

Quick Reference Guide

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JANUS[®]
2.4 GHz Radio Frequency

ntermec

A **UNOVA** Company

Intermec® Corporation
6001 36th Avenue West
P.O. Box 4280
Everett, WA 98203-9280

U.S. service and technical support: 1-800-755-5505
U.S. media supplies ordering information: 1-800-227-9947

Canadian service and technical support: 1-800-688-7043
Canadian media supplies ordering information: 1-800-268-6936

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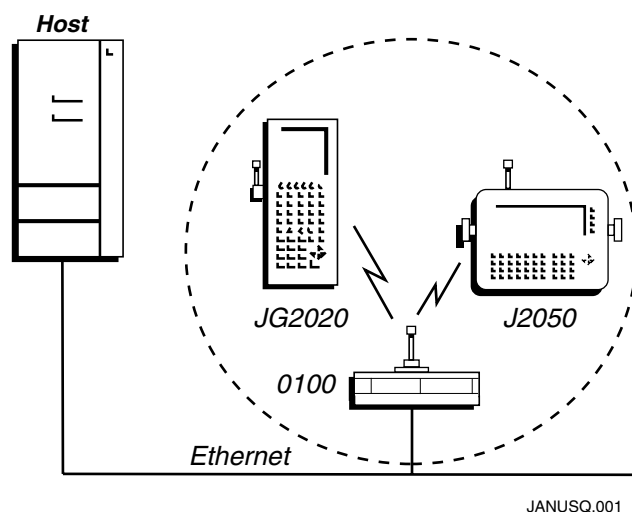
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The JG2020 and the JG2050 for the 2.4 GHz network is slightly different than the one described in the standard JANUS 2020 User's Manual. Even though many of the features and configuration commands are the same, your device does not support IRL™ or PSK Transmit and Receive functions.

Overview of an Intermec 2.4 GHz RF Network

A radio frequency (RF) data collection network establishes a two-way radio link between a JANUS™ RF device and a host. The data from the device is sent in real time through the RF system to an 0100 Access Point and then on to the host. The RF link is completely transparent to the user. The following illustration shows one example of an Intermec 2.4 GHz RF data collection network.

A Typical Intermec 2.4 GHz Network



With your JANUS RF device you can move anywhere within the range of an access point and transmit data to and from the host.

Setting Up the JANUS RF Devices

The JR2020G and the JG2020 are JANUS 2020 hand-held data collection computers that operate in Intermec's 2.4 GHz RF network. The J2050A and the JG2050 are vehicle-mount computers that also operate in this network.

Before you can operate any JANUS RF device in the 2.4 GHz RF network, you need to:

- Attach the antenna to the JR2020G, JG2020, J2050A or JG2050.

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- Use the JANUS 2.4 GHz Installation Utility to install the network software and set the network and radio parameters on your JANUS device.

Attaching the Antenna



Caution

The antenna must be attached before turning on the JANUS RF device. The internal radio could be damaged if the antenna is not attached.

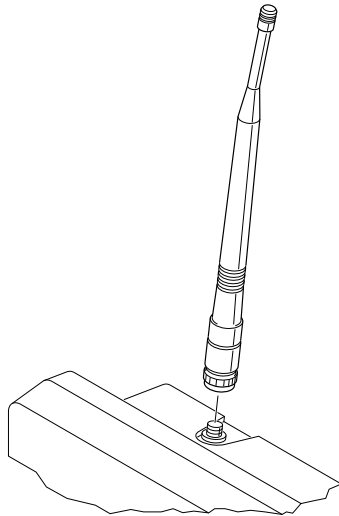
Conseil

Si l'antenna n'est pas attachée avant que l'appareil RF de JANUS soit mise sous tension, la radio interne peut être endommagée.

Note: Do not interchange antennas between any of the JANUS RF devices. Each antenna is built specifically for the radio that is installed in the device.

1. Make sure the JANUS RF device is switched off. If the device is on, switch it off by pressing (I/O).
2. Screw the antenna into the connector of the device. Refer to the following illustrations.
3. Switch on the device by pressing (I/O).

