Getting Started Guide

P/N 067359-001

TRAKKER® Antares™ 2455 Vehicle-Mount Terminal

Intermec

A UNOVA Company

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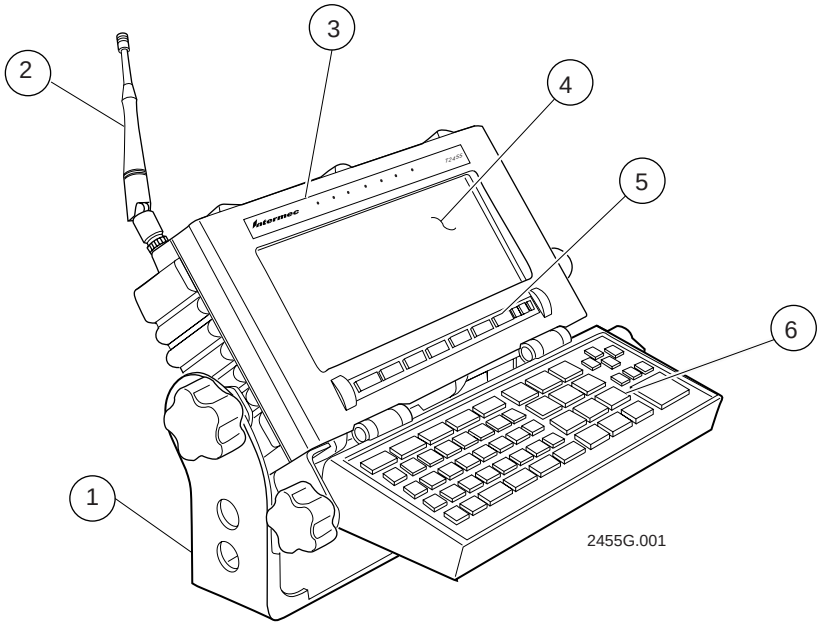
Introduction

Congratulations on selecting Intermec to help meet your data collection needs. You have chosen the world leader in the data collection industry.

The TRAKKER® Antares™ 2455 (T2455) is a programmable vehicle-mount data collection terminal that communicates in Intermec's 2.4 GHz radio frequency (RF) network. You use these programmable terminals to run either client/server applications or terminal emulation.

The T2455 provides wireless communications to a host either through the access points and DCS 300 or directly through the access points. The T2455 also has a serial port to communicate with other devices via RS-232 serial communications.

Note: *The T2455 will communicate with either the DCS 300 or the Model 200 Controller. The DCS 300 is a new data collection server that replaces the Model 200 Controller.*



The T2455 terminals are designed to make data collection easy and include these features:

1. Mounting bracket allows you to mount the terminal on the vehicle in an unlimited number of positions and viewing angles.
2. Adjustable antenna supports 2.4 GHz RF communications.
3. Status lights provide power, keyboard, data, network, and scanning information.

4. 25 line by 80 character screen with either an LCD CGA or electroluminescent (EL) CGA display.
5. Integrated function keypad provides function keys to support scanned data entry so you can operate the terminal without an accessory keyboard.
6. Accessory keyboard (ordered separately) with keyboard overlay that can be mounted to the terminal or mounted in a separate location on the vehicle.

Standard Features

The T2455 ships with these other standard features:

- 512K RAM reserved for applications
- 750K flash drive to store user applications and files
- Scanner port to attach a laser scanner
- Serial port for RS-232 communications with other RS-232 devices

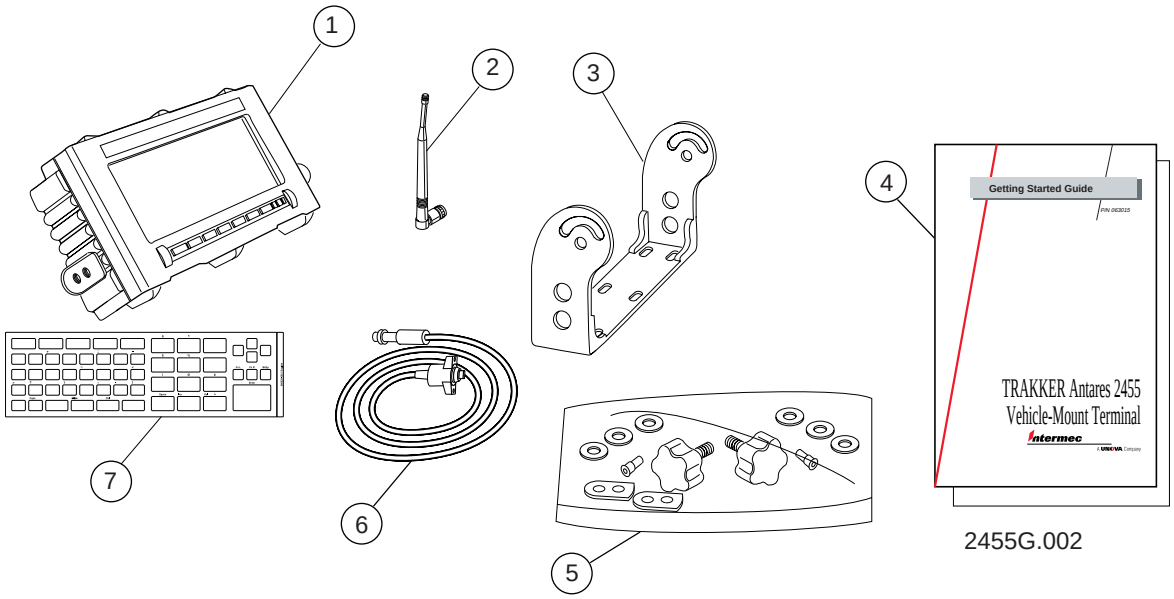
T2455 Options

These options are available for the T2455:

