

OEM Digital NDIR CO₂ sensor
 with flow through gas cell
Model 2015SPI-3N

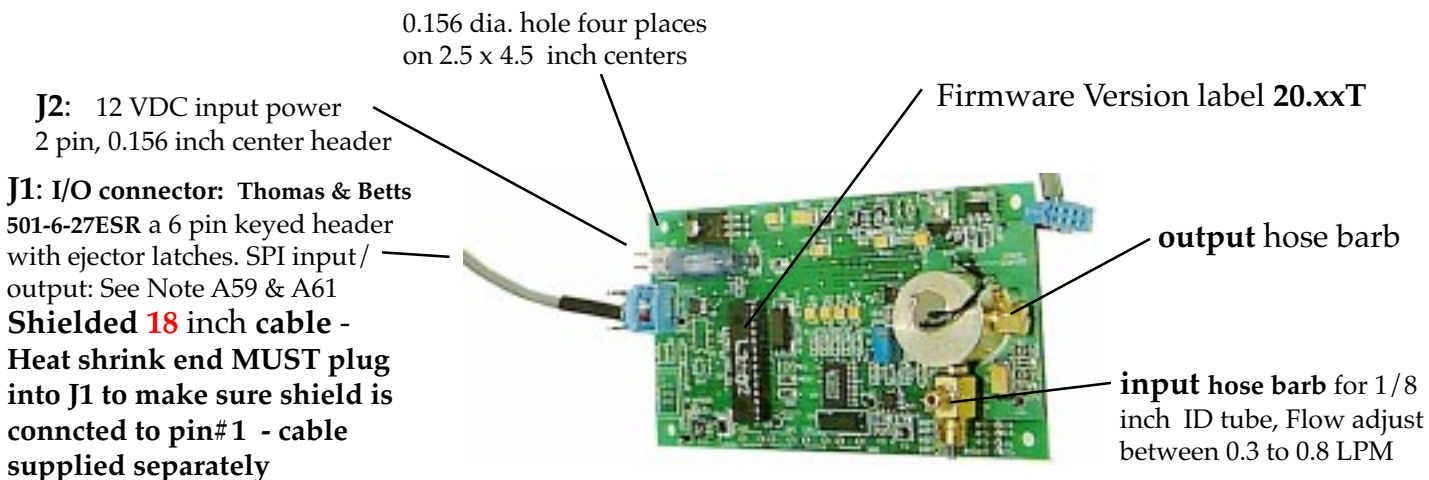
Description:

The **VALTRONICS** Model 2015SPI-3N 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 Note **A59** & **A61**. Each serial numbered sensor is individually gas calibrated and temperature compensated at the factory. **RS-232 Test Board** for field diagnostics & calibration (See **Application Note A66**).

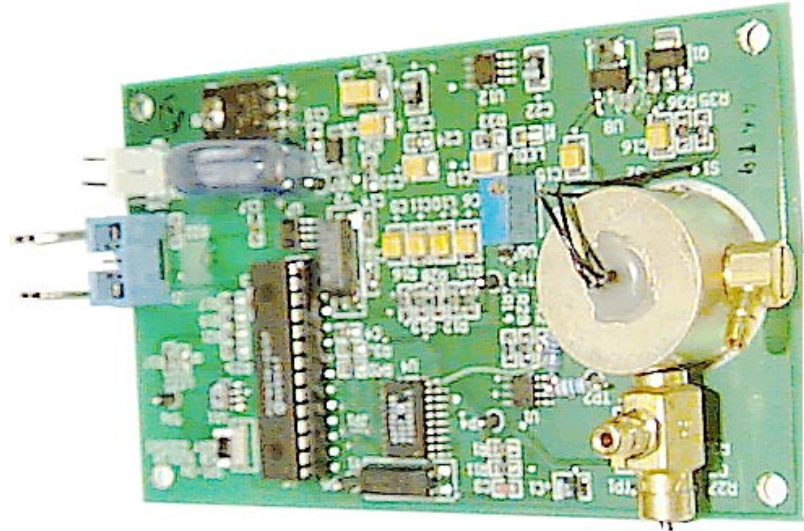
Model 2015SPI-3N Specifications:

