# SIEMENS

# DTU3005-B

Intelligent Data Transfer Device for Connection to PLCs and Modbus Networks Operator's Manual



# **A** DANGER



Hazardous voltages and high-speed moving parts in electrical devices communicating with WinPM.

Can cause death, serious injury or property damage.

See safety instruction contained herein. Restrict use to qualified personnel.

The use of unauthorized parts in the repair of the equipment or tampering by unqualified personnel will result in dangerous conditions that can cause death, serious injury or property damage.

#### IMPORTANT

The information contained herein is general in nature and not intended for specific application purposes. It does not relieve the user of responsibility to use sound practices in application, installation, operation, and maintenence of the equipment purchased. Siemens reserves the right to make changes at any time without notice or obligations. Should a conflict arise between the general information contained in this publication and the contents of drawings or supplementary material or both, the latter shall take precedence.

#### QUALIFIED PERSONNEL

For the purposes of this manual and product labels, "qualified personnel" is one who is familiar with the installation, construction, or operation of the equipment and the hazards involved. In addition, s/he has the following qualifications:

- (a) **is trained and authorized** to energize, de-energize, clear, ground, and tag circuits and equipment in accordance with established safety practices.
- (b) is trained in the proper care and use of protective gear equipment such as rubber gloves, hard hat, safety glasses or face shields, flash clothing, etc., in accordance with established safety procedures
- (c) is trained in rendering first aid.

#### SUMMARY

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation, or maintenence. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the local Siemens Energy & Automation, Inc. sales office. THE CONTENTS OF THIS INSTRUCTION MANUAL SHALL NOT BECOME PART OF OR MODIFY ANY PRIOR OR EXISTING AGREEMENT, COMMITMENT OR RELATIONSHIP. THE SALES CONTRACT CONTAINS ALL OBLIGA-TIONS OF SIEMENS ENERGY & AUTOMATION, INC. THE WARRANTY CONTAINED IN THE CONTRACT BETWEEN THE PARTIES IS THE SOLE WARRANTY OF SIEMENS ENERGY & AUTOMATION, INC. ACCESS, ISGS, Isolated Multi-Drop, S7-I/O, SBwin, SAMMS-LV, SAAMS-MV,SEAbus,SIEServe, Static Trip III, Wisdom, and WinPM are trademark, Sensitrip and Sentron are registered trademarks of Siemens Energy & Automation, Inc. SIEMENS is a registered trademark and Windows is a trademark of Microsoft Corporation. All other product names mentioned herein are used for identification purposes only and may be the trademarks or registered trademarks of their respective companies.

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Siemens maintains control of all specifications for the SEAbus and SEAbus Plus protocols. A modification to a protocol for any type of device must be approved by Siemens Energy & Automation, Inc. to guarantee compatibility. Any changes made must be backward compatible so that existing products can coexist on the communications bus without having to support the newer features of the protocol

Siemens continuously strives to ensure backward compatibility, reliability, and easy implementation of both protocols to meet current market communications requirements. Siemens therefore reserves the right to make improvements including changes to specifications at any time without notice or obligation.

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### 1 Introduction

### 1.1 **Product Overview**

The Panel-Tec DTU3005 is an intelligent, multiplefunction data transfer unit that enables communications between Siemens communicating power meters, trip units, and protective relays, and PLCs or Modbus networks. The device is designed for the harsh industrial environment and is suited for use in switchgear. The device is shown below in **Figure 1.1**. The device is powered from an external power supply. Three ports allow for connection to the Siemens ACCESS devices and selected protective relays, a PLC or a Modbus RTU or ASCII master system, and a passthrough, which allows direct communications with port 1 or port 2 from port 3. Status lights indicate proper operation, and DIP switches allow access to programming and diagnostic modes.

The DTU3005 device supports a wide variety of PLCs and Siemens ACCESS devices. **Appendix A** lists the PLCs and protocols supported by the DTU3005. **Appendix B** lists the supported Siemens ACCESS devices and protective relays.



Figure 1.1 Panel-Tec DTU3005 View Showing 3 Ports and Power Supply

### 1.2 Software Overview

The DTU3005 Editor software is a MS-DOS based program for configuring the DTU3005 device. It provides for uploading and downloading configurations via the computer's serial port. You can edit and save configurations in project files on your computer's hard drive. **Chapters 2** through **8** discuss installing and using the editor software to configure your DTU3005 device.

### 1.3 Features

### **Device Features:**

- Compact size (8" x 6" x 1")
- Port 1 and Port 3 Features
  - Transfer data directly to one of 25 PLCs supported
  - Baud rates up to 187,500
  - Addressable Modbus RTU slave capability
  - (Port 3) Passthrough Port for connection to WinPM
- Port 2 Features
  - Twelve Siemens ACCESS devices supported
  - Ten Siemens protective relays supported

### **Editor Software Features:**

- MS-DOS based (also runs under Microsoft Windows)
- Menu driven
- Mouse supported (but not required)

### 1.4 Applications

The following are possible hardware configurations using the DTU3005 to connect to Siemens ACCESS devices.

### 1.4.1 PLC to SEAbus

The basic configuration is a PLC attached to port 1 of the DTU3005, and the Siemens ACCESS devices attached to port 2. This is shown below in **Figure 1.2**. Port 3 can be configured as a passthrough to the SEA-bus devices. This allows a personal computer running Siemens WinPM<sup>TM</sup> or other supervisory software to connect directly to the SEAbus devices at the same time as the PLC. This is shown in **Figure 1.3**. An additional DTU3005 device can be attached to port 3. Up to 32 DTU3005 devices can be daisy chained together, each connected to up to 32 Siemens devices. This is shown in **Figure 1.4**.



Figure 1.2 PLC to SEAbus Application



Figure 1.3 PLC to SEAbus with Passthrough



Figure 1.4 Daisy Chained DTU3005 Units

### 1.4.2 Modbus Master to SEAbus

The DTU3005 unit can be configured as a Modbus (RTU) slave. In this configuration, a Modbus master device (usually a SCADA system) is connected to port 1. The Modbus master uses the DTU3005 to monitor and/or control Siemens ACCESS devices. A typical Modbus application is shown below in Figure 1.5. The passthrough port (port 3) can be used to connect to a supervisory computer running WinPM software. It can also be used to connect to a second, independent Modbus Master device. This is shown in Figure 1.6. Up to 32 DTU3005B units can be daisy chained using a cable connected to port 1 of the three units. Each DTU3005B device should have a different Modbus device number. A daisy chained configuration is shown in Figure 1.7.



Figure 1.5 Modbus Master to SEAbus



Figure 1.6 Two Independent Modbus Master Devices to SEAbus



Figure 1.7 Connection to Modbus Master using a Multidrop Cable

### Multi-Drop Modbus Master to SEAbus

By using a Siemens Isolated Multi-Drop Converter, you can connect your Modbus Master device to four DTU3005 devices. Each DTU3005 can connect to up to 32 Siemens ACCESS devices, as well as be daisy chained to up to 32 additional DTU3005 devices. An example configuration is shown below in Figure 1.8.



Figure 1.8 Multi-Drop Configuration

### 1.4.3 SEAbus Port Expander

The DTU3005 can be used as a SEAbus port expander for ACCESS devices, allowing two personal computers running WinPM (or other supervisory software) to communicate with up to 32 ACCESS devices. This configuration is shown below in **Figure 1.9**.



Figure 1.9 SEAbus Port Expander

### 2 Installing the Software

The DTU3005 Editor software can be installed from the DOS prompt onto a PC running Microsoft® Windows version 3.1, 95, or 98. The PC processor must be less than 300 MHz (or have a utility program installed to slow down the processor speed) for the Editor software to work properly.

Note: The DTU3005 Editor software does not work in a Windows NT environment.

If you are running Windows 3.1, double click the MS-DOS Prompt icon in the Main window of Program Manager. For Windows 95/98, select MS-DOS Prompt from the Start menu. To install the Editor software, insert the installation diskette into your computer and follow the steps listed below. The computer screen, showing the computer prompts and user responses, is shown below.

- 1. Change the current drive at the DOS prompt to the diskette drive. Type A: (or B: if that is your 3<sup>1</sup>/<sub>2</sub>" diskette drive), and then press Enter.
- At the A:> prompt, type install, and then press Enter. The installation prompts you to select which Editor software to install, as shown in the example screen below. Type 1 and press Enter to install the SEAbus Device Editor, or type 2 and press Enter to install the VDEW Device Editor.



- 3. The program asks on which drive you want to install the Editor software. For most computers, this will be drive C. Type c and press Enter.
- 4. The installation program then asks to which subdirectory you want to install the DTU3005 Editor software. This is where the program and configuration files will be placed. The suggested directory name is **DTU3005B**. Type the directory name at the prompt and press **Enter**.
- 5. You will now verify your drive and directory choices. The installation program repeats your entries and asks if the information is correct. Enter  $\mathbf{y}$  if it is correct, and  $\mathbf{N}$  if it is incorrect or you have changed your mind. Then press Enter.

6. The installation program copies and unpacks the editor program files onto your hard drive and

returns you to the DOS prompt as shown in the example screen below.



7. If you are running Windows, type **exit** to close the DOS window.

### 3 Starting the Software

To start the DTU3005 Editor software, follow these steps:

- If you are running Windows 3.1, double click the MS-DOS Prompt icon in the Main window of Program Manager. For Windows 95/98, select MS-DOS Prompt from the Start menu.
- At the DOS prompt, which is usually C:\> (or C:\WINDOWS> if you are running a DOS prompt from Windows) type CD \DTU3005B, where

DTU3005B is the directory where the Editor software is installed. Press **Enter**.

- 3. At the new DOS prompt (which is C:\DTU3005B> if you installed the program to the suggested directory), type DTU3005 and then press Enter.
- 4. The DTU3005 Editor software starts. An information screen appears as shown below.
- 5. Press **Enter** or **Esc** to close this information screen and start using the program.

🔀 MS-DOS	Prompt - EDITOR		- D ×
Auto	🖸 🔝 🖻 🛍 😰	A	
😑 Projec	t Transfer Options	Project:	10:02:37
DTU3005-3	DTU3005-3 DTU3005-3 DTU30	05-3 DTU3005-3 DTU3005-3	DTU3005-3 DT
DTU3005-3			DTU3005-3 DT
DTU3005-3			DTU3005-3 DT
DTU3005-3	DTU3005-3 DTU3005-3 DTU30	05-3 DTU3005-3 DTU3005-3	DTU3005-3 DT
DTU3005 =[	] Infor		05-3 DT
DTU3005			05-3 DT
DTU3005	DT03005 SEAbus Confi	guration Editor V5.01	05-8 DT
D103005	Si		05-5 DT
D103005	Slemens Lnergy &	. Automation, Inc.	05-5 DT
DTU2005			05-3 07
DTU2005	5300 Triat	gle Parkmay	0.5-3 07
DTU3005	Norcross	GA 30092	05-3 DT
DTU3005			05-3 DT
DTU3005	Continental United S	States - (800) 427-2255	05-3 DT
DTU3005	Outside the United S	States - (770) 871-3800	05 <mark>-3 DT</mark>
DTU3005	Fax N	Number - (770) 871-3870	05 <mark>-3 DT</mark>
DTU3005			05 <mark>-3 DT</mark>
DTU3005			05-3 DT
DTU3005-3	DTU3005-3 DTU3005-3 DTU30	05-3 DTU3005-3 DTU3005-3	DTU3005 <mark>-3 DT</mark>
DTU3005-3			DTU3005-3 DT
DTU3005-3			DTU3005-3 DT
DTU3005-3	DTU3005-5 DTU3005-5 DTU30	05-3 DTU3005-3 DTU3005-3	DTU3005-3 DT
Welcome t	o the DTU3000 Configuration	Editor.	

### 3.1 Menu Navigation

Navigation of the program menus and dialog boxes can be performed with either the keyboard or a mouse. The Editor software uses the standard menu and dialog box user interface used by many other DOS and Windows programs. The mouse can be used to make menu selections, highlight and select items in a dialog box, and perform commands by clicking on dialog box buttons. Keyboard equivalents to mouse actions are described in **Table 3.1** below. Informational messages are displayed on the bottom line of the screen to give you help with keyboard navigation.

Note: To use a mouse in DOS, be sure the mouse driver is loaded before starting the Editor software. This is usually done automatically from a command in the CONFIG.SYS or AUTOEXEC.BAT startup files, or if you are running the program from Windows, by Windows itself. For information on how to load a mouse driver, refer to the instructions included with your mouse.

Table 3.1	Keyboard Shortcuts for Menu	Navigation
-----------	-----------------------------	------------

Кеу	Description
Arrow keys	Moves the highlight in the direction of the arrow.
Enter	Performs the highlighted command.
Esc	Cancels a function, closes the menu or dialog box, and returns you to the previous menu or dialog box.
Tab and Shift+Tab	The <b>Tab</b> key moves forward one item at a time within a dialog box. <b>Shift+Tab</b> moves backward one item at a time.
Letter keys	The colored letter in each menu item indicates which key performs that command.
Spacebar	Selects or deselects a highlighted item.
Alt + Q	Quits the program.

### 3.2 Main Menu

The main menu is located on the top line of the screen. In addition to the menu selections, the name of the current project and the time of day is displayed on the top line. There are five main menu selections. They are

- =, or the **Program Information** menu. Selecting it displays the program information screen.
- The **Project** menu enables you to create, load, save, view and print project files. It also allows you to switch to a DOS prompt or quit the program. Its operation is described below in **Section 3.3** and **Section 3.4**.
- The Edit menu enables you to configure projects and is available only when a project is open. Chapters 4, 5, and 6 describe the process of configuring the different project types.
- The **Transfer** menu uploads and downloads project files to the DTU3005 unit. These procedures are described in **Chapter 7**.
- The **Options** menu allows you to change settings on where the program finds its project files, and which COM and LPT ports to use. Its operation is described in **Chapter 8**.

