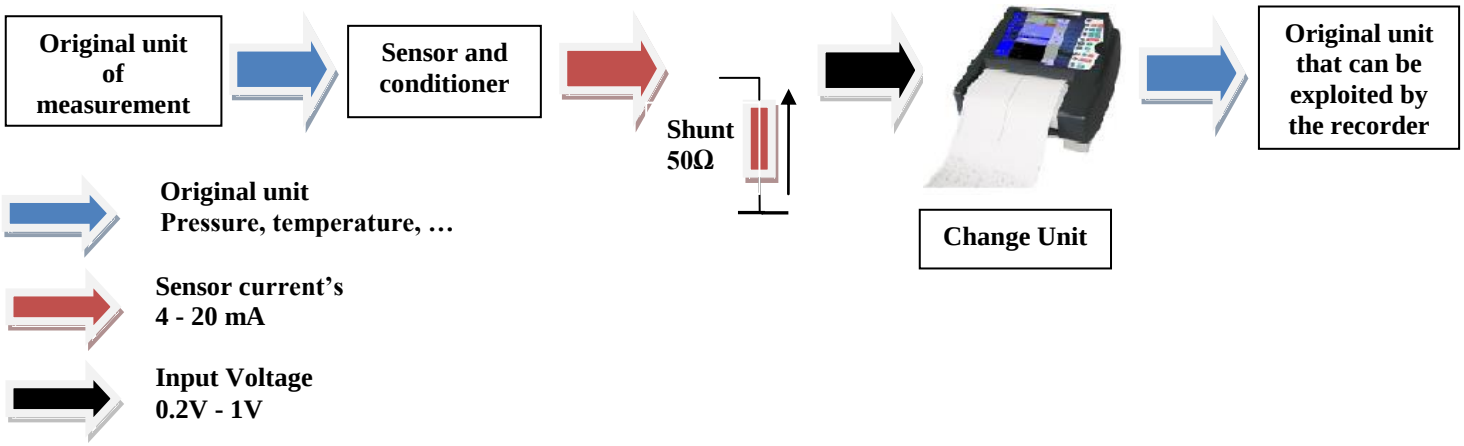
Subject: Changing unit on a recorder

NASE8440-01-00

It is possible to connect sensors to SEFRAM 8440, DAS600, and DAS1400 recorders' inputs. Unit change is used to visualize the real measured scale by the sensor. For example, either a sensor that converts the scale to be measured (a pressure which linearly varies from 0 to 600 BAR) into an intensity current from 4 to 20 mA. The recorders with only voltage input, it is required to use a resistor (shunt 50Ω, ref.: 989007000). So, unit change function of the recorder allows visualising signals directly in the original physical scale.

Block diagram: link between elements of measurement chain



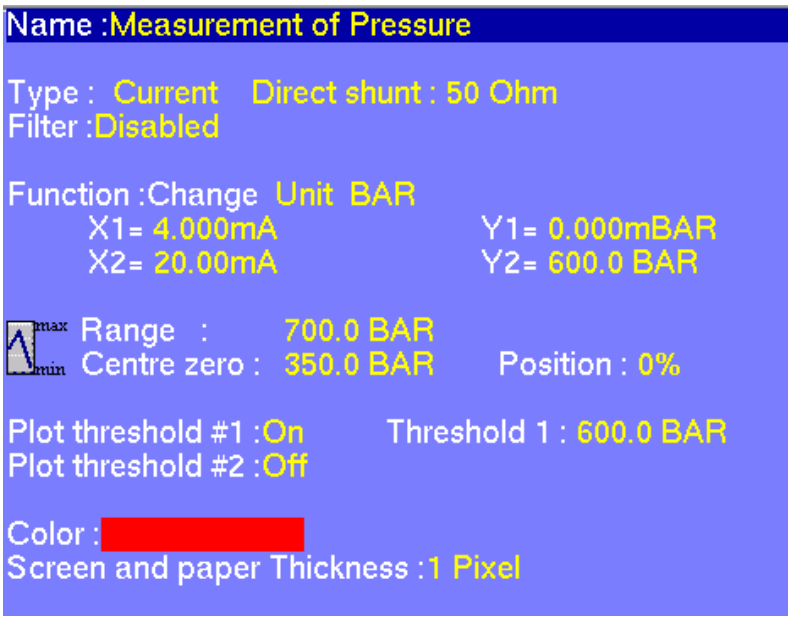
Setting recorder

Scaling signal to represent the original physical scale and exploit the screen size as much as possible.

Procedure:

1. ***Press "channel set up" key.***
2. ***Select the channel where to apply unit change.***

Channel setting screen



Setting of the selected channel is displayed in central window. Selecting one of these options displays a menu on the right of the screen. See below different menus and their configurations to get a window like this one.

