

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Enterasys / Cabletron ST-500-03* at our website: *Click HERE*

ST-500
ETHERNET/IEEE 802.3
TRANSCEIVER WITH LANVIEW

INSTALLATION GUIDE

CABLETRON SYSTEMS
The Complete Networking Solution™

CABLETRON SYSTEMS, P. O. Box 5005, Rochester, NH 03866-5005

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

NOTICE

Cabletron Systems reserves the right to make changes in specifications and other information contained in this document without prior notice. The reader should in all cases consult Cabletron Systems to determine whether any such changes have been made.

The hardware, firmware, or software described in this manual is subject to change without notice.

IN NO EVENT SHALL CABLETRON SYSTEMS BE LIABLE FOR ANY INCIDENTAL, INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING BUT NOT LIMITED TO LOST PROFITS) ARISING OUT OF OR RELATED TO THIS MANUAL OR THE INFORMATION CONTAINED IN IT, EVEN IF CABLETRON SYSTEMS HAS BEEN ADVISED OF, KNOWN, OR SHOULD HAVE KNOWN, THE POSSIBILITY OF SUCH DAMAGES.

© Copyright March 1995 by:

Cabletron Systems, Inc.,
P.O. Box 5005, Rochester, NH 03866-5005

All Rights Reserved
Printed in the United States of America

Part Number: 9030008-02 March 1995

LANVIEW is a registered trademark of Cabletron Systems, Inc.
Ethernet is a trademark of Xerox Corp.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

FCC NOTICE

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

DOC NOTICE

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

NOTICE: *To insure FCC and DOC compliance and proper operation of the ST-500 transceiver, SHIELDED transceiver cables must be used.*

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

VCCI NOTICE

This equipment is in the 1st Class Category (information equipment to be used in commercial and/or industrial areas) and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI) aimed at preventing radio interference in commercial and/or industrial areas.

Consequently, when used in a residential area or in an adjacent area thereto, radio interference may be caused to radios and TV receivers, etc.

Read the instructions for correct handling.

この装置は、第一種情報装置（商工業地域において使用されるべき情報装置）で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。
従って、住宅地域またはその隣接した地域で使用すると、ラジオ、テレビジョン受信機等に受信障害を与えることがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION

1.1 ST-500 Features 1-1
1.1.1 LANVIEW LEDs 1-3
1.1.2 Heartbeat (SQE) Test 1-3
1.2 Getting Help 1-4

CHAPTER 2 INSTALLATION

2.1 Unpacking the ST-500 Transceiver 2-1
2.2 Items Needed to Install the ST-500 Transceiver 2-1
2.3 Installation Site 2-2
2.4 Setting the SQE (Heartbeat Test) Switch 2-2
2.5 Installing the Transceiver Tap 2-3
2.5.1 Installing the ST-500-01 Transceiver Tap 2-3
2.5.2 Installing the ST-500-02 or -03 Transceiver Tap 2-8
2.6 Connecting the Transceiver to the Host 2-11
2.7 Checking the Installation 2-12

CHAPTER 3 TROUBLESHOOTING

3.1 LANVIEW LEDs 3-1
3.2 Troubleshooting 3-1

APPENDIX A ST-500 TRANSCEIVER SPECIFICATIONS

A.1 Receiver Specification A-1
A.2 Transmitter Specification A-1
A.3 Collision Detector Specification A-2
A.4 Power Specification A-3
A.5 Interface Connector Pinout Identification A-4
A.6 Environmental Specifications A-5
A.7 Service Specification A-6
A.8 Physical Specification A-6

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

CHAPTER 1

INTRODUCTION

Welcome to the Cabletron Systems' ST-500 Ethernet/IEEE 802.3 Transceiver with LANVIEW Installation Guide. This guide provides installers and service technicians with information required to install and, if necessary, diagnose network problems.

Prior to installing and operating the ST-500 transceiver, read through this manual completely to become familiar with its content and to gain an understanding of the ST-500 features. A general working knowledge of Ethernet/802.3 networks is helpful when installing the transceiver. Detailed specifications are contained in Appendix A.

1.1 ST-500 Features

Cabletron System's ST-500 Ethernet/IEEE 802.3 Transceiver with LANVIEW provides a method of connecting to an Ethernet or IEEE 802.3 controller via a host compatible transceiver cable. The ST-500 transceiver is compatible with Ethernet Version 1.0 specifications (September 1980), Ethernet Version 2.0 specifications (November 1983), and IEEE 802.3 standard (1983) for a 10-Mbps Medium Access Unit (MAU).

