R A V E N

Installation and Operation Guide

Raven Switch Box
for use with ISOBUS VT Display

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Overview

The Raven Switch Box for use with ISOBUS systems is designed to interface with an ISOBUS Virtual Terminal (VT) display and a Raven ISO product control node.

The switch box features:

- Six section switches for quick boom or implement section control
- Rate increase/decrease switch
- A master/override switch for full boom or implement control
- A power LED

Note: *The six section ISOBUS switch box requires a Raven ISOBUS control node with firmware version 2.4 or newer.*

Care and Maintenance

Refer to the following items when selecting a mounting location for the Raven Switch Box for use with ISOBUS systems and the VT display.

- The switch box is not weatherproof. Mount the switch box inside of the machine cab or driver compartment within easy reach of the driver or operator.
- The switch box should be mounted in a location where it will not be jarred during normal equipment operation. Keep the console and switch box clear of moving elements within the cab.
- Route all cables to avoid pinching, kinking or damaging the cable and to avoid tripping hazards.

Installation

Refer to the following sections to attach the Raven Switch Box for use with ISOBUS systems and mounting bracket for each specific VT display.

Raven ISO VT Display Kit (P/N 117-6020-001)

Mounting the Switch Box

Note: *The mounting bracket is designed to mount the switch box either above or below the Raven VT display terminal.*

1. Place the switch box mounting bracket over the back panel of the Raven ISO VT display and verify the desired switch box mounting location.

When properly installed on the display, the open flange of the bracket will surround the connection ports and the solid flange will extend to the left over the back of the display as shown in the image above.

2. Align the mounting posts with the predrilled holes in the bracket and secure the mounting bracket to the Raven ISO VT display using the supplied hardware.

3. Place the square base of the RAM Mount socket arm over the RAM Mount flange. The RAM Mount base ball socket is offset and may be oriented in any direction to assist with mounting the display assembly in the vehicle cabin.

4. Align the mounting posts with the predrilled holes in the square base and secure using the supplied hardware.

5. Finally, align the mounting posts on the back of the switch box with the two predrilled holes in the mounting bracket and secure with the supplied hardware.

6. Attach the Raven Switch Box for use with ISOBUS systems (P/N 063-0173-577) to the mounting bracket using two 5/16" screws (P/N 311-0001-007).

Connection

The Raven Switch Box for use with ISOBUS systems connects to the ISOBUS system using the switch box cable (P/N 115-7300-023).

To connect the Raven Switch Box for use with ISOBUS systems:

1. Connect the 2-pin Deutsch connector on the ISO Switch Box cable to the switched power port on the back of the ISO Switch Box.

ISOBUS CAN Connection

Switched Power

Mounting Posts

2. Connect the male, 4-pin Deutsch connector on the switch box cable to the 4-pin connector on the back of the switch box.

Note: *If the switch box is connected as instructed above, the switch box will be powered on or off using keyed power.*

3. Connect the female, 3-pin connector from a speed sensor such as a radar gun or GPS speed sensor to provide speed information for the ISOBUS system.

John Deere GS 2600/2630 Kit (P/N 117-6020-002)

Mounting the Switch Box

Note: *The mounting bracket is designed to mount the switch box above the GS 2600/2630 display terminal.*

1. Remove the John Deere terminal and display bracket from the vehicle cab using the knob on the back of the mounting arm.

Wing Bolts

Mounting Arm

Mounting Knob

2. Remove the existing wing bolts from the display terminal and remove the mounting bracket (P/N 107-0172-049) from the display.

3. Attach the Raven Switch Box for use with ISOBUS systems (P/N 063-0173-577) to the mounting bracket using two 5/16" screws (P/N 311-0001-007).

Note: *The mounting bracket is designed to mount the switch box above the VT display. When looking at the back of the switch box and mounting bracket, the four pin connector and small part number label should be to the left of the mounting bracket flange.*

4. Mount the display terminal and switch box together using the existing wing bolts. The switch box bracket should be mounted between the GS 2600/2630 and the existing display mounting bracket.

