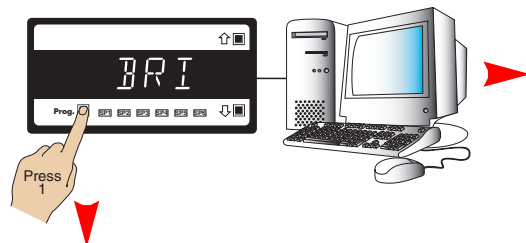


Tiger 380 Series PROGRAMMING CODE SHEET

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Front panel programming

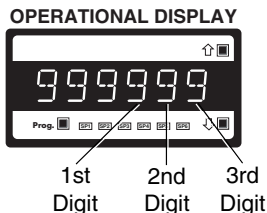
This programming code sheet (PCS) is a quick reference document that allows you to quickly view the controller's programming codes.

When you become familiar with the controller and the programming code structure, the PCS can be used in place of the user manual.



Note:
All displays shown in this code sheet are for a 6-digit, 14-segment alphanumeric display. Other displays will be slightly different.

To configure the controller's programming codes from the front panel, the controller uses the three right-hand side display digits. These are known as the 1st, 2nd, and 3rd digits and can be seen in the diagram below.



The logic diagram on Page 4 shows the code structure of the Tiger 380 Series controller range. The diagrams on the following pages show the 3-digit settings available for each code. The 3-digit default settings are **0**, indicated in bold text in each code.

Programming via PC

Meter configuration utility program

With a serial output module installed, the meter can be fully configured through the **meter configuration utility program**. In addition to all application function settings, the configuration program also provides access to added features such as:

- Code blanking.
- Display text editing.
- Configuration data copying.
- Downloading macros to the meter.

Code blanking

Code blanking blanks out all function codes not required by the application. This means that specific procedures such as recalibration and setpoint reprogramming can be achieved in a few simple steps from the front panel buttons.

To turn code blanking and macro settings OFF, carry out the Code Blanking and Macro Check on Page 3.

Display text editing

This function allows displayed text, such as setpoint titles, to be edited to suit your applications.

For example, a setpoint could be edited to read [TNK_LO] for tank level low, or [BRKOF] for brake off.

Configuration data copying

This function allows the current meter configuration settings to be copied and saved for later referral or for restoration.

Macros

Texmate has a growing library of macros to suit a wide range of standard customer applications. Macros can be installed in the controller, via the Tiger Development System (TDS) or configuration program, and run automatically when the meter is powered up.

Tamper-proof settings

Tiger 380 Series controllers (except the DI-802) have tamper-proof lockout switches to prevent users' configuration settings from being inadvertently changed.

Code blanking is also used (via the PC) to blank out codes not used, making them operator tamper-proof, but leaving selected codes available for operator adjustment.



Note:
3-digit programming codes are specified within square brackets [XXX].

If an X appears in the description of a 3-digit programming code or in a configuration procedure, this means that more than one choice can be made, or any number displayed in that digit is not relevant to the function being explained.



Programming Tips

- 1) Use the [P] button to step through the codes of the **Main** or **Setpoint** Programming Mode.
- 2) To save a **Main** Programming Mode code setting and return directly to the operational display, press the [P] button and then the [P] and [X] buttons at the same time.
- 3) To save a **Setpoint** Programming Mode setting and return directly to the operational display, press the [P] button and then the [P] and [Y] buttons at the same time.
- 4) When configuring the three-digit code and setpoint settings, pressing the [X] and [Y] buttons at the same time increases the displayed parameter in increments of 100 counts.

380 Series



Initial Setup Procedures

Before configuring the controller, carry out the following controller configuration checks:

- Model and software code version check.
- Code blanking and macro check.

After powering-up the controller, check the model and software code version number and note this below.

Model No:
 Software Version No:
 Customer ID:.....
 Macro Version No:.....

Model and Software Code Version Check

The controller model and software code version number can be checked at any time while in the operational display using the following procedure.



Programming Tip

The *Model and Software Code Version* checking procedure can be performed at any time without interfering with other configuration settings.

START HERE

MODEL & SOFTWARE CODE VERSION CHECK

Step 1

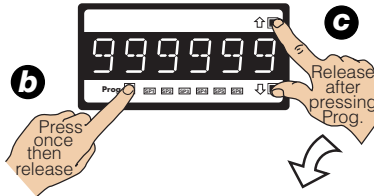
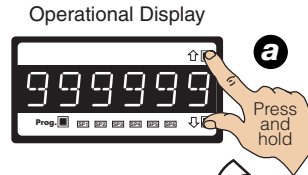
Press and hold the and buttons

Step 2

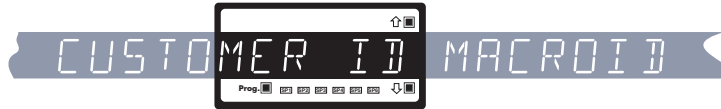
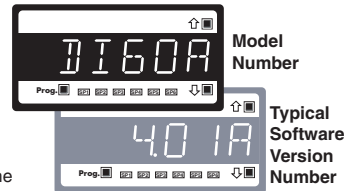
While holding both buttons, press the Prog. button then release all three buttons

Step 3

The displays toggle three times. If a macro is installed and turned on, the customer ID and the macro ID scroll across the display before returning to the operational display.



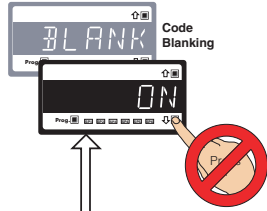
Example



Code Blanking and Macro Check

Code Blanking

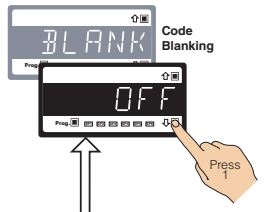
Tiger 380 Series controllers have the ability to hide (blank out) all or some programming codes to prevent tampering through the front panel. This function is known as code blanking and is ideal for preventing settings, such as calibration, being changed by the operator.



Configuration Utility Program

Code Blanking ON (Enabled)
Selected codes hidden (blanked out) so that the operator cannot access them thru the front panel

Code blanking always reverts to ON when the meter is powered up



Configuration Utility Program

Code Blanking OFF (Disabled)
All codes are now visible and accessible to the operator thru the front panel

The code blanking function can be either enabled (set to ON) or disabled (set to OFF) through the front panel. Changing which codes are visible, and therefore accessible to the operator, can only be done through the Configuration Utility program.

During power-up, the code blanking function always reverts to ON (enabled). This means that when the meter is switched ON all codes are visible except those that have been blanked out during meter configuration.

Code blanking can be set to OFF (disabled) by the operator by following the Code Blanking and Macro Check procedure opposite. Setting code blanking to OFF means that all codes are visible to the operator and can be tampered with.

Macros

A macro is a set of commands that run automatically when the controller is powered up. Macros can be installed in the controller at the factory during initial programming or by the customer at some later date. Macros are written and compiled using the Tiger Development System (TDS) compiler program and loaded into the controller using either the TDS or the configuration program.

Turning the macro OFF means that the controller will not perform the automatic commands pre-programmed to run with the macro. Unless otherwise requested, Texmate programs the controller in the code blanking and macro ON (enabled) setting. Texmate has a growing library of macros to suit a wide range of standard customer applications.

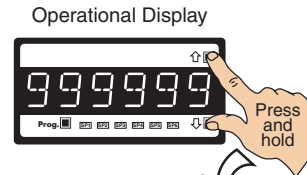
CODE BLANKING & MACRO CHECK PROCEDURE

To disable (set to OFF) code blanking and/or a macro, carry out the following procedure:

START HERE

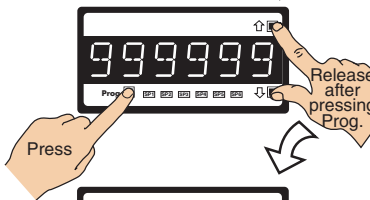
Step 1

Press and hold the Δ and ∇ buttons



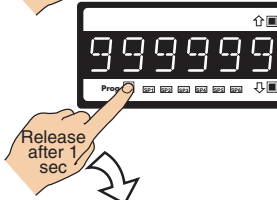
Step 2

While holding both buttons, press the Prog. button.



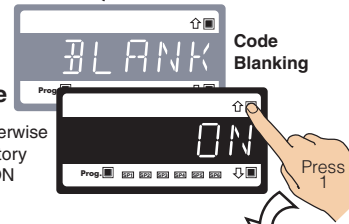
Step 3

Release the the Δ and ∇ buttons and hold the Prog. button for approx. 1 sec then release



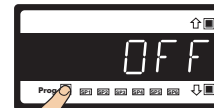
Example

NOTE: Unless otherwise requested, the factory default setting is ON



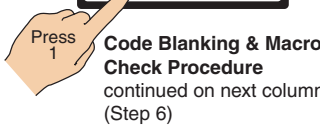
Step 4

Press the ∇ button to switch code blanking OFF



Step 5

Press the Prog. button.



continued from Step 5

NOTE: Unless otherwise requested, the factory default setting is ON

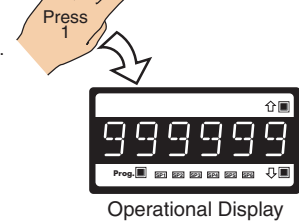
Step 6

Press the Δ button to switch the macro OFF



Step 7

Press the Prog. button.



Programming Tip

Code Blanking and Macro ON/OFF settings revert to the controller's original configuration settings when the meter is powered off and on.

Tiger 380 Series Code Logic Diagram



OPERATIONAL DISPLAY

To enter press the **[P]** and **[△]** buttons at the same time

Main Programming Mode

[BRI] Display Brightness

[P]

Allows you to adjust the display brightness in a range of 8 settings. 0 being dull, 7 being bright.

[CAL] Calibration Modes for Inputs and Outputs

[P]

See Pages 5 to 7 for calibration settings to perform the following calibration functions on input and output signals (The first 5 functions are activated by pressing Prog.):

- Tare.
- Single point auto calibration.
- 2-point auto calibration.
- Primary input compensation.
- Manual loader.
- Manual calibration.
- 2-point calibration.
- Thermocouple calibration.
- RTD calibration.
- Set up serial output.
- Set up auto zero maintenance settings.
- Set up averaging samples & averaging window.
- Set K factor & cutoff for totalizers.
- Set up four 32-point linearization tables.
- Analog output scaling.

[CODE_1] Code 1 – Display Configuration

[P]

See Page 8 for code settings to configure:

- Tendency indication thru SP1 & SP2 annunciators (shows rising / falling signal).
- Indication of setpoints / relays operation thru dedicated annunciators.
- Selecting the data source for the display and peak / valley 1 to 3.
- Selecting last digit rounding.
- Selecting display units.
- Selecting decimal point position.
- Display manual loader.
- Display with selected update rates (display shows selected register).

[CODE_2] Code 2 – Sampling Rate & CH1 Measurement Task

[P]

See Page 9 for code settings to configure the following:

- Analog sampling rate and control output rate for all seven channels.
- CH1 Measurement task (input signal type and range selection for CH1).

[CODE_3] Code 3 – CH1 Post Processing Functions

[P]

See Page 10 for code settings to configure the following CH1 post processing functions:

- Direct signal, square root, or inverse of CH1.
- Apply selected linearization table to CH1 signal.

