SSY0079 - *Single Axis CMOS Signal Conditioning Module*
> Open Architecture

The **SSY0079** *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,* and with the *SP5000 Series Dual Axis Tilt Sensor* (operating in single axis mode), this low power consumption conditioner is ideal for battery driven applications, while the open architecture design affords easy installation and adjustment access for OEM's. 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 **SSY0079** 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 ...……………….. 3V 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 ..………………....... 70 msec
Offset adjustment …………………... +/-45 mVdc
Output ripple ...………………….... 0.35% of output voltage (RG 24k ohm)
Temperature coefficients (module w/out sensor)
 - Null ....……………….….. 100 microvolts / Co (typical)
 - Scale ..……………….......... 0.02% / C^o @ +1Vdc output
Output short duration ..………….... Continuous (Vout and Vref)
Temperature range
 - Operating ..…………….…... -25 to +70C^o
 - Storage …………………..... -40 to +80C^o
Temperature Compensation
 - Temperature compensation of the assembly (module and sensor) can be accomplished using an external silicon temperature sensor (KTY81-120) and a resistor (SBT). Exact resistor value is determined by placing a decade resistor box across R3, and adjusting until desired results is obtained. With this configuration, it is possible to reduce the scale temperature coefficient error from a 0.3%/C^o (nominal), to 0.03%/C^o (nominal). Please see wiring diagram for connection points.
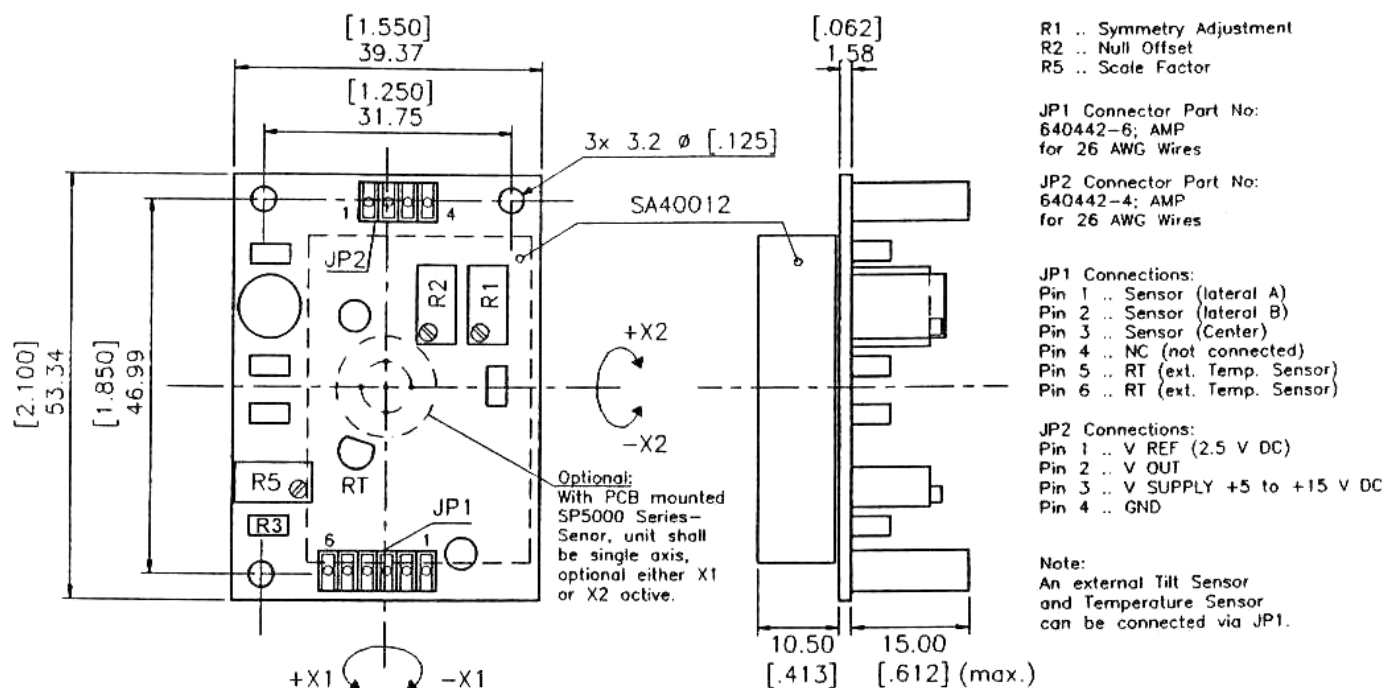
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Dimensions, Electrical Connections, and Adjustments

mm (inches)

R1 .. Symmetry Adjustment
R2 .. Null Offset
R5 .. Scale Factor

JP1 Connector Part No:
640442−6; AMP
for 26 AWG Wires

JP2 Connector Part No:
640442−4; AMP
for 26 AWG Wires

JP1 Connections:
Pin 1 .. Sensor (lateral A)
Pin 2 .. Sensor (lateral B)
Pin 3 .. Sensor (Center)
Pin 4 .. NC (not connected)
Pin 5 .. RT (ext. Temp. Sensor)
Pin 6 .. RT (ext. Temp. Sensor)

JP2 Connections:
Pin 1 .. V REF (2.5 V DC)
Pin 2 .. V OUT
Pin 3 .. V SUPPLY +5 to +15 V DC
Pin 4 .. GND

Note:
An external Tilt Sensor
and Temperature Sensor
can be connected via JP1.

Optional:
With PCB mounted
SP5000 Series−
Senor, unit shall
be single axis,
optional either X1
or X2 active.

Specifications subject to change without notice!   Doc.# SDS-123-1805