

4 | Pre-Installation Requirements

Tractor, power and ISOBUS / CANBUS requirements for the usage of **COMMAND**

- [4.1 | Overview](#)
- [4.2 | Tractor Requirements](#)
- [4.3 | Power Requirements](#)
- [4.4 | ISOBUS Requirements](#)

4.1 | Overview

All requirements in this section must be confirmed before installing the **COMMAND** system.

Failure to meet these requirements may result in improper operation or system damage.

Confirm the following before proceeding:

- Tractor compatibility
- Power supply suitability
- Communication interfaces (ISOBUS or CANBUS, RS232 NMEA 0183)

Details for each requirement are provided in the following sections.

4.2 | Tractor Requirements

Tractor Requirements

COMMAND's tractor requirements are as follows:

- Provide a suitable power supply as specified in Section 4.3.
- Have compatible SCVs or auxiliary control valves
- The tractor does not need to be ISOBUS-equipped; however, upgrading to ISOBUS is strongly recommended to provide the necessary connections (e.g. implement breakaway connector).
- Be capable of manual implement control.
- Be in good working condition with fully functional hydraulics.

If any requirement in this section cannot be met, installation should not proceed.

Implement Compatibility

Supported Implement Configurations

COMMAND is currently suitable for use with the following types of implements:

- **Implements with a single hydraulic height control function and a single receiver**, i.e. requiring a single valve. This includes implements with multiple height cylinders if the cylinders are linked together and controlled by the same valve. e.g. John Deere tractor-pulled scraper.
- **Implements with a single hydraulic height control function, single receiver, and a single cross-slope/tilt control function**, i.e. requiring a single separate valve for each (2 total). e.g. JN&R tractor-pulled scraper with cross-slope / tilt cylinder.

Future Configurations

- **Implements with a single hydraulic height control function and dual receivers**, i.e. requiring a single valve for height control and a single valve for cross-slope control with both a left and right implement mounted receiver.
- **Tandem implements (convoy) each with a single hydraulic height control function**, i.e. one valve controls front scraper height and another valve controls rear scraper height.
- **Implements with two separate hydraulic height control functions**, i.e. two separate valves are required to control each side of the implement. e.g. grader-style blades with independent left/right control.
- **Two implements towed in tandem with a single height control function each**, i.e. requiring one valve for each implement. e.g. Two John Deere tractor-pulled scrapers pulled behind the tractor.

Implement Definitions

The naming conventions below will help to avoid confusion later:

Single implement - One single blade with one receiver positioned in centre (single-axis or dual-axis) (May or may not be accompanied by IMU).

Tandem implements - Two blades in front/behind one another as a train, each with a single receiver positioned in the centre (single-axis control only).

Dual receiver - One single blade with two receivers positioned on the left and right sides of the blade for dual-axis control. The tilting point is assumed to be the centre of the blade edge, in the middle of the two receivers.

4.3 | Power Requirements

A switched 12V DC power supply with a minimum capacity of 10A is required.

The harnessing system has been designed to provide flexibility in sourcing 12V DC switched power depending on where the ECU is mounted, and where sources of protected 12V DC power are freely available.

The following power supply options are supported:

Cab Convenience Sockets

COMMAND can be powered using an available cab convenience power socket along with the T3H-F001 Power Adaptor provided by T3RRA.

NOTE: A minimum of three cab convenience sockets are required in total if providing power to **COMMAND**, a RuggON tablet and John Deere implement harnessing. If fewer than three are available, another power option may need to be used for **COMMAND** to reduce the requirement to two cab convenience sockets.

WARNING: Convenience power supply sockets should be load-dump protected and fused appropriately within tractor electrical systems, and generally are but it's always best to make sure.



Using the John Deere Constant Power Harness

The John Deere Constant Power Harness (**BPF10404**) can be connected to the COMMAND harnessing system at connector C6 on the **T3H-C005** exterior breakout harness.

NOTE: The John Deere Constant Power Harness does not possess its own fusing, so take note that when connected to **T3H-C005** for supplying power to **COMMAND**, a fuse is supplied on the **T3H-C005** harness to protect against short circuits and the like.

Connection can also be made directly into the **T3H-C002** EXT branch (Connector C6) if the **T3H-C005** is not required but the aforementioned fuse must still be added for appropriate protection using a **T3H-F003** Inline Fuse Adapter.



Providing a Custom Power Connection

A custom connection to switched 12V power can be made using the **T3H-PWR-1** Power Adaptor (DT06-2S & Loose Wire Ends). The installing technician must provide the appropriate connections / terminations depending on their own requirements.

NOTE: Avoid routing power cables near high-current or noisy signals if possible (e.g. alternator).

WARNING: The power supply must be rated and protected appropriately for the application!

Custom Power Supply Requirements

If a custom power source is used, it must meet the following requirements:

Description	Nominal Range / Rating	Notes
-------------	------------------------	-------

Supply Voltage (V)	9-32V DC	Ripple/noise $\leq$ 100 mV peak-to-peak recommended; ensure DC/DC converters are well-filtered.
Supply Current (A)	1A for general ECU operation plus 2A per proportional solenoid in use	Depends on connected loads, MCU, sensors, and interfaces.
Power Supply Protections	Overvoltage protection	Must be protected against load dump, inductive spikes, and cranking via TVS diodes or suppression circuits. Transient protection required (TVS diode, suppressor per ISO 7637-2).
	Overcurrent protection	Must include a fuse or circuit breaker rated to a maximum of 10A.

4.4 | ISOBUS Requirements

COMMAND does not explicitly require the tractor to be fitted with an ISOBUS system to operate; however, we strongly recommend taking the opportunity to upgrade any tractor to be used with **COMMAND** to be ISOBUS capable as well, thereby future proofing for other future devices at the same time. ISOBUS / CANBUS harnessing may also be mandatory depending on choice of GNSS receiver.

ISOBUS / CANBUS GNSS Data

COMMAND may make use of the ISOBUS to read GNSS data of StarFire or NMEA 2000 message format, which will be present and readily available to the **COMMAND** ECU if both the ECU and the GNSS receiver are connected to the ISOBUS.

ISOBUS Auxiliary Valve Control

COMMAND may also make use of the tractor ISOBUS when performing control of the electrohydraulic valves. Messages are sent to a tractor hydraulic controller over the ISOBUS in some configurations. Usually, if the tractor's hydraulic controller is capable of control via external messages, the machine will already have ISOBUS harnessing and functionality.

ISOBUS Overview



ISOBUS is a standardised CANBUS communication protocol that enables communication between tractors, implements, and control systems. This system simplifies operations, reduces clutter, and improves efficiency by allowing operators to control multiple implements from a single interface.

A typical ISOBUS setup will often include an ISOBUS terminal display along with various different ISOBUS harnesses that set up the standardised harnessing and messaging framework on the machine. Other types of ISOBUS compatible devices can then be added for all kind of functionality including auto-steering, automated land levelling, automated planting/seeding/spreading/spraying and more.

Next Step

If all requirements in this section have been met, proceed to **Section 5 | ECU Installation & Mounting**.