Features

Provides flexible integration of fire alarm control panels into Autocall fire alarm networks:

- Communication between the fire alarm network and other fire alarm control panels is via isolated contact closure connections
- Typical compatible controls include Autocall fire alarm control panel model series 4006, etc., and non-Autocall fire alarm control panels
- Operating power is provided by the host node control panel using low voltage wiring connections
- A wide input voltage range of 10 to 33 VDC allows compatibility with either 24 or 12 VDC systems
- Network media modules are ordered separately as wired or fiber optic connections, suitable for Class B (Style 4) or Class X (Style 7) operation

Network System Integrator (NSI) inputs:

- The host node control panel provides input to the Network System Integrator (NSI) via eight (8) polarized, optically coupled and isolated connections
- Input voltage range is 10 VDC to 33 VDC

Network System Integrator (NSI) outputs:

- The host node control panel receives network information from the NSI via relay contact closures
- Eight (8) contact closure outputs are available, one is dedicated as the trouble contact (Output 2), the other seven are system programmable per application
- Output 1 has dual contacts, Outputs 2-8 are single contacts, each selectable as N.O. or N.C.
- Contacts are rated 1 A @ 24VDC/25 VAC and 0.5 A @ 70 VAC

Mechanical packaging:

- Small 13 ½" square (343 mm) cabinet size allows convenient mounting;
- Available with beige or red cabinet

Service mode:

- A technician activated network bypass mode is available with temporary battery connection to allow unpowered service of the host node control with the NSI remaining on-line to maintain network communications

Listing information:

- FM tested and approved to UL Standard 864, 9th edition, and NFPA 72, the *National Fire Alarm and Signaling Code* for connection to agency listed/approved fire alarm control panel
- Due to the NSI input and output design, the NSI is also capable of compatibility with other building system controls including products used for Emergency Communications Systems (ECS/Mass Notification); subject to local authority having jurisdiction (AHJ)

Description

Network System Integrators (NSI)

provide a gateway between a fire alarm control panel and a Autocall fire alarm network. This allows the network to monitor voltage inputs from, and provide contact closure information to, host node control panels not equipped for direct network communications. The integrated control panel with NSI resides as a unique node on the fire alarm network.

Connections.

NSI power, input voltages, contact closure voltages, and battery backup are supplied by the host node control. NSI network connections are similar to other network products using a "left" and "right" port provided by plug-in media cards, either wired or fiber optic, Class B or Class X operation.
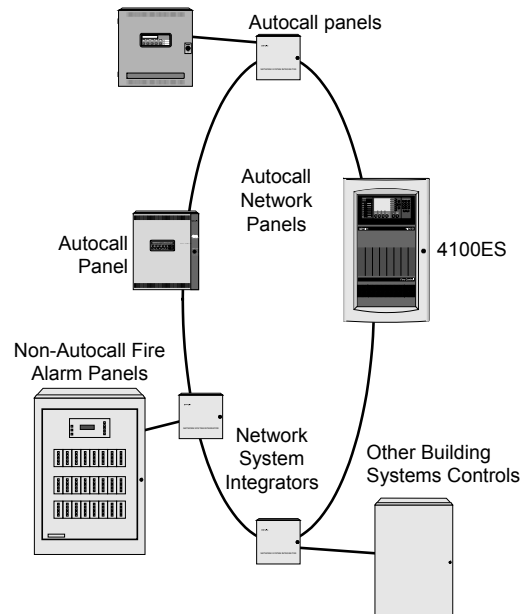

Figure 1: Network System Integrator Application Sample

Information to the NSI.

Information is received by the NSI from the host node panel via eight optically isolated inputs capable of receiving 10 to 33 VDC from the host panel. Since each input is optically isolated, the source of the control can be either relay contact or transistor controlled circuits and inputs can be from different sources.

Information from the NSI.

Information is transferred from the NSI to the host node panel using eight relay circuits. Relay 2 is dedicated to advise the host node control of an NSI trouble and is held normally energized. Loss of power to the NSI, or other onboard NSI trouble will transfer the trouble contact. The remaining seven relay functions are programmable at the NSI. Wiring connections between the NSI and the host node control panel are not supervised by the NSI.