### 3.3 Using the Project Menu

When you first start the DTU3005 Editor software, and no project file is loaded, the following menu selections are available in the **Project** menu (see example screen below):

- Open, allows you to open any saved project file.
- New, allows you to create a new project file.
- **Dos Shell**, allows you to switch to MS-DOS without closing the DTU3005 Editor software. To return to the program, type **exit** and then press the **Enter** key at the DOS prompt.
- Quit, allows you to exit the DTU3005 Editor software.

### 3.4 Starting a New Project

Projects contain the configuration information to be downloaded to the DTU3005 device. To create a new project:

1. Select the **Project** menu with the mouse, or use the arrow keys to highlight **Project** and display the **Project** menu:

=	Project	Trans	sfer Opt	ions		Pro	ject:	1	0:51:53
DT	· · · <b>y</b> ·		<b>U3005</b>	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Open	F3	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	New C	trl-F3	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT			U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Dos Sh	ell	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT			- U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Quit	Alt-Q	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT			J U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU:	3005 DT	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU	3005 DT	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU	3005 DT	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
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DTU	3005 DT	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
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DTU	3005 DT	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU	3005 DT	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU	3005 DT	U3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU:	3005 <u>DT</u>	U3005	DTU300 <u>5</u>	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU	3005 DT	<u>U3005</u>	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
Alt-	-Q Quit	Open	an exist	ing proje	ct.				

- Select New with the mouse, use keyboard shortcut Ctrl + F3, or use the arrow keys to highlight New and press Enter. The New Project dialog box appears.
- Note: All menus and dialog box selections are accessible from the keyboard or by using the mouse. From this point the manual will only say "select this" or "highlight this." Refer to **Section 3.1** for menu navigation instructions and keyboard shortcuts.

DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	<u>DTU3005</u>	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	<u>DTU30</u> 05	DTU3005
DTU3005	[•]		Ne	w Project			05	DTU3005
DTU3005							05	DTU3005
DTU3005	Projec	t Name:	NONAME00				05	DTU3005
DTU3005							05	DTU3005
DTU3005	Projec	t Type: P	'LC to Dev	ices			05	DTU3005
DTU3005			_				05	DTU3005
DTU3005				0k 🚽			05	DTU3005
DTU3005							05	DTU3005
DTU3005							05	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT113005	DTH3005	DT113005	DTH3005	DTH3005	DT113005	DT113005	DTH3005	DTII3005

- 3. Type in a name for the project up to eight letters and numbers in the **Project Name**: field and press **Enter**. The **Project Type**: field will then be highlighted. Press the **spacebar** to display the project types, which are:
  - PLCs to Devices—allows a PLC to control and/or monitor up to 32 supported Siemens devices. See Chapter 4 for configuring this project type.
- Modbus Master to Devices—allows a Modbus speaking host system, personal computer running SCADA software, or PLC to read and write registers in up to 32 supported Siemens devices. See Chapter 5 for configuring this project type.
- SEAbus Port Expander—allows two Siemens ACCESS supervisory computers to connect up to 32 Siemens ACCESS devices. See Chapter 6 for configuring this project type.

≡ Proj	ect Tran	sfer Opt	ions		Pro	ject:	1	0:59:25
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	┏=[•]===		Ne	w Project			05	DTU3005
DTU3005							05	DTU3005
DTU3005	Projec	[•]	Pro	ject Type			05	DTU3005
DTU3005		PLC to	Devices				05	DTU3005
DTU3005	Projec	Modbus	Master to	Devices			05	DTU3005
DTU3005		SEAbus	Port Expa	inder			05	DTU3005
DTU3005							05	DTU3005
DTU3005							05	DTU3005
DTU3005							05	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
Select	Project T	уре						

- 4. To select a project type, highlight the type and either press Enter or click the left mouse button. Then highlight the Ok button on the dialog box and either press Enter or click the left mouse button.
- 5. When the screen refreshes, the **Project** menu is displayed with additional menu options now available. These options apply to the open project file that is active (i.e., the project name appears in the top line of the screen).
  - Close—allows you to close a project file. (More than one project file can be open at any time.)
  - View—allows you to view a project information screen which shows the project file

name, project file type, the selections for each of the DTU3005's ports, and the number of devices.

- Save—allows you to save the current project file.
- Save As—allows you to save the project file under a different file name.
- Switch To—allows you to switch between the opened project files. (Multiple project files can be open at the same time.)
- **Print**—allows you to print the project file's configuration information.

Ξ	Project	Edit	Tra	nsfe	r Option	S	Pro	ject: ATH	ENS01 1	1:23:45
DT				5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Open		F3	5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	New	Ctr]	1-F3	5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Close	A1 1	t-F3	5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT				5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	View			5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT				5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Save		F10	5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Save as	Alt-	-F10	5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT				5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Switch	to	F2	5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT				5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Print			5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT				5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Dos Shel	11		5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT				5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT	Ouit	A)	lt-0	5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT			•	5	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DŤŪ	3005 DTU3	3005	DTU30	005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU	3005 DTU3	3005	DTU30	)05	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU	3005 DTU3	3005	DTU30	)05	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU	3005 DTU3	3005	DTU30	005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU	3005 DTU3	3005	DTU30	005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
Alt	-Q Quit	Open	an ex	(ist	ing proje	ct.				

6. Select **Save**, or use the keyboard shortcut **F10** to save your new project. You are now ready to configure your project.

### 4 Creating Project Files—PLC to Devices

This chapter covers configuration of the DTU3005 for PLC communications with Siemens devices. Once you have created a PLC to Devices project (see **Chapter 3**), follow the directions in this chapter to configure the project file. Then see **Chapter 7** for directions on downloading the project to the DTU3005. See also **Appendix D** for wiring diagrams for your particular PLC, as required.

### 4.1 Application Description

The PLC to Devices application allows a PLC to control and monitor up to 32 SEAbus devices or Siemens protective relays. In this application, the DTU3005B initiates all communications with both the PLC and the Siemens devices.

The DTU3005B uses an internal transfer table to transfer data to the PLC. The transfer table contains a block of selected real-time data parameters obtained from a device. The DTU3005B unit acts as a master to the PLC, and continuously transfers the table data to the selected block of registers on the PLC. A delay option is provided for each device's table entry to prevent unnecessarily slowing down

the scan time of the PLC as well as to give some device data transfers higher priority than others.

No ladder logic is required on the PLC to use the basic feature of this application, which allows a limited amount of information to be transferred between the PLC and the devices. Ladder logic programming is required to use the command block function. The command block is used to send commands to the devices, such as operating or releasing relays, or resetting energy counters. See **Section 4.11** for information on configuring this feature on the DTU3005B. The format of the command registers for each device are described in **Appendix E**.

The DTU3005B can automatically update diagnostic information in the PLC. It allows the PLC to determine when a device is not communicating. See **Section 4.10** for information on enabling and configuring this feature. The format and content of the diagnostic registers are described in detail in **Appendix F**.

### 4.2 Configuring the Project File

Once you have created or opened the project file, select **Edit** from the main menu to display the following menu items:

≡ Proje	ct	Edit	Transfe	r Option	IS		Pro	ject: ATH	ENS01   1	2:43:30
DTU3005	DT					05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005 I	DT	Port	: 1 (PLC)			05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005 I	DT	Port	2 (Devi	ces)		05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DT	Port	: 3 (Pass	through)		05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005 I	DT		-			05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005 I	DT	Diag	nostics			05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005 I	DT	Devi	.ce Comma	nd Regist	ers	05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005 I	DT					05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005 I	DT	Devi	.ce Defau	lts		05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005 I	DT	Devi	ce List			05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005 I	DT					05	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU	3005	DTU3005	DTU3005	DTUS	3005	DTU3005	DTU3005	DTU3005	DTU3005
Alt-Q Qui	t 🗌	Edit	the PLC	Port conf	igura	ation				

- **Port 1 (PLC)**—allows you to select the model and configure the communications settings for the PLC connected to port 1.
- Port 2 (Devices)—allows you to configure communications settings for SEAbus devices or Siemens Protective relays connected to port 2.
- **Port 3 (Passthrough)**—allows you to select whether port 3 is used as a passthrough to the devices or the PLC.
- Diagnostics—allows you to indicate if you want the DTU3005 to write communications diagnostic information to the PLC.

- Device Command Registers—allows you to indicate which PLC registers will be used for device commands.
- **Device Defaults**—allows you to set the default data registers for more than one device of a certain type, e.g., set the defaults for all 4720 power meters or all S7-I/O units. The data registers can still be customized for each device, as required. See **Section 4.7.2** for more information.
- Device List—allows you to indicate which SEAbus devices or Siemens protective relays are connected to port 2 and which PLC registers they are communicating with.

If the Device Protocol for port 2 is set to VDEW (see Section 4.4), then two additional menu items are available: Global Command Registers and Device Text to Values Table. See Section 4.8 and Section 4.9 for instructions on using these menu items.

### 4.3 PLC Setup—Port 1

You must have a PLC to Devices project file open to configure port 1 using the instructions in this section. Select **Port 1** (**PLC**) from the **Edit** menu, and the Port 1 PLC Configuration screen appears.



To select the PLC connected to port 1, highlight **PLC Protocol** and press **Enter**. The PLC Protocols selection menu appears:



### PLC Protocol

Use the **Down Arrow** and **Up Arrow** keys to scroll through the list of available PLC Protocols, since not all choices are visible at one time. To select a protocol, highlight the selection and press **Enter**.

### **PLC Number**

After you have selected your PLC, the **PLC Number** selection box is highlighted. The PLC Number is used to identify which PLC the DTU is to communicate with (if the selected type of PLC is addressable). The PLC Number is often called a PLC Slave Address or Slave ID.

Type in the PLC Number and press Enter.

### 2-Wire RS422 or RS485 Communications

After you have entered the PLC Number, the **2-Wire RS422** or **RS485** Communications selection box is highlighted. This box will only need to be checked if the communications with your PLC is a 2-wire RS485 or RS422 interface. When 2-wire communications are being used, RTS must be looped back to CTS on the DTU side of the cable. This can be done on the RS232 side by looping pins 4 and 5 or on the RS422/485 side by looping 16 to 18 and 17 to 19. See **Appendix D** for wiring diagrams for your particular PLC, and whether it uses a 2-wire connection.

To select the checkbox, click on it with the mouse or, with the **2-Wire RS422 or RS485 Communications** selection highlighted, press the **spacebar**. An "X" will appear inside the brackets when it is selected. Press the **Tab** or **Right Arrow** key to move to the next field without selecting this checkbox.

### **DTU Address**

Some PLC protocols require each device on the PLC network to be assigned a unique address or ID. The **DTU Address** is the address assigned to the DTU on the PLC network. Highlight this field and type in the address number for the DTU3005B, then press **Enter**.

### **Communications Settings**

The communications settings are automatically set to the default values for each type of PLC when the PLC is first selected. Before changing any of these settings, consult your PLC manual for the correct settings. To move between the communications settings, press the **Tab** or **Enter** keys. To select a setting, use the **Up** or **Down Arrow** key to move to the desired setting and press the **spacebar** to change your selection.

### **RTS Control (Request to Send Control)**

RTS Control selection is an option provided for modems or for PLCs that require RTS to be active only while the DTU is transmitting to the PLC.

- If **RTS/CTS** is selected, the DTU will activate RTS and wait until CTS is active before transmitting to the PLC.
- If RTS Delay is selected, the DTU will activate RTS and wait for the specified delay time to pass before transmitting to the PLC. When RTS Delay is selected, the

program displays an entry box for the RTS delay time. Enter the time in milliseconds.



### **Response Time-Out**

The **Response Time-Out** tells the DTU how long to wait after transmitting a request to the PLC if no response has been received from the PLC. After this amount of time passes with no response being received, the DTU will assume that no response is coming and will retry the request. Enter the time in milliseconds.

### Saving Port 1 Configuration Information

Once you have entered all the configuration information, select **Save** to save the configuration to the project file. Then select **Ok** or press the **Esc** key to close the configuration screen.

If you have changed the configuration and have not saved it to the project file, you will be prompted to either save or discard the changes. Select **Revert** to return to the last previously saved configuration without saving any changes.

### 4.4 Device Setup—Port 2

One or more Siemens devices may be connected to port 2. You must have a PLC to Devices project file open to configure port 2 using the instructions in this section.

Select **Port 2 (Devices)** from the **Edit** menu, and the Port 2 configuration screen appears.



#### **Device Protocol**

The **Device Protocol** indicates which Siemens devices can be connected to port 2. This protocol is based on which version of the DTU3005 Editor software was installed as described in **Chapter 2**.

- The SEAbus protocol (as shown in the example screen above) indicates connection to Siemens ACCESS communicating trip units, relays, power meters and other devices.
- The VDEW protocol indicates connection to Siemens protective relays using the VDEW protocol.
- Note: Not all Siemens devices are supported. For a list of supported devices, see **Appendix B**.

### **Other Configuration Information**

The remaining configuration selections are the same as those for port 1. Refer to **Section 4.3** for instructions on these fields.

### **Saving Port 2 Configuration Information**

Once you have entered all the configuration information, select **Save** to save the configuration to the project file. Then select **Ok** or press the **Esc** key to close the configuration screen.

If you have changed the configuration and have not saved it to the project file, you will be prompted to either save or discard the changes.

Select **Revert** to return to the last previously saved configuration without saving any changes.

### 4.5 Passthrough Setup—Port 3

Port 3 is for passthrough communications. It allows direct communication with either the PLC on port 1 or the Sie-

mens SEAbus devices on port 2. (Passthrough communications to port 2 are not available for VDEW devices.)