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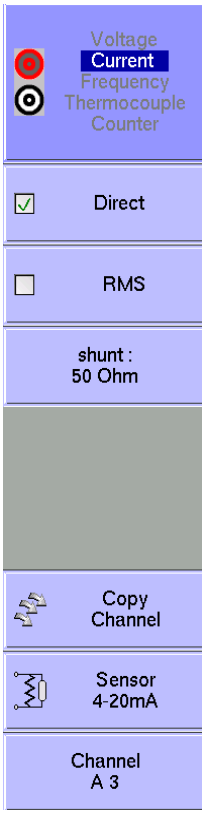
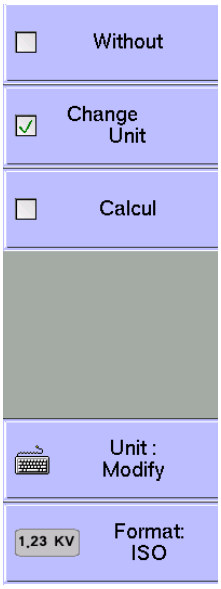
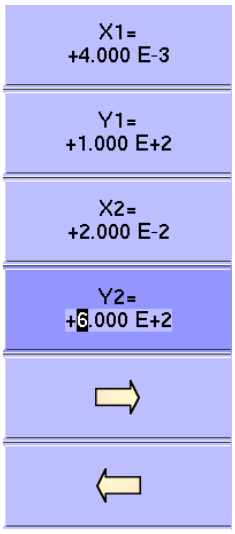


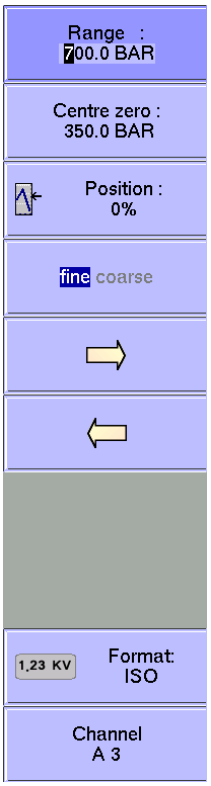
3. Type



4. Function



5. Coefficients



6. Range and central zero

Modifications can be verified after each step on the miniature at the bottom of the screen of the visualisation window (particularly useful during the adjustment of range, central zero and position).

Window of current configuration

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3. Press "Type" and select a current measurement for a 4 – 20mA sensor (shunt 50 Ω automatically selected).

The recorder does the conversion voltage/current itself considering shunt value.

4. Press "Function" and select "Change unit" in the menu.

"Unit modify" button defines signal unit once it is converted (ex: Bar, degree).

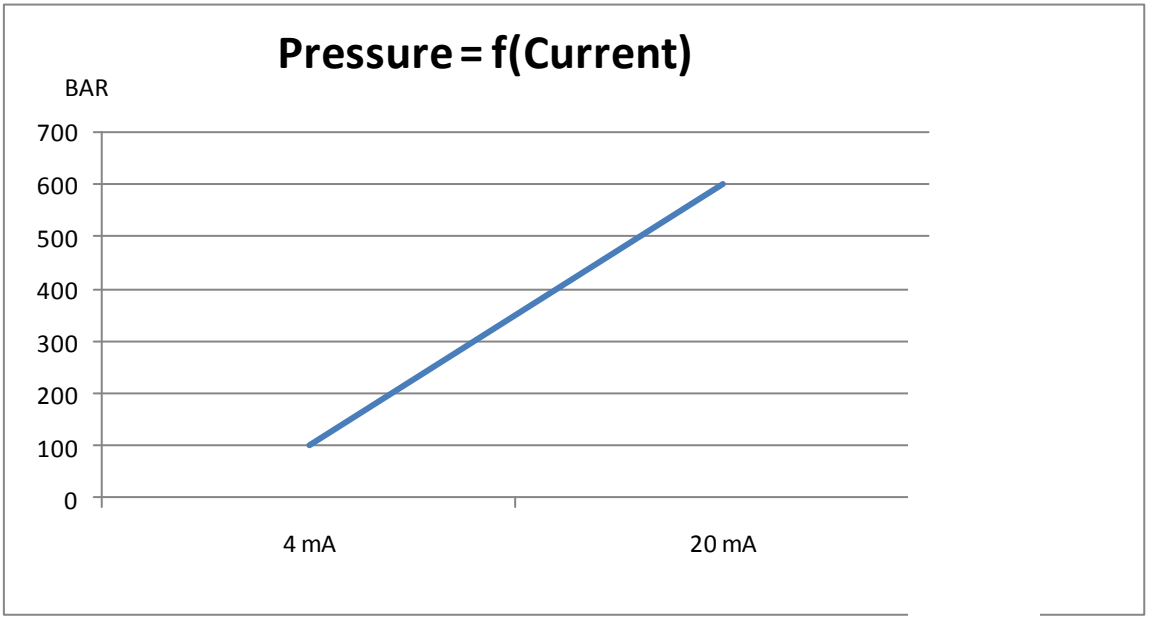
"Format" button defines value writing type: ISO, exponent and fixed.

5. Press on the value couples X1, Y1 and X2, Y2 in the window.

In the menu, set X1 (min. Input current) and Y1 (min. value corresponding to the new unit of measurement).