[CODE_4] Code 4 – CH2 Functions

[P]

See Page 10 for code settings to configure CH2 when using dual input signal conditioners:

- Direct signal, square root, or inverse of CH2 voltage or current input.
- CH2 Measurement task (input signal type and range selection for CH2).
- Apply selected linearization table to CH2 signal.

[CODE_5] Code 5 – CH3 Functions

[P]

See Page 10 for code settings to configure CH3 when using triple input signal conditioners:

- Direct signal, square root, or inverse of CH3 voltage or current input.
- CH3 Measurement task (input signal type and range selection for CH3).
- Apply selected linearization table to CH3 signal.

[CODE_6] Code 6 – CH4 Functions

[P]

See Page 11 for code settings to configure CH4 when using quad input signal conditioners:

- Direct signal, square root, or inverse of CH4 voltage or current input.
- CH4 Measurement task (input signal type and range selection for CH4).
- Apply selected linearization table to CH4 signal.

[CODE_7] Code 7 – Result Processing

[P]

See Page 11 for code settings to configure the controller for processing the result of CH1 and CH2:

- Direct signal, square root, or inverse of Result signal.
- Apply selected linearization table to Result signal.
- Maths functions for Result (CH1 and CH2).

[CODE_8] Code 8 – Data Logging & Printer Options

[P]

See Page 11 for code settings to configure data logging and data printing from the controller.

[CODE_9] Code 9 – Functions for Digital Input Pins

[P]

See Page 11 for code settings to configure the inputs from external sources through the following digital input pins on the rear of the controller:

- Display test pin.
- Hold pin.
- Lock pin.

To enter press the **[P]** and **[▽]** buttons at the same time

Setpoint Programming Mode

Setpoint Activation Values Mode

Enter these menus to set setpoint (SP) activation values

[SP_1] Setpoint 1 Default setting = 18000

[P]

[SP_2] Setpoint 2 Default setting = -18000

[P]

[SP_3] Setpoint 3 Default setting = 5000

[P]

[SP_4] Setpoint 4 Default setting = -5000

[P]

[SP_5] Setpoint 5 Default setting = 10000

[P]

[SP_6] Setpoint 6 Default setting = -10000

[P]

Setpoint & Relay Control Settings Mode

Enter these menus to configure SP control settings

[SPC_1] Setpoint 1

[P]

[SPC_2] Setpoint 2

[P]

[SPC_3] Setpoint 3

[P]

[SPC_4] Setpoint 4

[P]

[SPC_5] Setpoint 5

[P]

[SPC_6] Setpoint 6

[P]

The *Setpoint and Relay Control Settings* diagram on Pages 12 to 14 shows the three digit configuration settings that are applied individually to each setpoint.



OPERATIONAL DISPLAY

CALIBRATION MODE

CALIBRATION MODES FOR INPUT AND OUTPUT	
FIRST DIGIT	SECOND DIGIT
0 Functions Activated by Pressing the PROGRAM Button	0 No function
	1 On Demand TARE from the PROGRAM button
	2 On Demand Single-point Calibration from the PROGRAM button (requires single input source)
	3 On Demand 2-point Calibration from the PROGRAM button (requires dual input source)
	4 On Demand Primary Input Compensation Mode from the PROGRAM button
	5 On Demand Manual Loader Mode (no increase / decrease with HOLD active)
	6 - 7 -
1 Calibration Procedures	0 Manual Calibration (requires NO input source)
	1 2-point Calibration (requires dual input source)
	2 Calibrate Thermocouple (requires K type thermocouple input source)
	3 Calibrate RTD (requires RTD 385 input source)
	4 Note: For future development
	5 Calibrate Analog Output mAV (Single analog out requires multimeter connected to pins 2 and 3 on Terminal 4)
6 - 7 -	
2 Related Calibration Functions	0 Serial Communications Properties
	1 Set Auto Zero Maintenance for 3rd digit
	2 Set Averaging Samples & Averaging Window for 3rd digit
	3 Totalizer Settings Mode
	4 Setup 32-point Linearization Tables
3 -	5 Scale Analog Output LOW/HIGH Scale Range Settings
	6 -
	7 -

This is the default 3rd digit box. If not pointing to another 3rd digit box, all 2nd digit settings should be regarded as pointing to here. It is identified on Pages 6 and 7 by the following box: **DEFAULT 3rd Digit**

OBJECT FOR 2nd DIGIT	
THIRD DIGIT	
0	Result
1	Channel 1
2	Channel 2
3	Channel 3
4	Channel 4
5	Channel 5
6	Channel 6
7	Channel 7

0	-	See CH1 Thermocouple Calibration on Page 21 for a procedure.
1	CH1	
2	CH2	
3	CH3	

0	-	See CH1 RTD Calibration on Page 22 for a procedure.
1	CH1	
2	CH2	
3	CH3	
4	CH4	
5	CH5	
6	CH6	
7	CH7	

0	-	
1	Analog Output 1	
2	Analog Output 2	
3	Analog Output 3	Note: Settings 3-7 not available at present
4	Analog Output 4	
5	Analog Output 5	
6	Analog Output 6	
7	Analog Output 7	

0	-	Note: Port 3 only available on certain input modules
1	Port 1	
2	Port 2	
3	Port 3	

0	-
1	Total 1
2	Total 2
3	Total 3
4	Total 4
5	Total 5
6	Total 6

0	-
1	CH1
2	CH2
3	CH3
4	CH4
5	CH5
6	CH6
7	CH7

0	-	
1	Analog Output 1	
2	Analog Output 2	
3	Analog Output 3	Note: Settings 3-7 not available at present
4	Analog Output 4	
5	Analog Output 5	
6	Analog Output 6	
7	Analog Output 7	

See Page 6 for a breakdown of the sub-menu

See Page 6 for a breakdown of the sub-menu

See Page 7 for a breakdown of the sub-menu

Using the Calibration Mode

- 1) Press the **[P]** and **[Δ]** buttons at the same time. The controller enters the brightness menu [BRI]. Press the **[P]** button again to enter the Calibration Mode.
- 2) With [CAL] [XXX] toggling on the display, set the 1st, 2nd, and 3rd digits to their required settings.
- 3) Press the **[P]** button to enter the selected sub-menu and select the required calibration settings from the sub-menus displayed.
- 4) Press the **[P]** button repeatedly to return to the operational display (bypassing Codes 1 to 9).

Note:

Once the 3-digit settings have been entered for an on-demand function [CAL] [0XX], pressing the **[P]** button saves the selected on-demand setting and moves to Code 1.

When in the operational display, press the **[P]** button for 4 seconds to activate the selected on-demand function and display the relevant sub-menu settings (except [01X] which has no sub-menu).

Analog Output TERMINAL 4

Single Analog Output (AIC or AIV)	1	2	3
	█	█	█
	-		+

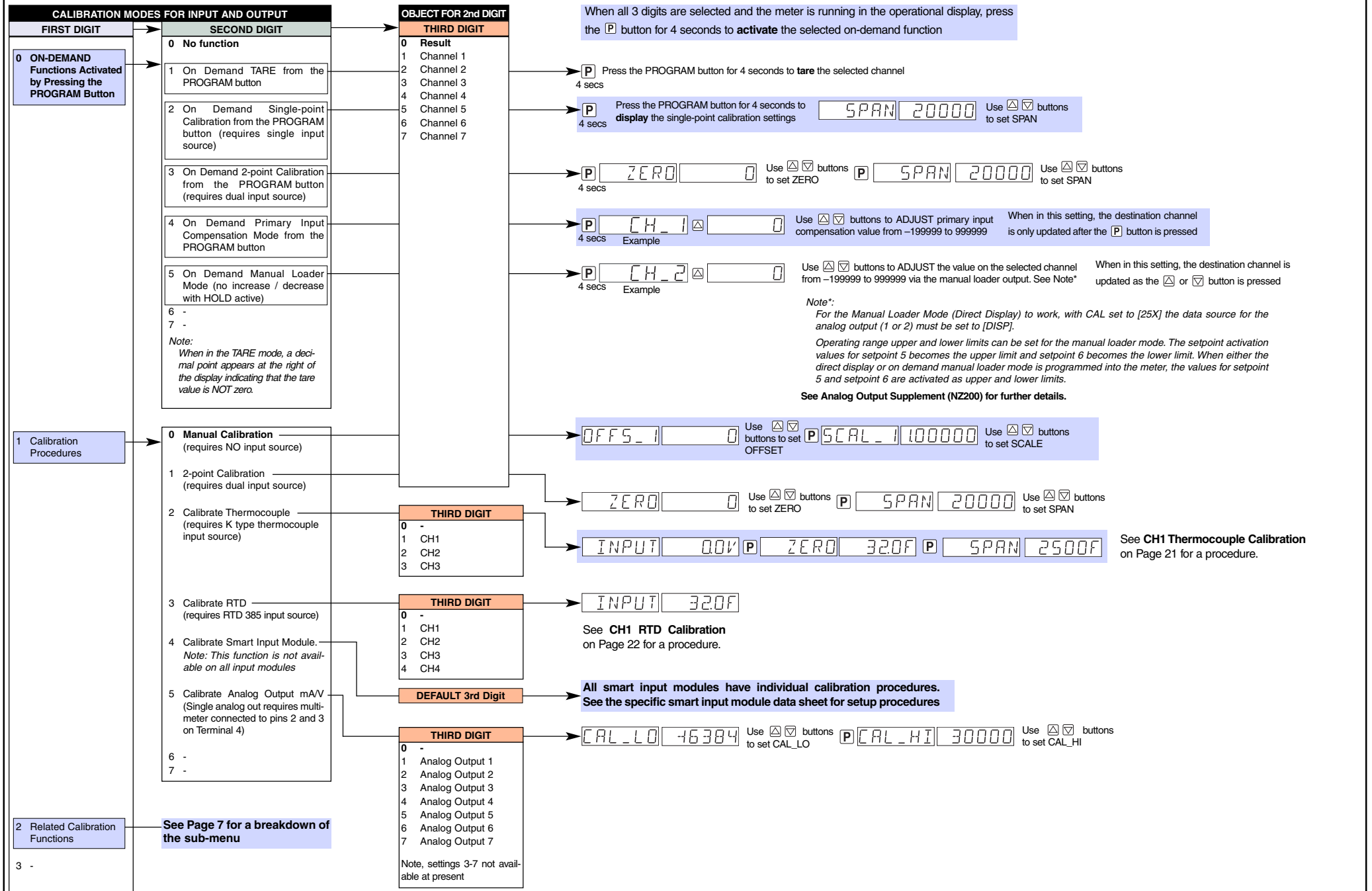
Dual Analog Output (ADV)	1	2	3
	█	█	█
	+	-	+