The ST-500 transceiver consists of two major components; a transceiver body, and a tap. The type of media used in the network determines the style of tap to install on the transceiver body (see Figure 1-1).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

The type of tap provided with the transceiver body defines one of four models of the ST-500 transceiver. The four models are:

- **ST-500-00** - transceiver body only (no tap included)
- **ST-500-01** - with non-intrusive (stinger style) Ethernet tap
- **ST-500-02** - with N-Series (intrusive) Ethernet tap
- **ST-500-03** - with BNC (Thin-net) tap

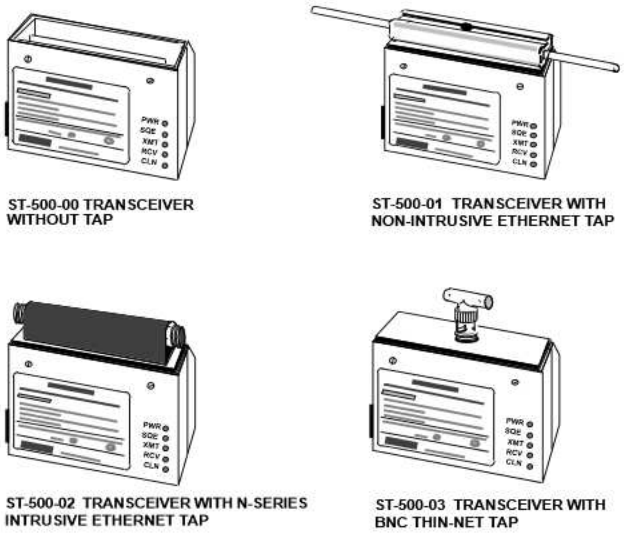


Figure 1-1. ST-500 Transceiver Models

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

1.1.1 LANVIEW LEDs

The ST-500 transceiver has five LANVIEW LEDs that monitor network activity (transmit, receive and collision present), power status, and heartbeat (SQE) test status. These LEDs are described in Table 1-1. They serve as a useful tool to quickly diagnose physical layer problems.

Table 1-1. LANVIEW LEDs

LED	DESCRIPTION
PWR	Power - On when the transceiver is receiving power from the attached node.
SQE	Signal Quality Error Test - On if the Heartbeat (SQE) test is enabled.
XMT	Transmit - On during the transmission of packets from the host.
RCV	Receive - On to indicate traffic on the network.
CLN	Collision Present - On when a collision is detected by the transceiver.

1.1.2 Heartbeat (SQE) Test

The ST-500 transceiver supports the Heartbeat (SQE) test. An internal switch is provided to enable or disable the heartbeat (SQE) test. The signal quality error (SQE) feature is used by some hosts to verify collision signal path.

When the SQE test is enabled, the transceiver sends a 10-MHz burst on the collision lead after transmissions. The burst must begin between 600 and 1600 ns after the end of the packet and must last for 500 to 1500 ns (see Figure 1-2). The times are measured at the transceiver connector. There is no collision test signal when just receiving.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

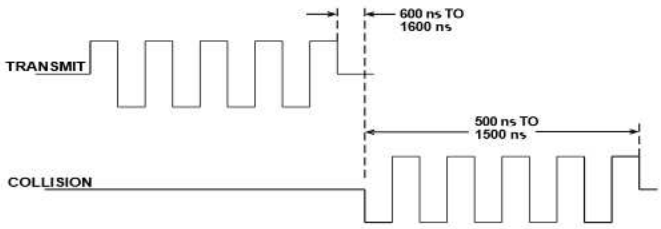


Figure 1-2. Collision Test Signal Timing

1.2 Getting Help

If there is any additional support needed for the ST-500 transceiver or if there are any questions, comments, or suggestions related to this manual, contact Cabletron Systems Technical Support:

By Phone:	(603) 332-9400 Monday through Friday; 8 A.M. to 8 P.M. EST
By CompuServe:	GO CTRON from any ! prompt
By Internet mail:	support@ctron.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

CHAPTER 2

INSTALLATION

This chapter provides instructions for installing the three types of taps supported by the ST-500 transceiver (see Figure 1-1). After unpacking the transceiver and configuring the Heartbeat (SQE) test switch, perform the tap installation procedure that is applicable to the transceiver model.

