Features

- **Compatible with the Simplex ES Net Network**
  - Connect ES Net fire network nodes securely through customer IT infrastructure
  - Connect one or more ES Net nodes to an ES Net loop
  - Connect to the building network using the onboard RJ-45 interface
  - Available for Class B and Class N listed configurations
- **Available for Simplex 4100ES, 4010ES, and 4007ES series fire alarm control units**
  - Available as an externally mounted option for 4100ES, 4010ES, and 4007ES fire alarm control units (FACUs)
  - Available for Simplex 4100ES, 4010ES, and 4007ES series fire alarm control units
  - The ES Net Network Bridge connects to a Simplex ES Net Network Interface Card that can be ordered separately.
  - For more information, refer to the ***ES Net Network Bridge Installation Instructions (579-1468)*** document.
- **ES Net Network Bridge configurator tool**
  - Configure network and security information
  - Update the different firmware components required by the ES Net Network Bridge
  - Compatible with Windows® 10
  - For more information, refer to the ***ES Net Network Bridge Configurator Operation Guide (579-1467)*** document
- **UL listed to Standard 864**

Description

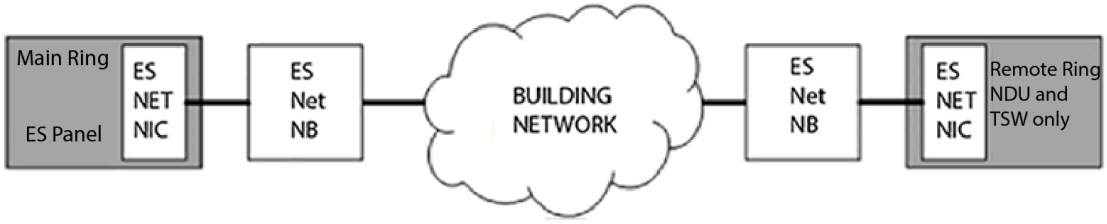
The ES Net Network Bridge is an ancillary module that facilitates the use of existing or non-dedicated network infrastructure as a communication pathway for ES Net networks. For information on Ethernet specifications, see Table 6.

Enhance connection flexibility

ES Net Network Bridge modules provide a network interface link that increases the flexibility of Simplex ES Net networks. Communications pass from the node's network interface card to the bridge module.

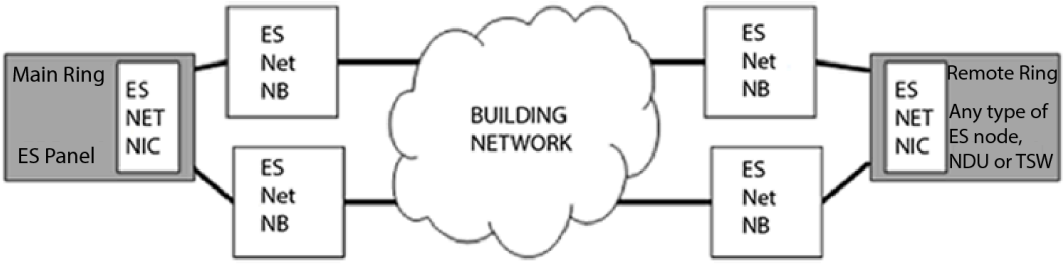
To interconnect the building's network, one network bridge is required at each end of a secured link. See Figure 1. When the system architecture requires redundant communications between two nodes over the building's network, two ES Net Network Bridges are necessary at each node. See Figure 2.

Figure 1: Building network with a bridged spur



Note: Ethernet is used between the ES Net NIC and the ES Net Network Bridge.

Figure 2: Building network with redundant links



Configuration

Use two Network Bridges to provide a virtual private network (VPN) connection. This is a secure, encrypted connection over a customer network. With statically assigned IP addresses, a port number provided by IT management, and two Network Bridge cards, you can create a VPN connection between two nodes. You can program this information, with the necessary security information and other operational parameters into the Network Bridge using the ES Net Network Bridge Configurator programming tool running on a computer.

For more information, refer to the ***ES Net Network Bridge Configuration and Operation Guide (579-1467)*** document.

* This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listings 7300-0026:0323, 7300-0026:0506, 7165-0026:0251, 7165-0026:0369 and 7165-0026:0378 for allowable values or conditions concerning material presented in this document. Additional listings might be applicable; contact your local Simplex product supplier for the latest status. Refer to Product Selection tables for specific UL and ULC listing details. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

System size considerations

Each network supports a maximum of 20 ES Net Network Bridge links. Use any two parts listed in Table 1 to create a link.

Table 1: ES Net Network Bridge PIDs

PID	Description
4190-9842	Simplex ES Net Network Bridge, Red 120/240V
4190-9843	Simplex ES Net Network Bridge, Platinum 120/240V
4190-9844	Simplex ES Net Network Bridge, Red 24 VDC
4190-9845	Simplex ES Net Network Bridge, Platinum 24 VDC
4100-6320	ES Net Network Bridge Card Flat – 4100ES
4010-6320	ES Net Network Bridge Card Flat – 4010ES
650-2713	Service Part, external board

Note: The ES Net Network Bridge must be connected to a ES Net Network card on a node to transmit FireNet data.

