

SISNet Distance Extenders



Extend the DeltaV SIS remote peer ring with SISNet Distance Extenders

- Dedicated safety communications
- Full communications redundancy
- Flexibility to meets project needs
- Consistent update rate

Introduction

The DeltaV SIS™ process safety system, part of Emerson's Smart SIS, has a modular, distributed architecture. This architecture enables flexibility to meet project needs – for both large and small systems. The SISNet is a counter-rotating redundant fiber optic ring which transmits safety-critical data between logic solvers on separate nodes, connected by SISNet Repeaters. SISNet Distance Extenders are used when the distance between the repeaters is greater than a couple of kilometers.



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Benefits

Dedicated safety communications. The SISNet is a safety-rated network for DeltaV SIS nodes to communicate with each other. This network is dedicated to safety information, and the SISNet Distance Extender is part of the safety system. The network and SISNet Distance Extenders are immune to any failure of the basic process control system network.

Full communications redundancy. The SISNet Distance Extenders are installed with the SISNet Repeaters as a redundant pair. The primary SISNet Distance Extender is connected to one fiber optic ring, and the secondary SISNet Distance Extender on a separate, independent ring.

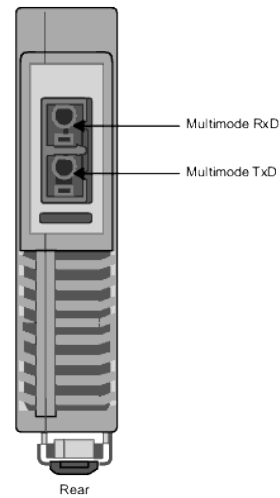
Flexibility to meet project needs. Up to 32 DeltaV SIS nodes may be connected on one SISNet ring. There may be nodes needing Distance Extenders combined with nodes not needing Distance Extenders on one SISNet ring.

Consistent update rate. All of the data broadcast on the SISNet is available to all of the other DeltaV SIS nodes within 50ms. This update time is guaranteed – regardless of the network size.

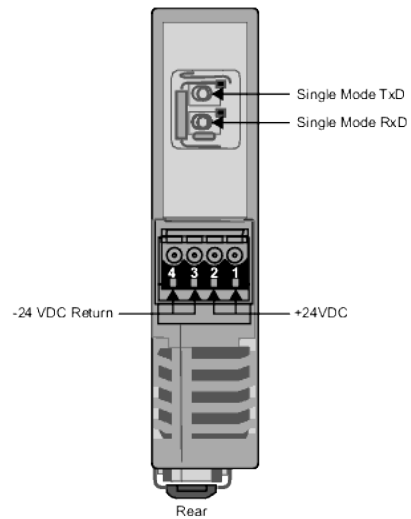
Product Description

SISNet Distance Extenders convert multimode fiber-optic signals to single mode fiber-optic signals to allow SISNet Repeaters to communicate over greater distances. Depending upon the installation, the remote peer ring can be extended by an additional 60 km between repeaters when single mode fiber-optic cable is used.

The SISNet Distance Extenders are installed directly on the DIN rail. Multimode fiber-optic cables are installed between the SISNet Distance Extenders and SISNet Repeaters. Single mode fiber-optic cables are used to connect the Distance Extenders to each other.

