

Microchip Corporation

November 6, 2020

Field Service Bulletin (FSB) No: 098-50620-106 Rev. A

Subject: SyncServer S200 and S300 Series Internal Week Number Rollover event on September 18, 2022.

Models Affected:

SyncServer S200, S250, S300 and S350 SyncServers shipped from approximately 2007 into 2016.

1. Summary

S200/S250/S300/S350 SyncServers manufactured in 2007 and later will experience a date change on September 18, 2022 due to an internal GPS week number rollover event specific to the Furuno GPS receiver chip used in these models. This date change will affect NTP service. As a reminder, the SyncServer S2X0 and S3X0 were discontinued in 2016 and replaced by the current product, S6X0.

Depending on when you're reading this FSB there are several courses of action you can take to minimize the effect of the rollover. If you're reading this bulletin well in advance of the September 2022 event, you may have the option to return the SyncServer to Microchip to upgrade the software in the Furuno GPS receiver to move the rollover event out to July 5, 2037. If time is short before the September 18, 2022 event, either disconnect the GPS antenna prior to the event and have the unit go into holdover or review the various options in the Appendix for workarounds based on model type.

2. Remediation

There are three choices available to mitigate or workaround the Furuno GPS receiver September 18, 2022 internal week number rollover event. The Furuno GPS Receiver was used in the S200 and S300 Series SyncServers manufactured 2007 and later, the serial numbers begin with 07, 08, 09, until 16.

- A. Replace unit with an equivalently configured SyncServer S600 or S650
- B. For workarounds, skip to Appendix A
- C. Return the S2x0/S3x0 SyncServers to Microchip for reprogramming, see Section 3.

3. Microchip Reprogramming of the Furuno GPS Receiver

The Furuno GPS receiver model used in the S200 and S300 Series SyncServers has been discontinued by Furuno. It is possible to reprogram the Furuno GPS receiver, but only if the chip is removed from the PCB, reprogrammed and reattached to the PCB. There is no way this operation can be conducted in the field.

Microchip is offering a service whereby an S200 and S300 Series SyncServer equipped with a Furuno GPS receiver can be returned to the factory, reprogrammed

and returned to the customer. Reprogramming the Furuno GPS receiver moves the internal week number rollover event to July 5, 2037. The reprogramming service involves an RMA for the unit. The entire unit is received, verified to be operational, and then the Furuno software is then upgraded, the unit retested, and returned. This service is not available for the S2x0/S3x0 SyncServers with serial numbers that begin with 05 or 06. If you have one of those units with serial numbers beginning 05 or 06, contact tech support.

3.1. Reprogramming Service via Repair RMA

Reprogramming the Furuno GPS receiver is considered a non-standard repair. There are several steps to follow to start the process, as follows:

- 1) Verify the year of manufacture of the unit by looking at the serial number of the unit
- 2) Contact our RMA Department and reference this FSB regarding the repair; the repair group who will provide an RMA number, arrange payment terms, and shipping instructions.

4. Contact Information

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Selangor, Malaysia
Toll-free in North America: 1-888-367-7966, Option 1
Telephone: 408-428-7907
Email: sjo-ftd.support@microchip.com

5. APPENDIX A: Workarounds

Workarounds before and after the September 18, 2022 Internal Week Number Rollover

The best choice is to install a SyncServer S600 or SyncServer S650 network time server in advance of the rollover event. The S600 Series models are compatible with the existing S200/S300 antenna cable system and are easily installed and brought online.

If there is not enough time remaining before September 18, 2022 to implement the Recommended Solutions above, the next best solution may be to disconnect the GPS antenna cable just prior to September 18, 2022. This will put the SyncServer into holdover allowing it to keep counting the time, though it will be drifting. The amount of drift per day will be a function of the installed oscillator. Regardless, by disconnecting the antenna the SyncServer will no longer be getting time from the GPS receiver, and thus will not roll back the internal time by 1024 weeks.

Warning: Once the internal week number rollover event has passed, never reconnect the GPS antenna to the SyncServer again. If you do, it will relock to GPS with a date 19 years in the past.

A.1. SyncServer S200

a. PRE- September 18, 2022 Emergency Solutions

- i. NTP Peering
 - 1. Via the S200 web GUI, set up NTP peering associations with other network time servers (not S200/S300 models). Allow them a little time to be qualified.
 - 2. Disconnect the GPS antenna cable at the back of the time server.
- ii. Manual time set
 - 1. Disconnect the GPS antenna cable at the back of the time server.
 - 2. Manually set the time via the web GUI. Remember to set it to UTC time, not local time.

b. POST- September 18, 2022 Emergency Solutions

- i. NTP Peering
 - 1. Disconnect the GPS antenna cable at the back of the time server.
 - 2. Via the S200 web GUI, set up NTP peering associations with other network time servers (not S200/S300 models). Allow them a little time to be qualified.
- ii. Manual time set
 - 1. Disconnect the GPS antenna cable at the back of the time server.
 - 2. Manually set the time via the web GUI. Remember to set it to UTC time, not local time.