- Method: **NDIR** with Digital Signal processing and temperature compensation
- Gas: **Carbon Dioxide (CO₂)**
- Range: **0-20% CO₂** 16 bit A/D converter: Delta-Sigma Conversion Method
- 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 **5.0±0.2% CO₂** and 5% of reading from 10 to 20% CO₂.
- Resolution / Repeatability : **±0.05% CO₂** (challenge with same gas sample multiple times & assure zero)
- Stability: Short term < 0.05% CO₂ in 20 sec., Long term: 5.0±0.5% or 10±1% CO₂ per year
- Output/Input Signals: Digital **SPI** (16 bit Serial Digital): See Notes **A59** & **A61**
- RS232 Test Board**..... Required for diagnostic/troubleshooting use , see **Application Note A66**
- LED** Indicators: **IR** Source ON/OFF Indicator, Power ON indicator
- Input Signal: Digital **SPI** input for calibration and diagnostic modes. See page 2
- Operating Temperature Range: 0 to 50°C (32° to 122°F) see **Application Note A12**
- Ambient Relative Humidity: 0 to 95% RH non-condensing:
- Storage Temperature range:- -40 to +70°C (-40 to +158°F)
- Weight: Less than 0.25 pound (<0.11 kilogram)
- Clearance Dimensions:** PCB Card: **5.75 inch x 3.0 inch x 1.5 inch** see page 3 for mounting

All dimensions are in **inches**, max. vertical clearance is **1.5** inch



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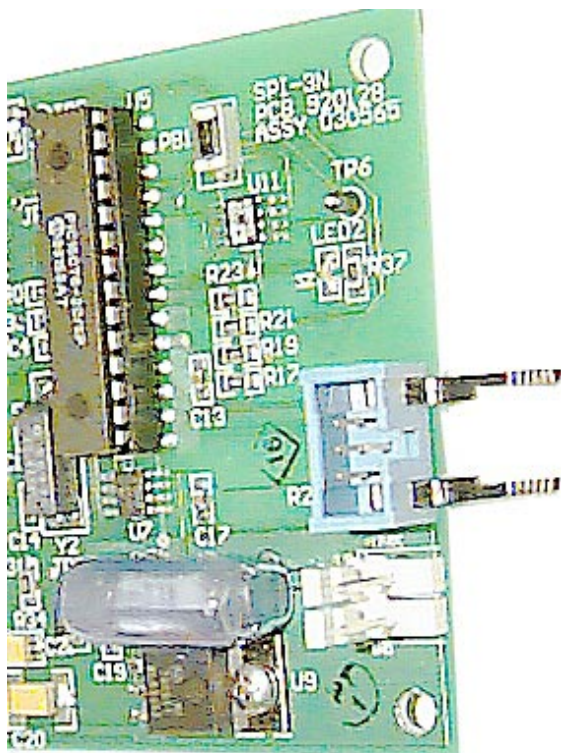


output
hose
barb

input Flow adjust
between 0.2 to 0.8 LPM

See **Application Note A7** for gas conditioning requirements and information about gas sample pumps and filters.

Important Note: Digital ground **Pin# 1** **MUST** be directly connected to the Master Microprocessor's digital ground, **NOT** just connected via the DC power supply common.



