AUTOSPORT LABS

RaceCapture/Apex

Ruggedized, powerful motorsports telemetry

RaceCapture/Apex is a powerful motorsports telemetry system designed for harsh environments. Whether you need telemetry for your open-cockpit race car, your desert-racing trophy truck, or your 200mph hydroplane boat, RaceCapture/Apex fits your data acquisition needs. With an open platform and customizable architecture, you can collect the data that is important to you, without a multi-page manual or multi-day seminars. Real-time telemetry via onboard WiFi, Bluetooth, or 3.5G GSM cellular gives you access now to the data that makes the difference, while on track when it really matters. The next generation in motorsports telemetry has arrived.

Live streaming to Podium

Live-stream your racing to Podium, where you can perform real-time analysis on engine, chassis and driver performance. Share and compare your laps with friends, colleagues, and race coaches around the world.

Learn more at https://podium.live

A full suite of features

3.5G Cellular Telemetry

The on-board, high performance, worldwide-capable 3.5G GSM cellular module provides real-time streaming of telemetry data to the Podium cloud platform, enabling access to the live-stream from the pits or anywhere in the world. Visit http://podium.live for details.

Mission Critical GPS with multi-GNSS and automatic dead reckoning

An extremely advanced multi-band GNSS receiver is included, with automatic dead reckoning capabilities to provide highly reliable positioning, even when subjected to intermittent interference or loss of satellites due to aggressive terrain or obstructions. The receiver concurrently tracks GPS, GLONASS, Beidou and Galileo GNSS systems and supports update rates to 20Hz (up-sampled to 25Hz). Position, speed, altitude, distance and GPS statistics are provided in the telemetry stream and log file.

Predictive Lap Timing

100’s of tracks available worldwide combined with on-board predictive lap timing provides real-time feedback to the driver.

6 Axis IMU

A precision 3 channel accelerometer and 3 channel yaw sensor is included on-board.

WiFi and Bluetooth Connectivity

802.11bgn WiFi connectivity provides access to streaming data as well as remote configuration using the included RaceCapture app. RaceCapture/Apex can act as both an Access Point as well as operate in client mode. The included Bluetooth 2.0 connectivity provides a high-speed link to Android compatible devices.

Dual CAN bus

Two CAN 2.0 compliant channels are available, providing baud rates up to 1MBPS. CAN bus data can be mapped to channels using built in OBD-II, direct CAN channel mapping, or custom logic mapping via Lua scripting.

Analog, Digital and GPIO output capabilities

8 external 0-5v analog inputs with 12 bit ADC, 4 channel timers for measuring RPM or frequency and 3 general purpose I/O ports for low speed inputs or controlling outputs up to 1A. (open drain)

Onboard SD card logging

A micro-SD card slot is provided for on-board data acquisition file recording. 32GB SDHC cards are supported.

USB Connectivity

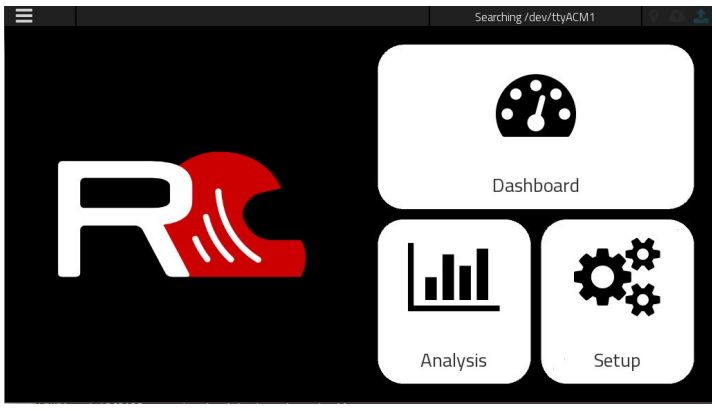
A standard USB interface for direct connection for configuration, telemetry monitoring, and firmware upgrades.

