# RoxAnn Internal Calibration Information

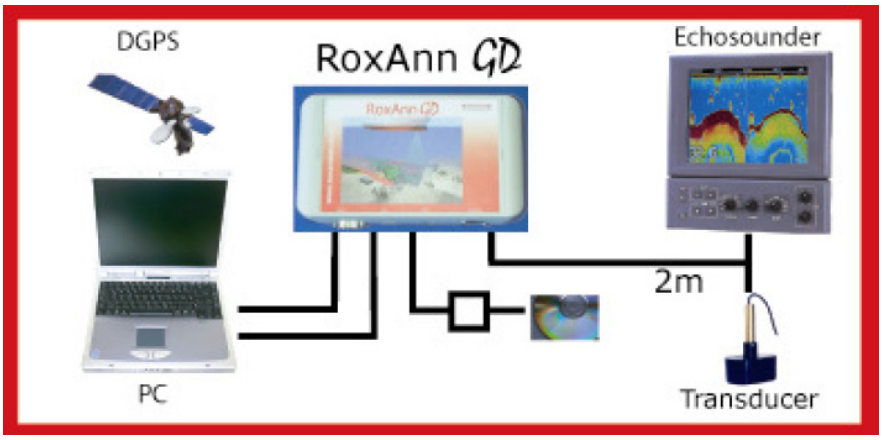
By Joe Burnett

Recently, I was doing training with one of our customers and assisting them with interfacing and calibration of their RoxAnn Bottom Classification System in HYPACK®. One of the unique things about a RoxAnn system, is that you have to actually collect some data, before you can create the *.SIX file that enables you to determine where different Bed Classifications are located.

However, prior to creating the *.SIX file in HYPACK®, you must perform a 'Calibration Test' in the system's RoxAnnGD Utility, that will internally 'tune' the RoxAnn with the echosounder with which it works.

Let me clarify this by saying that the RoxAnn comes in (2) different configurations, one that comes with its own internal echosounder built into the system, and one that 'taps into' or 'piggybacks on' the transducer cable of an existing echosounder. This article is referring to the 'piggyback' configuration, because the system with the built-in echosounder has already been internally calibrated before leaving the manufacturer.

***FIGURE 1.*** *Interfacing the RoxAnnGD with your HYPACK® System*




In this particular system, the echosounder was an Odom CVM single beam echosounder. My good friends at Odom tell me a value of 20 in the Pulse Width Settings box was the normal setting for the CV models, to achieve good bottom detection.

When we ran the RoxAnnGD 'Calibration Test', we got a 'Failure to calibrate, setting the system to default settings' reply. We decided to try these 'default settings' and see what e1 and e2 values the RoxAnn System would generate. Once it was connected to HYPACK® and generating its e1 and e2 values, I noticed that the values were way too low to be valid for the system. After several dropped phone calls to Scotland, we finally got the answer: the RoxAnn System *requires a minimum pulse width of 600 microseconds*, in order to properly do its 'Calibration Test' and produce good e1 and e2 values.

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**Note:** This Minimum Pulse Width requirement is *not* in the RoxAnn's Manual.

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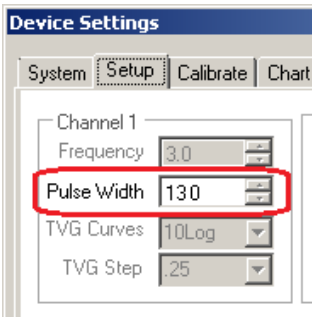
So how does the pulse width of 20, recommended by Odom, mean in microseconds? Stephen Apsey of Odom, told us the Pulse Width value refers to the number of pulse width cycles/second, and to determine it's time in microseconds you must use the following equation:

Pulse Width Time = (Pulse Width # of Cycles/second)/(Frequency of Echounder in Hz)

= (20)/(200000 Hz) which equals 1/10,000$^{th}$ of a second, or 100 microseconds

This means *the Pulse Width on the echosounder must be set to a minimum of 6 times the normal Pulse Width* recommended by the manufacturer. Stephen guessed that this must be required to get enough signal strength return, for the RoxAnn to generate proper e1 and e2 values.

In order to ensure we were getting enough pulse width, we set the Odom CVM with a pulse width of 130 (equivalent to 650 microseconds). Once we did this and performed the RoxAnn GD 'Calibration Test', the RoxAnn system calibrated within 2 minutes and produced readings in its software comparable to what the technician in Scotland had told us.




Confident that we had good 'internal calibration', we proceeded to check the new e1 and e2 values that were coming into HYPACK®; they looked much higher as expected.

The RoxAnn System was ready to go and collect data over the survey site.

**Moral of the Story**: Some devices just aren't 'Plug-and-Play'. Be sure you understand everything about your equipment—setup, calibration, it's proprietary software and its capabilities.