Shielded 18 inch cable

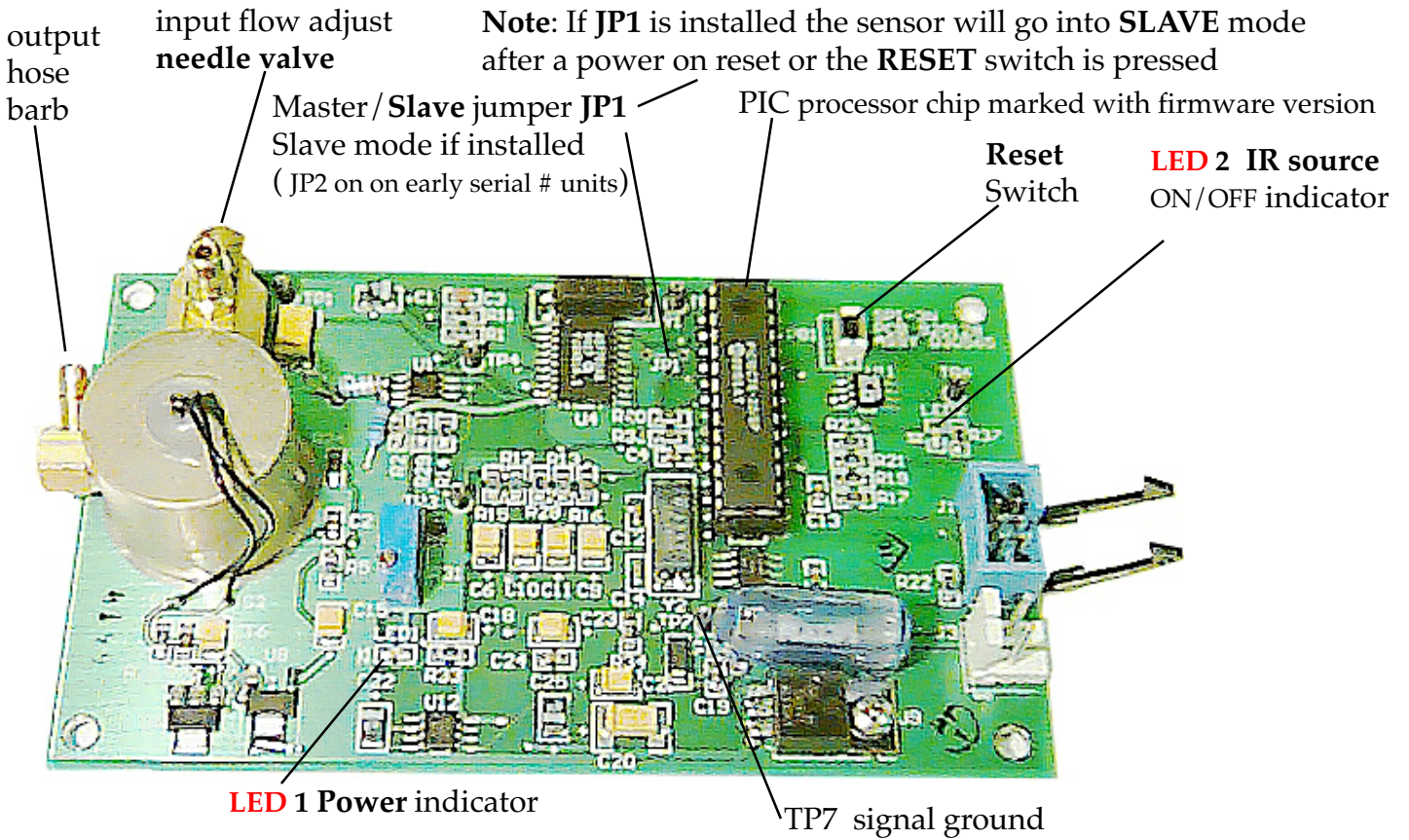
Heat shrink end **MUST** plug into J1 to make sure shield is connected to pin#1. The cable is supplied separately

J1: Output / Input

SDO	6 ●	● 5	SDI
SCK	4 ●	● 3	DATA__ENAB
	2 ●	● 1	GND

- | | |
|---|----------------------|
| ■ | 1. +12 V |
| ■ | 2. (-)12 volt return |

J2: 12 VDC input power, 2 pin,
0.156 inch center header
Panduit MLSS156-2-D-B.



Clearance Dimensions: 5.0 inches x 3.0 inches x 1.5 inches

Note: Provide **clearance** for the output hose barb, input flow adjust needle valve and an additional **0.75 inch** clearance for connector **J1** latches

