

Precision Planting

For Operations and Installation Manuals visit

<http://precisionplanting.com/Products/vDrive/TechSupport.aspx>

or scan the QR code at right with your iPad.



The **Cab Control Module 2 (CCM 2)** is composed of three separate parts:

- The **Left** switch is the Master Plant toggle.
- The **Center Group** of 3 switches controls planter sections.
- The **Right** switch is the swath control toggle.

Section Plant: This group of switches are used for section control and auto-loading.

- The **Outside Two** switches are labeled as **"Auto-Load"** and are used for loading the meters prior to planting, swath control and health checks.
- Prior to planting "auto-load" the meters. Push up and release the **Outside Two** switches. This will spin the meters and load the seed disk.
- The three switches can also be used for swath control.

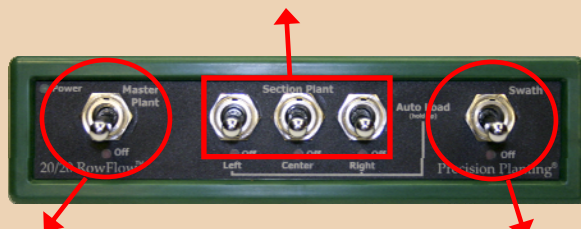
Conditions to Enable vDrive:

In order for vDrive to function, the following conditions must be met:

1. Planter lowered
2. Planter moving
3. Master Plant Switch "ON"
4. Swath Control commanded "ON"

When **vDrive** is installed, the **vDrive BUTTON** will be displayed. By pressing the vDrive button, you will be taken to the vDrive Control center to make adjustments to your system. If this button is not present, navigate: **SETUP - SYSTEMS - DISPLAY - DASHBOARD BUTTONS** and choose the **4X4 OPTION**. See page 2 for additional information on vDrive control.

The top box of the vDrive button (labeled 160,000 below) displays your current commanded population when planting a manual population or displays **"VARIABLE"** when planting a prescription. The bottom box of the vDrive button (labeled Swath below) displays swath control mode.



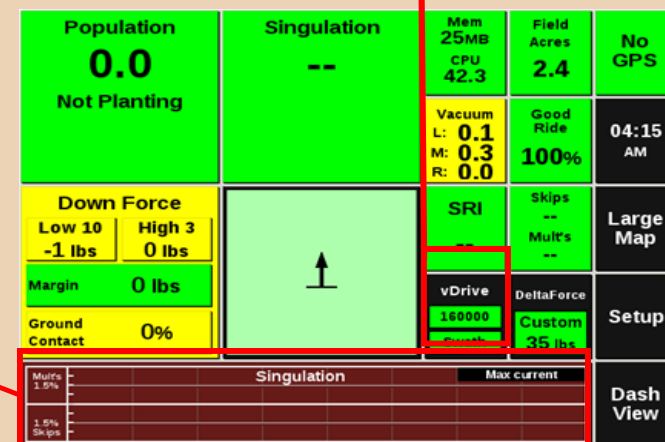
The **Master Plant** switch controls the planter.

- **Toggled On:** vDrive units will plant once the planting requirements for the system are met.
- **Toggled Off:** vDrive units will not plant. We recommend doing this when you are near the planter.

The **Swath** switch on the right side of the CCM 2 is for swath control.

- **Toggled On:** Swath Control is enabled. (all rows will clutch)
- **Toggled Off:** Swath Control is disabled. (all rows will plant)

A **Dashboard Mini-Chart (DMC)** can be selected from the Dash View page. There are several options that can be selected, such as Population or Singulation. Pressing the Dashboard Mini-chart will take the operator to a detailed page of that characteristic. Whenever vDrive turns off a row due to swath control, the Population DMC will be shown with the clutch status at the bottom.



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Pop Setpoints - Allows the operator to change any of the eight population Setpoints.

The **vDrive Control Center** is the heart of the vDrive system. This is where you will Enable Control to the system, select population rates, monitor as applied seeding prescriptions, and manually clutch off rows..

Single - A single population will be planted across the planter. Pressing this button will toggle between "Single" and "Multi."

Population Control: This control can toggle between "Variable" and "Manual".

- **Manual:** You specify which population you want to plant
- **Variable:** The prescription map specifies the population for each row. A prescription must be loaded under **SETUP - FIELD - SELECT A FIELD - PRESCRIPTION**
- When in "Manual", the manual commanded population will be planted even when a prescription is loaded.

Swath Control: This control can toggle between "Enabled" and "Manual." Pressing this button will enable and disable swath control or turn swath off.

Control Plan: This button allows you to define boundaries to command vDrive to. Field Boundary, Inner Boundary, Map Coverage, and Simulated Headlands are all control options.

vDrive Control		Home
Population Control Manual	Pop Setpoints	Single
+500 Adjust	160000	26000
160000	36000	32000
-500 Adjust	34398	38445
Clutch from Left	40469	40000
Clutch from Right	Control Plan	
	Field Boundary Inner Boundary Map Coverage Sim. Headlands	
	Swath Control Enabled	
	Advanced Swath Tools	
	AutoMap Express	
	Setup	
	Back	
Population		
161.0		
160.0		
159.0		

The green boxes across the bottom of the screen are active planter clutch sections. When rows are clutched off, they will appear yellow.

