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Quick and Simple Guide

- to choosing a better box

Line & Circuit Simulators

Our comprehensive range of line simulators offers you the widest choice of products designed to meet your budget and your requirement. From simple in/out analogue lines to multiprotocol Primary Rate ISDN services to Satellite links we can provide you with the right simulator to help you ensure that your network functions at its peak. Whatever your requirement, BetterBox® can help you to make the right choice. If you would like assistance selecting the right products or would like to discuss in more detail your application please call our **Technical Support** Team on **01908 561400**. They will be pleased to help.

Eliminators

Modem Eliminators allow you to provide a clock to attached devices. Once again the range available is exceptional with solutions that offer simple 128Kbps X.21 circuit speeds to higher ended devices offering over 50 data speeds up to a maximum 6.144Mbps. If you would like assistance selecting the right products or would like to discuss in more detail your application please call our **Technical Support** Team on **01908 561400**. They will be pleased to help.

Sharers, Broadcast Units & Splitters

Whatever you need to do BetterBox® can help you do and do it better than your competitors! Our selection of sharers, broadcast units and splitters are no exception. We offer one of the most complete ranges you'll find from a single source, whether you need to share terminals and modems, broadcast RS-485 data to multiple devices or split a DCE device between several DTE's we have an answer. If you would like to discuss in more detail your requirement please call our **Technical Support** Team on **01908 561400**. They will be pleased to help.

GET CONNECTED WITH BETTERBOX®

BetterBox® Communications carry a wide and diverse range of modems ranging from standard dial up devices through to high speed modem eliminators.

The selected products shown over the next few pages will resolve most of the common problems encountered today, however our Technical Support Team is on hand should you need advice on which product is the most suitable for your application.

If you need some advice or would simply like more information on a particular product then please call us on 01908 561400.

Line Simulators, Eliminators and Sharers



Router Delay Simulator

Description

The Router Delay Simulator allows users to test/stage critical DCE or DTE equipment for reliable network operation while simulating network delay times. The RDS+ provides a realistic simulation of physical network behaviour with respect to time delays and bit errors. It supports user circuit rates up to OC-1 (51.84 Mbps) while providing delays from zero to a maximum of 4 seconds. Both continuous random and burst errors are supported.

By using the RDS+ in place of or in series with a real data link (WAN) a wide variety of error conditions can be introduced under controlled and testable conditions. The RDS has two data port interfaces that support RS-232, RS-422/449, RS-530, V.35, X.21, DS1/E1, TTL, HSSI, DS3, E3, or STS-1. The data interfaces can be mix and matched where applicable, such as V.35-to-RS-530 connection. Data Clocking can be driven from various sources. It can be provided via the TX and/or RX clocks of the various data port interfaces. Clocking can also be provided from a programmable clock generator

internal to the RDS+. An independent external timing source can be used to frequency lock the internal timing generator via an external timing port on the back of the RDS+. Data/Control-Lead Delay is programmable in either seconds or number of data bits. Delay may be specified independently to any value on each of the two bi-directional data paths. An option exists to include a control lead on some interfaces with the data delay.

The RDS+ can introduce Random and/or Burst errors into the data stream. The RDS+ contains one BERT generator and one BERT tester. The generator and tester can be independently attached to either data port. The RDS+ supports digital loopback of either data port. Loopback, Data Delay, Error Simulation, and BERT can all be used simultaneously on a given port. Installation and operation is provided via an operator console port. RDS+ status and configuration is displayed in real time via this interface. An optional 10Base-T web enabled GUI interface is also available.



FEATURES / BENEFITS

- Bi-directional independent delay buffers per channel, Full Duplex
- Supports Split Speed and Delay
- Interfaces supported DS3, E3, STS-1, DS1/E1, TTL, HSSI, RS-232, RS-422/449, RS-530, V.35, and X.21
- Data Rates: 1.2K to 51.84Mbps
- Network Simulation Delays of 5mS up to 4 Seconds in 1mS increments
- Random Error insertion from 1x10-1 to 1x10-12 BER
- Burst Error insertion
- BERT 511 generator and tester
- Timing Internal or from either port interface. Accepts external clock for synchronization of internal timing
- Managed via serial port or web enabled GUI interface
- Status LEDs for each port allows ease of connection and trouble shooting

SPECIFICATIONS

- Simulation Delay Times 5 milliseconds(mS) to over 4000 mS, in 1 mS increments, or from 4 bits to over 65,000 bits in 1bit increments.
- Capacity Two (2) data port interfaces
- Data Rates From 1.2K to 51.84Mbps
- Data Port Interfaces: Available in RS-232, RS-422/449, RS-530, V.35, X.21, TTL, HSSI, DS1/E1, DS3, E3, STS-1
- Clock Sources: Internal, Stratum 4 or Locked to External, Data Port RX/TX supplied
- Data Format: Synchronous or Asynchronous
- Delay Units: Specified in milliseconds or in bits
- Random Error Rates: From 1x10-1 to 1x10-12
- Burst Errors: Burst duration from 1mS to 4 Seconds, Off-interval from 1mS to 16 Seconds
- Test Modes: Loopback, 511 BERT
- Operator Console: RS-232 Async, 38.4kbs, (HyperTerminal recommended), Optional web enabled GUI interface
- Indicators: Power TXD, RXD, TXC, RXC, RTS, CTS, DSR/DTR, DCD for each user port
- Power Source: 90-240VAC @10%, 50/60Hz, IEC Power Inlet, (2) 5mm Fuses
- Environmental: Operating Temperature 32° to 122° F (0° to 50° C)
- Dimensions: Height: 4.44 cm, Width: 43.18 cm, Length: 22.86 cm
- Weight: 2.1 Kg

