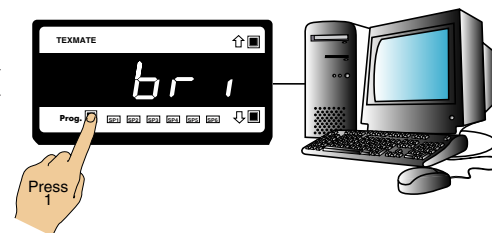


# Tiger 320 Series PROGRAMMING CODE SHEET

## Front Panel Programming

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

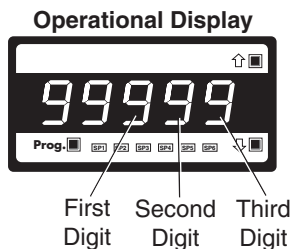
When you become familiar with the meter and the programming code structure, the PCS can be used in place of the user manual.



### Note:

All displays shown in this code sheet are for a 5-digit, 7-segment display. 6-digit and alphanumeric displays will be slightly different.

To configure the meter's programming codes, the meter uses the three right-hand side display digits. These are known as the first, second, and third digits and can be seen in the diagram opposite.



The following diagrams show the three-digit settings available for each code.



### 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 **[↑]** 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 **[↓]** buttons at the same time.
- 4) When configuring the three-digit code and setpoint settings, pressing the **[↑]** and **[↓]** buttons at the same time increases the displayed parameter in increments of 100 counts.

## Programming via PC

### Texmate meter configuration Program

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

- Code Blanking.
- Display 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 procedures such as recalibration and setpoint reprogramming can be achieved in a few simple steps from the front panel buttons.

### Display Text Editing

This function allows editing the displayed text during normal operation 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 meter, via the compiler or configuration program, and run automatically when the meter is powered up.

## Tamper-proof settings

All Tiger meters 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 open for operator adjustment.



To enter press the **P** and **↑** buttons at the same time

To enter press the **P** and **↓** buttons at the same time

Main Programming Mode

- [br]** **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 Input and Output**  
**P** See Page 2 for code settings to calibrate the meter's input and output signals.
- [Cod\_1]** **Code 1 – Display Configuration**  
**P** See Page 3 for code settings to configure the setpoint annunciators and other display functions.
- [Cod\_2]** **Code 2 – CH1 Measurement Task & Sampling Rate**  
**P** See Page 4 for code settings to configure the CH1 measurement task and sampling rate.
- [Cod\_3]** **Code 3 – CH1 Post Processing & Serial Mode Functions**  
**P** See Page 5 for code settings to configure CH1 post processing and serial mode functions.
- [Cod\_4]** **Code 4 – CH2 Measurement Task & 32-point Linearization**  
**P** See Page 5 for code settings to configure the second channel (CH2) measurement task and 32-point linearization settings when using dual input signal conditioners.
- [Cod\_5]** **Code 5 – CH3 Functions**  
**P** See Page 5 for code settings to configure the third channel (CH3) when using triple input signal conditioners.
- [Cod\_6]** **Code 6 – CH4 Functions**  
**P** See Page 6 for code settings to configure the fourth channel (CH4) when using quad input signal conditioners.
- [Cod\_7]** **Code 7 – Result Processing**  
**P** See Page 6 for code settings to configure the meter for processing the result of CH1 and CH2.
- [Cod\_8]** **Code 8 – Data Logging & Print Mode**  
**P** See Page 6 for code settings to configure data logging and data printing using the meter.
- [Cod\_9]** **Code 9 – Functions for Digital Input Pins**  
**P** See Page 6 for code settings to configure the meter for inputs from external sources through the digital input pins.
- [Cod10]** **Code 10 – Bargraph Setup**  
**P** See Page 7 for code settings to configure the meter's bargraph display.



Setpoint Programming Mode

Setpoint Activation Values Mode

Enter these menus to set setpoint (SP) activation values

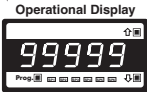
- [SP\_1]** **Setpoint 1** Default setting = 18000  
**P**
- [SP\_2]** **Setpoint 2** Default setting = –18000  
**P**
- [SP\_3]** **Setpoint 3** Default setting = 5000  
**P**
- [SP\_4]** **Setpoint 4** Default setting = –5000  
**P**
- [SP\_5]** **Setpoint 5** Default setting = 10000  
**P**
- [SP\_6]** **Setpoint 6** Default setting = –10000  
**P**

