Foxboro NCNI P0972PP

01 Allocate the two bus interfaces

Identify the two physical buses

Begin with the Nodebus A and B paths in the installed system. A redundant attachment uses two NCNI modules because each interface belongs to one bus. Keep this assignment visible in the installation drawing and in the identification of the corresponding network connections.

Interface allocation

01	Locate the Cellbus mounting structure serving the Nodebus stations.
02	Identify the NCNI assigned to bus A and the separate interface assigned to bus B.
03	Trace each front-panel connection to its intended control-network switch.
04	Confirm that both paths are present before evaluating the redundant arrangement.

Connection boundaries

Boundary	Installation meaning
Cellbus side	Provides power and the connection to Nodebus.
Network side	Uses the selected front-panel optical or copper interface.
Bus population	Two modules are required for redundant Nodebus connection.
Mounting position	Any I/A Series mounting-structure slot may accommodate the module.
Software arrangement	Standard Redundant Control Network software provides transparent communication.

Avoid a false redundant arrangement

Two powered modules are not sufficient evidence of a correctly connected pair. The installation needs the intended A and B assignments and the corresponding network routes. Verify their physical association before treating the second interface as an available redundant path.

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02 Install the chosen cable medium

Media-dependent requirements

Characteristic	Requirement
Optical connector	MT-RJ
Optical fiber	62.5/125 µm multimode
Optical distance	Up to 2 km
Optical switch interface	100BASE-FX
Copper construction	CAT5 shielded twisted pair
Copper distance	Up to 100 m
Copper link modes	10/100 Mbps; half or full duplex by negotiation

Optical route preparation

Confirm the fiber type and the mating MT-RJ connection before routing the cable. Inspect and clean the optical connection according to the installed fiber system procedure. Count the whole intended route rather than only the visible patch lead when comparing it with the distance boundary.

Media selection checks

Port match
Connect the selected module interface to the corresponding switch port type.

Cable identification
Keep A and B path labels associated with their actual bus assignments.

Shielded copper
Retain the specified shielded CAT5 cable construction.

Optical settings
The fiber link is fixed at 100 Mbps and full duplex.

Do not transfer one medium’s limit

A valid 2 km optical route does not make a 2 km copper route acceptable. The cable construction, switch interface and distance limit must be assessed as one media-specific connection.

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03 Check supply and enclosure conditions

Electrical planning

Item	Value or arrangement
Input range	26 to 42 V DC
Typical input	39 V DC
Maximum consumption	8 W per module
Maximum dissipation	8 W per module
Two-module subtotal	16 W maximum consumption and heat, calculated
Supply entry	Power is obtained through Cellbus

Installation environment

Condition	Boundary
Operating temperature	0 to +60 °C
Operating humidity	5–95% RH without condensation
Operating altitude	-300 to +3000 m
Storage temperature	-40 to +70 °C
Storage humidity	5–95% RH without condensation

Use the complete supply range

The typical 39 V value is not the only permitted input. Check the actual installed voltage against both endpoints of the 26–42 V DC range, including the condition at the mounting structure supplying the module.

Include the whole enclosure

The calculated 16 W subtotal covers two NCNI modules only. Other stations, interface modules and power losses still contribute to the enclosure assessment. Apply the environmental boundary to the actual location of the modules, not only the room outside the enclosure.

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04 Verify link establishment

Commissioning observations

Observation	What it establishes
Module status	Confirm the module-status indication after power is established.
Optical connection	Verify the fixed 100 Mbps full-duplex link at the optical switch port.
Copper connection	Read the negotiated rate and duplex at the copper switch port.
Link status	Compare the front-panel link indication with the intended connected route.
Data exchange	Confirm communication between the selected Nodebus station and its control-network peer.
Second bus path	Verify the other NCNI and its separately assigned route.

Link status and station communication differ

A link indication establishes a physical network connection, but it does not by itself prove that the intended station can exchange its required information. Verify the destination and actual communication through the installed network after the physical link is present.

Interpret media behavior correctly

Copper negotiation
Rate and duplex can be selected automatically by the link partners.

Fixed optical link
The fiber side does not negotiate the same set of modes.

Nodebus rate
The Nodebus side remains at 10 Mbps.

Internal switching
Local buffering supports transfer to the faster network connection.

No separate gateway installation

The attached stations use standard Redundant Control Network software for transparent communication. Do not add an assumed gateway software requirement merely because the interface connects two different physical-network types.

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05 Isolate network attachment faults

Symptom-led investigation

Observed condition	Investigation boundary
Module not operating	Inspect Cellbus seating and the power supplied by the mounting structure.
No optical link	Check the MT-RJ connection, fiber type, route and matching switch port.
Unexpected copper mode	Examine the rate and duplex negotiated at the switch.
Only one bus path available	Trace the missing A or B assignment through its own NCNI.
Link present but exchange fails	Review the intended station connection and network route.

Preserve the working path

When one bus connection remains in service, keep its identity distinct during fault isolation. An unplanned interchange of A and B connections can make it harder to distinguish the original fault from a wiring change introduced during service.

Return both paths to their intended state

After a cable or interface change, verify module status, link establishment, the negotiated copper mode where applicable and actual station communication. The final check should cover the restored redundant arrangement rather than only the path used during troubleshooting.

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Foxboro CP30

Foxboro CP40

Technical basis

Foxboro PSS 21H-7B5 B4, Nodebus/Control Network Interface, January 2003.