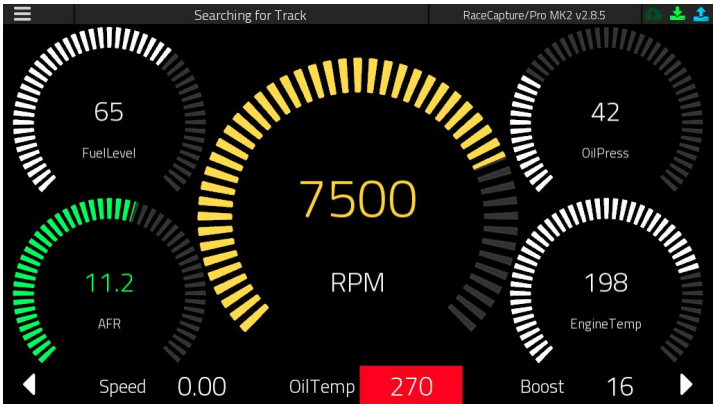
GoPro™ Camera Control

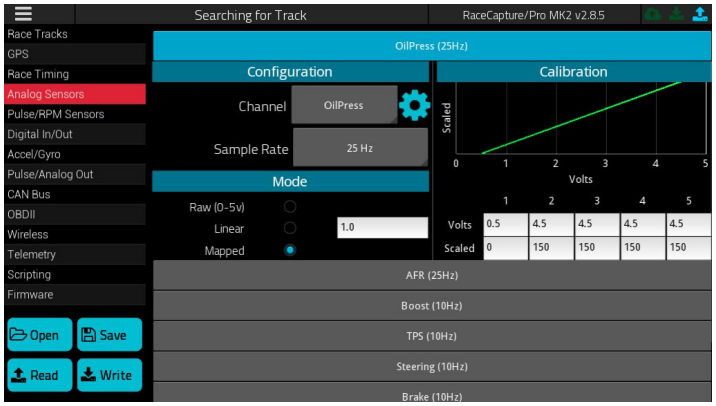
Use the built-in WiFi capabilities to control a WiFi-enabled GoPro camera using a speed-based trigger, allowing precise synchronization between data and video.

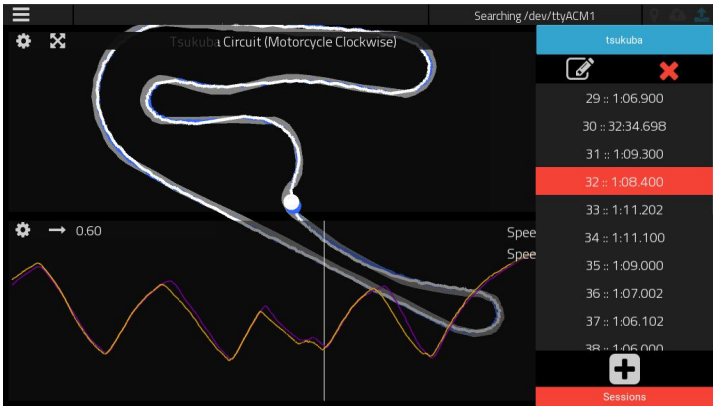
Compatibility with the RaceCapture app

RaceCapture/Apex is compatible with the RaceCapture App, providing configuration, dashboard, and data analysis capabilities. Supported platforms include Android, iOS, Windows 7/Vista/8/10, and OSX.