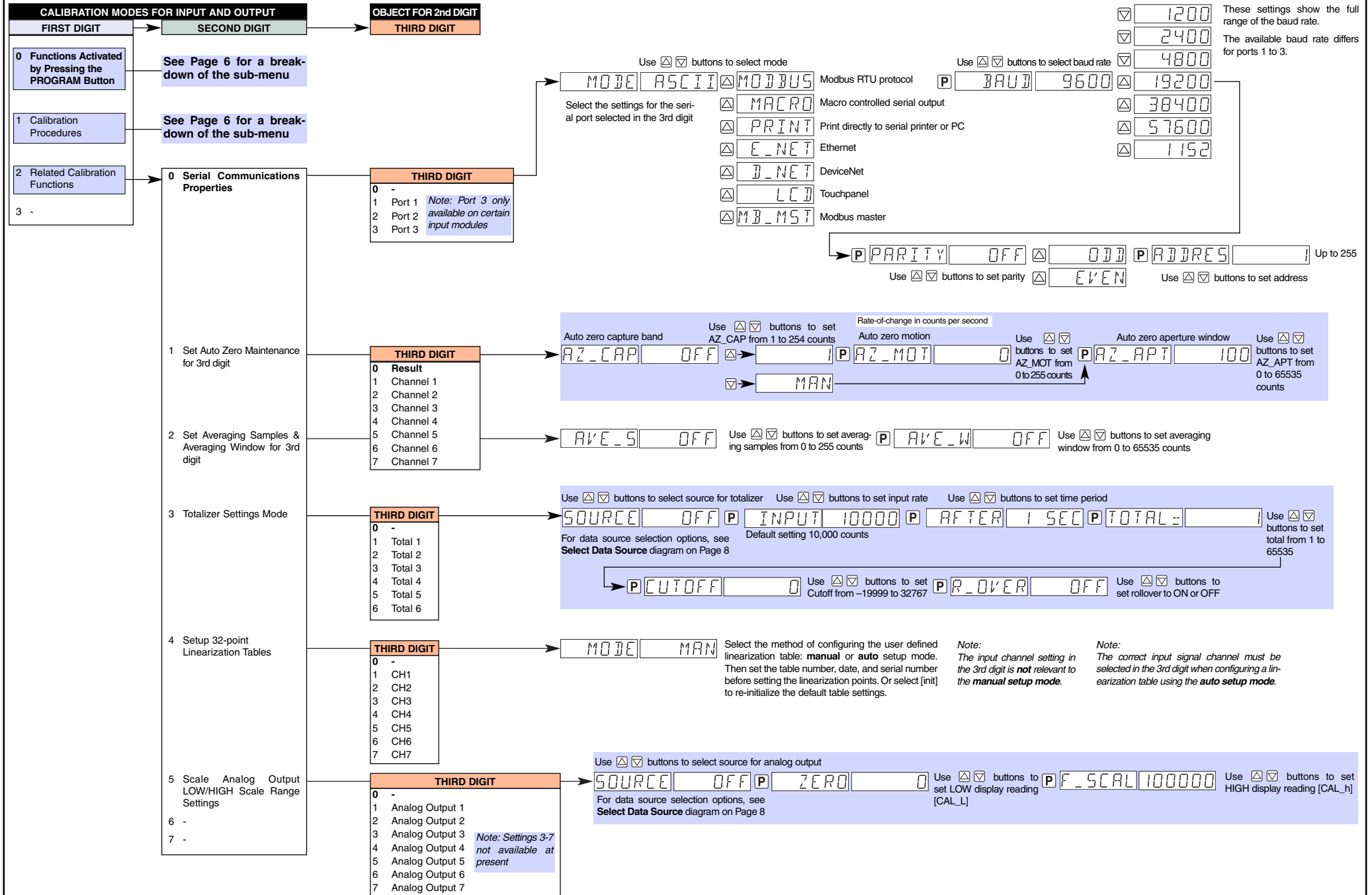
CHANNELS 5, 6, 7

Not available thru front panel controls. Can only be setup via serial port using Texmate's Meter Configuration Utility program, or accessed via a macro.

Converting °F to °C

See User Notes on Page 21 for a procedure.





CODE 1

FIRST DIGIT	SECOND DIGIT	THIRD DIGIT
FRONT PANEL ANNUNCIATORS 0 ON when Setpoints are ON (relay energized) 1 ON when Setpoints are OFF (relay de-energized) 2 Always OFF. See Note 1 3 LED SP1 ON indicates RISING signal trend. LED SP2 ON indicates FALLING signal trend.	CODE 1 – DISPLAY CONFIGURATION DISPLAY FUNCTIONS 0 Normal Display Mode (i.e. operational display shows selected register)(updates every 0.5 seconds) 1 Manual Loader Mode (Direct display). See Note* 2 Update at controlled output rate selected in Code 2 3 - 4 - 5 Select data source as per 3rd digit. See Note 4 6 Select display format as per 3rd digit. See Note 4 7 Select text character as per 3rd digit. See Note 4	SELECT DATA SOURCE FOR 0 Primary Display 1 Second Display. See Note 2 2 Third Display. See Note 2 3 Peak/Valley 1 4 Peak/Valley 2 5 Peak/Valley 3 6 - 7 -
		SELECT DISPLAY FORMAT FOR 0 Result 1 Channel 1 2 Channel 2 3 Channel 3 4 Channel 4 5 Channel 5 6 Channel 6 7 Channel 7
		SELECT TEXT CHARACTER FOR 0 Result 1 Channel 1 2 Channel 2 3 Channel 3 4 Channel 4 5 Channel 5 6 Channel 6 7 Channel 7

Note*:
 For the Manual Loader Mode (Direct Display) to work, with CAL set to [25X] the data source for the analog output (1 or 2) must be set to [diSP].
 Operating range upper and lower limits can be set for the manual loader mode.
 The setpoint activation values for setpoint 5 becomes the upper limit and setpoint 6 becomes the lower limit.
 When either the direct display or on demand manual loader mode is programmed into the meter, the values for setpoint 5 and setpoint 6 are activated as upper and lower limits.

See Analog Output Supplement (NZ200) for further details.

Note 1:
 LED annunciators are always off, except when the meter is in single channel VOLTAGE or CURRENT mode and Code 3 = [X6X], or Code 7 = [X6X] in which case the LEDs indicate which 32-point table has been selected from the rear pins (SP1 = Table 1, SP2 = Table 2, SP3 = Table 3, SP4 = Table 4).

Note 2:
 These options are only for use with meters that have more than one display. With bargraph meters the PRIMARY display is the digital display, and the SECONDARY display is the bargraph display.

Note 3:
 These functions are only available on selected input modules.

Note 4:
 If Code 1's display modes have been entered (second digit set to 5, 6, or 7), the display will cycle between Code 1 and the display functions mode each time the PROGRAM button is pressed. To leave the cycle, the Code 1 digits must be reset to any relevant function between [X00] to [X20]. This takes you into Code 2.

Note 5:
 These functions are not available on all models and in some cases require additional hardware.

Note 6:
 Only available with selected input modules.

Note 7:
 Register 4450 can only be setup via the serial port or a macro.

Select Data Source

P SOURCE OFF

Use the and buttons to cycle thru the Registers Menu and Registers (111 to 16383) to select the data source for displays, peak and valley, totalizers, and analog output.

The button takes you forward, the button takes you back.

Constant pressure on the button moves thru Registers 111 to 16383 one register at a time.

Note, not all registers between 111 and 16383 are available.

Registers [111] to [16383] [AUX_1] to [AUX_16] [TARE] [VALY_3] [PEAK_3] [VALY_2]

[PEAK_1]
 [VALY_1]
 [PEAK_2]
 [VALY_2]

DISPLAY FORMAT MODE

P DISP 000

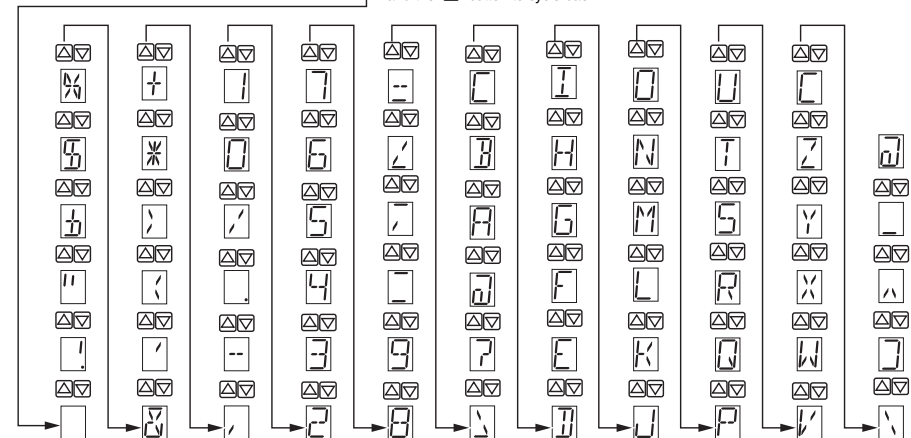
Program the three digits to the required display function mode

FIRST DIGIT	SECOND DIGIT	THIRD DIGIT
LAST DIGIT ROUNDING 0 No rounding 1 Rounding by 2's 2 Rounding by 5's 3 Rounding by 10's	DISPLAY UNITS 0 Decimal 1 24-hour clock mode Hours: Minutes:Seconds (6-digit version only) 2 12-hour clock mode (12:30 am is displayed as 12:30A. 12:30 pm is displayed as 12:30P) 3 24-hour clock mode Days: Hours:Minutes (6-digit version only) 4 - 5 - 6 - 7 Octal	DECIMAL POINT PLACEMENT 0 No decimal point 1 XX.XX.XX (6 or 8-digit version only) 2 X.XXXXX (6 or 8-digit version only) 3 X.XXXX 4 X.XXX 5 X.XX 6 X.X 7 Decimal Point set from the rear (X.XXXXXX to XXXXXXX). See Note 3. Also See Note 4

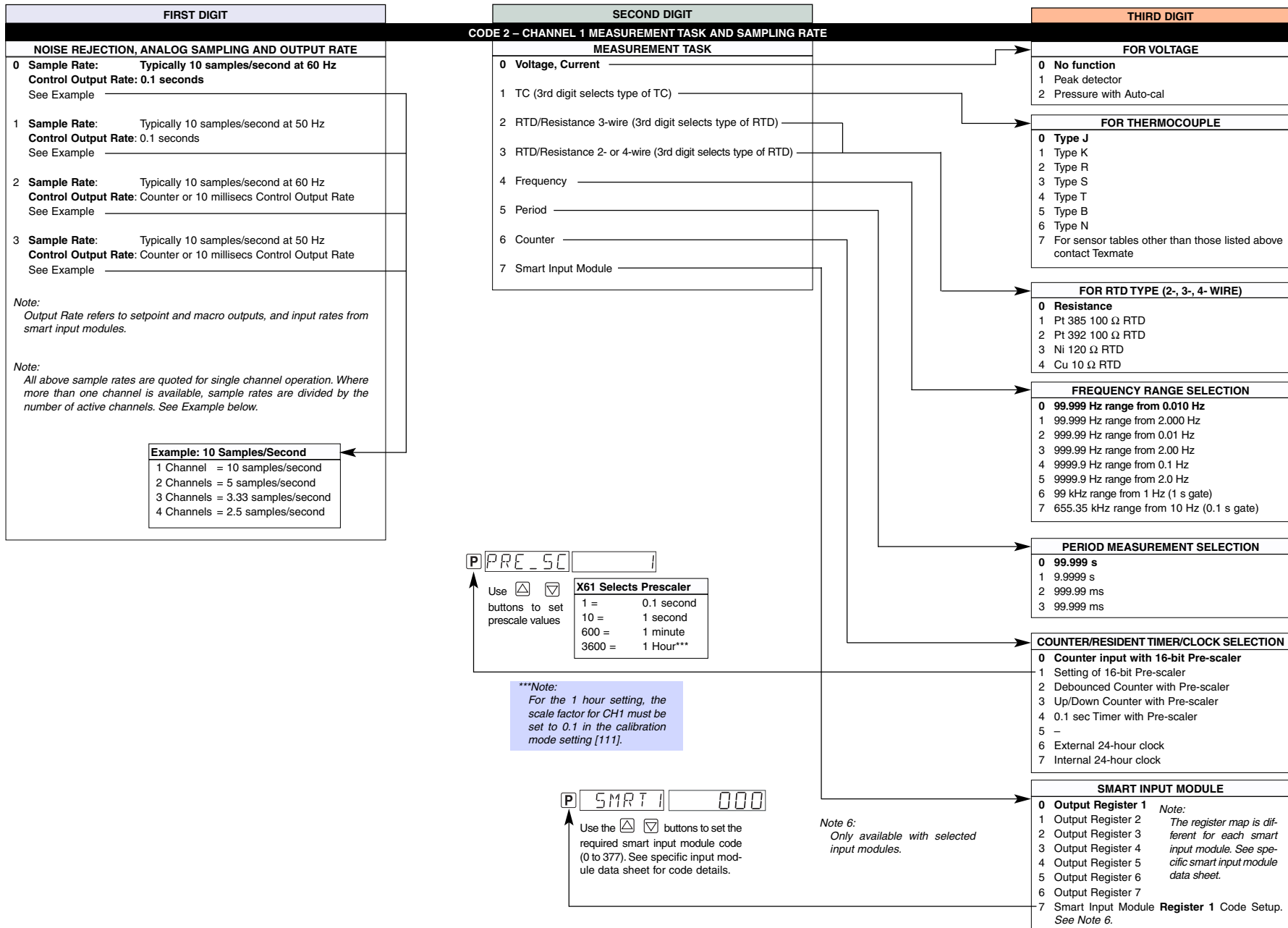
Note:
 Selecting 1, 2, or 3 in the 2nd digit of this mode configures the display of the selected channel as a clock.

