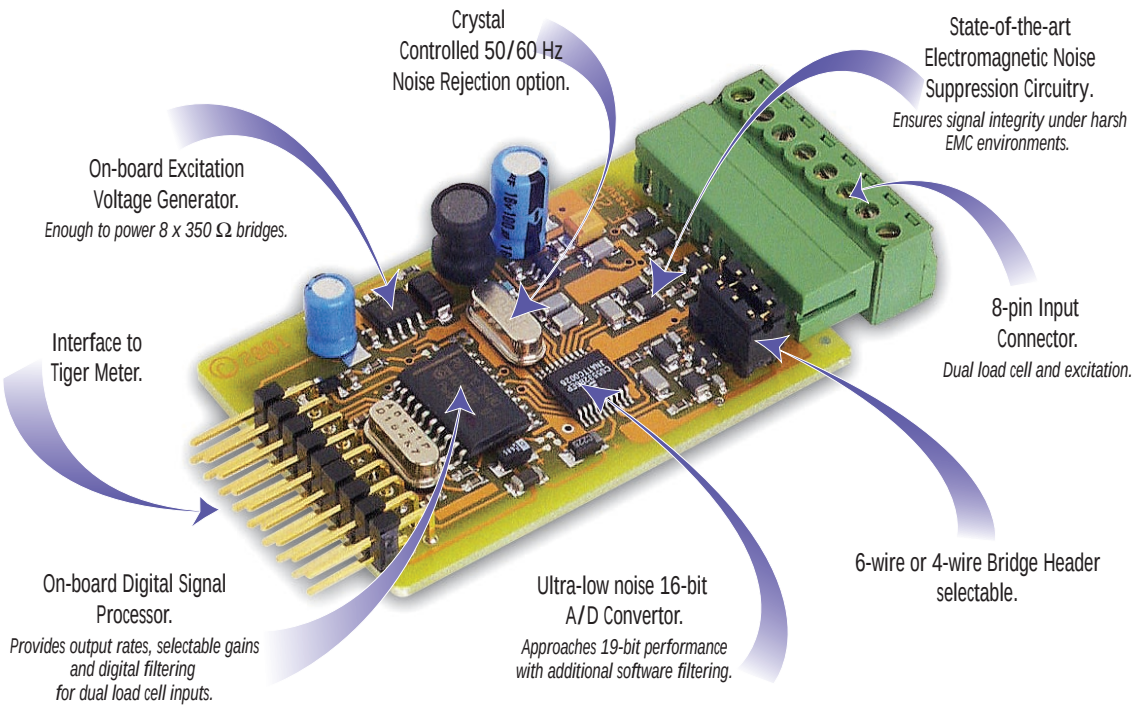
TEXMATE INC

Fits Tiger 320 Series

16-BIT SMART DUAL LOAD CELL MODULE



The revolution in intelligent load cell controllers continues with our dual input module.

This powerful input module defines the next generation of intelligent load cell controllers, encapsulating high performance and precision measurement with dual input functionality.

When combined with the Tiger 320 Series operating system, the operator has all the solutions to weighing, bagging and continuous batching control applications. All these features plus the bonus of dual load cell inputs make this module the obvious choice over dated weighing controllers, PLC and timer technology.

Input Module Order Code Suffix

ISS5 (50 Hz Rejection)

ISS6 (60 Hz Rejection)

Hardware Module Specifications	
Excitation	5 V DC, 130 mA maximum.
Input Range	Software selectable for sensors from 1 mV/V to 20 mV/V.
Input Channels	Dual, independent gains. Zero X-talk between channels each having 19-bit effective resolution.
Input Sensitivity	0.08 µV/Count maximum.
Zero Drift	± 40 nV/ °C typical.
Span Drift	± 200 ppm/ ° C of full scale maximum.
Non-linearity	± 0.003% of full scale maximum.
Input Noise	160 nVp-p typical at 1 Hz output rate.
Signal Processing Rate	20 Hz maximum, 1 Hz minimum.
Frequency Select	50/60 Hz noise rejection.

Software Module Features	
Output Rates	A choice of average response outputs, 1-20 Hz.
Gain Select	Choice of industry standards, 1-20 mV/V.
Frequency Select	50/60 Hz noise rejection.

Some Relevant Tiger 320 Series Operating System Features
Auto Zero Maintenance.
Set TARE, Reset TARE.
Setpoint Timer Functions.
Setpoint Register Reset and Trigger Functions.
On-demand Calibration.
Macro Compiler for PLC Functions.
32-Point Linearization.
Totalizator and Serial Printing.

16-BIT SMART DUAL LOAD CELL

INPUTS

★ Smart Dual Channel Precision

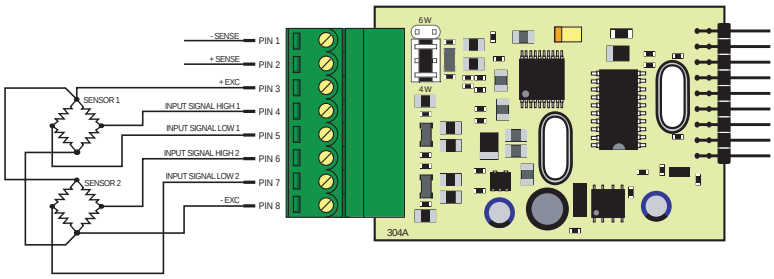
Dual Channel Load-cell Pressure

Smart Setup Registers

The meter uses three smart setup registers to configure smart input modules. ISS5 and ISS6 require **smart registers 1 and 2** to be set up. Because this is a dual input module, independent sensor inputs can be software selected for channels 1, 2, 3, and 4.

