AllegroCE/RCS with TCPS27B Quick Guide

March, 2006

AllegroCE/RCS with TCPS27B Radio Modem

This guide describes how to configure your AllegroCE/RCS with internal radio to communicate with your TPS1200 instrument and TCPS27B radio modem.

Topics

- Installing radio modem configuration software
- Configuring radio modems
- AllegroCE/RCS software settings
- TPS1200 settings
- Allegro internal radio and battery information

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Leica Geosystems

AllegroCE/RCS with TPS1200 and TCPS27B Modem
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Introduction

Radio Communication Quick Guide

In this Quick Guide, we will outline the procedures and methods of setting up your Juniper Systems AllegroCE/RCS handheld computer with a new or existing Leica TPS1200 TCA / TCRP instrument. This configuration will be used for data collection in robotics mode with the Carlson SurvCE software.

After following this Quick Guide you will have accomplished the following:

- Configured the Juniper AllegroCX/RCS as the Rover.
- Configured the TPS1200 instrument with TCPS27B radio modem as the Base.
- Configured SurvCE to be ready to communicate with your Leica TPS1200 instrument.

Note: The user will need to be familiar with communications between the AllegroCE/RCS and the PC. This is done using Microsoft ActiveSync. Please refer to **Self Study Guide 2 - Installing SurvCE** if you are not familiar with the Microsoft ActiveSync program for communicating between PC and AllegroCX. This self-study guide can be found at the following website:

http://www.leicaadvantage.com/support/advantage/survce/SurvCE Self Study.htm

AllegroCE/RCS with TPS1200 and TCPS27B Modem
Equipment and Software

What you will need

Below is a list of items that you must have to use your equipment and this guide successfully.

Part Number	Description
Prism Pole Rover Setup	
8212729	AllegroCE/RCS 64/128 (monochrome)
8212084	Carlson SurvCE RTS
8211598	Pole Bracket w/ Quick Release
8212364	Cradle for AllegroCE (requires 8211598)
385500	GLS11 Prism Pole
639985	GRZ4 360° Prism
Instrument Base Radio Setup	
	TPS1200 Robotic Instrument
734161	TCPS27B Base Radio Modem
734697	GEV186 Y-cable
727367	GEB171 Battery
733270	GEB221 Battery
734754	GeoCOM Robotics License

Recommended Accessories

It is recommended to use the AllegroCE USB/Power dock for transferring data between the PC and AllegroCE. It also charges the AllegroCE at the same time. This method is much more efficient than using the serial cable connection.

Part Number	Description
8212221	AllegroCE USB/Power Dock
8212283	AllegroCE User Manual

Software

For this user guide, we will use Carlson SurvCE 1.50 data collection software. The most current version available should always be used.

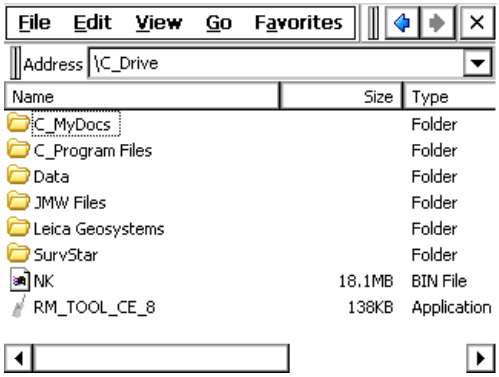
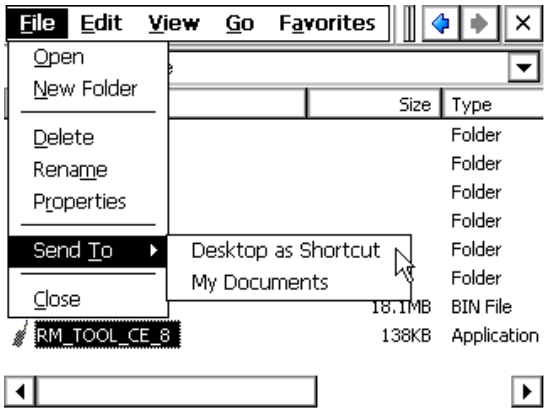
In the following sections we will discuss the TPS1200 instrument settings for working with the AllegroCE/RCS hand held computer.

