

# Optional Inputs for STA138

Please note

Input options that use terminal 8 prevent terminal 8 from being used as a contact connection.  
Vibration and strain-gauge are on separate documents.

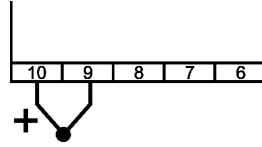
## OPTION 01: Thermocouple Input

Thermocouple types can be E, J, K, N, R, S and T. Automatic cold junction compensation is standard. On request the circuit can be configured for up-or-down scale burn-out.

T/C input spans:

Input impedance:

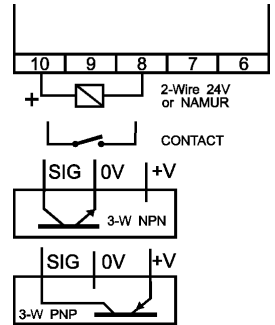
Cold junction compensation error: 0.02% per °C C/J change, over ambient range of 0 – 60°C with input range 100°C



4mV up to 80mV  
> 1M Ω

## OPTION 04: DC Pulse Input

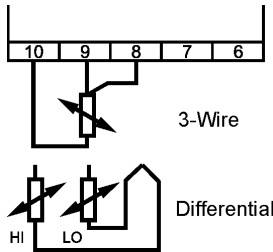
Pulses input from proximity sensors, contacts or open collector devices. An auxiliary supply of 8Vdc or 24Vdc is available at terminal 8.



## OPTION 02: RTD Input

The standard RTD Pt100 however any user specified type can be accommodated as long as there is no substantial non-linearity. The RTD should be wired in 3-wire fashion to avoid errors caused by lead resistance. 2-wire connection can be used with short lead length. Sensor excitation current is as low as 0.6mA preventing self-heating of the sensor. Lead breakage will cause the output to increase to maximum (30mA).

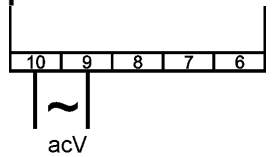
Combined linearity and drift error: 0.5% of span  
Temperature effect: 0.01 % per °C  
Input span: 7.8 Ω up to 290.3Ω (20°C...850°C Pt100)  
10°C range is also available with reduced accuracy



Calibration range: 0 - 10Hz...0 - 3kHz  
Input type: NAMUR, contact, 3-W NPN, 3-W PNP.  
Auxiliary supply: 8V (NAMUR / contact) 24V (3-W proximity switch)  
Input impedance: 1.5kΩ typical  
Linearity & repeatability: 0.2% of range  
Temperature effect: 0.012% / °C

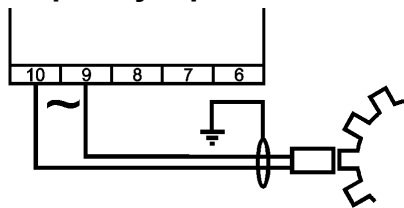
## Option 05, AC Voltage Input

Input range: 10mV up to 500Vac  
Input impedance: 12kΩ for 10mV input > 1MΩ for 500V input.  
Linearity and drift error < 0.5% of range



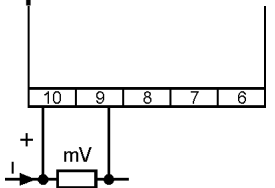
## OPTION 03: Frequency Input

Calibration range: 0 - 10Hz...0 - 3kHz  
Input type: Sine, Triangle, Pulse, Square  
200mVpp min (70mV rms).  
22Vpp max.  
Input impedance: 1.5kΩ typical.  
Linearity & repeatability: 0.2% of range  
Temperature effect: 0.012% / °C



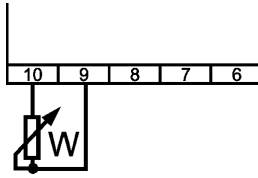
## Option 06, mV / Bipolar Input

Input range bipolar: ±0.5mV to ±2kV  
Input range unipolar: 0-1mV up to 2kV.  
It may be more cost effective to use an alternate unipolar range for signal spans above 100mV.  
Input impedance: > 1MΩ (100MΩ optional).  
Offset: up to 500% of range (int. adjustment).  
Linearity and drift error: < 0.2% of range.



