

**Sentinel v3 Upgrade Kit Contents**



Sentinel WMS software must be version 3.2.4.3 or greater to upgrade to v3. Certain controller data (Special Data, Zone Data, Automatic Operations, and Hydro Reports (with ET and rainfall)) will be lost in the upgrade procedure. Back it up before upgrading. Backups and restores must be done from the Central computer.

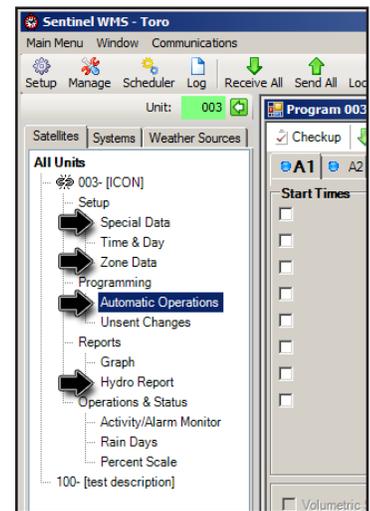
## Backing Up Controller Data

In the Sentinel WMS software, for each Satellite / Unit, select:

- Special Data:** Click **Receive** and **Save**.
- Zone Data:** Click **Receive** and **Save**.
- Automatic Operations** (all used programs A1 - D4): Click **Receive** and **Save**.

For an **Automatic Operations** short cut, select **Unsent Changes**, check all used programs (A1 - D4) including the SD and ZD boxes.

Unit	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	SD	ZD
Changes made, but not yet sent (indicated by checkmark).																		
001	<input checked="" type="checkbox"/>																	

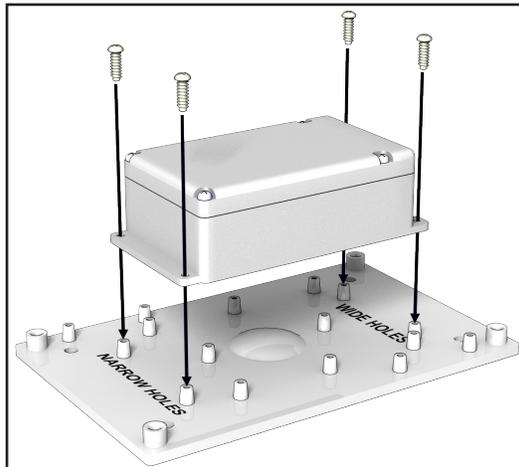


**The nodes to be backed up.**

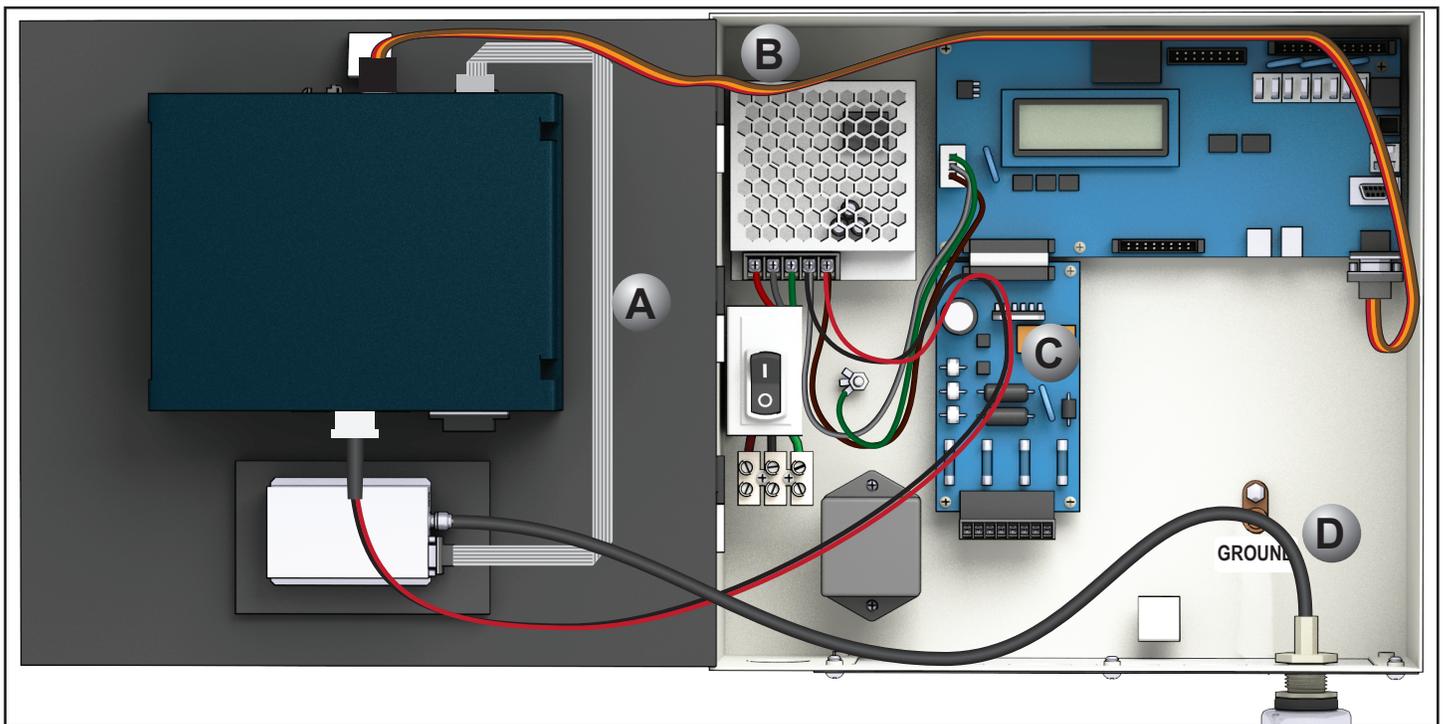
**Hydro Report:** Open select **Water Use** . If you have a rain bucket or weather station, select **ET** **Rainfall** **Receive** and **Save**.

