



TL133012

TRCM2 USER GUIDE



TABLE OF CONTENTS

Section 1: Introduction.....	3
1.1 Overview.....	3
1.2 Installation.....	3
Section 2: Software and Settings.....	4
2.1 Telma Desktop Client Overview.....	4
2.2 Getting Started and Initial Configuration (CAN and baud rate).....	4
2.3 Configuration Input and Output Selection.....	5
2.4 Configuration Input and Output Selection Screen Shots.....	6
2.5 Transducer Voltage Setpoints (transducer and relay box).....	7
2.6 CAN Brake Pedal Setpoints (vehicle CAN and relay box).....	7
2.7 iRCS Transducer Setpoints (transducer and iRCS).....	7
2.8 iRCS CAN Setpoints (vehicle CAN and iRCS).....	7
2.9 Bluetooth.....	8
2.10 Dual Configuration.....	8
Section 3: General Diagnostics and CAN Messages.....	9
3.1 Main Diagnostics.....	9
3.2 CAN messages.....	10
3.3 iRCS Diagnostics.....	10

SECTION 1 INTRODUCTION

1.1 Overview

The Telma Retarder Control Module (TRCM2) is the latest control module design. It has the same features as TRCM1 such as PC interface for configuration and diagnostics as well as connection to the vehicle CANBus to obtain speed, ABS, accelerator pedal position and other information. It also has the following new features.

- 1) Direct USB connection to PC using virtual COM port and auto connect with USB-C connector on the board. There is no longer a need for a USB-to-serial adapter as with TRCM1.
- 2) Capability to control not only a mechanical relay box as before but now also a fully electronic power module using dedicated CAN line and custom CAN messages.
- 3) Bluetooth connection for configuration and diagnostics using apps for Android and IOS devices.

As with TRCM1, four digital (on/off) inputs are available that can be used with air brake system pressure switches or Telma hand control switch. Also available is an analog (variable voltage) input for use with a pressure transducer installed in the air brake system instead of air pressure switches or a rotary foot switch used with some hydraulic brake systems. The TRCM has the ability to obtain speed, ABS, and other information by listening to the vehicle CAN bus which can reduce Telma system installation time by eliminating the need to make any hard-wired connections to the chassis other than ign+, ground, and the CANBus connection.

1.2 Installation

- 1) TRCM2 should be installed in the cab
- 2) Wiring is connected using two Deutsch DTM connectors.
- 3) Wiring provides connections to vehicle and Telma system.
- 4) TRCM2 should be mounted to allow easy installation and removal of connectors and easy access to plug in the usb-c cable.

SECTION 2 SOFTWARE AND SETTINGS

2.1 Telma Desktop Client Overview

2.1.1 Microsoft Windows

The Telma Desktop Client Software is needed for configuration and diagnostics and can be used with any device running the Microsoft Windows operating system by connecting with a usb-c cable. The latest version of the TRCM2 software can be downloaded at <https://telmausa.com/Downloads/TRCM2.exe>. Save the software on your Desktop or create a shortcut.

TRCM2 uses the virtual COM port driver built into Windows 10 so driver installation is not needed. If you are running Windows XP to W7 and your computer does not automatically install the driver, go to Windows update to have Windows automatically search and install the correct driver. If this does not work you can download the driver from our website at: <https://telmausa.com/Downloads/VCP1.5.0XP-W7x86.exe> for Windows XP to W7 32 bit. <https://telmausa.com/Downloads/VCP1.5.0XP-W7x64.exe> for Windows XP to W7 64 bit.

