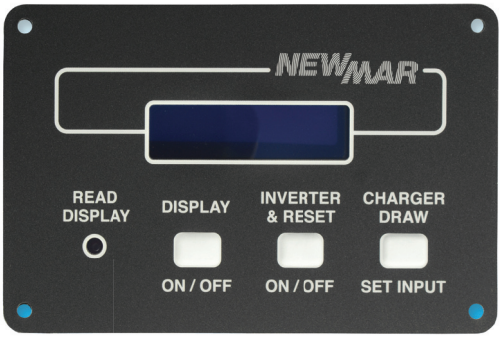
Torque Series LCD Remote Panel Installation/Operation Manual

Model: TQ-DSP-12/24



M-TQREMPNL
As of 062014

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Introduction

Thank you for purchasing an optional model TQ-DSP remote display for your Torque Series Inverter-Charger. The TQ-DSP will take the place of the small display located on the Torque Inverter-Charger.

Materials provided:
1 x LCD display
1 x Installation/Operation Manual
1 x TQ-RMK Mounting Kit with the following:
- 1 x Cover Plate - for unit mounted small LCD display
- 1 x RJ45, 8 pin coupler
- 2 x 8-32 x 3/8" Phillips pan head screws
- 25 ft. 8 conductor flat cable
- 1 x 3/32" Allen wrench
- 1 x 12" #18 Red Jumper Wire (DC Active Wire Tab)

I) SAFETY INSTRUCTIONS

IMPORTANT
Read this manual before installation, it contains important safety, installation and operating instructions. Save this manual and keep it in a safe place.

Newmar is an ISO 9001:2008 Registered Company.

Newmar uses the following special notices to help prevent injury and/or damage to equipment.

⚠ **DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ **WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTE is used to notify of installation, operation, or maintenance information that is important but not hazard related.

Safety Listings

c UL us LISTED **Power Inverter, E100666**

A) Inverter Safety Instructions

⚠ **WARNING:** Torque Inverter produce hazardous voltages. To avoid risk of harm or fire, the unit must be properly installed.

⚠ **WARNING:** There are no user serviceable parts inside, do not remove the cover.

⚠ **WARNING:** Torque Inverter-Chargers should not be mounted in a location that may be exposed to rain or spray.

⚠ **WARNING:** Torque Inverter-Chargers should not be installed in a zero clearance enclosure.

⚠ **WARNING:** Damage to the Power Inverter will occur if correct polarity is not observed when installing the inverter's DC input cables.

⚠ **WARNING:** Damage to the Power Inverter will occur if an external AC power source is applied to the inverter's AC hardwire output.

⚠ **WARNING:** Power Inverters contain a circuit breaker and capacitor that may produce a spark upon connection or during normal operation. Do not mount in a confined battery or gas compartment.

⚠ **WARNING:** Be sure the Power Inverter is turned OFF during installation.

⚠ **WARNING:** Be sure the Power Inverter is turned OFF and AC power is disconnected when batteries are being connected, disconnected, serviced, and replaced or personal injury and/or damage to the inverter could result.

B) Battery Safety Instructions

⚠ **WARNING:** Working in the vicinity of lead-acid batteries is dangerous. There is a risk of acid exposure.

⚠ **WARNING:** Batteries generate explosive gases during operation.

⚠ **WARNING:** There is risk of high current discharge from shorting a battery that can cause fire and explosion. Use insulated tools during installation.

⚠ **WARNING:** Remove all rings, watches, jewelry or other conductive items before working near the batteries.

⚠ **WARNING:** Inspect the batteries at least once a year for cracks, leaks or swelling.

⚠ **WARNING:** Dispose of the batteries according to local regulations. Do not incinerate batteries; risk of explosion exists.

⚠ **WARNING:** Be sure the Torque Invertre-Charger is turned OFF and AC power is disconnected when batteries are being connected, disconnected, serviced, and replaced or personal injury and/or damage to the inverter could result.

II) Wiring & Mounting

A) Small Display Removal & Wiring Preparation

Warning: Disconnect AC & DC battery power before proceeding.