Synchronization of Notification Appliances.

Notification appliances can be synchronized across all nodes on a network. When an NSI is part of the network, synchronization of notification appliances over the network is not supported. However, there is synchronization of notification appliances at the individual node level.

Mounting Considerations.

Supervision of wiring connections, if provided, is supplied by the host node control panel. For applications where connections are not supervised, mount the NSI close-nippled to the host node control panel [within 20 ft (6 m)].

Service Mode.

For authorized service operation, the NSI is provided with an optional battery input allowing the network loop to remain intact when the host node panel is unpowered for servicing. The NSI does not provide charging to this service battery connection. Normal battery backup is provided by the host node control panel.

Additional Information.

For additional information, refer to Installation Instructions 579-876AC.

Product Selection

Table 1: Products

SKU	Description	
A100-6056	Wired network media card	For direct mounting onto the NSI (up to 2 media cards required).
A100-6301	Left port, single-mode 4120 duplex fiber media card	For direct mounting onto the NSI (up to 2 media cards required). Maximum of 1 left port and 1 right port duplex fiber media card per NSI. Field connections require left port to right port pairing. Order fiber media service kits for retrofit jobs where ST connectors are already installed. (refer to data sheet AC4100-0056 for full fiber media module specifications and retrofit information)
A100-6302	Right port, single-mode 4120 duplex fiber media card	
A100-6303	Left port, multi-mode 4120 duplex fiber media card	
A100-6304	Right port, multi-mode duplex 4120 fiber media card	

Specifications

Table 2: Electrical

Specification		Rating		
Input Power	Input Voltage Range	10 VDC to 33 VDC, 3.5 W maximum		
	with 12 VDC input	300 mA maximum input current @ 10 VDC		
	with 24 VDC input	175 mA maximum input current @ 20 VDC		
Input to NSI from Host Node Control	Input type	8 optically isolated inputs		
	Input voltage range	10 to 33 VDC, voltage supplied by host node control panel or other compatible voltage source		
	Input requirements	1 mA minimum required for activation; input resistance = 9.5 kΩ		
Output from NSI to Host Node Control	Contact Details	Eight (8) contact closure outputs: Contact 1 provides dual connections, Contacts 2-8 provide single connections; Contact 2 is dedicated as Trouble Indication; each contact output is jumper selectable as N.O. or N.C.		
	Contact Ratings	1 A @ 24 VDC or 25 VAC; 0.5 A @ 70.7 VAC, resistive; supply current protection externally using listed in-line fuse and fuseholder or equivalent current limiting to contact ratings		
Wiring Connections Between Host Node Control Panel and NSI		Screw terminals 18 to 14 AWG (0.82 mm^2 to 2.08 mm^2)		
Network Connection Wiring		Fiber optics or wired; wired connection terminals for 24 AWG to 18 AWG (0.205 mm^2 to 0.82 mm^2)		
Network Connection Reference (refer to Installation Instructions 579-876AC for additional information)	Wired Network Connections	**Wiring Parameter**	**with 18 AWG, TSP***	**with 24 AWG, TP***
		Maximum line-to-line capacitance	58 pF/ft (190 pF/m)	22 pF/ft (72 pF/m)
		Maximum distance @ 57,600 bps	10,000 ft (3 km)	7000 ft (2.13 km)
		Maximum distance @ 9600 bps	17,000 ft (5.18 km)	12,000 ft (3.65 km)
* TSP = twisted, shielded pair TP = twisted pair	Duplex Fiber Optic Network Connections	**Fiber type**	**Compatible fiber**	**Maximum total attenuation** / **Maximum Distance**
		Single-mode	Nominal 9/125 µm	22 dB / 82,000 ft (25 km)
		Multi-mode	50/125 µm or 62.5/125 µm graded index	18 dB / 16,400 ft (5 km)

