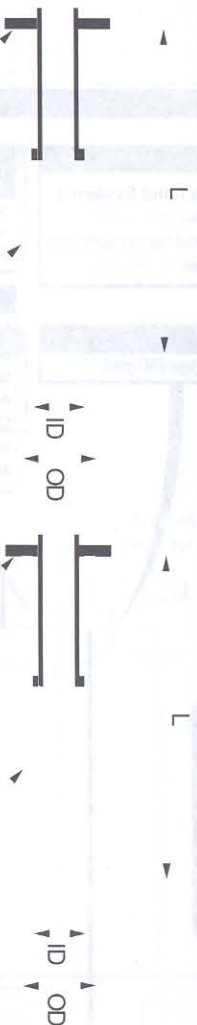


Sighting Tubes



STA Adapter

Type STC Sighting Tube

STA Adapter

Type STO Sighting Tube

SA970435

Tube Type	Dimensions mm/in			Adapter Type	Maximum Temperature
	L	OD	ID		
Silicon Carbide STC and STO	450/17.7 600/23.6 750/29.5 900/35.4 1050/41.3	76/3.0 76/3.0 76/3.0 76/3.0 76/3.0	64/2.5 64/2.5 64/2.5 64/2.5 64/2.5	STA STA STA STA STA	1500°C/2730°F 1500°C/2730°F 1500°C/2730°F 1500°C/2730°F 1500°C/2730°F
Sillimanite STO	600/23.6 750/29.5 900/35.4 1050/41.3 1200/47.2	70/2.75 70/2.75 70/2.75 70/2.75 70/2.75	60/2.4 60/2.4 60/2.4 60/2.4 60/2.4	STA STA STA STA STA	1550°C/2820°F 1550°C/2820°F 1550°C/2820°F 1550°C/2820°F 1550°C/2820°F
Sillimanite liner tubes STO	355/14.0 510/20.0	95/3.74 95/3.74	83/3.2 83/3.2	-	1550°C/2820°F 1550°C/2820°F
Stainless Steel FS6 FS36	150/ 6.0 910/36.0	57/2.25 57/2.25	54/2.12 54/2.12	F	800°C/1470°F 800°C/1470°F

Mounting Plates

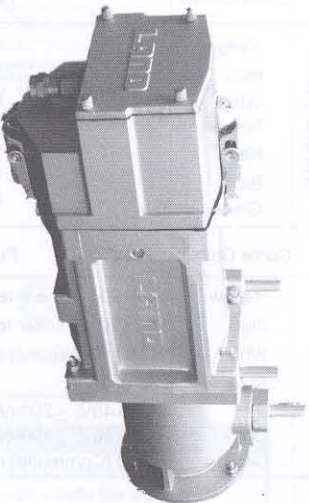
Mounting	Dimensions mm/in			Weight kg/lb	Through Centre Dia.
	Length	Width	Height		
O/N/M	229/9.0	10/0.4	-	3.6/8.0	83/3.27
O/N/AF	229/9.0	10/0.4	29/1.1	5.0/11.0	60/2.36

Spares and Accessories

The following spares and accessories are available from Land Instruments International.

- End Cap cable (Part No. 029.605)
- End Cap cover (Part No. 029.694)
- Cable Gland (Part No. 150.108)

LAND



Thermometer Mountings and Accessories

SYSTEM 4  
UNO  
FLT5A  
CDA  
RT8A

An AMETEK® Company

Installation Guide



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Internet: [www.landinstruments.net](http://www.landinstruments.net)



**Sighting Tubes**

Silicon Carbide - STO (open-ended) STC (closed-end), Sillimanite (STO), Stainless Steel - FS6 and FS36  
Mounting: 3 x 7.15mm / 0.3in dia. holes on 98.4mm / 3.9in PCD.  
See table overleaf for dimensions.

**S4 P Air Purge (Part N° 091.561)**

Inlet pressure: 350N/m<sup>2</sup> / 3.5mBar (0.05psi)  
Flow rate: <1 l/s / 2cfm  
Pipe thread: G1 (BS)

**S4 W Window Assembly**

Can also be mounted on to existing Landmark Processor mounting plates and sighting tubes. Requires M6 x 60 (4) bolts when used with S4 P Air Purge and S4 J Jacket.