2.2 Getting Started and initial configuration (CAN and baud rate)

- 1) Plug the usb-c cable into the computer and into the TRCM2.
- 2) Open the software by double clicking on the file TRCM2.exe or shortcut. In the top left corner above the "Start" button you should see "TRCM2 on COMX" if the virtual COM port is working correctly. See above for troubleshooting if you see "Not Connected" in the top left corner above the green "Start" button.
- 3) Push the green "Start" button. "Data Status" should change to a green check mark indicating that the computer is communicating with the TRCM2.
- 4) Under "Edit Programmed Values" choose the CAN drop down and baud rate that applies to your application.
- 5) Push the "Program Module" button and check that the "Current Module Values" on the right side of the screen have updated to the same as the configuration settings. The Current Module Values indicate how the module is programmed.
- 6) Start the vehicle. "CAN Status" should change to a green check mark indicating that the TRCM2 is communicating with the vehicle and the CAN choice and baud rate choice are correct. Refer to the installation manuals on our website at <https://telmausa.com/technical-support/installation/procedures> for the CAN and baud rate choices for your application.

CAUTION: incorrect baud rate setting for an application can cause vehicle fault codes. Make sure baud rate is set correctly before turning on ignition or starting the vehicle.

2.3 Configuration Input and Output Selection

1) Input Selection

- Transducer: Brake pedal position information comes from air pressure transducer (air brakes) or rotary switch (hydraulic brakes)
- Vehicle CAN: brake pedal position information comes from CANBus message.

2) Output Selection

- Relay Box: TRCM2 sends a signal to a mechanical relay box to provide power to the Telma
- iRCS: TRCM2 sends a signal to the iRCS electronic power module to provide power to the Telma.

There are 4 possible combinations.

- 1) Transducer input and relay box output
- 2) Vehicle CAN input and relay box output
- 3) Transducer input and iRCS output
- 4) Vehicle CAN input and iRCS output

The combinations depend on the vehicle application and Telma system chosen.

The settings depend on the vehicle application and Telma system chosen. The vehicle installation manual provides recommended settings for an application which can be adjusted to the user preference.