Order Code	Description	Price
G-RDS-PLUS-GUI	RDS+ Delay Simulator, 1U Rackmount, Int/Ext Clock to 53 Mbps, Delay, Errors, Serial Set-up & Control	£4,595.00
G-RDS-PLUS GUI RDS-PLUS	Web Enabled GUI Interface Module, W/10base-T LAN for Set-Up / Control, Static IP Address	£1,535.00
G-RDS-LS UDC	Delay Simulator LS, Standalone, Int Clock 300bps to 1.024Mbps, Variable Delays	£1,645.00
G-RDS-LS-RM UDC	Delay Simulator LS, 1U Rackmount, Int Clock 300bps to 1.024Mbps, Variable Delays	£1,645.00
G-RDS-HS UDC	Delay Simulator HS, Standalone, Int Clock 8Kbps to 3.072Mbps, Variable Delays	£1,645.00
G-RDS-HS-RM UDC	Delay Simulator HS, 1U Rackmount, Int Clock 8Kbps to 3.072Mbps, Variable Delays	£1,645.00

Interface Modules

G-RDS-HSSI	HSSI DCE I/M HSSI, SCSI-I 50 Pin Female, DCE Interface Module(connects to DTE)	£305.00
G-RDS-DS3	DS3 I/M DS3 Interface Module, 44.736 Mbps, 75 ohm BNC	£385.00
G-RDS-E3	E3 I/M E3 Interface Module, 34.368 Mbps, 75 ohm BNC	£385.00
G-RDS-ST51	STS-1 I/M STS-1 Interface Module, 51.840 Mbps, 75 ohm BNC	£385.00
G-RDS-T1	T-1 I/M T-1 Interface Module, 1.544 Mbps, 75 ohm BNC	£305.00
G-RDS-E1	E-1 I/M E-1 Interface Module, 2.048 Mbps, 75 ohm BNC	£305.00
G-RDS-232FC	RS-232 DCE I/M RS-232, DB-25 Female, DCE Interface Module (connects to DTE)	£145.00
G-RDS-232MT	RS-232 DTE I/M RS-232, DB25 Male, DTE Interface Module (connects to DCE)	£145.00
G-RDS-V35FC	V.35 DCE I/M V.35, MR-34 Pin Female, DCE Interface Module (connects to DTE)	£145.00
G-RDS-V35MT	V.35 DTE I/M V.35, MR-34Pin Male, DTE Interface Module (connects to DCE)	£145.00
G-RDS-530FC	RS-530 DCE I/M RS-530, DB-25 Female, DCE Interface Module (connects to DTE)	£145.00
G-E-RDS-530MT	RS-530 DTE I/M RS-530, DB-25 Male, DTE Interface Module (connects to DCE)	£145.00
G-RDS-422FC	RS-422 DCE I/M RS-422/449, DB37 Female, DCE Interface Module (connects to DTE)	£145.00
G-RDS-422MT	RS-422 DTE I/M RS-422/449, DB-37 Male, E-DTE Interface Module (connects to DCE)	£145.00
G-RDS-X21FC	X.21 DCE I/M X.21, DB-15 Female, DCE Interface Module (connects to DTE)	£145.00
G-RDS-X21MT	X.21 DTE I/M X.21, DB-15 Male, DTE Interface Module (connects to DCE)	£145.00
G-RDS-TTL	TTL I/M TTL Interface Module W/BNC Connectors	£150.00

Order Line: 01908 560200

Technical Help: 01908 561400

Phone Line Simulator

Ideal for Modem Testing, Exhibition Stands or On-site Demonstrations.

Description

FREELINK telephone line simulators link two analogue dial-up devices (for example modems or telephones) without using real lines. This allows free and easy local links for live operation or training, demonstration, development, maintenance etc. Fully automatic at all line speeds, they allow either pulse or tone dialling, or dial-free instant connection. The Demo supports two devices. Fully bi-directional, it is ideal for general modem, fax or phone operation. When a device comes "off-hook" it gets a dial-tone and can dial any number; the other socket then rings automatically and if it is answered, the devices are connected for speech or data until they both ring off. UK versions give a UK style "double" ring pattern. The Lite also supports two devices but has unidirectional connection designed for setting up and local links to voice processing systems. Disconnection between calls allows instant system resets, and while its "ring per second" pattern ensures a quick response, the audio option (if fitted) also allows slow rings. With its neat one-piece design, this is the clear choice where single-channel auto-answer is required and only one socket needs to ring. The Octal supports eight devices linked as four independent pairs. Each pair works exactly like the unidirectional Lite. This makes it ideal for multiple one-way connections for voice processing, exhibitions and training. The Octet also has eight lines in four pairs. None of the lines rings but each socket is dead unless its partner is off-hook which means line-sensing software can answer instantly when a hand set is lifted and reset when it is replaced. This is ideal for all multiple links to line-sensing devices such as voice modem systems, and is fully bi-directional.



FEATURES

- No installation, line or call charges
- Not limited to telephone points
- Life-time operation
- Give on-site training or demonstrations anywhere
- Fully automatic
- Portable, with built-in UK or US sockets
- Allows instant connection with or without dialling
- Compact (less than 145 mm wide)

Order Code	Description	Price
G-MD9940	Demo rings 2 way - UK Model	£99.00
G-MD9940-EURO	Demo rings 2 way - European Model	£99.00
G-MD9940A	Demo Audio rings 2 way	£109.00

Technical Tips

No configuration, cabling, software, or telecom approval is needed. You can choose UK or US phone sockets and UK, Euro 2-pin or US 110volt mains (non UL approved). An optional 'audio' feature enables direct connection of hi-fi or other systems using a walk-man type audio socket, and provides an off-hook switch to avoid hand-set noise.

Compact, versatile and simple to operate ISDN Network Simulators

Ideal for Demonstrations, Exhibitions, Development, Training, Testing.

Description

The Simline 6 has six ISDN S bus ports, each with one RJ45 socket, which allows ISDN basic rate terminal equipment to be connected together as if they were connected through the ISDN network. Any bearer can call any other by dialling user specified telephone numbers. Each RJ45 socket on the Simline 6 pod has LED indicators to display Physical Layer (Layer 1), Data Link Layer (Layer 2) together with B1 and/or B2 operation.

