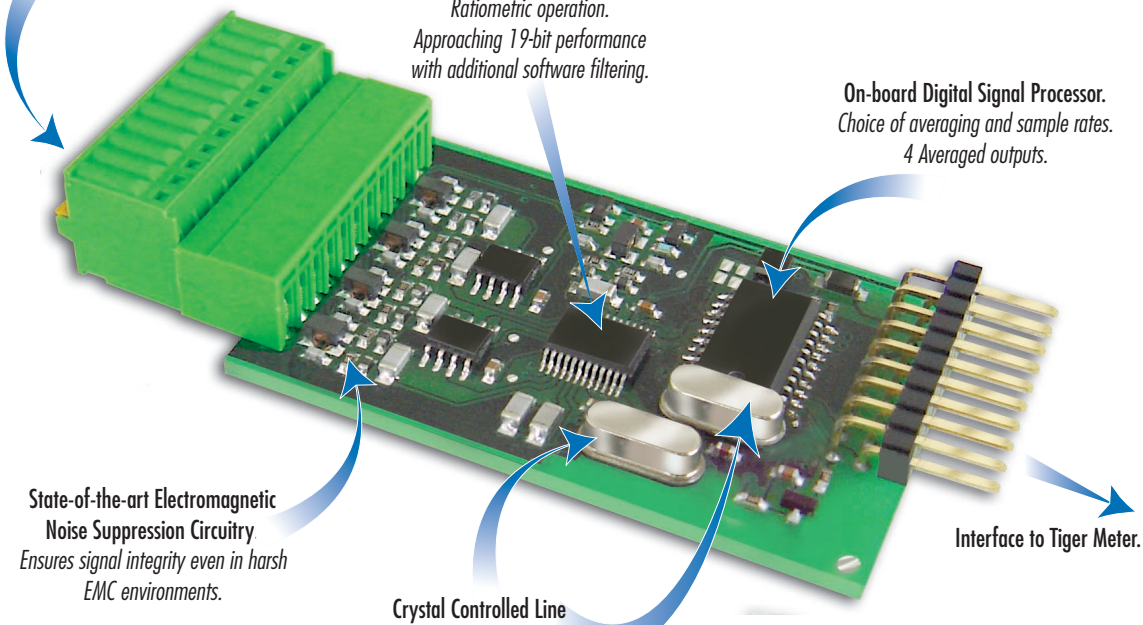
TEXMATE INC

Fits Tiger 320 Series

QUAD RESISTIVE DISPLACEMENT SENSOR



Adding 4 dimensions to linear or rotative displacement registration.

Quad inputs, complete with excitation voltage and accurate ratiometric sensing of slider or rotative position, deliver multiple axis linear displacement sensing or similar resistive measurements. Designed to interface with Tiger 320 Series controllers, the ISSA provides the capacity for accurate and continuous process control and feedback systems.

Input Module Order Code Suffix

ISSA

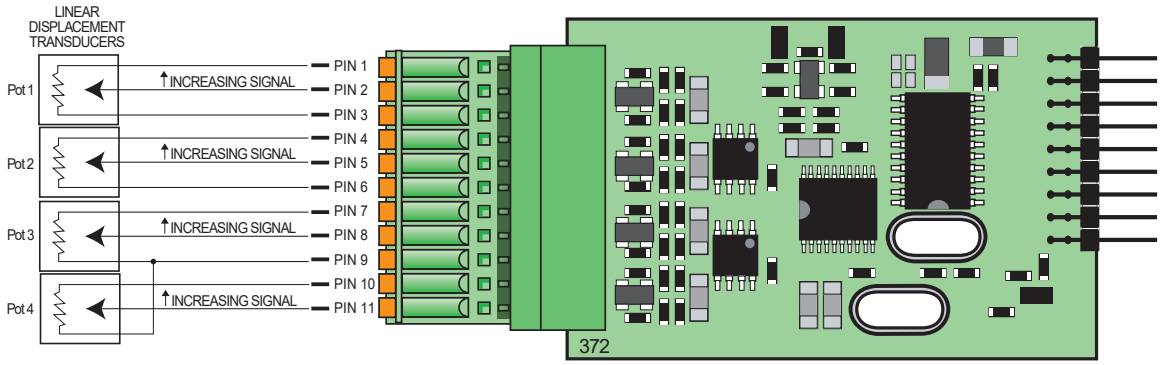
Hardware Module Specifications	
Excitation Voltage	Independent +2.5 V excitation (10 mA).
Resistance Range	1 kilohm to 100 kilohm (typical).
A/D Converter	Quad channel ultra-low-noise 16-bit ATD with effective 19-bit resolution in post processing software.
Input Sensitivity	5 µV / count full scale maximum.
Zero Drift	± 40 µV / °C typical.
Span Drift	± 5 ppm / °C of full scale maximum.
Non-linearity	± 0.003% of full scale maximum.
Input Noise	30 µV p-p typical at 1 Hz output rate.
Potentiometer Inputs	Quad, ratiometric referenced to ATD.
Resolution	1:100,000 counts of full scale (+2.5 V).

