

DataPoint

110A/B and 2G ALE Interface Software

User Manual



Revision: 02B

Date: 2021/10/20



**Rapid Mobile (Pty) Ltd**

**PO Box 121
Persequor Park
South Africa
0020**

**Buildings C & D
Apex Corporate Park
Quintin Brand Street
Persequor Technopark
0020**

**Fax: +27 12 349-0010
Tel: +27 12 349-0000**

Registration Number: 2001/014953/07

**e-mail: info@rapidm.com
www: www.rapidm.com**

Document Number:	RM-DataPoint-0003UM
Reference:	RM-DataPoint-User_Manual_02B.docx
Revision:	02B

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any other means or media now known or to become known, without prior written permission from Rapid Mobile (Pty) Ltd

CONTENTS

1	INTRODUCTION	7
1.1	OVERVIEW	7
1.2	CONCEPT OF USE	7
1.3	TYPICAL CONFIGURATIONS	8
1.3.1	INTRODUCTION	8
1.3.2	RM2 TWIN SERIAL PORT CONFIGURATION	8
1.3.3	RM2 VIRTUAL SERIAL PORT CONFIGURATION	8
1.3.4	TC4 IN THE ICOM IC-F8101 TRANSCEIVER	9
2	SOFTWARE INSTALLATION.....	10
2.1	MINIMUM SYSTEM REQUIREMENTS.....	10
2.2	INSTALLATION PACKAGE	10
2.3	STEP-BY-STEP INSTALLATION.....	10
3	USING DATAPOINT.....	13
3.1	LAUNCHING THE SOFTWARE.....	13
3.2	CONNECTING TO A MODEM.....	14
3.3	SETTING UP THE DATA INTERFACE.....	15
3.3.1	INTRODUCTION	15
3.3.2	DATA INTERFACE: VIRTUAL COM PORT	15
3.3.3	DATA INTERFACE: RM2 DATA PORT	16
3.4	MODEM CONTROL.....	17
3.4.1	TRANSMIT STATUS AND CONTROL	18
3.4.2	RECEIVE STATUS AND CONTROL	19
3.4.3	OTHER-THE-AIR (OTA) MODE CONTROL	20
3.4.4	AUTO UPDATE TX DATA RATE CONTROL	21
3.4.5	DE-ACQUIRE CONTROL.....	21
3.5	RADIO CONTROL (OPTIONAL).....	22
3.5.1	INTRODUCTION	22
3.5.2	RM2 HARDWARE CONNECTION FOR RADIO CONTROL	22
3.6	2G ALE CONTROL (OPTIONAL)	23
3.7	RECEIVE INFORMATION	24
4	TRANSCEIVER CONFIGURATION	25
4.1	INTRODUCTION.....	25
4.2	GENERAL GUIDANCE	25

FIGURES

Figure 1-1: DataPoint Software GUI.....	7
Figure 1-2: Concept of Use	7
Figure 3-1: DataPoint GUI after Launching the Software.....	13
Figure 3-2: Modem Interface GUI component	14
Figure 3-3: Modem Interface GUI Component after being connected	14
Figure 3-4: Data Interface GUI component	15
Figure 3-5: Virtual COM Port - Connected	15
Figure 3-6: RM2 Data Port.....	16
Figure 3-7: Modem Control GUI Component.....	17
Figure 3-8: Transmit Status and Control.....	18
Figure 3-9: Receive Status and Control	19
Figure 3-10: Other-The-Air (OTA) Mode Control	20
Figure 3-11: Auto Update Tx Data Rate Control.....	21
Figure 3-12: De-Acquire Control.....	21
Figure 3-13: Radio Control GUI Component	22
Figure 3-14: 2G ALE Control GUI Component: 2G Not Activated	23
Figure 3-15: 2G ALE Control GUI Component: 2G Linked to BASE1.....	23
Figure 3-16: Receive Information GUI Component.....	24

TABLES

Table 1-1: RM2 Twin Serial Port Configuration	8
Table 1-2: RM2 Virtual Serial Port Configuration	8
Table 1-3: TC4 in the Icom IC-F8101 Transceiver	9
Table 2-1: Minimum System Requirements	10
Table 3-1: Modem Connection Status Values.....	14
Table 3-2: Transmit Status and Control GUI Items	18
Table 3-3: Receive Status and Control GUI Items	19
Table 3-4: Other-The-Air (OTA) Mode Control GUI Item	20
Table 3-5: Auto Update Tx Data Rate Control Control GUI Item.....	21
Table 3-6: De-Acquire Control GUI Item.....	21
Table 3-7: Radio Control GUI Items	22
Table 3-8: 2G ALE Control GUI Items.....	23
Table 3-9: Receive Information GUI Items.....	24
Table 4-1: General Transceiver Settings for Data Operation	25

ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
110A/B	MIL-STD-188-110A / MIL-STD-188-110B
AGC	Automatic Gain Control
ALE	Automatic Link Establishment
BER	Bit Error Rate
Config.	Configuration
COM	Communications (Port)
DTE	Data Terminal Equipment
GUI	Graphical User Interface
HF	High Frequency
LSB	Lower Sideband
MARS	Military Auxiliary Radio System
MIL-STD	Military Standard
OTA	Over The Air
PC	Personal Computer
SNR	Signal to Noise Ratio
USB	Upper Sideband
USB	Universal Serial Bus

1 INTRODUCTION

1.1 OVERVIEW

DataPoint 110A/B and 2G ALE Interface Software is PC software allowing basic configuration and control of RapidM modems for MIL-STD-188-110A and MIL-STD-188-110B data operation as well as limited 2G ALE Call Control. The software also allows user data from a serial interface to be tunnelled to/from the modem via its control interface.

The DataPoint software Graphical User Interface (GUI) is shown below.

