AK355RPTRC(E) & AK355RPT(E) Active Integrated Regenerator

AK355RPT

Positron's Active Integrated Regenerator (AIR) family of Ethernet and DS3 over Copper products extend the rate and reach of Positron's AK355 (Ethernet and DS3) and AK355E (Ethernet) products from 18 Kft/ 5.5 Km* to 50 Kft/ 15.2 Km* and beyond. The AIR regenerators are line-powered active mid-span systems in hardened enclosures that can be deployed indoor or in outside plants.

The AK355RPTRC(E) active regenerator is a 16-pair system that works in conjunction with AK355CPS(E) and AK355RP(E) units delivering 100 Mbps asymmetric or 50 Mbps symmetric at distances up to 26 Kft/ 7.9Km* for Ethernet application. The AK355RPTRC is designed to maximize downstream performance for asymmetrical operation such as DSLAM backhaul with flexibility to set the upstream bandwidth to fit the Ethernet application. The AK355RPTRC regenerator also supports fractional or clear channel DS3 applications.

The AK355RPT(E) active regenerator is a 16-pair system that works in conjunction with AK355CP(E) and AK355R(E) units delivering Ethernet or DS3 services supporting both symmetric and asymmetric bandwidths and extending the reach of the AK355 in Carrier Ethernet or DS3 mode. The AK355RPT(E) is best deployed for symmetrical links such as 50 Mbps symmetric Ethernet service or clear channel DS3 links where both spans feeding into the AK355RPT(E) are configured for symmetrical operation.

The AK355RPTRC(E) and AK355RPT(E) active regenerator support setups with more than two span for ultra-long reach applications and are ideal in network deployment scenarios with reverse ADSL. Both systems do not require to have a local power in the mid-span cabinet for a two span circuit. Local power is required for circuits with more than two spans.

Ethernet and DS3 Service Delivery Beyond CSA

With the AIR regenerators, carriers and service providers can now provide high-quality, scalable Ethernet services up to 100 Mbps out to 50 Kft/ 15.2 Km* or symmetric DS3 services out to 30 Kft/ 9.1 Km* using existing copper loops.

Add-Drop Capabilities

The AK355RPTRC(E) and AK355RPT(E) provide full support for add-drop operation. With comprehensive support for VLAN tagging and traffic shaping in accordance to the Metro Ethernet Forum, these active regenerators can feed locally attached DSLAM or Multi-Service Access Gateway platforms with Ethernet backhaul services as part of a multi-span link.

Powering

The AIR regenerators support both local and line powering, which enable them to be deployed in any remote location without requiring a local power source. Positron's AIR products are built on a lightweight environmentally hardened enclosure, making it easier for the field professional to install them on a pole or wall.

T1.417 Compliant

Unlike other bonded copper-based broadband systems, the AIR regenerators deliver services that can co-exist in the same binder groups with ADSL and HDSL. This advantage exists because both systems are T1.417 spectrally compliant at bit rates and reaches that G.SHDSL based products cannot meet without the need for expensive and cumbersome repeater devices. The AIR regenerators meet all DS3 standards and when they are in Ethernet mode, they are compliant with IEEE 802.3ah EFM, IEEE 802.1 and 802.3 LAN standards. They also comply with Metro Ethernet Forum MEF9 and MEF14 standard.
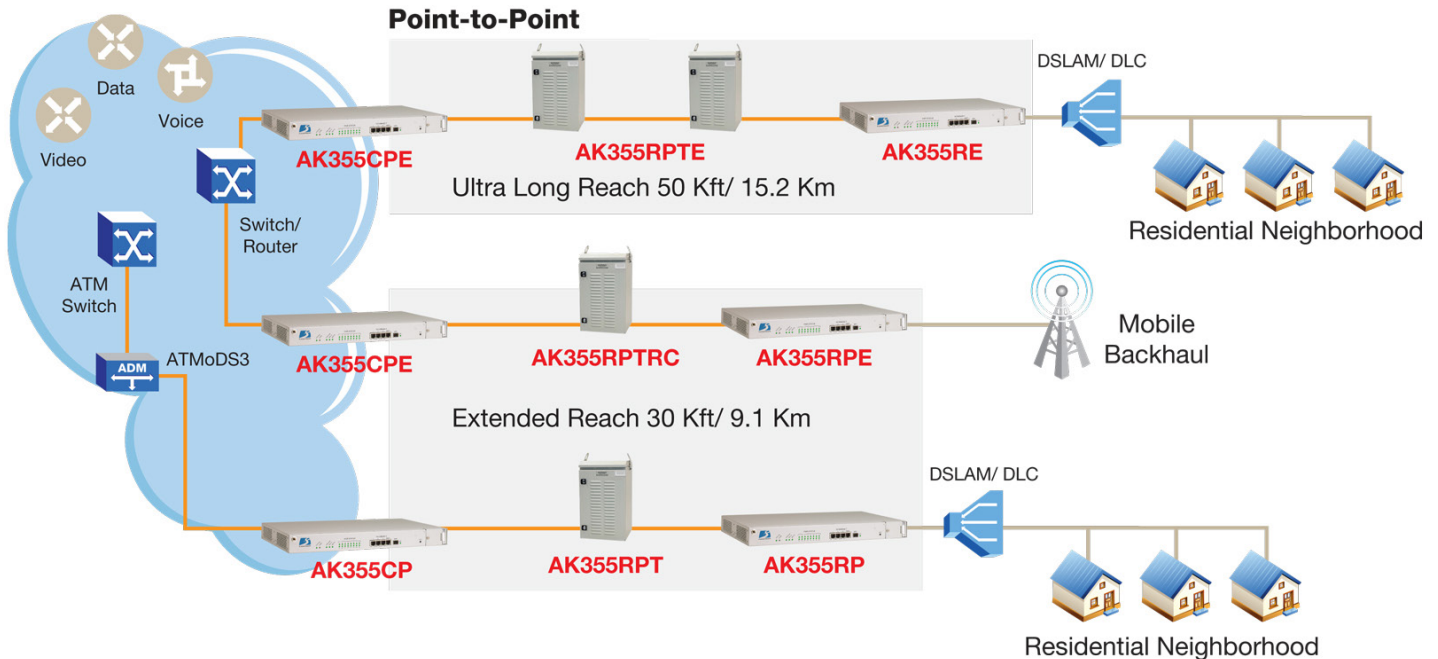
MIMO on DMT for Higher Bandwidth and Extended Reach

