

# INSTALLATION INSTRUCTIONS

## **Field-IQ™ Crop Input Control System Rate Control**

**Spreaders**

Version 1.00  
Revision A  
October 2010  
Part Number 99005-00-ENG



## Agriculture Business Area

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This is the October 2010 release (Revision A) of the *Field-IQ Crop Input Control System Installation Instructions*, part number 99005-00-ENG. It applies to version 1.00 of the Field-IQ Crop Input Control System.

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Class B Statement – Notice to Users. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission rules.

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**Recycling in Europe:** To recycle Trimble WEEE, Call +31 497 53 2430, and ask for the "WEEE Associate"

Or

### Mail a request for recycling instructions to:

Trimble Europe BV  
c/o Menlo Worldwide Logistics  
Meerheide 45  
5521 DZ Eersel, NL



# Safety Information

Always follow the instructions that accompany a Warning or Caution. The information they provide is intended to minimize the risk of personal injury and/or damage to property. In particular, observe safety instructions that are presented in the following format:



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**WARNING** – This alert warns of a potential hazard, which, if not avoided, can cause severe injury.

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**CAUTION** – This alert warns of a hazard or unsafe practice which, if not avoided, can cause injury or damage.

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*Note* – An absence of specific alerts does not mean that there are no safety risks involved.

## Warnings



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**WARNING** – When you are working on the vehicle’s hydraulic systems, vehicle attachments that are suspended can drop. If you are working around the vehicle, you could suffer serious injury if an attachment dropped on you. To avoid this risk, lower all vehicle attachments to the ground before you begin work.

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**WARNING** – If someone else attempts to drive the vehicle while you are working on or under it, you can suffer serious or fatal injuries. To avoid this possibility, install a lockout box on the battery terminal to prevent the battery from being reconnected, remove the key from the vehicle’s ignition switch, and attach a “Do not operate” tag in the cab.

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**WARNING** – Agricultural chemicals can pose serious health risks. If the vehicle has been used to apply agricultural chemicals, steam clean the vehicle to remove any chemical residue from the areas of the vehicle where you will be working.

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**WARNING** – Vehicle cabs can be quite high in the air. To avoid potentially serious injury through falling from this height, always use the steps and handrails, and face the vehicle, when you enter or exit it.

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**WARNING** – When the vehicle has been running, parts of the vehicle, including the engine and exhaust, can become extremely hot and can cause serious burns. To avoid burns, allow hot machine parts to cool before you begin working on them.

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**WARNING** – The system installation may bring you into contact with chemical substances, such as oil, which can cause poisoning. Wash your hands thoroughly after you finish working on the system.

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**WARNING** – Battery posts, terminals, and related accessories contain lead and lead compounds, which can cause serious illness. To avoid ingesting lead, wash your hands thoroughly after touching the battery.

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**WARNING** – Always wear protective equipment appropriate to the job conditions and the nature of the vehicle. This includes wearing protective glasses when you use pressurized air or water, and correct protective welder's clothing when welding. Avoid wearing loose clothing or jewelry that can catch on machine parts or tools.

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**WARNING** – Parts of the vehicle may be under pressure. To avoid injury from pressurized parts, relieve all pressure in oil, air, and water systems before you disconnect any lines, fittings, or related items. To avoid being sprayed by pressurized liquids, hold a rag over fill caps, breathers, or hose connections when you remove them. Do not use your bare hands to check for hydraulic leaks. Use a board or cardboard instead.

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**WARNING** – Folding and unfolding the applicator booms can result in damage; make sure there are no people or objects in the path of travel of the booms.

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**WARNING** – Do not alter cable lengths and connections. If you must alter the length of the power cable do not remove the fuse and fuse holder from the cable.

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**WARNING** – Most application equipment have pressurized cabs. If you need to drill a hole in the cab, reseal the hole to maintain the pressurization of the cab; sealing putty is one option to seal the cab. Trimble recommends Sealing Gum, Size 2 pounds, Permagum Block Grainger item # 4E307, or Brand Virginia KMP, manufacturer's model PP-22. These are available from [www.grainger.com](http://www.grainger.com).

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**WARNING** – Damage will result to the cable if it is not routed correctly. When routing cables be sure to route them free from areas that may result in damage to the cables including pinching, stretching and rubbing.

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## Cautions



**CAUTION** – Do not direct pressurized water at Field-IQ system nozzles or other components including:

- electronic or electrical components or connectors
- bearings
- hydraulic seals
- fuel injection pumps
- any other sensitive parts or components



Set the hose pressure as low as practicable, and spray at a 45° to 90° angle. Keep the nozzle of the power washer away from the machine at the distance recommended by the manufacturer.

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**CAUTION** – Be sure to install the hitch connection and cables so they are free of areas that could result in damage to the cable or the Field-IQ system.

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**CAUTION** – Do not pull the cables while they are installed into the control module's cinch box. Pulling the cables with any force will torque the front connector plate and cause the sealing tabs to snap out of place.

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# Introduction

- [Technical assistance](#)
- [Your comments](#)

This manual describes how to install the Trimble® Field-IQ™ Crop Input Control System.

Even if you have used other Global Positioning System (GPS), or application control products before, Trimble recommends that you spend some time reading this manual to learn about the special features of this product. If you are not familiar with GPS, visit the Trimble website ([www.trimble.com](http://www.trimble.com)) for an interactive look at Trimble and GPS.

