

NOTE: Indented items indicate parts included in an assembly listed above		
Part Name/Description	Part Number	Quantity
OptRx Master Module Kit	4100804	1
OptRx Master Module	4001821	1
Cable - OptRx Master	4001904-10	1
Cable - CAN Bus Stub – 22in – Seed Rate Module	4001454	1
Cable - High Current Power Splitter	4001013	1
Cable – CAN bus line, 8in	4000218-008	1
Y-Splice – 4 pin, CLC, ITT Cannon	4000137	1
Terminator Plug - 4 Pin, CLC, ITT Cannon	4000141	1
Install Instructions – OptRx Sensor Kits	2005962	1
Quick Reference Card – OptRx Interface	2006312	1
Dielectric Grease - .14 oz	2002872	1
OptRx 1 Sensor Kit	4100805	1
OptRx Sensor	4001740	1
Cable – OptRx Sensor 1	4001862	1
Split Lockwasher, SS, 6mm	2002065-06	2
Flat Washer, Standard, SS 1/4in	2002078-25	2
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	2
OptRx 2 Sensor Kit	4100806	1
OptRx Sensor	4001740	2
Cable – OptRx Sensor 1	4001862	1
Cable – OptRx Sensor 2	4001863	1
Split Lockwasher, SS, 6mm	2002065-06	4
Flat Washer, Standard, SS 1/4in	2002078-25	4
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	4
OptRx 3 Sensor Kit	4100807	1
OptRx Sensor	4001740	3
Cable – OptRx Sensor 1	4001862	1
Cable – OptRx Sensor 2	4001863	1
Cable – OptRx Sensor 3	4001864	1
Split Lockwasher, SS, 6mm	2002065-06	6
Flat Washer, Standard, SS 1/4in	2002078-25	6
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	6
OptRx 4 Sensor Kit	4100808	1
OptRx Sensor	4001740	4
Cable – OptRx Sensor 1	4001862	1
Cable – OptRx Sensor 2	4001863	1
Cable – OptRx Sensor 3	4001864	1
Cable – OptRx Sensor 4	4001870	1
Split Lockwasher, SS, 6mm	2002065-06	8
Flat Washer, Standard, SS 1/4in	2002078-25	8
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	8
OptRx 5 Sensor Kit	4100809	1
OptRx Sensor	4001740	5
Cable – OptRx Sensor 1	4001862	1
Cable – OptRx Sensor 2	4001863	1

OptRx OptRx Remote Sensor Kit

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NOTE: Indented items indicate parts included in an assembly listed above		
Part Name/Description	Part Number	Quantity
Cable – OptRx Sensor 3	4001864	1
Cable – OptRx Sensor 4	4001870	1
Cable – OptRx Sensor 5	4001865	1
Split Lockwasher, SS, 6mm	2002065-06	10
Flat Washer, Standard, SS 1/4in	2002078-25	10
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	10
OptRx 6 Sensor Kit	4100810	1
OptRx Sensor	4001740	6
Cable – OptRx Sensor 1	4001862	1
Cable – OptRx Sensor 2	4001863	1
Cable – OptRx Sensor 3	4001864	1
Cable – OptRx Sensor 4	4001870	1
Cable – OptRx Sensor 5	4001865	1
Cable – OptRx Sensor 6	4001871	1
Split Lockwasher, SS, 6mm	2002065-06	12
Flat Washer, Standard, SS 1/4in	2002078-25	12
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	12
OptRx 7 Sensor Kit	4100811	1
OptRx Sensor	4001740	7
Cable – OptRx Sensor 1	4001862	1
Cable – OptRx Sensor 2	4001863	1
Cable – OptRx Sensor 3	4001864	1
Cable – OptRx Sensor 4	4001870	1
Cable – OptRx Sensor 5	4001865	1
Cable – OptRx Sensor 6	4001871	1
Cable – OptRx Sensor 7	4001872	1
Split Lockwasher, SS, 6mm	2002065-06	14
Flat Washer, Standard, SS 1/4in	2002078-25	14
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	14
Additional Optional Items – Must Be Ordered Separately		
CAN Bus Power Ext – 6 ft.	4000724-6	1
CAN Bus Power Ext – 12 ft.	4000724-12	1
CAN Bus Power Ext – 24 ft.	4000724-24	1
CAN Bus Power Ext – 36 ft.	4000724-36	1
Cable – OptRx Extension 8ft	4001921-8	1
Cable – OptRx Extension 15ft	4001921-15	1
Cable – OptRx Extension 25ft	4001921-25	1
Cable – OptRx Extension 35ft	4001921-35	1
OptRx Bracket Kit – Front Mounted Toolbar, 2-4”	4100844	
HEX HD CAPSCREW, COARSE THD, 3/8-16 X 4 1/2	2002001-38450	2
HEX HD CAPSCREW, COARSE THD, 3/8-16 X 5 1/2	2002001-38550	4
HEX NUT, COARSE THD, SS 3/8IN	2002056-38	6
Split Lockwasher, SS, 6mm	2002065-06	2
SPLIT LOCKWASHER, SS 3/8IN	2002065-38	6
Flat Washer, Standard, SS 1/4in	2002078-25	2

