2.1 | System Architecture

September 2026

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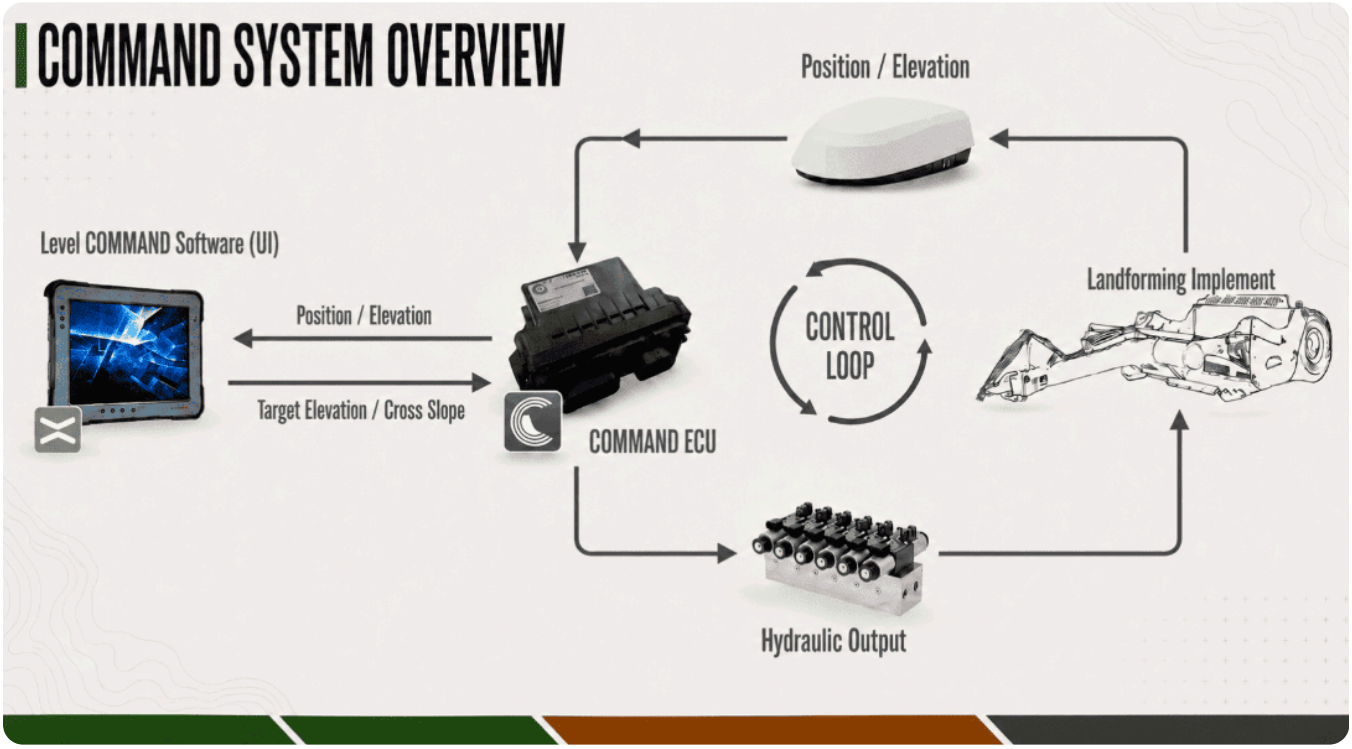
Theory of Operation

COMMAND is an electronic control system designed by T3RRA consisting of an Electronic Control Unit (ECU) along with a harnessing system to interface with different sensors, hydraulic and tractor systems.

Once installed and configured, the ECU acts as both a control system and interface. It will communicate with a PC running T3RRA software, the earthmoving implement and sensors providing real-time feedback on the position of the implement, and tractor diagnostic data where available.

Level COMMAND can then control the implement based on your current position and design elevation, while satisfying constraints e.g. cut depth limits.