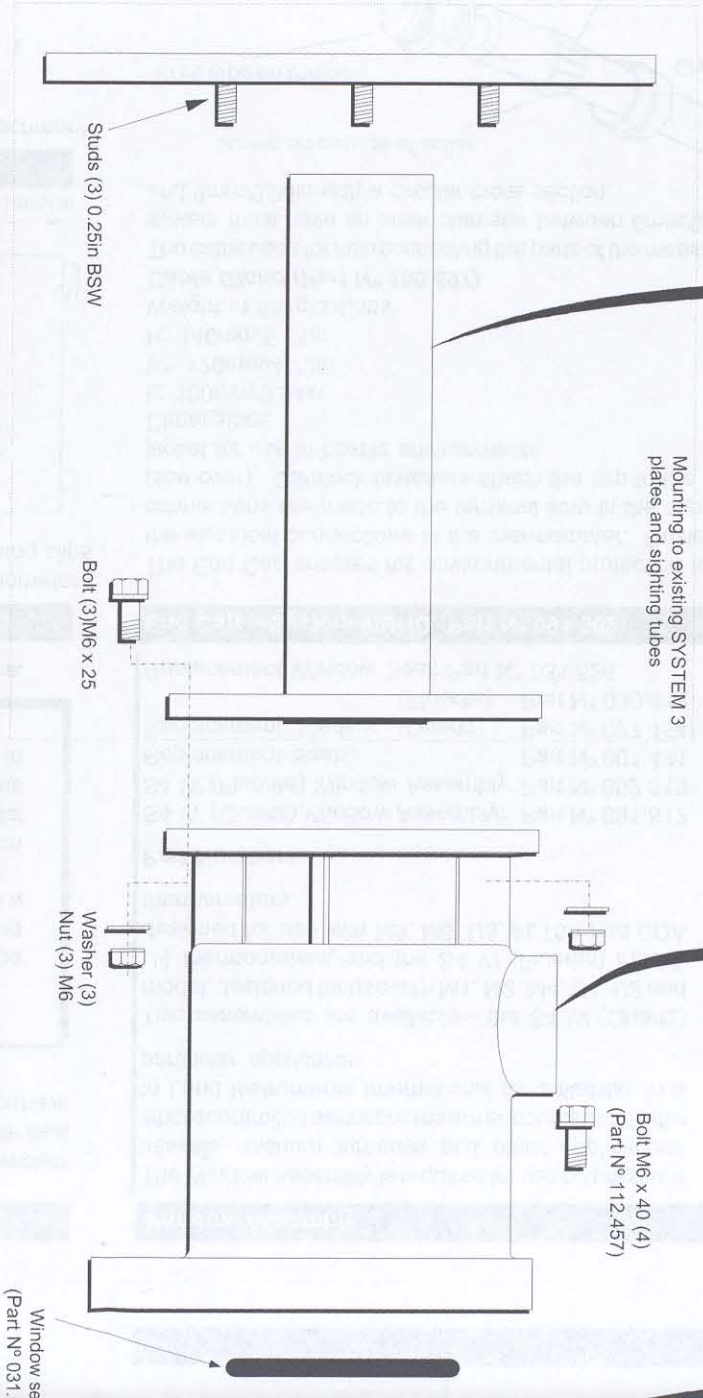
**CAUTION**

To prevent dust settling on the thermometer lens, ensure that the purging air is operating before installing the thermometer in the jacket.

**NOTE**

Maximum working pressure = 3.5 Bar

Mounting to existing SYSTEM 3 plates and sighting tubes

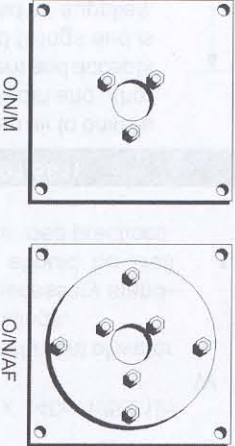


**Assembly Dimensions**

Overall Assembled length: 420mm/16.54in  
Width: 120mm/4.72in  
Total Assembled Weight: (S4J+S4P+S4C)  
6.9kg/15.2lbs

**O/N/M Mounting Plate**

The mounting plate has four fixing holes and three studs, 4 x 14mm / 0.6in holes on 254mm / 10.0in PCD.

