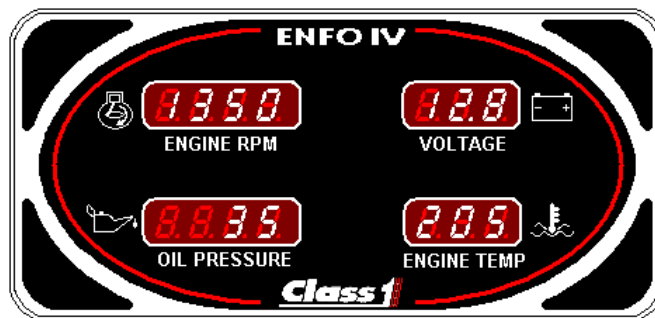


# Contents

## Enfo IV



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# Overview

The Enfo IV is an engine-monitoring device that reads and displays engine temperature, engine RPM, and engine oil pressure as it is transmitted from the engine ECU via the SAE J1939 CAN bus. Vehicle voltage is also displayed but is independent of CAN operation.

The Enfo IV can be used on both 12 and 24 Volt systems. The Enfo IV uses an automatic voltage detection system to determine the low voltage point for alarm activation.

The Enfo IV can be connected to an external alarm and external alarm-silence switch. High engine temperature (250° F), low oil pressure (10 PSI), or low voltage (11.9V or 23.8V) will cause the Enfo IV to activate the external alarm.

Enfo IV	C1 – PN	<b>108661</b>
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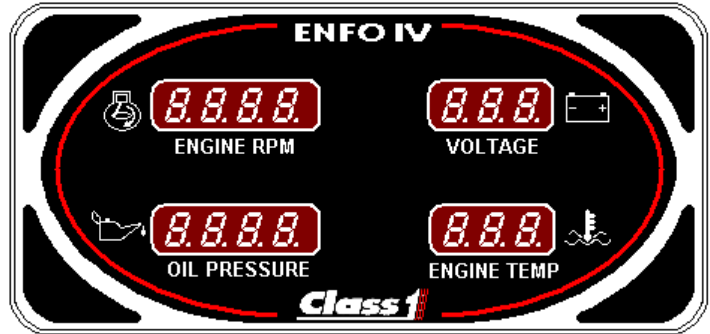
## Colored corner tags

Beige	C1 – PN	<b>106669</b>
Black	C1 – PN	<b>106030</b>
Blue	C1 – PN	<b>106023</b>
Brown	C1 – PN	<b>106025</b>
Burgundy	C1 – PN	<b>106667</b>
Gray	C1 – PN	<b>106668</b>
Green	C1 – PN	<b>106022</b>
Lime	C1 – PN	<b>106670</b>
Light Blue	C1 – PN	<b>106671</b>
Orange	C1 – PN	<b>106028</b>
Pink	C1 – PN	<b>106024</b>
Purple	C1 – PN	<b>106666</b>
Red	C1 – PN	<b>106029</b>
Rust	C1 – PN	<b>106027</b>
Silver	C1 – PN	<b>106026</b>
White	C1 – PN	<b>106665</b>
Yellow	C1 – PN	<b>106664</b>
10ft Connection harness	C1 – PN	<b>110346</b>

