



## EL2270 and EL2271 Temperature Probes

### Description

#### EL2270

The EL2270 is a Pt100 platinum resistance temperature sensor for general industrial use. The sensing device is an RTD 3 wire device that meets EN 60751: Class A. This sensor can be connected directly to any temperature indicator or controller that has a 3 wire Pt100 input. A quick response version (40 mm insertion length only) is also available for applications such as plate heat exchanger control. A miniature version of the EL2270 may also be ordered. This has a 1/4" BSP taper thread, and a tip length of 39 mm.

#### EL2271

The EL2271 is a combined Pt100 sensor and transmitter assembly. The sensing element is a 3 wire device that meets EN 60751: Class A and the transmitter has a 4 - 20 mA output.

An ATEX approved version is available to special order.

A comprehensive standard range is normally available from stock. Non-standard ranges can be obtained to special order, subject to a low limit of -50 °C, and a maximum of +500 °C. The 4 - 20 mA output can be connected directly to any temperature indicator, controller or flow computer that has a 4 - 20 mA input. Contact Spirax Sarco for further details. Transmitters with 3 point calibration are available to special order.

### Pockets (thermowells)

#### General

Three types of pockets are available:

1. Thin wall with a 1/2" NPT process connection for non-flow applications only.
2. Drilled taper with a 1/2" NPT process connection.
3. Sanitary pocket, with a 1 1/2" sanitary clamp connection (ASME BPE) electropolished to 0.4 µm.  
This pocket is available with certification to EN10204 3.1.  
**Note:** All certification/inspection requirements must be stated at the time of order placement.

**Note:** No pocket is available for the miniature EL2270.

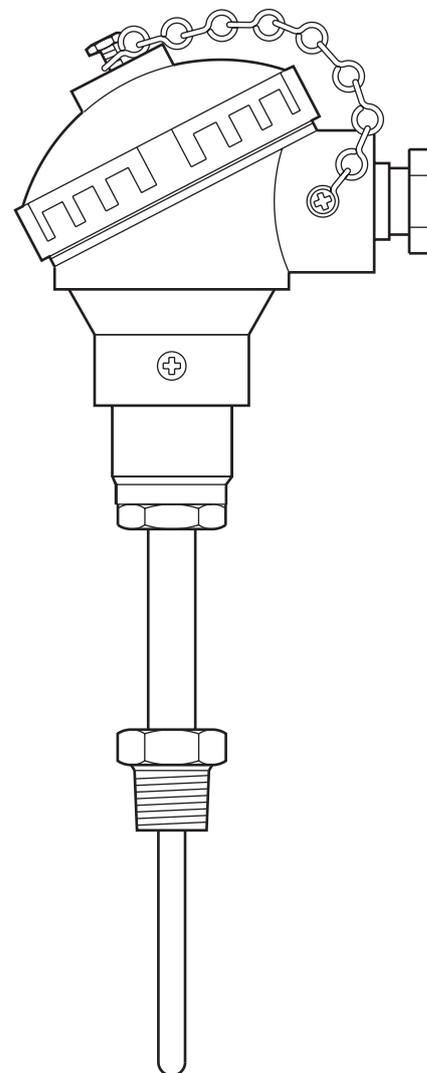
Material	316 stainless steel
Maximum temperature	500 °C

#### Selection

Pockets are sized to suit the probe tip length 'D', and are specified as 'pocket to suit a \_\_ mm probe'.

**Note 1** - The pocket dimension 'F' is 25 mm shorter than the probe length 'D', which appears to be incorrect. The reason is that the threaded body of the pocket acts as a stand-off, and therefore allows adequate clearance between the probe tip and the end of the pocket.

**Note 2** - Pockets to suit 225 mm and 725 mm probes are for non-flow applications only (maximum flow velocity 0.65 m/sec).



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**Dimensions (approximate) in mm**