5. Remount the display with switch box in the vehicle with the mounting knob.

Connection

The Raven Switch Box for use with ISOBUS systems connects to the ISOBUS system using the John Deere switch box cable (P/N 115-0172-011).

To connect the Raven Switch Box for use with ISOBUS systems:

1. Connect the female, 4-pin Deutsch connector on the switch box cable to the male, 4-pin connector on the display cable located near the GS 2600/2630.

2. Connect the 2-pin Deutsch connector on the ISO Switch Box cable to the switched power port on the back of the ISO Switch Box.


3. If a speed signal is not provided over the ISOBUS, connect the female, 3-pin connector from a speed sensor such as a radar gun or GPS speed sensor to provide speed information for the ISOBUS system.

4. Connect the male, 4-pin Deutsch connector on the switch box cable to the 4-pin connector on the back of the switch box.

Note: *If the switch box is connected as instructed above, the switch box will be powered on or off using keyed power.*

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AFS Pro 600/700 and IntelliView 2/4 Kit (P/N 117-6020-003)

Note: *The display must have the VT feature box as shown below for the ISO rate controller or ISO switch box to be available. The "Send ISO Speed" option must also be enabled on the display.*
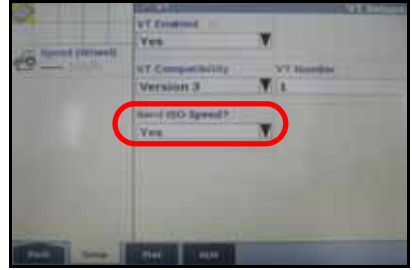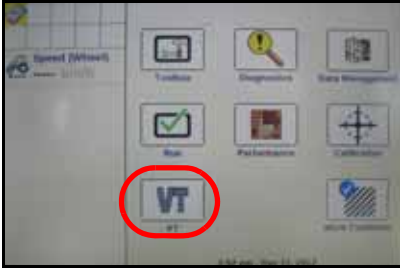
Mounting the Switch Box

Note: *The mounting bracket is designed to mount the switch box above the Pro 600/700 or IntelliView 2/4 display terminal.*

1. Remove the display terminal and the existing display bracket from the vehicle cabin.

PRO 600/
IntelliView 2

PRO 700/
IntelliView 4

2. Remove the existing bolts to remove the mounting plate or bracket from the display terminal and remove the mounting bracket from the terminal.

3. Attach the Raven Switch Box for use with ISOBUS systems (P/N 063-0173-143) to the mounting bracket using two 5/16" screws (P/N 311-0001-007).

Adapter Plate
(P/N 117-0172-233)

Note: *The adapter plate (P/N 107-0172-233) is required when mounting the switch box to a Pro 600 or IntelliView 2 display terminal. This plate is not required for the Pro 700 or IntelliView 4 display terminal.*

4. Mount the display terminal and switch box together using the existing mounting bolts. The switch box bracket should be mounted between the display terminal and the existing display terminal mounting bracket.

5. Remount the display terminal, with switch box, in the vehicle cabin.

Connection

The Raven Switch Box for use with ISOBUS systems connects to the ISOBUS system using the CNH ISO Switch Box cable (P/N 115-0172-113).

To connect the Raven Switch Box for use with ISOBUS systems:

1. Locate the IBBC on the back of the machine.
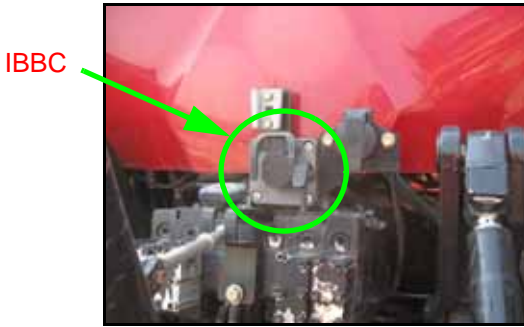
IBBC

2. Remove the existing cable connection from the 4-pin Deutsch port on the back (facing toward the front of the vehicle) of the IBBC.

