

INSTALLATION MANUAL

CRG-CLAAS on Lexion 8800



CRG-CLAAS
August 2024

CE


AGRA-GPS LTD

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Release Notice: This is the August 2024 release of the CRG-CLAAS Installation Manual for Claas Lexion 8800 combines.

It is assumed that users of the products described herein have either system integration or technical experience, as well as an understanding of the fundamentals of agricultural machinery.

In this manual, the CRG-CLAAS may be referred to simply as the CRG.

Refer to the CRG User Manual for additional setup instructions.

Disclaimer

While every effort has been made to ensure the accuracy of this document, Agra-GPS Ltd assumes no responsibility for omissions and errors. Nor is any liability assumed for damages resulting from the use of information contained herein. Agra-GPS Ltd shall not be responsible or liable for incidental or consequential damages or a loss of anticipated benefits or profits, work stoppage or loss, or impairment of data arising out of the use, or inability to use, this system or any of its components.

DO NOT USE THE CRG-CLAAS IF YOU DISAGREE WITH THE DISCLAIMER.

Important Safety Information

Read this manual and the machine operation & safety instructions carefully before installing the CRG. Refer to Appendix A for Product Specifications.

- Follow all safety information presented within this manual.
- If you require assistance with any portion of the installation or service of your equipment, contact Agra-GPS for support.
- Follow all safety labels affixed to the system components. Be sure to keep safety labels in good condition and replace any missing or damaged labels. To obtain replacements for missing or damaged safety labels, contact Agra-GPS.

When operating the machine after installing the CRG, observe the following safety measures:

- Be alert and aware of surroundings.
- Do not operate the CRG system while impaired.
- Always remain in the operator's position in the machine when the CRG system is engaged.
- Determine and maintain a safe working distance away from other individuals. The operator is responsible for disabling the CRG system when a safe working distance has been diminished.
- Ensure the CRG is disabled prior to starting any maintenance work on the machine or parts of the CRG system.
- Follow all safety instructions from the CLAAS machine as well as the John Deere system.
- The CRG must only be used in the field, never on public roads.

Electrical Safety

- Always verify that the power leads are connected to the correct polarity as marked. Reversing the power leads could cause severe damage to the equipment.
- Verify that all cables and connectors are not in contact with sharp edges or anything that could cause chafing, as this could result in power shorts and/or other malfunctions.
- Power is supplied to the CRG even when the key is off. Power can be removed in 3 different ways: 1) Remove the connector from the CRG, 2) Remove the fuse supplying circuit power, or 3) Remove a battery lead while the machine is off.

Risk of Fire

- The circuit supplying 12 volt power for this product requires a fuse. The maximum fuse rating is 5 amps, and the minimum is 1 amp.

Introduction

Congratulations on your purchase of the CRG! The CRG (CLAAS version) is designed to bridge the communication between a CLAAS tractor or combine and a John Deere (JD) display (1800, 2600, 2630, 4240, or 4640). This allows a JD display to create maps in the John Deere format, and also provides autosteer functionality. The operator uses the JD display to create AB-lines or field documentation, or to handle any other GPS system input.

The CRG contains a) an RTK-capable GPS receiver, **AND** b) a full steering controller capable of steering a CLAAS machine with a John Deere display!

All conditions for autosteer such as minimum speed, steering enabled, etc., must be met by the CLAAS machine before the autosteer engage option can be activated.

NOTICE

This manual is not intended to replace the manuals for the CLAAS machine nor the John Deere GPS system. The operator must read and understand the manuals and instructions of these systems, before using the CRG.

Components

The CRG-CLAAS kit contains the following items:

1. CRG receiver
2. Harness to connect the CRG receiver, JD display, and machine CANbus.
3. Harness to integrate the CRG to a John Deere machine as a receiver-only option



Pre-Install

(Optional): Install CRG SIM Card

If your CRG is equipped with an optional cellular modem, install the SIM card **BEFORE** installing the CRG. After the CRG is installed the SIM card cannot be installed or changed without removing the CRG from the machine.

Refer to the **CRG Modem Guide** for further instructions.

CRG Mount

The CRG should be mounted at the front center of the cab roof exterior. Use the mount intended for this machine: the slope of the cab roof is compensated by the mount in order to keep the CRG level when the machine is level. More details follow (next page).

