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# 2573 QUICK START - INSTALLATION

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## Purpose of this Document

This document is to be used by an installer to properly unpack, install and perform a general functional test for a 2573 module. **NOTE:** Additional information, such as the Installation and Operation Guide for this product, is available on both the CTI *Catalog and Technical Library* CD ROM and on our CTI web site (<http://www.controltechnology.com>).

## Introduction

The CTI 2573 (either MOD or TCM2) Serial Interface provides the capability to interface the PLC to devices which support serial data communications.

The 2573 provides four serial ports. Each port is independently configurable for electrical interface, communications parameters, and protocol. Each serial port supports RS-422, RS-485, and a subset of RS-232-C electrical interfaces. The operative electrical interface is determined by choosing which pins are connected to the serial communications cable.

## Unpacking the Module

Open the shipping carton and remove the special anti-static bag that contains the module. After discharging any static build-up, remove the module from the static bag. Do not discard the static bag. Always use this bag for protection against static damage when the module is not inserted into the I/O base.

### **CAUTION:**

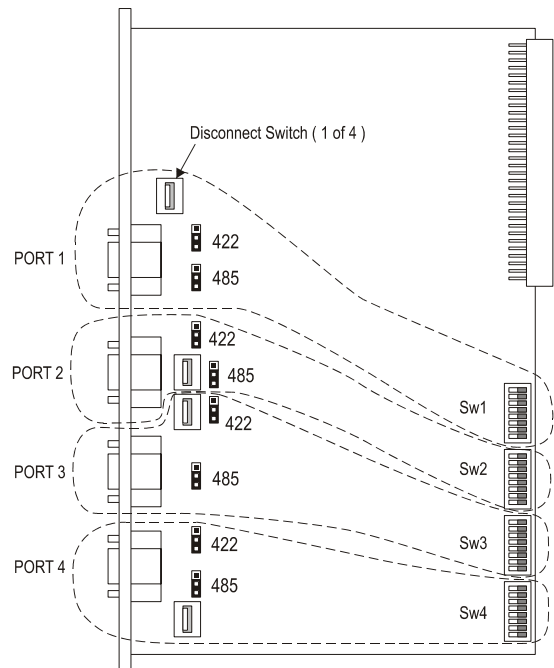
*The components on the 2573 module can be damaged by static electricity discharge. To prevent this damage, the module is shipped in a special anti-static bag. Static control precautions should be followed when removing the module from the bag and when handling the printed circuit card during configuration*

## Setting the 2573 Switches

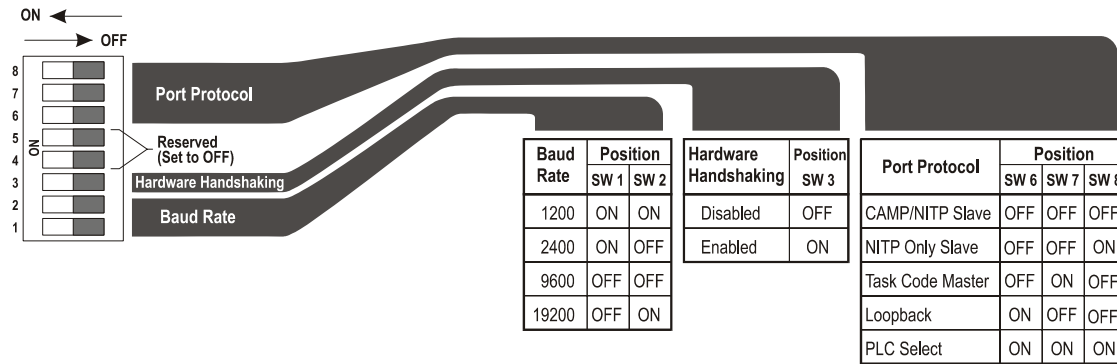
There are three sets of switches that must be set for each of the four serial ports. The settings for these switches are explained briefly in the subheadings below. For an in-depth explanation of their functions, refer to the *2573 Installation and Operation Guide*. The set of switches associated with each port is laid out in physical zones, as seen by the dashed lines in *Figure 1* at right.

### Setting the Port Configuration Switchblocks

There are four switchblocks on the 2573, one for each serial port. Each switchblock contains a set of eight switches. You may use the switches on the 2573 to select the baud rate, handshaking, and protocol for each serial port. Alternately, you may set the switches so that PLC logic is used to select the above. See *Figure 2 Switchblock Setting Definition Tables* to set baud rate, handshaking, and protocol for each serial port.



**Figure 1 Configuration Switch Locations**



**Figure 2 Switchblock Setting Definition Tables**

## Termination Resistor Jumpers

For RS-422A, a termination resistor is optional. It is usually not used at baud rates below 20kb. Most RS-422 installations **do not** require a termination resistance; however, a few RS-422 installations may specify a termination resistance. If your particular installation is one of these, you can reposition the jumpers labeled *RS-422 Termination Jumper* to insert the resistance into the 2573 RS-422 receive circuit. Do not enable termination resistance unless specified by your device vendor.

RS-485 circuits require that 120 ohm termination resistors be installed at *each end* of the transmission line to suppress signal reflection. In a typical installation, the 2573 will be at one end and will require a terminating resistance. You should refer to the documentation for the plant floor device you are connecting for specific instructions about your installation.