Do the same for X2, Y2 couple (max. values).

In this example: X1 = 4mA → Y1 = 0 Bar
X2 = 20mA → Y2 = 600 Bar



6. Press "Range".

"Range" enables to adjust the screen scale according to signal amplitude.
In the example, 700Bar are enough to spread the signal on the graph.

"Zero" button allows to set the graph origin. In the example, 350Bar is selected in order to have a scale from 0 to 700Bar.
Zero = 0 → Scale = -350 / +350Bar
Zero = 350 → Scale = 0 / +700Bar

"Position" places the zero on the screen according to a percentage of the full scale.
Position = 100%: zero is located on the top of the screen
Position = 0: zero is located in the middle of the screen
Position = -100%: zero is located on the bottom of the screen
In the example, "0" position is selected because the central zero setting permits to use the entire screen size.

The recorder is configured to visualise the signal on desired scale and unit by exploiting the screen size as much as possible.

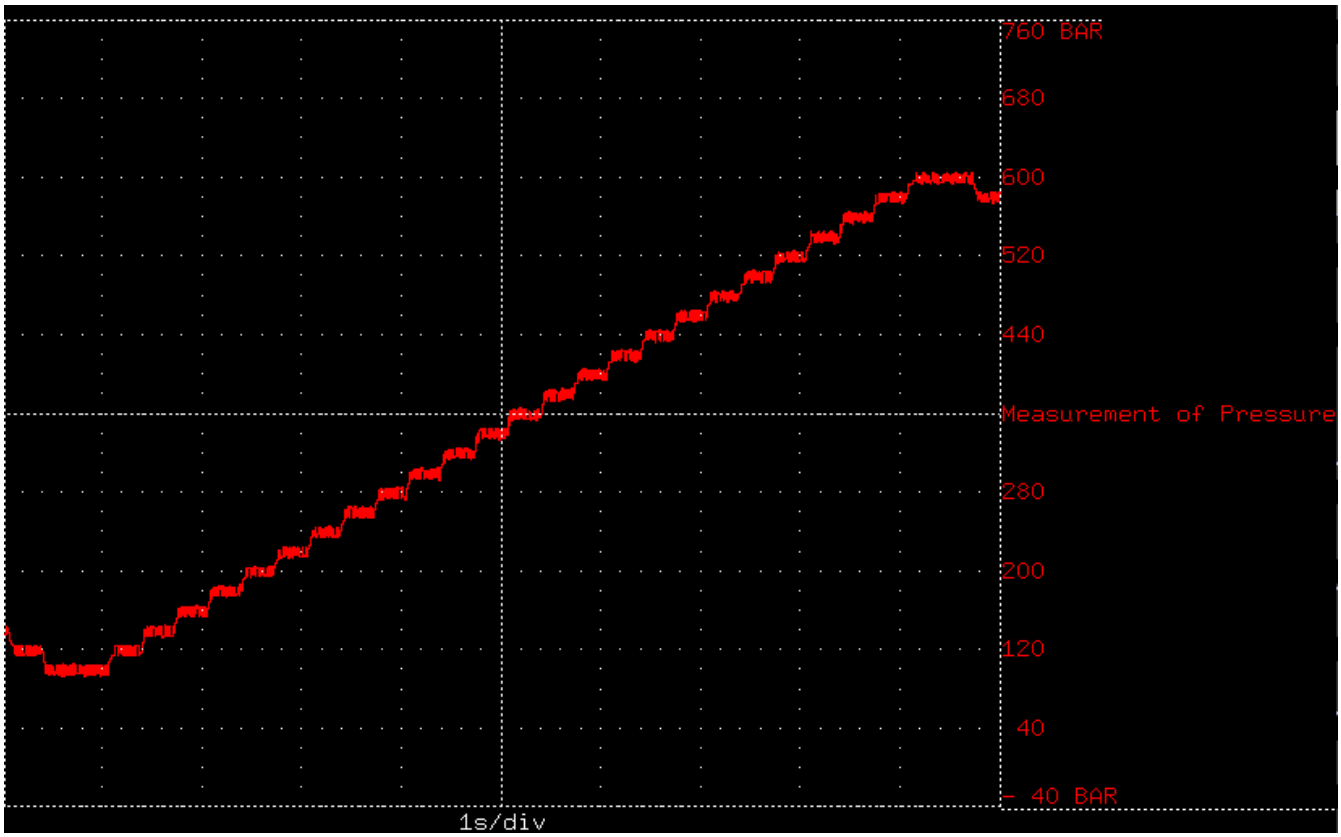
7. Other options

In "Channel set up" window, it is possible to set other options: channel name change, filter application, plot threshold on the curve, trace colour adjustment and thickness on the screen (paper for 8440).

8. Press "Display".

The signal is traced according to the selected configuration. In the example, here is what we visualise when we apply a 4 – 20mA current ramp.

Response to a current ramp varying from 4mA to 20mA



Product link: http://www.sefram.com/wwwFR/F_quick_search.asp?st=8440