

IRN2

Infrared temperature sensor high range
Linear analog and digital output

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		600, 800, 1000 or 1200	°C
Accuracy ⁽¹⁾		2	%FS
Ambient temperature error		±0.5	°C
Response time (0 to 90%)		50	ms
Sensitive Element		Thermopile with silicon lens	
Wavelength		8 to 14	µm
Measurement distance		20 to 100	mm
Field of view (90% radiation)		5:1 at 50mm	
Calibrator reference		Land P550P and Land R1200P	
Calibrator emissivity		99%	
Emissivity and distance tuning		Gain factor from 0.1 to 10	
Electrical features			
Supply Voltage	3V version	3.3 to 30	V
	5V version	5.5 to 30	
	10V version	10.5 to 30	
Supply Current		4	mA
Protections		Reverse voltage and short circuit protections	
Analog output signal	3V version	0...3	V
	5V version	0...5	
	10V version	0...10	
Analog output impedance		47	Ω
Digital output feature		ASCII data at 50Hz	
Mechanical features			
Materials and dimensions		See SHousing options	
Weight wo cable	Al	15	g
	SS 316 L	21	g
Environmental features			
Protection		IP65	
Vibration test		20Gpp 5'	
Shock		500	G
Operating Temp		-20 to +120	°C
Storage Temp		-40 to +125	°C

(1) See calibration tables for more details.

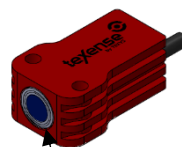
Date		Operator	
Customer			
Order			
Ref	IRN2#####		
SW version	V#.#		

Sensor readings	
Calibrator temperature (°C)	Signal output value (V)
...°C	...V
...°C	...V

Software setup	
Digital output	OFF
Degree unit	Celsius
Gain factor	1024

Cable version		
☒ Default 4x26AWG FEP tinned copper braided cable 250V 200°C ☐ Optional EPD117723A Length: 1000 mm ±10% Tubing: None Connector: N/A		
Color	Function	Pin
Red	Supply	-
Black	0V	-
White	Signal	-
Green	Digital signal	-
Braid (not for EPD 117723A)		-

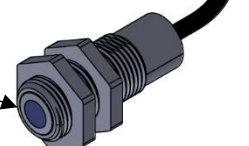
"T" version



"TS" version



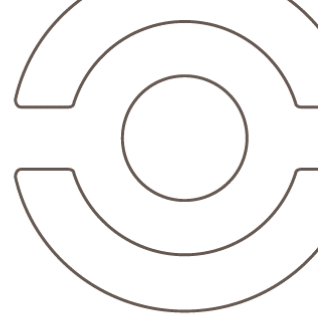
"V" version



Warning: the metallic ring around the lens is connected inside the sensor. Avoid any electrical contact.

