

PCU Series

Port Concentrator Unit



Key Features

- **Comprehensive Interface Support**
- **Jitter Free Operation**
- **High Data Rates Up to 2 Mbps**
- **Cable Extension up to 500 Feet**
- **Mix Interface Types in Chassis**
- **DTE and DCE Interface on the Same Card**
- **Software-based Port Configuration**
- **Integral Modem Eliminator, BERT Test, and Break-out Box Functions**
- **Redundant Power Supplies**
- **Interface Scanning and Alarming**
- **Auto Learning**

For efficient cable reduction and error-free operation consider the Coronet Technology Port Concentrator Unit (PCU) that functions as either a matrix interface or a cable concentrator.

The PCU operates as an interface between virtually any user equipment interface (DTE or DCE) and the digital matrix engine. Use the PCU to change system configurations, to execute A/B and sparing applications, and to perform modem eliminator and test/access functions.

As a cable concentrator, use the PCU to reduce cable congestion passing up to 16 ports of user data over a single inter-chassis cable to a maximum of 250 feet from the switch engine.

Advanced Port Card Design

The heart of the PCU is its port card design. This unique design supports both DTE and DCE modules on a single card, eliminating the need for clumsy plug in modules to support alternate interfaces or DTE/DCE orientation while reducing the required spare parts holding. Port card types can be freely mixed within a PCU without restriction to serial interface, orientation or speed.

All port cards can be configured to provide passive monitoring, modem eliminator (at speeds up to 2.048 Mbps), interface conversion, lead alarming, software controlled breakout box as well as normal-through connectivity. All of the above features are built-in and shipped with each port card and can be enabled or disabled through simple software commands.

Space Efficient

The compact PCU (3.5" high, 8" deep) occupies just 2 rack units in a standard RS-310 equipment cabinet. This footprint accommodates sixteen full duplex data channels with all associated data, clock and control leads. Each Interface Channel has a mechanical connector physically located at the rear of the chassis, mounted on the chassis mother board. The PCU Channel Cards are inserted from the front of the chassis into the chassis mother board. The user interface cables mount directly to the PCU Chassis. This arrangement allows all PC boards to be removed from the front of the chassis without first removing the rear mounted user cables.

Several chassis designs are available for all the *standard* interface connectors. One Chassis, the PCU-2, has standard DB-25 female connectors for each user interface and is used for the RS-232, EIA-530, V.35, RS-449, RS-422, and T1 interface types. A second chassis design handles the E-1/G703 (BNC) mechanical interface. Additional chassis designs are available to Twinaxial, Coax, and VF interfaces.

Cornet Technology Brings the PCU to You

The PCU is designed to co-locate with the user DTE and DCE equipment and to extend up to 250 feet from the switch engine, allowing a total equipment separation of 500 feet.

Power Supply Redundancy

The PCU is available with two types of dual redundant power supply modules: PSC 12 and PSC 4. The PSC 12 is designed to support up to 12 V.24/V.35 PCU's and thus is cost effective for supporting a large number of ports in one location. The PSC 4 is designed to support up to 4 V.24 PCUs (or 3 V.35 PCUs) and thus is most cost effective for small port requirements widely distributed through the center.

The redundant modules are part of the chassis configuration and allow each module to "share" the total load; however, each module is capable of powering the entire PCU(s). If a power module fails, the redundant module will automatically assume the entire load. The port-to-port connections will continue to pass data.

Multiple Interfaces

The PCU-2 chassis accommodates all serial interfaces including RS-232, RS-449, RS422, EIA-530 and V.35 interface signals. These different interfaces can be freely mixed in a single PCU-2 chassis. The RS-232 and EIA-530 Interfaces both use the DB-25 mechanical connector. Interfacing with V.35 requires the addition of a V.35/DB-25 converter, one per channel. This adapter is included with the V.35 Interface card.

Port Interface Cards for Twinaxial balanced RS-422 and many non standard interfaces are available from Cornet Technology.

