ENGINE GAGES & CONTROLLERS

LED & LCD

CURTIS

LCD Fuel Gage with Hour Meter
Model 2412

LED Fuel Gage with Hour Meter
Model 2212

DESCRIPTION

Solid state, 52mm round LED and LCD engine gages based on a custom integrated circuit. The series includes temperature, battery charge, pressure and fuel gages and a combination gage which includes a solid state hour meter. Curtis engine controllers prevent engine damage by shutting down systems or activating alarms.

WARRANTY
Three years replacement warranty

Application

Curtis round gages are ideal for use with diesel, gasoline and propane engines of construction, agricultural and material handling vehicles, generator sets, air compressors, forestry equipment and many other rugged applications.

Features

- Easy to read, tri-colored, 10 bar, LEDs display instant "status at a glance"- or, gages with optional LCD improves visibility in bright daylight conditions.
- Eye catching, flashing segments (red in LED) indicate operation beyond established parameters, such as under and over voltage.
- Shallow behind-panel depth. Typically, these gages require less than half the depth of conventional electro-mechanical gages.
- Each of the ten display segments is factory programmable to allow for customized monitoring for OEM applications. An expanded resolution "normal voltage" region allows the operator to notice alternator problems before they become serious (for example, 12 to 15V takes up 60% of the 8 to 18V scale).
- Programmable by Curtis to interface with a wide variety of sender inputs – resistive, voltage or current based. These gages accept virtually any input device.
- Two output signals – one at the high end and one at the low end of the display – can be used to activate external alarms or shut down equipment when operating ranges have been exceeded. Ideal for unsupervised equipment.
- Single lit LED/LCD or rising bar graph display modes.
- Available with optional domed lens.
- All gages can be coupled with an optional solid state hour meter in a single 52mm case. The hour meter retains latest accumulated time reading in EEPROM memory without the need for external battery backup. With no moving parts, it far outlasts electro-mechanical hour meters.
- Engine controllers 2150, 2250, 2350, 2450 can carry up to 2 amps of load current, allowing for an OEM programmed engine control function without the need for seperate senders or relays.

LCD Battery Charge Meter
Model 2314

LED Battery Charge Meter
Model 2114

Model Definition

Model number	Function	Display	With hour meter	Output signals	Output signal format	*Program-mable	Case options	Voltage options
2114	Battery charge	LED	No	Two	Logic level	Yes	R or M styles	12 or 24
2154	Battery charge	LED	No	Two	Power MOSFET	Yes	R or M styles	12 or 24
2214	Battery charge	LED	Yes	Two	Logic level	Yes	R or M styles	12 or 24
2254	Battery charge	LED	Yes	Two	Power MOSFET	Yes	R or M styles	12 or 24
2314	Battery charge	LCD	No	Two	Logic level	Yes	R or M styles	12 or 24
2354	Battery charge	LCD	No	Two	Power MOSFET	Yes	R or M styles	12 or 24
2414	Battery charge	LCD	Yes	Two	Logic level	Yes	R or M styles	12 or 24
2454	Battery charge	LCD	Yes	Two	Power MOSFET	Yes	R or M styles	12 or 24
2112	Fuel	LED	No	Two	Logic level	Yes	R or M styles	12 or 24
2152	Fuel	LED	No	Two	Power MOSFET	Yes	R or M styles	12 or 24
2212	Fuel	LED	Yes	Two	Logic level	Yes	R or M styles	12 or 24
2252	Fuel	LED	Yes	Two	Power MOSFET	Yes	R or M styles	12 or 24
2312	Fuel	LCD	No	Two	Logic level	Yes	R or M styles	12 or 24
2352	Fuel	LCD	No	Two	Power MOSFET	Yes	R or M styles	12 or 24
2412	Fuel	LCD	Yes	Two	Logic level	Yes	R or M styles	12 or 24
2452	Fuel	LCD	Yes	Two	Power MOSFET	Yes	R or M styles	12 or 24
2113	Pressure	LED	No	Two	Logic level	Yes	R or M styles	12 or 24
2153	Pressure	LED	No	Two	Power MOSFET	Yes	R or M styles	12 or 24
2213	Pressure	LED	Yes	Two	Logic level	Yes	R or M styles	12 or 24
2253	Pressure	LED	Yes	Two	Power MOSFET	Yes	R or M styles	12 or 24
2313	Pressure	LCD	No	Two	Logic level	Yes	R or M styles	12 or 24
2353	Pressure	LCD	No	Two	Power MOSFET	Yes	R or M styles	12 or 24
2413	Pressure	LCD	Yes	Two	Logic level	Yes	R or M styles	12 or 24
2453	Pressure	LCD	Yes	Two	Power MOSFET	Yes	R or M styles	12 or 24
2111	Temperature	LED	No	Two	Logic level	Yes	R or M styles	12 or 24
2151	Temperature	LED	No	Two	Power MOSFET	Yes	R or M styles	12 or 24
2211	Temperature	LED	Yes	Two	Logic level	Yes	R or M styles	12 or 24
2251	Temperature	LED	Yes	Two	Power MOSFET	Yes	R or M styles	12 or 24
2311	Temperature	LCD	No	Two	Logic level	Yes	R or M styles	12 or 24
2351	Temperature	LCD	No	Two	Power MOSFET	Yes	R or M styles	12 or 24
2411	Temperature	LCD	Yes	Two	Logic level	Yes	R or M styles	12 or 24
2451	Temperature	LCD	Yes	Two	Power MOSFET	Yes	R or M styles	12 or 24

