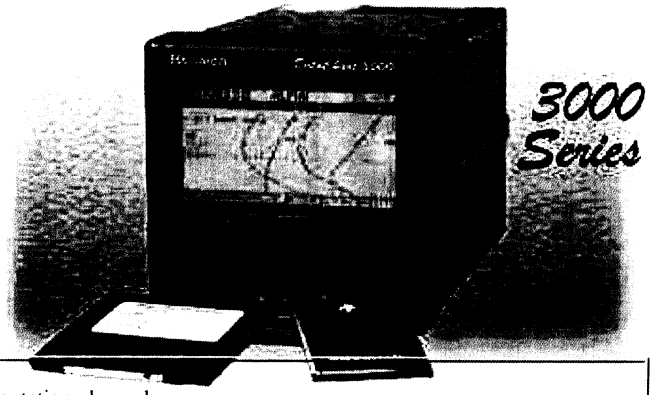
DataChart®
3000 Series

SPECIFICATIONS

- SPECIFICATIONS
- DIMENSIONS
- Contact your local Distributor

For a complete in depth data sheet fill out the information request form and submit it to us.

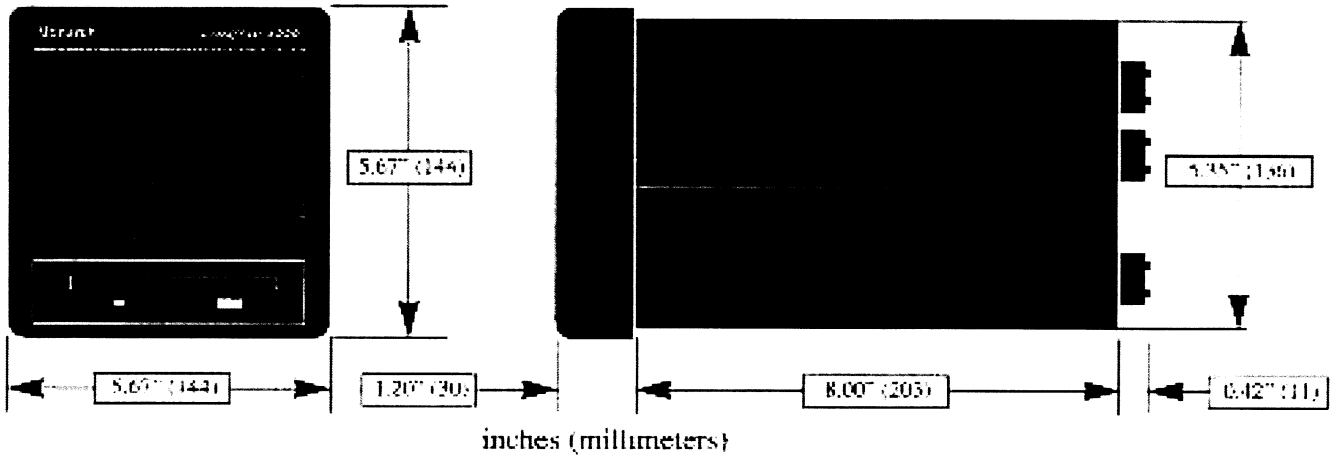


SPECIFICATIONS

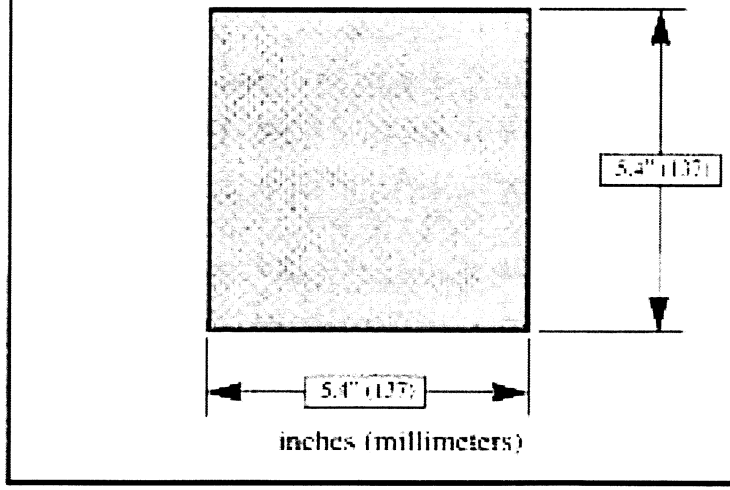
Number of Inputs **Number of Channels**	3, 4, 6 or 8 direct analog channels 12 total. Includes up to 6 direct analog inputs plus computation channels
Display	5 inch diagonal LCD with bright CCFL backlighting - high resolution, 240 x 128 pixels
Accuracy	16 bit resolution and high accuracy. Voltage ±0.05% Current ±0.1%
Alarms	60 total. 5 per channel including high, low, and rate of change - user selectable
Isolation	300 VDC or AC peak
Power Required	90 to 260 VAC, 48 to 400 Hz @ 35VA max. Also 125V, 24V and 12 VDC
Configuration	Touchscreen Control menu or IBM compatible PCs
Size (1/2 DIN)	144mm x 144mm x 204mm (5.669 inches x 5.669 inches x 8.0 inches)
Weight	3kg, 6.6 pounds
Safety & Conformity	Meets CE EMC 89/336/EMC and Low Voltage Directive 72/23/EEC UL and cUL (IEC1010-1)
Data Storage Capacity	3 1/2 floppy disk - 1.44 Mbyte or PCMCIA card - 256 Kbyte to 2048 Kbyte
Serial Communications	RS485, isolated, addressable up to 31 units - MODBUS PROTOCOL RS232 with MODEM control
Transmitter Power Supply	24 VDC, 125mA isolated power supply
Totalization	8-digit. Start, stop, and reset remote input control
Alarm Outputs and **Digital Inputs**	6 relay contacts. Form C NO/NC, 3 Amp @ 240 VAC 3 Digital Opto Isolated control inputs. Start/Stop recording, change sample rate, alarm acknowledge/reset, totalize, reset or event marker.
Environment	Operating temperature: -10 to 50°C Operating humidity: 0 to 95% RH, non-condensing

DIMENSIONS

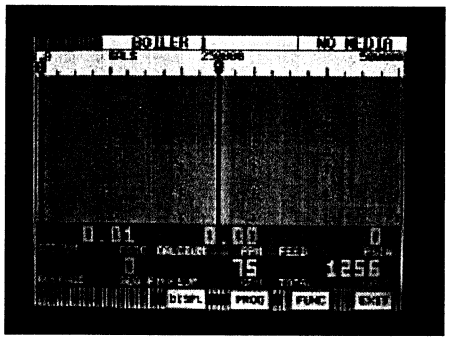
DC-3000 Dimensions



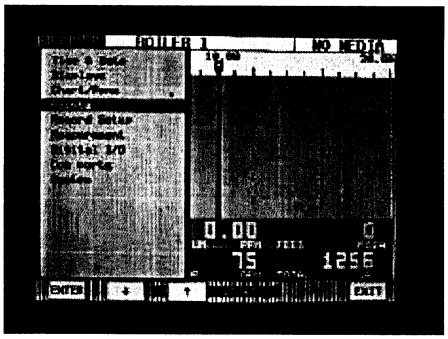
Panel Cut Out Dimensions



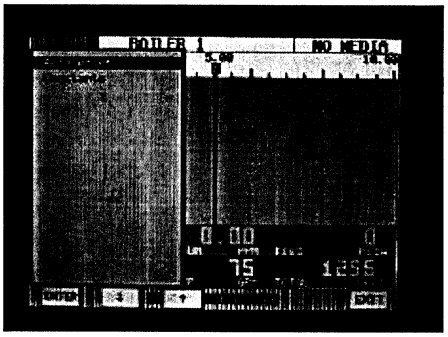
1. Begin configuration by touching the **MENU** button in the lower right hand corner of the screen. This will bring up the main menu bar. Touch the **PROG** button to enter into the main program menu.



