

GAMMATRONIX 12V or 24V DC - 12 LED BATTERY MONITORS (Models 'M' and 'N')

M model has external control button and programmable alarm sounder, N model has internal programming button, no sounder.

Specifications :

Compact programmable Twelve LED battery level indicator. Dimensions 40L x 40H x 15mm deep approx. Operates over 12v or 24Vdc ranges, with three different display modes, and six selectable indicated ranges. Consumes approx 150uA (0.15mA) 'blank' mode, 1.5mA single LED mode, 7mA in bargraph mode. Peaks at 25mA for 1 second when (optional) alarm sounds. Operates from 3.7v to 30v DC, regardless of programmed range. Fused, and reverse protected. Sampling resolution to 30mv (0.03v) and accurate to 1% of range. 14 discreet display indications.

All programmed settings are stored by the unit for at least 100 years, even with power removed.

Ranges: Unit can be set according to below tables. *These are optimised for 'Lead acid' batteries which includes Gel and AGM types. Other battery types can be used if a range provided suits your needs. Units are supplied pre-set to volts map 3 and volts range 1. (standard voltage map 'curve' at 12v)*

Volts Map	1 Off load	2 Shallow	3 Std load	4 Med load	5 Heavy Ld	6 Deep Dsg
Red Flash	<11.1	<11.5	<10.7	<10.0	<9.6	<7.3
Red 1	> 11.1	>11.5	>10.7	>10.0	>9.6	>7.3
Red 2	> 11.3	>11.7	>11.0	>10.4	>10.1	>9.6
Orange 1	> 11.45	>11.8	>11.1	>10.6	>10.35	>9.9
Orange 2	> 11.6	>11.9	>11.2	>10.8	>10.6	>10.2
Yellow 1	>11.7	>12.0	>11.35	>11.0	>10.8	>10.4
Yellow 2	>11.8	>12.1	>11.5	>11.2	>11.0	>10.6
Green 1	>11.95	>12.2	>11.65	>11.4	>11.2	>10.85
Green 2	>12.1	>12.3	>11.8	>11.6	>11.4	>11.1
Green 3	>12.2	>12.4	>11.95	>11.8	>11.6	>11.2
Green 4	>12.3	>12.5	>12.1	>12.0	>11.8	>11.3
Green 5	>12.45	>12.6	>12.3	>12.2	>11.95	>11.45
Green 6	>12.6	>12.7	>12.5	>12.4	>12.1	>11.6
Red / Green	>15.1v	>15.1v	>15.1v	>15.1v	>15.1v	>15.1v

Note 1 :	M Unit can be programmed by holding front panel button for 5 seconds. N unit uses internal button. See text
Note 2 :	24v levels are twice those stated above for 12v.
Note 3 :	Refer to your battery's data sheet especially if you wish to use other than 'volts map' range 1 to 3.
Note 4 :	M model Display modes (blank, single and multi LED) can be cycled through by momentary pressing front button during operation
Note 5 :	End of scale red and green leds flash together if battery 'overcharge' limit is exceeded (15.1v)
Note 6 :	M model can sound alarm at pre programmed minimum level. Cancelled by external button.

Installation : The unit has two wires. Connect the red wire to supply positive and the blue to supply negative. The unit is internally fused but should have the wiring to it protected by a suitable local fuse, 5A maximum. The unit has inbuilt interference suppression, but in very noisy electrical environments it may require additional in-line suppression which may be purchased from car radio installation stores. The unit is intended for surface mounting via the backing tape or tie and base provided. On 'M' models, do not mount the unit where water may enter the programming button or sounder apertures.

Operation: The unit will operate according to programmed mode. On 'M' models, Press the front panel button to sequentially change between the three display types - blank, single LED, or multi-led. Pressing the button will also cancel any active audible alarm (M model only). 'N' models can have the display mode programmed by the internal programming button – once Single or Bargraph mode is selected, the unit will 'remember' your selection even when powered off. Overvoltage / Overcharge is indicated by the end red and green LEDs flashing together. A battery at or below the fully discharged level will be indicated by the first led flashing rapidly.