NOTE: Indented items indicate parts included in an assembly listed above		
Part Name/Description	Part Number	Quantity
FLAT WASHER, STANDARD, SS 3/8IN	2002176-38	12
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	2
SENSORMOUNT BRACKET - OPTRX	4002532	1
TOOLBAR MOUNT BRACKET 2 TO 4 IN - OPTRX	4002533	1
BACKBRACE - TOOLBAR MOUNT 2 TO 4 IN - OPTRX	4002534	1
OPTRX BRACKET KIT - PULLBEHIND TOOLBAR, 6-12"	4100845	
HEX HD CAPSCREW, COARSE THD, 3/8-16 X 4 1/2	2002001-38450	2
HEX NUT, COARSE THD, SS 3/8IN	2002056-38	10
Split Lockwasher, SS, 6mm	2002065-06	2
SPLIT LOCKWASHER, SS 3/8IN	2002065-38	10
Flat Washer, Standard, SS 1/4in	2002078-25	2
FLAT WASHER, STANDARD, SS 3/8IN	2002176-38	12
THREADED ROD, SS, 3/8IN-16 X 9.5IN	2002177-38950	4
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	2
SENSORMOUNT BRACKET - OPTRX	4002532	1
BRACKET EXTENSION - OPTRX	4002537	1
BACKBRACE - EXTENSION BRACKET - OPTRX	4002538	1
OPTRX BRACKET KIT - FRONTMOUNT TOOLBAR, 4-8"	4100846	
HEX HD CAPSCREW, COARSE THD, 3/8-16 X 4 1/2	2002001-38450	2
HEX NUT, COARSE THD, SS 3/8IN	2002056-38	10
Split Lockwasher, SS, 6mm	2002065-06	2
SPLIT LOCKWASHER, SS 3/8IN	2002065-38	10
Flat Washer, Standard, SS 1/4in	2002078-25	2
FLAT WASHER, STANDARD, SS 3/8IN	2002176-38	12
THREADED ROD, SS, 3/8IN-16 X 9.5IN	2002177-38950	4
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	2
SENSORMOUNT BRACKET - OPTRX	4002532	1
TOOLBAR MOUNT BRACKET 4 TO 8 IN - OPTRX	4002535	1
BACKBRACE - TOOLBAR MOUNT 4 TO 8 IN - OPTRX	4002536	1
OPTRX BRACKET KIT - SPRAYER MOUNT, 2-4"	4100850	
HEX HD CAPSCREW, COARSE THD, 3/8-16 X 4 1/2	2002001-38450	2
HEX HD CAPSCREW, COARSE THD, 3/8-16 X 5 1/2	2002001-38550	4
HEX NUT, COARSE THD, SS 3/8IN	2002056-38	6
Split Lockwasher, SS, 6mm	2002065-06	2
SPLIT LOCKWASHER, SS 3/8IN	2002065-38	6
Flat Washer, Standard, SS 1/4in	2002078-25	2
FLAT WASHER, STANDARD, SS 3/8IN	2002176-38	12
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	2
TOOLBAR MOUNT BRACKET 2 TO 4 IN - OPTRX	4002533	1
BACKBRACE - TOOLBAR MOUNT 2 TO 4 IN - OPTRX	4002534	1
SENSORMOUNT BRACKET - OPTRX, SPRAYER	4002654	1
OPTRX BRACKET KIT - DIAMOND SHAPED BOOM, =< 5.5" SQUARE TUBE	4100853	
HEX HD CAPSCREW, COARSE THD, 3/8-16 X 4 1/2	2002001-38450	2
HEX NUT, COARSE THD, SS 3/8IN	2002056-38	10
Split Lockwasher, SS, 6mm	2002065-06	2

