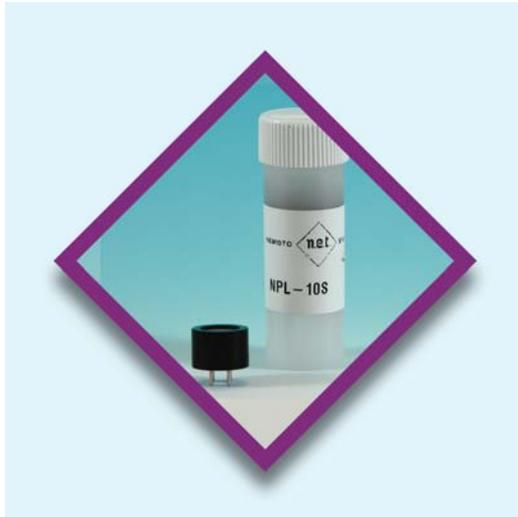




● NEMOTO SENSORTECH DIVISION  
● NANO & CYBERTECH DIVISION



## TECHNICAL INFORMATION SHEET: NEMOTO NPL-13S Single Header Pellistor Gas Sensor



### General Description

The Nemoto NPL-13S is a low-power, catalytic (pellistor) type flammable gas sensor designed for use in portable gas detection instruments. The sensor is supplied as a matched pair of pellistor elements mounted on a single header and protected by a metal mesh enclosure and can.

The sensor detects and measures the presence of flammable gases and vapours in air, in the range 0-100% of the Lower Explosive Limit (LEL) of the gas or vapour being measured. Designed as a lower cost alternative to the twin-header NPL-13 device, the NPL-13S is especially suitable for use in applications such as cap-lamps.

The NPL-13S exhibits excellent long term zero and sensitivity stability and its resistance to catalytic poisons is also excellent when compared to other low power pellistor type gas sensors available. The highly automated manufacturing procedure employed by Nemoto results in repeatable, reliable performance.

### Specifications:

|                                    |   |
|------------------------------------|---|
| Recommended Voltage:               | 3.00V +/- 0.2V                                  |
| Current Drawn:                     | 75 +/- 5mA                                      |
| Gas Sensitivity:                   | 60-100mV/% CH <sub>4</sub> /Air                 |
| Offset (Without trimming resistor) | 0mV +/- 150mV                                   |
| Offset (trimming applied)*         | 0mV +/- 20mV                                    |
| Range:                             | 0-100% LEL                                      |
| Accuracy:                          | +/- 1%LEL(CH <sub>4</sub> )                     |
| Maximum Long Term Drift:           |   |
| Span:                              | < +/- 2% LEL/Month                              |
| Zero:                              | < +/- 2 mV/Month                                |
| Response Time:                     | T <sub>50</sub> : 3 sec T <sub>90</sub> : 8 sec |
| Temperature Range:                 | -20°C to +70°C                                  |
| Temperature Drift:                 | (-20°C to +70°C)                                |
| Zero:                              | < +/- 2%LEL                                     |
| Humidity:                          | 0-100%RH, non-condensing                        |
| Humidity Response:                 | +/- 2%LEL                                       |
| Linearity:                         | Effectively Linear to 60%LEL                    |

\* Unlike other manufacturers, Nemoto's policy is to provide catalytic gas sensors without trimming resistors, and Nemoto recommends that these sensors are used without a trimming resistance, the zero correction being applied by the external circuit. However, mindful of compatibility issues, the sensor is provided with a recommended trimming resistance printed on its packaging for those companies wishing to use the sensor with a trimming resistor. The offset specification is therefore published both *with* and *without* the trimming resistance applied.