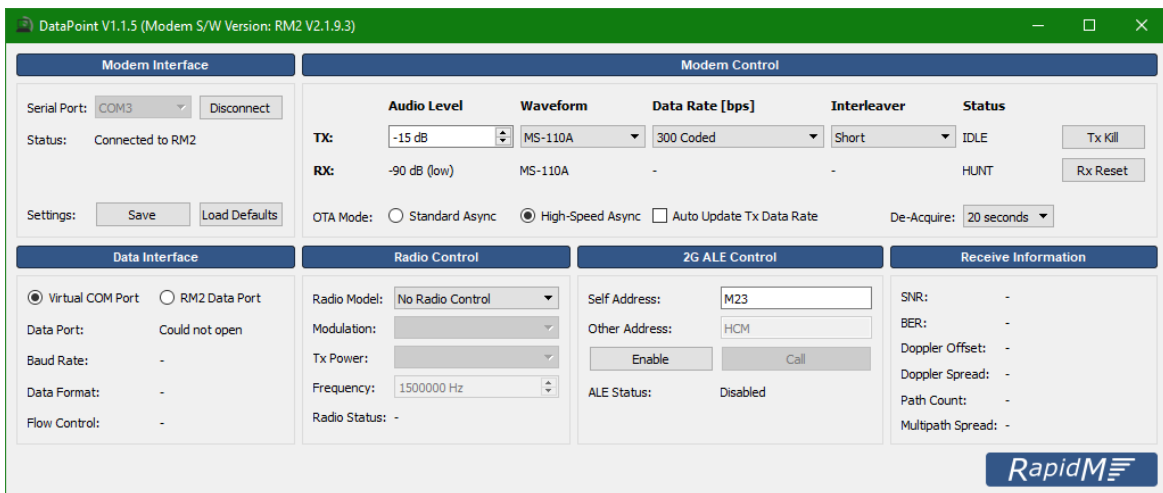


Figure 1-1: DataPoint Software GUI

1.2 CONCEPT OF USE

A conception diagram showing the primary use case for the DataPoint software is show below.

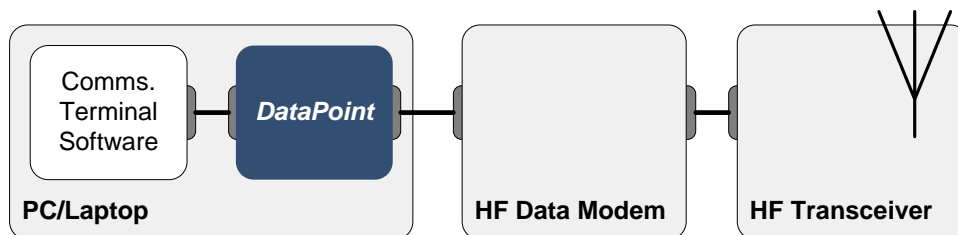


Figure 1-2: Concept of Use

The DataPoint software serves the following functions in the solution depicted above:

- 1) The DataPoint GUI allow the user to configure the modem parameters such as Data Rate and Audio Output Level. The software communicates with the modem via the RapidM proprietary remote control protocol.
- 2) The DataPoint software allow the user to make 2G ALE calls to link with remote scanning stations.
- 3) The HF Data Modem in the depicted solution does not have a raw serial data interface. The DataPoint software provides such a serial interface to other software* on the same PC. Data is then transferred to/from the HF Data Modem via the RapidM proprietary remote control protocol.

* The US Military Auxiliary Radio System (MARS) Communications Messaging Terminal is an example of communications software that can be interfaced to RapidM HF Data Modems using DataPoint.

1.3 TYPICAL CONFIGURATIONS

1.3.1 INTRODUCTION

The DataPoint software can be used and configured in various ways. This section describes the most common configurations.

1.3.2 RM2 TWIN SERIAL PORT CONFIGURATION

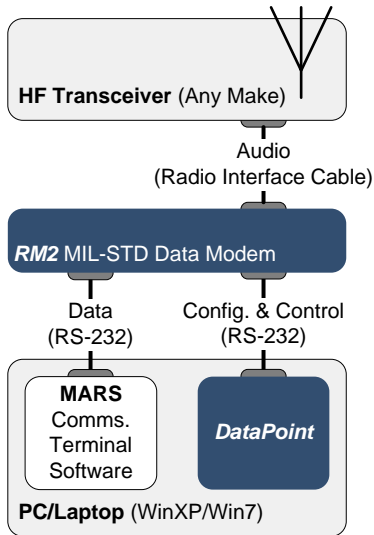
Description	Image
<p>This configuration requires a PC with two (2) serial ports.</p> <p>The DataPoint software is connected to the RM2 Modem Remote Control Port (J15 REM/GPS) via one serial port. The operator uses DataPoint to configure and control the modem.</p> <p>The Communications Messaging Terminal software is connected to the RM2 Modem's Raw Data Port (J20 RADIO/DATA) via a second serial port. The Messaging Terminal sends/receives data directly to/from the modem.</p>	 <p>The diagram illustrates the RM2 Twin Serial Port Configuration. At the top is an 'HF Transceiver (Any Make)' connected via an 'Audio (Radio Interface Cable)' to the 'RM2 MIL-STD Data Modem'. The modem is connected to a 'PC/Laptop (WinXP/Win7)' through two serial ports. One port, labeled 'Data (RS-232)', connects to the 'MARS Comms. Terminal Software'. The other port, labeled 'Config. & Control (RS-232)', connects to the 'DataPoint' software.</p>

Table 1-1: RM2 Twin Serial Port Configuration

1.3.3 RM2 VIRTUAL SERIAL PORT CONFIGURATION

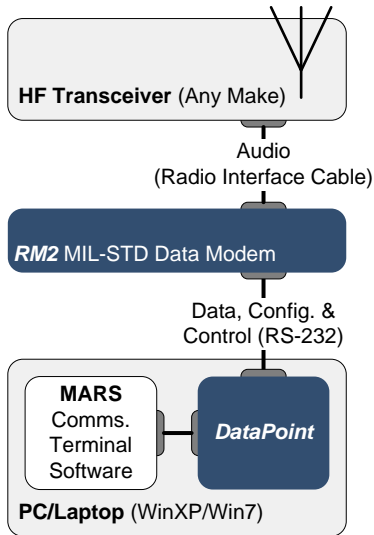
Description	Image
<p>This configuration requires a PC with one (1) serial port.</p> <p>The DataPoint software is connected to the RM2 Modem Remote Control Port (J15 REM/GPS) via the serial port. The operator uses DataPoint to configure and control the modem.</p> <p>The Communications Messaging Terminal software is connected to the DataPoint software's virtual serial port. The Messaging Terminal sends/receives data to/from the modem via the DataPoint Software.</p>	 <p>The diagram illustrates the RM2 Virtual Serial Port Configuration. At the top is an 'HF Transceiver (Any Make)' connected via an 'Audio (Radio Interface Cable)' to the 'RM2 MIL-STD Data Modem'. The modem is connected to a 'PC/Laptop (WinXP/Win7)' through a single serial port labeled 'Data, Config. & Control (RS-232)'. This port connects to the 'DataPoint' software. The 'DataPoint' software is then connected to the 'MARS Comms. Terminal Software' via a virtual serial port connection.</p>

