USER MANUAL

MODEL 2073

Kilo-Link™

64k/G.703 Access Converter/Rate Adapter

PATTON Electronics Co.

ISO 9001 CERTIFIED

An ISO-9001 Certified Company

Part# 07M2073-A
Doc# 0311091UA
Revised 12/4/99

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1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 2073 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 2073 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 2073 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 2073 does cause interference to radio or television reception, which can be determined by disconnecting the unit, the user is encouraged to try to correct the interference by one or more 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 CE NOTICE

The CE symbol on your Patton Electronics equipment indicates that it is in compliance with the Electromagnetic Compatibility (EMC) directive and the Low Voltage Directive (LVD) of the European Union (EU). A Certificate of Compliance is available by contacting Technical Support.

1.3 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:

tel: **(301)975-1007**
email: **support@patton.com**
www: **http://www.patton.com**

NOTE: 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 2073. 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

- Bi-directionally converts V.24, X.21,V.35 or 10 BaseT to co-directional G.703
- LED indicators monitor Test Mode and Synchronization
- Internal, external or network clocking options
- Test Mode controlled by switch or by local DTE (V.24 and V.35 Versions Only)
- Complies with CCITT/ITU G.823 Jitter Control Specifications
- Built-in surge protection and transformer isolation
- Point-to-Point distance up to 5250 ft (1600m) on 24 AWG twisted pair
- 120 ohm (twisted pair) network termination

2.2 DESCRIPTION

The Patton Model 2073 standalone interface converter/rate adapter allow a synchronous V.24, V.35, X.21 or ethernet device to communicate bi-directionally over the G.703 co-directional PCM network. Supporting internal, external DTE timing or G.703 network generated timing, the Model 2073 is perfect for networking applications that require speeds of 9600 bps to 64 kbps. The Quick-Connect style of interchangeable interface modules for the 2073 allow various physical and electrical interfaces to connect to the 64K synchronous G.703 network.

A 120 ohm twisted pair telephone port provides the interface for the G.703 network. Additionally, 75 ohm terminations can be made using the Patton Model 460 (G.703 balun).

Diagnostics include Local Loopback and G.703 Loopback testing. Synchronous clock jitter is attenuated in accordance with the G.823 specification.

3.0 CONFIGURATION

The Model 2073 is equipped with two sets of eight DIP switches, which allow configuration of the unit for a wide variety of applications. This section describes switch locations and explains all possible configurations.

3.1 CONFIGURING THE HARDWARE DIP SWITCHES

The 16 external switches are grouped into two eight-switch sets, and are externally accessible from the underside of the Model 2073.

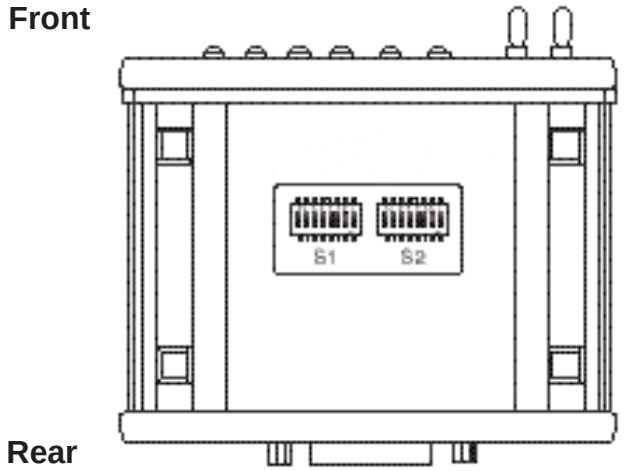

Figure 1. Underside of Model 2073, Showing Location of DIP Switches

The two sets of DIP switches on the underside of the Model 2073 will be referred to as S1 and S2. As Figure 2 shows, the orientation of all DIP switches is the same with respect to “ON” and “OFF” positions.

