

UNO

STAND ALONE RADIATION
THERMOMETERS



0 °C to 2600 °C / 32 °F to 4712 °F



LAND
AMETEK®



QUALITY CUSTOMER SOLUTIONS

UNO

STAND ALONE RADIATION THERMOMETERS

AMETEK LAND HAS BEEN MANUFACTURING PRECISION MEASURING EQUIPMENT SINCE 1947.

WE ARE SPECIALISTS IN NON-CONTACT TEMPERATURE MEASUREMENT AND COMBUSTION MONITORING WITH APPLICATIONS ACROSS DIVERSE INDUSTRIES SUCH AS STEEL AND GLASS MAKING, POWER GENERATION AND CEMENT MANUFACTURE.

As part of AMETEK Process & Analytical Instruments Division since 2006, our customers benefit from the worldwide AMETEK sales and service team.

A non-contact infrared thermometer range designed for standalone use, Simply power it up and UNO provides a 4-20mA output linear over its temperature range. UNO delivers precise, drift-free measurements for even the smallest target areas.

Delivering exceptional flexibility and accurate performance in OEM installations where continuous operation, quality control and process monitoring are paramount, UNO's precision measurement ensures high product integrity, maximum uptime and safe operation.

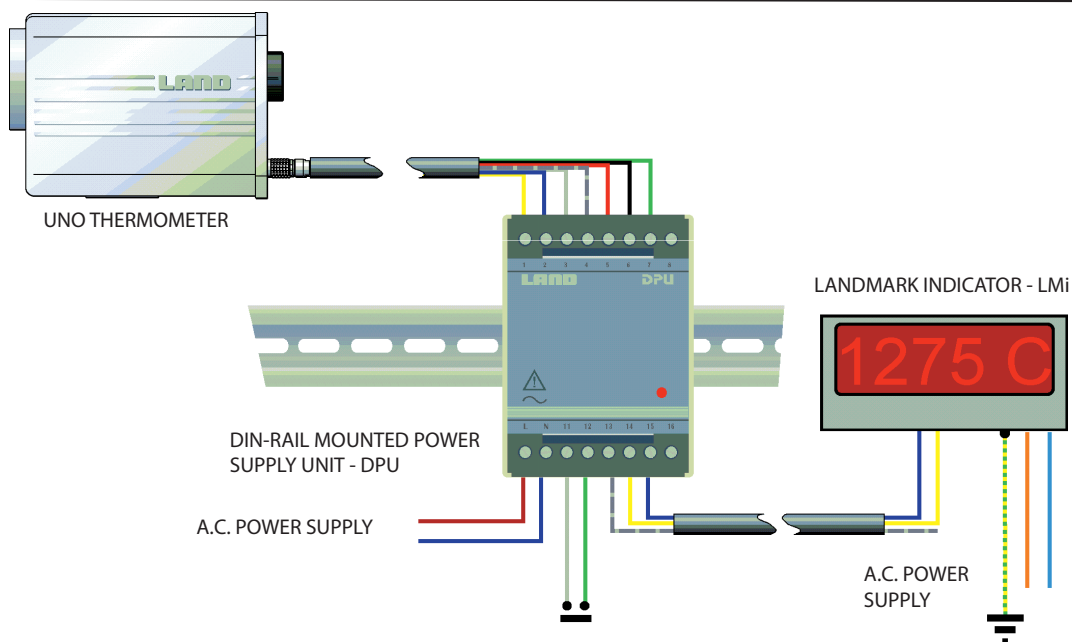
UNO thermometers do not require contact with the target object, so cannot disturb, damage, or contaminate the

product or process. This ensures the ideal measurement solution for fast moving products. UNO is well suited for products that are or small, fragile, or in controlled atmosphere enclosures.

Available in a standard range of through-the-lens sighting thermometers, and fiberoptic variants

Models with optional laser targeting are available. The rugged UNO range provides an affordable temperature measurement solution for the glass, hydrocarbon processing, industrial processing and minerals industries.

INSTALLATION DIAGRAM



UNO - STAND ALONE RADIATION THERMOMETERS

SPECIFICATION & DESIGN

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.



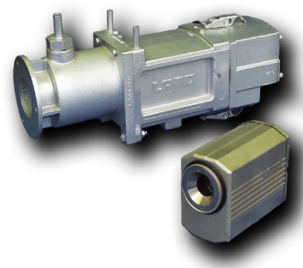
Standard bodied UNO thermometer with through-the-lens sighting



Fibroptic UNO thermometer with optional laser targeting

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.



