

Recover First

There is a new heading - Recover First.

This is primarily aimed at getting a smaller front echo during the initial search function.

The difference to previous version is that the gain increases, but not following the gain curve - it flat lines the gain beginning at the entered Gn value and is increased by the Recover First value.

In addition to this when the window is settled over the echo, if the echo drops below the Threshold entered value, the gain will increase according to the entered recover max value and at step size increases as given by the entered Recover % value.

The difference to previous version is that the gain increases, but does not follow the gain curve, it flat lines the gain. It will not produce large gains behind the last known echo position but increases the gain in a linear fashion, which is designed to retrieve the lost echo under the window and not produce an unwanted, reflected or second echo due to too quick an increase in the gain curve.

This flat line gain will increase by the Recover max value when this value is reached, the gain then and only then increases a single step up the gain curve. This step is given by the entered values in the Slope increase distance and % numbers. This will increase each time Hold expires. The above will allow a smaller front echo to be monitored even when a larger back echo is sometimes present. There are further changes to Hold time the first Hold time is the entered number, after this number the Hold time is 25% of that entered number.

The Slope distance value and Slope % need to be changed by about one third to give a smoother gain transition, hopefully will allow easier monitoring through a mapped area, as the gain has a smoother curve utilising lower increments..

Advanced Filter

There are a number of software options for signal control located within Advanced Filter heading. They are as follows

At this time there are switches dependant upon the entered Adv Filter number..1, 2,4 and 8.

You can have an individual number or a total which will give you the control you want..

Eg. Adv Filter = 7...gives 1 plus 2 plus 4 = 7

The code is as follows....

- 1 = Noise switch enable**
- 2 = Fill switch enable**
- 4 = empty switch enable**
- 8 = Holding in Map enable.**

The description for these is as follows...

Noise switch enable - When the noise is greater than the entered Noise % number for one Hold time.

This will tell the unit filling is occurring....If the Fill switch Enable is also ON.....the window opening upwards begins the window backwards begins...but the back movement is then limited to 2mm per Hold time, after the initial normal opening the idea is to try to get a forward moving signal confirmed easier than any noise or reflected echoes behind the opening window.

The **Filling Switch** will continue until the Noise Switch is OFF..when the noise is less then the entered Noise Value (for one Hold time) the unit will check with the Recover First Value.....Is there an echo ahead of the current window position.....NO.....stop the Filling Switch enable and go to normal operation.....or to emptying if the Empty switch Enable is enabled.... If the answer is Yes...i.e. if there is still an echo in front of the window the filling window opening will continue until the level is reached then it will turn off the Fill Switch Enable and revert to normal.....or to Empty Enable if this is in the ON position...

The **Empty Enable** works in a similar fashion to the Fill Enable except the window going upwards is limited to 2mm...after the initial normal window opening.

This is designed to prevent the window opening to any significant degree upwards when there is emptying occurring.

Holding in Map - When an echo enters into a Mapped area the gain will increase to a value dictated by the entered Recover first Value...it will then drop down to a recover first value of zero..then start up to the maxim recover first value then down .. then up...this is designed to try carefully at various gains to see an echo within the mapped area.

The window will open by a factor of four whilst the echo in map is occurring...when the echo leaves the Mapped area ..the operation will revert to normal

Any combination can be enabled by adding the numbers you want to a total value which you put into the adv Filter heading located in Factory.

Advanced Filter Output Control

There is an additional feature added to the window control. If the echo moves or appears outside the current position of the window the normal window control goes through the Hold → Window Open Hold → Window Open until the window arrives and covers the level echo, or alternatively if the echo moves within the window, the window will on each occasion centre itself around this last confirmed echo position and the output will move at the Fill Damp or Empty Damp Rate.

During this process called Recover, the analogue output stays at the same mA value (distance value) until the window covers the echo - then the analogue is updated at the entered Fill Damp/Empty Damp Value.

Window Output Control does not go through the Hold → Open → Hold etc sequence, nor does it centre itself over the last confirmed echo position unless the echo movement is less than the entered Winfwd or Winback values. If the echo movement is greater than these values, The window moves towards this last confirmed echo position. Each pulse at the entered window distance and the confirmed distance display moves at this rate. It is then damped by the Fill Damp or Empty Damp entered numbers.

This will give a smoother response for relatively large echo movements.