Flexible RTK

Scintillation is a type of interference experienced when solar radiation causes disturbances in the atmosphere. Compared to real-time kinematics (RTK) corrections, SF3 has shown stronger corrections and guidance performance during scintillation events.

NOTE: Scintillation can still affect SF3 corrections. The impact varies depending on the severity and duration of the event and the field operation being performed. Individual results vary.

Flexible RTK allows the operator to switch easily from RTK to SF3-based RTK Extend™ (RTK-X) signal. The operator can either manually start and end Flexible RTK or enter a time window for when it is used. While Flexible RTK is on, the receiver uses RTK-X signal only.

Requirements

- StarFire™ 6000 Receiver must have software version 3.60A or newer to enable Flexible RTK.
- For optimal performance, the receiver requires a full 30 minutes to acquire SF3 signal.

Enable Flexible RTK

NOTE: Depending on model, machine receivers are identified as either GR6 or MG1. Implement receivers are identified as IR6.

The GR6 identification is used for these instructions.

To enable Flexible RTK on a GreenStar™ Display, select Message Center > Diagnostic Addresses > GR6.001 > Address 76.

On a Generation 4 Display, select Diagnostics Center > Controller Diagnostics > GR6.001 > Address 76.

Change the address value to 1 to enable and to 0 to disable.

Access Flexible RTK

PC8663—UN—29APR15

Menu Button

1. Select the Menu button.

PC27931—UN—27APR20

StarFire™ 6000 Button

PC27932—UN—27APR20

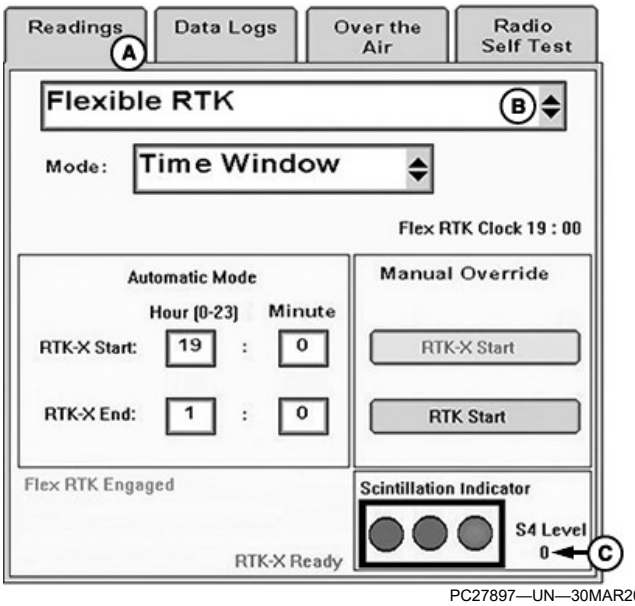
StarFire™ 6000 Integrated Button

2. Select the StarFire™ 6000 button.

PC9936—UN—31JAN07

Diagnostics Softkey

3. Select the Diagnostics softkey.



PC27897—UN—30MAR20

A—Readings Tab
B—Drop-Down Menu
C—S4 Level

4. On the Readings tab (A), select Flexible RTK from the drop-down menu (B).

Scintillation Indicator

S4 Level (C) is a measure of scintillation. Since scintillation varies by event, each operator must decide at which S4 Level their operation is negatively affected.

Observe S4 Level while monitoring machine steering to determine when to switch from RTK to RTK-X signal.

When switching from RTK to RTK-X signal:

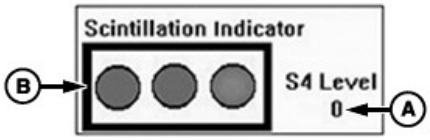
NOTE: For best guidance performance, switch from RTK to RTK-X signal before the scintillation event begins.

1. Observe S4 Level during normal operation before the time that interference is known to occur.
2. Note time of day when S4 Level increases.
3. Note machine behavior as S4 Level increases. Watch for:
   - S-ing.
   - Line jumps.
   - Wide or narrow guess rows.
   - Excessive RTK to RTK-X switching.

   Compare S4 Level to the machine symptoms.
4. Based on the time that interference occurs, determine when to switch from RTK to RTK-X signal.

When switching from RTK-X to RTK signal:

1. Observe S4 Level during Flexible RTK operation.
2. Note time of day when S4 Level decreases.
3. After interference has ended, switch from RTK-X to RTK signal.
4. Based on the time that interference ends, determine when to switch from RTK-X to RTK signal.



