

## SY038 UNIVERSAL LOAD CELL AMPLIFIER

### Introduction

The SY038 is a DIN rail mounted amplifier that converts a mV input signal typically from a load cell or other strain gauged bridge sensor to a level that can be measured by PLCs or other equipment unable to handle low mV signals. Two versions are available the SY038V has a +/-10V output and the SY038I has a 4-20mA output. The amplifier provides all the signal conditioning required to operate 1 to 4x load cells (with 350Ω impedance) and requires a nominal 24Vdc supply. The mV input sensitivity of the amplifier is switch selectable from 0.25 to 4 mV/V

### Load cell amplifier SY038



Figure 1.

### Load cell amplifier with access cover off

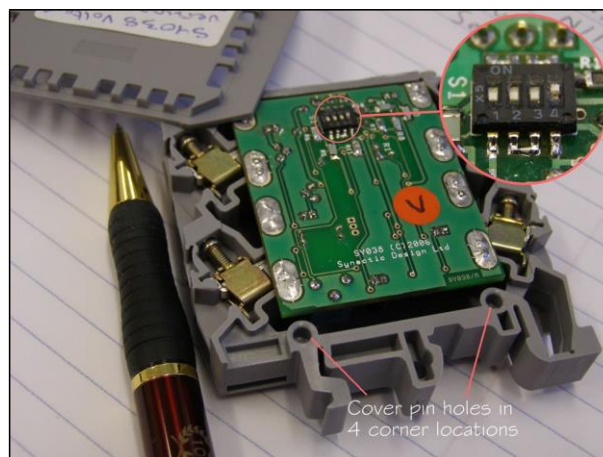
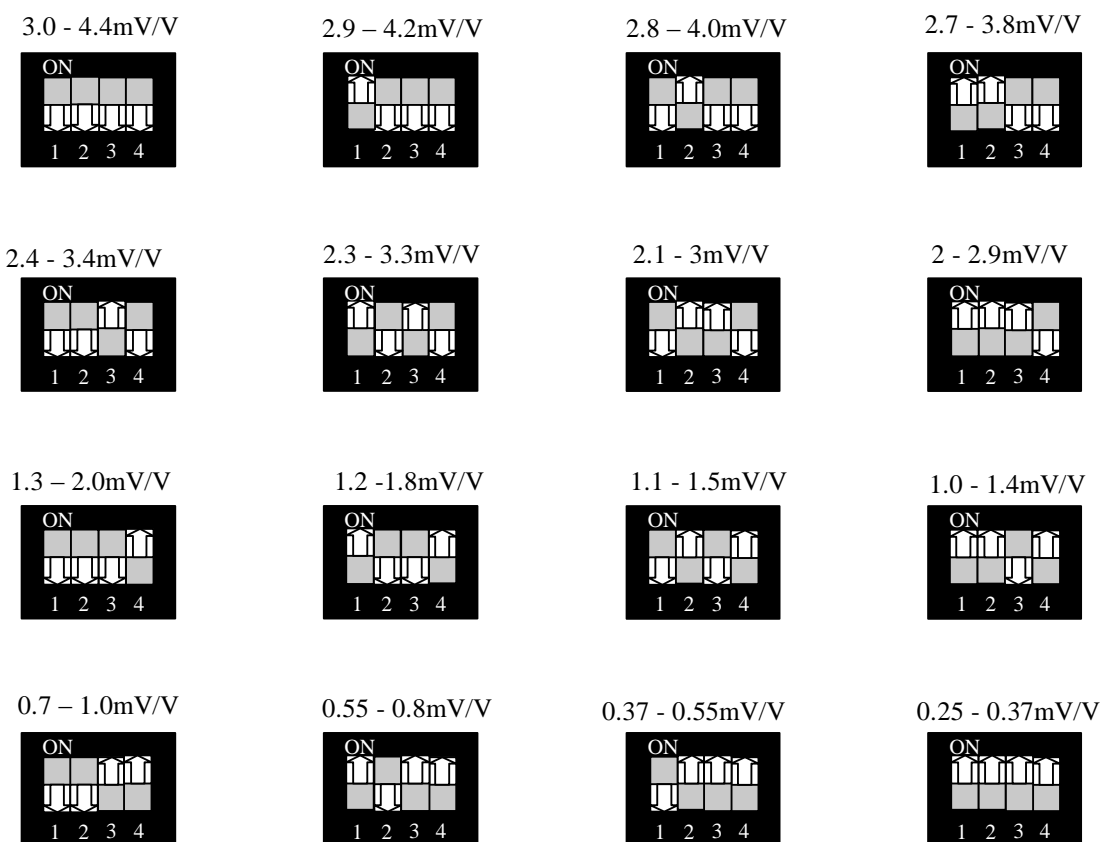


Figure 2.

