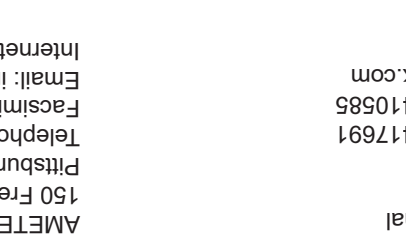
Thermometer Mountings and Accessories

SYSTEM 4
UNO
FLT5A
CDA
RT8A

Installation Guide



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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 thermometer in jacket in dusty environments.

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

Thermometer Jacket (Part Nº 091.560) & Accurate Alignment Jacket (Part Nº 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

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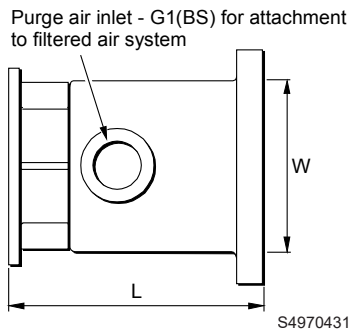
Thermometer Air Purge (Part Nº 091.561)

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.



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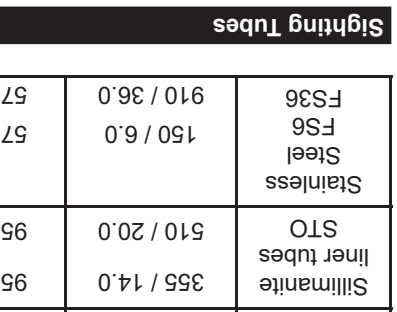
Window Assembly

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 Nº 091.812
S4 W (Fluorite) Window Assembly:		Part Nº 092.519
Replacement Seals:		Part Nº 001.431
Replacement Window:	(Quartz)	Part N° 027.154
	(Fluorite)	Part N° 030.312
Replacement Window Seal:		Part N° 031.526



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Note: Not for use with RT8A thermometers

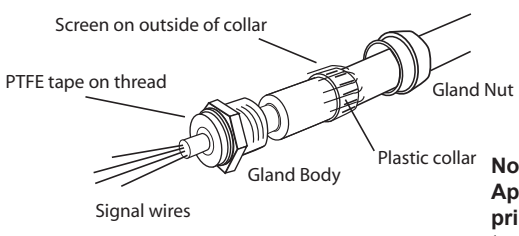
Note

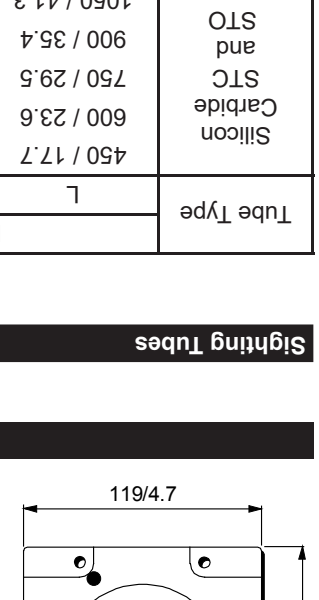
An emissivity or calibration adjustment will be required when viewing a target from behind the appropriate S4W window. Contact Land Instruments International.

End Cap - System 4/UNO (Part Nº 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 Nº 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.





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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.

Sighting Tubes

Tube Type	Dimensions mm/in L	OD	ID	Adapter Type	Maximum Temperature
Silicon Carbide STC and STO	450 / 17.7	76 / 3.0	64 / 2.5	STA	1500°C / 2730°F
	600 / 23.6	76 / 3.0	64 / 2.5	STA	1500°C / 2730°F
	750 / 29.5	76 / 3.0	64 / 2.5	STA	1500°C / 2730°F
	900 / 35.4	76 / 3.0	64 / 2.5	STA	1500°C / 2730°F
	1050 / 41.3	76 / 3.0	64 / 2.5	STA	1500°C / 2730°F
Silliminite STO	600 / 23.6	70 / 2.75	60 / 2.4	STA	1550°C / 2820°F
	750 / 29.5	70 / 2.75	60 / 2.4	STA	1550°C / 2820°F
	900 / 35.4	70 / 2.75	60 / 2.4	STA	1550°C / 2820°F
	1050 / 41.3	70 / 2.75	60 / 2.4	STA	1550°C / 2820°F
	1200 / 47.2	70 / 2.75	60 / 2.4	STA	1550°C / 2820°F
Silliminite liner tubes STO	355 / 14.0	95 / 3.74	83 / 3.2	-	1550°C / 2820°F
	510 / 20.0	95 / 37.4	83 / 3.2	-	1550°C / 2820°F
Stainless Steel FS6 FS36	150 / 6.0	57 / 2.25	54 / 2.12	F	800°C / 1470°F
	910 / 36.0	57 / 2.25	54 / 2.12	F	800°C / 1470°F

Sighting Tubes

Mounting	Dimensions mm/in Length	Width	Height	Weight kg/lb	Through Centre Diameter mm/in
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 N° 029.605)
- End cap cover (Part N° 029.694)
- Cable gland (Part N° 150.697)

Land Instruments International
Dronfield, S18 1DJ
England
Telephone: +44 (0) 1246 417691
Facsimile: +44 (0) 1246 410585
Email: land.enquiry@ametek.com
Internet: www.landinst.com

AMETEK Land, Inc.
150 Freeport Road
Pittsburgh PA 15238 U.S.A.
Telephone: (412) 826-4444
Facsimile: (412) 826-4460
Email: irsales@ametek.com
Internet: www.ametek-land.com

Part N° 198.004
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Installation Information

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 Nº 091.561)
Inlet pressure: 350N/m² / 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 Land System 3 mounting plates and sighing tubes.
Requires M6 x 60 (4) bolts when used in conjunction with S4 P Air Purge and S4 J Jacket.

