MODEL 844

4-PORT INTERSITE LINK

FEATURES

- Integrates with the Zetron Model 827 to support regional networks of up to 32 sites, in a network with a variety of different configurations
- Each Model 844 provides 4 independent intersite ports
- Provides four analog speech ports and four data ports to directly connect two or more Zetron MPT 1327 sites
- Provides additional storage capacity for system call detail records
- Supports internal system alarm detection and reporting

INTRODUCTION

The Model 844 4-Port Intersite Link provides enhanced linking capacity to a Zetron Model 827-based MPT 1327 trunked radio system. It provides four 4-wire audio ports and four RS-232 serial data ports. The audio and data ports provide a gateway for linking conversation audio and call setup data essential for roaming trunked network operation.

Multisite operation allows mobile units to roam throughout the network without losing any system functionality. Subscribers can be located and can receive calls from a telephone or another radio unit while roaming anywhere on the system. In addition, multisite operation allows a group call to include up to six sites.

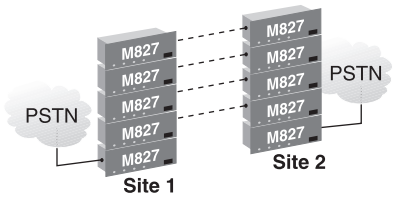
MULTISITE – A BRIEF OVERVIEW

The unique advantage of Zetron's MPT 1327 trunking solution is the capability to build small to medium-sized multisite networks (up to 12 sites) without the need for an expensive central hardware switch. This unique Zetron "switch-less" architecture is made possible by the internal PCM audio and data bus that all M827 and M844 units share.

Multisite operation is implemented by a software option accompanied by the installation of the internal telco option card in at least one M827, or the addition of a M844, in each site to be linked. The M827 optional telco card can be configured as either a PSTN/PABX interface or 4-wire audio link interface. At least one seperate data link connection is required between sites. In network applications, sites are connected by leased 4-wire E&M lines provided by the telephone company, or by a multiplexer line shelf card connected to privately owned microwave links or fiber optic backbone or via IP.

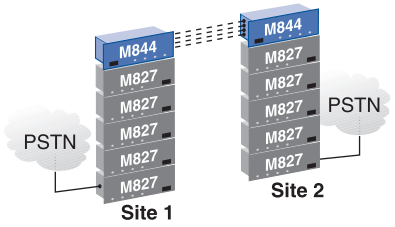
ZETRON®
MISSION-CRITICAL COMMUNICATION SYSTEMS

One telco card is required for each PSTN line connection, or one pair (2) for each audio link desired. The total number of telco cards is dependent upon system capacity and expected multisite call volume.



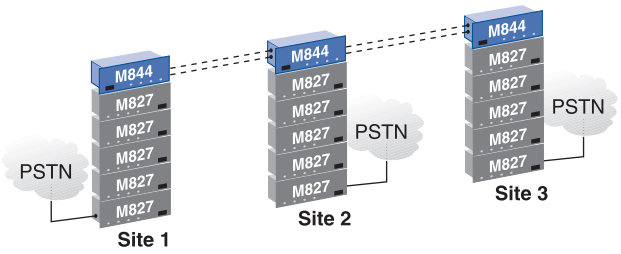
Example of 2-site network with (4) audio links, (1) data link, and (1) PSTN interconnect at each site. Note that system is limited by telco option slot availability in M827 units.

Smaller systems, with only a few channels per site, can use the M827 fitted with the optional telco interface card configured for intersite links. In two-site systems with three or more links, and in larger multiple site systems it soon becomes more cost-effective to use the M844.



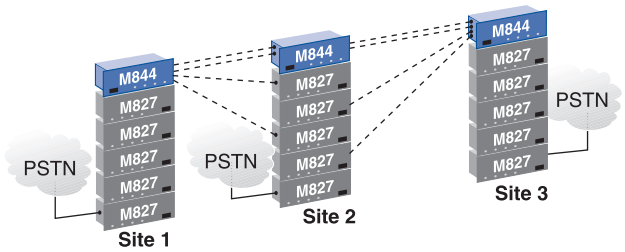
Example of 2-site network with (4) audio links, (1) data link, and (1) PSTN interconnect at each site. Installation of a M844 provides the same audio links, but frees the M827 telco slots for additional PSTN or network links.

The M844 is also ideal for intermediate or "pass-through" sites or where the combined total of links and PSTN interfaces exceed the total of available controller slots. In this case, the M844 is dedicated for audio link and data management, freeing the M827 telco cards for PSTN interconnection. Note that the M844 does not provide interconnection to the PSTN line.



Example of 3-site network with (2) intersite audio links, (1) data link, and (1) PSTN interconnect at each site. Note that Site #2 may be either a destination or "pass-through" (intermediate) Site.

In addition to four audio ports, the M844 also provides four serial data ports. The serial data links (via modem) between sites provide faster call setup time (approximately 30%) for more efficient operation. Data packets are routed over the RS-232 data link at 9600 bps or higher. For microwave linking where bandwidth and available multiplexer channels can accommodate an additional data link between sites, this is a simple way to enhance operation.



Example of 3-site network with (4) intersite audio links, (1) data link, and (1) PSTN interconnect at each site.Note that a combination of M844 ports and telco interface options is used.