P TEXT OFF

Use the button to cycle through the menu, and the button to cycle back.



CODE 2



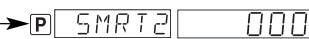
CODES 3 to 5

FIRST DIGIT	SECOND DIGIT	THIRD DIGIT
CODE 3 – CHANNEL 1 POST PROCESSING FUNCTIONS		
CHANNEL 1 POST PROCESSING	32-POINT LINEARIZATION FOR CHANNEL 1	NOT USED
0 Direct Display of Input (no processing) 1 Square Root of Channel 1 2 Inverse of Channel 1 3 -	0 No Linearization on CH1 1 32-point Linearization on CH1 using Table 1 2 32-point Linearization on CH1 using Table 2 3 32-point Linearization on CH1 using Table 3 4 32-point Linearization on CH1 using Table 4 5 125-point Linearization on CH1 (Tables 1 to 4 cascaded) 6 32-point Linearization on CH1 (Tables 1 to 4 selected from the rear pins of selected input modules) 7 - The selected table is not available if CH2, CH3, or CH4 is operating in the analog output mode. CH1 must be set to Voltage, Current in Code 2 [X0X] Note: All linearization tables are set up in the Calibration Mode [24X].	

FIRST DIGIT	SECOND DIGIT	THIRD DIGIT
CODE 5 – CHANNEL 3 FUNCTIONS		
CH3 POST PROCESSING	MEASUREMENT TASK	FOR THERMOCOUPLE
0 Direct Display of Input (no processing) 1 Square Root of Channel 3 2 Inverse of Channel 3 3 32-point Linearization of CH3 using Table 3 Note: All linearization tables are set up in the Calibration Mode [24X].	0 No Function 1 Voltage, current 2 TC (3rd digit selects type of TC) 3 RTD/Resistance (3rd digit selects type of RTD) 4 Real Time Clock & Timer (3rd digit selects type) 5 - 6 - 7 Smart Input Module (3rd digit selects register)	0 Type J 1 Type K 2 Type R 3 Type S 4 Type T 5 Type B 6 Type N 7 For sensor tables other than those listed above contact Texmate
		FOR RTD TYPE (2-, 3-, 4- WIRE)
		0 Resistance 1 Pt 385 100 Ω RTD 2 Pt 392 100 Ω RTD 3 Ni 120 Ω RTD 4 Cu 10 Ω RTD
		FOR REAL-TIME CLOCK & TIMER
		0 HRS:MIN:SEC 1 HRS:MIN 2 - 3 - 4 1 Second Count UP Timer 5 1 Second Count DOWN Timer 6 - 7 -
		FOR SMART INPUT MODULE
		0 Output Register 1 1 Output Register 2 2 Output Register 3 3 Output Register 4 4 Output Register 5 5 Output Register 6 6 Output Register 7 7 Smart Input Module Register 2 Code Setup

CODE 4 – CHANNEL 2 MEASUREMENT TASK AND 32-POINT LINEARIZATION												
MEASUREMENT TASK	FOR VOLTAGE & CURRENT	32-POINT LINEARIZATION FOR CH2										
0 Voltage, Current 1 TC (type as per 2nd digit) 2 RTD/Resistance (type as per 2nd digit) 3 Second Digital Input Channel (type as per 2nd digit)	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)* FOR THERMOCOUPLE 0 Type J 1 Type K 2 Type R 3 Type S 4 Type T 5 Type B 6 Type N 7 For sensor tables other than those listed above contact Texmate FOR RTD TYPE (3-WIRE) 0 Resistance 1 Pt 385 100 Ω RTD 2 Pt 392 100 Ω RTD 3 Zn 120 Ω RTD 4 Cu 10 Ω RTD DIGITAL INPUT 0 Frequency - 99.999 Hz range from 0.001 Hz 1 Frequency - 999.99 Hz range from 0.01 Hz 2 Frequency - 99.999 kHz range from 1 Hz (1 s gate) 3 Frequency - 500 kHz range from 10 Hz (0.1 s gate) 4 Pulse - 50.0000 s (100 μs resolution) 5 Period - 999.99 ms (10 μs resolution) 6 Up/Down Counter with Prescaler 7 Set Prescaler	0 No user defined Linearization on CH2 1 32-point Linearization on CH2 using Table 1 2 32-point Linearization on CH2 using Table 2 3 32-point Linearization on CH2 using Table 3 4 32-point Linearization on CH2 using Table 4 5 125-point Linearization on CH2 (Tables 1 to 4 cascaded) 6 - 7 - *Note: Selecting 040 to 070 in the 2nd digit of Code 4 selects one of the following settings in the installed smart input module's output register map: <table border="1"> <thead> <tr> <th>2nd Digit</th> <th>Input module's output register map</th> </tr> </thead> <tbody> <tr> <td>4 selects</td> <td>0</td> </tr> <tr> <td>5 selects</td> <td>1</td> </tr> <tr> <td>6 selects</td> <td>2</td> </tr> <tr> <td>7 selects</td> <td>3</td> </tr> </tbody> </table> Note: The register map is different for each smart input module. See installed input module data sheet for specific smart register 1 function map.	2nd Digit	Input module's output register map	4 selects	0	5 selects	1	6 selects	2	7 selects	3
2nd Digit	Input module's output register map											
4 selects	0											
5 selects	1											
6 selects	2											
7 selects	3											

Note:
The function of the output register selected varies according to the input module installed.



Use the buttons to set the required smart input module code (0 to 377). See specific input module data sheet for code details.

X61 Selects Prescaler

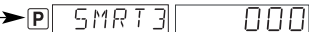
1 =	0.1 second
10 =	1 second
600 =	1 minute
3600 =	1 Hour***

***Note:
For the 1 hour setting, the scale factor for CH1 must be set to 0.1 in the calibration mode setting [111].

CODES 6 to 9

FIRST DIGIT	SECOND DIGIT	THIRD DIGIT
CODE 6 – CHANNEL 4 FUNCTIONS		
CH4 POST PROCESSING	MEASUREMENT TASK	FOR THERMOCOUPLE
0 Direct Display of Input (no processing) 1 Square Root of Channel 4 2 Inverse of Channel 4 3 32-point Linearization of CH4 using Table 4 Note: All linearization tables are set up in the Calibration Mode [24X].	0 No Function 1 Voltage, Current 2 TC (3rd digit selects type of TC). 3 RTD/Resistance (3rd digit selects type of RTD). 4 Real Time Clock and Timer (3rd digit selects type) 5 - 6 - 7 Smart Input Module (3rd digit selects register)	0 Type J 1 Type K 2 Type R 3 Type S 4 Type T 5 Type B 6 Type N 7 For sensor tables other than those listed above contact Texmate
		FOR RTD TYPE (2-, 3-, 4- WIRE)
		0 Resistance 1 Pt 385 100 Ω RTD 2 Pt 392 100 Ω RTD 3 Ni 120 Ω RTD 4 Cu 10 Ω RTD
		FOR REAL-TIME CLOCK & TIMER
		0 HRS:MIN:SEC 1 HRS:MIN 2 - 3 - 4 1 Second Count UP Timer 5 1 Second Count DOWN Timer 6 - 7 -
		FOR SMART INPUT MODULE
		0 Output Register 1 1 Output Register 2 2 Output Register 3 3 Output Register 4 4 Output Register 5 5 Output Register 6 6 Output Register 7 7 Smart Input Module Register 3 Code Setup

Note:
The function of the output register selected varies according to the input module installed.



Use the buttons to set the required smart input module code (0 to 377). See specific input module data sheet for code details.

Note 7:
Register 4450 can only be setup via the serial port or a macro.

FIRST DIGIT	SECOND DIGIT	THIRD DIGIT
CODE 8 – DATA LOGGING AND PRINT MODE OPTIONS		
DATA LOG BUFFER TYPE	DATE & TIME STAMP OPTIONS	LOG OR PRINT TRIGGER
0 No Data Logging 1 Cyclic Buffer 2 Linear FIFO Buffer. 3 Reset Buffer Number to 0. Note: Setting Code 8 to [3XX] resets the data log buffer to 0. Once reset, Code 8 must be set back to the required data log buffer setting.	0 Printer Format – No time stamp with print/log 1 Printer Format – Time stamp format 1 [Mth-Day-Yr Hrs:Min:Sec] (with <CR><LF>) 2 Printer Format – Time stamp format 2 [Day-Mth-Yr Hrs:Min:Sec] (with <CR><LF>) 3 Printer Format – Time stamp format 3 [Hrs:Min:Sec] (with <CR><LF>) 4 Spreadsheet Format – No time stamp with print/log 5 Spreadsheet Format – Time stamp format 1 [Mth-Day-Yr Hrs:Min:Sec] 6 Spreadsheet Format – Time stamp format 2 [Day-Mth-Yr Hrs:Min:Sec] 7 Spreadsheet Format – Time stamp format 3 [Hrs:Min:Sec] ALL ABOVE ARE REAL-TIME CLOCK OPTIONS	0 No trigger 1 Trigger on Demand from PROGRAM Button 2 Trigger on Demand from F1 Button 3 Trigger on Demand from F2 Button 4 Trigger on Demand from HOLD Pin 5 Trigger on Demand from LOCK Pin 6 - 7 - Note: Log and/or Print will only trigger if enabled.
CODE 9 – FUNCTIONS FOR DIGITAL INPUT PINS		
DISPLAY TEST PIN	HOLD PIN	LOCK PIN
0 Display test only 1 Reset Counter Channel 1, total 2, and auto zero at Power-up 2 Reset Counters Channel 1, 2, Total 1, and Total 2 at Power-up 3 Reset Total 1, and Total 2, and auto zero at Power-up	0 Display Hold 1 Reset Channel 1 2 Reset Total 1 and Total 2 3 Reset Total 2 4 Reset Peak 1, Valley 1 5 Clear Tare 6 Set Tare 7 Unlatch (de-energize) all Setpoints	0 Key Lock 1 Reset Channel 1 2 Reset Channel 2 3 Reset Channel 3 4 Reset Channel 4 5 Clear Tare 6 Reset Total 1 7 Unlatch (de-energize) all Setpoints



Programming Tip

For digital input functions selected in Code 9 to operate, the relevant digital input pin must be connected to the COMMON pin on Terminal 2 of the controller.