Table 1-2: RM2 Virtual Serial Port Configuration

1.3.4 TC4 IN THE ICOM IC-F8101 TRANSCEIVER

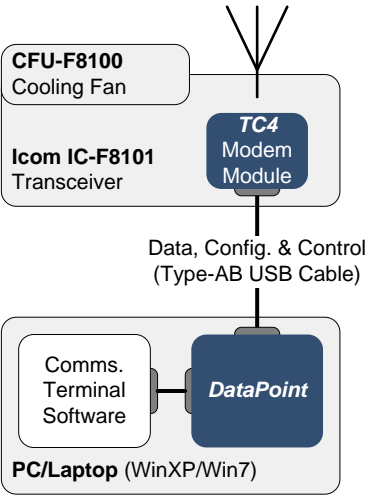
Description	Image
<p>This configuration requires a PC with a USB port.</p> <p>The DataPoint software is connected to the TC4 Modem (installed in the Icom IC-F8101 Transceiver) using a USB cable. The operator uses DataPoint to configure and control the modem.</p> <p>The Communications Messaging Terminal software is connected to the DataPoint software's virtual serial port. The Messaging Terminal sends/receives data to/from the modem via the DataPoint Software.</p> <p>USB Driver Installation:</p> <p>The Icom IC-F8101 USB interface requires a driver to be installed on the connected PC or Laptop. The driver can be obtained from: http://www.silabs.com/products/mcu/pages/usbtouartbridgevcdrivers.aspx</p>	 <p>The diagram illustrates the hardware and software setup for the TC4 Modem Module. At the top, a box labeled 'Icom IC-F8101 Transceiver' contains a 'CFU-F8100 Cooling Fan' and a 'TC4 Modem Module'. The 'TC4 Modem Module' is connected to a 'DataPoint' software box on a 'PC/Laptop (WinXP/Win7)' via a 'Data, Config. & Control (Type-AB USB Cable)'. The 'DataPoint' software box is also connected to 'Comms. Terminal Software' on the same PC/Laptop.</p>

Table 1-3: TC4 in the Icom IC-F8101 Transceiver

2 SOFTWARE INSTALLATION

2.1 MINIMUM SYSTEM REQUIREMENTS

PC Component	Minimum Requirement
Operating System	Windows XP® / Windows 7® / Windows 10®
CPU (Central Processing Unit)	2 GHz or better
Hard Disk	100 MB of free space
Memory (RAM)	1 GB or more
PC Peripherals	RS-232 Serial Port (If used with RM2 HF Modem) USB Port (If used with TC4 in the Icom IC-F8101)

Table 2-1: Minimum System Requirements

2.2 INSTALLATION PACKAGE

The DataPoint software can be installed from an executable installer. The installation package is a software executable with the filename:

'DataPoint_vx.x.x_setup.exe'

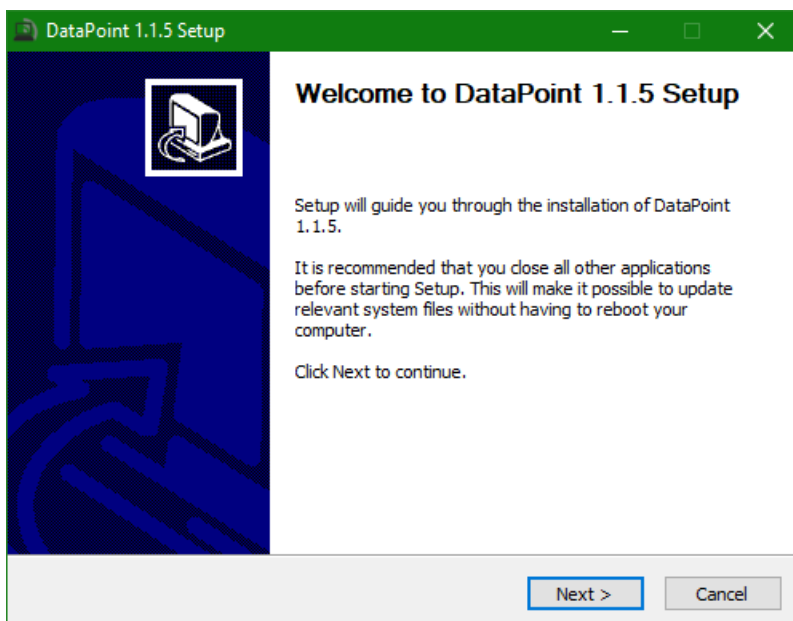
x.x.x = The current release version.

2.3 STEP-BY-STEP INSTALLATION

This section provides instructions for installing the DataPoint software on a Windows PC.

