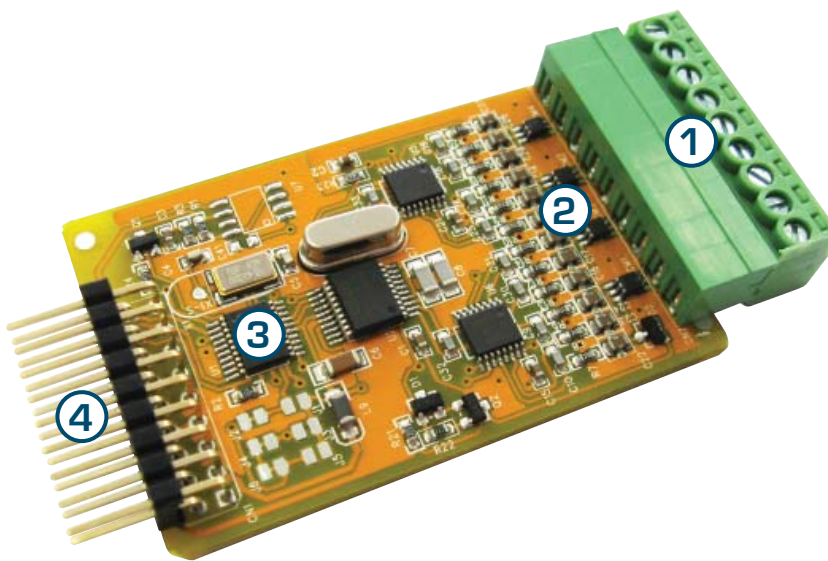


SMART

ISQT4 Analog Input Module

Smart quad RTD

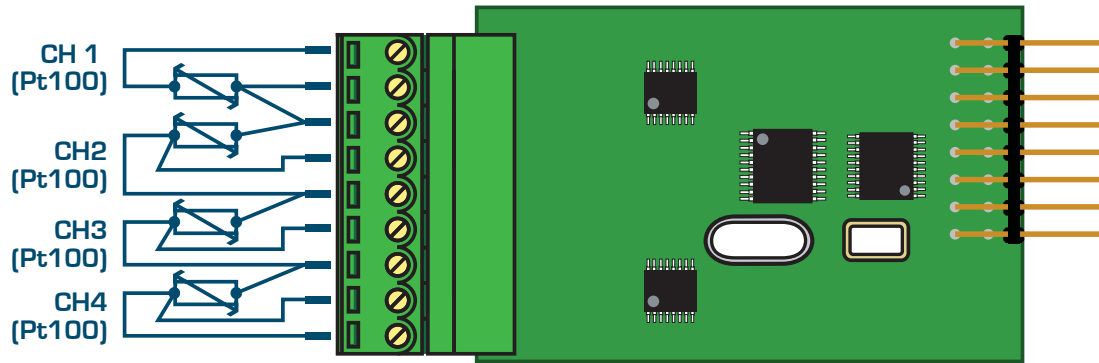


- 1- 9-pin input plug: Quad RTD input and excitation current output.
- 2- State-of-the-art electromagnetic noise suppression circuitry
- 3- On board digital signal processing
- 4- Interface to Texmate controller

ISQT4 Specifications

<i>Input RTD types</i>	PT385, Pt392, Cu
<i>Input channels</i>	Quad - zero X-talk between channels, each having 19-bit effective resolution
<i>Input sensitivity</i>	Resolution 0.1°F
<i>Input noise</i>	160nVp-p typical at 1Hz output rate
<i>Signal processing rate</i>	5Hz
<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>Excitation current</i>	160μA
<i>Span drift</i>	±30ppm/°C
<i>Non-linearity</i>	1°F max

ISQT4 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 be performed as shown.

Programming Procedures

Below are instructions for the typical setup of an ISQT4 input module, where setup begins with factory defaults applied.

- ① Press the **P** and **▲** buttons together 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 **XOX**.

SMART 1 = XOX



First Digit	Second Digit	Third Digit
<i>Rejection</i>	0 (Not relevant)	<i>RTD type</i>
0 60Hz		0 PT385
1 —		1 PT392
2 50Hz		2 Cu

- 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>	7 (Smart input module)	<i>Output Register Map</i>
0 —		0 RTD signal 1
1 10Hz		1 RTD signal 2
2 —		2 RTD signal 3
3 100Hz		3 RTD signal 4

- ⑤ Press the **P** button to save your settings. The display shows [Cod_3] (000). 000 is the typical setting for this code 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 = 00X

First Digit	Second Digit	Third Digit
0 (Direct display of input)	0 (No linearisation)	0 (Not used) NB: The third digit of Code 3 is only used for 320 controllers - please see below

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  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 **0X0**.

CODE 4 = 0X0

First Digit	Second Digit	Third Digit
0 (Voltage, current)	<i>Output Register Map</i>	0 (No linearisation)
	0 —	
	1 —	
	2 —	
	3 —	
	4 RTD signal 1	
	5 RTD signal 2	
	6 RTD signal 3	
	7 RTD signal 4	

- 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**, as required.

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 RTD signal 1
1 Square root of CH3		1 RTD signal 2
2 Inverse of CH3		2 RTD signal 3
3 32-pt linearisation of CH3 (Table 3)		3 RTD signal 4

- 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**, as required.

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 RTD signal 1
1 Square root of CH4		1 RTD signal 2
2 Inverse of CH4		2 RTD signal 3
3 32-pt linearisation of CH4 (Table 4)		3 RTD signal 4

- ⑨ Press the **P** button 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:

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

2-Point Calibration

- ① Press the **[P]** and **[▲]** buttons at the same time to enter the main programming mode. *(1602 users - skip this step.)* Press **[P]** to enter the calibration mode.
- ② The display shows [CAL] [000]. Use the **[▲]** and **[▼]** buttons to set **CAL** to **11X**. Press **[P]** to confirm.

CAL = 11X

First Digit	Second Digit	Third Digit
1 (Calibration)	1 (2-point calibration)	<i>Channel To Calibrate</i>
		1 Channel 1
		2 Channel 2
		3 Channel 3
		4 Channel 4

- ③ 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.
- ④ The display shows [SPAN]. Use the **[▲]** and **[▼]** buttons to adjust the display to the desired span reading. Apply the high input signal for at least 5 seconds.
- ⑤ Press **[P]** to save the span value and apply the new calibration values.
*If calibration is unsuccessful, the display will show [ERR_1] for a few seconds before returning to [CAL] [11X]. Check your signal inputs and connections. Then press **[P]** and begin again from Step 3.*
- ⑥ On successful calibration, the display shows [CAL] [11X]. Use the **[▲]** and **[▼]** buttons to reset **CAL** back to **000**.
- ⑦ Press **[P]** again to confirm. Then press the **[P]** and **[▲]** buttons at the same time to exit and return to the operational display.

NOTES

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DOCUMENT REVISION CODE: ISQT4-S26-08-V.01