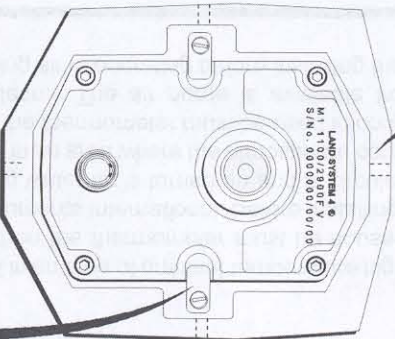


**O/N/AF Adjustable Mounting Plate**

This mounting includes a circular plate onto which the purge is mounted. The angle of the circular plate wrt the main plate can be adjusted to up to 7.5°. 4 x 14mm/0.6in dia. holes on 254mm/10.0in PCD

**Accurate Alignment**

The Accurate Alignment Jacket (Part No 030.479) has four additional grub screws on the rear of the jacket. Use a 2.5mm hex driver to adjust and align the thermometer onto the target



**Mounting the thermometer in the Jacket**

Use the two spring-loaded retaining caps to secure the thermometer inside the jacket. Lift and turn to engage in recesses in thermometer, before attaching the End cap.

Cable Schedule		
Process	System 4 Thermometer to Landmark Processor	
	THERMOMETER	
Pin N		
1	DPU	
2	Pin N	
3		
4		
5		
6		
7		

UNO Thermometer to DPU	

FLT5A RT8A CDA	



**Assembly**  
led on to existing Land System 3  
and sighting tubes.  
(4) bolts when used in conjunction  
e and S4 J Jacket.

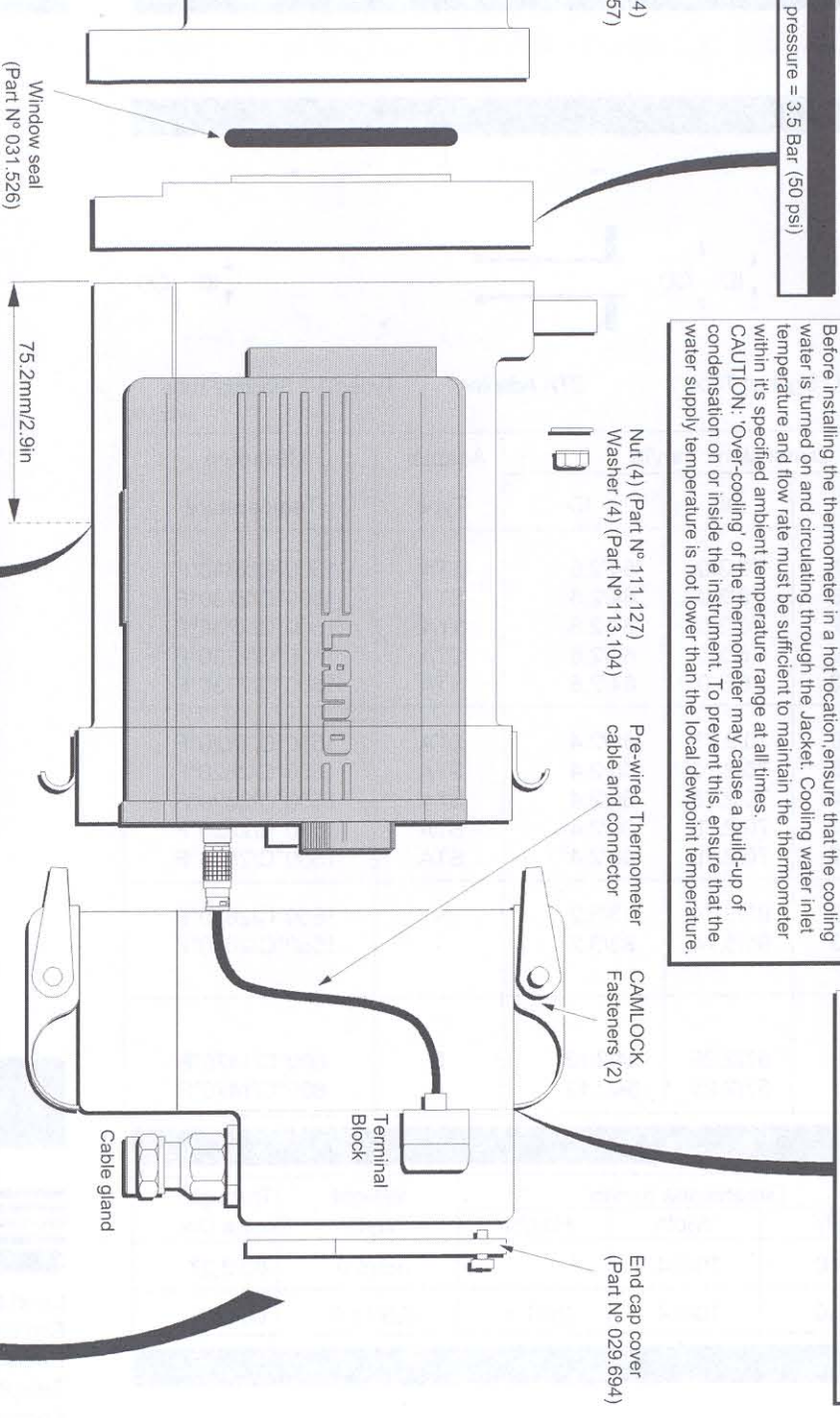
pressure = 3.5 Bar (50 psi)