## Technical assistance

If you have a problem and cannot find the information you need in the product documentation, contact Trimble technical support:

1. Go to the Trimble website ([www.trimble.com](http://www.trimble.com)).
2. Click the **Support & Training** link at the top of the screen, select *Support* and then select *Support A-Z list of products*.
3. Scroll to the bottom of the list.
4. Click the *submit an inquiry* link. A form appears.
5. Complete the form and then click **Send**.

## Required components

Kits required	Special tools
Field-IQ cab kit for FmX <sup>®</sup> integrated display or FM-1000 integrated display (P/N 80810-00)	¼" socket or ¼" nut driver
99105-10 - Field-IQ Spreader Control System - Pull Type w/ Existing Valve	Additional adapter cables may be required.
99105-11 - Field-IQ Spreader Control System - Pull Type w/ Existing Valve	

## Your comments

Your feedback about the supporting documentation helps us to improve it with each revision. Email your comments to [ReaderFeedback@trimble.com](mailto:ReaderFeedback@trimble.com).

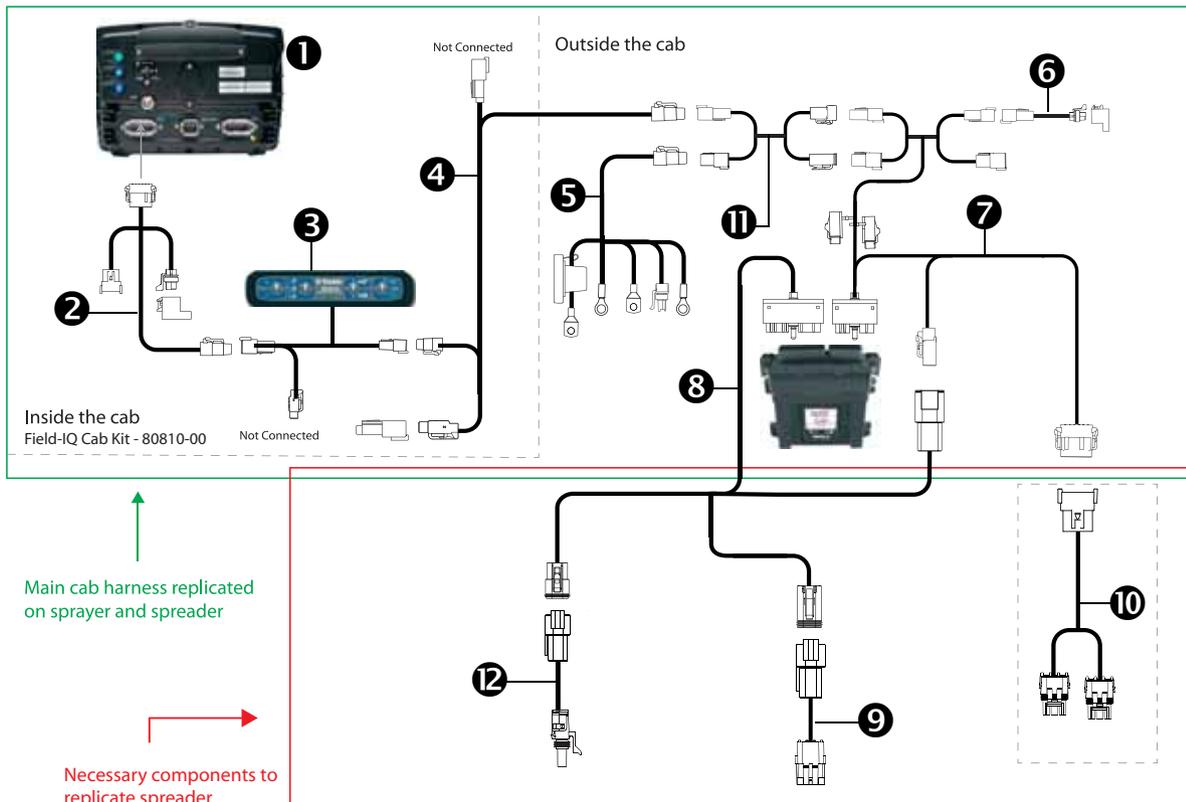
# Quick installation instructions

**WARNING** – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the [Safety Information](#) chapter.

## Rate control: Spreader components

To connect the display with the Field-IQ cab kit and the Rate and Section Control Module for spreader application, refer to one of the following diagrams - CFX-750 display or FmX integrated display.