Step 1:

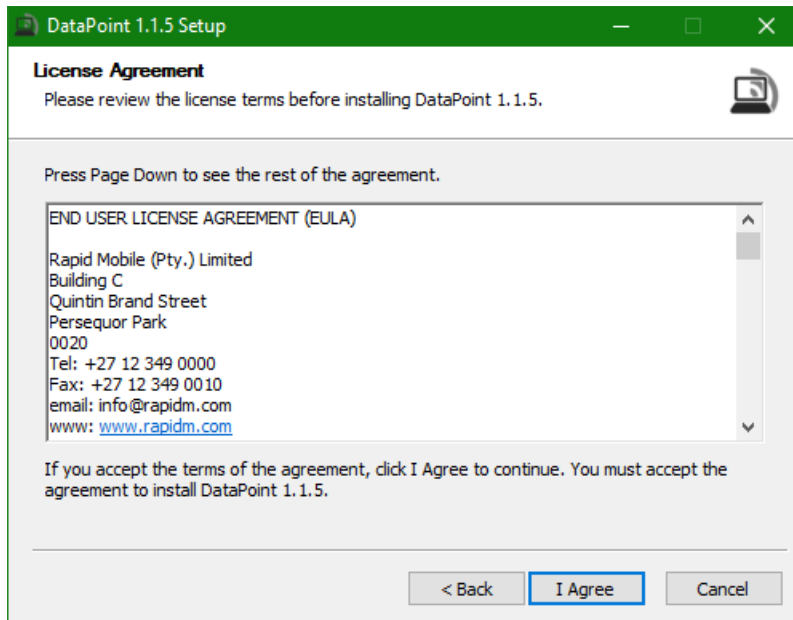
Double click on the installation package (***'DataPoint_vx.x.x_setup.exe'***) to start installation. The installation wizard should appear.



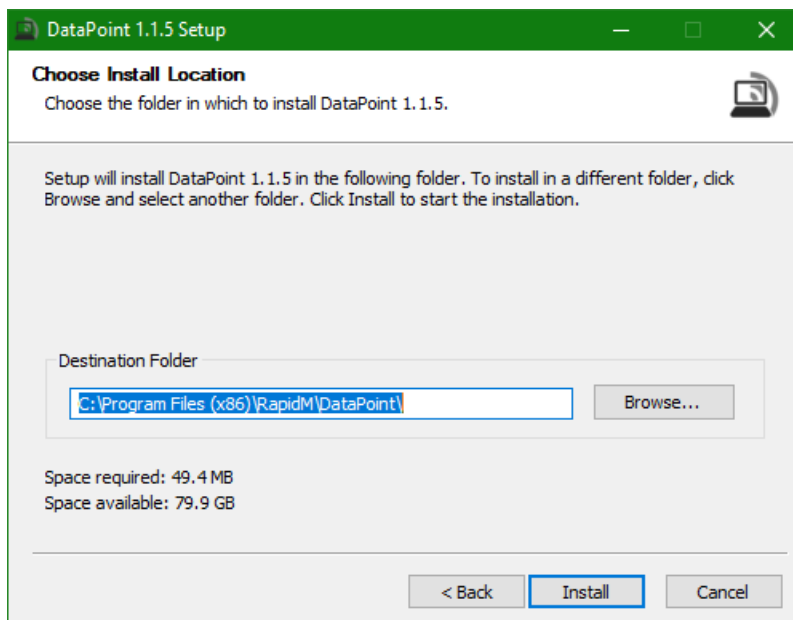
Click on next to proceed.

Step 2:

Read the license agreement and click on 'I Agree'.

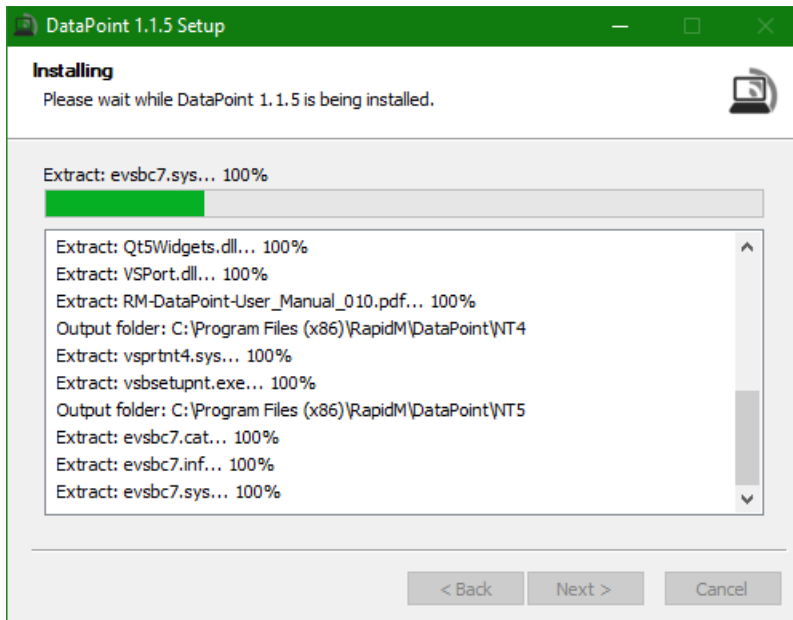
**Step 3:**

Change the destination folder if required or use the default destination folder. Click on 'Install' to proceed.

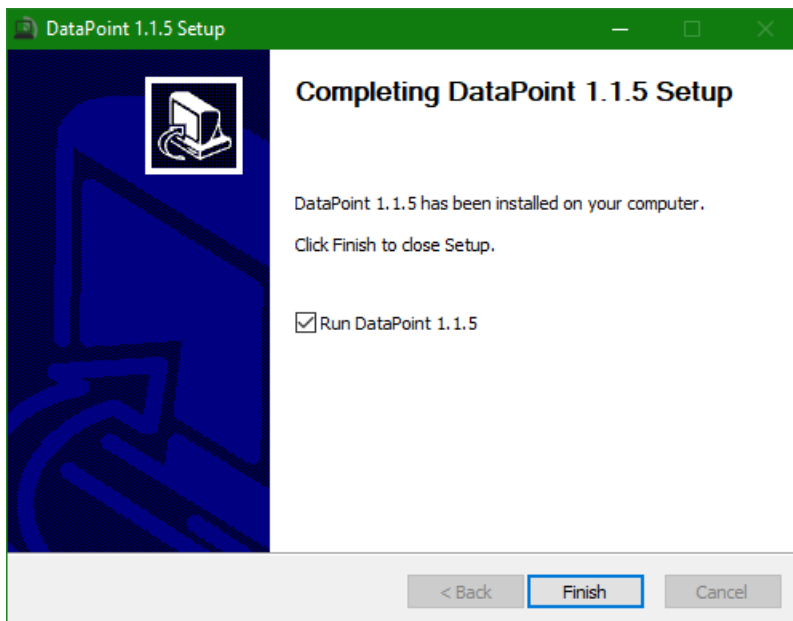


Step 4:

Wait for files to be copied to your PC.