Manual Control Mode

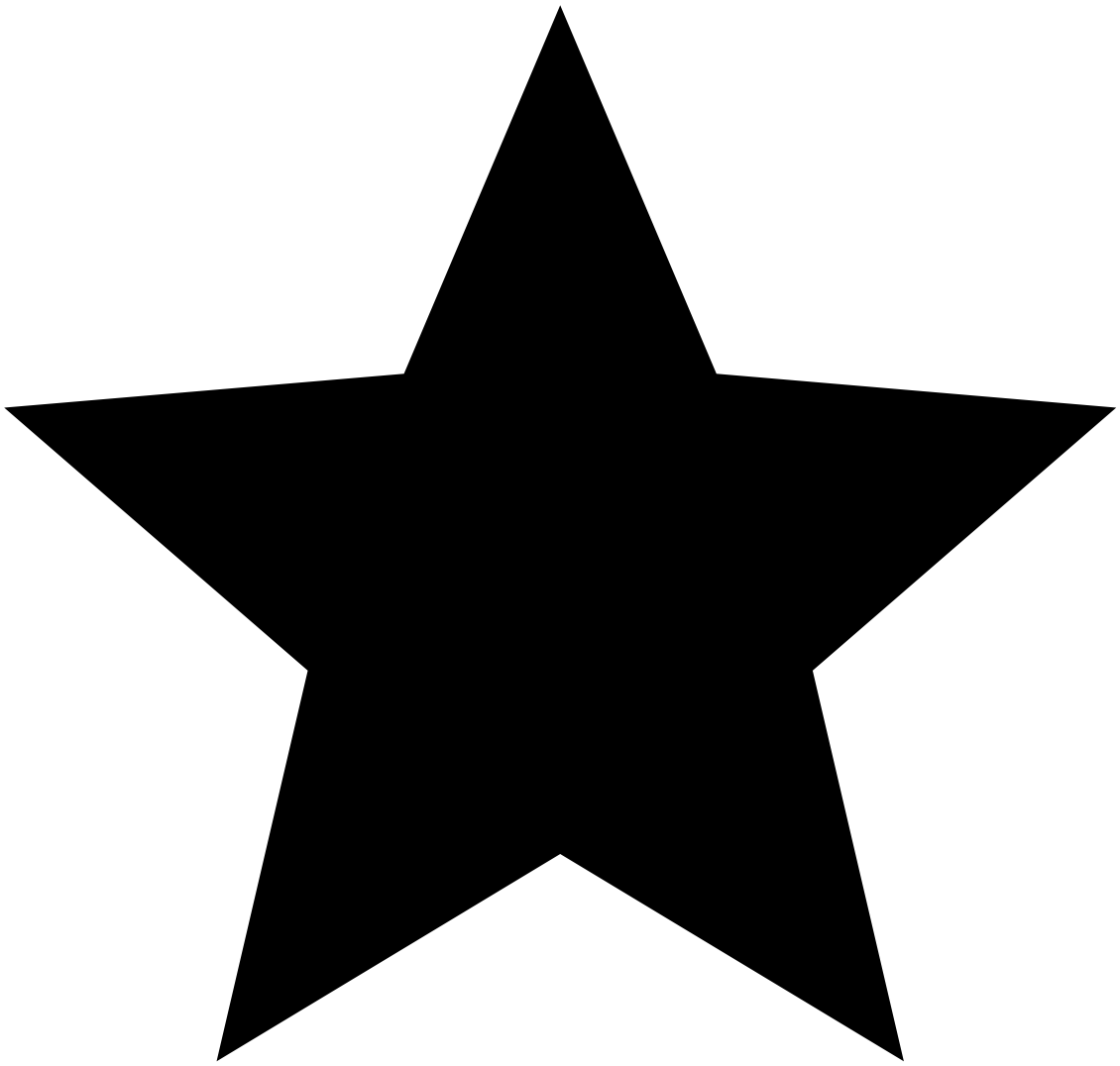
In Manual Control Mode, and also when the system arming switch is deactivated, **COMMAND** is Disengaged and any prescribed elevations sent to the ECU will not result in activation of hydraulics. Hydraulic outputs can still be activated using a connected joystick or tractor SCV levers. These will function regardless of whether **COMMAND** Automatic Control is Disengaged or Engaged.