### CFX-750 display.



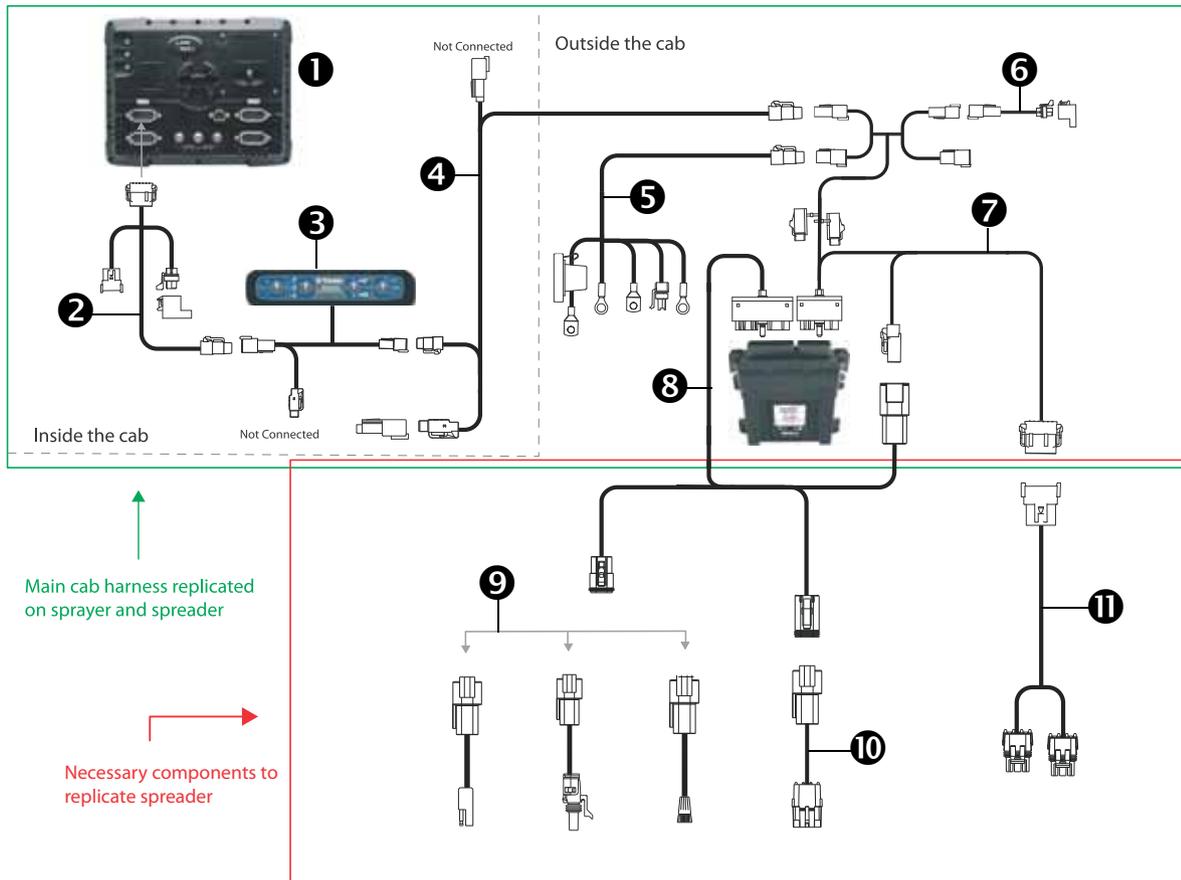
Item	Description	Trimble part number
1	CFX-750 display	94100-01
2	Display to Field-IQ cable	75834
3	Field-IQ master switch box	75050-01
4	Cab to hitch CAN cable	77368
5	Power to cab cable	76941

## 2 Quick installation instructions

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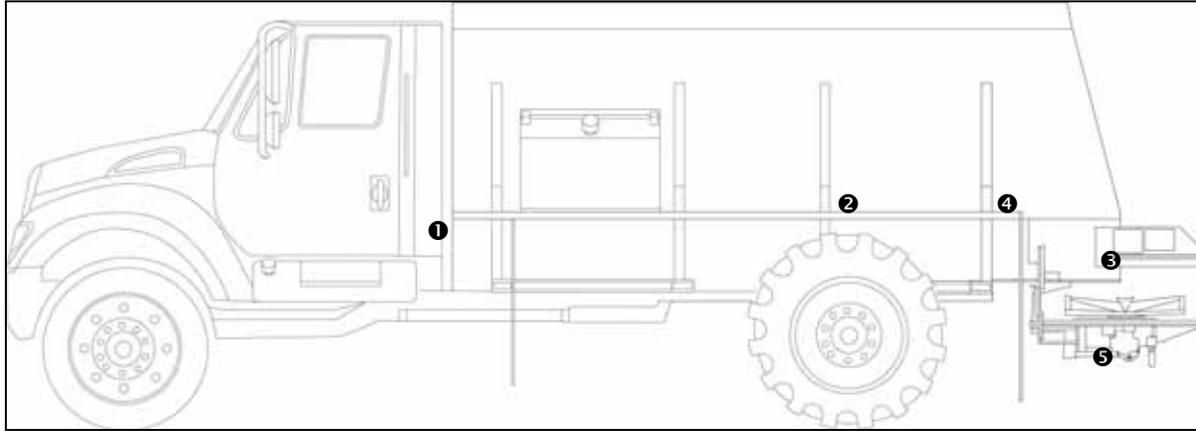
<b>Item</b>	<b>Description</b>	<b>Trimble part number</b>
⑥	Field-IQ implement terminator adapter	75529
⑦	Power/CANbus harness	75526
⑧	Field-IQ universal spreader breakout cable	80553
⑨	Field-IQ to Dickey-john encoder/flowmeter	80539
⑩	Field-IQ spreader gate height and spinner speed adapter	80507
⑪	CAN/power extension cable	75528-xx
⑫	Dickey-john PWM control valve adapter (2 wire)	80960

## FmX integrated display



Item	Description	Trimble part number
1	FmX integrated display	93100-01
2	Display to Field-IQ cable	75834
3	Field-IQ master switch box	75050-01
4	Cab to hitch CAN cable	77368
5	Power to cab cable	76941
6	Field-IQ implement terminator adapter	75529
7	Power/CANbus harness	75526
8	Field-IQ universal spreader breakout cable	80553
9	Flow control adapter cable: - Field-IQ to Raven Fast Valve - Field-IQ to Raven control valve adapter - Dickey-john PWM control valve adapter (2 pin)	80534 80586 80960
10	Field-IQ to Dickey-john encoder/flowmeter	80539
11	Field-IQ, spreader gate height and spinner speed adapter cable	80507

