

Remote Control
for ME Series
Inverter/Chargers
Operator's Manual

MAGNUM
E N E R G Y

Remote Control

for ME Series Inverter/Chargers

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SAVE THESE INSTRUCTIONS
This manual contains important safety instructions.

1. Overview

IMPORTANT SAFETY INFORMATION

- This product must be installed by a qualified technician in accordance with all applicable electrical codes
- Always disconnect the coach's batteries before installing this product
- Remove the generator's spark plug (or disconnect the battery on diesel generators) to prevent accidental starting during installation of this product
- Use insulated tools

Remote Control for ME Series Inverter/Chargers

Congratulations on your purchase of a remote control for your Magnum Energy inverter/charger. The remote allows you to customize the operating parameters of the inverter/charger, thus maximizing performance and increasing the life of your batteries.

The remote control has all of the programming and operation functions included in an easy-to-use package. The remote features soft keys as well as a rotary knob, LEDs and a two-line LCD readout.

To help save energy, the automatic power saver mode turns off all LEDs as well as the LCD display five minutes after the last soft key has been pushed. The display will "wake up" with any keystroke or whenever a change in operational status occurs.

Installing the remote control is a simple process and requires the following tools:

- Phillips Screw Driver
- Level
- Drill
- 7/64" & 1/8" Drill Bits
- Pencil



CAUTION: Always check for hidden wires, pipes and cables BEFORE drilling or cutting into the coach's walls, cabinets or bulkheads.

2. Installation

Installing the ME Series Remote Control

1. Determine a suitable location to mount the remote control. It must be located in a clean, dry and protected place.

Allow ample room to access the remote's adjustment dial and to view the LEDs for troubleshooting. Pre-drill the four 1/8" holes as necessary.

2. Route the 4 wire twisted pair wiring from the inverter/charger to the remote. Connect the wiring to the rear of the remote and to the remote port on the inverter/charger.

3. Use the four 6x3/4" screws to mount the remote to the coach's wall or bulkhead.



Figure 1
ME Series Remote Control

3. Operation

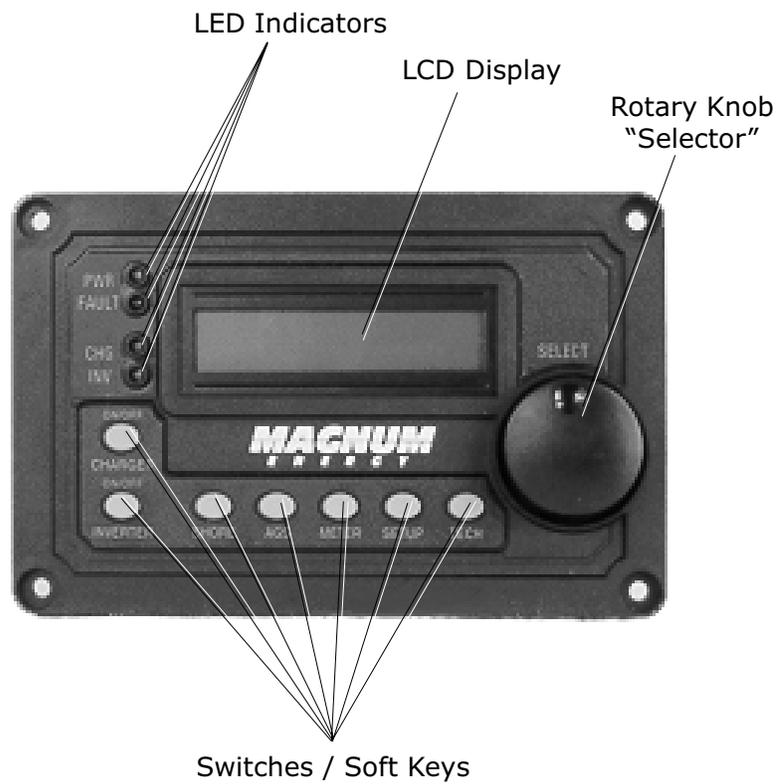


Figure 2
Remote Control - Front Panel

3. Operation, *continued*

ME Series Remote Control - Front Panel

The remote control is equipped with a wide range of easy-to-use switches and displays, allowing you to quickly setup your inverter/charger as well as determine its operational status.

