

Metric

Motorsport Electronics

MVIC



The Mectric Vehicle Integration Controller (MVIC) is a fully featured, user definable, programmable CAN translation unit. It's 2x CAN 2.0B/FD interfaces can be configured to send and receive a virtually limitless combination of data. Powerful firmware and an intuitive user interface allows the generation of thousands of predefined and custom channels.

Applications

- Integration of aftermarket ECU's with OEM systems.
- Integration of cross-brand aftermarket systems.
- Complex custom logic control for extending existing system controls.
- Reverse engineering.
- CAN protocol prototyping.

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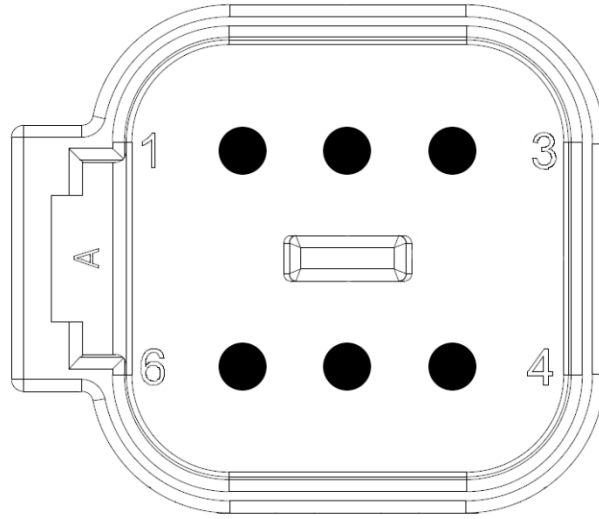
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Wiring Pinout



Mating Connector: Deutsch DT06-6S

Pin	Function
1	GND
2	CAN 1 Low
3	CAN 2 Low
4	CAN 2 High
5	CAN 1 High
6	+14V

Features

Processor

- 96 MHz, 32bit Automotive Processor w/ FPU.
- 2x Controller Area Network (CAN) interfaces, up to 5 Mbit/s
- Compatible with CAN 2.0A/B and CAN-FD (ISO 11898-1:2015)
- USB-C PC interface.
- Configuration, live data, firmware updates over USB.

CAN

- 2x CAN FD Hardware Nodes.
- Over voltage & ESD protected.
- Fully user definable CAN streams.
- Compound message frames and sequential ID frames supported.
- User definable Rx/Tx parameters with custom bit lengths, factor, & offset.
- Predefined standard transmit and receive data sets.

Firmware

- Multi-threaded Realtime Operating System.
- User CAN Signal Objects w/ user defined bit positions, factor, offset, multiplexing.
- Dynamic 4D Tables w/ freely configurable X,Y,Z axes.
- Math Expression Parsers, 32 characters, including math, logic and bitwise operations.
- Combinational Logic Blocks, 4 inputs per block, on/off delays.
- CAN bus diagnostics and error detection.

MecScript

- C-Style syntax.
- Statically typed.
- Heap-less, memory safe design.
- Non-interpreted, compiled to byte-code before upload to device.
- 64kb of Compiled User Code Storage (ROM).
- 64kb of User Code Stack Memory (RAM).
- Edit in MectriCal or in external editors such as VS Code.

Programming

All device configuration and firmware updates are done via USB-C connection with our free MectriCal PC Software.

Device Specs

Parameter	Value
Processor	96 MHz, 32 Bit, Cortex M4F w/FPU
Script Memory Storage	64 Kb
CAN	2x 2.0A/2.0B/FD
Connector	6 Pin Deutsch DT Series
Nominal Supply Voltage Range	9 - 22 V
Minimum operating voltage	6 V
Maximum operating voltage	35 V ¹
Supply Current	15 mA
Size	84mm L, 53mm W, 32mm H
Weight	130g
Mounting	2x M5 Mounting Holes
Minimum operating temperature	-40 °C
Maximum operating temperature	105 °C
Minimum component automotive qualification	AEC-Q100 Grade 2

1) *Internal supply voltage measurement circuitry will clamp at ~22V. Voltage inputs above this level will not be reported correctly.*

Document History

23/11/2024 - Initial Release.