1. Using a 3/32" Allen wrench remove the two screws on the four button LCD panel on the front of the Torque inverter/charger and pull the panel away from the unit and un-plug the flat cable from the rear of panel.

2. Install the RJ-45 snap-in coupler provided in to the cover plate.

3. Plug the RJ-45 cable from inverter/charger in to the RJ45 coupler and attach the cover plate (painted side facing out) to front of unit using the provided 8-32 x 3/8" screws (2).

4. Plug one end of the provided 25 ft. 8 cond. Cable in to the RJ-45 coupler and route the cable to where the display will be mounted. See LCD Display Panel Mounting/Wiring section of this manual.

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B) LCD Display Panel Mounting/Wiring

1. Choose a mounting location for the TQ-DSP display which will allow approximately 2" of clearance for the panel rear and the connecting cable. Be careful not to cut any wires which might be located behind the panel mounting location. Route and secure any wires in this area away from the cutting area.

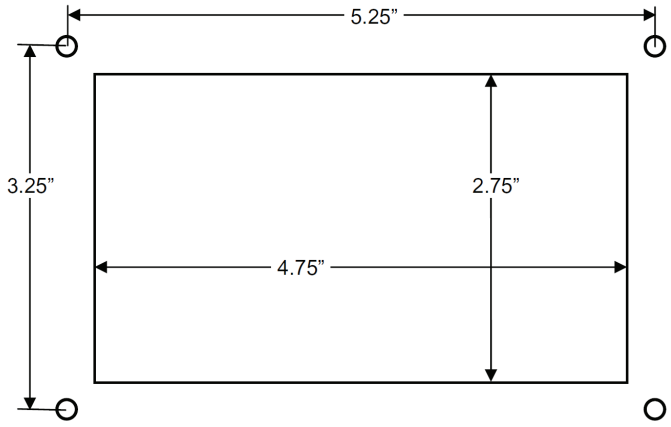
2. Using the panel mounting cut out hole dimensions on page below, draw a rectangular shape 4-3/4" wide and 2-3/4" high using a pencil or fine point marker and carefully cut the hole with a jig saw or saws all.

3. Test fit the panel in to the hole cut out, make sure the panel is level and then mark the four screw mounting hole locations. Remove the panel and drill the four screw mounting holes (not provided). The panel screw mounting holes will accept up to a #8 screw size.

4. Route the un-connected end of the 25 ft. 8 cond. Flat cable up through and out the rectangular cut out. Plug the cable in to the RJ-45 jack on the rear of the panel and install the panel in the cut out using four mounting screws.

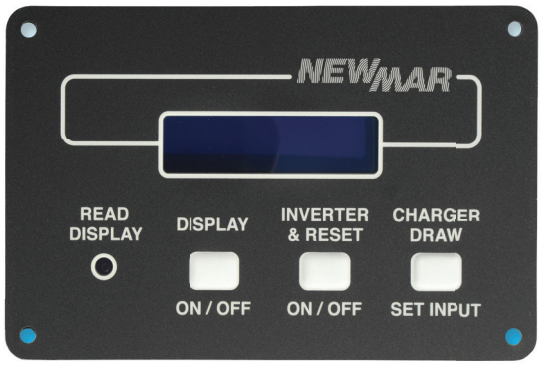
C) LCD Display Panel Mounting Diagram

The LCD Display panel needs a mounting hole and screw positions as shown below. Use a #8 screw for mounting the display:



III) Operation

Once the inverter has been fully installed and wired, and DC power has been applied, the LCD display panel will come to life. This display panel shows the status and configuration information of the inverter and charger. You can also turn the inverter on and off by pressing the [INVERTER ON/OFF] key and also make configuration changes using the [CHARGER DRAW] key.



The first message that you will see scroll on the LCD Display once DC power is applied is:

```
CHGR-OFF  AC  BAD
INVERTER-OFF
```

This message means that both the charger and inverter are off and that the unit is not plugged into shore power or there is a problem with AC power coming to the unit.

A) Inverter Power Mode (Using LED Display Panel)

1) Turning the Inverter "ON" or "OFF" (no AC applied):
Simply press the [INVERTER ON/OFF] key and the inverter will turn on. Press the [INVERTER ON/OFF] key again to turn the inverter off.

