Quick Start

GuardPLC Hand-held Terminal

Catalog Number 1753-HHT

Publication 1753-QS001B-EN-P - February 2007

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://literature.rockwellautomation.com) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you to identify a hazard, avoid a hazard, and recognize the consequences.
SHOCK HAZARD 	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

General Safety Information

ATTENTION

Personnel responsible for the application of safety-related Programmable Electronic Systems (PES) shall be aware of the safety requirements in the application of the system and shall be trained in using the system.

ATTENTION

Prevent Electrostatic Discharge

This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.

ATTENTION

Environment and Enclosure

This equipment is intended for use in overvoltage Category II applications (as defined in IEC publication 60664-1) at altitudes up to 2000 m (6562 ft) without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment is supplied as enclosed equipment. It should not require additional system enclosure when used in locations consistent with the enclosure type ratings stated in the Specifications section of this publication. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings, beyond what this product provides, that are required to comply with certain product safety certifications.

For additional installation requirements, refer to these publications:

- Allen-Bradley Industrial Automation Wiring and Grounding Guidelines, publication 1770-IN041.
- NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the protection provided by different types of enclosures.

At the end of its life, this equipment should be collected separately from any unsorted municipal waste.

About This Publication

This quick start describes the features and functions of the GuardPLC Hand-held Terminal (HHT), catalog number 1753-HHT. This publication guides you through the setup of the hand-held terminal and through tasks you can perform using the hand-held terminal. This manual does not cover programming using RSLogix Guard PLUS! software.

For detailed information on installing, operating, programming, and maintaining GuardPLC controller systems, refer to the Additional Resources on page 35. You can also consult the online help in RSLogix Guard PLUS! software.

About the GuardPLC Hand-held Terminal

The GuardPLC Hand-held Terminal, catalog number 1753-HHT, is a portable, battery-operated device for use with GuardPLC controllers and GuardPLC distributed I/O modules. With the hand-held terminal, you can read the status of a controller, change the controller configuration, or commission a new distributed I/O module. You can also download an application program to a controller via the GuardPLC Ethernet network without the need for a personal computer or laptop equipped with RSLogix Guard PLUS! programming software.

In addition, you can view the connection status between the hand-held terminal and the GuardPLC controller as well as the firmware revision and access rights of the hand-held terminal.

Hardware Features

The hand-held terminal features a display, keypad, and LED indicators. A power supply, two NiMH 2000 mAh AA rechargeable batteries, a 256 MB memory card, and an Ethernet cable ship with the hand-held terminal.

Hand-held Terminal Configuration

The hand-held terminal ships with a default configuration.

Setting	Default Configuration
MAC Address	Viewable from the Network Settings dialog.
IP Address	192.168.0.99
Subnet Mask	255.255.252.0
SRS	60000.000.001
Standard Gateway	0.0.0.0

All of the settings, except the MAC address, can be changed. You can adjust the brightness and contrast settings, and choose English or German for the display.

See Viewing and Editing the Hand-held Terminal Settings on page 12.

GuardPLC Hand-held Terminal Functions

The GuardPLC hand-held terminal incorporates the most important functions of the RSLogix Guard PLUS! programming software's Control Panel.

Connecting to a Controller or DIO Module

You can establish a connection from the hand-held terminal to a controller or DIO module by entering the MAC address or the IP address and SRS of the GuardPLC device. You can also select a resource from a list of resources stored on the hand-held terminal's memory card, or search the network for available resources.

To allow communication with a controller or DIO module whose communication parameters are unknown, the hand-held terminal can provide a list of all GuardPLC controllers and DIO modules available on the network.

Downloading and Uploading a Controller or DIO Module's Configuration

The hand-held terminal can read the configuration of a controller or DIO module and store the data in the hand-held terminals flash memory.

The hand-held terminal can also initiate loading of the controller or DIO module's configuration from the flash memory of the controller.

Exchanging Controllers

The GuardPLC hand-held terminal can store the configuration and user program for all controllers and DIO modules in a project on its memory card. The hand-held terminal can also store the configuration and user program of a single controller or DIO module in its flash memory. Data stored in flash memory or on the memory card can be written into a new device, letting you swap out controllers or DIO modules.

Viewing Controller Status and Data

Once communication with a controller or DIO module has been established, the hand-held terminal can display status information and data about that device.

Controller Status

The hand-held terminal can display the current CPU and COM status of a connected controller as well as the status of the user program.

CPU Status	COM Status	User Program Status
STOP/VALID CONFIGURATION	STOP/VALID CONFIGURATION	RUN
STOP/INVALID CONFIGURATION	STOP/INVALID CONFIGURATION	STOP
STOP/OS LOADING	STOP/OS LOADING	FREEZE
STOP/LOADING	RUN	—
RUN	ERROR STOP/OS LOADING (emergency loader)	—
ERROR STOP	—	—

In addition, the hand-held terminal can display the number of I/O modules in an error state.

Controller Data

The hand-held terminal displays environmental data about the controller, such as temperature, power supply status, fan status, and relay status. The controller's date and time settings can be displayed and edited using the hand-held terminal.

The hand-held terminal can also display the operating system (OS) versions including the CRC for these software components:

- CPU OS
- CPU OS loader (the emergency operating system loader)
- CPU Boot Loader
- COM OS
- COM OS Loader (the emergency operating system loader)
- COM Boot Loader

Displaying and Editing Controller Settings

The hand-held terminal can read these controller communication parameters:

- IP address
- Subnet mask
- Standard gateway
- SRS (system and rack ID)

These parameters can be edited and written back into the controller using its MAC address. This allows communication parameters to be changed in order to commission a new controller or in case of an IP address conflict.

