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://www.rockwellautomation.com/literature/) 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.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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

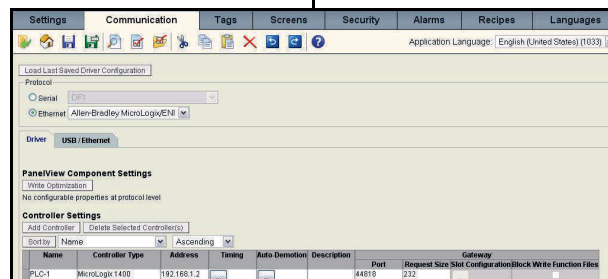| WARNING	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence
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.

Follow the path below to complete your Simple Motion Control application.

Connected Components
Building Blocks, publication
CC-QS001
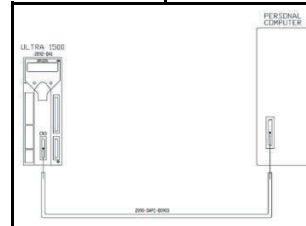
Chapter 1 Ultra1500 Drive Integration

Chapter 2 System Validation and Application Tips

Chapter 3 Control Program Integration

Notes:

Table of Contents

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Introduction

This quick start is designed to provide a way to implement a connected component for simple motion control.

IMPORTANT	The Simple Motion Control Connected Component Building Block uses predefined configurations in the Ultra1500 drive (such as gear ratio and output ratio) and the MicroLogix 1400 controller (such as pulse train output, high speed counters, and input filters) to create a functional connected component solution. Altering or failing to correctly configure the settings and parameters explained in Chapter 1…Chapter 3 or failure to use the pre-configured RSLogix 500 files provided with the Simple Motion Control Building Block may result in unexpected behavior and potentially unexpected motion. If you want to alter the Simple Motion Control Connected Component configurations or application code, consult the user manuals for each related product to understand the ramifications of your desired changes.

IMPORTANT	Use this Quick Start in conjunction with the Connected Components Building Blocks Quick Start, publication CC-QS001.
	Refer to Additional Resources on page 9 for a listing of other related documents.

To assist in the design and installation of your system, application files and other information are provided on the Connected Component Building Blocks Overview CD, publication CC-QR001. The CD provides bills of materials (BOM), CAD drawings for panel layout and wiring, control programs, Human Machine Interface (HMI) screens, and more. With these tools and the built-in best-practices design, the system designer is free to focus on the design of their machine control and not on design overhead tasks.

The beginning of each chapter contains the following information. Read these sections carefully before beginning work in each chapter:

- **Before You Begin** - This section lists the steps that must be completed and decisions that must be made before starting that chapter. The chapters in this quick start do not have to be completed in the order in which they appear, but this section defines the minimum amount of preparation required before completing the current chapter.
- **What You Need** - This section lists the tools that are required to complete the steps in the current chapter. This includes, but is not limited to, hardware and software.
- **Follow These Steps** - This illustrates the steps in the current chapter and identifies which steps are required to complete the examples.

Conventions Used in This Manual

This manual uses the following conventions.

Convention	Meaning	Example
Check or uncheck	To activate or deactivate a checkbox.	Check Disable Keying.
Click	Click the left mouse button once while the cursor is positioned on object or selection.	Click Browse.
Double-click	Click the left mouse button twice in quick succession while the cursor is positioned on object or selection.	Double-click the application icon.
Expand	Click the + to the left of a given item / folder to show its contents.	Expand 1768 Bus under I/O Configuration.
Right-click	Click the right mouse button once while the cursor is positioned on object or selection.	Right-click the 1768 Bus icon.
Select	Using the mouse to highlight a specific option.	Select the New Module folder.
Enter	What you type.	Enter your choice.
Press	Pressing a specific key on the keyboard.	Press Enter.
>	Use this symbol to indicate the sub-menu name.	Choose File>Menu>Options.

