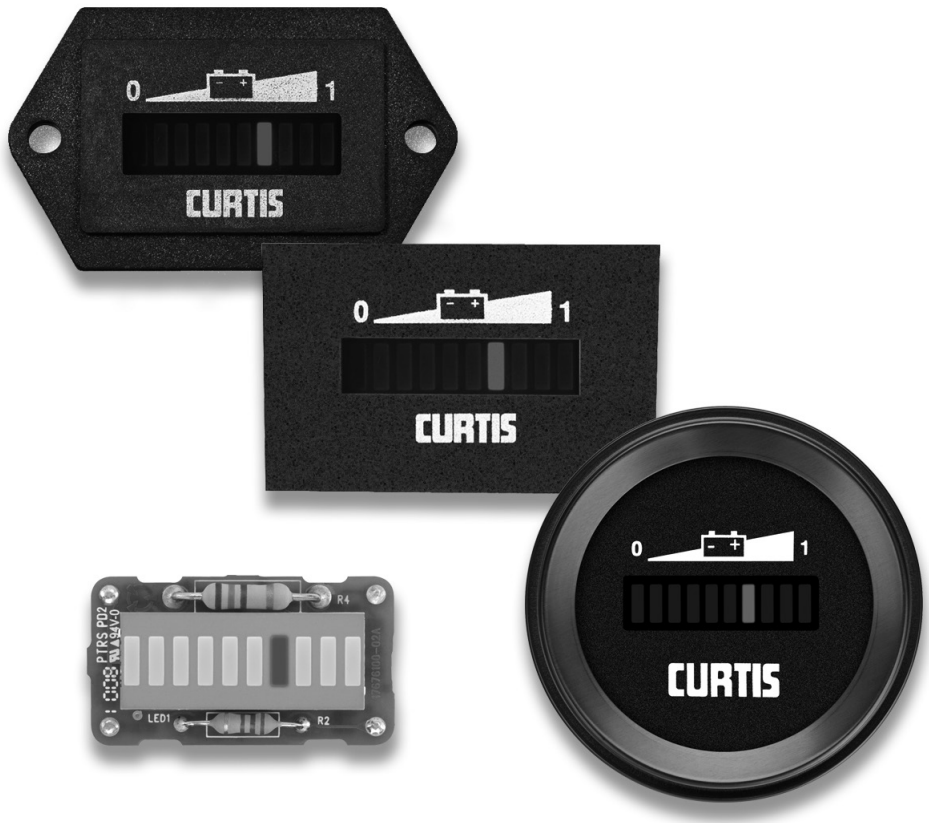
CURTIS® MODEL 906

Battery “Fuel” Gauge

CE



⚠ Read Instructions Carefully! ⚠

SAFETY INSTRUCTIONS

This instrument was manufactured and tested according to the applicable technical standards. It complies with all the safety regulations as shipped from the factory.

Installation and startup must be performed by skilled personnel.

Failure to install and operate the unit in accordance with these instructions may result in damage or injury.

If safe operation of the instrument can no longer be ensured, stop and secure it against accidental operation.

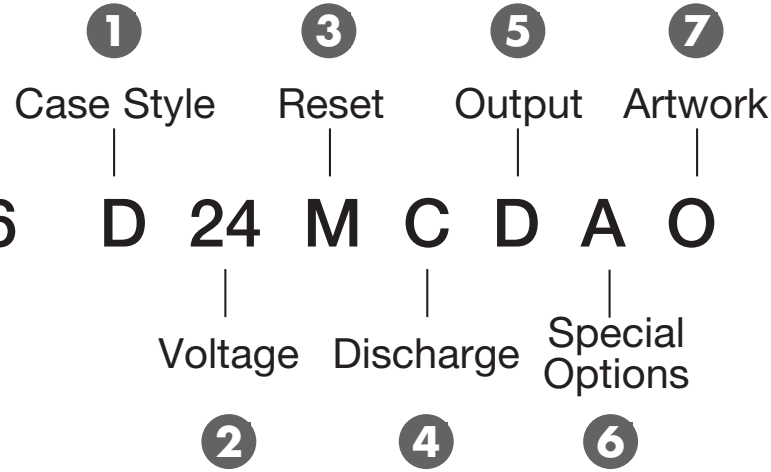
If instrument failure or malfunction may cause personal injury or material damage, use additional safety measures such as limit switches, guards, etc.

Read the Operating Instructions carefully before startup.

Note the safety instructions marked with this warning symbol in this manual!