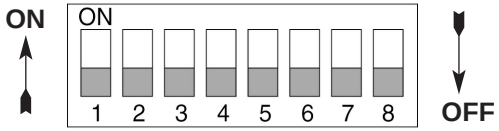

Figure 2. Close Up of Configuration Switches (all sets are identical in appearance)

3.1.1 Configuration DIP Switch Set “S1”

S1 Summary Table			
Position	Function	Factory Default	
S1-1	DTE Data Rate	On	64kbps
S1-2	DTE Data Rate	On	
S1-3	DTE Data Rate	On	
S1-4	DTE Data Rate	On	
S1-5	Transmit Clock Source	On	Network (Normal)
S1-6	Transmit Clock Source	Off	
S1-7	Reserved	Off	
S1-8	V.54 Prep Phase Reception	On	Enabled

Switches S1-1 thru S1-4: DTE Data Rates

The DTE synchronous and asynchronous data are determined by the combined switch settings of S1-1,S1-2,S1-3, and S1-4. The following table lists all the possible switch combinations and the corresponding DTE data rates:

Data Rate	S1-1	S1-2	S1-3	S1-4
9600	Off	On	On	Off
14.4	Off	On	On	On
19.2	On	Off	Off	Off
28.8	On	Off	Off	On
32	On	Off	On	Off
38.4	On	Off	On	On
48	On	On	Off	Off
56	On	On	Off	On
57.6	On	On	On	Off
64	On	On	On	On

NOTE[1]: The four data rate configuraton switches are ignored when Octet Timing Mode is selected (S2-1 is set to the “On” position, D8=1). In Octet Timing Mode, the data rate defaults to 128kbps.

NOTE[2]: Asynchronous rates are 9600, 14,400, and 19,200. To run in asynchronous mode, set the 2073 for 64K synchronous to over sample the data bits.

Switches S1-5 and S1-6: Transmit Clock Source

Use Switches S1-5 and S1-6 to configure the 2073 transmit clock source. In campus applications, in which two Model 2073s operate as short range modems, set one unit for internal or external clock, and the other unit for Network (Campus) Clock. When the Model 2073 terminates a 64kbps G.703 line and provides a serial interface to customer premises equipment, set the unit for Network (Normal) Clock.

Transmit Clock Source	S1-5	S1-6
Internal	Off	Off
External	Off	On
Network (Normal)	On	Off
Network (Campus)	On	On

NOTE: Switches S1-5 and S1-6 determine the source of clocking across the G.703 connection. Therefore, this option must be defined in both Asynchronous and Synchronous DTE applications. External transmit clock source is not a valid setting for asynchronous applications.

Switch S1-8: Local V.54 Preparatory Phase Reception Enable/Disable

Use switch S1-8 to control the reception of the V.54 remote digital loopback preparatory phase bit pattern by the local Model 2073. When this switch is “On”, the local 2073 will respond to any V.54 loopback requests that are received from the G.703 network. This is the normal setting. This setting will allow the local Model 2073 to enter V.54 loopback when a valid V.54 preparatory phase bit pattern is received from the G.703 network.

V.54 Prep Phase Reception	S1-8
Disabled	Off
Enabled	On

When S1-8 is “Off”, the local Model 2073 will ignore any V.54 loopback requests that are received from the G.703 network. This mode can be used to prevent the local Model 2073 from entering V.54 loopback mode indadvertently, due to bit streams that resemble the V.54 preparatory phase pattern. Even if S1-8 is “Off”, the local Model 2073 may still initiate a V.54 loopback request.

3.1.2 Configuration DIP Switch Set “S2”

S2 Summary Table			
Position	Function	Factory Default	
S2-1	Timing Mode	Off	Clear Channel
S2-2	BPV Transmit Control	Off	BPV not inserted
S2-3	Front Panel Switch	On	Enabled
S2-4	DTE Test Mode	On	Acknowledged
S2-5	Reserved	Off	
S2-6	Reserved	Off	
S2-7	Reserved	Off	
S2-8	Reserved	Off	

Switch S2-1: Clear Channel or Octet Timing Mode

Use Switch S2-1 to control the G.703 timing mode. When S2-1 is set to the “Off” position, a clear channel mode of operation is selected. In this mode, only user data is transmitted to and from the DTE interface at any one of the data rates mentioned in section 3.1.1.