The 2573 uses a set of jumpers to insert or remove the termination resistance from the circuit. The 2573 is shipped from the factory with the jumpers positioned so that the termination resistance is disabled (not installed in the circuit). The termination resistor can be placed in the circuit (enabled) by repositioning a jumper on the board. See the illustration above for the location of the RS-485 termination jumpers (JMP1, JMP3, JMP5, JMP7). If your particular installation requires the resistor at the 2573 connection, you can enable it by moving the appropriate jumper.

## Setting the RS-422/485 Disconnect Switches

The RS-422/485 Disconnect switches are located adjacent to the ports they serve, as seen in figure 1. In order to use a standard 9-pin 'D' shell connector, the 2573 routes the lines used for RS-422 and RS-485 communications to pins normally used for the RS-232 DCD, DTR, DSR signals. The RS-422/485 Disconnect Switches allow you to disconnect the RS-422 and RS-485 lines from the 9 pin connector. Putting a switch in the 'OFF' (disconnected) position allows you to use unmodified TISOFT cables with the 2573 module and to avoid transmission problems when using RS-232.

For RS-422/485 operation, the Disconnect switch *must* be in the 'ON' (connected) position.

## Physical Installation and Test

Be sure that all the switches on the 2573 are in their factory (OFF) positions, except for the RS-422/485 Disconnect Switches, which are to be placed in the OFF position BEFORE installation, for test purposes. The test described in this section only requires a PC loaded with TISOFT and a TISOFT cable. This test will ensure the general functioning of the serial ports and the module's backplane communications.

## Inserting the Module into the I/O Base

Ensure that power to the base is off. Hold the top and bottom of the bezel and slide the module carefully into the slot, pushing it all the way into the base. If you have inserted the module correctly, you will feel a slight increase in resistance as the module mates with the base backplane connector. Once the module is fully seated in the slot, tighten the captive screws at the top and bottom to hold the module in place. To remove the module from the I/O base, remove

power from the base, loosen the captive screws, then remove the module. Take care not to damage the connector at the back of the module when inserting or removing the module.

## Power Up

First turn on the base power supply. If the diagnostics on the Model 2573 detect no problems, the ACTIVE indicator will illuminate. If the indicator does not illuminate or exhibits a blinking pattern, the module has detected a component failure. For information on viewing failed module status, refer to your TISOFT Programming Manual. See the *2573 Installation and Operation Guide* for troubleshooting information.

## Checking PLC Login

Next, check that the module is configured in the memory of the PLC. The 2573 logs in as a special function module with 2 WX and 6 WY words. To view the PLC I/O configuration chart, refer to your SIMATIC TI TISOFT Programming Manual.

In this example, the Model 2573 module is installed into slot 1 on I/O base 0. For your particular installation, look in the chart at the slot address occupied by the module in your configuration. If the WX and WY values are the same as those shown in the example above and Special function = YES, then the module is logged into the PLC memory and is ready for operation. If the line is blank or erroneous, re-check the module to ensure that it is firmly seated in the I/O base slot. Generate the PLC I/O configuration chart again by reading the I/O base. If the problem persists, contact your distributor or contact CTI at 1-800-537-8398.

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I/O MODULE DEFINITION FOR CHANNEL . . . 1  BASE . . . . . 00
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I/O SLOT	ADDRESS	NUMBER OF BIT AND WORD I/O		WX	WY	SPECIAL FUNCTION
		X	Y			
01	00001	00	00	02	06	YES
02	00000	00	00	00	00	NO
..	.....	..	..	..	..	...
15	00000	00	00	00	00	NO
16	00000	00	00	00	00	NO

**Figure 3. Sample I/O Configuration**

## Checking Serial Ports

To check out each serial port, you will need a PC, a cable and a PLC software programming package (such as TISOFT or SoftShop). Physically set up the PC to port 1 and start the program. If everything is ok, you should be able to talk to the PLC. Close the program. Repeat this for all four serial ports.

## Communicating with Devices

For your application, you will need to set the module switches and develop PLC logic to match your device requirements. See the product Installation and Operation Guide for details. For ASCII devices you may need to refer to the *General ASCII Support Protocol Manager* manual. These manuals are available on the CTI *Catalog and Technical Library* CD ROM and on the CTI web site ( <http://www.controltechnology.com/> ).

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CTI warrants that this CTI Industrial Product shall be free from defects in material and workmanship for a period of one (1) year after purchase from CTI or from an authorized CTI Industrial Distributor. This CTI Industrial Product will be newly manufactured from new and/or serviceable used parts which are equal to new in the Product.

Should this CTI Industrial Product fail to be free from defects in material and workmanship at any time during this (1) year warranty period, CTI will repair or replace (at its option) parts or Products found to be defective and shipped prepaid by the customer to a designated CTI service location along with proof of purchase date and associated serial number. Repair parts and replacement Product furnished under this warranty will be on an exchange basis and will be either reconditioned or new. All exchanged parts or Products become the property of CTI. Should any Product or part returned to CTI hereunder be found by CTI to be without defect, CTI will return such Product or part to the customer.

This warranty does not include repair of damage to a part or Product resulting from: failure to provide a suitable environment as specified in applicable Product specifications, or damage caused by an accident, disaster, acts of God, neglect, abuse, misuse, transportation, alterations, attachments, accessories, supplies, non-CTI parts, non-CTI repairs or activities, or to any damage whose proximate cause was utilities or utility like services, or faulty installation or maintenance done by someone other than CTI.

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