In passthrough mode, any messages received on port 3 of the DTU are simply "passed through" to the PLC (port 1) or devices (port 2). For example, passthrough communications enables a PC running WinPM, or other supervisory software connected to port 3 of the DTU3005, to communicate directly with the SEAbus devices connected to port 2.

You must have a PLC to Devices project file open to configure port 3 using the instructions in this section.

Select **Port 3 (Passthrough)** from the **Edit** menu, and the Port 3 configuration screen appears.



The first option on the configuration screen allows you to choose passthrough to port 1 or port 2. Select the appropriate port with the mouse, or use the **Up** or **Down Arrow** keys to highlight the selection and press **Enter**.

The remaining configuration selections except for Intermessage Time-out are the same as those for port 1. Refer to **Section 4.3** for instructions on these fields.

### Intermessage Time-Out

The DTU3005 uses the intermessage time-out to determine when a complete message has been received on the passthrough port. Once the first character of a message has been received, if the amount of time specified by the intermessage time-out passes with no additional characters being received, the DTU3005 will consider the message to be complete and process it. To change the intermessage time-out, select **Intermessage Time-Out** and type in the value in milliseconds, then press **Enter**.

### **Saving Port 3 Configuration Information**

Once you have entered all the configuration information, select **Save** to save the configuration to the project file. Then select **Ok** or press the **Esc** key to close the configuration screen.

If you have changed the configuration and have not saved it to the project file, you will be prompted to either save or discard the changes. Select **Revert** to return to the last previously saved configuration without saving any changes.

### 4.6 Device List Setup

The Device List menu item enables you to indicate which registers on the PLC will receive data from the devices. In this screen, you will enter the device type and address for each Siemens device connected to port 2. You will also indi-

cate to which registers on the PLC you want the DTU3005 to write device data.

Select **Device List** from the **Edit** menu to display the device list screen:

≡ Proje	ct Edit	Transfer	Options			Project: A	THENS01	15:59:32
DTU3005	DTU3005	DTU3005 [	)TU3005 I	DTU3005	DTU30	05 DTU300	5 DTU300	5 DTU300 <u>5</u>
	uice Tupe		- SEHDUS	Device	L1ST =			2
	vice type		<u> </u>	Device	Type		Addres	s 5
0				Not In	Use		0	5
1								5
2								5
4								5
5								Š
6								5
								5
9								5
10								Š
11				Sav	e		Dele	ete 5
12						Deele		5
16						аск		25
15				Ok			Rev	ert∎ 5
16								5
	f 31 ——				DTUOO			5
	UTU3005 I  ↑   mour	<u>1103005 L</u> s spacoba	//03005   pr.or.∠EN	1103005 TER\ sol	DTU30	05 010300	5 010300	5 0103005

This screen is divided into two parts:

- On the left side of the screen is a list of the devices connected to port 2 (the list is initially empty). Up to 32 devices can be attached; however, only 17 of the devices are visible on the screen at one time. To see all the devices, click on the scroll bar with the mouse, or use the Up and Down Arrow and Page Up and Page Down keys.
- The right side of the screen is used to configure the data register information for the selected device, as shown in the example screen on the next page. You can add or delete devices, or change device configuration by highlighting the **Device Type** on the left side of the screen, then using the fields and buttons on the right side of the screen.

### Adding a Device

To add a device to the device list:

- Highlight the first line where the Device Type and Address fields are blank—this should be the first available device number No field.
- Press Enter or Tab to add a device. The cursor will move to the Device Type field on the right side of the screen. Press Enter, and the Device Types list displays:



 Select the device from the list by pressing Enter or the spacebar. The highlight moves to the Address field, and the PLC register fields now display as shown in the example screen below.

4. With the **Address** field highlighted, enter the device's address. This number should be between 1 and 254, and match the number programmed into the device

itself. Press the **Tab** key twice to go to the **Real-Time Data Registers** field.

5. Highlight the **File** field and enter the file number. This parameter is used only with Allen-Bradley PLCs to specify the file number in the PLC that contains the register values that are transferred to or from the device.



- 6. Enter the beginning register number in the Real-Time Data Registers field. Refer to Appendix A for valid register numbers for your PLC application. The DTU3005 Editor software supplies the last register number after you enter the first. In the example above, the 4700 Power Meter uses 41 registers for its data. When you enter 1 for the first register, the last register becomes 42. If you change the starting register to 10, the last register will automatically change to 51.
  - Note: These registers indicate the exact location in the PLC where the DTU3005 will store the real-time data for this device.
- Press Shift+Tab, or click the left mouse button to highlight the File field and enter the file number. This parameter is used only with Allen-Bradley PLCs to specify the file number in the PLC that contains the register values that are transferred to or from the device.
- 8. The device command registers are displayed below the real-time data registers. They are configured from the **Device Command Registers** menu selection on the **Edit** menu. See **Section 4.11** for information on setting these registers and programming the PLC to perform commands. Be sure that the register numbers are not also used by the device. This can cause unexpected operation of the device.
- 9. If you want to use a customized subset of the available data registers, see Section 4.7.2 for instructions on creating a default set of custom registers for all devices of the same type. Type an "X" in the Use customized real-time data ordering? field to begin the custom data setup, or press Tab to go to the next field.
- 10. Enter the **Real-Time Data Delay Time** in its field. This is the delay from the time that the DTU3005 receives data from the device to the time the DTU3005 transfers the data to the PLCs registers.
- 11. Select Save to save the device information to the project file, and then select Ok or press Esc to exit the device list configuration screen. If at any time you want to return to the last saved version of the device list, select Revert without saving any changes.

#### **Removing a Device**

To remove a device from the device list, highlight the device on the left side of the screen and press **Tab** or **Enter**. Then change the device type to **Not In Use**.

### Additional Options for Data Registers

The Device List screen has three additional options for working with a device's data registers:

- Select Set Reg to place the data registers into contiguous register numbers and minimize the size to the data register block. This option also sets the initial register number to 1.
- The Set All command performs the same function as Set Reg, but allows you to set the initial register number. See Appendix A for information on acceptable register number ranges for each PLC model.
- Select **Pack** to minimize the size of the command register block, removing registers for deleted devices.

#### Saving the Device List Configuration

Once you have entered the device information for all the devices attached to port 2, select **Save** to save the device information to the project file. Then select **Ok** or press **Esc** to close the device list configuration screen.

If you have changed the device information and have not saved it to the project file, you will be prompted to either save or discard the changes.

Select **Revert** to return to the last previously saved configuration without saving any changes.

### 4.7 Configuring Custom Device Registers

You can configure which data items from the SEAbus or VDEW devices are transferred from the DTU3005 device to the PLC or Modbus master. In this way, the DTU3005 acts as a data concentrator, in addition to converting the SEAbus and VDEW protocol data. You can configure the custom data items so that every device of the same type sends the same data items (see **Section 4.7.2**), or have each device send particular data items of interest (see **Section 4.7.1**). SEAbus devices can be configured to send 16 words of device data. VDEW devices can be configured to send from 1 to 64 words.

#### 4.7.1 Configuring Custom Registers for a Single Device

To configure custom registers for a single device:

- 1. Select **Device List** from the **Edit** menu.
- 2. Highlight the device that you wish to configure and press **Enter**.
- Highlight the Use customized real-time data ordering? check box. Press the spacebar to place an "X" in the check box. Then select Custom Data to display the Customized Real-Time Data dialog box.



4. Select a data register on the list and press **Enter** to see a list of available real time data. These data items are identical to the standard data items listed in **Appendix**  **E**. Not all data items are visible on the screen at one time. Use the mouse and the scroll bar, or the **Page Up** and **Page Down** keys to view all of the data items.



- Select the data word (16 bit data) from the list and press Enter. Continue to set the other data words in the same manner. Many data items consist of two words (32 bit data). It is important that you configure both words in order to transmit useful information to the DTU3005's registers.
- 6. Use these options as follows:
  - Select Set Defaults to copy the default custom device registers to the list. See Section 4.7.2 for instructions on setting custom device registers by device type.
  - b. Select **Clear All** to delete all register names from the list.
  - c. Select Set as Defaults to save the current custom register list as the default custom register list. This will not change the custom registers of other devices of the same type. See Section 4.7.1 for instructions on setting custom device registers for a single device.
- Select Save to save your custom register list and then Ok to exit this dialog box. Select Cancel to exit this dialog box without making changes.

To conserve registers when using VDEW devices, you should set all unused registers to "Not Used" and place them at the end of the list. The DTU3005 will then only allocate registers for those containing device data. (This does not apply to SEAbus devices, for which the DTU3005 allocates 16 registers regardless if they are used or not.)

### 4.7.2 Configuring Default Custom Device Registers by Device

If you are configuring custom device registers for more than one device of a certain type, you may configure the default custom registers from the Edit Menu **Device Defaults** command. After configuring the default device registers, you may use them for any or all devices, or further customize individual registers for any of your devices. SEAbus devices can have 16 custom registers. VDEW devices may have between 1 and 64 custom registers.

To configure default custom registers for a particular device type:

 Select Device Defaults from the Edit menu. A list of devices appears. If you have configured port 2 for SEAbus devices, only SEAbus devices will appear on the menu. Likewise, if you have configured port 2 for VDEW devices, only VDEW devices will appear on the menu.

≡ Proj	ect Edit	t Transfei	r Option	IS	Pro	ject: ATH	ENS01   1	3:43:13
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30 <u>05</u>	DTU3005	DTU3005	DTU3005	<u> </u>	DTU3005	DTU3005	DTU3005
DTU3005	DTU30 –				TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	SAMMS-LV	ļ .	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	SAMMS-MV	l i i i i i i i i i i i i i i i i i i i	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	4300 Pow	er Meter	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	4700 Pow	er Meter	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	4720 Pow	er Meter	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	Static T	rip III	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	ISGS Swi	tchgear	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	\$7-I/0 U	Init	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	Energy/C	omm	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30				TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU300 <u>5</u>	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
Alt-Q Qu	it							

- , mit ç çurt
- Select the device you wish to configure. The default custom register configuration menu appears. The first time you select this command, the first 16 registers (64 for VDEW devices) from the device's standard data register list appear on the default real-time data list. Not all of the entries are visible on the menu. Use the scroll bar or the **Page Up** and **Page Down** keys to view all the entries.

I ≡ Proj	ect Edi	t Transfer	Options		Project:	ATHE	NS01	13:45:24
DTU3005	DTU300	-[•] <u>De</u>	faults <u>- 4</u>	700 Pow <u>er</u>	Meter ——		DTU300	5 DTU3005
DTU3005	DTU300	-Word Number	• Default	Real-Time	e Data		DTU300	5 DTU3005
DTU3005	DTU300						DTU300	5 DTU3005
DTU3005	DTU300	0	Voltage	L-N Phase	e A (lo)		DTU300	5 DTU3005
DTU3005	DTU300	1	Voltage	L-N Phase	e A (hi)		DTU300	5 DTU3005
DTU3005	DTU300	2	Voltage	L-N Phase	e B (lo)		DTU300	5 DTU3005
DTU3005	DTU300	3	Voltage	L-N Phase	e B (hi)		DTU300	5 DTU3005
DTU3005	DTU300	4	Voltage	L-N Phase	e C (lo)		DTU300	5 DTU3005
DTU3005	DTU300	5	Voltage	L-N Phase	e C (hi)		DTU300	5 DTU3005
DTU3005	DTU300	6	Voltage	L-L Phase	e AB (lo)		DTU300	5 DTU3005
DTU3005	DTU300	7	Voltage	L-L Phase	e AB (hi)		DTU300	5 DTU3005
DTU3005	DTU300	8	Voltage	L-L Phase	e BC (lo)		DTU300	5 DTU3005
DTU3005	DTU300	9	Voltage	L-L Phase	e BC (hi)		DTU300	5 DTU3005
DTU3005	DTU300	10	Voltage	L-L Phase	e CA (lo)		DTU300	5 DTU3005
DTU3005	DTU300	11	Voltage	L-L Phase	e CA (hi)		DTU300	5 DTU3005
DTU3005	DTU300	12	Current	Phase A		Ť	DTU300	5 DTU3005
DTU3005	DTU300						DTU300	5 DTU3005
DTU3005	DTU300	Ok	<b>-</b> S	ave 🗖	Revert		DTU300	5 DTU3005
DTU3005	DTU300						DTU300	5 DTU3005
DTU3005	DTU300	Set	to Base 🗖	Clea	ar All 🗖		DTU300	5 DTU3005
DTU3005	DTU300						DTU300	5 DTU3005
DTU3005	DTU300						DTU300	5 DTU3005
DTU3005	DTU3005	DTU3005	)TU3005 D	TU3005 D1	TU3005 DTU3	005	DTU300	5 DTU3005
F10 Save								

 Select a data item and press Enter to see a list of device real time data that can be assigned to that data word. Select Not Used if you do not want that data word to be used. Not all of the entries are visible on the menu. Use the scroll bar or the Page Up and Page **Down** keys to view all the entries. Select **Clear All** to set all data words to "Not Used." Select **Set to Base** to restore the data words to the first 16 registers (64 for VDEW devices) from the device's standard data register list.