The date and time settings of the controller can also be changed.

Changing the Status of a Controller

With the hand-held terminal, you can start and stop the controller. You can perform a warm start or a cold start.

You can also use the hand-held terminal to reboot the controller if the controller is in ERROR STOP, or if an operating system download was aborted.

Hand-held Terminal Operation

The GuardPLC hand-held terminal operates via menu functions, which are selected using the keypad. Groups of menu functions are summarized in dialog screens. Data can be entered using entry fields on the dialogs. Each dialog displays the status bar that provides information about the connection status of the hand-held terminal and the current status of the connected controller.

Commands, whose execution affect the function of the connected controller, are protected from inadvertent errors by safety queries. In addition, the hand-held terminal displays notes and error messages.

Dialog Screens

Each dialog consists of a heading followed by menu functions. Selecting a menu function triggers an action or opens a subsequent dialog of options.

Use the Up/Down arrow keys on the keypad to select a menu function. The selected menu function is highlighted.

If a menu function text is too long for the display, small arrows in the display margins appear. Use the Left/Right arrow keys to scroll through the text.

Press OK to confirm your selection or Cancel/Back to go back to the parent dialog.

Message Boxes

Messages start with Info or Error and provide information about whether an action was successfully carried out. Press OK to close the message box.

Safety Queries

Safety queries help to avoid faults in actions that cannot be undone. An action is only carried out if you press Yes to the safety query and confirm your response by pressing OK. If you press Cancel/Back, the action is aborted.

Entry Fields

Entry fields let you enter specific data in a dialog using the keypad.

Enter numbers by pressing the Numeric/Shift key and the number key simultaneously.

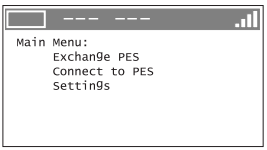
Enter alphabetical characters by pressing the Alpha key and the character key simultaneously. Several letters are assigned to each key on the keypad. If necessary, press the character key repeatedly until the desired character appears in the entry field.

Use the Left/Right arrow keys to move the cursor within an entry field. Use the Backspace key (key 7) to delete the last entered character. Use the Up/Down arrow keys to navigate between multiple entry fields on a dialog.

Confirm your entries by pressing OK. Pressing Cancel/Back aborts the operation and returns you to the parent dialog.

Status Bar

The status bar is the first line in the display on all the dialogs. The status bar has three areas to display information: left, middle, and right.



The left side of the status bar displays the online or offline status of the hand-held terminal.

Status Bar, Left Side

Display	Description
	Offline. The hand-held terminal is not communicating with a controller or a programming terminal.
	Online. The hand-held terminal is communicating with a controller or a programming terminal.

When the hand-held terminal is online, the middle of the status bar displays the type of connection.

Status Bar, Middle

Display	Description
PADT	The hand-held terminal is communicating with a programming terminal.
ADMIN	The hand-held terminal has administrator access to the connected controller.
Read	The hand-held terminal has read-only access to the connected controller.
Write	The hand-held terminal has read/write access to the connected controller.
– – –	The hand-held terminal is not connected.

When the hand-held terminal is online, the right side of the status bar displays the current status of the connected controller.

Status Bar, Right Side

Display	Description
Emerg.	The CPU operating system of the controller is faulty. The emergency loader is active.
Error	The controller is in ERROR STOP.
Init	The controller is initialized after switching on or a reboot.
OSDownl	A new CPU operating system is loaded into the controller.
RUN	The controller is executing an application program.
STOP/IC	STOP/INVALID CONFIGURATION. The controller is in STOP. No valid configuration is loaded.
STOP/OS	The controller is in STOP. A new operating system was loaded.
STOP/VC	STOP/VALID CONFIGURATION The controller is in STOP and can be started with a warmstart or a coldstart.
– – –	The hand-held terminal is not connected.

Remaining battery power is indicated by a bar graph at the far right of the display. Four bars indicate that the battery is fully charged.

Installing and Charging the Batteries

The hand-held terminal ships with two rechargeable NiMH AA batteries and a battery charger. Prior to using the hand-held terminal, you must install and charge the batteries.

Insert the Batteries

Follow these steps to insert the batteries in the terminal.

1. Press the two latches on the lower side of the body and pull off the bottom lid.
2. Insert a small screwdriver in the gap on the right side of the cover and gently pry it open.
3. Pull the battery holder out of the battery case.

4. Insert the batteries following the correct polarity.

IMPORTANT Temporarily inserting the batteries with the incorrect polarity will not damage the hand-held terminal, but the batteries will deplete rapidly.

5. Carefully push the battery holder back into the battery case.
6. Close the cover.
7. Reinstall the bottom lid.

TIP You may also use two standard AA batteries to power the hand-held terminal.

Charge the Batteries

Follow these steps to charge the batteries.

1. Plug the power supply into the charging socket of the hand-held terminal.
2. Plug the power supply into the wall socket.

   The Charge LED indicator illuminates continuously. The indicator will blink when the batteries are fully charged or the charging circuit is switched off.

Charge the batteries for at least one hour. After approximately two hours, the batteries will be fully charged. You cannot overcharge the batteries.

It is normal for the batteries to heat up while being charged.

TIP You can turn the hand-held terminal on while it is being charged. However, turning the power on while charging can cause the charging circuit to switch off prematurely. To restart the charging cycle, briefly unplug the power supply from the hand-held terminal, then reconnect the power supply.

Rechargeable batteries discharge about 1% per day. If you do not use the hand-held terminal for an extended period of time, remove the batteries from the device and recharge them before the next use.

IMPORTANT To avoid damage to the hand-held terminal, use only the power supply provided with the terminal to charge the batteries.