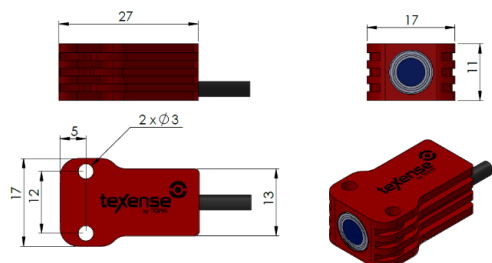
Calibration table

3V output version	Range (°C)	600	800	1000	1200
	Sensitivity (mV/°C)	4.2	3.0	2.4	2.1
	Offset (mV)	150	300	300	300
	0	0.150	0.300	-	-
	25	0.255	0.375	0.360	0.353
	50	0.360	0.450	0.420	0.405
	100	0.570	0.600	0.540	0.510
	200	0.990	0.900	0.780	0.720
	300	1.410	1.200	1.020	0.930
	500	2.250	1.800	1.500	1.350
	600	2.670	2.100	1.740	1.560
	700	-	2.400	1.980	1.770
	800	-	2.700	2.220	1.980
	900	-	-	2.460	2.190
	1000	-	-	2.700	2.400
	1100	-	-	-	2.610
	1200	-	-	-	2.820
5V output version	Range (°C)	600	800	1000	1200
	Sensitivity (mV/°C)	7.0	5.0	4.0	3.5
	Offset (mV)	250	500	500	500
	0	0.250	0.500	-	-
	25	0.425	0.625	0.600	0.588
	50	0.600	0.750	0.700	0.675
	100	0.950	1.000	0.900	0.850
	200	1.650	1.500	1.300	1.200
	300	2.350	2.000	1.700	1.550
	500	3.750	3.000	2.500	2.250
	600	4.450	3.500	2.900	2.600
	700	-	4.000	3.300	2.950
	800	-	4.500	3.700	3.300
	900	-	-	4.100	3.650
	1000	-	-	4.500	4.000
	1100	-	-	-	4.350
	1200	-	-	-	4.700
10V output version	Range (°C)	600	800	1000	1200
	Sensitivity (mV/°C)	14.0	10.0	8.0	7.0
	Offset (mV)	500	1000	1000	1000
	0	0.500	1.000	-	-
	25	0.850	1.250	1.200	1.175
	50	1.200	1.500	1.400	1.350
	100	1.900	2.000	1.800	1.700
	200	3.300	3.000	2.600	2.400
	300	4.700	4.000	3.400	3.100
	500	7.500	6.000	5.000	4.500
	600	8.900	7.000	5.800	5.200
	700	-	8.000	6.600	5.900
	800	-	9.000	7.400	6.600
	900	-	-	8.200	7.300
	1000	-	-	9.000	8.000
	1100	-	-	-	8.700
	1200	-	-	-	9.400

