

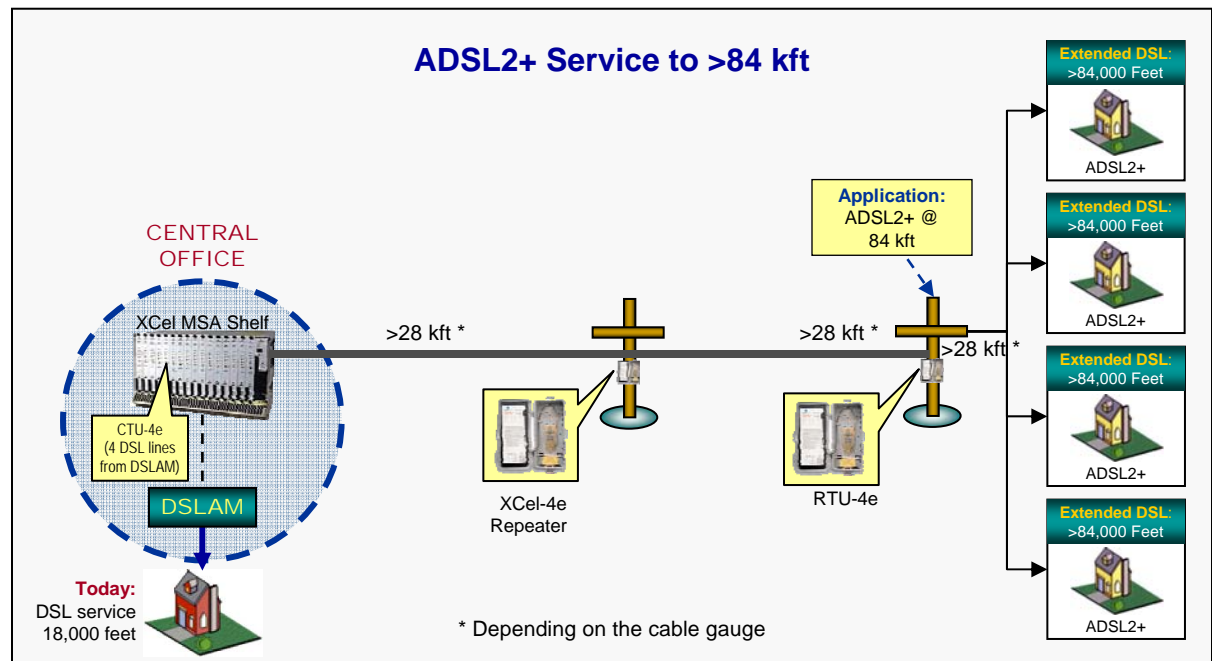
CTDI Products

Extended DSL Solutions

- 100% DSL Coverage for your network
- 8 Mbps ADSL2+ to >50kft over existing copper pairs and 1.5 Mbps ADSL2+ to >84kft
- Line powered repeaters
- Targeting last 15% of un-served market for DSL
- Integrates with existing MSA shelf
- Interfaces with existing DSLAM and CPE/Modem
- Advanced Diagnostics software tool to monitor and help troubleshoot XCel-4e systems.
- Configu8r software tool to design your system.
- Hardened OSP enclosures for deployment in any environment

Introducing the New XCel-4e Remote ADSL2+ Extension

- The XCel-4e is a DSL extension system designed to provide:
 - ADSL2+ service to >84 kft
 - Full-network DSL coverage to 100% of carrier's subscribers
 - 1.5 to 8 Mbps downstream, 384 kbps to 1 Mbps upstream DSL rates
 - Four (4) DSL subscribers per system, delivered over a single copper pair
- The XCel-4e system is comprised of:
 - CTU-4e – CO plug-in for the existing MSA shelf. Interfaces with four (4) DSLAM ports and multiplexes them onto a single copper pair for transport.
 - Line Powered Repeaters – Hardened outside plant module interfaces with output of CTU-4e and repeats signal.
 - RTU-4e – Hardened Remote Terminal Unit that interfaces with last repeater and delivers four (4) DSL lines to four (4) customers