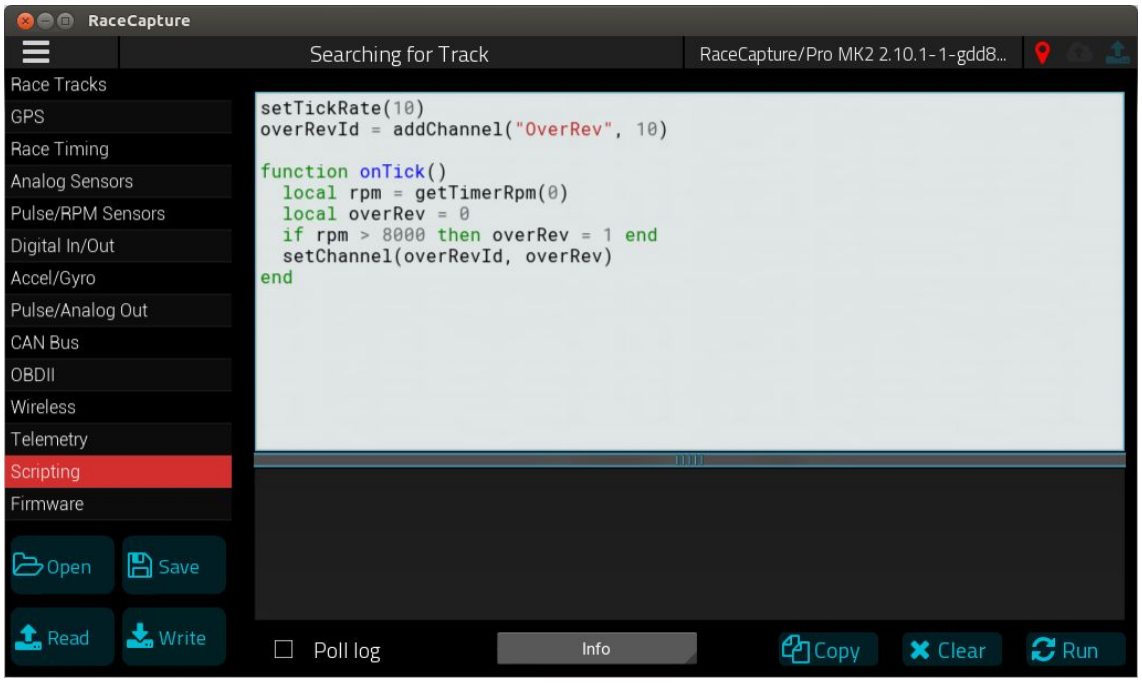






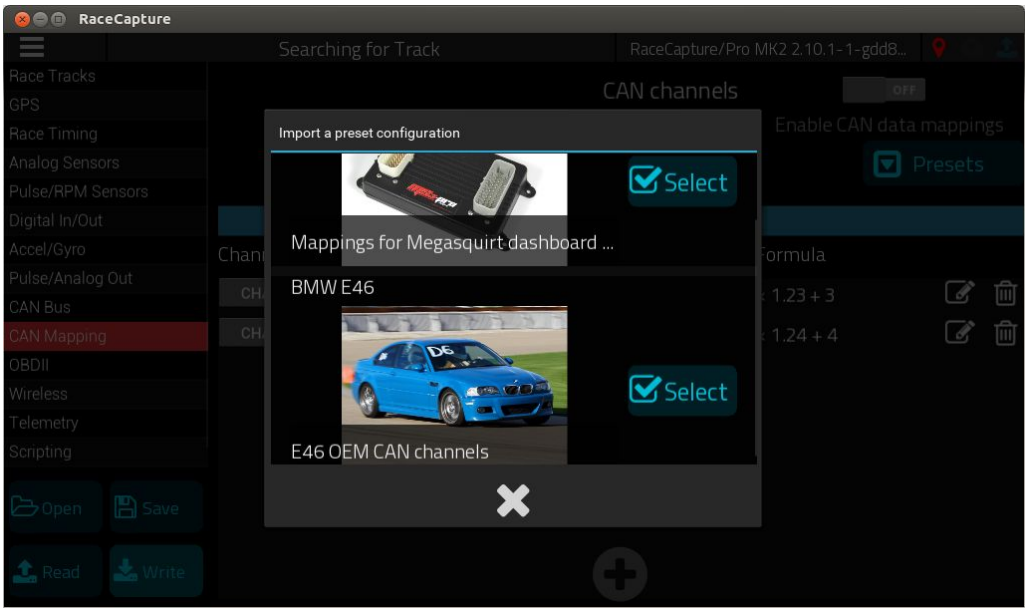
Extensibility through Lua Scripting

On-board scripting provides unprecedented customization through a powerful yet simple on-board Lua Scripting runtime. The real-time Virtual / Math channels incorporating logic and formulas, CAN and RS232 serial communications, and access to the system's input and output ports provide flexible integration and opportunities for custom logic without requiring custom firmware.