Sensor 1 and/or sensor 2 can be transferred to Channel 1 via Code 2, to Channel 2 via Code 4, to Channel 3 via Code 5, and to Channel 4 via Code 6.

Connector Pinouts



4-wire Bridge Configuration Dual Load Cell
(for 6-wire bridge connect sense leads and swop header)

Programming Procedures

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].

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

[Cod_2] [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 signal SENSOR 1
1 Averaged signal SENSOR 2
2 -
3 -
4 -
5 -
6 -
7 Smart input module register 1 code setup

3 Press the [P] button.

[SMt1] [000]

This menu provides settings unique to **smart register 1** of input module ISS5.

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

SECOND DIGIT
SENSOR 1 INPUT mV/V (5 V Exc.)
0 1 mV/V
1 2 mV/V
2 3 mV/V
3 20 mV/V
4 -
5 -
6 -
7 -

THIRD DIGIT
OUTPUT RATE
0 1 Hz averaged
1 5 Hz averaged
2 10 Hz averaged
3 20 Hz averaged
4 -
5 -
6 -
7 -

4 Using the [↑][↓] buttons, select the relevant **line frequency** rejection, **sensor 1** input, and the **output rate** common to both sensor inputs.

5 Press the [P] button. The display returns to [Cod_2] [X77]. [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] button 3 times to enter Code 5. Set Code 5 to [X77].

[Cod_5] [X77]

FIRST DIGIT
CH3 POST PROCESSING
0 Direct Display of Input (no processing)
1 Square Root of Channel 3
2 Inverse of Channel 3
3 **4 kB Meters** NO Linearization **32 kB Meters** 32-point Linearization of CH3 using Table 3
Note: All linearization tables are set up in the Calibration Mode [24X].

SECOND DIGIT
MEASUREMENT TASK
0 No Function
1 Voltage, current
2 TC (3rd digit selects type of TC)
3 RTD (3rd digit selects type of RTD)
4 Real Time Clock & Timer (3rd digit selects type)
5 -
6 -
7 Smart Input Module

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

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

8 Press the P button.

This setting enters the **smart register 2** code setup menu.

FIRST DIGIT
Not relevant

SECOND DIGIT
Not relevant

THIRD DIGIT	
SENSOR 2 INPUT mV/V (5 V Exc.)	
0	**1 mV/V**
1	2 mV/V
2	3 mV/V
3	20 mV/V
4	-
5	-
6	-
7	-

This menu provides settings unique to **smart register 2** of the ISS5 and ISS6 input module.

9 Using the ⬆ ⬇ buttons, select the **sensor 2 input** from the 3rd digit.

10 Press the P button to save the settings.

The display toggles between [Cod_5] and [X77].

11 Using the ⬇ button, reset the 3rd digit to 0 to leave the smart register 2 menu.

12 Press the P and ⬆ button at the same time to return to the operational display.

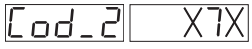
Select a Channel

Select the output register for the required channels

13 Press the P and ⬆ button at the same time again to re-enter the main programming mode.

14 Press the P button three times to enter Code 2.

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

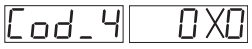
CH1 

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

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

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

16 If required enter Code 4 and select the required register map settings for **CH2** in the 2nd digit.

CH2 

FIRST DIGIT
MEASUREMENT TASK
0 Voltage, Current
1 TC (type as per 2nd digit)
2 RTD (type as per 2nd digit)
3 Second Digital Input Channel (type as per 2nd digit)

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 to 070 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 signal SENSOR 1**
5 selects	1 Averaged signal SENSOR 2
6 selects	2 -
7 selects	3 -

17 If required enter Code 5 and select the required post processing settings for **CH3** in the 1st digit and the required register map settings in the 3rd digit.

CH3

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 Linearization of CH3 using Table 3

Note:
All linearization tables are set up in the Calibration Mode [24X].

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

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

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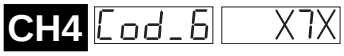
18 If required enter Code 6 and select the required post processing settings for **CH4** in the 1st digit and the required register map settings in the 3rd digit.



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 Linearization of CH4 using Table 4
Note: *All linearization tables are set up in the Calibration Mode [24X].*

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Press the P button to save the settings.

19 Press the P and ↑ buttons at the same time to return to the operational display.

Example Load Cell Setup Procedure

Our customer has an application that requires two load cells. The process requires a fast response sensor to monitor the assembly process on a conveyor belt and another to monitor the bin weight as it increases.

For example, configure the conveyor load cell as sensor 1 and the bin weight load cell as sensor 2. Select **50 Hz** as the input line frequency and **20 Hz** as the averaged output rate. Select a sensor input of **3 mV/V for sensor 1** and a sensor input of **20 mV/V for sensor 2**. Configure **sensor 1** to be read by **CH1** and **sensor 2** to be read by **CH3**.

1 **Select 50 Hz as the input line frequency with a 20 Hz averaged output rate for both sensors. Select a 3 mV/V sensor input for SENSOR 1:**

In CODE 2 select X77 then press P button.

Display toggles between SMt1 000

Set SMt1 to 223

2 **Select a 20 mV/V sensor input for SENSOR 2:**

In CODE 5 select X77 then press P button.

Display toggles between SMt2 000

Set SMt2 to XX3

3 **Select the CONVEYOR WEIGHT for CH1:**

In CODE 2 select X70

4 **Select the BIN WEIGHT for CH3:**

In CODE 5 select X71

Customer Configuration Settings:

		1st Digit	2nd Digit	3rd Digit
	SMt 1			
	SMt2			
CH1	Cod_2		7	
CH2	Cod_4	0		0
CH3	Cod_5		7	
CH4	Cod_6		7	

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