NiMH batteries are not subject to memory effect, so you can charge them at any time. However, we do not recommend charging the batteries after only a short use.

ATTENTION

To avoid damage to the hand-held terminal:

- Never attach the hand-held terminal to an external voltage supply without the rechargeable batteries inserted.
- Never attach the hand-held terminal to an external voltage supply if you are using standard AA batteries.

Inserting the Memory Card

A multimedia card (MMC) holds all of the configurations and programs for all GuardPLC controllers and DIO modules in a project. Multiple memory cards can be used with the hand-held terminal.

The hand-held terminal ships with an MMC memory card. These commercially available memory cards may also be used, but their operation is not guaranteed.

- Pretec 64 MB or 128 MB
- takeMS 256 MB
- Transcend 128 MB
- Kingston 32 MB
- SanDisk 64 MB

Secure Digital (SD) cards may not be used with the hand-held terminal.

You can insert the memory card at any time. With the bevelled edge of the card on the lower left, gently insert the card into the slot on the top of hand-held terminal.

The card is read automatically, when it is inserted. The hand-held terminal displays the message ‘Reading out Card. Please Wait’. This is followed by a status message, indicating if the read operation was successful.

Memory Card Status

Message	Description
Loading completed.	Resources are listed with name, IP address, SRS, and CRC.
Config. could not be loaded.	The card is empty.
Card format is not supported. Continue with OK.	The card is not formatted as FAT16. Press OK to continue.

You cannot exchange data between the hand-held terminal’s flash memory and the memory card.

To remove the card, extract it from the slot.

IMPORTANT Do not remove the memory card during a read or write operation or your data may be lost.

Connecting the Hand-held Terminal

The hand-held terminal communicates with the programming terminal running RSLogix Guard PLUS! software, with a GuardPLC controller, or with a distributed I/O module via the GuardPLC Ethernet network. Connect the hand-held terminal to the programming terminal or to a GuardPLC controller using the eight-pin RJ-45 connector and provided Ethernet cable.

ATTENTION

To reduce the potential for electromagnetic interference, the Ethernet communications cable length must be less than 3 m (10 ft).

IMPORTANT The hand-held terminal is intended for local programming and monitoring use only. It is not intended for permanent connection.

Turning the Hand-held Terminal On or Off

To turn the hand-held terminal on, press and hold the ON/OFF switch until the Allen-Bradley logo appears on the display. The Main menu appears in approximately 10 seconds.

To turn the hand-held terminal off, press the ON/OFF switch briefly. You can turn the hand-held terminal off at any time, but if you are in an input dialog, the settings are not saved.

IMPORTANT To avoid damage to the hand-held terminal or battery charger, operate the hand-held terminal only under battery power.

Viewing and Editing the Hand-held Terminal Settings

From the Settings menu, you can change the communication parameters of the GuardPLC hand-held terminal, adjust the brightness and contrast of the display, choose the display language, reset the hand-held terminal to its default settings, and view the software versions of the CPU OS and Boot Loader.

Change the Communication Settings

Follow these steps to view and edit the communication settings of the hand-held terminal.

1. From the Main menu, select Settings and press OK.
2. From the Settings menu, select Network and press OK.

   The Network Settings dialog displays the MAC address, and current IP address, subnet mask, standard gateway, and SRS of the hand-held terminal. The MAC address cannot be edited.
3. Use the arrow keys to move the cursor to the desired position.
4. Enter the desired IP address, subnet mask, standard gateway, or SRS settings in the correct fields.
5. When your entries are complete, press OK.
6. When the screen shows 'Information: Settings OK', press OK.

Adjust the Display Settings

Follow these steps to adjust the brightness and contrast of the display.

1. From the Main menu, select Settings and press OK.
2. From the Settings menu, select Display and press OK.
3. Use the Up/Down arrow keys to select either brightness or contrast.
4. Use the Left/Right arrow keys to adjust the current setting.
5. Press OK to confirm the changes.

TIP The settings are effective immediately. However, if you leave the dialog without pressing OK, the new settings will only be valid until the device is turned off.

Choose a Language

Follow these steps to select a language for the display.

1. From the Main menu, select Settings and press OK.

2. From the Settings menu, select Language and press OK.
3. Use the Up/Down arrow keys to toggle between English and German.
4. Press OK.

Reset the Hand-held Terminal

Follow these steps to reset the hand-held terminal to its default settings.

1. From the Main menu, select Settings and press OK.
2. From the Settings menu, select Reset and press OK.
   See page 4 for the default settings.
3. Press Yes and then OK to reset the hand-held terminal.

View the Software Versions

Follow these steps to view the version numbers and checksums (CRC) of the CPU operating system and the CPU boot loader.

1. From the Main menu, select Settings and press OK.
2. From the Settings menu, select Software Versions and press OK.

Communicating with the Programming Terminal

A connection between the hand-held terminal and the programming terminal is only necessary if you want to load a project to the hand-held terminal's memory card. The connection between the hand-held terminal and the programming terminal is initiated by the programming terminal.

From it's Online context menu in RSLogix Guard PLUS! software, the hand-held terminal supports these functions:

- Control Panel
- Access Management
- Communication Settings
- Multi Control Panel

When using the Control Panel, the following functions are supported.