When S2-1 is set to the “On” position, 128K octet timing mode is

Clear Channel or Octet Timing Mode	S2-1
Clear Channel Mode	Off
Octet Timing Mode	On

selected. In this mode 64 kbps octet timing information is embedded within the 64 kbps user data, thus creating a 128 kbps synchronous data stream to and from the DTE.

NOTE: Octet timing mode requires synchronous, 128 kbps DTE operation. When octet timing mode is selected (S2-1=”On”), all data rate selection switches are ignored.

Switch S2-2: G.703 Bi-Polar Violation (BPV) Transmit Control

Use switch S2-2 to determine whether or not the Model 2073 will insert BPV's into the transmitted G.703 data stream.

BPV Transmit Behaviour	S2-2
BPVs not inserted into G.703 data stream	Off
BPVs insterted into G.703 data stream	On

Switch S2-3: Front Panel Switch Enable/Disable

Use Switch S2-3 to disable or enable the front panel switches.

Front Panel Switch Operation	S2-3
Disabled	Off
Enabled	On

Switch S2-4: DTE Test Mode Request Enable/Disable

Use Switch S2-4 to determine whether or not the Model 2073 will respond to test mode requests (LAL or RDL) from the DTE.

DTE Test Mode Requests	S2-4
Ignored	Off
Acknowledged	On

4.0 INSTALLATION

The Model 2073 is designed for 4-wire, full duplex communication over a co-directional 64 kbps G.703 clear channel network dedicated twisted pair. This section describes the proper connection of the line interface, the DTE (terminal) interface, and AC/DC power.

NOTICE! The G.703 line surge protection on this unit was installed for circuit protection only. By no means does this include the preservation of signal quality during a large surge.

4.1 Connecting to a PCM Network Channel

The RJ-45 port on a model 2073 is pre-wired for direct connetion to the G.703 PCM network. Connect the RJ-45 port of the Model 2073 to the RJ-45 jack provided by your digital service carrier using a **straight through** twisted pair cable between 19 and 26 AWG. The signal pin relationships are shown in Figure 4 below.

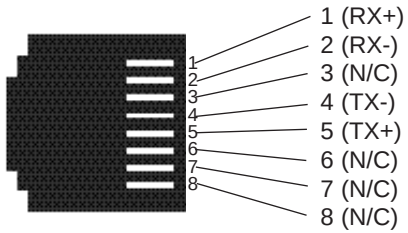

Figure 4. 64K G.703 Interface

4.2 Connection Over Private Twisted Pair

If you wish to connect the Model 2073 to another Model 2073 (or compatible G.703 device) over private twisted pair, make the connection between the two devices using a **crossover cable** pinned according to the diagram below.

RJ-45 Cable (8-Wire)

SIGNAL	PIN# PIN#	SIGNAL
RX+	1----------5	TX+
RX-	2----------4	TX-
TX+	5----------1	RX+
TX-	4----------2	RX-
Shield	3----------3	Shield
Shield	6----------6	Shield

4.2 CONNECTING THE SERIAL PORT

The serial port interface on the Model 2073 uses interchangeable *QuikConnect™* Modules. Each *QuikConnect™* Module has a 50-pin card edge connector on one side and a serial port interface on the other. The drawing below shows how a *QuikConnect™* Module plugs into the back of the Model 2073. Figure 4 below shows how a *QuickConnect™* Module plugs into the back of the Model 2073.