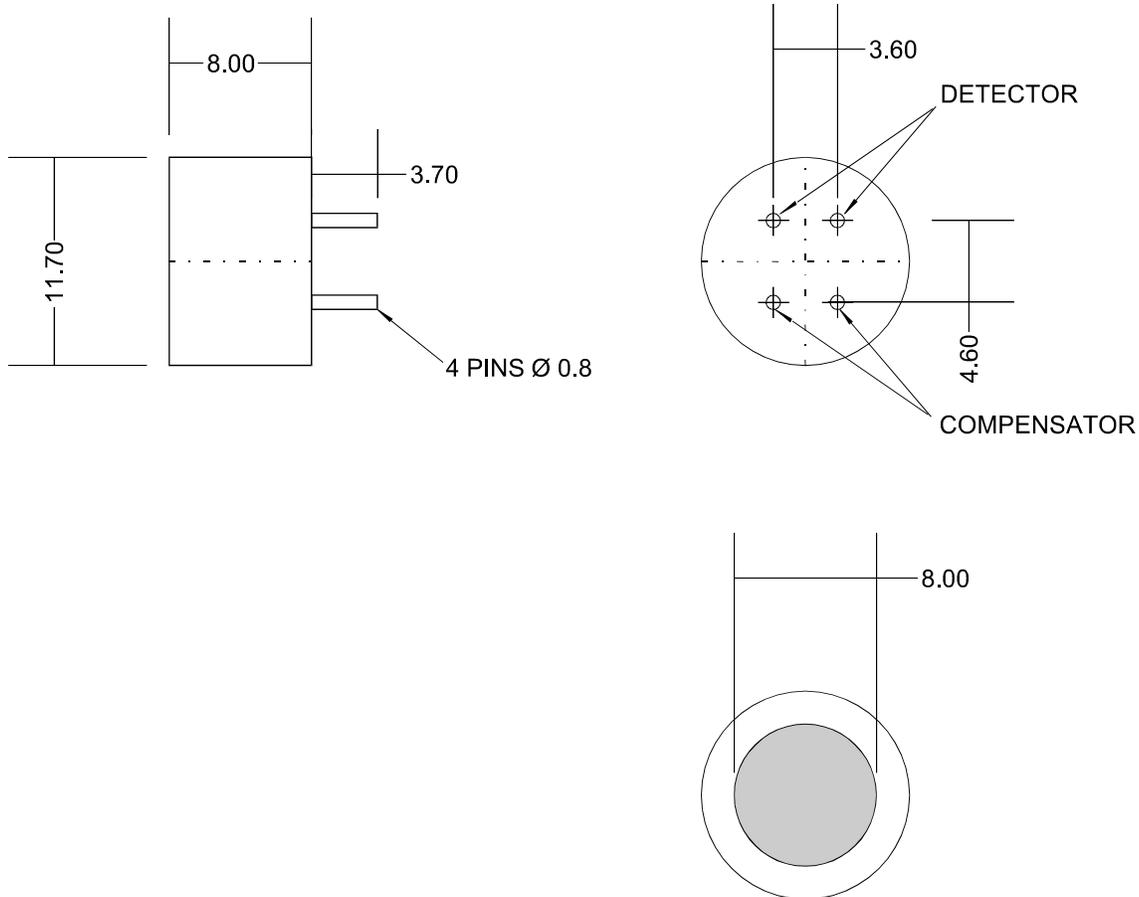
**Test data on drift, poisoning, temperature performance, linearity will be available on the Characterisation Document NPL-13SCD.doc**

Nemoto has a policy of continuous development and improvement of its products. As such the specification for the device outlined in the data sheet may be changed without notice.

ds-npl13S.doc, issue 3, Feb 2006

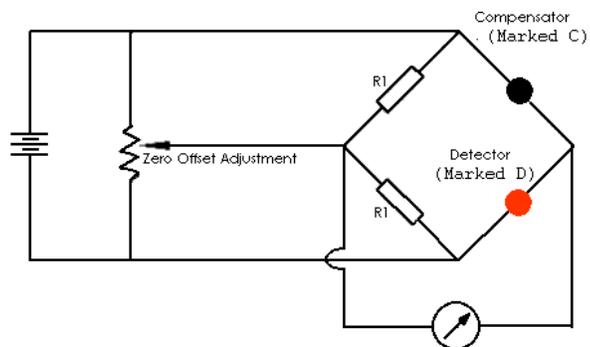


**Sensor Structure and Dimensions:**



**N.E.T. srl**  
**NPL-13S Gas Sensor rev.0**  
**All dimensions are in mm.**

**Recommended Circuit:**



Note: The value R1 is arbitrary, since the function of R1 is to balance the bridge. 200Ω is suggested.

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