2.1 Unpacking the ST-500 Transceiver

Open the package containing the ST-500 transceiver and check its contents:

- 1 ST-500 transceiver body
- 2 Flat-head screws for attaching tap to transceiver
- 1 Cabletron Tap Kit (1K-TAP-01, 02, or 03)
- 1 Cabletron 1K-500 Installation Kit (for ST-500-01 only)
- 1 Installation guide

Inspect the ST-500 transceiver for damage. If it is damaged, contact Cabletron Systems' Customer Service. Save the shipping materials for possible future shipment of the transceiver.

Note: *Taps may be installed and capped for future use. If extra taps are required, the type of tap need only be called out. (Tap-01, Tap-02, Tap-03)*

2.2 Items Needed to Install the ST-500 Transceiver

To install the transceiver, the following items are needed:

- Cabletron Tap Kit
- Small flat-blade screw driver
- Cabletron 1K-500 Installation Kit (for ST-500-01 only, includes a coring tool)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

2.3 Installation Site

To install the ST-500 transceiver, a minimum area of 17.8-cm (7-in) high by 20.3-cm (8-in) wide by 10.2-cm (4-in) deep is recommended to provide enough space for the transceiver, tap, and Attachment Unit Interface (AUI) cable connections.

Ensure that the installation site meets the environmental conditions specified in Appendix A.

2.4 Setting the SQE (Heartbeat Test) Switch

If the tap is already installed on the transceiver, remove the two flat-head screws securing the tap to the transceiver case. Then remove the tap to gain access to the SQE switch. Refer to Figure 2-1 for the location of the SQE switch and how to set it to enable (ON) or disable (OFF) the heartbeat test feature.

Note: *The ST-500 transceiver is shipped with the SQE switch ON. Ensure that the SQE switch is OFF whenever connecting the transceiver to a repeater AUI. Otherwise, network problems (excess collisions) will result.*

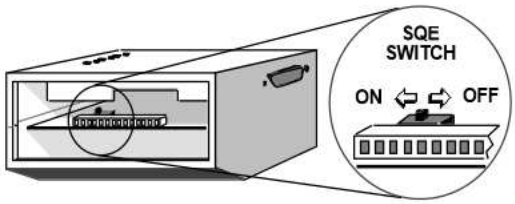


Figure 2-1. SQE Switch

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Once the power is on at the host system, the SQE LED will be lit on each transceiver that has the heartbeat feature enabled. Conversely, the LED is not lit on the transceivers with the heartbeat disabled.

Caution: *Earlier transceiver models used a jumper for this setting.* ***Do not*** *install a jumper to enable SQE. Damage can result if a jumper is installed in a transceiver equipped with an SQE switch.*

2.5 Installing the Transceiver Tap

There are three types of taps that can be installed in the transceiver. To install the transceiver tap, proceed to the appropriate transceiver tap installation instructions, as follows:

- For ST-500-01 transceivers, go to Section 2.5.1.
- For ST-500-02 and ST-500-03 transceivers, go to Section 2.5.2.

2.5.1 Installing the ST-500-01 Transceiver Tap

To install the tap, proceed as follows:

1. Open the 1K-TAP-01, Installation Kit (Figure 2-2) and check that it contains the following:

   - Cable Bed
   - Clamp
   - Braid picks (2)
   - Center Probe
   - Pressure Screw
   - Hex Wrench