OptRx
OptRx Remote Sensor Kit

Ag Leader Technology
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<i>NOTE: Indented items indicate parts included in an assembly listed above</i>		
Part Name/Description	Part Number	Quantity
SPLIT LOCKWASHER, SS 3/8IN	2002065-38	10
Flat Washer, Standard, SS 1/4in	2002078-25	2
FLAT WASHER, STANDARD, SS 3/8IN	2002176-38	12
THREADED ROD, SS, 3/8IN-16 X 9.5IN	2002177-38950	4
Phillips Pan Hd., Stainless Steel, M6-1.0 X 16	2002435-06016	2
TOOLBAR MOUNT BRACKET 4 TO 8 IN - OPTRX	4002535	1
SENSORMOUNT BRACKET - OPTRX, SPRAYER	4002654	1
BACKBRACE - DIAMOND SHAPED BOOM - OPTRX	4002654	1

Important Notices

Please carefully follow these step-by-step instructions. If you have questions, contact:

Ag Leader Technology
2202 S Riverside Drive
Ames, IA 50010
515-232-5363 x 1

Direction words (LEFT and RIGHT) are commonly used when describing an installation procedure. Interpret direction words as if standing behind equipment facing forward.

Signal words (DANGER, WARNING, CAUTION, IMPORTANT, and NOTE) are provided to draw attention to information that is important for the safe/correct installation and operation of this product.

▲ DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

▲ WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

▲ CAUTION

Indicates a potentially hazardous situation, which if not avoided, may result in minor injury.

IMPORTANT

Indicates specific instructions to avoid accidental loss of data, system configuration settings, or property damage. Also indicates specific settings, calibrations, and procedures that must be followed for proper system performance and operation.

NOTE

Provides informative tips to assist with system setup, calibration, and operation.

This product's intended use is for agricultural purposes only, including the scanning of crop vigor, fertilizer recommendation and other future uses. Any questions regarding intended use of this product please refer to the user manual or contact Ag Leader Tech Support for further assistance.

Do not use this product in any way other than is specified in the manual. Using this product or products in ways not specified in the manual will void the warranty and may cause damage to the product or products. It may also cause the device to operate in a way that violates local, state, or federal emissions and susceptibility laws.

Temperature	-40C to 85C
Humidity	Up to 95% Non-condensing
Ingress Protection	IP65
Voltage Range	9V to 16V DC
Current/Power	
- Master	200mA / 2 Watt Max
- Sensor	350mA / 6 Watt Max Each

**Section
 Contents**

	Item	Page
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	System Layout for OptRx Master Module	7
	Common Components	8
	Installing the Power and CAN Bus Cables	9
	Installing OptRx Master Module & Cables	10
	Installing OptRx Sensors & Cables	11

**Preliminary
 Installation
 Requirements**

▲ WARNING
<p>Implement must be lowered to ground or resting on hydraulic safety stops before beginning installation. Do not rely on hydraulic system alone to support implement. Hydraulics can fail – resulting in serious injury or death.</p> <p>If installing a Direct Command (DC) system to work in conjunction with the OptRx Master Module, install DC and related components first. Detailed installation instructions are available for the DC.</p> <p>Read these instructions completely before beginning installation. Pay particular attention to Figure 1. It may help to clarify any questions that arise about the installation.</p>