INPUT SELECTION



transducer



Vehicle CAN



OUTPUT SELECTION



relay box

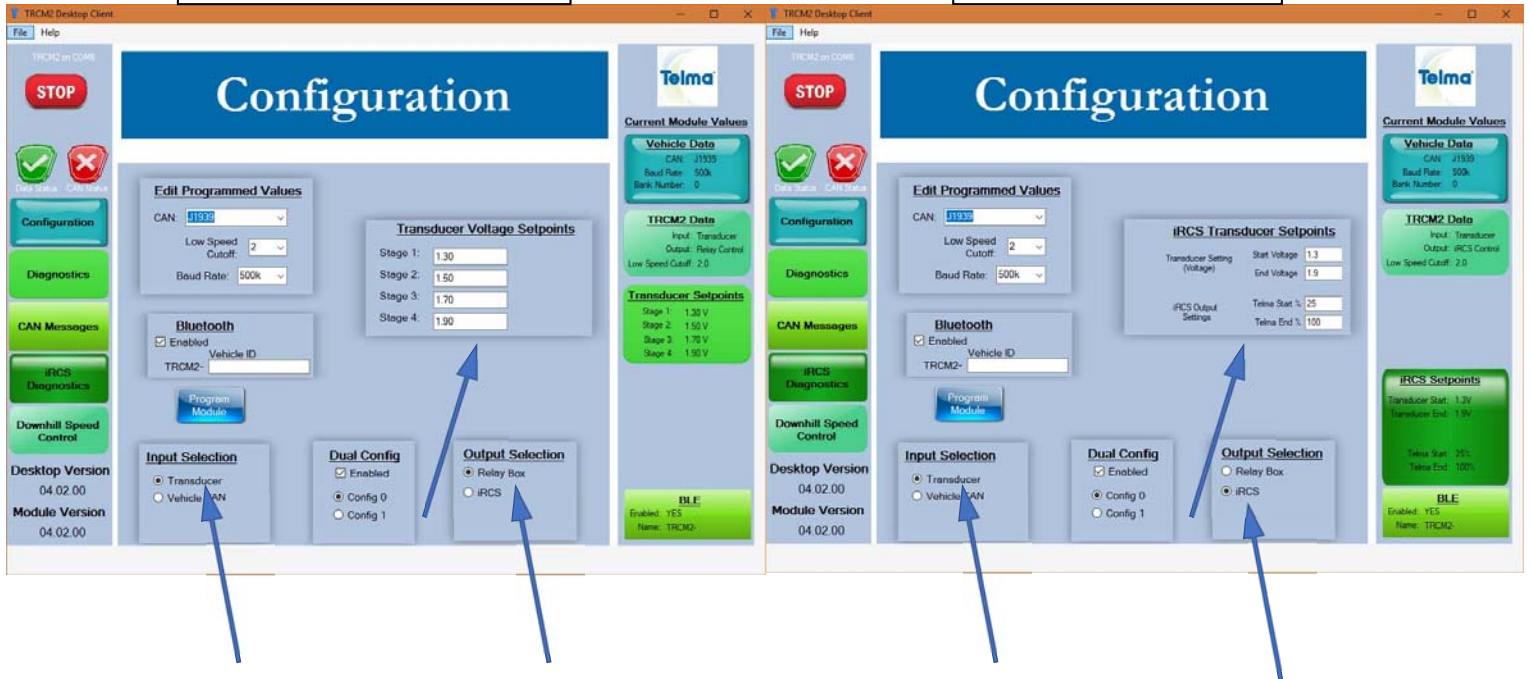


iRCS

2.4 Configuration Input and Output Selection Screen Shots

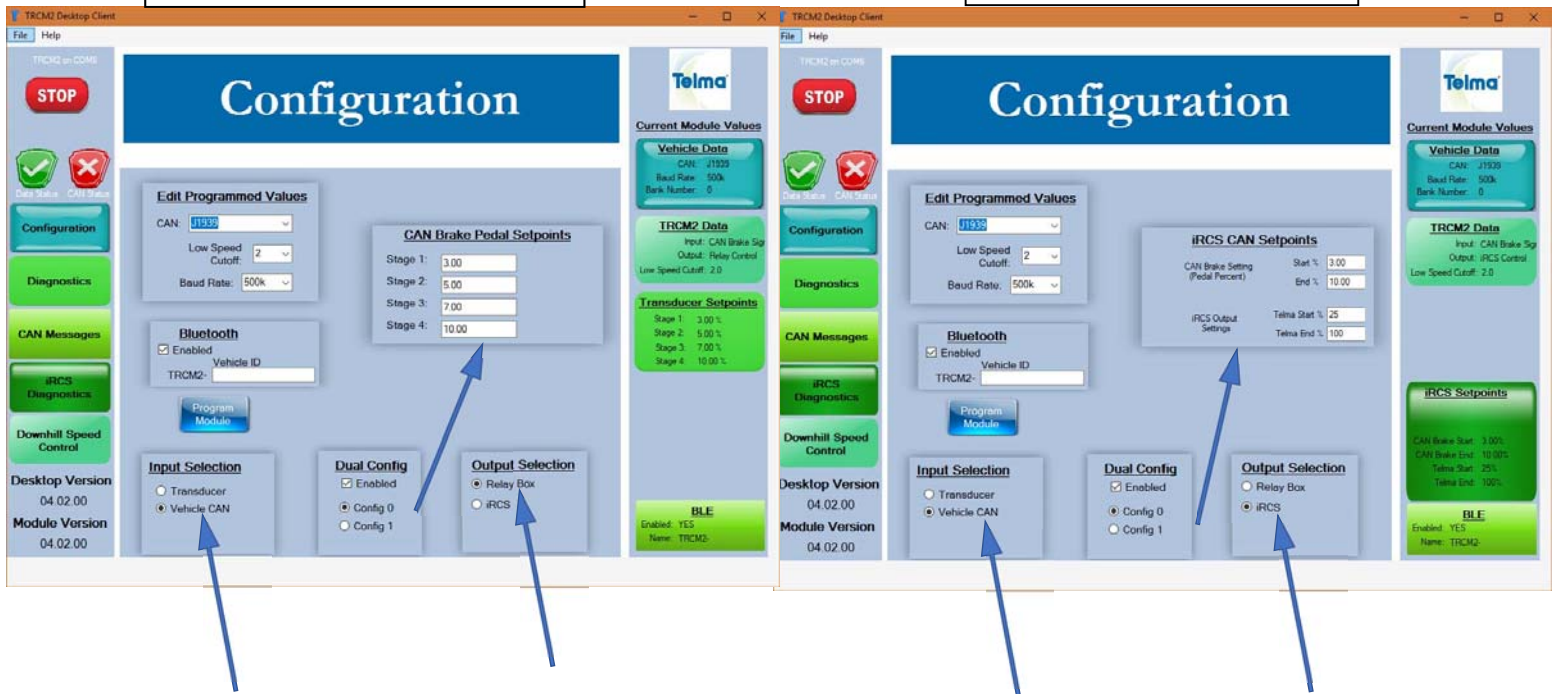
Transducer + Relay Box

Transducer + iRCS



Vehicle CAN + Relay Box

Vehicle CAN + iRCS



2.5 Transducer Voltage Setpoints (transducer and relay box)

If input selection is “transducer” and output selection is “relay box” the dialog box below will be shown. Default settings for air brake vehicles are shown below. For hydraulic brake applications the settings may be different. Refer to the installation manuals on our website at <https://telmausa.com/technical-support/installation/procedures> for the recommended settings for your application. Settings can be changed according to user preference. Push the “Program Module” button to save settings.

Transducer Voltage Setpoints	
Stage 1:	<input type="text" value="1.30"/>
Stage 2:	<input type="text" value="1.50"/>
Stage 3:	<input type="text" value="1.70"/>
Stage 4:	<input type="text" value="1.90"/>

2.6 CAN Brake Pedal Setpoints (vehicle CAN and relay box)