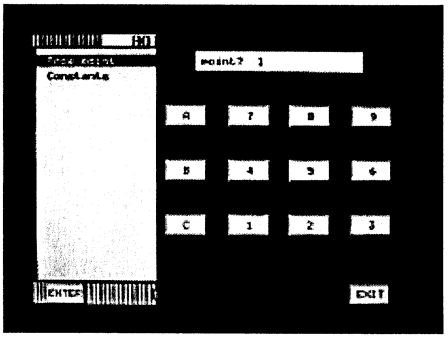
2. Once in the main program menu use the up/down arrow keys to select **Points**, then touch **ENTER**.



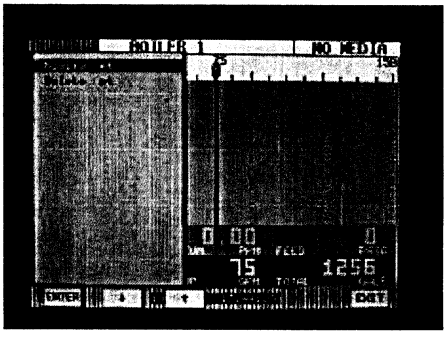
3. **Prog point** and **Constants** will appear. Using the up/down arrow keys select **Prog point** and touch **ENTER**.



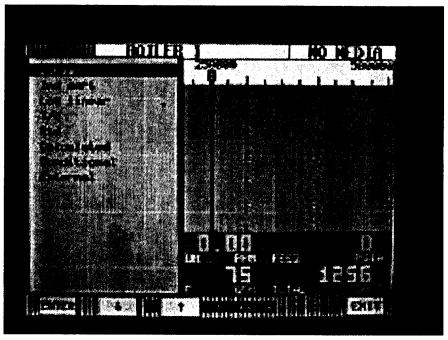
4. The numbers **1 – 9** and letters **A, B** and **C** will be displayed. Touch the number that represents the input or channel you wish to configure. For this example use number **1** and touch **ENTER**.



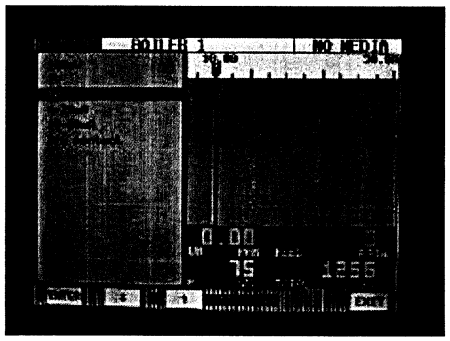
5. If you are configuring the Data-Chart for the first time a menu having **Setup**, **Copy** and **Restore** will appear. If you are changing a point that you have already configured the menu will have **Modify pt** and **Delete pt** Depending on which menu appears, use the up/down arrow keys to select **Setup** or **Modify** then touch **ENTER**.



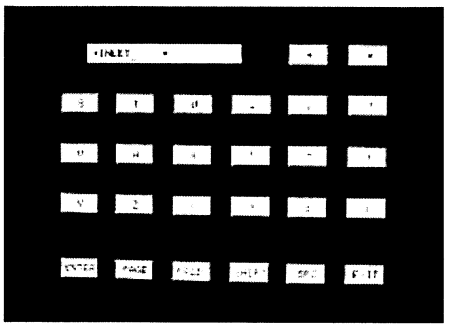
6. The menu containing types of inputs should now be displayed. Use the up/down arrow keys to select **Linear** then touch
ENTER.



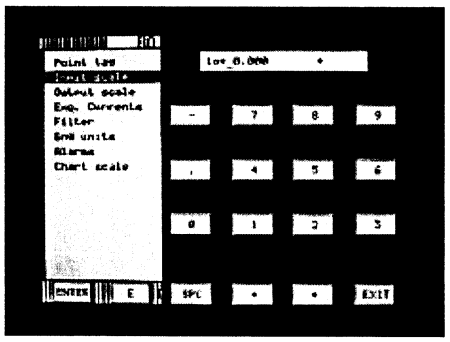
7. The menu displaying types of linear inputs should now appear. For this example use the up/down arrow keys to select the **10V** (for 10 Volt) range then touch **ENTER**.



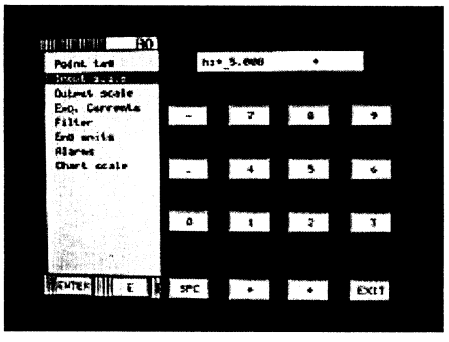
8. The menu starting with **Point tag** will appear. Using the up/down arrow keys select **Point tag** and touch **ENTER**. An alphanumeric keypad will be displayed. This is where you enter a word or phrase (up to 10 characters) that describes this particular point. For this example enter the word **INLET** and touch **ENTER**.



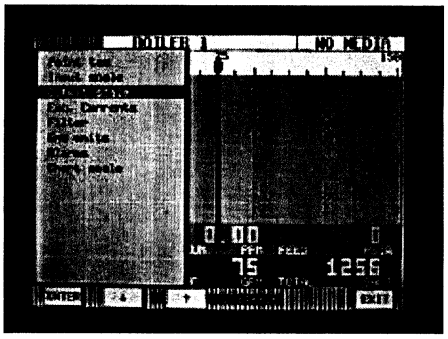
9. The menu starting with **Point tag** will appear again. Using the up/down arrow keys select **Input scale** and touch **ENTER**. A numeric keypad will appear with **lo** displayed. This is the point that you enter the low range of your input signal. For this example (1-5 Volts DC) enter **1.00** as the low range and touch **ENTER**.



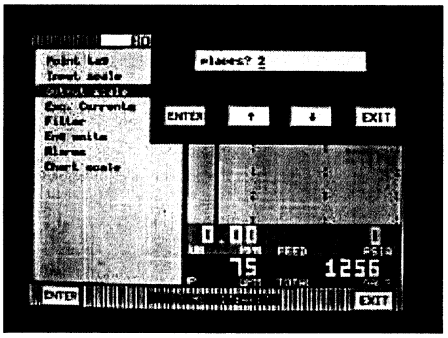
10 The numeric keypad will now prompt you for the **hi** end of your input signal. For this example enter **5.00** and touch **ENTER**.