## Quick reference guide



<p><b>1</b></p> <p>a. Run the CAN/power extension cable (P/N 75528-XX) through the cab wall, positioning the P1 and P2 connectors on the outside of the cab. Route the cable to the back of the spreader.</p> <p>b. On the outside of the cab, connect P1 from cable P/N 75528-XX to R1 on cable P/N 75526. Then connect P2 from cable P/N 75528-XX to R2 on cable P/N 75526.</p>	 	<p><b>4</b></p> <p>a. Connect P1 from cable P/N 80553 and P3 from cable P/N 75526 to the rate control module; torque to 15-20 in-lbs [1.7-2.3 Nm].</p> <p>b. Mount the rate control module in a convenient location: Make sure that you point the connectors downward, to keep debris and water from collecting in the connectors. You can also place it behind a structural member to provide additional protection.</p>	
<p><b>2</b></p> <p>a. Find the control valve and connect R2 from the control valve cable. Your control valve cable part number will depend on your control valve type:</p> <ul style="list-style-type: none"> <li>• PWM: P/N 80960</li> <li>• DJ control valve: P/N 80531</li> <li>• Raven fast valve: P/N 80534</li> <li>• Raven standard valve: P/N 80586</li> </ul> <p>b. Connect R1 from the control valve cable to P2 from cable P/N 80553.</p>	 	<p><b>5</b> Optional sensor:</p> <p>a. Connect R1 from cable P/N 80507 to P4 of cable P/N 75526.</p> <p>b. Route P2 from cable P/N 80507 to the spinner speed sensor. Change the connector if necessary and then attach it as shown.</p> <p>c. Route P1 from cable P/N 80507 to the Gate Height Sensor, if applicable.</p> <p>d. Route P3 from cable P/N 80507 to the Bin Level Sensor, if applicable.</p>	 
<p><b>3</b></p> <p>a. If you are not using a pre-installed rate sensor, find a suitable site to attach the Trimble rate sensor.</p> <p>b. Connect the rate sensor cable to R2 of cable P/N 80539.</p> <p>c. Connect R1 from cable P/N 80539 to P3 of cable P/N 80553.</p>	 		

# Spreader Installation

## In this chapter:

- Connecting the control valve
- Installing the rate control module
- Installing the application rate sensor
- Connecting the optional sensors

This chapter describes how to install the Field-IQ RateControl module on spreaders.



**CAUTION** – Do not pull the cables while they are installed into the control module's cinch box. Pulling the cables with any force will torque the front connector plate and cause the sealing tabs to snap out of place.

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**CAUTION** – Before you drill any holes, check behind the drilling surface to ensure that you will not damage any hoses, wires, or other equipment. Failure to do so could result in damage to the vehicle.

---

## Connecting the control valve

### Step 1

Run the CAN/power extension cable (P/N 75528-XX) through the cab wall, positioning the P1 and P2 connectors on the outside of the cab. Route the cable to the back of the spreader.



### Step 2

On the outside of the cab, connect P1 from cable P/N 75528-XX to R1 on cable P/N 75526. Then connect P2 from cable P/N 75528-XX to R2 on cable P/N 75526.



### Step 3

Find the control valve and connect R2 from the control valve cable. Your control valve cable part number will depend on your control valve type:

- PWM: P/N 80960
- DJ control valve: P/N 80531
- Raven fast valve: P/N 80534
- Raven standard valve: P/N 80586



### Step 4

Connect R1 from the control valve cable to P2 from cable P/N 80553.



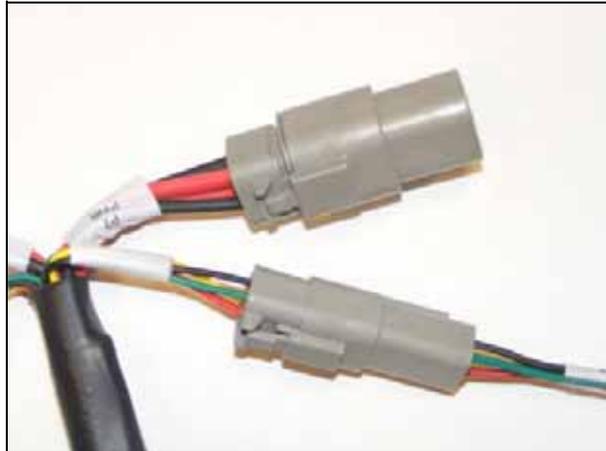
### Step 5

Connect P5 from cable P/N 75526 to R1 from cable P/N 80553.



### Step 6

Connect R1 from cable P/N 75529 to P1 from cable P/N 75526.



### Step 7

Connect R1 of cable P/N 75528-XX to P1 on cable P/N 77368.



### Step 8

Connect R2 from cable P/N 75528-XX to P1 from cable P/N 76941.

## Installing the rate control module

Connect P1 from cable P/N 80553 and P3 from cable P/N 75526 to the rate control module; torque to 15-20 in-lbs [1.7-2.3 Nm]). Mount the rate control module in a convenient location. When you mount the rate control module, make sure that you point the connectors downwards, to keep debris and water from collecting in the connectors. You can also place it behind a structural member to provide additional protection.



## Installing the application rate sensor

### Step 1

If you are not using a pre-installed rate sensor, find a suitable site and mount the Trimble rate sensor.