≡ Proj	ect Edi <sup>.</sup>	t Transfer	Options		Project:	ATHENS01	14:08:17
DTU3005	DTU300	=[•]==== Defa	aults - 47	00 Power N	leter ———	DTU300	5 DTU3005
DTU3005	DTU300	Word Number	Default	Real-Time	Data	DTU300	5 DTU3005
DTU3005	DTU300					— DTU300	5 DTU3005
DTU3005	DTU300	0	Voltage	L-N Phase	A (lo)	DTU300	5 DTU3005
DTU3005	DTU300	1	Voltage	L-N Phase	A (hi)	<ul> <li>DTU300</li> </ul>	5 DTU3005
DTU3005	DTU300	┏[•]━	= 4700 Pow	er Meter =	]	DTU300	5 DTU3005
DTU3005	DTU300	Not Us	sed		A	DTU300	5 DTU3005
DTU3005	DTU300	Volta	ge L-N Pha	se A (lo)	•	DTU300	5 DTU3005
DTU3005	DTU300	Voltag	ge L-N Pha	se A (hi)		DTU300	5 DTU3005
DTU3005	DTU300	Volta	je L-N Pha	se B (lo)		DTU300	5 DTU3005
DTU3005	DTU300	Volta	ge L-N Pha	se B (hi)		DTU300	5 DTU3005
DTU3005	DTU300	Volta	je L-N Pha	se C (lo)		DTU300	5 DTU3005
DTU3005	DTU300	Volta	je L-N Pha	se C (hi)		DTU300	5 DTU3005
DTU3005	DTU300	Volta	ae L-L Pha	se AB (lo)	)	DTU300	5 DTU3005
DTU3005	DTU300	Volta	je L-L Pha	se AB (hi)	)	DTU300	5 DTU3005
DTU3005	DTU300	Volta	ae L-L Pha	se BC (lo)	) 🖓 🗌	DTU300	5 DTU3005
DTU3005	DTU300					DTU300	5 DTU3005
DTU3005	DTU300	0k	Sa	ve 🗖	Revert 🗖	DTU300	5 DTU3005
DTU3005	DTU300					DTU300	5 DTU3005
DTU3005	DTU300	Set to	b Base 🗖	Clear	- All 🗖	DTU300	5 DTU3005
DTU3005	DTU300					DTU300	5 DTU3005
DTU3005	DTU300					DTU300	5 DTU3005
DTU3005	DTU3005	DTU3005 D	FU3005 DT	U3005 DTL	J3005 DTU3	005 DTU300	5 DTU3005
F10 Save							

 Select Save to save your configuration or Revert to restore the last previously saved configuration for that device. When you are finished configuring the default data registers for that device, select  $\mathbf{Ok}$  to close this screen.

To conserve registers when using VDEW devices, you should set all unused registers to "Not Used" and place them at the end of the list. The DTU3005 will then only allocate registers for those containing device data. (This does not apply to SEAbus devices, for which the DTU3005 allocates 16 registers regardless if they are used or not.)

### 4.8 Device Text Setup (7SJ600 Only)

The Device Text to Values Table menu item is only available for configuring the 7SJ600 relay. It is used to convert status

codes returned from select parameters in the 7SJ600 relay (only) to values in a format useful to the system connected to port 2 of the DTU3005. This affects the status readouts from the device's binary inputs, signal and trip rated contacts, and the LEDs.

To edit this table, select **Device Text to Values Table** from the **Edit** menu. This selection is only available when the device protocol for port 2 is set for "VDEW."

∃ Project	: Edit Transfer Options	Project: NONAME@	0 13:23:34
DTU3005-V		DTU3005-V DTU3005-V 1	DTU3005-V DT
DTU3005-V	Port 1 (PLC)	DTU3005-V DTU3005-V 1	
DTU3005-V	Port 2 (Devices)	DTU3005-V DTU3005-V 1	
DTU3005-V	Port 3 (Passthrough)	DTU3005-V DTU3005-V 1	
DTU3005-V		DTU3005-U DTU3005-U 1	
DTU3005-V	Diagnostics	DTU3005-U DTU3005-U 1	
DTU3005-V	Device Command Registers	DTU3005-U DTU3005-U 1	
DTU3005-V	Global Command Registers	DTU3005-U DTU3005-U	
DTU3005-V		DTU3005-U DTU3005-U	
DTU3005-V	Device Defaults	DTU3005-U DTU3005-U	
DTU3005-V	Device List	DTU3005-U DTU3005-U	
DTU3005-V	Device Text to Values Table	DTU3005-U DTU3005-U	
DTU3005-V		DTU3005-U DTU3005-U	
DTU3005-V	DTU3005-V DTU3005-V DTU3005-V	DTU3005-U DTU3005-U	
DTU3005-V			
DIU3005-0			
DIU3005-V			
DTU3005-0	DTU3005-0 DTU3005-0 DTU3005-0	DTU3005-0 DTU3005-0	DTU3005-V DT
Alt-Q Quit	Edit the VDEW Device Text to V	alues Table.	

Once open, 64 conversions can be defined. To define a conversion, enter the 7SJ600 relay status code in the **Text #** column and enter the corresponding output value desired in the **Value** column.

E	Project	Edit Tr	ansfer (	Options	Uslue Table	Project:	SAMPLE-	-P   20:49	9:42
DT	Text#	Value	Text Hu	Value	Text#	Value	Text#	Value	DT
DT	0	0	0	0	10	0	0	0	DT DT
DT	0	Ø	Ø	Ø	0	Ø	Ø	Ø	DT
DT	0	0	0	0	0	0	0	0	DT
DT	Ø	0	Ø	Ø	Ő	Ø	Ø	Ø	
DT	0	0	0	0	0	0	0	0	DT
	0	0	0	0	0	0	0	0	DI DT
ĎŤ	ø	0	õ	õ	Ő	0	õ	õ	ĎŤ
DT	0	0	0	0	0	0	0	0	
DT	0	0	Ø	Ø	0	Ø	0	Ø	
DŤ	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	DŤ
DT	0	0	0	0	0	0	0	0	DT
DT	Ø	0	Ø	Ø	Ő	Ø	Ø	Ø	DT
DT						n			DT
DT		UK		5	ave	Re	vert		
DT	0 1 7								DT
F10	Save   1	inter a te	xt number	P					

The relevant status codes (Text #) are listed below.

#### Table 4.1 7SJ600 Relay Information

For Requesting Status of	of the 7SJ600 Relay's Three Bi	nary Inputs	6				
Text Number/Status Code	Description of Returned Binary	S	uggested Value	(Using T	his Conve	ersion Tab	le)
(default value returned if not converted)	Input Status Codes: 11 indicates Input 1; 12,3 indicates Inputs 2 and 3	Value	Inputs	13	12	11	
		0	0	0	0	0	
1342	I1,2 Inactive : I3 Active	4	0	1	0	0	
1343	I1,3 Inactive : I2 Active	2	0	0	1	0	
1344	I1 Inactive : I2,3 Active	6	0	1	1	0	
1345	12,3 Inactive : 11 Active	1	0	0	0	1	
1346	I2 Inactive : I1,3 Active	5	0	1	0	1	
1347	13 Inactive : I1,2 Active	3	0	0	1	1	
1348	I1,2,3 Active	7	0	1	1	1	
For Requesting Status o	f the 7SJ600 Relay's Two Trip	Contacts	and Two Signa	l Conta	octs		
Text Number/Status Code	Description of Returned Trip	S	uggested Value	(Using T	his Conve	ersion Tab	le)
(default value returned if not converted)	and Signal Relay Status		Outputs	S2	S1	T2	T1
	Relays 1 and 2; T1,2 indicates Trip Relays 1 and 2	Value	Bits 15 4	3	2	1	0
1349	S1,2 T1,2 Open	0	0	0	0	0	0
1350	S1,2 T1 Open : T2 Closed	2	0	0	0	1	0
1351	S1,2 T2 open : T1 Closed	1	0	0	0	0	1
1352	S1,2 Open : T1,2 Closed	3	0	0	0	1	1
1353	S1 T1,2 Open : S2 Closed	8	0	1	0	0	0
1354	S1 T1 Open : S2 T2 Closed	10	0	1	0	1	0
1355	S1 T2 Open : S2 T1 Closed	9	0	1	0	0	1
1356	S1 Open : S2 T1,2 Closed	11	0	1	0	1	1
1357	S2 T1,2 Open : S1 Closed	4	0	0	1	0	0
1358	S2 T1 Open : S1 T2 Closed	6	0	0	1	1	0
1359	S2 T2 Open : S1 T1 Closed	5	0	0	1	0	1
1360	S2 Open : S1 T1,2 Closed	7	0	0	1	1	1
1361	T1,2 Open : S1,2 Closed	12	0	1	1	0	0
1362	T1 Open : S1,2 T2 Closed	14	0	1	1	1	0
1363	T2 Open : S1,2 T1 Closed	13	0	1	1	0	1
1364	S1,2 T1,2 Closed	15	0	1	1	1	1
For Requesting Status of	of the 7SJ600 Relay's Four Pro	grammabl	e LEDs				
Text Number/Status Code	Description of Returned LED	S	uggested Value	(Using T	his Conve	ersion Tab	le)
(default value returned if not converted)	Status Codes: L1,2 indicates		Outputs	L4	L3	L2	L1
····,		Value	Bits 15 4	3	2	1	0
1365	L1,2,3,4 Off	0	0	0	0	0	0
1366	L4 On : L1,2,3 Off	8	0	1	0	0	0
1367	L3 On : L1,2,4 Off	4	0	0	1	0	0
1368	L3,4 On : L1,2 Off	12	0	1	1	0	0
1369	L2 On : L1,3,4 Off	2	0	0	0	1	0
1370	L2,4 On : L1,3 Off	10	0	1	0	1	0
1371	L2,3 On : L1,4 Off	6	0	0	1	1	0

1372	L2,3,4 On : L1 Off	14	0	1	1	1	0
1373	L1 On : L2,3,4 Off	1	0	0	0	0	1
1374	L1,4 On : L2,3 Off	9	0	1	0	0	1
1375	L1,3 On : L2,4 Off	5	0	0	1	0	1
1376	L1,3,4 On : L2 Off	13	0	1	1	0	1
1377	L1,2 On : L3,4 Off	3	0	0	0	1	1
1378	L1,2,4 On : L3 Off	11	0	1	0	1	1
1379	L1,2,3 On : L4 Off	7	0	0	1	1	1
1380	L1,2,3,4 On	15	0	1	1	1	1

Table 4.1 7SJ600 Relay Information (Continued)

Once you are finished entering data, select **Save** to save your configuration, then select **Ok** to exit the dialog box. Select **Revert** to bring back the previous settings.

### 4.9 Global Command Registers

This option allows you to specify global commands for all the devices specified in the Device List. It is available only for VDEW devices.

The Global Command Registers consist of six registers. These registers allow the PLC to transmit commands to all the devices in the Device List. To send a command, all the PLC needs to do is to place the command values into the appropriate PLC registers, which the DTU3005 unit reads and then processes.

### 4.10 Device Diagnostic Registers

This option programs the DTU3005 to send communications diagnostic information to a set of registers on the PLC. The information can be used to troubleshoot problems with the devices and the communications network.

The format and content of the diagnostic registers are described in detail in **Appendix F**.

 To configure the device diagnostic registers, select Diagnostics from the Edit menu. The following screen displays:

≡ Proj	ect Edit	: Transfe	r Option	S	Pro	ject: ATH	ENS01 📋	16:12:35
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU300 🗖	=[•]=== De	vice Diag	nostics R	legisters		DTU3005	DTU3005
DTU3005	DTU300						DTU3005	DTU3005
DTU3005	DTU300	Do	vou want	device di	agnostics		DTU3005	DTU3005
DTU3005	DTU300	inf	ormation	sent to P	LČ? [X]		DTU3005	DTU3005
DTU3005	DTU300				_		DTU3005	DTU3005
DTU3005	DTU300	File: 7	PLC	Registers	: 1	to 6	DTU3005	DTU3005
DTU3005	DTU300			···· <b>·</b>			DTU3005	DTU3005
DTU3005	DTU300	0k		Save 🗖	Reve	rt 🖬	DTU3005	DTU3005
DTU3005	DTU300						DTU3005	DTU3005
DTU3005	DTU300 -						DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU30 <u>05</u>	DTU30 <u>05</u>
F10 Save	Spaceb	oar toggle	s, [X] =	yes				

 To enable the sending of diagnostic information to the PLC, select the **Do you want device diagnostics** information sent to PLC? checkbox with the mouse or the spacebar. Then enter the starting register number in the PLC Registers: field. The register block is 6 bytes long. Be sure that the registers you specified are not being used by other devices.

3. Press **Shift+Tab**, or click the left mouse button to highlight the **File** field and enter the file number. This parameter is used only with Allen-Bradley PLCs. It specifies the file number in the PLC that contains the register values that are transferred to or from the device.

 Select Save to save the information to the project file, and then select Ok or press Esc to exit the device diagnostic registers screen. If at any time you want to return to the last saved version of the device diagnostics registers, select Revert without saving any changes.

### 4.11 Device Command Registers

The device command registers consist of two consecutive registers for each device entered in the device list. These registers allow the PLC to transmit commands to each of the devices. To send a command, all the PLC needs to do is to place the command values into the appropriate PLC registers, which the DTU3005B unit reads and then processes.

The first register contains the command, and the second register contains the data associated with the command. The format of the command registers for each device are described in **Appendix E**. All the command registers are placed in contiguous locations in the PLC's registers and

are assigned by the DTU3005 to each device in the order that they are listed in the device list.

To use the command registers for a particular device, the PLC program must do the following, in order:

- 1. First, set the command word to 0 or -1 (FFFF hexadecimal).
- 2. Set the data word to the appropriate value.
- 3. Set the command word to the appropriate value.
- After the command is set the PLC must wait for the DTU3005B unit to change the command word to either 0 (to indicate successful processing of the command), or -1 (to indicate an error).

To indicate the location of the command registers on the PLC, follow these steps:

1. Select **Device Command Registers** from the **Edit** menu. The Device Command Registers screen appears:



Enter the starting register address in the PLC Registers field. The DTU3005 Editor software will determine the proper number of registers for the number of devices entered in the device list and indicate the final register number. These registers must be different from those used for device data and diagnostics. Refer to Appendix A for a list of valid register numbers for your PLC. Failure to use different register addresses will cause communication errors, and may cause unexpected operation of the devices.