Rotary Knob

The Rotary "spin" knob is similar to a dash radio knob and used to easily move between menus to select program options. Turn the rotary knob clockwise to increase selections and counter-clockwise to decrease selections. Push the knob to "save" the selection displayed in the LCD screen.

Switches

Inverter ON/OFF:

Used to switch the inverter function ON and OFF. The green "INVERTER" LED turns ON and OFF with the switch.

Charger ON/OFF:

Used to switch the charger function ON and OFF. The green "CHARGER" LED turns ON and OFF with the switch. Press and hold the switch down for 5 seconds to initiate EQ.

Soft Keys:

Press the soft keys to access the required function. Then use rotary "SELECTOR" knob to scroll through the selections. Press the rotary knob to save the selection. Options include:

Shore –

Sets the appropriate breaker size for the incoming shore power and is used to control the amount of AC amps the battery charger uses from HOT 1 IN. Selection options are 5,10,15,20,30 and 50 amps.

AGS –

Turns the optional AGS (Auto Gen Start) function ON and OFF. Selection options are OFF, ENABLE and TEST.

Meters –

This function is display only and indicates DC volts, DC amps, AC volts (future) and AC amps (future).

3. Operation, *continued*

Liquid Lead Acid (Flooded)	Bulk 14.6 VDC	Absorption 14.6 VDC	Float 13.4 VDC	Equalize 15.5 VDC
GEL	Bulk 14.1 VDC	Absorption 14.1 VDC	Float 13.6 VDC	Equalize Disabled*
AGM (Absorbed Glass Mat)**	Bulk 14.3 VDC	Absorption 14.3 VDC	Float 13.1 VDC	Equalize 15.5 VDC

* CAUTION: Never "Equalize" Gel batteries.

** NOTE: AGM voltages are courtesy of Lifeline™ brand batteries.

Chart 1 - Battery Charge Voltages

Battery Size	Charge Time
200 Ahr	90 minutes
400 Ahr	120 minutes
600 Ahr	150 minutes
800 Ahr	180 minutes
1000 Ahr	210 minutes

Chart 2 - Absorption Times

(determined by battery bank size selection)

Function	Default
Search	5 watts
LBCO	10 VDC
Battery Bank	400 Ahr
Battery Type	Liquid Lead Acid
Charge Rate	80 %
Contrast	75 %

Chart 3 - Factory Default Settings

3. Operation, *continued*

Soft Keys, *continued*:

Setup –

Configures the inverter/charger. Options include:

- Search

Used to set the search watts at which the inverter will come out of "sleep" mode. Selections are 3-75 watts.

- LBCO (Low Battery Cut Out)

Used to set the DC voltage level to shut down the inverter and protect the batteries from over-discharge damage. Selections are 9.0 VDC, 10.0 VDC and 11.0 VDC. DC volts must reach and maintain LBCO setting for 1 minute before inverter shut down is initiated.

- Battery Size

Used to select the approximate battery bank capacity. Selections are in 200 amp increments from 200 -1000 amps. Battery capacity is also used to determine absorption time during battery charging. See Chart 2.

- Battery Charge Rate

Used to set the maximum charge rate during bulk, absorption or float charge. Selections are in 10 amp increments from 10% - 100%.

- Battery Type

Used to select battery type for the battery charge profile. Selections are Gel, AGM (Absorbed Glass Mat), Liquid Lead Acid (Flooded) and Custom (future). See Chart 1.

- Contrast

Used to adjust the LCD contrast.

- AC Dropout Voltage

Used to select the AC voltage threshold (60, 90, 100 VAC) where the inverter transfers from AC line to inverter mode.

- Tech – (display only)

Reserved for future, this feature is used for troubleshooting the inverter/charger. Options include FET temp, transformer temp, and battery temp.

- Factory Reset

- Restores all settings to factory defaults. press and hold the switch the switch for 5 seconds. "Reset Complete" will be appear in the display. See Chart 3.

3. Operation, *continued*

LEDs

The remote contains the following LEDs to indicate various modes of operation.

