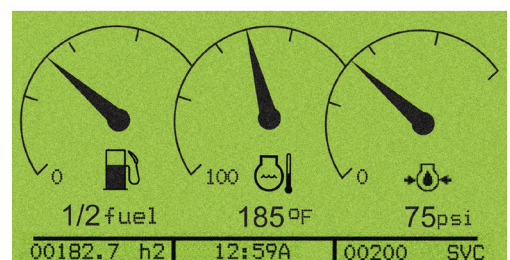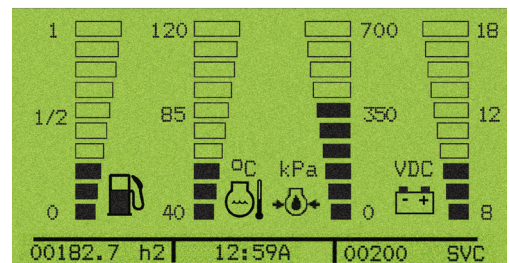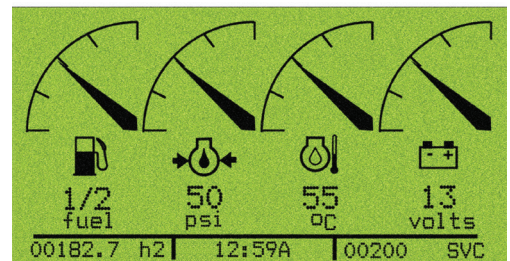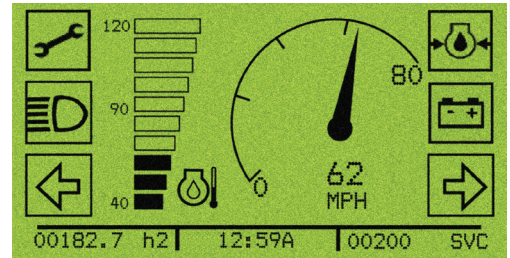# Digital Instrumentation

enGage® IV

enGage® IV

Digital Instrumentation

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.

See a 360° view of the enGage® IV at:
curtisinstruments.com/360view

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.

▶ 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.

enGage® IV

Digital Instrumentation

FEATURES continued

► 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.

► 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.