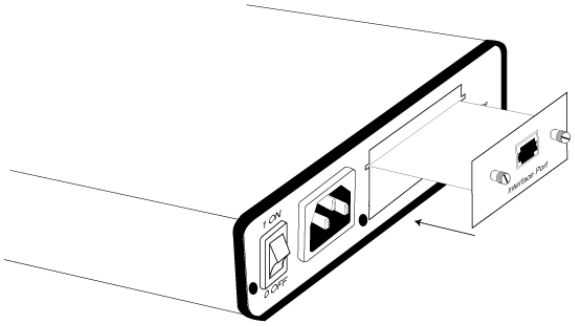

FIgure 5. Installation of Model 2073 Plug-in Serial Interface Module

4.2.1 Changing *QuikConnect™* Modules

When you purchase a particular version of the Model 2073, it should be shipped to you with the appropriate *QuikConnect™* Module already installed. If you need to install a different *QuikConnect™* Module, follow these steps:

Removing the Existing *QuikConnect™* Module

1) Turn the power switch off. Leave the power cord plugged into a grounded outlet to keep the unit grounded.

2) Loosen the two thumbscrews on the module by turning them counterclockwise.

3) Grasp the two thumbscrews and gently pull the module from the unit. Apply equal force to the thumbscrews to keep the module straight during the removal process

Installing the New *QuikConnect™* Module

1) Make sure the power switch is off. Leave the power cord plugged into a grounded outlet to keep the unit grounded.

2) Hold the module with the faceplate toward you and align the module with the guide slots in the rear panel of the Model 2073.

3) While keeping the module's faceplate parallel with the Model 2073 rear panel, slide the module straight in – so that the card edge contacts line up with the socket inside the chassis.

NOTE: The card edge connector should meet the socket when it is almost all the way into the chassis. If you encounter a lot of resistance, remove the module and repeat steps 2 & 3.

4) With the card edge contacts aligned with the socket, firmly seat the module by using your thumbs to apply pressure directly to the right and left edges of the module faceplate. Applying moderate and *even* pressure should be sufficient to seat the module. You should hear it "click" into place.

5) To secure the module in place, push the thumbscrews into the chassis and turn the screws clockwise to tighten.

4.2.2 Connecting to a "DTE" Device

The serial port on most *QuikConnect™* interface modules (all except the X.21 module) is hard-wired as a DCE. Therefore these modules "want" to plug into a DTE such as a terminal, PC or host. When making the connection to your DTE device, use a **straight through** cable of the shortest possible length—we recommend 6 feet or less. When purchasing or constructing an interface cable, please refer to the pin diagrams in **Appendix C** as a guide.

4.2.3 Connecting to a "DCE" Device

If the Model 2073's QuikConnect™ interface module is hard-wired as a DCE (all except the X.21 module), you must use a *null modem* cable when connecting to a modem, multiplexer or other DCE device. This cable should be of the shortest possible length—we recommend 6 feet or less. When purchasing or constructing a null modem interface cable, use the pin diagrams in **Appendix C** as a guide.

NOTE: Pin-out requirements for null modem applications vary widely between manufacturers. If you have any questions about a specific application, contact Patton Electronics Technical Support.

4.2.4 Configuring the X.21 *QuikConnect™* Module

The serial port on the X.21 *QuikConnect™* Module is default wired as a DCE, but may be switched to a DTE. This is done by reversing the orientation of the DCE/DTE strap, as described below:

To reverse DCE/DTE orientation, remove the module according to the instructions in **Section 4.2.1**. The DCE/DTE strap is located on the bottom side of the module's PC board. The arrows on the top of the strap indicate the configuration of the X.21 port (for example, if the DCE arrows are pointing toward the DB-15 connector, the X.21 port is wired as a DCE). Reverse the DCE/DTE orientation by pulling the strap out of its socket, rotating it 180º, then plugging the strap back into the socket. You will see that the DCE/DTE arrows now point in the opposite directions, showing the new configuration of the X.21 port. Reinstall the module according to the instructions in **Section 4.2.1**.

4.3 CONNECTING POWER

The Model 2073 is available with two power supply options:

Universal Interface AC Power Supply option (**Model 2073-UI**) operates in environments ranging from 100 to 253 VAC, with no re-configuration necessary (see **Appendix B** for available domestic and international power cords).

