USER MANUAL

MODEL 2102

ThinMau™ 10Base2 Transceiver/MAU

PATTON Electronics Co.

Part# 07M2102-A
Doc# 063021UA
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1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 2102 components to be free from defects, and will—at our option—repair or replace the product should it fail within one year from the first date of shipment.

This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall **Patton Electronics** be liable for any damages incurred by the use of this product. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. **Patton Electronics** specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

1.1 RADIO AND TV INTERFERENCE

The Model 2102 generates and uses 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 and television reception. The Model 2102 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 from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the Model 2102 does cause interference to radio or television reception, which can be determined by turning the power off or disconnecting the RS-232 interface, the user is encouraged to try to correct the interference by one of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches).

1.2 SERVICE

All warranty and non-warranty repairs must be returned freight prepaid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Service at **(301) 975-1007**. *Packages received without an RMA number will not be accepted.*

Patton Electronics' technical staff is also available to answer any questions that might arise concerning the installation or use of your Model 2102. Technical Service hours: **8AM to 5PM EST, Monday through Friday.**

2.0 GENERAL INFORMATION

Thank you for your purchase of this Patton Electronics product. This product has been thoroughly inspected and tested and is warranted for One Year parts and labor. If any questions or problems arise during installation or use of this product, please do not hesitate to contact Patton Electronics Technical Support at (301) 975-1007.

2.1 FEATURES

- 10Base2 connection to thin coax through a BNC connector
- Compatible with IEEE 802.3 specifications
- Power supplied through AUI interface as specified by IEEE 802.3
- Plugs directly into AUI (Attachment Unit Interface) port (DB-15)
- Easy to install and operate
- Made in USA

2.2 DESCRIPTION

The Model 2102 connects directly to a DB-15 Ethernet AUI port and converts the differential electrical signals to the proper levels for use on the 802.3 thin ethernet coax network.

The Model 2102 provides the appropriate interface for interconnection between an AUI port (DB-15 connector) and the thin coaxial cable which comprises the network medium. In normal operation, the Model 2102 constantly listens for a signal on the coax cable. When a signal is detected, the Model 2102 receives the unbalanced signal from the coax and changes it to a balanced, differential signal (DI+ and DI-) to be sent to the Ethernet station.

If the received signal is of an improper voltage level or a JAM signal is detected, the received signal is not sent to the receiver, but a Collision signal is generated and sent to the station (DTE) via the Collision differential signal (CI+ and CI-) on the AUI connector.

For transmission of a packet from the local DTE, the Model 2102 broadcasts the packet to all the stations on the IEEE 802.3 network. However, transmission does not begin until the Model 2102 determines that no other transmission is occurring at the moment. Only then is the packet sent to the coax network. Upon completion of the transmission, a signal is sent on the AUI from the Model 2102 to the DTE over the CI+ and CI- differential signal path. This indicates that the packet has been transmitted successfully onto the network. This positive indication is called the Collision Presence Function or the "heartbeat" signal.

3.0 INSTALLATION

The Model 2102 is designed to be easy to use. There are no internal jumpers or configuration switches to set, so there is no need to open the unit. The only configuration necessary for operation is the proper setting of both the SQE and COL switches.

Figure 1 shows the location of the SQE switch, the COL switch and the BNC coaxial jack.

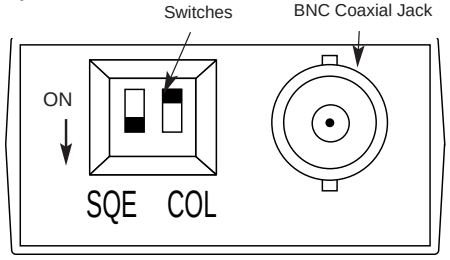

Figure 1. Location of the SQE switch, COL switch and BNC coaxial jack

3.1 CONNECTION TO THE AUI PORT

To establish connection to the AUI port, you must follow these installation steps:

1. Turn OFF the computer or device to which the Model 2102 is to be connected.

2. If the Model 2102 will be connected to the AUI port of an Ethernet interface card, turn the SQE switch ON (the down position). If the Model 2102 will be connected to the AUI port of an Ethernet hub or repeater, turn the SQE switch OFF (the up position).

