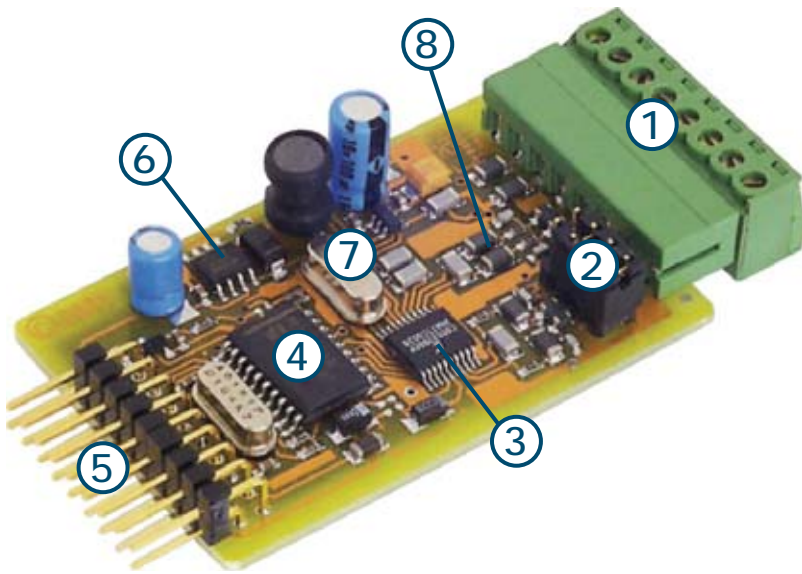


SMART

ISS1 Analog Input Module

Smart load-cell input module



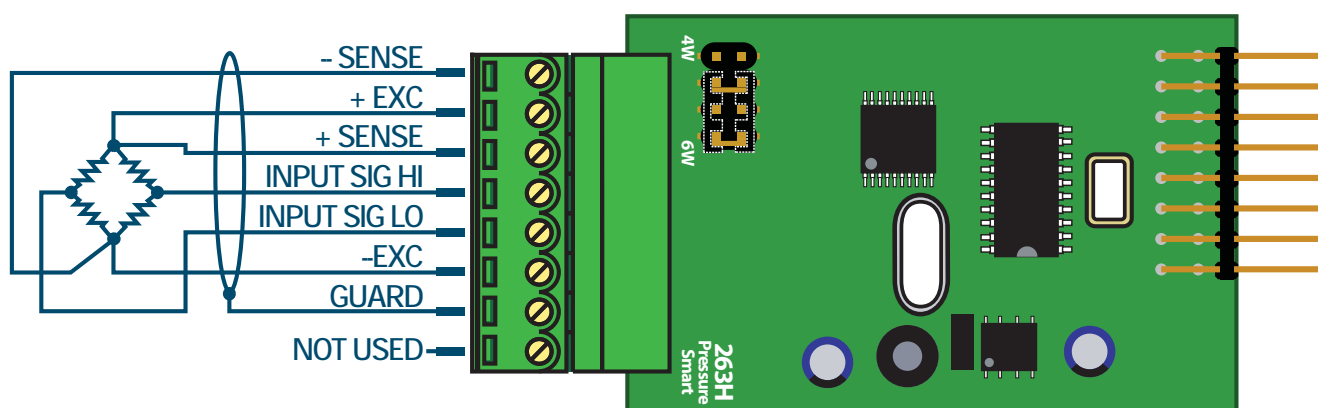
- 1- 8-pin input plug: Load-cell input and excitation voltage output.
- 2- Bridge header: 6 or 4-wire selectable.
- 3- 16-bit A/D converter
- 4- Digital signal processor
- 5- Interface to Texmate controller
- 6- Excitation voltage generator
- 7- 50/60Hz noise rejection
- 8- Noise suppression circuitry

ISS1 Specifications

<i>Input range</i>	Software selectable from 1mV/V to 20mV/V
<i>Input sensitivity</i>	0.08 μ V/Count max
<i>Input noise</i>	160nVp-p typical at 1Hz output rate
<i>Signal processing rate</i>	50Hz max, 1Hz min
<i>A/D converter</i>	Low-noise 16-bit A/D convertor (approaches 19-bit performance due to additional software filtering)
<i>Noise rejection</i>	50Hz noise rejection frequency
<i>Dual output rates</i>	Rapid and average response outputs (ideal for 2 & 3-speed weighing/bagging systems)
<i>Excitation</i>	5V DC, 130mA maximum

<i>Zero drift</i>	$\pm 40\text{nV}/^\circ\text{C}$ typical
<i>Span drift</i>	$\pm 5\text{ppm}/^\circ\text{C}$ of full scale max
<i>Non-linearity</i>	$\pm 0.003\%$ of full scale max
<i>Peak & valley outputs</i>	Monitoring over and under shoots
<i>Capture output</i>	Hardwire signal capture
<i>Rate of change output</i>	Useful for fine tuning reaction times
<i>Frequency select</i>	50/60Hz noise rejection

ISS1 Board Layout



The simplest way to configure your controller is to use the
Texmate Configuration Utility program.

Software + configuration macro available at
www.texmate.co.nz/downloads

If you have a display, front panel configuration can also be performed as
detailed on the following pages.

Programming Procedures

Below are instructions for the typical setup of an ISS1 input module, where setup begins with factory defaults applied.

- ① Press the **[P]** and **[▲]** buttons at the same time to enter the main programming mode.
- ② Press the **[P]** button three times to enter Code 2. Use the **[▲]** and **[▼]** buttons to set Code 2 to 177.
- ③ Press the **[P]** button to enter smart register 1 code setup menu. Use the **[▲]** and **[▼]** buttons to set Smart 1 to XXX.

