



# Gyro Repeater

## OPERATION AND INSTALLATION MANUAL

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## ***Introduction***

This manual refers to the use of the TMQ Gyro Repeater when used with a TMQ NMEA Gyro Convertor. Not all functions are available when used for displaying heading with other devices

### Main features include:

- Large 25mm (1”) digits display current heading.
- Alarm function provides a user adjustable off course alarm.
- Alarm band adjusted in degree increments.

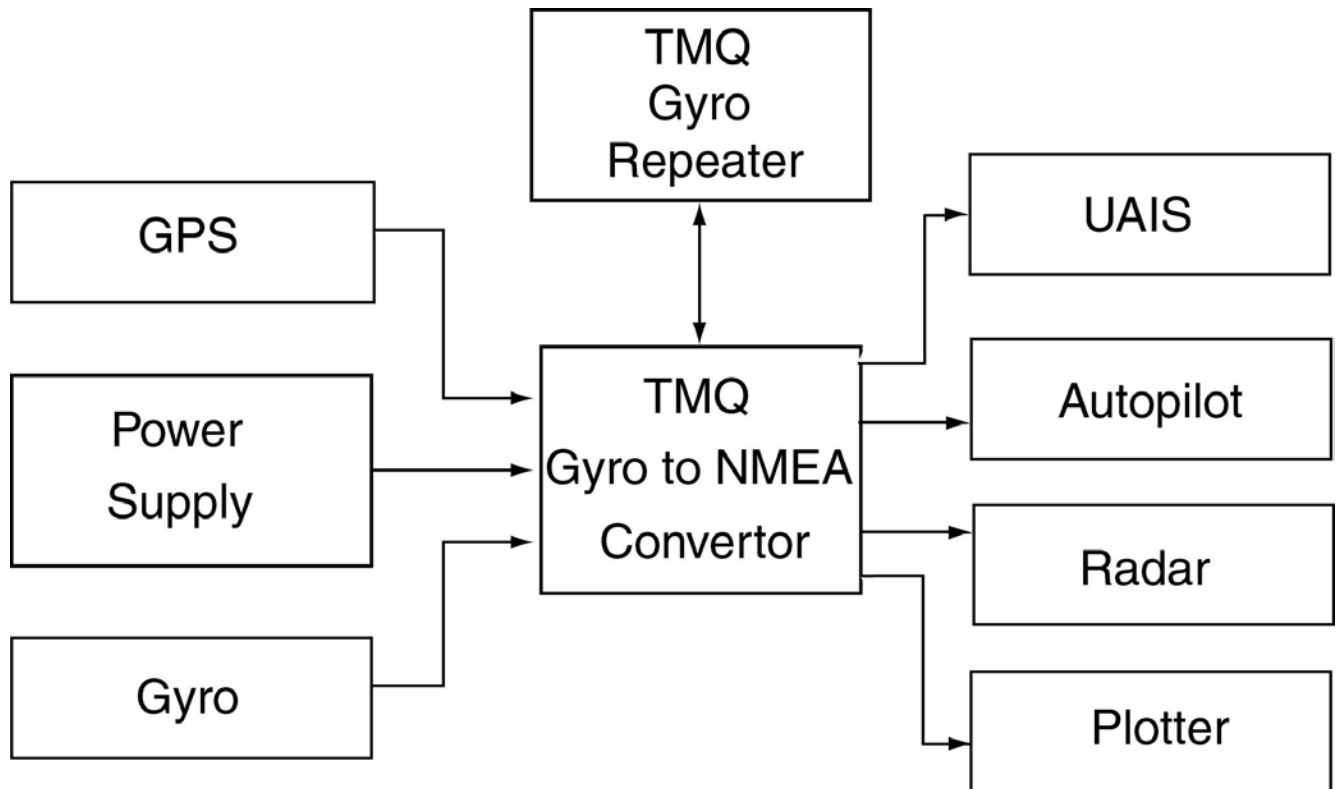
The Gyro Repeater connects to a TMQ Gyro to NMEA convertor or any device transmitting the NMEA 0183 HDT message, the full system may comprise of the following units: -

### **Essential Electronics:**

- Gyro Repeater head.
- TMQ Gyro to NMEA Convertor / Interface (Or an NMEA 0183 message)
- Gyro if required.

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## *Block Diagram of full system*



The Gyro Repeater head provides a digital display of the current heading, it also enables various settings and alarms to be set.

It connects directly to the TMQ Gyro to NMEA Convertor and does not require a separate power supply.

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## *Definition of Terms*

### Gyro Repeater:

The Operation unit, with LCD Display and pushbuttons.