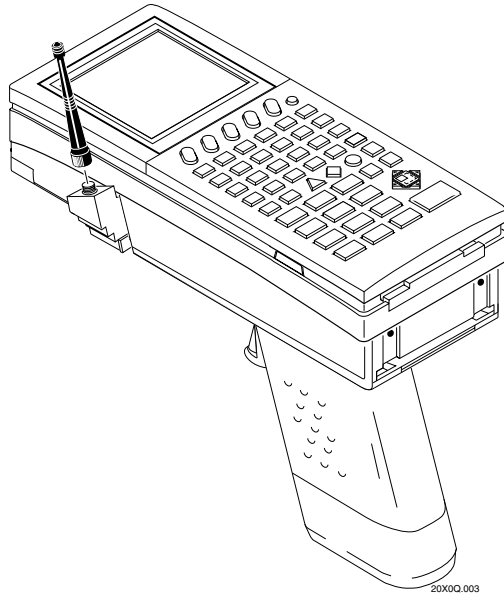
Attaching the J2050A or JG2050 Antenna



2050U.009



Attaching the JR2020G or JG2020 Antenna



Using the JANUS 2.4 GHz Installation Utility

Before you can use your JANUS RF devices in a 2.4 GHz network, you must configure the radio parameters and load the network software on them. There are two different installation utility kits:

- The JANUS 2.4 GHz Installation Utility Kit for 1MB devices (Intermec P/N 064792)
- The JANUS 2.4 GHz Installation Utility Kit for 4MB devices (Intermec P/N 064672)

You need to provide the network software (LAN WorkPlace for DOS or NetWare Client for DOS) that you install on your devices. The kit provides the installation utility that merges your network software with the JANUS software, software for setting a security ID for your network, Intermec and Novell terminal emulation software that allow you to install terminal emulation, and boot utilities companion disks that ensure that you will be running the latest JANUS firmware.

The installation utility creates new drive images for your devices that allows them to connect with a Novell network or a TCP/IP-based UNIX network using RF communications. The installation utility runs on a host PC in the DOS environment and uses a DOS text-based interface to prompt you for information about your network.

Using the JANUS RF Devices

This section contains information on the JANUS RF devices for the 2.4 GHz network.

Note: If your device has sent or received TCP/IP packets when it was out of range of an access point, or if your device was placed in a suspend state, you may notice a delay in reconnecting to the network. The TCP/IP protocol determines the retransmission timeout based on the length of time the device is suspended or disconnected from the network. For example, this delay can be 30 seconds if the device roams out of range for 3 minutes. The maximum timeout can be from 30 seconds to 1 minute.

Using the J2020 User's Manual With Your JR2020G or JG2020

Most of the information in the J2020 user's manual also applies to your JR2020G and JG2020. However, both of these readers do not have IRL loaded on them. Ignore the sections in your user's manual that discuss IRL.

Also, the JR2020G does not have a PC card slot. Ignore sections in your user's manual that talk about using PC cards with your reader.

Using the J2050 User's Manual With Your J2050A or JG2050

Most of the information in the J2050 user's manual also applies to your J2050A and JG2050. However, both of these devices do not have IRL loaded on them. Ignore the sections in your user's manual that discuss IRL.

Also, the J2050A for the 2.4 GHz RF network does not have a PC card slot. Ignore sections in your user's manual that talk about using PC cards with your device.

Logging Into or Out Of Novell Software

If you are a NetWare Client user or, if you are a LAN WorkPlace user using SPX/IPX support, you must use special instructions when logging into a NetWare server from your JANUS device.

To log into your network

- Type `IMLOGIN` on your JANUS RF device.

Note: Do not type `LOGIN` to log into your network.




To log out of your network

- Type IMLOGOUT on your JANUS RF device.

Note: You can also type LOGOUT.

When you reboot your device, it automatically runs IMLOGIN. You will usually type IMLOGIN in these situations:

- You roam out of range of an 0100 Access Point for an extended period of time and the NetWare server logs out your device. When you return to within range of an access point, you need to type IMLOGIN to log back into the 2.4 GHz RF network.
- You do not transmit any packets using your device for an extended period of time. Your device may be placed in a suspend state and the NetWare server logs out your device. When you press the  button, you must type IMLOGIN to log back into the 2.4 GHz RF network.

Using the JANUS Programmer's Software Kit (PSK)

The JANUS RF devices for the 2.4 GHz network cannot run Transmit or Receive functions provided by the JANUS PSK. TCP/IP and SPX/IPX protocol handlers have not yet been developed. If you need these functions, use Novell's off-the-shelf application programming interfaces (APIs) instead of the JANUS PSK.