**S4 J Jacket (Part No. 091.560) &  
Accurate Alignment Jacket (Part No. 030.479)**  
Water cooled: Flow < 1 l/min / 13Gal/hr Air cooled: Flow < 450l/min / 16cfm  
Maximum working pressure: 700kN/m<sup>2</sup> / 7 Bar (100psi)  
Plain pipe connections 3/8in /9.5mm dia.

**WARNING**

Before installing the thermometer in a hot location, ensure that the cooling  
water is turned on and circulating through the Jacket. Cooling water inlet  
temperature and flow rate must be sufficient to maintain the thermometer  
within it's specified ambient temperature range at all times.  
CAUTION: 'Over-cooling' of the thermometer may cause a build-up of  
condensation on or inside the instrument. To prevent this, ensure that the  
water supply temperature is not lower than the local dewpoint temperature.


**System 4/UNO End Cap (Part No 091.562)**  
Supplied with prewired cable and thermometer  
connector. Fit cap on to jacket and secure  
using two Camlock fasteners.  
Customer connections to terminal block can  
be accessed through end cap (see below).

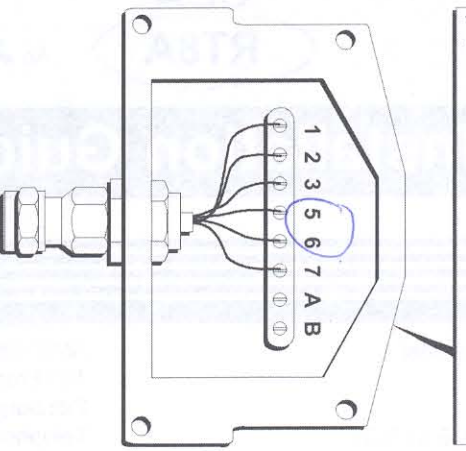


**Jacket Mounting**  
2 holes on underside of jacket:  
M6 x 1P on 70mm/2.8in centres  
75.2mm/2.9in from front of jacket

**Electrical Connection**  
Unscrew the four End cap cover screws.  
Remove the End cap cover to reveal the terminal  
block. Thread the cable through the gland and  
strip back the cable insulation.  
Connect individual cable cores to appropriate  
pin, refer to the Cable Schedule.

