

**3200 SERIES**



**DESCRIPTION**

The Curtis enGage® IV is a microprocessor based instrument panel that can be customized to monitor, display and control numerous vehicle functions in a single integrated package. The panel is fully CANopen compatible.

**APPLICATION**

Electric and engine powered industrial and commercial vehicles, including material handling, outdoor power and construction equipment, stationary equipment, commercial cleaning equipment, and light-on-road vehicles.

**QUALITY COMPLIANCE**

Manufactured under ISO 9001 certified Quality Management System. UL recognized & CE certified.

**FEATURES**

- Fully customizable instrument. You design your own instrument to your specific applications and needs, with a wide palette of possibilities.
- Analog, digital & CAN functionality in one instrument. All aspects of vehicle management, control and display can be accommodated.
- CAN communication allows seamless interconnectivity with other system components, such as motor controllers.
- Microprocessor based logic eliminates or reduces the need for auxiliary vehicle circuits, such as timing circuits.
- One hardware set can be instantly programmed into a wide range of OEM specified instrumentation for use in a variety of different vehicles.
- Large, easy-to-read dot matrix LCD is backlit for ideal viewing in all lighting conditions.
- Variety of different backlighting choices available – green and white are standard.
- Configure your own panel using the Curtis web-based specification tool to experience the full range of design possibilities.
- enGage® IV replaces up to 4 gauges. OEMs can view up to 4 traditional gauge functions simultaneously in a variety of styles including numeric, bar or simulated needle.
- Up to 6 switched inputs are available to track status of critical vehicle parameters, such as over-temperature, parking break, low-fuel, etc.
- Displays can include multiple warning icons and an advisory line for hour meters, maintenance monitors and time-of-day clock.
- Provides more information, such as diagnostics to the operator, while eliminating unnecessary wiring.
- Password protected, enabled field-programming of maintenance monitoring, elapsed time and battery discharge profiles matches the panel to the specific user application.
- Visual warnings include flashing LCD icons and bargraph segments, and dual color warning LED.
- Three 1-Amp FETs are used to control OEM specified vehicle functions, such as alarms, lift-lockout, etc.
- For battery powered vehicles, innovative Curtis battery monitoring technology provide reliable state-of-charge information.
- It's easy for the operator to access and change parameters and display menus with accessible front panel buttons.

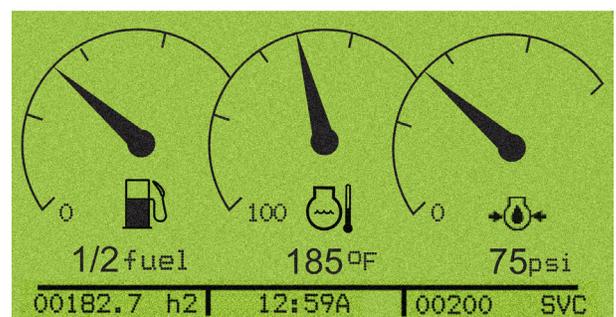
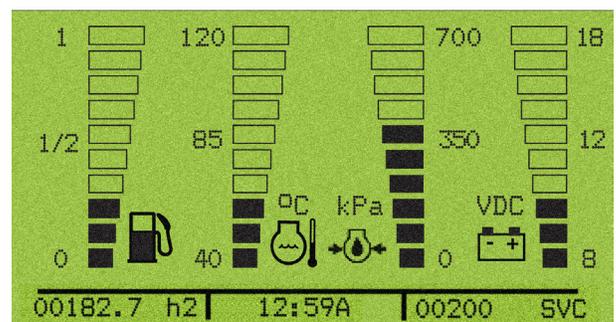
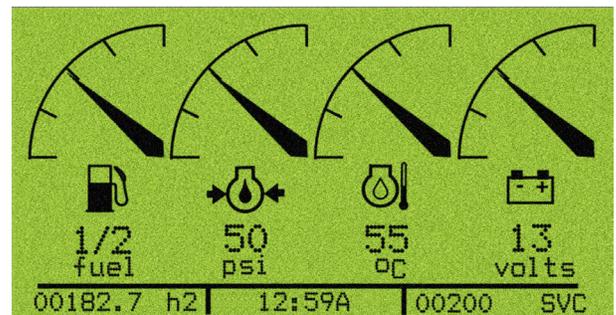
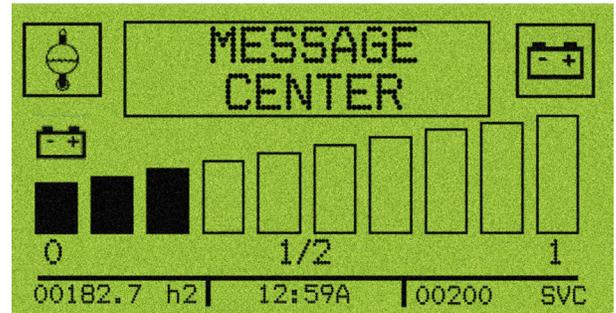
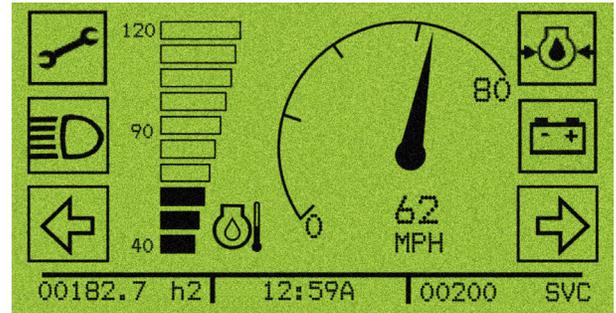
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## FEATURES continued

