BLACK BOX®
NETWORK SERVICES

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MICROCONVERTER RACK SYSTEM

Key Features

▶ **Each chassis holds up to 14 line cards.**

▶ **Dual redundant power supply option.**

▶ **SNMP management.**

▶ **Easy Configuration - All connectors at the front.**

▶ **Hot Swap on all modules.**

Introduction

The MicroConverter Rack concept has been specified and developed to enable users of Black Box products to lower their costs and simplify their operations. the system comprises a chassis, power supply modules and line cards. Black Box will be offering an exciting range of additional line cards as part of the MicroConverter Rack product rollout.

The MicroConverter Rack System - Chassis

The MicroConverter Rack Chassis is a 2U 19-inch (rack width) systme, with a depth of 330mm. It has fourteen line card slots and two power supply slots. The power supply slots are located one at each end of the chassis.

This chassis can be used with either a single power supply or dual power supplies for resilience.

Power, at five volts DC, is distributed throughout the MicroConverter Rack Chassis via a backplane. The backplane also supports wo buses for the multidrop RS485 management communications functions, these extend to all 16 slots of the chassis. The MicroConverter Rack Chassis is cooled by convection. Due to its efficient design fan assisted cooling is not required for the MicroConverter Rack Chassis populated with any combination of the MicroConverter Rack G.703 Line Cards or MicroConverter Rack G.704 Line Cards. Every Line Card, and the Management equipped Power Supply, includes a temperature monitoring function. The temperature of each Line Card is monitored by the Managment System, with he parameters being linked to alarms if rquired.

MicroConverter Rack System - Power Supply Options

One or two power supplies may be fitted. These are either an AC unit which is auto-ranging, self-sensing, and DC supply that requires a nominal -48VDC input. They are independent of each other but because of oad balancing it is not possible to mix both AC and one DC supply in one rack. Both types of power supply are available as unmanaged or managed units. The managed power supplies are provided with additional processing capability. an async console port, an Ethernet port, and two dry contact relay outputs, one for major alarms and one for minor alarms (programmable).

MicroConverter Rack System - Management Options

Basic MicroConverter Rack Management Functionality is accessed via an asynchronous console port on the Managed Power Supply Line Card using a dumb terminal interface, or aterminal emulation program on a PC.

In addition there are two dry contact relay outputs for major and minor alarms. On power-up the console port interface provides an initial sign-on message and then a summary status report of the rack configuration i.e. which slots are

in use, and what type of Line Card is installed in each slot that is in use. The management system polls the Line Cards continuously and automatically reports a new Line Card insertion or the removal of a Line Card. The polling function compares status messages from each Line Card with previous status messages. A change in the status of any parameter within a stats message can be mapped by the magnificent software to the dry contact relay alarm functions.

A command line interface (CLI) can be opened to any of the Line Cards that are installed in the rack. On opening the CLI to a praticular Line Card an initial identification message will appear and then a summary status report of the Line Card configuration. The operating parameters of the Line Card can be changed via the CLI. However, if the Line Card is set for "Read Only" the changed parameters cannot be written to the Line Card's non-volatile memory.

There is also a mangement configuration screen associated with each Line Card in the MicroConverter Rack Chassis. This screen displays the status parameters for the particular type of Line Card in the slot selected, and the operator can then select either major alarm, minor alarm or no alarm for each of those parameters. The selections are saved in non-volatile memory.

Enhanced MicroConverter Rack Management Functionality

The enhanced MicroConverter Rack management functionality is accessed via an Ethernet port on the Managed Power Supply Line Card, using parts of the industry standard Internet Protocol suite.

The enhanced MicroConverter Rack management functionality suppors two information presenation protocols, SNMP and an http: Browser Interface, and telnet access. The SNMP function responds to get, get next and set messages. It issues a trap message when an alarm condition occurs. There are two types of trap message, for major and minor alarms.