Mode select button: (M Models only) Pressing the front button momentarily will cause the unit to cycle through its 3 display modes. Pressing the button will also cancel any active audible alarm (M model only). Holding the button for more than 5 seconds will invoke programming mode.

Programming: On 'M' models with external pushbutton and sounder, the programming is accomplished by using the external button. On 'N' models, the case must be opened and the electronics module removed from the case to access the programming button. The button is located between the 1st and 12th LED at the bottom of the board. The 'N' model has programming functions for the optional (not fitted) sounder – leave this set to the minimum level (first red LED illuminated). ***When re-assembling the unit, it is important to press the PCB into the recess of the rear cover, and offer up the rear cover/PCB assembly into the main case as a whole. If you do not do this, it may be difficult to get the rear cover correctly in place.***

To program, Press and **HOLD** the button on the front panel for 5 seconds. The display will go blank until the unit lights all LEDs to indicate programming mode entered. Release the button. The unit will light a single LED, indicating the first programmable item, which is

Volts Range setting. Press the button to cycle between settings 1 (12v) or 2 (24v). 'One' is indicated by the first red LED, 'two' by the second red LED, and so on. If you do not wish to make a change, do not press the button. Five seconds after the button is last pressed (if you ever pressed it) the unit will flash all LEDs to indicate it has moved to the next setting, and display the

Volts Map settings. Select which of the six settings you wish to use in the same method as described for 12/24v selection by pressing the button to cycle through the 6 choices. Five seconds after the button is last pressed (if you ever pressed it) the unit will flash all LEDs to indicate it has moved to the next setting, and display the

Audible Alarm settings. The alarm level can be set to trigger on the lowest six LED levels (red through to last yellow LED). Select which of the six settings you wish to use by pressing the button to cycle through the 6 choices. If you wish to "disable" the alarm feature, set to the lowest alarm point. The alarm will still operate when the battery discharges to this point, as the battery has reached a critical discharge level.

Make any changes, if needed, and five seconds later, the unit will flash all LEDs, and will repeat back to you the settings you input, in the order "Battery Type (12/24v)", "Volts Map (1-6)" and Alarm (1-6). The unit will then save the settings, and operate in the mode programmed. All programmed settings are stored by the unit for at least 100 years, even with power removed. If you have a 'N' model, after programming as above, momentarily press the programming button to cycle between blank, single led and multi-led modes. The unit will remember and operate in the mode set. Blank mode cannot be set on a 'N' model, and will default to the multi-led mode when next powered up.

Alarm Operation. When the unit reaches the alarm set point, it will perform a 10 second alarm sequence. On 'M' models fitted with a sounder, the LED display will flash for one second, and the alarm will sound during this time. On 'N' models, the display will flash, but no sounder is present. To cancel the alarm condition, either press the front panel button (M models) or re-charge the battery so that the display goes at least 4 LED points above the trigger level you set, which will invoke an automatic alarm reset. Once the alarm has been cancelled by the front panel button, it will not re-trigger until the battery is recharged at least 4 led indication points above the trip level. This is to prevent further triggering if the battery voltage fluctuates at low battery levels.

The alarm feature will not operate if the unit is in 'blank' display mode.

Safety, end of life, and warranty statement



This unit is an installable component and not a complete system in its own right and therefore requires installation. The installation, use and suitability in a given application is the responsibility of the installer. Any damages or consequences are limited to the replacement of the unit under the 12 month guarantee. Do not allow the unit to become damaged, immersed in water, dismantled, or make modifications to the enclosure or internal parts. Do not use the unit outside of its operating voltage specification. At end-of-life this product should be taken to suitable recycling facilities and not put into general household rubbish.