

THNF-A

Digital Thermocouple connector conditioner
1kHz sampling frequency, 0...5V analog and serial output

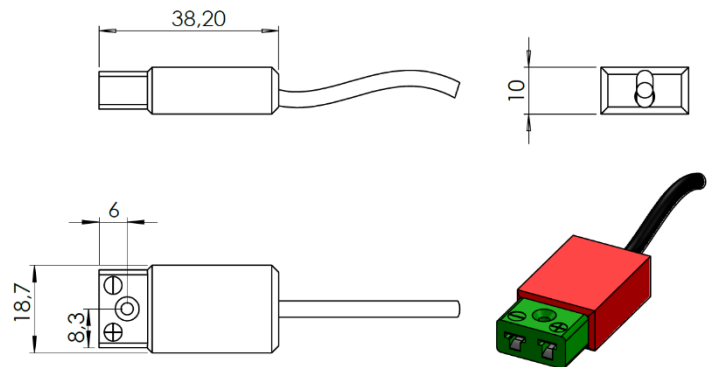
Texense sensors are designed for data logging. Should the users want to include this sensor in a closed loop system, they must undertake total responsibility from doing so.

Measurement features			
Range	See \$Available ranges		°C
Type	K, C, R, J, N, B, S, T, E		
Calibrator	Fluke 714B or 753		
Sampling frequency	1		kHz
Integration time	1 to 128		ms
Sampling error	±0.2		%FS
Max probe impedance	300		Ω
Cold junction error	Type K, R, J, N, B, S, T, E	±0.7	°C
	Type C	±5	°C
Accuracy	Range ≤ 400°C	1	°C
	Range > 400°C	0.25	%FS
Analog output	Voltage Accuracy	±0.1	%FS
	Drift vs Ambient temperature	±0.01	%FS/°C
	Range	0...5	V
	Impedance	100	Ω
Digital output	Frequency	50	Hz
	Serial link ⁽¹⁾	ASCII coding, 115200 Bauds	
Electrical features			
Supply Voltage	5V version	5±0.1 ⁽²⁾	V
	24V version	6 to 25	
	30V version	6 to 30	
Supply Current	<18		mA
Mechanical features			
Dimension	38.2x18.7x10		mm
Material	Aluminum		
Weight	15		g
Environment			
Protection	IP53		
Vibration test	20Gpp5'		
Shock	500		G
Operating Temp	-40 to +125		°C
Storage Temp	-40 to +125		°C

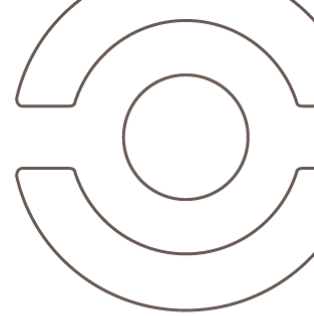
- (1) Compatible with Texense USB Connect 1Wire 5V or tSIB
 (2) Output signal is ratiometric with supply voltage. Absolute maximum rating is 5.5V.

Cable		
4x26 AWG FEP tinned copper braided cable 250V 200°C		
Length: 1000mm		Tubing:
Connector:		
Color	Function	Pin
Red	Supply input	-
Black	0V	-
White	Analog output	-
Green	Digital output	-
Braid		

The Thermocouple probe wires must be isolated from supply ground



Available Types and Connector Color		
Type	Standard	Color
K	IEC	Green
	ANSI	Yellow
C	IEC	White
R	IEC	Orange
S	IEC	
J	IEC	Black
	ANSI	
N	IEC	Pink
B	IEC	Grey
T	IEC	Brown
E	IEC	Purple