The unit connects to any suitable PC host via a standard serial port and the user interface allows easy configuration of the following; Telephone numbers (up to 30 digits) for each bearer channel; Numbering mode (single number, dual number or MSN); Supplementary services such as called/calling line ID presentation, subaddress presentation and high/low layer compatibility presentations. It is also possible to configure timers for dropping Layer 2 and Layer 1 at the end of a Layer 3 session, this allows close emulation of different network behaviour. Once configured, changes can be saved to the Simline 6 pod, which may then be disconnected from the PC host and used independently. Layer 1, 2 and 3 protocol analysis will be available as an option shortly.



FEATURES

- Basic 2 port version available (please call for details & specification differences)
- Six ISDN S Bus ports
- LEDs for Physical layer, Data layer and B1 & B2 operation
- Auto sensing mains supply included

Order Code	Description	Price
G-ISDNBLINK2	2 Port ISDN Simulator	£369.00
G-ISDNSIM6	6 Port ISDN Simulator	£1,415.00
G-ISDNSIM6-P	6 Port ISDN Simulator with Primary E1 Port	£1,550.00

SATSIM3

Simulates Serial VSAT IP Based VSAT IP Networks.

Description

Satellite usage is expensive and to combat the cost of using satellite links to develop or validate satellite based network applications, Vocality developed the Simulator 3. The unit provides an environment for the validation of an application or network design, before it's deployed over a live satellite link. The Simulator 3 can create a network environment which represents all the environmental issues that a typical satcom network will present - satellite delay or latency, occasional increases in bit errors and in the IP world of today, restricted QoS and packet loss. Network attached devices such as routers, multiplexors, data cryptos and codecs can all benefit from testing within a controlled environment before live deployment over satellite.

The Simulator 3 is presented with one IP port at either end, and one serial port at either end. Further IP ports can be added to create a multi-port environment, and the unit is configured using the M & C interface or Telnet. Serial Simulation Mode is available on all units. IP Simulation Mode requires a Feature Key to operate.



FEATURES

- Serial or IP WAN simulation
- Satellite delay or latency up to 10 seconds
- Synchronous serial rates up to 5.12Mbps
- Linear/Random/Gaussian error injection
- Flexible clocking modes
- Packet duplication, discarding, re-sequencing
- Independent simplex simulation streams
- Multiple simulation profiles
- Simulation scripting
- LED indicators for activity/status
- Diagnostic modes

Order Code	Description	Price
G-SATSIM3-SER	SIM 3 SERIAL with cable kit	£3,400.00
G-SATSIM3-SER-IP	SIM 3 SERIAL and IP with cable kit	£4,400.00
G-SATSIM3-SER-IP16	SIM 3 SERIAL and 16 IP with cable kit	£4,900.00

SPECIFICATIONS

- MECHANICAL**
- Option slots 1 and 2 support the 8-port Ethernet Switch module
 - Form Factor: Desktop/shelf mount
 - Max. number of modules: 2
 - Cooling: Forced air cooling from single 30mm inlet fan
 - Operating Conditions: 0° - 50°C ambient 0-90% RH non-condensing
 - MTBF: >100,000 hours at 50°C
 - Dimensions: 255 x 121 x 44mm
 - Indicators: 4 red/green for status, power, port 1, port 2, 2 green (RX carrier), 2 yellow (RX activity) for Ethernet1, Ethernet2.
 - Additional LEDs: 8 yellow per Ethernet switch module
 - Weight: 1kg

- FUNCTIONAL**
- Consumption (max): 20W
 - AC Adaptor: 100-240V AC 47-63Hz @ 0.6A
 - Serial Data ports (x2):
 - Presentation: DB15F HD DCE or DTE
 - Electrical Interfaces: RS232, V.11, V.35, V.36, RS449, RS530, RS530A
 - V.24 Rates: Sync int/ext clock in 25bps multiples 1200bps to 9600bps, 800bps multiples up to 115200bps
 - All others: Sync int/ext clocks at 25bps multiples 1200bps to 9600bps, 800bps multiples to 512kbps, 8kbps multiples to 5.12Mbps
 - Sync Format: Transparent only
 - Clocking: Independent RX/TX with Internal or External (Derived) sourcing
 - Signal Loops: Echo, Loop
 - Simulation Functions:
 - Delay: Range 10mS to 10 seconds step 1mS, Accuracy +/-1mS
 - Error Distribution Modes: Linear, Random, Gaussian (Normal), Manual
 - Signal Kills: Data, Clocks
 - Scripting: Scripting, with timers and packet-based triggers
 - 10/100base-T Ethernet Ports (x2 with fixed Ip addresses):
 - Presentation: UTP on 8-way RJ45 with auto-MDIX
 - Formats: IEEE 802.3u(10base-T), IEEE 802.3z(100base-TX)
 - Indicators: Green (RX carrier), yellow (RX activity)
 - Error Modes: Bit, Burst
 - IP Features:
 - Functions: IPv4 static router/bridge, Static configuration of IP route table, RIP, Configurable Proxy ARP, UDP Relay for
 - Broadcasts, Fragmentation and reassembly, QoS Profiles (Delay, Error, Priority, Bandwidth)
 - M&C Port:
 - Presentation: 6-way locking mini-DIN
 - Electrical Interface: V.24/RS232 serial
 - Format: Async up to 115200bps
 - Protocol: Formatted terminal emulation/Telnet or TTY mode
- SOFTWARE FEATURE KEYS**
- IP Simulation SWF/SIM/IP IP Packet Impairments: Packet Duplication, Packet Discard, Packet Re-sequencing
- HARDWARE OPTION**
- 10/100Base-T Ethernet Switch (All features substitute the 10/100base-T ports)Number of Ports: 8
 - Presentation: UTP on 8-way RJ45 with auto-MDIX
 - Format: IEEE 802.3u(10base-T), IEEE 802.3z(100base-TX)
 - Indicators: Eight yellow LEDs, one per channel (RX carrier)
 - Power-over-Ethernet: PoE version available with external -48V supply

Multi Speed Synchronous Modem Eliminator

X.21, V.35 and V.24 (Speeds selectable to 2,048 Mbps).

