



EASTERN INSTRUMENTS

CENTRIFEEDER™

DIGITAL ELECTRONICS
SCREEN GUIDE



REV 090/10

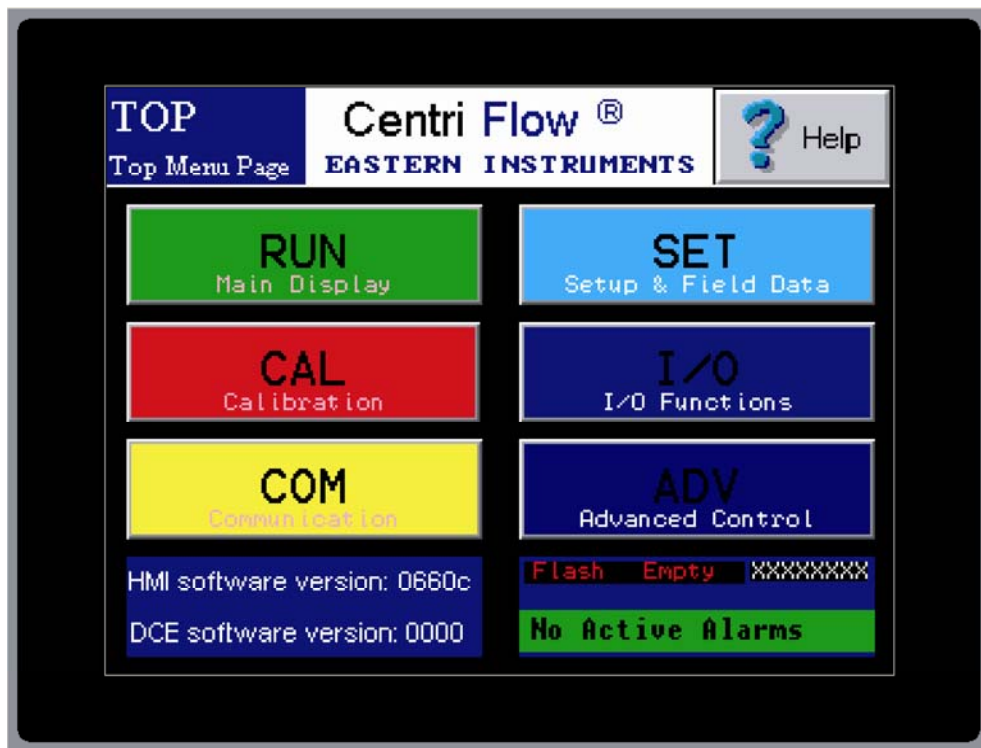


SCREEN GUIDE

Every HMI page has a unique name that includes the previous page name combined with a description of the current page. A period separates the names. When the DCE is first powered on, or when you press the soft-key labeled MENU, the TOP page is displayed.

TOP

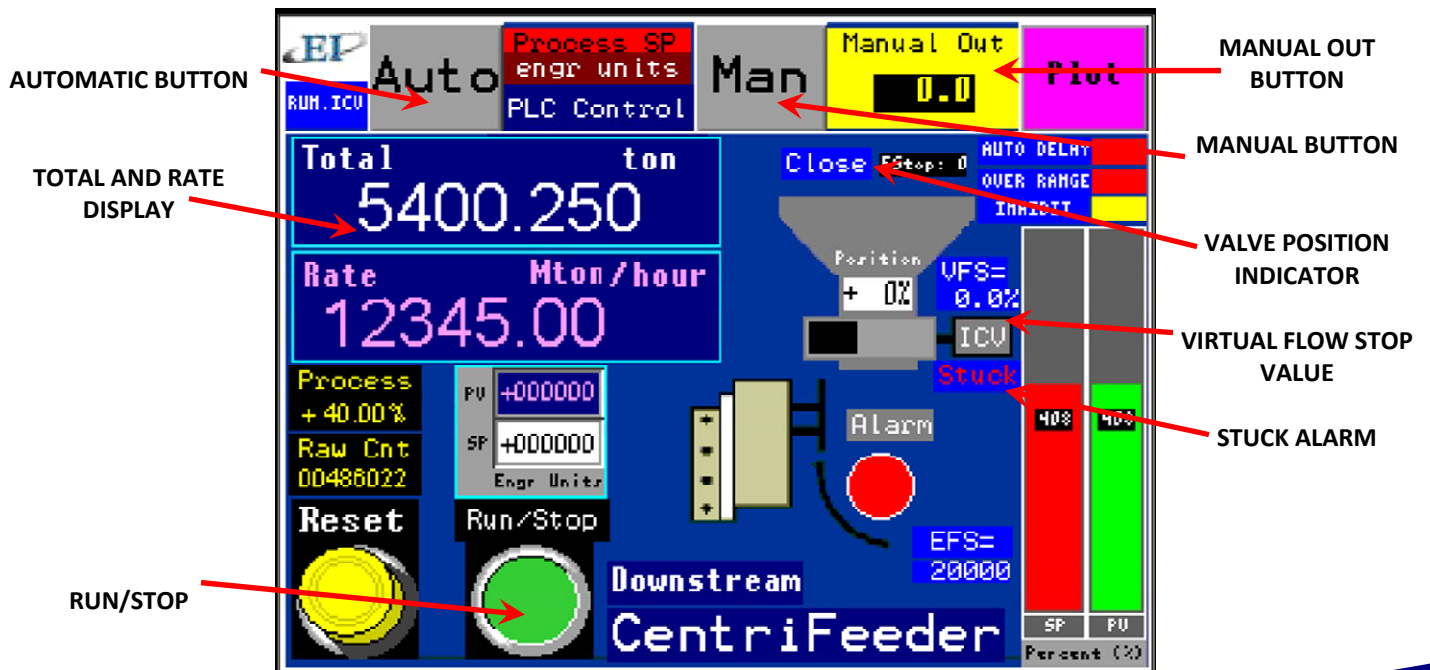
TOP is the Main Menu Screen. There are six buttons on the TOP page. They are RUN, CAL, COM, SET, I/O and ADV. Press the RUN button to go to the TOP.RUN page. This is the normal display mode. Press the CAL button to go to the TOP.CAL page. This is where the DCE calibration is performed (comparable to analog electronics Static Calibration). Press SET Button to go to the TOP.SETUP page. This is used to perform the DCE site calibration. Press the I/O button to go to the TOP.I/O page. This is used to set up the digital inputs and outputs. Press the ADV button to go to the TOP.ADV page. This page is where advance functions such as batching and PID are set-up. In the lower corner you will also notice an indicator displaying whether you currently have a Flash Card Installed and if you have any alarms currently activated. In the upper right corner you can access a Help Menu.





TOP.RUN

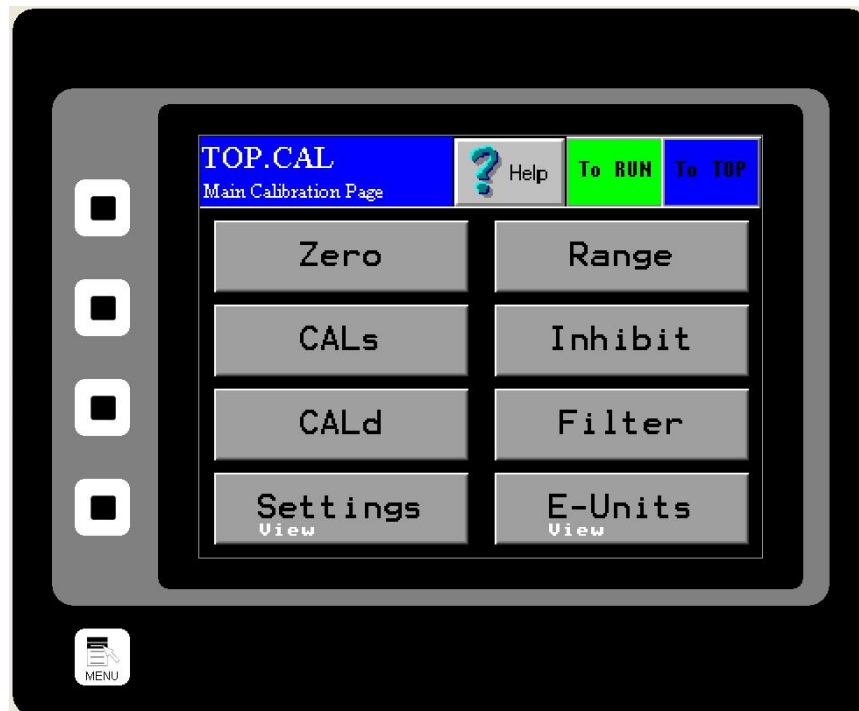
TOP.RUN is the main display mode. Access this screen by pressing the RUN Button from the TOP screen. The customer can choose between Automatic Mode and Manual Mode from this screen as well as view data in real time. The Plot function is also available from this screen.