NOTE: the CRG mounting bracket for JD mounts is not compatible with the shallow mount type as shown below. There must be at least 1cm (3/8") between the bottom plate and the bottom of the cross bars to accommodate the mounting bolts.



Not supported



The mount for use with Lexion 8800 is available from Agra-GPS.

Step 1: Install CRG mounting plate

Remove the 2 plastic eyebrow panels in the order shown. (Later on, the receiver cable will be routed through the bottom slot indicated by arrow).



Install with the bracket square to the machine and flush to the front of the eyebrow panels. Drill through the plastic and install bolts with locking nuts.



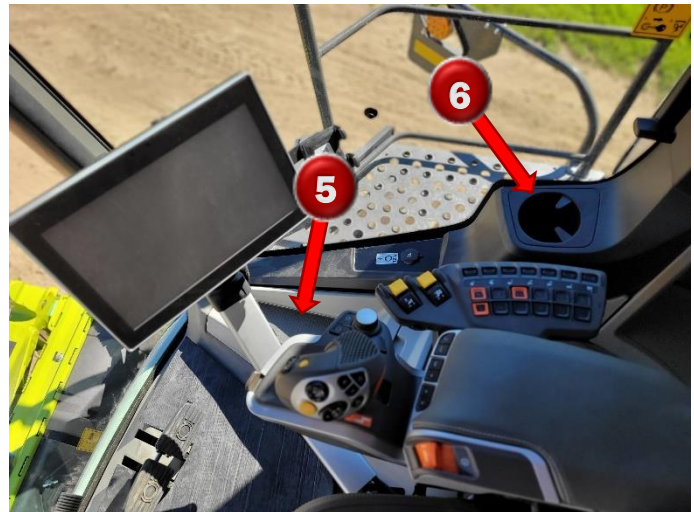
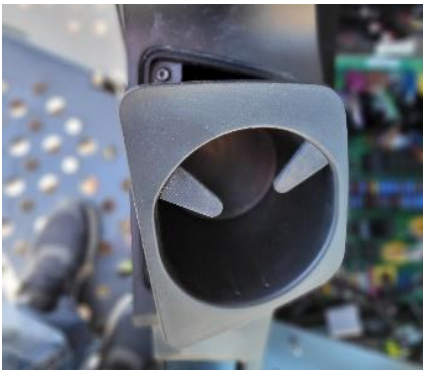
Step 2: Remove Interior Panels

The following interior plastic panels must be opened. See below for further tips on removing these panels. Before starting, fully open the right-hand cab window.

- 1) Squeeze top and bottom of insert and pull out
- 2) Push button indicated and the switch panel will pop downward
- 3) Pull shelving insert out, and take off the plastic panel behind it
- 4) Take off cover for vertical cable run (further instructions below)



- 5) Remove two fuse panel covers near the floor
- 6) Remove lower door panel (NOTE: remove the cup holder first, as there is an extra screw beneath it).



Further Instructions for Removing Vertical Plastic cover:

- After fully opening window, remove handle and window latching stem (arrows)
- Remove hanger hook (remove plastic cover from the bottom, then the screw behind)
- Pull vertical plastic off: spreading the bottom first as shown, then pull towards you over the handle mounts and over the window latching stem, then sliding downward



Step 3: Routing CRG Cable

- 1) Start routing by pushing the receiver connector upward through the gap near the ceiling (arrow).
- 2) From the outside, remove the penetration panel. The plug indicated will be removed for the receiver cable.



- 3) Push a thin stick (roughly 4 feet long) from the outside into the cab. Tape the receiver connector to the stick and pull through to the outside.

Re-install the penetration plate, the plastic eyebrow panels (in the reverse order of removal) and connect the CRG. Tie the cable to the handle so it doesn't dangle when disconnected later.

Attach the CRG to the mount by placing the rear CRG mount groove in first, and then pushing the entire unit towards the back. Pushing backwards will compress the springs and allow the front groove to mate with the front of the external mount. After this, be sure to pull the CRG forwards again to ensure the front groove is fully seated.



Inside the cab, continue the routing by pulling the cable down into the fuse box area. →

The monitor cable requires routing up to the monitor mount. Route through one of the relief holes at the bottom front of the window. It is possible (barely) to force the monitor plug through the hole without damage. Route the cable up and underneath the rubber weatherstripping to the monitor mount.