TABLE OF CONTENTS

1. MODEL ENCODEMENT



1 Case Style Options

D	DIN case – rectangular
F	Hex bezel w/1/4” spade terminals (enGage I)
J	Hex bezel w/Packard connector (enGage I)
N	DIN case - rectangular, snap-fit
P	Pin mount (module)
R	52mm Round bezel & case (same as 700Q)
T	Hex bezel w/3/16” spade terminals (enGage I)
TX	Hex bezel w/3/16” spade terminals (old T case)
Y	Rectangular bezel w/Packard connector (enGage I)
Z	Rectangular bezel w/1/4” spade terminals (enGage I)

2 Voltage Options

12
24
36
48

3 Reset Profile Options

Profile with Memory Option	Profile without Memory Option	Volts per Cell			
		OCR	HVR	CTR Full	CTR Empty
K		1.928	2.167	2.167	2.10
	J	N/A	2.167		
Y		2.083	2.167	2.167	2.10
N		1.980	2.230	2.230	2.10
	E	N/A	2.230		
T		2.028	2.280	2.28	2.10
	L	N/A	2.280		
D		2.060	2.320	2.32	2.10
	P	N/A	2.320		
B		2.090	2.350	2.35	2.10
	H	N/A	2.350		
C		2.135	2.400	2.400	2.10
	M	N/A	2.400		
	F	N/A	2.416		

4 Discharge Profile Options

Letter Code	Volts per Cell	
	Full	Empty
G	1.97	1.75
H	1.97	1.70
J	1.97	1.63
K	2.01	1.65
L	2.10	1.92
M	2.00	1.83
N	2.04	1.73
P	2.08	1.98
Q	2.10	1.88
R	2.02	1.90
S	2.08	1.85
T	2.03	1.90
V	1.98	1.85
W	2.02	1.85
X	1.95	1.75
Y	2.00	1.90

Note: This gauge is not intended to measure the state-of-charge of batteries subject to extended periods of inactivity since it does not account for self-discharge effects. Consult factory for details.

5 Output Options

Letter Code	Signal
A	No option
B[1]	Both output & memory options
C[1]	Both output & memory options and CTR reset instead of HVR
D	Output option only
M	Memory option only

[1] option is for micro versions only

6 Special Options

A = (TBD)

7 Artwork Options

Letter Code	Logo
O	Curtis
N	None

2. TECHNICAL SPECIFICATIONS

2.1 Electrical Operating Voltage

Operating Range: ±25% of nominal voltage

Operating Current

Voltage (VDC)	Nominal Current (mA)	Maximum Current (mA @B^+ +25%)
12	23	38
24	17	24
36	16	22
48	16	21

2.2 Mechanical Display

10-digit
Red LED
Tri-color (5 green, 3 yellow, 2 red)

Recommended Panel Cutouts

F, J, T, TX, Y, Z Cases: 36.8 mm x 24.1 mm +0.3/–.0 mm
D, N Cases: 45.3 mm x 22.3 mm ±0.1
R Case: 52.4 mm

Terminals

D, N, T, TX: 3/16” blade
R, F, Z: 1/4” blade
J, Y: 4-pin Packard Connector equivalent to Delphi PN 15336035
P: Solder pins

2.3 Environmental Temperature

Operating: –40°C to +85°C

Storage: –50°C to +90°C

Humidity: 95% RH non-condensing at 38°C

Shock and Vibration: Meets SAE J 1378

2.4 EMC

Emissions

Radiated and Conducted Emissions: EN 61000-6-4

Immunity

Designed to meet: EN 61000-6-2

ESD: EN 61000-4-2

RF Immunity: EN 61000-4-3

Regulatory Approvals

CE: The product complies with the requirements of the RoHS directive 2015/863/EU (RoHS 3). This product is excluded from CE EMC testing and must only be sold to OEMs completing machine level EMC testing for CE certification.

3. INSTALLATION

Connecting Model 906

Pin 1 = Battery +

Connects to the vehicle's main positive (+) terminal. Use as short a wire as practical.

Pin 2 = Battery –

Connects to the vehicle's main negative (–) terminal Use as short a wire as practical.

Note: Pins 1 & 2 are connected across the total battery pack.

Pin 3 = Output Signal + or No Option

Output Signal option: 5 VDC ±0.5 VDC (90 µA current source) above Empty, 0-0.1 VDC at Empty 1 VDC maximum (90 µA sink);
No Option: Pin 3 is left open.