## Special features

- i. The amplifier has switches to select mV/V from 0.25 to 4mV/V in 16 steps (see figure 3)
- ii. Amplifier has very high stability and accuracy on voltage and current output
- iii. Unit is protected against reverse polarity connection and has very high immunity to interference
- iv. Designed to run on nominal voltage of 24V
- v. Unit is supplied in a DIN rail mount case for ease of mounting in cabinets

## Setting input sensitivity



**Fig. 3:** Switch settings for SY038

\*\* Access to the switches is by removing the side cover of the amplifier (with the CE mark) The cover is secured by 4 dowels and is removed by inserting a small screwdriver blade under each corner edge and levering against the body until the small dowel releases.

## Installation

Before installation check that the unit is secure and not damaged and that the environment specifications for the product are as indicated in the manual.

For the installation take into consideration the following:

- I. Ensure easy access to the component
- II. Ensure the component is stable upon installation
- III. Avoid contact with water or fluids for the safety of the unit

The SY038 can be operated in any industrial environment.

## Physical connections



A	Excitation -	E	+24V supply
B	Input signal +	F	0V
C	Input signal -	G	Output $\pm 10V$ or 4-20mA
D	Excitation +	H	0V

Fig 4: SY038 input/output connections

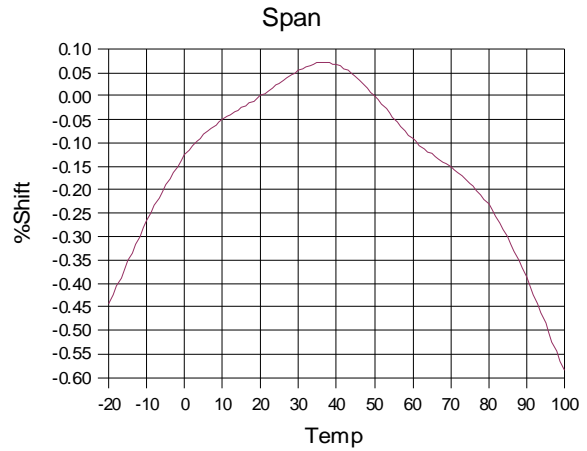
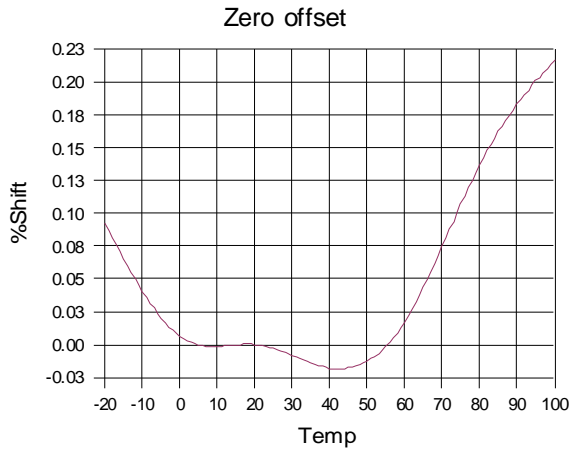
## Electrical setup

Trimpots are provided on top panel for ZERO & SPAN adjustments and these operate independently.

We recommend using the AS-600 mV/V simulator/calibrator to eliminate the need to apply large loads to load cells to provide high level SPAN setup signal levels.