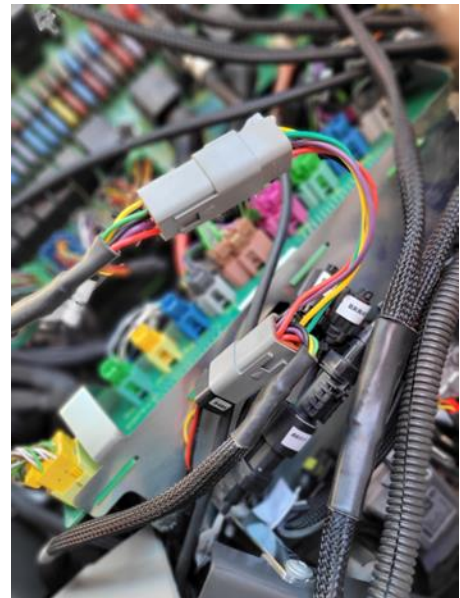


Locate the X48S connector (from the ATP) below the operator seat (right hand side). It will be attached to termination resistor labelled as XR014.3 (connected through plug X48T). Remove this from the X48S connector and connect it to the CRG cable.



This image shows the CRG connector with an intermediate adapter also connected to the X48S. (The intermediate adapter is not required and not included in the CRG-CLAAS kit) →

Replace all interior plastic panels in the reverse order.
Mount the JD monitor and plug it in.
Installation is complete!



The CRG cable also contains an auxiliary 4-pin connector to provide RTCM correction input from an external modem if required.

The CRG contains an RTK receiver which, like any RTK receiver, requires RTCM correction data. To achieve this, you must use an Internet-based NTRIP server.

To get RTCM correction data into the CRG, there are 3 options available:

- Internal cellular modem
- Bluetooth® using your mobile phone
- External correction source via radio modem

Refer to the CRG User Guide for RTCM correction setup information.

For an external radio, you may use the 4-pin DT deutsch connector shown. If the CRG is supplied with an internal cellular modem, this connector must remain unconnected.



NOTE: Each CRG is shipped with an adapter cable for connecting a CRG to a 12-pin JD roof connector (normally used by JD receivers). For the Fendt, this cable is not used.



Step 4: Mount the JD Display

Connect the JD display as shown once mounting is complete (back side of 4640 shown).



The JD display may be mounted in many ways. You may use the standard JD mounts or a RAM mount. A display mount is not provided in the CRG kit and must be purchased separately.

For example: 8" double socket arm (RAM-D-201U) + 2.25" ball with square plate (RAM-D-2461U) + 2.25" ball with round plate (RAM-D-254-WD1U)



<https://rammount.com/collections/popular-components-d-size/products/ram-d-201u-c>

Step 5: Setup ISObus Apps

The CRG comes with 2 ISObus VT applications (ISO apps) that will be loaded onto the John Deere monitor:

- 1) CRG ISO app: this app is virtually the same with all variants of the CRG. Refer to the CRG User Manual for additional setup instructions.
 - Specifically for the Lexion 8800, on the CRG's "Mount Settings" page, set Height to 375cm and Fore/Aft to 230cm.
- 2) Bridge ISO app: the app included with the CRG-CLAAS is specific to CLAAS machines. As such it will be explained further below. If you need assistance to find the Bridge ISO app, refer to the CRG User Manual.

The apps will automatically install themselves into the monitor after the first few minutes of the initial start-up. On subsequent runs the apps will load themselves from monitor memory much more quickly.

