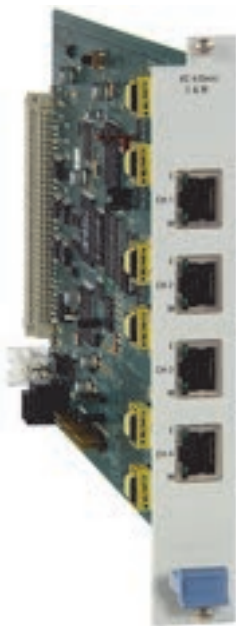


# Megaplex Module

# VC-4/OMNI

## PCM Omnibus Voice Module



“Omnibus” protocol enables simultaneous communication with multiple remote stations

- Four analog voice channels employing toll-quality 64-kbps PCM encoding
- Daisy chain of 5-way digital conference calls, per channel
- Voice band modems for polling application in point-to-multipoint mode
- Point-to-point and point-to-multipoint channel operating modes
- For any I/O slot of Megaplex-2100, Megaplex-2104 or Megaplex-4100

The VC-4/OMNI module provides four toll-quality voice channels to enable “omnibus” applications where each site communicates with multiple remote stations simultaneously (such as broadcasting an important message).

Voice signals are digitized using PCM, in compliance with ITU-T G.711 standards. Encoding and decoding are in full compliance with ITU-T requirements G.712, G.713 and G.714. Voice channel companding is selectable for A-law or  $\mu$ -law.

VC-4/OMNI accesses any of the Megaplex internal TDM buses so that, when operating with two, three or four different E1 or T1 links (trunks), a channel can be transmitted simultaneously to all of them. This enables establishing up to 5-way conference calls per channel.

A conference call is established between the local party connected to the VC-4/OMNI channel (external port) and the remote parties, connected to up to four timeslots (internal ports) assigned to this external port (see *Figure 2*). All conferencing parties can speak to and hear each other. A single VC-4/OMNI module supports up to four independent conference calls simultaneously.



# VC-4/OMNI

## PCM Omnibus Voice Module

VC-4/OMNI modules, together with the E1/T1 link modules, enable a fully functional omnibus application. A single 2U-high compact Megaplex-2104 chassis accommodates up to 16 omnibus voice channels.

Point-to-multipoint applications for voice or voice band modems are supported as well (see *Figure 2*). The PCM data is broadcasted from the master side towards the stations. The stations can reply to the master without being heard by the other parties. Any signaling is passed on transparently.

In point-to-point mode (see *Figure 3*) the channel is operated as a regular E&M voice channel.

Gain control is soft-selectable for both the receive and transmit directions, enabling easy installation in all environments.

All operating parameters are configurable via the management system for both the local and remote modules.

Enhanced diagnostics include local and remote loopbacks and tone injection on each channel.