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

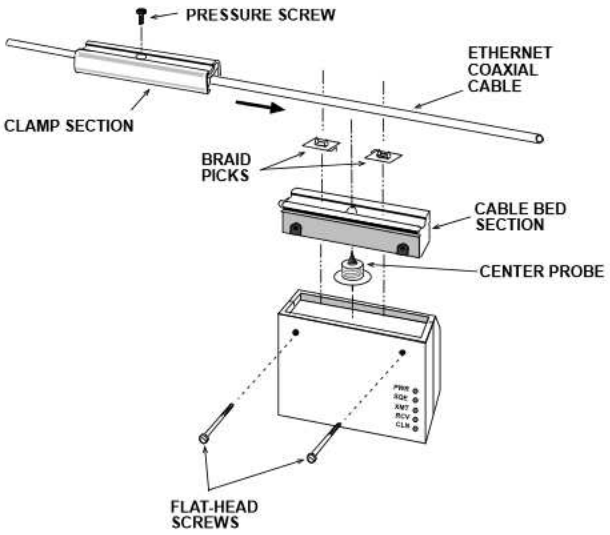


Figure 2-2. Non-Intrusive Tap Kit

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

2. Insert the braid picks into the holes in the cable bed as shown in Figure 2-3.

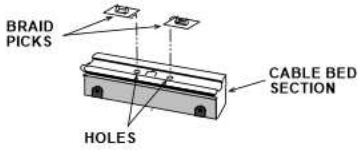


Figure 2-3. Installing the Braid Picks

3. Determine the location for the tap on the coaxial cable. (Some cables are marked at 2.5-meter (8.2-feet) intervals to indicate tap locations.) Position the cable over the braid picks in the cable bed section (see Figure 2-4). Slide the clamp into the guide slots on the cable bed.
4. Thread the pressure screw into the top of the clamp and tighten it using the hex wrench supplied in the tap kit.

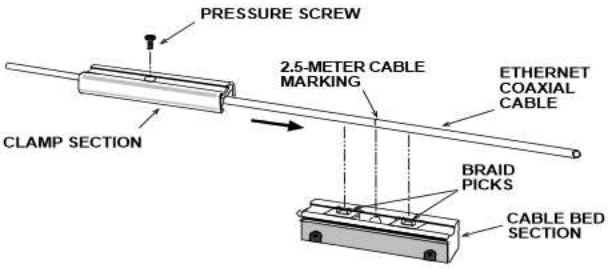


Figure 2-4. Installing the Cable Clamp

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

5. Drill a hole in the cable for the center probe. Insert the drill end of the hand coring tool into the center hole and apply pressure while twisting the coring tool clockwise (see Figure 2-5). When the coring tool turns freely, remove the coring tool. (The coring tool has a stop to prevent over-drilling.) Remove debris by holding the tap with the cable bed facing down and tapping lightly on the side of the tap. Do not blow into the hole to remove debris. Examine the hole to be sure that it is free of debris.

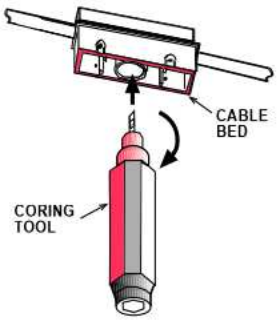


Figure 2-5. Drilling the Ethernet Cable

6. Install the center probe using the nut driver end of the coring tool (see Figure 2-6). Insert the center probe into the hole in the underside of the cable bed and tighten until snug.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

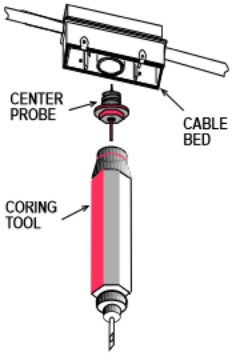


Figure 2-6. Installing the Center Probe

7. With the center probe installed, the transceiver case can be attached to the tap. Remove the two flat-head screws from the transceiver case and insert the tap into the rectangular opening in the case. Make sure the tap pins are aligned with the connector block on the transceiver circuit board.

Caution: *Avoid forcing the tap into the case. Very little force is needed. If the tap does not seat easily, remove it to determine the cause of the obstruction.*

8. Insert and tighten the flat-head screws shown in Figure 2-7.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

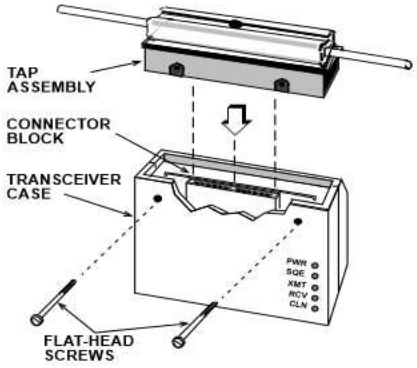


Figure 2-7. Installing the Tap

9. Check the tap using an ohmmeter. The dc resistance between the center probe and the braid should read approximately 25 ohms. For more comprehensive testing of the transceiver and transceiver tap, use a Cabletron Systems LAN-MD Transceiver and Cable Tester.

10. The transceiver is now ready to be connected to the host system cable. Proceed to Section 2.6.

2.5.2 Installing the ST-500-02 or -03 Transceiver Tap

The ST-500-02 and ST-500-03 transceivers are installed in series with the network cable. As shown in Figure 2-8, the ST-500-02 transceiver has a tap with two male N-series connectors for network cable connections, while the ST-500-03 has a tap with a BNC and T-connector to make the cable connections. Both connections are intrusive taps that

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

require cutting the network cable and installing male-mating connectors to attach the transceiver. A barrel (female to female) connector is used to provide network cable continuity when the transceiver is not installed.