**System
Layout
for
OptRx
Master
Module**

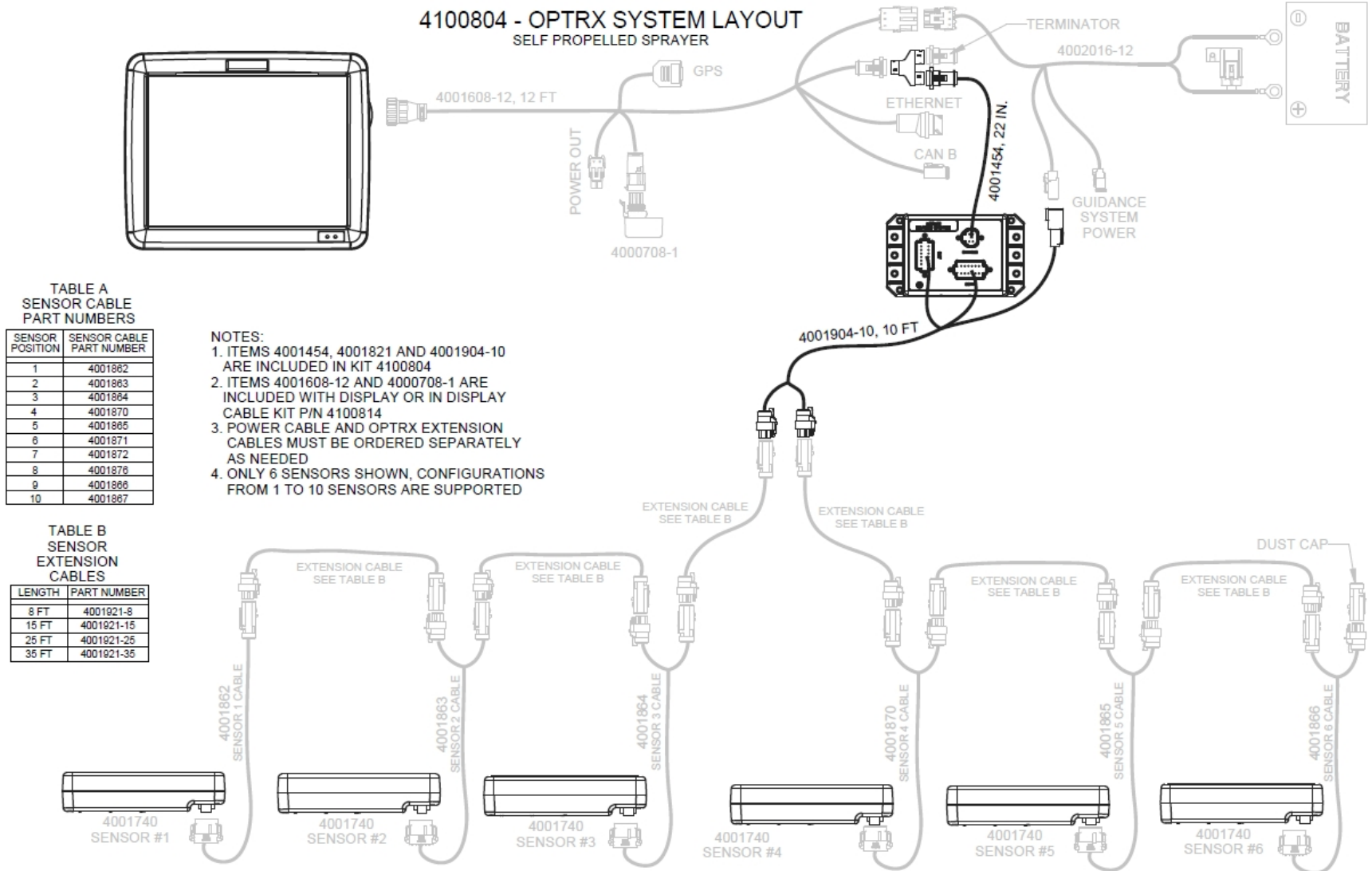
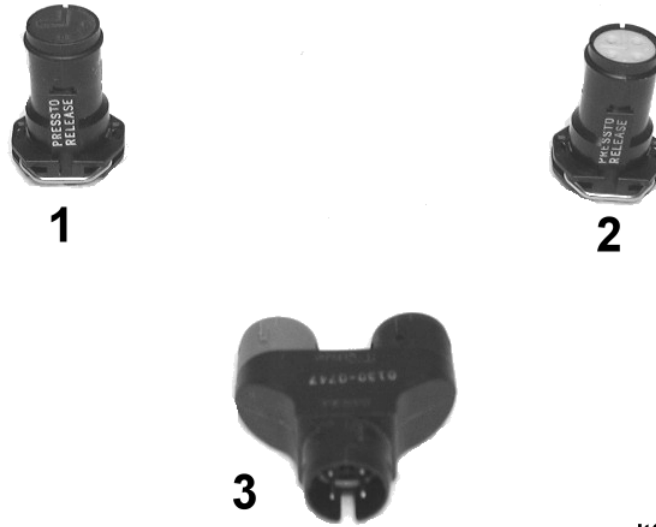