4-Pin Deutsch Port

3. Locate the 4-pin male and female Deutsch connectors on the ISO Switch Box cable (P/N 115-0172-113).

4. Insert the 4-pin female Deutsch connector into the 4-pin port on the back of the IBBC.

5. Connect the 4-pin male Deutsch connector to the existing cable connector removed from the IBBC.

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6. Locate the 3-pin accessory power receptacle on the right, rear console in the vehicle cabin.

7. Connect the 3-pin AMP style connector on the ISO Switch Box cable to the accessory power receptacle.

8. Connect the 2-pin Deutsch connector on the ISO Switch Box cable to the switched power port on the back of the ISO Switch Box.

3-Pin Accessory Power

Mounting Posts

ISOBUS CAN Connection

Switched Power

9. If a speed signal is not provided over the ISOBUS, connect the female, 3-pin connector from a speed sensor such as a radar gun or GPS speed sensor to provide speed information for the ISOBUS system.

10. Connect the male 4-pin Deutsch connector on the ISO Switch Box cable to the 4-pin connector on the back of the ISO Switch Box.

Note: *If the switch box is connected as instructed above, the switch box will be powered on or off using key switched power.*

Switch Box Operation

The Raven Switch Box for use with ISOBUS systems puts the section control modes right at the operator's finger tips.

Important: *Make sure to toggle the master switch to the off position when closing or exiting a job to avoid unintentional product application once the virtual terminal closes application management functions. It is also good practice to shut off section switches when the application system is not being used.*

Refer to the following sections for detailed operation of the switch box:

Power LED

This LED indicates the status of power into the Raven Switch Box for use with ISOBUS systems. This LED should be on (solid) during normal operation. If this LED is not lit when the ignition switch is turned on, troubleshoot the ISOBUS system before starting any system operations. Refer to the "Troubleshooting" section on page 9 for troubleshooting information.

Master/Override Switch

Note: *The master switch should be toggled off when powering the Raven Switch Box for use with ISOBUS systems. If the master switch is on when the unit is powered on, cycle the master switch off then back on to ensure that boom sections will enable as anticipated during operations.*

The master switch toggles all section switches on or off. When the master switch is in the 'ON' position, each section will function according to the corresponding section switch (see the "2-Way Selectable Section Switches" below). Toggle the master switch to the 'OFF' position to turn all boom or implement sections off.

Hold the master switch to the 'OVERRIDE' position to temporarily override any sections controlled by an optional section control system on.

2-Way Selectable Section Switches

Each of the six section switches may be toggled individually to toggle sections on or off:

• ON - control the section on. Section switches must be toggled to the on position to allow any available automatic section control features to automatically control section status.

• OFF - manually control the section off. This section will remain off regardless of section control features.

Note: *Leave the section switch in the off position for any sections not controlled by or configured on the VT display.*

Rate Increase/Decrease Switch

Hold the Rate switch in the increase (+) or decrease (-) position to increase or decrease the target rate of product application.

Troubleshooting

General Issues

Issue	Possible Cause	Solution
Power LED not lit	No power to switch box	Check CAN Switch Box switched power connection.
		Ensure VT is powered on.
		Check chassis cable power and ground connections.
		Check chassis cable fuses.
Boom valves do not turn on	Faulty power connection	Verify power LED on switch box is lit. If the LED is not lit, check the power connections.
Boom sections do not turn off	Remote section switches in incorrect position	Remote section switches must be in the OFF position to allow the switch box to control sections.

Setup Issues

Issue	Possible Cause	Solution
Previous calibration data lost	Poor CAN connections	Check CAN connections on back of the Raven Switch Box.

