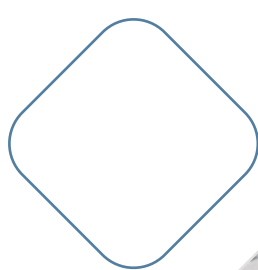


CONTROL

VERSION 1.0



THE BRAIN BEHIND EVERY MOTION

CONTROL UNITS AND ACTUATORS THAT MANAGE THE VEHICLE'S KEY FUNCTIONS
WITH PRECISION

At the heart of every modern vehicle lies the ability to process information, make decisions and coordinate multiple functions in real time.

MTA develops a wide range of control units, actuators and software solutions designed to process data, manage vehicle functions and coordinate complex systems in real time. From Engine Management Systems and motorcycle ECUs to Body Controllers, safety modules and customizable electronic devices, MTA solutions are engineered to meet the requirements of automotive, motorcycle, agricultural and industrial applications. Combining advanced hardware and robust software, they ensure precise control, seamless integration and reliable operation even in demanding environments. To complement its hardware portfolio, MTA also develops dedicated software tools that enable customers to configure and customize dashboards, displays and electronic control units according to their specific application requirements, creating tailored solutions while reducing development time and complexity.

ENGINE MANAGEMENT SYSTEMS

Engine Management Systems (EMS) manage various aspects of a vehicle's engine, including fuel injection, ignition timing, and other critical engine functions.



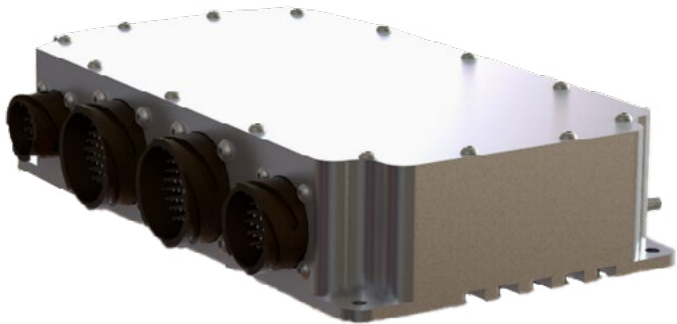
12-CYLINDER GASOLINE CARS

3 AS connectors 211 pins in total
12+12 PFI injection
12 ignition (logic)
4 electronic throttle control
4 Variable Valve Timing (VVT)
4 Lambda interfaces wide band
4 Lambda switching
4 CAN



12-CYLINDER GASOLINE CARS

2 connectors 196 pins in total
Max. 12 cylinders up to 14,000 rpm
12 low pressure injection
12 ignition
4 electronic throttle control
4 Variable Valve Timing (VVT)
4 Lambda interfaces wide band
4 Lambda switching
3 CAN and 2 FlexRay



4-6-CYLINDER DIESEL CARS

This 4- to 6-cylinder diesel Engine Management System (EMS) is designed for a wide range of applications, including industrial equipment, APUs and military vehicles.

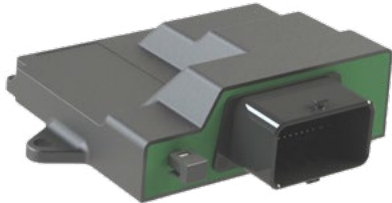
Dual voltage 24 V / 12 V operation
Rack control for 2, 4 or 6 unit pump injectors
On-board 24 V to 12 V DC-DC converter for standard 12 V automotive actuators
16 general purpose analog inputs
1 PT200 input
1 PT1000 input
6 digital inputs
8 low side outputs

8 low side outputs with current feedback
3 low side high current outputs
2 full H-bridge outputs
2 CAN lines optoisolated
CA Bayonet / VG95234 Mil standard connectors

MOTORBYKE ELECTRONIC CONTROL UNITS

Electronic control units designed and developped for single-cylinder and twin-cylinder motorcycles, using both capacitive and inductive ignition technologies, as well as integrated electronic systems for Start & Stop functionality, all compliant with the latest Euro 5 and Euro 5+ emissions regulations.

SINGLE-CYLINDER



Injection control
EURO5+ and BSVI stage 2 regulation compliance
Capacitive or inductive ignition
Integrated tilt sensor
Optional barometric sensor
Integrated immobilizer
9 power outputs
Stepper motor control for idle regulation
4 analog inputs
4 digital inputs
Knocking sensor
2 narrow band Lambda sensors
1 CAN and LIN interface
Mil and warning lamp control

TWIN-CYLINDER



Injection control
EURO5+ and BSVI stage 2 regulation compliance
Inductive ignition
Electronic throttle valve control
Integrated tilt sensor
Integrated immobilizer
12 power outputs
12 analog inputs
12 digital inputs
Knocking sensor interface
3 narrow band Lambda sensors
2 CAN interfaces
Head lamp control
Mil and warning lamp control

SINGLE-CYLINDER START & STOP

Injection control	9 power outputs
Start & stop functionality	Stepper motor control for idle regulation
Silent start	4 analog Inputs
Main voltage regulation	11 digital inputs
Lead acid battery managment with SOC control	Knocking sensor
EURO5+ and BSVI stage 2 regulation compliance	2 narrow band Lambda sensors
Capacitive ignition	1 CAN e LIN interface
Integrated tilt sensor	Head lamp control
Optional barometric sensor	Mil and warning lamp control
Integrated immobilizer	



ELECTRONIC CONTROL UNITS

We design and develop electronic control units (ECUs) for body controller applications, electrochromic glass management, park distance control systems, and window drop safety modules.