- Extended 2MB flash memory to either store double-byte fonts or configure as a 2MB drive
- Extended SRAM storage drive (2MB or 4MB) to store files
- Cold-temperature terminal (heater installed)
- UDP Plus (DCS 300 or Model 200 Controller network) or TCP/IP network protocol
- IBM 3270 terminal emulation application and keyboard overlay
- IBM 5250 terminal emulation application and keyboard overlay
- VT/ANSI terminal emulation application and keyboard overlay
- Screen mapping for 3270, 5250, or VT/ANSI (UDP Plus terminals only)

Unpacking the Terminal

The T2455 shipping box contains:



1. TRAKKER Antares 2455 vehicle-mount terminal
2. Antenna
3. Mounting bracket
4. Getting started guide and safety supplement
5. Mounting bracket hardware
6. T2455 DC power supply cable
7. Keyboard overlay

When you remove the terminal from its box, save the box and shipping material in case you need to ship or store the terminal. Check the contents of the box against the invoice for completeness and contact your local Intermec service representative if there is a problem.

Accessories for the Terminal

You can use these accessories (sold and ordered separately) with the TRAKKER Antares 2455 vehicle-mount terminal:

AC power supply Use the AC power supply (Part No. 065236) to power the terminal when it is in the desktop mounting stand. The AC power supply is only for use in clean, dry office-like environments with temperatures from 50°F to 104°F (10°C to 40°C). The power supply comes with a North American power cord. If you are using the terminal outside North America, you need to purchase the appropriate power cord for your local power source.

AC power supply adapter cable Use the AC power supply adapter cable (Part No. 066842) to connect the AC power supply to the T2455.

DC power supply There are two DC power supply kits that you can use to power the terminal when it is mounted to a vehicle:

- Low-voltage input kit (10 to 36 VDC) (Part No. 067698)
- High-voltage input kit (15 to 96 VDC) (Part No. 067699)

Desktop mounting stand The desktop mounting stand (Part No. 067431) attaches to your terminal to provide a stable desktop platform. The desktop mounting stand is useful when you have the terminal connected to your PC to develop applications.

Keyboard The alphanumeric keyboard (Part No. 067028) supports a subset of the keys that are available on a PC-AT keyboard. The terminal ships with a keyboard overlay to match the application or language you ordered. There are five alphanumeric keypad overlay options: English, Western European, and three terminal emulation options.

Keyboard adapter cable The adapter cable (Part No. 066848) allows you to use a standard PC-AT keyboard for customer applications and system configuration on the terminal. You can attach the adapter cable to the keyboard cable connector and to the T2455.

Note: *You must use the T2455 keyboard accessory with Intermec terminal emulation applications.*

Laser scanner cables Use the laser scanner cables to connect a scanning device such as the 1517, 1518, 1519, 1550, and 1551 laser scanners. For help ordering the appropriate laser scanner cable, see “Specifications” later in this guide.

Portable printer cables Use the specific portable printer cable to connect a Codewriter 4102 (Part No. 067642) or an O’Neil MicroFlash3 printer (Part No. 067643) to the COM1 serial port.

RS-232 null-modem adapter cable The adapter cable (Part No. 066847) allows you to communicate with other RS-232 devices, such as scales, PCs, and printers, through the COM1 serial port.

Getting Started

The T2455 has a flexible two-piece design that allows you to mount the terminal in different locations using three basic configurations.

Mount the T2455 on the vehicle.

Use the T2455 without a keyboard. Attach an accessory laser scanner to input bar code data and use the function keypad below the screen for F1-F10 function keys.

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2455G.004

Mount the T2455 and an accessory keyboard as a single unit on the vehicle.

Attach an accessory laser scanner to input bar code data. Use the function keypad below the screen or the accessory keyboard to enter data.

Mount the T2455 and the accessory keyboard separately on the vehicle.

Attach an accessory laser scanner to input bar code data. Use the function keypad below the screen or the accessory keyboard to enter data.

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Installing the Terminal and Connecting Devices

The steps required to install your T2455 will depend on the mounting location and the accessories you want to attach to the terminal.

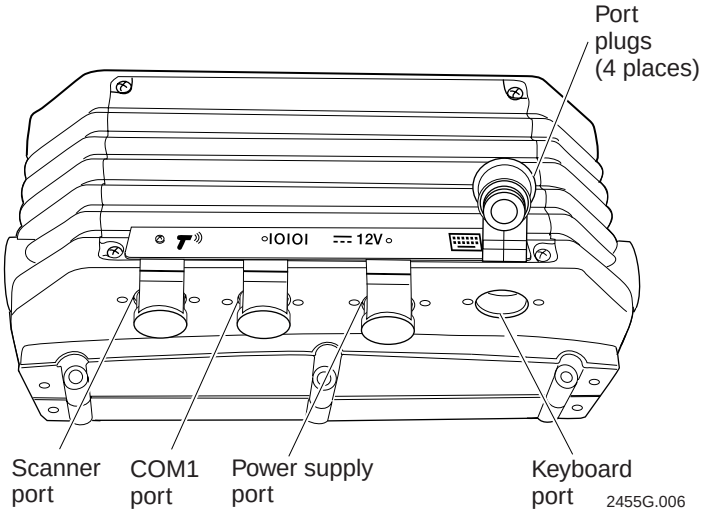
To install and configure your T2455, you need to:

- Locate the terminal ports.
- Attach the antenna to the T2455.
- Install the mounting bracket on the vehicle.
- Install the keyboard onto the T2455 or the vehicle (optional).
- Install the T2455 into the mounting bracket.
- Install and connect the DC power supply.
- Attach a scanner.
- Connect to serial devices.
- Fully charge the backup battery.
- Turn on the T2455 for the first time.
- Connect the T2455 to an RF network.