Setpoint & Relay Control Settings Mode

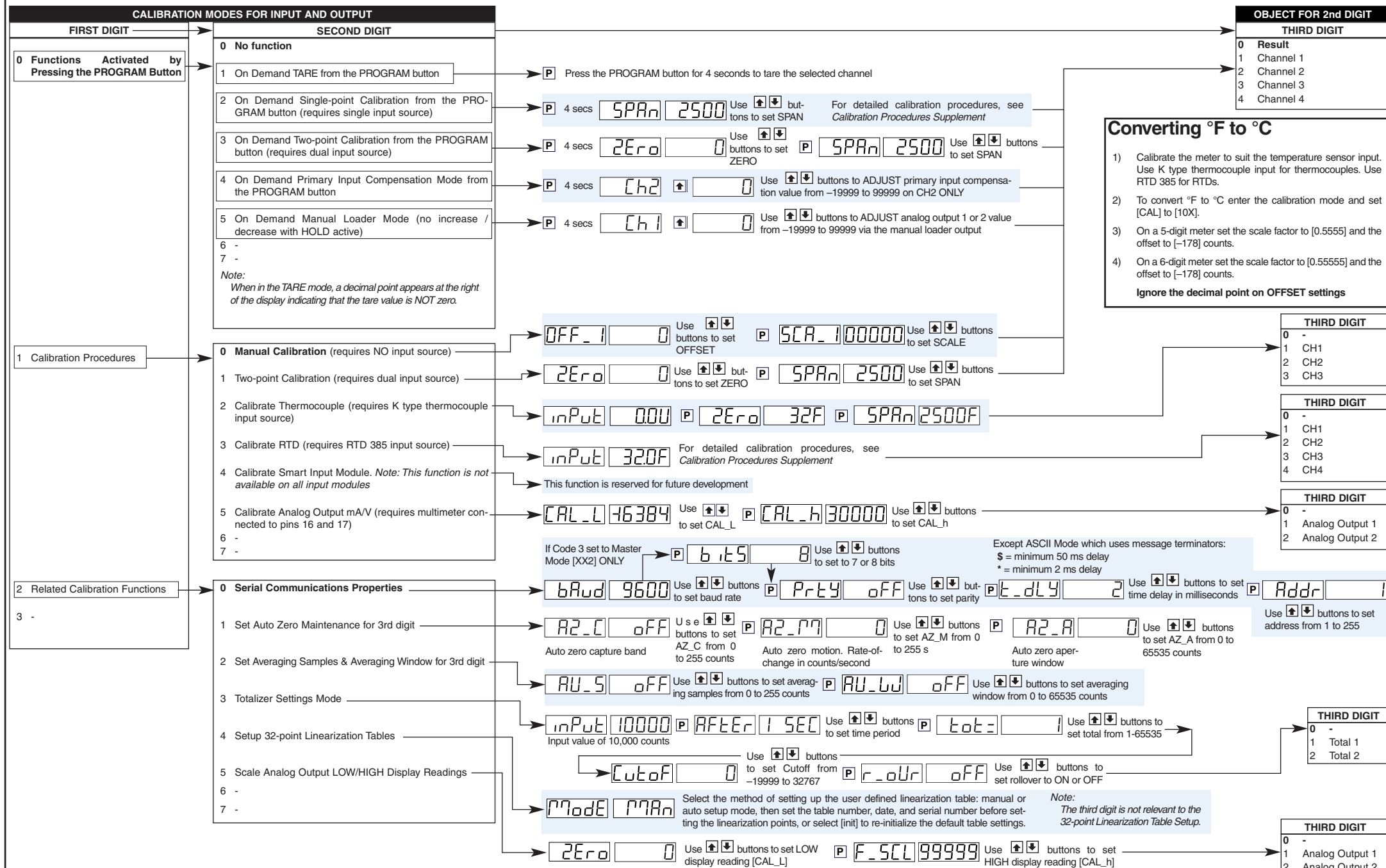
Enter these menus to configure SP control settings

- [SPC\_1]** **Setpoint 1** —————→
- [SPC\_2]** **Setpoint 2** —————→
- [SPC\_3]** **Setpoint 3** —————→
- [SPC\_4]** **Setpoint 4** —————→
- [SPC\_5]** **Setpoint 5** —————→
- [SPC\_6]** **Setpoint 6** —————→

The *Setpoint and Relay Control Settings* diagram on Pages 8, 9, and 10 shows the three digit configuration settings that are applied individually to each setpoint.



# CALIBRATION MODE



CODE 1

FIRST 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.

SECOND DIGIT

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

THIRD DIGIT

SELECT DATA SOURCE FOR

0 Primary Display

1 Second Display. See Note 2

2 Third Display. See Note 2

3 Peak/Valley

4 Analog Output 1

5 Analog Output 2 (under development)

6 Totalizer 1

7 Totalizer 2

SELECT DISPLAY FORMAT FOR

0 Result

1 Channel 1

2 Channel 2

3 Channel 3

4 Channel 4

5 Default Display

6 Total 1

7 Total 2

SELECT TEXT CHARACTER FOR

0 Result

1 Channel 1

2 Channel 2

3 Channel 3

4 Channel 4

5 Default Display

6 Total 1

7 Total 2

Select Data Source

P

Source

[diSP]

[rESLt]

[Ch1]

[Ch2]

[Ch3]

[Ch4]

[tot\_1]

[tot\_2]

[PEAK]

[VALEY]

off

Use the buttons to select a register as the data source

Use the buttons to cycle through the menu

DISPLAY FORMAT MODE

P

d iSP

000

Program the three digits to the required display function mode

FIRST DIGIT

LAST DIGIT ROUNDING

0 No rounding

1 Rounding by 2's

2 Rounding by 5's

3 Rounding by 10's

SECOND DIGIT

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

THIRD DIGIT

DECIMAL POINT PLACEMENT

0 No decimal point

1 XX.XX.XX (6-digit version only)

2 X.XXXXXX (6-digit version only)

3 X.XXXXX

4 X.XXX

5 X.XX

6 X.X

7 Decimal Point set from the rear (X.XXXXXX to XXXXXX). See Note 3. Also See Note 4

Select Last Digit Text Character

P

LEHt

off

Use the buttons to cycle through the menu

Press the button 4 times as the next 4 characters are blank

Note\*:

For the Manual Loader Mode (Direct Display) to work, with Code 1 set to [X54] 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 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:

If only 4 kB memory installed, functions 2 to 6 are not available in:

• Code 3 second digit.

• Code 4 third digit.

• Code 7 second digit.

Note 6:

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

Note 7:

For future development.