OPERATION

The M844 easily interfaces to other M827s and M844s in a system over the PCM audio, subscriber, and repeater buses. Each M844 appears on a given Zetron MPT 1327 system as four separate units with the telephone interface enabled and repeater interface disabled. System control data passes between controllers via two data buses. The repeater bus passes real-time call setup information between the control units. Conversely, the subscriber bus transfers database, call detail records, statistics, and other less time sensitive data.

One M827 at the repeater site operates as the bus master to control and synchronize all communications between controllers at a given site. The M844 always functions as a slave signalling unit; as it does not operate in standalone mode. Any radio channel has access to any telephone or intersite link port via the PCM audio bus, regardless of which unit the port is physically located on.

The serial link is used to communicate initial call setup and registration information. The result is faster call setup time. In addition, due to the seperation of the audio and data links, a lower grade audio connection can be used resulting in savings on the system design.

SYSTEM CONFIGURATION AND DATABASE MANAGEMENT

Statistics and Billing

Each M827 and M844 gathers and records statistical information to assist the operator in monitoring the traffic and loading of the system. Statistics are collected on an hourly basis for the current and previous days and are in accordance with MPT 1318. This information can be retrieved from any M827 at the site and stored on the office computer.

Call Detail Records (CDRs)

Each M844 and M827 stores a record of every call placed on the system. This information provides the detailed data needed to generate customer bills. Call records can be stored for the following types of transactions:

- Registration
- Status
- Short Data Messages (SDM)
- Mobile-to-Mobile
- Mobile-to-Landline
- Landline-to-Mobile

Buffer Space

Each M844 and M827 contains storage for up to approximately 7000 call records depending on the type of records stored. If the buffer storage area in one unit becomes full, it looks for storage available in another controller at the site. Records storage capacity can be altered by modifying the minimum call time to store for speech (mobile to mobile) and land-line calls.

Record Retrieval

Records are retrieved and stored on the office computer via an option in the M827 Database Program. Each time the billing records are retrieved, a user file is also created containing ASCII information on the fleets, units and groups programmed in the database.

ALARM REPORTING AND MONITORING

The M844 provide internal alarm condition monitoring and reporting. Internal system operation is monitored by a digital “watchdog” that alarms for the following conditions:

- Call detail storage buffer full
- Repeater serial bus failure
- Subscriber (database) serial bus failure

SPECIFICATIONS

PHYSICAL

Power	10.5 to 16 volts DC, 12 watts
Temperature	0 to 60° Celsius
Size	48 cm W x 4.5 cm H x 26 cm D
Weight	2.6 kg

LINK INTERFACE

Audio Port	Analog
Serial Data Port	RS-232, external modem over 2- or 4-wire (leased circuit) V28 or IP
Line Type	4-wire
From Telco	-24 dBm to 0 dBm
To Telco	-20 dBm to 0 dBm
Signaling	E&M leads
Connector	RJ-45C
Signaling	E&M

SYSTEM/SITE CAPACITY

Link Interfaces	up to 32 per site
Radio Channels	up to 24 radio channels per site
Sites	up to 12 sites per system
Subscribers	5,000 subscribers, 2,000 group identities, 500 fleets per system

ACCOUNTING

Record Types	Registration, status, short data (SDM2), mobile-to-mobile, mobile-to-landline, landline-to-mobile, landline-to-diverted mobile, multisite mobile-to-mobile, multisite land-to-mobile, multisite mobile-to-group, and multisite land-to-group.
Capacity	Minimum 3656 to a maximum of 7313 records stored internally. Actual record size depends on call type. Landline-to-mobile, mobile-to-landline and multisite calls require twice the storage of other call types.
Stored Information	Called/Calling prefix and ID, start date/time, call duration, channel and line assigned, dialed number.
Filtering	Programmable minimum call time to store for speech and interconnect. Storage of registration, status, SDM2s, call failures and informational multisite records can be set to on or off.

ADDITIONAL SPECIFICATIONS

Indicators	Links 1-4, ALARM, BUS, Subscriber Bus Poll, Repeater Bus Sync, Link 1-4 Signaling
Backup Battery	Retains data for over 8,000 hours when power is removed from unit. There is no drain on the battery when the unit is operating.
Real-Time Clock	Synchronized by Model 827 bus master
Programming	Remote programming via computer using Windows M827BASE database program. Access via external modem or local RS-232 programming port. Optionally, any Model 827 in the system can be used as a gateway to program the Model 844.

APPROVALS

CE Approved

ZETRON USA
PO Box 97004
Redmond, WA
98073-9704
USA
TEL 425 820 6363
FAX 425 820 7031
zetron@zetron.com

ZETRON UK
27-29 Campbell Court
Bramley TADLEY
Basingstoke RG26 5EG
UK
TEL +44 (0)1256 880663
FAX +44 (0)1256 880491
uk@zetron.com

ZETRON AUSTRALASIA
PO Box 3045
Stafford Mail Centre
Stafford QLD 4053
Australia
TEL +61 7 3856 4888
FAX +61 7 3356 6877
au@zetron.com

ZETRON®
MISSION-CRITICAL COMMUNICATION SYSTEMS