Description

The BetterBox® synchronous ME219 range of MultiSpeed modem eliminators allows you to connect 2 synchronous DTE devices at distances of over 200m, (X.21 and V.35). The ME219 range is frequently used also as a test bed when performing systems upgrade or to test the performance of your remote LAN bridges. The ME2191 is an X.21 modem eliminator with two DB-15 female sockets capable of running at speeds between 16Kbps and 2.048 Mbps. The ME2195 is a V.35 modem eliminator with two MRAC-34 female sockets (Winchester type) capable of running at speeds between 16Kbps and 2.048 Mbps. The ME2194 is a V.24 modem eliminator with two DB-25 female sockets capable of running at speeds between 1.2Kbps and 256Kbps (512Kbps optional). All modem eliminators in this range have extensive selection facilities to present control signal status to suit your application, and speeds are very simply selected via a front panel rotary switch. A loopback facility is provided on both sides. A 19" rackmounting chassis can accommodate a mix of up to 16 x V.24 or X.21 cards, or 8 x V.35 cards.



FEATURES

- X.21, V.35 and V.24 interfaces
- Speeds selectable between 16Kbps and 2.048 Mbps
- Internal power supply for reliability
- Wide range of options for control signal selection
- 1.544Mbps and other USA speeds available just by changing a strap
- Replaces two synchronous modems
- Fully compliant with (forthcoming) EEC regulations on EMI/RFI levels

SPECIFICATIONS

- Dimensions: 203 x 229 x 51 (W x D x H) mm
- Weight: 0.45 Kgs
- Power: 230 Vac



Order Code	Interface Type	Price
G-ME2191	X.21/V.11	£299.00
G-ME2195	V.35	£299.00
G-ME2194	V.24/RS-232	£299.00

Call us for details on our Rackmount alternatives.

KiloStream Simulator

Low speed X.21 Modem Eliminator (speeds of up to 128 Kbps).

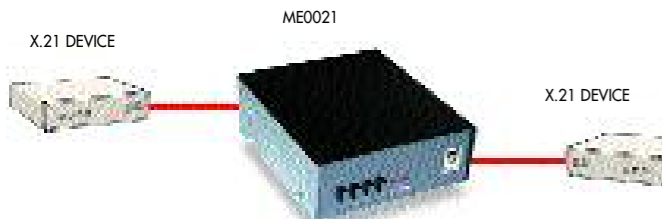
Description

The ME0121 Synchronous X.21 Modem Eliminator enables you to connect 2 DTE devices at data rates from 48 to 128Kbps, selectable by front panel push-buttons. The ME0021 KiloStream Simulator enables convenient local test of digital equipment, rather than by installing a unit at each end of a KiloStream link. Speeds are switch-selectable from the rear panel. The front panel push-buttons allow the user to simulate "delete data" or "delete clock" conditions.



FEATURES

- Synchronous speeds of 48, 56, 64 and 128Kbps
- X.21 interface (or V.35 via adapter cables)
- Front panel switches (ME0021) used for clock selection or Clock-A-Delete, Data-A-Delete, Clock-B-Delete, Data-B-Delete
- 240 Vac power supply



SPEED SETTINGS OF 48, 56, 64 & 128KBPS

Order Code	Description	Price
G-ME0021	KiloStream simulator	£269.00
G-ME0121	X.21 modem eliminator	£269.00
G-CB0022A	X.21 to V.35 2mtr cable	£29.00
G-BBX15-MM-002	X.21 DB15 Male - Male 2mtr cable	£10.00

Ethernet Delay Simulator

Description

The ETHDS1 is an Ethernet Delay Simulator allowing users to test/stage critical network equipment by altering bandwidth, latency, packet loss, congestion and other important link impairments over 10/100/1000 Ethernet. The ETHDS1 can emulate two individual links simultaneously at rates up to 2 GbE, making it ideal for multiple test configurations. The ETHDS1 is a must have test tool for product development / demonstrations, network validation, VoIP, benchmark testing, video / IPTV simulation and website performance. The ETHDS1 hardware based architecture is a powerful Dual Core Intel® Atom D510 Processor and is coupled with custom software presenting an easy to use GUI interface. The ETHDS1 operates from a web browser and the user has no cumbersome software or confusing licenses to deal with for secure operation. The ETHDS1 can act as a bridge or a router in the users network. The user configures the unit via the GUI interface using a standard web browser.

The GUI is fast and simple to use. All commands and settings are displayed prominently. Simply set the band width, delay and any traffic congestion if required. The user is presented with the results in real time and in a graph. By using the ETHDS1 in place of or in series with a real data link (WAN) a wide variety of error conditions can be introduced under controlled and testable conditions. The unit is an excellent choice for validating and evaluating new products and technologies. The ETHDS1 is housed in a sturdy 1U high metal enclosure which can be rack mounted. It is powered by an integrated 90-240V 50/60Hz power supply.

APPLICATION

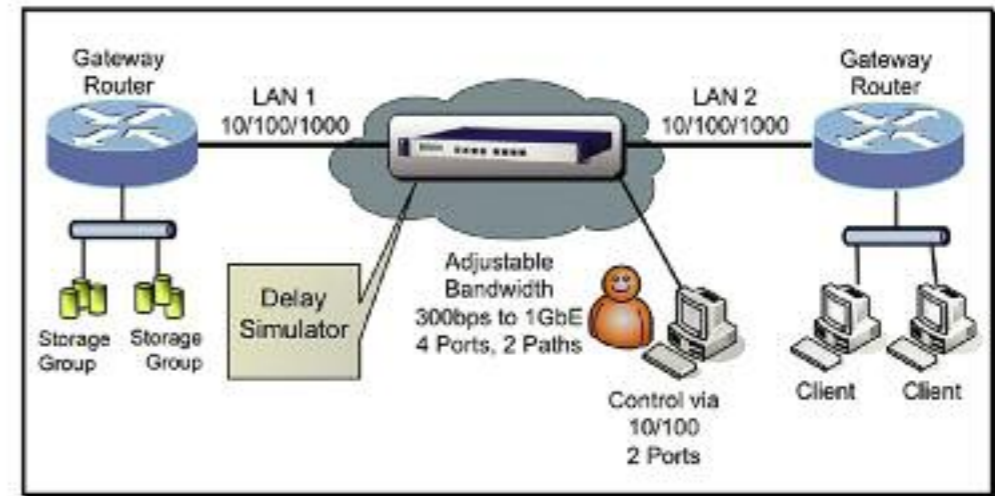
Interconnection of two or four 10/100/1000G Ethernet devices simulating bandwidth, latency, packet loss and congestion on two independent LAN channels