DC Power Supply option (**Model 2073-DC**) operates in 48 VDC environments and is equipped with a 3-pin "terminal strip" style connector.

4.3.1 Connecting to an AC Power Source

The Universal Interface AC Supply is equipped with a male IEC-320 power connection. A domestic (US) power supply cord is supplied with the unit at no extra charge. To connect the standard or universal power supply, follow these steps:

1) Attach the power cord (supplied) to the shrouded male IEC-320 connector on the rear of the Model 2073.

2) Plug the power cord into a nearby AC power outlet.

3) Turn the rear power switch ON.

4.3.2 Connecting to a DC Power Source

The 48 VDC power supply option uses a 3-pin terminal block with spring-type connectors. Please refer to the Model 1090 Series Service Manual for the power line voltage connections.

WARNING! There are no user-serviceable parts in the power supply section of the Model 2073. Fuse replacement should only be performed by qualified service personnel. Contact Patton Electronics Technical support at (301)975-1007, via our web site at http://www.patton.com, or by e-mail at support@patton.com, for more information.

5.0 OPERATION

Once the Model 2073 is properly configured and installed, it should operate transparently. This sections describes power-up, reading the LED status monitors, and using the built-in loopback test modes.

5.1 POWER-UP

To apply power to the Model 2073, first be sure that you have read **Section 4.3**, and that the unit is connected to the appropriate power source. Then power-up the unit using the rear power switch. Figure 5 (below) shows the front panel location of each LED. A description of the each LEDs funtion is below Figure 5.

Figure 5. Model 2073 Front Panel

5.2 LED STATUS MONITORS

The Model 2073 features13 front panel LEDs that monitor power, the DTE signals, network connection and test modes. The figure below shows the front panel location of each LED. Following the figure below is a description of each LEDs function.

TD & RD Glows yellow to indicate an idle condition of Binary "1" data on the respective terminal interface signals. Green indicates Binary "0" data

CTS Glows green to indicate that the Clear to Send signal from the modem is active.

CD Glows yellow if no carrier signal is being received from the remote modem. Green indicates that the remote modem's carrier is being received.

RTS Glows green to indicate that the Request to Send signal from the terminal is active.

ER - flashes once to indicate that a CRC error has occurred (during normal operation) or bit errors have occurred (during 511/511E tests).

TM glows yellow to indicate that the Model 2073 has been placed in Test Mode. The unit can be placed in test mode by the local user or by the remote user.

SYNC Glows green to indicate a valid G.703 connection.

5.3 TEST MODES

The Model 2073 offers two V.54 loop diagnostics: Local Analog Loopback and Remote Digital Loopback. These tests can be activated physically from the front panel, or via signals on the *QuickConnect*^{TM} interface.

5.3.1 Operating Local Analog Loopback (LAL)

The Local Line Loopback (LAL) test checks the operation of the local Model 2073, and is performed separately on each unit. Any data sent to the local Model 2073 in this test mode will be echoed (returned) back to the user device (i.e, characters typed on the keyboard of a terminal will appear on the terminal screen).

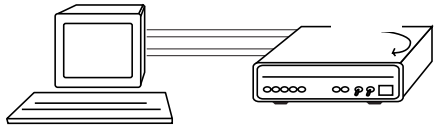

Figure 6. Local Line Loop

To perform a Local Analog Loopback test, follow these steps:

1. Notify the G.703 Service provider that you wish to perform a G.703 Loop test.

2. Move the front panel toggle switch UP to "Local.

3. Verify that the data terminal equipment is operating properly and can be used for a test.

4. Perform a V.52 BER (bit error rate) test as described in **Section 5.3.3.** If the BER test equipment indicates no faults, but the data terminal indicates a fault, follow the manufacturer's checkout procedure for the data terminal. Also check the interface cable between the terminal and the Model 2073.