If input selection is “Vehicle CAN and output selection is “relay box” the dialog box below will be shown. Default settings for hydraulic brake applications are shown below. Refer to the installation manuals on our website at <https://telmausa.com/technical-support/installation/procedures> for the recommended settings for your application. Settings can be changed according to user preference. Push the “Program Module” button to save settings.

CAN Brake Pedal Setpoints	
Stage 1:	<input type="text" value="3.00"/>
Stage 2:	<input type="text" value="5.00"/>
Stage 3:	<input type="text" value="7.00"/>
Stage 4:	<input type="text" value="10.00"/>

2.7 iRCS Transducer Setpoints (transducer and iRCS)

If input selection is “transducer” and output selection is “iRCS” the dialog box below will be shown. Default settings for air brake vehicles are shown below. Transducer start voltage corresponds to Telma start % power. Transducer end voltage corresponds to Telma end % power. Settings can be changed according to user preference. Push the “Program Module” button to save settings.

iRCS Transducer Setpoints		
Transducer Setting (Voltage)	Start Voltage	<input type="text" value="1.3"/>
	End Voltage	<input type="text" value="1.9"/>
iRCS Output Settings	Telma Start %	<input type="text" value="25"/>
	Telma End %	<input type="text" value="100"/>

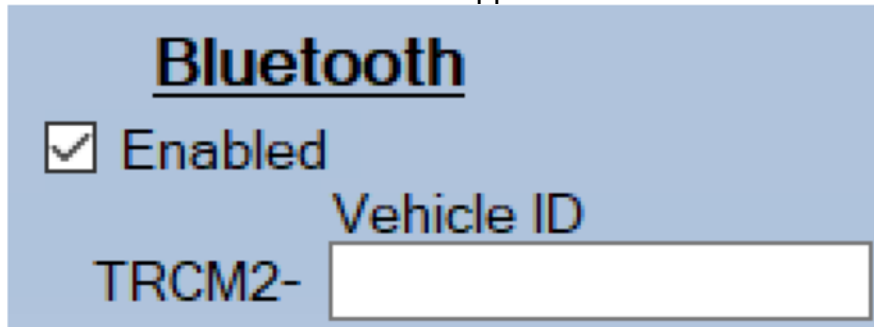
2.8 iRCS CAN Setpoints (vehicle CAN and iRCS)

