

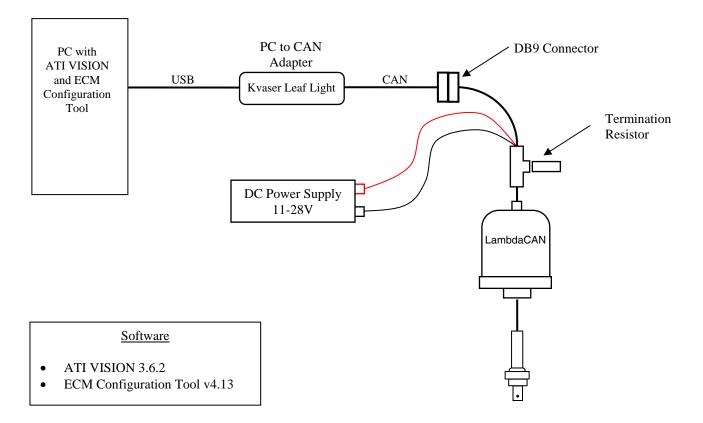
#### **Introduction**

Connecting ECM LambdaCAN hardware to ATI VISION software is simple and does not require any thirdparty software interface. Using the ECM Configuration Tool software to produce at .dbc database file, and the ATI VISION CANMonitor interface, any available hardware CAN interface can be used to read LambdaCAN data.

**NOTE:** While shown here for a single LambdaCAN module, the same procedure applies for any of ECM's CAN-based devices as well as for multiple modules simultaneously connected on the same bus.

#### Hardware Setup

A typical hardware configuration is shown in Figure 1. In this example, a Kvaser Leaf Light CAN-USB adapter is used. Other supported adapters have a similar procedure. Connect the DB9 CAN connector of the LambdaCAN to the PC to CAN adapter. Supply 11-28V DC (5A min. supply) to the LambdaCAN.



**Figure 1: Equipment Schematic Layout** 

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#### **ECM** ENGINE CONTROL AND MONITORING

## Tech Note No. 10031 Integrating LambdaCAN with ATI VISION Using CANMonitor

#### **Creating a .dbc File**

The ECM Configuration Tool is used to create a .dbc database file for describing the CAN messages broadcast from the LambdaCAN. All ECM products with a CAN interface use the CANopen protocol at 500kHz by default. To generate a .dbc file using ECM Configuration Tool:

- 1. Connect hardware as shown in Figure 1. Ensure LambdaCAN bi-color LED indicator near sensor connector is visible (green during normal operation, flashing red without sensor attached).
- 2. Run ECM Configuration Tool software, and select the Modules tab (or the Analyzers tab if connecting to 5200 series analyzers).
- 3. Select CAN adapter from drop down menus as shown in Figure 2, and click START.
- 4. After LambdaCAN module(s) have initialized, select desired parameters to transmit from the TPDO drop down menus for each module.
- 5. Click Generate .dbc, and save this file in a location such as the VISION Projects folder.
- 6. Click STOP to end CAN connection.

**NOTE:** Whenever TPDO's are modified, a new .dbc file must be created.

ECM Configuration Tool v4.13	ECM Configuration Tool v4.13
ECM Configuration Tool	ECM Configuration Tool
Modules Analyzers Firmware Upgrade Toggle Warnings (Now: Off)	Modules Analyzers Firmware Upgrade Toggle Warnings [Now: Off]
CAN Adapter: Kvaser  Leaf Light HS 0 (Ch0)  SoUKbps[std]  (START) Status: Configuration NID Prod # Rev.# Serial# Code Bus Load D%, 0 fps Task: Set Module Calc. %02:h Air Set Module Mode EIB Stand-Alone	CAN Adapter:       Kvaser       Leaf Light HS 0 (Ch0)       500Kbps[std]        STOP       Status:         Configuration       ND       Prod.#       Rev.#       Serial#       ECM bec.Load       Log Data [Diff]         Module:       0x10       0x02       0x034D       Total Bus Load       If8%, 805 fps       Total Bus Load         Task:       Change Node ID       Total Bus Load       Total Bus Load       Manual Comm.       Set CAN Baud         Set       Set       Set       Set Module Mode       ELB       Stand-Alone
Note: This function can only be used with one module on the bus.	The following CAN IDs are used for each module:
Data for Node ID: N/A	Data for Node ID: 0x10 TPDO: Data transmitted by module
Sensor S/N         TPD01         TPD02         TPD03         TPD04           Image: Constraint of the sense of the	Sensor S/N         TPD01         TPD02         TPD03         TPD04         TPD04
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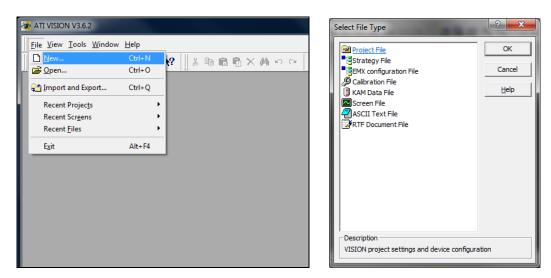
# **ECM** ENGINE CONTROL AND MONITORING

