

FEATURES

- ❖ Measures differential & gauge pressures
- ❖ Linear 4-20 mA & 0-10V DC outputs
- ❖ External Differential Sensor inputs
- ❖ Temperature compensation for accuracy

APPLICATIONS

- ❖ Differential pressure monitoring
- ❖ Pneumatic System Monitoring
- ❖ Pneumatic to analog conversion

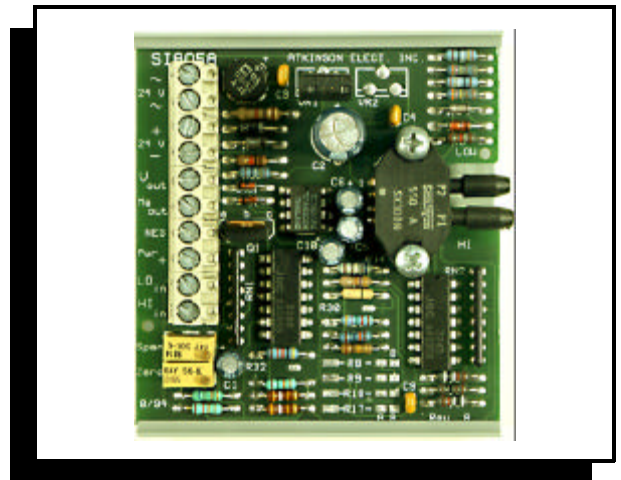
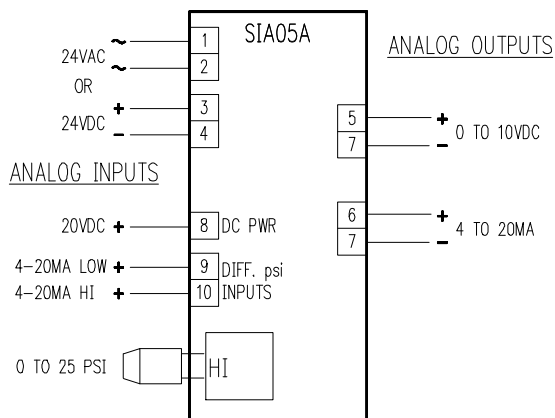
DESCRIPTION

The SIA05A was designed to measure gauge and differential pressure signals. It provides both a linear current and a linear voltage output signals. The SIA05A comes mounted in standard 3" wide snap track. The on board pressure sensor accepts standard 1/4" OD plastic tubing. For pressures greater than 25 PSI the SIA05A can be configured for two 4-20mA inputs for external pressure sensors.

OPERATION

The SIA05A consists of 24V AC/DC half-wave rectifier, two power supplies (one is optional for external pressure sensors), an on-board pressure sensor, and output amplifiers for both current and voltage outputs. The on-board sensor accepts up to 25 PSI and is temperature compensated for accuracy. Factory calibration for the SIA05A is 3-15 PSI. Custom pressure ranges are available. For differential applications which require higher pressures, such as water pressure systems, there are two 4-20mA external sensor inputs.

WIRING CONFIGURATION

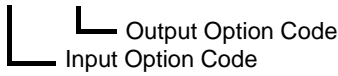


SPECIFICATIONS

- SIZE: 2 7/8" L x 3" W x 1" H
- MOUNTING: 3" RDI snap-track (supplied)
- POWER: 24V AC, ± 10%, 50/60 hz, 2VA
24V DC, ± 15%, @ 85mA.
- INPUT SIGNALS:
 - Standard: 0-15 psi, 25psi max.
 - On-board: 0-20 psi, 25 psi max.
 - External: Single Strain gauge.
 - External Volt: 0-10vdc, sensor voltages.
 - External Diff. Two 4-20 mA transmitters.
Two Voltage signals.
- INPUT IMPEDANCE: > 10kΩ - Strain gauge.
>100kΩ - Voltage signals.
≤250Ω - 4 - 20mA transmitters.
- OUTPUT SIGNALS: 4-20 mA Max 600Ω
0-10V DC (Min 1KΩ w/ 10mA continuous max)
- FILTERING: Attenuates over 2 Hz
- ACTION: Direct
- ADJUSTMENTS: ± 20% of input for SPAN.
0 - 100% of input for LEVEL.
Field adjustment ± 20%
- AMBIENT TEMP: 0 to 50°C