Linearity performance Graphs

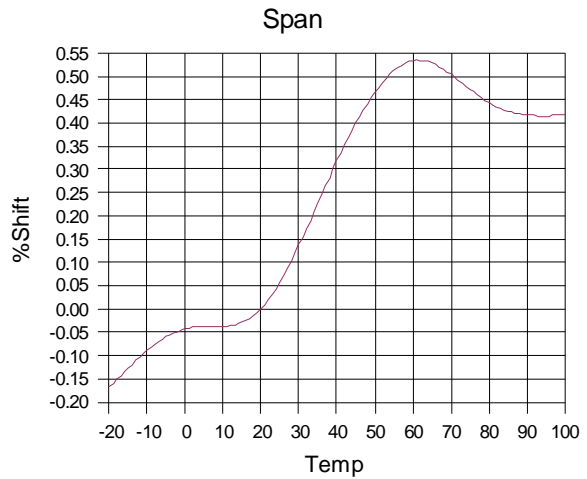
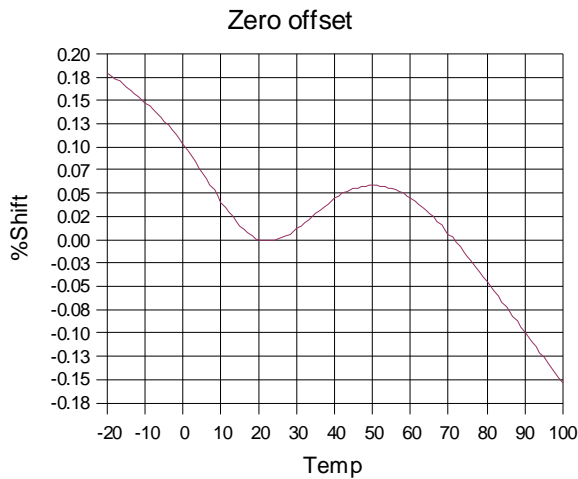
SY038V



Graph1: SY038V zero offset

Graph 2: SY038V span drift with temperature

SY038I

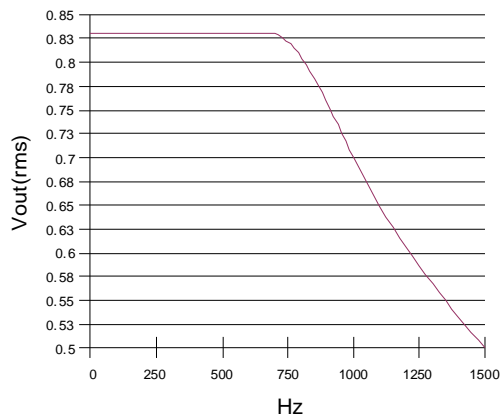


Graph : Zero offset

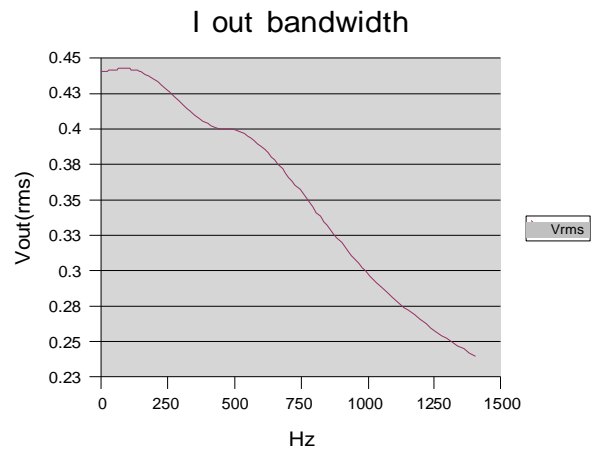
Graph 4: Drift with temperature

Bandwidth

SY038V



SY038I



## Electrical Characteristics

Parameter	Typical	Minimum	Maximum
Supply voltage (Vdc)	24	17	30
Bridge Excitation(V)	10	9.95	10.05
Output: Current version Voltage version	0 or 4-20mA +/-10V dc		
Operating Temp (°C)	-	-20	100*
Bandwidth (kHz)	1.5	-	-
Span adjustment	+/-20%		
Zero adjustment: Voltage Current	+/-4V -4 to +14mA		
Storage temperature		-65	125
Step response (ms)	0.41		
Zero (ppm/°C)	20		
Power consumption (W)	1.6 (68mA excl. load cell current)		
Case	Grey fire resistant polyamide		
Size	72.5 mm x 62 mm x 18 mm		
DIN rail compatibility	EN50035 asymmetric & EN50022 symmetric		

**Table 1:** Electrical specifications

\*Note: At the maximum operating temperature only 1x 350R load cell can be used.

## Other Products

- Integrated sensor amplifiers
- Digital Amplifiers
- High/Low 4-20mA Dual Trip Amplifiers
- Portable Digital Indicators
- Industrial Digital Indicators
- Calibration Grade Indicators & Systems
- Load cells & Force Transducers

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