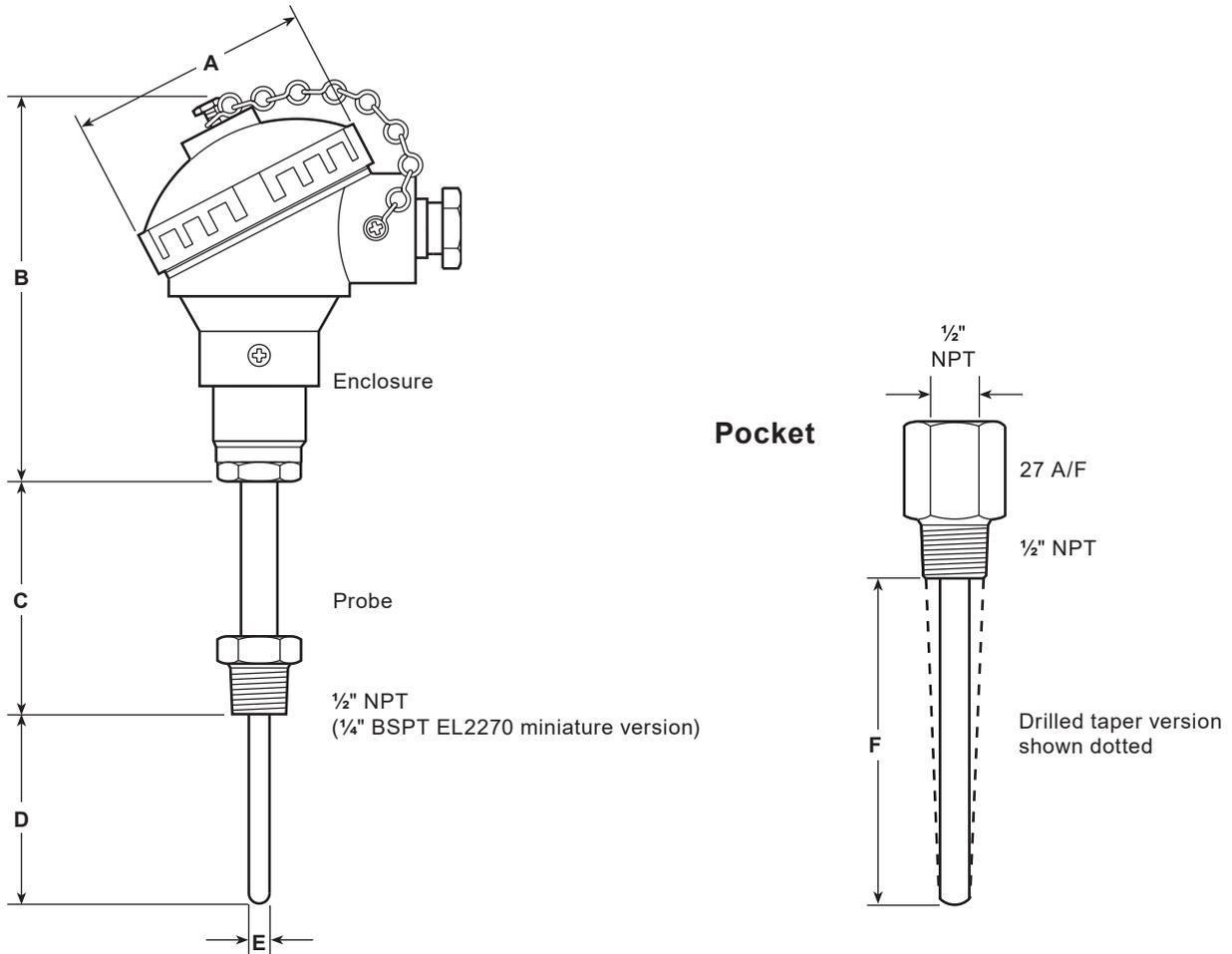
Product range	Standard	EL2270*		EL2271
		Miniature	Quick response and duplex quick response	
A	88	58	88	88
B	130	62	150	130
C	75	63	75	75
D	25, 50, 75, 125, 225, 725	39	40	25, 50, 75, 125
E	6	6	4.5	6

\* Note: The quick response EL2270 is only available with an insertion length of 40 mm.

**Pockets**

Product range	Standard		Hygienic 1½" sanitary clamp connector Fabricated
	Fabricated	Solid drilled	
F	200, 700	25, 50, 100	25, 50, 100, 200

**EL2270 and EL2271**



## Mechanical data

Product range		EL2270*	EL2271
		<b>Note:</b> A quick response version of the EL2270 is also available to order	
Enclosure		KNE - aluminium alloy - epoxy coated	KNE - aluminium alloy - epoxy coated
Probe		316 stainless steel	316 stainless steel
Process connection		½" NPT	½" NPT
Electrical connection		M20 with cable gland fitted	M20 with cable gland fitted
Enclosure rating		IP65	IP65
Ambient temperature	Minimum	-50 °C	-50 °C
	Maximum	+70 °C	+85 °C

\* The EL2270 quick response sensor has a time constant of 1.7 seconds.