Smart Port Card Design

One port card supports all functions including connectivity, monitor, test, modem eliminator, interface conversion and DTE/DCE orientation. Consequently the number of spares required on site is dramatically reduced.

Comprehensive speed support has never been easier! The PCU's all-speed card intuitively supports the full range of line speeds up to 2.048 Mbps without operator intervention.

Additionally, PCU port cards support the fullest range of critical leads.

All transmit interface signals (data, clock, and control) are multiplexed together, converted to RS-422 signals levels, and sent to the remote end. A total of only four wires (two transmit and two receive) are used to communicate the entire active interface. A maximum of 64 wires are used per PCU.

Number of Pins supported for each available Interface

RS-232	19
EIA-530	25
V.35	19
X.21	12
T1	2
E1/ G703	2

Dual Interface Card

Dual Interface card designs (combo cards) are available with the PCU. The RS-232/V35 combo card, for example, combines RS-232 and V.35 on the same card. By allowing the two most popular interfaces to reside on the same card and be selectable with strap options. The user can now install RS-232 circuits with system upgrades to V.35 in mind. When the V.35 equipment is purchased and installed, simply change the PCU card straps to convert to the V.35 standard. Or use the built-in interface conversion to connect RS-232 devices to V.35 equipment. Combo cards are now available to support RS-530 and X.21 requirements.

Combo cards are ideal for networks evolving to new high speed interfaces. They allow migration to be a controlled and well managed process.

Port Concentrator Unit

Easy Set-Up

Installation has never been easier. Cornet Technology has eliminated virtually all hardware jumper settings for any component. With the exception of DTE or DCE selection on the port card, all port card settings are accomplished through software commands from the CorScan software.

An automatic configuration facility (auto-learn) is built into CorScan enabling it to read or “learn” the configuration of each port card.

Learned configurations can be downloaded to newly installed cards, thus greatly reducing the time required to set up and configure each port card.

Built-in PCU Card Test.

Each PCU card contains two built-in methods of testing. First, each card contains LEDs that are used to determine if the port is connected to a distant end card (*Link Up*) and if that link is error free (*Link Error*). Additional LEDs indicate the status of the transmit and receive data

signals. These LEDs can be used to determine if data is being transmitted or received by the card.

The second test feature is a built-in loopback function that loops the transmit cable pair back to the receive cable pair. If data is now presented to the card, it will pass through the cards input circuitry and then be looped back to the local user. If a BERT test is performed at this level, you can easily determine the health of the user interface.

Individual Port Card



PCU Loopback Test

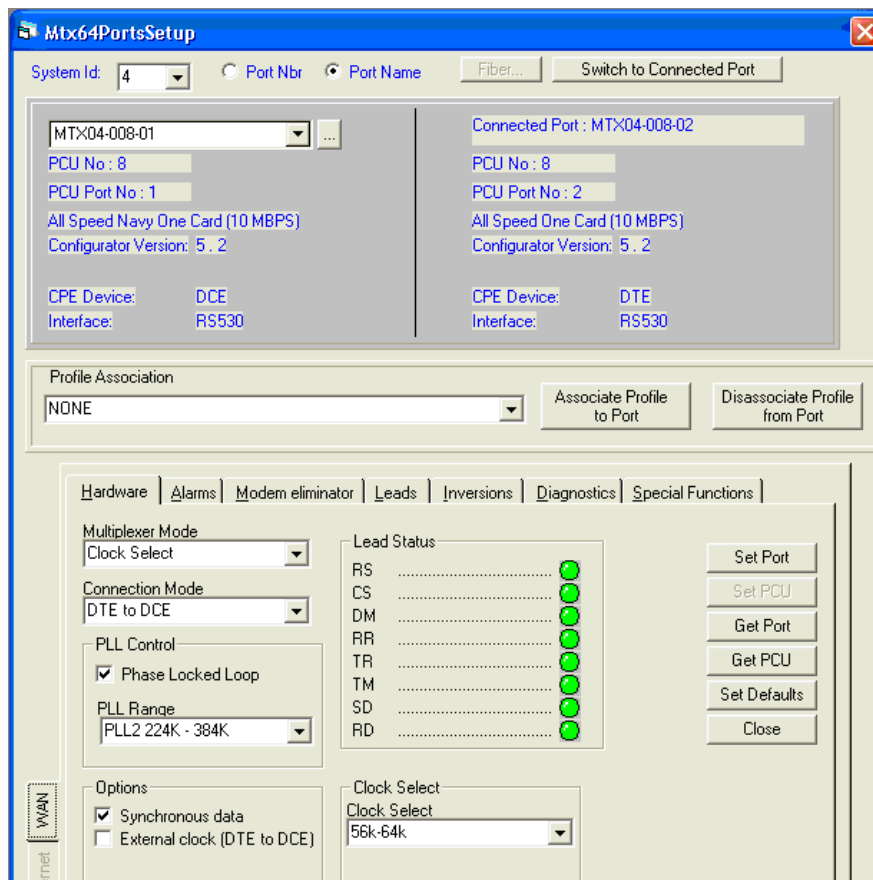


Figure 1 Port Setup Screen

Features Galore!

For functionality nothing comes close to the wide variety of tasks that the PCU can perform. A full suite of service tools such as Modem Eliminator, Breakout Box, BERT testing and Interface conversion are included, eliminating the need to purchase these devices individually. Importantly all these tools can be accessed and managed through the CorScan control system by any operator with access privileges thus providing a convenient and predictable service platform regardless of their location.

Modem Eliminator Function

The Modem Eliminator card allows interconnection of DTE devices without the requirement of an external modem pair or modem eliminator. In many cases, this card can replace the limited distance modems when the distance covered is less than 500 feet. Each PCU can be up to 250 feet from the main matrix switch, therefore, PCU chassis can be separated by as much as 500 feet. The ME Card supplies clock to both DTE devices, allowing them to operate normally without modems.

The Modem Eliminator rate selection is performed using the CorScan configuration management interface.

Virtually any clock rate above 64 Kbps is supported up to 2.048 Mbps. Typical ME date rates are included in the table below.

ME Data Rates

Low Speed	High Speed
2400	56,000
4800	64,000
9600	128,000
14,400	256,000
19,200	384,000
28,800	1.536 M
38,400	2.048 M

Breakout Box Functionality

Key interface leads can be controlled from the CorScan configuration software. Depending on the configuration mode, interface leads are either passed through the PCU port card or controlled and held at a specified state, either Mark or Space. When in the matrix mode of operations, individual leads can also be preset to a specific state when a connection is not made, allowing full control of the system operating interface.

The current lead state of the displayed port is available on the configuration screen. Simply click on the Get Port button, and the state of eight key interface leads are read and displayed for your review.

Lead Scanning and Alarming

Each Interface Port Card in the PCU can be set up to alarm on changes in data and control lead status. A typical alarm could be a combination of RTS ON(+) and CTS OFF(-), or NO TX DATA, or CD ON(+) and NO RX DATA for 30 SECONDS. Once the alarm condition is downloaded to the port card, the on-board electronics will scan the interface for scan for the alarm condition. Each port card can be configured to automatically report up to two lead related alarm conditions.

These alarms are set up at the Matrix console and “downloaded” to the PCU chassis where they are stored in the Interface Monitor Alarm Controller (IMAC) Card. When the alarm condition becomes “true”, an alarm message is sent back to the Matrix control and presented on the Control Screen. Likewise, all Active Interface leads can be “Scanned” and presented on the Matrix Control Screen, allowing the operator to view the data activity and control lead status of a channel to determine if a problem exists. The leads scanned are T Data, R Data, RTS, CTS, DSR, DTR, DCD and Signal Quality.

Additional Value Added Functions

Additional value added features available with the PCU port cards include:

- BERT Testing (up to 2 Mbps)
- Interface Conversion
- Port Sharing
- Broadcast



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