VIEW. CAPTURE. ANALYZE. CONTROL.

INNOVATE **MOTORSPORTS** **18**

The INNOVATE Difference.

All Innovate wideband products feature patented DirectDigital™ measurement technology DirectDigital™ applies advanced digital signal processing (DSP) algorithms to zirconia sensing elements, delivering superior response times, self-calibration to compensate for sensor drift, and advanced diagnostics. DirectDigital™ – enabling the next generation of high-performance, high-efficiency engines.
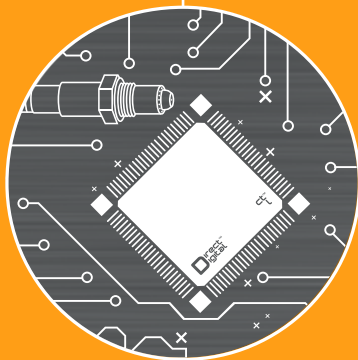
NEW FOR 2018!

LC-3:
CAN Wideband "Lambda" Controller

CAN-bus communication that's simple and configurable for even the most advanced inputs.

See page 13.

MTS-LiNK:

Standalone sensors to suit all your data logging needs. Simultaneously outputs CAN-bus, 0-5v, and MTS!

See page 15.

MTX-OL PLUS: Wideband Air/Fuel Ratio OLED Gauge

Expand to multi-function display with the addition of our new MTS-LiNK Individual Sensor Controllers!

See page 4.

CUSTOM PRINTED GAUGE FACE PLATES

Design your own face to match your car or your personality.

See page 14.

MTX-L PLUS: DIGITAL WIDEBAND AIR/FUEL RATIO GAUGE

- Increased sensor frequency for faster lambda acquisition
- Increased analog output speed helps ensure that your ECU sees changes in Air/Fuel Ratio as they happen
- Enhanced heater control for superior sensor performance in rich conditions
- Digital display in AFR or Lambda
- 52mm (2 1/6") diameter gauge body with included interchangeable faceplates and bezels
- Bosch™ LSU 4.9 wideband O2 sensor
- Patented 100% digital wideband Air/Fuel ratio technology!

- Ability to calibrate O2 sensor for maximum accuracy
- Wideband O2 Compatible with several fuel types
- Innovate MTS serial in/out (for use with MTS enabled devices to add additional logging channels)
- Datalog using powerful LogWorks software on your PC

3918 .... MTX-L PLUS: Air/Fuel Ratio Gauge Kit, 8 ft. Sensor Cable, w/O2 Sensor (Supercedes 3844)

3924 .... MTX-L PLUS: Air/Fuel Ratio Gauge Kit, 3ft. Sensor Cable, w/O2 Sensor (Supercedes 3845)

Response Time, 20 AFR to 12 AFR +/- . 2 AFR

Traditional (Analog PID)

DirectDigital™

SINGLE FUNCTION

MTX-OL PLUS: WIDEBAND AIR/FUEL OLED GAUGE

- User configurable OLED display (AFR or Lambda)
- Configurable linear 0-5v analog output
- Expand to multi display with the addition of our new MTS-LiNK Individual Sensor Controllers!

3935 .... MTX-OL PLUS: Air/Fuel Ratio Gauge Kit, 8 ft. Sensor Cable, w/O2 Sensor

3936 .... MTX-OL PLUS: Air/Fuel Ratio Gauge Kit, 3ft. Sensor Cable, w/O2 Sensor

New
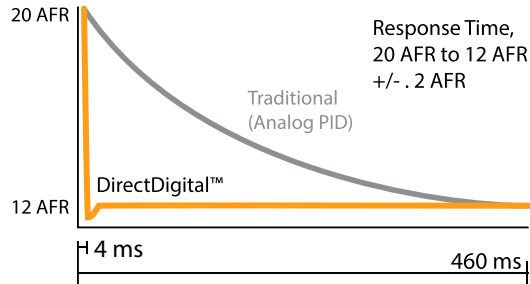
MTX-D: DUAL FUNCTION SERIES GAUGES

VACUUM / BOOST & SHIFT LIGHT

- Boost: pressure range -29 inHG to 43.5 PSI (-1 to 3 BAR)
  - Programmable over boost warning
  - Pressure readings can be adjusted for altitude differences
- Progressive shift light or Single stage shift light (outer LEDs)

3851 ... MTX-D: Vacuum / Boost & Shift Light Gauge

OIL TEMPERATURE& PRESSURE

- Pressure: 0-145 PSI (10 BAR)
  - Programmable low oilpressure warning
  - Industrial grade electronic pressure sensor
- Temp: 120-280 °F (49-138 °C)
  - Programmable oil temperature warning (outer LED)