Protocols Supported
UDP, TCP, MPLS, VLAN, ESP, LPD, Encrypted Packets

SPECIFICATIONS

- Implemented via the user 10/100 Management Port and factory reset via the RS-232
 - Serial Port
 - Configuration Ports
 - Two Independent 10/100 Ethernet Ports
 - Data Interface on Delay Ports
 - 10/100/1000, 1GbE Ethernet, 4-Ports Total
 - Two Independent Paths
 - Link Rates
 - 300bps - 1 GbE in 1bps increments, bi-directional or split speed, bps, Kbps, Mbps or Gbps
 - Each link is capable of 5 independent delay settings via the software scheduler
 - Each link is capable of independent output statistics settings via the software scheduler
 - Packet Loss
 - 0 to 100% in increments of 0.001%
 - Settings for Probability & Delay Min/Max
 - Background Traffic
 - 0 to 100% in increments of 0.001%, settings for LAN Utilization and Bust Size
 - Roaming Delay
 - High and Low Delay coupled with bandwidth over a user defined time period recorded to hard drive
 - Queue Depth
 - User selectable settings for Packets, Kb or Ms
 - LAN Ports and LCD Display
 - Surge Protection
 - Power Source
 - AC Mains: 100-240VAC @ 10%, 50/60Hz, 0.16/0.08A,
 - Auto Range
- Environmental
- Operating Temperature 32° to 104°F (0° to 40°C)
 - Relative Humidity. 5 to 85% Non-Condensing
 - Altitude 0 to 10,000 feet
 - Height 1.7 inches (44 mm)
 - Width 16.70 inches (426 mm)
 - Length 12.60 inches (320 mm)
 - Three Years hardware, includes software support and software feature upgrades/improvements
- Software Upgrades
- Administered via the 10/100 user management Port
 - Regulatory Approvals
 - UL, CSA, CE, CCC, FCC, C-Tick and RoHS

Order Code	Description	Price
G-ETHDS1	Ethernet Delay Simulator	£4,235.00



ETHDS2 10Gb Ethernet Delay Simulator

Description
The ETHDS2 is an 10Gb Ethernet Delay Simulator allowing users to test/stage critical network equipment by altering bandwidth, latency, packet loss, congestion and other important link impairments over 10/100/1000 and 10Gb Ethernet. The ETHDS2 utilizes the latest hardware and software design allowing Line Rate Performance. The unit is a must have test tool for product development / demonstrations, network validation, VoIP benchmark testing, video / IPTV simulation and transaction performance. The hardware based architecture is coupled with custom software presenting an easy to use interface.



FEATURES

- Configuration Ports
 - Two Independent 10/100/1000 Ethernet Ports
 - Data Interface on Delay Ports
 - 10/100/1000 or 10GbE, Copper or Fibre with SFP
- Link Rates
 - 300bps - 10GbE in 1bps increments, bi-directional or split speed, bps, Kbps, Mbps or Gbps
- Link Throughput
 - Line Rate or Near Line Rate (90-100%) for any Packet Size with advanced user space drivers
- Emulated Latency
 - 0 ms to 8 sec. in 1ms increments, settings for constant, uniform or normal

The unit operates from a command line interface or web browser. The user has no cumbersome software or confusing licenses to deal with for secure operation. The ETHDS2 can act as a bridge or a router in the users network. The user configures the unit via a standard web browser. All commands and settings are displayed prominently. Simply set the band width, delay and any traffic congestion or loss if required. The unit also supports a filtering method of IP Packets and scripting support for automated testing. The user is presented with the results in real time and in a graph

Order Code	Description	Price
G-ETHDS2	2 port copper 10Gb Ethernet Delay Simulator	£Call for pricing
G-ETHDS2FIB	2 port fibre (SFP included) 10Gb Ethernet Delay Simulator	£Call for pricing

The Modem Sharing (MODSHR) products consist of 4 and 8 port units

Description
The units provide the network manager with a cost effective means of expanding existing, leased line polled networks without adding computer ports or communications links. Up to eight terminals can share the same port and communications link using the contention and control protocols normally resident in the host hardware and software. Once installed, system and network efficiency are increased through higher host processor utilization coupled with the significant decrease in idle time between host / terminal traffic sessions. Ideal for either synchronous or asynchronous network environments, the units are protocol transparent at data rates up to 128Kbps.



SPECIFICATIONS

- Application Multiple Sync/Async terminal or DTE devices operating in a polled environment, to share one Modem
- Capacity One to eight RS-232 Sync/Async devices
- Interface EIA RS-232, CCITT V.24 using DB-25 female connectors, +/- 15KV ESD Protection
- Data Rates Up to 128Kbps
- Data Format Data transparent at all data rates
- Timing External; from attached Modem
- Anti-Streaming Automatic Selectable time out intervals, Disable Selectable via dip switch
- Terminal Service Modes Scanning or Priority
- Front Panel Indicators Power, Transmit Data, Receive Data, Channel Active, Channel Stream Switches Enable/Disable of each Subchannel
- Environmental
 - Operating Temperature 32° to 122° F (0° to 50°C)
 - Relative Humidity. 5 to 95% Non-Condensing
 - Altitude. 0 to 10,000 feet
- Dimensions
 - Height 1.75 inches (4.44cm)
 - Width 13.35 inches (33.09 cm)
 - Length 9.00 inches (22.86 cm)

Data arriving at the Master Port is continually broadcast to all Subchannels. The attached terminal device that raises the RTS control signal is automatically given control of the unit until data transmission is complete. Clocking is accomplished from the attached Modem. The sharers incorporate optional Anti-Streaming circuitry. If enabled, Anti-Streaming will automatically remove a defective terminal from service if the Data / Control criteria is present for the user predefined selection period. Housed in a sturdy metal enclosure and equipped with an internal 110/220VAC switch selectable linear power supply.