CTDI Products

XCel-4e Technical Specifications

| | |
|-----------------|---|
| Line Rate | 8 Mbps, distance 50 kft with 1 line powered repeater, 19 AWG buried cable |
| Line Code | ADSL2+ |
| Line Power Feed | A2 class for $\pm 130V$, A3 class for $\pm 190V$ |
| Voltage | ± 130 or ± 190 volts DC |
| Max Current | 83 mA or 98 mA |
| Safety | $\pm 130V$ systems - 5 mA Tip/Ring to ground, GFI $\pm 190V$ systems - 10 mA Tip/Ring to ground, GFI |

All OSP elements can be powered from the central office.
No local power is required.

Configur8r™ System Design Software is available for system and loop configuration. It runs on Microsoft Excel.

XCel-4e Central Office

Terminal Shelf and CTU Line Cards

| | |
|--------------------|--|
| Powering | -48 Vdc battery |
| DSL Power Supply | On each CTU card |
| Common Cards | NIC – Network Interface Card |
| Modularity | 8 cards per 19" shelf, 10 per 23" shelf |
| Fusing | 20 Amp, two per shelf |
| Card Insertion | Hot-loadable |
| NEBS | Meets GR-63 and GR-1089 |
| NEBS Certification | Level 3 by Independent Certification Lab |

Mechanical Data

| | |
|--------------------------|--|
| COT- Multi-Service Shelf | 19" W (or 23" W) x 11.5" H x 12" deep |
| STR | 6" W x 15" H x 5" deep, 3.0 lb. Weight |
| RTU | 7" W x 16.5" H x 4.5" deep, 5.3 lb. Weight |

Environmental

| | |
|--------------------------|--|
| Central Office Equipment | -40°C to 65°C, 95% RH non-condensing |
| Outside Plant Elements | -40°C to 65°C, 95% RH non-condensing |
| OSP Element Protection | 3-element Protectors, Field Replaceable |

Outside Plant Equipment

| | |
|------------------------|--------------------------------|
| Powering | From the DSL pair |
| Package | Pole /Wall mountable enclosure |
| Visual LED Indications | Power/ link, CPE (x4) |

XCel-4e Interface

| | |
|--|---|
| Number of subscribers per XCel-4e system | 4 subscribers |
| ADSL DSLAM Interface | ADSL2+ (G.992.5) ADSL2 (G.992.3) G.DMT (G.992.1) G.lite (G.992.2) ANSI T1.413 |
| ADSL+POTS | Combined in RTU 4e |



XCel-4e System Equipment List

XCel Multi-Service Shelf and Common Equipment

| | | |
|----------------------------------|----------|---|
| 19" Multi-Service Shelf | 990117-B | 8 CTU 4e card capacity for 19" racks |
| 23" Multi-Service Shelf | 990118-B | 10 CTU 4e card capacity for 23" racks |
| Single Service Access Shelf -CTU | 990422 | 1 CTU 4e card capacity for remote cabinets |
| Single Service Access Shelf -NIC | 990443 | One NIC capacity for remote cabinets (Optional for SSA-CTU) |
| XCel Advanced Diagnostics | 990355-E | Advanced Diagnostics PC Application Compact Disk |

XCel-4e Shelf Modules

| | | |
|---------------------------------------|--------|--|
| Central Terminal Unit, CTU 4e 130/190 | 990484 | $\pm 130V$ or $\pm 190V$ XCel-4e Line Card, 4 ADSL services per pair |
|---------------------------------------|--------|--|

XCel-4e Remote Terminals and Repeaters

| | | |
|---|--------|--|
| Straight Through Repeater, Outdoor STR 4e | 990485 | Line powered repeater |
| Remote Terminal Unit, Outdoor, RTU 4e | 990486 | Remote Terminal Unit with built in splitter (4 subscribers) and Gel Protection Terminals |

Cable Stub Kits for XCel-4e

| | | |
|---|--------|---|
| Cable SSA Shelf with 5-PIN Modular Connection | 990430 | Cable optional with SSA-CTU supporting one CTU 4e |
|---|--------|---|