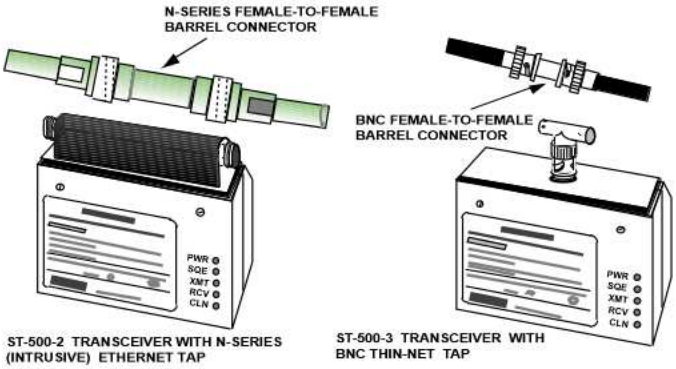


Figure 2-8. N-Series and BNC Taps

If the tap is already installed on the transceiver body, go to step 3. Otherwise, proceed as follows:

1. Remove the two flat-head screws from the transceiver case and insert the tap into the rectangular opening in the case (see Figure 2-9). Make sure the tap pins are aligned with the connector block on the transceiver circuit board.

Caution: *Avoid forcing the tap into the case. Very little pressure is needed. If the tap does not seat easily, remove the tap and examine the tap and connector block for obstructions.*

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

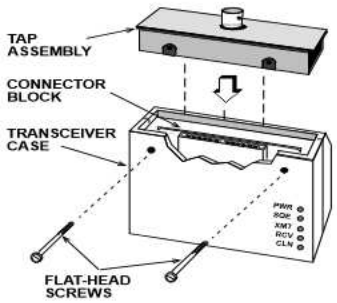


Figure 2-9. Installing the Tap

2. Insert and tighten the flat-head screws (see Figure 2-9).
3. Test the transceiver and transceiver tap using a Cabletron Systems LAN-MD Transceiver and Cable Tester.
4. Select a location for the transceiver and note the following:
   a. If a barrel connector is not installed at the location where the transceiver will be attached, the cable must be cut and BNC or N-series connectors, as applicable, must be installed by a qualified technician.
   b. If a barrel connector is installed at the location for the transceiver, remove the barrel connector and install the transceiver in its place.

Note: *If the transceiver is the last device on the network cable, connect a terminator to the open end of the T-connector.*

5. The transceiver is now ready to connect to the host system cable. Proceed to Section 2.6.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

2.6 Connecting the Transceiver to the Host

The ST-500 Transceiver is designed to operate with Ethernet Version 1.0, Version 2.0, and IEEE 802.3 compliant systems. However, each version requires different wiring for the transceiver cable. Since cable grounding is accomplished at the host end of the cable, the correct cable must be used according to the requirements of the host equipment.

1. Plug the female end of the transceiver cable into the 15-pin connector on the side of the transceiver and slide the connector lock to secure the connector.
2. Use a tie-wrap to fasten the transceiver cable to the Ethernet cable (see Figure 2-10). This provides a strain relief for the transceiver cable connection.
3. Attach the male end of the cable to the 15-pin connector on the host system.

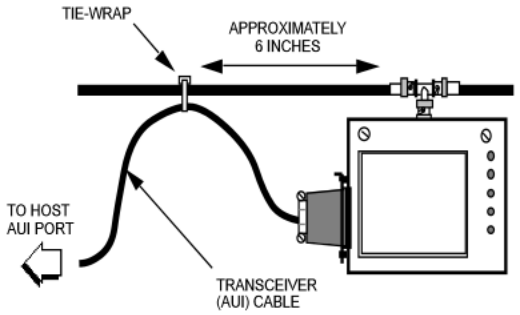


Figure 2-10. Attaching the Transceiver Cable

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

2.7 Checking the Installation

Power up the host system. The LANVIEW LEDs on the transceiver indicate normal operation as described in Table 2-1.

