INF-LR

INFRARED TEMPERATURE SENSOR LOW RANGE

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.

High temperature range HR		200 to 1000	°C
Low temperature range LR		25 to 350	°C
Accuracy[1] at 25°C		1	%FS
Accuracy[1] 25°C<Tambient<150°C		<10	°C
Differential error HR vs LR @ 350°C		<5	°C
Response time		50	ms
Supply voltage	12V code	6 to 16	V
	5V code	5.000±0.010	V
Supply current		1.5	mA
Dual output signal		0-5	V
Sensitive element		Thermopile with silicium lens	
Wave length		8 to 14	µm
Measurement distance		30 to 100	mm
Field of view (90% radiation)		5:1 at 50mm	
Calibrator		DIAS CS1500	
Emissivity		99%	
Dimensions		27x17x11	mm
Material		Aluminum	
Weight (without cable)		7	g
Protection		IP65	
Vibration		50Gpp	
Shock[2]		500	G
Operating temperature		-20 to 150	°C
Storage temperature		-40 to 200	°C

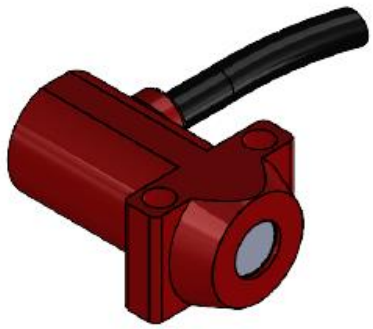
[1] If $T_{ambient} \leq T_{target}$ and $T_{target} > 50°C$

[2] 10x 1ms shocks on 6 axis

Date		Operator	
Customer			
Order			
Product Ref	INF-LR-E-12V-350-1000-##		

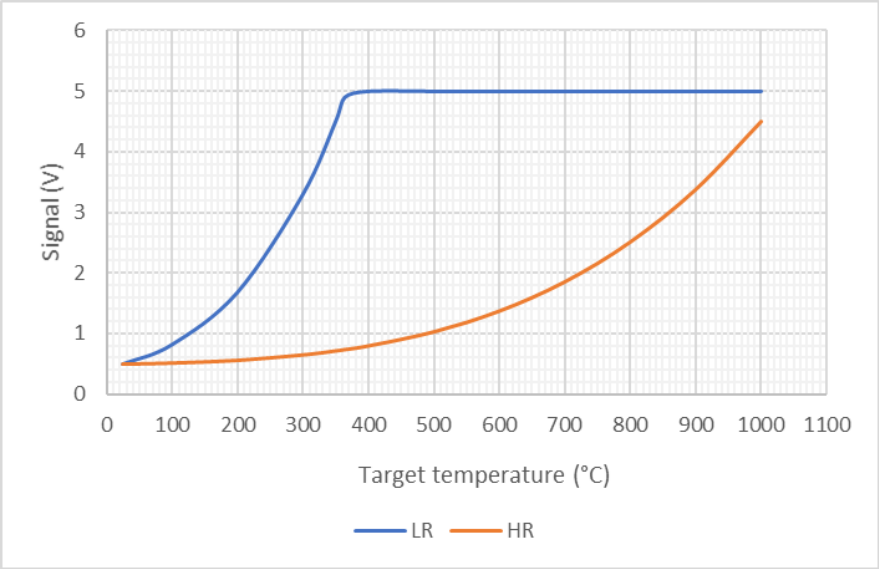
Sensor reading		
Target temperature	LR output in V	HR output in V
25°C	0,500	0,500
350°C	4,500	0,718
1000°C	-	4,500

Cable		
4x28 awg Raychem 55M Length: 1000mm Tubing: 1/8 RW-200-E-NR542 Connector: on request		
Color	Function	Pin
Red	Supply	
Black	0V	
White	Signal LR 350°C	
Green	Signal HR 1000°C	



Calibration table

Calibration table (Carbon target)		
Target temperature (°C)	Signal LR (V)	Signal HR (V)
25	0,500	0,500
100	0,821	0,518
200	1,682	0,564
300	3,300	0,653
350	4,500	0,718
400	5,000	0,801
500	5,000	1,033
600	5,000	1,375
700	5,000	1,857
800	5,000	2,513
900	5,000	3,381
1000	5,000	4,500