The RM_TOOL.EXE program will be the tool used to configure the Rover radio for communication. This program must be installed on the AllegroCE and will set the Rover radio channel and parameters.

AllegroCE/RCS with TPS1200 and TCPS27B Modem
Installing the RM TOOL Configuration Program

RM_TOOL.EXE You can download the radio modem configuration program from the Leica Advantage website at the following address:

http://www.leicaadvantage.com/support/SurvCE2004/SurvCE_Downloads.html

Step	Action	Display
1	• Copy the **RM_TOOL.EXE** file to the AllegroCE/RCS. With your Juniper AllegroCE/RCS connected to your computer, use Windows Explorer and Microsoft ActiveSync to copy the files. • Copy the file to the **C_Drive** folder on the AllegroCE.	
2	• Create a Shortcut for the RM_TOOL to be placed as an icon on the AllegroCE/RCS Desktop. • Highlight the **RM_TOOL.EXE** file. • Select the **File** drop down menu. • Select **Send To > Desktop as Shortcut**.	

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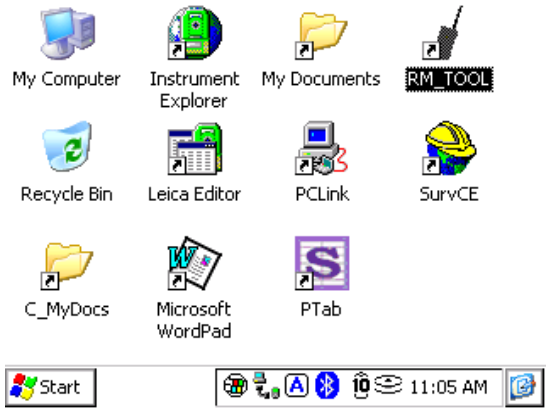
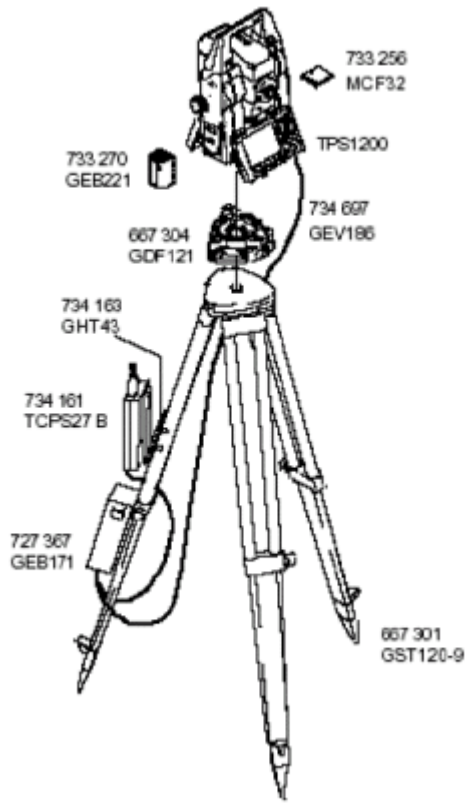
AllegroCE/RCS with TPS1200 and TCPS27B Modem
Installing the RM TOOL Configuration Program

Step	Action	Display
3	When you turn your AllegroCE/RCS on in the future, you will now see the **RM_TOOL** shortcut icon on the "Desktop" along with your other applications.	

AllegroCE/RCS with TPS1200 and TCPS27B Modem
Base Setup with TCPS27B Radio Modem

Base Setup

The base setup consists of the TPS1200 robotic total station, TCPS27B external radio, GEB171 battery and y-cable, and an internal battery in the instrument. This equipment is then mounted on a tripod and ready to use.