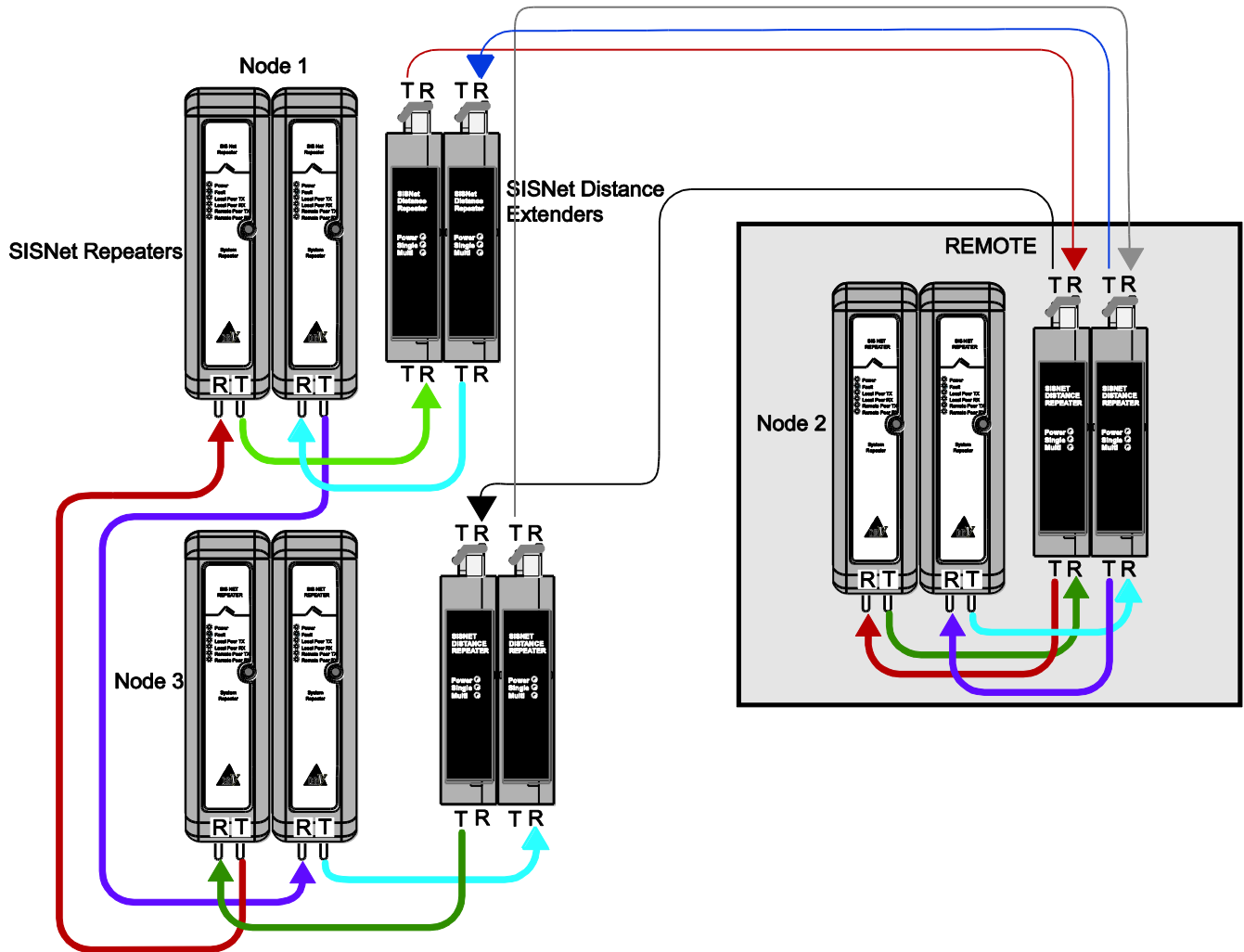


Multimode Fiber-Optic Connectors on the SISNet Distance Extender (Bottom View)