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

UNO THERMOMETER MODELS

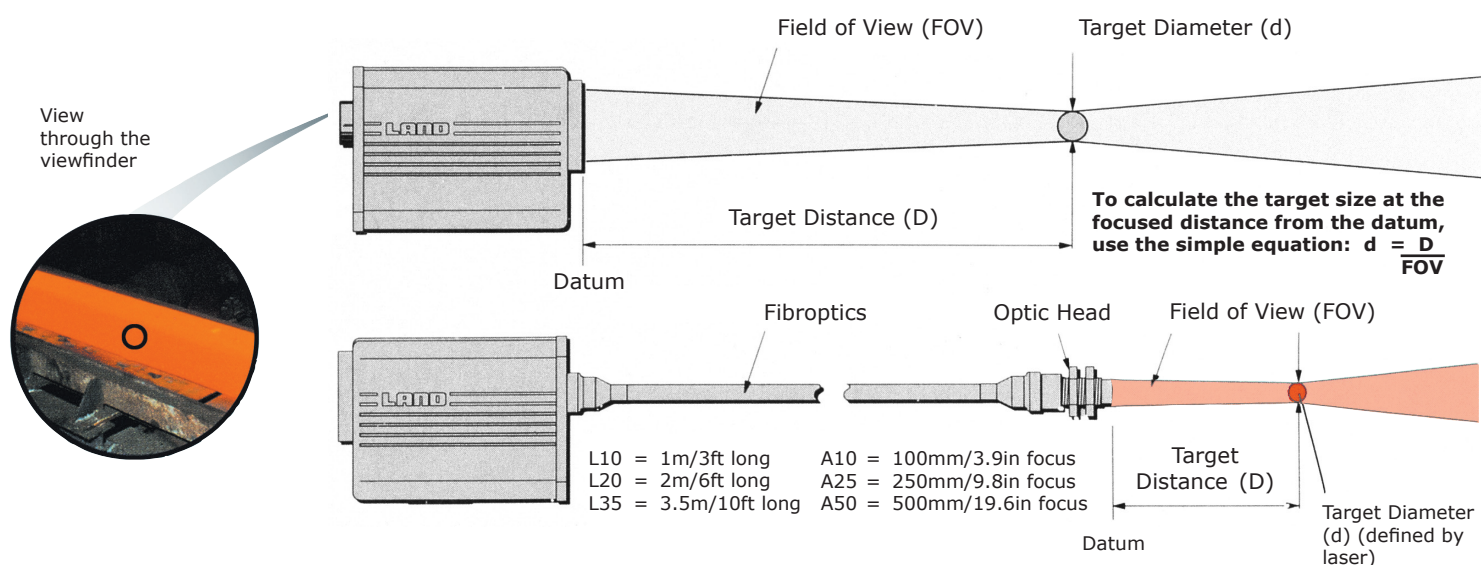
	Model No.	Range	Wavelength	FOV*	Focus Version	Min Target Dia.	Focusing Distance §
U1 Thermometers U1 thermometers are intended for general purpose use in high temperature applications. They utilize a silicon cell detector, and operate at short wavelengths around 1.0µm where emissivity errors are minimized. They have a fast response time of 5ms.	U1 600/1600C	600 to 1600 °C	1.0 µm	100:1	V	5mm/0.19in	500mm/19.6in to infinity
	U1 1100/2900F	1100 to 2900 °F			S	3.5mm/0.13in	350mm/13.7in to 1m/39.3in
	U1 800/2600C	800 to 2600 °C	1.0 µm	200:1	V	2.5mm/0.1in	500mm/19.6in to infinity
	U1 1500/4700F	1500 to 4700 °F			S	1.8mm/0.07in	350mm/13.7in to 1m/39.3in
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.	U2 300/1100C	300 to 1100 °C	1.6 µm	100:1	V	5mm/0.19in	500mm/19.6in to infinity
	U2 600/2000F	600 to 2000 °F			S	3.5mm/0.13in	350mm/13.7in to 1m/39.3in
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.	U4 50/250C	50 to 250 °C	2.4 µm	30:1	V	16.6mm/0.65in	500mm/19.6in to infinity
	U4 150/500F	150 to 500 °F			S	11.7mm/0.46in	350mm/13.7in to 1m/39.3in
	U4 150/550C	150 to 55 °C	2.4 µm	100:1	V	5mm/0.19in	500mm/19.6in to infinity
	U4 300/1000F	300 to 1000 °F			S	3.5mm/0.13in	350mm/13.7in to 1m/39.3in
U6 Thermometers U6 thermometers are designed specifically for lower temperature applications. Unique short wavelength operation minimizes errors where emissivity is low or variable.	U6 0/300C-V	0 to 300 °C	3 to 5 µm	30:1	V	16.6mm/0.65in	500mm/19.6in to infinity
	U6 100/700C-V	100 to 700 °C	3 to 5 µm	100:1	V	5mm/0.19in	500mm/19.6in to infinity
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.	U8 0/1000C-V	0 to 1000 °C	8 to 14 µm	100:1	V	5mm/0.19in	500mm/19.6in to infinity
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.	V1 600/1600C	600 to 1600 °C	0.85 to 1.1 µm	50:1	V	10.0mm/0.39in	500mm/19.6in to infinity
	V1 1100/2900F	1100 to 2900 °F			S	7.0mm/0.27in	350mm/13.7in to 1m/39.3in
	V1 1000/2600C	1000 to 2600 °C	0.85 to 1.1 µm	200:1	V	2.5mm/0.1in	500mm/19.6in to infinity
	V1 1800/4700F	1800 to 4700 °F			S	1.8mm/0.07in	350mm/13.7in to 1m/39.3in