3913 ... MTX-D: Oil Temperature & Pressure Gauge (Supercedes 3852)

WATER TEMPERATURE & BATTERY VOLTAGE

- Water Temp: 120-280 °F (49-138 °C)
  - Programmable water temperature warning
- Battery V: Volts 6 - 25 VDC
  - Programmable voltage warning (outer LEDs)

3853 ... MTX-D: Water Temperature & Battery Voltage Gauge

ETHANOL CONTENT % & FUEL TEMPERATURE

- Ethanol Content %: 0-100%
  - Sensor error reporting for ethanol content sensor
- Temp: -40-257 °F (-40-125°C)
  - Programmable fuel temperature warning
- 2-Configurable analog outputs
  - Ethanol Content: 0v = 0%, 5v = 100%
  - Fuel Temperature: 0v = -40 °F, 5v = 257 °F (-40-125°C)

3904 ... MTX-D: Ethanol Content % & Fuel Temperature Gauge Kit, includes Ethanol Sensor

EXHAUST GAS TEMPERATURE (EGT)

- Temp: 32 - 1999 °F (0-1093 °C)
  - Programmable temperature threshold warning

3854 ... MTX-D: Exhaust Gas Temperature (EGT) Gauge

FUEL PRESSURE

- Pressure: 0-145 PSI (10 BAR)
  - Programmable low fuel pressure warning
  - Industrial grade electronic pressure sensor

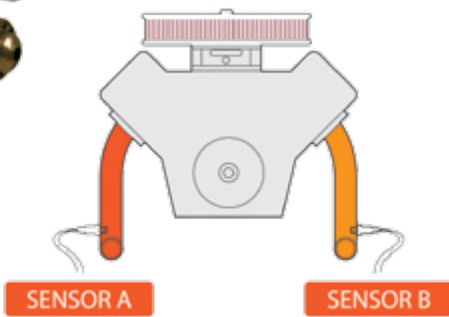**3917 ... MTX-D: Fuel Pressure Gauge**

DLG-1: DUAL LAMBDA GAUGE

ONE GAUGE, TWO WIDEBANDS!

- Monitor left and right exhaust banks on one single gauge!
- Plug & Play setup for both O2 sensors
- User configurable OLED display (AFR or Lambda)
- Multiple ways to display data on gauge
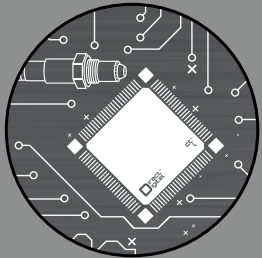- Configurable linear 0-5v analog output

3891 .... DLG-1: Dual Lambda O2 Gauge Kit, includes Harness and O2 sensors

SENSOR A   SENSOR B

- **Increased analog output speed helps ensure that your ECU sees changes in Air/Fuel Ratio as they happen**
- **Enhanced heater control for superior sensor performance in rich conditions**
- 52mm (2 1/6") diameter gauge body with included interchangeable faceplates and bezels
- Bosch™ LSU 4.9 wideband O2 sensor
- Patented 100% digital wideband Air/Fuel ratio technology!
- Ability to calibrate O2 sensor for maximum accuracy

SCG-1: SOLENOID BOOST CONTROLLER & AIR/FUEL RATIO GAUGE

ALL-IN-ONE, INTELLIGENT BOOST CONTROL AND WIDEBAND AIR/FUEL RATIO GAUGE

- OLED user configurable display
  - *Boost, shift light, Air/Fuel ratio*
  - *AFR or Lambda, inHG, PSI, kPa, or BAR*
- High resolution boost solenoid
- 4 BAR map sensor, pressure range -29 inHG to 43.5 PSI (-1 to 3 BAR)
- User programmable boost cut safety using Air/Fuel and Pressure references
- Programmable solenoid duty cycle with separate gain control function
- Peak hold function
- Pressure readings can be adjusted for altitude differences
- Configurable linear 0-5v analog output for AFR

3882 .... SCG-1: Solenoid Controller, includes: Solenoid w/bracket, 4-Bar MAP Sensor and O2 Sensor

4 BAR Map Sensor *High Resolution Boost Solenoid*

- Wideband O2 Compatible with several fuel types
- Innovate MTS serial in/out (for use with MTS enabled devices to add additional logging channels)
- Datalog using powerful LogWorks software on your PC