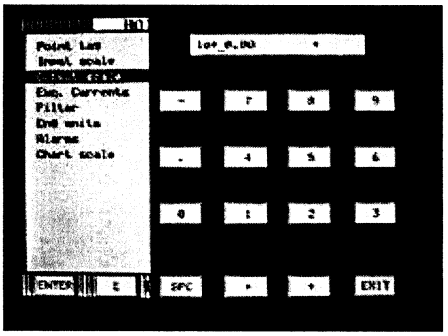
11 Using the up/down arrow keys select **Output scale**and touch **ENTER**.



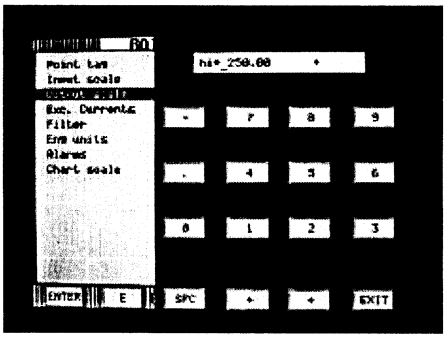
12 You will now be prompted for the number of decimal places that you would like to display and record. Using the up/down arrow keys you can select 0, 1, 2, 3, 4, or 5 decimal places. For this example select 2 and touch **ENTER**.



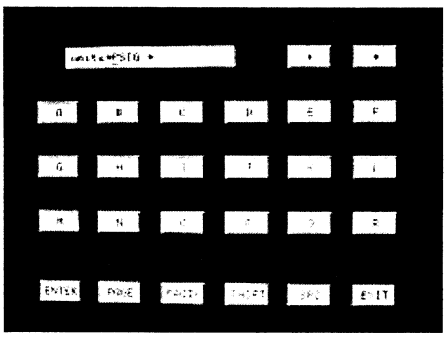
13 Another numeric keypad will appear prompting you for the **lo** end of your output scale. For this example (0 – 250 psig) enter **0.00** and touch **ENTER**.



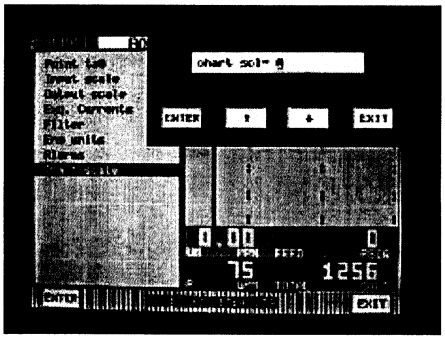
14 You will now be prompted for the **hi** end of your output scale. You should enter **250.00** and touch **ENTER**.



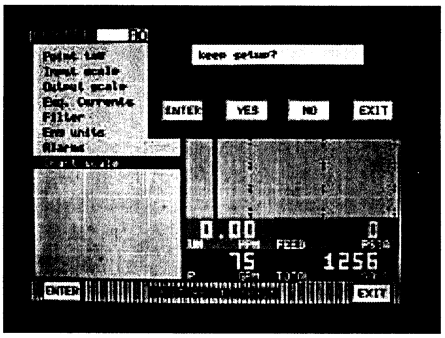
15 Using the up/down arrow keys select **Eng units**and touch **ENTER**. The alpha-numeric keypad will now be displayed allowing you to enter up to five characters to describe the engineering units for this particular point. For this exa m-ple
(0 – 250psig) enter **PSIG** and touch **ENTER**. There are multiple pages of text and symbols that can be used. Use the **PAGE**, **PAGEBK** and **SHIFT** keys to access different



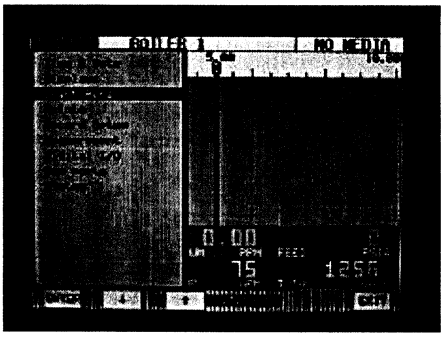
16 Using the up/down arrow keys select **Chart scale** and touch **ENTER**. A menu prompting you to choose a chart scale will appear (**chart scl =**). Using the up/down arrow keys you can select letters **A-H** for a total of 8 different scales. For this example select chart scale **A** and touch **ENTER**, then touch **EXIT**.



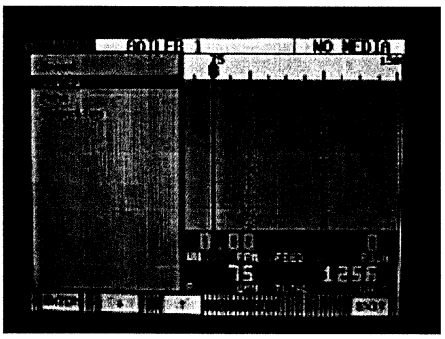
17 You will now be prompted with **keep setup?** Touch **YES and** you will be returned to the main program window.



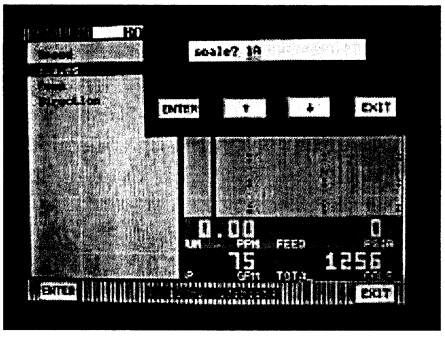
18 Use the up/down arrow keys to select **Chart/Pens** and touch **ENTER**.



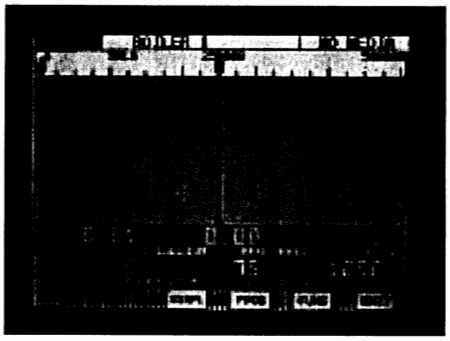
19 The Chart/Pens menu will be displayed. Using the up/down arrow keys select **Scales** and touch **ENTER**.



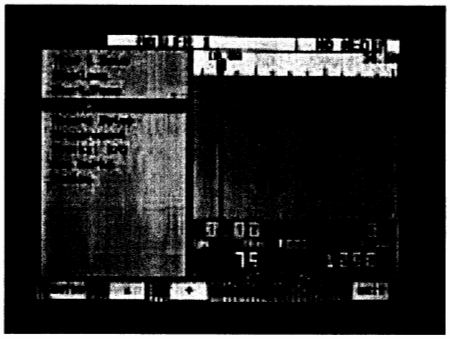
20 You will be prompted with scale? (1A-2H will also be displayed) Use the up/down arrow keys to scroll through the different scales until 1A is displayed. Touch **ENTER**.