High range response law:

$$T_{C_{HR}} = \sqrt[4]{(V_{HR} - Offset_{HR}).Gain_{HR} + K_T} - 273$$

Reverse law: $$V_{HR} = \frac{(T_{C_{HR}}+273)^4 - K_T}{Gain_{HR}} + Offset_{HR}$$

With:

Parameter	Value / Description	Unit
$T_{C_{HR}}$	Target temperature: High Range measurement	°C
V_{HR}	High Range output signal	V
$Offset_{HR}$	0.500	V
$Gain_{HR}$	6.545×10^{11}	-
K_T	7.556×10^{9}	-

Low range response law:

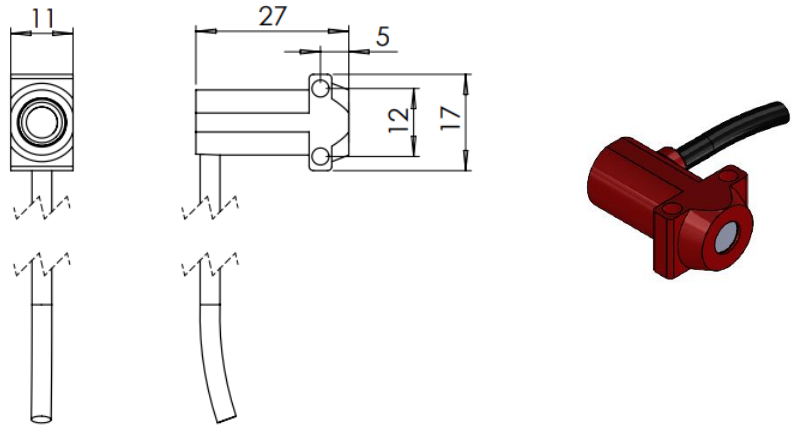
$$T_{C_{LR}} = \sqrt[4]{(V_{LR} - Offset_{LR}).Gain_{LR} + K_T} - 273$$

Reverse law: $$V_{LR} = \frac{(T_{C_{LR}}+273)^4 - K_T}{Gain_{LR}} + Offset_{LR}$$

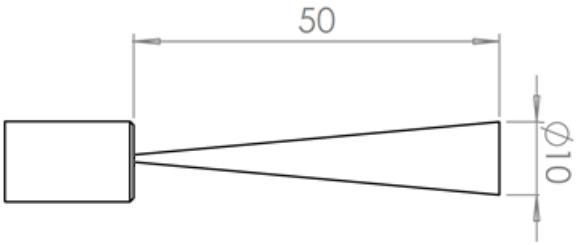
With:

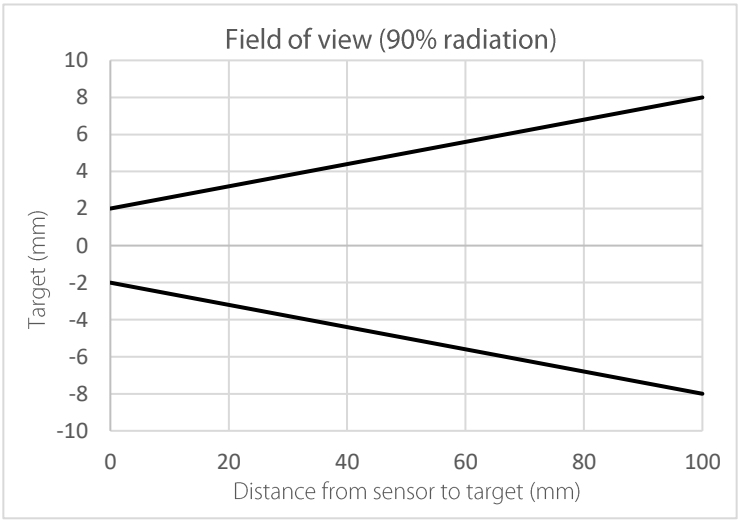
Parameter	Value / Description	Unit
$T_{C_{LR}}$	Target temperature: Low Range measurement	°C
V_{LR}	Low Range output signal	V
$Offset_{LR}$	0.500	V
$Gain_{LR}$	3.569×10^{10}	-
K_T	7.886×10^{9}	-

Mechanical drawing



Field of view





Ordering information

Ordering ref:

INF-LR-E- *Supply* – *LowRange* – *HighRange*

12V: 6 to 16V
5V: 5V

350: 350°C

1000: 1000°C

ex: INF-LR-E-12V-350-1000