If input selection is “Vehicle CAN” and output selection is “iRCS” the dialog box below will be shown. Default settings for hydraulic brake vehicles are shown below. CAN brake start % corresponds to Telma start % power. CAN brake end % corresponds to Telma end % power. Settings can be changed according to user preference. Push the “Program Module” button to save settings.

iRCS CAN Setpoints		
CAN Brake Setting (Pedal Percent)	Start %	<input type="text" value="3.00"/>
	End %	<input type="text" value="10.00"/>
iRCS Output Settings	Telma Start %	<input type="text" value="25"/>
	Telma End %	<input type="text" value="100"/>

2.9 Bluetooth

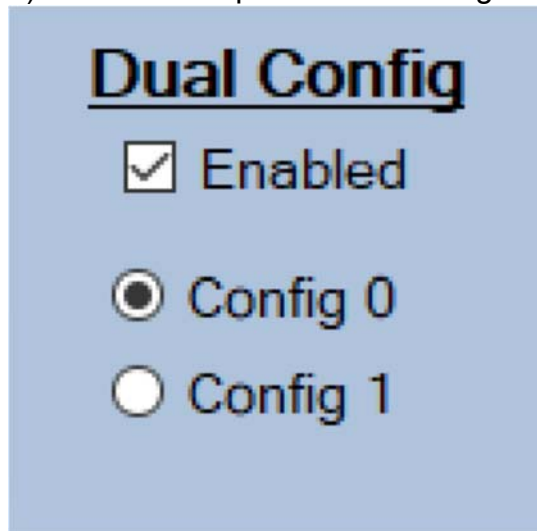
Enable the optional Bluetooth to use the Telma Android or IOS app. Push to the “Program Module” button to save the setting. Go to the Google Play Store or to the Apple App Store to download and install the Telma app.



2.10 Dual Configuration

Some customers have requested the ability to have two different configurations that make it possible to have a more aggressive configuration to maximize brake life when road conditions are favorable and a less aggressive configuration when road conditions are less favorable. Dual configuration is an option which makes this possible. A switch is added to be able to change from one configuration to another. Follow the procedure below to set up this feature.

1) Enable the optional dual configuration feature.



2) Choose configuration settings for Config 0.

3) Push the “Program Module” button to save the settings.

4) Click on Config 1

5) Choose the configuration settings for Config 1

6) Push the “Program Module” button to save the settings.

The TRCM2 is now programmed with two configurations. Add a switch that will supply batt+ to TRCM2 black connector pin 12 when the switch is on. When the switch is off (no power to blk pin 12) the TRCM2 will operate using Config 0. When the switch is on (batt+ supplied to blk pin 12) the TRCM2 will operate using Config 1. The Config number will be displayed in the “Current Module Values” display. When switching configurations, the usb-c cable will need to be unplugged and plugged back in to see the change in the “Current Module Values” display.

SECTION 3 GENERAL DIAGNOSTICS AND CAN MESSAGES

3.1 Main Diagnostics

The main “Diagnostics” tab is used to check inputs and outputs as well as CAN messages.

1) Input Controls

“Input controls” dialog box can be used to verify inputs from hand control switch if used

2) Analog Inputs

“Analog inputs” include transducer voltage which can be used to verify that the transducer is sending a voltage signal to the TRCM2.