## Electrical data

Available ranges	-50 °C to +500 °C	-50 °C to +50 °C										
		0 °C to +100 °C										
		100 °C to +250 °C										
Output	Pt100 to EN 60751: Class A	Loop powered 4 - 20 mA										
Output on sensor failure	-	23 mA typical										
Supply	-	10 to 30 Vdc										
Maximum loop resistance	-	636 Ω at 24 Vdc										
		909 Ω at 30 Vdc										
Transmitter - Thermal drift measuring deviation	-	± 0.1% / 10 K <sub>TAMB</sub> per EN 60770 ± 0.2%										
Maximum values for connection of the current loop circuit (connections + and -)	-	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <math>U_o = 30 \text{ Vdc}</math>  <math>P_i = 800 \text{ mW}</math>  <math>L_i = 110 \mu\text{H}</math> </td> <td style="width: 50%; border: none;"> <math>I_o = 120 \text{ mA}</math>  <math>C_i = 6.2 \mu\text{F}</math> </td> </tr> </table>	$U_o = 30 \text{ Vdc}$ $P_i = 800 \text{ mW}$ $L_i = 110 \mu\text{H}$	$I_o = 120 \text{ mA}$ $C_i = 6.2 \mu\text{F}$								
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Maximum values for connection of the sensor circuit (connections 1 up to 3)	-	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <math>U_o = 6.4 \text{ Vdc}</math>  <math>P_o = 37.1 \text{ mW}</math> </td> <td style="width: 50%; border: none;"> <math>I_o = 42.6 \text{ mA}</math> </td> </tr> <tr> <td colspan="2" style="border: none;"><b>Group II B:</b></td> </tr> <tr> <td style="border: none;"><math>C_o = 500 \mu\text{F}</math></td> <td style="border: none;"><math>L_o = 50 \text{ mH}</math></td> </tr> <tr> <td colspan="2" style="border: none;"><b>Group II C:</b></td> </tr> <tr> <td style="border: none;"><math>C_o = 20 \mu\text{F}</math></td> <td style="border: none;"><math>L_o = 10 \text{ mH}</math></td> </tr> </table>	$U_o = 6.4 \text{ Vdc}$ $P_o = 37.1 \text{ mW}$	$I_o = 42.6 \text{ mA}$	<b>Group II B:</b>		$C_o = 500 \mu\text{F}$	$L_o = 50 \text{ mH}$	<b>Group II C:</b>		$C_o = 20 \mu\text{F}$	$L_o = 10 \text{ mH}$
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EMC emissions and susceptibility	-	Electromagnetic compatibility EMC 2014/30/EU EN61326:2013 EN61326-2-3:2013										

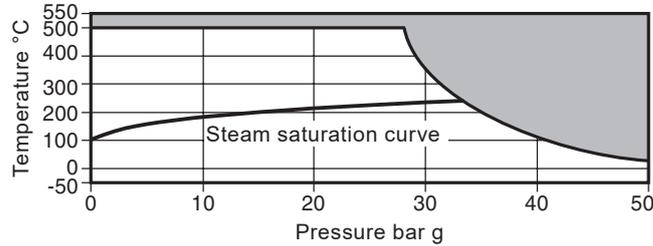
## Pressure/temperature limits

The **EL2270** and **EL2271** temperature probes can be used in applications where the process temperature is within the following limits. Where greater temperatures and pressures are present, the temperature probe should be fitted with a pocket.

For air and steam applications, flow velocities must be below 45 m/s (32 m/s for fabricated pockets).

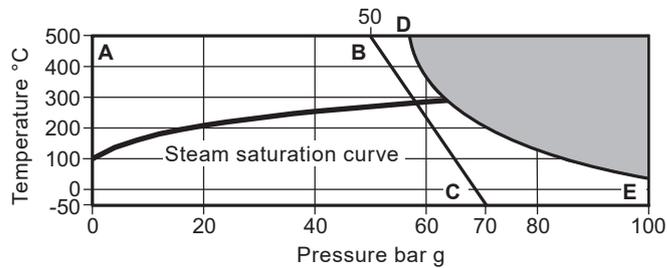
For liquids a recommended velocity is 5 m/s (**700 mm and 200 mm** non-flow applications only).

### Pressure and temperature limits of temperature probe. (ANSI 300 rated)



The product **must not** be used in this region.

### Pressure and temperature limits of standard pockets. (ANSI 600 rated)



The product **must not** be used in this region.

**A-B-C** Fabricated pocket

**A-D-E** Solid drilled pocket