TOP.CAL

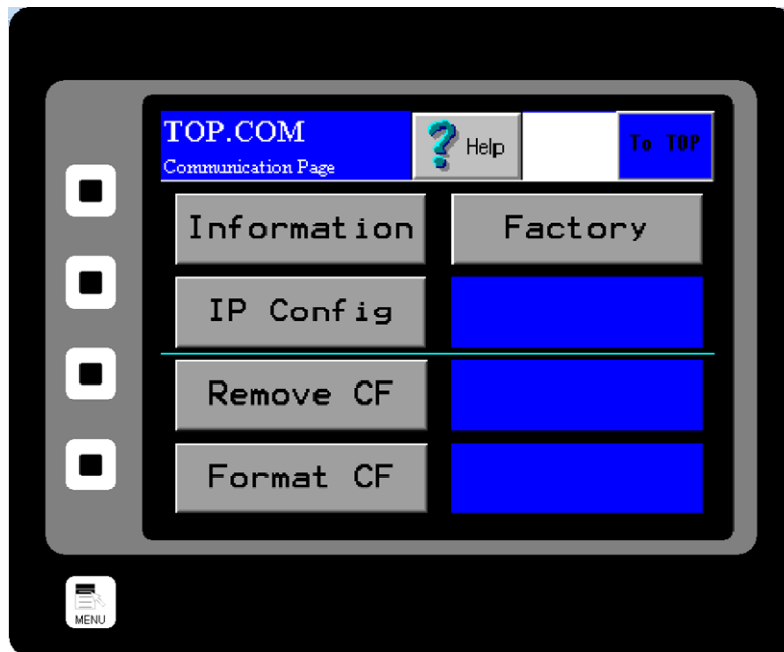
TOP.CAL is the Main Calibration Page. Access this screen by pressing the CAL Button from the TOP page. There are eight buttons on the TOP.CAL page. They are ZERO, CALs, CALd, SETTINGS, RANGE, INHIBIT, FILTER, and E-UNITS. Press the ZERO button to go to the CAL.ZERO page. This is where you can perform a Zero Calibration. Press the CALs Button to go to the CAL.CALs page. This is where you can perform Static Calibration. Press the CALd Button to go to the CAL.CALd page. This is where you can perform Dynamic Calibration. Press the SETTINGS Button to go to CAL.SETTINGS. This is where you can view your currently selected settings. Press the RANGE Button in order to go to the CAL.RANGE page. This is where you select the current range of your electronics. Press the INHIBIT Button to go to the CAL.INHIBIT page. This is where you can select a threshold below which the Electronics will not take a flow measurement. Press the FILTER Button in order to go to the CAL.FILTER page. This is where you can filter the output of your 4-20 mA signal from instantaneous to averaged. Press the E-Units Button to go to the CAL.EUNITS page. This is where you can view data such as your Full Scale and your Count to Weight Ratio.





TOP.COM

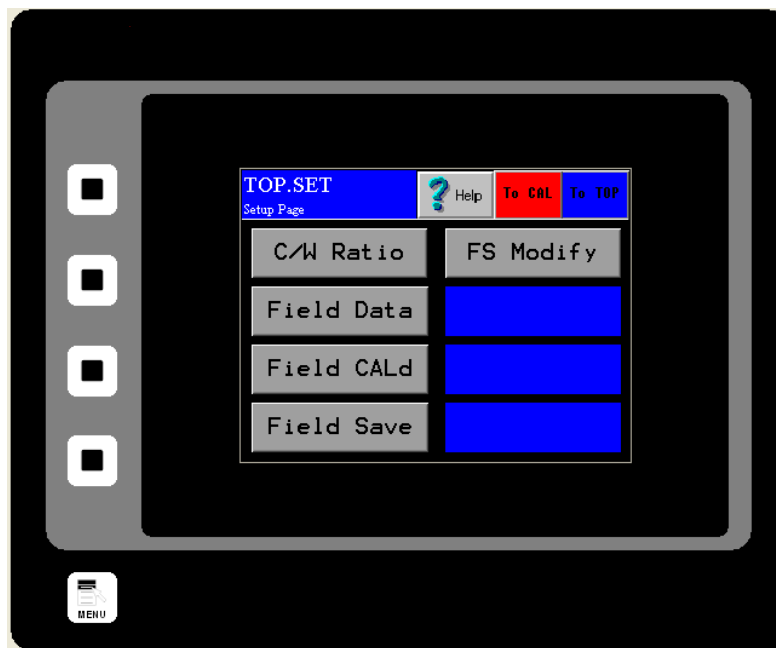
TOP.COM is the Main Communication Page. Access this page by pressing the COM Button from the TOP page. There are five buttons on the TOP.COM page. They are INFORMATION, IP CONFIG, FACTORY, REMOVE CF and FORMAT CF. Press the INFORMATION Button to view information concerning your Software's version, your IP Address and whether you have a Compact Flash Card installed. Press the IP CONFIG Button to edit your IP Settings. Press the FACTORY Button to be able to restore Factory Settings. Press the REMOVE CF to be able to remove your Compact Flash in a safe manner. Press the FORMAT CF Button in order to format your Compact Flash Card.