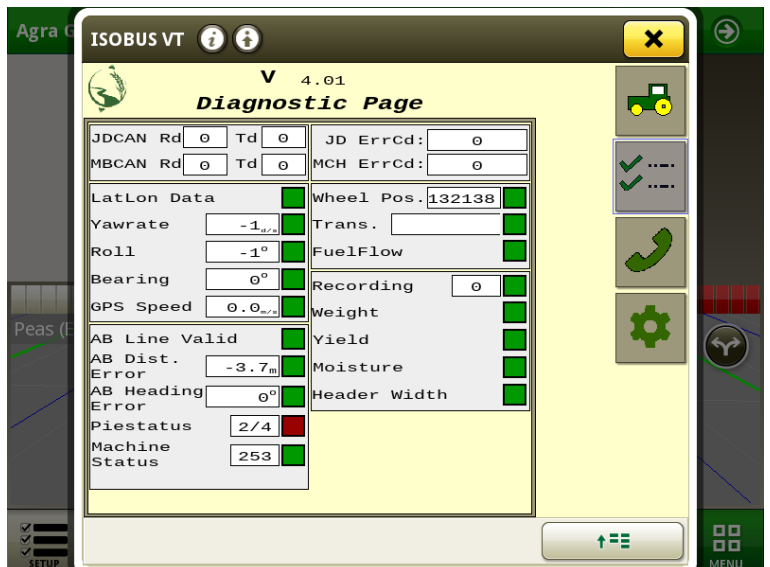
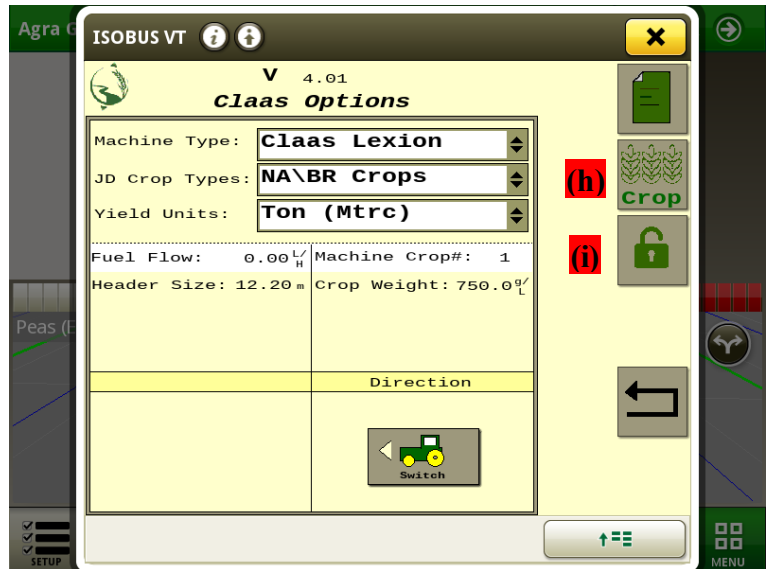
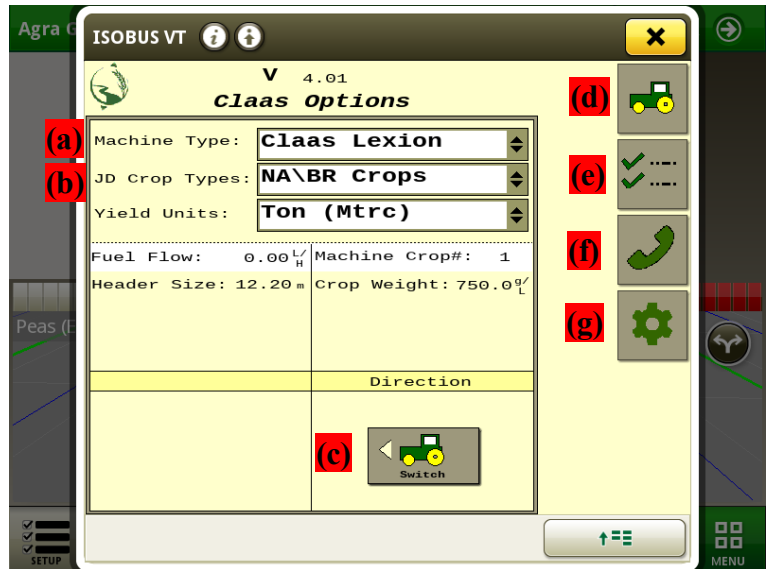
Step 6: Configure Bridge App

Before adjusting the auto-steer performance, the proper settings must be entered into the CRG-Bridge ISO app.

The Bridge options home page is specific for CLAAS machines.

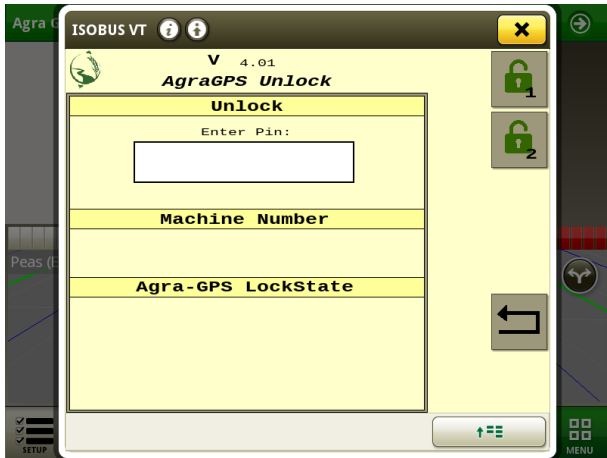
Press the button indicated by arrow to access other information pages.