Step	Action	Display
1	• Mount the instrument setup on the tripod and connect the radio and battery. **Note**: You must have the TCPS27B set to use the proper channel as well as have the proper instrument configuration selected.	

AllegroCE/RCS with TPS1200 and TCPS27B Modem
Configuring the Radio Devices

TCPS27B Radio Device

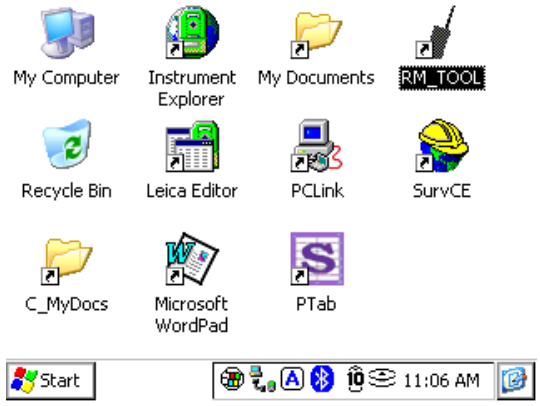
The TCPS27B radios are spread spectrum radio devices that are used with the TPS1200 robotic total stations. The RM Config program operates onboard the AllegroCE/RCS data collector and enables the user to configure the radio devices directly from the AllegroCE/RCS.

Internal and External Devices

The integrated internal radio modem is installed in the AllegroCE/RCS. This internal modem is used in REMOTE mode. This provides a clean and simple solution at the pole, with no need for cables or an external power supply for the radio.

The external TCPS27B modem requires a dedicated power supply and cable connection to the Allegro CE/RCS data collector.

Note: The TCPS26 modems are only for use with the Leica RCS1100 Survey Controller.

Step	Action	Display
1	• Double Tap on the **RM_TOOL** button to start the radio configuration program. This will start the program and display the RM Config Tool screen.	

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AllegroCE/RCS with TPS1200 and TCPS27B Modem
Configuring the Radio Devices

Configuration Parameters

The RM TOOL configuration program operates onboard the AllegroCE/RCS data collector and enables the user to configure the radio device directly from the AllegroCE/RCS.

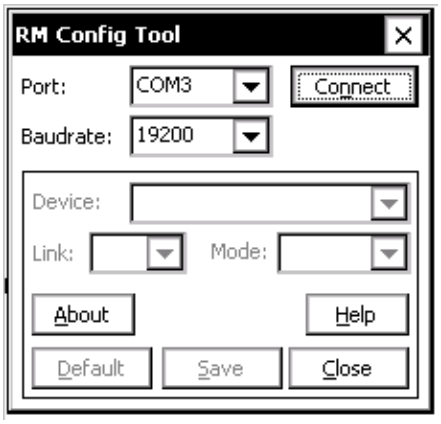
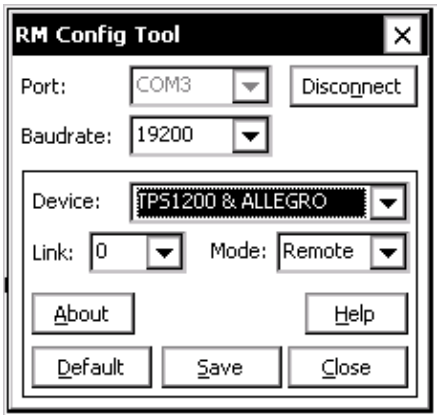
Parameter	Description
Port	The COM port (on the AllegroCE/RCS) is where the radio device is connected. The integrated radio modem is set to PORT 3.
Baud Rate	The baud rate to connect to the radio device. This is 19200.
Device	Selections for configuring the TCPS27B to communicate with the AllegroCE/RCS.
Link	The Link number must be the same on both Base and Remote units.
Transceiver mode	Base mode for the radio attached to the robotic total station. Remote mode for the radio at the prism pole.