### Gyro to NMEA Convertor

TMQ Gyro to NMEA Convertor. This provides the required NMEA data information for the Gyro Repeater in NMEA 0183 format.

### Heading:

The heading of the vessel derived from the Gyro or other device at the current time.

### Off course alarm:

An alarm that sounds when the vessel's heading is off course more than the pre-determined amount.

### No Gyro Data Alarm

An alarm that sounds when the Gyro Repeater does not receive any data from the Gyro Interface.

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## *Installation of Gyro Repeater Head Unit*

### **Position:**

The Gyro Repeater unit should be mounted in a position accessible to the steering position and protected from direct rain or salt water. A hole of 70mm (2.5inches) is required for the rear of the unit.

### **Wiring:**

Access for wiring must be provided from the TMQ Gyro to NMEA Convertor to the Gyro Repeater. Wiring should be kept as far as possible from radio aerials and aerial cables to prevent interference to the radio and transmitted signals from the radio influencing Gyro Repeater. Cable should also be run separately (if practical) from other current-carrying cables.

### **Magnetic Effect:**

**As no steel is used in the Gyro Repeater, there is negligible effect on a steering compass. Some radio interference may be caused by the internal electronics.**

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## ***Operation of Gyro Repeater when used with TMQ Gyro to NMEA Convertor***

### ***Turning the unit ON / OFF***

### **The power to the Gyro Repeater unit is supplied directly from the TMQ Gyro to NMEA Convertor**

The following details the capabilities of the Gyro Repeater. Each function is selected by pressing the MODE button, the options scroll one at a time per press of the MODE button and then repeat.

- “SET-” 1 press of the MODE button
- “Pr-C” 2 presses of the MODE button
- “Er-C” 3 presses of the MODE button
- “LitE” 4 presses of the MODE button

### ***Heading adjustment HDT “SET-”***

After the unit has been powered up the display will show a heading of 000.0 this will normally require setting to be the same as the true heading output from the Gyro.

Method:

1. Press the ‘MODE’ button once, “SET-” will be displayed and the ‘SET’ light will be illuminated.
2. Press the < or > button to set the required heading. Single presses will alter the heading in small divisions, pressing and holding the button will alter the heading in large divisions.

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3. Press and hold the 'AUTO' button to store the new heading. The 'SET' light will go off.
  4. The 'ACTIVE' light should now be illuminated.
  5. The new Heading has been set.

### ***Presetting a Course***      ***“Pr-C”***

A required course can be preset

Method:

1. Press the 'MODE' button twice, "Pr-C" will be displayed and the 'SET' light will be illuminated.  
Note:- After 5 seconds of inactivity the "Pr-C" function will cancel and the display will return to current heading.
2. Press the < or > button to set the required course. Single presses will alter the heading in small divisions, pressing and holding the button will alter the heading in large divisions.
3. Press and hold the 'AUTO' button to store the new course. The 'SET' light will go off.
4. The 'ACTIVE' light should now be illuminated.
5. The new Course has been set.

### ***Off Course Alarm***      ***“Er-C”***

The Gyro Repeater allows for monitoring of the course holding ability. The angle off-course is measured, an alarm sounds and OFF/C Light flashes if greater than the preset number of degrees from the desired course.

The required angle Off Course can be preset in degree increments. The same angle will apply for both Port and Starboard.

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Method:

1. Press the 'MODE' button three times, "Er-C" will be displayed and the 'SET' light will be illuminated.  
Note:- After 5 seconds of inactivity the "Er-C" function will cancel and the display will return to current heading.
2. Press the < or > button to set the required course error. Single presses will alter the heading in small divisions, pressing and holding the button will alter the heading in large divisions.
3. Press and hold the 'AUTO' button to store the new course. The 'SET' light will go off.
4. The 'ACTIVE' light should now be illuminated.
5. The required Off Course Error Alarm has been set.

## ***Backlighting "LitE"***

When using the autopilot at night, the backlighting can be turned on which will illuminate the buttons and display.

Method:

1. Press the MODE button four times "LitE" will be displayed
2. Press the > button to switch the backlighting ON.
3. Press the < button to switch the backlighting OFF.

The backlighting will always be on when the unit is powered up.

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## *Alarms*

A number of conditions will cause alarms to sound and an alarm message to blink on display.

### NO Gyro Data Alarm “no data”

This indicates that the Display Unit is not receiving data from the Gyro Interface assembly. Check that all plugs are secure and the interconnecting cable is not damaged.

### OFF COURSE Alarm

The alarm sounds when vessel is more than the preset amount from the selected course-to-steer. The OFF/C light flashes and the buzzer sounds. The buzzer can be cancelled by pressing the AUTO button.