Additional Resources

Resource	Description
Connected Components Building Blocks Quick Start, publication CC-QS001	Provides information on how to select products and gain access to panel and wiring information.
Connected Component Building Blocks Overview CD, publication CC-QR001	Provides files for the Connected Component Building Blocks.
MicroLogix 1400 Programmable Controllers User Manual, publication 1766-UM001	Provides information on using the MicroLogix 1400 programmable controller.
MicroLogix 1400 Programmable Controllers Installation Instructions, publication 1766-IN001	Provides information on using the MicroLogix 1400 programmable controller.
MicroLogix 1400 Programmable Controllers Instruction Set Reference Manual, publication 1766-RM001	Provides information on using the MicroLogix 1400 programmable controller RSLogix 500 instruction set.
PanelView Component Operator Terminals User Manual, publication 2711C-UM001	Provides information on using the PanelView Component HMI terminals.
Ultra1500 Digital Servo Amplifiers User Manual, publication 2092-UM001	Provides information on installing the Ultra1500 drive, including wiring and configuration options.
Ultraware Software User Manual, publication 2098-UM001	Provides information on using the Ultraware software including creating, opening and saving Ultraware files as well as changing drive parameters.
http://www.ab.com	Provides access to the Allen-Bradley website.
http://www.rockwellautomation.com/knowledgebase	Provides access to self-service support.
http://www.rockwellautomation.com/components/connected	Provides access to the Connected Components website.

Notes:

Ultra1500 Drive Integration

Introduction

In this chapter, you configure the Ultra1500 drive parameters as necessary for the MicroLogix 1400 controller to communicate with the drive. (Configuration is done by using your personal computer connected to the drive.)

The Ultra1500 drive communicates with the MicroLogix 1400 controller by using discrete I/O connections, including Pulse Train Output step/direction signals. Each of your Ultra1500 drives must be configured by using Ultraware software to send/receive the required discrete I/O to/from the MicroLogix 1400 controller. This chapter provides step-by-step instructions for configuring each of your Ultra1500 drives, whether you are using the 1-axis, 2-axis, or 3-axis Simple Motion Control Building Block solution.

In addition, this chapter specifies the minimum number of parameters that need to be changed from the factory default settings in order to establish communication with the MicroLogix 1400 controller. For your machine application, there may be other drive parameters that need to be adjusted as well. You will need to consult the drive documentation for information on all other drive parameters.
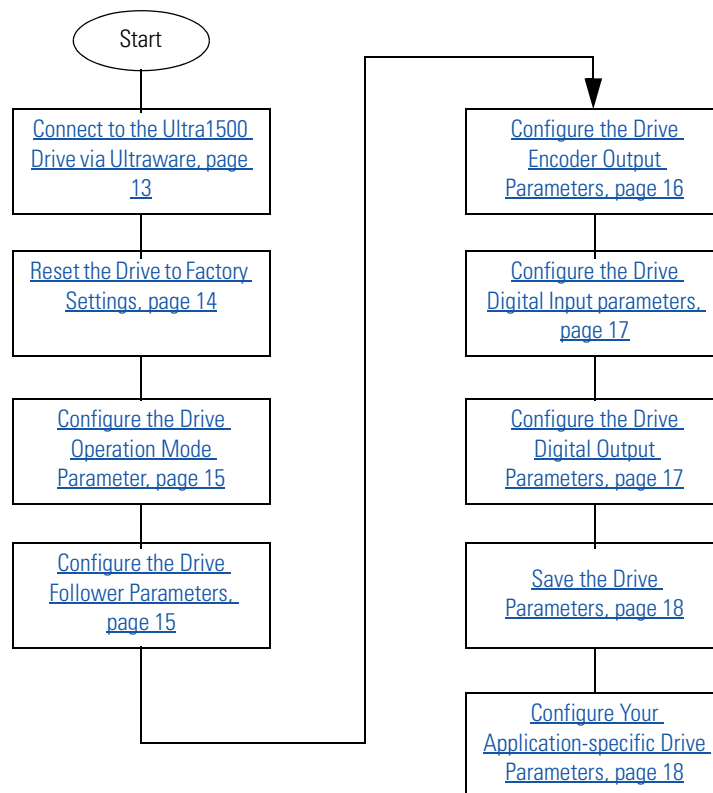
Before You Begin

- Review the Connected Components Building Blocks Quick Start, publication CC-QS001.