Control Panel Functions

Control Panel Tab	Function	
Resource State	• CPU/COM State	• Program Name
	• Program State	• Faulty I/O Modules
	• Remaining Force Time (in seconds)	• Force State
OS	• Serial Number	• CPU OS/COM OS Version
IP Settings	• Global Settings	• Interface Settings
	• Routing Settings	• Ethernet Switch
Extra	• Change System ID	• Update OS
	• Clear Resource Configuration	• Set Administrator Login

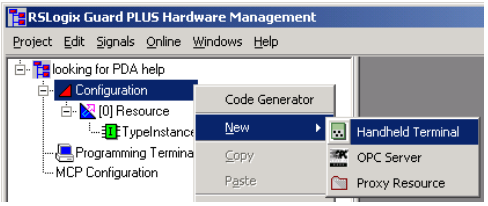
You can also update the firmware of the hand-held terminal using RSLogix Guard PLUS! Hardware Management.

To transfer data from the programming terminal to the hand-held terminal, you must add the hand-held terminal to the RSLogix Guard PLUS! project.

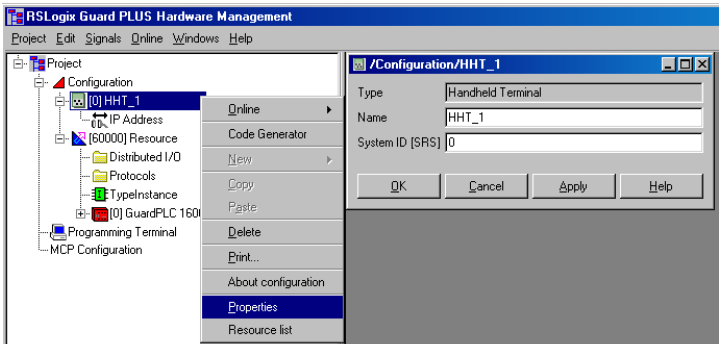
Add the Hand-held Terminal to a Project

Follow these steps to add the hand-held terminal to an RSLogix Guard PLUS! project.

1. Right-click Configuration in the Hardware Management window and choose New>Handheld Terminal.

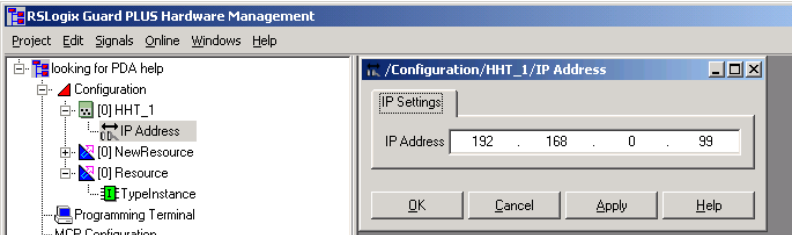


2. Right-click the HHT resource and choose Properties to configure the hand-held terminal.



3. Type a Name and SRS for the hand-held terminal.

4. Type the IP Address of the hand-held terminal.
   a. Expand the HHT resource in the project tree by clicking the + sign.
   b. Double-click IP Address.
   c. Type the IP Address.



5. Click Apply.

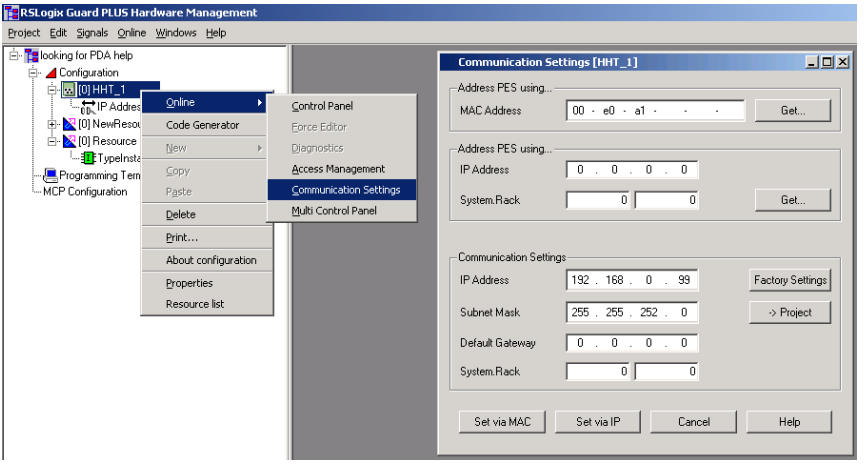
6. Click OK.

Viewing and Changing Hand-held Terminal Communication Settings

You can display and change the communication parameters of the hand-held terminal within the Hardware Management window by right-clicking the HHT resource in the project tree and choosing Online>Communication Settings.

You can establish communication with the hand-held terminal using its IP Address and SRS.

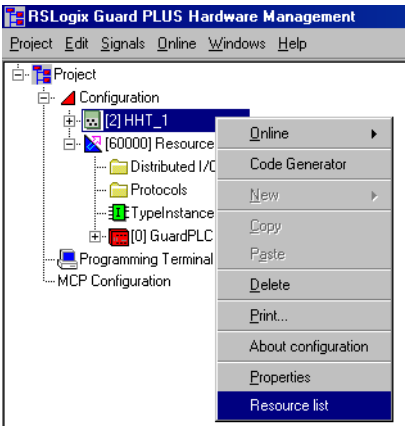
If you change any of the communication settings, click -> Project to save the changes in the RSLogix Guard PLUS! project.



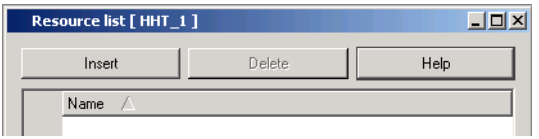
Store Resource Data and User Program in the Hand-held Terminal

To store a GuardPLC project in the hand-held terminal, including all controller and DIO module configurations and user programs, you must add that project's controllers to the hand-held terminal's resource list. You must have a memory card installed in the hand-held terminal.