Table 3: Mechanical

Specification	Rating
Cabinet Specifications	13 ½" W x 13 ½" H x 3 5⁄16" D (343 mm x 343 mm x 84 mm), with locking door, lift-off hinge on left side; knockouts on left side, top, and bottom; refer to Figure 2 for additional information

Table 4: Environmental

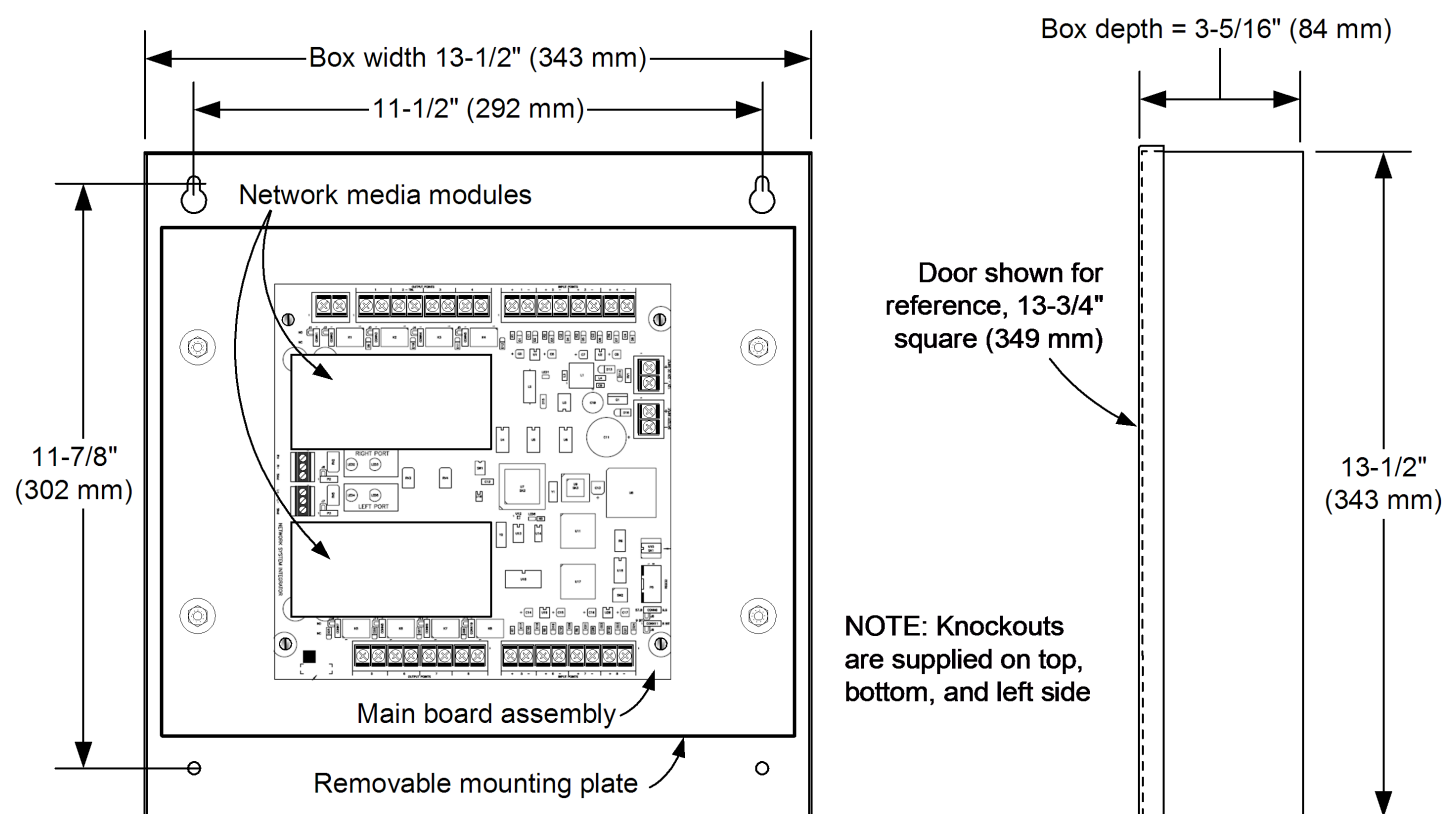| Specification	Rating
Temperature	32° to 120° F (0° to 49° C) indoor operation only
Humidity Range	Up to 90% RH at 90° F (32° C) non-condensing