R case has black bezel and flat glass lens
M case has black bezel and dome shaped glass lens

*Programmable at Curtis factory

LCD Pressure Gage
Model 2313

LED Pressure Gage
Model 2113

Specifications

- Operating voltages
  12VDC nominal (9VDC to 16VDC)
  (Battery Charge Meters 8VDC to 18VDC)
  24VDC nominal (18VDC to 32VDC)
  (Battery Charge Meters 16VDC to 36VDC)
- Connections
  Six 0.25 inch quick connect terminals.
- Operating temperature
  -40˚C to +85˚C
- Storage temperature
  -50˚C to +90˚C
- Humidity
  95% RH (non-condensing) at +38˚C
- Shock
  SAE J 1378 March 83. Amplitude
  44-55 g, half sine, 9-13 ms duration
- Vibration
  SAE J 1378 March 83
  Double amplitude of 1.53mm with
  frequency sweep for 10-80-10 Hz
  (20 g max) at 1 minute intervals
- Sealing
  IP-65 (face), IP-50 (overall)
- Output signal format (logic level)
  Logic level, 0 to 5V or 5V to 0, programmable
  Capable of sinking or sourcing 50 µA, maximum
- Output signal format (Power MOSFET)
  N channel MOSFET (switches ground side only)
  Programmable; capable of sinking up to 2A,
  maximum (4A, maximum for single output option)
- Case: Polycarbonate, black
- Lens: Glass
- Bezel: Aluminum, black anodized

Options

For custom designed gages and option details please contact Curtis.

Primary Options include:

- Circuit board mountable modules
- Panels of various configurations
- Tachometer and Speedometer