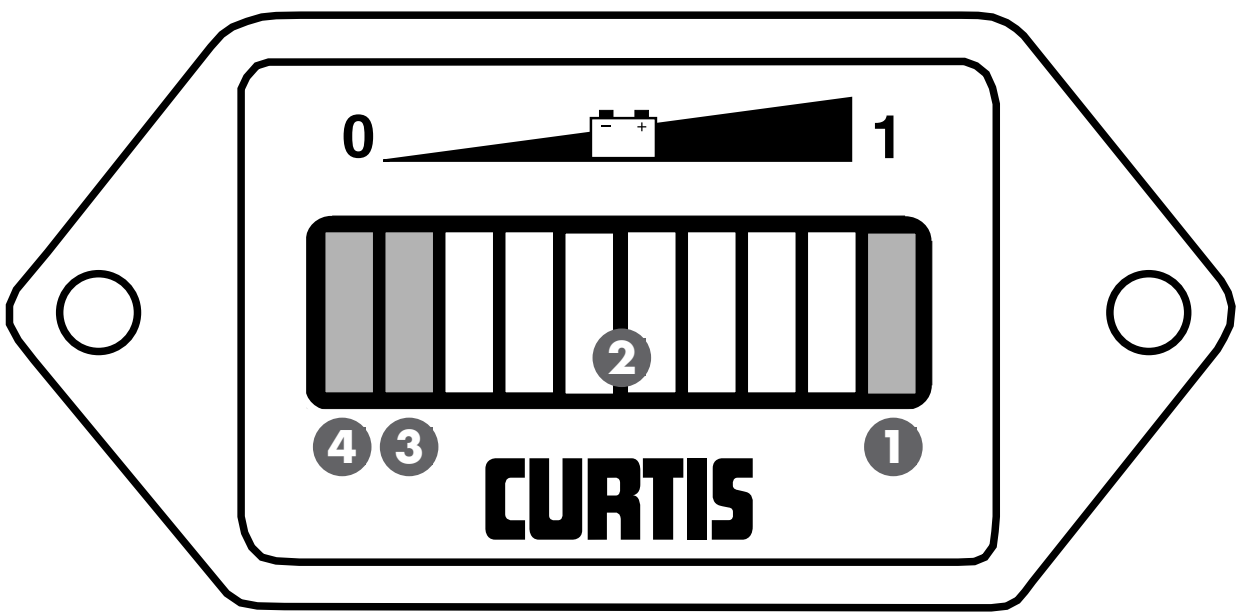
Pin 4 = Keyswitch

Connects to Battery + through the switched terminal of the keyswitch.

4. OPERATION

4.1 Display

1. Only when the battery is properly charged is the right-most LED lit.
2. As the battery's state-of-charge decreases, successive LEDs light up, only one on at a time.
3. The 2nd-from-left LED flashes, indicating "energy reserve" (70% depth of discharge).
4. The 2 left-most LEDs alternately flash, indicating "empty" (80% depth of discharge).



4.2 Reset

OCR (Open Circuit Reset)

Upon reconnection of a battery the gauge will reset if it measures 2.09 volts/cell or higher (example “B” profile) (for units with memory option).

HVR (High Voltage Reset)

Gauge must measure >2.35 volts per cell for 6 continuous minutes during charging (example “B” profile).

CTR (Charge Tracking Reset)

Display tracks charge level during opportunity charging (requires gauge to be connected to battery when charging).

5. TROUBLESHOOTING

The following checklist should help you troubleshoot any problem with Model 906.

Problem	Possible Cause
Keyswitch on and no display	Terminals not connected or improper voltage; Keyswitch not high
Stays at Full	Model 906 voltage does not match battery voltage
Will not reset	Model 906 voltage does not match battery voltage or battery not fully charged
Reset without terminals charging battery	Not connected directly to battery
Empty too soon	Model 906 voltage does not match battery voltage or terminals not connected directly to battery

6. MAINTENANCE

Curtis Model 906 series is not field serviceable. Return defective units to your distributor for warranty coverage.

7. WARRANTY

Curtis Instruments' products and/or components are guaranteed against defects in workmanship and material for a period of one year, or as defined in the individual product literature, from date of shipment from our factory, when applied in a proper application within specified ratings. This guarantee is limited to repair or replacement F.O.B. our factory. There is no further warranty or implied representation, guarantee, promise or agreement as to any Curtis Instruments product and/or component. Curtis Instruments, Inc., cannot assume responsibility or accept invoices for unauthorized repairs to its products and/or components, even though defective. In no case will Curtis Instruments' responsibility extend to products, components or equipment not of its manufacture. Under no circumstances shall Curtis Instruments, Inc., be liable for any special or consequential damages or loss of profits or other damages. Returned goods will not be accepted unless identified by a Curtis Return Material Authorization (RMA).

All specifications are subject to change without notice.

CURTIS

CURTIS INSTRUMENTS, INC.

200 Kisco Ave.
Mount Kisco, New York 10549
914-666-2971 Tel
914-666-2188 Fax

www.curtisinstruments.com

53015 Rev. J 10/21