While the inverter is on the following message will display:

```
INVERT   550 WATT
BATT 12.6 VOLTS
```

This message shows that the inverter is on, the load is consuming 550 watts of power, and that the battery voltage is currently at 12.6 volts.

2) Inverter "Stby"
The inverter standby feature allows the inverter to automatically come on anytime that it senses a loss of shore power and then go back to standby when shore power is returned (after 22 seconds of line qualify time).

This feature is enabled by turning the inverter on by pressing the [INVERTER ON/OFF] key. If this is done while shore power is applied the LCD display will show:

```
INVERT-STANDBY
OVERRIDE BY CHGR
```

This message is stating that the inverter is in standby and that the charger is running. This message will show for 15 seconds and then revert to showing the charger status

NOTE - To exit Inverter standby mode, press the [INVERTER ON/OFF] key twice.

If you turn off the inverter while shore power is applied the display will show:

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```
INVERTER-OFF
PUSH FOR STANDBY
```

This message is stating that the inverter is off and that to put it back to standby you need to push the [INVERTER ON/OFF] key.

3) Other inverter messages:

```
INVERT LOW BATT
BATT 9.8 VOLTS
```

Low battery condition due to start surge or undersized battery cable gauge. If this condition remains for => 5 seconds the inverter will shutdown.

```
INVERT OVERLOAD
BATT 11.8VOLTS
```

Overload condition due to excessive loads or short circuit. If this condition remains for => 5 seconds the inverter will shutdown.

4) Battery Test
The battery voltage can be viewed at anytime by pressing the [DISPLAY] key.

```
INVERT 550 WATT
BATT 12.6 VOLTS
```

B) External Power Mode (Using LED Display Panel)

1) Bypass Relay: The loads attached to the inverter output will operate directly from the external AC power line independently of the inverter ON/OFF status. If the inverter is left ON (standby mode), the built-in bypass relay will automatically cycle back and forth between "Inverter Power" mode and "External Power" mode depending on the availability of the external AC power line.

Battery Charger
The battery charger will engage automatically and independently of the inverter ON/OFF status. The 3-step charging process modes are; Bulk, Acceptance, and Float.

2) AC Input Limit (Charger AC current limit)
The maximum AC current that the charger will be allowed to draw is adjustable. This value can be set to 30-0A (maximum value is factory set based on model). The default setting is for 15 amps. Press [CHARGER DRAW SET INPUT] to display the current setting. The message will then scroll:

```
CHGR POWER DRAW
LIMIT 15 AMPS AC
```

To change the value press [CHARGER DRAW SET INPUT] and the value will decrease in 5A increments. The charger stores the last value shown on the display.

3) Charger Modes
The charger has three modes of operation; Bulk, Accept, and Float. The display panel will state which mode the charger is in when shore power is applied. The mode along with the charge voltage and current will be displayed.

Bulk Mode:

```
CHGR-BULK MODE
12.3VOLT, 50AMP
```

Accept Mode:

```
CHGR-ACCEPT MODE
14.4VOLT, 30AMP
```

Float Mode:

```
CHGR-FLOAT MODE
13.1VOLT, 0AMP
```

4) Temperature Compensation Cable or Dongle
If the temperature compensation Cable or Dongle is not connected to the "Temp. Sense" connector on the inverter; the battery charger will not function, the red "READ DISPLAY" LED will come on, and the display will show (If the display is off press the [DISPLAY ON/OFF] button):

```
CHARGER-OFF
CHECK BATT PROBE
```

Check to make sure that the cable is connected.

IV) Troubleshooting

Look at the "LCD DISPLAY PANEL MESSAGES" below for LCD descriptions. **WARNING:** Do not remove chassis cover. No user-serviceable parts inside.

LCD Display Panel Messages

1) Inverter Off Low Battery

```
INVERTER OFF
LOW BATTERY
```

The inverter is off due to a low battery voltage condition (<=10.5 volts for 5 seconds). The Red "READ DISPLAY" LED is on. Check battery charge and DC wiring cable size. The inverter will turn back on when battery voltage rises above 10.5 VDC.

2) Inverter Off Overload