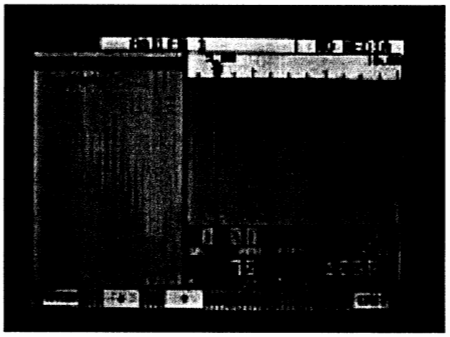
1. Begin configuration by touching the **MENU** button in the lower right hand corner of the screen. This will bring up the main menu bar. Touch the **PROG** button to enter into the main program menu.



2. Once in the main program menu use the up/down arrow keys to select **Points**, then touch **ENTER**.

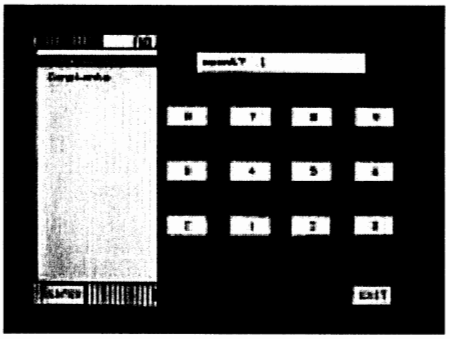


3. **Prog point** and **Constants** will appear. Using the up/down arrow keys select **Prog point** and touch **ENTER**.

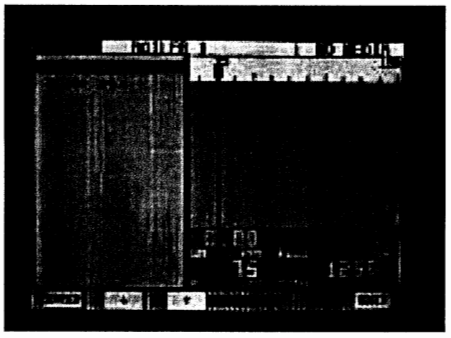


4. The numbers **1 – 9** and letters **A, B, C, D, E and F*** will be displayed. Touch the number that represents the input or channel you wish to configure. For this example use number **1** and touch **ENTER**.

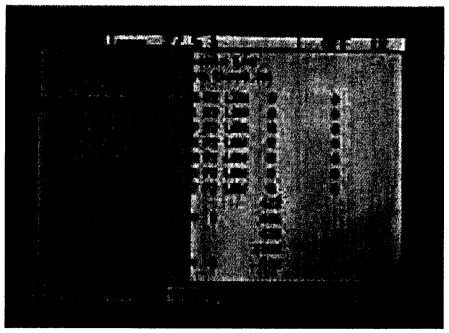
   * Version 2.5f include up to 12 direct inputs plus 3 math channels for a total of 15.



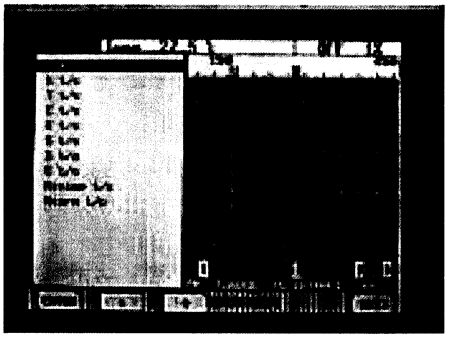
5. If you are configuring the Data-Chart for the first time a menu having **Setup**, **Copy** and **Restore** will appear. If you are changing a point that you have already configured the menu will have **Modify pt** and **Delete pt**. Depending on which menu appears, use the up/down arrow keys to select **Setup** or **Modify** then touch **ENTER**.



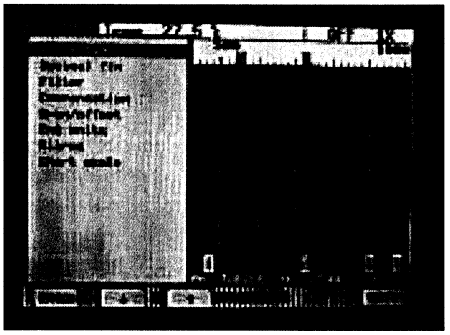
6. The menu containing types of inputs should now be displayed. Use the up/down arrow keys to select **T/c** then touch **ENTER**.



7. The menu displaying thermocouple types should now appear. For this example use the up/down arrow keys to select **J t/c** then touch **ENTER**.

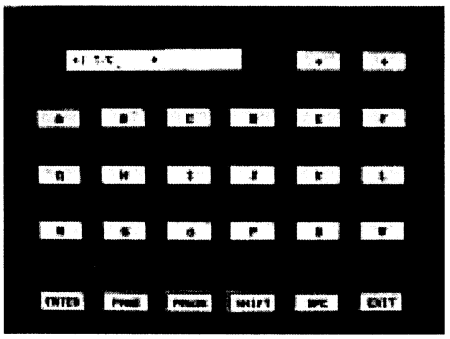


8. The menu starting with **Point tag** will appear. Using the up/down arrow keys select **Point tag** and touch **ENTER**. An alphanumeric keypad will be displayed.

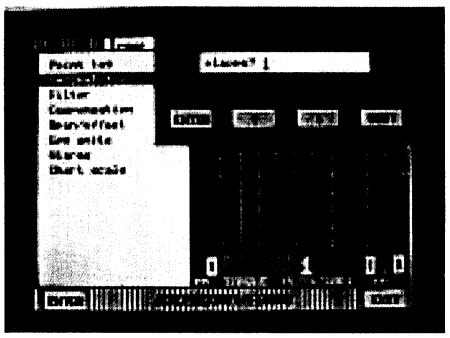


9. Enter a word or phrase (up to 10 characters)* that describes this particular point. For this example enter the phrase **J t/c INLET** and touch **ENTER**. The menu starting with **Point tag** will again be displayed. Scroll down to **Decimal fix** and touch **ENTER**.

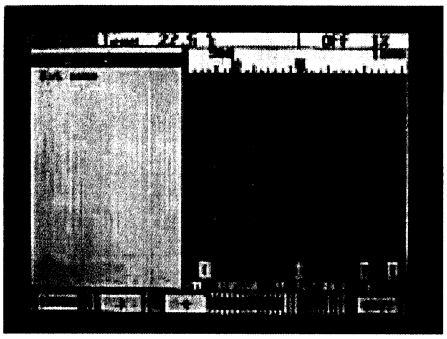
   * Only 6 will be displayed in certain views although all 10 characters will be recorded and displayed in Companion.



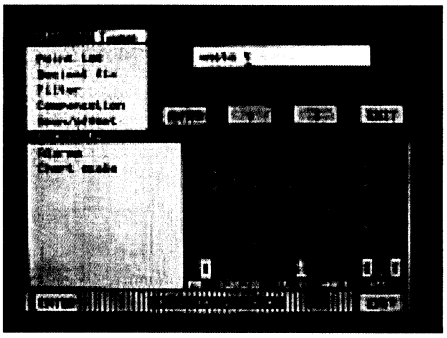
10. You will be prompted with **places>?** (0 or 1). Using the up down arrows you may select zero or one decimal place for thermocouples. For this example select 1 and touch **ENTER**.