These procedures are described in detail in the next sections.

Locating the Terminal Ports

You connect power, a keyboard, laser scanner, and RS-232 serial devices to the terminal ports that are located on the bottom back panel of the T2455.



Scanner port You must use one of the accessory laser scanner cables to connect a scanner to the Scanner port on the terminal. You can attach these Intermec devices:

- 1517, 1518, 1519 laser scanners
- 1550 and 1551 laser scanners
- 1552 wireless laser scanner

Note: *See your Intermec sales representative for information about the availability of the 1552 laser scanner.*

COM1 port Use this port to connect the terminal to other RS-232 devices, such as PCs, scales, and printers, using an RS-232 null-modem adapter cable. The RS-232 null-modem cable is an accessory, which is sold and ordered separately.

Power supply port Use this port to connect the terminal to one of the DC power supply kits (10 to 36 VDC or 15 to 96 VDC) or to connect the AC power supply when operating the terminal from the desktop mounting stand. You must have a power supply connected to operate the terminal.

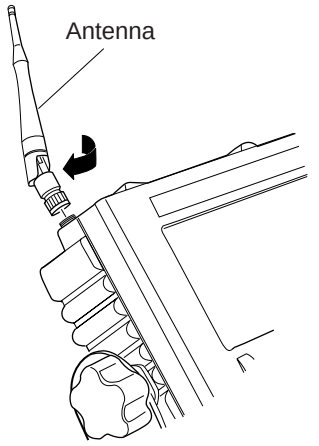
Keyboard port Use this port to connect the T2455 keyboard or a PC-AT keyboard to the terminal using the T2455 keyboard adapter cable. The keyboard and keyboard adapter cable are accessories, which are sold and ordered separately.

Port Plugs Each port on the T2455 has a port plug to seal the terminal whenever a port is not in use. Make sure that you either have a cable connector or a port plug in the ports at all times.

Note: *When you insert a cable connector into a port, firmly push the cable connector straight into the appropriate port. The connectors are keyed, so if a connector does not fit, do not force it. Do not wiggle or twist the cable connector—you may damage the connector.*

Attaching the Antenna

The antenna is shipped with the terminal. Remove the antenna from the shipping box and attach the antenna as shown.



You can also use an Intermec-approved accessory antenna to improve RF communications.

Note: *See your Intermec sales representative for information about and a list of Intermec-approved accessory antennas for the T2455.*

Caution

Make sure all components with antennas are at least 1 foot (0.3 meters) apart when power is applied. Failure to comply could result in equipment damage.

Conseil

Assurez-vous que la distance entre tous les éléments avec antennes soit d'au moins un pied (0.3 mètres) avant de faire la connexion avec l'alimentation électrique, faute de quoi vous risquez d'endommager votre installation.

Installing the Mounting Bracket on the Vehicle

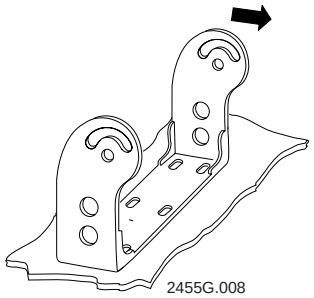
The T2455 is designed to be mounted on a vertical or horizontal surface. Before you install the mounting bracket, read these guidelines:

- In most cases, you will need to weld or bolt a flat mounting plate to the vehicle to secure the T2455 mounting bracket.
- Mount the T2455 where the operator can easily see the screen and use the function keypad. If possible, you should mount the terminal in a location that avoids glare from overhead lighting and sunlight.
- If you are using an accessory keyboard, determine whether you want to mount the keyboard so that it is attached to the T2455 or mount the keyboard and T2455 separately. Mount the keyboard where the operator can easily use it.
- When you mount the T2455 on metal surfaces, the minimum reinforced thickness should be 10-gauge (.250 inches or 3.4 mm) steel.
- Intermec recommends fastening a bolt (3/8-inch, 10 mm) with a flat washer, lock washer, and nut (3/8-16 UNC-2B) to each of the six holes on the mounting bracket. The bolt length will depend on the thickness of the mounting surface.
- Secure the power cables at least every 18 inches (45 cm) throughout the length of the cable run—use adjustable clamps or tie-wraps to secure the cables.
- Route all cables to minimize exposure to damage. Make sure the cables will not be pinched or rubbed by any moving parts on the vehicle. In some applications, you may need to sheath the cable to prevent it from being pinched.

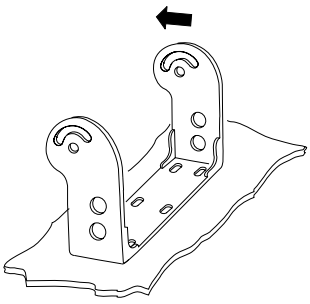
Note: *Mounting hardware (bolts, nuts, and washers) is not supplied with the T2455.*

To attach the mounting bracket to the vehicle

1. Orient the mounting bracket as follows:
   - If you are mounting the T2455 only, the curved arms of the mounting bracket must point toward you.



- If the keyboard is attached to the T2455, the curved arms of the mounting bracket must point away from you.