### Step 2

Connect the rate sensor cable to R2 of cable P/N 80539.



### Step 3

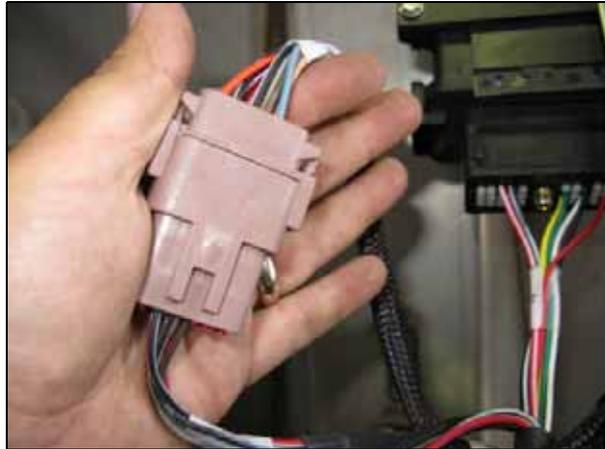
Connect R1 from cable P/N 80539 to P3 of cable P/N 80553.



## Connecting the optional sensors

### Step 1

Connect R1 from cable P/N 80507 to P4 of cable P/N 75526.



### Step 2

Route P2 from cable P/N 80507 to the spinner speed sensor. Change the connector if necessary and attach as shown.



### Step 3

Route P1 from cable P/N 80507 to the Gate Height Sensor if applicable.

### Step 4

Route P3 from cable P/N 80507 to the Bin Level Sensor if applicable.

# Display Installation

## In this chapter:

- Preparing the FmX integrated display
- Installing the display power harness
- FmX integrated display power components
- Power bus installation
- Configuring the power bus options for the display

This chapter describes how to install the display.

*Note* – This chapter is not required if the display is already installed.

## Preparing the FmX integrated display



**WARNING** – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the [Safety Information](#) chapter.

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### Step 1

Locate the Trimble FmX integrated display, the RAM mount, and the RAM mount clamp.

### Step 2

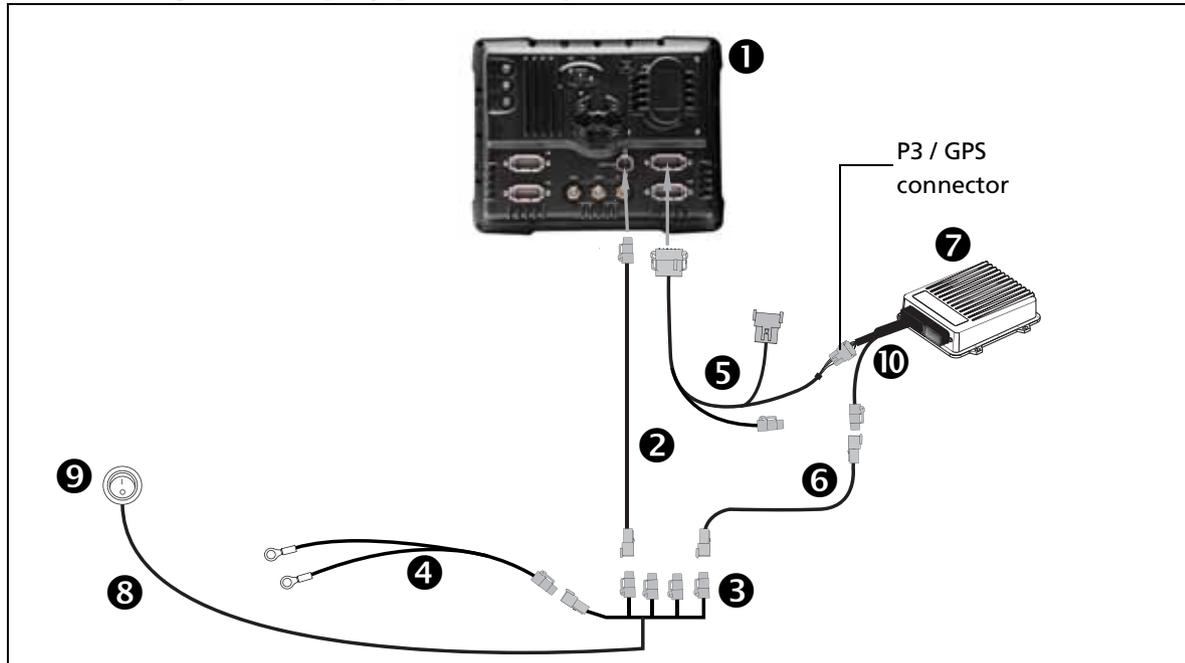
Use the provided metric hardware to attach the RAM mount to the rear of the display.