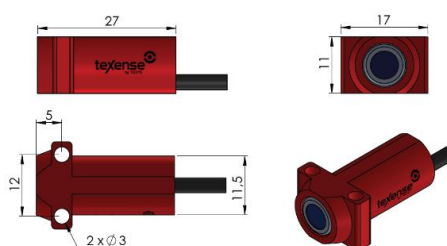


Housing options

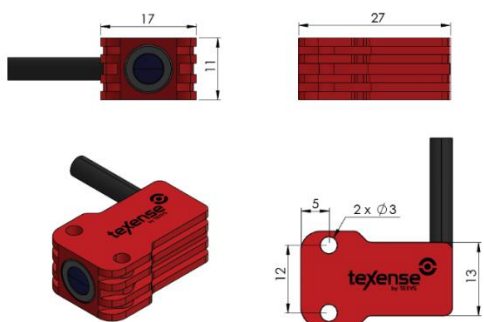
"T": Aluminium shape housing



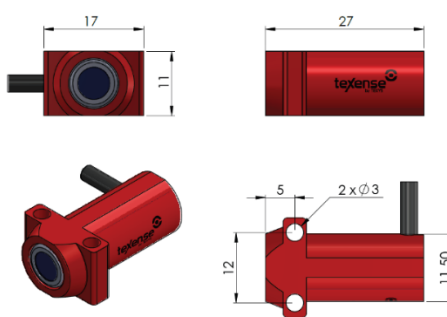
"TS" Aluminium shape housing



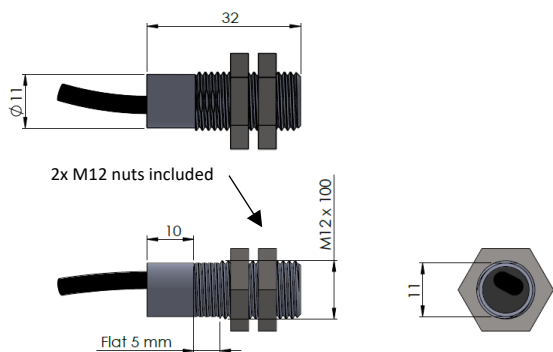
"T-RA" Aluminium shape housing



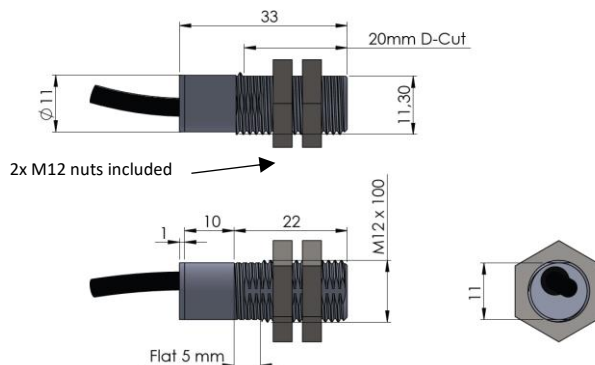
"TS-RA" Aluminium shape housing



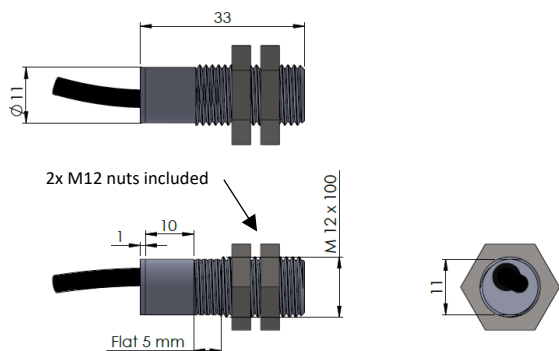
"V": Aluminium M12 housing



"VD-I": SS 316L M12 housing with a D cut shape

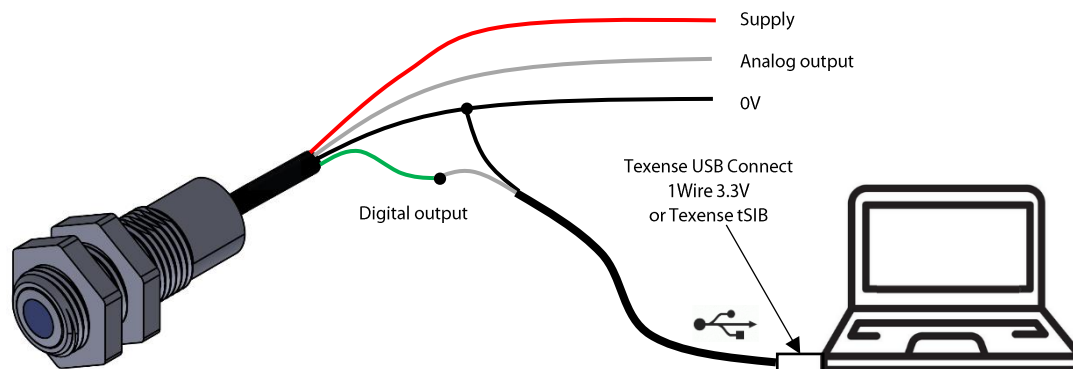


"V-I": SS 316L M12 housing



Digital Output

Connections



Drivers

It is necessary to download a VCP driver (Virtual Com Port) FTR232R to convert the USB port in Serial COM Port at the following address: <https://ftdichip.com/drivers/vcp-drivers/>. See information at <https://ftdichip.com/document/installation-guides/>

Software

Use HyperTerminal (for Windows): www.hilgraeve.com/hpte/download.html or Teraterm: <https://tera-term.en.softonic.com/> or any other COM port management software.

Settings

If cable length $\leq 1.5\text{m}$, please consider a baudrate of 115200 bauds

If cable length $> 1.5\text{m}$, please consider a baudrate of 38400 bauds

8 bits data, no parity, 1 bit stop, no flow control, recommended font Courier New.