Order Code	Description	Price
G-MODSHR-4	4 Way Modem Sharer	£359.95
G-MODSHR-8	8 Way Modem Sharer	£480.95

MEUNI

Description
The MEUNI allows two DTE devices (such as routers) to communicate within proximity of each other. It transmits data bi-directionally at clock rates of 1.2k up to 3.072Mbps between DTE devices. All clocking and signal crossover are provided within the unit. The unit is equipped with two interface slots that allow a host of serial interface cards to be utilized. The serial interface cards available are RS-232, RS-422/449, RS-530, X.21, V.35 and HSSI. They are interchangeable and may be mixed such as RS-232 to V.35 thus eliminating the need for an interface converter or changing expensive serial cards on a DTE device such as a router. The MEUNI is also an excellent choice for testing router-to-router connections via the serial ports.



FEATURES

- Capacity Two (2) DTE's
- Serial Data Interface RS-232, RS-422/449, RS-530, X.21, V.35 and HSSI
- Data Format Data Transparent at all Data Rates
- Inversion Option Data Inversion or Clock Inversion
- Selectable Clock Rates 1.2k, 2.4k, 4.8k, 7.2k, 9.6k, 14.4k, 16k, 19.2k, 28.8k, 32k, 38.4k, 48k, 56k, 57.6k, 64k, 72k, 96k, 128k, 192k, 256k, 384k, 512k, 768k, 1.024M, 1.280M, 1.472M, 1.536M, 1.544M, 1.920M, 1.984M, 2.048M, 3.072M
- Indicators POWER TXD, RXD, TXC, RXC, RTS, CTS, DTR, DCD
- Surge Protection Main power supply
- Power Source AC Mains: 100-120 to 200-220VAC @10%, 50/60Hz, 0.16/0.08A, external 110/220 volt select switch, IEC
- Power Inlet, (2) 5mm Fuses

SPECIFICATIONS

- Environmental
- Operating Temperature 32° to 122° F (0° to 50 °C)
 - Relative Humidity 5 to 95%
 - Non-Condensing 0 to 10,000 feet
 - Dimensions Height 1.75 inches (4.44 cm)
 - Width 9.00 inches (20.86 cm)
 - Length 9.00 inches (20.86 cm)
 - Weight 2 pounds (0.914Kg)

Order Code	Description	Price
G-MEUNI	Modem Eliminator base unit	£195.00
G-MEUNI-RM	Modem Eliminator Rackmount base unit	£229.00
G-232DCE	RS-232 DCE DB25F interface	£85.00
G-V35DCE	V.35 DCE M34F interface	£108.95
G-530DCE	RS-530 DCE DB25F interface	£85.00
G-422DCE	RS-422 DCE DB37F interface	£85.00
G-X21DCE	X.21 DCE DB15F interface	£85.00
G-HSSIDCE	HSSI DCE SCSI-1 50 pin F	£195.00

1200 Series Modem Eliminators

The 1200 Series support speeds up to 512Kbps & distances up to 90 metres.

Description
The 1205 series modem eliminators are self-powered (model dependent) and comes equipped with two DB-25 or DB-15 connectors. Each unit provides internal or external clock options and operates half or full duplex. Carrier may be configured as 'constantly on' or 'controlled by RTS'.



SPECIFICATIONS

- Data rates: 32, 48, 56, 64, 72, 112, 128, 144 and 512Kbps (model dependent)
- Clocking: Internal or external
- Connectors: Mrack 34 male or female (Model 1205) and DB-15 female (Model 1206) DB-25 model 1201/2
- Power Supply: Model 1201/2/5 are powered by the interface signals, and Model 1206 via an external power supply

Order Code	Description	Price
G-ME1205M	V.35 male/male Modem eliminator	£199.00
G-ME1205F	V.35 female/female Modem eliminator	£199.00
G-ME1206FM	X.21 female/female modem eliminator	£189.00
G-ME1201F-F	Up to 38.4Kbps with Female DB25	£99.00
G-ME1201M-M	Up to 38.4Kbps with Male DB25	£99.00
G-ME1202F-F	Up to 512Kbps with Female DB25	£149.00
G-ME1202M-M	Up to 512Kbps with Male DB25	£149.00

ME1206 is supplied complete with Power supply.

Send V.24 Data from a single source to 8 devices simultaneously

Data Broadcast Unit for V.24 Applications.

Description

This data isolation and broadcast unit is a simple method of data distribution and amplification for up to eight RS232 ports. One master port is electrically buffered to provide data to the eight slave output ports. The unit is supplied in 2U table top case format (an optional rack mount kit is available) and measures 65mm in height. The data broadcast is ideal for use in applications in banks, control rooms and other areas where the same information is required to be displayed on a number of similarly interfaced serial monitors.

It provides electrical isolation between separate channels and prevents the overload of one driving port by connection to multiple outputs. The unit transmits data from the master to all slaves simultaneously. The reverse channel data lines from the slave ports are electrically gated without contention so that any slave port may transmit to the master port.

Slave unit transmit selection must be done external to the unit. Up to 12 units can be daisy chained together by simply connecting the 9 pin connector on one unit to the 25 pin input connector on the next unit in the chain allowing up to 96 devices to be connected to a single port.

FEATURES

- Broadcast fanout from one master devices into up to 96 devices
- Desktop or Rackmount, Sync or Async units
- Rear mounted connectors
- Eight LEDs for port status and one for power
- Data from slaves to master transmitted without contention
- Transparent to code and data rates up to 38.4Kbit/s
- Ideal for poll select and data display systems
- Fully CE Certified

SPECIFICATIONS

- Connectors: 9 x DB25 Female
- Pins Supported: 1 to 8, 15, 17, 20
- Power: 110 or 230Vac, 10W



Order Code	Description	Price
G-MDGADB8	8 Channel Async Broadcast Unit, Desktop	£279.00
G-MDGAB8RS	8 Channel Sync & Async broadcast unit	£299.00
G-DBUR002	Dual fixing rackmount adapter	£29.00



DBU4PORT Data Broadcast Unit

Description

The DBU4PORT Data Broadcast Unit is designed for use in receive only data broadcast applications. Examples of typical data broadcast applications are; Continuously updated public data displays and distribution of continuous noncritical data to PC's or receive only printers.