5 April, 2002 Prog Code Sheet V3.02] (NZ101)

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CODE 2

FIRST DIGIT

ANALOG SAMPLE RATE

0 Sample Rate: Typically 10 samples/second (60 Hz)  
Control Output Rate: 0.1 seconds  
See Example

1 Sample Rate: Typically 10 samples/second (50 Hz).  
Control Output Rate: 0.1 seconds  
See Example

2 Sample Rate: Typically 10 samples/second (60 Hz)  
Counter or 10 millisecs Control Output Rate  
See Example

3 Sample Rate: Typically 10 samples/second (50 Hz)  
Counter or 10 millisecs Control Output Rate  
See Example

Note:  
Output Rate refers to setpoint and macro outputs, and input rates from smart input modules.

Note:  
All above sample rates are quoted for single channel operation. Where more than one channel is available, sample rates are divided by the number of active channels. See Example.

SECOND DIGIT

CODE 2 – CHANNEL 1 MEASUREMENT TASK AND SAMPLING RATE

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

FOR VOLTAGE

0 No function

1 Peak detector

2 Pressure with Auto-cal

FOR THERMOCOUPLE

0 Type J

1 Type K

2 Type R

3 Type S

4 Type T

5 Type B

6 Type N

7 Select user defined table set up in CAL [24X]

FOR RTD TYPE (2-, 3-, 4- WIRE)

0 Resistance

1 RTD 385

2 RTD 392

3 RTD 120

4 Cn 10

FREQUENCY RANGE SELECTION

0 99.999 Hz range from 0.010 Hz

1 99.999 Hz range from 2.000 Hz

2 999.99 Hz range from 0.01 Hz

3 999.99 Hz range from 2.00 Hz

4 9999.9 Hz range from 0.1 Hz

5 9999.9 kHz range from 2.0 Hz

6 99 kHz range from 1 Hz (1 s gate)

7 655.35 kHz range from 10 Hz (0.1 s gate)

PERIOD MEASUREMENT SELECTION

0 99.999 s

1 9.9999 s

2 999.99 ms

3 99.999 ms

COUNTER/RESIDENT TIMER/CLOCK SELECTION

0 Counter input with 16 bit Pre-scaler

1 Setting of 16-bit Pre-scaler

2 Debounced Counter with Pre-scaler

3 Up/Down Counter with Pre-scaler

4 0.1 sec Timer with Pre-scaler

5 –

6 External 24-hour clock

7 Internal 24-hour clock

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 1 Code Setup. See Note 7.

Note:  
The register map is different for each smart input module. See specific smart input module data sheet.

Example: 10 Samples/Second

1 Channel = 10 samples/second

2 Channels = 5 samples/second

3 Channels = 3.33 samples/second

4 Channels = 2.5 samples/second

PRESET

Use buttons to set prescale values

X61 Sets Prescaler

1 = 0.1 second

10 = 1 second

600 = 1 minute

3600 = 1 Hour

Press

Use the buttons to set the required smart input module code (0 to 377). See I-Series Input Module Supplement for code details.

Note 7:  
Only available with selected input modules.

CODES 3 to 5

FIRST DIGIT

CODE 3 – CHANNEL 1 FUNCTIONS (POST PROCESSING & SERIAL MODE)

CHANNEL 1 POST PROCESSING

0 Direct Display of Input (no processing)

1 Square Root of Channel 1

2 Inverse of Channel 1

3 –

SECOND DIGIT

32-POINT LINEARIZATION FOR CHANNEL 1

0 No Linearization on CH1

1 32-point Linearization on CH1 using Table 1

2 32-point Linearization on CH1 using Table 2. See Note 5

3 32-point Linearization on CH1 using Table 3. See Note 5

4 32-point Linearization on CH1 using Table 4. See Note 5

5 125-point Linearization on CH1 (Tables 1 to 4 cascaded). See Note 5

6 32-point Linearization on CH1 (Tables 1 to 4 selected from the rear pins of selected input modules).

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]. See Note 5

7 –

Note:  
If only 4 kB of memory is installed, only Table 1 is available for:

- CH1 in Code 3, 2nd digit.
- CH2 in Code 4, 3rd digit.
- CH3 in Code 5, 1st digit.
- CH4 in Code 6, 1st digit.
- RESULT in Code 7, 2nd digit.

THIRD DIGIT

SERIAL MODE

0 ASCII Mode

1 Modbus Mode

2 Master mode (used to customize print mode protocols via macro)

3 Print Mode

4 Ethernet Mode. See Note 6

5 Devicenet Mode (requires Devicenet hardware module). See Note 6

Note 6:  
These functions are not available on all models and in some cases require additional hardware.

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)

FOR VOLTAGE & CURRENT

0 Channel 2 Disabled

1 Direct (no post processing)

2 Square Root of Channel 2

3 Inverse of Channel 2

32-POINT LINEARIZATION FOR CH2

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. See Note 5

3 32-point Linearization on CH2 using Table 3. See Note 5

4 32-point Linearization on CH2 using Table 4. See Note 5

5 125-point Linearization on CH2 (Tables 1 to 4 cascaded). See Note 5

6 –

7 –

FOR THERMOCOUPLE

0 Type J

1 Type K

2 Type R

3 Type S

4 Type T

5 Type B

6 Type N

7 Select user defined table set up in CAL [24X]

FOR RTD TYPE (3-WIRE)

0 Resistance

1 RTD 385

2 RTD 392

3 RTD 120

4 Cn10

DIGITAL INPUT

0 Frequency - 99.999 Hz range from 0.01 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 Period - 9.9999 s (100 µs resolution)