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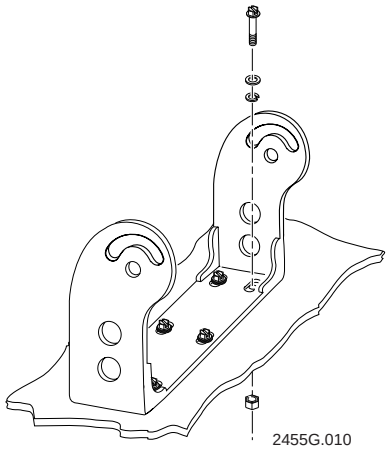
2. Using the mounting bracket as a template, mark and drill six holes in the mounting surface.
3. Attach the mounting bracket using a bolt (3/8-inch, 10 mm) with a flat washer, lock washer, and nut (3/8-16 UNC-2B) through each of the six holes in the mounting bracket and the mounting surface.



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Installing the Keyboard

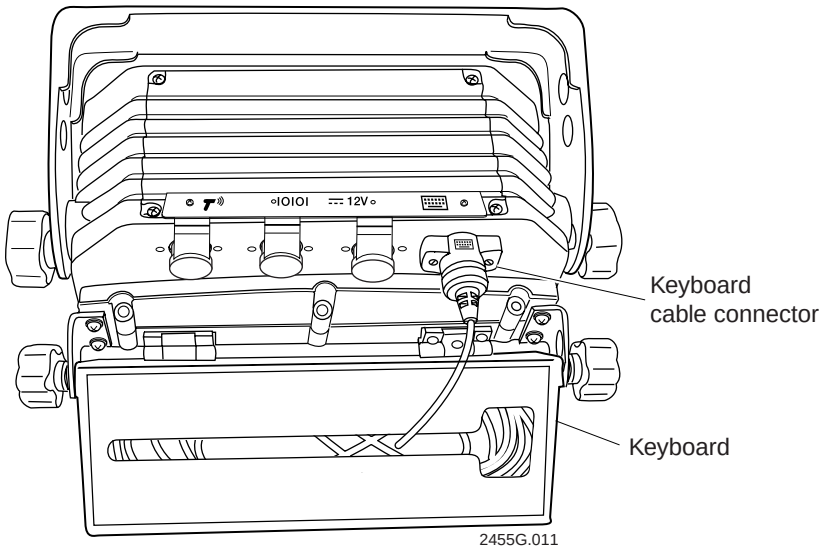
You can attach a keyboard to use with the T2455. There are two options:

- Intermec T2455 accessory keyboard (Part No. 067028)
- PC-AT keyboard and Intermec keyboard adapter cable (Part No. 066848)

You can mount the keyboard directly to the T2455, or you can mount it to a remote location, such as the dashboard of your vehicle.

To install the keyboard

1. If you are using the T2455 keyboard, install the keyboard overlay that shipped with the terminal. For help, see the *TRAKKER Antares 2455 Keyboard Installation Guide* (Part No. 067363).
2. If you are installing the keyboard separate from the T2455, determine the mounting locations for the terminal and the keyboard.
3. If you are installing a PC-AT keyboard (non-T2455 keyboard), you need to determine how to mount the keyboard to the mounting surface on the vehicle.
4. Install the keyboard on the T2455 or on the vehicle. For help, see the *TRAKKER Antares 2455 Keyboard Installation Guide.*
5. Unplug the rubber plug from the Keyboard port on the terminal.
6. If you are using a PC-AT keyboard, connect the Intermec keyboard adapter cable to the keyboard cable.
7. Insert the keyboard cable connector straight into the Keyboard port on the terminal. The icon on the keyboard cable connector should align with the same icon on the back of the T2455.



Note: *The Keyboard port plug is not shown for clarity.*

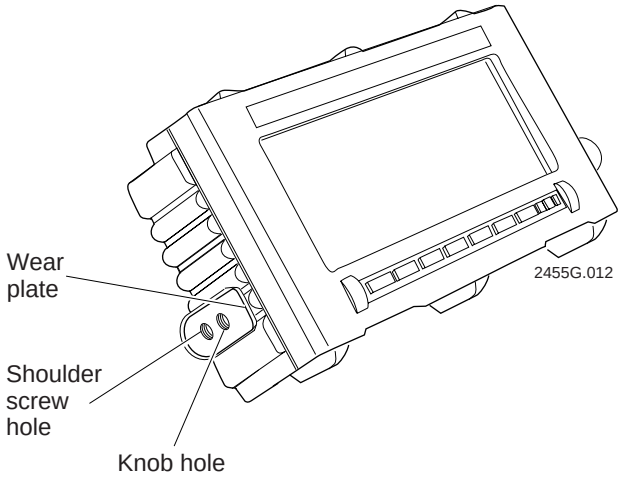
8. Use a straight-slot screwdriver to tighten the two screws in the keyboard cable connector and secure the cable to the T2455.
9. Tuck any excess cable into the back of the keyboard or make sure the cable will not be pinched or rubbed by any moving parts on the vehicle.

Attaching the T2455 to the Mounting Bracket

After you have installed the mounting bracket and keyboard (optional), you can attach the T2455 to the mounting bracket.

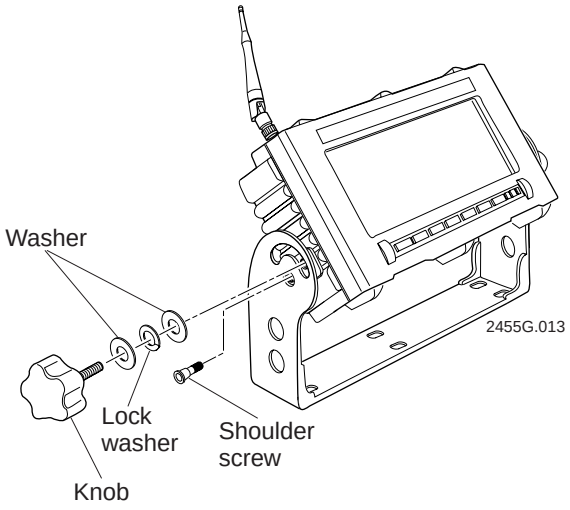
To attach the T2455 to the mounting bracket

1. Remove the backing from the wear plates.
2. Place the wear plates on the bracket mounting area on each side of the terminal screen. Press firmly on the edges to attach the wear plates to the terminal.

