APPLICATION NOTE

INTRODUCING MONOSCAN 4090 NEW FEATURES

Revision Record:

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1. SCOPE

This document introduces new features applicable for the MonoScan 4090 version. It is reflecting changes made to the MonoScan's software. Please note that this document covers either new or changed software features.

2. OBJECTIVES

- Familiarize the user with new enhanced features compared with pervious SW versions of the MonoScan.
- Familiarize the user with changes in the SW interface related to an existing feature.

3. ADVANCED CLEAR SCAN DISTANCE OPTION

Scan Distance function (Interfering Signals) is probably the most important program required to ensure clean operation of the MonoScan. One must run Scan Distance function (Pr. 3) prior to any installation. When performing the Scan Distance operation, MonoScan scans the tank from top to bottom, presenting all returned echoes. When the return echo does not reflect the measured material level (false target), it would be considered as an acoustic interference. The acoustic interference must be stored in the MonoScan' table (table can store up to four acoustic interferences).
The interferences storing table mechanism works on FIFO base. When more than 4 interferences are entered, the last entered erases the first.
However in some cases, for example if the MonoScan was relocated on a new tank, there is a need to erase the existing table. Hence, a Clear Scan Distance option was added.

3.1 Clear Scan Distance Operation.

After entering the main menu (press <ENT> and <ESC> simultaneously), toggle using the <NEXT> key to Pr. 3 and press the <ENT> key. In SW ver.4.090 of the MonoScan, Pr.03 includes two submenus: ***Search*** marked as **SrCH** and ***Clear*** marked as **CLr.**

3.1.1

Choose **SrCH** to enable the search mode of acoustic interferences.

3.1.2

The <**ENT**> key initiates the search mode. While the sensor is in search mode, (before finding an interfering signal) the display indicates '**00SE**'. '**00SE**' indicates that during the search process any key input from the user is accepted.

3.1.3

When an interfering signal is found, the display indication will change from '**00SE**' to meter/feet, indicating the disturbance distance from the sensor. In order to store the disturbance in the MonoScan table, press the <NEXT> key. The disturbance will be stored and the MonoScan will start to search for new disturbances, indicating '00SE' again.

3.1.4

To exit the search mode press the <**ENT**> key, either when the display shows '**EEEE**' or the actual distance to the measured material. After pressing the <**ENT**> key Pr. 3 will be shown.

3.1.5

Select **CLr** to erase the MonoScan disturbance table. When using the **CLr** option, all stored inferences are erased from the table.

4. 4-20MA OUTPUT MODE

Version 4.090 enables the user to configure the 4-20mA output either in level, distance or flow mode, regardless of the display mode.

When configuring the 4-20mA values, one should first choose the desired indication mode, level/distance/flow.

4.1 Selecting 4-20mA mode

4.1.1

Enter Pr. 4 to configure 4-20mA output current. First you should select the required output mode Distance, level or Flow. Please note that flow mode will be available only for flow models. When flow mode is disabled, only Distance or Level is applicable.

4.1.2

Select the desired 4-20mA output. Tree option are available:

- **d000** for distance mode. The 4-20mA output will indicate the distance from sensor to the measured liquid or solid.
- **L000** for level mode. The 4-mA output will indicate the liquid distance calculated from tank bottom.
- **F000** for flow indication. The 4-20mA output will indicate the actual flow in M^3/h or G.P.M.

4.1.3

After selecting the desired 4-20mA output mode, you will access the 4mA point. Default value for 4mA output is 000000 meter or feet. How ever, the 4mA value can be entered from the tank bottom, represented by the value 000000, to any desire value, up to maximum value of the tank height value.

4.1.4

Enter to Pr. 5 in order to configure the 20mA value. The default 20mA value is the tank height. You may enter any value ranging from tank height, down to 4mA value. In any case the 20mA can not be below 4mA value.

> ⓘ **Note!**
> F000 indicating Flow output is applicable for MonoScan O.

5. CONFIGURATION EXAMPLE

For the configuration example, let's assume that tank height is 6m, how ever the 4-20mA should be applicable from the tank bottom to 5m height. Hence, the 4mA should represent the value of 0000m, tank height, while the 20mA should represent the value of 05.00mA.