5 Period - 999.99 ms (10 µs resolution)

6 Up/Down Counter with Prescaler

7 Set Prescaler

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

CODE 5 – CHANNEL 3 FUNCTIONS

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 (3rd digit selects register)

THIRD DIGIT

FOR THERMOCOUPLE

0 Type J

1 Type K

2 Type R

3 Type S

4 Type T

5 Type B

6 Type N

7 Select user defined linearization table (Table 1) set up in CAL [24X]

FOR RTD TYPE (2-, 3-, 4- WIRE)

0 Resistance

1 RTD 385

2 RTD 392

3 RTD 120

4 Cn 10

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

Memory Related Functions

The availability of the following functions depends on the memory installed in the meter:

- Data Logging – Set up in Code 8.
- 32-point Linearization Tables (see Linearization Table Notes on Page 6).
- Macros – Factory Programmed.

Meter Memory Table

The table below lists the memory required for each of the above functions to operate in the meter.

MODEL	Macro	Memory	RTC	Micro	Order Code
Base	—	4	—	Philips	DI-50
4 x Lin Tables	—	32	—	Philips	DI-50 T
RTC	—	—	RTC	Philips	DI-50 C
RTC + 4 x Lin Tables	—	32	RTC	Philips	DI-50 A
Data Logging	—	512	RTC	Philips	DI-50 L
Macro		4	—	Temic	DI-50 M
Macro + 4 x Lin Tables		32	—	Temic	DI-50 MT
Macro + RTC		—	RTC	Temic	DI-50 MC
Macro + RTC + 4 x Lin Tables		32	RTC	Temic	DI-50 MA
Macro + Data Logging		512	RTC	Temic	DI-50 ML

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

Press 57762 000

Use the buttons to set the required smart input module code (0 to 377). See I-Series Input Module Supplement for code details.



CODES 6 to 9

FIRST DIGIT

CH4 POST PROCESSING

0 Direct Display of Input (no processing)

1 Square Root of Channel 4

2 Inverse of Channel 4

3 4 kB Meters  
NO Linearization  
32 kB Meters  
32-point Linearization of CH4 using Table 4

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

SECOND DIGIT

CODE 6 – CHANNEL 4 FUNCTIONS

MEASUREMENT TASK

0 No Function

1 Voltage, Current

2 TC (3rd digit selects type of TC). See Note 7

3 RTD (3rd digit selects type of RTD). See Note 7

4 Real Time Clock and Timer (3rd digit selects type)

5 -

6 -

7 Smart Input Module (3rd digit selects register)

THIRD DIGIT

FOR THERMOCOUPLE

0 Type J

1 Type K

2 Type R

3 Type S

4 Type T

5 Type B

6 Type N

7 Select user defined linearization table (Table 1) set up in CAL [24X]

FOR RTD TYPE (2-, 3-, 4- WIRE)

0 Resistance

1 RTD 385

2 RTD 392

3 RTD 120

4 Cn 10

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 5:  
If only 4 kB of memory is installed, only Table 1 is available for:

- CH1 in Code 3, 2nd digit.
- CH2 in Code 4, 3rd digit.
- CH3 in Code 5, 1st digit.
- CH4 in Code 6, 1st digit.
- RESULT in Code 7, 2nd digit.

Note 7:  
For future development.

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

Press

P

57763

000

FIRST DIGIT

DATA LOG BUFFER TYPE

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.

SECOND DIGIT

CODE 8 – DATA LOGGING AND PRINT MODE OPTIONS

DATE & TIME STAMP OPTIONS

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

THIRD DIGIT

LOG OR PRINT TRIGGER

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.

DISPLAY TEST PIN

0 Display test only

1 Reset Counter Channel 1 and total

2 at Power-up

2 Reset Counters Channel 1, 2, 3, 4, Total 1, and Total 2 at Power-up

3 Reset Total 1, and Total 2 at Power-up

HOLD PIN

0 Display Hold

1 Reset Channel 1

2 Reset Total 1 and Total 2

3 Reset Total 2

4 Reset Peak, Valley

5 Clear Tare

6 Set Tare

7 Unlatch (de-energize) all Setpoints

LOCK PIN

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

Linearization Table Notes

A base meter with 4 kB memory installed has a single 32-point programmable linearization table available.

For four 32-point programmable linearization tables to be available, the meter requires at least 32 kB of memory to be installed.

Meters with 4 kB Memory

In base meters with 4 kB memory, configure Table 1 in the Calibration Mode to [24X]. This means that Table 1 is available to be applied to:

- CH1 – Selected in Code 3.
- CH2 – Selected in Code 4.
- RESULT – Selected in Code 7.

Meters with 32 kB Memory

In base meters with 32 kB or more memory, each of the four tables (Tables 1 to 4) are configured in [24X] of the Calibration Mode by selecting the appropriate table number. This means that the four tables are available for the four channels as follows:

- CH1 – All four tables selected in Code 3.
- CH2 – All four tables selected in Code 4.
- CH3 – Table 3 selected in Code 5.
- CH4 – Table 4 selected in Code 6.
- RESULT – All four tables selected in Code 7.

CODE 10

Note:  
Code 10 is only available with bar-graph versions of the meter.

Note:  
Data source for the bargraph is set up in Code 1 [X51].

