

Sales Bulletin

Attention: All FURUNO Distributors/Subsidiaries

SB No: FSB20-0017

Number of Pages: 8

Date: July 8, 2020



Model: DFF-3D

New Software Version 1.05

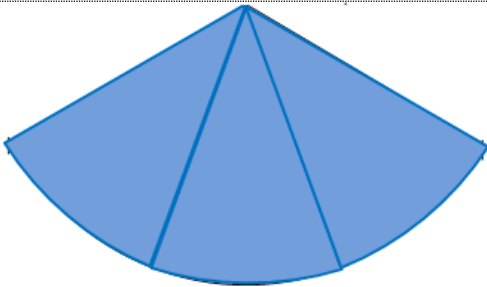
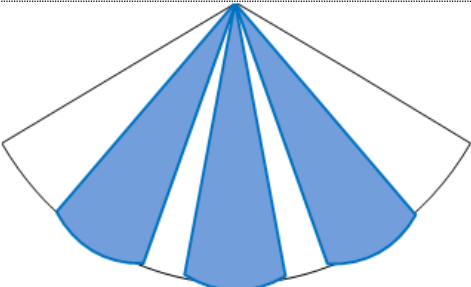
INDEX

-
- | | |
|---|---|
| 1. Improved Default Settings | 3.2. How to Duplicate v1.04 Settings on v1.05 |
| 2. Improved TVG | 4. Tips – Improved Resolution by TX Pulse Settings |
| 2.1. TVG in Multi-Sounder Mode | |
| 2.2. TVG in Cross Section and Side Scan Mode | |
| 3. Notes for Update from Previous Versions | |
| 3.1. Default Settings | |

1. Improved Default Settings

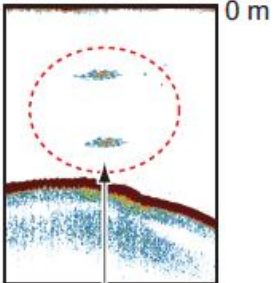
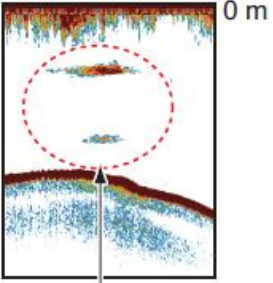
The default settings of following items are changed to offer superior performance than the previous default.

- ✚ The new default beam angle and beam width effectively covers the wide area at 120° than the previous settings. Longer tail echoes of seabed will be shown compared with the previous versions.
- ✚ The default value of clutter suppression is increased from [0] to [25] in order to show individual fish and a group of fish clearly while suppressing noise and weak targets in the manual gain mode. In order to show weak echoes, lower the clutter suppression value.

| Item | New – V1.05 | Previous – V1.04 or earlier |
|---------------------|--|---|
| Beam Angle | 40° | 30° |
| Beam Width | 40° | 20° |
| |  |  |
| Clutter Suppression | 25 | 0 |

2. Improved TVG

Targets at deeper water can show echoes in smaller size and/or in weaker color, compared with the ones with the same size located at shallow water, because it takes longer for deeper targets to return echoes than shallower ones. With manual gain mode, TVG (time variable gain) has been utilized to adjust the gain and show echoes of same-size targets at different depths in the same size and color. The following illustrations are extracted from Operator’s Manual of Fish Finder models to show an example of TVG.

| With TVG | | No TVG | |
|--|---|--|---|
| The targets in the same size are shown in identical size and/or color. |  | The targets in the same size are shown in different size and/or color. |  |

The DFF-3D v1.05 improves how the TVG effectively works. This section describes how the gain varies according to depths in each presentation mode.

2.1. TVG in Multi-Sounder Mode

New TVG Graph

The Multi-Sounder Mode has setting options of **TVG** value ([0] to [9]) and **TVG Distance**. In the following example, the TVG Distance is set to [400 m] to compare the new v1.05 with previous versions.

| New – V1.05 (TVG Distance: 400 m) | V1.04 or earlier (TVG Distance: 400 m) |
|---|---|
| | |
| With larger TVG values, the gain at shallow water decreases . | With larger TVG values, the gain at shallow water increases . |
| <p>The base depth is the depth set in TVG Distance: The gain decreases while the depth is shallower following the TVG graph patterns above.</p> <p>When the depth reaches the depth set in TVG Distance, the gain reaches the maximum of +32 dB. The gain level is flat even with deeper depths than.</p> | <p>The base depth is 1 m: The gain increases while the depth is deeper following the TVG graph patterns above.</p> <p>After the depth reaches the depth set in TVG Distance, the gain level is flat even with deeper depths. (Max. +40 dB for gain)</p> |

While the previous versions increased gain at shallow water by increasing the TVG value, the new v1.05 decreases the gain at shallow water by increasing the TVG value as commercial Fish Finder models. The following table shows the difference in TVG gain patterns.