Common Features
DLG-1 & SCG-1

PSB-1: POWERSAFE BOOST & AIR/FUEL RATIO GAUGE

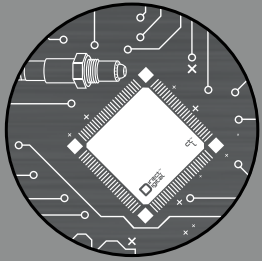*4 BAR Map Sensor*

Relay

- All-in-one, boost safety override and wideband Air/Fuel ratio gauge
- OLED user configurable display
  - Boost, shift light, Air/Fuel ratio
  - AFR or Lambda, inHG, PSI, kPa, or BAR
- User programmable boost cut safety using Air/Fuel and Pressure references
  - Boost cut by pressure
  - Boost cut by lean Air/Fuel condition
- 4 BAR map sensor, pressure range -29 inHG to 43.5 PSI (-1 to 3 BAR)
- Valet mode that will temporarily hold the system at spring pressure
- Peak hold function
- Pressure readings can be adjusted for altitude differences
- Configurable linear 0-5v analog output for AFR
- PowerSafe protection relay included

3892 .... PSB-1: PowerSafe Boost Gauge Kit, includes: 4 Bar MAP, Relay and O2 Sensor

- **Increased analog output speed helps ensure that your ECU sees changes in Air/Fuel Ratio as they happen**
- **Enhanced heater control for superior sensor performance in rich conditions**
- 52mm (2 1/6") diameter gauge body with included interchangeable faceplates and bezels
- Bosch™ LSU 4.9 wideband O2 sensor
- Patented 100% digital wideband Air/Fuel ratio technology!
- Ability to calibrate O2 sensor for maximum accuracy

- Wideband O2 Compatible with several fuel types
- Innovate MTS serial in/out (for use with MTS enabled devices to add additional logging channels)
- Datalog using powerful LogWorks software on your PC

Common Features
PSB-1 & PSN-1

PSN-1: POWERSAFE NITROUS BOTTLE PRESSURE & AIR/FUEL RATIO GAUGE

- All-in-one, Nitrous safety override and wideband Air/Fuel ratio gauge w/RPM window switch
- OLED user configurable display
  - *Nitrous Bottle Press., shift light, Air/Fuel ratio*
  - *AFR or Lambda, PSI or BAR*
- 1450 PSI (100 BAR) nitrous bottle pressure sensor
- User programmable nitrous safety cut using Air/Fuel ratio and bottle pressure references
  - *Nitrous cut by lean Air/Fuel condition*
  - *Nitrous cut by minimum bottle pressure*
- Programmable RPM window switch range
- PowerSafe protection relay included
- Configurable linear 0-5v analog output for AFR

3893 ....
PSN-1: PowerSafe Nitrous Bottle Pressure Gauge Kit, includes: Pressure Sensor, Relay, and O2 Sensor
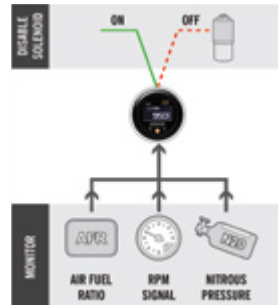
Relay

1450 PSI (100 BAR) Nitrous Bottle Pressure Sensor

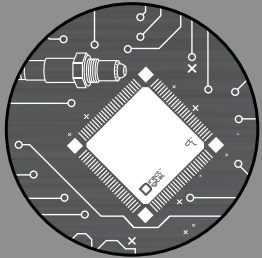# ECF-1: (FUEL) ETHANOL CONTENT ADVANCED & AIR/FUEL RATIO GAUGE

Assembly with included fuel line components

- Four-in-one, ethanol content %, fuel temperature, fuel pressure, and Air/Fuel ratio gauge
- OLED user configurable display (1, 2, or 4 channel viewing modes)
  - *Ethanol %, Fuel Pressure, Fuel Temp., Air/Fuel ratio*
  - *°F or °C, AFR or Lambda, PSI, kPa, or BAR*
- Warning indicator LED for low fuel pressure
- 0-145 PSI (10 Bar) fuel pressure sensor with in-line adapter
- 4-Configurable analog outputs
  - *Ethanol Content: 0v = 0%, 5v = 100%*
  - *Fuel Temp.: 0v = -40 °F, 5v = 257 °F (-40-125°C)*
  - *Fuel Press: 0v = 0 PSI, 5v = 145.04 PSI (0-10 BAR)*
  - *Air/Fuel Ratio: 0v = 7.35, 5v = 22.39 AFR (0.50-1.52 λ)*

3903 .... **ECF-1: (FUEL) Ethanol Advanced Kit, includes: Ethanol Sensor, Fuel Pressure Sensor w/Fuel Line Fitting, and O2 Sensor**

3910 .... **ECF-1: (FUEL) Ethanol Advanced Kit (*Ethanol Sensor NOT included), includes: Fuel Pressure Sensor w/Fuel Line Fitting, and O2 Sensor**