**Cable Schedule**

System 4 Thermometer to Landmark Processor		Processor Pin No		Cable Colour		Function		End Cap Pin No	
<div>THERMOMETER</div> 		1	Yellow	T+	1				
		2	Blue	T-	2				
		3	White	E+	3				
		4	Screen	Screen	Gland				
		5	Red	V+	5				
		6	Black	V-	6				
		7	Green	E-	7				
		UNO Thermometer to DPU		DPU Pin No		Cable Colour		Function	
1	Yellow	4 to 20mA linear temperature signal drive	1						
2	Blue	4 to 20mA linear temperature signal return	2						
3	White	CMD (Command) input	3						
4	Screen	Screen	Gland						
5	Red	23 to 48V, ≤200mA, d.c. power (positive)	5						
6	Black	23 to 48V, ≤200mA, d.c. power (negative)	6						
7	Green	CMD (Command) input	7						
FLT5A RT8A CDA				Red		V+		5	
				Black		V-		6	



View inside End Cap with cover removed  
showing customer connections  
To connect through the gland refer  
to connection drawing overleaf.

PT8A



## About this guide

This guide gives the basic information necessary to install a Land System 4 thermometer using the complete range of mounting and accessories available. Information regarding the installation of the thermometer itself is contained in the 'Thermometer Installation Guide'. It is important to check the equipment with which you have been supplied to ensure that all ordered items and accessories have been delivered.

## Warnings

If the thermometer is to be used in an area of ambient temperature higher than that specified as safe for the thermometer, then the thermometer must be housed in a special cooling jacket available from Land Instruments International. Before installing the thermometer in a hot location, ensure that cooling water/air is turned on and is circulating.

If the thermometer is to be used in an area where the atmosphere contains a high proportion of dust/smoke/steam etc, then the thermometer must be used in conjunction with a special air purge to keep the lens clean. The air purge is available from Land Instruments International. Ensure that purging air is operating before installing the thermometer in jacket in dusty environments.

**All new System 4 mountings mate with existing mounting plates and sighting tubes.**

## Thermometer Jacket (Part N° 091.560) & Accurate Alignment Jacket (Part N° 030.479)

The Cooling Jacket (S4 J) contains an effective air or water cooling facility for use in environments where excessive heat may damage or affect the thermometer. The 'Accurate Alignment' version has four additional grub screws to aid alignment.

### Dimensions

Size: Rectangular 170mm/7.00in (L) x 140mm/5.51in high x 120mm/4.72in (W).

Inlet/Outlet: 3/8" (OD) plain tube for attachment of water or air cooling pipes, or compression fittings.

Air systems: In order to achieve the necessary standards of cleanliness the air system should be well designed in accordance with recommended practices. Weight: 2.2kg/4.85lbs

## Thermometer Air Purge (Part N° 091.561)

The air purge unit uses a stream of clean air to ensure that the lens is free from condensation, dirt and other deposits. The purge is extremely efficient and accepts a wide range of air entry adapters and fittings and is suitable for use with fan or compressed air supplies. To achieve high standards of cleanliness, the air system should be designed in accordance with recommended practices.

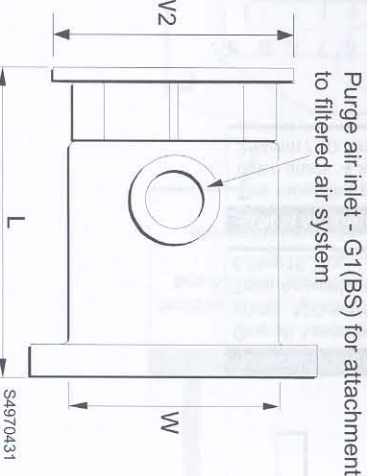
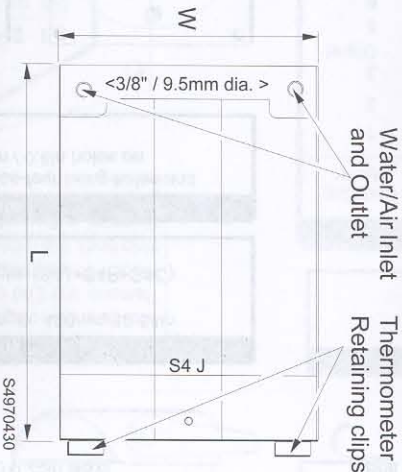
### Dimensions

Body: 115mm/4.53in dia. (W) x 150mm/5.90in (L).