Available ranges

Type	Ordering code	Output signal (V)		Type	Ordering code	Output signal (V)	
		at -FS	at +FS			at -FS	at +FS
K	K-100+400	0.200	4.700	R	RO+1250	0.200	4.950
	K-100+800	0.200	4.700		RO+1800	0.200	4.880
	K-100+1300	0.060	4.820	J	J-100+400	0.200	4.700
	K-50+200	0.200	4.700		J-100+800	0.200	4.700
	K-40+150	0.240	4.800		J-50+200	0.200	4.700
	K-40+300	0.140	4.900		J0+100	0.500	4.500
	K-40+1370	0.064	4.858	J0+1250	0.200	4.950	
	K0+120	0.400	4.600	N	N-100+1000	0.080	4.700
	K0+300	0.300	4.800	S	S0+1500	0.200	4.700
	K0+800	0.200	4.840	T	T-200+100	0.300	4.800
	K0+900	0.200	4.700		T-100+300	0.100	4.900
	K0+1000	0.200	4.800		T-100+400	0.200	4.700
	K0+1100	0.200	4.820		T-50+200	0.200	4.700
	K0+1250	0.200	4.950		T-40+150	0.240	4.800
	K-50+1050	0.190	4.810		T-20+150	0.280	4.700
	K-270+100	0.260	4.700	T-270+100	0.260	4.700	
	B	B0+1800	0.200	4.880	E	E-270+100	0.260
C	C0+2300	0.200	4.800	E0+600		0.200	4.820

Ordering information

Ordering ref:

THNF- Output – Type/Range – Supply – Color Standard

A: Analog 0...5V

K-100+400 : K type -100°C to +400°C

K-100+800 : K type -100°C to +800°C

...

T-20+150 : T type -20°C to +150°C

IEC: IEC standard

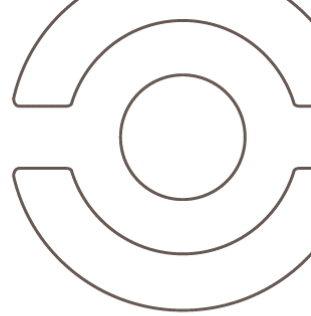
ANSI: ANSI standard

5: 5V supply (ratiometric output)

24: 6V to 25V supply

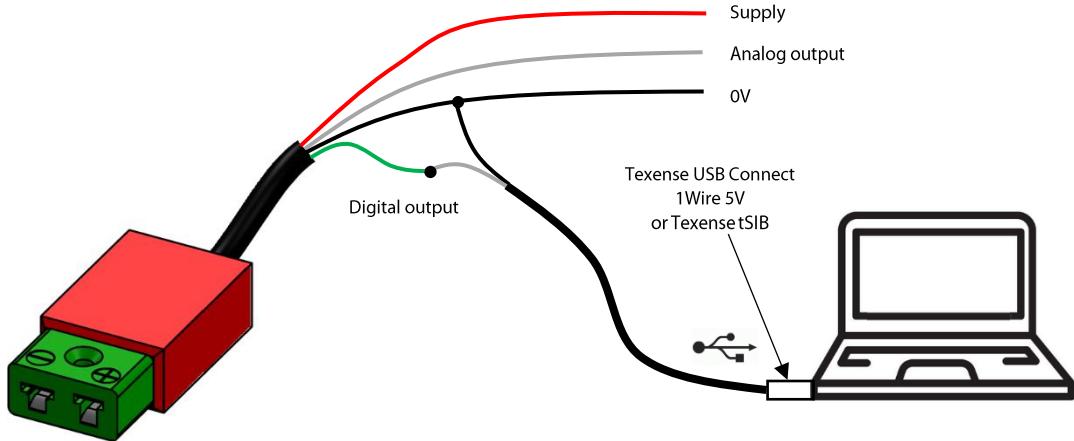
30: 6V to 30V supply (Option)

ex: THNF-A-K-100+400-24-IEC



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

115200 bauds, 8 bits data, no parity, 1 bit stop, no flow control, recommended font Courier New.

Operating Modes

At power up:

- if Digital Output is disable, the sensor sends only the following header:

```
THNF-A v1.17 SN12345678 K-40+150

Serial Output DISABLE 'W'
Integration Time = 64ms 't'
```

- if Digital Output is enabled, the sensor sends directly the digital value, with this following format:

```
01456
01456
01457
...
```

Serial Output Format

0x0D (carriage return) + 0x0A (new line) + 5 ASCII characters for the temperature in tenths of degree

Example: Temperature 145.6°

```
01456
01456
01456
01456
...
```

Temperature -5.2°

```
-0052
-0052
-0052
-0052
...
```

For complete information, contact us at info@texense.com