- **Increased analog output speed helps ensure that your ECU sees changes in Air/Fuel Ratio as they happen**
- **Enhanced heater control for superior sensor performance in rich conditions**
- 52mm (2 1/6") diameter gauge body with included interchangeable faceplates and bezels
- Bosch™ LSU 4.9 wideband O2 sensor
- Patented 100% digital wideband Air/Fuel ratio technology!
- Ability to calibrate O2 sensor for maximum accuracy

- Wideband O2 Compatible with several fuel types
- Innovate MTS serial in/out (for use with MTS enabled devices to add additional logging channels)
- Datalog using powerful LogWorks software on your PC

Common Features
ECF-1 & ECB-1

ECB-1: (BOOST) ETHANOL CONTENT ADVANCED & AIR/FUEL RATIO GAUGE

- Four-in-one, ethanol content %, fuel temperature, vacuum/boost pressure, and wideband Air/Fuel ratio gauge
- Boost Vision – A real-time calculated approximation of your ECU's boost limit based on current ethanol content %
- OLED user configurable display (1, 2, or 4 channel viewing modes)
  - *Ethanol %, Vacuum/Boost, Target Boost, Peak Boost, Fuel Temp., Air/Fuel ratio*
  - *°F or °C, AFR or Lambda, inHG, PSI, kPa, or BAR*
- Warning indicator LED when actual boost exceeds target boost
- Peak hold function
- 4 BAR map sensor, pressure range -29 in HG to 43.5 PSI (-1 to 3 BAR)
- 3-Configurable analog outputs
  - *Ethanol Content: 0v = 0%, 5v = 100%*
  - *Fuel Temp.: 0v = -40 °F, 5v = 257 °F (-40-125°C)*
  - *Air/Fuel Ratio: 0v = 7.35, 5v = 22.39 AFR(0.50-1.52 λ)*
- Pressure readings can be adjusted for altitude differences

Ethanol Content Flex Fuel Sensor included with complete ECF-1, ECB-1, and MTX-D Ethanol gauges
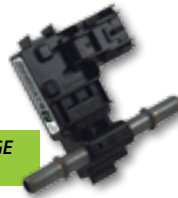
3906 .... ECB-1: (BOOST) Ethanol Advanced Kit, includes: Ethanol Sensor, 4 BAR MAP sensor, and O2 Sensor

3911 .... ECB-1: (BOOST) Ethanol Advanced Gauge Kit (*Ethanol Sensor NOT included), includes: 4 BAR MAP sensor, and O2 Sensor

MTX-A: ANALOG SERIES GAUGES

MTX-AL

- Superior needle holding force for high shock and high vibration applications
- High Performance, High Torque, 270° Stepper Motor
- Programmable warning indicator and user selectable background lighting
- Enhanced heater control for superior sensor performance in rich conditions (MTX-AL)
- Interchangeable bezels: Black and silver bezel included
- Innovate MTS serial in/out
  (for use with MTS enabled devices to add additional logging channels)
- Datalog using powerful LogWorks software on your PC

3855 .... MTX-AL: Air/Fuel Ratio Gauge, includes Harness, O2 Sensor & Bung
3857 .... MTX-A: 20 PSI Vacuum / Boost Gauge
3908 .... MTX-A: 30 PSI Vacuum / Boost Gauge
3861 .... MTX-A: Oil or Water Temperature Gauge (120 °F - 280 °F)
3863 .... MTX-A: Fuel Pressure Gauge (0 - 100 PSI)
3865 .... MTX-A: Exhaust Gas Temperature Gauge (32 °F - 1800 °F)
3859 .... MTX-A: Oil Pressure Gauge (0 - 120 PSI)

**30 PSI VACUUM/BOOST
(20 PSI version available)**

**OIL OR WATER
TEMPERATURE**

FUEL PRESSURE

**EXHAUST GAS
TEMPERATURE (EGT)**

OIL PRESSURE

DB SERIES GAUGES

The DB Air/Fuel Ratio Gauges (52mm, 2 1/16") feature a bright LED and is blacked out when powered off.

3793 .... DB Blue, Accessory for LC-1, LC-2, or LM-2

3794 .... DB Red, Accessory for LC-1, LC-2, or LM-2

3795 .... DB Blue Kit: Air/Fuel Ratio Gauge Kit, incl. LC-2 & O2 Sensor

3796 .... DB Red Kit: Air/Fuel Ratio Gauge Kit, incl. LC-2 & O2 Sensor

3872 .... DB Green, Accessory for LC-1, LC-2, or LM-2

3873 .... DB Green Kit: Air/Fuel Ratio Gauge Kit, incl. LC-2 & O2 Sensor

New CUSTOM PRINTED GAUGE FACES

Get the look you want!