- a) Ensure the Machine Type is set to Claas Lexion.
- b) JD Crop Types: select NA\BR (North America\British) or EU (Europe).
- c) While driving, if the direction of the machine is detected incorrectly, you can force it to change it here.
- d) Access to additional pages (shown below)
- e) Diagnostics screen
- f) Support contact page
- g) Firmware Update
- h) Crop info: yield, moisture, area
- i) Unlock screen

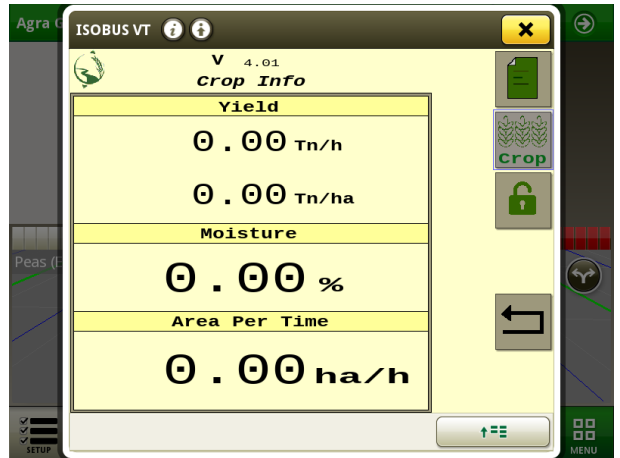


Diagnostic page showing normal values.

Unlock page



Crop Info page

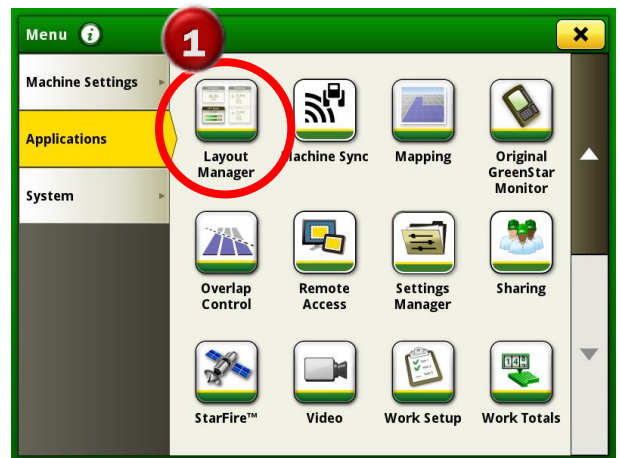


This information may also be viewed in the window mask (below)

Step 7: ISO Window Mask Setup

The CRG-CLAAS also includes a window mask to show yield and moisture information that can be viewed on one of the JD monitor's main run pages.

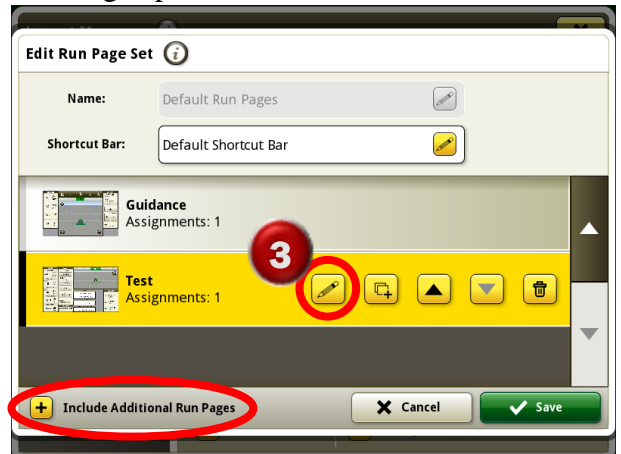
- 1) Access the Layout Manager →



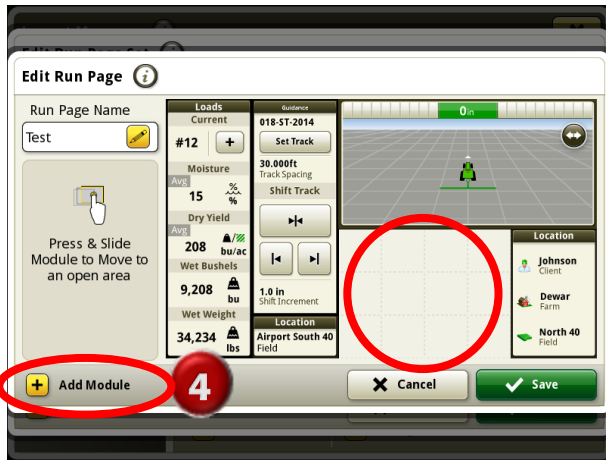
- 2) Choose a Page Set, or create a new one