PC27898—UN—30MAR20

A—S4 Level
B—Scintillation Indicator

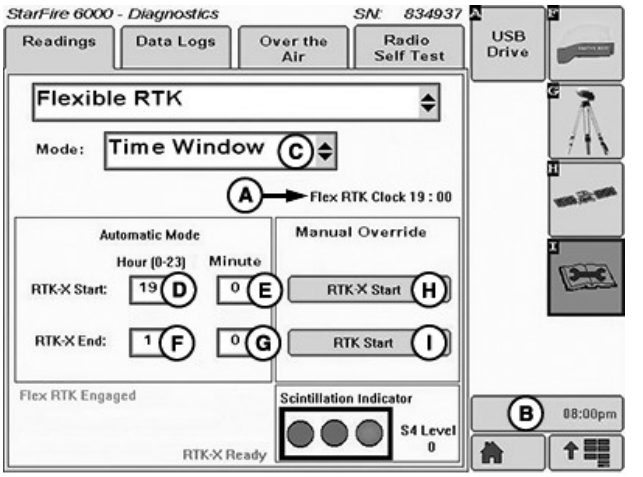
S4 Level (A)	Scintillation Indicator (B)	Symptoms
0	Green	No impact, no AutoTrac™ issues
1		No impact to low impact, infrequent RTK to RTK-X switching, light S-ing, wide or narrow guess rows
2	Yellow	Low impact, infrequent RTK to RTK-X switching, light S-ing, wide or narrow guess rows
3	Red	Some impact, frequent RTK to RTK-X switching, light S-ing, small line jumps, wide or narrow guess rows
4		Moderate impact, excessive RTK to RTK-X switching, moderate line jumps, AutoTrac™ not available
5+		Severe impact, excessive RTK to RTK-X switching, severe line jumps, AutoTrac™ not available, SF3 not available

AutoTrac is a trademark of Deere & Company

When operating as a rover using a base station equipped with a StarFire™ 3000, the StarFire™ 6000 displays a received S4 value in diagnostic address 40. If the base station is equipped with any other receiver model, diagnostic address 40 displays the value -1.

Enter Time Window

Receiver switches from RTK to RTK-X signal during the time window entered. Receiver switches back to RTK at the end of the time window.



PC27899—UN—30MAR20

A—Flex RTK Clock
B—Display Clock
C—Mode Drop-Down Menu
D—RTK-X Start Hour Entry Box
E—RTK-X Start Minute Entry Box
F—RTK-X End Hour Entry Box
G—RTK-X End Minute Entry Box
H—RTK-X Start Button
I—RTK Start Button

NOTE: System is based on a 24-hour Flex RTK Clock (A) that does not account for daylight saving time.

Use the Flex RTK Clock when entering start and end times. Do not use the display clock (B) or other time sources.

1. In the Mode drop-down menu (C), select Time Window.

NOTE: If the start and end times are the same, the system does not act.

Set the end time for the time of day when the effects of scintillation have ended.

2. Enter the RTK-X start hour (D) and start minute (E).

3. Enter the RTK-X end hour (F) and end minute (G).

Manually Start and Stop Flexible RTK

NOTE: Mode must be set to Time Window, and the start time and end time must be entered.

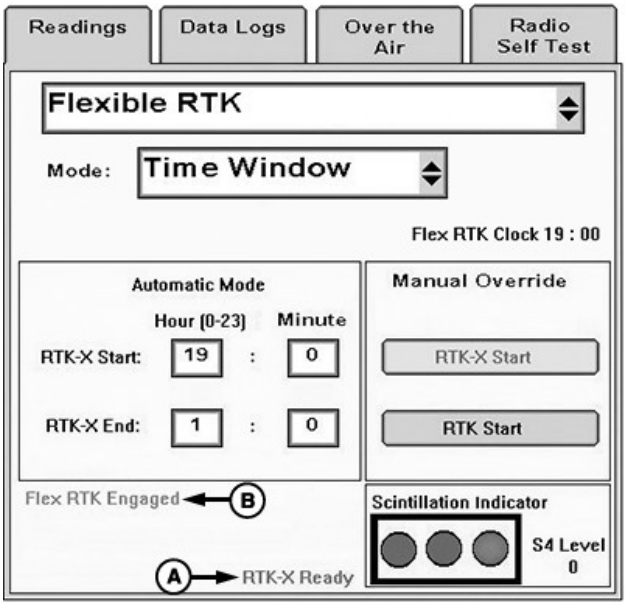
Small line shifts may occur depending on:

- *S4 Level during switch—zero is ideal.*
- *Accuracy and duration of RTK correction.*

To start Flexible RTK immediately, select the RTK-X Start button (H). Corrections switch to RTK-X. If current time is before the start time, system uses RTK-X signal until end time. Selecting the RTK-X Start button does not change start time.

To stop Flexible RTK immediately, select the RTK Start button (I). Corrections switch to RTK, even if current time is during the time window. Selecting the RTK Start button does not change the end time.

RTK-X and Flexible RTK Status



PC27900—UN—30MAR20

A—RTK-X Status
B—Flexible RTK Status

RTK-X Status (A)

- RTK-X Not Ready: If RTK signal is lost, the receiver reverts to WAAS, EGNOS, or 3D-None.
- RTK-X Available: If RTK signal is lost, RTK-X is available but an offset vector is not yet saved. If you cycle power or experience significant shading before 1 hour elapses, RTK-X will no longer be available, and the position mode transitions to WAAS, EGNOS, or 3D-None, unless the rover reconnects to a base station.
- RTK-X Ready: If RTK signal is lost, RTK-X is available for up to 14 days. After 14 days, the position mode transitions to WAAS, EGNOS, or 3D-None, unless the rover reconnects to a base station. Once connected to a base station and the offset vector is saved, the 14-day timer resets and RTK-X is available for another 14 days.

Flexible RTK Status (B)

- Engaged—RTK corrections are disabled because either RTK-X Start button was selected or current time is within the time window.
- Disengaged—RTK corrections are enabled because either RTK Start button was selected or current time is outside the time window.

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