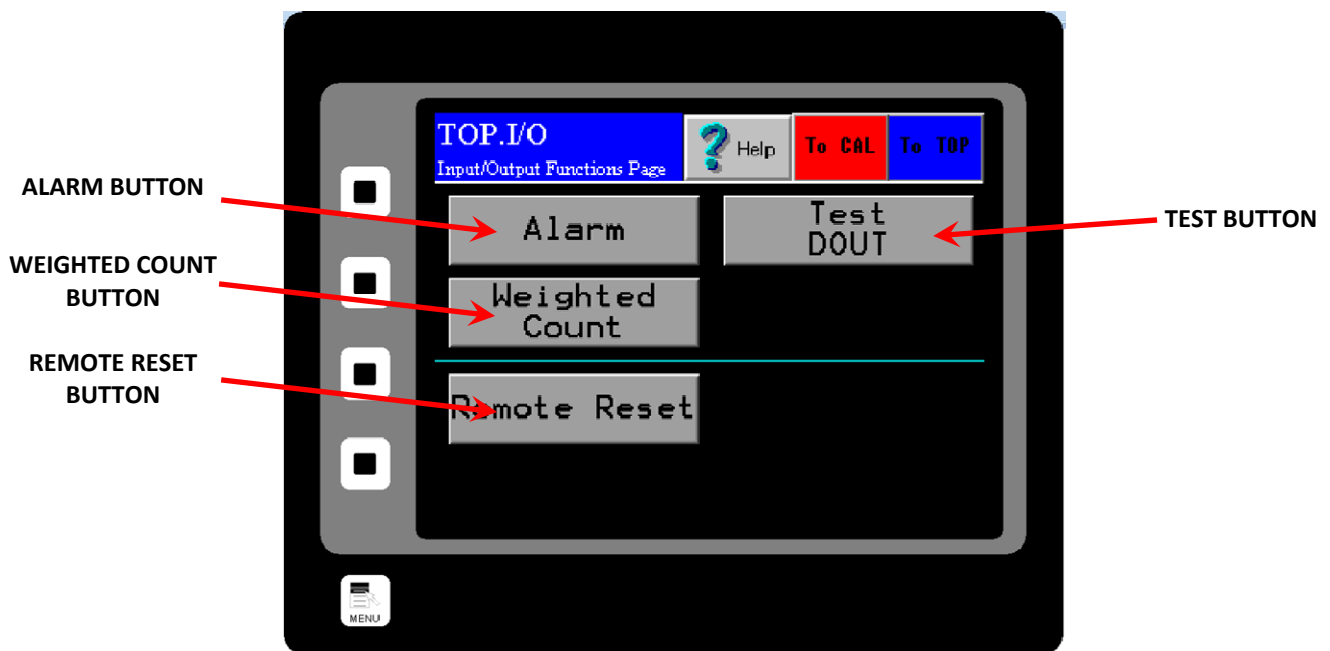
TOP.SET

TOP.SET is the Main Data Entry menu. Access this page by pressing the SET Button from the TOP page. There are five buttons on the TOP.SET page. They are C/W RATIO, FIELD DATA, FIELD CALd, FIELD SAVE and FS MODIFY. From the SET Menu, seen below, you can enter values for your Count to Weight Ratio (C/W RATIO Button), enter Field Data such as is taken during Site Calibration (FIELD DATA Button), change your Dynamic Calibration Settings based on your Dynamic Calibration data (FIELD CALd Button), modify your Full Scale value (FS MODIFY Button), or save calibration data to your Flash Card (FIELD SAVE Button).



TOP.I/O

TOP.I/O is the Main Input/Output Menu page. Access this screen by pressing the I/O Button from the TOP page. This page is for accessing all options associated with setting the alarm on your process.



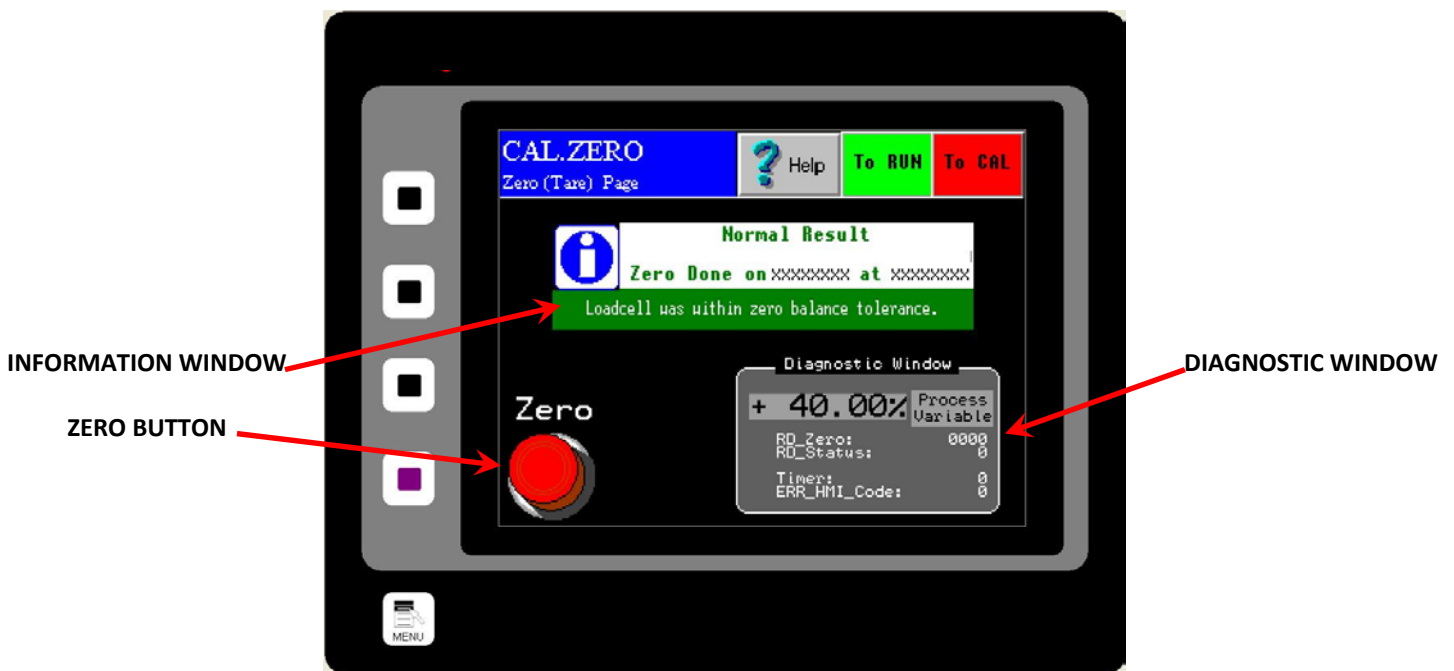
CAL.ZERO

CAL.ZERO is the Zero Calibration page. Access this screen by pressing the ZERO Button on the TOP.CAL screen after pressing the CAL Button from the TOP page. This page is for conducting Zero Calibrations. The procedure for a Zero Calibration can be found under the Static Calibration Section. (See page 21.)

The Diagnostic Window displays the Process Variable. The Red Zero Button is pushed in order to run a Zero Calibration. Information on whether the calibration was successful and whether there may be excess product on your Meter Pan may be found in your Information Window.

The meter should normally be re-zeroed when the Process Variable % is greater than +/- 0.25% with no flow. If highest accuracy is required, zero when greater than +/- 0.1%. Conversely, if lower accuracy is required this value can be raised. One can view the Process Variable % on the bottom right of the TOP.RUN page to determine if a zero is needed. (See page 32.)

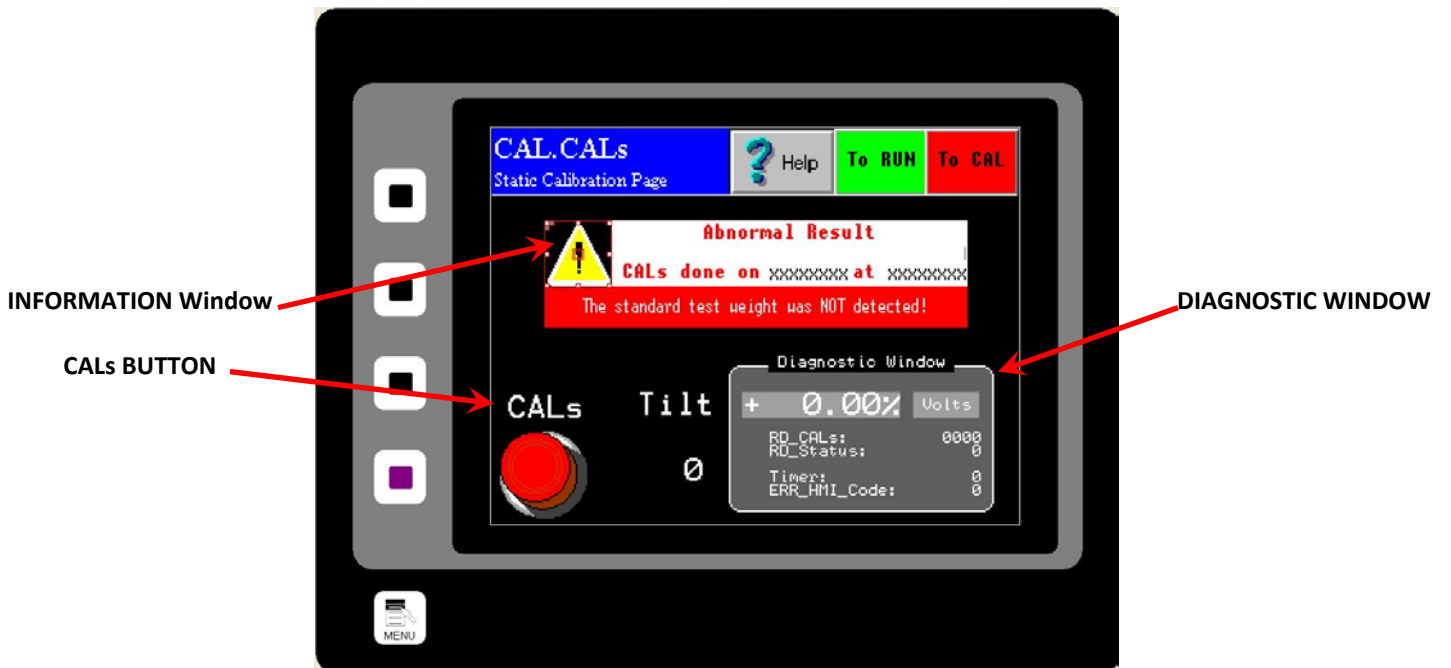
Ensure there is no flow prior to performing a zero!