FIRST DIGIT	SECOND DIGIT	THIRD DIGIT
<b>BARGRAPH DISPLAY SETTINGS</b>	<b>CODE 10 – BARGRAPH SETUP</b>	<b>BARGRAPH TYPE</b>
0 No Function	0 Setpoints on Bar	0 Linear
1 Disable Overrange Flashing	1 Peak, Valley on Bar	1 Via linearization Table 1
2 Set up Colors	2 -	2 -
3 Set up Bar Scaling	4 Min/Max with setpoints (low end of bar = VALLEY, high end of bar = PEAK)	3 Log – 10 Bar/Decade
	5 -	4 Log – 20 Bar/Decade
	6 -	5 Log – 25 Bar/Decade
	7 Bar Only (no setpoints on the bar)	6 Log – 33 Bar/Decade
		7 Log – 50 Bar/Decade

Set Up Bargraph Colors

2XX P Colr 1 off

P Colr 2 red

P Colr 3 orange

P Colr 4 green

P Colr 5 green

P Colr 6 off

P Colr 7 orange

orange

green

orange

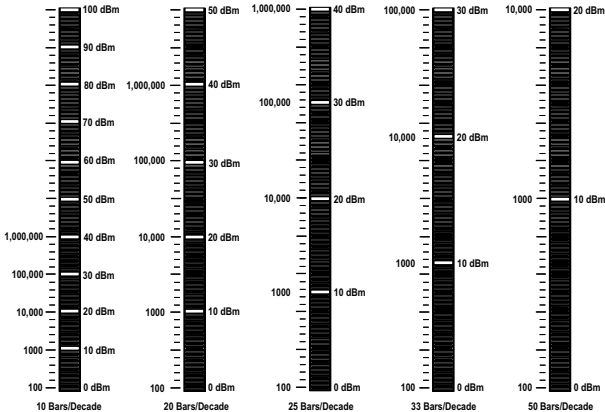
off

Pressing the buttons at the same time returns to [off]

The bargraph colors are not applied to specific setpoints. They are applied to whichever setpoint is configured at the lowest setting and then to each next highest setpoint in turn.

If all six setpoints are used the colors are set as follows:

- Color 1 Color BELOW lowest setpoint  
This is the bargraph color before it reaches a setpoint.
- Color 2 Color ABOVE lowest setpoint
- Color 3 Color ABOVE next highest setpoint
- Color 4 Color ABOVE next highest setpoint
- Color 5 Color ABOVE next highest setpoint
- Color 6 Color ABOVE next highest setpoint
- Color 7 Color ABOVE highest setpoint



Example of Bars per Decade

Set Up Scaling for Linear Bargraph

99999

Bar Low 3X0 P Bar\_L 0 P Bar\_H 0 P Bar\_Nominal 0

OR

3X1 19999 19999 19999

Bar Nominal

Bar Nominal sets the point on the bargraph at which the bar begins to light up. This can be any position between and including the bar low and bar high settings.

If bar nominal is set to the **bar low** setting, the bargraph behaves like a typical bargraph making the segments light up from the **bottom** of the bar and grow towards the top.

If bar nominal is set to the **bar high** setting, this makes all segments from the displayed signal to the **top** of the bar light up. As the signal increases, the number of lit segments between the signal and the bar high setting becomes steadily less. When the signal reaches the bar high setting no segments are lit.

Setting bar nominal to the midpoint between bar low and bar high makes the bargraph behave like a typical center zero bargraph. This means the bargraph lights up at the center of the bar and moves either up or down the bar depending on the displayed signal.

For example, if the meter's full scale range is 20,000 counts, the midpoint is 10,000 counts. If a signal of 10,000 counts is applied, only one segment at the 10,000 count mark lights up. If a signal of 17,000 counts is applied, the segments between the center segment (10,000 counts) and the 17,000 count mark light up.

If a signal of 5000 counts is applied, the segments between the center segment (10,000 counts) and the 5000 count mark light up.

An added feature of this bargraph is that it can also be non-symmetrical. This means that the bar nominal setting does not need to be set at the mid-point between bar low and bar high. For example, if the bargraph is configured to display -200 to 800 °C, bar low is set to -200 counts and bar high is set to 800 counts. Bar nominal is set to 0 counts. If a signal of -50 °C is applied, the bar lights from 0 down to -50. If a signal of 600 °C is applied, the bar lights from 0 up to 600.

Set Up Scaling for Logirithmic Bargraph

99999

Reference 3X3 P REF 1 P Bar\_Nominal 0

OR

3X4 19999

OR

3X5

OR

3X6

OR

3X7

Logirithmic Bargraph Scaling

In all logirithmic scales a reference level is required that is the level at 0 dB.

For example, in an RF measurement 0 dBm is at a reference of 1 mW.

The scale is calculated from:

$$10 \log_{10} \frac{\text{counts (input)}}{\text{reference}}$$

If the meter is scaled so that:

1 mW = 100 counts and 1 W = 100,000 counts

Then the reference for 0 dBm would be set to 100 counts:

$$10 \log_{10} \frac{(\text{input})}{100} = 0 \text{ dBm}$$

**Reference.** This is the number of counts displayed for a 0 dB reference.

**Bar Nominal.** See Bar Nominal description above.

Now every 10 dBm represents a decade, the bargraph can be scaled to a different amount of bars per decade (as set in the 3rd digit).

See Example of Bars per Decade diagram opposite.

Decade (Counts)	dBm
1	-20
10	-10
100	0
1000	10
10,000	20
100,000	30
1,000,000	40





## Set Up Hysteresis, Deviation &amp; PID Mode Settings

From Page 8, third digit [XX5]  
 Mode [ModE] OFF

hyst P hyst 0  
 Set Hysteresis from 0 to 65535 counts. Selected counts apply + and - from setpoint value

devt P PRSSb 0  
 Set Deviation from 1 to 65535 counts. Selected counts apply + and - from setpoint value

Note:  
 If PID is selected in [XX5], the Timer Delay [XX6] and Reset and Trigger Functions [XX7] revert to [ModE][OFF] and cannot be adjusted.