Software Module Specifications	
Output Rates	1, 5, 10, 20, or 50/60 Hz output rate for all channels.
Gain Select	Optimized for +2.5 V excitation.
Line Frequency Rejection	50/60 Hz software selectable.

QUAD RESISTIVE DISPLACEMENT

INPUTS
SMART QUAD RESISTIVE DISPLACEMENT

Connector Pinouts



Quad 3-wire Potentiometer Smart Module connected to four linear displacement transducers.

Figure 1 – ISSA Quad 3-wire Potentiometer Smart Input Module

Smart Setup Registers

The Tiger meter uses three smart setup registers to configure all smart input modules. The line frequency rejection (50 / 60 Hz) and the averaged output rate are configured in **smart register 1** (SMT1). See Figure 2.

Potentiometer signals, Pot 1, Pot 2, Pot 3, and Pot 4, are then individually software selected for the four input channels. Either signal can be selected for CH1 via Code 2, CH2 via Code 4, CH3 via Code 5, and CH4 via Code 6. **Note, two signals cannot be selected for the same channel.**

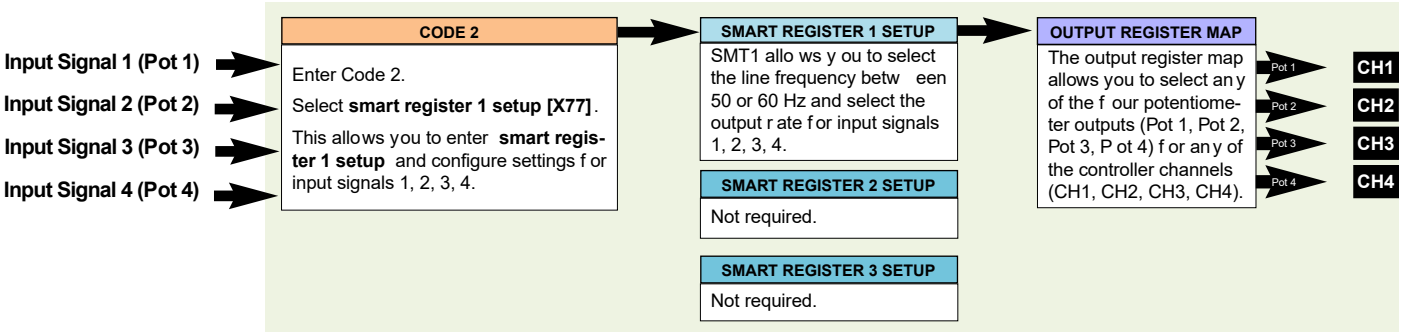


Figure 2 – ISSA Smart Setup Registers Operational Flow Diagram

Programming Procedures

The following programming procedures cover all the steps required to configure smart input module ISSA. Steps **1** to **5** describe how to select the **line frequency** and the **output rate** through SMT1.

Steps **7** to **12** describe how to select the output registers for channels 1, 2, 3, or 4 as required.

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. Set Code 2 to [X77].

This setting enters the **smart register 1** code setup menu.

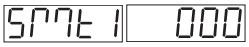
FIRST DIGIT
TIGER PROCESSING RATE
0 10 Hz
1 10 Hz
2 100 Hz
3 100 Hz

SECOND DIGIT
MEASUREMENT TASK
0 Voltage, Current
1 TC (3rd digit selects type of TC)
2 RTD 3-wire (3rd digit selects type of RTD)
3 RTD 2- or 4-wire (3rd digit selects type of RTD)
4 Frequency
5 Period
6 Counter
7 Smart Input Module

THIRD DIGIT
OUTPUT REGISTER MAP
0 Averaged Pot 1
1 Averaged Pot 2
2 Averaged Pot 3
3 Averaged Pot 4
4 -
5 -
6 -
7 Smart input module register 1 code setup

Note the output registers in the 3rd digit are specific to the Quad 3-wire Potentiometer input module. These registers vary for each different smart input module.

3 Press the [P] button.



This menu provides settings unique to **smart register 1** of input module ISSA.