- IP65 rated front panel (IP 40 rear) assures performance in the harshest environments.
- Easy Snap-Fit design and integrated connector lowers production costs by eliminating traditional mounting hardware kits. (Optional mounting bracket available.)
- Available in a panel-mount housing or behind-panel module for OEM design flexibility.
- Reliable solid-state design means no moving parts to wear out.
- Attractive contemporary styling enhances vehicle design and maximizes readability.

## SPECIFICATIONS

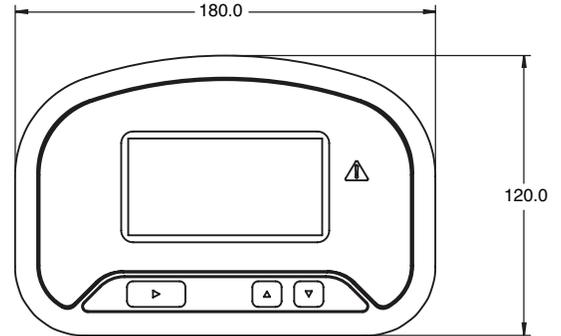
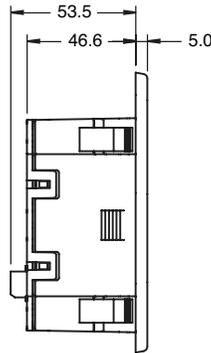
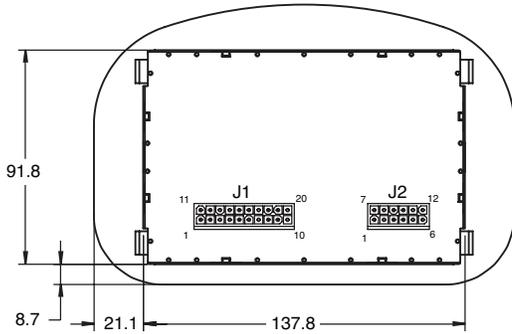
- Case and Bezel Material  
ABS Polycarbonate Resin, black.
- Lens Material  
PMMA.
- Module Specifications  
All modules are supplied with critical components exposed. If the module is being used in an environment other than specified, the user must take precautions to package the module to provide adequate protection.
- Main Interface Connector  
20-pin AMP Mini Universal Mate-N-Lok. (female mating AMP part number 770585-1).
- CAN & SIO Interface Connector  
12-pin AMP Mini Universal Mate-N-Lok (female mating AMP part number 770581-1).
- Operating voltages  
Auto-ranging –  
12V to 80V DC  $\pm$  25% (9V to 100V DC).
- Operating temperature  
–40°C to +70°C.
- Storage temperature  
–50°C to +90°C.
- Humidity (Applicable To Enclosed Units Only):  
95% RH (non-condensing) at +38°C as per SAE J1455, section 4.2.3.  
Note: Module requirements may be reduced.
- Mechanical Shock (Applicable To Enclosed Units Only):  
SAE J 1378 March 83. Amplitude 44-55g, half sine, 9-13ms duration.
- Vibration (Applicable To Enclosed Units Only):  
SAE J 1378 March 83 Double amplitude of 1.53mm with frequency sweep for 10-80-10 Hz (20g max) at 1 minute intervals.
- Sealing (Applicable To Enclosed Units Only):  
IP-65 (face), IP-40 (rear).
- Thermal Cycling  
As per SAE J1455 section 4.1.3.1. to +80°C.
- Thermal Shock  
As per SAE J1455 section 4.1.3.2. to +80°C.
- Salt Spray / Fog (Applicable To Enclosed Units Only):  
ASTM B 117-73 as per SAE J1810, section 4.7.1.2.