Now you can design your own custom gauge faces for any Innovate gauge. Whether you're a street enthusiast or racer, you know installing gauges changes the way your interior looks. Now you can design your own custom gauge faces to match your own style.

- Enhance the look of your interior
- Quick turnaround time
- Available for all Innovate gauges!

LC-3: CAN WIDEBAND "LAMBDA" CONTROLLER

The evolution of the world's most popular stand-alone digital O2 sensor controller, the Innovate Motorsports LC-3 builds upon the legacy of the LC-1 & LC-2 by adding simplicity and leading-edge **CAN-bus** communication technology. The LC-3's patented award-winning DirectDigital™ signal processing technology and all-new Advanced Sensor Control provides data on exactly how rich or lean an engine is running at any load.

FEATURES:
- Patented 100% digital wideband Air/Fuel ratio technology with advances sensor control!
- CAN-bus Communication
- 2 - Configurable linear 0-5v analog outputs
- Integrated dual-color status LED (Green/Red)
- Optional sensor cable lengths available: 3ft, 8ft (Included), and 18ft
- Bosch™ LSU 4.9 wideband O2 sensor

BENEFITS:
- FASTER Sensor Frequency for faster O2 sensor feedback
- FASTER Analog Output Speed helps ensure that your ECU sees changes in air/fuel ratio as they happen
- ENHANCED Heater Control for superior sensor performance in forced induction and other high-performance applications
- Ability to calibrate O2 sensor for maximum accuracy
- Wideband O2 Compatible with several fuel types
- Innovate MTS serial in/out (for use with MTS enabled devices to add additional logging channels)
- Datalog using powerful LogWorks software on your PC

3937	LC-3: CAN Wideband Controller, 8ft. Sensor Cable, & O2 Sensor (Supersedes 3877)
3938	LC-3: CAN Wideband Controller, 3ft. Sensor Cable, & O2 Sensor (Supersedes 3884)
3919	LC-3: CAN Wideband Controller, & 8ft Sensor Cable. No O2 Sensor (Supersedes 3881)

MTS-LiNK: INDIVIDUAL SENSOR CONTROLLERS

The new MTS-LiNK Series of Individual CAN Sensor Controllers provide stand-alone control and data output of popular sensor types. These sensors can be frequencies such as engine RPM and speed sensors or 0-5V references like MAP sensors and pressure transducers. The MTS-LiNK Series includes the ability to simultaneously output data via CAN-bus, MTS, Analog 0-5v, & Programmable GND switch for relay control, and is ideal for applications such as dynamometers, data acquisition systems, standalone ECUs, and gauges.

BENEFITS:

- Plug & Play to add viewable MTS channels to other Innovate OLED single, dual, and multi-function gauges!
- Datalog using powerful LogWorks software on your PC

3939 .... MTS-LiNK 4-Bar Map Sensor Kit
3940 .... MTS-LiNK Fluid Temperature Sensor Kit (120 °F - 280 °F, Thermistor)
3941 .... MTS-LiNK Air / Fluid Pressure Sensor Kit (0-150 PSI, 10 BAR)
3942 .... MTS-LiNK Ethanol Content Sensor Kit (% & Temp)
3943 .... MTS-LiNK, Nitrous Bottle Pressure Sensor Kit (0-1500 PSI, 100 BAR)

SSI-4 PLUS: SENSOR INTERFACE

- Simple sensor device that adds 4-inputs to an MTS Log Chain
- Channel 1 and 2 inputs can be configured for RPM, speed (VSS), frequency, and 0-5 volt. In addition to the above, the channel 2 input can be used for duty cycle or dwell.
- Channel 3 and 4 inputs can be used for 0-5 volt
- 5 volt output to power external sensors

3914 .... SSI-4 PLUS: Sensor Interface
              (Supersedes 3783)

Optional plug & play sensors for SSI-4 PLUS:

3925 .... 4 BAR MAP

3926 .... 0-150 PSI (10 BAR) Air / Fluid Pressure

3927 .... 0-1500 PSI (100 BAR) Nitrous Pressure

TC-4 PLUS: THERMOCOUPLE AMPLIFIER

- K-Type thermocouple amplifier that adds 4-inputs to an MTS Log Chain
- Temperature range 32-1999 deg °F, 0-1093 deg °C
- 4-Configurable linear 0-5v analog outputs
- The TC-4 can also be used to measure other temperature metrics such as intercooler inlet, outlet temperature and catalytic converter

3915 .... TC-4 PLUS: Thermocouple Amplifier (Supersedes 3784)

3895 .... TC-4 PLUS: 4-EGT Probe Kit

3850 .... K-Type EGT Probe, 6ft, w/fitting & bung

3869 .... Band Clamp for EGT #32, (1 9/16" - 2 1/2")