ORDERING INFORMATION

SIA05A/XXX/XXX



INPUT CODE OPTIONS

- PSI - 3-15 PSI input with an on-board Sensym SX15DN 0 -20 PSI sensor.
- OHMS - Specify resistance and if 2 or 3 wire potentiometer.
- VDC - Specify voltage signal (0-10V ect.)
- CUS-1-MA - External 4-20mA pressure sensor externally powered.
- CUS-2-MA - External 2-wire 4-20mA pressure sensor powered by the SIA05A with 249Ω load resistance.
- CUS-3-MA - External 3-wire 4-20mA pressure sensor powered by the SIA05A Positive ref. 249Ω resistor.

OUTPUT CODE OPTIONS

- STD-10 - Standard 4-20 mA and 0-10V DC outputs.
- STD-5 - Standard 4-20 mA and 0-5V DC outputs.
- CUSTOM - Custom current or voltage outputs.

ORDERING CODE EXAMPLES

- SIA05A/STD-10 - 3-15 PSI input with Standard 4-20 mA and 0-10V DC output.
- SIA05A/3-MA/STD-10 - 4-20 mA 3-wire transmitter with positive referenced load. (DWYER 606 diff. pressure trans.)
- SIA05A/DIFF/STD-10 - Two like 0-100 PSI 2 wire transmitters w/ 0-30 PSI differential pressure over 0-100 PSI range. STD. output

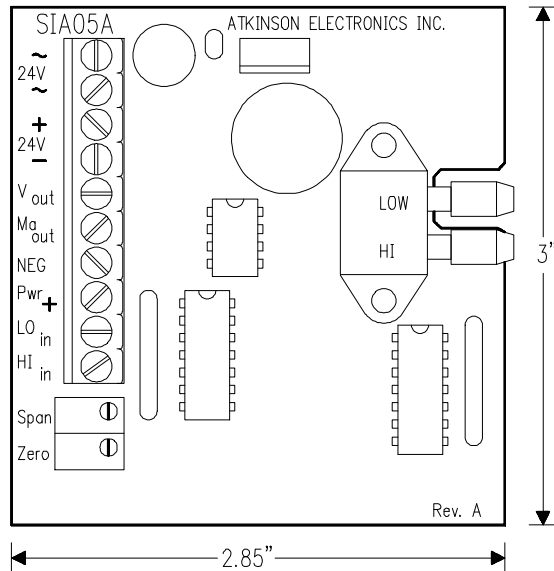
CALIBRATION ADJUSTMENTS

Output calibration adjustments are made with the ZERO and SPAN potentiometers. A clockwise ZERO adjustment increases the output level and should be made with a 0% input signal. A clockwise SPAN adjustment increases the signal differential and should be made with a 100% input signal. Adjustments should only be done in 50% increments on both ZERO and SPAN potentiometers.

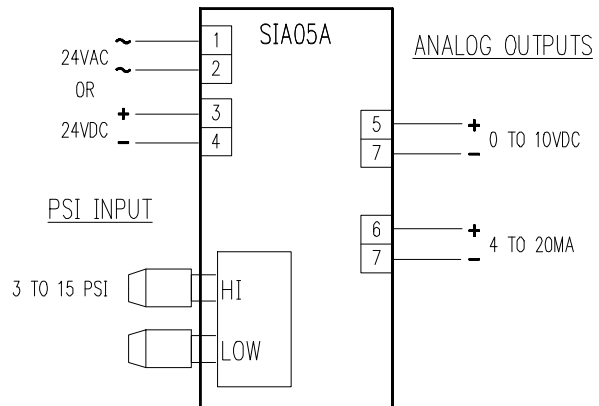
Call for other calibration ranges and versions.

If you have a different application or need, please call 1-800-261-3602 and discuss your needs with our Sales Engineers.