**Step 5:**

Click on 'Finish'.



The installer will launch the Datapoint software if the the 'Run DataPoint x.x.x' box is checked.

3 USING DATAPOINT

3.1 LAUNCHING THE SOFTWARE

The DataPoint software can be launched in two ways:

- 1) Click on the '**DataPoint**' desktop shortcut, or
- 2) Click on the '**DataPoint**' start menu shortcut. The shortcut can be found under '*Start -> All Programs -> RapidM -> DataPoint*'.

The DataPoint GUI should appear as in the image below.

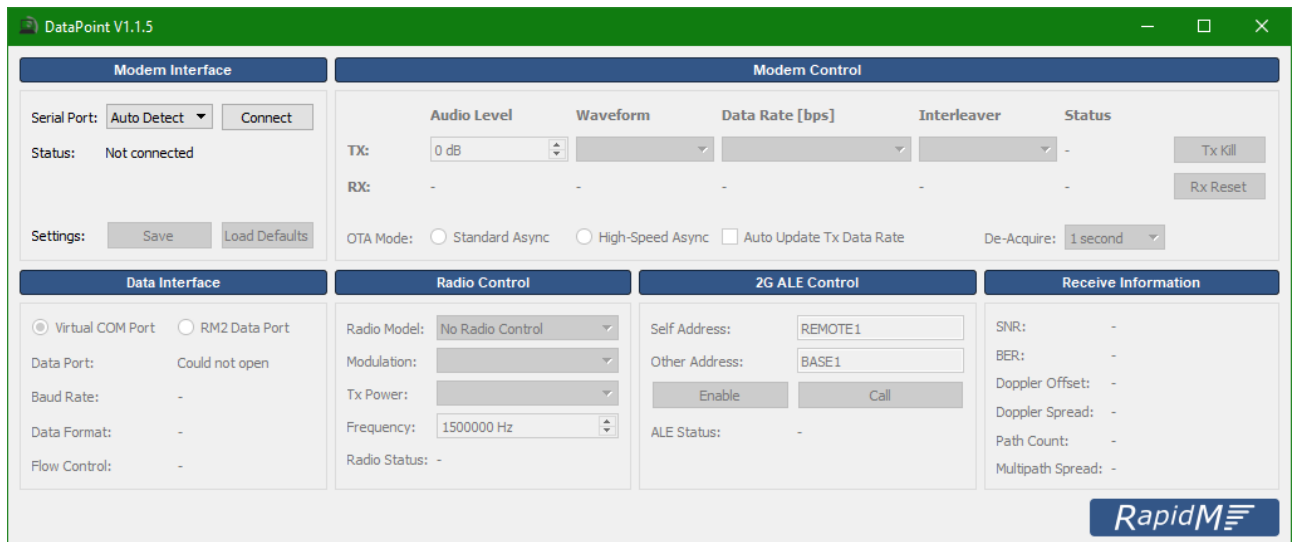


Figure 3-1: DataPoint GUI after Launching the Software

The DataPoint GUI is comprised of the following components:

- 1) Modem Interface
- 2) Modem Control
- 3) Data Interface
- 4) Radio Control
- 5) 2G ALE Control
- 6) Receive Information

Only the 'Modem Interface' component is active after launching the software. The remaining components will become active when the DataPoint software is connected to a RapidM HF Modem.

The use of each component will be discussed hereafter.

3.2 CONNECTING TO A MODEM

Use the 'Modem Interface' GUI component to connect the DataPoint software to a RapidM HF Modem.

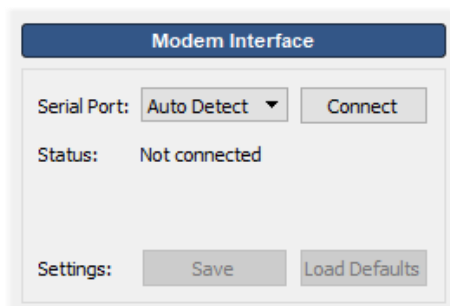


Figure 3-2: Modem Interface GUI component

Follow these steps:

- 1) Physically connect the PC to the modem using either a serial cable or a USB cable (refer to Section 1.3).
- 2) Make sure the modem is powered on.
- 3) If you know the COM Port number of the connected Serial Port, select it from the 'Serial Port' drop-down box. If not, make sure 'Auto Detect' is selected.
- 4) Click on 'Connect'.

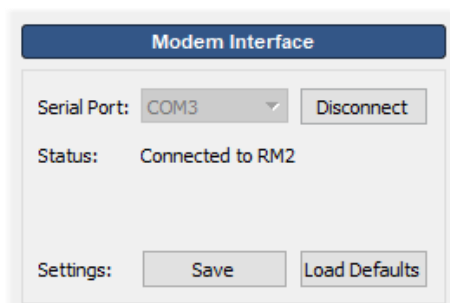


Figure 3-3: Modem Interface GUI Component after being connected

All possible connection statuses are described in the table below:

Status	Description
Not Connected	The software is not connected and awaiting user action.
Connecting	The software is attempting to connect to the RapidM HF Modem.
No Response	The modem is not responding to requests from the software. Make sure the modem is powered on and connected to the selected serial port.
Modem Booting	The modem is in the process of booting up. No action is required. Once the modem is booted the status will change to 'Initialising' and then 'Connected'.
Initialising	The software is busy initialising modem parameters.
Connected	The modem is connected and ready to use.
Error opening port	The serial port could not be opened, possible because another software application is using the port.
MS110A Not Activated	The modem function is not activated. Contact a sales representative.

Table 3-1: Modem Connection Status Values

3.3 SETTING UP THE DATA INTERFACE

3.3.1 INTRODUCTION

Use the 'Data Interface' GUI component to configure how the messaging terminal will be connected to the modem.

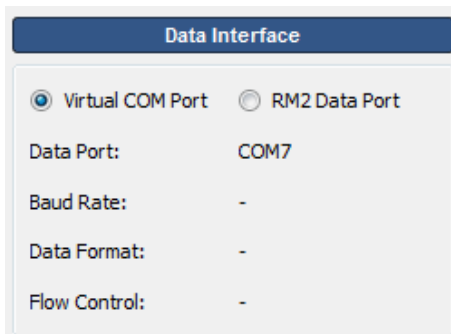


Figure 3-4: Data Interface GUI component

Two options for connecting a messaging terminal is available:

- 1) Virtual COM Port
- 2) RM2 Data Port

Each option is discussed below.

