

VTI-VALTRONICS, INC OEM Digital NDIR CO₂ Sensor

0 to 20% CO₂

Remote Diffusion Smart Gas Cell

Model 2005SPI-2N

The Model 2005SPI-2N is an OEM NDIR CO₂ sensor with digital signal processing and temperature compensation. The firmware VERSION depends upon the specific customer interface requirements. The SPI (Serial Peripheral Interface) is described in App. Note A59 & A61. Each serial numbered sensor is individually gas calibrated and temperature compensated at the factory. EEPROM smart gas cell !

Model 2005SPI-2N Specifications:

Method: NDIR with Digital Signal processing and temperature compensation

Gas Diffusion sample cell response. Less than 3 minutes 10% to 90% response to a 5% CO₂ step change.

Gas: Carbon Dioxide (CO₂)

Full Scale and RANGE: 0-20% CO₂

Input Power: +12 VDC (@ 0.250 amp max., 0.135 amp typ, 16.0 volts max, 8.0 volts min)

Accuracy: If calibrated at 5.0% CO₂ using 5.0±0.1% CO₂ gas, the accuracy is best at
..... 0 to 5.00 +/-0.25% CO₂ and 5% of reading from 5.5% to 20% CO₂.

Resolution / Repeatability : ±0.03% CO₂ (challenge with same gas sample multiple times & assure zero)

Stability: Short term < 0.03% CO₂ in 20 sec., Long term: 5.0±0.5% or 10±1% CO₂ per year

Zero Temperature compensation..... Less than 0.02% CO₂ per degree C change from the calibration temp TZ

Output Signal: 16 bit Digital SPI , see Application Notes A59 & A61

Input control: Commands:ZERO(HEX "C000"), SPAN(HEX "AXXX"),& RESET(HEX "1000")
..... SPAN command has the value of span gas like 5.0% imbedded as HEX "XXX"
..... one RS-232 Test Board is required for diagnostics: see App Note A66

LED Indicators: IR Source ON/OFF Indicator, Power ON indicator

Operating Temperature Range: 0 to 50°C (32° to 122°F) see Application Note A12

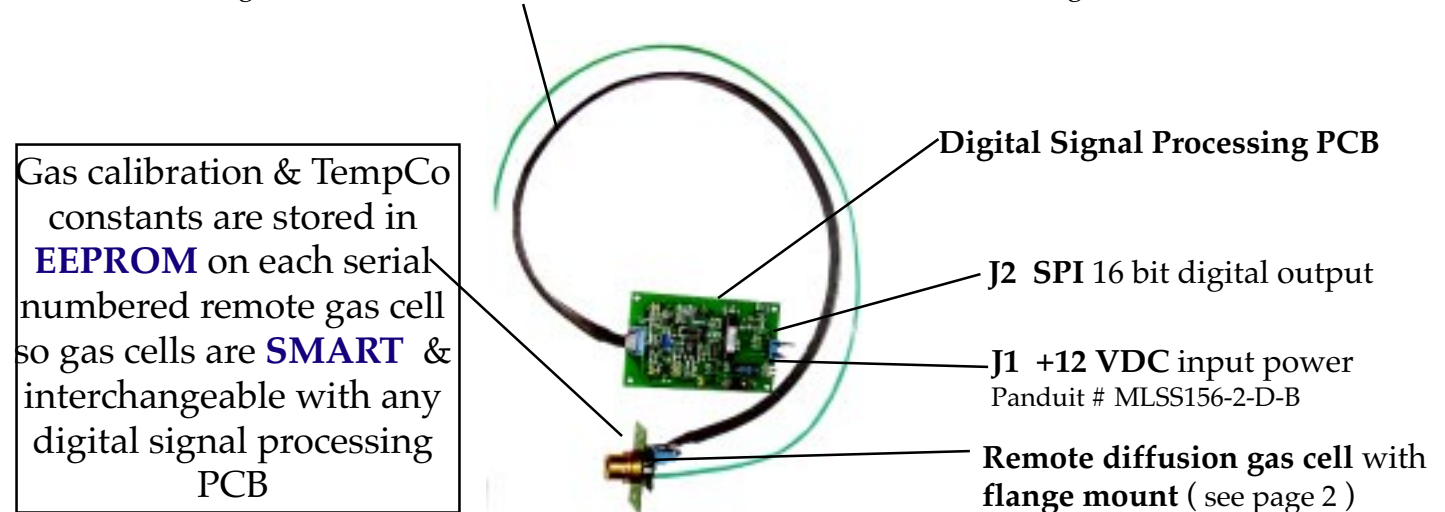
Ambient Relative Humidity:..... 0 to 98% RH non-condensing:

Storage Temperature range: -40 to +70°C (-40 to +158°F)