PID FROM SETPOINT 1 AND 2 ONLY

pid P SPAN 0  
 MIN 0  
 MAX 99999

Set the Proportional Band Value  
 P Pb 00  
 MIN 0%  
 MAX 999.9%

Set the Integral Value  
 P int 00  
 MIN 0  
 MAX 6553.5

Set the Derivative Value  
 P der 00  
 MIN 0  
 MAX 999.9

Set the Anti-reset Wind-up % PB  
 P Ar 0.1  
 MIN 0.1%  
 MAX 100.0%

Set the Minimum Cycle Time  
 P CYC\_t 10  
 MIN 0 secs  
 MAX 1000.0 secs

Select Tracking Setting  
 P trACE OFF  
 Set to 0 for PID 4-20 mA  
 Set to MINIMUM 0.5 for SSR  
 Set to 20 secs for Relays

Select Flash Setting OFF or ON  
 P FLASH OFF  
 ON

Select Tracking Setting  
 P trACE OFF  
 1 to 6

Reset SPC\_X to XX0  
 P XX5 XX0

OFF= Tracking Off  
 1 = SPX tracks SP1  
 2 = SPX tracks SP2  
 3 = SPX tracks SP3  
 4 = SPX tracks SP4  
 5 = SPX tracks SP5  
 6 = SPX tracks SP6

Note:  
 The output from RELAY 1 and 2 is disabled if minimum cycle time set to 0

Note:  
 If minimum cycle time is set to 0, the relevant setpoint (SPX) does not operate. PID functions still operate



## Programming Tip

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

ModE OFF

## Set Up Timer Delay Settings



## Programming Tip

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

trACr OFF

## Normally OFF/Pulsed ON Modes

These are time control modes where the relay is **normally OFF (de-energizes)** and **pulses ON (energizes)** when the setpoint activates.

## Normally ON/Pulsed OFF Modes

These are time control modes where the relay is **normally ON (energizes)** and **pulses OFF (de-energizes)** when the setpoint activates.

From Page 8, third digit [XX6]