Installation Reference

Box width 13-1/2" (343 mm)

11-1/2" (292 mm)

Box depth = 3-5/16" (84 mm)

Network media modules

Door shown for reference, 13-3/4" square (349 mm)

11-7/8" (302 mm)

13-1/2" (343 mm)

NOTE: Knockouts are supplied on top, bottom, and left side

Main board assembly

Removable mounting plate

Figure 2: Installation reference

Interconnection Reference

NSI Input Equivalent Circuit

Host control panel connections

Input +

10-33 VDC

0 VDC

Input -

NSI Contact Output Circuit

Host control panel connections

jumper selection

N.C.

Contact Output

10-33 VDC

Common

to voltage monitoring input circuit

N.O.

10-33 VDC input power

System Power Connection

Trouble Contact

Contact monitoring input

to "Left Port"

Typical Input to NSI

Voltage output (Alarm, Supervisory, Trouble, etc.)

NETWORK SYSTEM INTEGRATOR

Typical Output Contact from NSI

Monitored input

Connections to the Fire Alarm Network

from "Right Port"

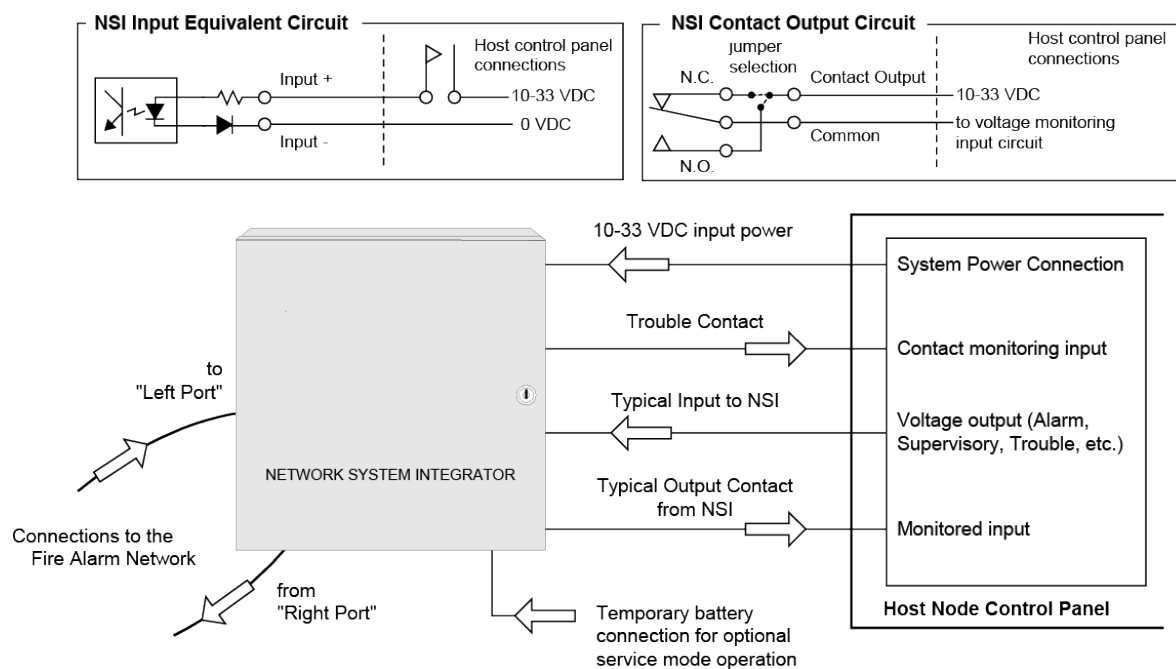Temporary battery connection for optional service mode operation

Host Node Control Panel

Figure 3: Interconnection reference