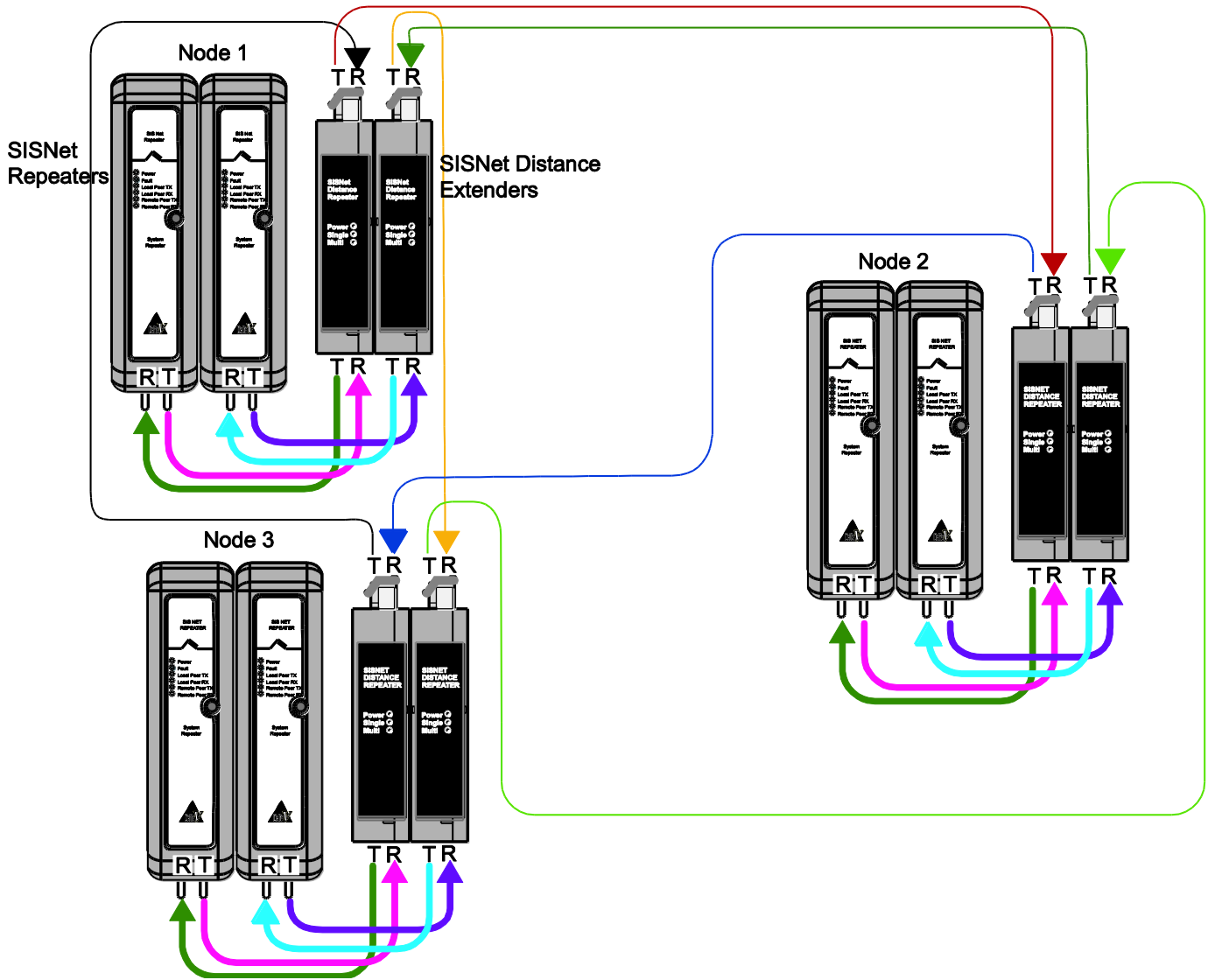
Single Mode Fiber-Optic Connectors on the SISNet Distance Extender (Top View)

The figure below shows a remote peer ring with two local nodes (Nodes 1 and 3) and one remote node (Node 2). Link distances for a local node are less than or equal to 2 km (nominal) one way. Link distances for a remote node are up to 60 km (nominal) one way.