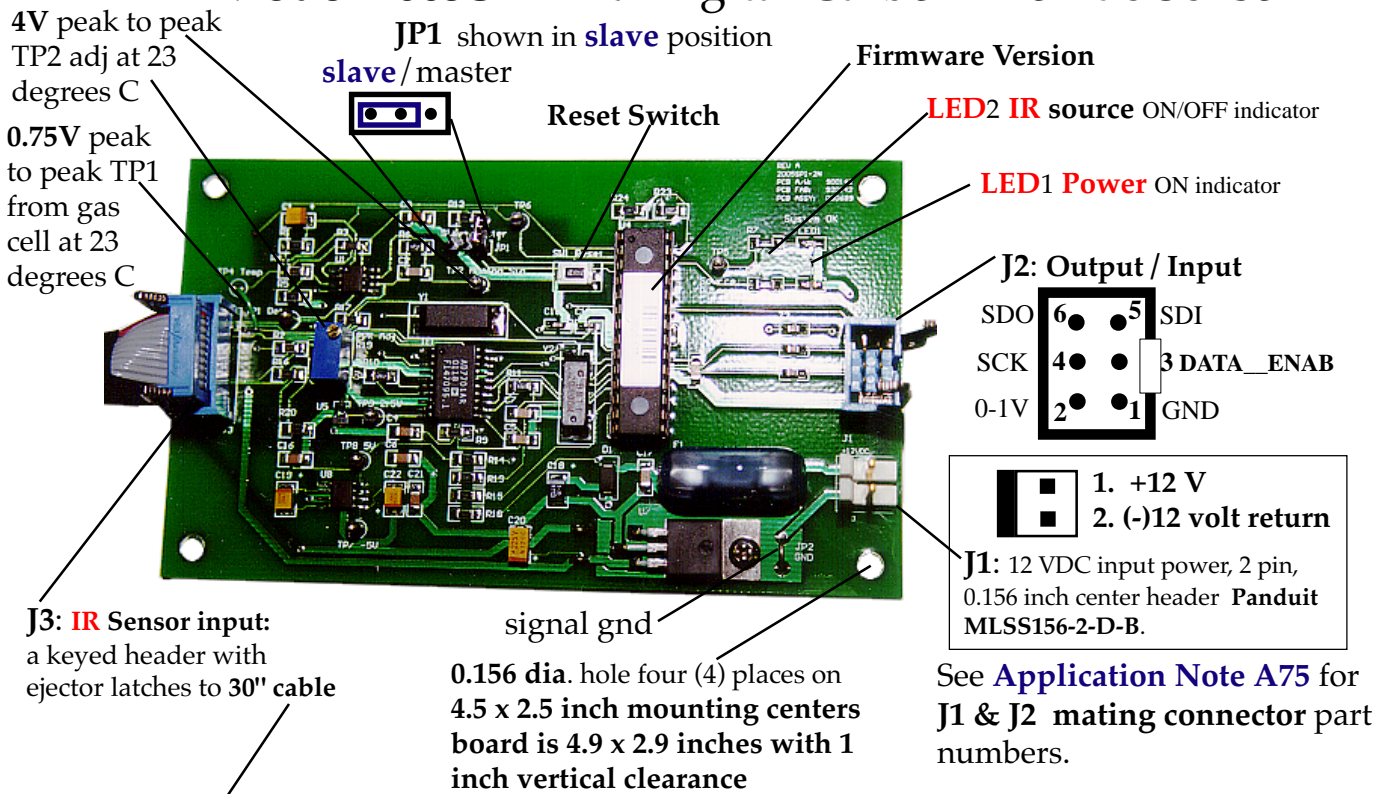
Weight:..... Less than 0.25 pound (<0.11 kilogram)

Control PCB dimensions: 4.9" x 2.9" x 1.0" see page 2 for mounting (5.7 inch long clearance for latches)

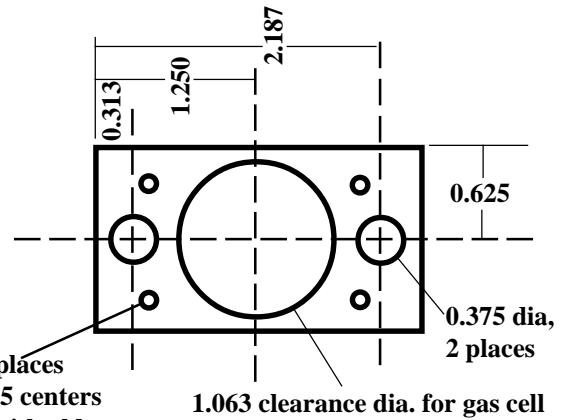
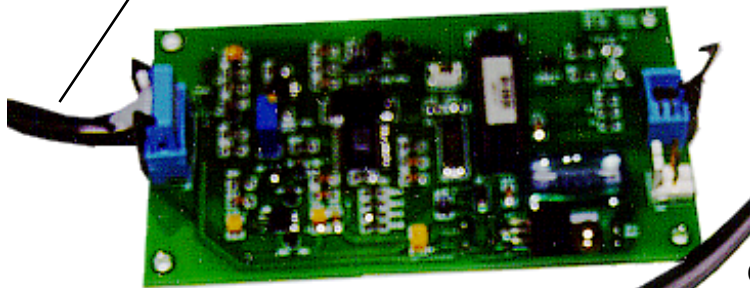
Remote diffusion gas cell:..... Shielded cable to remote cell is 30±2 inches long & 1/8 thick, 5/8 inch wide.