The expanding role of V-SAT systems in receive only applications for real time data distribution is expected to increase dramatically over the next several years. The DBU4PORT is an excellent choice for applications of this type. The units input port accepts a variety of DTE modules with support for RS-232, RS-530, RS-422/449, X.21 and even TTL. The units output ports can support up to four receive only terminals simultaneously for either RS-232 or balanced V.11 on RJ-45 connectors.

The Units master port has a DB-25 female connector. The sub-channels are also DB-25 female connectors. The DBU4PORT continuously broadcasts receive data and receive timing signals from the data source to the output terminal ports. The DBU4PORT is housed in a sturdy aluminium enclosure and is supplied with an internal linear power supply. The unit has a 110/120 VAC select switch located on the rear of the housing.



Order Code	Description	Price
G-DBU4PORT232	RS232 Broadcast Unit	£284.25
G-DBU4PORTX21	X.21 Broadcast Unit	£359.25
G-DBU4PORT232-RM	RS232 Broadcast Unit	£321.75
G-DBU4PORTX21-RM	X.21 Broadcast Unit	£396.75

Choose 1 input port below

G-232DCE	RS-232 DCE DB25F interface	£85.00
G-V35DCE	V.35 DCE M34F interface	£108.95
G-530DCE	RS-530 DCE DB25F interface	£85.00
G-422DCE	RS-422 DCE DB37F interface	£85.00
G-X21DCE	X.21 DCE DB15F interface	£85.00
G-HSSIDCE	HSSI DCE SCSI-1 50 pin F	£195.00

FEATURES

Application

- Allows a single serial Input Port for Data, Clock and a optional Control Signal to be split to four output ports for either RS-232 or balanced V.11

Capacity

- One Input Port and four output ports
- Serial Data Interface

- Available in RS-232, V.35, RS-530, RS-422/449, X.21, HSSI, TTL and EIA-644(LVDS),

Data Rates

- Up to 20Mbps

Data Format

- Synchronous or Asynchronous Data Transparent at all Data Rates

Indicators

- POWER, TXD, RXD, TXC, RXC, RTS, CTS, DTR, DCD
- Surge Protection
- Main power supply

Power Source

- AC Mains: 100-120 to 200-220VAC @10%, 50/60Hz

SPECIFICATIONS

Environmental

- Operating Temperature. 32° to 122° F (0° to 50 °C)
- Relative Humidity. 5 to 95% Non-Condensing
- Altitude. 0 to 10,000 feet

Dimensions Standalone

- Height 1.75 inches (4.44 cm)
- Width 9.00 inches (22.86 cm)
- Length 9.00 inches (22.86 cm)

Dimensions Rackmount

- Height 1.75 inches (4.44 cm)
- Width 17.00 inches (43.18 cm)
- Length 9.00 inches (22.86 c)

Custom Cables ...at your fingertips

If you can't find the cable you need, we will build it for you and from your own designs. Alternatively, we will do all the research, then design it from scratch and build it for you!
We won't stop until you have the cable you need!

For more details please contact our Technical Support Team on 01908 561400



Digital Port Sharer
Description

The Digital Port Sharer (DPS-4) is a network expansion device for modem sharing or port sharing applications in polled or contention environments. The DPS-4 allows up to four devices to share a modem/DSU or computer port. Any combination of terminals and modems may be used in a network environment.

Each port of the DPS-4 may be selected as a DCE or DTE interface. Once installed, system and network efficiency are increased through higher host processor utilization coupled with the significant decrease in idle time between host / terminal traffic sessions. Ideal for either synchronous or asynchronous network environments, the DPS-4 is protocol transparent at data rates up to 128Kbps.

The DPS-4 may be configured to provide clocking for the entire network. To prevent data transmission errors caused by clock differentials throughout the network, an 8 bit buffer is provided. In applications where the master port and the selected port provide their own clocks, data is clocked into the buffer at the receive clock rate of the active port and clocked out using the master port transmit clock. In applications where the Clear To Send control signal is not provided by the master port, an artificial RTS/CTS is available. Additionally, several RTS/CTS delay settings are available.

The DPS-4 provides optional Anti-Streaming circuitry. Once enabled, Anti-Streaming will automatically remove a defective terminal or modem from service if the Data / Control criteria is present for the user predefined selection period.

SPECIFICATIONS

- Application: Multiple Sync/Async DCE/DTE devices operating in a polled, contention, or dial environment, to share one DCE/DTE port
- Capacity: One to four RS-232 Sync/Async devices
- Interface: EIA RS-232, CCITT V.24 using DB-25 female connectors
- Data Rates: Internal: Up to 76.8Kbps, External: Up to 128Kbps
- Data Format: Data transparent at all data rates
- Timing: Internal or External
- Anti-Streaming: Automatic. Selectable time out intervals, Disable Selectable via dip switch
- Terminal Service Modes: Sequential scanning for RTS, DCD or Data
- Front Panel: Indicators Power, Transmit Data, Receive Data, Channel Active, Channel Stream
Switches Enable/Disable of each Subchannel
- Environmental: Operating Temperature 32° to 122 °F (0° to 50 °C)
- Relative Humidity: 5 to 95% Non-Condensing
- Altitude: 0 to 10,000 feet
- Dimensions: DSP-4 (Rackmount Model)
- Height: 1.75 inches (4.44 cm)
- Width: 17.00 inches (43.18 cm)
- Depth: 9.00 inches (22.86 cm)
- Weight: 4.5 pounds (2.1Kg)

Order Code	Description	Price
G-DSP-4	4 Way Port Sharer	£425.00


Modem Splitter 3 or 6 Ports

Share one modem with up to six users without needing a switch.

Description

Our modem splitter family allows up to 6 terminals to access one modem. All models are passive and as such do not require any power. The MODPMSD range are ideal for use with poll select protocols.

