The GatesAir Intraplex® voice modules provide digital transport of voice grade audio for telephone, intercom, fax, and modem circuits.

Two-wire voice frequency modules are suited for foreign exchange lines, PBX tie lines between offices, off-premises extensions and automatic ring down applications. Two-wire voice modules come in two configurations: Foreign Exchange Office (FXO) and Foreign Exchange Station (FXS).

These modules plug into Intraplex access products, allowing voice channels to be combined with other types of payload channels for transport over T1 (1.5 Mbps), E1 (2 Mbps), or other high-speed digital lines.

Coding	T1 and Variable-Rate Systems	E1 Systems
FXO PCM	VF-15	VF-15E
FXS PCM	VF-16A	VF-16AE
FXO ADPCM	VF-17	VF-17E
FXS ADPCM	VF-18A	VF-18AE

Key Features

- Two independent voice channels per module
- Optional ADPCM coding for efficient time slot utilization
- Selectable loop start or ground start signaling
- Automatic Ring Down capability when FXS modules are used at both ends of the circuit
- Input and output attenuation over an 18 dB range in 0.1 dB increments
- Support for fax or modem transmission up to 9600 bps (PCM) or 2400 bps (ADPCM)
- Built-in ring generator and talk battery on FXS modules

Specifications

Specifications and designs are subject to change without notice

General	
Modules	• VF-15/15E (FXO), VF-16A/16AE (FXS): Two-channel PCM • VF-17/17E (FXO), VF-18A/18AE (FXS): Two-channel ADPCM
System Compatibility	• The VF-15, VF-16A, VF-17, and VF-18A are compatible with Intraplex T1 & variable-rate access products. • The VF-15E, VF-16AE, VF-17E, and VF-18AE are compatible with Intraplex E1 access products.

Analog	
Frequency Response	300 to 3000 Hz, +0.5 to –1.0 dB
Input/Output Level (Nominal)	0 dBm in, 0 dBm out
Input Signal Level (Max)	+11 dBm (VF-15), +8.0 dBm (VF-16A)
Output Signal Level (Max)	+4.0 dBm
Input/Output Impedance	600 Ω
Idle Channel Noise	Less than 23 dBrnC0
Signal to Distortion	1004 Hz input, 0 to –30 dBm0: Greater than 33 dB, C message

Signaling			
FXO Signaling (VF-15/15E, VF-17/17E)		*Detection*	*Resistance*
	Loop Start	Off-Hook	1800 Ω or less
		On-Hook	10K Ω or more
	Ground Start	Off-Hook	850 Ω
		On-Hook	10K Ω or more
	Answering	Off-Hook	1800 Ω
		On-Hook	10 Ω
FXO Signaling (VF-16A/16AE, VF-18A/18AE)		*Detection/Transmission*	*External Resistance*
	Loop Start	Off-Hook	650 Ω or less
		On-Hook	10K Ω or more
	Ground Start	Ring-Gnd	1500 Ω connected to –5V or less
Ringing Voltage	48 VRMS, 20/30 Hz, 3 REN maximum load		
Automatic Ring Down (ARD)	• Requires FXS module on each end of circuit • Ring 2 seconds on, 4 seconds off • Ring back tone 300 Hz		

Network Interface	
Coding and Data Rate	• VF-15/16A: μ-law PCM, 64 kbps per channel • VF-15E/16AE: A-law PCM, 64 kbps per channel • VF-17/18A: μ-law ADPCM, 32 kbps per channel • VF-17E/18AE: A-law ADPCM, 32 kbps per channel

Time Slot (DS0)
Assignment
	• VF-15/15E, VF-16A/16AE
	  – One-channel operation occupies one selectable time slot
	  – Two-channel operation occupies two selectable contiguous time slots
	• VF-17/17E, VF-18A/18AE
	  – Both channels occupy a single selectable time slot

Input/Output Modules	
Connector	RJ-11 jacks on MA-303 module adapter

Status and Diagnostics	
LED Indicators	Service on/off (one per card); busy (one per channel)

Physical and Environmental	
Nominal Power Consumption	VF-15: 1.2W; VF-16A off-hook: 4.4W; VF-16A on-hook: 2.5W
Temperature	0 °C – 50 °C operating
Humidity	0% – 90% noncondensing