



# C-Trak Data Modem Mobile Unit (Revision 5)



**OPERATION AND INSTALLATION MANUAL**

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## ***Introduction***

The GPS Data Modem is a rugged, easy to use radio data transmission and reception device. It is designed for use with different radio systems.

The system is compatible with a wide range of NMEA 0183 GPS receivers.

The GPS Data modem connects to the C-Trak computer-tracking terminal enabling plotting of vessel position from Data received via the radio. The C-Trak computer tracking system enables the base station to Poll and interrogate any mobile unit in their group. Additionally an alarm signal can be sent to a mobile unit.

The range of the C-Trak system depends on the type of radio system used at both the base station and the mobile unit, also the type of terrain between them. As a general rule data transmission is possible whenever voice transmission is possible.

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## *TMQ C-Trak Software*

### System functions

- Displays charts
- Displays mobile unit position and past track
- Displays all selected mobile units position and past track
- Enables the Base station to Poll a mobile unit
- Enables the Base station to send an alarm to a mobile unit

TMQ C-Trak chart plotting software enables the base station to view the location of each mobile unit and the past track of that mobile unit by its unique track colour. The track is displayed over the chart for the mobile units location. Individual points along that track may be independently interrogated within the Info mode of the plotting software.

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## ***System Configuration***

To set up a basic system comprising of a Base Station and a Mobile Unit the minimum requirements are :-

### ***Mobile Unit***

- TMQ C-Trak Data Modem
- Radio Transceiver
- 12 Volt Power Supply
- GPS Receiver (NMEA 0183 compatible)

### ***Base Unit***

- TMQ C-Trak Data Modem
- Radio Transceiver
- 12 Volt Power Supply
- TMQ C-Trak Software
- Personal Computer

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## ***Installation Requirements***

### TMQ C-Trak Data Modem (Mobile Unit)

#### Position

The TMQ C-Trak Data Modem should be mounted in a position protected from Rain and Salt Water at all times.

#### Wiring

Access for wiring should be provided at the front and rear of the unit. Cables should be allowed to run to the GPS Receiver, Radio and Power Supply.

#### Magnetic Effect

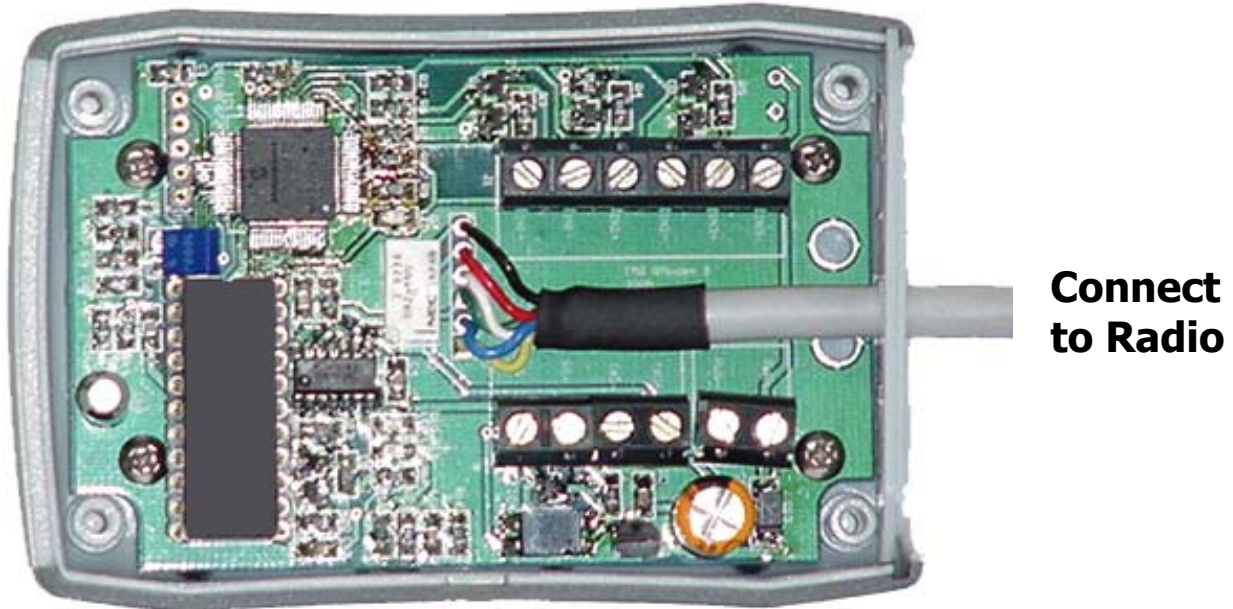
As a minimum amount of Steel is used in the construction of the TMQ C-Trak Modem there would be negligible affect on the steering compass. Radio interference may affect the steering compass or magnetic compass detector used for an Autopilot.