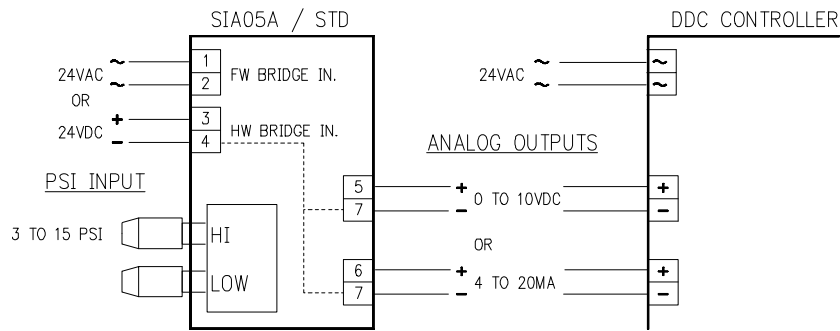
PHYSICAL CONFIGURATION



TERMINAL CONNECTIONS

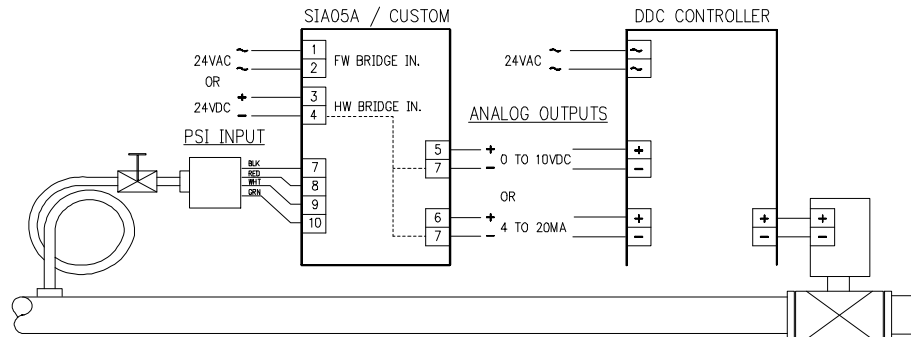


APPLICATION 1 - 3-15 PSI INPUT TO 4-20mA OR 0-10V DC OUTPUT



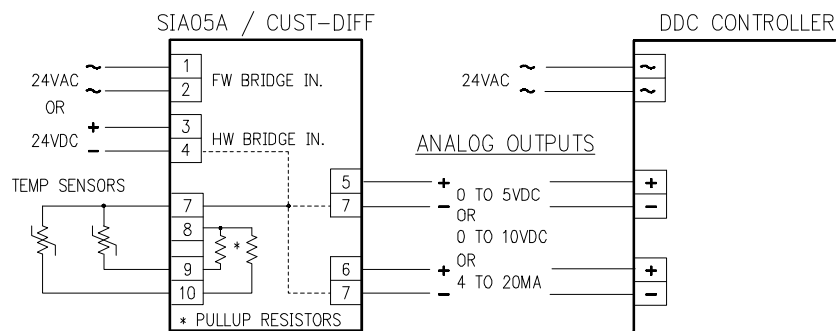
The SIA05A/STD is factory calibrated with a 3-15 PSI signal for 4-20 mA or 0-10V DC output. The SIA05A may be powered using terminals 1 & 2 24V AC (full-wave bridge configuration), or terminals 3 & 4 24V AC/DC (half-wave bridge configuration).

APPLICATION 2 - STRAIN GAUGE PRESSURE - EXTERNAL PRESSURE



The SIA05A/Custom module's aux power supply (terminal #8) supplies 20V DC to power micro-switch 236 PC pressure transducer or equivalent. For single pressure control, the pressure signal is converted to 4-20 mA or 0-10V DC for the DDC controller. For differential pressure control see application #4.

APPLICATION 3 - DIFFERENTIAL TEMPERATURE TO 4-20 mA OR 0-5-10V DC

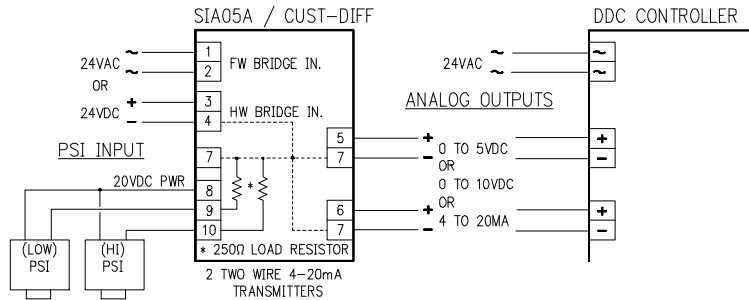


The SIA05A/Diff-Temp module's aux power supply (terminal #8) supplies 5V DC via on board pull up resistor to bias the temperature sensors (RTD-1K, or Staefa sensors). The differential temperature is converted to 4-20mA or 0-10V DC for the DDC controller.