Tips:

While the current product ranges have two (2) different patterns, we plan to have the Pattern 1 for future models to be developed.

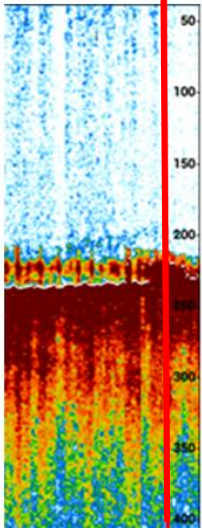
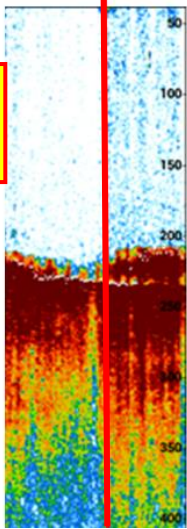
| Pattern 1 – Decrease shallow water gain with more TVG value | Pattern 2 – Increase shallow water gain with more TVG value |
|---|--|
| NavNet TZtouch3 (TZT12F/16F/19F) built-in Fish Finder, DFF3, DFF-3D (v1.05 and later) | NavNet TZtouch2 (TZTL12F/15F/2BB) built-in Fish Finder, DFF1, DFF1-UHD, BBDS1, DFF-3D (v1.04 or earlier) |

Example - How Gain Is Adjusted by TVG Settings

The new v1.05 also changes how the gain is applied according to TVG Distance. As an example, when you intend to search for targets at deep water, you may want to suppress the gain at shallower areas, i.e. not necessary to have high gain as you may not search for targets in these areas.

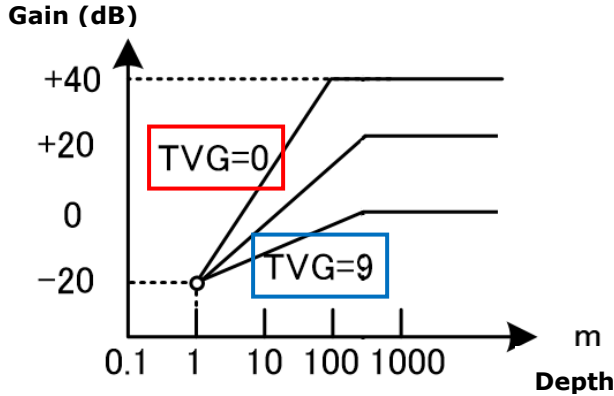
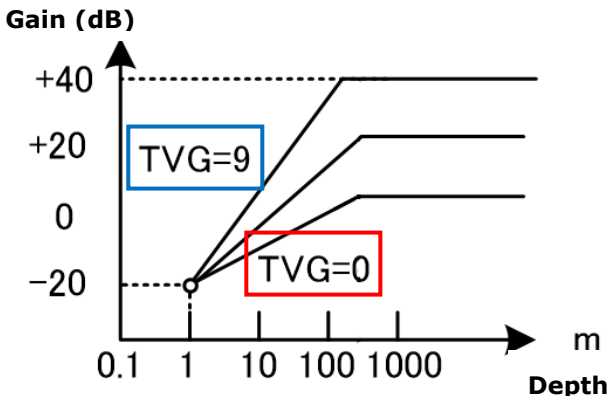
- ✚ With the previous v1.04 or earlier, changing the TVG value changed the overall gain at all depths, so that it was difficult to adjust the gain at deep water while suppressing shallow areas.
- ✚ With the new v1.05, if the TVG Distance is set to [400 m], the gain at deeper depths than 400 m will be fixed to the maximum value (+32 dB), while the gain at the shallower water than 400 m will be suppressed.

The following screenshots show how the gain is applied differently depending on TVG value and TVG Distance settings.

| Case 1 – Larger TVG Value | Case 2 – Longer TVG Distance |
|--|--|
| <div><div>TVG: 4</div><div>TVG: 5</div></div> | <div><div>TVG Distance: 1200 ft (≅ 365 m)</div><div>TVG Distance: 900 ft (≅ 274 m)</div></div> |
| TVG Distance: Fixed to [1200 ft] (≅365 m) TVG: Changed from [4] to [5] | TVG: Fixed to [5] TVG Distance: Changed from [1200 ft] to [900 ft] |
| In Case 1, while fixing the TVG Distance setting to [1200 ft], the TVG value is increased from [4] to [5]. In Case 2, while fixing the TVG value setting to [5], the TVG Distance is decreased from [1200 ft] to [900 ft]. You can see that the larger TVG value or larger TVG Distance suppresses the gain at shallower areas. | |