The example opposite shows the HOLD pin (pin 1) connected to the COMMON pin (pin 4) with the selected function activated by a switch.

TERMINAL 2 – Function Pins



CODE 7 – RESULT PROCESSING		
RESULT PROCESSING	32-POINT LINEARIZATION FOR RESULT	MATHS FUNCTIONS FOR RESULT
0 Direct Display of Result as per processing performed in 2nd and 3rd digits 1 Square Root of Result 2 Inverse of Result 3 -	0 No Linearization on Result 1 32-point Linearization on Result using Table 1 2 32-point Linearization on Result using Table 2. 3 32-point Linearization on Result using Table 3. 4 32-point Linearization on Result using Table 4. 5 125-point Linearization on Result (Tables 1 to 4 cascaded) 6 32-point Linearization on Result (Tables 1 to 4 selected from the rear of the meter). The selected table is not available if CH2, CH3, or CH4 is operating in the analog mode. CH1 must be set to Voltage, Current in Code 2 [X0X]. 7 -	0 Result Register not Updated 1 pH Meter (CH1 = Tbuff, CH2 = pH) 2 Result = CH1, Setpoint 2 = CH2 3 Result = CH1 + CH2 4 Result = CH1 - CH2 5 Result = CH1 x CH2/10 000 6 Result = (CH1 x 20 000)/CH2 7 Result = Parameter at result source register (#4450) See Note 8

SETPOINT PROGRAMMING MODE – SPC_1 to SPC_6

Setpoint Setup Sequence

Follow These Steps

The following procedures are written for SP1, all other setpoints are configured in a similar manner.

- 1) Press the **[P]** and **[V]** buttons at the same time. This enters the setpoint programming mode. The display toggles between [SP_1] and [18000].

This is SP1 of the **Setpoint Activation Values Mode**. Use the **[Δ]** and **[V]** buttons to set SP1 or the **[P]** button to move to the required setpoint.

- 2) After all required setpoint activation values have been set, press the **[P]** button until [SPC_1] appears. This is the **Setpoint & Relay Control Settings Mode**.

SPC_1 is the **setpoint and relay control settings** programming menu for SP1. Set the three digits according to the codes in the *Setpoint and Relay Control Function Settings* opposite in the following order:

Third Digit – Setpoint Delay Mode

Set to [XX5] and program the hysteresis, deviation, or PID functions as required for SP1.

Reset back to [XX0].

Third Digit – Setpoint Timer Mode

Set to [XX6] and program the timer mode functions as required for SP1.

Reset back to [XX0].

Third Digit – Setpoint Reset & Trigger Functions

Set to [XX7] and program the reset and trigger functions as required for SP1.

Reset back to [XX0].

Second Digit – Setpoint Activation Source Mode

Set to [X1X] to select the setpoint activation source for SP1 from any channel or selected register shown above. Reset back to [X0X].

If the SP source is from an external digital input, set to one of either [X2X] to [X7X] to select the setpoint activation source from one of six digital inputs (2 to 7). See **Note at 2nd digit*.

First Digit – Relay Energize Mode

Select the relay energize mode for SP1 from 0 to 3.

Third Digit – Relay Latching & Manual Reset Functions

Program the third digit setpoint relay latching and manual reset functions between 0 to 4 as required.

- 3) Press the **[P]** button to move to move to [SPC_2].
- 4) Repeat Step 2 for all required setpoints.

FIRST DIGIT	SECOND DIGIT	THIRD DIGIT
SETPOINT AND RELAY CONTROL FUNCTION SETTINGS		
Relay Energize Function		
0 Relay energizes ABOVE setpoint value	SP Activation Source	
1 Relay energizes BELOW setpoint value	0 Activate Setpoint Source from Selected Register	
2 Relay energizes AT OR ABOVE setpoint value with FALLING INPUT SIGNAL INITIAL START-UP INHIBIT	1 Select Data Source for Setpoint	
3 Relay energizes BELOW setpoint value with RISING INPUT SIGNAL INITIAL START-UP INHIBIT	<p><i>Note:</i> [X1X] is a register selection procedure only. To finish, reset to [X0X] to activate the selection, or reset to 2-7 as required for digital input selection.</p>	
<i>See Page 15 for a detailed description of the relay energize options.</i>		
SP Functions		
0 No Latching		
1 Relay Latched ON		
2 Manual Relay Reset		
3 Relay Latched and Manual Relay Reset		
4 Relay Latched Off		
5 Mode: Hysteresis, Deviation, PID, SP Flashing, SP Tracking → Go to Page 13		
6 Timer Modes:		
•OFF		
•Normal Delay → Go to Page 13		
•Repeat ON		
•Pulse ON		
•1-Shot ON		
•Repeat OFF		
•Pulse OFF		
•1-Shot OFF		
<i>Note:</i> In PID Mode, all Timer Modes on SP1 set in [XX6] are not functional. → Go to Page 14		
7 Advanced Functions Mode:		
•OFF		
•Reset Trigger.		
•Reset Destination.		
•Reset Mode.		
•Reset Constant.		
•Trigger Print from SP.		
•Trigger Log from SP.		
<i>Note:</i> [XX5], [XX6], and [XX7] are set up procedures only. To finish, reset to 0-4 as required for setpoint latching and relay reset modes.		

Select Source for Setpoint Functions

[P] SOURCE [OFF]

Use the **[Δ]** and **[V]** buttons to cycle thru the Registers Menu and Registers (111 to 16383) to select the data source for displays, peak and valley, totalizers, and analog output.

[DISP]

The **[Δ]** button takes you forward.

[RESULT]

[CH_1] to [CH_7]

[TOT_1] to [TOT_6]

[PEAK_1]

[VALY_1]

[PEAK_2]

[VALY_2]

[PEAK_3]

[VALY_3]

[TARE]

[AUX_1] to [AUX_16]

Registers [111] to [16383]

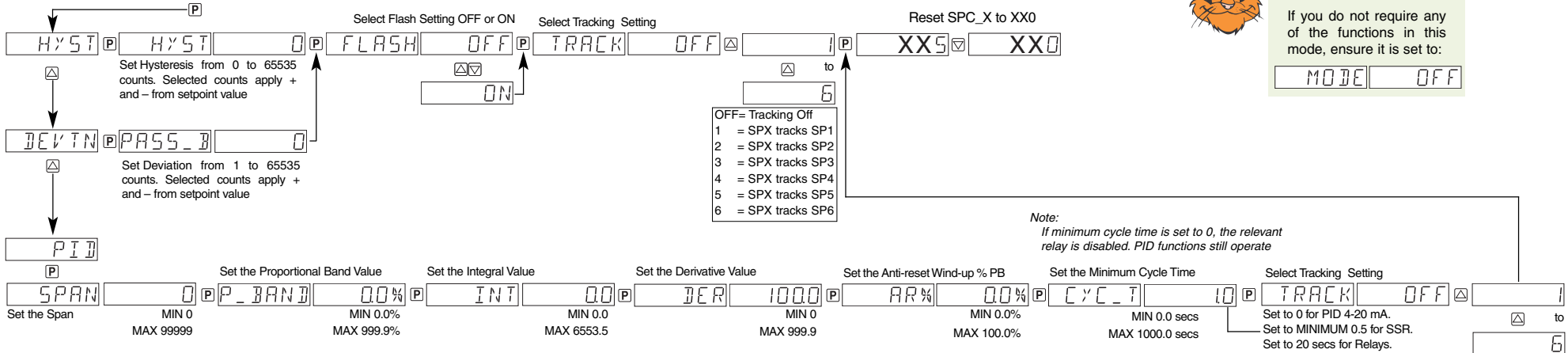
Constant pressure on the **[Δ]** button moves thru Registers 111 to 16383 one register at a time.

Note, not all registers between 111 and 16383 are available.

The **[V]** button takes you back.

Set Up Hysteresis, Deviation & PID Mode Settings

From Page 12, 3rd digit [XX5] **MODE** OFF

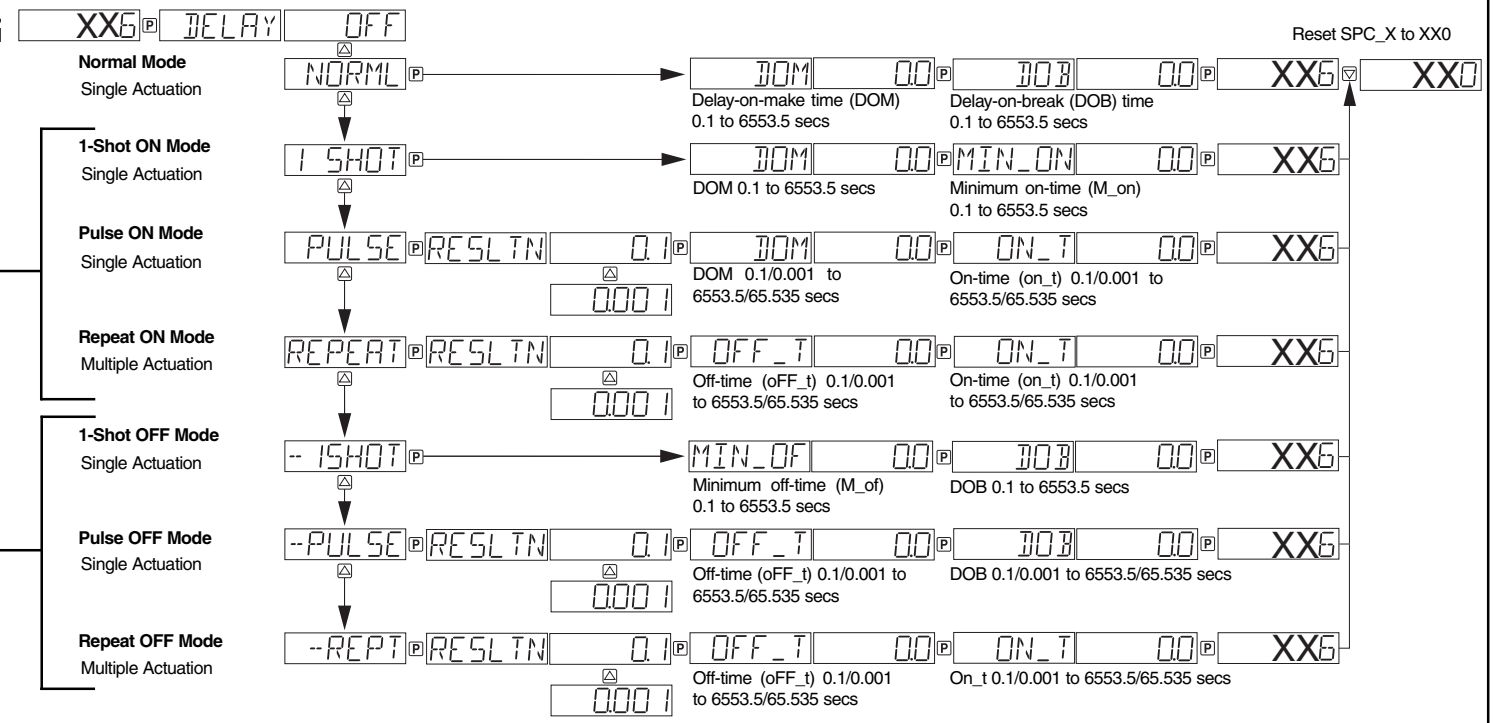


Programming Tip
 If you do not require any of the functions in this mode, ensure it is set to:
MODE OFF



Programming Tip
 If you do not require any of the functions in this mode, ensure it is set to:
TIMER OFF

From Page 12, 3rd digit [XX6]



Normally OFF/Pulsed ON Modes
 These are time control modes were the relay is normally OFF (de-energizes) and pulses ON (energizes) when the setpoint activates.