 Press Shift+Tab, or click the left mouse button to highlight the File field and enter the file number. This parameter is used only with Allen-Bradley PLCs to specify the file number in the PLC that contains the register values that are transferred to or from the device.

- 4. Enter the value for the **Command Block Read Delay**. This is the delay between times that the DTU3005 reads the data from the PLC's command registers. This controls the frequency that the registers are read to allow for critical PLC scan times.
- Select Save to save the device information to the project file, and then select Ok or press Esc to exit the device command registers screen. If at any time you want to return to the last saved version of the device command registers, select Revert without saving any changes.

### 4.12 Saving the Project File

Now you have completed configuring the DTU3005 for PLC to device communications. Select **Save** from the **Project** menu and press **Enter**, or press **F10** to save the project file to disk. The next step is to transfer the project to the DTU3005 unit. This topic is covered in **Chapter 7**.

### 5 Creating Project Files—Modbus Master to Devices

This chapter covers configuration of the DTU3005 for Modbus master device communications with Siemens devices. Once you have created a Modbus Master to Devices project (see **Chapter 3**), follow the directions in this chapter to configure the project file. Then see **Chapter 7** for directions on downloading the project to the DTU3005.

### 5.1 Application Description

The Modbus Master to Devices application allows a Modbus master (usually a SCADA system) to control

and monitor up to 32 SEAbus devices or Siemens protective relays. In this application, the DTU3005B acts as a slave, and all communications with the Modbus Master are initiated by the master device itself. The DTU3005B converts Modbus requests received into requests to access and control data on the Siemens devices. Registers are assigned for each device in the Holding Register range (40000 to 49999, where register 40001 is the first to be used). The Modbus Master accesses real-time data from the Siemens devices by reading these registers, and sends commands by writing to these registers. Refer to **Figure 5.1** for a matrix representation of these registers.



Figure 5.1 Modbus Master to Devices Project—Data Registers Matrix

### 5.2 Configuring the Project File

Once you have created or opened the project file, select **Edit** from the main menu. When the Device Protocol for port 2 is set to SEAbus (see **Section 5.4**), the following menu items appear:

- Port 1 (Modbus Master)—allows you to select the protocol (RTU or ASCII) and configure the communications settings for the Modbus Master device connected to port 1.
- **Port 2 (Devices)**—allows you to configure communications settings for SEAbus devices or Siemens Protective relays connected to port 2.
- Port 3 (Modbus/Passthrough)—allows you to select whether port 3 is used as a passthrough to the devices on port 2, or used for connection to a second Modbus Master device.

- **Diagnostics**—allows you to indicate if you want the DTU3005 to write communications diagnostic information to the Modbus Master.
- Device Command Registers—allows you to indicate which PLC registers will be used for device commands.
- Device Defaults—allows you to set the default data registers for more than one device of a certain type, e.g., set the defaults for all 4720 power meters or all S7-I/O units. The data registers can still be customized for each device, as required. See Section 5.7.2 for more information.
- Device List—allows you to indicate which SEAbus devices or Siemens protective relays are connected to port 2 and which PLC registers they are communicating with.

🚜 MS-DOS	Prompt - EDITOR				_ 🗆	×
Auto	🖸 🖾 🖻 🛍 🗄	2 8 8	A			
E Projec	t Edit Transfer (	)ptions	Proj	ect: ATHENS	01 15:20:	16
DTU3005-5		-	DTU3005-3	DTU3005-3	DTU3005-5	DT
DTU3005-3	Port 1 (Modbus M	faster)	DTU3005-3			DT
DTU3005-3	Port 2 (Devices)	)	DTU3005-3			DT
DTU3005-3	Port 3 (Modbus/B	Passthrough)	DTU3005-3			DT
DTU3005-3			DTU3005-3			DT
DTU3005-3	Diagnostics		DTU3005-3			DT
DTU3005-3	Device Command H	Registers	DT <mark>U3005-3</mark>			DT
DTU3005-3			DT <mark>U3005-3</mark>			DT
DTU3005-3	Device Defaults		DT <mark>U3005-3</mark>			DT
DTU3005-3	Device List		DT <mark>U3005-3</mark>			DT
DTU3005-3			DT <mark>U3005-3</mark>			DT
DTU3005-3	DTU3005-3 DTU3005-	-S DTU3005-S	DTU3005-5			DT
DTU3005-3						DT
DTU3005-3						DT
DTU3005-3						DT
DTU3005-3						DT
DTU3005-3						DT
DTU3005-3						DT
DTU3005-3						DT
DTU3005-3						DT
DTU3005-3						DT
DTU3005-3						DT
DTU3005-3	DTU3005-3 DTU3005-	-S DTU3005-S	DTU3005-5	DTU3005-5	DTU3005-3	DT
Alt-Q Quit	Edit the Modbus N	Master Port co	nfiguration	-		

Note: If the Device Protocol for port 2 is set to VDEW (see Section 5.4), then two additional menu items are available: Global Command Registers and Device Text to Values Table. See Section 5.8 and Section for instructions on using these menu items. In addition, the port 3 menu item is changed to Port 3 (Modbus Master) because the passthrough feature is not supported with VDEW devices. The instructions in Section 5.3 are applicable to port 1 and to port 3 for VDEW devices.

### 5.3 Modbus Setup—Port 1

You must have a Modbus Master to Devices project file open to configure port 1 using the instructions in this section. Select **Port 1 (Modbus Master)** from the

Edit menu, and the Port 1 Modbus Master configuration screen appears.

			1/ 10 00
= Project Edit Transfer	Uptions PTU0005 PTU0005 PTU	Project: HIHENSØJ	14:18:39
D103005 D103005 D103005	D103005 D103005 D10	13005 D103005 D10300	
DTU3005 DTU3005 DTU3005	ninama2 ninama2 nin	J3005 DTU3005 DTU300	5 0103005
DI CI Port I	(Modbus Master) Cont	iguration ————	000
	DTU		005
DI Modbus Protocol: Modbus	RIU		005
			005
L J 2-wire KS422 or KS	485 Communications	Modbus ID: 1	005
(Requires KIS-UIS 10	opback in cable)		005
	D I D'I D 'I		1 005
DI Baud Kate	Data Bits Parity	Stop Bits Ris Cont	rol 005
			TO 005
	(•) 8 (•) Even		15 005
	( ) Udd	() KIS D	elay 005
			000
			005
			005
UI ( ) 38400 ( ) 300			000
	0	D	005
	Save	Revent	000
<u>——</u> —			000
DIU3005 DIU3005 DIU3005 DTU2005 DTU2005 DTU2005	DIU3005 DIU3005 DIU DIU3005 DIU3005 DIU	13005 DIU3005 DIU300	5 DIU3005 5 DIU3005
$\begin{bmatrix} 10 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $		13002 DI03002 DI0300	5 1103005
F10 Save (KENTER) to selec	ulusuus plusuus plu	13002 0103002 010300	5 0103005

To select the protocol for the Modbus Master device connected to port 1, highlight Modbus Protocol and

press **Enter**. The Modbus Master Protocol selection menu appears:

≡ Proj	ect Edit	Transfe	r Option	S	Pro	ject: ATH	ENS03   1	5:13:22
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DT <u>U3005</u>	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	<u>DTU3</u> 005
DT [-[•]-		== Port∶	1 (Modbus	Master)∣	Configu <del>r</del> a	tion ——		005
DI	_							5
D Modb	us Protoco	ol: Modbu	s RTU					5
ЦЦ , , ,								5
DI LI	2-wire R	5422 or R	5485 Comm	unication	S	Modbus ID	: 1	5
DI (	Kequires H	RIS-CIS I	oopback 1	n cable}				5
ЦЦ.			[_] D			D'1 D	TO 0 1	, <u>p</u>
	Baud Ka	ate		rotocols <sup>:</sup>		Bits R	15 Contro	1 5
<b># } {</b>	152600	1920	Modbus H	5611 TU	_	••••••••••••••••••••••••••••••••••••••	) None	5
	115200	(*) 9000 (*) 7000	MOODUS K	10			) KIS/UIS	2
<b>## } {</b>	93750	() 4000					) KIS Del	ay 5
<b># } {</b>	76800	1 1200				_		۲ ۲
<b>111</b> 7 1	57600							Š
ii čí	38400	ไว้ 300						Š
ĎT	00400	( ) 000						ž
DT	(	lk 🗖		Save -		Rever	t 🗖	Š
DT								5
DT								5
DT <del>U3</del>								5
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
F10 Save	1 ↓ mov	<u>ze, ≺ENTE</u>	<u>R&gt; select</u>	<u>s Modbus I</u>	Protcol			

Select either ASCII or RTU as your Modbus protocol, then press the **Tab** key to highlight the **Modbus ID** selection box. The Modbus ID is used to identify the address of the DTU. Type in the Modbus ID number and press **Enter**.

#### 2-Wire RS422 or RS485 Communications

After you have entered the Modbus ID number, highlight the 2-Wire RS422 or RS485 Communications selection box. This box will only need to be checked if the communications with your Modbus Master device uses a 2-wire RS485 or RS422 interface (see Figure 5.2). When 2-wire communications are being used, RTS must be looped back to CTS on the DTU side of the cable. This can be done on the RS232 side by looping pins 4 and 5 or on the RS422/485 side by looping 16 to 18 and 17 to 19. See **Appendix D** for wiring diagrams for your particular PLC, and whether it uses a 2-wire connection.

To select the checkbox, click on it with the mouse or, with the **2-Wire RS422 or RS485 Communications** selection highlighted, press the **spacebar**. An "X" will appear inside the brackets when it is selected.

Press the **Tab** or **Right Arrow** key to move to the next field without selecting this checkbox.



Figure 5.2 RS-485 Connector (two-wire)

### **Communications Settings**

Before changing any of these settings, consult your device manual for the correct settings. To move between the communications settings, press the **Tab** or **Enter** keys. To select a setting, use the **Up** or **Down Arrow** key to move to the desired setting and press the **spacebar** to change your selection.

### **RTS Control (Request to Send Control)**

RTS Control selection is an option provided for modems or for Modbus Master devices that require RTS to be active only while the DTU is transmitting to the PLC.

- If **RTS/CTS** is selected, the DTU will activate RTS and wait until CTS is active before transmitting to the PLC.
- If RTS Delay is selected, the DTU will activate RTS and wait for the specified delay time to pass before transmitting to the PLC. When RTS Delay is selected, the program displays an entry box for the RTS delay time. Enter the time in milliseconds.



### **Response Time-Out**

The **Response Time-Out** tells the DTU how long to wait after transmitting a request to the PLC if no response has been received from the PLC. After this amount of time passes with no response being received, the DTU will assume that no response is coming and will retry the request. Enter the time in milliseconds.

#### Saving Port 1 Configuration Information

Once you have entered all the configuration information, select **Save** to save the configuration to the project file. Then select **Ok** or press the **Esc** key to close the configuration screen.

If you have changed the configuration and have not saved it to the project file, you will be prompted to either save or discard the changes.

Select **Revert** to return to the last previously saved configuration without saving any changes.

### 5.4 Device Setup—Port 2

One or more Siemens devices may be connected to port 2. You must have a Modbus Master to Devices

project file open to configure port 2 using the instructions in this section.

Select **Port 2 (Devices)** from the **Edit** menu, and the Port 2 configuration screen appears.



### **Device Protocol**

The **Device Protocol** indicates which Siemens devices can be connected to port 2. This protocol is based on which version of the DTU3005 Editor software was installed as described in **Chapter 2**.

- The SEAbus protocol (as shown in the example screen above) indicates connection to Siemens ACCESS communicating trip units, relays, power meters and other devices.
- The VDEW protocol indicates connection to Siemens protective relays using the VDEW protocol.
- Note: Not all Siemens devices are supported. For a list of supported devices, see **Appendix B**.

### **Other Configuration Information**

The remaining configuration selections are the same as those for port 1. Refer to **Section 5.3** for instructions on these fields.

### **Saving Port 2 Configuration Information**

Once you have entered all the configuration information, select **Save** to save the configuration to the project file. Then select **Ok** or press the **Esc** key to close the configuration screen.

If you have changed the configuration and have not saved it to the project file, you will be prompted to either save or discard the changes.

Select **Revert** to return to the last previously saved configuration without saving any changes.

## 5.5 Modbus/Passthrough Setup—Port 3

Port 3 can be used for passthrough communications to your Siemens SEAbus devices or for connection to a second Modbus Master device. Passthrough communications enables a PC running WinPM, or other supervisory software connected to port 3 of the DTU3005 to communicate directly with the SEAbus devices connected to port 2. In passthrough mode, any messages received on port 3 of the DTU are simply "passed through" to the devices.

Passthrough communications are not available for VDEW devices; see Section 5.3 for Port 3 (Modbus Master) configuration of VDEW devices.

You must have a Modbus Master to Devices project file open to configure port 3 using the instructions in this section. Select **Port 3 (Modbus/Passthrough)** from the **Edit** menu, and the Port 3 configuration screen appears.



The first option on the configuration screen allows you to choose connection to a second Modbus Master device or passthrough to port 2. Select the appropriate configuration with the mouse, or use the **Up** or **Down Arrow** keys to highlight the selection and press the **spacebar**.

### **Modbus Master**

If you select Modbus Master, the screen appears as shown above. Select the Modbus protocol by selecting the Modbus Protocol list box, highlighting either ASCII or RTU, and pressing Enter. After you have selected your protocol, press the Tab key to highlight the Modbus ID selection box. The Modbus ID is used to identify which Modbus Master device the DTU is to communicate with. Type in the Modbus ID number and press Enter.