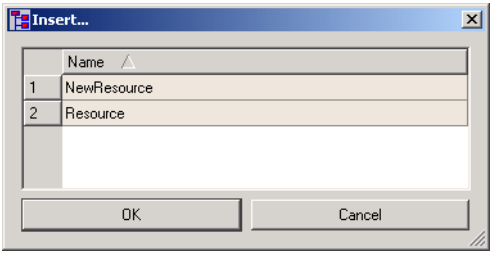
1. Right-click the HHT resource and choose Resource List.



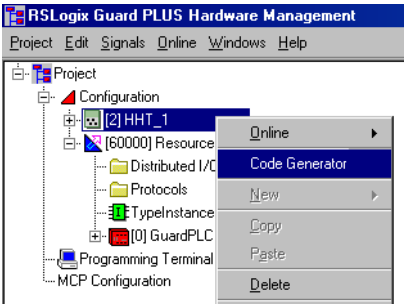
2. Click Insert.



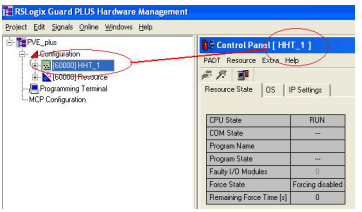
3. Select a GuardPLC controller resource and click OK.



4. Right-click the hand-held terminal and choose Code Generator.



5. Go online with the hand-held terminal by right-clicking the hand-held terminal and choosing Online>Control Panel.



6. Type your user name and password in the login dialog.

7. Select Read/Write or Administrative access and click OK.

8. Click the download button  .

9. Click Yes to proceed.

Once the controller is on the hand-held terminal's resource list and the configuration and user program have been downloaded, the controller's network settings and user names for login are stored on the hand-held terminal's memory card and those settings and user names may be used to establish a connection to that controller.

See PADT Data on page 19.

Connecting to a Controller

You can connect to a GuardPLC controller using:

- programming terminal (PADT) data stored on the memory card.
- the controller's IP address and SRS (System ID).
- the controller's MAC address.
- a search for all GuardPLC controllers and DIO modules on the system.
- the GuardPLC controller default settings.

PADT Data

When you select the PADT (programming terminal) data option, the hand-held terminal displays a list of configurations that were transferred to the hand-held terminal by the programming software. The list shows the resource name, IP address, SRS, and CRC (cyclic redundancy check) of the GuardPLC controller. This function lets you establish communication to a GuardPLC controller without knowing its communication parameters.

The hand-held terminal must be configured in RSLogix Guard PLUS! software to be able to receive configuration data from the programming terminal. The data is stored on the hand-held terminal's memory card.

Follow these steps to use the stored data to establish communications with a GuardPLC controller.

1. From the Main menu, select Connect to PES and press OK.
2. From the PES menu, select Open Connection and press OK.
3. Select PADT Data and press OK.
4. Select a resource from the list and press OK.

5. If a user's list was created in using the Access Management feature in RSLogix Guard PLUS! software, select a user from the list and press OK. Otherwise, type the username and press OK.

6. Type the password in the Login dialog.

   If the user's list from Access Management was used, the access type is automatically assigned. Otherwise, use the Left/Right arrow keys to choose the Access Type: Administrator, Read, or Read/Write.

   The default is Administrator.

7. Press OK.

   If the login was successful, the Status Bar shows the online symbol followed by the access type and the CPU status of the controller.

TIP The hand-held terminal will only be granted Read privileges if a programming terminal is already connected to the controller.

IP Address and SRS

Follow these steps to use the controller's IP address and SRS to establish communications.

1. From the Main menu, select Connect to PES and press OK.

2. From the PES menu, select Open Connection and press OK.

3. Select IP & SRS and press OK.

4. Type the IP Address and SRS in the corresponding entry fields on the Connect to PES dialog and press OK.

   If a controller with the entered communication parameters exists on the network, the Login dialog appears.

   See Log On to the Controller on page 22 for information on logging in.

5. If you entered the parameters incorrectly, an error message appears. Press OK and then re-enter the IP address and SRS.

MAC Address

Follow these steps to use the controller's MAC address to establish communications.

1. From the Main menu, select Connect to PES and press OK.
2. From the PES menu, select Open Connection and press OK.
3. Select MAC address and press OK.
4. Type the controller's MAC address, which is printed on a sticker near the network connections or on the CPU/COM assembly (GuardPLC 2000 controllers only).
5. Press OK.

   The Connect to PES dialog opens, displaying the controller's current IP address and SRS.
6. Press OK without changing any of the parameters on the Connect to PES dialog.

   The login dialog opens.

   See Log On to the Controller on page 22 for information on logging in.

Search

Follow these steps to choose a controller from a list of GuardPLC controllers on the network.

1. From the Main menu, select Connect to PES and press OK.
2. From the PES menu, select Open Connection and press OK.
3. Select Search and press OK.

   The Found PES dialog lists all of the GuardPLC controllers on the network, along with their MAC address, IP address, and SRS.
4. Use the Left/Right arrow keys to move between the MAC address, IP address, and SRS columns on the display.
5. Use the Up/Down arrow keys to select a controller and press OK.

   The login dialog opens.

   See Log On to the Controller on page 22 for information on logging on.

Default Setting

Follow these steps to use the GuardPLC controller default communication settings to establish communication with a new controller.

1. From the Main menu, select Connect to PES and press OK.
2. From the PES menu, select Open Connection and press OK.
3. Select Default and press OK.

   The Connect to PES dialog opens with the default IP address and SRS displayed in the corresponding entry field.
4. Press OK.

   The login dialog opens.

   See Log On to the Controller on page 22 for information on logging on.