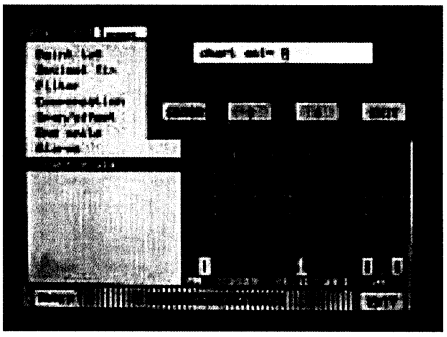
11. You will now be back at the menu starting with Point tag. Scroll down to **Compensation** and touch **ENTER**. Using the up/down arrow keys select **Local comp**. The recorder will now use a temperature sensor located at the rear of the recorder to correct for cold junction error. You must touch **EXIT** to leave this menu.



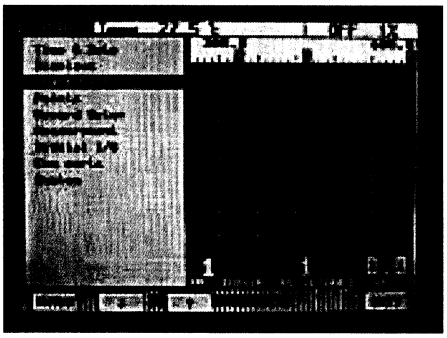
12. You should now be back at the **Point tag** menu. Scroll down to **Eng units** and touch **ENTER**. You will be prompted with **units** (°c or °f). For this example use the up/down arrow keys to select **°c** and touch **ENTER**.



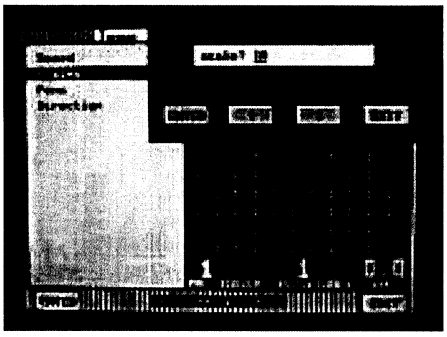
13. You will again be in the Point tag menu. Using the up/down arrow keys select Chart scale and touch ENTER. You will be prompted with **chart scl=** Use the up/down arrow keys to select A and touch **ENTER**. Now touch **EXIT**. You will be prompted with **Keep setup?** Touch **YES** and you will be returned to the main programming menu.



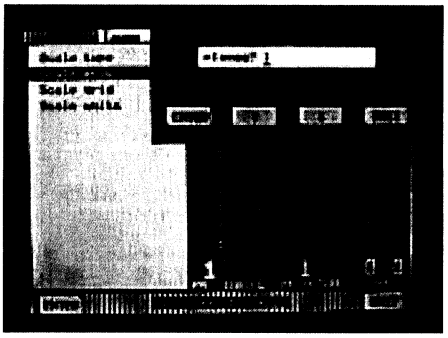
14. Using the up/down arrow keys select **Chart/Pens** touch **ENTER**.



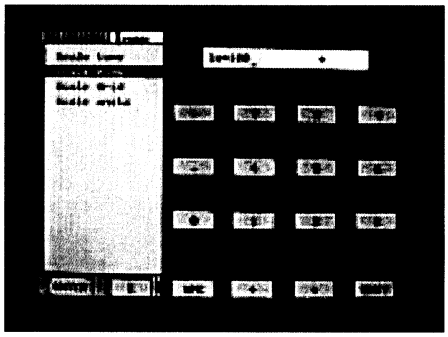
15. You will be prompted **scale?** Using the up/down arrow keys select 1A and touch **ENTER.**



16. You should now be in the scale menu. Using the up/down arrow keys select **Scale ends** and touch **ENTER**. You will be prompted with **places**? (for decimal places). Using the up/down arrow keys you can select 0,1,2,3,4 or 5. For thermocouples you would only select 0 or 1. For this example select **1** and touch **ENTER**.

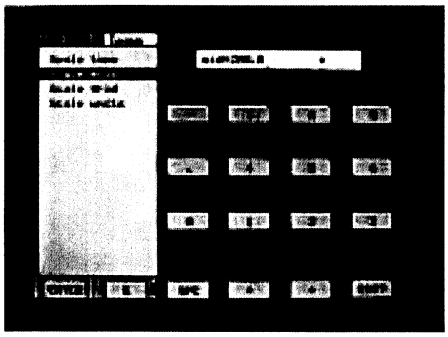


17. Using the up/down arrow keys select **Scale ends** and touch **ENTER**. You will be prompted with **lo→** For this example (100 to 750°c) enter 100 for the low range of your scale and touch **ENTER**.

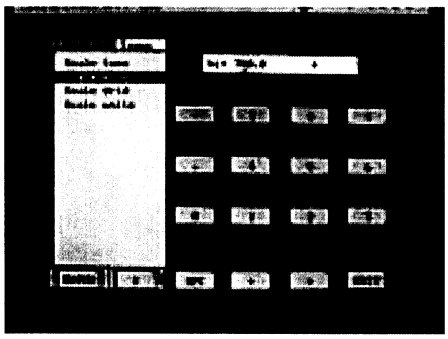


18. You will now be prompted with **mid→** To illustrate one of the features of the recorder we will enter a value that is not 50% of the desired range. For this example, enter 200 and touch **ENTER**. The result will be two linear ranges. One will have high resolution and the other will have low resolution.

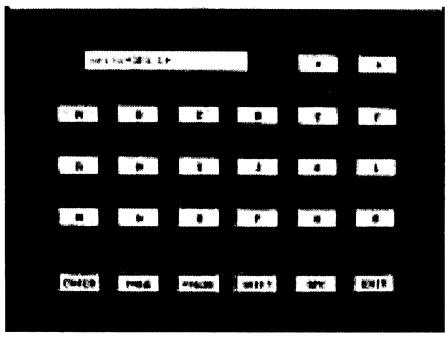
    Note: If you wanted the scale to be linear you would simply enter the exact middle of your range at this point.



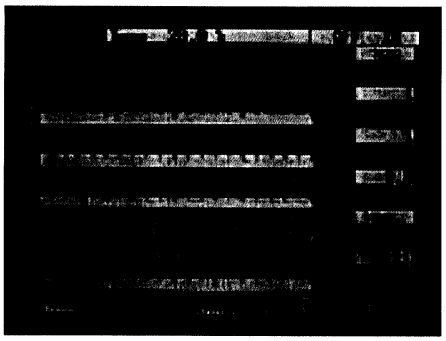
19. The next prompt will be **hi→** For this example enter 750 and touch **ENTER**. You should now be back in the main scale menu. Use the up/down arrow keys to select **Scale units** and touch **ENTER.**



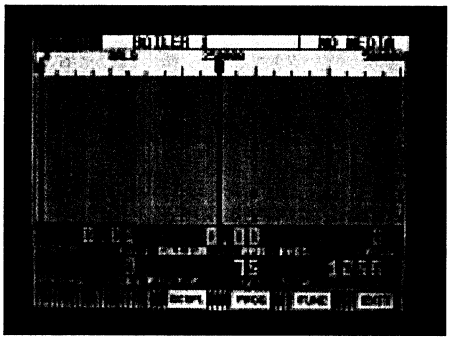
20. The alphanumeric screen will appear and you can enter **C** or **DEG C.** What you choose to enter in this screen will be displayed as the engineering units in the trend view only. After entering your selection touch **ENTER**, **EXIT**, **EXIT**. This will return you to one of the viewing screens.