3.3.2 DATA INTERFACE: VIRTUAL COM PORT

This option is applicable to the RM2 Virtual Serial Port Configuration (Section 1.3.3) as well as the TC4 in the Icom IC-F8101 Transceiver (Section 1.3.4).

The messaging terminal (such as the US Army MARS Communications Terminal) can be configured to connect to the COM Port number as specified next to 'Data Port' in the 'Data Interface' component. COM7 is used in the example of Figure 3-4.

When a messaging terminal connects to the virtual serial port the connection parameters are displayed (see Figure 3-5 below). This serves as a confirmation that the messaging terminal is successfully connected to DataPoint.

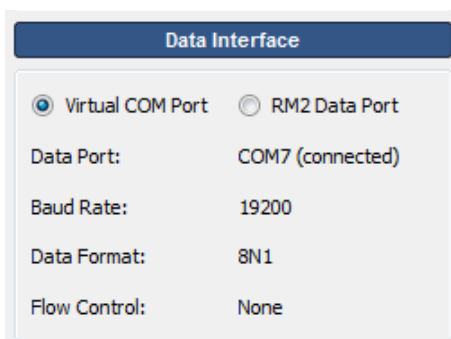


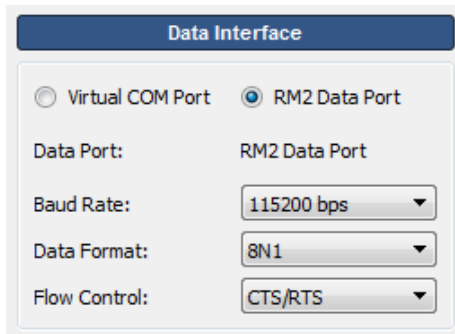
Figure 3-5: Virtual COM Port - Connected

All data sent out by the messaging terminal will now be forwarded to the modem. All data received by the modem will be forwarded to the messaging terminal.

The data interface 'Baud Rate' should be higher than the modem data rate.

3.3.3 DATA INTERFACE: RM2 DATA PORT

This option is applicable to the RM2 Twin Serial Port Configuration (Section 1.3.2).



The screenshot shows a configuration window titled "Data Interface". It contains two radio buttons: "Virtual COM Port" and "RM2 Data Port". The "RM2 Data Port" option is selected. Below the radio buttons, there are four labeled fields: "Data Port:" with the value "RM2 Data Port", "Baud Rate:" with a dropdown menu showing "115200 bps", "Data Format:" with a dropdown menu showing "8N1", and "Flow Control:" with a dropdown menu showing "CTS/RTS".

Figure 3-6: RM2 Data Port

Selecting 'RM2 Data Port' as the data interface will allow the user to configure the RM2 HF Modem's serial data port configuration parameters.

The communications terminal can now be connected directly to the RM2 'Raw Data Port'. Please refer to the RM2 User Manual for further instructions.

The data interface 'Baud Rate' should be higher than the modem data rate.

3.4 MODEM CONTROL

The Modem Control GUI component consists of the following four basic fields or areas (as indicated in Figure 3-7 below):

- a) Transmit Status and Control,
- b) Receive Status and Control,
- c) Other-The-Air (OTA) Mode Control,
- d) Auto Update Tx Data Rate Control, and
- e) De-Acquire Control.

The screenshot shows the 'Modem Control' window. It features a table with columns: Audio Level, Waveform, Data Rate [bps], Interleaver, and Status. Below the table are controls for OTA Mode, Auto Update Tx Data Rate, and De-Acquire time. Callouts a-e point to specific elements: 'a' points to the TX Audio Level, 'b' to the RX Audio Level, 'c' to the OTA Mode radio buttons, 'd' to the Auto Update Tx Data Rate checkbox, and 'e' to the De-Acquire dropdown.

	Audio Level	Waveform	Data Rate [bps]	Interleaver	Status	
TX:	-15 dB	MS-110A	300 Coded	Short	IDLE	Tx Kill
RX:	-90 dB (low)	MS-110A	-	-	HUNT	Rx Reset

OTA Mode: ☐ Standard Async ☒ High-Speed Async ☐ Auto Update Tx Data Rate De-Acquire: 20 seconds

Figure 3-7: Modem Control GUI Component

Each area will be discussed in the following sub-sections.

3.4.1 TRANSMIT STATUS AND CONTROL

The Transmit Status and Control GUI area is shown in the figure below. The function of each item is discussed in the following table.

Modem Control

	Audio Level	Waveform	Data Rate [bps]	Interleaver	Status	
TX:	-15 dB	MS-110A	300 Coded	Short	IDLE	Tx Kill
RX:	-90 dB (low)	MS-110A	-	-	HUNT	Rx Reset

OTA Mode: ☐ Standard Async ☒ High-Speed Async ☐ Auto Update Tx Data Rate De-Acquire: 20 seconds

Figure 3-8: Transmit Status and Control

Control Item	Control Type	Description
Tx Audio Level	Control	This item controls the level of the modem's audio output to the radio. Generally a value between -20 dB and -5 dB is a good starting point. It is recommended to experiment with this value until best performance is received. The SNR measure at the receiver is a good indication of performance. Range: [-50 to 0] dB Note: A good Tx Audio Level value when using the Icom IC-F8101 Transceiver is around -30 dB.
Tx Waveform	Control	Selection of a transmit waveform. The options are: MS-110A (MIL-STD-188-110A), or MS-110B (MIL-STD-188-110B). Note: MS-110B is backwards compatible with MS-110A and provides additional data rates up to 9600 bps coded.
Tx Data Rate	Control	Select the data rate to use for the next transmission. Valid values are: MS-110A: [75 to 2400] bps MS-110B: [75 to 9600] bps
Tx Interleaver	Control	Select the interleaver length to use for the next transmission. Available options are determined by the current choice of waveform and data rate.
Tx Status	Information	The status of the transmitter: IDLE: The transmitter is ready and waiting for data. TRANSMIT: A transmission is in progress. STANDBY: The transmitter cannot transmit.
Tx Kill / Resume	Control	Click on 'TX Kill' to place the transmitter in STANDBY mode. All data in the transmission queue will be discarded. The modem cannot transmit until the user clicks on 'Tx Resume'.

