

CTDI Products

Features

- Simple, Economical, Fast Installation
- POTS, ADSL, & POTS+ADSL Range Extension applications
- 4xT1 IMA or 10/100Base-T Ethernet WAN interface options
- Single pair span powered (GR-1089-CORE Class A3 safety compliant)
- Spectrally friendly, TC-PAM 16, g.shdsl line format
- Class features and Mechanized Loop Testing supported for POTS
- Distributed and Clustered POTS applications
- Longest range in the industry
- Advanced Remote Diagnostic and Management software capability
- Design Aid Spreadsheet tool available to assist with circuit design

FlexAccess 9000

Description

The CTDI FlexAccess 9000 is a leading-edge technology system providing pair gain and extended range voice-grade (POTS) and broadband (ADSL) services over a single pair. The COT shelf accommodates up to 16 independent application modules providing connections to 16 DSL transport cable pairs. Application modules and subscriber terminals are available to provide POTS, ADSL, and ADSL+POTS service to remote subscribers. Repeaters and subscriber terminals may be installed on the DSL pair at any point up to a nominal 39 dB (42 dB maximum) of cable loss from the COT, another repeater, or another subscriber terminal. Span power for the repeaters and subscriber terminals is generated by each COT application module and provides built-in ground fault and over-current protection. Local power solutions are also available.

POTS Range Extension Application

The POTS Range Extension application provides 12:1 POTS pair gain to distances up to 130 kft as a cost effective solution for serving small groups of remote customers. The FlexAccess POTS application module combines up to twelve 2-wire analog connections from the CO switch and provides a single-pair, span-powered, 784 kb/s, g.shdsl formatted signal for connection to the outside cable plant facility. Service can be Distributed (customers served from multiple STs), or Clustered (up to 12 customers served from a single ST). POTS lines feature CLASS services, mechanized (drop-side) testing, Reverse Battery Answer Supervision, and high-speed analog modem capability. Four-line POTS (Add/Drop), eight-line POTS, and twelve-line POTS STs are available in single, weatherproof enclosures.

ADSL Range Extension Application

The FlexAccess 9000 system may also be used as a cost-efficient means to provide broadband, high-quality ADSL service to remote subscribers who are well beyond the standard ADSL service range from the Central Office or NGDLC. Repeaters enable the system to serve customers at distances up to 100kft from the COT. In the ADSL range extension application, the FlexAccess COT provides the interface to an ATM switch, router, aggregation device, or DSLAM through either of two FlexAccess interface core cards: a 4xT1 IMA card or a 10/100Base-T Ethernet interface card. The COT shelf can accommodate up to 16 ADSL COT Line Cards which transmit/receive ATM traffic from the COT interface core card. The ADSL COT line cards provide a single-pair, span-powered, 1.0 Mb/s to 2.0 Mb/s, g.shdsl formatted signal for connection to the outside cable plant facility. The ADSL ST provides eight ADSL lines with integrated ADSL splitters in a single, weatherproof enclosure allowing for the connection of POTS lines with each ADSL line.

ADSL+POTS Range Extension Application

For low density applications where remote ADSL and POTS service is required, the FlexAccess 9000 system provides a unique, cost effective solution. Each ADSL+POTS application line card combines ATM traffic from either the 4xT1 IMA interface core card or the 10/100Base-T Ethernet interface core card with up to eight analog POTS lines from the CO switch and provides a connection to the remote ADSL+POTS ST with a single-pair, span-powered, 1.0 Mb/s to 2.0 Mb/s, g.shdsl formatted signal. The ADSL+POTS ST provides four POTS lines and four ADSL+POTS lines with integrated splitters in a single, weatherproof enclosure.