Figure 1. System layout Self Propelled Sprayer

Common Components This section contains illustrations of components common to all Direct Command Installations. Their purpose is to ensure proper identification and installations in the sections that follow.



alt01297

Figure 2: CAN Bus Connectors

- | | |
|--------------------------------|-------------|
| 1. Terminator | PN: 4000141 |
| 2. Plug (Not all applications) | PN: 4000136 |
| 3. Y-Splice | PN: 4000137 |



Figure 3: ACS 400 Master Module PN: 4001821

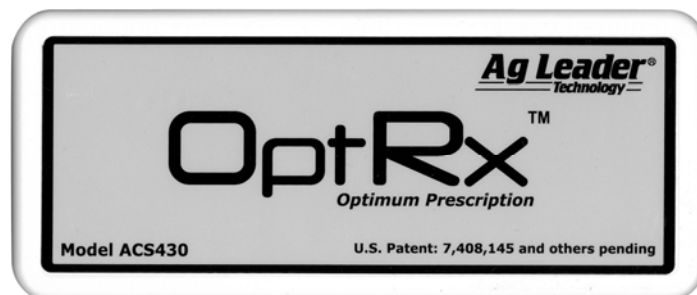


Figure 4: OptRx Crop Sensor PN: 4001740

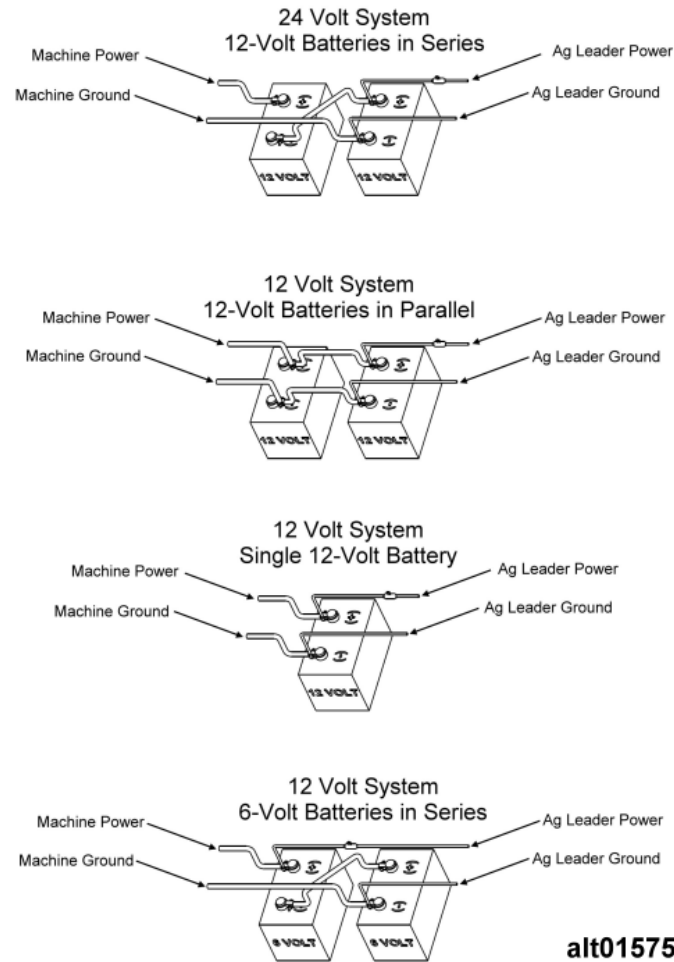
Installing the Power and CAN Bus Cables

Parts required for procedure:
From the DirectCommand Kit:

- (1) CAN Bus Stub----- PN: 4001454
- (1) Power Cable----- PN: 4002016-12
- (1) Y-Splice----- PN: 4000137

Step-by-step for Installing the Power and CAN Bus Cables

1. Connect the Power Cable PN: 4002016-12 directly to the battery or to a 12-volt power stud and ground stud in the unit's power center.