Operating Modes

At power up, the sensor sends the following header:

```
TEXYS(r)   IRN2 1000 V1.0  SN000000000

'u': digital output on/off      OFF
'd': degree      C / F         Celsius
'e': gain factor   =           1024
```

To change a parameter, press a key:

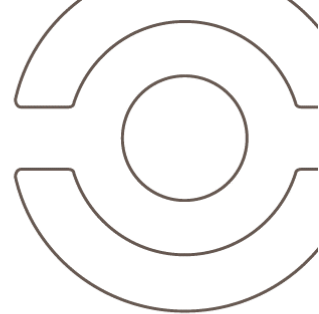
Parameter	Key	Description
Digital output	'u'	Toggle between active (ON) or not (OFF) for the digital output (default: OFF)
Degree	'd'	Toggle between Celsius and Fahrenheit (default: Celsius)
Gain factor	'e' + number from 100 to 10000. (in 1024th)	Factor from 0.098 to 9.76, intended to adjust the output signal versus target emissivity or distance (default: 1024, equivalent to factor 1)

If the digital output is active (digital output ON), the header is not displayed. Instead, the temperature value is sent with following features:

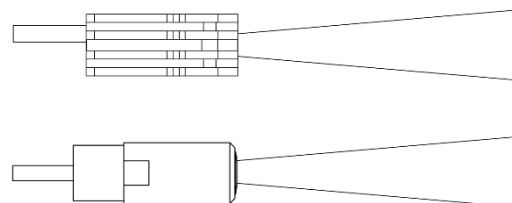
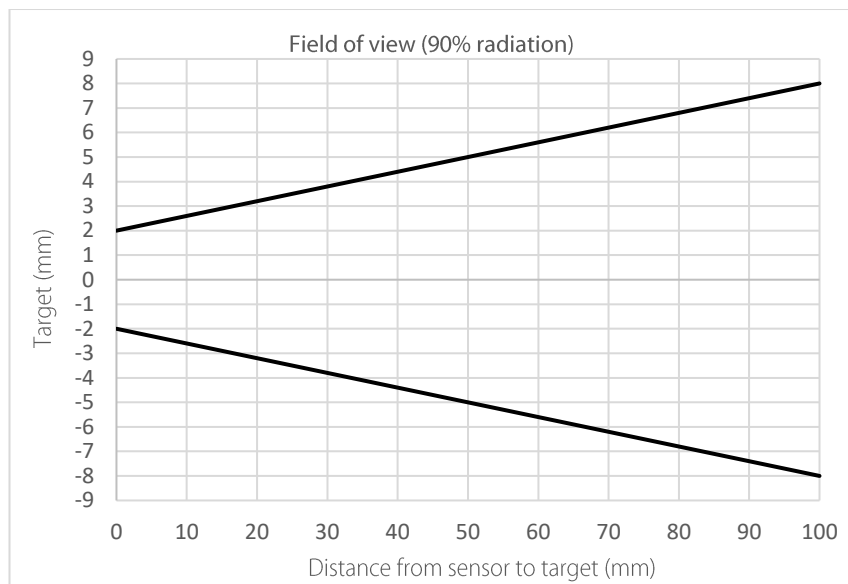
- Data rate 50Hz
- Coded with line feed (0x0A) + carriage return (0x0D) + 5x ASCII characters.
- The temperature value is given in tenths of degree.

Examples:

```
01456
01456 ← Temperature = 145.6°C
01457
01458
.....
```



FOV (field of view)



Ordering information

Ordering ref:

IRN2 Housing – Range – Output

T: T shape
T-RA: T shape with right angle cable output
TS: TS shape
TS-RA: TS shape with right angle cable output
V: M12 shape, Aluminium material
V-I: M12 shape, SS316L material
VD-I: M12 shape w D cut, SS316L material

3: 0...3V signal
5: 0...5V signal
10: 0...10V signal

600: 0°C...600°C range
800: -0°C...800°C range
1000: 0°C...1000°C range
1200: 0°C...1200°C range

ex: IRN2V-1000-5