Order Code	Ports	Price
G-MODPMSD3	3 Port Unit	£59.00
G-MODPMSD4	4 Port Unit	£49.00
G-MODPMSD6	6 Port Unit	£79.00
G-MODPMSD3K	Kit comprising 3 Port Unit with 4 Cables	£69.00
G-MODPMSD6K	Kit comprising 6 Port Unit with 7 Cables	£99.00

Each kit includes the sharer, 4/7 x CB0004MF cables (1 mtr DB-25 Male to DB-25 Female) & 1 x AT0559 (DB-25M to DB-9F adapter).

G-MICROMOD3	3 Port Micro Modem Splitter	£53.00
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FEATURES

- 3 or 6 ports
- Cost effective way to share a modem
- Easy to install
- Fully transparent to data code and speed
- Power: None required
- Small, unobtrusive

The Traffic Generator Model TG10G
Description

The Traffic Generator model TG10G is based on the well known traffic generation engine D-ITG. The TG10G is composed of a Graphical User Interface (GUI) that wraps the D-ITG engine, INTEL DPDK Fast Packet Technology and other test tools. Using D-ITG, the TG-10G is capable of producing IPv4 and IPv6 traffic by accurately replicating the workload of current Internet or typical user applications. The platform supports 8-Ports 10/100/1000 and 4-Ports of 10GbE traffic generation managed via the easy to use GUI.

This allows users to perform load tests on hardware prior to deployment and to simulate wired or wireless network traffic behaviour. The D-ITG generation engine provides many interesting and unique features. Thanks to it the TG10G is also a network measurement tool able to measure the most common performance metrics such as throughput, delay, jitter and packet loss at the packet level. The TG10G can generate traffic following stochastic models for packet size (PS) and inter departure time (IDT) that mimic application-level protocol behaviour. By specifying the distributions of IDT and PS random variables, it is possible to choose different renewal processes for packet generation.

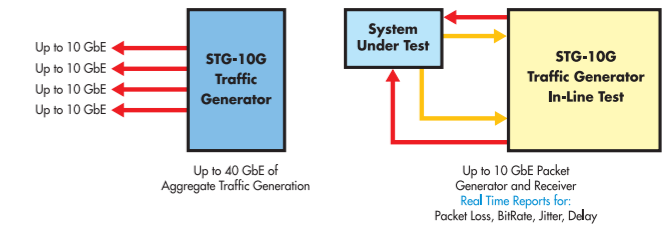
By using characterization and modelling results from literature, TG10G is able to replicate statistical properties of traffic of different well-known applications such as Telnet, VoIP - G.711, G.723, G.729, Voice Activity Detection, Compressed RTP - DNS, network games. At the transport layer, the TG10G currently supports UDP, TCP, ICMP, DCCP, SCTP and soon to be released support for IGMP. Additionally an FTP-like passive mode is also supported to conduct experiments in the presence of NATs, and it is possible to set the TOS (DS) and TTL IP header fields. The TG10G also supports replay of Pcap files with an easy to use Pcap player that allows cyclic repetition and speed scaling. INTEL DPDK Fast Packet Technology was integrated into the TG10G that allows wire line rates even for tiny 64byte packets.

The combination of D-ITG and INTEL DPDK technology allows the TG10G to generate traffic at comparable rates to based proprietary systems at half the price. The TG10G Stateful Traffic Generator is able to generate multiple unidirectional flows, many senders toward many receivers. The TG10G supports two modes of packet transmission. One being the Standard Mode for realistic traffic simulation allowing adjustable data rates. The Turbo Mode allows line rate transmission utilizing INTEL DPDK drivers with Pcap files containing any type of traffic. Application Designed to generate and monitor IP traffic from clients to servers to stress test routers, servers and firewalls capable of producing extreme network loads. Can also generate and receive traffic to itself to perform network testing at various levels.

Order Code	Description	Price
G-TG-10G-4	TG-10G, Stateful Traffic Generator, GUI Web Console, 4-Core	£5,445.00
G-TG-10G-6	TG-10G, Stateful Traffic Generator, GUI Web Console, 6-Core	£6,045.00
G-TG-MOD-C-4x1GB	4-Port 10/100/1000 Copper Interface PCI /2 Card	£409.00
G-TG-MOD-F-2x1GB	2-Port 10/100/1000 Fibre Interface PCI 1/2 Card, 2 SFP Interface Inserts	£889.00
G-TG-MOD-C-2x10GB	2-Port 10GbE Copper Interface PCI 1/2 Card	£655.00
G-TG-MOD-F-2x10GB	2-Port 10GbE Fibre Interface PCI 1/2 Card, 2 SFP Interface Inserts	£1,665.00



STG-1G & STG-10 APPLICATION BLOCK DIAGRAMS:
1G to 10GbE IP Traffic Generator & Packet Checker


FEATURES

- Data Interface Up to 4-Ports 10GbE Copper or Fibre Up to 8-Ports 1GbE Copper or Fibre 10/100/1000 Copper: GUI Management
- Configuration Ports 10/100/1000GbE Ethernet Port, Supervisor Port and Management Port
- Data Rates Up to 10GbE per port, 4-Ports 10GbE capable
- Supported Layer-3 Features IPv4, IPv6
- Supported Protocols UDP, TCP, ICMP, DCCP, SCTP and Pcap Files for Play Back with Statistics
- Surge Protection Main power supply
- Application Layer Protocols DNS, Telnet, VoIP (G.711.1, G.711.2, G.723.1, G.729.2, G.729.3) CSa, CSi and Quake3
- Packet level QoS metrics TX/RX Packets, Delay, BitRate, Packet Loss

SPECIFICATIONS

- Permission Keys Sold individually Per Unit Demo and 30 Day Lease keys also available
- Power Source AC Mains: 100-240VAC @ 10%, 50/60Hz, 0.16/0.08A, Auto Range
- Environmental Operating
 - Temperature 32° to 104° F (0° to 40°C)
 - Relative Humidity 5 to 85% Non-Condensing
 - Altitude 0 to 10,000 feet
 - Dimensions Height 3.5 inches (49 mm)
 - Width 17.20 inches (437 mm)
 - Length 14.50 inches (369 mm)
 - Weight 28 Pounds (12.7kg)