AllegroCE/RCS with TPS1200 and TCPS27B Modem
Configure AllegroCE/RCS Integrated Radio Device

Integrated Radio Device

The AllegroCE/RCS data collector contains an internal radio modem. The device is an integral part of the data collector and does not require cables or an additional power supply.

This section of the guide illustrates the steps required to configure the internal radio modem in the AllegroCE/RCS.

Step	Action	Display
1	To connect to the integrated modem on the AllegroCE/RCS, set the following parameters: • Port: **COM3**. • Baudrate: **19200**. • Tap on the **Connect** button. The program will establish communication with the radio and retrieve the current radio parameters.	
2	Once communication is established, the current radio parameters will be displayed, as shown. Set the following parameters: • Link: (**must match on Base and Remote**). • Device: **TPS1200 & ALLEGRO**. • Mode: **Remote**. • Press the **Save** button. This programs the new settings into the radio. **Note:** To disconnect without changing the current parameters, press the **Disconnect** button.	

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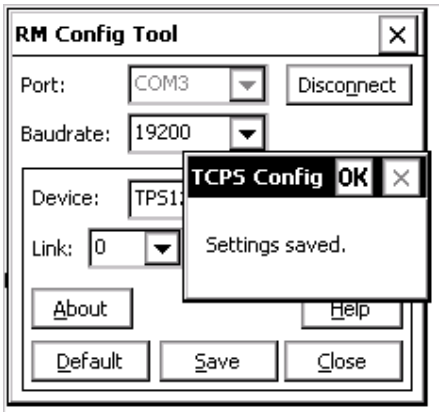
Configure AllegroCX/RCS Integrated Radio Device

Step	Action	Display
3	After pressing the **Save** button, the program will display a message indicating that the new radio settings have been saved. • Press the **OK** button. This is your indication that the radio has been programmed successfully.	

Long Range Robotics

The AllegroCE/RCS has been tested to a range greater than 2000ft. When working at long range, you must pay attention to the following issues:

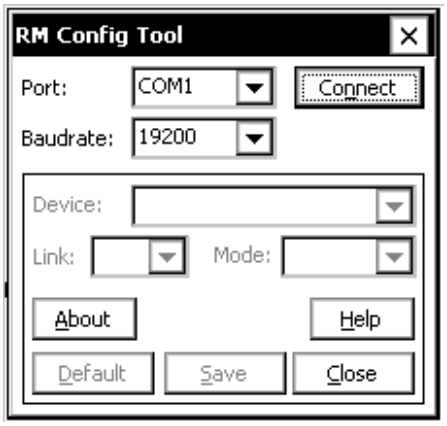
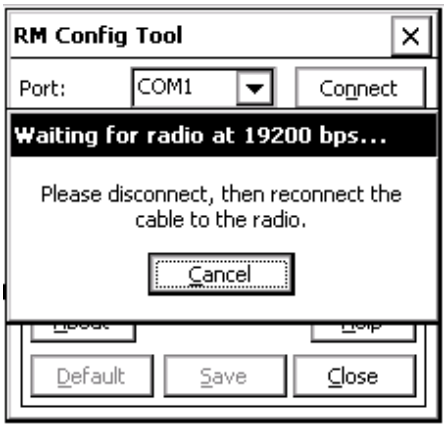
- Exercise the appropriate procedures to ensure reliable radio communications as described in the document *"Radio Hints for Robotic Total Stations"*. This document can be downloaded at the following website: http://www.leicaadvantage.com/support/TPS1200/TPS_TechnicalPapers.cfm
- Understand the normal sources of error in measurements at long range.
- Use proper targets and procedures when attempting to work in ATR and LOCK modes.
- Be aware that the tracking specifications of the TPS1200 are approximately 2000ft.