Programming Tip
 The **TIMER** mode can not be accessed if the setpoint (SPC_1 to SPC_6) is in the PID mode.

Normally ON/Pulsed OFF Modes
 These are time control modes were the relay is normally ON (energizes) and pulses OFF (de-energizes) when the setpoint activates.

Detailed Descriptions and Explanations

1st Digit in Setpoint Programming Mode

Following is a detailed description of the options available on the 1st digit of the setpoint programming mode SPC settings listed on Page 12.

FIRST DIGIT	
SETPOINT AND RELAY CONTROL FUNCTION SETTINGS	
Relay Energize Function	
0	<p>Energizes ABOVE setpoint value</p> <p>HYSTERESIS selected – relay energizes AT OR ABOVE setpoint value plus hysteresis counts. De-energizes BELOW setpoint value minus hysteresis counts.</p> <p><i>Note:</i> If hysteresis set with ZERO counts, relay energizes AT OR ABOVE the setpoint value.</p> <p>DEVIATION selected – relay energizes INSIDE deviation band (setpoint ± deviation counts). De-energizes OUTSIDE deviation band (setpoint ± deviation counts).</p> <p>PID selected – controls ABOVE setpoint value.</p>
1	<p>Energizes BELOW setpoint value</p> <p>HYSTERESIS selected – relay energizes BELOW setpoint value minus hysteresis counts. De-energizes AT OR ABOVE setpoint value plus hysteresis counts.</p> <p><i>Note:</i> If hysteresis set with ZERO counts, relay energizes BELOW the setpoint value.</p> <p>DEVIATION selected – relay energized OUTSIDE deviation band (setpoint ± deviation counts). De-energized INSIDE deviation band (setpoint ± deviation counts).</p> <p>PID selected – controls BELOW setpoint value.</p>
2	<p>Energizes AT OR ABOVE setpoint value with FALLING INPUT SIGNAL INITIAL START-UP INHIBIT</p> <p>HYSTERESIS selected – relay energizes AT OR ABOVE setpoint value plus hysteresis counts with FALLING INPUT SIGNAL INITIAL START-UP INHIBIT. De-energizes BELOW setpoint value minus hysteresis counts with FALLING INPUT SIGNAL INITIAL START-UP INHIBIT.</p> <p><i>Note:</i> If hysteresis set with ZERO counts, relay energizes AT OR ABOVE the setpoint value.</p> <p>DEVIATION selected – relay energizes INSIDE deviation band (setpoint ± deviation counts) with FALLING INPUT SIGNAL INITIAL START-UP INHIBIT. De-energizes OUTSIDE deviation band (setpoint ± deviation counts) with FALLING INPUT SIGNAL INITIAL START-UP INHIBIT.</p> <p>PID selected – controls ABOVE setpoint value.</p>
3	<p>Energizes BELOW setpoint value with RISING INPUT SIGNAL INITIAL START-UP INHIBIT</p> <p>HYSTERESIS selected – relay energizes BELOW setpoint value plus hysteresis counts with RISING INPUT SIGNAL INITIAL START-UP INHIBIT. De-energizes BELOW setpoint value minus hysteresis counts with RISING INPUT SIGNAL INITIAL START-UP INHIBIT.</p> <p><i>Note:</i> If hysteresis set with ZERO counts, relay energizes BELOW the setpoint value.</p> <p>DEVIATION selected – relay energizes OUTSIDE deviation band (setpoint ± deviation counts) with RISING INPUT SIGNAL INITIAL START-UP INHIBIT. De-energizes INSIDE deviation band (setpoint ± deviation counts) with RISING INPUT SIGNAL INITIAL START-UP INHIBIT.</p> <p>PID selected – controls BELOW setpoint value.</p>

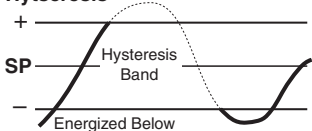
Explanation of Hysteresis and Deviation Functions

Each setpoint can be individually programmed to energize the relay in the hysteresis or deviation mode, with or without initial start-up inhibit.

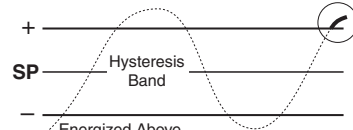
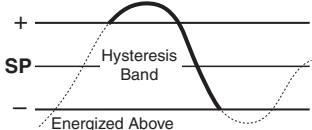
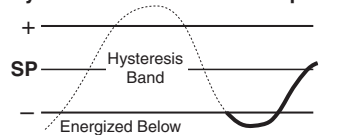
Hysteresis (also known as deadband) is the programmable band above and below the setpoint value that determines when and for how long the relay is energized or de-energized. The setpoint can be programmed to energize the relay above or below the setpoint value.

The hysteresis setting can be any value between 0 and 65535 counts. The number of counts selected act both positively and negatively on the setpoint, forming a hysteresis band around the setpoint. For example, if the setpoint setting is 500 counts and the hysteresis setting is 10 counts, the hysteresis band around the setpoint setting is 20 counts, starting at 490 counts and ending at 510 counts.

Hysteresis



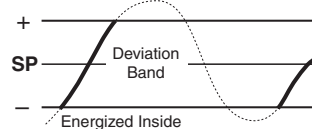
Hysteresis with Initial Start Up Inhibit



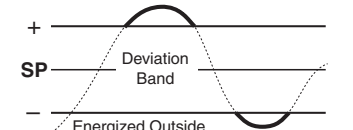
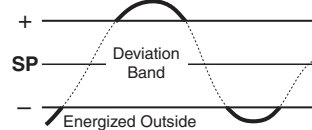
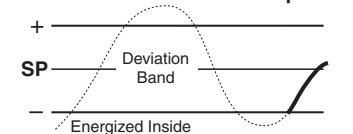
Deviation (passband) is the programmable setting around which the setpoint can be programmed to energize the relay inside or outside the deviation band. The deviation setting can be any value between 1 and 65535 counts. The number of counts selected act both positively and negatively on the setpoint, forming a deviation band around the setpoint.

For example, if the setpoint setting is 1000 counts and the deviation setting is 35 counts, the deviation band around the setpoint setting is 70 counts starting at 965 counts and ending at 1035 counts.

Deviation



Deviation with Initial Start Up Inhibit



See *Setpoints & Relays Supplement (NZ201)* for a detailed explanation of the hysteresis and deviation modes.

Explanation Of Setpoint Trigger Functions

The setpoint reset functions are available on all 6 setpoints. The various parameters of the reset function are described as follows.

Trigger Type

The trigger parameter gives the option of selecting which edge of the relay operation the reset function, print function, and data logging function should activate on. It can be set to either:

- **Off** – Disables all trigger functions
- **Make** – operates on the make edge only.
- **Break** – operates on the break edge only.
- **Both** – operates on both make and break edges.
- **Level** – operates after every sample period if relay is ON.

Reset Destination

The reset destination parameter defines the target register in the meter that is to be modified in some way when the reset trigger conditions for this relay are met. Any Modbus register number from 111 to 16383 can be selected as a reset destination. If the [DEST] parameter is set to [OFF], the reset function is disabled and the Reset Mode and Reset Constant/Source selection are not displayed. The setup sequence jumps straight to the Print parameter.

Reset Mode

The reset mode parameter defines what type of reset effect is required. The following different options are available.

CONST – This mode stores a user defined constant into the selected destination register. In most cases this number will be zero but it can be any number.

IS+C – This mode stores the current input value I, defined by the setpoint source,

minus the setpoint value **S** plus a user defined constant **C**. It would normally be used with a counting or totalizing application where the amount of setpoint overshoot needs to be retained after the reset function. The constant value would normally be zero but could be used to provide an offset if required.

D+C – This mode adds the user defined constant **C** to the current value in the selected reset destination register **D**. It can be used to increment or decrement a register by any amount.

REG – This mode copies the contents of a user selectable register into the reset destination register (see Reset Constant to select the source register).

It can be used to capture data on an event and store it in an unused channel for display or analog output, etc.

Reset Constant

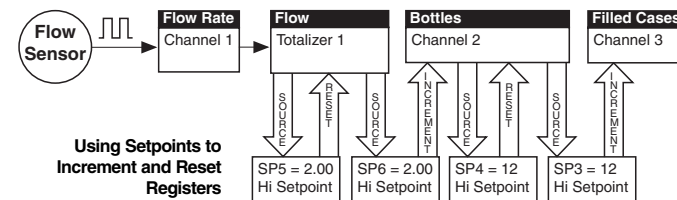
This parameter defines the constant value to be used in the **CONST**, **I-S+C**, **D+C** modes as previously explained. Its default value is zero. This parameter is not available if **REG** is selected as the reset mode.

Source (only available in Reg mode)

If the reset mode is set to **REG** then the source parameter allows you to select the number of the Modbus register in the meter to be copied to the reset destination register.

Resetting and Incrementing Using Setpoints

Setpoints may be used to reset and/or increment registers. In the example shown opposite, 2 liter soft drink bottles are being filled and packed 12 to a case. Using the setpoint reset and increment feature, the number of bottles and the total number of filled cases is easily calculated and displayed. Totalizer 1 counts from 0 to 2, resets, and repeats. CH2 counts from 0 to 12, resets, and repeats.