NOTE

If connecting power leads to the batteries follow the chart above to be sure that the **DirectCommand** system is powered by 12 volts negative ground only.

2. Locate the previously installed CAN Bus cables. These will be connected to the existing product control modules.

NOTE

To properly connect and disconnect the CAN Bus terminals, firmly pinch the metal clip against the plastic connector and then connect or disconnect the ends as needed.

3. Remove the CAN Bus Terminator from the last CAN Bus Y-Splice. Save the terminator for reinstallation in step six.
4. Connect one end of the CAN Bus Line PN: 4000218-X to the Y-Splice.
5. Route the Power Cable and the CAN Bus line to where the ACS 400 Master Module will be mounted.

NOTE

Route cables avoiding pinch points, sharp edges and allowing extra slack where needed. Secure cables with nylon wire ties.

6. Connect the Power Extension Cable, if needed, to the Power Cable and route the Power Extension Cable to the ACS 400 Master Module. Select the correct length Power Extension Cable.
7. Connect the Y-Splice PN: 4000137 to the end of the CAN Bus Line routed from the Liquid Product Control Module. Connect the CAN Bus Terminator saved from step two to the black side of the Y-Splice.
8. Connect the CAN Bus Stub PN: 4001454 to the gray side of the Y-Splice.

Installing OptRx Master Module & Cables

Parts Required for procedure:

Part Number:

(1) OptRx Master Module -----	4001821
(1) Y-Splice -----	4000137
(1) CAN Bus – 12 in. -----	4000218-1
(1) Implement cable -----	4000726-12
(1) Cable – OptRx master Module -----	4001904-10
(1) CAN Bus Extension – 6 ft (optional) -----	4000724-6
(1) CAN Bus Extension – 12 ft (optional) -----	4000724-12
(1) CAN Bus Extension – 24 ft (optional) -----	4000724-24
(1) CAN Bus Extension – 36 ft (optional) -----	4000724-36

Step-by-Step Procedure

1. Install OptRx Master Module on applicator frame. Hardware necessary for this procedure can be found in module mounting kit. If a Direct Command Module has already been installed, mount OptRx Master Module near Direct Command Module so that provided cables will reach both modules. See “System Layout for OptRx Master Module” on page 7 as a reference.

▲ CAUTION

Install module in a location that is clear of moving parts where it will not be damaged by folding action of applicators.

Do not drill holes through toolbar mainframe or spray boom. High stress loads on toolbar or spray boom may result in cracking where holes have been drilled.

2. Connect the 12-pin light-colored connector of OptRx Master Module Cable to the light colored mating receptacle, labeled COMM, of the OptRx Master

Module.

3. Connect the 12-pin dark-colored connector of OptRx Master Module Cable to the dark-colored mating receptacle, labeled AUX, of the OptRx Master Module.
4. Connect the square 4-pin Deutsch plug to the gray 4-pin Deutsch receptacle marked **CAN BUS** on the ACS 400 Master Module.

NOTE

If Direct Command has been installed in addition to OptRx, refer to Figure 1 on page 7 for proper component layout. A 12 in. CAN Bus cable and Y-Splice have been provided for this scenario.

5. Connect 2-position power receptacle of OptRx Master Module cable to mating plug of high current power splitter or CAN/high current power extension cable.
6. If implement cable has not already been routed and secured, do that now. It should be routed forward along applicator. Secure it to existing hydraulic hoses or wiring harnesses where possible. Keep in mind extra length requirements for telescoping hitches. Install extension cables as needed.
7. Connect implement cable (or extension cable if applicable) to mating connector of display cable at rear of tractor or applicator cab.

Installing OptRx Sensors & Cables

Parts Required for procedure:

Part Number:

(1) OptRx Sensor -----	4001740
(1) OptRx Bracket Kit – Toolbar Mounting -----	4100815
(1) OptRx Bracket Kit – Sprayer Boom Mounting -----	4100822
(1) Cable - OptRx Sensor 1 -----	4001862
(1) Cable - OptRx Sensor 2 -----	4001863
(1) Cable - OptRx Sensor 3 -----	4001864
(1) Cable - OptRx Extension – 15 ft (optional) -----	4001921-15
(1) Cable - OptRx Extension – 25 ft (optional) -----	4001921-25
(1) Cable - OptRx Extension – 35 ft (optional) -----	4001921-35

Step-by-Step Procedure

1. Select mounting locations for brackets on Toolbar or Sprayer Boom so the sensors are evenly spaced. See *Figure 6* for reference.