2.2. TVG in Cross Section and Side Scan Mode

The Cross Section and Side Scan modes have no TVG Distance setting: Only the TVG value graph is changed as follows.

| New – V1.05 (TVG Distance: 400 m) | V1.04 or earlier (TVG Distance: 400 m) |
|--|--|
|  |  |
| With larger TVG values, the gain at shallow water <u>decreases</u> . | With larger TVG values, the gain at shallow water <u>increases</u> . |
| The base depth is 1 m: The gain increases according to the graph pattern per TVG value above. The maximum gain (dB) is up to applied TVG values. | |

3. Notes for Update from Previous Versions

3.1. Default Settings

When updating the DFF-3D v1.04 or earlier onboard to v1.05, note that the default values of beam width, beam angle, and clutter suppression will not be transferred after software update: Manually change each value if necessary.

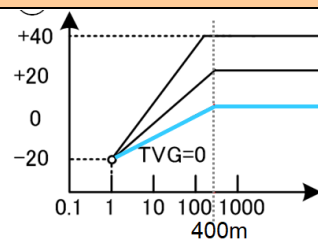
- ✚ If the TVG value and TVG Distance were used by default, i.e. TVG value: 5 and TVG Distance: 400 m, you can use as it is even after software update.
- ✚ If the default TVG value and Distance have been changed with previous versions, how the TVG works changes after software update. In order to duplicate the identical presentation to the previous versions, adjust the TVG value and TVG Distance referring to the [Section 3.2](#).

3.2. How to Duplicate v1.04 Settings on v1.05

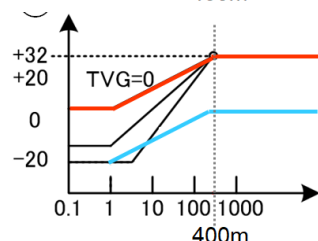
In order to duplicate the TVG settings in Multi-Sounder mode, refer to the following graphs and tables. For Cross Section and Side Scan modes, refer to the comparison table of new and previous settings.

E.g. Multi-Sounder Mode – TVG Settings

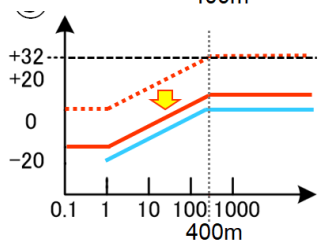
(1) The graph in sky blue color is from the setting of TVG: 0 and TVG Distance: 400 m from the previous v1.04. In order to duplicate the same graph pattern after updating to v1.05, proceed to the next steps.



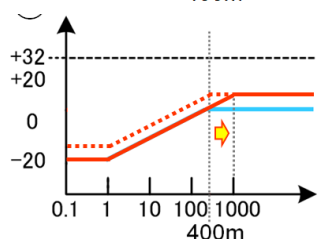
(2) The reclining pattern of the graph for TVG value is common regardless of versions, set TVG to [0] shown in red.



(3) The graph set in (2) still has too high gain. Lower the gain from [50] to [0].



(4) The gain in (3) is still high. Change the TVG Distance from [400 m] to [1000 m]. The graph pattern is almost identical to the one from v1.04.



For other setting values, refer to the concept above to reach the appropriate settings referring to the actual echoes shown on the screen.

Multi-Sounder TVG Settings – Comparison Table

| New – V1.05 | Previous - V1.04 or earlier |
|--|--|
| TVG: 0 / TVG Distance: 1,000 m Gain: 0 | TVG: 0 / TVG Distance: 400 m Gain: 50 |
| TVG: 3 / TVG Distance: 1,000 m Gain: 40 | TVG: 3 / TVG Distance: 400 m Gain: 50 |
| Default Settings (No change in value) TVG: 5 / TVG Distance: 400 m Gain: 50 | Default Settings: TVG: 5 / TVG Distance: 400 m Gain: 50 |
| TVG: 7 / TVG Distance: 150 m Gain: 50 | TVG: 7 / TVG Distance: 400 m Gain: 50 |
| TVG: 9 / TVG Distance: 100 m Gain: 50 | TVG: 9 / TVG Distance: 400 m Gain: 50 |

Cross Section and Side Scan TVG Settings – Comparison Table

| New – V1.05 | Previous - V1.04 or earlier |
|--------------------|------------------------------------|
| TVG: 9 | TVG: 0 |
| TVG: 9 | TVG: 1 |
| TVG: 8 | TVG: 2 |
| TVG: 7 | TVG: 3 |
| TVG: 6 | TVG: 4 |
| TVG: 5 | TVG: 5 |
| TVG: 4 | TVG: 6 |
| TVG: 3 | TVG: 7 |
| TVG: 2 | TVG: 8 |
| TVG: 1 | TVG: 9 |