## Upgrade Procedure:

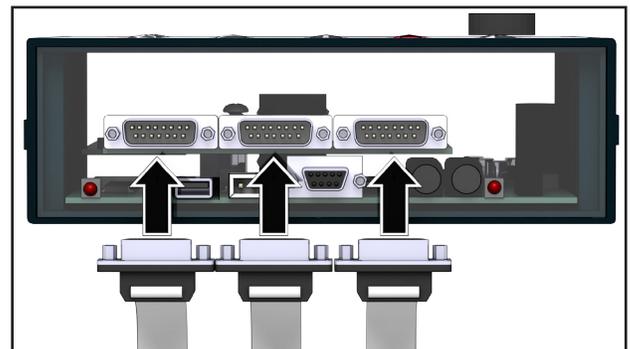
1. Install the new v3 TM into the cabinet where the v2 TM was, using the original v2 TM screws.  
(Location varies by cabinet.)
2. Remove the radio from the existing v2 TM and attach to the backplate with the included 'radio screws'.
3. Use the 'backplate screws' to mount the radio and backplate where there is room within the Sentinel cabinet. If no room is available, the radio can be installed onto the TM itself. (If installing onto the TM, use the provided short radio screws only.)



only if no other space is available



4. Use the included 'radio cable', reconnect the radio to the TM (A).
5. For **WIRED**: Reconnect the station outputs to the TM (confirm cable locations, 1-12, 13-24, 25-36, 37-48). Station output cables provide power to the TM.



**WARNING:** If using a WIRED TM, DO NOT connect the included Molex cable. This can cause a power short.

- For **TWO-WIRE**: Reconnect the serial cable (B) from the motherboard to the TM as it was previously. Connect to the serial port '0' or port '1' on the back or front respectively.

**NOTE:** DO NOT connect the serial cable to the 'DATA RETRIEVAL' port.

- For **TWO-WIRE & WIRELESS**: Connect the Molex cable (C) to the power port on the bottom of the TM. Connect the black and red wires to the terminal outputs from the transformer. This supplies power to the TM.

 The v3 TM requires 24VAC or 40VDC respectively, depending on model.

- Reconnect the radio antenna cable (D).



**Remember, do not connect the Molex cable and the output boards at the same time.**

## Restoring Controller Data:

### Send all Special Data, Zone Data, Automatic Operations, and Hydro Reports to the TM

 When upgrading from V2 to V3 firmware there are some selections that *must be made*.

#### 1. At the Satellite:

Verify firmware version, set station count, and set Unit Code.