See Table 2 for information on the maximum numbers of nodes, ring sizes, and head ends that can be used when an ES Net Network Bridge card is present.

Table 2: Maximum numbers of nodes, ring size, and head ends

Description	Max.
Max. number of ES Net Network Bridge links	20
Max. number of nodes on a network loop	50
Max. number of head end for NDU or TSW	20
Max. number of cascaded bridged rings	4

Class N

The Class N pathway designation specifically addresses the use of modern network infrastructure when used in fire alarm and emergency communication systems. Class N paths require alternative communication pathways whenever more than one device can be impacted by a fault.

For Class N redundant operation

On both ends of the bridge, use two ES Net Network Bridge cards to create a redundant path, each with a single connection to the building's network. A single connection fault causes the network to reconfigure for degraded Class N operation. A second fault causes a total loss of communications across the bridge and results in the network dividing in to two separate networks. Connection to an FACP or FACU must be redundant when those elements are a direct or an indirect endpoint on a Class N communication path.

Note: An example of an indirect endpoint is a bridge connection to a TSW or a NDU on a remote ring. The remote ring has FACUs sending point and trouble information to a node or nodes on the main ring.

For Class N single endpoint operation

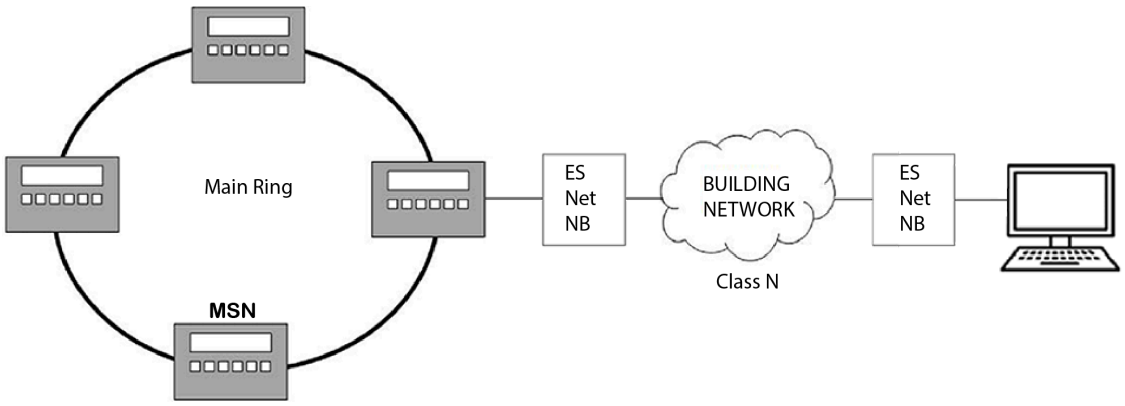
On both ends of the bridge, use a single ES Net Network Bridge card with a single connection to the building's network. Class N single endpoint network bridges are not fault tolerant. A single fault results in a total loss of communications across the bridge. This operation is for endpoint use to a single TSW or NDU. See Figure 3.

Typical deployments

ES Net Network Bridge typical deployment

Use the ES Net Network Bridge to connect remote nodes or sections of an ES Net network over a customer's IT infrastructure. For more information, refer to the ***ES Net Network Bridge Installation Instructions (579-1468)*** document.

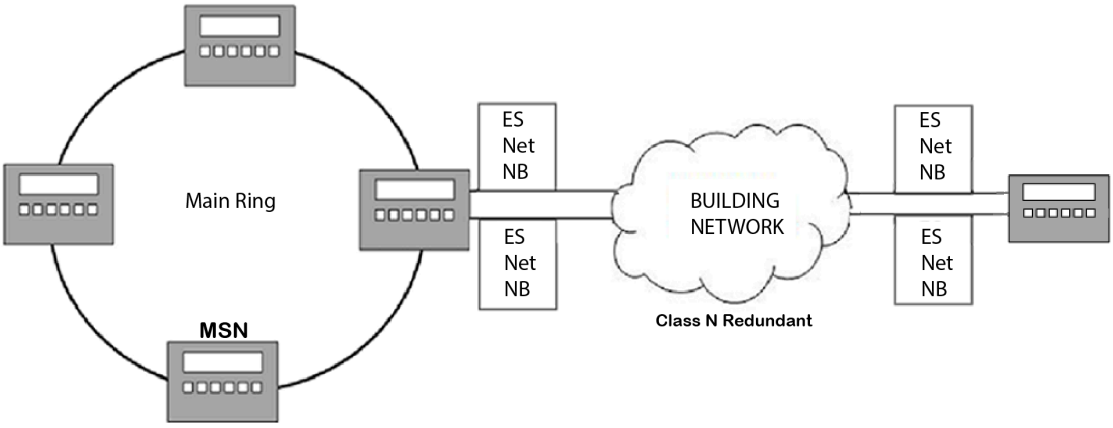
Figure 3: ES Net ring with non-redundant link to TSW or NDU



Note: Use the Class N (non-redundant) circuit to an endpoint such as a TSW or a NDU. If required, add a remote TSW or NDU using a redundant link.