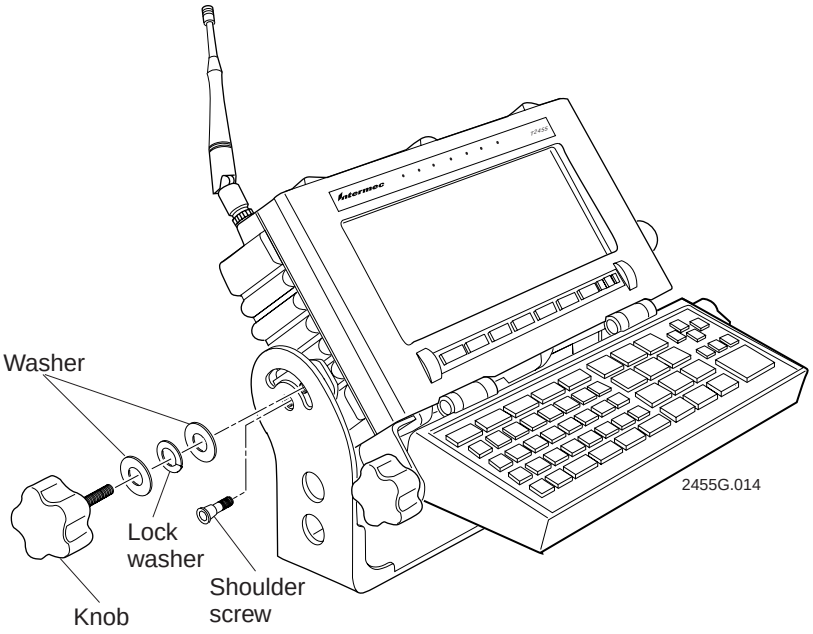


3. Place the terminal between the arms of the mounting bracket. If the keyboard is attached to the T2455, the curved arms of the mounting bracket must point away from you.
4. Insert the two shoulder screws on either side of the mounting bracket to attach the terminal to the bracket. Tighten the shoulder screws with an Allen wrench.
5. Place the lock washer and metal washers on each adjustment knob and then insert the knob through the mounting bracket and thread it into the terminal as shown in the next two illustrations.
6. Adjust the terminal screen to the best-possible viewing angle for the vehicle operator. Tighten the knob on each side to secure the terminal in the mounting bracket.

Installing the Mounting Bracket Without a Keyboard



Installing the Mounting Bracket With a Keyboard



7. Periodically inspect the knobs on the mounting bracket to make sure they are still tight. Check the mounting bracket for any signs of fatigue, such as cracking, which might develop over extended use in extreme (vibration) environments. Replace any damaged hardware immediately to ensure continued, safe operation.

Installing and Connecting the DC Power Supply

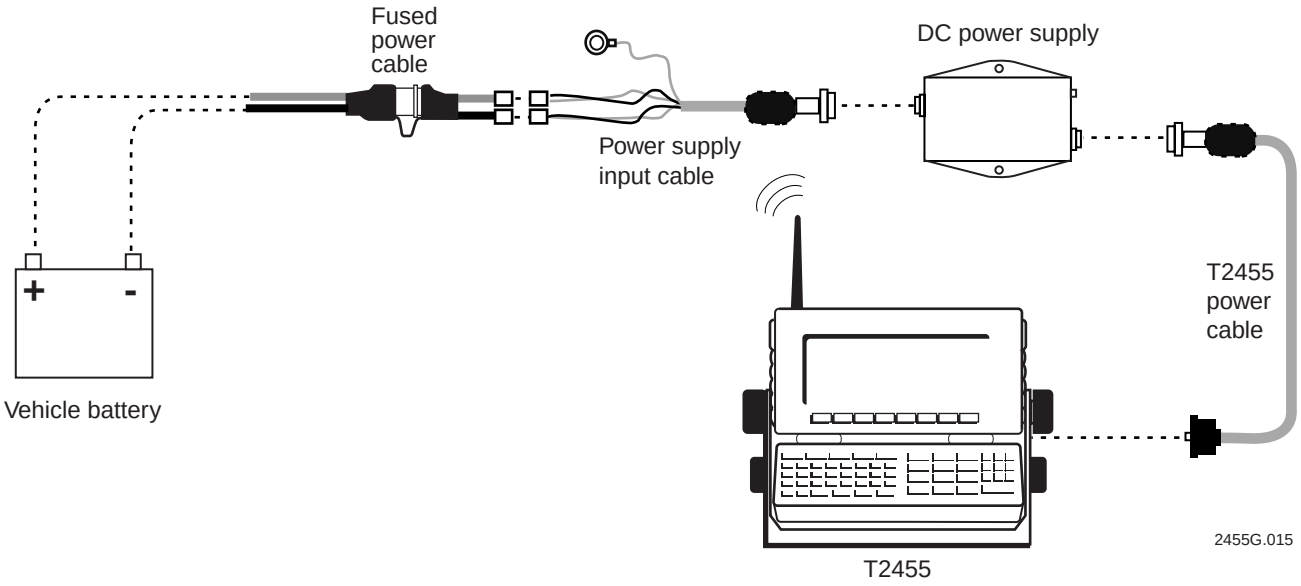
You need to install the DC power supply and connect the power supply to the vehicle battery and to the T2455. You need one of these DC power supply kits:

- Low-input voltage kit (10 to 36 VDC) (Part No. 067698)
- High-input voltage kit (15 to 96 VDC) (Part No. 067699)

To install and connect the DC power supply

1. Disconnect the vehicle battery cables.
2. Connect the fused power cable to the vehicle battery or terminal block.
3. Mount the DC power supply.
4. Connect the power supply input cable to the power supply.
5. Install terminators on the power supply input cable.
6. Attach the power supply input cable to the fused power cable.
7. Attach the T2455 power cable to the power supply and to the terminal.
8. Reconnect the vehicle battery cables.