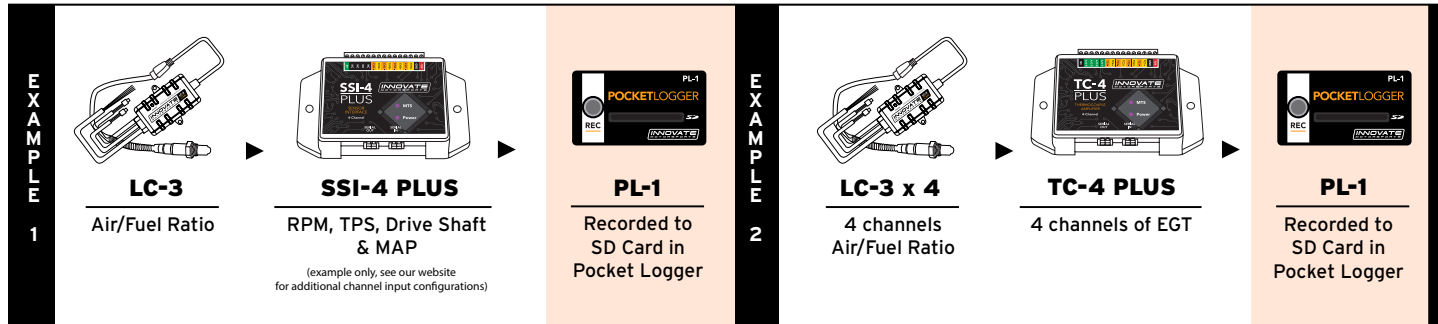# PL-1: POCKET LOGGER – INNOVATE MTS DATALOGGER

- Record up to 32-channels of Innovate MTS compatible devices
- Log directly to (included) 2GB SD card = 580 hours of recording!
- Playback log data with powerful LogWorks software (available for download)
- Innovate MTS serial IN (for use with MTS enabled devices to add additional logging channels)

3875 .... PL-1: Pocket Logger Kit *(See page 20-21 for more example log chains (MTS)*
3901 .... Remote Push Button Switch for PL-1 (Start/Stop Recording)

EXAMPLE LOG CHAINS & MODULAR TUNING SYSTEM (MTS)

EXAMPLE 1

LC-3
Air/Fuel Ratio

▶

SSI-4 PLUS
RPM, TPS, Drive Shaft & MAP
(example only, see our website for additional channel input configurations)

▶

PL-1
Recorded to SD Card in Pocket Logger

EXAMPLE 2

LC-3 x 4
4 channels Air/Fuel Ratio

▶

TC-4 PLUS
4 channels of EGT

▶

PL-1
Recorded to SD Card in Pocket Logger

Any MTS device that generates data must come BEFORE a recording device

LM-2: DIGITAL AIR/FUEL RATIO METER & DATALOGGER

- Single or Dual O2 version available
- Wideband O2 Compatible with several fuel types (Leaded, Unleaded, Diesel, E85 & more)
- Bosch™ LSU 4.9 wideband O2 sensor
- Enhanced heater control for superior sensor performance in rich conditions
- Log directly to (optional) 2GB SD card = 580 hours of recording!
- Built-in RPM converter (direct frequency or with optional inductive clamp, 3834)
- 4 fully-differential analog inputs
- 2-Configurable linear 0-5v analog outputs
- Record up to 32-channels with additional Innovate MTS compatible devices

Complete Kits include:
Analog in/out cable, OBD-II cable, SD memory card, carrying case, and items in Basic Kit

Basic Kits include:
O2 sensor, 8 ft sensor cable (x2 for Dual O2 Kit), cigarette-lighter power adapter, USB PC cable, weld-in bung and plug, and manual

3806 .... LM-2 Complete Kit: Single O2 sensor

3807 .... LM-2 Dual Complete Kit: Dual O2 sensors

3837 .... LM-2 Basic Kit: Single O2 sensor

3894 .... LM-2 Dual Basic Kit: Dual O2 sensors

3920 .... LM-2 Single O2 Ultimate Shop Kit Incl.
18 ft. Sensor Cable, Exhaust Clamp,
Inductive Clamp, (2) Bung/Plug

3921 .... LM-2 Dual O2 Ultimate Shop Kit Incl.
(2) 18 ft. Sensor Cable, Exhaust Clamp,
Inductive Clamp, (4) Bung/Plug

DirectDigital™ Display Range		
Fuel Type	**Low**	**High**
Gasoline	7.35	22.4
Lambda	0.50	1.52
Diesel	7.3	99.9
Methonal	3.2	9.95
E85	4.9	14.93
LPG (Propane)	7.85	23.91