Log On to the Controller

To view or edit controller data or status, you must log on to the controller once you have established a connection using any of the methods described in Connecting to a Controller on page 19.

You can enter your login information manually, or if you use the PADT Data connection method, you can choose from a list of controller resource names, if they have already been stored in the hand-held terminal.

See Store Resource Data and User Program in the Hand-held Terminal on page 17 and PADT Data on page 19 for more information.

Follow these steps to log on manually.

1. Choose Yes or No in the Encryption field to indicate whether the login process between the hand-held terminal and the controller should be scrambled to prevent unauthorized access to your user name or password information.
2. Type the username and password you have stored in the desired controller.

   The default user name is Administrator without a password.
3. Use the Left/Right arrow keys to choose the Access Type: Administrator, Read, or Read/Write.

   The default is Administrator.

4. Press OK.

   If the login was successful, the Status Bar shows the online symbol followed by the access type and the CPU status of the controller.

TIP The assigned access type could differ from the access type you requested, if a programming terminal is already logged in to the controller.

View Controller Status and Data

Once you have logged in to the controller, the PES Actions dialog appears. This dialog lets you to read or write controller status and data using the hand-held terminal. The PES Actions dialog contains two menu options: Read States and Write States.

Follow these steps to view controller status and data.

1. Choose Read states from the PES Actions dialog.

2. Press OK to launch the Read States dialog.

Read States Functions

This Menu Function	Displays
CPU & COM	The CPU and COM status of the controller.
Program & I/O	The name and status of the application program as well as the number of I/O modules in an error state.
Safety	The status of the safety parameters Main Enable, Autostart, Start/Restart, Loading Allowed, Test Mode Allowed, Change Var. OLT, Forcing Allowed, and Stop on F. Timeout.
Environment Data	The temperature, power supply, fan, and relay status.
CPU & COM Version	The version numbers and CRCs of the CPU and COM operating systems.
Network Settings	The IP address, subnet mask, standard gateway, SRS, and MAC address of the controller.
Configuration CRC	The CRC of the controller's configuration.
Date/Time	The date and time in the controller in Universal Time Coordinated.
Upload Config.	Store a controller's configuration into the hand-held terminal's Flash memory.

See page 28 for information on the Upload Config. menu function.

See Editing Controller Settings on page 24 and Changing the Status of the Controller on page 26 for information on the Write States menu option.

Editing Controller Settings

You must be logged into the controller with Read/Write or Administrator access to make any changes to the controller's settings.

IMPORTANT The controller cannot be in the RUN mode. You must stop the controller before attempting to change controller settings. A new configuration can only be loaded when the controller is in STOP mode. Refer to the GuardPLC Controller Systerms User Manual, publication 1753-UM001 for more information.

See Start or Stop the Controller on page 27.

Once you have logged in to the controller, the PES Actions dialog appears. The PES Actions dialog contains two menu options: Read States and Set States.

The Set States function opens the Set PES States dialog, which contains options for editing the controller's settings, changing controller status, or loading controller configuration data.

Set States Functions

Menu Function	Description	Page
Start/Stop	Starts or stops the controller.	27
Safety	Main Enable permits or inhibits changing the safety parameters.	25
Reboot Resource	Reboots the controller.	27
Load Res Config	Loads the controller's configuration from its flash memory.	29
Change System ID	Changes the System ID.	24
Network Settings	Changes the controller's IP address, subnet mask, standard gateway and SRS.	25
Set Date/Time	Sets a new date or time.	25
Download Config	Loads a configuration from the hand-held terminal's flash memory to the controller.	28
Clear Config	Deletes the controller's configuration and access management data.	29

Change the SRS

Follow these steps to change the controller's SRS.

1. Select Set states from the PES Actions dialog and press OK to launch the Set PES States dialog.
2. Select Change System ID and press OK.
3. Type the new SRS and press OK.
4. Answer Yes to the safety query to make the new settings effective.

Change Network Settings

Follow these steps to change the controller's IP address, subnet mask and standard gateway.

1. Select Set states from the PES Actions dialog and press OK to launch the Set PES States dialog.
2. Select Network Settings and press OK.
3. Type the new communication parameters and press OK.

   You cannot change the MAC address.
4. Answer Yes to the safety query to make the new settings effective.

TIP You can also change the IP Address by selecting Change IP from the PES menu and pressing OK. Enter the new settings and press OK. Press OK again at the prompt to confirm the new settings.

Set the Date and Time

Follow these steps to set the date and time in the controller.

1. Select Set states from the PES Actions dialog and press OK to launch the Set PES States dialog.
2. Select Set Date/Time and press OK.
3. Enter the new date and the time in 24-hour or military time and press OK.
4. Answer Yes to the safety query to make the new settings effective.

Change the Safety Parameters

Follow these steps to change a safety parameter.

1. Select Set states from the PES Actions dialog and press OK to launch the Set PES States dialog.

2. Select Safety and press OK.

   The Safety parameters dialog lets you choose to from these options.

Menu Option	Description
Set Main Enable	Changing safety parameters is permitted.
Reset Main Enable	Changing safety parameters is inhibited.
Change Safety	Opens the Change Safety dialog.

   The Safety Parameters dialog also lists the status of these safety parameters.

   - Main Enable
   - Autostart
   - Start/Restart
   - Loading allowed
   - Test mode allowed
   - Change var OLT
   - Forcing allowed
   - Stop on Force Timeout

3. If Main Enable is active, skip to step 6.

4. If Main Enable is inactive, select Set Main Enable and press OK.

   The controller must be stopped before you can change the Main Enable setting.

   See Start or Stop the Controller on page 27.

