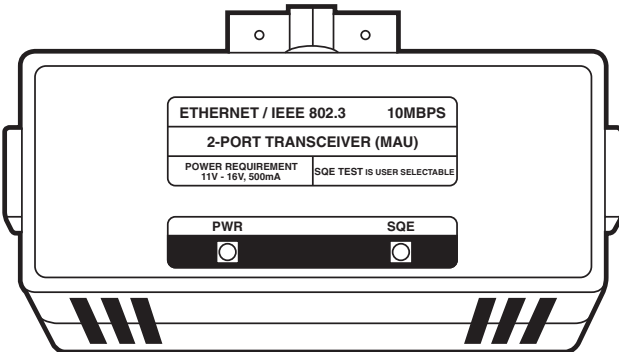
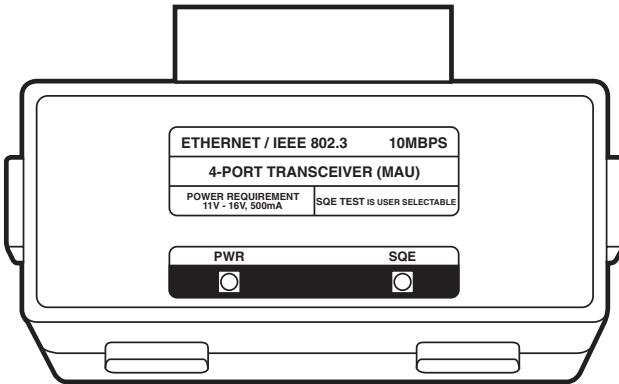




2- and 4-port Transceivers Piercing, N-type, and BNC



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This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

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This digital apparatus does not exceed the Class A limits for Radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

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1. Specifications

AUI (DB15) INTERFACE

Connectors—2 or 4 DB15 ports

Impedance—78 ohms, nominal

Signal Level Output—500 mv to 900 mv

Signal Level Input—175 mv (min)

Common Mode Voltage Range—0V to 5.0V

Voltage at AUI Input—11 to 16 VDC

Current Drawn From AUI—500 ma (max. from each port)

COAX CABLE INTERFACE

Connectors—Piercing (AMP), N-type, or BNC-type

Impedance—50 ohms, nominal

Transmit Output Voltage—0 V (low); -2 V (high)

Transmit Output DC Current—37 ma to 45 ma

Transmit Output AC Current—+/- 28 ma (min.)

Transmit Signal Rise/Fall Time—25 ns +/- 1%

Receive Input Bias Current—2 µa to +25 µa

Input Capacitance—4 pf max

Shunt Resistance—Transmitting: 10K ohm typical; Non-transmitting: 100K ohm typical

Jabber Timeout—20 to 50 ms

Jabber Reset—250 to 750 ms

General Specifications

Case—Fire-retardant molded plastic

Indicators—One green PWR (Power) LED steady ON when power is applied; one yellow SQE LED steady ON if SQE test is enabled (Note: the default setting is SQE disabled)

Preamble Loss Transmit—1 bit (typ.), 3 bits (max.)

Preamble Loss Receive—4 bits (typ.), 5 bits (max.)

Operating Temperature—32 to 131° F (0 C to 55° C)

Storage Temperature—32 to 158°F (0 to 70° C)

Relative Humidity—10% to 95% noncondensing

Size—3"H x 6.25"L x 1.5"W (7.6 x 15.9 x 3.8 cm)

Weight—0.8oz. (.3 kg)

EMI and Safety: Meets FCC Class A standard; designed in accordance with UL 478.

2. Introduction

These two-port and four-port transceivers allow two or four host computers to transparently share a single Ethernet tap. The multiple port transceivers can replace single port transceivers, thereby reducing the number of coaxial tap connections on a line (see Fig. 1).

The two-port and four-port Ethernet Transceivers employ a nonintrusive piercing tap for connection to standard Ethernet coaxial cable.

The two-port and four-port BNC Transceivers use a BNC tap for connection to ThinNet coaxial cable. This allows Ethernet controllers that do not have on-board transceivers to attach to a ThinNet (10BASE2) network.

The N-type transceivers use an N-type tap to connect to terminated segments of standard Ethernet coax cable.

The units draw all of their power from their AUI ports. The two-port transceivers can operate as one- or two-port transceivers and the four-port transceivers can operate as one-, two-, three-, or four-port transceivers. Two LEDs on the front of the transceivers indicate power ON and the status of the SQE (“heartbeat”) test function.

All models fully comply with the IEEE 802.3 standard and are compatible with Ethernet V1.0 and V2.0.