Multi - Multiple populations can be planted on the different sections of the planter. Pressing this button will toggle between "Single" and "Multi."

vDrive Control		Home
Population Control Manual	Pop Setpoints	Multi
+500 Adjust	Section 1 1-8	35000
35000	Section 2 9-16	40000
-500 Adjust	Manual Section Control	
Clutch from Left	Swath Control Manual	
Clutch from Right	Advanced Swath Tools	
	AutoMap Express	
	Setup	
	Back	
Population		
31.0		
25.0		
28.0		

Manual Section Control: Allows the operator to determine which sections to turn off.

Population Adjustment: Allows the operator to adjust population in 500 seed increments of all rows.

Within "Manual Swath Control," the operator can shutoff sections from one end of the planter by clutching from "Left" or "Right."

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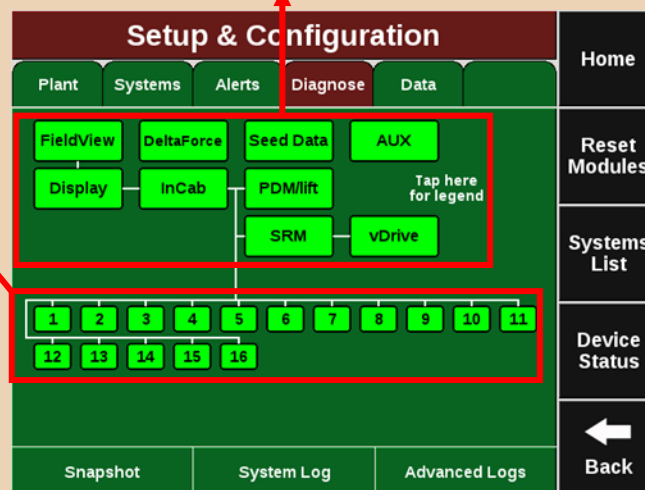


In order to access the Diagnostic Page, navigate: SETUP—DIAGNOSE

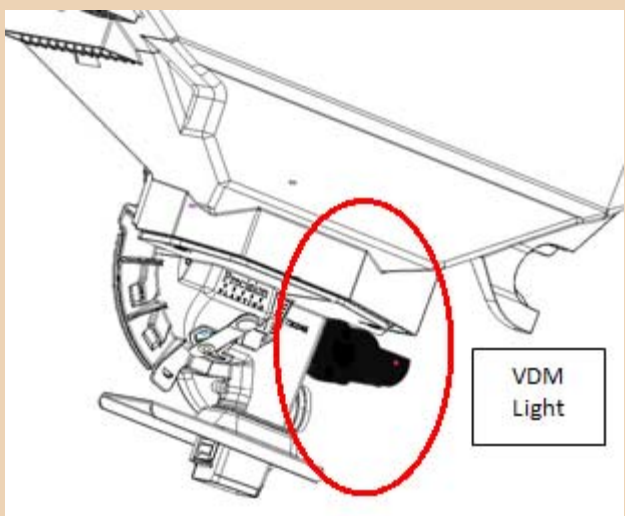
The bottom of the page will list all of the rows on the planter.

The top section of the page will list all of the systems detected on the planter.

SRM and VDM Light Status	
Light Pattern	Description
Erratic Blink (..-..-..-..)	Device has power but has never communicated to 20/20
Solid Light (_____)	Device is being updated
Steady Blink (-----)	Device is powered and communicating to 20/20
Fast Blink (.....)	Device is powered but lost communication to 20/20
No Light ()	Device is not powered



Colors of Diagnose Page
Green - All systems are operating and communicating correctly.
Yellow - A system is not functioning 100%
Red - A part of the system has failed. The corresponding row will also be red.
White - Device is detected but is not Expected.



vDrive Level 2 Diagnostic Diagram									
Row	Speed Source (SET)	RPM Actual	RPM Cmd	Pop Actual	Pop Cmd	Stability	Supply Volts	Drive Amps	Duty Cycle
1	none	0.0	0.0	---	---	0%	14.1	0.00	0%
2	none	0.0	0.0	---	---	0%	14.1	0.00	0%
3	none	0.0	0.0	---	---	0%	14.1	0.00	0%
4	none	0.0	0.0	---	---	0%	14.1	0.02	0%
5	none	0.0	0.0	---	---	0%	14.1	0.00	0%
6	none	0.0	0.0	---	---	0%	14.1	0.00	0%
7	none	0.0	0.0	---	---	0%	14.1	0.00	0%
8	none	0.0	0.0	---	---	0%	14.1	0.00	0%
9	none	0.0	0.0	---	---	0%	14.1	0.00	0%
10-11	---	---	---	---	---	---	---	---	---
Lift State Lowered Radar Speed Not Present GPS Waiting For Comm Speed Not Simulated Turn Rate No Gyro Data Master Plant On									

Speed Source - Displays the speed source off which the vDrive system is running (**Radar or GPS**).

RPM Actual - RPM of the meter as measured by the Encoder on the vDrive motor.

RPM Command - Meter Speed commanded by the 20/20.

Pop Actual - Population being measured by the seed sensor.

Pop Command - Population being commanded by the 20/20.

Stability - Reading of how stable the motor speed is.

Supply Volts - Voltage being supplied to the vDrive

Drive Amps - Current required to spin the vDrive motor

Duty Cycle - A measure of how hard the electric motor is working. It is the proportion of time that the motor is on as opposed to off.

Lift State - Determined by the lift switches.
Radar Speed - Shows speed determined by radar.
GPS - Shows speed determined by GPS.
Turn Rate - Shows the status of the gyro and the planters current turning rate.
Master Plant - Shows if Master Plant switch is On/Off on the CCM.