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

* Nominal

§ Close focus lenses also available

** Y denotes optional laser targeting system fitted



TYPICAL APPLICATIONS

Hot rolling

Induction heating

Heat treatment furnaces

Foundry and forging

Glass manufacture and processing

Mineral processing
electronics

Electrical and

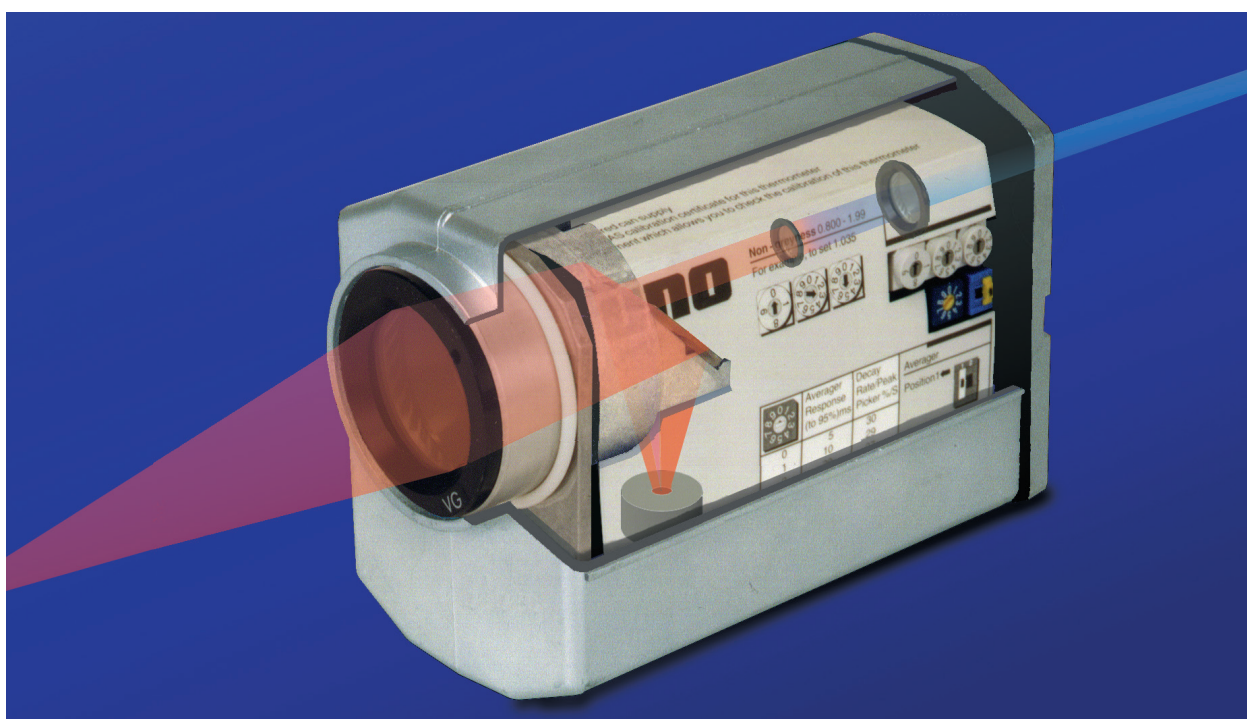
Petrochemicals

UNO

STAND ALONE RADIATION THERMOMETERS

STANDARD BODIED THERMOMETER SPECIFICATIONS

Model	U1 600/1600C U1 1100/2900F	U1 800/2600C U1 1500/4700F	U2 300/1100C U2 600/2000F	U4 50/250C U4 150/500F	U4 150/550C U4 300/1000F
Temp. range:	600 to 1600°C 1100 to 2900°F	800 to 2600°C 1500 to 4700°F	300 to 1100°C 600 to 2000°F	50 to 250°C 150 to 500°F	150 to 550°C 300 to 1000°F
Wavelength:	1µm		1.6µm	2.4µm	
Averager:	Response time: Adjustable 5ms to 5s (0 to 95%)			Adjustable 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: Target size:	6°, through the lens >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: Absolute:	±1°C/2°F 0.75%K	±2°C/4°F 0.75%K	±1°C/2°F ±1%K	±1°C/2°F ±0.9%K	±2°C/4°F ±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: Operating:	0 to 70°C/32 to 158°F -10 to 80°C/14 to 176°F		0 to 50°C/32 to 122°F -10 to 60°C/14 to 140°F	5 to 45°C/40 to 115°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	U6 0/300-V	U6 100/700C-V	U8 0/1000C-V	V1 600/1600C V1 1100/2900F	V1 1000/2600C V1 1800/4700F
Temp. range:	0 to 300°C	100 to 700°C	0 to 1000°C	600 to 1600°C 1100 to 2900°F	1000 to 2600°C 1800 to 4700°F
Wavelength:	3 to 5µm		8 to 14µm	0.85 to 1.1µm	
Averager:	† Adjustable 100ms to 5s (0 to 95%)		† Adjustable 100ms to 5s (0 to 95%)	Adjustable 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: Target size:	6°, through the lens >98% of energy within graticule image				
Magnification:	1.8x				
Eye relief:	30mm/1.2in				
Field of view*:	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:	16.6mm/0.65in	5mm/0.2in	5mm/0.2in	7mm/0.27in	1.8mm/0.07in