XX6 trACr OFF

Normal Mode  
 Single Actuation

norPn

dom 00  
 Delay-on-make time (DOM) 0.1 to 6553.5 secs

dob 00  
 Delay-on-break (DOB) time 0.1 to 6553.5 secs

Reset SPC\_X to XX0

XX6 XX0

1-Shot ON Mode  
 Single Actuation

1shot

dom 00  
 DOM 0.1 to 6553.5 secs

pn\_on 00  
 Minimum on-time (M\_on) 0.1 to 6553.5 secs

Pulse ON Mode  
 Single Actuation

pulse

RES

Resolution setting applies to SP1/SP2 ONLY

dom 0.1/0.001 to 6553.5/65.535 secs

on\_t 0.1/0.001 to 6553.5/65.535 secs

Repeat ON Mode  
 Multiple Actuation

rept

RES

Resolution setting applies to SP1/SP2 ONLY

off\_t 0.1/0.001 to 6553.5/65.535 secs

on\_t 0.1/0.001 to 6553.5/65.535 secs

1-Shot OFF Mode  
 Single Actuation

-1shot

pn\_of 00  
 Minimum off-time (M\_of) 0.1 to 6553.5 secs

dob 00  
 DOB 0.1 to 6553.5 secs

Pulse OFF Mode  
 Single Actuation

-pulse

RES

Resolution setting applies to SP1/SP2 ONLY

off\_t 0.1/0.001 to 6553.5/65.535 secs

dob 0.1/0.001 to 6553.5/65.535 secs

Repeat OFF Mode  
 Multiple Actuation

-rept

RES

Resolution setting applies to SP1/SP2 ONLY

off\_t 0.1/0.001 to 6553.5/65.535 secs

on\_t 0.1/0.001 to 6553.5/65.535 secs

## Advanced Functions Mode – Set Up Register Reset and Setpoint Trigger Functions



## Programming Tip

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

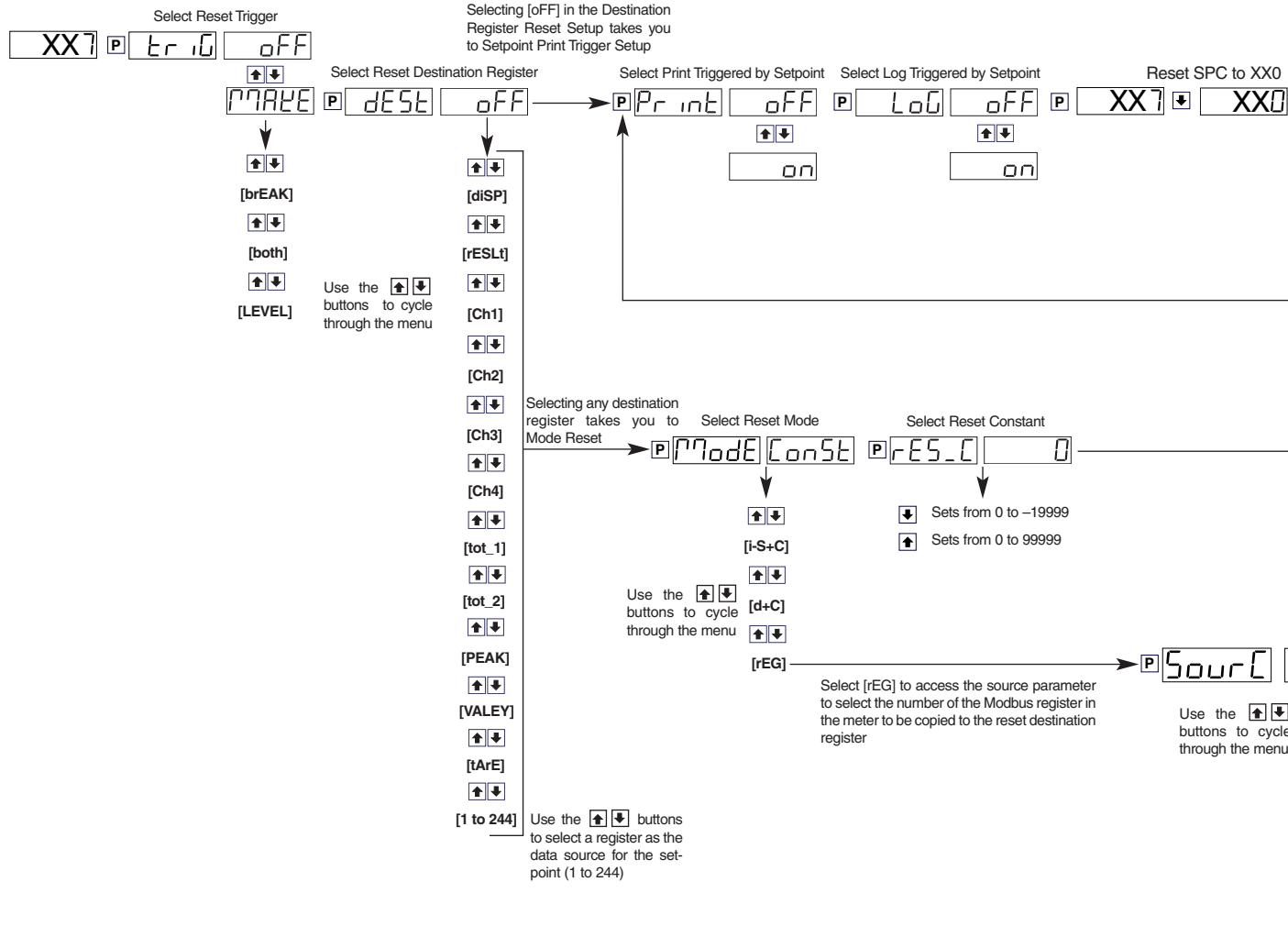
trig OFF



## Programming Tip

This mode can not be accessed if SPC\_1 or SPC\_2 is in the PID mode.

From Page 8, third digit [XX7]



Customer Code Settings – Main Programming Mode

CALIBRATION MODE [CAL]

1st DIGIT

2nd DIGIT

3rd DIGIT

SUB-SETTINGS

ON DEMAND FUNCTIONS

RESULT

010

020

030

040

050

SPAN

ZERO

CHANNEL

CHANNEL

INPUT

INPUT

CH1

011

021

031

041

051

SPAN

ZERO

CHANNEL

CHANNEL

INPUT

INPUT

CH2

012

022

032

042

052

SPAN

ZERO

CHANNEL

CHANNEL

INPUT

INPUT

CH3

013

023

033

043

053

SPAN

ZERO

CHANNEL

CHANNEL

INPUT

INPUT

CH4

014

024

034

044

054

SPAN

ZERO

CHANNEL

CHANNEL

INPUT

INPUT

1st DIGIT

2nd DIGIT

3rd DIGIT

SUB-SETTINGS

CALIBRATION PROCEDURES

Manual Calibration

100

101

102

103

104

OFFSET

OFFSET

OFFSET

OFFSET

OFFSET

SCALE

SCALE

SCALE

SCALE

SCALE

Two-point Calibration

110

111

112

113

114

ZERO

ZERO

ZERO

ZERO

ZERO

INPUT

INPUT

INPUT

INPUT

INPUT

SPAN

SPAN

SPAN

SPAN

SPAN

INPUT

INPUT

INPUT

INPUT

INPUT

Calibrate Thermocouple

121

122

123

ZERO

ZERO

ZERO

INPUT

INPUT

INPUT

32°F

32°F

32°F

SPAN

SPAN

SPAN

INPUT

INPUT

INPUT

2500°F

2500°F

2500°F

Calibrate Analog Output

151

152

CAL LOW

CAL LOW

OUTPUT

OUTPUT

CAL HIGH

CAL HIGH

OUTPUT

OUTPUT

CALIBRATION MODE [CAL] Continued

1st DIGIT

2nd DIGIT

3rd DIGIT

SUB-SETTINGS

RELATED CALIBRATION FUNCTIONS

Serial Output

<input type="text"/>	<input type="text"/>	<input type="text"/>	200	BAUD	<input type="text"/>	PARITY	<input type="text"/>	ADDRESS	<input type="text"/>	TIME DELAY	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	201	BAUD	<input type="text"/>	PARITY	<input type="text"/>	ADDRESS	<input type="text"/>	TIME DELAY	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	202	BAUD	<input type="text"/>	PARITY	<input type="text"/>	ADDRESS	<input type="text"/>	TIME DELAY	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	203	BAUD	<input type="text"/>	PARITY	<input type="text"/>	ADDRESS	<input type="text"/>	TIME DELAY	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	204	BAUD	<input type="text"/>	PARITY	<input type="text"/>	ADDRESS	<input type="text"/>	TIME DELAY	<input type="text"/>