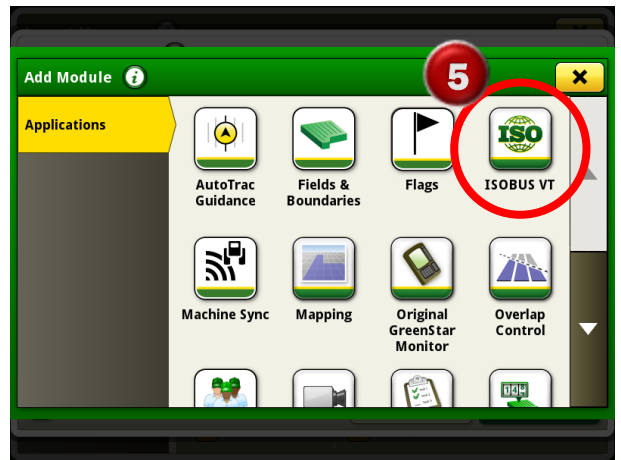
- 3) Edit the Run Page you want to change, or create a new one. The run page must have enough space to contain the window mask.



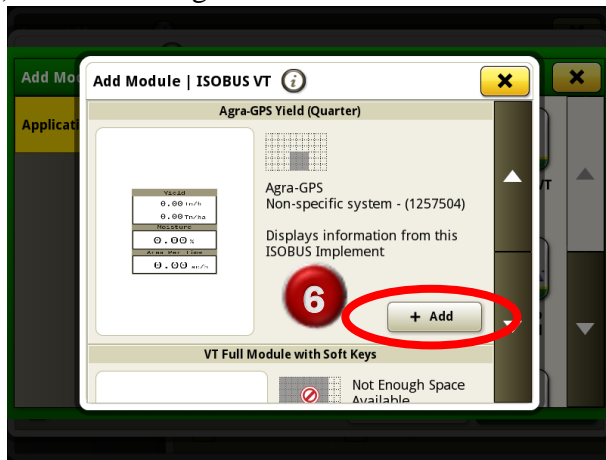
4) Select "Add Module" to fill the blank space



5) Select "ISOBUS VT" module



6) Select the Agra-GPS Yield window mask

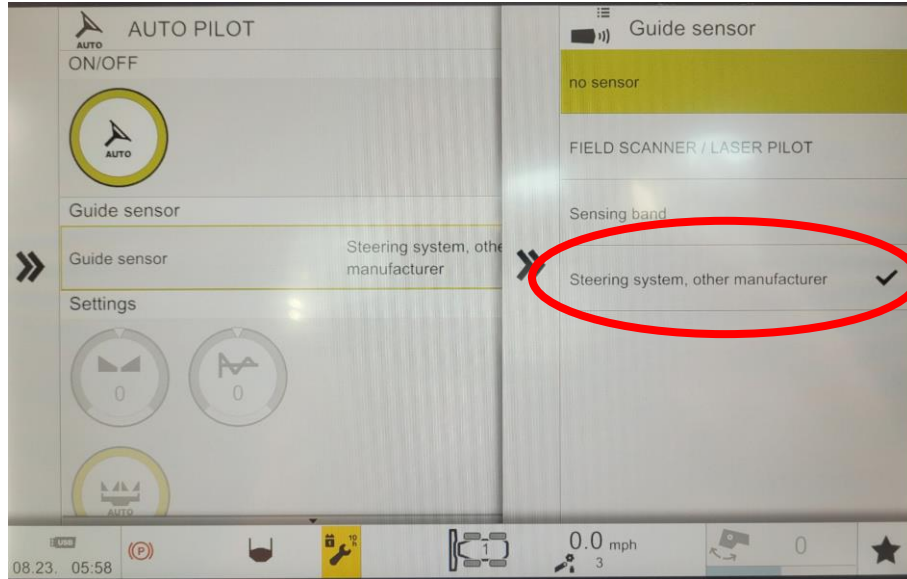


7) Press Save



Step 8: CEBIS Setup

In the CEBIS you must set the steering input source. Select the "Steering" from the right side menu, and ensure auto on/off is set to ON. Then select the "Guide sensor" item.