The remaining configuration selections are for the communications parameters and have the same choices as those for port 1. Refer to **Section 5.3** for instructions on these fields.

### Passthrough to Port 2 (SEAbus)

If you select **Passthrough to Port 2 (SEAbus)**, the screen appears as shown below.



### 2-Wire RS422 or RS485 Communications

After you have selected Passthrough to Port 2 (SEAbus), press Tab or select 2-Wire RS422 or RS485 Communications. This box will only need to be checked if the communications with your SEAbus devices use a 2-wire RS485 or RS422 interface. This is the usual method of connecting SEAbus devices. When 2-wire communications are being used, RTS must be looped back to CTS on the DTU side of the cable. This can be done on the RS232 side by looping pins 4 and 5 or on the RS422/485 side by looping 16 to 18 and 17 to 19. See Appendix D for wiring diagrams for your particular PLC, and whether it uses a 2-wire connection.

To select the checkbox, click on it with the mouse or, with the **2-Wire RS422 or RS485 Communications** selection highlighted, press the **spacebar**. An "X" will appear inside the brackets when it is selected.

Press the **Tab** or **Right Arrow** key to move to the next field without selecting this checkbox.

### Intermessage Time-Out

The DTU3005 uses the intermessage time-out to determine when a complete message has been received on the passthrough port. Once the first character of a message has been received, if the amount of time specified by the intermessage time-out passes with no additional characters being received, the DTU3005 will consider the message to be complete and process it.

To change the intermessage time-out, select **Intermessage Time-Out** and enter the value in milliseconds, then press **Enter**.

### **Saving Port 3 Configuration Information**

Once you have entered all the configuration information, select **Save** to save the configuration to the project file. Then select **Ok** or press the **Esc** key to close the configuration screen.

If you have changed the configuration and have not saved it to the project file, you will be prompted to either save or discard the changes.

Select **Revert** to return to the last previously saved configuration without saving any changes.

#### **Other Configuration Information**

The remaining configuration selections are the same as those for port 1. Refer to **Section 5.3** for instructions on these fields.

### 5.6 Device List Setup

The device list menu item enables you to indicate which registers on the PLC will receive data from the devices. In this menu, you will enter the device type and address for each Siemens device connected to port 2. You will also indicate to which registers on the PLC you want the DTU3005 to write device data.

Select **Device List** from the **Edit** menu to display the device list screen:

= Pro	oject Ed	it Tr	ransfer	Options			Project:	ATHENS01	15:59:32
DTU3005	DTU300	<u>5 DTI</u>	U3005 D	TU3005	DTU3005	DTU3	005 DTU30	005 DTU30	<u>105 DTU300</u> 5
[•]= No	Device T	уре		— SEAbus Add <del>r</del>	Device				5
0					Device Not To	Type Uso		Addre	ss 5
					NOT III	026		U	5
2									5
4									5
5									5
7									5
8									5 5
10					C at			D	5
					sav	'e		De	stete 5
13							Pack		5
15					0k			Re	vert 5
16	of 31_=			<u>▼</u>					5
DTU3005	DTU300	5 DTI	U3005 D	TU3005	DTU3005	DTU3	005 DTU30	005 DTU30	05 DTU3005
F10 Sav	ve   ↑↓	move,	spaceba	ir or <en< td=""><td>IER&gt; sel</td><td>ects</td><td></td><td></td><td></td></en<>	IER> sel	ects			

This screen is divided into two parts:

- On the left side of the screen is a list of the devices connected to port 2 (the list is initially empty). Up to 32 devices can be attached; however, only 17 of the devices are visible on the screen at one time. To see all the devices, click on the scroll bar with the mouse, or use the Up and Down Arrow and Page Up and Page Down keys.
- The right side of the screen is used to configure the data register information for the selected device, as shown in the example screen on the next page. You can add or delete devices, or change device configuration by highlighting the **Device Type** on the left side of the screen, then using the fields and buttons on the right side of the screen.

### Adding a Device

To add a device to the device list:

- 1. Highlight the first line where the **Device Type** and **Address** fields are blank—this should be the first available device number **No** field.
- 2. Press Enter or Tab to add a device. The cursor will move to the Device Type field on the right side of

the screen. Press **Enter**, and the **Device Types** list displays:



- 3. Select the device from the list by pressing Enter or the spacebar. The highlight moves to the Address field, and the PLC register fields now display as shown in the example screen below.
- 4. With the Address field highlighted, enter the device's address. This number should be between 1 and 254, and match the number programmed into the device itself. Press the Tab key twice to go to the Real-Time Data Registers field.

≡ Project Edit Transfer	Options	Project: ATHENS01   13:15:11
No Deuice Tupe	- SEAbus Addr	Device List
0 4700 Power Meter	25	Device Type Address 4700 Power Meter 25
2		REAL-TIME DATA REGISTERS File: 8 Registers: 1 to 42
5 6 7		DEVICE COMMAND REGISTERS File: 7 Registers: 7 to 8
8 9 10		Use customized real-time Custom Data data ordering? []
11 12 13		Real-Time Data Delay Time: 0 ms
14 15 16		Save Set Reg Pack 5
17	V I	UK Set HII Revert 55
D103005 D103005 D103005 F10 Save   ↑↓ move, spaceb	0103005 ar or <en< td=""><td>DTU3005 DTU3005 DTU3005 DTU3005 DTU3005 TER&gt; selects</td></en<>	DTU3005 DTU3005 DTU3005 DTU3005 DTU3005 TER> selects

 Enter the beginning register number in the Real-Time Data Registers field. Refer to Appendix A for valid register numbers for your PLC application. The DTU3005 Editor software supplies the last register number after you enter the first. In the example above, the 4700 Power Meter uses 41 registers for its data. When you enter 1 for the first register, the last register becomes 42. If you

change the starting register to 10, the last register will automatically change to 51.

- Note: The Modbus Master must read these register numbers to be able to access the realtime data for this device.
- 6. Press Shift+Tab, or click the left mouse button to highlight the File field and enter the file number. This parameter is used only with Allen-Bradley PLCs to specify the file number in the PLC that contains the register values that are transferred to or from the device.
- 7. The device command registers are displayed below the real-time data registers. They are configured from the **Device Command Registers** menu selection on the **Edit** menu. See **Section 5.11** for information on setting these registers and programming the PLC to perform commands. Be sure that the register numbers are not also used by the device. This can cause unexpected operation of the device.
- If you want to use a customized subset of the available data registers, see Section 5.7.2 for instructions on creating a default set of custom registers for all devices of the same type. Type an "X" in the Use customized real-time data ordering? field to begin the custom data setup, or press Tab to go to the next field.
- 9. Enter the **Real-Time Data Delay Time** in its field. This is the delay from the time that the DTU3005 receives data from the device to the time the DTU3005 transfers the data to the PLCs registers.
- 10. Select **Save** to save the device information to the project file, and then select **Ok** or press **Esc** to exit the device list configuration screen. If at any time you want to return to the last saved version of the device list, select **Revert** without saving any changes.

### **Removing a Device**

To remove a device from the device list, highlight the device on the left side of the screen and press **Tab** or **Enter**. Then change the device type to **Not In Use**.

### **Additional Options for Data Registers**

The Device List screen has three additional options for working with a device's data registers:

- Select **Set Reg** to place the data registers into contiguous register numbers and minimize the size to the data register block. This option also sets the initial register number to 1.
- The Set All command performs the same function but allows you to set the initial register number. See Appendix A for information on acceptable register number ranges for each PLC model.

 Select Pack to minimize the size of the command register block, removing registers for deleted devices.

### Saving the Device List Configuration

Once you have entered the device information for all the devices attached to port 2, select **Save** to save the device information to the project file. Then select **Ok** or press **Esc** to close the device list configuration screen.

If you have changed the device information and have not saved it to the project file, you will be prompted to either save or discard the changes.

Select **Revert** to return to the last previously saved configuration without saving any changes.

### 5.7 Configuring Custom Device Registers

You can configure which data items from the SEAbus or VDEW devices are transferred from the DTU3005 device to the PLC or Modbus master. In this way, the DTU3005 acts as a data concentrator, in addition to converting the SEAbus and VDEW protocol data. You can configure the custom data items so that every device of the same type sends the same data items (see **Section 5.7.2**), or have each device send particular data items of interest (see **Section 5.7.1**). SEAbus devices can be configured to send 16 words of device data. VDEW devices can be configured to send from 1 to 64 words.

## 5.7.1 Configuring Custom Registers for a Single Device

To configure custom registers for a single device:

- 1. Select Device List from the Edit menu.
- 2. Highlight the device that you wish to configure and press **Enter**.
- Highlight the Use customized real-time data ordering? check box. Press the spacebar to place an "X" in the check box. Then select Custom Data to display the Customized Real-Time Data dialog box.

🔀 MS-DOS Prompt - E	DITOR		_ 🗆 🗵
Auto 🔽 []]	🖻 🔁 🔂 🔁 🗚		
≡ Project Edit Tr	ansfer Options	Project: ATHENS	14:54:13
		)ata	<b>_</b> _
No Device T Word	Number Real-Time Data		Т
		Addres	55 <b>T</b>
0 <u>4700 Pow</u>	0 Voltage L-N Phase	A (1o) 44	Ĩ
	1 Voltage L-N Phase	A (hi)	_
2	2 Voltage L-N Phase	B (10) 613093	3
	3 Voltage L-N Phase	B (h1)	E0 T2 1
	4 Uoltage L-N Prase		-
	5 Uoltage L-M Prase	C (KI) GISTAR	· · · ·
	D UOICAGE L-L PRASE	AB (18)	to 2 1
	8 Woltage L-L Phase	BC (1a)	· Data - D
i i i i i i i i i i i i i i i i i i i	G Woltage L-L Phase	BC (bi)	T
10	10 Noltage L-L Phase		Ť
11	10 OOTORge 1 1 FARDe	ca (10)	
12	Ok - Save -	Cancel	T T
13			T
14	Set Defaults _ Clear	A11 P.	ack a
15			т
16	Set as Defaults	Re	vert T
17			т
			т
DTU3005-3 DTU3005-3	DTU3005-3 DTU3005-3 DTU3	005-3 DTU3005-3 DT1	J3005-3 DT
F10 Save   + + move,	spacebar or <enter> selects</enter>	;	

4. Select a data register on the list and press Enter to see a list of available real time data. The data items are identical to the standard data items listed in Appendix E. Not all data items are visible

on the screen at one time. Use the mouse and the scroll bar, or the **Page Up** and **Page Down** keys to view all of the data items.



- Select the data word (16 bit data) from the list and press Enter. Continue to set the other data words in the same manner. Many data items consist of two words (32 bit data). It is important that you configure both words in order to transmit useful information to the DTU3005's registers.
- 6. Use these options as follows:
  - a. Select **Set Defaults** to copy the default custom device registers to the list. See **Section 5.7.2** for instructions on setting custom device registers by device type.
  - b. Select **Clear All** to delete all register names from the list.
  - c. Select Set as Defaults to save the current custom register list as the default custom register list. This will not change the custom registers of other devices of the same type. See Section 5.7.1 for instructions on setting custom device registers for a single device.
- 4. Select **Save** to save your custom register list and then **Ok** to exit this dialog box. Select **Cancel** to exit this dialog box without making changes.

To conserve registers when using VDEW devices, you should set all unused registers to "Not Used" and place them at the end of the list. The DTU3005 will only allocate registers for those containing device data. (This does not apply to SEAbus devices, for which the DTU3005 allocates 16 registers regardless if they are used or not.)

### 5.7.2 Configuring Default Custom Device Registers

If you are configuring custom device registers for more than one device of a certain type, you may configure the default custom registers from the Edit menu **Device Defaults** command. After configuring the default device registers, you may use them for any or all devices, or further customize individual registers for any of your devices. SEAbus devices can have 16 custom registers. VDEW devices may have between 1 and 64 custom registers.

To configure default custom registers for a particular device type:

 Select Device Defaults from the Edit menu. A list of devices appears. If you have configured port 2 for SEAbus devices, only SEAbus devices will

- D	F - L'	L T	0	-	D	OTU		0.70.10
= Proj	ect Edi	t Transfel	- Uption	S		Ject: HIF		3:43:13
0103005	0103005	D103005	D103005	0103005	D103005	0103005	0103005	0103005
D103005	D103005	D103005	D103005	D103005	D103005	D103005	D103002	D103002
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	D103005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30 <u>05</u>	DTU3005	DTU3005	DTU3005	<u> </u>	DTU3005	DTU3005	DTU3005
DTU3005	DTU30				TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	SAMMS-LV	l	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	SAMMS-MV	I	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	4300 Pow	er Meter	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	4700 Pow	er Meter	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	4720 Pow	er Meter	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	Static T	rip III	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	TSGS Swi	tchaear	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	\$7-T/0 U	nit	TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	Default -	Energy/C	OMM	TÜBÖÖS	DTU3005	DTU3005	DTU3005
DTU3005	DTU30	bordart	2.1.0. 397. 0		TU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTH3005	DTH3005	DTH3005	DTU3005	DTU3005	DTU3005	DTU3005
DTŬĴÔÔŠ	DTU3005	DTŬĴÃÃĂŠ	DTU3005	DTÜĞЙŐŠ	DTÜĞĂĂŠ	DTU3005	DTU3005	DTŬŠŇŇŠ
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTŬĴÃÊ
DTŬĴÔÔŠ	DTU3005	DTU3005	DTU3005	DTÜĞЙŐŠ	DTŬĴŎŎŠ	DTU3005	DTU3005	DTŬĴŎŎŠ
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
Alt-0 Qu	it	B100000	0100000	8100000	B100000	0100000	B100000	0100000

2. Select the device you wish to configure. The default custom register configuration menu appears. The first time you select this command, the first 16 registers (64 for VDEW devices) from the device's standard data register list appear on the default real-time data list. Not all of the entries are visible on the menu. Use the scroll bar or the **Page Up** and **Page Down** keys to view all the entries.