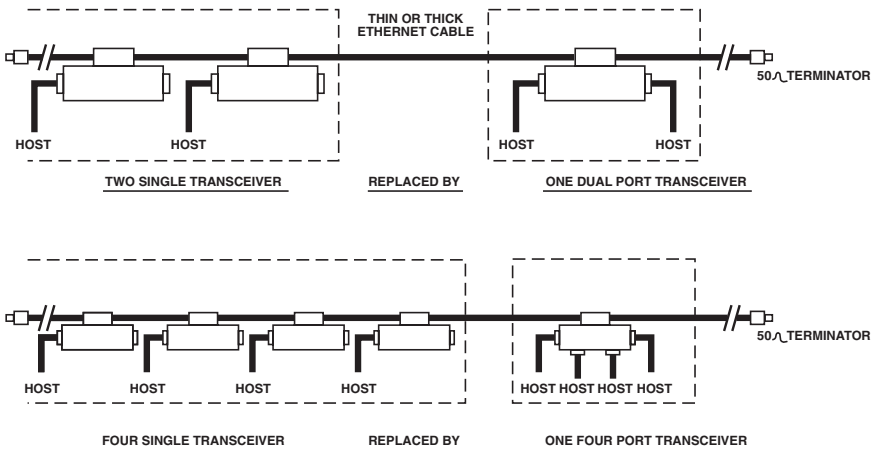


Figure 1.

3 Installation

3.1 Piercing tap transceivers

You will need an installation kit (LN012) to install the piercing tap onto the Ethernet cable. The installation kit includes a combination hand drill/nut driver, an Allen wrench, 10 braid picks, and five center probes.

1. Familiarize yourself with the various parts of the piercing tap shown in Fig. 2.
2. Insert the braid terminators into the tap body (see Fig. 2).
3. Position the cable channel of the tap body on the bottom side of the cable where you want to install the tap (see Fig. 3).
4. Slide the clamp assembly along the top side of the cable and into the slots on the tap body (see Fig. 3).

5. Using the Allen wrench included in the installation kit, screw the pressure screw into the clamp assembly until it is tight. Do not overtighten the pressure screw.

6. Insert the drill end of the hand drill/nut driver (included in the installation kit) into the center hole in the bottom of the tap body (see Fig. 4) and drill a hole in the cable. **NOTE:** The drill has a stop on it to prevent overdrilling.

7. Remove the drill and examine the hole. It should be free of debris and should penetrate the outer jacket, the braid shield, and the white dielectric material.

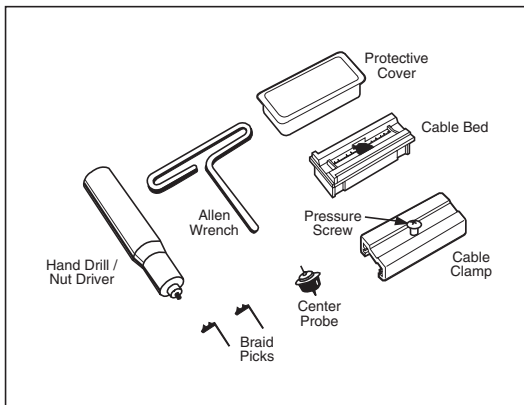


Fig. 2. Piercing Tap and Installation Kit Parts

8. Using the nut-driver end of the hand drill/nut driver, thread the probe assembly into the center hole in the tap body and tighten it by hand (see Fig. 4). Do not overtighten the probe assembly.
9. Remove the two flathead screws from the transceiver body and set them aside.
10. Slide the transceiver body onto the tap. Make sure all the pins on the tap line up with the edge connector pins on the

transceiver. NOTE: Do not try to force the transceiver onto the tap. If the transceiver will not go on, check for bent tap pins.

11. Secure the transceiver body using the two flathead screws you removed in step 9.
12. You may now attach the transceiver to a host.

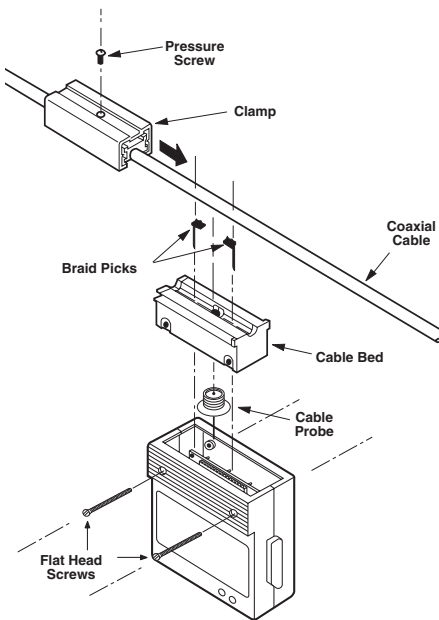


Fig. 3 Attaching the Tap

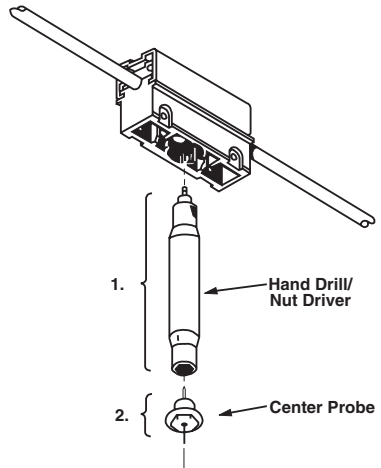


Fig. 4 Setting the Probe

3.2 The BNC Transceiver

NOTE: If the tap is already connected to the transceiver body, go to Step 4.