BODY CONTROLLERS

Voltage power supply: Max. 16 V, nominal 12 V, min. 9 V
9 x configurable analog inputs
2 x flex fuel sensor inputs
2 x high side 10 A outputs
21 x low side 1 A outputs
Operating temperature from -40 °C to +85 °C
CAN communication
Connector: TE 47P
Protection degree: IP67



ELECTRO-CHROMATIC GLASS MANAGEMENT

Voltage power supply: Max. 16 V, nominal 12 V, min. 9 V
Dimension: 125.5 x 87 x 33.4 mm
Weight: 211.5 g
Anodized aluminum housing
Operating temperature -40 °C to +120 °C
Output for electro-cromatic glass 120 VAC (RMS), 100 Hz
Connector: TE 12P
Protection degree: IP52



PARK DISTANCE CONTROL

1 x PDC activation/deactivation switch input
1 x PDC activation/deactivation LED output
4 x ultrasonic front sensors on LIN
1 x 12 V protected supply for front sensors
4 x ultrasonic rear sensors on LIN
1 x 12 V protected supply for rear sensors
2 x speaker (buzzer) front and rear output
Dimensions 105 x 76 x 25 mm
Weight: 140 g
Connector: JAE Electronics 18P
Plastic housing potted with polyurethane resin



WINDOW DROP SAFETY MODULE

Voltage power supply: Max. 16 V, nominal 12 V, min. 9 V
Capacitance 3.125 F
Max ESR (temp. = 25 °C) 200 mΩ
Estimated supply current 50 mA
Dimension: 135 x 58.5 x 35 mm
Weight: 145 g
Operating temperature -40 °C to +80 °C
Does not require any communication with other control units on board
Connector: TE 6P
Protection degree: IP52

CUSTOMIZABLE ELECTRONIC CONTROL UNITS

Alongside its portfolio of fully customized EMS and ECUs, MTA offers two highly configurable ECUs designed for the off-highway market. Through MTA-developed software solutions, customers can configure and adapt the ECUs to their application requirements, benefiting from a flexible, scalable, and cost-effective platform that accelerates product development and integration.



DYNA

- Universal controller for agricultural or off-highway vehicles
- System supervisor with safety features
- Dimensions: 162 x 113 x 40 mm (excluding fixing points and connector)
- Power supply: 12 Vdc (9-16 Vdc) and 24 Vdc (18-32 Vdc)
- Protection degree: IP67
- 16 inputs, 16 outputs and 2 Vref 5 Vdc/8 Vdc outputs
- 2 CAN bus and 2 LIN interfaces
- RTC
- Connector: Delphi 48 pins

Customizable with
MTASTUDIO®

Simulable with
**MTACORE®
SIMULATOR**

ACTUA

- Universal controller for agricultural or off-highway vehicles
- System supervisor with safety features
- Dimensions: 185 x 221 x 42 mm (excluding fixing points and connector)
- Power supply: 12 Vdc (9-16 Vdc) and 24 Vdc (18-32 Vdc)
- Protection degree: IP67
- 58 inputs, 32 outputs, 2 Vref 5 Vdc/8 Vdc outputs, 1 Vref 15 Vdc output (at 24 Vdc) and 1 h-bridge (at 12 Vdc)
- 4 CAN bus, 2 LIN, 1 USB (optional), 1 Ethernet BroadR-Reach (optional), 1 RS232 (optional) interfaces
- RTC (optional)
- Connector: Tyco 154 pins
- 3 axis accelerometer (optional)
- External flash memory for datalogging (optional)

Customizable with
MTASTUDIO®

Simulable with
**MTACORE®
SIMULATOR**



SOFTWARE FOR CUSTOMIZABLE DEVICES

MTA provides specific software tools developed in-house. These tools are used to program dashboards, displays and electronic control units with customizable functions. Each customer will be able to create a “tailored” device according to his needs.

The software tools are managed using the MTA Dongle. The USB allows the end user to unlock all the MTA development and configuration tools.



MTA STUDIO®

MTA Studio is a specific tool used to program dashboards, displays and electronic control units developed with customizable functions which allow the customers to create “tailored” devices.

- Logic functions coded using graphical programming languages compliant to standard IEC 61131-3 (FBD – Function Block Diagram) or C/C++.
- HMI programmed using a WYSIWYG (What You See Is What You Get) interface: supported segment, dot matrix and TFT display technology.
- Easy to use: autocomplete helps to find variables and functions; clear graphic interface, simple application software interface: hardware is mainly managed by var to read and write.
- Integrated debugger based on XCP protocol.
- CAN bus interfaces support: J1939 transport protocols (BAM/CMDT), programmable CAN wake up and termination.
- Rich set of libraries: IEC 61131-3, odometer, hourmeter, etc.
- Real-time task management.
- Code protection using HASP USB dongle to prevent unauthorized access.
- Easy integration of external codes and libraries.



MTA Gate is a specific tool designed for EOL department and/or for technical service points use.

- MTA Gate allows to transfer a software generated by MTA Studio to all devices. The “Hardware Variant ID” and “Customer ID” prevent misuse and/or wrong software updates.
- Parameters setting: possibility to read and write EEPROM parameters on devices.
- Access to device services: take advantage of software application utilities such as stepper motor calibration.
- Parameters map import from MTA Studio.
- MTA Gate can be used by standard Windows GUI or command-line for EOL process automation purposes.
- MTA Gate license distribution through USB dongle.



MTA Core Simulator is a tool that allows to simulate and debug MTA Studio applications directly on the PC.

- The tool allows to develop and test the application without a real target and provides a complete debug environment.
- Hardware virtualization allows to play with the configuration without harness.
- Simulation of run time behavior.
- Real ECU software runs on PC.
- Fully integrated with MTA Studio.
- “Simulation mode” is designed to help non skilled software engineers to easily understand how the application is working.
- “Debugger mode” is designed for C programmers that need a powerful debug environment.