NOTE

The locations of the outer most sensors on Figure 6 are not on the ends of the boom. The sensors should be mounted so each sensor is spaced over equal lengths of the boom. In Figure 6, each sensor is mounted with a total of 4 rows per sensor, 2 rows on each side of the sensor.

2. Mount bracket on spray boom or toolbar so the sensor will be directly over a row with an unobstructed view of the crop. See *Figure 6* for reference. Select mounting location so sensors are not damaged during boom or toolbar

folding. Hardware necessary for this procedure can be found in OptRx bracket kits.

NOTE

If the only available location for a sensor to be mounted is not center spaced between two other sensors, install the bracket and sensor as close to the center of the two other sensors as possible while ensuring the sensor is mounted directly over a row where possible.

▲ CAUTION

Install sensor in a location that is clear of moving parts where it will not be damaged by folding action of applicators.
Do not drill holes through toolbar mainframe or spray boom. High stress loads on toolbar or spray boom may result in cracking where holes have been drilled.

3. Install OptRx sensor (Figure 6) on sensor brackets. Hardware necessary for this procedure can be found in OptRx sensor kit.

IMPORTANT

If installing sensors on a brackets not provided by Ag Leader, prevent moisture buildup in sensors by modify the brackets as detailed in TSB-003021. Failure to do so will void the warranty of the sensor.

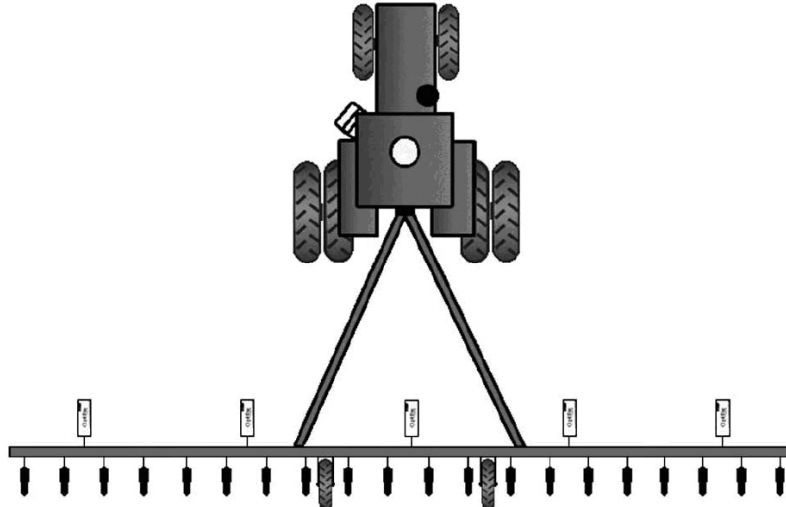


Figure 6. Example OptRx Sensor Mounting Locations

4. Adjust Bracket so that the sensor will be 30 to 36 inches above the crop canopy.
5. Locate the OptRx Sensor 1 Cable and connect the 12 pin connector to the 12 pin receptacle on the sensor located farthest to the left on the boom. The 12 pin receptacle can be located on the bottom of the sensor.

NOTE

The OptRx Sensor cables must be installed in the correct location to map accurately. When facing the front of the applicator, Sensor 1 will be the sensor that is farthest to the left.

6. Connect extension cables to mating connector of OptRx Master Module Cable at the center of the applicator. Make sure to provide enough length to account for folding booms or toolbars. Secure all cables to existing hydraulic hoses or wiring harnesses where possible.

NOTE

Installation is complete. Refer to Quick Reference Card (PN: 2002831-48) to aid in proper setup of your OptRx system.

Revision History

<u>Date</u>	<u>Revision</u>	<u>Initials</u>	<u>Comments</u>
Feb 2010	A	CMF	- Initial release
Jul 2013	B	CMF	