## Installing the display power harness

**WARNING** – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the [Safety Information](#) chapter.

### FmX integrated display power components



Item	Description	Trimble part number
1	FmX integrated display	93100-02
2	FmX power cable	66694
3	FmX power cable with relay and switch (power bus)	67259
4	Basic power cable	67258
5	FmX to NavController II cable with port replicator	65522
6	2 pin DTM to 2 pin DT power adapter	67095
7	NavController II	55563-00
8	External switch cable included with kit	Part of 67259
9	External switch included with kit	Part of 67259
10	Main NavController II cable	54601

## Power bus installation

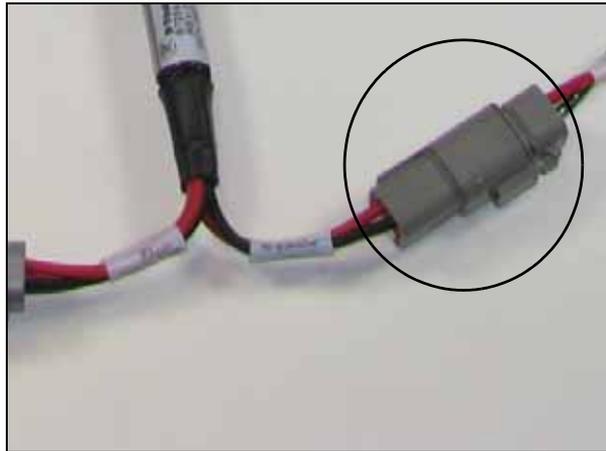
### Step 1

Connect the basic power cable to the vehicle battery and then route the cable into the cab.



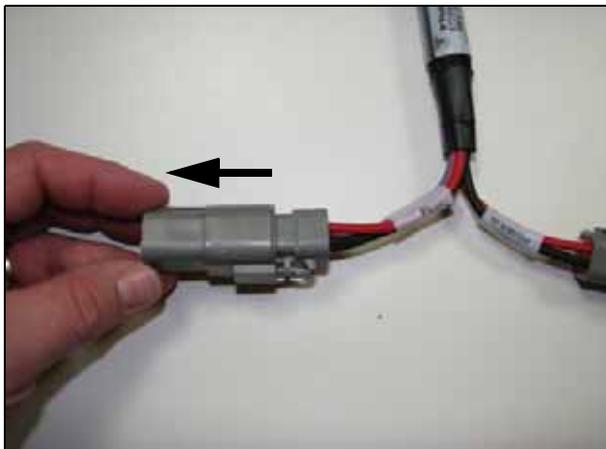
### Step 2

Locate and connect the 4-pin Deutsch DTP receptacle on the power bus to the 4-pin Deutsch DTP plug on the basic power cable.



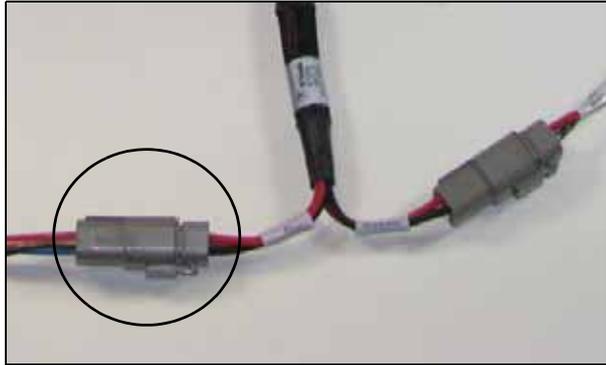
### Step 3

Remove the protective receptacle from the power bus.



**Step 4**

Locate and connect the 4-pin Deutsch DTP receptacle on the FmX integrated display power adapter to the 4-pin Deutsch DTP plug on the power bus.

**Step 5**

Route the FmX integrated display power adapter to the display mounting location and then connect it to the display.



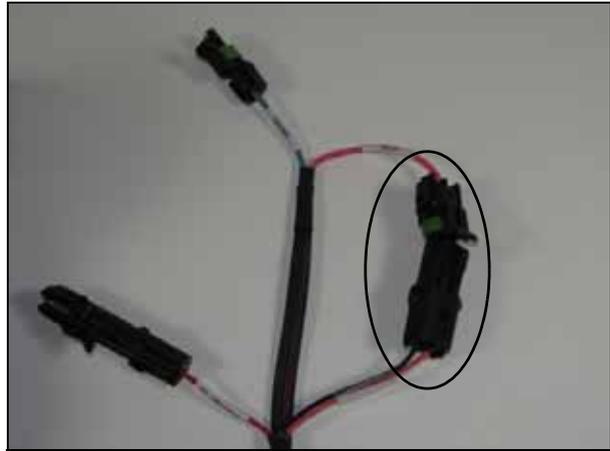
## Configuring the power bus options for the display

When you use the power bus cable, use one of the following configuration methods to turn on the system:

- Use the FmX integrated display power button, see below.
- Use an external switch to turn on the FmX integrated display.

### Using the FmX integrated display power button to turn on the system

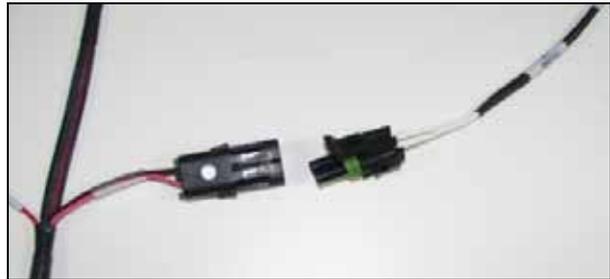
Connect the 2 pin connectors labeled R2 and P2 on the power bus.



### Using the external switch to turn on the FmX Integrated display

#### Step 1

Connect the R7 cable switch (included with the power bus) to the P2 connector on the power bus.