5. At the prompt, select Yes and press OK.

6. On the Safety Parameters dialog, select Change Safety and press OK to open the Change Safety dialog.

7. On the Change Safety dialog, select a safety parameter using the Up/Down arrow keys.

8. Use the Right/Left arrow keys to toggle between ENABLED and DISABLED.

9. Repeat steps 7 and 8 for the other safety parameters, if desired.

10. Confirm your new settings by pressing OK.

TIP When you press OK, all the safety parameters, including those that were not changed, are transferred.

Changing the Status of the Controller

Once you have logged in to the controller, the PES Actions dialog appears. This dialog lets you start, stop, or reboot the controller using the hand-held terminal.

Start or Stop the Controller

Follow these steps to start or stop the controller.

1. Select Set states from the PES Actions dialog and press OK to launch the Set PES States dialog.
2. Select Start/Stop and press OK to launch the Start/Stop PES dialog.
3. Select Warm start, Cold start, or Stop and press OK.
4. Answer Yes to the safety query to execute the command.

IMPORTANT If the controller does not start, the Start/Restart allowed setting may have been deactivated when the controller was configured.

Reboot the Controller

The controller only accepts the reboot command from the hand-held terminal if the controller is in the ERROR STOP or STOP/OS LOADING state. The response of the controller to a Reboot Resource command is summarized in the following table.

Controller Response

Controller Action Prior to the Reboot Resource Command	Controller Status	Result
The CPU is in STOP. An operating system download is started. The OS download is aborted.	The CPU is in the OS Download state.	The CPU goes to OS Download following a Resource Reboot command.
The CPU is in STOP. An operating system download is started with the incorrect operating system.	The CPU is in the OS Download state.	The CPU goes to STOP following a Resource Reboot command.
None.	The CPU is in FAILURE STOP state.	The CPU reboots following a Resource Reboot command.
None.	The CPU is in STOP state.	An error message, because a reboot is not permitted in this state.
None.	The CPU is in the RUN state.	An error message, because a reboot is not permitted in this state.

Follow these steps to reboot the controller.

1. Select Set states from the PES Actions dialog and press OK to launch the Set PES States dialog.
2. Select Reboot Resource and press OK.
3. Answer Yes to the safety query to execute the command.

Downloading, Uploading, or Clearing a Configuration

You can read the configuration of a GuardPLC controller or DIO module and store that configuration in the Flash memory of the hand-held terminal (Upload Config.). You can send a configuration to the controller, either from the flash memory of the hand-held terminal, from the memory card, or from the backup flash memory system of the controller itself (Download Config.). You can also clear the configuration and access management data of the controller (Clear Config.)

Upload a Configuration

Follow these steps to upload a configuration from a GuardPLC controller to the flash memory in the hand-held terminal.

1. Select Read states from the PES Actions dialog and press OK to launch the Read States dialog.
2. Select Upload Config and press OK.
3. When the safety query appears, select yes and press OK.

   A confirmation message indicates the upload was successful.

Download a Configuration from the Hand-held Terminal's Flash Memory

Follow these steps to download a configuration from the hand-held terminal's flash memory.

1. Select Set states from the PES Actions dialog and press OK to launch the Set PES States dialog.
2. Select Download Config and press OK.
3. Select Read Out Data to get the data from the flash memory of the hand-held terminal or PADT Data to get the data from the memory card and press OK.

   For the PADT Data method, you must have a memory card installed in the hand-held terminal.
4. If you chose Read Out Data, answer yes to the safety query and press OK when the confirmation message appears.
5. If you chose PADT Data, select the controller resource and press OK.
6. Answer yes to the safety query and press OK.

Load a Configuration from the Controller's Flash Memory

Follow these steps to load a configuration from the controller's flash memory file to its CPU and COM.

1. Select Set states from the PES Actions dialog and press OK to launch the Set PES States dialog.
2. Select Load Res.-Config and press OK.
3. Answer Yes to the safety query to execute the upload operation.

Clear a Configuration

Follow these steps to clear the controller's configuration and its access management data.

1. Select Set states from the PES Actions dialog and press OK to launch the Set PES States dialog.
2. Select Clear Config and press OK.
3. Answer Yes to the safety query.

   When the configuration is cleared, the controller transitions to Error Stop mode and the display shows: Configuration and access management successfully cleared.

IMPORTANT If the controller is password protected, it must be reset.

You cannot delete the configuration and the access management data if the controller is in Run mode. The clear configuration action is aborted and the screen displays an error message.

Exchanging Controllers

You can read the configuration and user program of a GuardPLC controller or DIO module and store it in the hand-held terminal, creating a backup of the controller. You can then load that configuration and user program into a new controller or DIO module, letting you exchange controllers on site.

You can also choose to load a program that is stored in the memory card of the hand-held terminal.

TIP This procedure can also be used to exchange distributed I/O modules.

Back Up a Controller's Configuration and User Program

Follow these steps to back up a controller's configuration and user program into the hand-held terminal's flash memory.

1. From the Main menu, select Exchange PES and press OK.
2. From the Exchange menu, select Read Out PES and press OK.
3. Select one of these connection methods and press OK to establish a connection to the controller:

For Information on This Connection Method	See
PADT Data	Page 19
IP Address and SRS	Page 20
MAC Address	Page 21
Search	Page 21
Default Setting	Page 22

4. Enter the required information, depending on your connection method and log on to the controller when prompted.

   See Log On to the Controller on page 22 for information on logging in.

A status message indicates when the data has been read from the controller and saved in the hand-held terminal. Communication with the controller is terminated following the save operation.

IMPORTANT The data is nonvolatile and remains even after the hand-held terminal is switched off.

