



# **C-Trak Data Modem**

## **Mobile Unit**

### **(Revision 3)**

**OPERATION AND INSTALLATION MANUAL**

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## Contents

INTRODUCTION.....	4
TMQ C-TRAK SOFTWARE.....	5
SYSTEM CONFIGURATION.....	6
MOBILE UNIT .....	6
BASE UNIT .....	6
INSTALLATION REQUIREMENTS.....	7
<i>Position</i> .....	7
<i>Wiring</i> .....	7
<i>Magnetic Effect</i> .....	7
<i>Mounting</i> .....	7
<i>Power Supply</i> .....	7
<i>GPS Connection</i> .....	8
<i>Radio Connection</i> .....	9
<i>Auxiliary Connection (Planned in later versions)</i> .....	9
<i>Computer Connection</i> .....	10
TMQ C-TRAK DATA MODEM SPECIFICATIONS.....	11
AUTOMATIC TRANSMISSION.....	11
ALARMS .....	11
Circuit Diagram .....	12
Wiring Diagram .....	13

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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

The four mounting holes in the feet should be used to secure the TMQ C-Trak Modem

#### Power Supply

The TMQ C-Trac Data Modem requires 12 Volts DC. Use the supplied lead.

- Red +12 Volts DC (Positive)
- Black Negative

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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 6 Pin DIN Plug

Pin 1.....+12Volt Output to GPS  
Pin 2.....Negative Output to GPS  
Pin 3.....GPS Data Return (RX-)  
Pin 4.....GPS Data in (RX+)  
Pin 5.....Not Used  
Pin 6.....Not Used

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## Radio Connection

The Radio connection to the TMQ C-Trak Data Modem is via a 6 Pin DIN Plug, connecting to the RADIO socket. The connections to this plug/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)

Pin 1.....PTT  
Pin 2.....PTT -  
Pin 3.....Microphone -  
Pin 4.....Microphone +  
Pin 5.....Speaker 1  
Pin 6.....Speaker 2

## Auxiliary Connection (Planned in later versions)

The TMQ C-Trak Data Modem allows for an alarm (visual or audible) to be connected.

Pin 1.....  
Pin 2.....  
Pin 3.....  
Pin 4.....  
Pin 5.....  
Pin 6.....

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## Computer Connection

The TMQ C-Trak Data Modem connection to the PC is via the supplied Computer connection cable. Connect the D-type plug to the Com port of your PC and the 6 pin DIN plug to the Computer socket of the TMQ C-Trak Data Modem.

Computer lead wiring, as follows.

### 6 Pin DIN Plug

### 9 Pin D-Type

Pin 2	-----	Pin 3
Pin 3	-----	Pin 2
Pin 4	-----	Pin 4
Pin 5	-----	Pin 5
Pin 6	-----	Pin 7

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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***

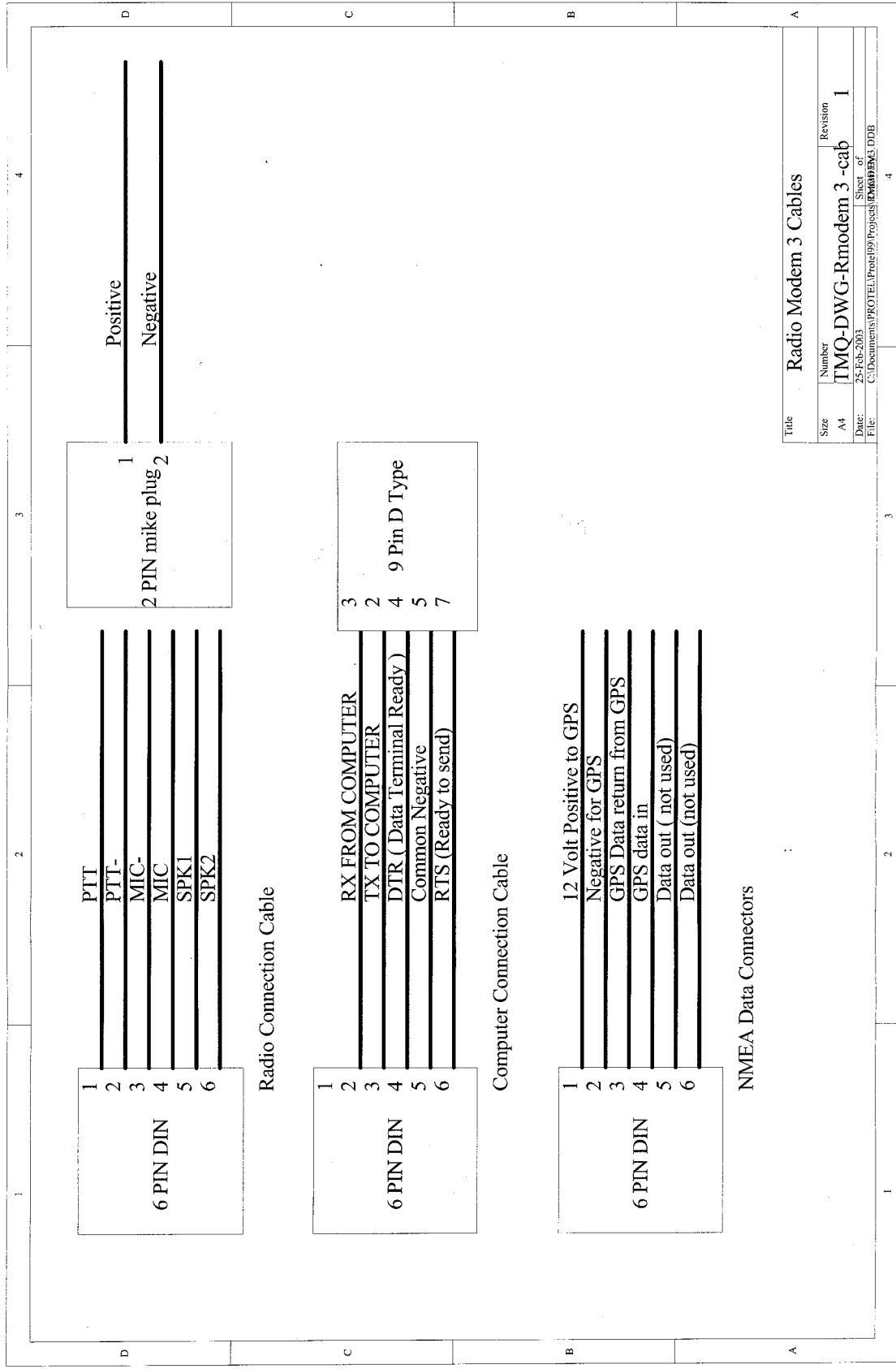
Mobile Unit transmission times are controlled from the Base station. The Base station can alter the transmission intervals at any time when it is within range. The more frequently data is transmitted the greater the accuracy of past track obtained will be.

## ***Alarms***

The TMQ C-Trak Data Modem has an output for a 12 Volt alarm. The alarm will sound if initiated from the Base station.

Additionally the Mobile Unit can send an alarm signal to the Base station if the external button is pushed.





Title			Radio Modem 3 Cables		
Size	Number	Revision			
A4	TMQ-DWG-Rmodem 3 -cab	1			
Date:	25-Feb-2003	Sheet of			
File:	C:\Documents\PROTEL\Projects\EMODM3.DDB				