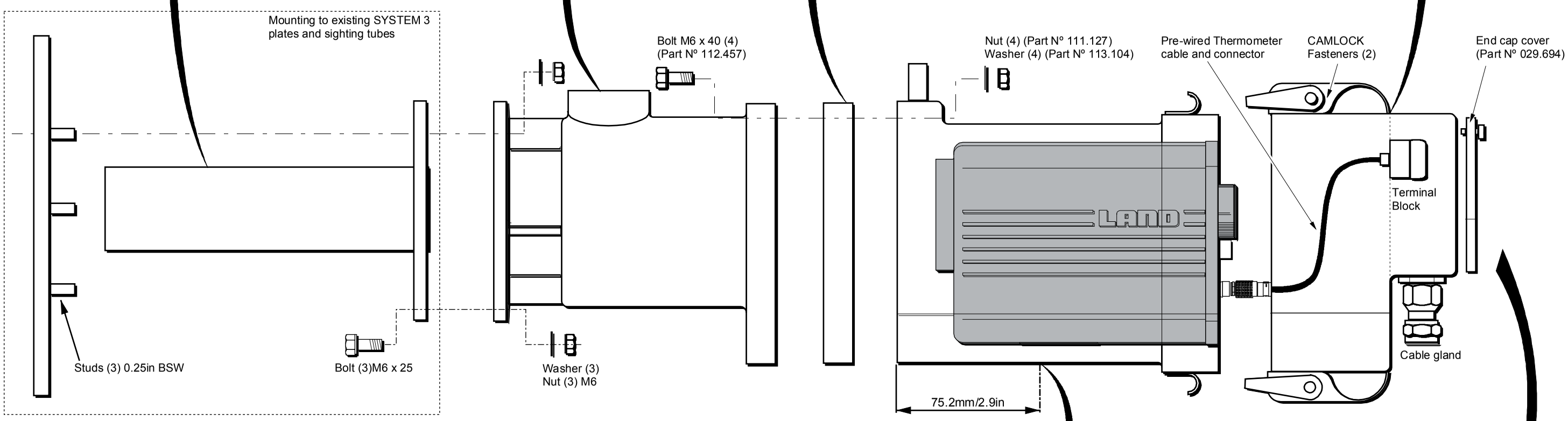
S4 J Jacket (Part No. 091.560) & Accurate Alignment Jacket (Part No. 030.479)
Water cooled: Flow < 1 l/min / 13Gal/hr)
Air cooled: Flow < 450l/min / 16cfm
Maximum working pressure: 700kN/m² / 7 Bar (100psi)
Plain pipe connections 3/8in /9.5mm dia.

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).

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 (50 psi)

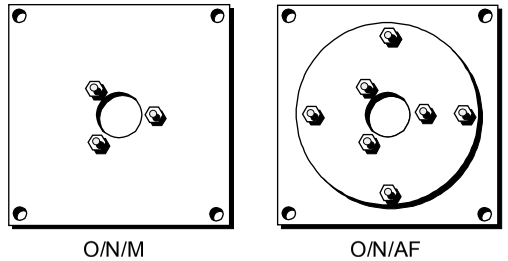
WARNING
Before installing the thermometer in a hot location, ensure that the cooling water is turned on and circulating through the Jacket.



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

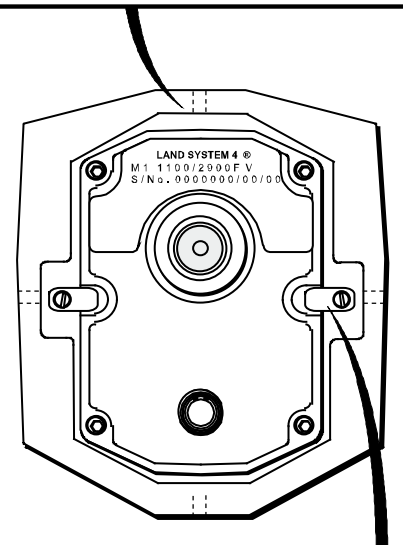
Electrical Connection
Unscrew the four End cap cover screws.
Remove the End cap cover to reveal the terminal block. Thread the cable through the gland and strip back the cable insulation.
Connect individual cable cores to appropriate pin, refer to the Cable Schedule.

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

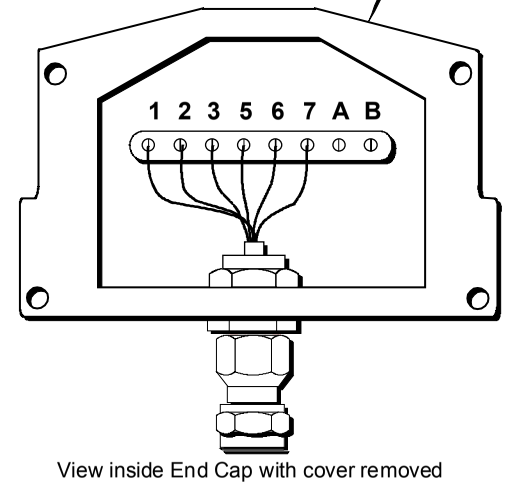
Accurate Alignment
The Accurate Alignment Jacket (Part Nº 030.479) has four additional grubscrews on the rear of the jacket.
Use a 2.5mm Hex driver to adjust the screws and align the thermometer on the target.



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

	Processor Pin Nº	Cable Colour	Function	End Cap Pin Nº
System 4 Thermometer to Landmark Processor	THERMOMETER 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
	DPU Pin Nº	**Cable Colour**	**Function**	**End Cap Pin Nº**
UNO Thermometer to DPU	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
FLT5		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.

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