INF-V4

Infrared Temperature Sensor

SN: I########

Texense sensors are designed for data logging. Should the users want to include this sensor in a closed loop system, they must undertake total responsibility from doing so.

Measurement features			
Available ranges		500, 1000, 1200 or 1300	°C
Response time		50	ms
Sensitive Element		Thermopile with silicon lens	
Wave Length		8 to 14	µm
Measurement distance		20 to 100	mm
Field of view (90% radiation)		5:1 at 50mm	
Calibrator Reference	500°C range	Land P550P	
	Other ranges	Land R1200P	
Calibrator Emissivity		99%	
Electrical features			
Supply Voltage	5V version(1)	5.000±0.020	V
	12V version	6 to 16	V
Supply Current		1.5	mA
Protection		Reverse voltage and short circuit protection	
Output signal		0-5	V
Mechanical features			
Dimensions		See drawings	
Material		Aluminum	
Weight (without cable)		6	g
Environment			
Protection		IP64	
Vibration test		20Gpp 5'	
Shock		500	G
Operating Temperature	5V version	-20 to +200(2)	°C
	12V version	-20 to +180	
Storage Temperature		-40 to +150	°C

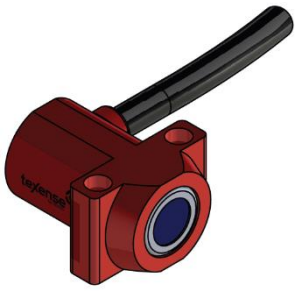
(1) The 5V version is not regulated. Offset ($V_{25°C}$ value) is ratiometric with supply voltage.
(2) 1000 hours max above 180°C.

Date		Operator	
Customer			
Order			
Ref	INF-####-V4-#-##		

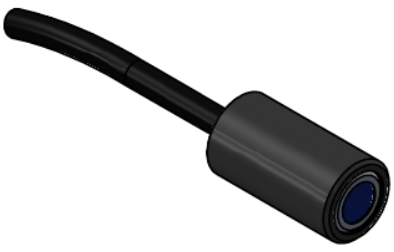
Sensor readings	
Calibrator temperature	Signal output value
25°C	…V ($V_{25°C}$value)
…°C	…V

Cable		
5x28AWG Raychem 55M Length: 1000 mm ±10% Connector: N/A	Tubing: 1/8 RW-200-E	
Color	**Function**	**Pin**
Red	Supply	-
Black	0V	-
White	Signal	-
Yellow	PT1000	-
Green or Blue	PT1000	-

Elbow housing



Straight housing



Signal output

Following formula enables to compute target temperature T_C in function of signal output V and ambient temperature T_A given by PT1000:

$$T_C = \sqrt[4]{(V - V_{25°C}) \times \propto + (T_A + 273)^4} - 273$$

Where T_C: Target temperature in °C
T_A: Ambient temperature in °C
V: Signal output voltage in V
$V_{25°C}$: Signal output voltage in V when target and ambient temperature is 25°C.
$\propto$: table coefficient (depend on temperature range)

Calibration table for 500°C range

Coefficient $\propto$=8.728x10^{10}

T_C (°C) / T_A (°C)	25	50	100	150	200	250	300	350	400	450	500
25	0.500	0.534	0.631	0.776	0.983	1.267	1.645	2.136	2.760	3.540	4.500
50	0.466	0.500	0.597	0.742	0.949	1.232	1.610	2.101	2.726	3.506	4.466
100	0.369	0.403	0.500	0.645	0.852	1.135	1.513	2.004	2.629	3.409	4.369
150	0.224	0.258	0.355	0.500	0.707	0.990	1.368	1.859	2.484	3.266	4.224

Error >5°C
Error ≤5°C

Calibration table for 1000°C range

Coefficient $\propto$=6.55x10^{11}

T_C (°C) / T_A (°C)	25	100	200	300	400	500	600	700	800	900	1000
25	0.500	0.518	0.564	0653	0.801	1.033	1.375	1.857	2.512	3.379	4.500
50	0.495	0.513	0.560	0.648	0.797	1.029	1.370	1.852	2.508	3.374	4.493
100	0.482	0.500	0.547	0.635	0.784	1.016	1.357	1.839	2.495	3.361	4.481
150	0.463	0.481	0.528	0.616	0.764	0.996	1.338	1.820	2.475	3.342	4.461

Error >10°C
Error ≤10°C

Calibration table for 1200°C range

Coefficient $\propto$=1.175x10^{12}

T_C (°C) / T_A (°C)	25	100	200	300	400	500	600	700	800	900	1000	1100	1200
25	0.500	0.510	0.536	0.585	0.668	0.797	0.988	1.256	1.621	2.104	2.728	3.517	4.500
50	0.497	0.507	0.533	0.582	0.665	0.795	0.985	1.253	1.619	2.102	2.726	3.515	4.497
100	0.490	0.500	0.526	0.575	0.658	0.787	0.978	1.246	1.612	2.095	2.718	3.508	4.490
150	0.479	0.489	0.515	0.564	0.647	0.777	0.967	1.236	1.601	2.084	2.708	3.497	4.479