3) Relay Control Outputs

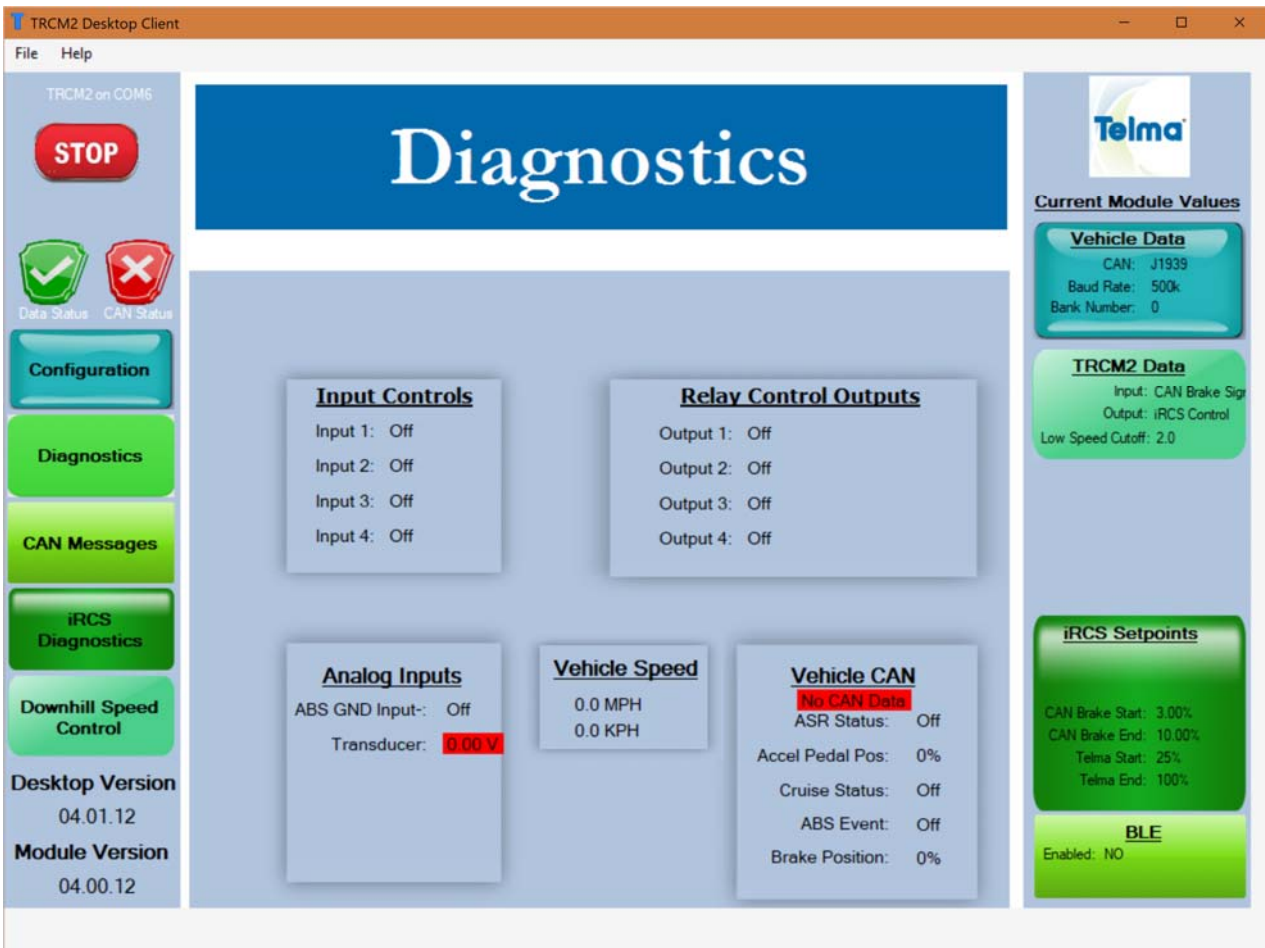
Relay control outputs can be used to verify that TRCM2 relay control outputs are turning on

4) Vehicle Speed

Shows the vehicle speed being read from the CANBus

5) Vehicle CAN

Shows status of other CAN messages being read by TRCM2.



3.2 CAN Messages

This dialog box shows details of the CAN messages being read by TRCM2. The CAN message is not being read if B1-B8 shows all zeros.

3.3 iRCS Diagnostics

This dialog box shows details of the messages being broadcast from TRCM2 to iRCS as well as the messages being broadcast by iRCS to TRCM2.