Call for other calibration ranges and versions.

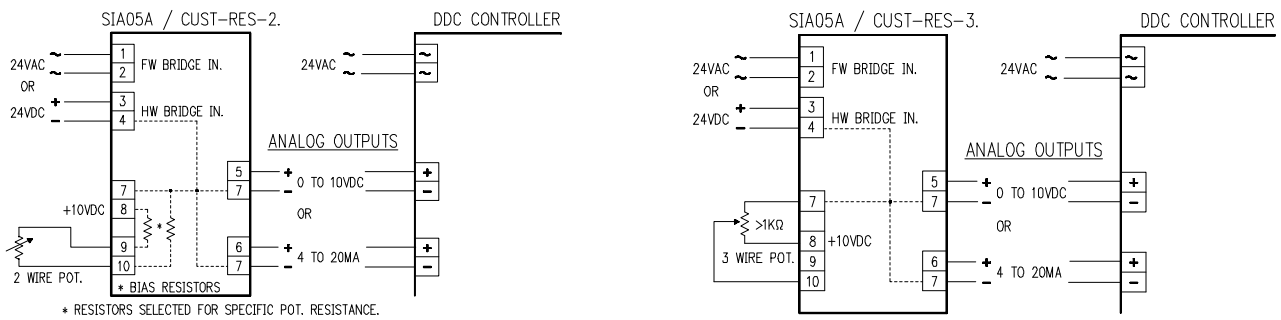
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APPLICATION 4 - DIFFERENTIAL 4-20mA TRANSMITTERS



The SIA05A/Cust-Diff. is powered by 24V AC/DC. The aux power supply (terminal #8) supplies 20V DC to power the two wire 4-20mA transmitters. The differential between the two transmitters is converted to 4-20 mA or 0-10V DC for the DDC controller.

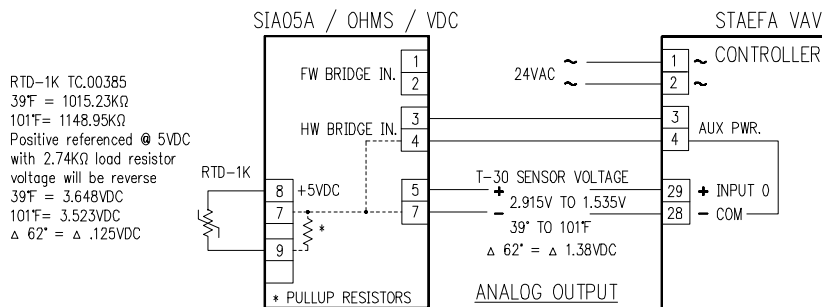
APPLICATION 5 - TWO OR THREE WIRE POTENTIOMETER INPUT TO 4-20mA OR VOLTAGE OUTPUT



The SIA05A/Cust-Diff. is powered by 24V AC/DC. The 2 wire potentiometer is connected to terminals 9 & 10 and two internal resistors provide the bias voltage for the potentiometer. This differential voltage between the two ends of the pot is converted to 4-20 mA or 0-10V DC for the DDC controller.

The SIA05A/Cust-Diff. is powered by 24V AC/DC. The 3 wire potentiometer is connected between terminals 7 & 8 with the wiper connecting to 10. The 0 to 10V DC signal from the potentiometer is buffered and/or converted to 4-20 mA for the DDC controller.

