

15 Totalizer Display Lab

15.1 Foreword

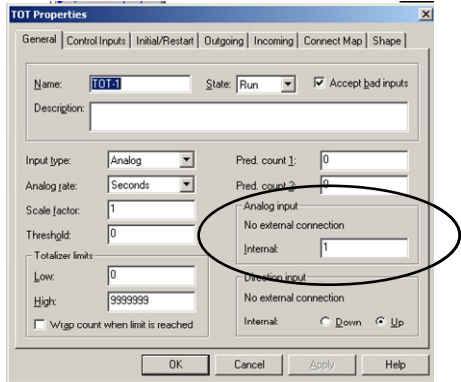
In many process control applications, indication of a totalized variable is required. The user may also wish to operate the totalizer from the front panel. This lab uses a totalizer and display to examine some of the elements of custom display building.

15.2 Objectives

In this lab, we will add a totalizer block to the database and construct a display to view and clear the total value from the front panel. Make sure you have a database loaded that contains a PID block and associated DISP block.

15.3 Instructions

A - LOAD A TOTALIZER BLOCK

- | Step | Procedure | Comments |
|------|--|--|
| 1. | Make sure your PID block is visible on the screen. | |
| 2. | From the Algorithm library menu, select TOT (Totalizer) | |
| 3. | Drag the box onto the screen and fix it in place by clicking the left mouse key. Move and size the block so it is in an appropriate area of your screen. | You should now have a block on your screen called TOT. |
| 4. | Open the Totalizer block. Set the Analog Input to 1 as shown. | Because there are no actual inputs connected to the controller we will totalize an internal constant. Normally there would be an external connection to another block, such as the PVI from a PID block. |
- 
- | | | |
|----|---------------------------------------|---|
| 5. | Click on the Initial/Restart tab. | |
| 6. | Change the Initial Mode to Run | The Totalizer will begin totalizing the |

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process variable as soon as the instrument download is complete.

- 7. Click OK to close the block.

B – CREATE THE TOTALIZER DISPLAY

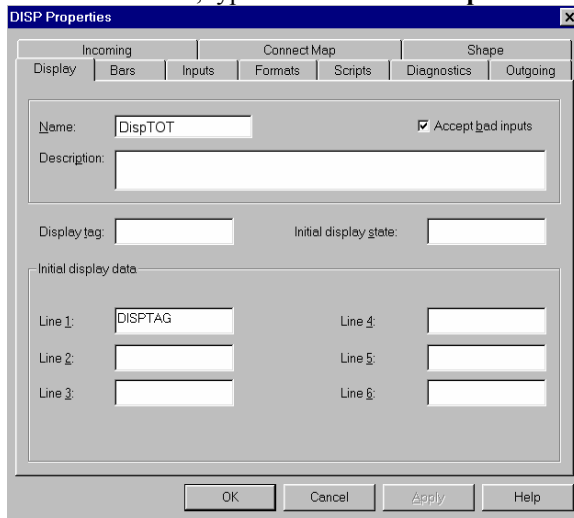
Step

Procedure

Comments

- 8. Drag a new DISP block onto the workspace and place it near the TOT block
- 9. Double-click to open the DISP block
- 10. In the Name field, type a name such as **DispTOT**

This identifies the block within the database and is NOT the tag name that will appear on the display.



- 11. In the Display Tag field type a tag name such as **STM TOT**
- 12. In the Initial Data section, type **Total** in the blank field next to Line 2
- 13. In the Initial Data section, type **“CLR”**, including the quotes, in the blank field next to Line 5
- 14. In the Initial Data section, type **Clear** in the blank field next to Line 6
- 15. Select the Inputs tab
- 16. Click on the Add button and configure the new **Total**

This is the tag name that will appear on the operating display.

We will define an input called Total, and its value will appear on Line 2 of the display during operation.

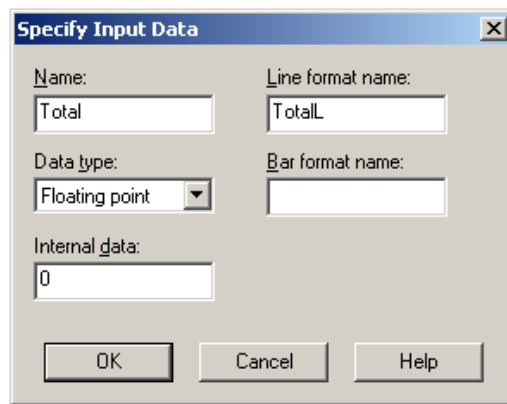
We will define a constant string value CLR to appear on Line 5 of the display during operation.

We will define an input called Clear, and its value will appear on Line 6 of the display during operation.

We will add the totalized value and the ability to reset the totalizer from the front face. This requires two new inputs.

Total is the name of the input.

input as shown below, then click OK to close the menu

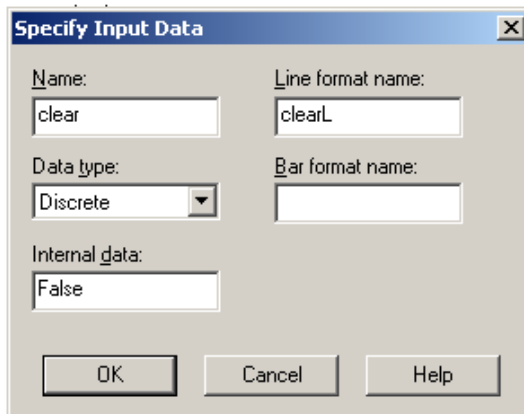


The analog input from the PID block (PVI) is a Floating Point variable.

