XN4-E-FB

DIGITALLY CONTROLLED
STRAIN GAUGE AMPLIFIER – ENHANCED VOLTAGE
Ref: XN4-E-FB

S/N: X######## Software version: v1.04

Texys sensors are designed for data recording. If the user wants to include this sensor in a close loop system or active control, he must assume all responsibility.

Supply Voltage		8 to 30	V
Supply Current under 12V (Amplifier only)		< 3	mA
Bridge supply voltage (internal)		5	V
Bridge gauge impedance		120 to 1000	Ω
Output signal		0-5	V
Output impedance		100	Ω
Parameters		Offset, Gain, Compensation	
Offset		0 to 5	V
Gain		70 to 1250	V/V
Cut off frequency (1 pole filter) Adjustable on demand by "Bandwidth" capacitor See table		40 to 9000	Hz
Temperature measurement		Internal Temperature Probe (NTC) or external for remote application	
Offset drift with temperature		<10	mV
Gain drift with temperature		0.2	%
Temperature compensation	**Offset**	by self training in oven start by Tx/Rx wire *	
	Gain	depending on part & gauge material or by Tx/Rx wire*	
Max initial recommended bridge unbalance	**120Ω**	1.5	mV
	350Ω	2	
	1000Ω	3.5	
Dimensions		18x10.3x4	mm
Material		PCB + Epoxy + Inox cover	
Weight		5	g
Vibration test		20Gpp 5'	
Shock		500	G
Accuracy Temp		-40 to +125	°C
Operating Temp		-40 to +125	°C
Storage Temp		-40 to +125	°C

* Use Texense USB Connect 1-Wire 5V or tSIB.

	Readings	
V_{in}	@ 0 mV input	@ 10 mV input
V_{out}	…V	…V

Cut Off Frequency	…	Hz	
PPM	…	ppm/°C	DIG
Offset	2.5	V	DIG
gain	200	V/V	DIG

Digital communication commands
38400 bauds / 8 bits data / 1 stop / no parity / no flow control

	command	value	min	max	
offset	'o'	2500	0	5000	**set target and run (no strain)**
gain mV	'r'	4500	0	5000	**set target and run (with strain)**
gain .1	'g'	4995	710	12700	**set the gain (in tenth)**
ppm	'p'	-335	-2000	2000	**gain compensation (in ppm/°C)**
out_dig	'd'	0	0	1	**enable digital output (at 100Hz)**
timeout	't'	5	2	12	**timeout of the self-learning (h)**
compens	'c'	(5hours max)			**Run a self-learning of offset compensation**
table	'x'				**Show the offset compensation table**
erase	'e'				**Erase the offset compensation table**
check	'v'				**Run the Check mode to verify the gauge**

run off.	'l'	**Run the offset calibration (at ambient temperature)**
run gain	'f'	**Run the gain calibration (at ambient temperature)**
off. adj.	'j'	**Offset adjustment (to set finely with i or k)**
gain adj.	'u'	**Gain adjustment (to set finely with i or k)**
header	'h'	**Show this header**
reboot	'!'	**Reboot the XN4**

Material of strain gauged part	Usual coeff %/°C	PPM/°C
Steel (default)	-0.033	-330
Titanium	-0.050	-500
Aluminum	-0.059	-590
No compensation (if XN4-E is used with a compensated gauge bridge)	0	0

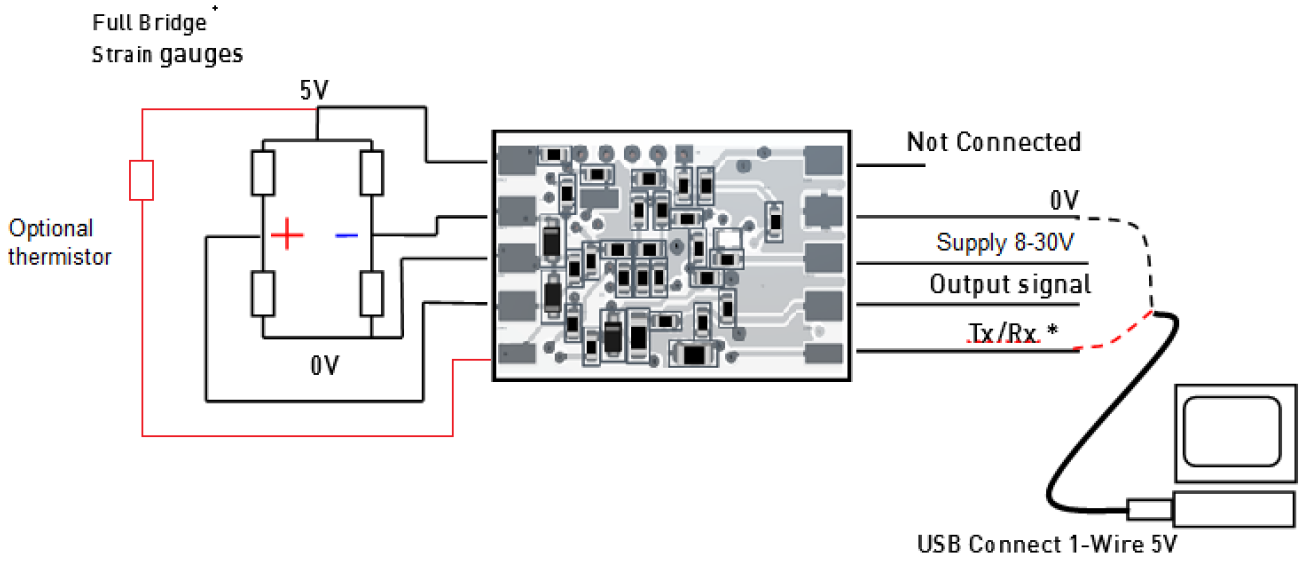
Bandwidth capacitor values (adjustable on demand)

Capacitor	Fc
220nF	40Hz
100nF	90Hz
47nF	190Hz
10nF	900Hz
1nF	9kHz (Default)

Capacitor value:

$$\frac{1}{2\pi Fc \times 18000}$$

Wiring



* Only with Texense USB Connect 1-Wire 5V or tSIB
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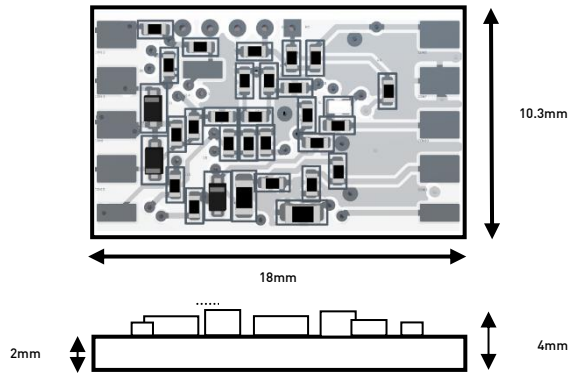
The temperature probe is fitted close to the gauges to insure proper compensation. **Only use 15kΩ NTC Thermistor (15kΩ at 25°C, Beta = 4000)**

Mechanical design



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