For detailed instructions on installing the DC power supply, see the *TRAKKER Antares 2455 DC Power Supply Installation Guide* (Part No. 067362).

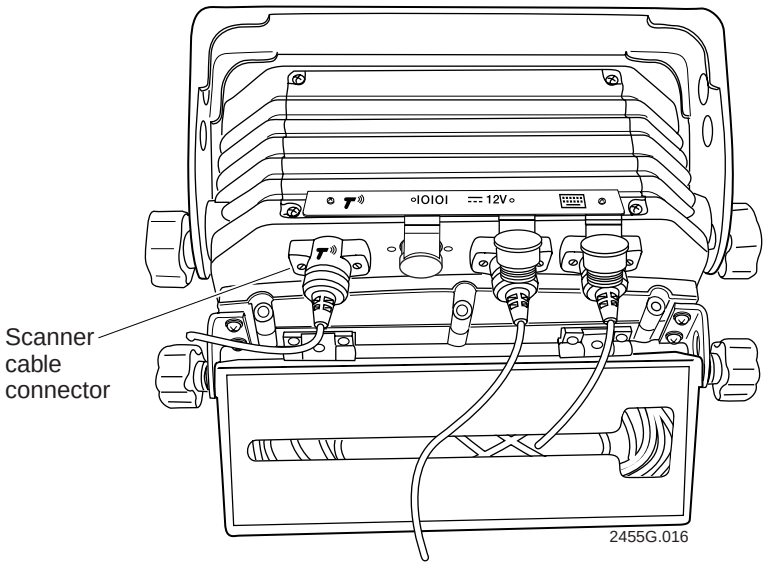


Attaching a Scanner

You can attach a laser scanner to scan and input bar code data. Use the accessory laser scanner cables to connect a scanning device. For help ordering the appropriate laser scanner cable, see “Specifications” later in this guide.

To attach a scanner

1. Unplug the rubber plug from the Scanner port on the terminal.
2. Insert the scanner cable connector straight into the Scanner port on the terminal. The icon on the scanner cable connector should align with the same icon on the back of the T2455.



Note: *The Scanner port plug is not shown for clarity.*

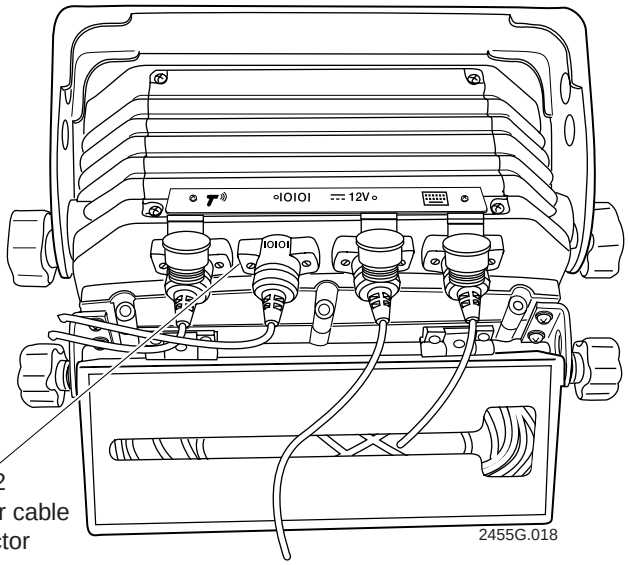
3. Use a small straight-slot screwdriver to tighten the two screws in the scanner cable connector and secure the cable to the T2455.
4. Attach the other end of the scanner cable to your scanner.
5. Make sure the cable will not be pinched or rubbed by any moving parts on the vehicle.

Connecting to Serial Devices

You use the terminal's serial port to transfer data between the terminal and a serial device. The terminal has one serial port (COM1) that supports RS-232 communications. You can use COM1 and the accessory RS-232 null-modem adapter cable (Part No. 066847) to connect to a serial device, such as a printer, scale, or PC.

To connect a serial device to COM1

1. Unplug the rubber plug from the COM1 port on the terminal.
2. Insert the RS-232 adapter cable connector straight into the COM1 port on the terminal. The icon on the RS-232 adapter cable connector should align with the same icon on the back of the T2455.



Note: *The COM1 port plug is not shown for clarity.*

3. Use a small straight-slot screwdriver to tighten the two screws in the RS-232 adapter cable connector and secure the cable to the T2455.
4. Attach the other end of the RS-232 adapter cable to the 9-pin RS-232 connector on your serial device.
5. Make sure the cable will not be pinched or rubbed by any moving parts on the vehicle.

Charging the Backup Battery

The backup battery backs up all memory and the real-time clock in case of a power failure. The backup battery is shipped inside the terminal, but it may not be fully charged. You need to fully charge the backup battery. You can operate the terminal while the backup battery is charging.