Table 3-2: Transmit Status and Control GUI Items

3.4.2 RECEIVE STATUS AND CONTROL

The receive status and control GUI area is shown in the figure below. The function of each item is discussed in the following table.

Modem Control					
	Audio Level	Waveform	Data Rate [bps]	Interleaver	Status
TX:	-15 dB	MS-110A	300 Coded	Short	IDLE
RX:	-90 dB (low)	MS-110A	-	-	HUNT

OTA Mode: ☐ Standard Async ☒ High-Speed Async ☐ Auto Update Tx Data Rate De-Acquire: 20 seconds

Figure 3-9: Receive Status and Control

Control Item	Control Type	Description
Rx Audio Level	Information	Reports the level of audio input the modem is receiving from the radio. While a reception is in progress this value should ideally be between -20 and -5 dB. Depending on the transceiver used, it may be possible to adjust the transceiver's audio output level. Note: Please refer to Section 4 for general guidance on transceiver configuration and setup.
Rx Waveform	Information	Indicates which waveform(s) the modem is listening for. The Rx Waveform is determined by the selected Tx Waveform.
Rx Data Rate	Information	During a reception this item will indicate the data rate of the incoming data.
Rx Interleaver	Information	During a reception this item will indicate the interleaver length of the incoming data.
Rx Status	Information	The status of the receiver: HUNT: Waiting for an incoming data. SYNC: Synchronising on the start of incoming data. RECEIVE: Receiving data.
Rx Reset	Control	Reset the receiver and return to 'HUNT'.

Table 3-3: Receive Status and Control GUI Items

3.4.3 OTHER-THE-AIR (OTA) MODE CONTROL

The Other-The-Air (OTA) Mode Control GUI area is shown in the figure below. The function is discussed in the following table.

The screenshot shows the 'Modem Control' window. At the bottom, the 'OTA Mode' section is highlighted with a green border. It contains two radio buttons: 'Standard Async' (unselected) and 'High-Speed Async' (selected). To the right of these is a checkbox for 'Auto Update Tx Data Rate' (unchecked) and a 'De-Acquire' dropdown menu set to '20 seconds'. Above this section, the TX and RX status and settings are displayed. TX status is 'IDLE' with a 'Tx Kill' button. RX status is 'HUNT' with an 'Rx Reset' button. TX settings include Audio Level (-15 dB), Waveform (MS-110A), Data Rate (300 Coded), and Interleaver (Short). RX settings include Audio Level (-90 dB (low)), Waveform (MS-110A), and Data Rate (-).

Figure 3-10: Other-The-Air (OTA) Mode Control

Control Item	Control Type	Description
OTA Mode	Control	<p>This parameter is sometimes referred to as the DTE Port Mode.</p> <p>Standard Asynchronous (default): Start bits and stop bits are transmitted over the air. Standards asynchronous mode is often required for interoperability.</p> <p>High-Speed Asynchronous: Start bits and stop bits are not sent over the air. High-Speed Asynchronous mode is over-the-air compatible with modems connected to synchronous DTE equipment.</p>

Table 3-4: Other-The-Air (OTA) Mode Control GUI Item

3.4.4 AUTO UPDATE TX DATA RATE CONTROL

The Auto Update Tx Data Rate GUI area is shown in the figure below. The function is discussed in the following table.

The screenshot shows the 'Modem Control' interface. It has a header bar 'Modem Control' and a table with columns: Audio Level, Waveform, Data Rate [bps], Interleaver, and Status. Below the table, there are controls for TX and RX, OTA Mode (Standard Async, High-Speed Async), and a checkbox for 'Auto Update Tx Data Rate' which is highlighted with a green box. The 'De-Acquire' dropdown is set to '20 seconds'.

	Audio Level	Waveform	Data Rate [bps]	Interleaver	Status	
TX:	-15 dB	MS-110A	300 Coded	Short	IDLE	Tx Kill
RX:	-90 dB (low)	MS-110A	-	-	HUNT	Rx Reset

OTA Mode: ☐ Standard Async ☒ High-Speed Async ☐ Auto Update Tx Data Rate De-Acquire: 20 seconds ▼

Figure 3-11: Auto Update Tx Data Rate Control

Control Item	Control Type	Description
Auto Update Tx Data Rate	Control	When checked the Tx Data Rate will automatically be set to the last received Rx Data Rate.

Table 3-5: Auto Update Tx Data Rate Control Control GUI Item

3.4.5 DE-ACQUIRE CONTROL

The De-Acquire Control GUI area is shown in the figure below. The function is discussed in the following table.

The screenshot shows the 'Modem Control' interface, similar to Figure 3-11, but with the 'De-Acquire' dropdown highlighted with a green box. The 'Auto Update Tx Data Rate' checkbox is also visible.

	Audio Level	Waveform	Data Rate [bps]	Interleaver	Status	
TX:	-15 dB	MS-110A	300 Coded	Short	IDLE	Tx Kill
RX:	-90 dB (low)	MS-110A	-	-	HUNT	Rx Reset

OTA Mode: ☐ Standard Async ☒ High-Speed Async ☐ Auto Update Tx Data Rate De-Acquire: 20 seconds ▼

Figure 3-12: De-Acquire Control

Control Item	Control Type	Description
De-Acquire	Control	Determines how long the receiver will stay in sync lock after the signal is lost unexpectedly. Garbage will be received during this time. If the signal is restored during this time, the modem will continue to receive as before. Valid options are: 1 second (default) 5 seconds 20 seconds

Table 3-6: De-Acquire Control GUI Item

3.5 RADIO CONTROL (OPTIONAL)

3.5.1 INTRODUCTION

The Radio Control GUI components allows some radios to be controlled directly from the DataPoint GUI.