≡ Proj	ect Edit	t Transfer	Options		Project:	ATHEN	IS01	13:45:24
DTU3005	DTU300	=[•]=== Def	aults - 4	700 Power H	Meter ———		)TU3005	5 DTU3005
DTU3005	DTU300	Word Number	Default	Real-Time	Data		)TU3005	5 DTU3005
DTU3005	DTU300					_	)TU3005	5 DTU3005
DTU3005	DTU300	0	Voltage	L-N Phase	A (lo)	<b>▲</b>	)TU3005	5 DTU3005
DTU3005	DTU300	1	Voltage	L-N Phase	A (hi)	•	)TU3005	5 DTU3005
DTU3005	DTU300	2	Voltage	L-N Phase	B (lo)		)TU3005	5 DTU3005
DTU3005	DTU300	3	Voltage	L-N Phase	B (hi)		)TU3005	5 DTU3005
DTU3005	DTU300	4	Voltage	L-N Phase	C (lo)		)TU3005	5 DTU3005
DTU3005	DTU300	5	Voltage	L-N Phase	C (hi)		)TU3005	5 DTU3005
DTU3005	DTU300	6	Voltage	L-L Phase	AB (lo)		)TU3005	5 DTU3005
DTU3005	DTU300	7	Voltage	L-L Phase	AB (hi)		)TU3005	5 DTU3005
DTU3005	DTU300	8	Voltage	L-L Phase	BC (lo)		)TU3005	5 DTU3005
DTU3005	DTU300	9	Voltage	L-L Phase	BC (hi)		)TU3005	5 DTU3005
DTU3005	DTU300	10	Voltage	L-L Phase	CA (lo)		)TU3005	5 DTU3005
DTU3005	DTU300	11	Voltage	L-L Phase	CA (hi)		)TU3005	5 DTU3005
DTU3005	DTU300	12	Current	Phase A		T D	)TU3005	5 DTU3005
DTU3005	DTU300						)TU3005	5 DTU3005
DTU3005	DTU300	0k	S∂	ave 💼	Revert 🗖		)TU3005	5 DTU3005
DTU3005	DTU300						)TU3005	5 DTU3005
DTU3005	DTU300	Set t	o Base 🗖	Clear	- All 🗖		)TU3005	5 DTU3005
DTU3005	DTU300						)TU3005	5 DTU3005
DTU3005	DTU300						DTU3005	5 DTU3005
DTU3005	DTU3005	DTU3005 D	TU3005 D	FU3005 DTI	J3005 DTU3	005 E	TU3005	5 DTU3005
F10 Save								

 Select a data item and press Enter to see a list of device data items that can be assigned to that data word. Select Not Used if you do not want that data word to be used. Not all of the entries are visible on the menu. Use the scroll bar or the Page Up and Page Down keys to view all the entries. Select **Clear All** to set all data words to "Not Used." Select **Set to Base** to restore the data words to the first 16 registers (64 for VDEW devices) from the device's standard data register list.

≡ Proj	ect Edi	t Transfer	Options		Project:	ATHENS01	14:08:17
DTU3005	DTU300	-[•] Defa	aults – 47	700 Power N	leter ——	DTU30	105 DTU3005
DTU3005	DTU300	Word Number	Default	Real-Time	Data	DTU30	105 DTU3005
DTU3005	DTU300					— DTU30	105 DTU3005
DTU3005	DTU300	0	Voltage	L-N Phase	A (lo)	▲ DTU30	105 DTU3005
DTU3005	DTU300	1	Voltage	L-N Phase	A (hi)	• DTU30	105 DTU3005
DTU3005	DTU300	<b>[</b> ]	= 4700 Pov	ver Meter ≕	]	DTU30	105 DTU3005
DTU3005	DTU300	Not Us	sed		▲	DTU30	105 DTU3005
DTU3005	DTU300	Volta	ge L−N Pha	ase A (lo)	-	DTU30	105 DTU3005
DTU3005	DTU300	Volta	ge L-N Pha	ase A (hi)		DTU30	105 DTU3005
DTU3005	DTU300	Volta	ge L-N Pha	ase B (lo)		DTU30	105 DTU3005
DTU3005	DTU300	Volta	ge L−N Pha	ase B (hi)		DTU30	105 DTU3005
DTU3005	DTU300	Volta	ge L-N Pha	ase C (lo)		DTU30	105 DTU3005
DTU3005	DTU300	Volta	ge L-N Pha	ase C (hi)		DTU30	105 DTU3005
DTU3005	DTU300	Volta	ge L−L Pha	ase AB (lo)	)	DTU30	105 DTU3005
DTU3005	DTU300	Volta	ge L−L Pha	ase AB (hi)	)	DTU30	105 DTU3005
DTU3005	DTU300	Volta	ge L-L Pha	ase BC (lo)	) 🔽 🛛	▼ DTU30	105 DTU3005
DTU3005	DTU300					DTU30	105 DTU3005
DTU3005	DTU300	0k	S∂	ave 📃	Revert 🔳	DTU30	105 DTU3005
DTU3005	DTU300		_			DTU30	105 DTU3005
DTU3005	DTU300	Set to	b Base 🗖	Clear	- A11	DTU30	105 DTU3005
DTU3005	DTU300					DTU30	105 DTU3005
DTU3005	DTU300					DTU30	105 DTU3005
DTU3005	DTU3005	DTU3005 D	FU3005 D1	FU3005 DTL	J3005 DTU3	005 DTU30	105 DTU3005
F10 Save							

4. Select **Save** to save your configuration or **Revert** to restore the last previously saved configuration for that device. When you are finished configuring

the default data registers for that device, select **Ok** to close this screen.

To conserve registers when using VDEW devices, you should set all unused registers to "Not Used" and place them at the end of the list. The DTU3005 will only allocate registers for those containing device data. (This does not apply to SEAbus devices, for which the DTU3005 allocates 16 registers regardless if they are used or not.) convert status codes returned from select parameters in the 7SJ600 relay (only) to values in a format useful to the system connected to port 2 of the DTU3005. This affects the status readouts from the device's binary inputs, signal and trip rated contacts, and the LEDs.

### 5.8 Device Text Setup (7SJ600 Only)

The Device Text to Values Table menu item is only available for configuring the 7SJ600 relay. It is used to

To edit this table, select **Device Text to Values Table** from the **Edit** menu. This selection is only available when the device protocol for port 2 is set for "VDEW."

<b>≡ P</b> roject	Edit Transfer Option	ns Pr	oject: NONAME00	13:23:34
DTU3005-U		DTU3005-		)TU3005-V DT
DTU3005U	Port 1 (PLC)	DTU3005-		)TU3005-V DT
DTU3005-V	Port 2 (Devices)	DTU3005-		TU3005-V DT
DTU3005U	Port 3 (Passthrough)	DT <mark>U3005</mark> -		)TU3005-V DT
DTU3005U		DTU3005-		)TU3005-V DT
DTU3005U	Diagnostics	DT <mark>U3005-</mark>		)TU3005-V DT
DTU3005U	Device Command Regist	ters DT <mark>U3005</mark> -		)TU3005-V DT
DTU3005-U	Global Command Regist	ters DT <mark>U3005</mark> -		)TU3005-V DT
DTU3005-U		DTU3005-		)TU3005-V DT
DTU3005-V	Device Defaults	DT <mark>U3005</mark> -		)TU3005-V DT
DTU3005-V	_Device List	DT <mark>U3005-</mark>		)TU3005-V DT
DTU3005U	Device Text to Value:	s Table DT <mark>U3005</mark> -		)TU3005-V DT
DTU3005-U		DT <mark>U3005</mark>		)TU3005-V DT
DTU3005-V	DTU3005-V DTU3005-V D	TU3005-V DT <mark>U3005</mark> -		TU3005-V DT
DTU3005-V				TU3005-V DT
DTU3005-V				TU3005-V DT
DTU3005-V				TU3005-V DT
DTU3005-V				TU3005-V DT
DTU3005-V				TU3005-V DT
DTU3005-V				TU3005-V DT
DTU3005-V				/TU3005-V DT
DTU3005-V				/TU3005-V DT
DTU3005-V	<u>DTU3005-V DTU3005-V D</u>	<u> TU3005-V DTU3005-</u>	<u>U DTU3005-U I</u>	/TU3005-V DT
Alt-Q Quit	Edit the VDEW Device (	fext to Values Tab	le.	

Once open, 64 conversions can be defined. To define a conversion, enter the 7SJ600 relay status code in the **Text** # column and enter the corresponding output value desired in the **Value** column.

	Project	Edit Tra	ansfer (	)ptions	uo Tablo	Project:	: SAMPLE-	-P   20:49	:42 DT
DT	Text#	Value	Text#	Value	Text#	Value	Text#	Value	DT
DT	5	0	0	0	0	0	0	0	DT
DT	0 0	0	0	0	0	0	0	0	DT DT
DT	Ø	0	Ŏ	Ø	Ø	Ø	Ø	Ø	DŤ
DT	0	0	0	0	0	0	0	0	DT
DT	0	0	0	0	0	0	0	0	DT
DT	Ø	0	Ø	0	Ø	0	Ø	Ø	DŤ
DT DT	0	0	0	0	0	0	0	0	DT DT
DT	0	0	0	0	0	0	0	0	DT
DT	0	0	0	0	0	0	0	0	DT
DT	0	0	0	0	0	0	0	0	DT
DT	0								DT
DT		Uk		Save		Re	evert		DT
DT F10	Save   F	oter a ter	xt number						DT

### The relevant status codes (Text #) are listed below.

Table 5.1 7SJ600 Relay Information

For Requesting Status of	f the 7SJ600 Relay's Three Bi	nary Inputs	5				
Text Number/Status Code	Description of Returned Binary	S	uggested Value	(Using T	his Conve	ersion Tab	le)
(default value returned if not converted)	Input Status Codes: 11 indicates Input 1; 12,3 indicates Inputs 2 and 3	Value	Inputs	13	12	11	
		0	0	0	0	0	
1342	I1,2 Inactive : I3 Active	4	0	1	0	0	
1343	I1,3 Inactive : I2 Active	2	0	0	1	0	
1344	I1 Inactive : I2,3 Active	6	0	1	1	0	
1345	I2,3 Inactive : I1 Active	1	0	0	0	1	
1346	I2 Inactive : I1,3 Active	5	0	1	0	1	
1347	13 Inactive : I1,2 Active	3	0	0	1	1	
1348	I1,2,3 Active	7	0	1	1	1	
For Requesting Status of	f the 7SJ600 Relay's Two Trip	Contacts	and Two Signa	l Conta	acts		
Text Number/Status Code	Description of Returned Trip	S	uggested Value	(Using T	his Conve	ersion Tab	le)
(default value returned if not converted)	and Signal Relay Status		Outputs	S2	S1	T2	T1
not converted)	Relays 1 and 2; T1,2 indicates Trip Relays 1 and 2	Value	Bits 15 4	3	2	1	0
1349	S1,2 T1,2 Open	0	0	0	0	0	0
1350	S1,2 T1 Open : T2 Closed	2	0	0	0	1	0
1351	S1,2 T2 open : T1 Closed	1	0	0	0	0	1
1352	S1,2 Open : T1,2 Closed	3	0	0	0	1	1
1353	S1 T1,2 Open : S2 Closed	8	0	1	0	0	0
1354	S1 T1 Open : S2 T2 Closed	10	0	1	0	1	0
1355	S1 T2 Open : S2 T1 Closed	9	0	1	0	0	1
1356	S1 Open : S2 T1,2 Closed	11	0	1	0	1	1
1357	S2 T1,2 Open : S1 Closed	4	0	0	1	0	0
1358	S2 T1 Open : S1 T2 Closed	6	0	0	1	1	0
1359	S2 T2 Open : S1 T1 Closed	5	0	0	1	0	1
1360	S2 Open : S1 T1,2 Closed	7	0	0	1	1	1
1361	T1,2 Open : S1,2 Closed	12	0	1	1	0	0
1362	T1 Open : S1,2 T2 Closed	14	0	1	1	1	0
1363	T2 Open : S1,2 T1 Closed	13	0	1	1	0	1
1364	S1,2 T1,2 Closed	15	0	1	1	1	1
For Requesting Status of	f the 7SJ600 Relay's Four Pro	grammabl	e LEDs				
Text Number/Status Code	Description of Returned LED	S	uggested Value	(Using T	his Conve	ersion Tab	le)
(default value returned if not converted)	Status Codes: L1,2 indicates		Outputs	L4	L3	L2	L1
,		Value	Bits 15 4	3	2	1	0
1365	L1,2,3,4 Off	0	0	0	0	0	0
1366	L4 On : L1,2,3 Off	8	0	1	0	0	0
1367	L3 On : L1,2,4 Off	4	0	0	1	0	0
1368	L3,4 On : L1,2 Off	12	0	1	1	0	0
1369	L2 On : L1,3,4 Off	2	0	0	0	1	0
1370	L2,4 On : L1,3 Off	10	0	1	0	1	0
1371	L2,3 On : L1,4 Off	6	0	0	1	1	0

1372	L2,3,4 On : L1 Off	14	0	1	1	1	0
1373	L1 On : L2,3,4 Off	1	0	0	0	0	1
1374	L1,4 On : L2,3 Off	9	0	1	0	0	1
1375	L1,3 On : L2,4 Off	5	0	0	1	0	1
1376	L1,3,4 On : L2 Off	13	0	1	1	0	1
1377	L1,2 On : L3,4 Off	3	0	0	0	1	1
1378	L1,2,4 On : L3 Off	11	0	1	0	1	1
1379	L1,2,3 On : L4 Off	7	0	0	1	1	1
1380	L1,2,3,4 On	15	0	1	1	1	1

Table 5.1 7SJ600 Relay Information (Continued)

Once you are finished entering data, select **Save** to save your configuration, then select **Ok** to exit the dialog box. Select **Revert** to bring back the previous settings.