FIRST DIGIT
FREQUENCY SELECT
0 -
1 60 Hz rejection
2 -
3 50 Hz rejection

SECOND DIGIT
NOT USED
0 -
1 -
2 -
3 -
4 -
5 -
6 -
7 -

THIRD DIGIT
OUTPUT RATE
0 1 Hz averaged, 50 / 60 Hz sample
1 5 Hz averaged, 100 / 120 Hz sample
2 10 Hz averaged, 400 / 480 Hz sample
3 20 Hz averaged, 800 / 960 Hz sample
4 50 / 60 Hz averaged, 1600/1920 Hz sample
5 -
6 -
7 -

4 Using the [↑][↓] buttons, select either **50 or 60 Hz line frequency rejection** in the 1st digit and the **output rate common to all four input signals** in the 3rd digit.

2nd digit settings are not relevant and should be left at zero (0).

5 Press the [P] button. The display returns to [Cod_2] [X77].

6 Using the [↓] button, reset the 3rd digit to zero [X70] to leave the smart register 1 menu.

Note, leaving the 3rd digit as 7 means the display constantly cycles between [Cod_2] and [SMt1].

7 Press the [P] and [↑] buttons at the same time to return to the operational display.

Select a Channel

Select the output register for the required channels

8 Press the [P] and [↑] buttons at the same time again to re-enter the main programming mode, then press the [P] button three times to enter Code 2.

9 Set Code 2 to [X7X]. Select the required processing rate for **CH1** in the 1st digit and the required register map settings in the 3rd digit.

2nd digit settings are not relevant and should be left at zero (0).

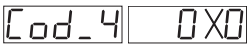
CH1 

FIRST DIGIT
TIGER PROCESSING RATE
0 10 Hz
1 10 Hz
2 100 Hz
3 100 Hz

Note the output register map is different for each smart input module type.

THIRD DIGIT
OUTPUT REGISTER MAP
0 Average Pot 1
1 Average Pot 2
2 Average Pot 3
3 Average Pot 4
4 -
5 -
6 -
7 Smart input module register 1 code setup

10 Set Code 4 to [0X0]. Select the required register map settings for **CH2** in the 2nd digit.

CH2 

FIRST DIGIT
MEASUREMENT TASK
0 Voltage, Current
1 -
2 -
3 -

SECOND DIGIT	
FOR VOLTAGE & CURRENT	
0 Channel 2 Disabled	
1 Direct (no post processing)	
2 Square Root of Channel 2	
3 Inverse of Channel 2	
4 Output Register 1 (smart module)*	
5 Output Register 2 (smart module)*	
6 Output Register 3 (smart module)*	
7 Output Register 4 (smart module)*	

Note:
The logic for CH2 is not the same as CH1, CH3, or CH4. The 1st and 3rd digits must both be set to 0. Selecting 040 or 050 in the 2nd digit of Code 4 directly selects one of the following settings in the output register map (3rd digit):

2nd Digit	Output Register Map
4 selects	**0 Averaged Pot 1**
5 selects	1 Averaged Pot 2
6 selects	2 Averaged Pot 3
7 selects	3 Averaged Pot 4

11 Enter Code 5 and select the required output register map settings f or **CH3** in the 3rd digit.

CH3 Cod_5 X7X

FIRST DIGIT
CH3 POST PROCESSING
0 Direct Display of Input (no processing)
1 Square Root of Channel 3
2 Inverse of Channel 3
3 **Meters with 4 kB memory** NO Linearization
Meters with 32 kB memory 32-point Linear ization of CH3 using Table 3

Note:
All linear ization tab les are set up in the Calibration Mode [24X].

THIRD DIGIT
OUTPUT REGISTER MAP
0 Average Pot 1
1 Average Pot 2
2 Average Pot 3
3 Average Pot 4
4 -
5 -
6 -
7 Smart input module register 1 code setup

Note the output register map is different for each smart input module type.

12 Enter Code 6 and select the required output register map settings f or **CH4** in the 3rd digit.

CH4 Cod_6 X7X

FIRST DIGIT
CH4 POST PROCESSING
0 Direct Display of Input (no processing)
1 Square Root of Channel 4
2 Inverse of Channel 4
3 **Meters with 4 kB memory** NO Linearization
Meters with 32 kB memory 32-point Linear ization of CH4 using Table 4

Note:
All linear ization tab les are set up in the Calibration Mode [24X].

Press the P button to save the settings.

13 Press the P and ⬆ buttons at the same time to return to the operational display.

Customer Configuration Settings:

SMt 1

	1st Digit	2nd Digit	3rd Digit

		1st Digit	2nd Digit	3rd Digit
CH1	Cod_2			
CH2	Cod_4	0		0
CH3	Cod_5		7	
CH4	Cod_6		7	

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