

Title: StreamPro Firmware-Transducer Compatibility

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Abstract

StreamPro firmware version 31.19 was released in February 2023 to support the manufacture of transducers using an alternate 1-Wire EEPROM part. A compatibility issue has been identified when using those transducers with StreamPro electronics containing earlier versions of firmware. Upgrading the firmware in the electronics to version 31.19 (or later) resolves the issue.

Instrument/Program Affected

Some (but not all) StreamPro transducers shipped beginning February 2023.

Description

The StreamPro uses a 1-Wire EEPROM part in various components for identification and to store certain configuration and calibration information. The firmware reads this information on powerup or after receiving a break signal to initialize or configure certain aspects of the system operation. An alternate part claiming identical read functionality was adopted to address part availability issues, and updated firmware was developed to support its use in manufacturing. A compatibility issue has now been identified which impacts the use of transducers containing the alternate part with electronics using older firmware versions. **Affected systems will return grossly and obviously erroneous bottom track and water profile data clearly inconsistent with actual ADCP motion and water velocities.**

Transducers containing the alternate 1-Wire part can be identified using the ROM ID section of the PSO output, which can be observed using TRDI Toolz or in the ADCP Test results logged in a WinRiver II mmt file. Affected devices will have a ROM ID with '43' as the last two hex digits of the XDR part as shown. Note that the correct ROM ID to inspect is the line ABOVE the Part Num: XDR... line:

```
>PS0
Serial Number: 672
Frequency: 2000000 Hz
Configuration: 4 BM, JANUS
Beam Angle: 20 DEGREES
CPU Firmware: 31.19 ← Minimum Firmware Version
FPGA Version: 3.00.005
Compass : Installed

ROM_ID: E8 00 00 0F 4B F2 0B 28
Part Num:
ROM_ID: 6A 00 00 02 7C 2F E8 43
Part Num: XDR82B-1003-00A
ROM_ID: 03 00 00 00 7C 09 CC 23
Part Num: DSP72B-2002-12C
ROM_ID: B8 00 00 00 84 FC 52 23
Part Num: RCV72B-2003-12A
ROM_ID: 3E 00 00 01 F1 A9 96 23
Part Num: PER72B-2020-01B
ROM_ID: 67 00 00 00 84 73 6B 23
Part Num: PIO72B-2001-12B
ROM_ID: D3 00 00 02 28 DA CF 23
```

Affected systems using an incompatible firmware version will also report incorrect beam matrix information in the following pattern. Note that the beam matrix is stored correctly in the transducer and is simply being read and reported incorrectly by older firmware; after upgrading the firmware to the latest version it will be read and reported correctly again:

```
>PS3
1.5000 1.5000 1.5000 1.5000
1.5011 1.5000 1.5000 1.5000
1.5000 1.5000 1.5000 1.5000
1.5000 1.5000 1.5000 1.5000
```

Solution/Action

Upgrading the StreamPro electronics system to version 31.19 (or newer) firmware version will correct the issue and the StreamPro system will operate correctly. Since new production systems are automatically shipped with the latest firmware version installed, this issue is not expected to arise unless and until a new production StreamPro transducer containing the alternate 1-Wire part is mated with a StreamPro electronics unit containing older firmware, thus the impact of this issue is expected to be minor. Unfortunately, data collected using an incompatible firmware version is not recoverable.

We appreciate your business with Teledyne RD Instruments and are here to assist you in this matter or answer any questions you may have. Please contact our Field Service team by phone at (858) 842-2700 or by email at rdifs@teledyne.com.