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FlexAccess 9000 Technical Specifications

COT Interface Connections

- Transport: Single-pair, g.shdsl, TC-PAM 16 line code
- Line Rate: 784 kb/s, 1.0 Mb/s, 1.5 Mb/s, or 2.0 Mb/s
- Line Attenuation: -39 dB maximum
- Span Power: +/-190Vdc at 160 mA maximum, GR-1089-CORE Class A3 safety compliant
- POTS Lines: GR-57 universal 2-wire, 900 Ohms, 12 lines per card, 192 lines per shelf
- T1 Interface: Four separate 4-wire, 1.544Mb/s ATM T1's
- Ethernet Interface: 10/100Base-T, separate RJ-45 for connections to WAN and future expansion
- Management Interface: 10/100Base-T, RJ-45 connection to local network
- Remote Access Port: RS-422 Balanced, 2-pair (transmit & receive)
- Alarms: Major, Minor, and Audible NO and NC contacts

Power Requirements

- COT Shelf: -48 Vdc at 12 amps nominal
- Fusing: Two required per shelf, 20 Amp
- Repeaters & STs: Span powered over g.shdsl pair

Dimensions

- COT Shelf: 19" W x 12.25" H x 12" D
- Repeaters & STs: 7.5" W x 15" H x 4.5" D

ST Interface Connections

POTS Interface

- On-hook voltage: 48 VDC nominal
- Off-hook current: 23 mA.
- Maximum loop: 600 Ω including telephone set for 9262 & 9281; 1200 Ω including telephone set for 9262-L3 & 9281-L3
- Idle channel noise: \leq 20 dBmC.
- Impedance: 900 Ω + 2.16 uf.
- Maximum ringer load: 5 REN.
- Ringing voltage: 20 Hz @ 45 Vrms nominal
- Reverse Battery Answer Supervision

ADSL Interface

- Complies with ITU G.992.1 (G.dmt) and ITU G.992.2 (G.Lite) Built-in POTS splitters according to T1.413

Environmental

- COT Shelf: 0°C to +50°C, 95% RH non-condensing
- REPEATERS & STs: -40°C to +65°C, 95% RH non-condensing, weatherproof enclosure

Mechanized Loop Test

- Test Access: Industry standard 4Tel or MLT signatures, GR-909 compliant or through CRAFT management interface software

Warranty and Support

- Two (2) year warranty

FlexAccess 9000 Equipment List

| Model No. | Description | CLEI Code |
|-----------|---|-------------|
| 9111 | Fan Assembly for 19" COT Shelf | - |
| 9121 | 19" Central Office Terminal Shelf | VAM6A00ARA |
| 9123 | COT Alarm Card (POTS Only) | VAC4GE0BAA |
| 9124 | 4xT1 IMA Core Controller Card | VAC4HG0BAA |
| 9125 | 10/100Base-T Ethernet Core Controller Card | - |
| 9134 | 12-POTS Line Card | VAL4T4JFAA |
| 9151 | Octal ADSL Range Extension Line Card | VAL4U50FAA |
| 9161 | 8-POTS + ADSL Range Extension Line Card | VAL4V3VFAA |
| 9040-S-A | Repeater - Single, +/-190 Vdc, Express Power | VAR1RLUF0AA |
| 9041-S-A | Repeater - Dual, +/-190 Vdc, Express Power | VAR1SLUF0AA |
| 9042 | Repeater Module - 439 Type | VARPCCD0AA |
| 9241 | Quad POTS, Add/Drop, 600 V Drop, with Drop-Side Test | VAR1TM0F0AA |
| 9262 | 12 POTS Terminating, 600 V Drop, with Drop-Side Test | VAR1TNWF0AA |
| 9262-L3 | 12 POTS Terminating, 1200 V Drop, with Drop-Side Test | VAR1TNXF0AA |
| 9281-L3 | 8 POTS Terminating, 1200 V Drop, with Drop-Side Test | VAR1TPXF0AA |
| 9300 | Octal ADSL with integrated POTS Splitters | VAR1UR0F0AA |
| 9400-L3 | 8 POTS + 4 ADSL, 1200 V Drop, with Drop-Side Test | VAR1VT0F0AA |

