b>         | 200°C/392°F   |                                   | 200°C/392°F                      | 200°C/392°F                          |                                   |
| <b>Lightguide:</b>         | 200°C/392°F   |                                   | 200°C/392°F                      | 200°C/392°F                          |                                   |
| <b>Detector Specified:</b> | 0 to 70°C/32 to 158°F   |                                   | 0 to 50°C/32 to 122°F            | 0 to 50°C/32 to 122°F                |                                   |
| <b>Operating:</b>          | -10 to 80°C/14 to 176°F   |                                   | -10 to 60°C/14 to 140°F          |                                      |                                   |
| <b>CE:</b>                 | EN 50-082-2 (immunity), EN 50-081-1 (emission), IEC 1010 (safety) |                                   |                                  |                                      |                                   |

\* Nominal

\*\* Y denotes optional laser targeting system fitted

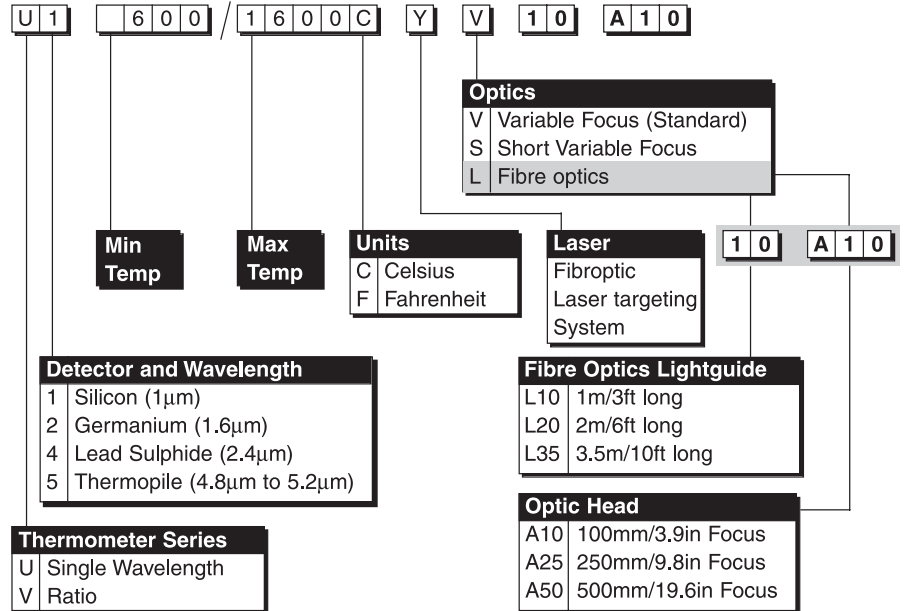
## ORDERING INFORMATION

UNO thermometers have a unique part number to suit the particular combination of features which make up the model.

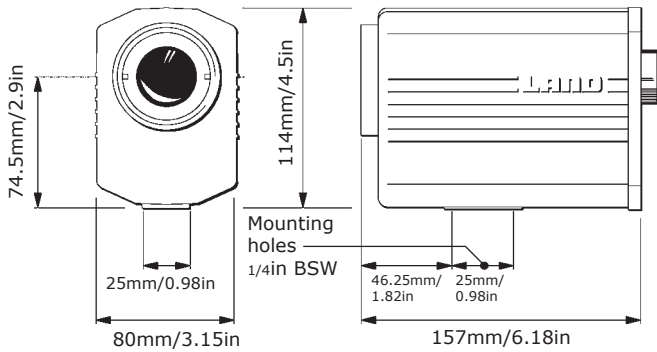
The model number, consisting of the various options available, describes the exact UNO thermometer type required.

This model number can be used for selection and ordering purposes.

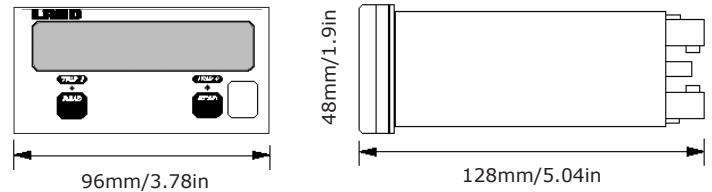
For example: U1 600/1600C V describes a single wavelength thermometer, operating at 1.0µm, with a measurement span of 600 to 1600°, celsius version, with standard variable focus optics.



### STANDARD BODIED UNO RADIATION THERMOMETER



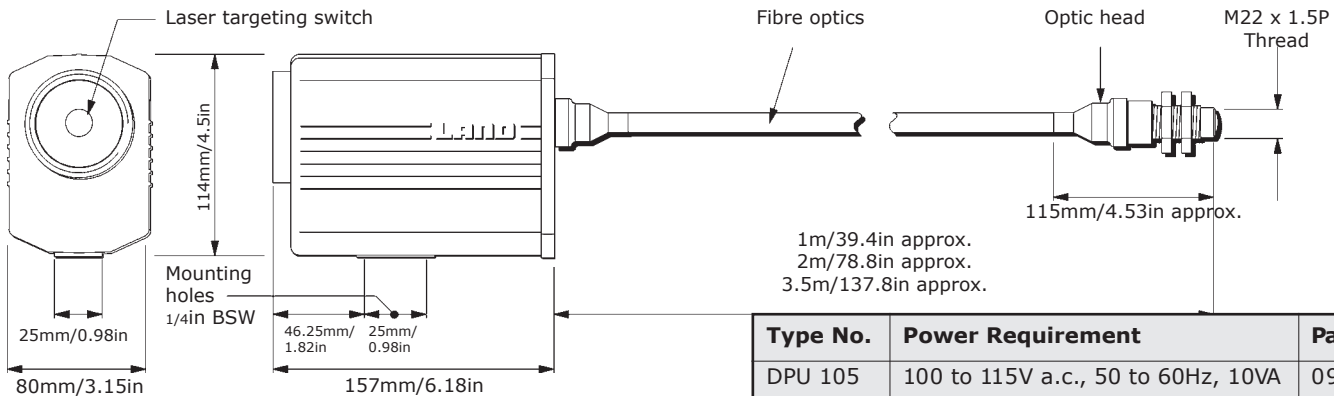
### LANDMARK INDICATOR - LMi (OPTIONAL)



| Type No. | Power Requirement                 | Part No. |
|----------|-----------------------------------|----------|
| LMi      | 110 to 240V a.c., 50 to 60Hz, 5VA | *Various |

\*Various models include options such as alarms and signal re-transmission

### FIBROPTIC UNO RADIATION THERMOMETER



| Type No. | Power Requirement                  | Part No. |
|----------|------------------------------------|----------|
| DPU 105  | 100 to 115V a.c., 50 to 60Hz, 10VA | 092.426  |
| DPU 115  | 113 to 127V a.c., 50 to 60Hz, 10VA | 092.427  |
| DPU 210  | 200 to 230V a.c., 50 to 60Hz, 10VA | 092.428  |
| DPU 230  | 225 to 254V a.c., 50 to 60Hz, 10VA | 092.429  |

### DPU - POWER SUPPLY UNIT (OPTIONAL)

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### Non-Contact Temperature Measurement Solutions



LABORATORY ACCREDITATION BUREAU ACCREDITED ISO/IEC 17025:2005



# AMETEK

Applies in the UK

Applies in the USA