## OPTION 07: Resistance Input

The resistance or slide wire receives a load independent current. This current is configured for two basic ranges: 4mA or 40mA. Final adjustment is carried out by a 15-turn internal trim potentiometer to suit the resistance sensor.



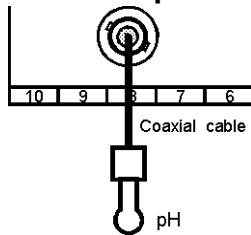
Input span: 2Ω up to 5kΩ (reverse action on request)  
 Combined linearity and drift error: 0.5% of input range.

## OPTION 08: Customised Response

Extra filtering is added to the input circuits as specified.

## OPTION 09: pH / Orp Electrode Input

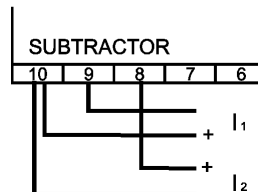
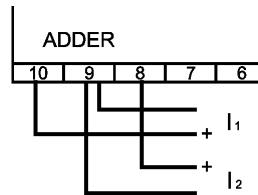
Accepts a wide variety of electrochemical sensors as input - pH, Redox (ORP) or selective-ion, specify the input range.



Input impedance:  $2.5 \times 10^{10} \Omega$   
 Combined linearity and drift error: 0.5% of range

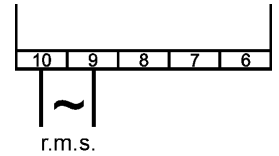
## OPTION 10: Adder Or Subtractor

For applications with two DC current signals are required to be added or subtracted. The two signals must be identical (i.e. 2 x 4 – 20mA) and have no common ground.



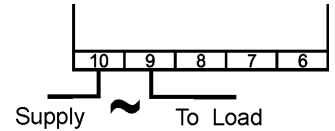
ADDER: Output =  $(I_1 + I_2) / 2$   
 SUBTRACTOR: Output =  $I_1 - I_2$   
 Input loads: I1 = 50Ω, I2 = 50Ω + 0.7V

## Option 12: True rms.



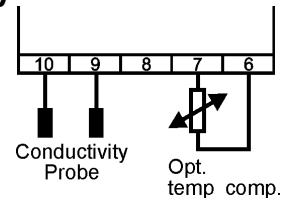
Input range: 10mV up to 500Vac  
 10mA up to 250mAac via shunt  
 Input impedance: 12kΩ for 10mV input  
 > 1MΩ for 500V input  
 Offset: up to 200% of range  
 Linearity and drift error: < 0.5% of range

## Option 13 - AC Current



Input range: 0.5 up to 10A  
 Input impedance: 0.008Ω at 5A.  
 Input output isolation: 2kV rms by internal CT.  
 Linearity and drift error: < 0.5% of range.

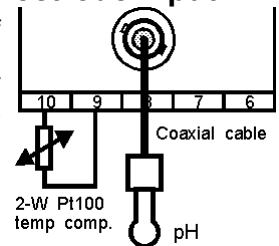
## Option 14: Conductivity



Input range: 50μS/cm to 100mS/cm (k=1).  
 Temperature compensation: 10k NTC, (or specify.)

## OPTION 18: pH / Orp Electrode Input

Accepts a wide variety of electrochemical sensors as input - pH, Redox (ORP) or selective-ion, specify the input range.



Input impedance:  $2.5 \times 10^{10} \Omega$   
 Combined linearity and drift error: 0.5% of range  
 Temperature compensation: 2-wire Pt100.

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