PWR (green):

OFF - NO AC power from inverter, shore or generator at inverter output terminals

ON - AC power available from inverter, shore or generator at inverter output terminals

FAULT (red):

OFF - Normal operation

ON - Inverter or Charger shutdown from:
Overtemperature (check tech menu for exact cause),
Low Battery Voltage (battery voltage below LBCO setting or lower than 9.0 VDC, High Battery Voltage (above 15.5 VDC), AC Overload (loads larger than inv output capacity)

CHG (green)

OFF - Charger OFF, no shore or generator AC present

Fast Blink - AC present from shore or generator, synchronizing to AC waveform before relay transfer

ON - Bulk, Absorb, Float, Equalize or Battery Full Charge mode

Slow Blink - Charger Standby (Charger off button was pressed with AC available from shore or generator), Charger Backoff (charger temperature too hot and charger automatically reduced charge rate to maintain temperature), Low AC Input Voltage (Input voltage below 85 VAC. Charger automatically disabled to help stabilize AC line voltage).

INV (green)

OFF - Inverter OFF

Slow Blink - Search Mode. AC load below the Search Watts setting

ON - Inverter ON and supplying AC to output terminals



NOTE: When both the INV and CHG LEDs are "ON," the Inverter is in standby mode. Shore or generator AC power is passed through the inverter to the loads. If shore or generator power is lost, the inverter automatically supplies AC power to the loads.

3. Operation, *continued*

LCD DISPLAY

INVERTING:

OFF -

Unit is "OFF" with no shore or generator AC power applied.

Search -

Unit is in search mode. AC loads are less than the search watts setting.

Inverting -

Unit is inverting power from the batteries into 120 VAC at its output.

CHARGING:

Bulk Charge -

The battery charger is delivering maximum current to the batteries. The charger will remain in bulk charge until the bulk charge voltage is achieved. See Chart 1.



NOTE: The maximum current can be reduced by adjusting the battery charge rate and shore power settings using the setup options.

Absorption -

Absorption charge is the second stage of charging and indicates the bulk voltage for battery type selected has been reached. The DC current will start to taper off in order to maintain the bulk voltage setting. Absorption time is determined by battery bank size selection. See Chart 2.

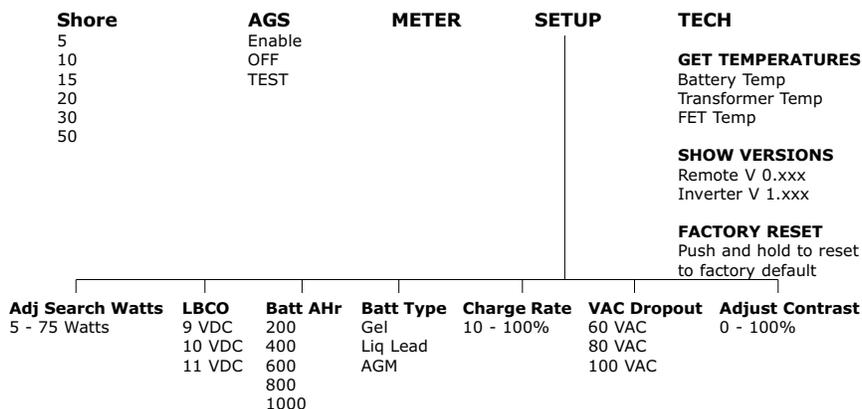


Figure 3
Menu Map

3. Operation, continued

Float –

At the end of absorption time, the charger reduces the charge voltage to the float voltage setting for the battery type selected. See Chart 1.

Battery Saver™ - "Battery Full"

Battery saver mode is a new and unique setting to Magnum Energy's inverter/chargers. It maintains the batteries without "overcharging" thus preventing excessive loss of water in flooded batteries or drying out of AGM batteries. After 4 hours in float mode, the charger is switched OFF and "Battery Full" is indicated. When the battery voltage drops to 12.9 VDC, the charger turns on and float charges the batteries to a nominal level. Once that level has been reached, the charger returns to "Battery Full" mode to monitor the batteries.

Equalize –

The battery charger is delivering equalize voltage to the batteries for a maximum of 4 hours. See Chart 1. Press and hold the switch down for 5 seconds to initiate EQ. The LED will blink fast.