1. Remove the two flathead screws from the transceiver body and set them aside
2. Slide the transceiver body onto the tap. Make sure all the pins on the tap line up with the edge connector pins on the transceiver. NOTE: Do not try to force the transceiver onto the tap. If the transceiver will not go on, check for bent tap pins.
3. Secure the transceiver body with the screws you removed.
4. Connect ThinNet cable to each side of the BNC tap.
5. You may now attach the transceiver to a host.

3.3 The N-Type Transceiver

You may install the N-type tap either within a length of standard Ethernet cable, or at either end.

If you are installing *within* a length of cable, you must first be familiar with the procedure for installing N-type connectors along your line. If you are not, *do not attempt* to install this transceiver. Check a standard reference on network installation, and contact your technical support representative before you begin.

1. Install a pair of N-type connectors.
2. Remove the two flathead screws from the transceiver case.
3. Slide the tap into the transceiver case. Make sure that all the pins on the tap line up with the edge connector on the transceiver.
4. Insert the two flathead screws and tighten.
5. Attach one N-type connector to each side of the transceiver.
6. Connect the transceiver to multiple hosts with AUI cable.

If you are installing at the *end* of a length of cable, bring your network down and remove the final terminator. Follow steps 2 through 4, above, and then attach the N-type connector to one side of the transceiver. Attach the terminator to the other side, connect the transceiver to multiple hosts, and bring your network up again.

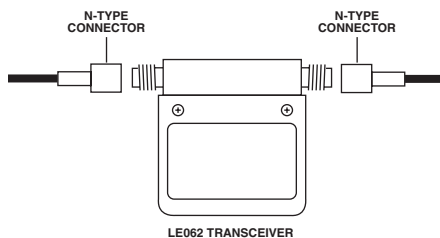


Fig. 5. N-Type Transceiver

3.4 Connecting to a Host

One or two hosts can be connected to the two-port transceivers and up to four hosts can be connected to the four-port transceivers. The table below shows the DB15 connector pinout. Follow the steps listed below to connect your transceiver(s) to your host(s).

1. Attach the female end of a transceiver cable to the DB15 male connector on your transceiver and lock the slide latch mechanism to stabilize the connection.

NOTE: For a stable connection, relieve strain on the transceiver cable by tying it to the Ethernet trunk cable with a cable tie wrap.

2. Attach the male end of the transceiver cable to the DB15 female connector on your host Ethernet controller.

3. Power-up your system. If everything has been installed properly the PWR indicator should be ON and the SQE indicator should be OFF (SQE test disabled is the default setting).

| Pin | Signal Destination |
|-----|--------------------|
| 1 | Ground |
| 2 | Collision + |
| 3 | Transmit + |
| 4 | Ground |
| 5 | Receive + |
| 6 | Power Return (GND) |
| 7 | No Connect |
| 8 | No Connect |
| 9 | Collision - |
| 10 | Transmit - |
| 11 | Ground |
| 12 | Receive - |
| 13 | Power |
| 14 | Ground |
| 15 | No Connect |

Pins 1, 4, and 11 are connected with a .1 μ f capacitor.

3.5 Configuring for SQE

The SQE (Signal Quality Error or “heartbeat”) test, supported by the transceivers, is meant to check the collision circuitry of a transceiver and the collision signal path between the transceiver and its host Ethernet controller(s).

Note that SQE is not part of the Ethernet specification version 1.0; therefore V1.0 equipment may not function with transceivers that are generating the SQE test. Also, IEEE 802.3 specifications for repeaters state that repeaters must not be attached to transceivers that are generating the SQE test.

The transceivers are shipped with the SQE test disabled. You may enable the SQE test by setting a jumper inside the transceiver according to the steps listed below.

NOTE: The jumper setting affects all ports on the transceiver, i.e., the ports cannot be configured separately. Before enabling the SQE test, make sure the test is compatible with the host or hosts connected to the transceiver. Refer to your Ethernet host controller’s manual for more information.

1. Disconnect the transceiver cable(s) from the transceiver.
2. Remove the two screws that hold the transceiver body to the tap.
3. Slide the transceiver off the tap to expose the 15-pin rectangular connector inside the transceiver.

2- and 4-port Ethernet Transceivers

Notice that six of the pins on the rectangular connector have metal contacts and three of the contacts are adjacent to one another (see Fig. 6).

4. Hold the transceiver so that the rectangular connector and its contacts appear as shown in Fig. 6.
5. To enable the SQE test, use a pair of longnosed pliers to move the jumper between connector pins 3 and 4 (see Fig. 6).

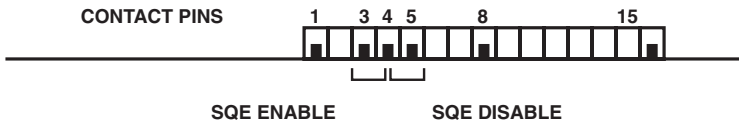


Fig. 6 SQE Configuration



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