Developing Applications

Intermec recommends the following software if you need to develop applications that run on your JANUS RF devices in the 2.4 GHz network:

- LAN Workshop
This program is a high-level API for TLI development. You can develop applications for both TCP/IP and SPX/IPX.
- NetWare Client SDK
This program allows you to develop applications for SPX/IPX.
- Off-the-shelf APIs by Novell.

Note: If you notice that your device is overheating or if it seems to be working better in a cold environment than a warm environment, your application may be sending too many packets to the host. Reduce the number of packets sent to two or three packets per second.

About the JANUS Configuration Files

When the JANUS RF device performs a cold boot, it looks for a configuration file *.INI, whose path is specified in the AUTOEXEC.BAT file. The *.INI file that you use depends on which software you install on your JANUS device.

J24TE.INI If you install Intermec TNVTxxx, 3270, or 5250 terminal emulation software, this configuration file is automatically loaded in the DRIVEC subdirectory.

JANUS.INI If you install Novell TVNTxxx or NetWare Client, you need to create this configuration file. Use IC.EXE to create the JANUS.INI file and then you save it to drive E. If you do not want to lose the configuration file when you cold boot the device, you can put the JANUS.INI file in the DRIVEC subdirectory.

Remember to update your AUTOEXEC.BAT file with the correct path name of the new JANUS.INI file.

To load the JANUS.INI file

1. Create a configuration file that you want to load whenever the reader performs a cold boot.
2. Save this configuration file as JANUS.INI.
3. Copy the JANUS.INI to drive E on the device.

Note: Since drive E is initialized on a cold boot, you will lose JANUS.INI if you perform a cold boot on the device. If you want to put the JANUS.INI file on drive C, use Auto-Loader or MkImage/PutImage to update drive C. Refer to your JANUS user's manual for more information.

4. At the DOS prompt on the device, load the configuration file by typing:

```
IC /L E:\JANUS.INI
```

Using RF Communications

Once your RF system is configured for RF communications, you can begin collecting and transmitting data using your JANUS RF device. When you transmit data using the JANUS RF device, the information is first sent to its radio buffer. The data is then sent on to the access point and then to the host.

If the RF network goes down, you can continue to collect data until the radio buffer is full. When the buffer is full, the application returns a communication timeout status. The actual status response depends on what language you used to develop the application.

When your RF network comes back up, the data in the radio buffer is transmitted to the host and you can once again transmit data.



Caution

Do not operate two RF devices within 2 feet (0.6 meters) of each other when using RF communications. Doing so may damage the radio receivers.

Conseil

Assurez-vous de ne pas utiliser deux devices RF de carte à moins de 2 pieds (0,6 mètres) l'un de l'autre lorsque vous effectuez des communications en radiofréquence. Sinon, les récepteurs radio pourront être endommagés.

Understanding the RF Status Icons and LEDs

The RF status icons on the JR2020G and JG2020 screens correspond to the Conn/Data LEDs on the J2050A and JG2050 cases. These RF icons and LEDs are used to manage RF communications:

- **Connected** This icon contains an asterisk. The icon or LED flashes when the RF interface is either actively channel searching or trying to reestablish communications with the network controller. When this icon or LED is solid, the RF interface is connected to a network controller. The RF interface in the JANUS RF device handles RF communications.


If this icon or LED is off, RF communications are not possible. The JANUS RF device may not be set up correctly for RF communications or there may be another problem such as the battery being low. If RF communications appear to be locked up, see one of the troubleshooting sections later in this guide for more help.

- **Data** This icon contains a square. The icon or LED turns on when data is buffered in the RF interface. The data is either being transmitted to the network controller or received data has not been accepted by the JANUS RF device application. Up to five messages can be buffered in the RF interface.

If there are messages in the RF interface when RF communications are turned off, the data icon or LED remains on.

Note: Do not turn off the JANUS RF device when the data icon or LED is lit. If you turn off the device, the RF interface saves the data and attempts to transmit the data again when the device is powered on. If the device is not powered on for some time, there could be some confusion because the data could become meaningless and/or disrupt the host application.

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 **Battery** (JR2020G or JG2020) This icon flashes when the NiCad battery pack charge is low (approximately 45 minutes left). Immediately replace or recharge the battery pack because you will soon lose RF communications.