CAL.CALs

CAL.CALs is the Static Calibration page. Access this screen by pressing the CALs Button on the TOP.CAL page after pressing the CAL Button from the TOP page. This page is for conducting Static Calibrations. The procedure for a Static Calibration can be found under the Static Calibration Section. (See page 21.)

The Diagnostic Window displays Voltage. The Red CALs Button is pushed in order to run a Static Calibration. Information on whether the calibration was successful may be found in your Information Window. The screen capture below indicates a Static Calibration failure.

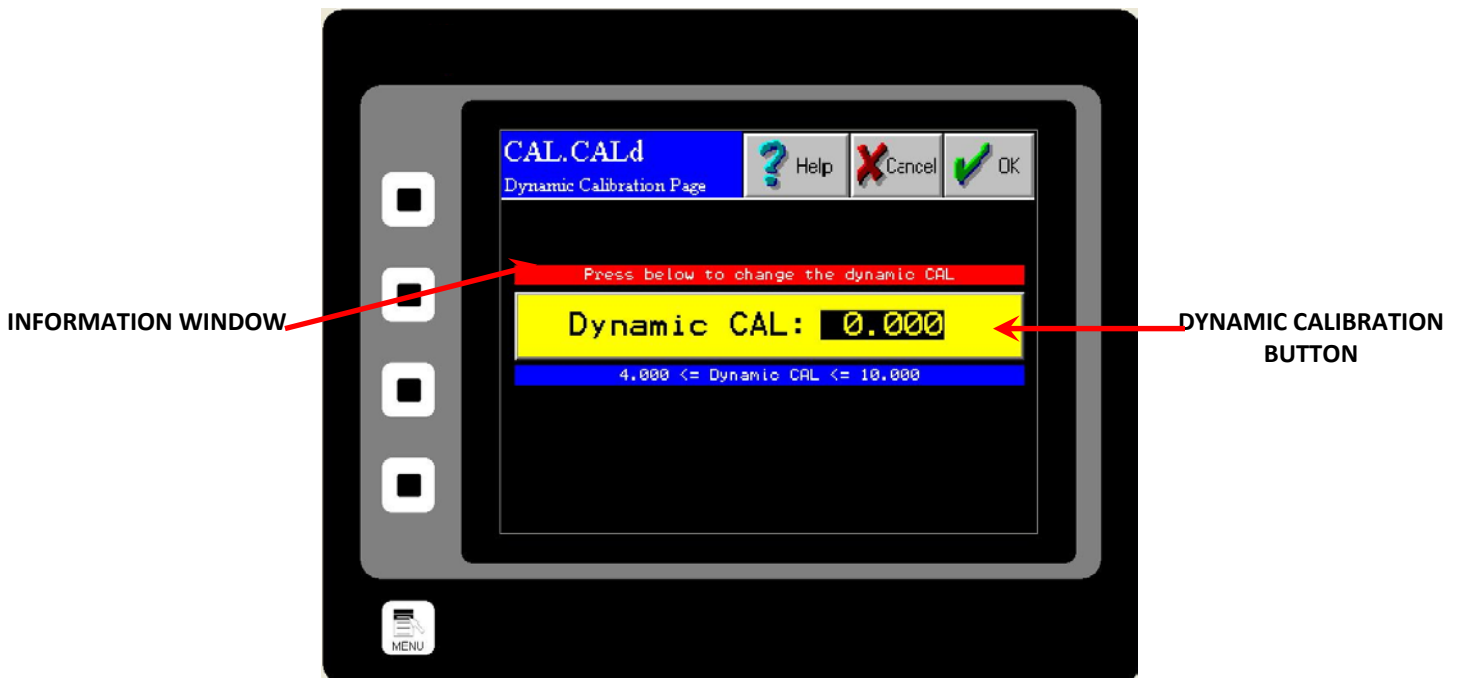


CAL.CALd

CAL.CALd is the Dynamic Calibration page. Access this screen by pressing the CALd Button on the CAL Screen after pressing the CAL Button from the TOP page. This page is for conducting Dynamic Calibration. The procedure for a Dynamic Calibration (or Site Calibration) can be found on page 22.

The Information Window displays helpful information regarding the options on this screen. Pressing the Dynamic Calibration Button **Twice** brings up a numeric keypad that allows you to manually enter your Dynamic Calibration Number.

Dynamic Calibration: Displays the setting used to adjust the Electronic Full Scale Flow Rate to the appropriate value. This Voltage can range from a minimum of 4 to a maximum of 10.

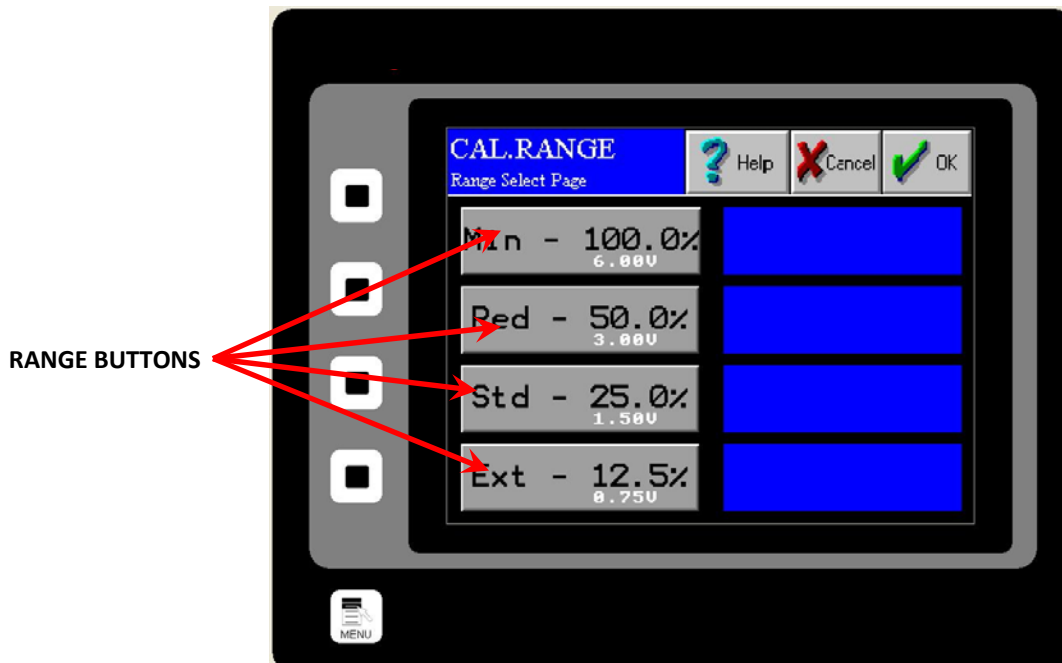




CAL.RANGE

CAL.RANGE is the Calibration Range page. Access this screen by pressing the RANGE Button on the TOP.CAL page after pressing the CAL Button from the TOP page. This page is for changing the Range of you electronics.