Note: The Off Course Error Alarm will still be set for the next Off Course occurrence.

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## ***Wiring Information***

### Terminal strip in the TMQ NMEA Gyro Convertor

+	Red
--	Shield
RXD-	Blue
RXD+	Yellow
TXD	Green

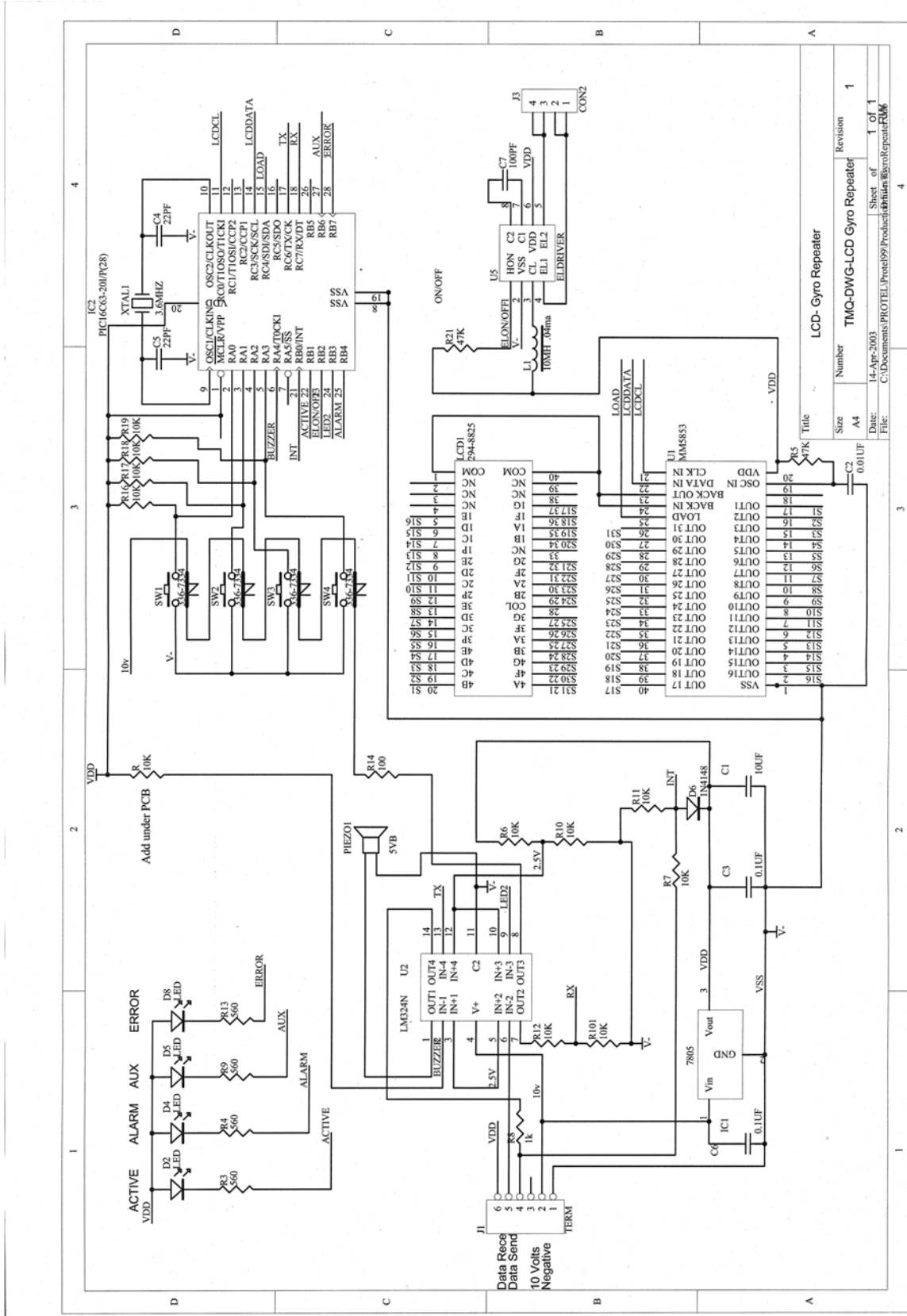
### Terminal Strip in the TMQ Gyro Repeater

+	Red
--	Shield + Blue
OUT	Yellow
IN	Green

### 5 PIN LTW Plug Wiring

Pin 1	+	Red
Pin 2	--	Shield
Pin 3	RXD-	Blue
Pin 4	RXD+	Yellow
Pin 5	TXD	Green

# Gyro Repeater Circuit Diagram



# Gyro Repeater Overlay