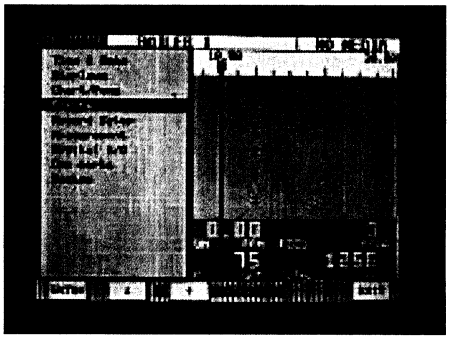
21. You have now successfully configured your thermocouple input with a non linear scale. The display will read as shown on the right. TCBO (thermocouple burnout) will be displayed until your thermocouple is connected to the rear of the unit.



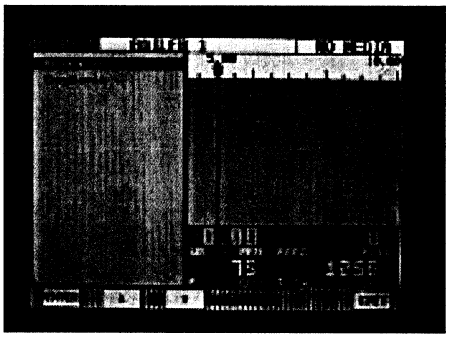
1. Begin configuration by touching the **MENU** button in the lower right hand corner of the screen. This will bring up the main menu bar. Touch the **PROG** button to enter into the main program menu.



2. Once in the main program menu use the up/down arrow keys to select **Points**, then touch **ENTER**.

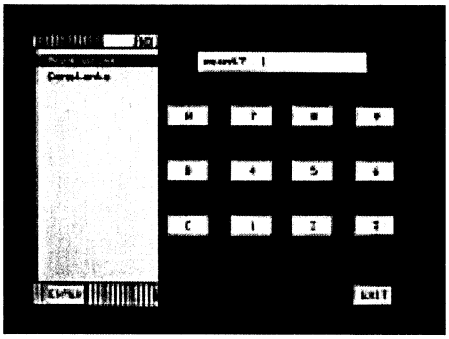


3. **Prog point** and **Constants** will appear. Using the up/down arrow keys select **Prog point** and touch **ENTER**.

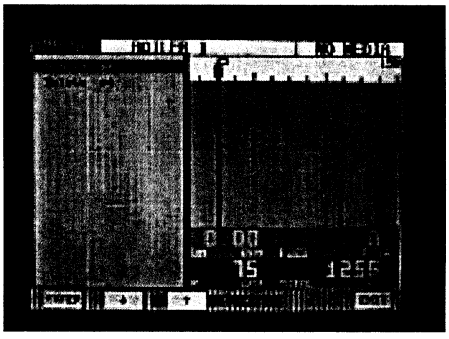


4. The numbers **1 – 9** and letters **A, B, C, D, E and F** represent the 15 channels that can be set up*. Touch the number or letter that represents the input or channel you wish to configure. For this example use number **1** and touch **ENTER**.

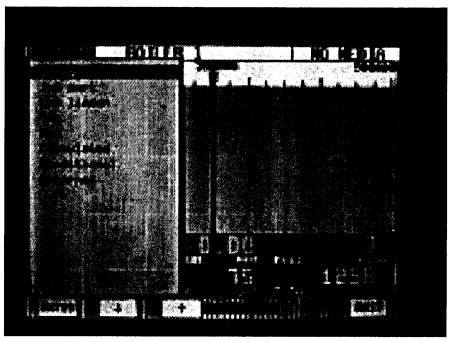
   * Version 2.5f and Higher have up to 12 direct inputs plus 3 math channels for a total of 15.



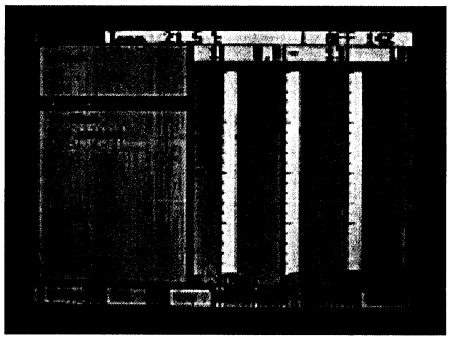
5. If you are configuring the Data-Chart for the first time a menu having **Setup**, **Copy** and **Restore** will appear. If you are changing a point that you have already configured the menu will have **Modify pt** and **Delete pt**. Depending on which menu appears, use the up/down arrow keys to select **Setup** or **Modify** then touch **ENTER**.



6. The menu containing types of inputs should now be displayed. Use the up/down arrow keys to select **Linear** then touch **ENTER**.

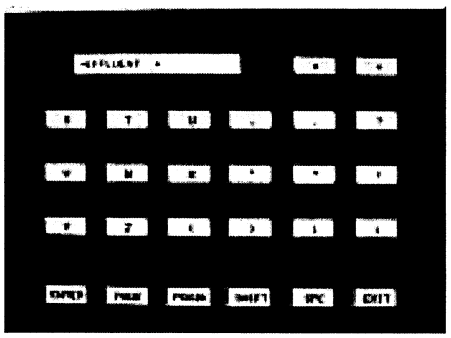


7. The menu displaying types of linear inputs should now appear. For this example use the up/down arrow keys to select 4-20mA and touch **ENTER**.

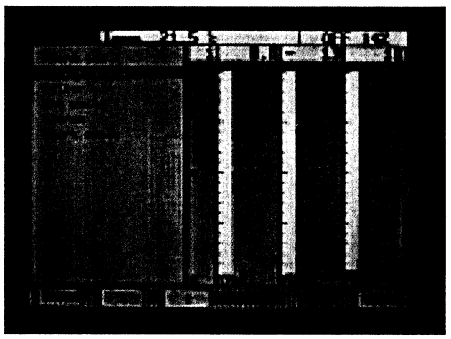


8. The menu starting with **Point tag** will appear. Using the up/down arrow keys select **Point tag** and touch **ENTER**. An alphanumeric keypad will be displayed. This is where you enter a word or phrase (up to 10 characters*) that describes this particular point. For this example enter the word **EFFLUENT** and touch **ENTER**.

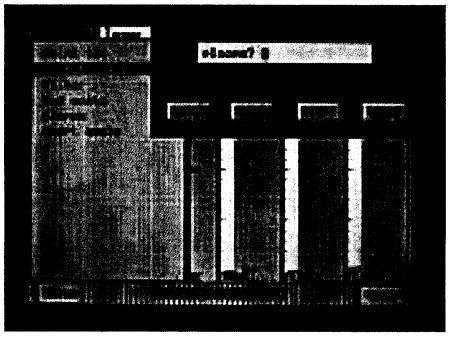
   * Only 6 characters will be displayed In certain Views although all ten will be recorded and can be displayed in Companion.