#### Mounting

Double sided tape can be used to secure the TMQ C-Trak Modem to the required Surface. Alternatively, 2 mounting holes can be drilled in the Rear Cover for Screw Fastening.

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## *Internal Connections*



## Radio Connection

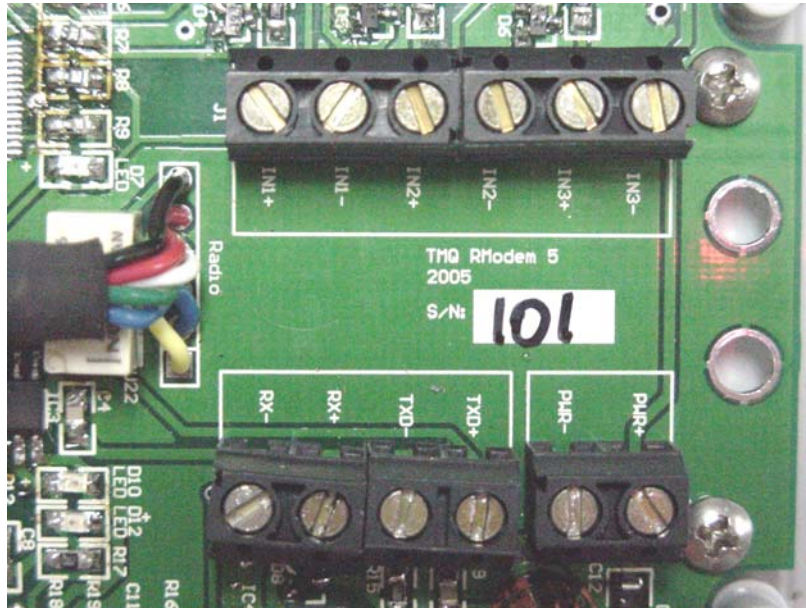
The Radio connection to the TMQ C-Trak Data Modem lead may be made either to the internals of the Radio, to the microphone plug or to an Auxiliary port on the Radio. (If available)

### **Connection Details**

| Wire Colour  | Function     |
|--------------|--------------|
| Red -----    | PTT          |
| Black -----  | PTT -        |
| White -----  | Microphone - |
| Green -----  | Microphone + |
| Yellow ----- | Speaker +    |
| Blue -----   | Speaker -    |

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## Modem Internal Terminal Strips



## Power

The TMQ C-Trak Data modem can be powered from 10-15V DC. Since there is no fuse within the Modem, external protection is required.

Connection is to the 2-Way Terminal strip as follows:-

|      |       |                 |
|------|-------|-----------------|
| PWR+ | ----- | 10-15V Fused DC |
| PWR- | ----- | GND             |

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## GPS Connection

GPS data input is required to the TMQ C-Trak Data Modem. This is connected using the supplied 6 Pin DIN plug, connecting to the GPS socket.

Data Type required is as follows :-

NMEA 0183  
\$GPGGA  
\$GPVTG

GPS Data connection using 4 way Terminal Strip

|             |                        |
|-------------|------------------------|
| TXD + ----- | Transmit Data to GPS   |
| TXD - ----- | Transmit Return to GPS |
| RX + -----  | GPS Data in (RX+)      |
| RX - -----  | GPS Data Return (RX-)  |

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## Auxiliary Connection (Planned in later versions)

The TMQ C-Trak Data Modem allows for external Triggers to be connected

IN1+ -----  
IN1- -----  
IN2+ -----  
IN2- -----  
IN3+ -----  
IN3- -----

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## Computer Connection

The TMQ C-Track Data Modem connection to the PC is via the supplied Computer connection cable.

Computer lead wiring, is as Follows

### 4 way Terminal Strip

### 9 Pin D-Type

|             |                       |       |
|-------------|-----------------------|-------|
| TXD + ----- | Transmit Data -----   | Pin 2 |
| TXD - ----- | Transmit Return ----- | Pin 5 |
| RX + -----  | Receive Data -----    | Pin 3 |
| RX - -----  | Receive Return -----  | Pin 5 |

## Calibration

The TMQ C-Trak Data Modem can be fully configured using the Computer Connection.

To Enter the calibration mode, Type @CAL↵ (Enter Key)

You will then enter the menu system to be able to view and modify the settings for the Modem.

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## ***TMQ C-Trak Data Modem Specifications***

The TMQ C-Trak Data Modem has been programmed to receive / decode and transmit data within the NMEA 0183 specification.

The two sentences required are:-

NMEA GGA

NMEA VTG

Data obtained includes:-

- Latitude
- Longitude
- Speed
- Heading
- GPS Status
- TMQ C-Trak Data Modem Unit Number
- TMQ C-Trak Data Modem Group Number

### ***Automatic Transmission***

Mobile Unit transmission times are controlled from the Base station. The Base station can alter the transmission intervals at any time when it is within range. The more frequently data is transmitted the greater the accuracy of past track obtained will be.