- Install Ultraware software.

- Apply power to your drive.

What You Need

- Personal computer with serial connection

- Ultra1500 drives

- Ultra1500 serial interface cable

- Ultraware software

- MicroLogix 1400 controller

- Connected Components Building Blocks Overview CD, publication CC-QR001

Follow These Steps

Follow these steps to configure **each** of your Ultra1500 drives.

```
                        ┌─────────┐
                        │  Start  │
                        └─────────┘
                             │
         ┌───────────────────┘         ┌──────────────────────┐
         ▼                              ▼                      │
┌──────────────────────┐      ┌──────────────────────┐
│ Connect to the Ultra1500 │   │ Configure the Drive  │
│ Drive via Ultraware, page│   │ Encoder Output       │
│ 13                   │      │ Parameters, page 16  │
└──────────────────────┘      └──────────────────────┘
         │                              │
         ▼                              ▼
┌──────────────────────┐      ┌──────────────────────┐
│ Reset the Drive to Factory│  │ Configure the Drive  │
│ Settings, page 14    │      │ Digital Input parameters,│
│                      │      │ page 17              │
└──────────────────────┘      └──────────────────────┘
         │                              │
         ▼                              ▼
┌──────────────────────┐      ┌──────────────────────┐
│ Configure the Drive  │      │ Configure the Drive  │
│ Operation Mode       │      │ Digital Output       │
│ Parameter, page 15   │      │ Parameters, page 17  │
└──────────────────────┘      └──────────────────────┘
         │                              │
         ▼                              ▼
┌──────────────────────┐      ┌──────────────────────┐
│ Configure the Drive  │      │ Save the Drive       │
│ Follower Parameters, │      │ Parameters, page 18  │
│ page 15              │      │                      │
└──────────────────────┘      └──────────────────────┘
         │                              │
         └──────────────────────┐      ▼
                                │   ┌──────────────────────┐
                                │   │ Configure Your       │
                                │   │ Application-specific Drive│
                                │   │ Parameters, page 18  │
                                │   └──────────────────────┘
```

Connect to the Ultra1500 Drive via Ultraware

Ultra1500 drives are configured by using Ultraware (catalog number 2098-UWCPRG) software. Ultraware software is a Windows-based application that allows drive configuration to be done offline and saved to disk. By using the Ultraware software, your personal computer can be connected to the Ultra1500 drives with the Ultra1500 serial interface cable (catalog number 2090-DAPC-D09xx).

To configure the Operation mode parameter, perform the following steps.
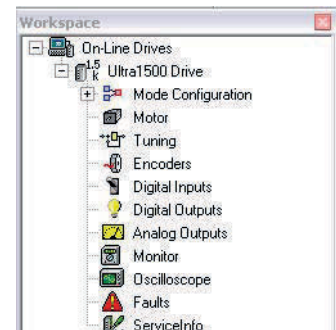
1. Connect your personal computer's serial connection to the Ultra1500 drive's CN3 connection by using the Ultra1500 serial interface cable.

   Consult the Ultra1500 drive user manual for further information.
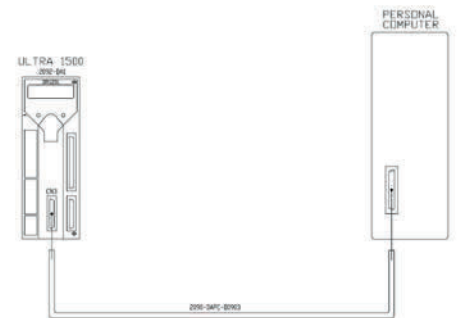
2. Go online with the Ultra1500 drive by using the Ultraware software.

   Consult the Ultra1500 drive user manual for further information.

TIP Your Ultra1500 drive must be listed in the On-Line Drives section, as shown above. If it is not listed in the On-Line Drives section, then your Ultra1500 drive is still offline.

After your Ultra1500 drive is online and you are able to browse its parameters, continue to the next section.