

SA40012 – Single Axis CMOS Signal Conditioning Module

The **SA40012 Single Axis CMOS Signal Conditioning Module** is a DC input/output operated device, which operates off a single ended supply, and provides a bipolar DC output. Specifically designed to interface directly with all Spectron Single Axis *Tilt Sensors*, this low power consumption conditioner is ideal for battery driven applications. Featuring a PC board mountable design, the module internally converts the DC input voltage into an AC excitation voltage for the sensor, and demodulates the sensor output into a smooth amplified DC output voltage. Incorporating a proprietary signal processing algorithm, and an external temperature compensation sensor (optional), normal measurement errors are severely reduced. The **SA40012** also features overload protection, and is 100% reliability tested to provide the highest quality available.

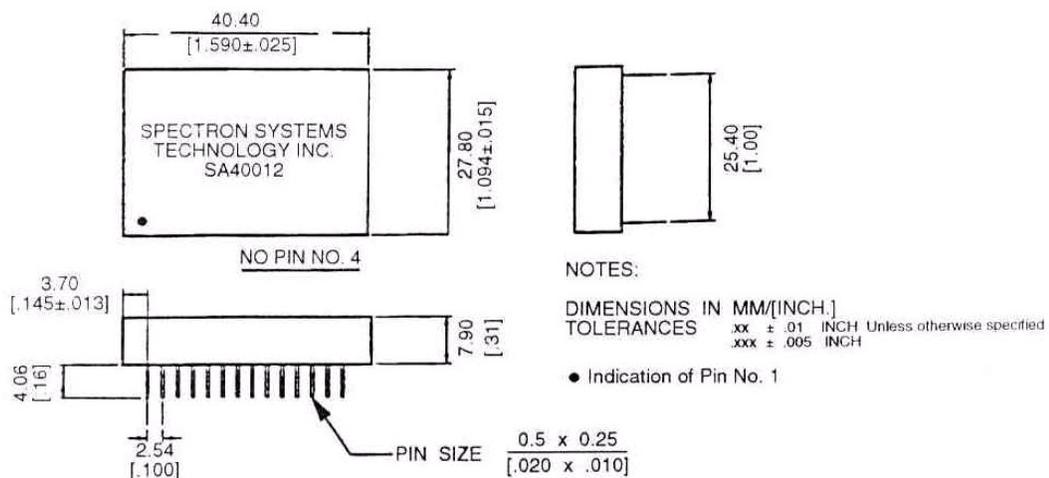
General Specifications

Input voltage+5Vdc to +15Vdc
 Input current 0.5mA @ +5Vdc, 0.9mA @ +15Vdc
 Sensor excitation 380 mV pp, square wave
 Input impedance 5 megohms
 Output +/-1.5Vdc @+6Vdc supply, referenced to Vref
Note; minimum output = 50mVdc + (supply voltage . 1.5Vdc)
 Load 100k ohm minimum
 Time constant 30 msec
 Offset adjustment +/-45 mVdc
 Output ripple 0.35% of output voltage (RG 24k ohm)
 Temperature coefficients (module w/out sensor)
 - Null 100 microvolts / C° (typical)
 - Scale 0.02% / C° @ +1Vdc output
 Output short duration Continuous (Vout and Vref)
 Temperature range
 - Operating -20 to +70C°
 - Storage -40 to +80C°

Temperature Compensation

- Temperature compensation of the assembly (module and sensor) can be accomplished using an external silicon temperature sensor (KTY81-120) and a resistor (.RT., see wiring diagram for typical values). With this configuration, it is possible to reduce the scale temperature coefficient error from a 0.3%/C° (nominal), to 0.03%/C° (nominal). Please see wiring diagram for connection points.