5.3.2 Operating Remote Digital Loopback (RDL)

The Remote Digital Loopback (RDL) test checks the performance of both the local and remote Model 2073s, as well as the communication link between them. Any characters sent to the remote Model 2073 in the test mode will be returned back to the originating device (i.e, characters typed on the keyboard of the local terminal will appear on the local terminal screen after having been passed to the remote Model 2073 and looped back). See figure 7 below.

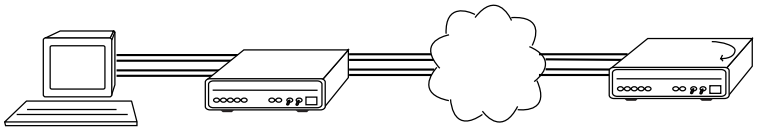

Figure 7. Remote Digital Loop

To perform an RDL test, follow these steps:

1. Activate the RDL by moving the front panel toggle switch DOWN to remote.

2. Perform a bit error test (BERT) using the internal V.52 gener ator (as described in **Section 5.4**), or using a seperate BER Tester. If the BER test indicates a fault, and the Local Line Loopback test was successful for both Model 2073s, you may have a problem with the twisted pair line between the modems. You should then check the twisted pair line for proper connections and continuity.

5.3.3 BIT Error Rate (V.52) Diagnostics

The Model 2073 offers a V.52 Bit Error Rate (BER) 511 test pattern. This test pattern may be invoked along with the LAL and RDL tests to evaluate the unit(s) and the communication links.

When a 511 test is invoked, the 2073 generates a pseudo-random pattern of 511 bits using a mathematical polynomial. The receiving Model 2073 then decodes the received bits using the same polynomial. If the received bits match the agreed upon pseudo-random pattern, then the 2073(s) and the communication link(s) are functioning properly.

511 Initiates a built-in 511 bit pseudo-random pattern generator and detector.

511 with Errors Initiates a built-in 511 bit pseudo-random pattern generator and detector. The test pattern generator also injects ***intentional errors*** approximately once per second, causing the Error LED to blink.

To perform a V.52 BER test, follow these steps:

1. Locate the toggle switch group on the right side on the front panel and place it in the middle where it is marked “Normal”. This acti vates the V.52 transmission and reception of the selected test pattern. If there are errors in the received patt ern, the error LED will blink accordingly.

2. If the above test indicates no errors are present, move the toggle switch UP to 511/E, activating the BER test with intentional errors. If the test light is working properly, the local modem’s red error LED will blink approximately once per second.

NOTE: The above V.52 BER tests can be used independently of the Remote Digital Loopback tests. This requires two operators: (1) to initiate and monitor the tests at the local Model 2073, and (2) to do the same at the remote Model 2073. In this case, the test pattern sent by each Model 2073 will not be looped back, but will be transmitted down the line to the other Model 2073. While one operator initiates test, the other monitors for errors.

APPENDIX A

PATTON ELECTRONICS MODEL 2073 SPECIFICATIONS

Transmission Format:	Synchronous/Asynchronous
Transmission Line:	Four-Wire unconditioned twisted pair
Clocking:	Internal, external or Network
Interface Modules:	EIA RS-232/ITU/T V.24, RS-232/530, ITU/T V.35 and ITU/T X.21
Line Rates:	**256 kbps**
DTE Rates Async:	9600, 14400, 19200 kbps
DTE Rates Sync:	9600, 14400, 19200, 28800, 32000, 38400,48000, 56000, 57600, 64000 kbps
Diagnostics:	V.54 test modes for LAL and RDL; V:52 511/511E BERT pattern generator and detector.
LED Status Indicators:	TD, RD, CTS, CD, RTS, Synch, Error Test Mode
Connectors:	RJ-45 on line side; DB-25 female, M/34 female,RJ-45 female or DB-15 female depending upon which serial interface module is installed.
Power:	90-260 VAC via IEC 320 shrouded male connector 48 VDC (option). 10 watts.
Temperature Range:	32-122°F (0° -50°C)
Altitude:	0-15,000 feet
Humidity:	up to 90% non-condensing
Dimensions:	7.3” x 6.6” x 1.62” (185mm x 168mm x 41mm)
Weight:	2.02 lbs. (.92 kg)