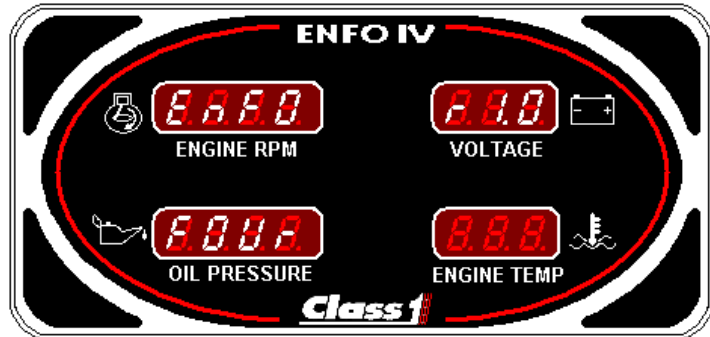
# Operation

## INITIALIZATION

1. A normal initialization of the Enfo IV will light all LED segments to verify that all displays are operational.

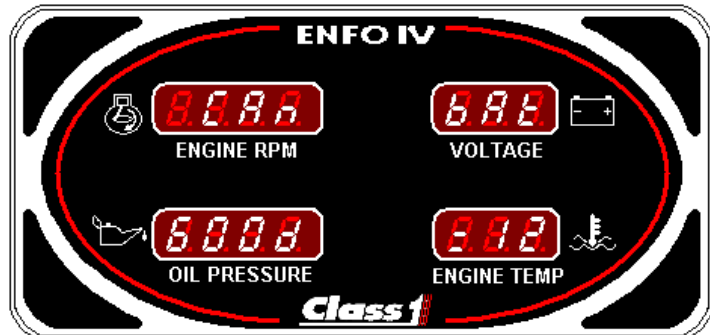


2. The Enfo IV then displays the software revision number.

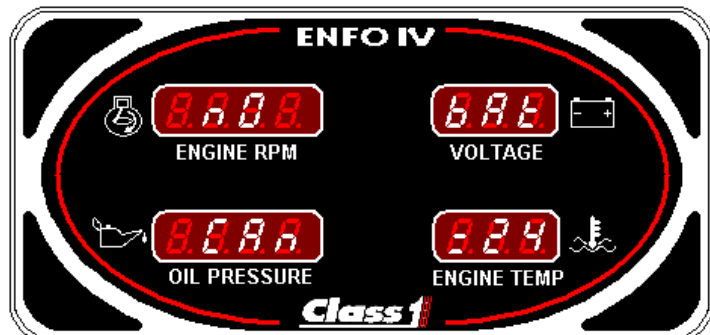


3. The Enfo IV then checks for valid CAN communication and checks the voltage range.

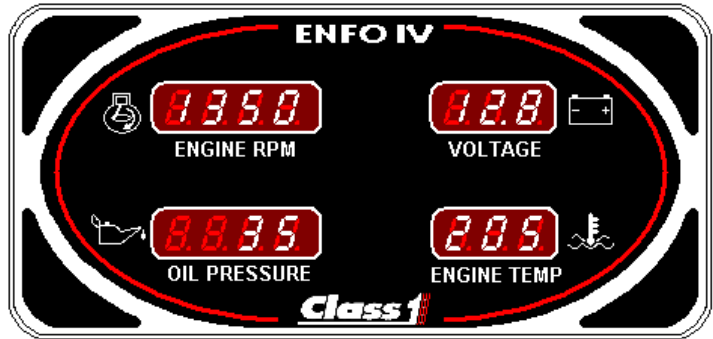
*Indication of CAN valid and 12V ignition system detected →*



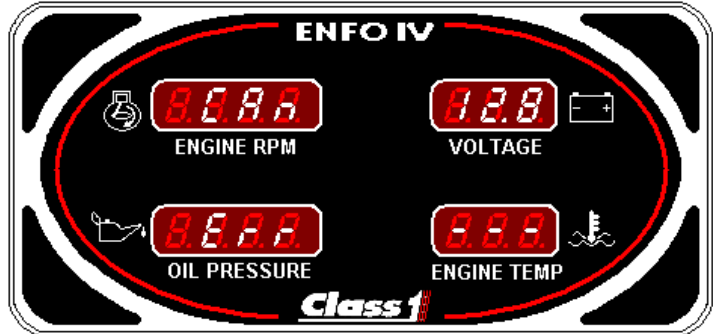
*Indication of CAN invalid and 24V ignition system detected →*



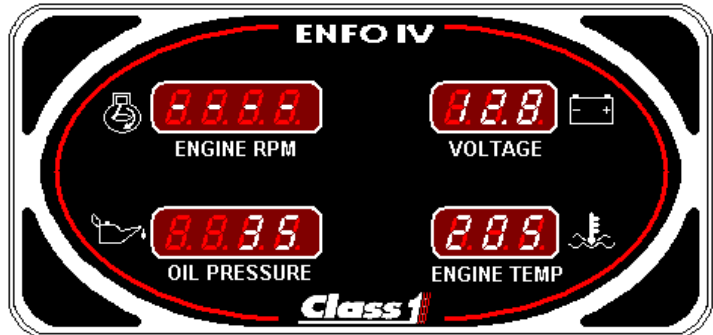
4. The unit will then start normal operation.



*If CAN information is not present the Engine RPM, Oil pressure, and Engine temp displays will flash the CAN ERR message.*



*If CAN information is not present for a specific display, that display will show dashes.*



### **Engine RPM Display**

The Engine RPM data is received from the engine ECU via CAN (PGN 61444, EEC1).

### **Engine Oil Pressure Display**

The Engine Oil Pressure data is received from the engine ECU via CAN (PGN 65263, EFLP1).

The ENFO IV will activate the alarm if the pressure drops to **10 PSI** or lower.

When the pressure is low the display will alternately show the current pressure and "**LO**".

### **Engine Water Temperature Display**

The Engine Water Temperature data is received from the engine ECU via CAN (PGN 65262, ET1).

The ENFO IV will activate the alarm if the temperature reaches **250 degrees F** or higher.

When the Temperature is high the display will alternately show the current temperature and "**HI**".

### **Vehicle Voltage Display**

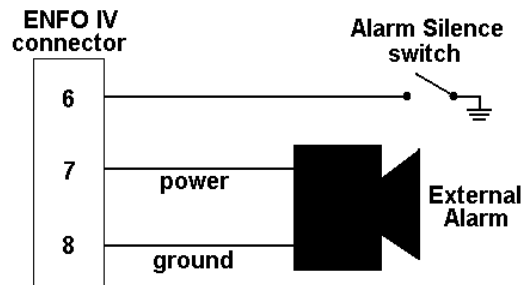
The Voltage is derived from the main input Power and Ground pins and is independent of CAN messages. Voltage is displayed with 0.1V resolution.