Auto Zero Maintenance

<input type="text"/>	<input type="text"/>	<input type="text"/>	210	AZ CAPTURE	<input type="text"/>	AZ MOTION	<input type="text"/>	AZ APERTURE	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	211	AZ CAPTURE	<input type="text"/>	AZ MOTION	<input type="text"/>	AZ APERTURE	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	212	AZ CAPTURE	<input type="text"/>	AZ MOTION	<input type="text"/>	AZ APERTURE	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	213	AZ CAPTURE	<input type="text"/>	AZ MOTION	<input type="text"/>	AZ APERTURE	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	214	AZ CAPTURE	<input type="text"/>	AZ MOTION	<input type="text"/>	AZ APERTURE	<input type="text"/>

Averaging Samples & Averaging Window

<input type="text"/>	<input type="text"/>	<input type="text"/>	220	AVERAGE SAMPLES	<input type="text"/>	AVERAGE WINDOW	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	221	AVERAGE SAMPLES	<input type="text"/>	AVERAGE WINDOW	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	222	AVERAGE SAMPLES	<input type="text"/>	AVERAGE WINDOW	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	223	AVERAGE SAMPLES	<input type="text"/>	AVERAGE WINDOW	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	224	AVERAGE SAMPLES	<input type="text"/>	AVERAGE WINDOW	<input type="text"/>

K Factor & Totalizer Cutoff

<input type="text"/>	<input type="text"/>	<input type="text"/>	231	SCALE FACTOR	<input type="text"/>	CUTOFF	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	232	SCALE FACTOR	<input type="text"/>	CUTOFF	<input type="text"/>

32-point Linearization Tables

<input type="text"/>	<input type="text"/>	<input type="text"/>	240	MODE	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	241	MODE	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	242	MODE	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	243	MODE	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	244	MODE	<input type="text"/>

Scale Analog Output

<input type="text"/>	<input type="text"/>	<input type="text"/>	251	ZERO	<input type="text"/>	FULL SCALE	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	252	ZERO	<input type="text"/>	FULL SCALE	<input type="text"/>

# Customer Code Settings – Main Programming Mode

## CODE 1

1st DIGIT	2nd DIGIT	3rd DIGIT	SUB-SETTINGS
<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	X50 SOURCE <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X51 SOURCE <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X52 SOURCE <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X53 SOURCE <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X54 SOURCE <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X55 SOURCE <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X56 SOURCE <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X57 SOURCE <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X60 DISPLAY <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X61 DISPLAY <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X62 DISPLAY <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X63 DISPLAY <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X64 DISPLAY <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X65 DISPLAY <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X66 DISPLAY <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X67 DISPLAY <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X70 CHARACTER <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X71 CHARACTER <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X72 CHARACTER <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X73 CHARACTER <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X74 CHARACTER <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X75 CHARACTER <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X76 CHARACTER <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	X77 CHARACTER <input type="text"/>

## CODE 2

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

## CODE 3

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

## CODE 4

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

## CODE 5

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

## CODE 6

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

## CODE 7

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

## CODE 8

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

## CODE 9

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

## CODE 10

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

## BARGRAPH COLORS

2XX	COLOR 1	<input type="text"/>
	COLOR 2	<input type="text"/>
	COLOR 3	<input type="text"/>
	COLOR 4	<input type="text"/>
	COLOR 5	<input type="text"/>
	COLOR 6	<input type="text"/>
	COLOR 7	<input type="text"/>

## SCALING FOR LINEAR BARGRAPH

3X0	BAR LOW	<input type="text"/>	BAR HIGH	<input type="text"/>	BAR NOMINAL	<input type="text"/>
3X1	BAR LOW	<input type="text"/>	BAR HIGH	<input type="text"/>	BAR NOMINAL	<input type="text"/>

## SCALING FOR LOGIRITHMIC BARGRAPH

3X3	REFERENCE	<input type="text"/>	BAR NOMINAL	<input type="text"/>
3X4	REFERENCE	<input type="text"/>	BAR NOMINAL	<input type="text"/>
3X5	REFERENCE	<input type="text"/>	BAR NOMINAL	<input type="text"/>
3X6	REFERENCE	<input type="text"/>	BAR NOMINAL	<input type="text"/>
3X7	REFERENCE	<input type="text"/>	BAR NOMINAL	<input type="text"/>



# 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
SPC_2	_ 1 _		SPC_2	_ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	ANNUNCIATOR FLASHING
SPC_3	_ 1 _		SPC_3	_ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	SP TRACKING
SPC_4	_ 1 _		SPC_4	_ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	DEVIATION
SPC_5	_ 1 _		SPC_5	_ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	ANNUNCIATOR FLASHING
SPC_6	_ 1 _		SPC_6	_ 5	HYSTERESIS	ANNUNCIATOR FLASHING	SP TRACKING	SP TRACKING

## SETPOINT FINAL SETTINGS

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

## 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
		DOB	ON T	ON T	M OFF	Resolution	OFF T
SPC_2	_ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM
		DOB	ON T	ON T	M OFF	Resolution	OFF T
SPC_3	_ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM
		DOB	ON T	ON T	M OFF	Resolution	OFF T
SPC_4	_ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM
		DOB	ON T	ON T	M OFF	Resolution	OFF T
SPC_5	_ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM
		DOB	ON T	ON T	M OFF	Resolution	OFF T
SPC_6	_ 6	DOM	Resolution	OFF T	Resolution	DOM	DOM
		DOB	ON T	ON T	M OFF	Resolution	OFF 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]

## User Notes