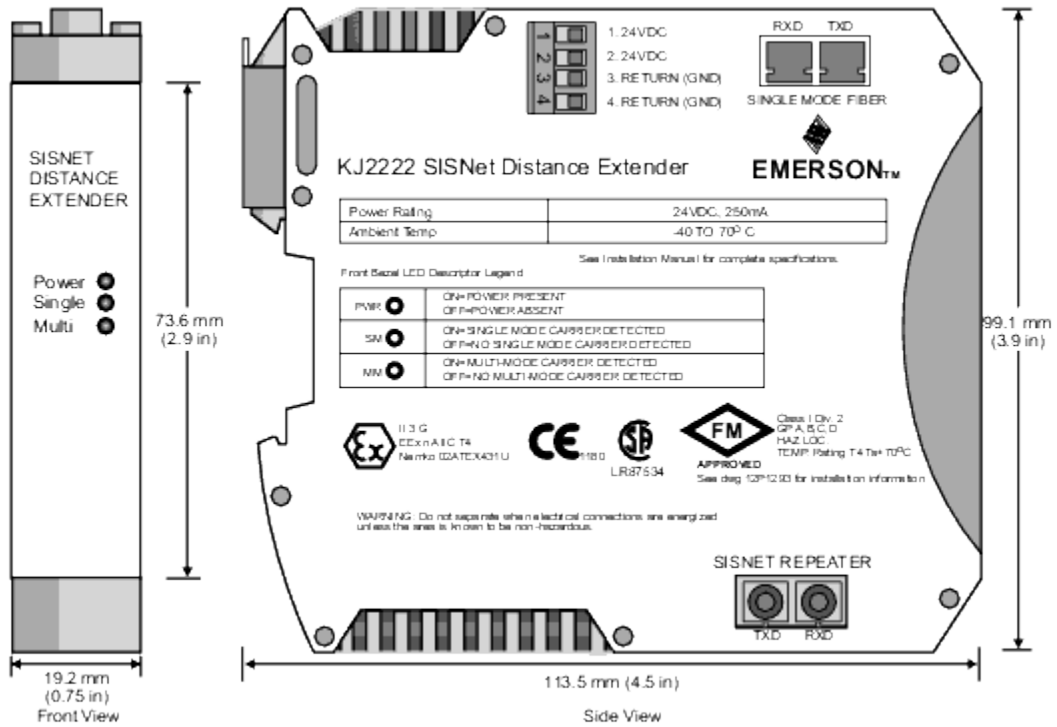


Remote Peer Ring with Local and Remote Nodes

The figure below shows a remote peer ring in which all nodes are remote. This remote peer ring uses a counter-rotation topology in which the primary SISNet Repeaters are connected clockwise and the secondary counterclockwise.



Remote Peer Ring with all Remote Nodes



SISNet Distance Extender Dimensions

Agency Approvals

The SISNet Distance Extenders are certified to:

- European EMC compliance
- Low Voltage Directive IEC 61010-1
- NAMUR NE 21 EMC requirements
- Factory Mutual, Non-Arcing
- ATEX 3 G EEx IIC- nA T4 EN60079-15
- CSA 1010 or 61010

SISNet Distance Extender Common Environmental Specifications	
Category	Specifications:
Storage temperature	-40 to 85 C (-40° to 185 °F)
Operating temperature	-40 to 70 C (-40° to 158° F)
Relative humidity	5 to 95% , non-condensing
Airborne contaminants	ISA-S71.04-1985 Airborne Contaminants Class G3 Conformal coating
Protection rating	IP 20, NEMA 12
Hazardous area/location	Class 1, Div 2, Groups A, B, C, D, T4 hazardous locations
Shock	10 g ½-sine wave for 11 ms
Vibration	1 mm peak-to-peak from 5 to 16 Hz; 0.5 g from 16 to 150 Hz

SISNet Distance Extender Power Specifications	
Item	Specification
Input power	19.2 VDC to 28.8 VDC @250 mA max
Connector type	4-position screw terminal
Wire type	Solid or stranded
Wire gauge	12 AWG maximum

Ordering Information

Description	Model Number
Redundant SISNet Distance Extenders	VS6003

Related Products

For detailed information about the following products, refer to the appropriate product data sheet:

- DeltaV SIS Logic Solvers.** The DeltaV SIS process safety system has a uniquely scalable modular architecture that is based on the Smart Logic Solver (SLS). Each logic solver provides I/O processing, SIL 3-capable logic solving, and diagnostics in a single module.
- DeltaV SIS Carriers.** Getting your DeltaV SIS process safety system up and running efficiently is easy with plug-and-play hardware carriers. The carriers include connections for power, logic solvers and terminal blocks.
- DeltaV SIS Engineering Tools.** A standards-based approach makes configuring safety instrumented functions (SIFs) in the DeltaV SIS system unique. Certified to comply with IEC 61508, the function blocks are designed to make the implementation and management of the safety configuration as efficient as possible.

- DeltaV SIS Auxiliary Components.** For those output signals that require higher currents or the devices, mainly in fire and gas applications, that require energize-to-trip functionality, auxiliary relays are offered. These relay modules enable the DeltaV SIS platform to meet requirements while maintaining field wiring monitoring and ensuring that the relay changes states correctly.
- DeltaV SIS Conditioning Components.** For output signals that require higher currents (> 500mA) or applications where non-incendive outputs are required, conditioning components are available. Using DeltaV SIS Conditioning Components will meet your project needs and safety requirements.
- SISNet Repeaters.** Extend communication beyond the local logic solvers connected to one node and broadcast global messages to remote logic solvers through a fiber optic ring.

Prerequisites

- DeltaV SIS v8.3 software of later.

To locate a sales office near you, visit our website at:

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