These use the same criteria as the major and minor alarm dry contact relay outputs. The htpp: Browser Interface provides a graphical representation of the MicroConverter Rack Chassis status, with the ability to click through to a display for a specific Line Card where the parameters for that card can be viwed and altered. The same "Read Only" restriction applies to the setting and storing of parameters for both SNMP and the http: Browser Interfaces.

Management Resilience

The MicroConverter Rack Chassis can support the use of two management-equipped Power Supplies concurrently. The management-equipped Power Supply located in the left-hand power supply slot will automatically become the master, and the other a stand-by. The Master Management System will report the status of the stand-by Management System. The stand-by Management System can be interrogated using either the console port, SNMP or the http: Browser Interfaces, but it operates only in a "Read Only" mode i.e. no changes to operating parameters are supported by the stand-by Management System.

MicroConverterRack Line Cards

MicroConverter Rack G.703 Line Card

The MicroConverter Rack G.703 Line Card is used in the MicroConverter Rack Chassis. It is a derivative of the highly successful Black Box MicroConverter G.703 (MTU9000) and it has been engineered to reduce cost and increase functionality in this expanding sector of the market.

The MicroConverter RAck G.703 Line Card is designed to enable the connection of data communication systems to carrier services, or private services, such as microwave links, that are presented as G.703 at 2Mbit/s. The standard model supports an X.21 DTE with 75-ohm un-balanced G.703 termination. The enhanced version can support both X.21 and V.35 DTE with 75-ohm unbalanced termination. Both versions are also available with 120-ohm balanced termination of the G.703 network connection.

MicroConverter Rack G.704 Line Card

The MicroConverter Rack G.704 Line Card also fits one of the 14 line card slots of the MicroConverter Rack Chassis. It is a derivative of the highly successful MicroConverter G.704. It supports a full range of Nx64k port speeds, with any variation/permutation of time slot assignments (so called Mx64k), using structured (channelised) G.704. The stand-alone MicroConverter G.704 is a managed system. The configuration has to be changed (from the default) using the command line interface or via the browser (http:) based management proxy system.

Likewise the MicroConverter Rack G.704 Line Card is a managed system. Its configuration has to be changed in the same way. However, in the case of the MicroConverter Rack G.704 Line Card the management function is accessed via the MicroConverter Rack Management System, and the MicroConverter Rack back plane, rather than via a dedicated serial interface on the line card.

The standalone MicroConverter G.704 supports remote configuration and management, when used in structured G.704 mode. This functionality has been included in the MicroConverter Rack G.704. This enables a MicroConverter Rack system to be loaded with fourteen MicroConverter Rack G.704 Line Cards, and for these to be connected in turn to fourteen remote MicroMux G.704 systems, with the remote units at the subscriber sites managed from the MicroConverter Rack Management System.

MicroConverter Rack EasiLink Line Card

The MicroConverter Rack EasiLink line card will be a derivative of the EasiLink G.703 designed to be used in the MicroConverter Rack Chassis. This will enable G.703/704 extemsion over a fibre span.

▼ *Ordering Information*

ITEM	CODE
First you need the Chassis.........	
MicroConverter Rack Chassis (14 + 2 slot)	RMU9100
Now order a power uspply or for redundancy, two...........	
MicroConverter Rack Standard PSU	PSU9100-S
MicroConverter Rack Managed PSU	PSU9100-M
MicroConverter Rack Standard 48Vdc PSU	PSU9100-48S
MicroConverter Rack Managed 48Vdc PSU	PSU9100-48M
Next select your required MicroConverter cards, up to 14 in any combination...	
MicroConverter Rack G.703, 75ohm/X.21	
	MTU9100C-75X21
MicroConverter Rack G.703, 120 ohm/X.21	
....	MTU9100C-120-X21
MicroConverter Rack G.704, 75 ohm/X.21	
....	MTU9105C-75-X21
MicroConverter Rack G.704, 120 ohm/X.21	
....	MTU9105C-120-X21
...you may also need blanking panels for empty slots	
Blanking Panel - 1 slot	RMU9100BP-1
Blanking Panel - 3 slot	RMU9100BP-3
Blanking Panel for Power Supply Slot	RMU9100BP-PS