

# M5 Memory Emulator



The ATI M5 Memory Emulator provides direct access to the ECU calibration parameters. Connection to the target ECU is accomplished with a low-cost Tool Adapter Board, or TAB, that is customized to mate the universal M5 with the specific ECU under test.

The M5 is a reusable universal module that can be used with a range of microprocessors and is not dedicated to a single microprocessor/application. As soon as the M5 is used a second time, the cost benefit grows exponentially.

Connect the M5 to a USB port and use ATI's VISION™ software to easily configure the system for calibration.

## Features

- Full-speed USB connection at 12 MB/s direct to PC
- Completely self-contained on-board CPU in a compact package
- 2 banks of 2 MB each for synchronous bank swapping
- 18ns access time (0 wait state at 56 MHz)
- Extended temperature range

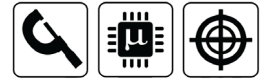
## Microprocessor Support Chart

Microcontroller Family	Interface
<b>Freescale</b>	
MPC5xxx	JTAG Interface
<b>Infineon</b>	
C166/167	Data and Address Bus
<b>ST Microelectronics</b>	
ST10	Data and Address Bus
<b>Others</b>	
Various other microprocessors	Data and Address Bus

*Please contact your sales representative for specific part numbers.*

## M5 Memory Emulator Accessories

Part Numbers		
<b>Power Cable</b>		
150-0113-10FT 150-0113-12IN	3.05m/10ft 30.5cm/12in	Cable; M5 PWR/USB
<b>USB</b>		
150-0066-12IN 150-0066-8FT	30.5cm/12in 2.4m/8ft	Cable; USB-A to LEMO 0B 5-pin plug
150-0118-4.3FT 150-0118-6.6FT 150-0118-8FT	1.31m/4.3ft 2m/6.6ft 2.44m/8ft	Cable; USB-A plug to LEMO 0F 5-pin plug
150-0181-8FT	2.44m/8ft	Cable; USB-A to LEMO 0B 5-pin plug shield connected
150-0182-8FT	2.44m/8ft	Cable; USB-A to LEMO 0F 5-pin plug shield connected
<b>Internal</b>		
150-0119 150-0125	17.7cm/7in 0.3m/12in	Cable; Power JST 2-pin plug unterminated
150-0129-5IN	12.7cm/5in	Cable; USB LEMO 0B 5-pin socket to JST 12-pin plug
150-0159-5IN	12.7cm/5in	Cable; JST 12-pin plug to LEMO 0F 5-pin socket



## M5 Memory Emulator Specifications

Configuration	
Microcontroller Types	All 8-bit, 16-bit, and 32-bit Controllers with an external address/data bus (including MPC5XX, TriCore, ST10, C166)
ECU Connection	Via ECM-specific Tool Adapter Board
ECU Adaptation	The microcontroller bus is software configurable to allow the M5 to be adapted to various ECUs. The Tool Adapter Board is customized for each application.
ECU Programming	Capable of programming internal and external ECU flash memory stand-alone (no need for separate flashing tools)
Memory	
Memory Access	8-bit, 16-bit or 32-bit Multiplex/Non-multiplex with configurable write signals Bus voltage 2.6 V, 3.3 V or 5 V based on CPU
Emulation Memory	Two separate banks of 2 MB (for calibration bank swapping)
Data Acquisition Memory Size	128 KB of dual-port RAM
On-board Flash Memory	16 MB flash for non-volatile emulation memory storage
Min Memory Access Time	18 ns
Special Capabilities	
Calibration A/B Comparison	External switch input for selecting between two calibration data sets for comparison purposes without the need of a PC
Operating Conditions	
Power On/Off	External wake-up and self-shutdown (e.g. vehicle cold-start)
Communication	PC interface: USB full speed at 12 Mbps To other ATI hardware: CAN 2.0
Power Supply	6 to 18 VDC (3.5 to 18 VDC when using the DC Booster)
Max Supply Current	400 mA at 12 VDC
Temperature Range	-40 °C to max +110 °C / -40 °F to max +230 °F
Mechanical	
Dimensions	95 x 63.5 x 16 mm / 3.74 x 2.5 x 0.63 in (without CPU socket)
Construction	Conformally coated PCB, humidity and vibration resistant

Accurate Technologies Inc. is continually improving its products and reserves the right to alter the specifications of its products at any time without notice.

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