Job Issues

Issue	Possible Cause	Solution
Section status displays as inactive	Switch box switches in the off position	Toggle the section and master switches to the on position.
Sections do not enable when starting a job	VT display may not allow automatic section control until the product controller node is activated	If a job is started without a field boundary and all section switches are set to the ON position, toggle the master switch to the OVERRIDE position momentarily.
Section status does not turn green (ON) when sections enabled	Master switch must be toggled off at power-up	Cycle the master switch off then back on.
	Sections not properly configured	Verify section setup on the VT.
	Nodes not programmed properly	Verify all node calibration data is entered.
Product applied to zero rate zones	Bed creep	Adjust hydraulic valve and valve calibration settings to stop bed creep. Refer to the ISOBUS Product Control manual.
	Wrong valve type installed	A fast close or PWM close valve must be selected to shut off product application in zero rate zones. Refer to ISOBUS Product Control manual for more information about selecting valve type.
	Incorrect valve setting	Check valve or PWM settings.
	Section switches toggled on in zero rate zones	Verify optional section control feature is enabled on the VT to allow automatic section control or toggle section switches off.
Sections enabled but field computer not recording coverage	Remote section switches left in the ON position	Toggle all remote section switches to the off position. Remote switches will override the section switch status and automatic section control features.

RAVEN INDUSTRIES

Limited Warranty

What Does this Warranty Cover?

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

How Long is the Coverage Period?

Raven Applied Technology Division products are covered by this warranty for 12 months from the date of retail sale. In no case will the Limited Warranty period exceed 24 months from the date the product was issued by Raven Industries Applied Technology Division. This warranty coverage applies only to the original owner and is non-transferable.

How Can I Get Service?

Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves with the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer's responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries.

What Will Raven Industries Do?

Upon confirmation of the warranty claim, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer's expense

What is not Covered by this Warranty?

Raven Industries will not assume any expense or liability for repairs made outside our facilities without written consent. Raven Industries is not responsible for damage to any associated equipment or products and will not be liable for loss of profit, labor, or other special damages. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person or organization is authorized to assume any liability for Raven Industries.

Damages caused by normal wear and tear, misuse, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.

RAVEN INDUSTRIES
Extended Warranty

What Does this Warranty Cover?

This warranty covers all defects in workmanship or materials in your Raven Applied Technology Division product under normal use, maintenance, and service when used for intended purpose.

Do I Need to Register My Product to Qualify for the Extended Warranty?

Yes. Products/systems must be registered within 30 days of retail sale to receive coverage under the Extended Warranty. If the component does not have a serial tag, the kit it came in must be registered instead.

Where Can I Register My Product for the Extended Warranty?

To register, go online to www.ravenhelp.com and select Product Registration.

How Long is the Extended Warranty Coverage Period?

Raven Applied Technology products that have been registered online are covered for an additional 12 months beyond the Limited Warranty for a total coverage period of 24 months from the date of retail sale. In no case will the Extended Warranty period exceed 36 months from the date the product was issued by Raven Industries Applied Technology Division. This Extended Warranty coverage applies only to the original owner and is non-transferable.

How Can I Get Service?

Bring the defective part and proof of purchase to your Raven dealer. If the dealer approves with the warranty claim, the dealer will process the claim and send it to Raven Industries for final approval. The freight cost to Raven Industries will be the customer's responsibility. The Return Materials Authorization (RMA) number must appear on the box and all documentation (including proof of purchase) must be included inside the box to be sent to Raven Industries. In addition, the words "Extended Warranty" must appear on the box and all documentation if the failure is between 12 and 24 months from the retail sale.

What Will Raven Industries Do?

Upon confirmation of the product's registration for the Extended Warranty and the claim itself, Raven Industries will (at our discretion) repair or replace the defective product and pay for the standard return freight, regardless of the inbound shipping method. Expedited freight is available at the customer's expense

What is Not Covered by the Extended Warranty?

Raven Industries will not assume any expense or liability for repairs made outside our facilities without written consent. Raven Industries is not responsible for damage to any associated equipment or products and will not be liable for loss of profit, labor, or other damages. Cables, hoses, software enhancements, and remanufactured items are not covered by this Extended Warranty. The obligation of this warranty is in lieu of all other warranties, expressed or implied, and no person or organization is authorized to assume any liability for Raven Industries.

Damages caused by normal wear and tear, misuse, abuse, neglect, accident, or improper installation and maintenance are not covered by this warranty.

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