### 5.9 Global Command Registers

This option allows you to specify global commands for all the devices specified in the Device List. It is only available for VDEW devices.

The Global Command Registers consist of six registers. These registers allow the PLC to transmit commands to all the devices in the Device List. To send a command, all the PLC needs to do is to place the command values into the appropriate PLC registers, which the DTU3005 unit reads and then processes.

### 5.10 Device Diagnostic Registers

This option programs the DTU3005 to send communications diagnostic information to a set of registers that can be read by the Modbus Master device. This option allows the Modbus Master to collect diagnostic information by reading the registers assigned here. The information can be used to troubleshoot problems with the devices and the communications network.

The format and content of the diagnostic registers are described in detail in **Appendix F**.

 To configure the device diagnostic registers, select Diagnostics from the Edit menu. The following screen displays:

E Proje	ect Edit	Transfe	r Option	S	Pro	ject: ATH	ENSØ3   1	0:45:26
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU300 <u>5</u>	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU300 🗖	[•]—— De	vice Diag	nostics R	egisters		DTU3005	DTU3005
DTU3005	DTU300						DTU3005	DTU3005
DTU3005	DTU300	Do	you want	to set u	p device		DTU3005	DTU3005
DTU3005	DTU300	di	agnostics	: register	s? [X]		DTU3005	DTU3005
DTU3005	DTU300						DTU3005	DTU3005
DTU3005	DTU300	Modbus Re	gisters:	1 to	6		DTU3005	DTU3005
DTU3005	DTU300						DTU3005	DTU3005
DTU3005	DTU300	0k		Save	Reve	rt 🖕	DTU3005	DTU3005
DTU3005	DTU300						DTU3005	DTU3005
DTU3005	DTU300						DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
D103005	D103005	D103005	D103005	D103005	D103005	D103005	D103005	D103005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
D103005	D103005	D103005	D103005	D103005	D103005	D103005	D103005	D103005
D103005	0103005	D103005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	D103005
F10 Save	🛛 Spaceb	ar toggle	s, [X] =	yes				

 To enable the sending of diagnostic information to the Modbus Master, select the Do you want to set up device diagnostics registers? checkbox with the mouse or the spacebar. Then enter the starting register number in the **Modbus Registers**: field. The register block is 6 bytes long. These are written to the holding register area (40000 to 49999). Thus entering a 1 in this field represents register 40001, etc. Be sure that the registers you specified are not being used by other devices.

 Select Save to save the information to the project file, and then select Ok or press Esc to exit the device diagnostic registers screen. If at any time you want to return to the last saved version of the device diagnostics registers, select Revert without saving any changes.

### 5.11 Device Command Registers

The device command registers consist of two consecutive registers for each device entered in the device list. These registers allow the Modbus Master device to transmit commands to each of the devices by writing to the appropriate register. The first register contains the command, and the second register contains the data associated with the command. The format of the command registers for each device are described in **Appendix E**.

All the command registers are placed in contiguous locations and are assigned to each device in the order that they are listed in the device list. To indicate the location of the command registers, follow these steps:

1. Select **Device Command Registers** from the **Edit** menu. The Device Command Registers screen appears:



- 2. Enter the starting register address in the Modbus Registers field. The DTU3005 Editor software will determine the proper number of registers for the number of devices entered in the device list and indicate the final register number. The registers used are the holding registers (40000 to 49999). Thus entering a register number of 1 will represent register 40001, etc. These registers must be different from those used for device data and diagnostics. Failure to use different register addresses will cause communication errors, and may cause unexpected operation of the devices.
- Select Save to save the information to the project file, and then select Ok or press Esc to exit the device command registers screen. If at any time you want to return to the last saved version of the device diagnostics register, select Revert without saving any changes.

### 5.12 Saving the Project File

Now you have completed configuring the DTU3005 for Modbus Master to Devices communications. Select **Save** from the **Project** menu and press **Enter**, or press **F10** to save the project file to disk. The next step is to transfer the project to the DTU3005 unit. This topic is covered in **Chapter 7**.

### 6 Creating Project Files—SEAbus Port Expander

This chapter covers configuration of the DTU3005 as a SEAbus port expander. Once you have created a SEAbus port expander project (see **Chapter 3**), follow the directions in this chapter to configure the project file. Then see **Chapter 7** for directions on downloading the project to the DTU3005.

When configured as a SEAbus port expander, the DTU3005 allows two computers running supervisory software, such as WinPM, to connect to the same Siemens SEAbus devices. Up to 32 devices may be attached to port 2 of the DTU3005 by an RS-485 connection. This configuration is shown below in **Figure 6.1**.



Figure 6.1 Dual Passthrough Application

Once you have created or opened the project file, select **Edit** from the main menu and the following menu items appear:

- Port 1 (Passthrough)—allows you to configure the communications settings for the supervisory computer connected to port 1.
- Port 2 (SEAbus Devices)—allows you to configure communications settings for SEAbus devices connected to port 2.
- **Port 3 (Passthrough)**—allows you to configure the communications settings for the supervisory computer connected to port 3.

I ≡ Proj	ect Edit	Transfe	r Option	S	Pro	ject: ATH	ENS02   1	5:26:16
DTU3005	DT		•	005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DT Por	t 1 (Pass	through)	005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DT Por	t 2 (SEAb	us Device	s) 005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DT Por	t 3 (Pass	through)	005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DT 🖵 —		_	005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU300 <u>5</u>	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3005
Alt-Q Qu	it   Edit	the Pass	through P	ort confi	guration.			

### 6.1 Passthrough Setup—Port 1

You must have a SEAbus Port Expander project file open to configure port 1 using the instructions in this section. Select **Port 1 (Passthrough)** from the **Edit**  menu, and the Port 1 (Passthrough) configuration screen appears.



### 2-Wire RS422 or RS485 Communications

The 2-Wire RS422 or RS485 Communications selection box will only need to be checked if the communications with your supervisory computer is a 2-wire RS485 or RS422 interface. An example of this is if you are using a RS-232/485 converter to extend the distance between your computer and the DTU3005.

When 2-wire communications are being used, RTS must be looped back to CTS on the DTU side of the cable. This can be done on the RS232 side by looping pins 4 and 5 or on the RS422/485 side by looping 16 to 18 and 17 to 19. See **Appendix D** for wiring diagrams for your particular PLC, and whether it uses a 2-wire connection.

To select the checkbox, click on it with the mouse or, with the **2-Wire RS422 or RS485 Communications** selection highlighted, press the **spacebar**. An "X" will appear inside the brackets when it is selected.

Press the **Tab** or **Right Arrow** key to move to the next field without selecting this checkbox.

#### **Communications Settings**

Before changing any of these settings, consult your computer, modem, or RS-232/485 converter manual for the correct settings. To move between the communications settings, press the **Tab** or **Enter** keys. To select a setting, use the **Up** or **Down Arrow** key to move to the desired setting and press the **spacebar** to change your selection.

### **RTS Control (Request to Send Control)**

RTS Control selection is an option provided for modems or for RS-232/485 converters that require RTS to be active only while the DTU is transmitting to the computer.

- If **RTS/CTS** is selected, the DTU will activate RTS and wait until CTS is active before transmitting to the computer attached to port 1.
- If **RTS Delay** is selected, the DTU will activate RTS and wait for the specified delay time to pass before transmitting. When **RTS Delay** is selected, the program displays an entry box for the RTS delay time. Enter the time in milliseconds.

#### Intermessage Time-Out

The DTU3005 uses the intermessage time-out to determine when a complete message has been received on the passthrough port. Once the first character of a message has been received, if the amount of time specified by the intermessage time-out passes with no additional characters being received, the DTU3005 will consider the message to be complete and process it.

To change the intermessage time-out, select **Intermessage Time-Out** and enter the value in milliseconds. Then press the **Enter** key.

### Saving Port 1 Configuration Information

Once you have entered all the configuration information, select **Save** to save the configuration to the project file. Then select **Ok** or press the **Esc** key to close the configuration screen.

If you have changed the configuration and have not saved it to the project file, you will be prompted to either save or discard the changes.

Select **Revert** to return to the last previously saved configuration without saving any changes.

### 6.2 SEAbus Device Setup—Port 2

One or more Siemens devices may be connected to port 2. You must have a SEAbus Port Expander project

file open to configure port 2 using the instructions in this section.

Select **Port 2 (SEAbus Devices)** from the **Edit** menu, and the Port 2 configuration screen appears.



### **Configuration Information**

The configuration selections with the exception of Response Time-Out are the same as those for port 1. Refer to **Section 6.1** for instructions on configuring these fields.

### **Response Time-Out**

The Response Time-Out tells the DTU how long to wait after transmitting a request to the PLC if no response has been received from the PLC. After this amount of time passes with no response being received, the DTU will assume that no response is coming and will retry the request. Enter the time in milliseconds.

### **Saving Port 2 Configuration Information**

Once you have entered all the configuration information, select **Save** to save the configuration to the project file. Then select **Ok** or press the **Esc** key to close the configuration screen.

If you have changed the configuration and have not saved it to the project file, you will be prompted to either save or discard the changes.

Select **Revert** to return to the last previously saved configuration without saving any changes.

### 6.3 Passthrough Setup—Port 3

Select **Port 3 (Passthrough)** from the **Edit** menu, and the Port 3 Passthrough configuration screen appears. It is identical to the port 1 configuration screen, but configures the communications settings for the supervisory computer connected to port 3. The settings can be different than those for port 1, depending on the system. See **Section 6.1** for directions for setting up the passthrough port.

After configuring port 3, select **Save** to save the port 3 configuration to the project file, and then select **Ok** or press **Esc** to exit the Port 3 Passthrough configuration screen.

### 7 Transferring Project Files

Once you have configured and saved your project file for your particular application, you need to download it to the DTU3005 unit. First verify which COM port on your computer is used to upload and download projects to the DTU3005 unit (see **Chapter 8**). Then, select **Transfer** from the main menu and the following selections are available:

- Download project to DTU3005—allows you to transfer (download) any created project file from your PC to the DTU3005.
- **Upload project from DTU3005**—allows you to transfer (upload) the project file stored in the DTU3005 to the PC.
- Verify—allows you to verify a project file within your computer against the current project file stored in the DTU3005 unit.
- Check Application in DTU3005—allows you to check what type of project file is loaded (PLC to devices, Modbus Master to devices, or Passthrough) and which protocols have been loaded for each of the communication ports. It also reports the revision level of the DTU3005 unit's firmware.

= Proj	ect Edit	Transfe	r Option	S		Pro	ject: ATH	ENSØ1	11:31:04
DTU3005	DTU3005					1 5	DTU3005	DTU300	5 DTU3005
DTU3005	DTU3005	Downlo	ad projec	t to DTU3	005	5	DTU3005	DTU300:	5 DTU3005
DTU3005	DTU3005	Upload	project	from DTU3	005	5	DTU3005	DTU300:	5 DTU3005
DTU3005	DTU3005					5	DTU3005	DTU300:	5 DTU3005
DTU3005	DTU3005	Verify				5	DTU3005	DTU300:	5 DTU3005
DTU3005	DTU3005					- 5	DTU3005	DTU300:	5 DTU3005
DTU3005	DTU3005	Check	Applicati	on in DTU	13005	5	DTU3005	DTU300:	5 DTU3005
DTU3005	DTU3005					5	DTU3005	DTU300:	5 DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3	005	DTU3005	DTU300:	5 DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3	005	DTU3005	DTU300:	5 DTU3005
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DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3	005	DTU3005	DTU300:	5 DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3	005	DTU3005	DTU300	5 DTU3005
DTU3005	DTU3005	DTU3005	DTU3005	DTU3005	DTU3	005	DTU3005	DTU300:	5 DTU3005
Alt-Q Qu	<u>it   Down</u>	load the	project f	rom the P	'C to a	a DT	U3000.		

Before using the **Transfer** commands, you must physically connect port 3 of the DTU3005B to your computer using a null modem cable. Also be sure that power is supplied to the DTU3005.



Figure 7.1 Null Modem Cable connection

The null modem cable will cross pins 2 and 3 (RXD and TXD). On the computer end of the cable, pins 7 and 8 (RTS and CTS) should be connected together. Also pins 1, 4, and 6 (DCD, DTR and DSR) should be connected together. The cable diagram is illustrated in **Figure 7.1**. In addition, the DIP switches on the front of the DTU3005B unit must be set to configuration mode as described below.

- 1. Power down the DTU3005B unit.
- 2. Set the DIP switches to configuration mode per the DIP switch settings listed below in Table 7.1 and shown in Figure 7.1.
- 3. Restart the DTU3005B unit.
- 4. The status LED on the front of the DTU3005 unit flashes green to indicate that the unit is in configuration mode.
  - Note: To return the device to normal operation, the DTU3005B unit must be powered off while the DIP switch settings are reset, then the unit will be in normal operation mode when it is powered up.

Mode	Switch 1	Switch 2	Switch 3	Status LED
Normal Operation	Off	Off	Off	On steady
Configura- tion	Off	Off	On	Flashing Green



**Figure 7.2** DIP Switch Settings for Normal Operation and Configuration Modes (Switch 4 is N/A)

### 7.1 Downloading Projects

Select **Download project to DTU3005** from the **Trans**fer menu, and the following screen appears.

Select **Ok** and the DTU3005 Editor software transfers the currently displayed project to the DTU3005 unit.