However, you can only store the configuration and user program of one controller or DIO module at a time. Subsequent Read PES operations will overwrite the data in the hand-held terminal.

Restore the Backed-up Configuration and User Program

Follow these steps to load the backed-up configuration and user program from the hand-held terminal's flash memory into a new GuardPLC controller.

1. From the Main menu, select Exchange PES and press OK.
2. From the Exchange menu, select Set Up New PES and press OK.
3. Select one of these connection methods and press OK to establish a connection to the controller.

For Information on This Connection Method	See
Default Setting	Page 22
Search	Page 21
MAC Address	Page 21
IP Address and SRS	Page 20

4. Enter the required information, depending on your connection method and log on to the controller when prompted to launch the Select Parameters menu.

   See Log On to the Controller on page 22 for information on logging in.

IMPORTANT You must log on with Administrator rights to download a configuration and user program into a controller.

TIP If you only get Read access to a controller, despite requesting Administrator access, a programming terminal may already be logged in to that controller.

5. From the Choose Source menu, select Read Out Data and press OK.

The configuration and user program are restored to the controller.

IMPORTANT If the controller is in RUN, you must stop the controller before attempting to load a configuration and user program. You cannot stop the controller from the Select Parameters menu.

See Start or Stop the Controller on page 27.

Load Configuration Data from the Memory Card

Once you have transferred configuration data from the programming terminal to the hand-held terminal's memory card, you can load that configuration data into a controller or distributed I/O module.

See page 17 for information on loading configuration data from the programming terminal to the hand-held terminal's memory card.

Follow these steps to load configuration data from the hand-held terminal.

1. From the Main menu, select Exchange PES and press OK.
2. From the Exchange PES menu, select Set Up New PES and press OK.
3. Select one of these connection methods and press OK to establish a connection to the controller.

For Information on This Connection Method	See
Default Setting	Page 22
Search	Page 21
MAC Address	Page 21
IP Address and SRS	Page 20

4. Enter the required information, depending on your connection method and log on to the controller when prompted to launch the Select Parameters menu.

   See Log On to the Controller on page 22 for information on logging in.
5. From the Choose Source menu, select PADT Data and press OK.
6. Select the controller resource you want to download and press OK.
7. View the network settings of the controller resource and press OK to confirm it is the correct resource.
8. Press OK at the message that the settings will be written to the controller.

   The configuration is written to the controller.
9. Press OK.

10. Select Yes to confirm a cold start or No to close the connection to the controller, and press OK.

IMPORTANT If the controller is in RUN, you must stop the controller before attempting to load a configuration. You cannot stop the controller from the Select Parameters menu.

See Start or Stop the Controller on page 27.

Specifications

Attribute	Value
Current consumption, approx.	360 mA (display illumination off) 560 mA (display illumination on max)
Supply voltage	2.4…3.0V dc
Batteries	2 (AA) rechargeable batteries NIMH 2000 mAh, or standard batteries
Operating time, approx. min. (with NiMH 2000 mAh batteries)	3 hours
Battery charger, supply voltage	12V
Battery charger, current input	≤ 0.83 A
Battery charger, charging current, approx.	1 A
Battery charger, trickle charge	25 mA
Reverse polarity protection	Protection Diode
Temperature, operating	IEC 60068-2-1 (Test Ad, Operating Cold) IEC 60068-2-2 (Test Bd, Operating Dry Heat) IEC 60068-2-14 (Test Nb, Operating Thermal Shock): 5…55 °C (41…131 °F)
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold) IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat) IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40…70 °C (-40…158 °F)
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat) 5…90% noncondensing
Vibration	IEC 60068-2-6 (Test Fc, Operating): 1 g @ 10…500 Hz
Shock, operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 15 g
Emissions	CISPR 11: Group 1, Class A
ESD immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 30…2000 MHz
Enclosure type rating	IP30
Wiring category[1]	3 on power and communication ports
Dimensions, approx.	16.5 x 9 x 3 cm (6.5 x 3.4 x 1.2 in.)
Weight, approx. (without batteries)	300 g (0.66 lb)

Attribute	Value
Certifications[2] (when product is marked)	
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. Refer to UL File E65584.
CE	European Union 89/336/EEC EMC Directive, compliant with: • EN 50082-2; Industrial Immunity • EN 61326; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity • EN 61000-6-4; Industrial Emissions • EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
C-Tick	Australian Radiocommunications Act, compliant with: • AS/NZS CISPR 11; Industrial Emissions

(1) Use this conductor category information for planning conductor routing. Refer to Industrial Wiring and Grounding Guidelines, publication 1770-IN041.
(2) See the Product Certification link at http://ab.com for Declarations of Conformity, Certificates, and other certification details.

Additional Resources

These documents contain more information about GuardPLC controllers and RSLogix Guard PLUS! software.

Resource	Description
GuardPLC Hand-held Terminal Menu Structure Quick Reference, publication 1753-QR001	A visual reference of the hand-held terminal's menu structure.
GuardPLC Controller Systems User Manual, publication, 1753-UM001	Information on installing, configuring, operating, and monitoring the status of your GuardPLC controller system.
Using RSLogix Guard PLUS! Software with GuardPLC Controllers Programming Manual, publication 1753-PM001	Procedural information for programming GuardPLC Controller systems using RSLogix Guard PLUS! software
GuardPLC Controller Systems Safety Reference Manual, publication 1753-RM002	Information on the safety concept of GuardPLC controller systems.

You can view or download publications at http://literature.rockwellautomation.com. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://support.rockwellautomation.com, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect Support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://support.rockwellautomation.com.

Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running.

United States	1.440.646.3223 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning, it may need to be returned.

United States	Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for return procedure.

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