**Step 2**

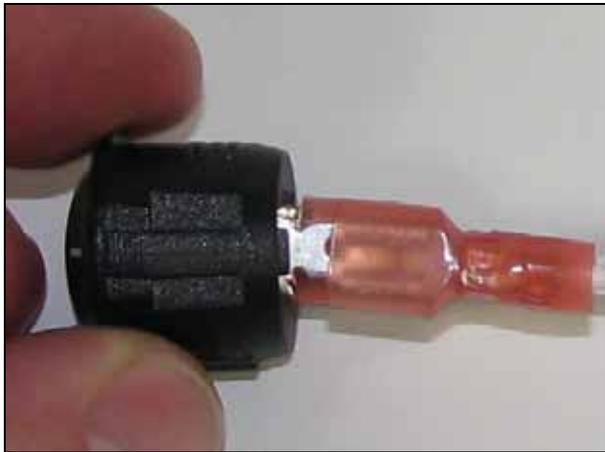
Route the R7 cable to a switch location.

*Note* – To install the switch provided, drill a  $\frac{3}{4}$ " hole.

**Step 3**

Connect the R7 cable to the switch pins.

*Note* – Polarity is not important.





# Switch Box Installation

## In this chapter:

- Installing the Field-IQ switch boxes
- Installing the master switch box
- Field-IQ cab kit installation

This chapter describes how to install the cab components of the Field-IQ application control system.

## Installing the Field-IQ switch boxes



**WARNING** – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the [Safety Information](#) chapter.

The Field-IQ system requires that a 4-switch master switch box is connected and installed. The master switch box is used to control the system.

The optional 12 section switch box is not required. This switch box allows for manual control of individual sections.

## Installing the master switch box

### Step 1

Locate the master switch box and mounting hardware.



### Step 2

Use a Phillips screwdriver to secure the two mounting brackets to the master switch box with the supplied screws.



### Step 3

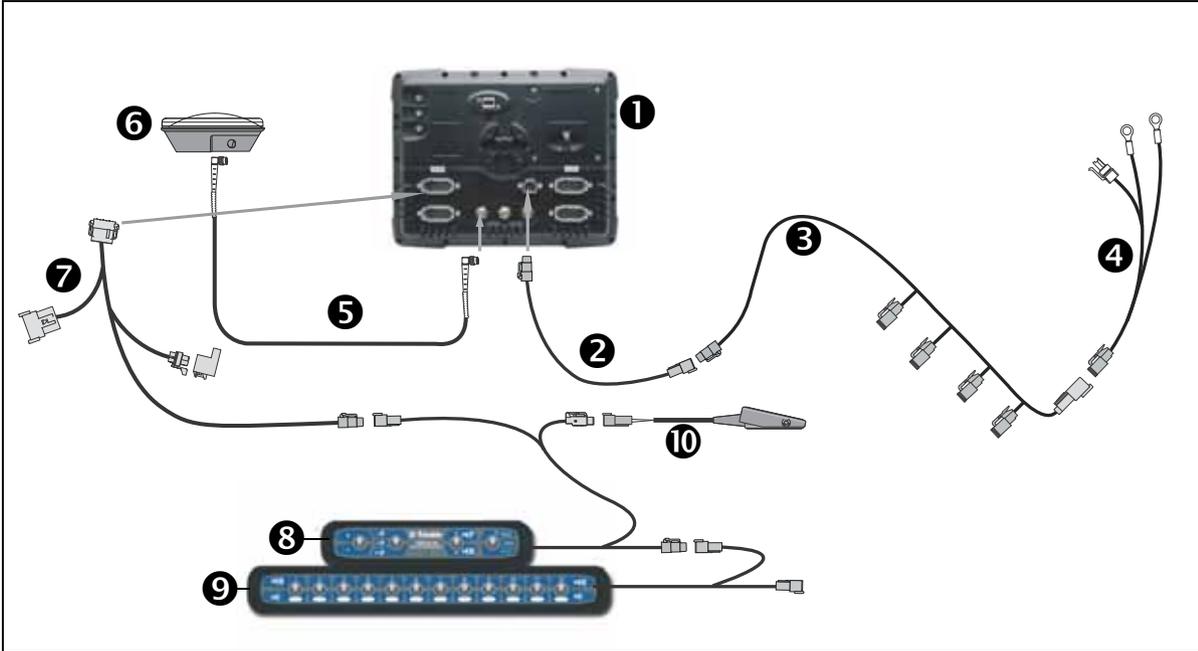
Use a Phillips screwdriver to secure the master switch box to the bottom of the display with the supplied screws.

If the display does not have the mounting option on the bottom of the display, use the flat mounting brackets to secure the switch boxes to the top of the display.



## Field-IQ cab kit installation

The procedure describes how to install the Field-IQ cab kit for the FmX integrated display.



Item	Description	Trimble part number
1	FmX integrated display	93100-01
2	FmX power cable	66694
3	Power bus	67259
4	Basic power cable	67258
5	8 m GPS TNC/TNC RT angle cable	50449
6	Ag25 GNSS antenna	68040-005
7	Cable assembly, display to Field-IQ	75834
8	Field-IQ master switch box	75050-01
9	Optional: 12-section switch box	75060-01
10	Optional: Remote foot switch	60490

*Note* – This procedure provides general guidance for connecting the cables. Cable routing depends on the vehicle and individual preference and is not described.

*Note* – If you install the switch interface module, you do not require the 12-section switch box.



**CAUTION** – When routing the Field-IQ cables be sure to avoid areas of the vehicle that may cause damage to the cable and possibly the Field-IQ system.