Powerful ECU and sensor integration

CAN OBDII support, direct mapping of CAN channels from ECUs such as Motec, Link, AEM, and Bosch, support for sensor networks and OEM CAN data streams are all supported with RaceCapture/Apex. Two CAN channels allows for maximum flexibility when designing your sensor network.



Ruggedized for harsh environments

IP65 rating provides protection against dust and moisture. Power and signaling is provided via dual 12 pin Deutsch connectors and dual SMA connections for 3.5G telemetry and GPS.

Connectivity to your smart device

RaceCapture/Apex connects to your smart device over its built-in WiFi connection (Android and iOS) or Bluetooth (Android only). Use the included RaceCapture app to:

- Access all setup options for your device
- Create a customizable dashboard to display sensor data, create visual alerts, show predictive lap times and more.
- Use the built-in analysis capabilities to review lap data as soon as you come off track.

Included in the package

- RaceCapture/Apex system
- Wiring harness with 12” flying leads
- External magnetic mount GPS antenna
- External through-hole mount GSM antenna
- USB cable
- Quick start guide

Orderable SKUs

RaceCapture/Pro Apex with 3.5G cellular	RC_APEX

RaceCapture/Apex Specifications

Specifications are preliminary and subject to change

Sensors	
Analog Inputs	
Channels	9 (8 external + 1 internal battery/supply voltage)
Voltage range	0-5v
Input impedance	Greater than 1M ohm
Voltage Protection	400v (intermittent)
ADC precision	12 bit
Maximum sample rate	1000Hz
Mapping	Raw / linear formula / interpolated map
Digital I/O	
Channels	3
Output mode type	Open drain
Output current capacity	1A, inductively clamped
Input mode voltage range	0-12v
Input voltage protection	0-40v
Maximum sample rate	1000Hz
Timer inputs (RPM / Frequency)	
Channels	4
Input voltage protection	400v (intermittent)
Maximum sample rate	1000Hz
Mapping	RPM, frequency
Voltage Reference	
Output voltage / capacity	5v / 500mA

CAN Bus	
CAN channels	2
CAN Baud rate	125K, 250K, 500K, 1M Baud
CAN filters	14 per channel
Protocol support	OBDII PID, custom CAN mapping
CAN bus	CAN 2.0 compatible, 1M baud
CAN termination	Software controlled
Serial	
Aux Serial	RS232
Max Baud Rate	230400
Cellular Telemetry	
Cellular	3.5G GSM worldwide compatible
Maximum sample rate	10Hz
Wireless	
WiFi	802.11bgn
WiFi modes	Access Point, Infrastructure
Bluetooth	Bluetooth 2.0
Maximum sample rate	50Hz (Bluetooth and WiFi)
GPS	
GPS Type	External active antenna
Automatic dead-reckoning	Supported
Supported GNSS	GPS, GLONASS, Galileo, BeiDou
Sample rates supported	1 Hz / 5 Hz / 10 Hz / 20 Hz (upsampled to 25Hz)
GPS accuracy	2.5M CEP
Internal Motion Unit	
Accelerometer Channels	3 (X/Y/Z) (+/- 4G full scale)
Gyro Channels	3 (Yaw/Pitch/Roll) (+/- 250 degrees/sec full scale)
Storage	
Micro SD	Up to 32GB (SDHC)
CAN bus direct mapping	30 direct CAN mapping channels

Capabilities	
Channel support	200
Predictive lap timing	Built-in
Track mapping	Circuit and point-point
Track maps	200 built in for autonomous auto-detection; unlimited via RaceCapture app. Interactive track map builder
Sectors per track	20
Analysis	Included in the RaceCapture App
Export data format	Plain CSV (RaceRender compatible)
Physical	
Dimensions	120 x 136 x 35mm (4.72 x 5.35 x 1.38in)
Temperature range	-40 to 85c
Environmental	IP65 rated
Weight	368g (13oz)
Connections	Deutsch connector system, 24 pins SMA for external GPS antenna SMA for cellular module
Power Consumption (max)	Main System: 0.6W With Wireless: 1.6W With Cellular Telemetry: 8.6W With Cellular Telemetry and Wireless active: 9.6W

For more information and dealer inquiry visit autosportlabs.com

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