AllegroCE/RCS with TPS1200 and TCPS27B Modem
Configure the TCPS27B External Radio Device

TCPS27B External Radio Device

The TCPS27B external radio is a separate device and requires a dedicated power supply and cable to connect to the AllegroCE/RCS data collector for configuration.

This device will be used at the TPS1200 instrument as the Base Radio.

Step	Action	Display
1	To connect the external radio modem, set the following parameters: • Port: Select the COM port where the radio is connected. • Baudrate: **19200**. • Press the **Connect** button. The program will establish communication with the radio device and a context box will be displayed.	
2	As instructed in the context box: • Disconnect and then reconnect the radio device from the battery. The program will then establish communication with the radio device and retrieve the current radio parameters. **Note:** The radio may connect at a baud rate other than 19200. Follow the procedure listed on the next page to set the proper base radio settings.	

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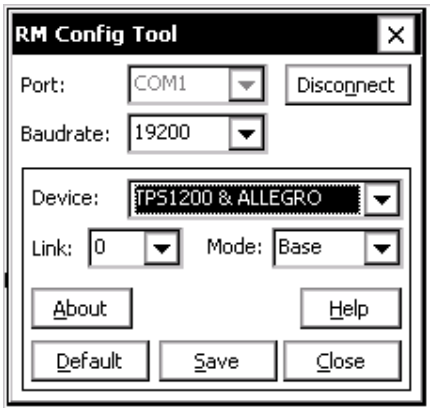
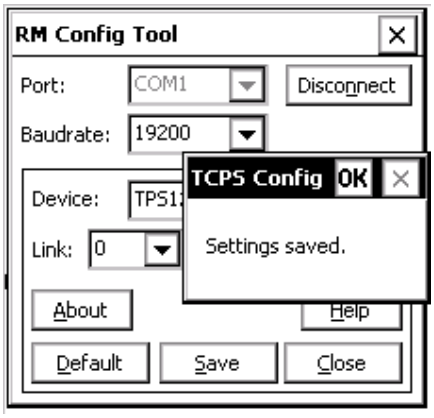
AllegroCE/RCS with TPS1200 and TCPS27B Modem
Configure the TCPS27B External Radio Device

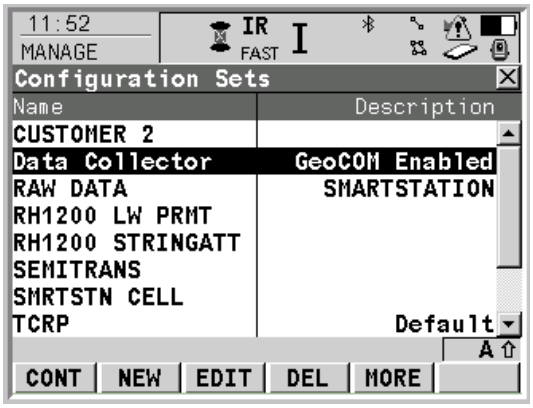
Step	Action	Display
3	Once communication is established, the current radio parameters will be displayed. To set the TCPS27B radio parameters to work correctly with the AllegroCE/RCS, select the following choices: • Device: **TPS1200 & ALLEGRO**. • Press the **Default** button. **Note:** This configures both TCPS27B and RM2410 radios. **Note:** To disconnect, without changing the current parameters, press the **Disconnect** button.	
4	After pressing the **Default** button, the program will display a context box asking if you want to set the Leica default settings. • Press the **Yes** button. This will set the radio to the default settings and disconnect you radio connection. • Re-connect the radio with the RM Config Tool program. Confirm the following settings for the TCPS27B to be used with the AllegroCE/RCS: • Baudrate: **19200**. • Device: **TPS1200 & ALLEGRO**. • Link: (match to Rover). • Mode: **Base**. **Note:** If you change the Link number you will need to press the Save button and confirm the changed settings. **Note:** You MUST disconnect power and reconnect power from the radio modem before use after changing the settings.	