Front flange: 117mm/4.61in dia. (W2).

Weight: 1.45kg/3.20lbs.

Air Inlet: G1 (BS) for attachment of air supply.



## Window Assembly

The Window Assembly is required for use on pressure vessels, vacuum furnaces and other applications where controlled atmospheres are encountered. Refer to Land Instruments International for suitability in a particular application.

Two assemblies are available - the S4 W (Quartz) model, designed for use with M1, M2, M4, U1, U2 and U4 thermometers, and the S4 W (Fluorite) model, designed for use with M5, M6, U5, FLT5A and CDA thermometers.

### Part Numbers

S4 W (Quartz) Window Assembly: Part N° 091.812  
S4 W (Fluorite) Window Assembly: Part N° 092.519  
Replacement Seals: Part N° 001.431  
Replacement Window: (Quartz) Part N° 027.154  
(Fluorite) Part N° 030.312  
Replacement Window Seal: Part N° 031.526

## End Cap - System 4/UNO (Part N° 091.562)

The End Cap ensures full environmental protection for the electrical connections to the thermometer. Customer connections are made to the terminal strip in the cap (see over). Camlock fasteners attach the cap to the jacket for use in hostile environments.

### Dimensions

L: 100mm/3.94in

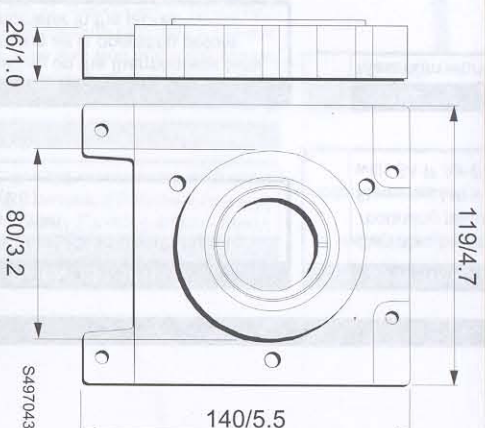
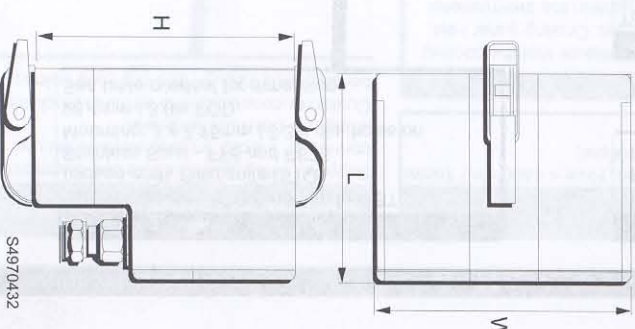
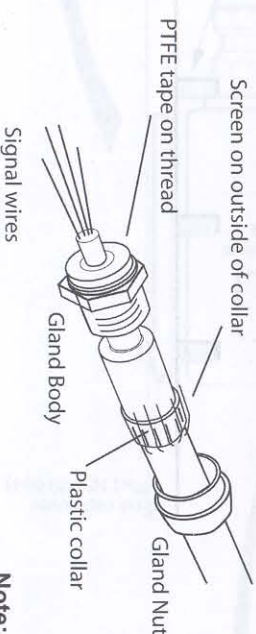
W: 120mm/4.72in

H: 140mm/5.51in

Weight: 1.55kg/3.42lbs

### Cable Gland (Part N° 150.697)

The cable used for interconnecting the parts of the measuring system must have an outer diameter between 6mm/0.24in and 9mm/0.35in with a circular cross section.



**Note: Not for use with RT8A thermometers**

### Note:

Apply teflon (PTFE) thread tape to gland body threads prior to gland re-assembly. Ensure that the thread tape does not insulate the braid from the gland body.