Table 2-1. LANVIEW LEDs, Normal Operation

LANVIEW LED	SQE Enabled	SQE Disabled
Power LED	On	On
SQE	On	Off
Transmit	On during host transmissions	On during host transmissions
Receive	Flashes to indicate network traffic	Flashes to indicate network traffic
Collision	On for collisions on the network and host transmissions	On for collisions on the network

If the LANVIEW LEDs do not indicate normal operation, refer to Chapter 3 for troubleshooting information.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

CHAPTER 3

TROUBLESHOOTING

This chapter provides troubleshooting information based on the condition of the LANVIEW LEDs on the transceiver. The troubleshooting information consists of some of the most common potential problems and solutions. If a problem persists after performing the recommended corrective actions, contact Cabletron Systems Technical Support.

3.1 LANVIEW LEDs

The condition of the LANVIEW LEDs provides valuable troubleshooting information about how the system is operating. Refer to Chapter 2, Table 2-1, for the LANVIEW LED conditions that indicate normal operation. If the LANVIEW LEDs do not indicate normal operation, proceed to the next section, Troubleshooting.

3.2 Troubleshooting

The conditions described in Table 3-1 apply only when a host system is attached and transmitting data packets. Two Ethernet testers, such as the Cabletron Systems LAN Specialist network monitoring device, can be used to exchange data packets and provide more comprehensive testing.

Observe the LANVIEW LEDs on more than one transceiver to determine if the problem is with an individual node or if it is common to the network. When similar indications appear at more than one station, the problem is most likely a network problem. If the symptoms are observed at only one station, chances are the problem is with that node.

Note: *The SQE LED is not discussed here, since the SQE LED is on with SQE enabled and off with SQE disabled. If, after setting the SQE configuration, the LED does not indicate the proper setting, the problem is in the transceiver.*

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Table 3-1 lists the more common error conditions displayed on the LANVIEW LEDs along with the probable cause and recommended corrective action.

Table 3-1. Troubleshooting Guide

Probable Cause	Corrective Action
Condition 1 - No LANVIEW LEDs lit	
1. Transceiver cable is disconnected.	Connect the transceiver cable.
2. Host powered-off.	Turn on power to the host.
Condition 2 - **PWR** on, **XMT** and **RCV** off, and **CLN** on steadily	
1. Open tap.	Ensure that the tap was installed into the transceiver body without bending the center probe that plugs into the connector block on the transceiver circuit board. Ensure that the depth of the center probe hole is correct (drill the hole again if necessary).
Coaxial cable not terminated.	Ensure that all coaxial cables are properly terminated.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Table 3-1. Troubleshooting Guide (Cont'd)

Probable Cause	Corrective Action
Condition 3 - **PWR** on, **XMT**, **RCV**, and **CLN** on (simultaneously). **Note:** This is a normal condition if SQE is enabled and the host is transmitting.	
1. Intermittent tap connection or open coaxial cable.	Check other stations for the same condition. Check the transceiver tap installation. Check for improperly terminated or cut cable.
2. Wrong transceiver cable installed.	Check cable wiring (V1.0, V2.0, or IEEE 802.3).
Condition 4 - **PWR** on, **XMT** flashing, **RCV** and **CLN** off	
1. Transceiver tap or coax cable is shorted.	Check for and remove any debris in the center probe hole.
Condition 5 - **PWR** on, **XMT** flashing, **RCV** on/flashing or off, and **CLN** on steady.	
1. Collision path via transceiver cable is broken. Collision is not being recognized by the controller.	Examine the transceiver cable for damage. Replace it if necessary.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

APPENDIX A

ST-500 TRANSCEIVER SPECIFICATIONS

This appendix provides the specifications for the ST-500 Transceiver.

A.1 Receiver Specification

Item	Typical Value	Worst Case
Leakage Current:	0 µA	-0.5 to +0.5 µA
Input Impedance:	>3.8 MΩ	>1.9 MΩ
Coax Cable Tap Capacitance:	3.7 pF	3.9 pF
Delay Time (Input to Output):		
Turn-On	180 ns	300 ns
Steady-State	11.2 ns	19.0 ns
DI Rise/Fall Time:	2.8 ns	4.0 ns
DI Output Voltage:	+/- 855 mV	+/- 810 to +/- 920 mV

A.2 Transmitter Specification

Item	Typical Value	Worst Case
Output Current:		
AC Component	+ /-38 mA	+/-39 to +/-40 mA
DC Component	-40 mA	-39 to -42 mA
Waveform Symmetry:	- 0.5 ns	- 1.1 to +0.4 ns