4. Tips – Improved Resolution by TX Pulse Settings

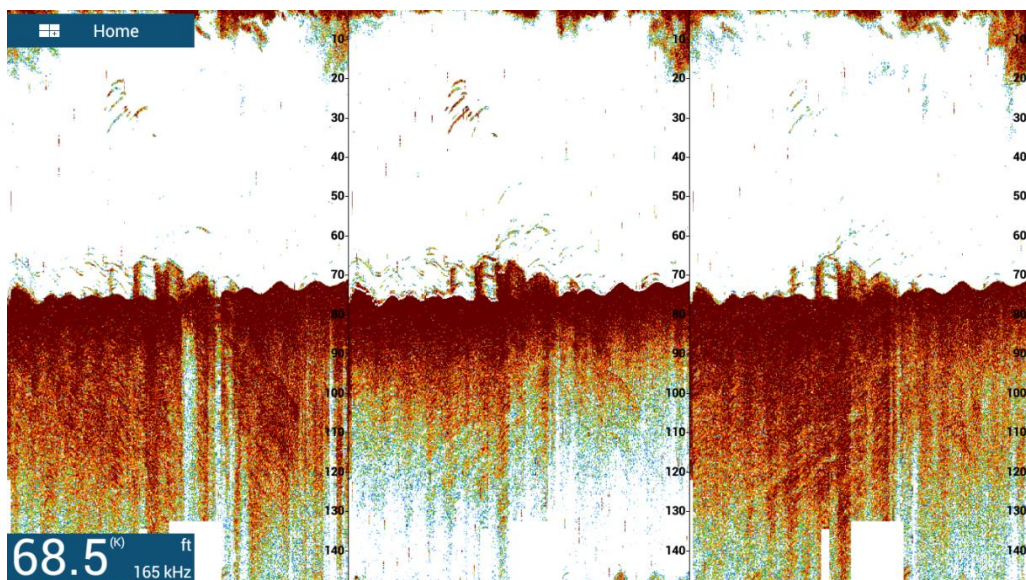
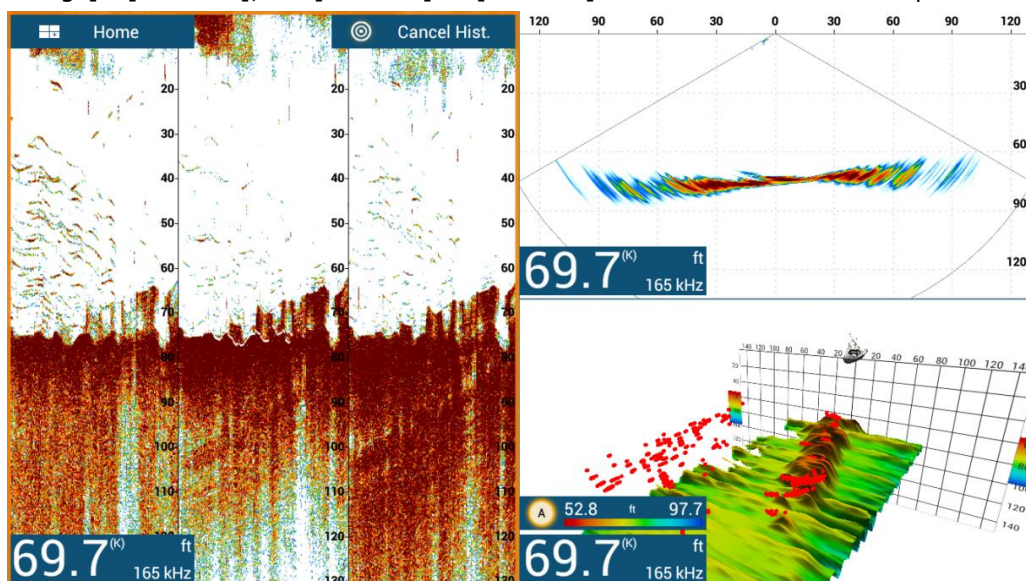
There were some cases where the DFF-3D had lower resolution compared with the DFF1-UHD in TruEcho CHIRP™. The following screenshots were taken in the US while testing the new default TVG settings of v1.05: The range resolution improved by adjusting TX pulse settings. Although the content of TX pulse settings has not been changed since launching the product, these good screenshots are introduced here as feedback from onboard.

Proposed Settings:

In [Multi-beam Sonar] - [Initial Settings] - [TX Pulse], set **[Short 1]** or **[Short 2]** to see if the resolution improves.

E.g. - [Short 2]

At the depth of 69 ft (≈ 21 m), individual fish targets in a group is well separated with each other. For operation at shallow water, setting shorter TX pulse may effectively work.



--- END ---

- All brand and product names are registered trademarks, trademarks or service marks of their respective holders.