



PCM/ADPCM Voice Module



DESCRIPTION

- KVC.1 is a voice module transmitting high quality compressed voice over the KILOMUX-2000 link.
- KVC.1 digitizes analog voice, using either the PCM or ADPCM technique. When using PCM, voice is digitized at 64 kbps, A-law. When using ADPCM, voice is digitized at selectable rates of 24 or 32 kbps, according to the quality desired and the available main link bandwidth. The main link data rate is limited to 384 kbps when using KVC.1
- Perfect toll quality reproduction is guaranteed when using PCM or 32 kbps ADPCM, complying with ITU G.711 and G.721, respectively. High quality voice reproduction is attained at 24 kbps, ADPCM.
- KVC.1 may be ordered with one of the following analog interfaces (see *Ordering*):
 - 2-wire or 4-wire E&M, for connection to PABX Tie lines
 - 2-wire FXS loop start or ground start for direct connection to a telephone set
 - 2-wire FXO loop start for direct connection to a PABX extension line.
- The 2-wire or 4-wire E&M module supports five strap-selectable types: EIA RS-464 Types I, II and III and V, and British Telecom SSDC5.
- For the KVC.1/FXS module, an external Ringer-2000 or KM-Ringer unit is required, to provide ring and battery voltage feed (see *Ringer-2000 or KM-Ringer data sheets* for details).
- KVC.1 also permits fax transmission. The fax transmission rates are:
 - 9.6 kbps when operating at 64 kbps PCM or 32 kbps ADPCM
 - 4.8 kbps when operating at 24 kbps ADPCM.
- Diagnostics include local digital loopback toward the local analog interface, and analog loopback toward the remote site. Tone injection for testing is also available. Automatic self-test is performed during power-up and under normal operation.
- Each analog voice channel terminates on an 8-pin RJ-45 connector for the KVC.1/E&M, and a 6-pin RJ-11 connector for the KVC.1/FXS, FXO.

FEATURES

- Provides two analog voice channels
- ADPCM encoding at 24 or 32 kbps
- PCM encoding at 64 kbps, A-Law
- Fax and modem transparency
- Three analog interfaces: 2-wire or 4-wire E&M, 2-wire FXS or 2-wire FXO
- Independent parameter selection for each channel
- Soft gain control for both receive and transmit
- Enhanced diagnostics

KVC.1

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SPECIFICATIONS

- **Number of Channels**
Two
- **Digitizing Technique**
32 kbps ADPCM per ITU G.721 and ANSI T1.303
24 kbps ADPCM per ANSI T1.303
64 kbps PCM, A-Law per ITU G.711
- **Analog Interface**
KVC.1/E&M: 2-wire or 4-wire, soft-selectable
KVC.1/FXS, FXO: 2-wire
- **Analog Parameters**
ITU standard (32, 64 kbps)
4-wire: G.712, G.714
2-wire: G.713
Nominal level: 0 dBm
Nominal impedance: 600Ω
Return loss (300 to 3400 Hz): Better than 20 dB
Frequency response (Ref 1020 Hz): 0 dB ±0.5 dB, 300-3000 Hz
0 dB ±1.1 dB, 250-3400 Hz
Level adjustment (soft controlled)
E&M:
Transmit: +8 to -17 dBm
Receive: +2 to -17 dBm
FXS:
Transmit: +8 to -13 dBm
Receive: +2 to -17 dBm
FXO:
Transmit: +4 to -16 dBm
Receive: -1 to -17 dBm
Steps: 1 dB ±0.15 dB
Signal to total distortion (G.712, G.713 method 2):
32 and 64 kbps, 0 to -30 dBm0: better than 33 dB
32 and 64 kbps, +3 to -45 dBm0: better than 22 dB
24 kbps, 0 to -30 dBm0: better than 25 dB

24 kbps, +3 to -45 dBm0:
better than 14 dB
Idle channel noise:
@ 32 kbps or 64 kbps: better than -70 dBm0
@ 24 kbps: better than -58 dBm0
Transformer isolation: 1500 VRMS

- **Signaling**
KVC.1/E&M (Strap-selectable):
EIA RS-464 Type I
Modified EIA RS-464, Types II, III, and V, with -12V instead of -48V
British Telecom SSDC5
Dial pulse distortion: ±4 msec max
KVC.1/FXS:
EIA RS-464 Loop start, ground start
On-hook/Off-hook Threshold:
3V to 38V between tip and ring at off-hook state
40V to 48V between tip and ring at on-hook state
Feed Current (with KM-Ringer):
25 mA (±10%) for current feed
Ringer (with KM-Ringer):
60 VRMS (±10%), overload protected
22 Hz (±10%), 1 second ON, 3 seconds OFF
KVC.1/FXO:
EIA RS-464 Loop start
DC Impedance:
Off-hook: 100Ω at 100 mA feed, 230Ω at 25 mA feed
On-hook: above 1 MΩ
Ring Detector:
20 kΩ @ 20 Hz, 70 VRMS
Detection: > 20 VRMS, 17-25 Hz
No detection: < 5 VRMS

- **Current Consumption**
KVC.1/E&M: 0.875W for +5 VDC
0.18W for -12 VDC
KVC.1/FXS: 1.15W for +5 VDC
0.396W for -12 VDC
KVC.1/FXO: 0.875W for +5 VDC
0.06W for -12 VDC

- **Diagnostics**
Activated from local or remote site:
– Digital loopback (toward local)
– Analog loopback (toward remote)
– 1 kHz tone injection (E&M, FXO)
400 Hz tone injection (FXS)
Auto self-test activated upon power-up and during normal operation
- **Indicators**
Per channel:
E&M: E-lead, M-lead
FXS: REM call, LOC O.H.
FXO: RING, REM O.H.
- **Connectors**
Per channel:
KVC.1/E&M: 8-pin RJ-45
KVC.1/FXS, FXO: 6-pin RJ-11
- **Configuration**
Programmable via front panel, terminal interface or RADview Management System

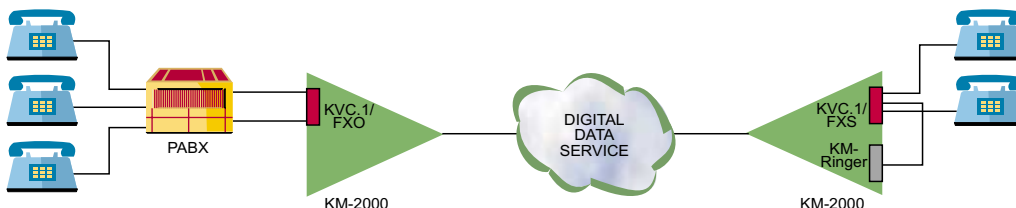
ORDERING

KM-2000M-KVC.1/*
2-Channel ADPCM Voice Module

- * Specify analog interface:
E&M for 2/4-wire E&M
FXS for 2-wire FXS
FXO for 2-wire FXO

Note: KM-Ringer or Ringer-2000 is required to support the FXS interface

APPLICATION



data communications

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