Accuracy Repeatability: Absolute:	±1°C/2°F 0.3%K+2.5K	±1°C/2°F 0.3%K+2K	±1°C/2°F 1%K+1K	±1°C/2°F 0.75%K	±2°C/4°F 1.25%K
Stability Temp:	<0.15K/K	<0.2K/K	<0.3K/K	0.05%K/°amb	0.1%K/°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: Operating:	5 to 45°C/41 to 113°F		0 to 45°C/ 32 to 113°K	0 to 50°C/32 to 122°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 U1 1100/2900FYL	U1 800/2600CYL U1 1500/4700FYL	U2 300/1100CYL U2 600/2000FYL	V1 600/1600CYL V1 600/1600CYL	1 1000/2600CYL V1 1800/4700FYL
Temp. range:	600 to 1600°C 1100 to 2900°F	800 to 2600°C 1500 to 4700°F	300 to 1100°C 600 to 2000°F	600 to 1600°C 1100 to 2900°F	1000 to 2600°C 1800 to 4700°F
Wavelength:	1µm		1.6µm	0.85 to 1.1µm	
Averager: Response time:	Adjustable 5ms to 5s (0 to 95%)			Adjustable 15ms to 5s (0 to 95%)	
Peak Picker:	Adjustable 1.5 to 30%/s decay			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			4 to 20 mA	
Field of view*:	25:1	75:1	25:1	25:1	75:1
Target dia. A10 optic head	4mm/0.15in at 100mm/3.9in	1.3mm/0.05in at 100mm/3.9in	4mm/0.15in at 100mm/3.9in	4mm/0.15in at 100mm/3.9in	1.3mm/0.05in at 100mm/3.9in
A25 optic head	10mm/0.39in at 250mm/9.8in	3.3mm/0.12in at 250mm/9.8in	10mm/0.39in at 250mm/9.8in	10mm/0.39in at 250mm/9.8in	3.3mm/0.12in at 250mm/9.8in
A25 optic head	23mm/0.90in at 500mm/19.6in	6.7mm/0.26in at 500mm/19.6in	23mm/0.90in at 500mm/19.6in	23mm/0.90in at 500mm/19.6in	6.7mm/0.26in at 500mm/19.6in
Accuracy Repeatability: Absolute:	±1°C/2°F 0.75%K	±2°C/4°F 0.75%K	±1°C/2°F ±1%K	±1°C/2°F ±0.9%K	±2°C/4°F ±1%K
Stability Temp:	0.2°/° amb	0.3°/° amb	0.2°/° amb	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. Optic Head: Lightguide:	200°C/392°F 200°C/392°F		200°C/392°F 200°C/392°F	200°C/392°F 200°C/392°F	
Detector Specified: Operating:	0 to 70°C/32 to 158°F -10 to 80°C/14 to 176°F		0 to 50°C/32 to 122°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)				