The AK355RPTRC(E) and AK355RPT(E) active regenerators harness the patented MIMO techniques on DMT technology, and achieve more bandwidth than legacy symmetric G.SHDSL technologies. Utilizing Positron's breakthrough multi-channel signal processing technology embodied in the hardware and software, the AIR regenerators can transport more bandwidth over ultra long distances on fewer copper pairs than any other competing repeater solution available on the market today. This breakthrough is achieved by overcoming traditional copper transmission interferences such as self cross-talk, alien cross-talk and noise. The superior performance lets providers deliver more bandwidth and reach up to three times more customers.

Management

The AK355RPTRC(E) and AK355RPT(E) regenerators can be securely managed by Positron`s Element Management Software (AKEMS) and AktinoView (GUI software) or a TL1 command line interface. The AIR regenerators interoperate with industry standard Network Management Systems providing comprehensive performance monitoring for both the transport physical layer and Ethernet or DS3.

Point-to-Point

Ultra Long Reach 50 Kft/ 15.2 Km

AK355CPE — AK355RPTE — AK355RE — DSLAM/ DLC — Residential Neighborhood

Extended Reach 30 Kft/ 9.1 Km

AK355CPE — AK355RPTRC — AK355RPE — Mobile Backhaul

AK355CP — AK355RPT — AK355RP — DSLAM/ DLC — Residential Neighborhood

Data, Voice, Video, Switch/Router, ATM Switch, ADM, ATMoDS3

TECHNICAL SPECIFICATIONS

System
- Bandwidth over 16 Pairs:
  - DS3**: 45 Mbps Asymmetric or Symmetric at CSA Reaches with Full Disturbers
  - Ethernet: 100 Mbps Symmetric at 4 Kft, 100 Mbps Asymmetric, 55 Mbps Symmetric at CSA Reaches with Full Disturbers
- System Latency: 4 ms
- Resiliency: Carrier grade automatic pair failure protection
- BER: 10^{-12}

Standard Interfaces: DS3**
- Number of BNC Ports: 2 per Card
- Line Code/Rate: B3ZS/44.736 Mbps ± 20 ppm
- Framing: C-bit Parity or M13
- Payload Mode: Clear Channel, TDM, ATM, Scrambled ATM

Standard Interfaces: Ethernet
- Interfaces: Three 10/100 BaseT RJ45 and one 100 BaseFX or 1000 BaseX SFP port
- Compliance: IEEE 802.3

Outside Plant Pairs
- Technology: MIMO on DMT
- Number of Pairs: Up to 16 pairs
- Connector: 50-pin Telco
- Sealing Current: Meets G991.2
- T1.417 (Spectral) Compliant
- IEEE 802.3ah EFM

Layer 2 Features
- VLAN Tagging: IEEE 802.1q Support
- Stacked VLAN Tagging IEEE 802.1ad (IEEE 802.1QinQ)
- Support up to 2036 byte Maximum Transmission Unit (MTUs)
- Priorities: IEEE 802.1p, Port or IP DSCP
- Dynamic Bridging: 8K MAC Addresses
- Compliant with MEF9 and MEF14 Standards

Electrical Specifications
- Line Powered or Locally Powered
- Max Heat Dissipation: 185 Watts

Environmental Specifications
- Operating Temperature: -40 to +65°C
- Storage Temperature: -40 to +70°C
- Relative Humidity: Up to 95%, non-condensing

Mechanical Specifications
- Dimensions: 26" (660 mm) High x 15" (381 mm) Wide x 15.75" (400 mm) Deep
- Weight: Approximately 40 lbs (18.2 Kg)

Network Management
- TL1, SNMP
- Aktino EMS or AktinoView
- DS3 ATM Inband Management**
- Ethernet VLAN Inband Management

Regulatory Approval
- NEBS Level 3
- UL60950
- FCC Part 15 Class A

** AK355RPTC and AK355RPT systems only

www.positronaccess.com