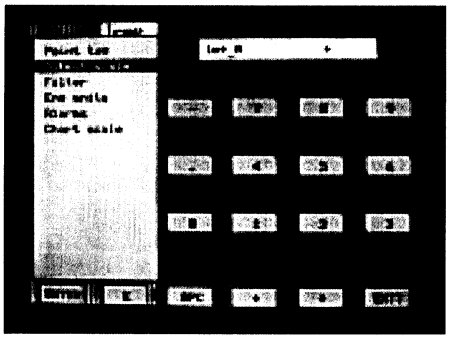
9. The menu starting with **Point tag** will appear again. Using the up/down arrow keys select **Output scale** and touch **ENTER**.



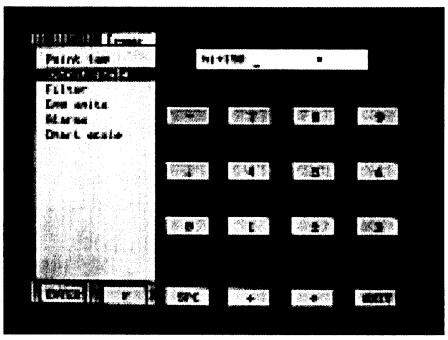
10. A menu prompting you **places?** will appear. Use the up/down arrow keys to select the number of decimal places you wish to be displayed and recorded. For this example select **0** and touch **ENTER.**



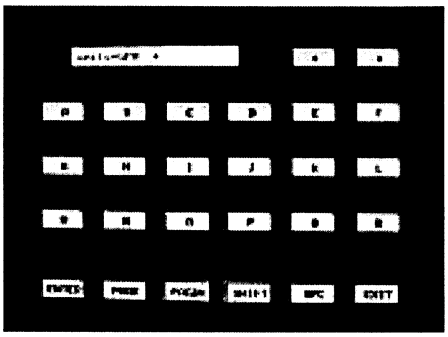
11. A numeric keypad will now be displayed prompting you with **lo→**. Here is where you enter the low end of your range or the equivalent value for 4 mA. For this example (0 to 150 gpm) select **0** and touch **ENTER**.



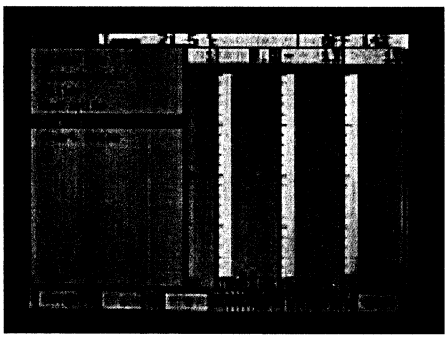
12. You will now be prompted with **hi→**. Here is where you enter the high end of your range of the equivalent value for 20mA. For this example select 150 and touch **ENTER**.



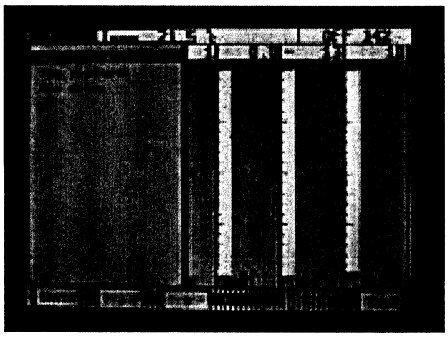
13. Using the up/down arrow keys select **Eng units** and touch **ENTER**. An alpha-numeric keypad will appear prompting you **units →**. You can enter up to 5 characters. Using the **PAGE**, **PAGBK** and **SHIFT** keys if needed, select the desired engineering units. For this application enter **GPM** and touch **ENTER**.



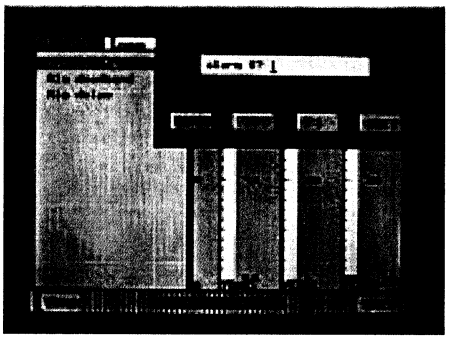
14. You should now be back at the menu beginning with **Point tag**. Using the up/down arrow keys select **Alarms** and touch **ENTER**.



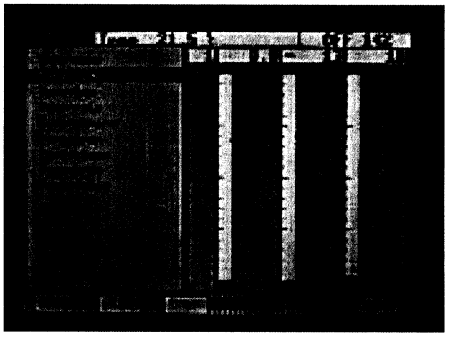
15. Using the up/down arrow keys select **Alm limits** and touch **ENTER**.



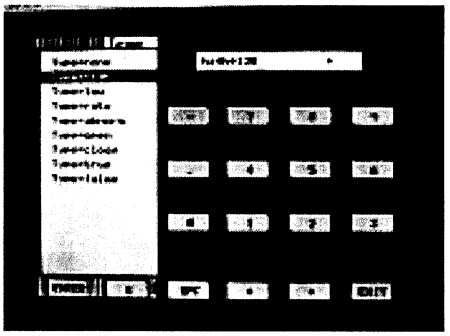
16. You will be prompted with **alarm #?** Each point has 5 internal alarm set points. You can use the up/down arrow keys to scroll select 1, 2, 3, 4, or 5. Since this is the first alarm set point for channel one, select **1** and touch **ENTER**.



17. The alarm types menu will now be displayed. Using the up/down arrow keys you can select the type of alarm you wish to configure. For this example we want to know when the flow exceeds 120 gpm. Select **Type=high** and touch **ENTER**

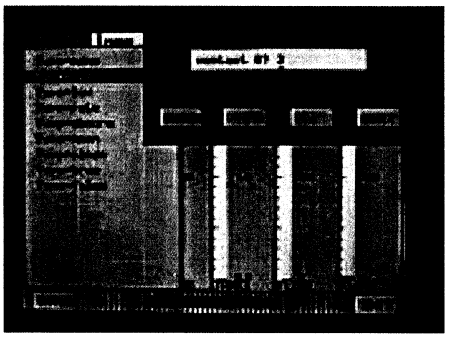


18. A numeric keypad will now be displayed prompting you with **high→**. Select **120** and touch **ENTER**.

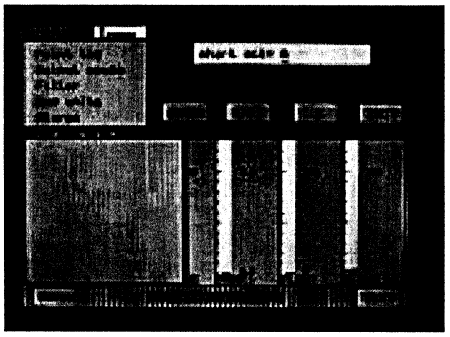


19. You will next be prompted **contact #?** If your recorder is fitted with alarm contact outputs you can select which contact will change state when the internal high alarm activates. Using the up/down arrows you can select 0, 1, 2, 3, 4, 5 or 6. For this example select 2 and touch **ENTER.**

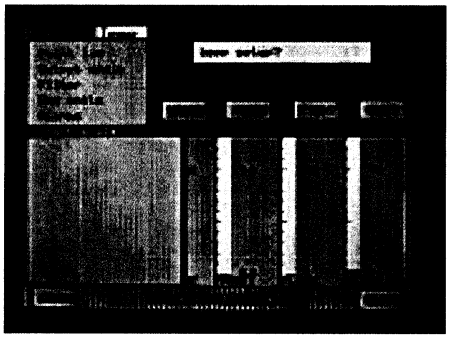
    Note: This menu will display whether you have relays or not. If you do not have relays or do not wish to activate a relay select **0** (0 is the default setting).