The ENFO IV will activate the alarm if the voltage falls to **11.9V** and below (12V ignition), or **23.8V** and below (24V ignition). The voltage level must stay at the low voltage range for a minimum of 2 seconds to activate the alarm.

When the voltage is low the display will alternately show the current voltage and "**LO**".

## **ALARM**

The Enfo IV can be connected to an external alarm (250mA max.) and alarm silence switch. When the Enfo IV activates the alarm it will remain on until the alarm condition is no longer present or the alarm silence button has been pressed. The alarm will remain OFF for 5 minutes after the alarm silence button was activated at which time the alarm will again activate (if the alarm condition still exists).

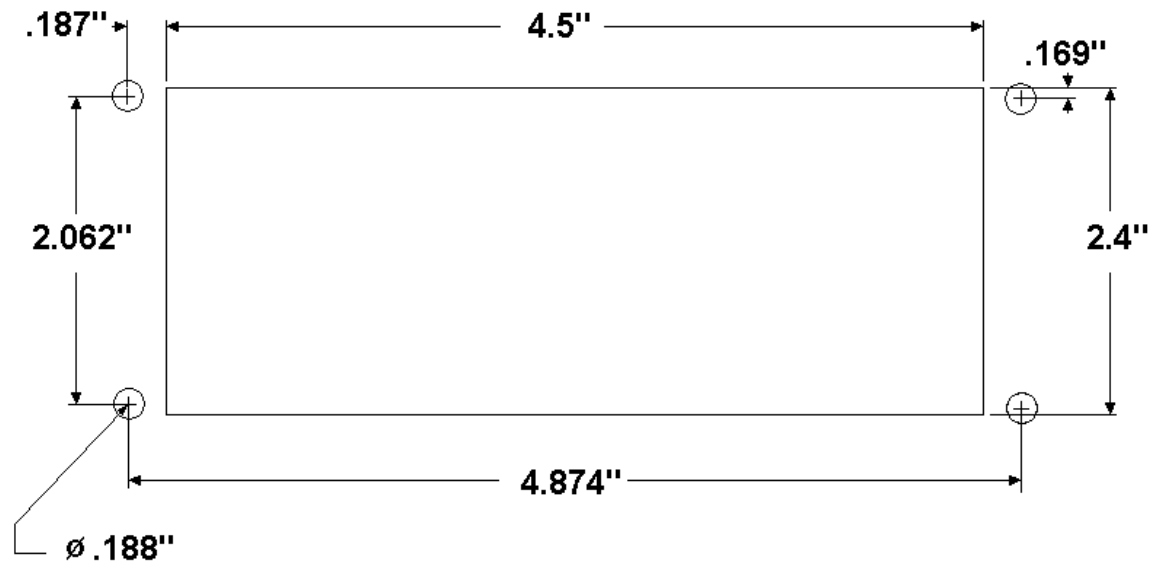


# Installation and Wiring

## Mounting Dimensions

### Enfo IV

The display requires a cutout as shown. The unit is water tight and may be mounted in any location on the operator's panel.



NOT TO SCALE

Mounting dimensions.

## Wiring Installation

**Amp connector: 776286-1      Class1 PN: 106297**

**Amp pins: 770520-1      Class1 PN: 106298**

1	CAN High	Data SAE J1939 (HI)	INPUT/OUTPUT
2	CAN Low	Data SAE J1939 (LO)	INPUT/OUTPUT
3	CAN Shield	Shield	
4	System Power	+10 ... 32V DC	INPUT
5	System Ground	Ground	INPUT
6	Alarm Silence	Ground	INPUT
7	Audible Alarm	Power	OUTPUT
8	Audible Alarm	Ground	OUTPUT

# Specifications

<b>Parameter</b>	<b>Value</b>	<b>Unit</b>
<b>Input voltage</b>	10 to 32	VDC
<b>Current nominal:</b>		
@ 27.6VDC	115	mA
@ 13.8VDC	184	mA
<b>Operating temperature</b>	-40 to 85	°C
<b>Alarm current maximum</b>	250	mA

# Menu

## **Entering the menu**

The Enfo IV's alarm silence button is used to enter the menu. Press and hold the alarm silence button for 5 seconds. The Engine RPM display will show "**SEL**", the Oil Pressure display will show "----", and the Engine Temp display will show the "time remaining" counter which will begin counting down seconds starting at **5**.

Press the alarm silence button to scroll through the menu items. When the desired menu item is shown allow the "time remaining" counter to reach zero. Each time the alarm silence button is pressed the "time remaining" counter will be reset to 5.

## **Menu Items**

- "----"                    Exit the menu.
  
- "TEST"                Turns on all of the display segments and activates the alarm.
  
- "BATT"                View the auto-selected voltage range.
  
- "ALAR"                View all of the alarm trip points (they will be displayed in their associated window).