LM-2 ACCESSORIES

3834 ....
Inductive Clamp for RPM

*3889 .....
**18 ft. Sensor Cable
for LSU 4.9**

3814 ....
Window Mount

3728 .... **Exhaust Clamp
(Perfect for dyno applications or
temporary O2 Sensor installation)**

LM-2 LIVE DISPLAY OR DATA LOGGING EXAMPLES

E X A M P L E 1

LM-2
(3837)

▶

ANALOG CABLE
(3811)

=

• Air/Fuel
  Ratio
• RPM
• TPS

E X A M P L E 2

LM-2
(3806)

▶

SSI-4 PLUS
(3914)

=

• Air/Fuel
  Ratio
• RPM
• Injector
  Duty
• TPS
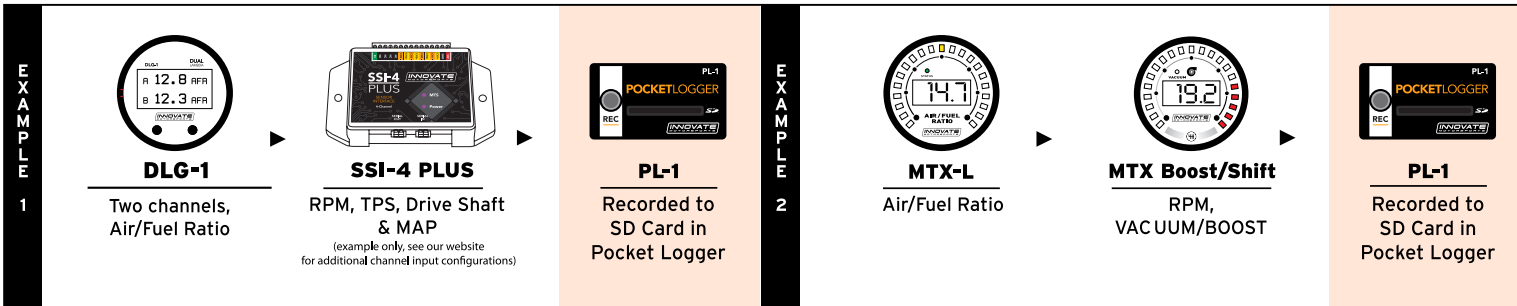• Pressure

MODULAR TUNING SYSTEM (MTS)

Unique in the industry is Innovate's concept of the modular logging chain. The Modular Tuning System (MTS) includes meters, sensors, gauges, and recorders designed to work together. MTS is scalable, and all components share a common communications protocol. The MTS can be a basic LM-2 kit or at its most complex, a 32-channel data-acquisition system, with an LC-2 on every cylinder and sensors for every critical engine parameter.

LOGWORKS 3.0

Available online for free, the LogWorks software delivers a complete 32 channel tuning workshop for your PC. LogWorks enables users to gather performance data with a number of different fuel maps (or jetting changes), then use LogWorks to directly determine peak efficiency at any RPM or load. In otherwords, LogWorks can tell you not only what your AFRs are, but also what they should be.

EXAMPLE LOG CHAINS & MODULAR TUNING SYSTEM (MTS) CONTINUED

EXAMPLE 1

DLG-1
Two channels,
Air/Fuel Ratio

▶

SSI-4 PLUS
RPM, TPS, Drive Shaft & MAP
(example only, see our website for additional channel input configurations)

▶

PL-1
Recorded to
SD Card in
Pocket Logger

EXAMPLE 2

MTX-L
Air/Fuel Ratio

▶

MTX Boost/Shift
RPM,
VACUUM/BOOST

▶

PL-1
Recorded to
SD Card in
Pocket Logger

Any MTS device that generates data must come BEFORE a recording device

ACCESSORIES & REPLACEMENT PARTS

3733 ..... USB to Serial Adapter

3735 ..... ½ inch, Bung & Plug Kit (mild steel)

3736 ..... ½ inch, Bung & Plug Kit (stainless bung)

3737 ..... O2 Sensor (Bosch™ LSU 4.2)

3764 ..... 1 inch, Bung & Plug Kit (mild steel)

3787 ..... 2GB SD Card (LM-2, PL-1)

3808 ..... Power Cable (LM-2, PL-1)

3809 ..... OBD-II Cable (LM-2)

*3810 ..... 8ft. Sensor Cable for LSU 4.2 (LC-2, LM-2, MTX-L, SCG-1)

3811 ..... Analog IN/OUT Cable (LM-2)

3812 ..... Serial Patch Cable -(2.5mm to 4-pin)

*3828 ..... 18ft, Sensor Cable for LSU 4.2

3835 ..... Bung Adapter (Powersports) 12mm to 18mm

3838 ..... 1 inch, Bung & Plug Kit (stainless bung)