The Range can be changed to the desired value by clicking on the appropriate button.
The range setting is already selected by the factory and typically adjustment is not required.

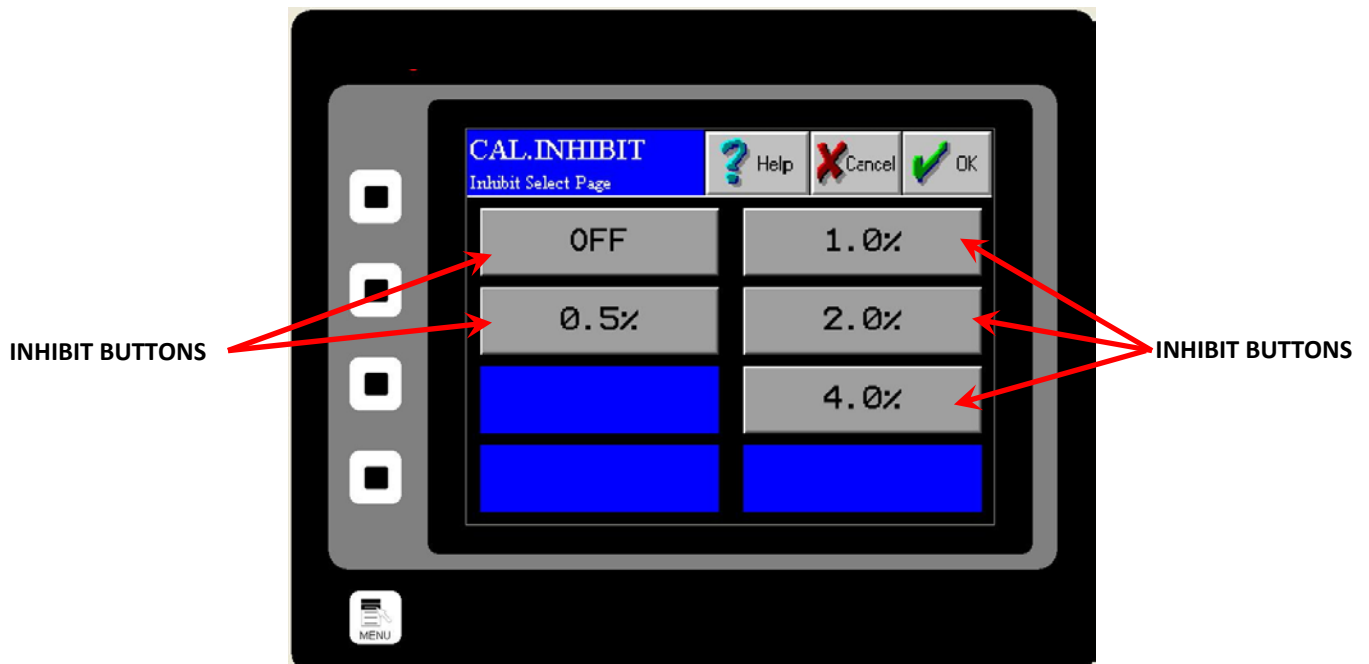


CAL.INHIBIT

CAL.INHIBIT is the Inhibit page. Access this screen by pressing the INHIBIT Button on the TOP.CAL page after pressing the CAL Button from the TOP page. This page is for changing the Inhibit that sets a threshold which the Flow Rate Output must rise above in order for the electronics to begin counting. The range for setting this threshold is from 0.5% of full scale to 4.0% of full scale.

The Inhibit can be changed by pressing the accompanying Inhibit Buttons.

Unless OFF is selected for Inhibit, the Total display on the page TOP.RUN and the output signal 'Frequency, Flow Rate Proportional' will be inhibited. The Inhibit for the Flow Rate display on the page TOP.RUN and the output signal '4-20mA' operate slightly different. The Inhibit is OFF for the Flow Rate and 4-20mA signal when the 4-20mA moving average filter is OFF. (See the page CAL.FILTER.) To Inhibit the Flow Rate and 4-20mA signal, both the 4-20mA moving average filter and the Inhibit must be on.



CAL.FILTER

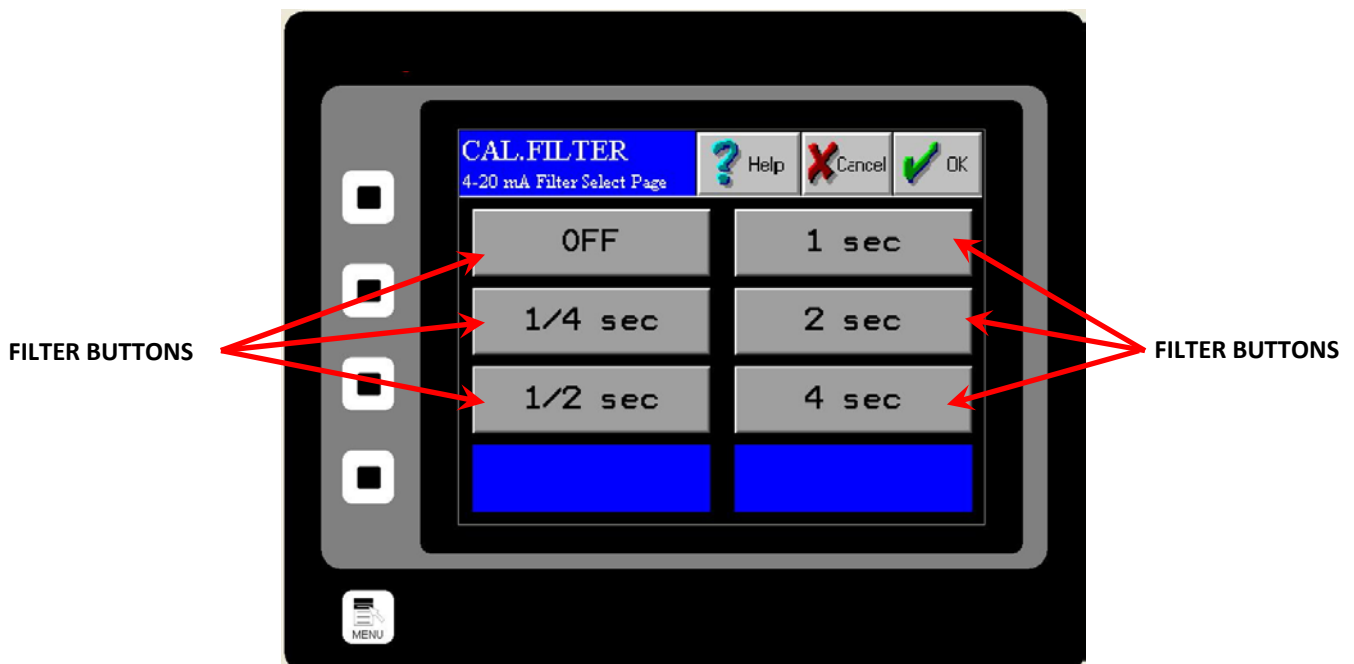
CAL.FILTER is the Filter page. Access this screen by pressing the FILTER Button on the TOP.CAL page after pressing the CAL Button from the TOP page. This page is for selecting the number of points used in the 4-20mA moving average filter. The formula for a moving average filter is shown below. Press one of the Filter Buttons to select the desired time increment for the filter. For example, a time increment of 1 second will filter (or average) 200 samples of the input signal to create the 4-20mA filtered output signal. This is because the transducer input sample rate is 200 samples per second. The 4-20mA output signal is updated at the same sample rate as the input signal. However, the output signal will be delayed by the selected time. The moving average filter can also be turned off from this screen.