Using Setpoints to Increment and Reset Registers

Customer Code Settings – Main Programming Mode

CALIBRATION MODE [CAL]

	1st DIGIT	2nd DIGIT	3rd DIGIT	SUB-SETTINGS		1st DIGIT	2nd DIGIT	3rd DIGIT	SUB-SETTINGS
ON DEMAND FUNCTIONS									
RESULT: TARE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	010	CH6: TARE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	016
1-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	020 SPAN <input type="text"/> INPUT <input type="text"/>	1-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	026 SPAN <input type="text"/> INPUT <input type="text"/>
2-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	030 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>	2-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	036 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>
INC / DEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	040 CHANNEL <input type="text"/>	INC / DEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	046 CHANNEL <input type="text"/>
MANUAL LOADER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	050 CHANNEL <input type="text"/>	MANUAL LOADER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	056 CHANNEL <input type="text"/>
CH1: TARE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	011	CH7: TARE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	017
1-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	021 SPAN <input type="text"/> INPUT <input type="text"/>	1-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	027 SPAN <input type="text"/> INPUT <input type="text"/>
2-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	031 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>	2-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	037 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>
INC / DEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	041 CHANNEL <input type="text"/>	INC / DEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	047 CHANNEL <input type="text"/>
MANUAL LOADER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	051 CHANNEL <input type="text"/>	MANUAL LOADER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	057 CHANNEL <input type="text"/>
CH2: TARE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	012	CALIBRATION PROCEDURES				
1-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	022 SPAN <input type="text"/> INPUT <input type="text"/>	Manual Calibration				
2-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	032 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	100 OFFSET <input type="text"/> SCALE <input type="text"/>
INC / DEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	042 CHANNEL <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	101 OFFSET <input type="text"/> SCALE <input type="text"/>
MANUAL LOADER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	052 CHANNEL <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	102 OFFSET <input type="text"/> SCALE <input type="text"/>
CH3: TARE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	013	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	103 OFFSET <input type="text"/> SCALE <input type="text"/>
1-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	023 SPAN <input type="text"/> INPUT <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	104 OFFSET <input type="text"/> SCALE <input type="text"/>
2-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	033 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	105 OFFSET <input type="text"/> SCALE <input type="text"/>
INC / DEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	043 CHANNEL <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	106 OFFSET <input type="text"/> SCALE <input type="text"/>
MANUAL LOADER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	053 CHANNEL <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	107 OFFSET <input type="text"/> SCALE <input type="text"/>
CH4: TARE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	014	2-point Calibration				
1-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	024 SPAN <input type="text"/> INPUT <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	110 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>
2-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	034 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	111 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>
INC / DEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	044 CHANNEL <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	112 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>
MANUAL LOADER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	054 CHANNEL <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	113 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>
CH5: TARE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	015	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	114 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>
1-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	025 SPAN <input type="text"/> INPUT <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	115 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>
2-POINT CAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	035 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	116 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>
INC / DEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	045 CHANNEL <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	117 ZERO <input type="text"/> INPUT <input type="text"/> SPAN <input type="text"/> INPUT <input type="text"/>
MANUAL LOADER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	055 CHANNEL <input type="text"/>					

CALIBRATION MODE [CAL] Continued

1st DIGIT 2nd DIGIT 3rd DIGIT **SUB-SETTINGS**

Calibrate Thermocouple

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	121	TC TYPE	UNITS	ZERO	INPUT	SPAN	INPUT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	122	TC TYPE	UNITS	ZERO	INPUT	SPAN	INPUT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	123	TC TYPE	UNITS	ZERO	INPUT	SPAN	INPUT

Calibrate RTD

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	121	RTDTYPE	UNITS	ZERO	INPUT	SPAN	INPUT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	122	RTDTYPE	UNITS	ZERO	INPUT	SPAN	INPUT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	123	RTDTYPE	UNITS	ZERO	INPUT	SPAN	INPUT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	124	RTDTYPE	UNITS	ZERO	INPUT	SPAN	INPUT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	125	RTDTYPE	UNITS	ZERO	INPUT	SPAN	INPUT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	126	RTDTYPE	UNITS	ZERO	INPUT	SPAN	INPUT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	127	RTDTYPE	UNITS	ZERO	INPUT	SPAN	INPUT

Calibrate Analog Output

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	151	SOURCE	CAL LOW	OUTPUT	CAL HIGH	OUTPUT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	152	SOURCE	CAL LOW	OUTPUT	CAL HIGH	OUTPUT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	153	Analog output 3 [153] to 7 [157] Not yet available				

RELATED CALIBRATION FUNCTIONS

Serial Output

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	201	Port 1	MODE	BAUD	PARITY	ADDRESS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	202	Port 2	MODE	BAUD	PARITY	ADDRESS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	203	Port 3	MODE	BAUD	PARITY	ADDRESS

Totalizer

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	231	SOURCE	INPUT	AFTER	TOTAL	CUTOFF	R_OVER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	232	SOURCE	INPUT	AFTER	TOTAL	CUTOFF	R_OVER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	233	SOURCE	INPUT	AFTER	TOTAL	CUTOFF	R_OVER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	234	SOURCE	INPUT	AFTER	TOTAL	CUTOFF	R_OVER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	235	SOURCE	INPUT	AFTER	TOTAL	CUTOFF	R_OVER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	236	SOURCE	INPUT	AFTER	TOTAL	CUTOFF	R_OVER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	237	SOURCE	INPUT	AFTER	TOTAL	CUTOFF	R_OVER

Auto Zero Maintenance

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	210	AZ CAPTURE	AZ MOTION	AZ APERTURE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	211	AZ CAPTURE	AZ MOTION	AZ APERTURE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	212	AZ CAPTURE	AZ MOTION	AZ APERTURE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	213	AZ CAPTURE	AZ MOTION	AZ APERTURE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	214	AZ CAPTURE	AZ MOTION	AZ APERTURE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	215	AZ CAPTURE	AZ MOTION	AZ APERTURE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	216	AZ CAPTURE	AZ MOTION	AZ APERTURE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	217	AZ CAPTURE	AZ MOTION	AZ APERTURE

1st DIGIT 2nd DIGIT 3rd DIGIT **SUB-SETTINGS**

Averaging Samples & Averaging Window

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	220	AVERAGE SAMPLES	AVERAGE WINDOW
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	221	AVERAGE SAMPLES	AVERAGE WINDOW
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	222	AVERAGE SAMPLES	AVERAGE WINDOW
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	223	AVERAGE SAMPLES	AVERAGE WINDOW
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	224	AVERAGE SAMPLES	AVERAGE WINDOW
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	225	AVERAGE SAMPLES	AVERAGE WINDOW
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	226	AVERAGE SAMPLES	AVERAGE WINDOW
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	227	AVERAGE SAMPLES	AVERAGE WINDOW

32-point Linearization Tables

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	241	MODE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	242	MODE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	243	MODE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	244	MODE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	245	MODE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	246	MODE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	247	MODE

Scale Analog Output

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	251	ZERO	FULL SCALE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	252	ZERO	FULL SCALE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	253	Analog output 3 [253] to 7 [257] Not yet available	

CODE 1

1st DIGIT	2nd DIGIT	3rd DIGIT	SUB-SETTINGS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X50 SOURCE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X51 SOURCE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X52 SOURCE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X53 SOURCE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X54 SOURCE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X55 SOURCE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X60 DISPLAY
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X61 DISPLAY
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X62 DISPLAY
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X63 DISPLAY
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X64 DISPLAY
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X65 DISPLAY
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X66 DISPLAY
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X67 DISPLAY
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X70 CHARACTER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X71 CHARACTER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X72 CHARACTER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X73 CHARACTER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X74 CHARACTER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X75 CHARACTER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X76 CHARACTER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X77 CHARACTER

CODE 2

1st DIGIT	2nd DIGIT	3rd DIGIT	PRESCALER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
			SMART INPUT MODULE SETTINGS

CODE 3

1st DIGIT	2nd DIGIT	3rd DIGIT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CODE 4

1st DIGIT	2nd DIGIT	3rd DIGIT	PRESCALER
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

CODE 5

1st DIGIT	2nd DIGIT	3rd DIGIT	SMART INPUT MODULE SETTINGS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

CODE 6

1st DIGIT	2nd DIGIT	3rd DIGIT	SMART INPUT MODULE SETTINGS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

CODE 7

1st DIGIT	2nd DIGIT	3rd DIGIT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CODE 8

1st DIGIT	2nd DIGIT	3rd DIGIT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CODE 9

1st DIGIT	2nd DIGIT	3rd DIGIT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CODE 10

1st DIGIT	2nd DIGIT	3rd DIGIT	Not yet available
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
			SCALING FOR LINEAR BARGRAPH
			3X0 BAR LOW BAR HIGH BAR NOMINAL
			3X1 BAR LOW BAR HIGH BAR NOMINAL
			SCALING FOR LOGIRITHMIC BARGRAPH
			3X3 REFERENCE BAR NOMINAL
			3X4 REFERENCE BAR NOMINAL
			3X5 REFERENCE BAR NOMINAL
			3X6 REFERENCE BAR NOMINAL
			3X7 REFERENCE BAR NOMINAL

Customer Code Settings – Setpoint Programming Mode

SP ACTIVATION VALUES

SETPOINT	VALUE
SP1	
SP2	
SP3	
SP4	
SP5	
SP6	

SETPOINT & RELAY CONTROL SETTINGS MODE SPC_1 TO SPC_6

SELECT DATA SOURCE		DELAY MODE SETTINGS								
SPC_1	__ 1 __	SPC_1	__ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	DEVIATION	ANNUNCIATOR FLASHING	SP TRACKING	
SPC_2	__ 1 __	SPC_2	__ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	DEVIATION	ANNUNCIATOR FLASHING	SP TRACKING	
SPC_3	__ 1 __	SPC_3	__ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	DEVIATION	ANNUNCIATOR FLASHING	SP TRACKING	
SPC_4	__ 1 __	SPC_4	__ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	DEVIATION	ANNUNCIATOR FLASHING	SP TRACKING	
SPC_5	__ 1 __	SPC_5	__ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	DEVIATION	ANNUNCIATOR FLASHING	SP TRACKING	
SPC_6	__ 1 __	SPC_6	__ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	DEVIATION	ANNUNCIATOR FLASHING	SP TRACKING	

PID CONTROL SETTINGS

SPC_1	__ 5	SPAN	PB	INT	DER	ARW	MCT	SP TRACKING
SPC_2	__ 5	SPAN	PB	INT	DER	ARW	MCT	SP TRACKING
SPC_3	__ 5	SPAN	PB	INT	DER	ARW	MCT	SP TRACKING
SPC_4	__ 5	SPAN	PB	INT	DER	ARW	MCT	SP TRACKING
SPC_5	__ 5	SPAN	PB	INT	DER	ARW	MCT	SP TRACKING
SPC_6	__ 5	SPAN	PB	INT	DER	ARW	MCT	SP TRACKING

TIMER MODE SETTINGS

SPC SETTING	NORMAL	NORMALLY OFF / PULSED ON MODES				NORMALLY ON / PULSED OFF MODES						
		REPEAT ON	PULSE ON	1-SHOT ON	1-SHOT OFF	PULSE OFF	REPEAT OFF					
SPC_1	__ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM	M OFF	Resolution	OFF T	Resolution	OFF T
		DOB		ON T		ON T	M ON	DOB		DOB		ON T
SPC_2	__ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM	M OFF	Resolution	OFF T	Resolution	OFF T
		DOB		ON T		ON T	M ON	DOB		DOB		ON T
SPC_3	__ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM	M OFF	Resolution	OFF T	Resolution	OFF T
		DOB		ON T		ON T	M ON	DOB		DOB		ON T
SPC_4	__ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM	M OFF	Resolution	OFF T	Resolution	OFF T
		DOB		ON T		ON T	M ON	DOB		DOB		ON T
SPC_5	__ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM	M OFF	Resolution	OFF T	Resolution	OFF T
		DOB		ON T		ON T	M ON	DOB		DOB		ON T
SPC_6	__ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM	M OFF	Resolution	OFF T	Resolution	OFF T
		DOB		ON T		ON T	M ON	DOB		DOB		ON T

REGISTER RESET & TRIGGER FUNCTIONS SETTINGS

SPC_1	__ 7	[triG]	[dESt]	[ModE]	[rES_C]	[SourC]	[Print]	[LoG]
SPC_2	__ 7	[triG]	[dESt]	[ModE]	[rES_C]	[SourC]	[Print]	[LoG]
SPC_3	__ 7	[triG]	[dESt]	[ModE]	[rES_C]	[SourC]	[Print]	[LoG]
SPC_4	__ 7	[triG]	[dESt]	[ModE]	[rES_C]	[SourC]	[Print]	[LoG]
SPC_5	__ 7	[triG]	[dESt]	[ModE]	[rES_C]	[SourC]	[Print]	[LoG]
SPC_6	__ 7	[triG]	[dESt]	[ModE]	[rES_C]	[SourC]	[Print]	[LoG]

SETPOINT FINAL SETTINGS

	1st DIGIT	2nd DIGIT	3rd DIGIT
SPC_1			
SPC_2			
SPC_3			
SPC_4			
SPC_5			
SPC_6			

Commonly Used Registers

A Tiger 380 Series controller has 65536 registers available for use by the meter's operating system and the Tiger Macro Development System (TDS).