AllegroCE/RCS with TPS1200 and TCPS27B Modem

TPS1200 Setup – Enabling GeoCOM Mode

GeoCOM Mode

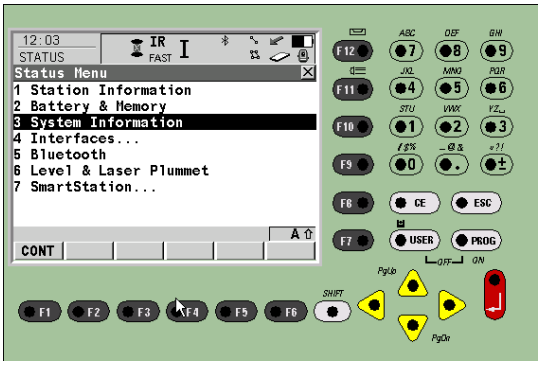
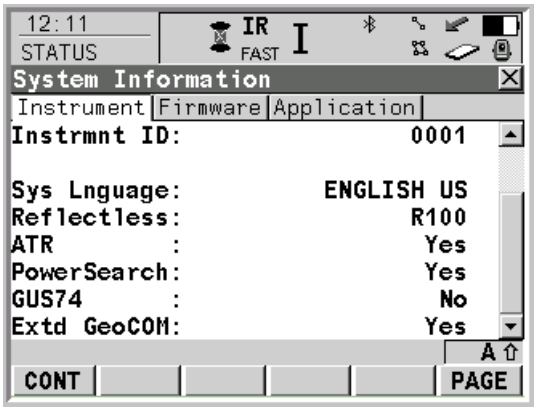
TPS1200 utilizes the GeoCOM driver for communications. If your data collector software indicates using GeoCOM settings for ROBOTIC mode, you must set the TPS instrument to the mode.

Step	Action	Display
1	From the Main Menu: • Select **3 Manage…**. • Select **5 Configuration Sets**. This takes you to the MANAGE Configuration Sets screen.	
2	In the MANAGE Configuration Sets screen: • Select the **Data Collector** configuration. • Press the **F1 (CONT)** button. This sets the proper communication interface for GeoCOM interface and connecting tho external data collector software. **Note:** If you do not see the Data Collector configuration, contact your local Leica sales representative.	

AllegroCE/RCS with TPS1200 and TCPS27B Modem
TPS1200 Setup – Other Instrument Settings

GeoCOM Interface

Your instrument should arrive ready to use. If it does not respond to the data collector software, we must verify the GeoCOM is turned on.

Step	Action	Display
1	From the Main Menu: • Press the **USER** button. • Press the **F3 (STAT)** buttton. • Select **3 System Information**. This takes you to the STATUS System Information screen.	
2	In the STATUS System Information screen, Instrument page: • Scroll to the bottom of the list and confirm the following setting: • Extd GeoCOM: **Yes**. Note: If this is showing **No**, please contact your local Leica sales representative. They will be able to arrange delivery of the activation code that will enable this mode.	

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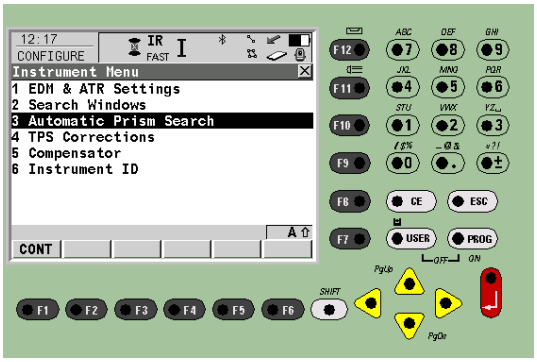
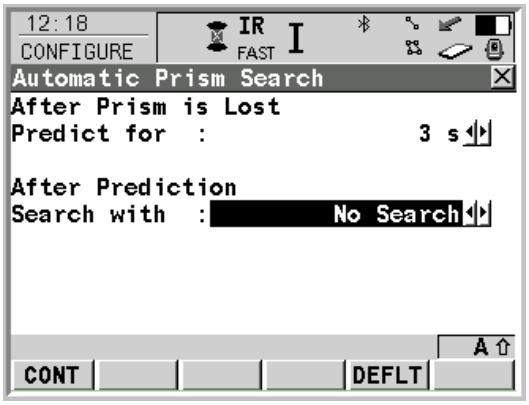
AllegroCE/RCS with TPS1200 and TCPS27B Modem