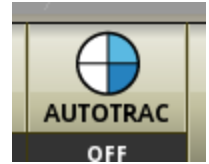
Select "Steering system, other manufacturer" from the list



A good test to verify complete communication with both the Claas and John Deere systems is to change header size on the CEBIS monitor. It should take only a few seconds until the header size is changed on the JD monitor.

Auto-Steer Operation

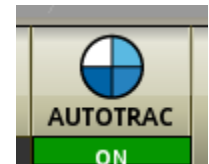
Refer to the AutoTrac Pie indicator on the JD monitor screen. With the CRG attached and the Bridge Enabled (in General Settings), you should already see 2 quarters of the Pie displayed if everything is normal (Installed and Configured).



Press the AutoSteer-Enable button on the armrest to obtain 3 quarters (Enabled).



If the Pie has not already moved to 3 quarters (Enabled), try pressing the Pie on screen.



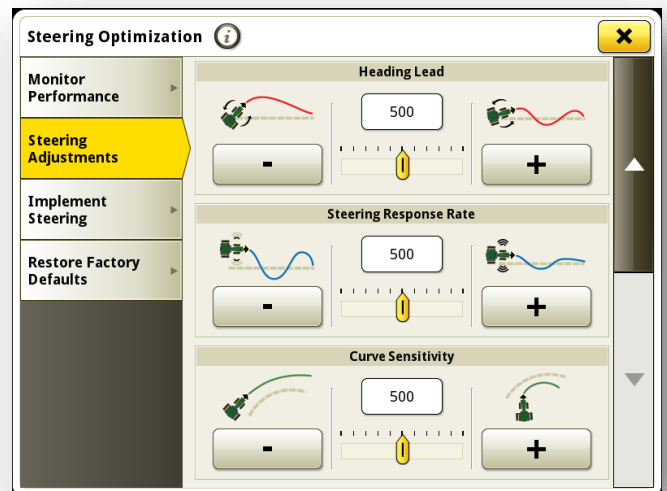
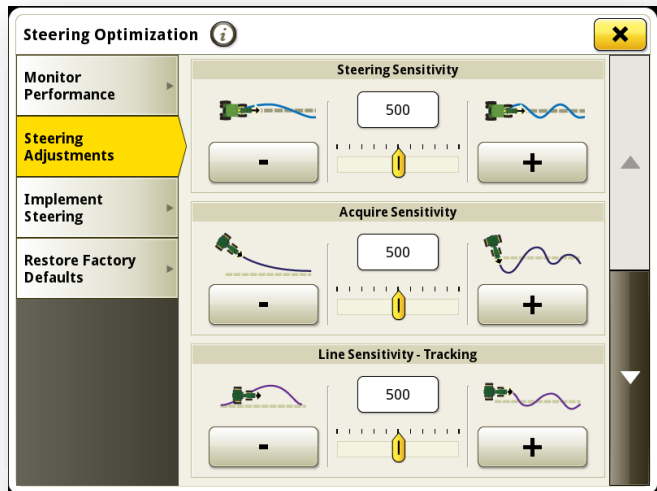
Press the Engage (also known as Resume) button to activate Auto-Steering (4 quarters). It will engage if all other conditions are met, such as minimum speed and threshing activated.

You can press the Engage button again to disengage, or simply turn the steering wheel. Forcing the steering wheel will automatically disengage auto-steering