APPENDIX B

PATTON ELECTRONICS MODEL 2073 FACTORY REPLACEMENT PARTS AND ACCESSORIES

Patton Electronics Model #	Description
IM1/A	V.24 with DB25F
IM1/B	RS422/RS530 with DB25F
IM1/C	V.35 with M34F
IM1/D	X.21 with DB15F
IM1/E	V.35 with DB25F
IM1/F	G.703 with RJ45
IM1/I	Ethernet Bridge Module
IM1/I4	4 port Ethernet Hub Module
IM1/J	Voice/Data Module
0805US	American Power Cord
0805EUR	European Power Cord CEE 7
0805UK	United Kingdom Power Cord
0805AUS	Australia/New Zealand Power Cord
0805DEN	Denmark Power Cord
0805FR	France/Belgium Power Cord
0805IN	India Power Cord
0805IS	Israel Power Cord
0805JAP	Japan Power Cord
0805SW	Switzerland Power Cord
07M1090SVC	1090 Series Service Manual

APPENDIX C

PATTON ELECTRONICS MODEL 2073 INTERFACE PIN ASSIGNMENT

RS-232, RS-530 Interface Pin Description (DB-25 Female Connector) (DCE Configuration)

Pin #	Signal
1	FG (Frame Ground)
2	TD (Transmit Data)
3	RD (Receive Data)
4	RTS (Request to Send)
5	CTS (Clear to Send)
6	DSR (Data Set Ready)
7	SGND (Signal Ground)
8	CD (Carrier Detect)
9	RC/ (Receive Timing-B)
10	CD/ (Carrier Detect-B)
11	XTC/ (External Transmit Clock)
12	TC/ (Transmit Clock-B)
13	CTS/ (Clear to Send)
14	TD/ (Transmit Data-B)
15	TC (Transmit Clock-A)
16	RD (Receive Data)
17	RC (Receive Timing)
18	LLB (Local Line Loop)
19	RTS/ (Request to Send)
20	DTR (Data Terminal Ready)
21	DL (Remote Digital Loop)
22	DSR/ (Data Set Ready)
23	DTR/ (Data Terminal Ready)
24	XTC (External Transmit Clock)
25	TM (Test Mode)

APPENDIX C

PATTON ELECTRONICS MODEL 2073 INTERFACE PIN ASSIGNMENT (Continued)

V.35 Interface (M/34F Female Connector) (DCE Configuration)

Pin #	Signal
B	SGND (Signal Ground)
C	RTS (Request to Send)
D	CTS (Clear to Send)
E	DSR (Data Set Ready)
F	CD (Carrier Detect)
H	DTR (Data Terminal Ready)
L	LLB (Local Line Loop)
M	TM (Test Mode)
N	RDL (Remote Digital Loop)
P	TD(Transmit Data)
R	RD (Receive Data)
S	TD/ (Transmit Data-B)
T	RD/ (Receive Data-B)
U	XTC (External Transmit Clock)
V	RC(Receive Timing)
W	XTC/ (External Transmit Clock)
X	RC/ (Receive Timing)
Y	TC(Transmit Clock-A)
AA	TC/ (Transmit Clock-B)

APPENDIX C

PATTON ELECTRONICS MODEL 2073
INTERFACE PIN ASSIGNMENT
(Continued)

X.21 Interface
(DB-15 Female Connector)
(DTE /DCE Configuration)

Pin #	Signal
1	Frame Ground
2	T (Transmit Data-A)
3	C (Control-A)
4	R (Receive Data-A)
5	I (Indication-A)
6	S (Signal Element Timing-A)
7	BT (Byte Timing-A)
8	SGND (Signal Ground)
9	T/ (Transmit Data-B)
10	C/ (Control-B)
11	R/ (Receive Data-B)
12	I/ (Indication-B)
13	S/ (Signal Element Timing-B)
14	BT/ (Byte Timing-B)