SMART 1 = XXX

First Digit	Second Digit	Third Digit
<i>Frequency Select</i>	<i>Sensor Input mV/V</i>	<i>Output Rate</i>
0 60Hz rejection	0 1mV/V	0 1Hz averaged: 50/ 60Hz rapid response
1 —	1 2mV/V	1 10Hz averaged: 50/ 60Hz rapid response
2 50Hz rejection	2 3mV/V	2 —
	3 20mV/V	3 50/60Hz averaged: 800/960Hz rapid response

- ④ Press the **[P]** button to save your settings. The display returns to [Cod_2] [177]. Select the required settings for Channel 1 by using the **[▲]** and **[▼]** buttons to set Code 2 to X7X.

CODE 2 = X7X

First Digit	Second Digit	Third Digit
<i>Processing Rate</i>		<i>Output Register Map</i>
0 —		0 Averaged signal
1 10Hz		1 Rapid response signal
2 —	7	2 Peak signal
3 100Hz	(Smart input module)	3 Valley signal
		4 Capture signal
		5 Rate of change signal

- ⑤ Press the **[P]** button to save your settings. The display shows [Cod_3] (000). 000 is the typical setting and *in most cases* does not need to be changed.

However, for 320 controllers and/or controllers requiring square root, inverse or linearisation, Code 3 should be adjusted using the **[▲]** and **[▼]** buttons as follows:

CODE 3 = XXX

First Digit	Second Digit	Third Digit
<i>CH1 Post Processing</i>	<i>Linearisation For CH1</i>	<p>0 (Not used)</p> <p>NB: The third digit in Code 3 is only used for 320 controllers - please see below</p>
0 Direct display of input	0 No linearisation	
1 Square root of CH1	1 32-pt (using Table 1)	
2 Inverse of CH1	2 32-pt (using Table 2)	
	3 32-pt (using Table 3)	
	4 32-pt (using Table 4)	
	5 125-pt (Tables 1-4 cascaded)	
	6 32-pt (Tables 1-4 selected from input module's rear pins)	

NB: These further options in the third digit are for *320 controllers only*.

Third Digit
<i>Serial Mode</i>
0 ASCII mode
1 Modbus mode
2 Master mode
3 Print mode
4 Ethernet mode
5 Devicenet mode

- ⑥ Press the **[P]** button to save your settings and enter Code 4. Select the required settings for Channel 2 by using the **[▲]** and **[▼]** buttons to set Code 4 to OXX.

CODE 4 = OXX

[See table data over page]

First Digit	Second Digit	Third Digit
0 (Voltage, current)	<i>Output Register Map</i>	<i>Linearisation For CH2</i>
	0 —	0 No linearisation
	1 —	1 32-pt (Table 1)
	2 —	2 32-pt (Table 2)
	3 —	3 32-pt (Table 3)
	4 Averaged signal	4 32-pt (Table 4)
	5 Rapid response signal	5 125-pt (Tables 1-4 cascaded)
	6 Peak signal	
7 Valley signal		

- ⑦ Press the **P** button to save your settings and enter Code 5. Select the required settings for Channel 3 by using the **▲** and **▼** buttons to set Code 5 to X7X.

CODE 5 = X7X

First Digit	Second Digit	Third Digit
<i>CH3 Post Processing</i>	7 (Smart input module)	<i>Output Register Map</i>
0 Direct display of input		0 Averaged signal
1 Square root of CH3		1 Rapid response signal
2 Inverse of CH3		2 Peak signal
3 32-pt linearisation of CH3 (Table 3)		3 Valley signal
		4 Capture signal
	5 Rate of change signal	

- ⑧ Press the **P** button to save your settings and enter Code 6. Select the required settings for Channel 4 by using the **▲** and **▼** buttons to set Code 6 to X7X.

CODE 6 = X7X

First Digit	Second Digit	Third Digit
<i>CH4 Post Processing</i>	7 (Smart input module)	<i>Output Register Map</i>
0 Direct display of input		0 Averaged signal
1 Square root of CH4		1 Rapid response signal
2 Inverse of CH4		2 Peak signal
3 32-pt linearisation of CH4 (Table 4)		3 Valley signal
		4 Capture signal
	5 Rate of change signal	

- ⑨ Press **[P]** again to save your settings. Then press the **[P]** and **[▲]** buttons at the same time to exit and return to the operational display.

Final Customer Configuration Settings

Code 2		7		Code 5		7	
Code 3				Code 6		7	
Code 4	0			Smart 1			

2-Point Calibration

Below is an example of 2-point calibration using averaged or rapid response as a signal source. *If you are using peak, valley, capture or rate of change, please contact Texmate for calibration instructions.*

- ① Press the **[P]** and **[▲]** buttons at the same time to enter the main programming mode.
- ② *[1602 & 1602+K users - Skip this step.]* Press **[P]** to enter the calibration mode.
- ③ The display shows [CAL] [000]. Use the **[▲]** and **[▼]** buttons to set CAL to 111. Press **[P]** to confirm.

CAL = 111
- ④ The display shows [ZERO]. Use the **[▲]** and **[▼]** buttons to adjust the display to the desired reading for zero input. Apply the low input signal for at least 5 seconds, and then press **[P]** to save the zero value.
- ⑤ The display shows [SPAN]. Use the **[▲]** and **[▼]** buttons to adjust the display to the desired reading for span input. Apply the high input signal for at least 5 seconds.