UNO

STAND ALONE RADIATION THERMOMETERS

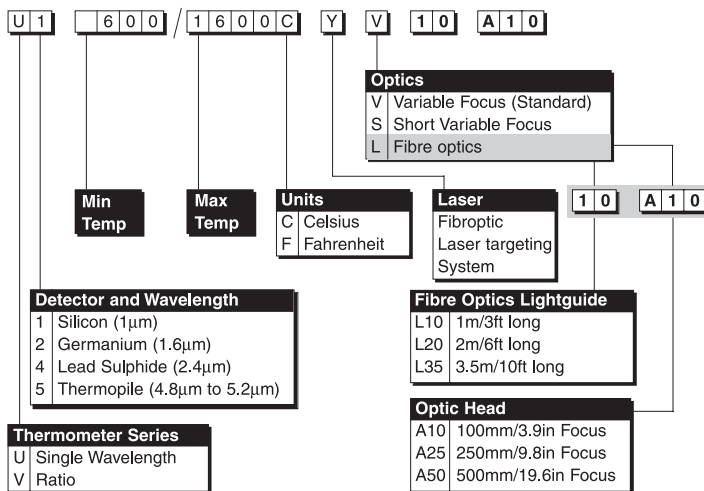
UNO thermometers have a unique part number to suit the particular combination of features which make up the model.

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

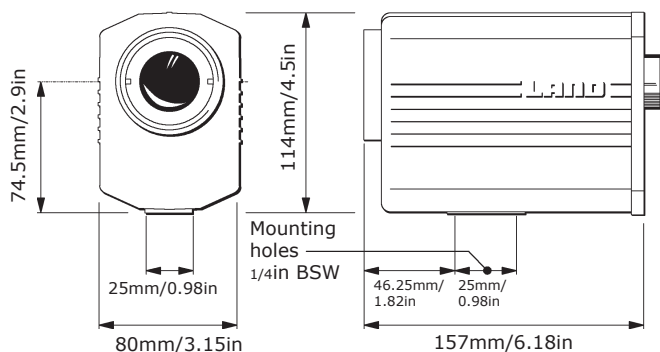
This model number can be used for selection and ordering purposes.

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.

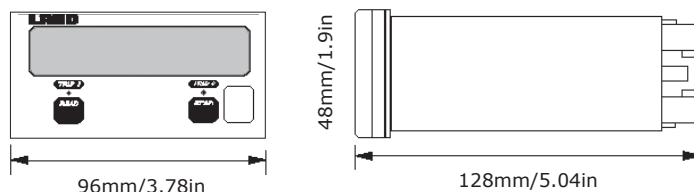
ORDERING INFORMATION



STANDARD BODIED UNO RADIATION THERMOMETER



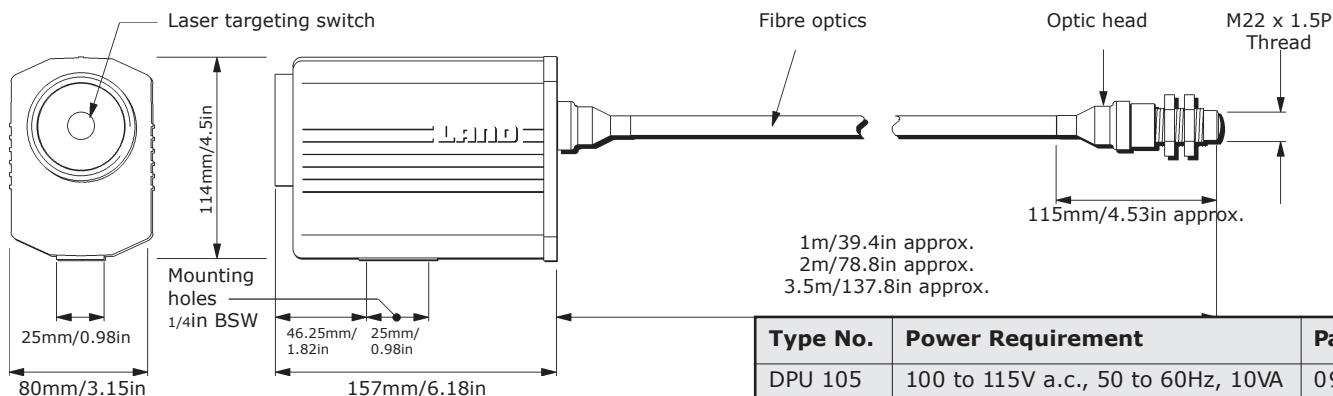
LANDMARK INDICATOR - LMi (OPTIONAL)



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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