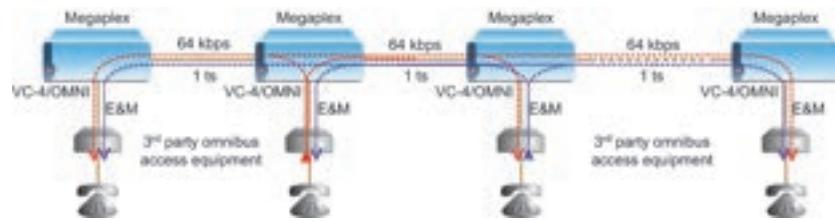


Figure 1. Omnibus Connection

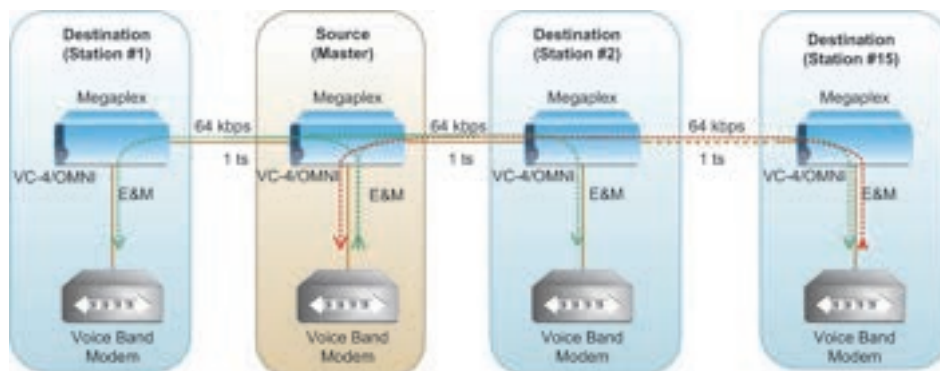


Figure 2. Typical Point-to-Multipoint (Modem) Connection

## Specifications

### Number of Voice Channels

4

### Voice Digitizing Technique

PCM (per ITU-T G.711 and AT&T PUB-43801), A-law or  $\mu$ -law

### Bandwidth Requirement

64 kbps per enabled channel (one timeslot), on both links

### Line Type

Point-to-point: E&M, 2 or 4-wire, soft-selectable

Other topologies: E&M 4-wire

### Signaling

CAS over Timeslot 16

DTMF transparently transferred

### Analog Parameters

ITU-T standards: G.712, G.714

Nominal level: 0 dBm

Nominal impedance: 600 $\Omega$

Return loss (ERL) at 300 to 3400 Hz:  
better than 20 dB

Frequency response (Ref:1020 Hz):

- $\pm 0.5$  dB at 300 to 3000 Hz
- $\pm 1.1$  dB at 250 to 3400 Hz

Level adjustment (soft-selectable):

- TX: +5 dBm to -8 dBm
- RX: +2 dBm to -10 dBm
- Steps: 0.5 dB ( $\pm 0.1$  dB), nominal

Signal to total distortion (G.712, G.713 Method 2):

- -30 to 0 dBm0: better than 33 dB
- -45 to +3 dBm0: better than 22 dB

Idle channel noise: better than -70 dBm0 (+20 dBrc)

Transformer isolation: 1500 VRMS

### Indicators (per channel)

E (green)

M (green)

### Connectors

RJ-45, one per port

### Diagnostics

Local digital loopback

Remote analog loopback

1 kHz tone towards the remote or local side

### Power Consumption

5.6W

### Environment

Operating temperature: -10°C to 55°C  
(0°F to 131°F)

Storage temperature: -20°C to 70°C  
(-4°F to 158°F)

Humidity: up to 95%, non-condensing

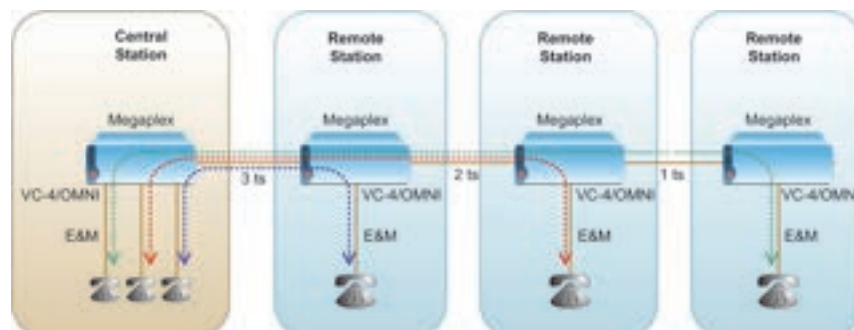


Figure 3. Basic E&M Point-to-Point Connection

## VC-4/OMNI






## PCM Omnibus Voice Module

## Ordering

## MP2100M-VC-4/E&amp;M/OMNI

Omnibus PCM Voice module with E&M signaling for MP-2100/2104 and MP-4100 chassis

Table 4. Megaplex Voice Modules

	VC-4/8/16	VC-4A/8A	VC-16A	VC-4/OMNI	VC-6/LB, VC-6/4LB
					
Number of ports	4/8/16	4/8	16	4	4/6
FXS	✓	✓			
FXO	✓	✓			
E&M	✓	✓		✓	
Local battery					✓
Omnibus				✓	
Polarity reversal & metering	✓	✓			
ADPCM		✓	✓		
Supported by Megaplex-4100	✓	✓		✓	

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