A.2. SyncServer S250

The SyncServer S250 can accommodate an external IRIG B input as well as an external 1PPS and/or 10MHz input. If any of these is configured as an external input to the S250, then just prior to the rollover event, you can disconnect the GPS antenna cable and allow the S250 to either sync to the IRIG input or go into holdover using the external 1PPS/10MHz input. Do not reconnect the GPS antenna cable.

a. PRE- September 18, 2022 Emergency Solution

- i. NTP Peering
 - 1. Via the S200 web GUI, set up NTP peering associations with other network time servers (not S200/S300 models). Allow a little time to be qualified.
 - 2. Disconnect the GPS antenna cable at the back of the time server.
- ii. Manual time set
 - 1. Disconnect the GPS antenna cable at the back of the time server.
 - 2. Manually set the time via the web GUI. Remember to set it to UTC time, not local time.

b. POST- September 18, 2022 Emergency Solution

- i. NTP Peering
 - 1. Disconnect the GPS antenna cable at the back of the time server.
 - 2. Via the S200 web GUI, set up NTP peering associations with other network time servers (not S200/S300 models). Allow a little time to be qualified.
- ii. Manual time set
 - 1. Disconnect the GPS antenna cable at the back of the time server.
 - 2. Manually set the time via the web GUI. Remember to set it to UTC time, not local time.

A.3. SyncServer S300

The SyncServer S300 came equipped with a modem for dial up timing services and an option for a low frequency radio reception of AM broadcast timing signals such as WWVB, JJY or DCF77.

a. PRE- September 18, 2022 Emergency Solutions

- i. Built-in dial-up modem
 - 1. If possible, connect the S300 built-in modem to a national timing authority dial up timing service over a phone line. Test that it can connect with the timing authority.
 - 2. Disconnect the GPS antenna cable
- ii. LFR AM Timing Broadcast
 - 1. If the S300 has an LFR antenna attached and is receiving the AM broadcast timing signal.
 - 2. Disconnect the GPS antenna cable.
- iii. NTP Peering
 - 1. Via the S300 web GUI, set up NTP peering associations with other network time servers (not S200/S300 models). Allow them a little time to be qualified.
 - 2. Disconnect the GPS antenna cable at the back of the time server.
- iv. Manual time set
 - 1. Disconnect the GPS antenna cable at the back of the time server.
 - 2. Manually set the time via the web GUI. Remember to set it to UTC time, not local time.

b. POST- September 18, 2022 Emergency Solutions

- i. Disconnect the GPS antenna cable.
- ii. Review the S300 PRE-September 18, 2022 Emergency Solutions immediately above to identify a suitable solution.

A.4. SyncServer S350

The SyncServer S350 came equipped with a modem for dial up timing services and an option for a low frequency radio reception of AM broadcast timing signals such as WWVB, JJY or DCF77. These can be used as timing sources in place of GPS if properly enabled and equipped. Details below.

The SyncServer S350 can also accommodate an external IRIG input as well as an external 1PPS and/or 10MHz input. If any of these is configured as an external input to the S350, then just prior to the rollover event, you can disconnect the GPS antenna cable and allow the S350 to either sync to the IRIG input or go into holdover using the external 1PPS/10MHz input. Do not reconnect the GPS antenna cable.

a. PRE- September 18, 2022 Emergency Solutions

- i. Built-in dial-up modem
 - 1. If possible, connect the S350 built-in modem to a national timing authority dial up timing service over a phone line. Test that it can connect with the timing authority.
 - 2. Disconnect the GPS antenna cable
- ii. LFR AM Timing Broadcast
 - 1. If the S350 has an LFR antenna attached and is receiving the AM broadcast timing signal.
 - 2. Disconnect the GPS antenna cable.
- iii. NTP Peering
 - 1. Via the S350 web GUI, set up NTP peering associations with other network time servers (not S200/S300 models). Allow them a little time to be qualified.
 - 2. Disconnect the GPS antenna cable at the back of the time server.
- iv. Manual time set
 - 1. Disconnect the GPS antenna cable at the back of the time server.
 - 2. Manually set the time via the web GUI. Remember to set it to UTC time, not local time.

b. POST- September 18, 2022 Emergency Solutions

- i. Disconnect the GPS antenna cable.
- ii. Review the S350 PRE-September 18, 2022 Emergency Solutions immediately above to identify a suitable solution.

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