Dimensions



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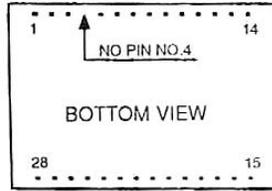
Input/Output Connections

RT*:

Typical resistor values for temperature compensation

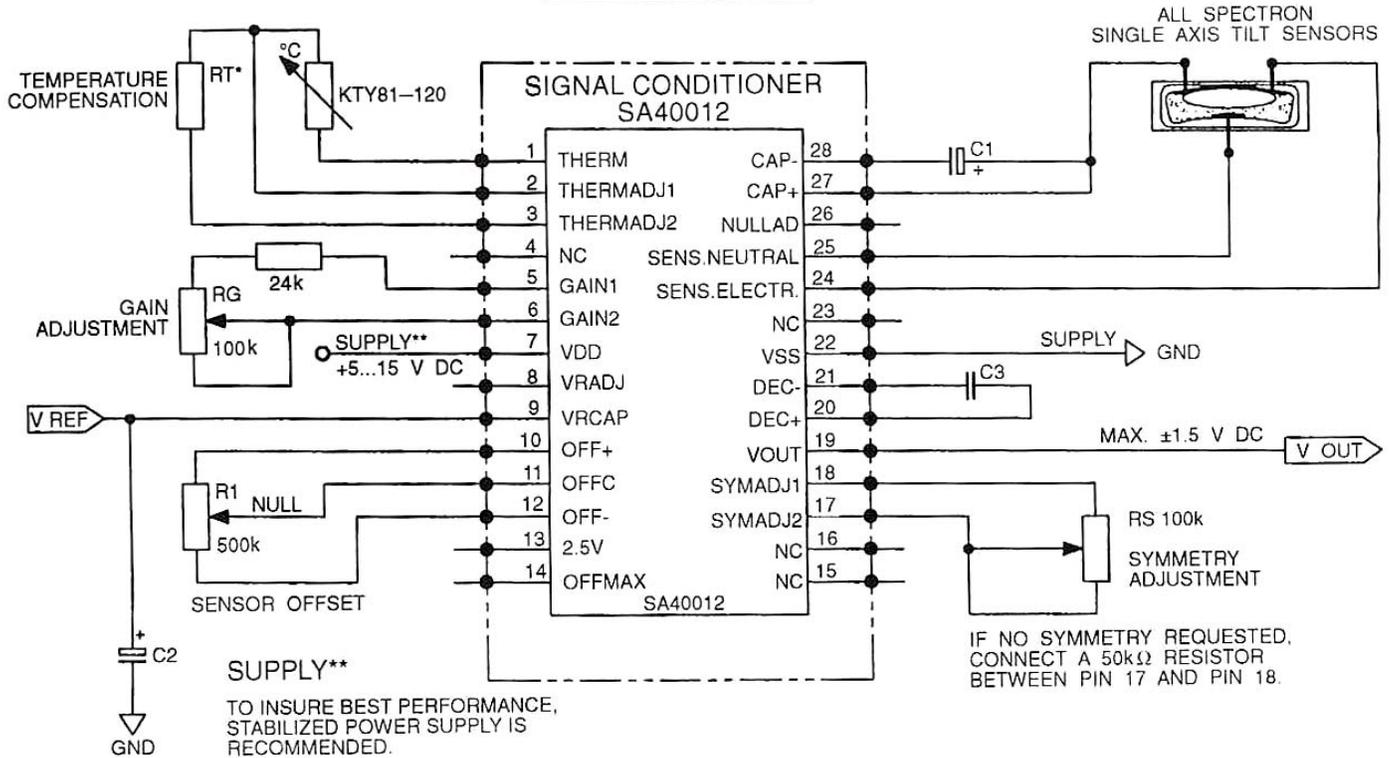
RG 33 T	140k	L 210	100k
RG 33 N	140k	L 211 U	75k
RG 37 S	140k	L 212 T	75k
CG 50 S	65k		
CG 57 S	65k		

PIN CONFIGURATION SA40012



CAPACITORS:

C1	22	μF	16	V
C2	22	μF	10	V
C3	0.1	μF	10	V



Consult factory for further technical information and ordering details!

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Specifications are subject to change without notice!