# Tech Note No. 10031 Integrating LambdaCAN with **ATI VISION Using CANMonitor**

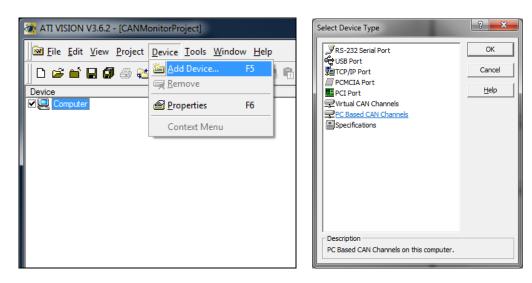
#### Setup CANMonitor using ATI VISION

ATI VISION CANMonitor provides a method of reading general purpose information from any available CAN channel. The .dbc file generated by the ECM Configuration Tool is used to describe the format of the information available to VISION. To setup a CANMonitor in ATI VISION:

1. Run ATI VISION and open an existing Project File or create a new one by clicking File  $\rightarrow$  New  $\rightarrow$  Project File. In this example the Project has been named CANMonitorProject.



2. Add a Device by clicking Device  $\rightarrow$  Add Device, select PC Based CAN Channels from the list.

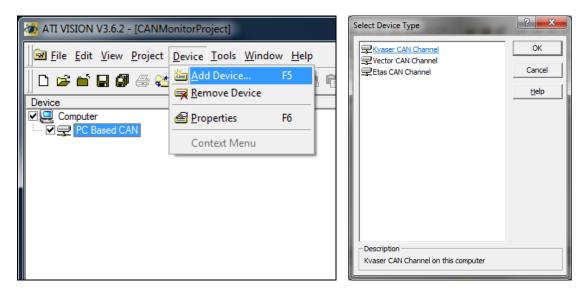


AND MONITORING Los Altos • CA • 94023-0040 • USA • Tel: (408) 734-3433 • Fax: (408) 734-3432 • www.ecm-co.com Techniques protected under patents issued and pending.

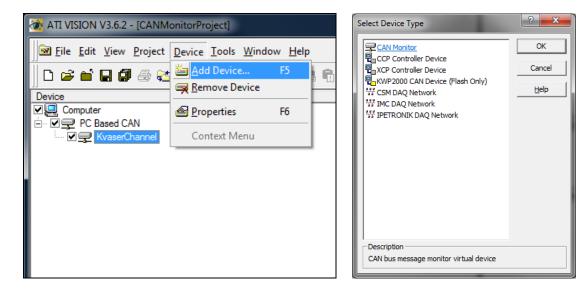
**ENGINE CONTROL** 



3. Add a physical hardware device by clicking Device → Add Device, and select Kvaser CAN Channel.



4. Select a CANMonitor device by again clicking Device  $\rightarrow$  Add Device, and select CANMonitor.





#### **ECM** ENGINE CONTROL AND MONITORING

# Tech Note No. 10031 Integrating LambdaCAN with ATI VISION Using CANMonitor

5. Add the .dbc file generated from the ECM Configuration Tool to CANMonitor by clicking Device → Add CAN Database and browsing to the previously created .dbc file.

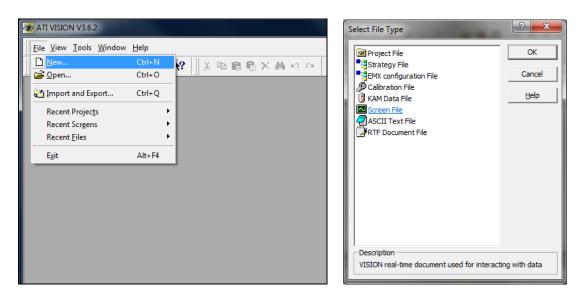
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6. Enable the hardware by clicking Project  $\rightarrow$  Online. The status of all of the devices should now show a Status of Online, and a value should appear in the Data Rate column of the Project window.

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7. To view data, create a new Screen File and add a Control. Click File  $\rightarrow$  New  $\rightarrow$  Screen File



8. Select Object  $\rightarrow$  Add Control  $\rightarrow$  Gauge

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9. In the Select Data Items window open the CANMonitor file tree to view all of the available signals. Here the O2% from Node 0x10 has been selected. Click OK to add the Data Item to the Control.

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10. Data should be visible on the gauge.

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