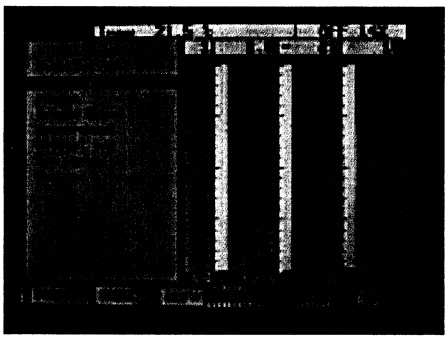
20. You will now be back at the menu beginning with **Point tag**. Using the up/down arrow keys select **Chart scale** and touch **ENTER**. Using the up/down arrows you can select A, B, C, D, E, F, G or H. For this example select **A** and touch **ENTER**



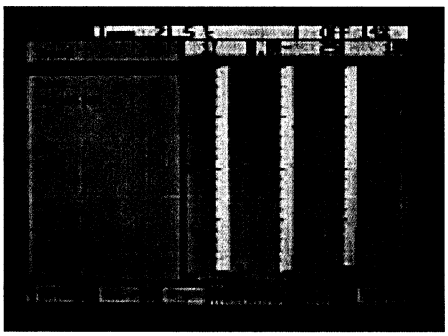
21. You have completed configuration of this point and will be prompted with **keep setup?** Touch **ENTER** to permanently save these changes.



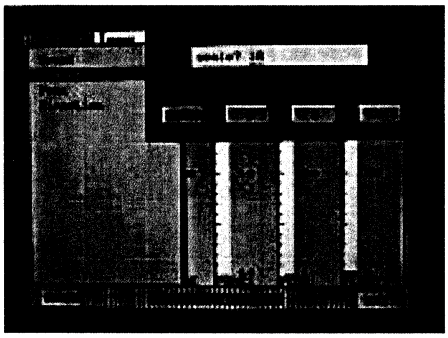
22. You should now be back at the main program menu. Using the up/down arrow keys select **Chart/Pens** and touch **ENTER**



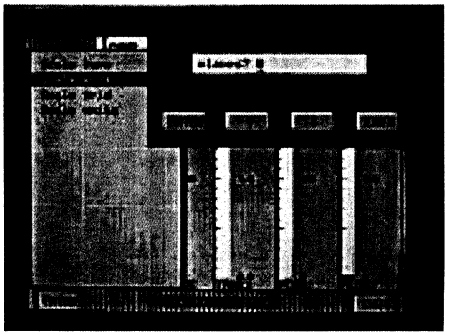
23. You will now be in the Chart/Pens menu beginning with **Speed**. Using the up/down arrow keys select Scales and touch **Enter.**



24. You will now be prompted with **Scale?** Using the up/down arrow keys you can select scales **1A** through **2H**. For this example select **1A** and touch **ENTER**.

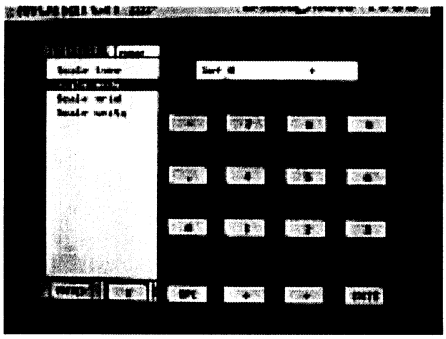


25. You will now be prompted with **places?** Here you can select the number of decimal places that will be displayed on the virtual chart display. For this example use the up/down arrow keys to select 0 and touch **ENTER**.



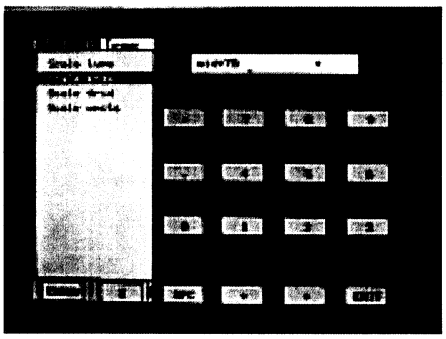
26. You will be prompted with **lo→**. Enter the low value of your scale. For this example (0 to 150 gpm) select 0 and touch **ENTER**.

NOTE: You do not necessarily have to use the same scale values that you selected in the point setup (0 to 150) you could display a smaller portion of your full span, 90 to 150, for instance.

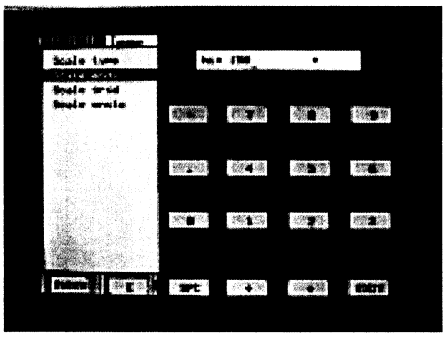


27. You will now be prompted with **mid→**. Here you can select the value that will be displayed at 50% of your span. For this example select **75** (which is 50% of our full span, 150) and touch **ENTER**.

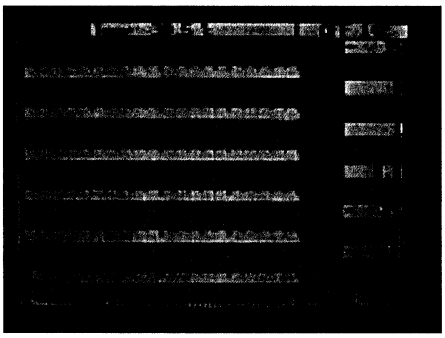
NOTE: You do not necessarily have to enter the exact half way point of your span. You could enter 30 for instance, where 30 would be exactly half way between 0 and 150. This would give you a high resolution side (0 to 30 gpm) and a lower resolution side 30 to 150.



28. Finally, you will be prompted with **hi→** Here you enter the high end of your span. For this example select **150** and touch **ENTER** then EXIT to get completely out of the programming menus.



29. The display to the right shows the results of our efforts. As you can see the scale displayed is linear from 0 to 150 GPM and the Point tag is EFFLUENT. You will also notice that our high alarm set point is marked at 120 with an arrow ↓.



30. The photo to the right shows the proper connectivity for a 4-20mA signal. To reduce ambient noise a properly shielded cable should be used.

NOTE: The 3600 and 4600 require that a 50 ohm precision resistor be placed across the + and – terminals in parallel with the input signal wires. The DC3000 has an internal resistor which can be switched into place using the corresponding DIP switches on the right of the input terminals.