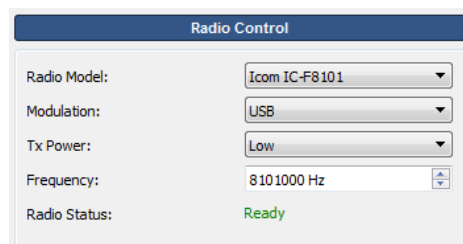


Figure 3-13: Radio Control GUI Component

Using radio control will cause the radio to be set to a known good configuration for data transfer.

Transceivers that are not controlled by DataPoint should be manually configured for data operation. Please refer to Section 4 for general guidance on transceiver configuration and setup.

Radio parameters that can be set from the DataPoint GUI are described in the table below.

Control Item	Control Type	Description
Radio Model	Control	Allows the operator to select the make and model of the connected transceiver.
Modulation	Control	Allows the operator to select between Upper Sideband (USB) and Lower Sideband (LSB) operation where available.
Transmit Power	Control	Allows the operator to select between high power and low power transmission where available.
Frequency	Control	Allows the operator to control the transceiver's transmit and receive frequency.
Radio Status	Information	Provides the operator with information regarding the current status of radio control.

Table 3-7: Radio Control GUI Items

Using the radio control feature requires that the modem is connected to the serial transceiver's control interface.

The appropriate interfaces are already connected in the case of the TC4 installed in the Icom IC-F8101 Transceiver.

3.5.2 RM2 HARDWARE CONNECTION FOR RADIO CONTROL

Using the radio control feature with the RM2 requires the modem to be connected to the transceiver's serial control interface. If a radio specific cable was provided with your modem the cable should already support radio control.

3.6 2G ALE CONTROL (OPTIONAL)

The operator can use the 2G ALE Control GUI components to setup and make 2G ALE Calls to Link to remote 2G ALE stations. The HF Data Modem will not receive or accept incoming calls from remote stations.

The 2G ALE Control GUI components will only be active when the 2G ALE Software option is activated on the HF Data Modem.

The screenshot shows the '2G ALE Control' window. It has a title bar '2G ALE Control'. Below it, there are two text input fields: 'Self Address:' with the value 'REMOTE1' and 'Other Address:' with the value 'BASE1'. Below these fields are two buttons: 'Enable' and 'Call'. At the bottom, the 'ALE Status:' is displayed as 'Not Activated'.

Figure 3-14: 2G ALE Control GUI Component: 2G Not Activated

The screenshot shows the '2G ALE Control' window. It has a title bar '2G ALE Control'. Below it, there are two text input fields: 'Self Address:' with the value 'REMOTE1' and 'Other Address:' with the value 'BASE1'. Below these fields are two buttons: 'Disable' and 'Terminate'. At the bottom, the 'ALE Status:' is displayed as 'Linked to BASE1' in green text. Below that, the 'Link Quality:' is displayed as 'TO = 30, FROM = 30'.

Figure 3-15: 2G ALE Control GUI Component: 2G Linked to BASE1

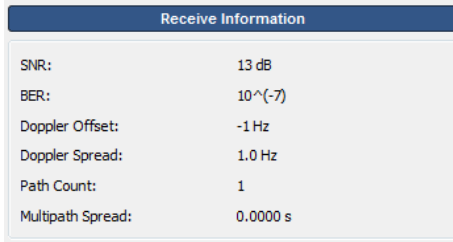
The function of each 2G ALE Control GUI item is discussed in the following table.

Control Item	Control Type	Description
Self Address	Control	Allows the operator to enter the 2G ALE Self address. Must be between 3 and 15 characters inclusive, '0' to '9', 'A' – 'Z', no spaces.
Other Address	Control	Allows the operator to enter 2G ALE Other address. Must be between 3 and 15 characters inclusive, '0' to '9', 'A' – 'Z', no spaces.
Enable / Disable	Control	Allows the operator to Enable or Disable 2G ALE. Note: When 2G ALE is enabled , the 110A/B Data Modem will only transmit and receive data when 2G ALE is in the Linked state . To use the 110A/B Data Modem when 2G is not linked, 2G ALE must be disabled .
Call / Cancel / Terminate	Control	Allows the operator to make a 2G ALE Call , Cancel a call in progress or Terminate a link.
ALE Status	Information	Provides the operator with information regarding the current 2G ALE status. When 2G ALE received a reply from the remote station or is linked to a remote station the Link Quality will be displayed. The Link Quality range is from 0 to 30. 0 = Extremely Poor, 30 = Very Good.

Table 3-8: 2G ALE Control GUI Items

3.7 RECEIVE INFORMATION

The Receive Information GUI Component is shown in the figure below.



Receive Information	
SNR:	13 dB
BER:	10^{-7}
Doppler Offset:	-1 Hz
Doppler Spread:	1.0 Hz
Path Count:	1
Multipath Spread:	0.0000 s

Figure 3-16: Receive Information GUI Component

Information about the current incoming reception will be displayed while the reception is in progress.

The parameters reported are described in the table below.

Information Item	Description
SNR	Signal to Noise Ratio: -30 to 70 dB
BER	Estimated Bit Error Rate: 10^0 (worst) to 10^{-7} (best)
Doppler Offset	-250 to 0 Hz
Doppler Spread	0 to 25.5 Hz
Path Count	The number of detected multi-paths.
Multipath Spread	0.0000 to 0.0255 seconds

Table 3-9: Receive Information GUI Items

4 TRANSCIVER CONFIGURATION

4.1 INTRODUCTION

Specific radios can be controlled from the DataPoint software GUI. Using radio control will cause the radio to be set to a known good configuration for data transfer.

Transceivers that are not controlled by DataPoint should be manually configured for data operation. This section provides general guidance on how to do so.

4.2 GENERAL GUIDANCE

General radio settings for data operation are provided below. Please consult the user manual of the transceiver for more specific information.

Transceiver Parameter	Value
Squelch Level	0 (zero)
Clarifier	0 Hz
Noise Blanker	Disabled
Filter Bandwidth	Wide (3 kHz) or Data Mode
Operation Mode	Fixed Frequency
Frequency Hopping	Disabled
Speech processor	Disabled
Automatic Gain Control (AGC)	Disabled, Slow or Data Mode

Table 4-1: General Transceiver Settings for Data Operation