Automatic Control Mode

Once the operator has Armed the system and Engaged Automatic Control Mode, the ECU activates hydraulic outputs based on:

- Prescribed elevation
- Current elevation
- Calibration parameters
- Tracking sensitivity
- Tracking/acquire thresholds

While Engaged, joystick movement can override automatic control. Depending on configuration, joystick movement can either Disengage Automatic Control Mode or Momentarily Disengage control until the joystick returns to centre.



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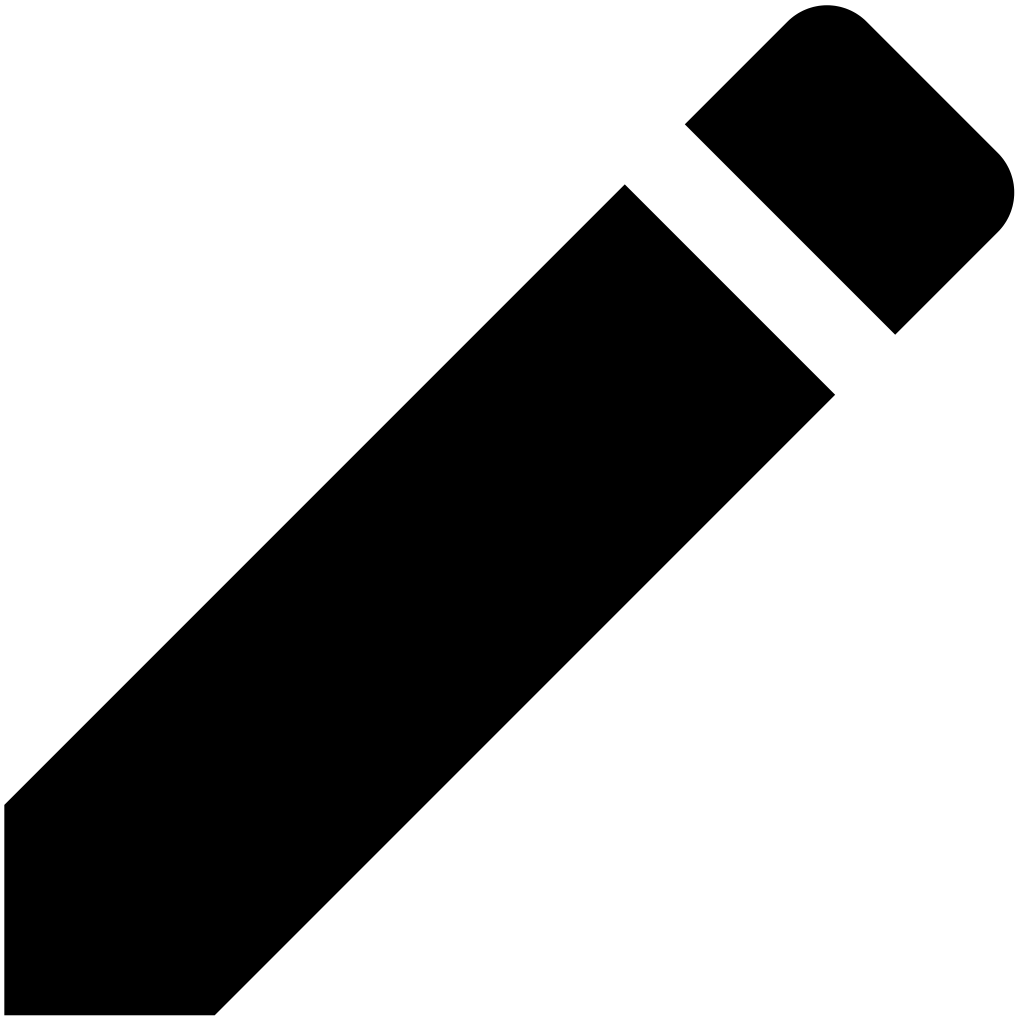

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