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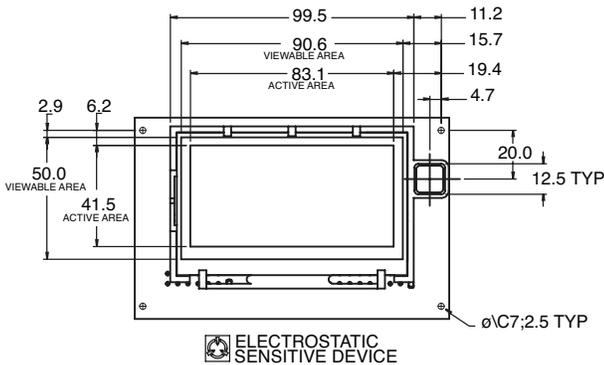
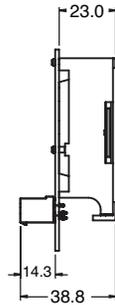
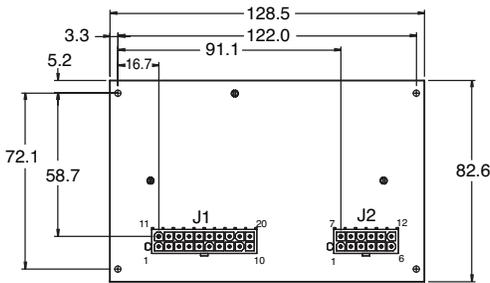
## DIMENSIONS mm

**3200T Cased Unit**  
Weight 400g max



Recommended panel cutout: 92 (+0.8,-0) x 138 (+1.0,-0)mm  
Acceptable panel thickness (snap-fit fingers): 0.8 to 3.8mm  
Acceptable panel thickness (bracket): 5.0 to 8.9mm

**3200P Module**  
Weight 200g max



AMP MATING CONNECTORS

	J1	J2
CONNECTOR	AMP P/N 770585-1	AMP P/N 770581-1
PIN	AMP P/N 770904-1 FOR 18-22 AWG WIRE	

### CONNECTOR J1

PIN#	DESCRIPTION
1	Battery + (B+)
2	Battery - (B-)
3	Sender 1 I/O (R, V, I)
4	Sender 2 I/O (R, V, I)
5	Sender 3 I/O (R, V, I)*
6	Sender 4 I/O (R, V, I)
7	Switched Input 1
8	Switched Input 2
9	Switched Input 3
10	Switched Input 4
11	Switched Input 5
12	Switched Input 6
13	Keyswitch Input
14	MOSFET Output 1
15	MOSFET Output 2
16	MOSFET Output 3
17	3210=Range select ***
17	3211=NC
18	Sender 4**
19	LCD Heater
20	Dim Control

### CONNECTOR J2

PIN#	DESCRIPTION
1	CAN H
2	CAN L
3	CAN Shield Ground
4	N/C
5	CAN Term 1
6	CAN Term 2
7	N/C
8	N/C
9	SCI - Rx
10	SCI Ground
11	SCI - Tx
12	+7V Out (<10 mA)

\* INPUT FOR: SPEEDOMETER  
\*\* INPUT FOR: TACHOMETER  
\*\*\* GND: 36V, 72V  
B+: 24V, 60V  
OPEN: 12V, 48V, 80V

## MODEL ENCODEMENT

Model	Case	Voltage	Sequential	CAN Protocol	Color
3210	T	12 – 80 VDC (Auto Ranging)	-X001	Open	0001 CANopen yel/gr

**WARRANTY** Two year limited warranty from time of delivery.