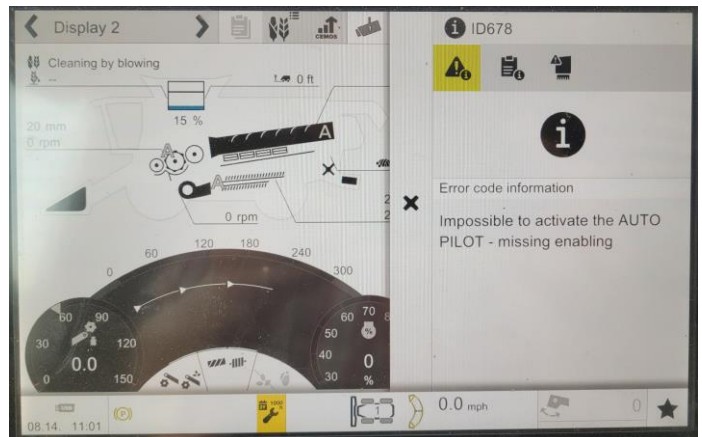
Adjusting steering

Using the JD display you may adjust your steering performance. Most machines will perform optimally with all JD settings centred. If a change is required, find an open area where you can travel at target speed and adjust one parameter at a time until you are satisfied with the steering performance.

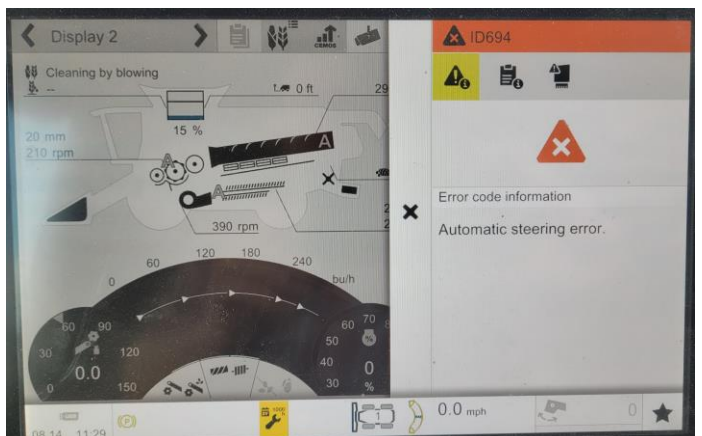


Troubleshooting

If you see this error, it may mean that threshing was not engaged when autosteer was attempted.



If you see this error, it may mean that the Bridge is not unlocked for your machine. Please contact Agra-GPS at 1.825.247.2477 to get your unlock code



Appendix A: Product Specifications

Operating Voltage Range:	10 to 16 VDC, 12V nominal
Power Consumption:	less than 3W
Operating Temperature:	-20°C to +40°C ambient
Weatherproof:	NEMA 3X, IP65
Supported:	Bluetooth® BLE, RTCM-3.x, NTRIP 2.0

NOTE: Circuit protection fuse is required: 1A minimum, 5A maximum

COMPLIANCE

This product is in compliance with the following standards:

EMC

- FCC 47 CFR Part 15B: Radio Frequency Devices – Unintentional Radiators
- ICES-003 Issue 7 (2020-10): Information Technology Equipment (including Digital Apparatus)
- EN ISO 14982 (2009): Agricultural and Forestry Machinery – Electromagnetic Compatibility
- ETSI EN 301 489-17 V3.2.4 (2020-09): Electromagnetic Compatibility (EMC) Standard for Radio Equipment and Services (Part 17: Specific conditions for Broadband Data Transmission Systems)
- ETSI EN 301 489-1 V2.2.3 (2019-11): Electromagnetic Compatibility (EMC) Standard for Radio Equipment and Services (Part 1: Common technical requirements)

SAFETY

- EN 62368-1 (2014): Audio/video, information and communication technology equipment (Part 1: Safety requirements)
- IEC 60950-22 (2016): Information technology equipment – Safety (Part 22: Equipment to be installed outdoors)
- IEC 60529-1 (2001): Degrees of protection provided by enclosures. (IP code)

Electromagnetic Compatibility Statements

RF Exposure

The integrated Bluetooth® device operates at an output power level which is within the ISED SAR test exemption limits at any user distance. Maximum output (Class 2 Bluetooth® LE): +10 dBm (+1.5 dBm typical). Frequency range: 2.402 GHz to 2.480 GHz. Maximum gain (integral chip antenna): 1.63 dBi.

USA: FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in the specified 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 communications. 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 of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and 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.

****DO NOT MODIFY**** Changes or modifications not expressly approved by Agra-GPS Ltd could void the user's authority to operate the equipment.

Canada: ISED

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage ;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

EU & UK

Hereby, Agra-GPS Ltd, declares that the Bluetooth® module has been installed in accordance with the installation instructions, and in equivalent assessment conditions as tested for compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU, and the essential requirements and other relevant provisions of UK Radio Equipment Regulations 2017.