3839 ..... 1 inch, Bung only (mild steel)

3840 ..... Program Cable (4-pin to DB9)

3842 ..... 1 inch, Bung & Plug Kit (Titanium)

*3843 ..... 3ft. Sensor Cable for LSU 4.2

3846 ..... Serial Patch Cable, 4 ft. (Daisychain 4-pin to 4-pin)

*3887 ..... 8ft. Sensor Cable for LSU 4.9

*3888 ..... O2 Sensor (Bosch™ LSU 4.9)

*3889 ..... 18ft. Sensor Cable for LSU 4.9

*3890 ..... 3ft. Sensor Cable for LSU 4.9

3896 ..... Bosch™ LSU 4.9 with 3ft. Sensor Cable

3897 ..... Bosch™ LSU 4.9 with 8ft. Sensor Cable (Most Common)

3898 ..... Bosch™ LSU 4.9 with 18ft. Sensor Cable

*Be aware when ordering cable and sensor replacements that there are two different sensor types (Bosch™ LSU 4.2 or 4.9)

For more products and accessories visit our website at **innovatemotorsports.com**
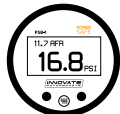
EXAMPLE 3		
PSB-1	▶	**PL-1**
Air/Fuel, RPM, MAP		Recorded to SD Card in Pocket Logger

EXAMPLE 4		
MTS-LiNK	▶	**MTX-OL PLUS**
4-BAR MAP		Auto detect & display of 4-BAR MAP & Air/Fuel
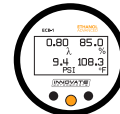
EXAMPLE 5		
MTS-LiNK	▶	**ECB-1**
Fuel Temp (Oil)		Auto detect & display of Fluid Temp (Oil), Ethanol %, MAP, & Air/Fuel

The INNOVATE MOTORSPORTS Difference.

Sensor Wear

Most popular wideband systems, including Innovate, utilize the Bosch™ LSU 4.2 or 4.9 wideband O2 sensor. This sensor has an integrated calibration resistor located in the connector on the plug end. Like all sensors in a vehicle, O2 sensors wear over time and being able to recalibrate the sensor is the only way to ensure continued accuracy. Innovate Motorsports' wideband controller makes it possible for the sensor to be recalibrated because we do not rely on or utilize the Bosch™ calibration resistor. Without the ability to calibrate, your wideband will continue to rely on the Bosch™ factory pre-calibrated resistor settings as your sensor wears. The results of doing so have been ***published by Bosch™** in a technical document referenced below:

According to the Bosch™ spec the sensor leaves the factory with a ± margin of error of .15 AFR. In **IDEAL** lab conditions sensor wear will cause the sensor to drift to an accuracy of ± .29 AFR after approximately 500 hours and ± .59 AFR after approximately 2000 hours. In aftermarket performance applications where engines typically see richer conditions with higher exhaust gas temperatures, the sensor will degrade at a greatly accelerated rate compared to the Bosch™ spec. Other factors such as detergents, additives in the fuel, sensor placement and lead will also accelerate sensor wear even further. The Innovate Motorsports patented digital wideband sensor controller technology eliminates any and all inaccuracies caused by sensor wear. The simple and quick free air calibration process will ensure that you have measurements accurate to ± .1 AFR for the life of the sensor.

*Source: Bosch™ Y258 K01 005-000e

Altitude Compensation

Changes in altitude will also affect the accuracy of the measurements. It is important to note the Bosch™ spec tests the accuracy of the sensor at 14.7 PSI atmospheric pressure (sea level). In the same way that the pre-calibrated resistor can not compensate for sensor wear, it can not compensate for changes in altitude. To illustrate how important a difference in altitude is, we can look at the difference between Innovate Motorsports' office in Cypress, CA which is at sea level, and Willow Springs Raceway in Rosamond, CA. The difference in altitude is approximately 2400 ft. between the two locations; this will make a difference in your measurements by as much as .2 AFR. If you do not have the ability to calibrate your sensor, and you happen to live in Denver (5280 ft. above sea level), your readings will be incorrect right from the start and will progressively get worse as the sensor degrades.

Conclusion

The purpose of installing a wideband O2 system in a high performance engine is to accurately monitor the engine's operating Air/Fuel ratio to ensure maximum performance and safety. If you are using a wideband system that does not allow the sensor to be recalibrated, you are putting your engine at risk. Whether you only perform the simple calibration once when you first install a sensor, or at the recommended intervals; Innovate Motorsports' patented digital wideband O2 sensor controller technology will ensure that you have the **fastest** and most **accurate** wideband instrument available at any price.

The difference between a wideband that does not require calibration and an Innovate Motorsports wideband is ACCURACY.

NOTES

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