- Check Firmware version:** Turn on the Sentinel satellite. The bootup screen displays the time and date, the gallons per minute and current electrical draw, and the firmware version. FW version must match what is shown in the Sentinel WMS software.
- Station Count:** Press  **Satellite Settings**, scroll to **Station Count**, and verify the count is correct.
- The **Unit Code** *must* be set. At the TM, select  **Satellite Settings**, scroll to **Unit Code**, and set the Unit Code and (if using group codes) Group Code. (If Group Codes are not being used, leave value at "000".)
- For **AC or DC TWO-WIRE systems**:  
Make a note regarding which port the motherboard is connected to on the TM.

```
09:01A WE W4 SEP 13
GPM : A00000 E00000
Amp: 0.0

FW: 3.13.02 DD2E
```

```
Station Count
Total Stns = 48
```

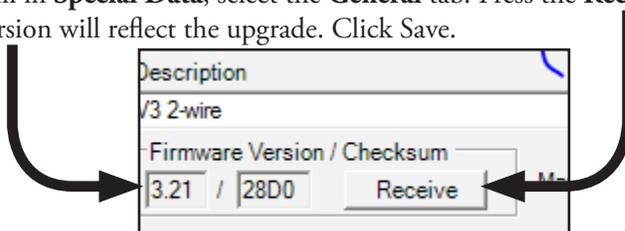
```
Unit Code
CODE = 193
```

```
Group Code
CODE = 000
```

#### 2. At the Central computer in the Sentinel WMS software:

- Select the upgraded Satellite / Unit, and select **Special Data**. Go to the **Comm. Settings** tab. Set the **Packet Comm** checkbox as appropriate. If your Sentinel v3 is connected via Ethernet, Cell Modem, or CTM, be sure the Packet Com checkbox is checked.  
 **Packet Comm (requires firmware x.43 min.)** Click  **Save**.

- Receive the firmware version from the satellite. **This must be done before proceeding.** Still in **Special Data**, select the **General** tab. Press the **Receive** button (next to the firmware version). The firmware version will reflect the upgrade. Click Save.



c) Three new Options are now available under the **General** tab.

- If using a soil moisture sensor, check the Activate Soil Sensing checkbox.  **Activate Soil Sensing**
- If using a Wireless or Two-Wire system, check the  **Clear wireless comm. alarms upon successful communication** checkbox.
- If using 3-digit unit codes for the hand-held commands, select  **Hand Held Remote - V2 compatibility mode**.

 v3 Satellites require different hand-held radio commands. The default command changes to zero ('0') plus the Unit Code followed by 3 digits for the station. For example, to turn on unit 100, station 1, enter command: 0 100 001.

If you select v2 compatibility mode, as shown selected above, no preceding '0' is necessary. The same command in v2 compatibility mode would be: 100 001.

d) Still in **Special Data** window, now select the **Flow Sources** tab. For all flow meters in use, check **Add to Total** checkbox.

	Description	(Zone Data)	Idle Polling Interval	Reports	Add to Total
<b>Flow Sensor 1</b>			0	<input type="checkbox"/>	<input checked="" type="checkbox"/>

 Save and  Send .

e) Select **Time & Day**, press  **Send Time/Day** (synchronize).

f) Select **Zone Data**, press  **Send** .

g) Select **Automatic Operations**, all used programs ( A1 - D4 ), press  **Send** .

h) For **Hydro Report**, select  **Hide/Show Editor**. This will expand the tab and show water use, ET (if any), and any rainfall for the last two years (if any). The Send button  **Send** will now appear. Click it to send this data to the new v3 upgrade Sentinel, where it will be stored and added to.

i) In the Software, set the serial port ( as noted in Restoring Controller Data, Step 1, e ).  
Select Special Data, Advanced tab, (Serial Port 1 or 0), (BL / TORO AC 2-WIRE)(Toro DC 2-Wire).  
Save and send.

 V3 timing module upgrade kits do not include a UHF radio. Remove the existing radio(s) from the V2 timing modules before returning them to Toro. Existing radio(s) must be installed externally to the V3 timing module, mounting hardware for which are provided in the upgrade kits. All old V2 timing modules must be returned to the address below with the original PO referenced for the return.

The Toro Company  
Controller Repair Department  
Attn: Iris Sosa  
5825 Jasmine Street  
Riverside, CA 92504  
(951)-785-3579



**Count on it.**