TPS1200 Setup – Other Instrument Settings

Robotic Prism Search

Your TPS1200 has several different modes that allow it to track a prism. There is one setting for Auto Prism Search that must remain as a default setting.

Step	Action	Display
1	From the Main Menu: • Select **5 Configuration**. • Select **2 Instrument Settings…**. • Select **3 Automatic Prism Search**. This takes you to the CONFIGURE Automatic Prism Search screen.	
2	In the CONFIGURE Automatic Prism Search screen: • Set After Prism is Lost Predict for: **3s**. • Set After Prediction Search with: **No Search**. **Note:** You will most likely want to change these settings when using the RX1220T robotic solution. It is possible to select to use an ATR or a PowerSearch after the prism is lost.	

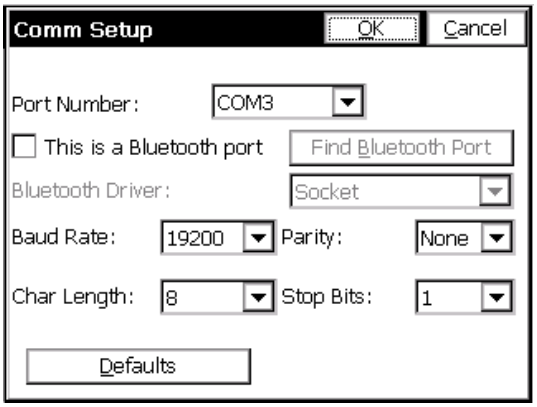
AllegroCE/RCS with TPS1200 and TCPS27B Modem
AllegroCE/RCS – SurvCE Software Settings

AllegroCE/RCS

The integrated radio modem is housed inside the AllegroCE/RCS data collector and does not require cables or an external power supply.

The integrated radio modem is configured as **COM3** on the AllegroCE/RCS.

For example, you must set up the Carlson SurvCE to use **Port Number: COM3.**

Step	Action	Display
1	In the SurvCE program, in the Comm Setup screen, set the following parameters: • Port Number: **COM3**. • Baud Rate: **19200**. • Parity: **None**. • Char Length: **8**. • Stop Bits: **1**. • Tap on the **OK** button to store changes. Your software is now ready to communicate via the internal radio modem.	

AllegroCE/RCS with TPS1200 and TCPS27B Modem
AllegroCE/RCS Internal Radio and Battery Information

Power Consumption

It is important to know that the internal radio module on the AllegroCX/RCS or CE model can use a considerable amount of power. To be able to put the radio modem in sleep mode when the Allegro is turned off you must use the RM Config program to enable this. If you have a new unit or you have done a cold boot to the Allegro you need to use the RM Config program to connect to the modem and save the settings enabling the radio to go into sleep mode.

Facts and Tips

- Use the RM Config program to save and set the radio module settings if a cold boot has been done.
- Keep the Allegro on a charger when not using it on weeknights and weekends.
- If the charge of the battery is unknown and the battery detected message appears, resynchronize by setting the battery to 10%.
- Remember when the Allegro is turned off that it is really in a sleep mode. The CE operating system only sets the Allegro into a low power mode and over several days if the Allegro is not on a charger the battery will be drained.