See *TDS Macro Tutorial (NZ212)* for further information on developing macros for Tiger 380 Series controllers.

38 Manually Selectable Registers

Using the front panel buttons, there are 38 named registers that may be selected for use within the following functions:

- **[CODE_1] - Display Configuration [X50]**. Selection of a register as the data source for displays and peak and valley.
- **Setpoint Control Settings [X1X]**. Selection of a register as the data source for a setpoint.
- **Setpoint Control Settings [XX7]**. Selection of a destination register that is reset by a setpoint with the contents of a selected source register.
- **Setpoint Control Settings [XX7]**. Select the contents of one register to be copied into another register by a setpoint.

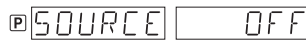
The 38 named registers that can be selected as a data source, a reset source, or a reset destination for the above functions are shown in the table opposite.

The table shows, in seven columns, the functions where these registers can be used.

Where a register is more likely to be used in a particular function, a closed circle ● is shown in the column. For those functions where a register is less likely to be used, an open circle ○ is shown.

Beginning at [OFF] on the display, when selecting a register as the data source, reset, or destination for a function, pressing the button takes you through the named registers to the numerical register list beginning at register [111] and proceeding to register [16383].

Pressing the button takes you back to [OFF].



Use the and buttons to cycle thru the Registers Menu and Registers (111 to 16383) to select the data source for displays, peak and valley, totalizers and analog output.

- [DISP]
- [RESULT]
- [CH_1] to [CH_7]
- [TOT_1] to [TOT_6]
- [PEAK_1]
- [VALY_1]
- [PEAK_2]
- [VALY_2]
- [PEAK_3]
- [VALY_3]
- [TARE]
- [AUX_1] to [AUX_16]
- Registers [111] to [16383]

The button takes you forward.



The button takes you back.

Constant pressure on the button moves thru Registers 111 to 16383 one register at a time.

Note, not all registers between 111 and 16383 are available.

Registers that Should Not be Used

A number of the available numerical list registers are reserved for future use or used by the controller's operating system and are too numerous to list here. A list of the registers used by Tiger 380 Series controllers is available on request from Texmate.

When selecting a data source for any of the functions requiring a data source, only select known numerical register as your data source.

CAUTION: Selection of an unknown register may cause a malfunction.

Register Functions	Register Numbers	Data Source for Displays	Data Source for Peak & Valley	Data Source for Analog Outputs 1 to 7	Data Source for Totalizers 1 to 6	Data Source for Setpoints	Reset Source	Reset Dest.
Display [DISP]	1		●	●	●	●		
Result [RESULT]	7	●	●	●	●	●	●	●
CH1 [CH_1]	9	●	●	●	●	●	●	●
CH2 [CH_2]	11	●	●	●	●	●	●	●
CH3 [CH_3]	13	●	●	●	●	●	●	●
CH4 [CH_4]	15	●	●	●	●	●	●	●
CH5 [CH_5]	17	●	●	●	●	●	●	●
CH6 [CH_6]	19	●	●	●	●	●	●	●
CH7 [CH_7]	21	●	●	●	●	●	●	●
Total 1 [TOT_1]	37	●	●	●	●	●	●	●
Total 2 [TOT_2]	39	●	●	●	●	●	●	●
Total 3 [TOT_3]	41	●	●	●	●	●	●	●
Total 4 [TOT_4]	43	●	●	●	●	●	●	●
Total 5 [TOT_5]	45	●	●	●	●	●	●	●
Total 6 [TOT_6]	47	●	●	●	●	●	●	●
Peak 1 [PEAK_1]	57	○	○	○	○	○	○	○
Valley 1 [VALEY_1]	59	○	○	○	○	○	○	○
Peak 2 [PEAK_2]	61	○	○	○	○	○	○	○
Valley 2 [VALEY_2]	63	○	○	○	○	○	○	○
Peak 3 [PEAK_3]	65	○	○	○	○	○	○	○
Valley 3 [VALEY_3]	67	○	○	○	○	○	○	○
Tare [TARE]	77	○	○	○	○	○	○	○
Auxiliary 1 [AUX_1]	79	○	○	○	○	○	○	○
Auxiliary 2 [AUX_2]	81	○	○	○	○	○	○	○
Auxiliary 3 [AUX_3]	83	○	○	○	○	○	○	○
Auxiliary 4 [AUX_4]	85	○	○	○	○	○	○	○
Auxiliary 5 [AUX_5]	87	○	○	○	○	○	○	○
Auxiliary 6 [AUX_6]	89	○	○	○	○	○	○	○
Auxiliary 7 [AUX_7]	91	○	○	○	○	○	○	○
Auxiliary 8 [AUX_8]	93	○	○	○	○	○	○	○
Auxiliary 9 [AUX_9]	95	○	○	○	○	○	○	○
Auxiliary 10 [AUX_10]	97	○	○	○	○	○	○	○
Auxiliary 11 [AUX_11]	99	○	○	○	○	○	○	○
Auxiliary 12 [AUX_12]	101	○	○	○	○	○	○	○
Auxiliary 13 [AUX_13]	103	○	○	○	○	○	○	○
Auxiliary 14 [AUX_14]	105	○	○	○	○	○	○	○
Auxiliary 15 [AUX_15]	107	○	○	○	○	○	○	○
Auxiliary 16 [AUX_16]	109	○	○	○	○	○	○	○

Thermocouple Calibration for CH1

STEP 1 Select K Type Thermocouple for Initial Calibration

Enter Code 2 and select K type thermocouple for initial calibration.

CODE_2 X11

STEP 2 Thermocouple Initial Calibration

Enter the Calibration mode [CAL], set to [121] and press the [P] button twice to carry out the thermocouple initial calibration procedure.

CAL 121

STEP 3 Select Temperature Units

Enter the Calibration mode [CAL], set to [101]. If you want °F set offset to 0 and scale factor to 1. If you want °C set offset to -178 and scale factor to 0.55555.

See *Converting °F to °C procedure opposite.*

CAL 101

Note, once the temperature units have been selected, the temperature inputs to the meter must be in the same units.

STEP 4 Select Thermocouple Type

Re-enter Code 2 and select specific thermocouple type.

CODE_2 X1X

Select analog sample & output rate: _____

Select thermocouple type: _____

STEP 5 Fine Tune Calibration over Specific Temperature Range

Enter the Calibration mode [CAL], set to [111] and fine tune the thermocouple calibration over the required temperature range.

CAL 111

Note, this is not a mandatory step, carry out only if required.

Follow Steps 1 to 5 for setting channels 2 and 3, using the following settings:

CH2: Code 4 [11X] for K type
CAL [122] to calibrate K type
Code 4 [1X0] to select specific TC
CAL [112] to trim selected TC.

CH3: Code 5 [X21] for K type
CAL [123] to calibrate K type
Code 5 [X2X] to select specific TC
CAL [113] to trim selected TC.

For a detailed thermocouple calibration procedure, see *Advanced Calibration & On Demand Mode Supplement (NZ203)*.

Converting °F to °C

- 1) Calibrate the meter to suit the temperature sensor input.
Use K type thermocouple input for thermocouples.
Use RTD 385 for RTDs.
- 2) To convert °F to °C enter the calibration mode and set [CAL] to [10X].
- 3) Set the offset [OFFS_R] to [-178] counts on the display.
- 4) Set the scale factor [SCAL_R] to [0.55555] on the display.

Ignore the decimal point on OFFSET settings

Note:

CHANNELS 5, 6, 7 Are not available thru the front panel controls. They can only be setup via the serial port using Texmate's Meter Configuration Utility program, or accessed via a macro.

RTD Calibration for CH1

STEP 1 Select Type Pt 385 100 Ω RTD

Enter Code 2 and select type Pt 385 100 Ω RTD for initial calibration.

CODE_2 XX1
 2 = RTD 3-wire
 3 = RTD 2 or 4-wire

STEP 2 RTD Initial Calibration

Enter the Calibration mode [CAL], set to [131] and carry out the RTD initial calibration procedure.

CAL 131

STEP 3 Select Temperature Units

Enter the Calibration mode [CAL], set to [101]. If you want $^{\circ}\text{F}$ set offset to 0 and scale factor to 1. If you want $^{\circ}\text{C}$ set offset to -178 and scale factor to 0.55555.

See *Converting $^{\circ}\text{F}$ to $^{\circ}\text{C}$ procedure opposite.*

CAL 101

Note, once the temperature units have been selected, the temperature inputs to the meter must be in the same units.

STEP 4 Select RTD Type

Re-enter Code 2 and select specific RTD type.

CODE_2 X2X
 Select analog sample & output rate:
 2 = RTD 3-wire, 3 = RTD 2 or 4-wire
 Select RTD type:

STEP 5 Fine Tune Calibration over Specific Temperature Range

Enter the Calibration mode [CAL], set to [111] and fine tune the RTD calibration over the required temperature range.

CAL 111

Note, this is not a mandatory step, carry out only if required.

Follow Steps 1 to 5 for setting channels 2 and 3, using the following settings:

CH2: Code 4 [210] for type 385
 CAL [132] to calibrate type 385
 Code 4 [2X0] to select specific RTD
 CAL [112] to fine tune selected RTD.

CH3: Code 5 [X31] for type 385
 CAL [133] to calibrate type 385
 Code 5 [X3X] to select specific RTD
 CAL [113] to fine tune selected RTD.

CH4: Code 6 [X31] for type 385
 CAL [134] to calibrate type 385
 Code 6 [X3X] to select specific RTD
 CAL [113] to fine tune selected RTD.

*For a detailed RTD calibration procedure, see *Advanced Calibration & On Demand Mode Supplement (NZ203)*.*

Converting $^{\circ}\text{F}$ to $^{\circ}\text{C}$

- 1) Calibrate the meter to suit the temperature sensor input.
Use K type thermocouple input for thermocouples.
Use RTD 385 for RTDs.
- 2) To convert $^{\circ}\text{F}$ to $^{\circ}\text{C}$ enter the calibration mode and set [CAL] to [10X].
- 3) Set the offset [OFFS_R] to $[-178]$ counts on the display.
- 4) Set the scale factor [SCAL_R] to [0.55555] on the display.

Ignore the decimal point on OFFSET settings

Note:

CHANNELS 5, 6, 7 Are not available thru the front panel controls. They can only be setup via the serial port using Texmate's Meter Configuration Utility program, or accessed via a macro.

User Notes

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