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Item	Typical Value	Worst Case
Delay Time (Input to Output):		
Start-Up	150 ns	175 ns
Steady-State	26.9 ns	30.1 ns
Signal Spectrum Harmonic:		
Second and Third	-24.2 dB	-19.3 dB
Fourth and Fifth	-35.7 dB	-32.0 dB
Sixth and Seventh	-56.3 dB	-48.3 dB
Higher	-55.4 dB	-52.3 dB
Input Impedance:		
Differential	80.3 Ω	79.4 to 81.0 Ω
Common-mode	> 20.0 Ω	
Frequency Range:	2 to 30 MHz	2 to 30 MHz
Common-mode Voltage Range at Input	0 to 30 Volts	0 to 5 Volts
Differential Input Voltage Required for Operation:	+/- 90 mV	+/- 150 mV

A.3 Collision Detector Specification

Item	Typical Value	Worst Case
Turn-On Delay:	806 ns	691 to 864 ns
Output Frequency:	10.2 MHz	9.5 to10.8 MHz
Turn-Off Delay:	500 ns	2000 ns

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Item	Typical Value	Worst Case
Collision DC Threshold:	-1566 mV	-1510 to 1591 mV
Interframe Test Signal (optional):		
Delay	800 ns	731 to 864 ns
Duration	752 ns	709 to 812 ns
Output Voltage:	+/- 855 mV	+/- 790 to +/- 930 mV
Jabber Control:		
Time-out	28.8 ms	26.7 to 29.6 ms
Reset Time	400 ms	400 to 600 ms

A.4 Power Specification

Item	Typical Value	Worst Case
Input Voltage:	12 Vdc	9.5 to 15.75 Vdc
Current:	278 mA	448 mA

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

A.5 Interface Connector Pinout Identification

Pin	Description	Pin	Description
1	Logic Ref.	**9**	Collision –
2	Collision +	**10**	Transmit –
3	Transmit +	**11**	Logic Ref.
4	Logic Ref.	**12**	Receive –
5	Receive +	**13**	Power (+12 Vdc)
6	Power return	**14**	Logic Ref.
7	N/C	**15**	N/C
8	Logic Ref.		

Note: *The shell is connected to the cable shield and case.*

The ST-500 transceiver is compliant with the IEEE 802.3 standard and compatible with Ethernet versions 1.0 and 2.0. However, the AUI cable used to connect a device to the ST-500 transceiver is dependent on the Ethernet version of that device. The cable wiring configurations according to IEEE 802.3 and Ethernet versions 1.0 and 2.0 are as follows:

Ethernet V1.0
(3) 22 AWG pairs. (1) 20 AWG Inner & Outer shield common at the connector shell and Pin 1.

Ethernet V2.0
(4) 20 AWG pairs, Inner & Outer shield common at the connector shell and Pin 1.

IEEE 802.3
(4) 20 AWG pairs, Inner & Outer shield isolated from each other. Outer shield connected to the connector shell and Pin 1.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

A.6 Environmental Specifications

Non-Operating Temperature:	-20° C (-4° F) to +90° C (194° F)
Operating Temperature:	5° C (40° F) to 40°C (104° F)
Operation Humidity:	5 to 95% non-condensing

Note: *The ST-500 transceiver meets all federal, state, and city standards for use in air plenums.*

Electromagnetic Susceptibility:

Operates properly in the following externally applied fields:

10 kHz to 30 MHz	2 Volts/meter
30 MHz to 1000 MHz	5 Volts/meter

Operates properly with a 1 V/ns slope transient applied from the coax shield to the transceiver case.

Electromagnetic Radiation:

Meets FCC part 15, Class A and B limits.

Caution: *It is the responsibility of the person who sells the system that includes the ST-500 transceiver to ensure that the total system complies with the allowable limits of conducted and radiated emissions.*

Isolation:

1000 Vac, 50/60 Hz applied between the shield of coaxial cable and the shield of the transceiver cable or transceiver case.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

A.7 Service Specification

MTBF (MHBK-217D):	652,315 hrs. (calculated)
MTTR:	<.25 hr.

A.8 Physical Specification

The following dimensions and weight are for the transceiver (ST-500-00) without the optional tap.

Height:	7.0 cm (2.75 in)
Width:	8.8 cm (3.46 in)
Depth:	4.5 cm (1.77 in)
Weight:	280 g (10 oz)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP