DCB

WIDE AREA NETWORK

SOLUTIONS GUIDE

THE DCB ADVANTAGE

- ■ Single source convenience

- ■ A full line of proven solutions

- ■ Professional, competent support

- ■ Reliable, easy to set up, easy to use products

- ■ Products with helpful diagnostic features

- ■ Custom versions available for all standard products

DCB

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CUSTOMERS COMMENTS

"Not always is the least expensive solution the best, but in this case I was very satisfied with the outcome."

"When I installed them [multiplexers], they worked immediately. I had never configured ports on a stat mux before and I had absolutely no trouble."

"Russ, I've been in this business since 1964 and have installed more equipment than I care to remember. Never before have I experienced this level of support and dedication."

"I wanted to express my gratitude for the help I received on July 6th. I was having trouble getting two routers to work properly, and your technical support helped me solve my problem. He stayed on the phone for at least half an hour and was patient with someone not very familiar with routers."

"You are the only company that has been pro-active in helping me with this, I greatly appreciate it."

"Your remarkable knowledge of UNIX and asynchronous communications coupled with your thorough understanding of our network configuration proved invaluable throughout the planning process. That the network worked properly right out of the chute, without any testing period, is a tribute to both your attention to detail and the quality of the hardware … It is indeed a pleasure to work with such an outstanding team of professionals. I look forward to a continuing successful partnership with DCB."

"Thanks for the extra effort on your part. Without your support in our emergency, our… operation would have been seriously affected… without you leaving your dinner engagement and providing the spare unit, their [the customer's] efforts would have been wasted."

SERVICE, SERVICE, SERVICE

It bears repeating! At DCB, we know you have real life business problems to solve. Data communications has to be a no-hassle issue. (Remember DCB stands for Data Comm for *Business*). We're committed to providing quality service that you can count on. Our customer service is second to none and sets us apart from those "box mover" companies. Just call us and ask a question. Both pre-sale and post-sales support is not only priceless, its free!

LATEST TECHNOLOGIES

DCB has always used the latest proven technology and techniques in its products. Whether it's using the new BPF frame relay FRAD for a SCADA system, our DSP (Digital Signal Processing) based multi-drop modem technology, or our Etherpath serial server, you are taking advantage of the latest technology.

SOLVE PROBLEMS

DCB has the expertise and products to solve your unique communications problems. Whether it's cutting edge wireless factory floor communications, Frame Relay SCADA WAN, or T3 links around the world…DCB can apply a full toolset of products and decades of experience to help.

INNOVATION

DCB continues to be an innovate leader in RS-232 data management products. Building upon extensive knowledge gained over 20 years in business, the company provides innovative solutions to bandwidth, economical data transport, and protocol based communication problems. Our advanced products apply Frame Relay networks to SCADA systems, convert Async PPP to SYNC PPP, allow synchronous equipment to communicate over asynchronous links and vice-versa, and run RS-232 data through ethernet. Innovative base-line products such as industrial strength rack-mount modems, "hybrid" wired/wireless modem, and data broadcast unit help our customers solve troublesome problems.

Dear Network Users,
You will find this network solutions guide valuable. This publication features solutions for frame relay, multiplexing, LAN and Internet connectivity, voice/data solutions and wide area network maintenance. DCB sells business solutions, backed up by products that work and by DCB employees who know we succeed only when the customer succeeds.

We invite you to call DCB, where a live person (sometimes even the company president) answers the phone. We offer you personal service that starts with your first phone call and continues as we help you evaluate system requirements, work through installation, and help with any subsequent support and maintenance.

Take a close look at DCB frame relay solutions. Frame relay provides cost effective networking for point to point, point to multipoint and meshed networks. In many instances, frame relay saves enough on line costs to justify changing from private line analog or digital circuits to a frame relay network.

We have many more solutions in addition to frame relay. Browse the catalog and see for yourself. Then give us a call! Find out why so many customers have said "We couldn't have done this without DCB".

INSIDE THIS ISSUE

Serial Data Management

DCB PRODUCTS MANAGE SERIAL DATA

Serial data is often thought of in the form of asynchronous RS-232 data streams, but it also includes data presented in V.35 interfaces, DDS, T-1 channels, wireless networks, fiber, microwave, or even OC-3 links.

From its beginnings as a small multiplexer manufacturer in 1981, DCB has grown to produce many products that allow the efficient transmission of data over lower speed lines and in unique situations. While others attempt to provide products that "transmit data", DCB innovates by using its proven hardware platforms and fresh ideas combined with hard-won expertise.

Many applications require unique solutions that can be built from standard hardware by adding a small change to the embedded firmware. DCB has done that many times to provide a simple solution to complex data transport problems. These solutions are in use by government agencies, cell-phone providers, internet service providers, paging companies, scientific research agencies, and large retail store chains.

SOME EXAMPLES…

SCADA systems are those computer based networks that control machines, such as factory automation, pipeline pump stations, electric substations, and water or sewage pumping stations. Many distributed SCADA networks use multi-drop modems for communicating their commands over simple analog lines. DCB historically addressed this market by manufacturing high quality leased line modems and fast-training (fast-poll) multi-drop modems. As network technology evolved to include frame relay mesh networks and IP networks, DCB introduced new products to address the market changes… products such as the Broadcast Polling FRAD (BPF) and the EtherPath ethernet "modem". Eventually, most manufacturers of leased-line and fast poll modems left the market due to the high-volume opportunity in Internet home-use modems. We didn't! We stayed the course, and along with our new products for ethernet and frame relay networks we developed more advanced leased line modems (including fast polling ones) such as our DSP based LL9.6 Fast Poll, D-Series industrial dial-up modems, V.29 units, and the Bell 202T modem.

The Data Broadcast Units (DBU) are another example of products that are "customized" to meed the needs of specific customers. While our standard broadcast data switch is used to send data to multiple transmitters for pagers (the industry that sends signals to pocket beepers), it was discovered that a custom model would be even more useful. That model was created to allow the paging transmitter to connect to the controller and send its status information "backwards" to the controlling computer. Since the transmitters are usually located atop mountains and tall buildings, it makes sense to send that "reverse channel" information back to the controlling office. No other product allowed this, as most paging companies used standard modem sharing units or our older DBU for simulcast transmitters.

With the popularity of routed ethernet wide area networks, many large networks supporting RS-232 data are becoming either redundant or too costly to maintain for low volume traffic. DCB produced the EtherPath SS-1 serial server to address this problem. Using this product, one can transport an asynchronous RS-232 serial data stream over a routed ethernet WAN. This allows serial devices like printers, security controllers, parking-lot entrance gates, emergency alarms, and lowly crt terminals to operate over the newer ethernet WAN. By teaming up an EtherPath and a SR multiplexer, up to 32 data channels can be run over the ethernet… and much more efficiently than using remote terminal servers or remote multi-port server cards. We even customize the EtherPath to work in OEM devices. You may have used a product with our EtherPath embedded in it without knowing it. We added AT dialing commands to the EtherPath so it can be a drop-in replacement for older dial-up modem networks.

A customer needed to transport high speed data over T3 lines… but only T1 connections were available at their location. We provided an inverse multiplexing product that allows multiple T1 lines to bond together to support that higher bandwidth until their telco could install the T3 circuits. Then, we cut over to the T3 Integrated Access Device at night so voice, data, and video flow was unaffected during business hours.

These are just a few examples of how DCB helps manage the flow of data over the wide area networks of the present and future. If you have a unique situation or one commonly found in the industry, give DCB's application support engineers a call for assistance.

OUR DESIGNERS HAVE BEEN BUSY

We introduced many new or enhanced products over the last year or two. A few of the most interesting are…

The **EtherPath** single port serial server. This is a thin server/device server that enables RS-232 devices to live on Internet or ethernet LAN/WAN. With the new AT dialing functionality, the EtherPath can be a drop-in replacement for dial-out modem networks simply by replacing phone numbers with IP addresses. Used in the "nailed-up connection" mode, they provide a virtual RS-232 connection over ethernet LAN/WANs.

The **D-series** dial-up modems are ideal for rack mounting or "industrial strength" applications that require a rugged, reliable V.90 dial-up.

The **LL-9.6FP** is the modern V.29 fast polling modem that will operate in an asynchronous as well as synchronous multi-drop network. Many SCADA and pipeline companies use the LL-9.6FP fast polling modem on multi-drop lines. This modem was re-designed from the ground up in 2000 with a new DSP core processor for even better performance. Although not a common item in urban areas, fast polling modems are often used in many countries where modern infrastructure such as frame relay isn't available. Fast polling modems are often used in control applications such as pipelines, water pump stations, and electric distribution systems.

The **202-T** is another new design on an old theory. Bell 202T modems are in use for low-speed, ultra-reliable data links. DCB re-designed this old workhorse with new technology.

The **X-2 hybrid** is a unique modem. It combines a dial-up modem with a multi-drop spread spectrum wireless modem. It is used to extend the "local" loop in areas that wire can't reach due to economic or physical constraints or to allow dial-in for connecting to multiple wireless modems using a single phone line (such as dialing into an oil field and connecting to each of 20 or 30 well control computers).

The **DCB-115** wireless modem operates in the license-exempt 900 Mhz or 2.4 Ghz band. Operating at 57.6 Kbps full duplex or 115.2 Kbps half-duplex, it is often used with our voice/data multiplexers for combined voice/data links of 20 miles or more. This modem is rack mountable, and available in a variety of power supply options.

The **T-extender** is a T-1 demarc extension device or T1 repeater. Now in-house T1 devices can be up to 5,000 ft. from the telco demarc… and without any jumpers or switches to set.

The **ASU Asynchronous Sharing Unit** allows a single RS-232 data stream to be broadcast as well as interleaving the reverse channel data. Replace old passive MSUs with a robust, active product with 4 to 32 ports.

The **SAC-128 Sync-Async converter** enables asynchronous data to flow over a synchronous datacomm link. Often used with sync DDS lines or high-speed fractional T1 DSUs.

The new **RRC-1 RS-232 to RS-530** converter joins our VRC-1 (V.35 to RS-232 converter) line to connect RS-232 devices to the new RS-530 interfaces on data communications equipment.

Our new **WSS wireless factory floor communication system** enables up to 96 workstations or controllers to communicate with a host computer over a deterministic, polled system. It is ideal for food processing or hazardous environment facilities.

Frame Relay Solutions

AN OVERVIEW

Frame Relay is the data communications technology many of us have been anticipating. This technology is now offered by all long distance telephone companies and most local carriers. Frame Relay brings two major advantages to both the user and the telephone company. First, it better utilizes telephone company equipment and lines so rates are lower than leased lines.

And second, since it is a mesh type network (truly a switching fabric instead of dedicated fixed circuits), it's more reliable. With these two advantages, Frame Relay makes the price of a network almost independent of the distance between the sites! This technology also has advantages that really shine with bursty traffic such as LAN-to-LAN or terminal communications.

HOW IT WORKS

Your data enters the telco system through a new device, a Frame Relay Assembler/Disassembler called a FRAD. The FRAD formats your data stream for the telco network. It also adds addressing information to the data; and most importantly, breaks the stream into small packets of data. The telco system can handle these packets efficiently and at high speed. Although the system is almost error free, all error detection and correction is done by the customer's equipment, letting the telco transmission system operate even faster. Since each packet of data has an address attached to it, you can send different packets to different locations… multidrop type operation without the pain of multidrop troubleshooting!

Your data packets are merged with other packets within the telco system and flow through a mesh type network. Since each packet has address information, if any path in the mesh is down or congested, the system can automatically reroute through another path. This makes reliability much greater than the old leased circuits and at lower cost. At the destination, your packets are filtered out of the packet stream and sent only to your location. This is the same technology telephone carriers use in their internal networks. Only now, the cost is low enough for users to take advantage of it.

Frame Relay has another advantage, It's great for "bursty" traffic. Telephone companies priced it with the ability to carry more data at any given time period than the customer "commits" to and pays for. That is, they will let you connect at a higher speed than the billing rate. You can "over speed" the connection from time-to-time to allow bursts of high speed data traffic. For example, you may have an average throughput of 32 kbps with bursts to 56 kbps. You might get a "committed information rate" (or CIR) of 32 kbps instead of the full 56 kbps. This is especially handy for LAN traffic. Some carriers even let you commit to different rates for each direction. If the host site sends large printed reports or database updates to the remotes, and the remotes only send keystrokes to the host; you can get 56 kbps in one direction and only pay for 2.4 kbps in the other.

Frame Relay networks are great replacements for old multidrop networks. Since the telephone company filters packets for you, troubleshooting is easier than with older multidrop circuits. Each site receives only the packets destined for it, not all the traffic. Imagine a frame relay network with the host end running at 56 kbps and each of 16 sites running at 24 kbps. Compare that to the older technology multidrop network required to support the same system!

DCB'S FRAME RELAY SOLUTIONS

DCB, premier manufacturer of statistical multiplexers with built in frame relay technology, also manufactures multi-port asynchronous FRADs. Our SR FRADs work in both point-to-point and point-to-multipoint Frame Relay networks. These FRAD products allow you to take advantage of Frame

Relay while using your existing asynchronous equipment. We also connect LAN's using both FRAD technology and via any port of a multiplexer connected to a Frame Relay network. If it's long distance, Frame Relay can probably save you money!

SCADA AND FRAME RELAY

Adapting critical SCADA (Supervisory Control And Data Acquisition, systems that allow machine to machine communications) to work over new frame relay networks isn't easy. DCB's Broadcast Polling FRAD (BPF) does just that and is

the industry's first FRAD built specially for the SCADA market. This system works in multipoint frame relay as well as point-to-point DDS and radio link networks.

FRAME RELAY
POINT-TO-POINT

Any link errors are
corrected by DCB FRADs

Network management
built into every
DCB FRAD

PCs or
terminals

SR FRAD

DSU

TELCO
Frame Relay

DSU

SR FRAD

Host or Server

Up to 16 Remote Locations
32 Total Devices

Remote
Devices

Remote
Devices

SR FRAD

SR FRAD

DSU

DSU

SITE 1

SITE 2

Remote
Devices

FRAME RELAY
POINT-TO-MULTIPOINT

TELCO
Frame Relay

SR FRAD

DSU

SITE 3

DSU

SRX FRAD

Host or Server

QEI SCADA
RTU

AS&E Load
Management
RTU

QEI SCADA
RTU

AS&E Load
Management
RTU

SCADA
FRAD

SCADA
FRAD

SITE 1

SITE 2

QEI SCADA
RTU

AS&E Load
Management
RTU

FRAME RELAY
SCADA

TELCO
Frame Relay

SCADA
FRAD

AS&E ASEP
Load Management

SCADA
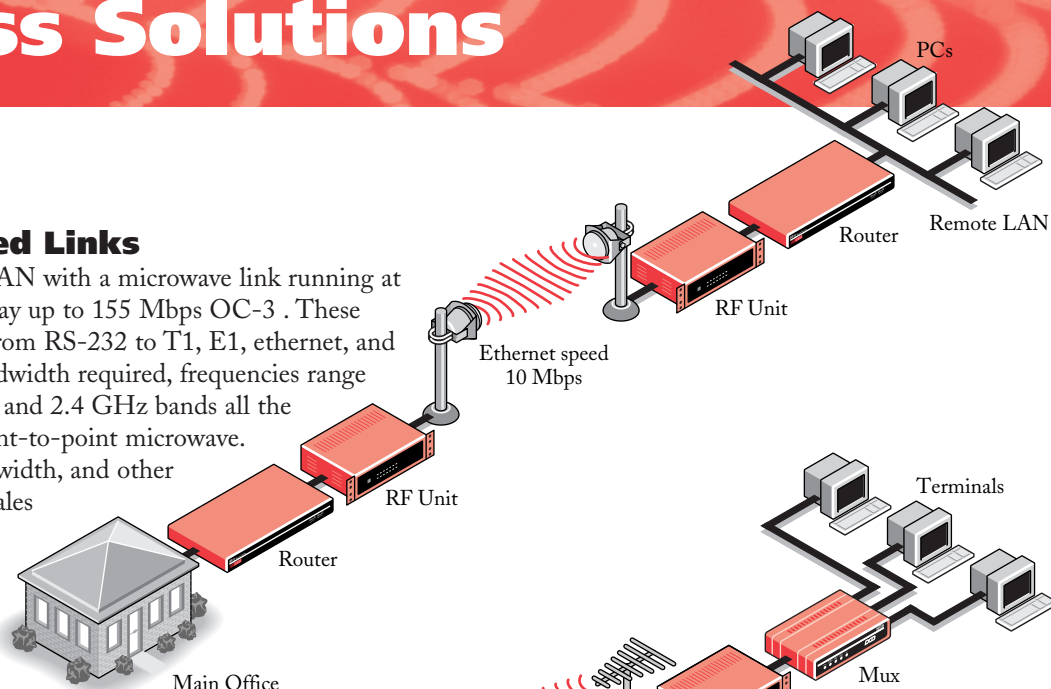FRAD

SITE 3

QEI QUICS IV
SCADA Master

Wireless Solutions

WIRELESS WAN

Wireless High-Speed Links

Connect to the remote office LAN with a microwave link running at speeds from 1.5 Mbps all the way up to 155 Mbps OC-3 . These links normally have interfaces from RS-232 to T1, E1, ethernet, and OC-3 fiber. Depending on bandwidth required, frequencies range from the license-free 900 MHz and 2.4 GHz bands all the way up to 23 GHz licensed point-to-point microwave. Range varies with terrain, bandwidth, and other factors, so check with our pre-sales support group for additional information.

Remote LAN

Router

RF Unit

Ethernet speed 10 Mbps

RF Unit

Router

Main Office

Terminals

Mux

RF Unit

Up to 128 Kbps

Wireless Machine or Terminal Connections

Connect remote terminals to the host computer with wireless modems. Distance is no longer a barrier to good terminal performance. Replace leased telephone lines with our radio links for multiplexers or terminals running at speeds of 9.6Kbps to 1.5 Mbps and higher. Bandwidth, distance, and actual throughput depend upon many factors, so check with our pre-sales support group for additional information.

RF Unit

Mux

Host Computer
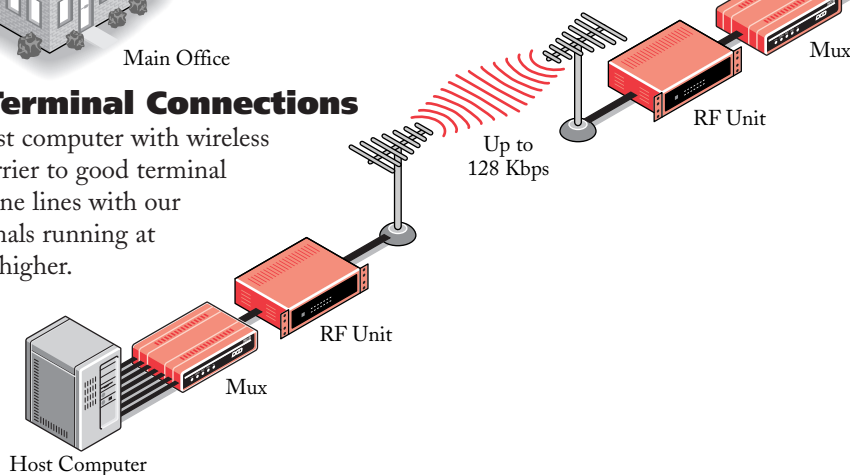
MODEL	MAXIMUM RANGE	MAXIMUM SPEED	FREQUENCY	LICENSED?	ANTENNA
DCB-115	To 20 miles, LOS	1.2 to 115 Kbps Async	900 & 2400 MHz	No, SS	Yagi, Dish
SpeedLan	To 10 miles, LOS	Up to 11 Mbps	2400 MHz	No, SS	Yagi, Dish
Freewave	To 20 miles, LOS	Up to T1	900 & 2400 MHz	No, SS	Yagi, Dish
Proxim	To 20 miles, LOS	1.5 Mbps	900 & 2400 MHz	No, SS	Yagi, Dish
Stratum	To 7 miles, LOS	100 Mbps	5800 MHz	No, SS	Dish
875	3 miles LOS*	10 Mbps & T1	23 GHz	Yes	9" Dish
950	Over 10 miles LOS*	10 Mbps & T1 or multiple T1	23 GHz	Yes	2' Dish
SW-100	Over 10 miles LOS*	100 Mbps	23 GHz	Yes	Dish
Helios	Over 10 miles*	OC-3, 155 Mbps	23 GHz	Yes	Dish

LOS: Line of sight   SS: Spread Spectrum   * Path engineering may verify even longer ranges.

Cut out the middleman (eliminate monthly telephone bills)

Payback times for wireless connections are often less than one year. Radio modems connecting two locations five or six miles apart usually cost less than $3,500. That link runs at 64 Kbps, plenty fast enough for most LAN-to-LAN router applications. Blazingly fast for terminal connections. No hassle installation is less than a day. Many of our radio modems use spread-spectrum technology with no license needed.

FIELD SERVICES

DCB's technicians can provide your field site survey (required on more complicated or licensed links), license preparation, and help you with pre-sales questions. We can handle or manage the entire project, including tower installation, wiring, and configuration.

DCB

VOICE/DATA INTEGRATION

DCB manufactures products that allow multiple voice channels to operate over the same line as well as share the same communications system with multiple data streams. By using special techniques, regular telephone quality voice can be compressed down to under 6,000 bps, as compared to the telephone industry standard of 64,000 bps. This is termed "low bit rate voice", and is available in several products. DCB products use G.723, proprietary, and standard ADPCM voice compression methods, depending upon the application goals. These units even allow Group 3 fax machines to be used, quite a feat using low bit rates.

The SR-VM "voice multiplexer" is available in units having one to four voice channels and up to 24 data channels. The network side of the unit runs over synchronous, asynchronous low speed RS-232, or with the proper interface over TCP/IP, V.35, DDS, or high speed interfaces. For example, using the SR-VM, two voice channels can be combines with 8 data channels to operate over a license-free 900 MHz spread spectrum radio link. The same unit can be configured to operate over a 4-wire analog leased telephone line. This unit is ideal for adding a voice channel to a low speed asynchronous link.

DCB Voice Multiplexer Options

MODEL	VOICE LINES	COMPRESSION METHOD	DATA CHANNELS	INTERFACE
DV-1D	One	ADPCM	1	56 Kbps DDS
SR-00-VM	One to Four	G.723	None	RS-232 between 9.6 Kbps and 128 Kbps, Sync or Async
SR-08-VM	One to Four	G.723	8	RS-232 between 9.6 Kbps and 128 Kbps, Sync or Async
SR-16-VM	One to Four	G.723	16	RS-232 between 9.6 Kbps and 128 Kbps, Sync or Async
SR-24-VM	One or Two	G.723	24	RS-232 between 9.6 Kbps and 128 Kbps, Sync or Async

All SR-XX-VM models are available with the Etherpath TCP/IP ethernet interface. All SR-XX-VM models operate over wireless links, DDS or T-1 links using appropriate DSUs or TDMs and the proper interface.

TELEPHONE INTERFACES

DCB voice multiplexers are shipped with ALL THREE commonly used telephone interfaces. These are FXS, FXO, 4-wire E&M.
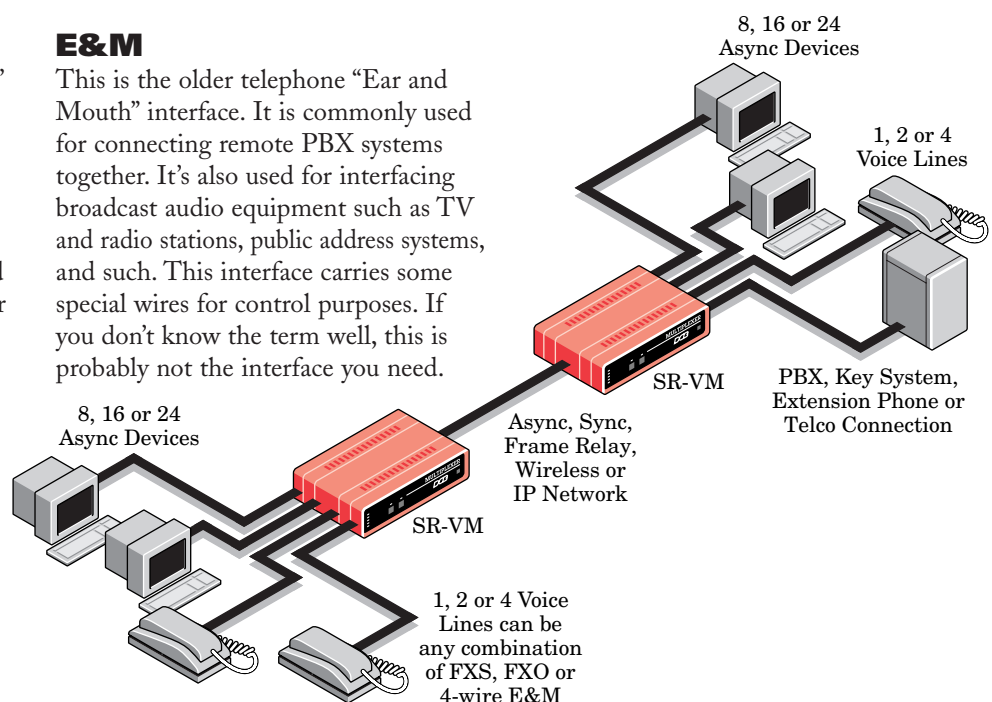
FXS

This is the standard "telephone Station" interface. Use this interface to plug a normal home-type telephone, fax machine, or answering machine into the unit. It is occasionally (but rarely) used to connect to a pbx or key system that is configured to "act like" a standard telephone. Remember the "S" stands for plugging a "Station" into the SR-VM.

FXO

This is the standard "telephone Office" interface. This interface is used to plug into a PBX system that "acts like" the public telephone system. Plug this interface into the same jack where you would plug a normal telephone. Remember the "O" stands for "Office", you are connecting the SR-VM to a telephone Office or equivalent.

E&M

This is the older telephone "Ear and Mouth" interface. It is commonly used for connecting remote PBX systems together. It's also used for interfacing broadcast audio equipment such as TV and radio stations, public address systems, and such. This interface carries some special wires for control purposes. If you don't know the term well, this is probably not the interface you need.

8, 16 or 24 Async Devices

SR-VM

Async, Sync, Frame Relay, Wireless or IP Network

8, 16 or 24 Async Devices

SR-VM

1, 2 or 4 Voice Lines can be any combination of FXS, FXO or 4-wire E&M

1, 2 or 4 Voice Lines

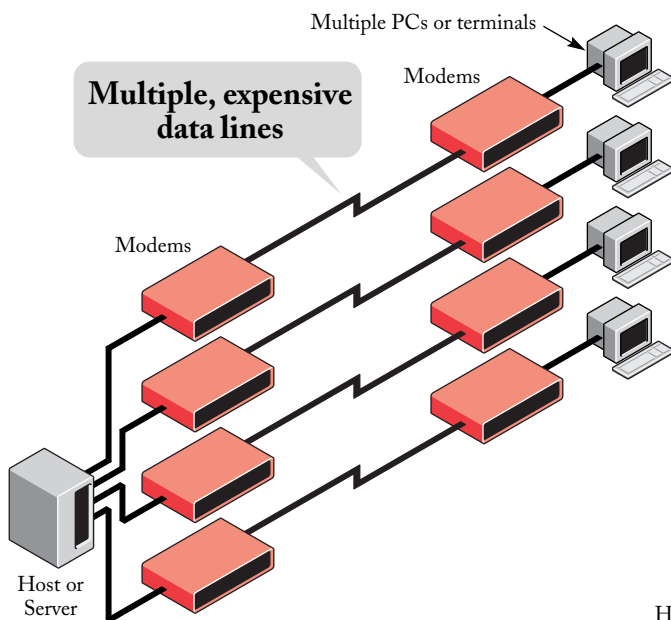PBX, Key System, Extension Phone or Telco Connection

Multiplexing Solutions
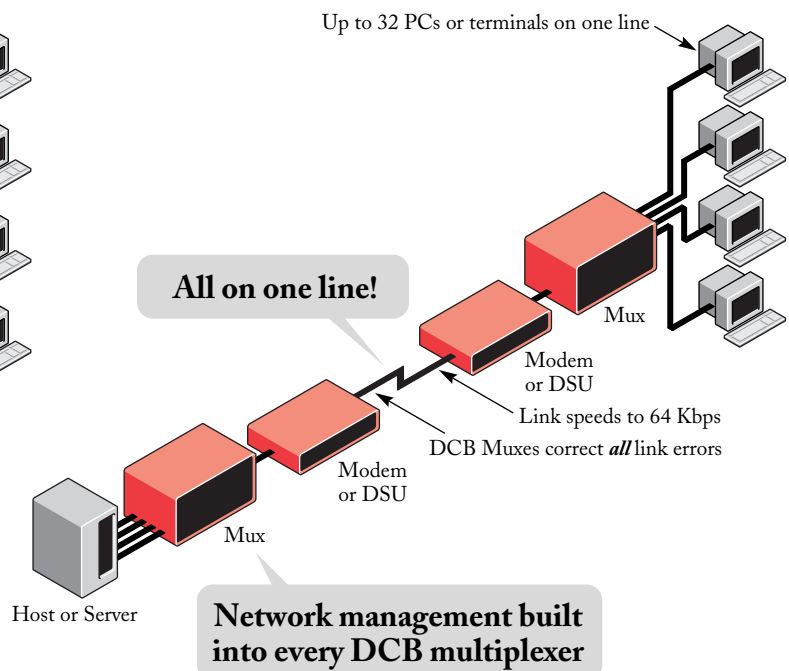
STATISTICAL MULTIPLEXING OVERVIEW

Statistical multiplexers make it possible for multiple data streams to share a single data line. They also perform error correction to insure error-free transmissions. The term "statistical" refers to their ability to take advantage of the intermittent usage statistics of most communications uses. Originally designed for terminal to host computer use, statistical multiplexers (or stat muxes) are now used with machine-to-machine communications systems such as SCADA, security, scientific data acquisition, and other serial data communications devices. They are ideal serial data "bandwidth management" devices.

Without Statistical Multiplexing

Multiple PCs or terminals

Modems

Multiple, expensive data lines

Modems

Host or Server

With Statistical Multiplexing

Up to 32 PCs or terminals on one line

Mux

Modem or DSU

All on one line!

Link speeds to 64 Kbps

DCB Muxes correct *all* link errors

Modem or DSU

Mux

Host or Server

Network management built into every DCB multiplexer

DCB STATISTICAL MULTIPLEXERS

DCB offers a wide range of products to deliver top performance in any size network — from a single remote site to those supporting hundreds of remote terminals. To help you save on network line costs, DCB's statistical multiplexers are available in all networking options — point-to-point, multipoint, and hubbing. With multiple choices of technology, long distance carriers and telephone rates that vary by location, these products offer you a variety of options so you can design the most cost-effective network for your money. We'll even help you design the system! Application assistance is free, large project consulting is available.

If you have more than one terminal at a remote location, you can increase performance, reliability and save money with DCB statistical multiplexers.

Lower recurring network costs — Save money with the networking option (point-to-point, hubbing or multipoint) that offers the greatest savings in your situation.
Easy installation — The design simplicity of DCB's statistical multiplexers makes them easy to install, use and maintain.
High performance — DCB products are engineered with the newest, most powerful data communications and compression technologies.
Network control — DCB's remote network management tools give you complete control of your local and remote sites.
Comprehensive network support — Extensive features for support and network diagnostics.

POINT-TO-POINT

Any link errors are corrected by DCB Multiplexers

PCs or terminals

SR Mux

Modem or DSU

TELCO

Network management built into every DCB multiplexer

SR Mux

Modem or DSU

Host or Server

**Up to 32 Remote Locations
32 Total Devices**

PCs or Terminals

SPL Mux

DSU

SITE 1

PCs or Terminals

SPL Mux

DSU

SITE 2

TELCO

PCs or Terminals

SPL Mux

DSU

SITE 3

MULTIDROP
SINGLE HOST

SRX Mux

DSU

Host or Server

QEI SCADA RTU

AS&E Load Management RTU

Remote Multi-Drop Radio Unit

SPL-2 SCADA Multiplexer

SITE 1

Directional Antenna

SITE 2

QEI SCADA RTU

AS&E Load Management RTU

Remote Multi-Drop Radio Unit

SPL-2 SCADA Multiplexer

Directional Antenna

QEI SCADA RTU

AS&E Load Management RTU

SCADA

AS&E ASEP Load Management

Omni-Directional Antenna

Multi-Point Radio

SRX SCADA Multiplexer

QEI QUICS IV SCADA Master

SPL-2 SCADA Multiplexer

Remote Multi-Drop Radio Unit

Directional Antenna

SITE 3

LAN Connectivity Solutions

DCB LAN CONNECTIVITY SOLUTIONS

DCB offers a number of unique remote LAN connectivity products. Our SR-PPP, or simple router, is a special device that allows asynchronous PCs and workstations to communicate with central site routers using a synchronous communications line. By using it in conjunciton with the Netopia T-1 speed router at the host site, hundreds of small remote sites can be connected over frame relay links. An example use would be to connect point-of-sale terminals (cash registers) at multiple stores to a host site. The SR-PPP is also ideal for connecting Win/95/etc. workstations to a central site router where there are four or less units at each remote site. DCB's wireless solutions connect remote LANs without monthly communications fees.

HIGH SPEED LAN CONNECTIONS

T1, T3, and OC3 connections are available for truly high speed LAN/WAN networks. Wireless 100 Mbps or 155 Mbps LAN connections are now in common use. We can provide wireless LAN connections using license exempt or licensed microwave equipment.

COMBINE RS-232 AND LAN DATA

Another unique DCB connectivity solution involves routing LAN information through our statistical multiplexers. In many situations, LAN interconnections are needed only for electronic mail and casual file transfer. If you're already supporting remote terminals with a DCB multiplexer, we can supply a remote router that works through your existing multiplexer. The IP-5200 is a low-cost asynchronous WAN router that works well behind our multiplexers or wireless modems.

REMOTE RS-232 VIA ETHERNET

If you are in the opposite situation… Having a routed LAN network, DCB's EtherPath allows the TCP/IP network to transport serial data efficiently. The EtherPath pipes a single RS-232 data channel through the ethernet WAN, and when combined with DCB multiplexers, up to 32 RS-32 ports can be carried… all with no increase in communications cost.

The EtherPath is a single port serial server (also known as a thin server or device server) for Ethernet LAN's. When used in "nailed-up connection" mode, the EtherPath connects any two async serial devices through a LAN and between LAN's via routers. It also allows a "remote" serial port for any LAN connected workstation via software redirection or other programs. The EtherPath is often used with other serial devices such as remote data collection terminals, time clocks, security systems, DCB multiplexers and Access Switches, UPS's, bar code scanners, or climate control devices. It is also used to connect serial management ports directly to an Ethernet network for "in-band" control of "out-of-band" devices. The EtherPath is also used with the Voice Multiplexer to transport Voice Over TCP/IP networks (VOIP).

By using the EtherModem AT-Dialing technology, the EtherPath becomes a drop-in replacement for dial-up modem systems. It is truly "point-to-multiple-point", allowing the host to "dial" remotes using their IP addresses instead of phone numbers. This powerful tool allows OEMs to quickly add ethernet connectivity to their products. Since the EtherPath firmware is easily customized for OEM applications, we've built custom versions for numerous partners… and it doesn't take a huge quantity order to get started.

RS-232 Devices

Router

LAN

EtherPath SS-1

EtherPath SS-1

LAN

Router

RS-232 Devices
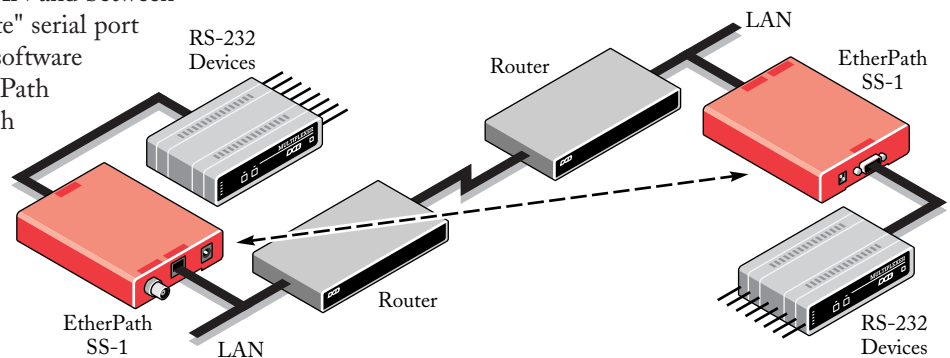
DCB Partnerships

DCB IS MEETING UNIQUE CUSTOMER NEEDS

At DCB, we like to partner with specialists in other industries to meet unique customer needs. A few examples…

The EtherPath has been customized a number of times for our partners in different industries. We provide the EtherPath with custom firmware that allows it to "talk" with specialized host computers, with security features, and with special power supply options for these partners. We've helped numerous partners add ethernet to their products in a timely, cost-efficient manner.

Our standard products are often just the right hardware platform for custom software. DCB is agile enough to respond quickly with custom firmware when a unique opportunities arise. Numerous examples are available, such as the Canadian Ozone Research Balloon (read about it on our web site at http://www.dcbnet.com/notes/9809balloon.html) or the custom multiplexer used in special satellite data delivery systems.

DCB's OEM products are also in use in a variety of other control systems. We eagerly provide the data communications expertise for companies that are experts in their own field. Although their name goes on the product, our equipment manages the data communications, handles the operator communications, or provides reliable back-up data paths.

HDT Communications is the exclusive distributor for DCB Link 1 TADIL B military modems. HDT Communications specializes in military and industrial modem sales.

When Weigh Systems South needed a data communications partner for their new line of food industry automation system, they evaluated all the options and partnered with DCB. Now, there are state-of-the-art processing plants with wireless control systems in operation, and another long-term relationship was born.

LOOP INTERNATIONAL PRODUCTS

Our five year old partnership with Loop International, allows us to offer world class Loop telecommunications products in North America… and we provide North American warranty repair service for these quality products. The new Loop 4200 is an example of the products that we can offer because of this close relationship. Our Loop customers benefit from this relationship since our technicians and engineers know Loop products from the inside out.

The Loop 4200 is available in a 28 slot chassis that supports interfaces ranging from low speed RS-232 cards up through OC-3, and multiple T1 cards. This is a true Integrated Access Device that allows you to combine voice, data, and video at high speeds for transport over T1, T3, or OC3 links.

In its 9 slot chassis, it's a cost-effective T1 IAD with many of the same features. This can be thought of as a T1 multiplexer, fractional T1 channel groomer, or T1/E1 converter.

The Loop 4300 is a versatile T1 to E1 converter and mini-DACS for those lower end T1/E1 needs. It supports four interfaces that may be any mix of T1 or E1.

Loop's TA-2500 is an economical T1/Fractional T1 DSU/CSU for those lower-end applications.

Remote RS-232 Access Solutions

The DCB Access Switch allows a local or remote terminal to easily connect to multiple RS-232 devices. It is commonly used for management or configuration ports on all kinds of equipment such as servers, routers, hubs, UPSs, channel banks, transmitters, multiplexers, dial-in servers, voice-mail, ATMs, and PBX systems. All DCB Access Switch models support at least two input (or controlling) ports. One port is usually connected to a local terminal (or PC). The other port is left connected to a modem for remote access. Both ports can be active at the same time if they are accessing different output (controlled) ports. Access Switches provide a way for remote technicians to diagnose and reconfigure equipment without the expense of on-site visits.

COMMON APPLICATIONS

- Multiple locations, each with a router, T1 DSU, server, ethernet hub
- Control remote UPS and power conditioning systems
- PBX system management
- Management and configuration of customer equipment from the vendor's office
- Remote management, configuration and control of paging or two-way transmitters
- Reboot any kind of remote equipment

Some other remote RS-232 products may be more appropriate for your special needs.

The **EtherPath** single port serial server transports RS-232 data over ethernet WANs. When used "nailed-up", it's a virtual RS-232 connection that uses your existing LAN wiring. It now allows AT dialing for drop-in modem replacement or point-to-multiple point operation.

The **SR-DC data concentrator** allows the data from 8 to 32 devices to be delivered over a single RS-232 connection to a host computer. Often used in scientific data-gathering applications and data logging.

The **ASU Async Sharing Unit** allows 4 to 32 devices to receive data from the same source. It's a unique broadcast device with a wide variety of features.

The **DBS Data Broadcast Switch** is similar to the ASU, but has unique features that allow a second control channel to determine data flow.

The **SPL-DS Data Selector** allows non-addressable devices to co-exist on a broadcast data channel. This is another customized product first built for a single customer.

FEATURES AND BENEFITS OF THE DCB ACCESS SWITCH

FEATURE	BENEFIT
4 to 152 Ports Scalable	Investment Protection
Password Protection	Security & Confidentiality
Two or More Input (Controlling) Ports	Remote Technician Can Assist Someone On-site
English Language Commands	Easier to Use
Replaceable Software Cartridge	Economical Upgrades
RJ45 RS-232 Ports	Compact, Economical, Uses Less Space
Remote Control via Modem	Eliminates On-site Visits, Travel Time, Improve User Uptime
Control Many Ports, Machines	Save Phone Line Costs

SNMP, TELNET, AND OUT-OF-BAND MANAGEMENT

SNMP is by far the most popular management method for LAN-based equipment. It offers great functionality, low cost, and it's easy to learn. Every medium to large LAN/WAN can benefit from SNMP management. But, SNMP has one major problem that is easily solved with the DCB Access Switch. When the system goes down, there is no SNMP management available! An out-of-band management method is also needed. The DCB Access Switch provides this out-of-band management by using the RS-232 management/configuration ports found on all managed equipment. By using a modem on one of the Access Switch input ports, there is a remote diagnosis and configuration path to all your equipment. AC power control options allow remote rebooting and power cycle of hung equipment. Although the Access Switch sometimes takes the place of more complicated SNMP management workstations

and software, it is frequently used to supplement it. If you are using SNMP, ask yourself... "When the WAN goes down, how do I reach out and touch the remote equipment?" The DCB Access Switch is the answer.

| MODEL	INPUTS	OUTPUTS
AS-04	2	4
AS-08	2	8
AS-16	2	16
AS-24	2	24
AS-32	2	32
AS-24M	6	24
AS-32S	–	32
APS-01	1	AC
EtherPath	Ethernet Connection	1

WORKS WITH ANY RS-232 MANAGEMENT PORT

Since the DCB Access Switch is an ASCII character controlled switch, it can be used to connect ANY devices that use RS-232 asynchronous communications. DCB Access Switches work well with industrial equipment, LANs, WANs, transmitters, UPSs, and servers… just to mention a few. They are quite cost effective, since replacing a second phone line and modem usually provides a pay-back of under one year… and using multiple ports shortens that time significantly. Saving the cost of one on-site visit almost always justifies the system.

ACCESS TO MANAGEMENT PORTS AND POWER CONTROL FOR…

■ Transmitter Sites

■ Cell Sites

■ Studio Equipment

■ Transmitter Controllers

■ Sign Controllers

■ Machine Control

■ Industrial Controllers

■ 48 Volt Telco Locations
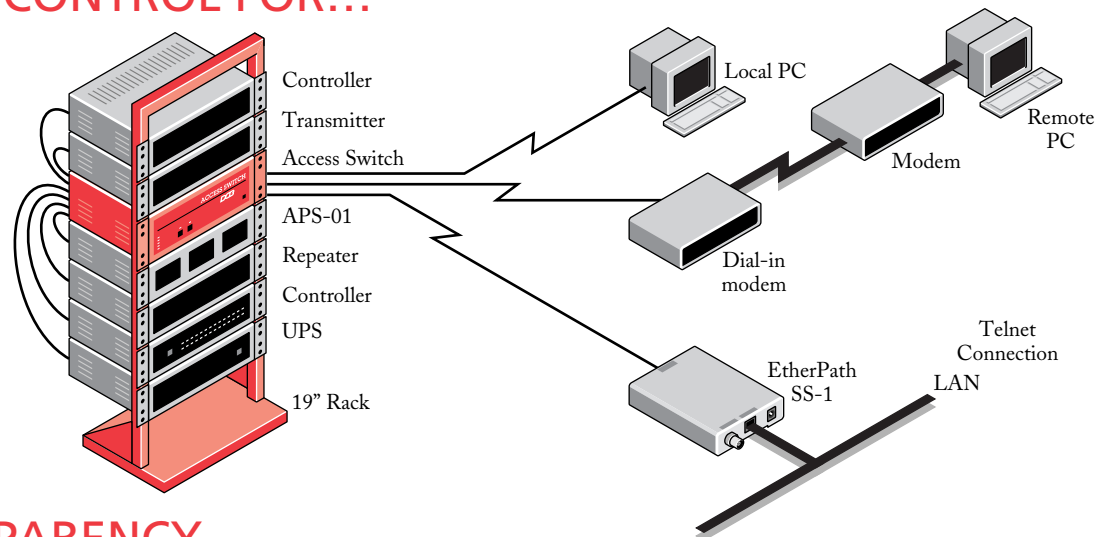
DATA TRANSPARENCY

The DCB Access Switch offers full 8-bit data transparency. This allows trouble-free binary file downloads through the Access Switch. Connections are controlled by either software commands or hardware RS-232 signals. By using the hardware RS-232 control signals to force port disconnects, the Access Switch ignores all data once two ports are connected. If the software disconnect feature is used, the Access Switch disconnects the port when it sees the user-defined "disconnect string" in the data stream.

EASE OF USE

DCB's Access Switch is most user-friendly. A new user will learn to use all features of the Access Switch in just a few minutes. The Access Switch uses English commands instead of cryptic codes and has numerous user-defined names. For example, every port may be named by the user with names such as Controller-3, Router, Transmitter, or UPS-2 (with up to 16 characters in each name). The ports are also accessible by port number, requiring NO configuration for data ports.

Disconnect and prompt strings are also user-defined. To connect to a port, simply type in the port's name or the command CONNECT followed by the port name. Powering off an AC power port is as easy as typing the name and command OFF (SERVER OFF). Cycling the power is as easy as typing 1 CYCLE. If you seldom use the Access Switch, its help feature, which lists all commands, and the System Info command, which lists all port names, make it easy to remain productive.

IN-BAND MANAGEMENT

By using the Access Switch in combination with the DCB Etherpath, equipment can be managed while using in-band *and* out-of-band paths. The Etherpath provides a telnet path to a controlling port on the Access Switch. Since the Access Switch can have multiple controlling ports, one can be dedicated to a local terminal, one to a dial-in modem, and one to the ethernet connection. It's the ultimate in flexibility.

EXCEPTIONAL "USE-ABILITY" FEATURES

The dial-back (or dial-through) paging feature allows equipment on an access switch output port to dial out using the modem connected to the input port. The local host computer or router may call a paging service or remote management system when it detects local problems. Use the access switch with an external modem, local terminal/PC, an internal modem, or an optional ethernet interface using the etherpath SS-1.

DCB MODEM TECHNOLOGY

DCB manufactures a broad range of analog modems intended for the industrial market including four-wire leased line, fast-polling multi-drop, dial-up, wireless, and hybrid dial-up/wireless extension modems. DCB modems shipped within the US are normally provided with a 120 VAC power supply, but these are also available in 12, 24, -48, 120 VDC or 220VAC versions for industrial and foreign applications. All are available in stand-alone cases or rack-mounted. Some people consider modems to be stone age products… but we build them with reliable, cutting edge technology.

The **D-series** dial-up modems are ideal for rack mounting or "industrial strength" applications that require a rugged, reliable V.90 dial-up.

The **LL-9.6FP** is our V.29 fast polling modem that operates in an asynchronous as well as synchronous multi-drop network. . Many SCADA and pipeline companies use the LL-9.6FP fast polling modem on multi-drop lines. This modem was re-designed from the ground up in 2000 with a new DSP core processor for even better performance. Although not a common item in urban areas, fast polling modems are often used in many countries where modern infrastructure such as frame relay isn't available. Fast polling modems are often used in control applications such as pipelines, water pump stations, and electric distribution systems.

The **202-T** is another new design on an old theory. Bell 202T modems are in use for low-speed, ultra-reliable data links. To meet customer desires, DCB also re-designed this old workhorse with new technology.

The **X-2** is a unique modem. It combines a dial-up modem with a multi-drop spread spectrum wireless modem. It is used to extend the "local" loop in areas that wire can't reach due to economic or physical constraints or to allow dial-in for connecting to multiple wireless modems using a single phone line (such as dialing into an oil field and connecting to each of 20 or 30 well control computers).

The **DCB-115** wireless modem operates in the license-exempt 900 Mhz or 2.4 Ghz band. Operating at 57.6 Kbps full duplex or 115.2 Kbps half-duplex, it is often used with our voice/data multiplexers for combined voice/data links of 20 miles or more.

DCB SCADA PRODUCTS

Although many DCB products are used in SCADA systems world-wide. Those in this section are especially suited for SCADA use. Call for assistance in solving your unique SCADA communications problem. DCB products are used with RTUs and host controllers from all major SCADA manufacturers.
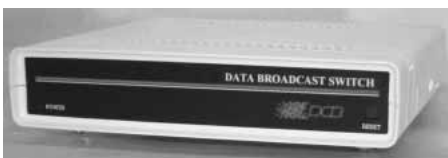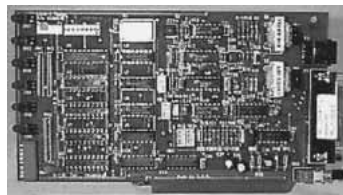
Broadcast Polling FRAD

LL9.6FP

ASYNC Sharing Unit

Data Broadcast Switch

202T Modem

WWS

DCB-115 Radios

SRX-SPL Point-to-Multipoint

SRX-SR Frame Relay Multiple Point

T-EXTENDER

The T-Extender is a T1 demarc extension device or T1 repeater. This simple unit allows T1 DSUs, channel banks, routers, and PBXs to be located up to 5000 feet from the telephone company's demarc. With T1 lines becoming more common in the business and school environment, this is a lifesaver in campus and high-rise environments.

The DCB T-Extender is powered by a small wall-mount transformer or optional DC power supply, and is used for connections between T-1 equipment such as PBXs, telco demarcs, T-1 multiplexers, T-1 line drivers, T-1 local multiplexers or any other T-1 equipment requiring long customer owned cable runs. T-Extenders

can be used to connect this equipment across a campus, between floors of a high-rise office building or between office buildings with underground cable connections.
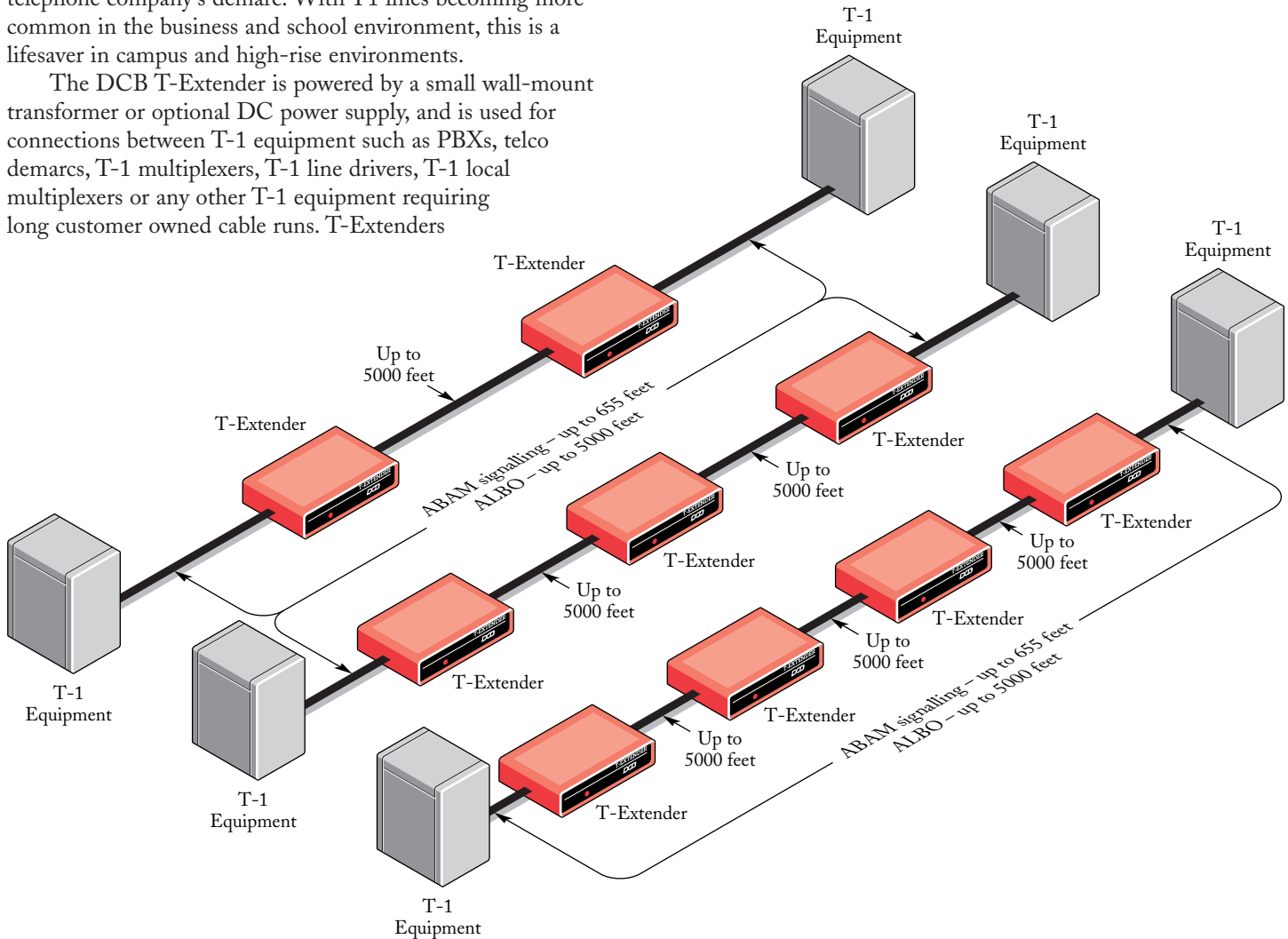
THE INTERNET – DCB's WEB TECHNICAL SECTION

DCB maintains a web site with a huge amount of technical support information. The web address is:

http://www.dcbnet.com

and the technical support section is:

http://www.dcbnet.com/support.html

In addition to the product information and over 50 tutorials and white papers, there are over a hundred cable and wiring diagrams. This wiring information covers the range of equipment from A to Z (actually "Alpha Micro" to "Xyplex"), and helps when connecting many host computers, terminal servers, workstations, printers, and multiplexers to WAN networks. Complete manuals for most products are also are on-line under the "manuals" section.
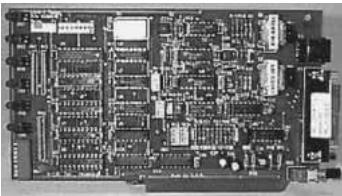
DCB Products

MODEMS

LL Modem
- V.29 compatible
- LCD display
- Sync or async
- Rack mounts in DCB MR-8
- Network Management Port

The LL 9.6 modem operates at or 9600 bps synchronous or asynchronous. It uses 4-wire unconditioned leased lines. The DCB PL 19.2 modem is available for analog 4-wire leased lines.

X2 Radio + Data Modem
- 900 MHz or 2.4 GHz spread spectrum frequency hopping radio
- Radio distances up to 20+ miles
- Dial-up modem, 14.4 Kbps, 33.6 Kbps or 56 KV.90

The X2 is a dual modem, consisting of both a 900 MHz or 2.4 GHz spread spectrum frequency hopping spread spectrum modem and a dial-up modem.

D-Series Modem
- Metal, stand alone or rack mount
- Dial-up 14.4 Kbps, 33.6 Kbps or 56 K (V.90) modem
- DB-25 serial asynchronous interface
- LEDs for Power, TxD, RxD, DTR, DCD
- Powered by 9 to 18 VDC, 24 or -48 VDC or AC

Ideal modem for remote data collection applications, SCADA, back-up links, and remote controls.

TADIL B Modem
- Full duplex rates to 1200 bps (in async V.23 mode)
- Asynch or Synch RS-232
- 4-wire, full duplex line application
- Standalone or rack mount
- High stability frequencies
- Ruggedized for full temperature range application

The Link1 TADILB modem operates at 600 and 1200 bps, synchronous or asynchronous, with V.23 modulation. The modem operates in Link1 DFSK mode (DFSK) at 600 and 1200 bps.

LL Fast Poll Modem
- Multidrop or Point-to-Point
- 4-wire unconditional line operation
- Sync or Async
- LCD, Management port, V.54 Loopback
- New DSP based design in 2000
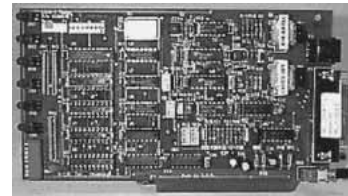- Addressable remote diagnostics

The LL9.6FP modem is a full featured fast poll leased line modem with the best price/benefit ratio in the industry. Redesigned in 2000 with a DSP engine, the LL9.6FP modem operates over 4-wire unconditioned leased lines at 9600 bps synchronous or asynchronous.

Bell 202T Modem
- Full duplex, 4-wire Bell 202T
- Multidrop
- Transmit and Receive clock supplied by modem
- Async
- Switched or constant carrier operation with anti-streaming

The 202T modem operates at 1200 bps asynchronous, with 202T modulation. Standalone or rackmount. Up to 20 units per 19" rack.

DIGITAL SERVICE UNITS (DSU)

DL-56/64
- 56 Kbps
- Point-to-point
- Multipoint
- Line Driver Mode
- Async Version

The DCB DL-56 DSU/CSU is a simple, easy-to-use 56 or 64 Kbps DDS DSU. It is available in sync or async versions with both V.35 and RS-232 connectors.

FT-DSU/CSU
- Fractional T1 or T1 DSU/CSU
- 1, 2, or 4 ports
- Optional drop/insert, SNMP

The DCB FT-DSU/CSU is a fractional T1, T1 DSU/CSU with optional drop and insert interface.

Loop 2500
- T1/Fractional T1 DSU (E1 available)
- SNMP Manage. or Term. Console Port
- Compliance with ANSI T1.403, AT&T PUB 54016 and 62411
- 2-line by 16-character LCD

Loop Telecom's Loop-T 2500 CSU/DSU series provide T1 network access when full T1 or fractional T1 is needed.

LAN ROUTERS

Netopia
- V.35 and RS-232 serial interface
- Serial speed to T1 (1.544 Mbps)
- Frame Relay auto detect setup
- Built-in firewall, VPN, NAT, and multi-NAT
- Dial backup options with V.90 or ISDN
- Integrated 8-port 10 BaseT hub

The DCB BR-SXT01 is a 1 WAN port router with a secondary WAN port. The secondary WAN port can be used for automatic switch-over and dial-on-demand in case of primary link failure. The multiprotocol version routes TCP/IP, IPX, AppleTalk and DECnet.

Larscom Edge
- Ethernet to T1 through T3 and higher
- Inverse Multiplexing
- Frame Relay, ATM, OC-3 interfaces
- Bridging, Routing

The Edge is a high speed IMA (Inverse Multiplexing over ATM) leader. Bond T1s or T3s to build the bandwidth you need. Using Ethernet Bridging, IP Routing, Frame Relay, V.35, ATM, T1, or DDS interfaces.

Loop 4300
- 2, 3, or 4 ports, for either E1 or T1
- Each DS0 time slot from any port can be assigned to any DS0 time slot of any port
- 2-line by 16-character LCD
- SNMP and Telnet via ethernet port

A mini-DACS that maps any DS0 to any DS0. It enables full translation of digitized voice between E1 and T1, including A law to law and signaling format.

IP-5200
- 10/100 ethernet autosense, full or half duplex
- Share a single IP address with network address translation
- Dedicated link or dial on demand
- Use for host or remote end of dial in access

The IP5200 router is an Internet Access Server and dial-in PPP server used for connecting an office LAN to the Internet or connecting a remote office to a corporate network. The IP5200 has two RS232 serial ports which can be used in a variety of ways.

PPP-SR
- "Simple Router" for 1 to 4 PCs
- Remote end solution to reduce equipment cost and maintenance
- WAN connection to 128 Kbps
- Ideal for Internet or intranets

The PPP-SR is a "Simple Router" with WAN connection to 128 Kbps and 1 or 4 serial ports for connecting PCs at remote sites to corporate or ISP (Internet Service Provider) networks.

Loop 4200
- 9 or 28 slot chassis
- 10/100 Mbps Ethernet Router cards
- Multiple T1, DDS, V.35, ro E1 interfaces

Bandwidth management for ethernet LAN interconnection or other high-capacity needs. A true Integrated Access Device or DACS with ethernet routing and bridging functionality.

MULTIPLEXERS

MULTIDROP
SRX Multiplexer
- Multidrop Host
- Ports to 38,400 bps
- Composite to 128 Kbps
- Network Management Port

The DCB SRX Multidrop Host Multiplexer concentrates 8, 16, 24 or 32 async ports on a multidrop link with up to 32 remote SPL multiplexers. Ports use RJ-45 connectors.

SPL Multiplexer
- Multidrop Remote
- Ports to 19,200 bps
- Composite to 64 Kbps
- Network Management Port

The DCB SPL Multidrop Remote Multiplexer is 2, 4, 6, 8, 10, 12 or 14 ports. The SPL is used at remote sites on a mul-tidrop link. Ports use DB-25 connectors.

POINT-TO-POINT
SR Multiplexer
- Point-to-Point
- Ports to 38,400 bps
- Composite to 128 Kbps
- Network Management Port

The DCB SR Multiplexer concentrates 4, 8, 16, 24 or 32 async ports on a point-to-point link. The composite is synchronous. Ports use RJ-45 connectors.

SPL Multiplexer
- Point-to-point
- Async or sync composite
- Dial-up or leased line
- Network Management Port

The DCB SPL Multiplexer is available in 2, 4, 6, 8, 10, 12 or 14 ports. It can be used on leased analog or digital lines or with dial-up modems. "AT" dialing commands are entered at the attached terminal.

SR-DC Multiplexer
- Simplex or full duplex links
- Ideal for satellite links
- Capable of single-direction broadcast operation
- Protocol suitable for single-ended de-multiplexing in a PC
- Sync composite to 128 Kbps, Async to 115.2 Kbps
- Port speeds to 38.4 Kbps

The SRDC data concentrator multiplexes 8, 16, 24 or 32 asynchronous channels over a synchronous or asynchronous composite with the ability to operate over simplex or full duplex lines.

Access Switch

- ■ **4 to 152 ports**
- ■ **2 or 6 control ports**
- ■ **Used to access network management ports**

The DCB Access Switch is an ASCII character controlled switcher used to connect control devices to 4 to 152 async network management ports.

EtherPath SS-1

- ■ **RS-232 Serial connection over Ethernet LAN/WAN**
- ■ **"Nailed up" client/server mode provides virtual RS-232 links**
- ■ **Point-to-Multiple-Points with AT dialing mode**
- ■ **Speeds to 230 Kbps asynchronous**

The EtherPath is a single port thin server/device server or ethernet to RS-232 converter. It brings EtherModem AT dialing technology to ethernet. And allows a "remote" serial port for any LAN connected workstation, or with "nailed up" connections provides a virtual RS-232 link via an ethernet WAN.

APS-01

- ■ **Remote 120/240 V AC Control Unit**
- ■ **Provides Status output**
- ■ **Compatible with DCB Access Switches**
- ■ **Simple RJ-45 connections**
- ■ **10 Amp Rating**

The APS-01 Access Power Switch controls AC power to any remote equipment. When used with the DCB Access Switch, it allows the equipment to be turned on, off, and power cycled from any remote PC or terminal.

SRX Async FRAD

MULTIPOINT HOST

- ■ **Frame Relay Host**
- ■ **Ports to 38,400 bps**
- ■ **Composite to 128 Kbps**
- ■ **Network Management Port**

The DCB SRX Frame Relay Host FRAD concentrates 8, 16, 24 or 32 async ports to a point-to-multipoint Frame Relay link with up to 16 remote SR FRAD. Ports use RJ-45 connectors.

BPF Broadcast Polling FRAD

- ■ **FRAD Specifically designed for SCADA**
- ■ **Async multipoint polling over frame relay networks**
- ■ **Async RS-232 interface up to 57.6**
- ■ **Sync RS-232 composite to 128 kbps, internal DSU optional**

The BPF encapsulates most byte oriented async polling protocols into frame relay format for private or public frame relay networks. It allows up to 160 remotes per master FRAD network. Use for SCADA, financial, traffic control, and other polled networks

SR Async FRAD

- ■ **Ports to 38,400 bps**
- ■ **Composite to 128 Kbps**
- ■ **1, 4, 8, 16, 24 or 32 ports**
- ■ **Network Management Port**

Ports use RJ-45 cables for RS-232 connections.

POINT-TO-POINT

- ■ **Point-to-Point Frame Relay**

The DCB SR Frame Relay FRAD concentrates async ports to a single point-to-point Frame Relay link.

MULTIPOINT REMOTE

- ■ **Frame Relay Remote**

The DCB SR Frame Relay Remote FRAD is used at remote sites on a point-to-multipoint Frame Relay link.

Quad FRAD

- ■ **LAN and Legacy protocols**
- ■ **IP and IPX boundary routing**
- ■ **Four high speed user ports**
- ■ **High speed serial WAN link**
- ■ **Protocol support includes: IP, IPX, PPP, SDLC, Bisync, Burroughs, Async, X.25, Frame Relay**

Versatile, low cost, FRAD having RS-232 or V.35 interfaces for four user ports and one network port. The network interface supports T1 speeds.
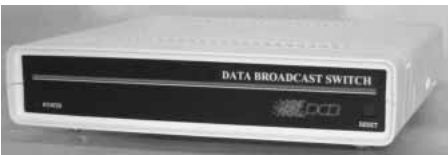
DBS
Data Broadcast Switch

- ■ **8 to 32 ports at up to 9600 bps**
- ■ **1 control port, 1 data download port**
- ■ **Ideal for paging transmitter, SCADA, and machine control**
- ■ **Connects to any other async devices**
- ■ **Optional 48V power supply**

The DBS is a data broadcast unit that allows any output port to become a reverse channel upon command. Designed for paging systems, where paging data must be replicated to many remote paging terminals, the reverse channel selection is typically used for management of remote devices such as transmitters.

SPL-DS Data Selector

- ■ **Allows multi-dropping non-polled devices**
- ■ **Individually configured async ports to 19.2 Kbps**
- ■ **Asynchronous network speeds to 38,400 bps**
- ■ **2 to 14 channels**

The SPL/DS Data Selector is a receive only device that decodes a simple network protocol and delivers ASCII data to the terminal ports of the addressed SPL/DS. Data source is normally a PC or workstation with custom software.

SW 23 GHz Microwave Link

- Speeds to 10 Mbps & T1
- Models with up to 4 T1s
- Easy installation and maintenance
- 10 mile typical range
- Licensed 23 GHz frequency

The 23 GHz microwave links operate from 100 ft to 10 miles using 9", 2' or 4' dish antennae. Connect two LANs and PBX systems with full duplex 20 Mbps plus T1, or use the single T1 model. Works with routers, bridges, hubs or 4-wire T1 interfaces.

155 Mbps Microwave

- Point-to-Point microwave
- Excellent complement to fiber rings
- Last mile broadband access service; radio to the curb.
- Protection backup to installed fiber network

The Maverick150™ Product Family is a high-capacity wireless point-to-point system for 155Mb/s (SDH/SONET) communication use in many types of metropolitan and rural applications.

WSS

- Wireless Factory Floor Communications
- Up to 96 Wireless Remotes
- 2-way communications
- Polled, deterministic system

Communicate on the factory floor wirelessly. The WSS polled system allows a single host to communicate with up to 96 workstations over license-exempt radios at speeds of 57.6 Kbps. Each radio may have up to four Serial ports. Customization for unique protocols is available.

Stratum

- License-Exempt
- 100 Mbps Ethernet AND 2 T1
- 5.8 Ghz
- 7 mile range
- 802.1d standard

The Stratum 100 is the industry's fastest license-exempt wirefree radio system offering 100 Mbps full-duplex throughput for Fast Ethernet transport. In addition, two T1 channels are available for PBX connections, T1 channel bank, T1 video codec and other TDM applications.

SpeedLan

- Most Versatile links available
- Router OR Bridge function
- ISP Version
- SNMP Manageable
- 2.4 GHz License Free

10 and 11 Mbps building-to-building links for LAN and voice. Includes ISP specific models. Multi-point ethernet, or T1 and T4 links available.

DGRN-115/115H Wireless Transceiver

Frequency Hopping Spread Spectrum
- Range to 20 Miles
- 900 MHz and 2.4 GHz
- Asynchronous to 115.2 Kbps
- Point-to-Point and Point-to-Multipoint
- RS-232 Interface

The DGRN-115 spread spectrum transceivers provide reliable long range data communications. Using frequency hopping spread technology, Free Wave transceivers are capable of uncompressed data rates of 115.2 Kbps over distances of 20 miles or more.

SR Voice-Data Multiplexer

- 1, 2, or 4 voice channels
- FSX, FXO and E&M interfaces
- Toll quality voice at 6.4 Kbps
- Group 3 9600 bps fax
- Point-to-point operation

The DCB SR Voice Multiplexer supports 1, 2, or 4 voice channels over sync or async links. In addition, the SR-VM is also available with 8, 16,or 24 async data ports.

DV-1D

- Voice/data DSU/CSU
- 16 or 32 Kbps voice
- 9.6, 19.2 or 38.4 Kbps data
- RS-232 and V.35 interface
- Dynamic bandwith allocation

The DCB DV-1D is a 56/64 Kbps DSU/CSU with one voice and one data channel. A telephone, key system or PBX can be used on the voice channel. The data channel is sync or async.

T-Extender

- **T1 4-wire repeater**
- **Extends in-house T1 lines**
- **Up to 6000 feet between units**
- **RJ-45 or screw down connectors**
- **Simple connection to a 4-wire line**
- **Inexpensive solution to long T1 runs**

The DCB T-Extender is a 4-wire T1 repeater for use on customer owned lines. The T-Extender is used to extend in-house T1 lines in campus and high-rise environments.

MSU-4D
MULTIHOST SHARING UNIT
- **Frame Relay Remote**
- **Ports to 38,400 bps**
- **Composite to 128 Kbps**
- **Network Management Port**

The DCB SR Frame Relay Remote Multiplexer is 4, 8, 16, 24 or 32 ports. The SR is used at remote sites on a point-to-multipoint Frame Relay link. Ports use RJ-45 connectors.

SAC-128
- **Sync-Async Converter**
- **Transport Async data via Sync Channels**
- **Asynchronous DTE speeds to 115.2 Kbps**
- **Synchronous DCE port to 128 Kbps**
- **Bi-directional**

Asynchronous terminal devices can operate over synchronous communication links at speeds up to 128 Kbps with the SAC-128. It operates in either point-to-point or multidrop mode with appropriate DSUs.

RS-232 to V.35 Interface Converter
- **Easy to install**
- **Speeds to 192 Kbps**
- **DB-25 RS-232 connector, M34 connector for V.35**
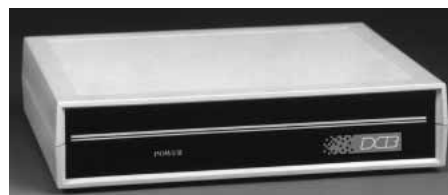- **No switches to set**
- **Connects RS-232 DTE to V.35 DCE**

The DCB VRC-1 is an RS-232 to V.35 interface converter, ideal for use with the DCB SR and SPL series multiplexers. Other equipment that may be converted includes terminals, personal computers, bridges, routers, work stations, etc.

HSAA Sync-Async Converter
- **Converts HDLC-Sync (DTE) data to Async (DCE)**
- **Transport HDLC-Sync data via Async Channels**
- **Async speeds to 115.2 Kbps**
- **HDLC-Sync port to 128 Kbps**

The HDLC-Sync/Async Adapter performs the unique function of converting HDLC-Sync data to an asynchronous data stream for transmission through asyncronous data links. The Adapter provides the way to pass synchronous data over asynchronous data links such as satellites, ISM license-free radio modems, statistical multiplexers, and packetized routes.

RS-530/RS-232 Converter
- **Easy to install**
- **Speeds to 128 Kbps**
- **No switches to set**
- **Connects RS-232 terminal equipment to RS-530 DCE equipment**

Converts RS-232 devices for use with DCE equipment having RS-530 interfaces.

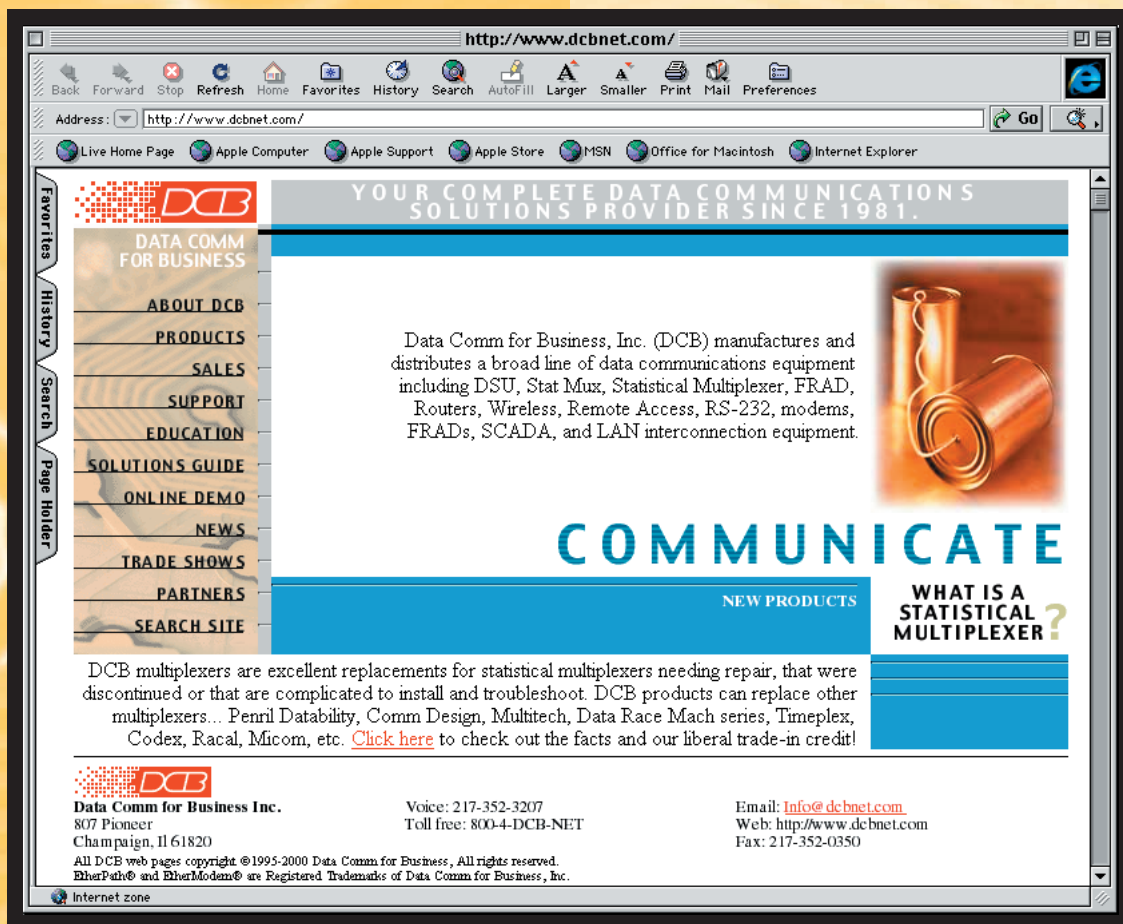**Rack Mounted MR-8**

Rack Mounted APS-01

Rack Mounted SR

Rack Mounted Access Switch

Tadil-B Modem Rack

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Data Comm for Business, Inc. (DCB) manufactures and distributes a broad line of data communications equipment including DSU, Stat Mux, Statistical Multiplexer, FRAD, Routers, Wireless, Remote Access, RS-232, modems, FRADs, SCADA, and LAN interconnection equipment.

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DCB multiplexers are excellent replacements for statistical multiplexers needing repair, that were discontinued or that are complicated to install and troubleshoot. DCB products can replace other multiplexers... Penril Datability, Comm Design, Multitech, Data Race Mach series, Timeplex, Codex, Racal, Micom, etc. Click here to check out the facts and our liberal trade-in credit!

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