Let's view how the unit should be configured for Level display and for Distance display

5.1 LEVEL DISPLAY

5.1.1

Enter the user menu by simultaneously pressing the **ENT** and the **ESC** keys

5.1.2

Toggle to Pr 2, using the **NEXT** and **BACK** keys. When Pr. 2 indicated on the display, press **ENT**. The first screen will indicate the units being used, either meters, or feet, indicating **H** ɱ for meter or **H.F** for feet's.

5.1.3

Enter the tank height, 06.00m in the given example and press **ENT.**

5.1.4

Toggle to Pr. 4, using the **NEXT** key and press the **ENT** key. The display will indicate F000 in case the Mono is flow enabled, or L000 in case flow is disabled. You can select the desire 4-20mA mode, using the **NEXT** or **BACK** key between the available options.

- **F000** will represent flow indication at 4-20mA output in M^3/h units
- **L000** will represent level indication at 4-20mA output in meter units
- **d000** will represent distance indication at 4-20mA output in meter units.

5.1.5

Select L000 for level indication and press the **ENT** key. The display will show COO4, indication that now the 4mA value should be entered. Press the **ENT** key and enter the empty tank level 00.00m for the 4mA output and press the **ENT** key

5.1.6

Go to Pr 5 and press the **ENT** key. The display will indicate C020, indicating that 20mA value should be entered. Enter the 20mA value, 05.00m and press the **ENT** key.

5.2 DISTANCE MODE

5.2.1

Enter the user menu by simultaneously pressing the **ENT** and the **ESC** keys.

5.2.2

Toggle to Pr 2, using the **NEXT** and **BACK** keys. When Pr. 2 indicated on the display, press **ENT**. The first screen will indicate the units being used, either meters, or feet, indicating **H** מח for meter or **H.F** for feet's.

5.2.3

Enter the tank height, 06.00m in the given example and press **ENT.**

5.2.4

Toggle to Pr. 4, using the **NEXT** key and press the **ENT** key. The display will indicate F000 in case the Mono is flow enabled, or L000 in case flow is disabled. You can select the desire 4-20mA mode, using the **NEXT** or **BACK** key between the available options.

- F000 will represent flow indication at 4-20mA output in M^3/h units
- L000 will represent level indication at 4-20mA output in meter units
- d000 will represent distance indication at 4-20mA output in meter units.

5.2.5

Select d000 for distance indication and press the **ENT** key. The display will show COO4, indicatiing that now the 4mA value should be entered. Press the **ENT** key and enter the 4mA value, 00.00m (empty tank level) and press the **ENT** key.

5.2.6

Move to Pr. 5 and press the **ENT** key. The display will indicate C020, indicating that 20mA value should be entered. Enter the 20mA value, 05.00m and press the **ENT** key.

5.3 FLOW MODE

5.3.1

Enter the main menu by simultaneously pressing the **ENT** and the **ESC** keys.

5.3.2

Toggle to Pr. 2, using the **NEXT** and **BACK** keys. When Pr. 2 is indicated on the display, press **ENT**. The first screen will indicate the units being used, either meters or feet, indicating **H** ㎜ for meter or **H.F** for feet.

5.3.3

Enter the tank height, 06.00m in the given example and press **ENT.**

5.3.4

Toggle to Pr. 4, using the **NEXT** key and press the **ENT** key. The display will indicate F000 in case the MonoScan you are using is flow enabled (applicable for Flow models only) or L000 in case flow is disabled. You can select the desired 4-20mA mode, using the **NEXT** or **BACK** key between the available options.

- F000 will represent flow indication at 4-20mA output in M^3/h units
- L000 will represent level indication at 4-20mA output in meter units
- d000 will represent distance indication at 4-20mA output in meter units.

5.3.5

Select F000 for distance indication and press the **ENT** key. The display will show COO4, indicating that now the 4mA value should be entered. Press the **ENT** key and enter the flow level at 4mA point and press the **ENT** key.

5.3.6

Move to Pr. 5 and press the **ENT** key. The display will indicate C020, indicating that 20mA value should be entered. Enter the flow level for the 20mA value and press the **ENT** key.