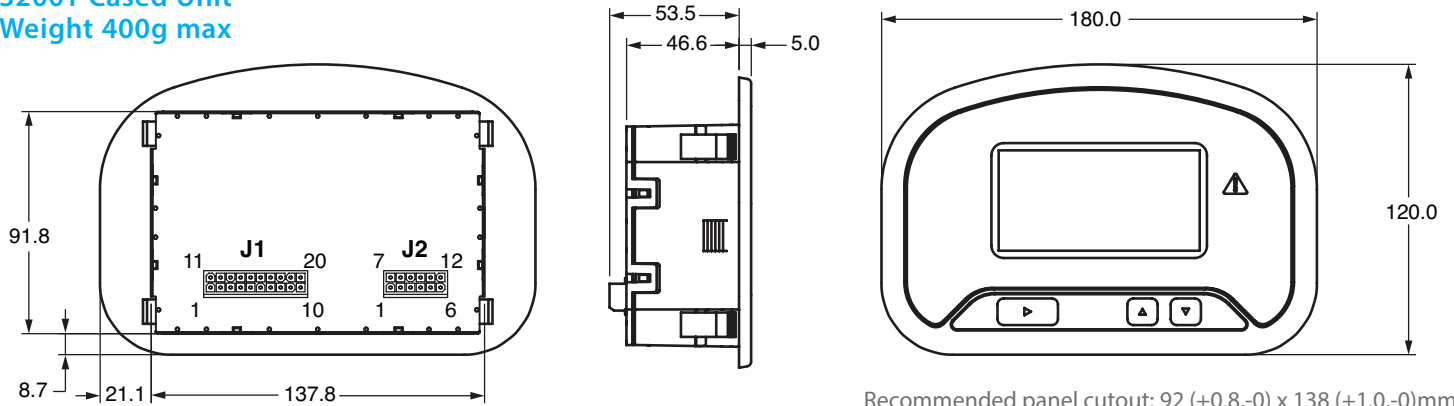► Attractive contemporary styling enhances vehicle design and maximizes readability.
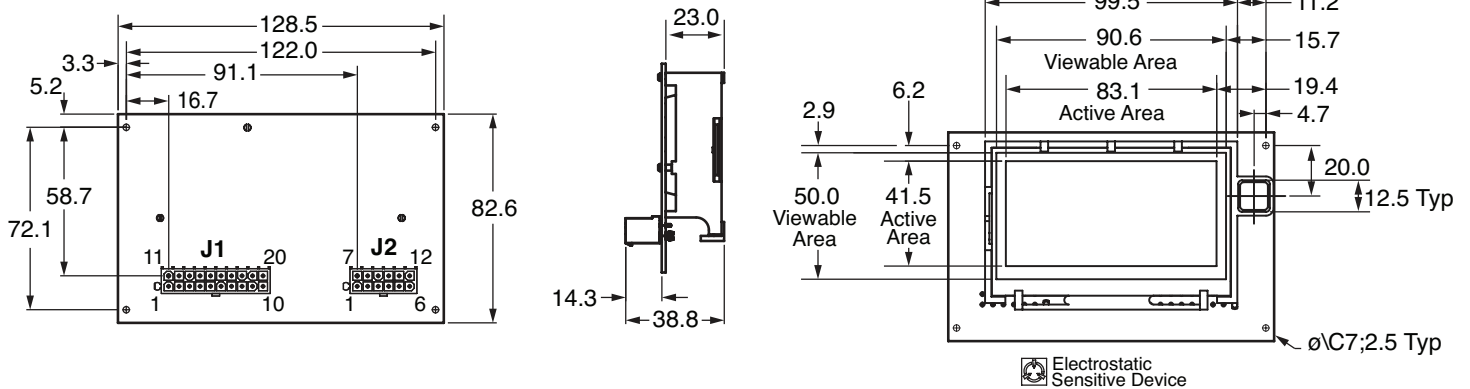
enGage® IV
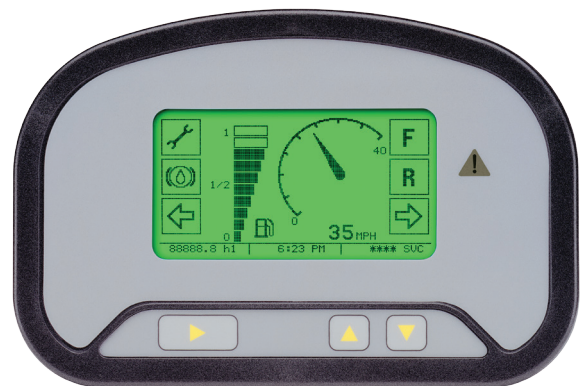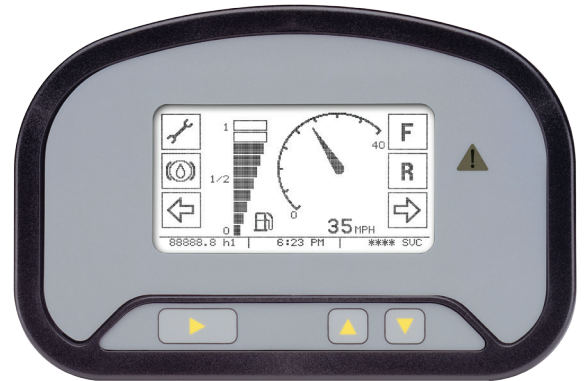
Digital Instrumentation

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

Electrostatic
Sensitive Device

CONNECTOR PINOUT

Connector J1

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

Connector J2

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

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	

* Input for: Speedometer   ** Input for: Tachometer   *** GND: 36V, 72V; B+: 24V, 60V; OPEN: 12V, 48V, 80V

Digital Instrumentation

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 ± 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.

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

WARRANTY   Two year limited warranty from time of delivery.

The Curtis Difference
You feel it when you drive it