   Note: The default is ON.

3. If the Model 2102 will be used with a workstation or terminal server, turn the COL switch OFF (the up position). When OFF, the MAU detects collisions only when it is transmitting data. If the Model 2102 will be attached to a repeater (such as a hub), turn the COL switch ON (the down position). When ON, the COL switch detect collisions occurring during the transmitting or receiving modes.

   Note: The default is OFF.

4. Open the slide latch of the AUI port and insert the Model 2102 into the DB-15. Lock the slide latch to secure the Model 2102 in place. If the AUI port is mounted to a card, make sure the card is configured correctly and the AUI port is enabled.

   Note: If connection to the AUI port is through a DB-15 cable, make sure the cable is wired STRAIGHT THROUGH, with at least the following signals being passed:

AUI PORT		**MODEL 2102 DB-15**	
Signal	**Pin #**	**Pin #**	**Signal**
Data Out+	3 ----------	3	Data Out+
Data Out -	10 ----------	10	Data Out-
Data In+	5 ----------	5	Data In+
Data In-	12 ----------	12	Data In-
Collision In+	2 ----------	2	Collision In+
Collision In-	9 ----------	9	Collision In-
Voltage Common	6 ----------	6	Voltage Common
Voltage Plus	13 ----------	13	Voltage Plus
Protective Ground	DB-15 Shell ----------	DB-15 Shell	Protective Ground

3.2 CONNECTION TO THE 10BASE2 NETWORK

To establish connection to the 10Base2 network, you must attach a BNC T-connector to the BNC coaxial jack (see Figure 1). Then attach the two portions of BNC cable to the T-connector. If this is one of the stations at either end of the BNC cable, attach the cable to the BNC T-connector and attach a 50 ohm BNC termination (load) to the remaining connection on the BNC T.

See Appendix B for the maximum number of MAUs per segment and their proper spacing on the coaxial cable.

APPENDIX A

SQE FEATURE

The SQE feature verifies that the Model 2102 transmits packets correctly: After the node sends each packet, the Model 2102 sends a pulse back to the node verifying that the Model 2102 has transmitted the packet correctly. If the Model 2102 is connected to an interface card, the SQE feature should be ON (the down position). If the Model 2102 is connected to a hub or repeater, the SQE switch should be OFF (the up position).

APPENDIX B

SPECIFICATIONS

Standard: IEEE 802.3 compliant

Connectors: DB-15 male on AUI port, BNC connector for connection to 10Base2 coax medium

Collision Parameters: Turn on delay: approx. 7 bits; turn off delay: max of 20 bits; pulse width: 35-70nS

Jabber Timer Parameters: When the transmitter operates continuously for approx. 40 mS, the jabber time turns the transmitter off to prevent lock-up of the network due to the jabbering of one station; after a 500mS pause, the transmitter is put into service again, although it only transmits when required

Jabber timeout: 20 - 150mS
Jabber reset timeout: 250 - 750mS

Characteristic Impedance: 50+/- 2 ohms (average)

Maximum Segment Thin Coax Length: 185m (600 feet)

Minimum Length Coax Cable Section: 0.5m

Minimum Spacing Between MAUs: 0.5m

Maximum Number of MAUs on a Cable Segment: 30

Power Supply: Supplied via the DB-15 connector on the AUI connection: pin 13 - Voltage Plus, pin 6 - Voltage Common

Temperature Range: 0-60°C (32-140°F)

Altitude: 0-15,000 feet (0 - 4,500 meters)

Humidity: 5 to 95% noncondensing

Dimensions: 2.25”L x 1.69”H x 0.75”W

Weight: 1.3 oz

APPENDIX C

BLOCK DIAGRAM