```
INVERTER OFF
OVERLOAD
```

The inverter is off due to an overload condition. The Red "READ DISPLAY" LED is on. Remove one or more loads from the output of the inverter. Reset the inverter.

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3) Inverter Off High Temperature

```
INVERTER OFF
HIGH TEMP
```

The inverter is off due to a high temperature condition (>60°C/140°F). The Red "READ DISPLAY" LED is on. The inverter will turn back on when the temperature is < 45°C/113°F.

4) Inverter Off High Battery

```
INV-OFF HI-BATT
BATT XX.XVOLTS
```

The inverter is off due to a high charging voltage condition (>16.9 volts) and the display reports the value. The Red "READ DISPLAY" LED is on. Inverter restarts at 15.5 volts. Check the vehicle alternator/regulator.

5) Charger Off High Temperature

```
CHARGER-OFF
CHGR HIGH TEMP
```

The charger is off due to a high temperature condition (>60°C/140°F). The Red "READ DISPLAY" LED is on. The charger will turn back on automatically when the temperature is < 45°C/113°F.

6) Charger Off Battery Temperature

```
CHARGER-OFF
BATT HIGH TEMP
```

The charger is off due to a high battery temperature (>47°C/117°F-50°C/122°F). The Red "READ DISPLAY" LED is on. Check the battery compartment for proper ventilation. If this keeps recurring, have batteries checked for a shorted cell.

7) Charger Off Battery Probe

```
CHARGER-OFF
CHECK BATT PROBE
```

The charger is off due to a shorted or open (missing) temperature compensations sensor. The Red "READ DISPLAY" LED is on. Check the connections.

8) Charger Off High Battery

```
CHGR-OFF HI-VOLT
XX.XVOLT BATTERY
```

The charger is operating in a high DC output voltage condition. The display will tell the voltage and the Red "READ DISPLAY" LED will be on. Disconnect other battery charger or source and reset.

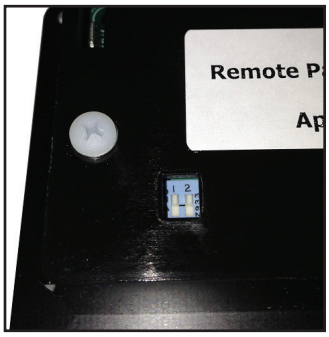
9) Charger Warm Battery

```
CHGR-WARM BATT
XX.XVOLT, XXXAMP
```

The charger reduced output due to warm battery temperature. The display will show the battery voltage and current. The Red "READ DISPLAY" LED is on. Check battery compartment for proper ventilation.

V) Appendix

A) Ignition Switch Control with the LCD Display Panel



The LCD Display Panel can be wired to the vehicle ignition or master disconnect circuitry to control operation of the inverter. Before connecting the remote wire to the remote be sure to set the dip switch for the desired operation. Dip switch 2 controls the programming of the "DC Active Wire Tab".

A 12 inch #18 red wire with 1/4" female and male fast-on terminals is provided for aiding connection to the DC Active Wire Tab.

If vehicle does not have a master disconnect: Move DIP switch 2 to the up position. The next step is to use an insulated female faston and using 18awg wire, connect to the "DC Active Wire Tab." Wire the other end through a 5 amp inline fuse to the ignition circuitry of the vehicle.

If vehicle has a master disconnect: Move DIP switch 2 to the down position and connect the vehicles disconnect wire to the "DC Active Wire Tab".

B) Charger AC Input Current Maximum with the LCD

The LCD Display Panel can be set for the upper limit of the battery charger. This is done by setting DIP switch 1. Dip switch 1 in the up position sets the upper limit at 30 AC amps. Dip switch 1 in the down position sets the upper limit at 15 AC amps.

VI) Warranty and Contact Information

Newmar warrants that the Torque Series Inverter-Charger Remote Display Panel to be free from defects in material and workmanship for two years from date of purchase. If a problem with your Remote Display Panel, or if you have any questions about the installation and properoperation of the unit, please contact NEWMAR's Technical Services Department:

Phone: 714-751-0488 - From the hours of 7:30 a.m. to 5:00 p.m. weekdays, P.S.T.;
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