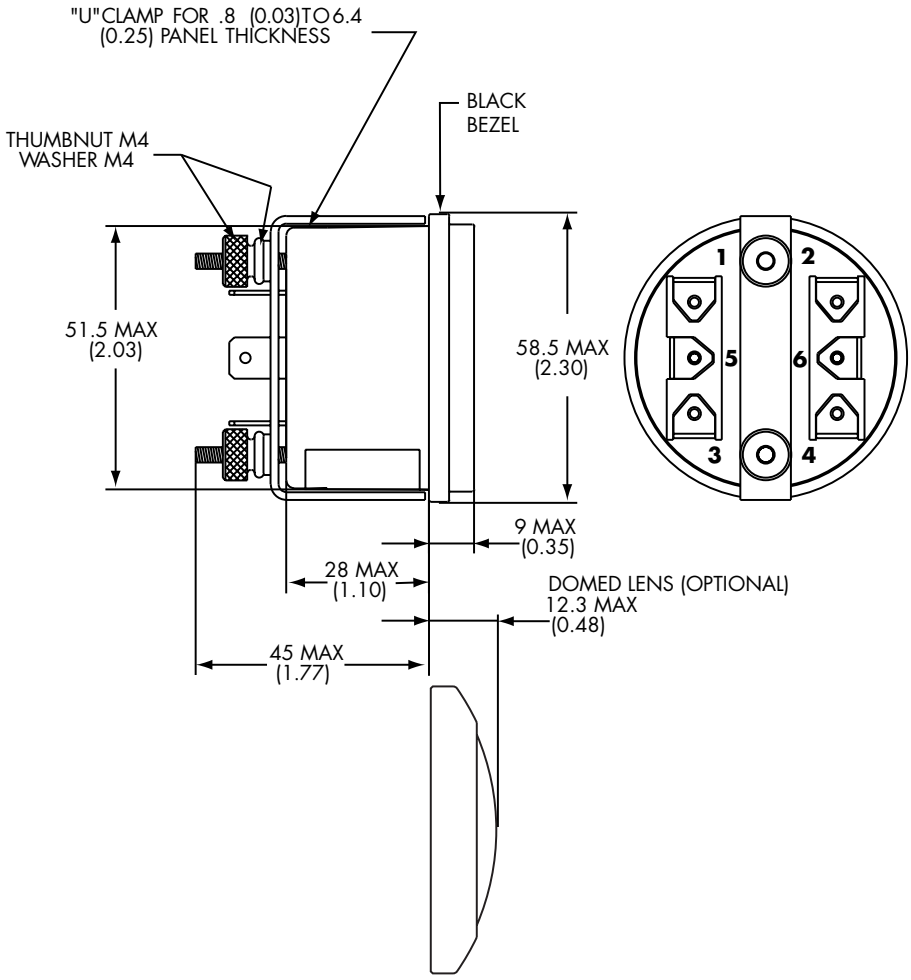
Model Encodement Scheme

R	**12**	**-0001**	**OO**
Case (Round) M=Domed Lens	Voltage 12 or 24	Sequential number identifies gage programming	OEM artwork code

LCD Fuel Gage
Model 2312

LED Fuel Gage
Model 2112

Dimensions: mm (inches)



Terminal Assignment Chart ➔

Model number	Function	Terminal 1
2111	Temperature	Sender input
2112	Fuel	Sender input
2113	Pressure	Sender input
2114	Battery charge	Not connected
2151	Temperature	Sender input
2152	Fuel	Sender input
2153	Pressure	Sender input
2154	Battery charge	Not connected
2211	Temperature	Sender input
2212	Fuel	Sender input
2213	Pressure	Sender input
2214	Battery charge	Not connected
2251	Temperature	Sender input
2252	Fuel	Sender input
2253	Pressure	Sender input
2254	Battery charge	Not connected
2311	Temperature	Sender input
2312	Fuel	Sender input
2313	Pressure	Sender input
2314	Battery charge	Not connected
2351	Temperature	Sender input
2352	Fuel	Sender input
2353	Pressure	Sender input
2354	Battery charge	Not connected
2411	Temperature	Sender input
2412	Fuel	Sender input
2413	Pressure	Sender input
2414	Battery charge	Not connected
2451	Temperature	Sender input
2452	Fuel	Sender input
2453	Pressure	Sender input
2454	Battery charge	Not connected

LCD Temperature Gage
Model 2311

LED Temperature Gage
Model 2111

Terminal Assignment Chart

Terminal 2 Battery	Terminal 3 Battery	Terminal 4	Terminal 5 Output	Terminal 6 Output	Output format	Output rating
+	Ground	Sender ground	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Sender ground	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Sender ground	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Not connected	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Sender ground	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Sender ground	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Sender ground	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Not connected	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Hour Meter enable	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Hour Meter enable	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Hour Meter enable	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Hour Meter enable	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Hour Meter enable	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Hour Meter enable	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Hour Meter enable	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Hour Meter enable	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Sender ground	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Sender ground	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Sender ground	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Not connected	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Sender ground	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Sender ground	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Sender ground	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Not connected	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Hour Meter enable	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Hour Meter enable	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Hour Meter enable	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Hour Meter enable	Higher	Lower	Logic level	50 microAmps, max.; sink or source
+	Ground	Hour Meter enable	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Hour Meter enable	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Hour Meter enable	Higher	Lower	Power MOSFET	2 Amps, max.; sink only
+	Ground	Hour Meter enable	Higher	Lower	Power MOSFET	2 Amps, max.; sink only

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