Moving Average Filter

$$y[i] = \frac{1}{M} \sum_{j=0}^{M-1} x[i+j]$$

$x[] = \text{input signal}$
 $y[] = \text{output signal}$
 $M = \text{number of points}$

The moving average is a very common filter in digital signal processing. Despite its simplicity, the filter is optimum at performing the common task of reducing random noise while retaining a sharp step response.

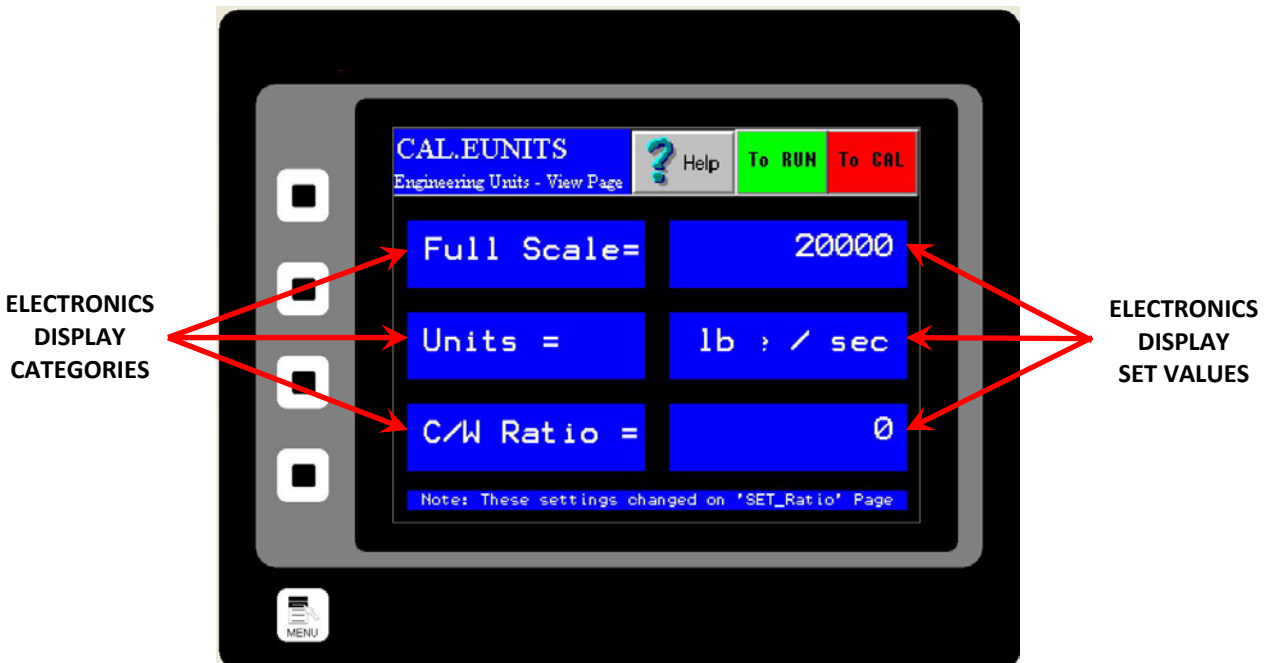




CAL.EUNITS

CAL.EUNITS is the Unit Display page. Access this screen by pressing the EUNITS Button on the TOP.CAL page after pressing the CAL Button from the TOP page. This page displays the Electronic Full Scale, the mass and time units, and the C/W Ratio. The C/W Ratio, or Count per Weight Ratio, is determined by the factory. This value is the number of counts that the Electronics Counter will display per weight of material that is run through the meter.

These settings can not be modified from this page.



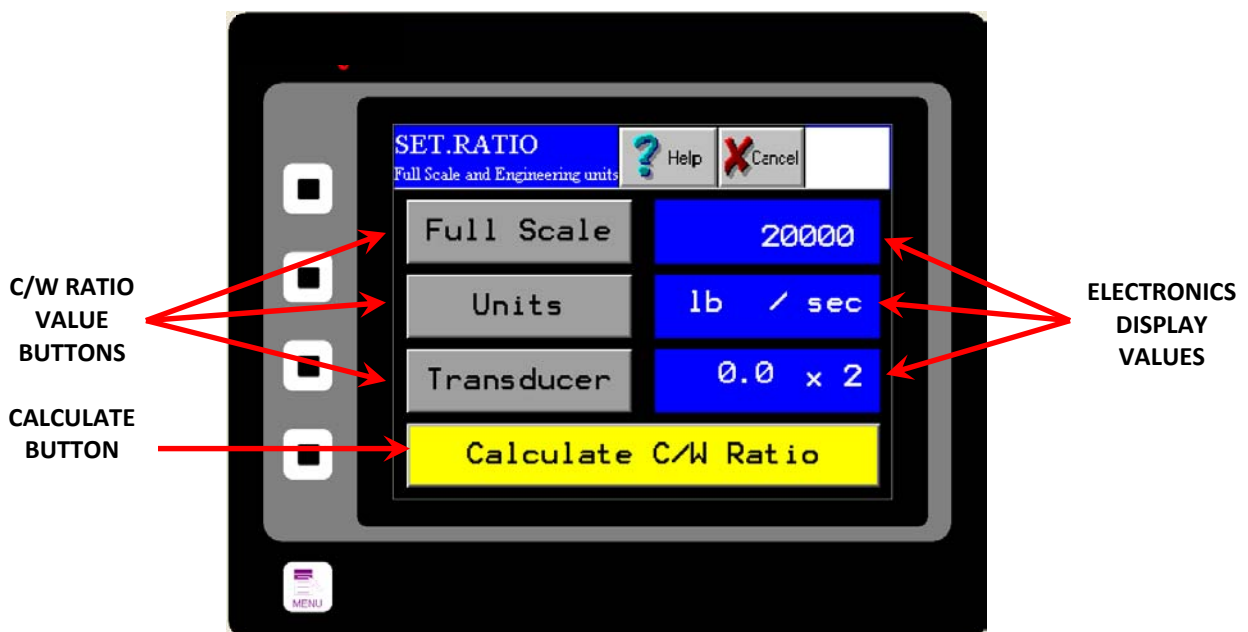


SET.RATIO

SET.RATIO is the page that allows you to calculate your count per weight ratio. The C/W Ratio, or Count per Weight Ratio, is determined by the factory. This value is the divisor used to calculate the engineering count (total) from the raw count. Your Full Scale value can be changed, the units of your Full Scale value can be modified and the number and size of your Transducers can be modified from this page. The button near the bottom will use this data and recalculate your C/W ratio.

