John Deere
Electronic Controls Family
M Series Controllers

![John Deere logo]

Summary

Bringing rugged durability and precise control to the jobsite, John Deere offers versatile control solutions for mobile applications.* Multiple combinations of load inputs, outputs, and computing power give you the options you need — all in one common architecture.

With a wide range of variants in each series, John Deere electronic controls can help provide control for your specialized applications, including diesel engines, gas engines, hydraulic control systems, cab/body control, power distribution systems, powertrain controls, implement controls, and lighting controls.

The M Series controllers are built for reliable operation in severe heat and extreme cold, harsh chemical vapors, and direct exposure to water, dirt, dust, and rock. Our engineering teams use proven production/design libraries to build dependable products that monitor a wide array of common and custom I/O parameters, provide for load control and protection, as well as multiplex networking using distributed and discreet architectures, such as CAN, SAEJ1708, and SAEJ1939 standards.

Features:

- High current outputs
- Multiple available combinations of CAN, LIN, and Ethernet available
- Built-in acceleration and temperature sensors
- Wake-up capabilities
- AECQ-qualified electrical components
- 32-bit microprocessors
- IP67 rating

Operational	M31
System Voltage	12V & 24V
Machine Interface Connector	Ampseal 44 Pins (12W/12W/8W/8W/4W) IP67
Current Consumption	
	Rated for Total of 11A Continuous Current
Processing and Memory	
Aurix TC234	2MB/192kB 128kB FRAM
Vehicle Communication	
	3 – CAN Channels (CAN FD Capable) 2 – LIN Channels 6 – 2A High Side Drivers 4 – 1.2A Precision Current Control Low Side Drivers 12 – Multi-function Inputs (Analog/Frequency) 6 – Frequency Inputs 2 – PWM Frequency Outputs 2 – 250mA Sensor Supply Wakeup Capabilities Acceleration Sensor Temperature Sensor: PTC

*For detailed specifications of the John Deere controller family, contact Electronics@JohnDeere.com.
NOTE: A technical review will be needed in order to verify available hardware variants.

Operational	M411
System Voltage	12V & 24V
Machine Interface Connector	Molex CMC 112 pins 0643330100 (Molex) IP67

Current Consumption

	Rated for Total of 35A Continuous Current

Processing and Memory

Aurix TC377	6MB/1.2 MB 128kB FRAM

Vehicle Communication

	2 – CAN Channels (FD Configurable) 2 – LIN Channels 10 – 3A High Side Drivers 1 – 7A High Side Driver 10 – 1.5A Valve Drivers 29 – Digital Frequency Inputs 28 – Analog Inputs 4 – Frequency Outputs - ISO-11786 Compliant 4 – 200mA Sensor Supply Wakeup Capabilities Acceleration Sensor Temperature Sensor: PTC ISO 25119 Functional Safety Compliant Capable

Operational	M501
System Voltage	12V & 24V
Machine Interface Connector	Molex CMC 108 pins 02047761101 (Molex) IP67

Current Consumption

	Rated for Total of 60A Continuous Current

Processing and Memory

TC277 (TC237 Possible)	4MB/472kB 128kB FRAM

Vehicle Communication

	3 – CAN Channels (CAN FD Capable) 2 – LIN Channels 1 – 2-Wire Ethernet 5 – 7A High Side Drivers 20 – 3A High Side Drivers 16 – 1.2A Precision Current Control Low Side Drivers 16 – Multi-function Inputs (Analog, Digital, Frequency) 8 – Analog, Digital Inputs 4 – VR Frequency Inputs 2 – 400mA Sensor Supply (3 Possible) Wakeup Capabilities Acceleration Sensor Temperature Sensor: PTC

NOTE: A technical review will be needed in order to verify available hardware variants.

Operational	M502
System Voltage	12V
Machine Interface Connector	Molex CMC 56 pins (28W/28W) 0477450100 (Molex) & 477450200 (Molex) IP67

Current Consumption	
	Rated for Total of 60A Continuous Current

Processing and Memory	
Aurix TC337	6MB/1.1MB 128kB FRAM Systems Basis Chip

Vehicle Communication	
	2 – CAN Channels 2 – LIN Channels 1 – 2-Wire Ethernet 10 – 12A High Side Drivers 9 – 7A Low Side Drivers 8 – Multi-function Inputs (Analog, Digital, Frequency) 11 – Analog, Digital Inputs 1 – 50mA Sensor Supply Wakeup Capabilities Acceleration Sensor Temperature Sensor: PTC

Operational	M702
System Voltage	12V & 24V
Machine Interface Connector	Molex CMC 106 pins (58W / 58W) 347630002 (Molex) IP67

Current Consumption	
	Rated for Total of 100A Continuous Current 1– Amphenol Radsok Power Terminal

Processing and Memory	
TC277/TC377	4MB/472kB 128kB FRAM 64kB EEPROM

Vehicle Communication	
	2 – CAN Channels (CAN FD Capable) 4 – LIN Channels 1 – 2-Wire Ethernet 12 – 3A High Side Drivers 21 – 7A High Side Drivers 2 – 12A High Side Drivers 1 – 20A High Side Driver 1 – 3A H-bridge 8 – 180mA Low Side Drivers 2 – PWM Frequency Outputs 8 – Multi-function Inputs (Analog, Digital, Frequency) 24 – Analog, Digital Inputs 2 – 250mA Sensor Supply (5 Possible) Wakeup Capabilities Acceleration Sensor Temperature Sensor: PTC

NOTE: A technical review will be needed in order to verify available hardware variants.