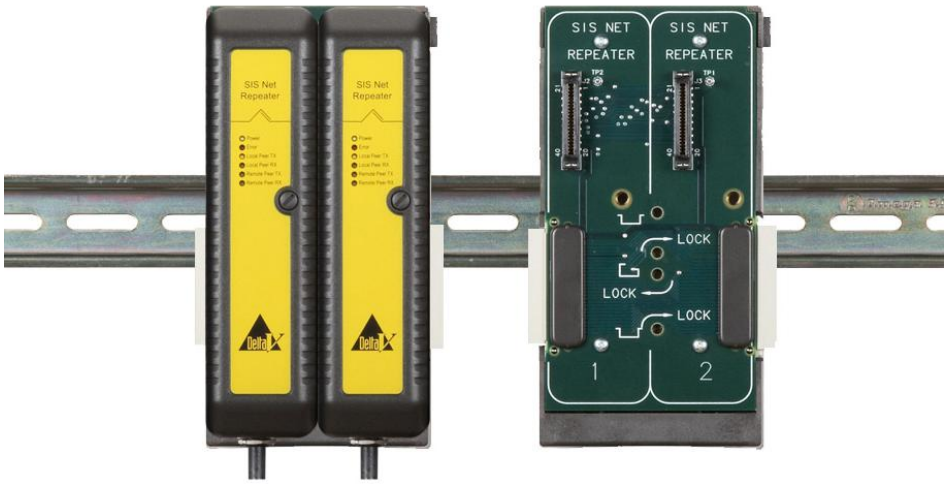
SISNet Repeater



DeltaV SIS communication is extended beyond local logic solvers with SISNet Repeaters

- 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. SISNet Repeaters are used when these safety-critical inter-trip signals are needed across a physically spread out plant.

Benefits

Dedicated safety communications. The SISNet Repeater provides a link for DeltaV SIS nodes to communicate. This network is dedicated to safety information, carrying only safety signals. The network and SISNet Repeaters are immune to any failure of the basic process control system network.

Full communications redundancy. The SISNet Repeaters are installed as a redundant pair. The primary SISNet Repeater is connected to one fiber optic ring, and the secondary SISNet Repeaters form a separate, independent ring.

Flexibility to meet project needs. SISNet Repeaters can be used to connect up to 32 DeltaV SIS nodes. These nodes can be 2 to 60 km apart depending on extenders and fiber used, so the entire SISNet ring can be up to 1920 km around.

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 Repeaters extend communication beyond local DeltaV SIS logic solvers and broadcast global messages to remote logic solvers. SISNet Repeaters may be used in large systems, where more than 32 logic solvers are needed. SISNet Repeaters may also be used in smaller systems with a distributed architecture, where logic solvers are located near the equipment they are protected.

A local SISNet Repeater collects locally generated messages into a single message and sends it to the next SISNet Repeater in the ring. Upon receipt of a message, the receiving SISNet Repeater broadcasts it on its local peer bus and forwards the message to the next SISNet Repeater in the ring. A global message is forwarded around the ring once.

All global parameters are received by each of the SISNet Repeaters on the ring. The global parameters received by a SISNet Repeater are re-broadcast on the SIS local peer bus so that they can be referenced by the logic solvers on that node. Therefore, all logic solvers that are on a node connected to the SISNet ring can reference any global parameter.

The SISNet Repeaters are installed on a 2-wide carrier, with a primary and a secondary SISNet Repeater on each carrier. The SISNet Repeater carrier can be plugged into the SIS controller carrier and/or the logic solver carrier. (Refer to the DeltaV SIS Hardware Carrier product data sheet for more information.) The SISNet Repeaters may be located anywhere on the local peer bus, as long as they are between the SIS controller and the bus terminator.