Note: *To guarantee data retention, you need to fully charge the backup battery before you use the terminal for the first time.*

To charge the backup battery

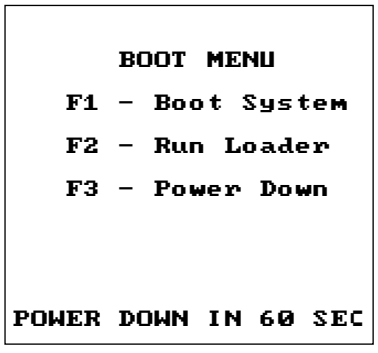
1. Make sure the terminal is connected to an external power supply. The terminal must be connected to either the DC power supply that is connected to the vehicle battery or to the AC power supply and a powered electrical outlet.
2. Let the power supply charge the backup battery for 14 hours to fully charge the backup battery.

Turning On the Terminal for the First Time

Once the power supply is connected and you have installed the terminal, you are ready to turn on the terminal.

To turn on the terminal

1. Press the ⅟₀ key on the function keypad. The terminal runs POST (power-on self test) and then the Boot Menu appears.



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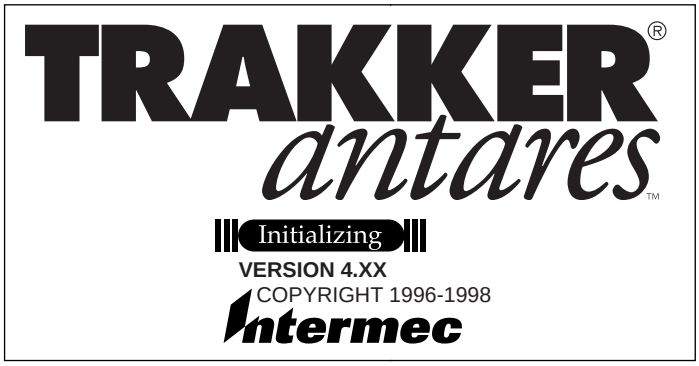
Note: *If the backup battery charge is low and the terminal fails POST, a POST results screen appears. If the backup battery is the only failed test, press* esc *or* F1 *to exit the screen. If any other test failed, contact your local service representative before using the terminal.*

2. Press F1 to boot the terminal and initialize the firmware. The TRAKKER Antares screen appears.



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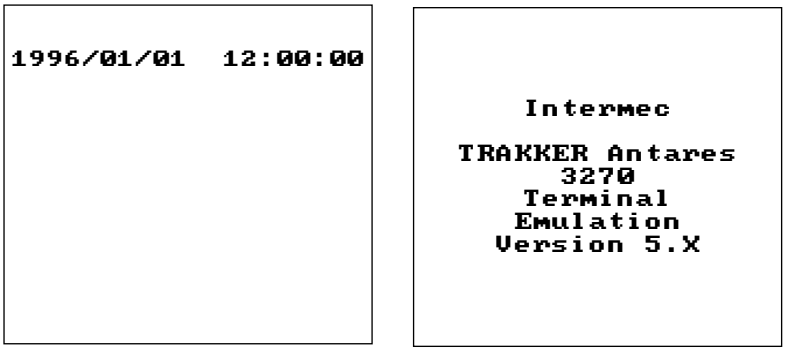
Next, either a sample application screen or a terminal emulation (TE) application welcome screen appears. For example:



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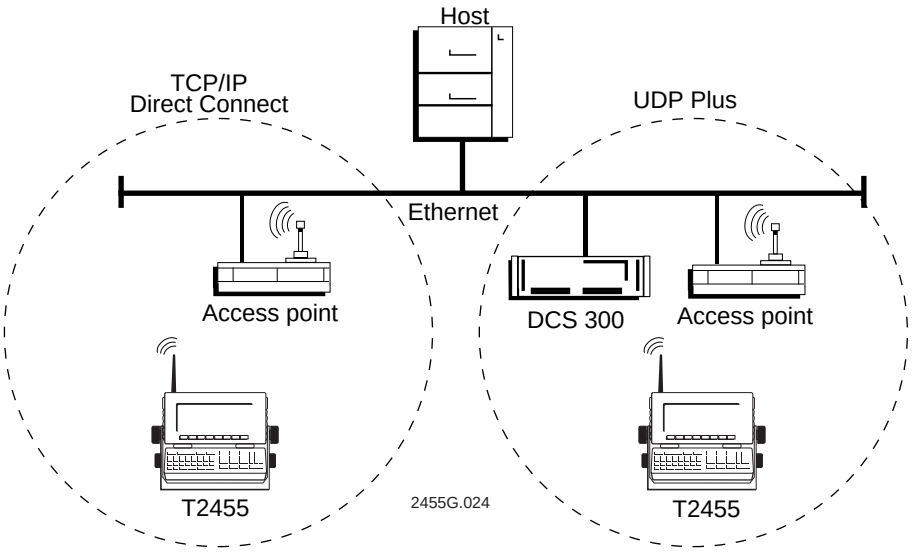
Note: *On a T2455 loaded with terminal emulation, you may need to press* ↵ *to create the TE configuration file.*

3. Configure the RF communications parameters so that you can begin using the terminal. Follow the instructions for "Connecting to an RF Network" later in this section.

Connecting to an RF Network

The TRAKKER Antares 2455 terminal can communicate with a host computer in Intermec's 2.4 GHz RF network through the Model 200 Controller, the DCS 300 Server, or directly through the access points.



The terminal uses one of these RF network protocol options to communicate with other devices:

- UDP Plus
- TCP/IP

The T2455 ships with only one of these RF network protocols.

To configure the T2455 to use RF communications

1. Configure the Model 200 Controller (UDP Plus), DCS 300 Server (UDP Plus), or host (TCP/IP). For help, see your controller or server system manual.
2. Configure the access point. For help, see your access point user's manual.
3. Configure each T2455 terminal.