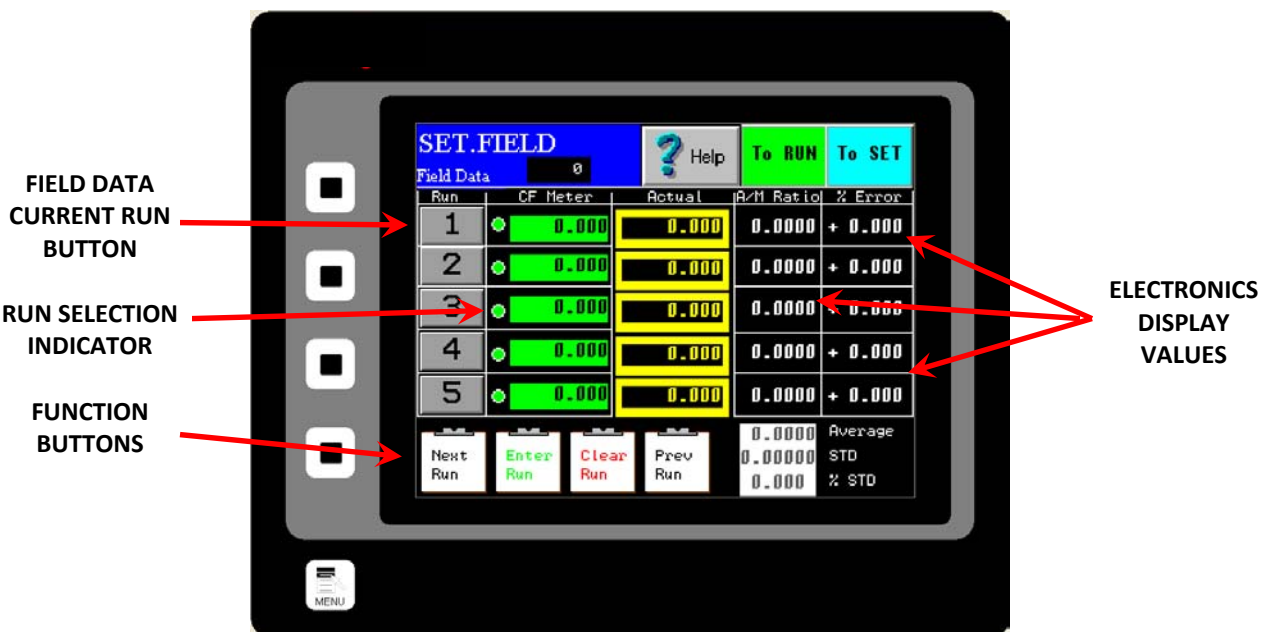
$$\text{Engineering Count} = \text{Raw Count} / \text{Count per Weight Ratio}$$

This data is set by the factory and should not be changed by the customer.



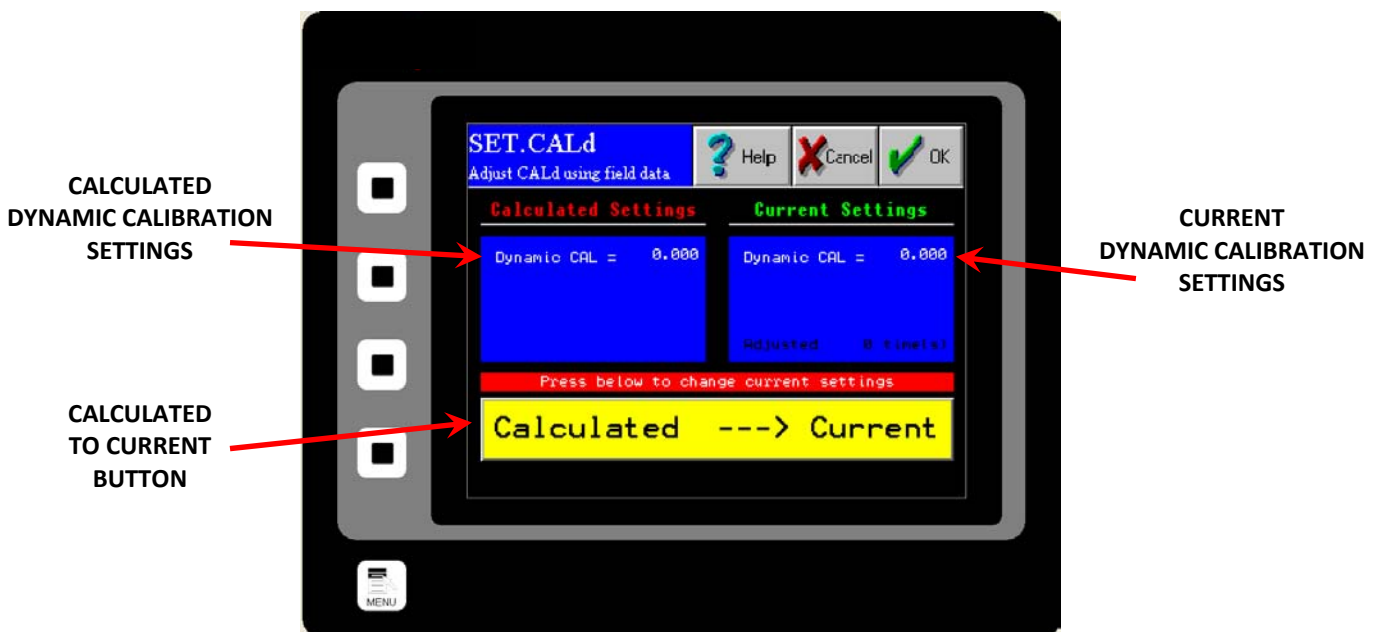
SET.FIELD

SET.FIELD is the page that allows you to collect and verify your site calibration data. This page is used extensively in Site Calibration as shown in the Site Calibration section of Chapter 3 of this manual. This screen allows you to compare the metered weight of material run through the meter versus the actual weight of the material, often weighed by a static scale after being diverted. By pressing the FIELD DATA CURRENT RUN Buttons (1-5) you can select which runs will be used during your Site Calibration calculation. The green RUN SELECTOR INDICATOR lights will be lit green when selected. Selecting certain runs using your FIELD DATA CURRENT RUN Buttons will also be useful when used in conjunction with the FUNCTION Buttons at the bottom of the screen for clearing a certain run or entering the actual data for a specific run. Values for the actual weight of material run through the meter can be entered by touching the appropriate area in the "Actual" column. A numeric keypad will prompt you to enter your data.



SET.CALd

SET.CALd is a page used in conjunction with SET.FIELD page in order to adjust your Dynamic Calibration using recently collected field data. Once the field data is entered, open this page and you should see the new calculated Dynamic Calibration value under the CALCULATED DYNAMIC CALIBRATION SETTINGS section. Your current calibration settings will be displayed under the CURRENT DYNAMIC CALIBRATION SETTINGS section. The CALCULATED TO CURRENT Button allows you to change your Dynamic Calibration using the new, calculated value. For detailed instructions on how to perform a Dynamic, or Site, Calibration, please see the Site Calibration section of Chapter 3.