To connect the FmX integrated display and switch boxes to the Field-IQ system components, do the following:

### Step 1

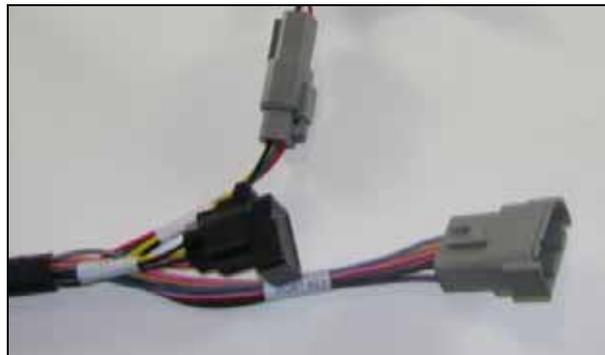
Connect the 12-pin DTM plug on the display harness to the rear of the display.

Ensure that the harness is plugged into either the A or B port.



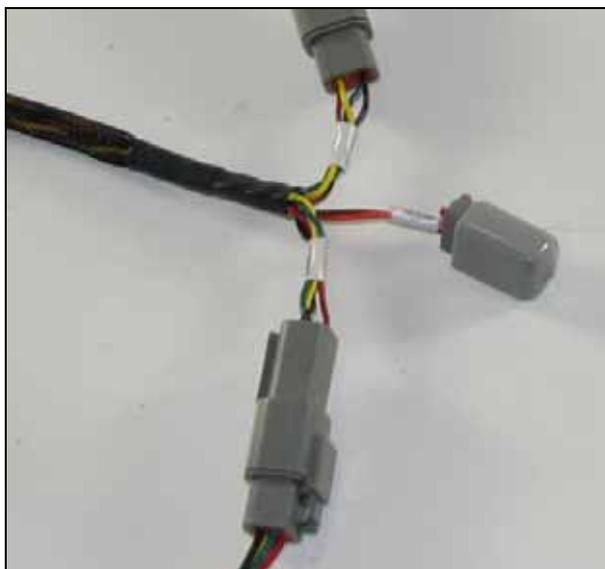
### Step 2

Connect the CAN terminator to the R2 connector on the display cable.



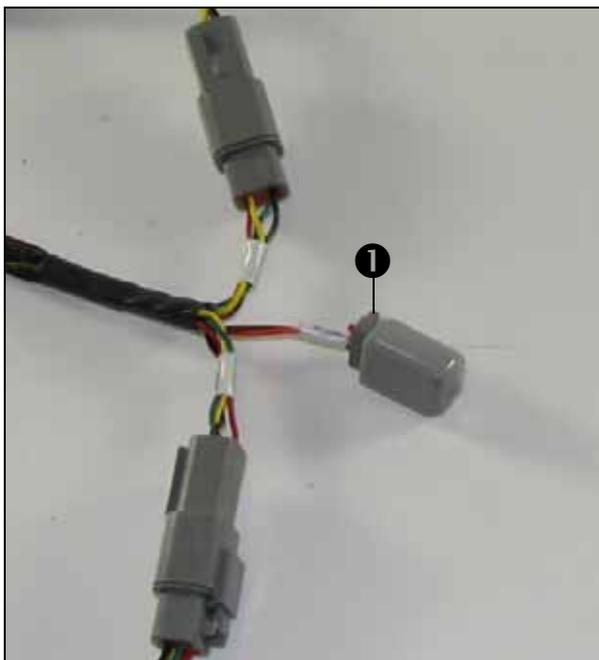
### Step 3

Locate the 4-pin CAN plug connection on the display cable and then insert the connector into the 4-pin receptacle on the master switch box harness.



### Optional step

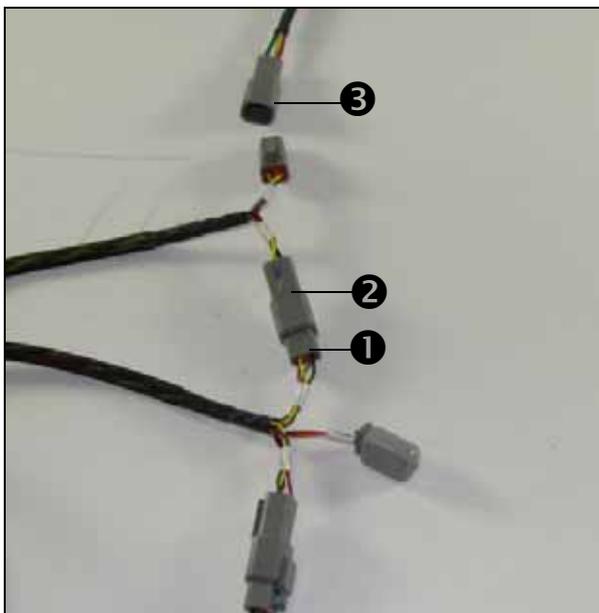
Connect the optional remote foot switch to the P4 connector ❶ on the master switch box harness. You can use the foot switch to remotely control the master on/off switch.



### Step 4

If the 12-section switchbox is used, you must connect the P3 4-pin plug ❶ on the master switch box harness connector to the 4-pin receptacle ❷ on the 12 section switch box harness.

*Note – If the 12-section switch box is not required, connect the 4-pin plug to the R1 4-pin receptacle ❸ located on the Rate and Section Control Module adapter harness.*



## Final Machine Check

### In this chapter:

- Performing the final machine check

This chapter describes how to perform a final check of the vehicle.

## Performing the final machine check



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**WARNING** – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the [Safety Information](#) chapter.

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### Step 1

Connect the battery.

### Step 2

Run system to verify operation. Use the steps in the Field-IQ User Guide to calibrate the system.