APPLICATION 6 - RTD-1K TEMPERATURE SENSOR TO A CUSTOM VOLTAGE FOR STAEFA'S SM2-VAV



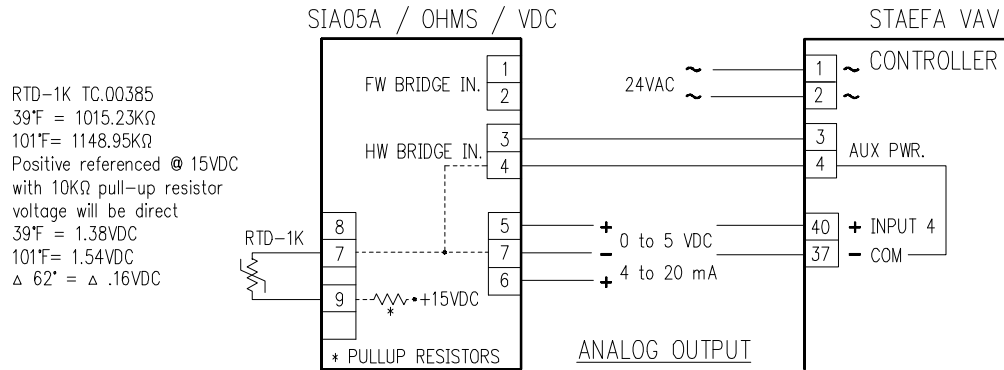
RTD-1K TC.00385
 39°F = 1015.23KΩ
 101°F = 1148.95KΩ
 Positive referenced @ 5VDC
 with 2.74KΩ load resistor
 voltage will be reverse
 39°F = 3.648VDC
 101°F = 3.523VDC
 Δ 62° = Δ .125VDC

The SIA05A/OHMS is powered by the AUX 24V AC supply on the Smart II. The SIA05A's aux power supply (terminal #8) is configured for 5V DC to power the RTD-1KΩ temperature sensor. The voltage generated across the internal load resistor is converted to the T-30 sensor voltage to drive input #0 on the VAV controller.

Call for other calibration ranges and versions.

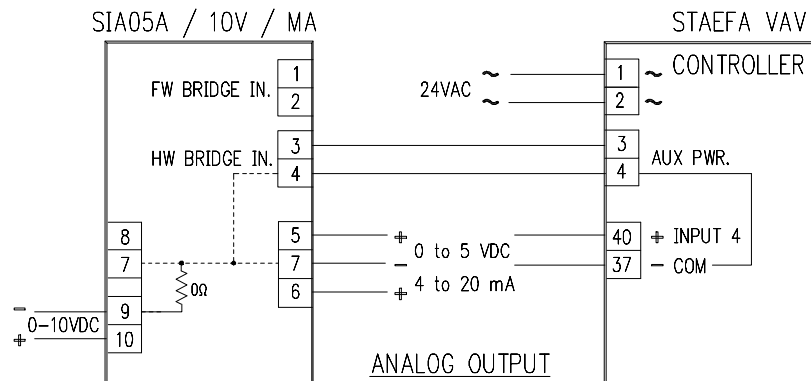
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APPLICATION 7 - RTD-1KΩ TEMPERATURE SENSOR TO VOLTAGE OUTPUT FOR STAEFA'S 1-7 INPUTS



The SIA05A/OHMS is powered by the AUX 24V AC supply on the Smart II. The SIA05A's input is configured with a 10k ohm pull-up resistor referenced @ 15V DC (Terminal 9) . The RTD-1K temperature sensor connects to terminals 7 & 9. The voltage generated across the RTD-1K Sensor is converted to the 0 to 5V DC and 4 to 20mA signal to drive inputs #1 through 7 on the VAV controller.

APPLICATION 8 - 0-10VDC TO VOLTAGE/MA OUTPUT



The SIA05A/10V/STD -10 OR STD-5 is powered by the AUX 24V AC supply on the Smart II. If SIA05A is being used with another type of controller and being powered by the same 24VAC supply, You MUST check to see if the device that is providing to 10VDC signal, shares it's signal common with the 24VAC supply, and also check the device that is receiving either a 0-5V 0-10Vdc or 4-20mA signal if it's input common is also shares one leg of the 24VAC supply. If they do not and all share the same 24VAC transformer then you need a DISM-E signal isolation board. If they the are powered by different transformers and the secondaries are not grounded then either 24VAC power supply input will work on the SIA05A. If all devices share a common 24VAC supply and the inputs/outputs all share a common leg to one side of the 24VAC supply, use Terminals 3 & 4 to power the SIA05A noting that terminal 4 is common to terminals 7 & 9 .