A redundant pair of SISNet Repeaters

Agency Approvals

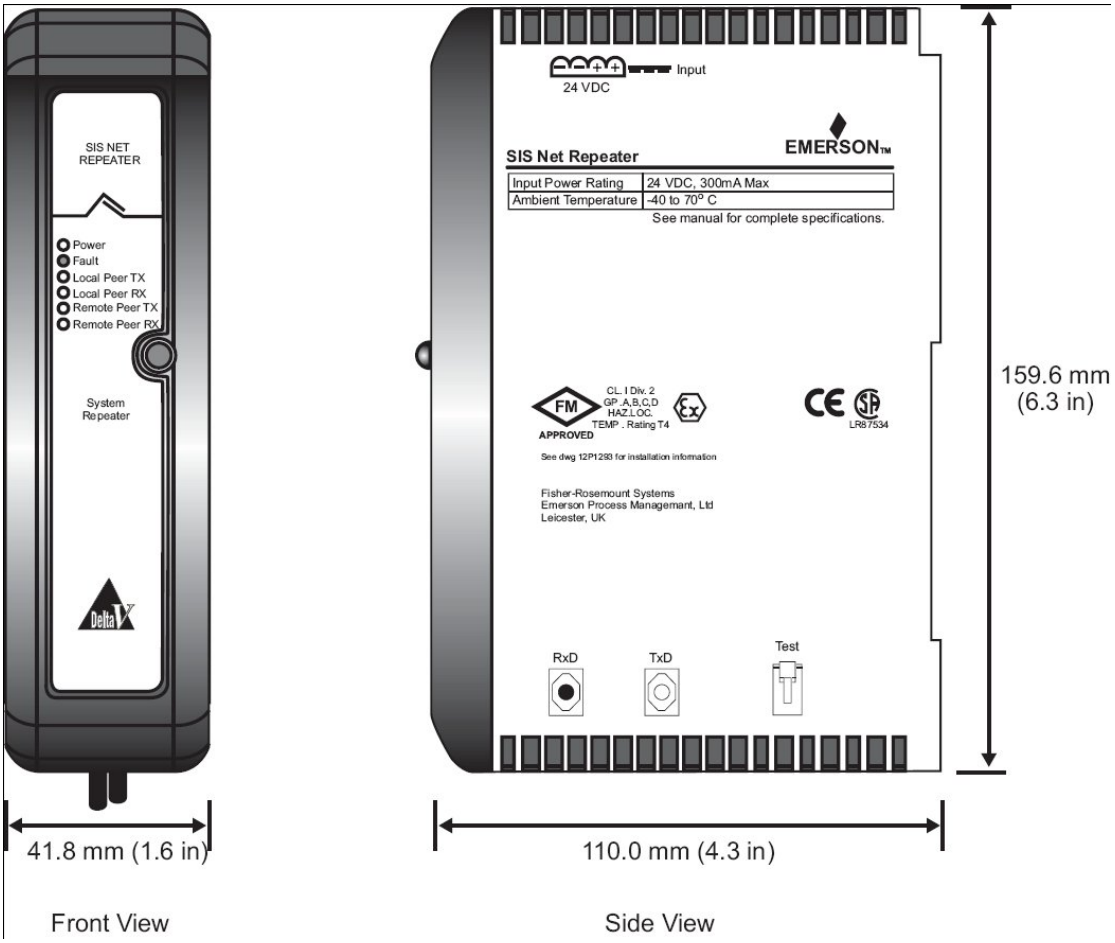
The SISNet Repeaters are certified to:

- 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 Repeater Specifications

SISNet Repeater Common Environmental Specifications	
Category	**Specification**
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 Repeater Specifications	
Item	**Specification**
Port Type	ST Female
Cable Type	Multimode 62.5 / 125 µm; ST type *or* Multimode 50 / 125 µm; ST type
Output power	< -12 dB
Link budget	Multimode 62.5 / 125 µm – max attenuation 11 dB Multimode 50 / 125 µm – max attenuation 8 dB
Link distance (max)	2 km one way TxD to RxD
Topology	Physical ring: RxD connects to TxD of predecessor and TxD connects to RxD of successor
Test port type	For factory use only
Mounting	2-wide SISNet Repeater carrier Left carrier position is primary SISNet Repeater Right carrier position is secondary SISNet Repeater
Weight	0.795 kg



SISNet Repeater Dimensions

SISNet Repeater Power Specifications	
Item	**Specifications**
Input	24 V DC, 300 mA (max)
Heat Dissipation	8 W
Connector type	4-position screw terminal
Wire type	Solid or Stranded
Wire gauge	12 AWG maximum

Ordering Information

Description	Model Number
Redundant SISNet Repeater (Two Repeater modules and a horizontal 2-wide carrier)	VS6002
VerticalPlus Redundant SISNet Repeater with safety bus terminators (consists of SISNet Carrier, pair of SISNet Terminators)	VS6005

Related Products

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

- **SISNet Distance Extenders.** SISNet Distance Extenders convert multimode fiber-optic signals to single mode fiber-optic signals to allow SISNet Repeaters to communicate over greater distances.
- **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 Logic Solver Carriers.** Getting your DeltaV SIS process safety system up and running efficiently is easy with plug-and-play logic solver 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.

Prerequisites

- DeltaV SIS 8.3 software or later.

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