Error >12°C
Error ≤12°C

Calibration table for 1300°C range

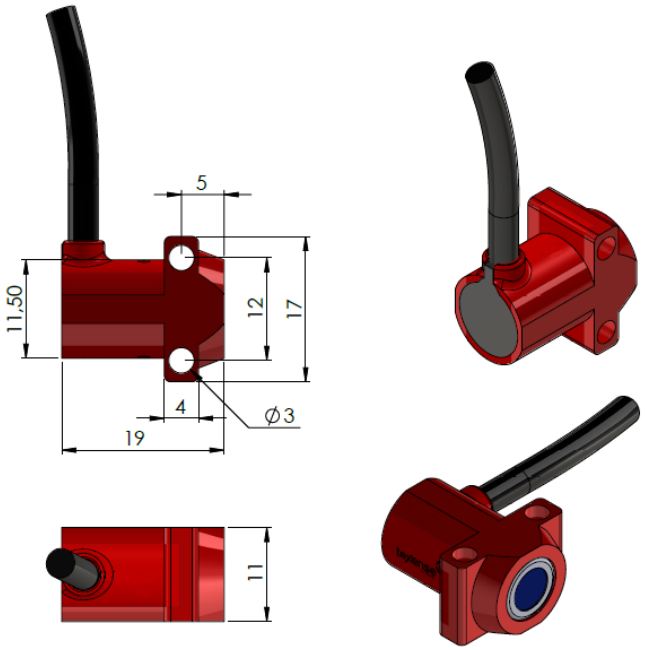
Coefficient $\propto$=1.529 x10^{12}

T_C (°C) / T_A (°C)	25	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300
25	0.500	0.508	0.528	0.565	0.629	0.728	0.875	1.081	1.362	1.733	2.213	2.820	3.575	4.500
50	0.498	0.506	0.526	0.563	0.627	0.726	0.873	1.079	1.360	1.731	2.211	2.818	3.573	4.498
100	0.492	0.500	0.520	0.558	0.622	0.721	0.867	1.074	1.355	1.726	2.205	2.812	3.567	4.493
150	0.484	0.492	0.512	0.550	0.613	0.713	0.859	1.065	1.346	1.718	2.197	2.804	3.359	4.484

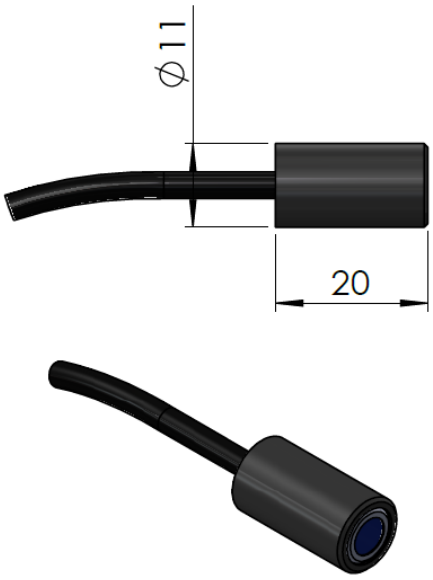
Error >13°C
Error ≤13°C

Mechanical drawing

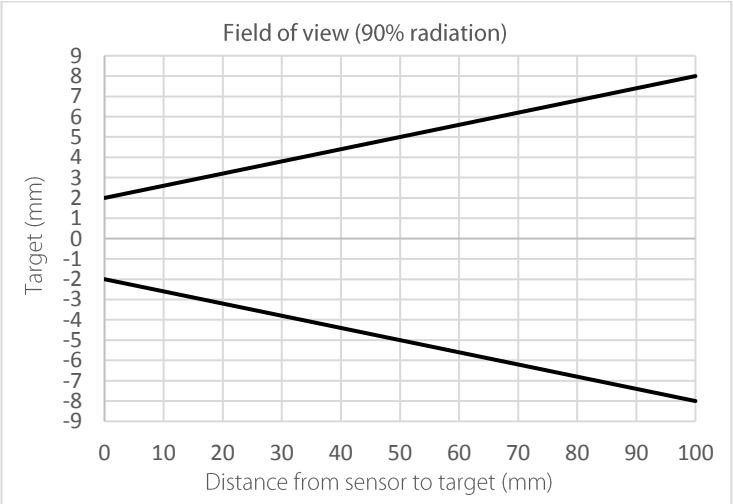
Elbow housing
"E" code

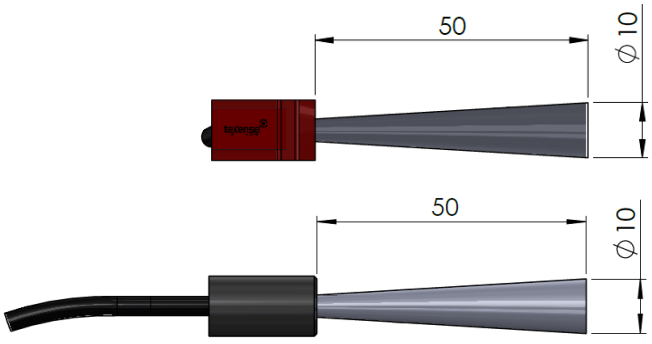


Straight housing
"S" code



FOV (field of view)





Ordering information

Ordering ref:

INF – *Range* – V4 – *Housing* – *Supply*

Range:
- *500:* 500°C range
- *1000:* 1000°C range
- *1200:* 1200°C range
- *1300:* 1300°C range

Housing:
- *E:* Elbow housing
- *S:* Straight housing

Supply:
- *5V:* 5V supply
- *12V:* 12V supply

ex: INF-1000-V4-E-12V