If you continue to operate the reader, the battery pack charge becomes very low, the reader beeps, and RF communications are turned off. You can continue to collect data with the reader, but the data is not transmitted to the controller.

If you continue to operate the reader, the battery pack becomes critically low. The battery icon turns on and stays on and the reader chirps every 15 seconds. After 1 minute, the reader turns off. You cannot turn it back on until you replace the battery pack.

Managing Your JR2020G and JG2020 Battery Power

The JANUS reader's RF interface has built-in power management to maximize the life of the battery. The RF interface is the hardware and software built into the reader to handle RF communications. For more ideas on how to conserve battery life, see your JANUS user's manual.

To conserve battery life, the RF interface turns off. You cannot use your reader to communicate in any of these situations:

- The reader is off.
- The RF protocol is disabled.
- The RF protocol handler is not loaded.
- The NiCad battery pack charge is very low.

To avoid losing RF communications, replace or recharge the NiCad battery pack immediately when the battery icon on the reader display flashes. Approximately 15 minutes after the icon flashes, the reader beeps and RF communications are turned off.

When you remove the battery pack, replace it immediately with a spare charged battery pack. If you leave the reader without a charged battery pack for any length of time, you will prematurely discharge the lithium backup battery.

You can extend the life of the battery pack by setting the Duty Cycle Percent and Duty Cycle Period parameters on the reader. Duty cycle causes the RF interface to alternate between receiving and standby. When the RF interface is in standby, it uses less battery power, but does not receive messages from the controller. The RF interface comes out of standby at the end of the duty cycle period, or when the reader sends a message through COM4.



Note: If the reader is not going to be used for 1 week or longer, it is important that you put the reader in Storage mode and remove the NiCad battery pack. If you do not remove the NiCad battery pack, the reader will slowly drain the battery pack. For help, see your JANUS user's manual.

Troubleshooting Your JR2020G and JG2020

If you are having problems with RF communications, review the following list of problems and their possible solutions.

Note: The 2020s and the 2050s have slightly different procedures. If you have a J2050A or a JG2050, see to the next section, "Troubleshooting Your J2050A and the JG2050."

Problem

The RF option is not listed in the Com menu of IC.EXE.

You load the RF protocol handler and do not receive the message Intermec RF Protocol Handler.

The Battery icon is flashing at the top of the reader display.

RF communications appear to be locked up and the Connect icon turns off.

Solution






The device is not recognizing the RF interface. Contact your Intermec service representative.

The RF interface is not responding. Contact your Intermec service representative.

Replace or recharge the NiCad battery pack immediately because you are about to lose RF communications.

If the Battery icon is turning on and off and the reader beeps, RF communications are turned off. You can continue to collect data with the reader, but the data is not being transmitted to the RF network.

There are three possible solutions:

- Check the NiCad battery pack. If the battery pack charge is low, replace or recharge the battery pack immediately.
- Make sure you are within range of a radio repeater or base radio unit.
- Press the  button twice to partially reset the RF interface. Perform a warm boot on the device (press the     keys in sequence) and contact your Intermec service representative. When you warm boot the device, you will lose any data stored in the RF interface.

Troubleshooting Your J2050A and JG2050

If you are having problems with RF communications, review the following list of problems and their possible solutions.

Note: The 2020s and the 2050s have slightly different procedures. If you have a JR2020G or a JG2020, see to the previous section, "Troubleshooting Your JR2020G and the JG2020."

Problem

The RF option is not listed in the Com menu of IC.EXE.

You load the RF protocol handler and do not receive the message Intermec RF Protocol Handler.













RF communications appear to be locked up and the Connect LED turns off.

Solution

The device is not recognizing the RF interface. Contact your Intermec service representative.

The RF interface is not responding. Contact your Intermec service representative.

There are three possible solutions:

- Make sure you are within range of a radio repeater or base radio unit.
- Press the  button twice to partially reset the RF interface. If that does not work, perform a warm boot on the device (press the     keys in sequence) and contact your Intermec service representative. When you warm boot the device, you will lose any data stored in the RF interface.
- Press the  button. Press  -  -  and then press . Press the  button to turn the device back on. At the Boot Loader menu, select Storage mode. With the device in Storage mode, wait 60 seconds and then press  again. This sequence will cold start the radio, reboot the device, and restart the application.