Model 2005SPI-2N Digital Carbon Dioxide Sensor

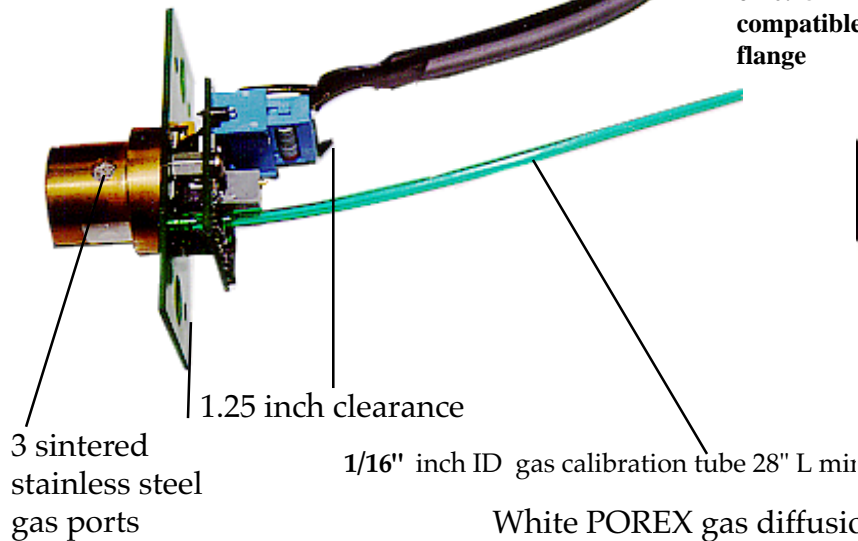


outer dimensions of **flange** are 2.50 x 1.25 inches

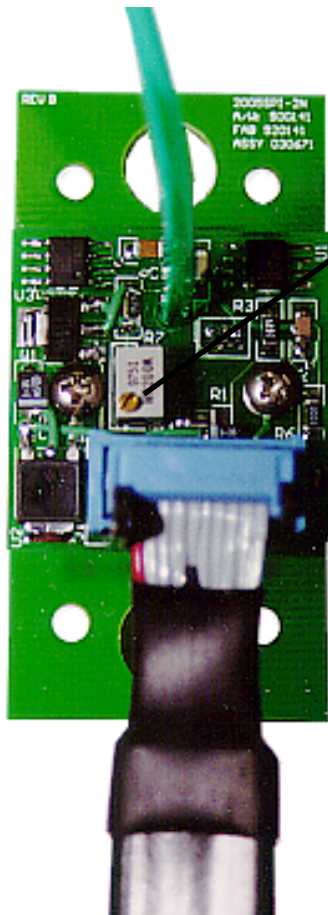
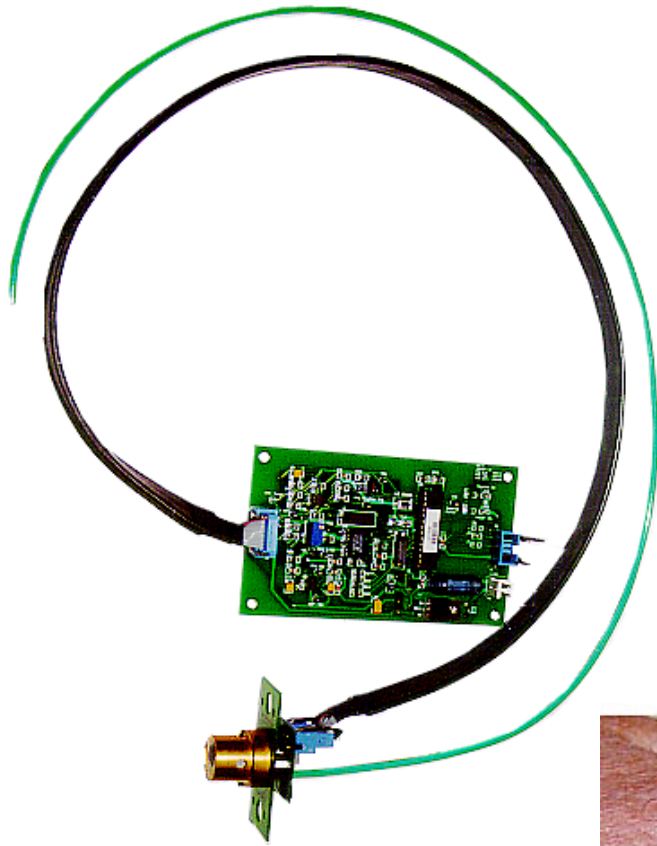


0.140 dia, 4 places on 0.75 x 1.75 centers compatible with old flange

1.25 inch clearance from back of flange to top of connector latch



Model 2005SPI-2N



0.75V peak
to peak
adjust at 23
degrees C