NOTE: Equalize mode will not start until the charger is in float or "Full Battery" mode.

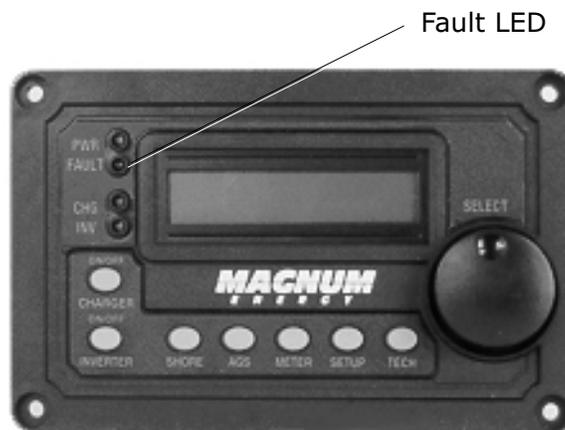


Figure 4
Fault Conditions

4. Troubleshooting and Specifications

Fault Conditions

Low Battery –

The unit has shut down because the battery voltage is below the set point in LBCO. It will automatically restart when battery voltage rises above 12.5 VDC.

High Battery –

The unit has shut down because the battery voltage has exceeded 15.5 VDC. It will automatically restart when the battery voltage drops below 15.5 VDC.

Overtemp –

The unit has shut down because the temperature at the transformer or FET board has exceeded the safe temperature operating range. It will automatically restart after unit cools down.

AC Overload –

The unit has shut down because the AC load connected to the inverter's output exceeded its maximum output rating.



NOTE: When this occurs, reduce the load and MANUALLY restart the unit.

Specifications

Electrical Requirements	12 VDC
Controls	Charger (ON/OFF), Inverter (ON/OFF)
LED Indicators	Power, Fault, Charger, Inverter
Soft Keys	Shore, AGS, Meter, Setup, Tech
Selector Switch	Rotary (press to accept)
Display	LCD (2 line)
Cable type	4 wire twisted pair
Weight	0.5 lb (0.22 kg)
Dimensions	3.75" H x 5.75" W x 1.125" D (9.5 cm H x 16.6 cm W x 2.9 cm D)
Cutout Dimensions	2.75" H x 4.75" W (7 cm H x 12 cm W)

Specifications at 25 °C - subject to change without notice.

5. Warranty

36 Month Limited Warranty

Magnum Energy, Inc., warrants the ME Series Remote Control to be free from defects in material and workmanship that result in product failure during normal usage, according to the following terms and conditions:

1. The limited warranty for the product extends for 36 months beginning from the product's original date of purchase.
2. The limited warranty extends to the original purchaser of the product and is not assignable or transferable to any subsequent purchaser.
3. During the limited warranty period, Magnum Energy will repair, or replace at Magnum Energy's option, any defective parts, or any parts that will not properly operate for their intended use with factory new or rebuilt replacement items if such repair or replacement is needed because of product malfunction or failure during normal usage. The limited warranty does not cover defects in appearance, cosmetic, decorative or structural parts or any non-operative parts. Magnum Energy's limit of liability under the limited warranty shall be the actual cash value of the product at the time the original purchaser returns the product for repair, determined by the price paid by the original purchaser. Magnum Energy shall not be liable for any other losses or damages.
4. Upon request from Magnum Energy, the original purchaser must prove the product's original date of purchase by a dated bill of sale, itemized receipt.
5. The original purchaser shall return the product prepaid to Magnum Energy in Everett, WA. Magnum Energy will return the product prepaid to the original purchaser after the completion of service under this limited warranty.
6. This limited warranty is voided if:
 - the product has been modified without authorization
 - the serial number has been altered or removed
 - the product has been damaged through abuse, neglect, accident, high voltage or corrosion.
 - the product was not installed and operated according to the owner's manual.

IN CASE OF WARRANTY FAILURE, CONTACT MAGNUM ENERGY INC. FOR A RETURN AUTHORIZATION (RA) NUMBER BEFORE RETURNING THE UNIT FOR REPAIR.



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