A common application is to connect remote notes to a main ring, for example, for substations or satellite college campuses. See Figure 4.

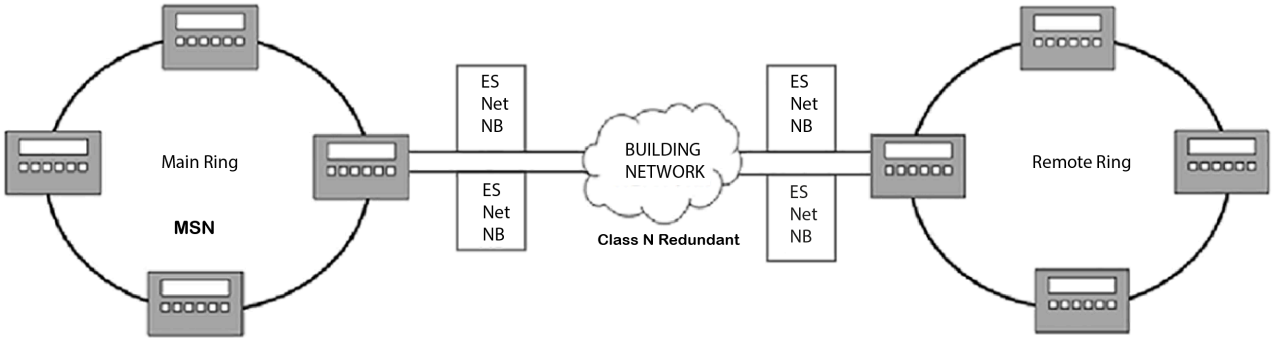
Figure 4: ES Net ring with redundant bridged links



You can also connect rings together as shown in Figure 5.

Note: In this example, synchronization data does not cross the bridge, so if synchronization is required, only one ring can synchronize its panels.

Figure 5: ES Net rings bridged through the ES Net Network Bridge



Notes

ES Net synchronization data, ES Net Audio and Supplemental Traffic do not pass through an ES Net Network Bridge.

- Nodes on rings connected to the master synchronization node (MSN) can synchronize
- Nodes on a ring on the remote end of the Network Bridge cannot synchronize
- ES Net Audio and Supplemental Traffic features are limited to nodes on the same side of a Network Bridge. Nodes on one side of a bridge cannot pass these features, through the bridge, to nodes on the opposite side of the bridge

Product information

Table 3: ES Net Network Bridge PIDs

Model	Description	Compatibility	Mounting space requirements
4190-9842	ES Net Network Bridge, Red 120/240 V	4100ES, 4010ES, and 4007ES FACUs	External
4190-9843	ES Net Network Bridge, Platinum 120/240 V	4100ES, 4010ES, and 4007ES FACUs	External
4190-9844	ES Net Network Bridge, Red 24 VDC	4100ES, 4010ES, and 4007ES FACUs	External
4190-9845	ES Net Network Bridge, Platinum 24 VDC	4100ES, 4010ES, and 4007ES FACUs	External
4100-6320	ES Net Network Bridge flat card	For 4100ES FACUs	Two vertical blocks
4010-6320	ES Net Network Bridge flat card	For two-bay 4010ES FACUs	Two vertical blocks

ES Net Network Bridge specifications

For more information, refer to the *ES Net Network Bridge Installation Instructions (579-1468)* document.

Table 4: External ES Net Network Bridge electrical and environmental specifications

Card	Electrical specifications	Environmental specifications
4190-9842 ES Net Network Bridge Red 4190-9843 ES Net Network Bridge Platinum	AC input specifications, no media card: • 120 VAC, 50/60 HZ, 75 mA maximum • 240 VAC, 50 HZ, 69 mA maximum	Operating temperature 32°F to 120°F (0°C to 49°C) 10% to 93% relative humidity at 90°F (32°C)
4190-9844 ES Net Network Bridge Red 4190-9845 ES Net Network Bridge Platinum	DC input specifications, no media card: • 24 VDC nominal, 120 mA maximum	

Table 5: Flat card ES Net Network Bridge electrical and environmental specifications

Card	Electrical specifications	Environmental specifications
4100-6320 ES Net Network Bridge Card Flat – 4100ES 4010-6320 ES Net Network Bridge Card Flat – 4010ES	120 mA maximum	Operating temperature 32°F to 120°F (0°C to 49°C) 10% to 93% relative humidity at 90°F (32°C)

Table 6: Ethernet cable specifications

Maximum Ethernet data rate	Cable	Maximum distance
100 Mbps (100 Base-TX)	CAT-5e cable terminated in accordance with EIA-T568B	328 ft (100 m)

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