   You need to set these network parameters:

   - Time and date
   - Network activate (2.4 GHz)
   - Controller IP address (UDP Plus) or Host IP address (TCP/IP)
   - Terminal IP address
   - RF domain
   - RF security identification (ID)
   - Network port (TCP/IP)

Note: *If the T2455 is on a different IP subnetwork from the controller, server, or host, you must also configure the default router and subnet mask.*

For help, see the next section, "Using the Menu System to Configure the Terminal."

Using the Menu System to Configure the Terminal

You use the TRAKKER Antares 2400 Menu System to set serial port or network parameters on the T2455.

To configure the terminal

1. Press f ↵ 2 4 8 or scan this bar code to access the TRAKKER Antares 2400 Menu System:

   Enter Test and Service Mode

   ..-.

   The Main Menu appears.

2455G.026

2. Choose the System Menu and then press ↵ . Use the Set Time and Date option to set the current time and date. For help using the menu system, press F1.
3. Press Esc to exit the System menu. Choose the Configuration Menu and then press ↵ . You can configure the network parameters or serial port parameters using the Communications Menu.
4. Press Esc to exit each screen or menu. When prompted, save your changes in RAM and flash memory.

Using the Function Keypad

The T2455 terminal has a function keypad below the screen that has these keys:

- ◑ Display contrast key
- F1 through F10 function keys
- f Function Left key
- ⏻ Suspend/Resume key

If your application can receive all data from only scanned bar codes and function keys (F1 through F10), you can use the T2455 without a keyboard.

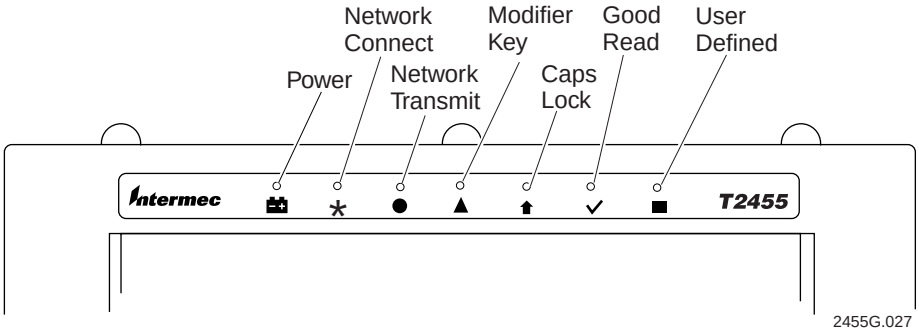
Using the Keyboard

The T2455 accessory keyboard is easy to use. Characters, symbols, and functions are printed in four places on or above the keys. The keys are also color-coded to make it easier to remember key combinations.

Position on the Keyboard	Color	To Type the Character
Middle of the key or centered above the key	Grey	Press the key.
Left side above the key	Orange	Press the orange f key, then the key.
Centered above a numeric key	Green	Press the green ⇧ key, then the key.
Right side above the key	Blue	Press the blue f key, then the key.

Using the Status Lights

You can use the terminal's status lights to monitor the status of backup battery power, RF network communications, special keys, and bar code scanning. The status lights flash or turn on to indicate the current status. The Power status light is amber and all other lights are green. When you have the terminal turned off (Suspend mode), the status lights are all off.



Developing Applications for the Terminal

The TRAKKER Antares terminals ship loaded with a terminal emulation application, a screen mapping application, or a sample application. You can develop your own client/server application for the T2455 and then download the application to the terminal.

Intermec has two development tools that you can use to create applications:

- TRAKKER Antares Programmer's Software Kit (Part No. 065332) has a full set of programming tools to help you create applications for the terminal.
- EZBuilder™ (Part No. 066381) is a rapid application development tool that provides a quick and easy way to create applications for the terminal.

Where to Find More Information

The *TRAKKER Antares 2455 Vehicle-Mount Terminal User's Manual* (Part No. 067358) contains all of the information necessary to install, configure, operate, and troubleshoot the T2455. Please visit our web site at http://www.intermec.com to access the manual in PDF format. To order printed versions of Intermec manuals, contact your local Intermec representative or distributor.

Specifications

Electrical Specifications

Model:	T2455
Electrical rating:	⎓ 12V, 4A

Power Specifications

Operating (with power supply):	10V to 36 VDC or 15V to 96 VDC universal power supply
Memory Backup:	Rechargeable NiCad 700 mA battery pack

Memory

- 2MB programmable flash memory, 750K available for use
- 1MB battery-backed RAM, 512K available for use
- Extended memory option for an additional 2MB flash
- Extended memory option for an additional 2MB or 4MB SRAM storage drive

Scanner Cable Accessories

- 151X laser scanner cable, 6 feet (Part No. 066845)
- 151X laser scanner cable, 25 feet (Part No. 067540)
- 1550 laser scanner cable, 6 feet (Part No. 067541)
- 1550 laser scanner cable, 25 feet (Part No. 067542)
- 1551 laser scanner cable, 6 feet (Part No. 067730)
- 1551 laser scanner cable, 25 feet (Part No. 067731)

Temperature and Environmental Specifications

Operating the terminal:		
Standard T2455	14°F to +122°F	-10°C to +50°C
Cold-Temperature T2455	-22°F to +122°F	-30°C to +50°C
Storing the terminal:	-4°F to +122°F	-20°C to +50°C
Relative humidity:	0 to 95% non-condensing	

Terminal Dimensions

Length:	11.2 in (28.4 cm)
Height:	6.0 in (15.2 cm)
Depth:	4.2 in (10.7 cm)
Weight:	8.9 lbs (4.04 kg)

Note: *The T2455 dimensions are for the T2455 without a keyboard.*