TotalL is the name of the Format, which will be defined in the next activity.

Bar format name is left blank because we will not display this value as a bargraph.

- Click on the Add button and configure the new **clear** input as shown below, then click OK to close the menu



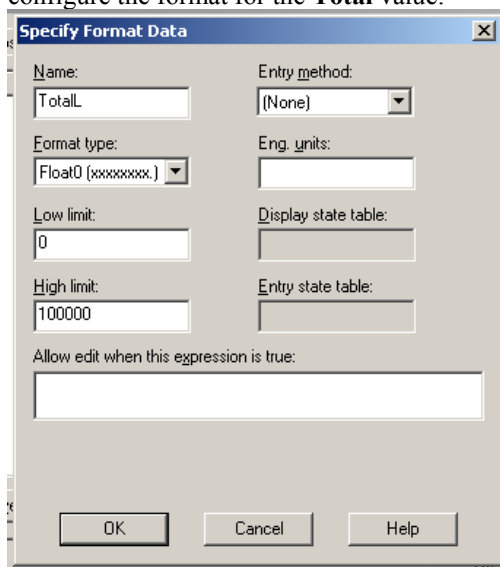
clear is the name of the input.

This will be a discrete input from the keypad on the controller.

clearL is the name of the Format, which will be defined in the next activity.

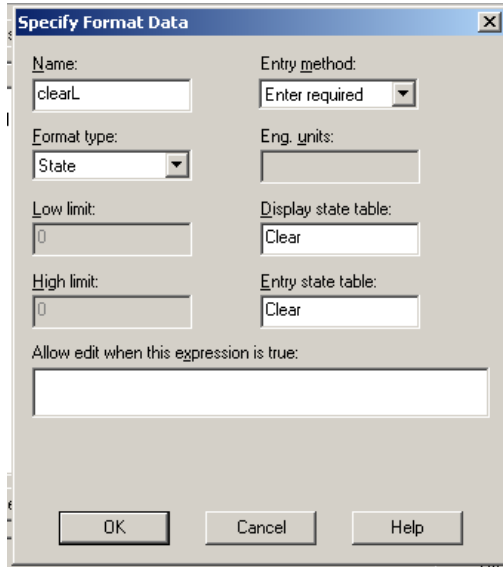
Bar format name is left blank because we will not display this value as a bargraph.

- Select the Formats tab, click on the Add button and configure the format for the **Total** value:



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19. Add a format for the **clear** variable:



clearL is the format name

The format type is a State variable. The State Table to show the operator command will be added in the next section.

Entry method – the operator will be required to press ENT to clear the total. Note that there must always be a Display state table; it can be the same as the Entry state table.

20. Click OK to close the DISP block
21. Connect the totalizer block output **TC** to the display block input **Total**
22. Connect the display block **Clear** to the totalizer block input **RESINP**

This allows the totalized count to be shown on the display.

This allows the user to clear the totalized count from the display.

D - ADD NEW STATE TABLE

Step

Procedure

Comments

23. At the top level of your database, double-click on the ST (State Table) block to open it.
24. Select the Tables tab and scroll to the bottom of the list of tables.
25. Add the following script to the **BOTTOM** of the list of State Tables:

```

Clear, 3, "???"
{
  1, "YES";
  0, "NO";
}
    
```

The State Table is required to provide text representation of the reset command (which in the instrument is "1" or "0"...not very meaningful to an operator).

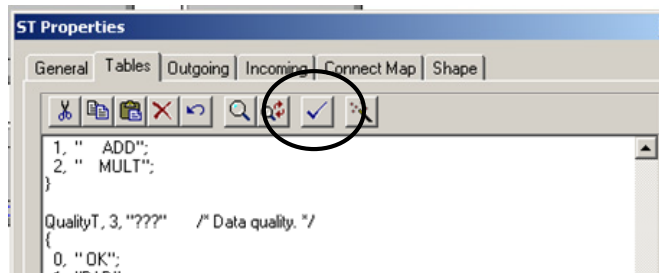
It does not matter where the tables are added; however, be sure not to embed them within an existing State Table. It is usually best to add State Tables to the end of the file.

Clear is the table name

3 is the maximum number of characters to be displayed for the field in this table.

The question marks will be shown on the display in the event the value is neither 1 nor 0.

26. To verify your script is correct, click on the Checkmark icon on the toolbar. Correct any reported errors.



27. Click OK to close the ST block.

E – ADD THE TOTALIZER DISPLAY TO THE DISPLAY LIST

Step	Procedure	Comments
28.	Double-click on the DIF block	
29.	Add STM TOT to the display list	
30.	Close the DIF block	

F – COMPILE THE DATABASE:

Step	Procedure	Comments
31.	Save your database.	
32.	Compile and download your configuration.	
33.	Press the TAG key to view the new STM TOT totalizer display.	
34.	Press the up/down arrow key to select YES . Press ENT .	The total value resets to zero and begins totalizing again.