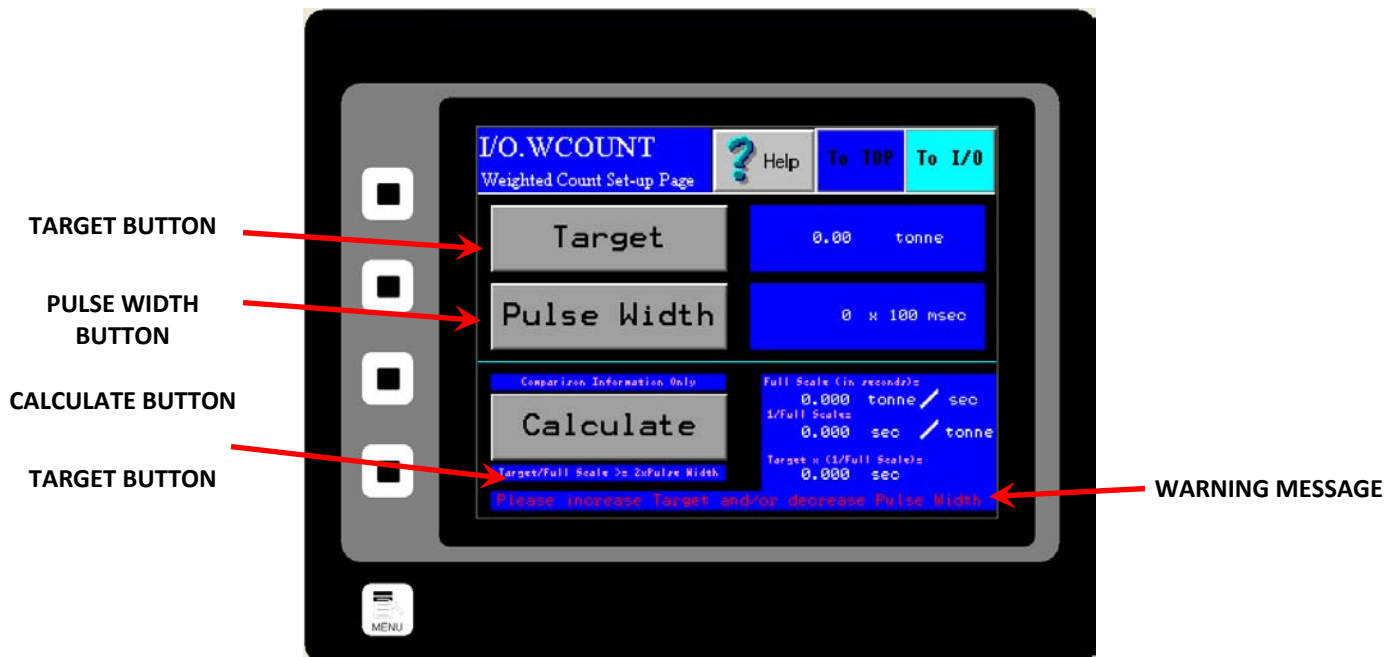


I/O.WCOUNT (Optional)

The I/O.WCOUNT page allows you to set up the weighted count option. This option allows you to set a target weight that will trigger a pulsed signal each time that target weight passes over the meter. The TARGET Button allows you to determine when the pulse will trigger by selecting the target weight, while the PULSE WIDTH Button allows you to determine the length, or duration, of the pulse signal. The values become effective immediately upon entry. You do not need to press the CALCULATE Button for the new Weighted Count values to become effective. The CALCULATE BUTTON is used as a reference guide only and will estimate, using your Full Scale value and your flow rate, the time taken to reach the target weight and thus, an estimate of the time between each pulse signal. The CALCULATE Button offers a way to ensure that the Target value is compatible with your Pulse Width value.

For example, if you are using your Weighted Count option to monitor product flowing at 60,000 lb/min in order to send a pulsed signal to an indicator light every time 1,000 lb passes through the meter and your pulse width is set to one second, the indicator light will never go off before it is signaled to come back on again.

If this is the case, a warning message like the one shown below, will appear. Raising your target value, lowering your pulse width, or both will remedy this.





I/O.ALARM

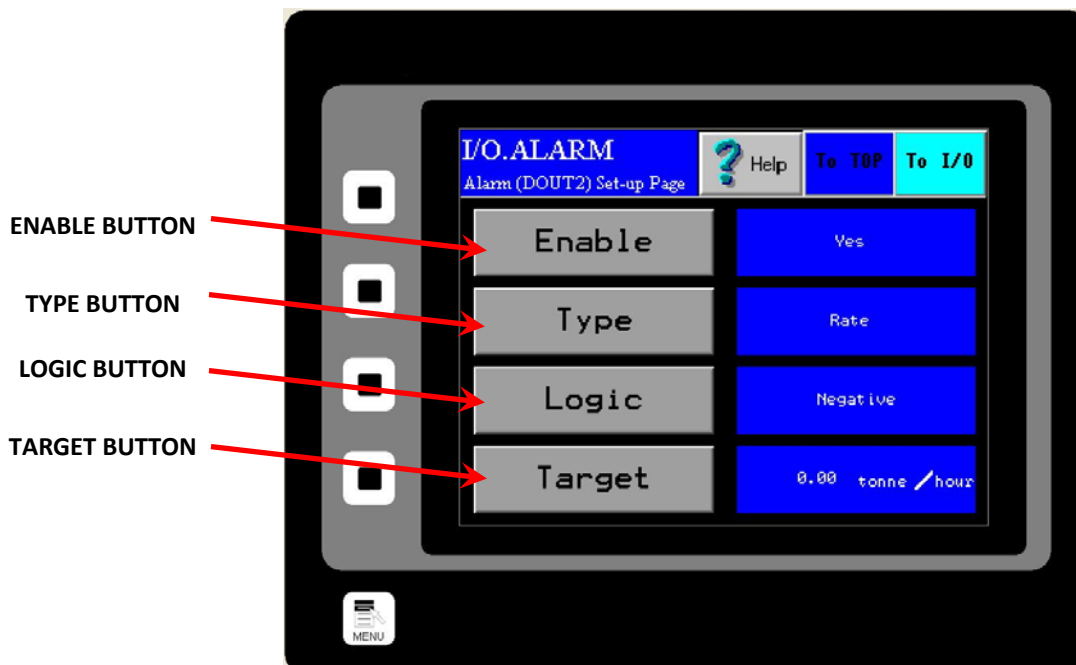
I/O.ALARM is the Alarm page. Access this screen by pressing the ALARM Button from TOP.I/O page. This page is for changing the options of the alarm. The alarm can be turned on and off using the ENABLE Button. Press the ENABLE Button until the desired result is displayed in the Blue display box to the right of the ENABLE Button.

The alarm can be used to monitor either flow rate or weight using the TYPE Button. Press the TYPE Button until the desired result is displayed in the Blue display box to the right of the TYPE Button.

The Target Value for both rate and weight alarms can be set by pressing the TARGET Button and entering an appropriate value. Pressing the TARGET Button will take you to the I/O.ALARM.SP page. For more information on this page, please turn to the next page.

The alarm can be set as either a High Alarm or a Low Alarm. Use the LOGIC Button to choose which type of alarm you would like to use. Press the LOGIC Button until the desired result is displayed in the Blue display box to the right of the LOGIC Button.

NOTE: POSITIVE LOGIC INDICATES THAT THE ALARM HAS BEEN SET AS A HIGH ALARM AND WILL TRIGGER WHEN FLOW (OR WEIGHT) GOES ABOVE THE TARGET VALUE. NEGATIVE LOGIC INDICATES THAT THE ALARM HAS BEEN SET AS A LOW ALARM AND WILL TRIGGER WHEN FLOW (OR WEIGHT) GOES BELOW THE TARGET VALUE.





I/O.ALARM.SP

I/O.ALARM.SP is the Alarm Target Entry page. Access this screen by pressing the TARGET Button from the I/O.ALARM page. This page is for changing the values that will trip the alarm. You can enter a weight by pressing the WEIGHT ALARM Button or enter a rate by pressing the RATE ALARM Button. The value entered will display to the right of the button.



I/O.WEIGHT.OUT

I/O.WEIGHT.OUT is the page that allows you to define the type of Weight of Totalization alarm that you will be utilizing. Access this screen by first pressing the I/O Button from the TOP.MENU page. Then, press the ALARM Button, followed by the TARGET Button, and finally, the WEIGHT OUTPUT Button. The two types of Weight Alarms to choose from are Pulsed Weight Alarms, or Latch Weight Alarms. A Pulsed Weight Alarm will allow you to choose a Weight Target and when that amount of weight, or Total Weight, passes through the meter, the alarm will be tripped for a set duration of time. A Latch Weight Alarm will trip as soon as the Target Weight is reached and will remain tripped, or “latched”, until the Totalization count is reset. For instructions on Totalization reset, please see the TOP.RUN page in the Screen Guide section of Chapter 4.

Pressing the OUTPUT Button will allow you to choose between a Pulsed Weight Alarm or a Latch Weight Alarm. If a Pulsed Weight Alarm is chosen, a duration for the Pulsed Alarm can be chosen as well. This is accomplished by pressing the DURATION Button and entering an alarm duration in seconds. The Totalization Count is reset once the Pulse Alarm time expires.

*Please note that while a duration can be entered even while a Latch Weight Alarm is selected, the duration entered will have no effect unless a Pulse Weight Alarm is chosen.

