Foxboro CP60 P0961FR

01 Establish the processor workload

Start with execution demand

Prepare the control application inventory before selecting the processor arrangement. Regulatory loops, logic, timers and sequences all contribute to the station workload. A simple count of connected field modules does not describe the execution demand of the configured strategy.

Application inventory

Planning item	Required information
FBM population	Include DIN-rail modules, Y-Modules and supported auxiliary devices.
Execution periods	Record the scan period required by each part of the strategy.
Block population	Include control blocks, compounds, ECBs and data blocks.
Control availability	Identify whether the station uses one processor or a fault-tolerant pair.
Field interfaces	Allocate the required FCM, DCM or FBI connections.

Sizing sequence

01	Count every configured object included in the 4000-block ceiling.
02	Count HIUs, mass flowmeters and panel display stations as FBMs.
03	Review the selected scan periods and the mixture of block types.
04	Check individual interface-group limits as well as the whole processor allocation.

Capacity is conditional

The upper allocation is 120 FBMs per processor and 4000 configured blocks per processor or redundant pair. Both figures depend on execution choices. Do not approve a configuration merely because each independent count falls below its numerical ceiling.

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02 Lay out communication paths

Choose the network arrangement

A direct network connects the processor to its field interfaces, with optical extensions where required. An active-star arrangement uses a multiport optical converter to extend and distribute the paths. In either case, identify the complete route to each FBM group.

Cable planning checklist

Part of path	Boundary
Coaxial trunk segment	Maximum 185 m for each 10BASE2 segment.
Optical extension	Maximum 2 km between the applicable conversion endpoints.
Coaxial segment chain	No more than three coaxial segments joined by two optical extensions.
Hub branch	Maximum 2 km from the hub to the applicable optical interface or converter.
Y-Module local bus	Maximum 10 m for the Y-Module Fieldbus.
Complete route	Maximum 20 km from the processor to the farthest FBM.

Keep the domains identifiable

Nodebus
Maintain the station-network connection separately from process-I/O cabling.

Ethernet trunk
The controller-facing process-I/O trunk uses 10BASE2 at 10 Mbps.

FCM local segment
The module-facing FCM link uses 2 Mbps HDLC.

FBI/DCM local segment
The corresponding legacy module link uses 268.75 kbps HDLC.

Apply limits together

A route can satisfy each individual segment limit and still exceed the combined distance boundary. Retain both the segment measurements and the end-to-end total in the installation drawing.

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03 Prepare a fault-tolerant station

Pair installation requirements

Requirement	Implementation focus
Processor quantity	Two modules form one fault-tolerant station.
Slot arrangement	The two modules occupy adjacent mounting-structure slots.
Interconnection	Fit the fault-tolerant connector between the modules.
Network connections	Each module has its own Nodebus and Ethernet trunk connections.
Supply planning	Each module has a maximum consumption of 15 W.
Pair power allowance	30 W calculated maximum for the two processors alone.

Preparation before energization

01	Confirm that both processor positions belong to the same planned station.
02	Check the interconnecting connector and adjacent-slot arrangement.
03	Identify both network connections without interchanging their domains.
04	Verify the installed supply and enclosure conditions for both modules.

Parallel operation

The paired processors receive and process information simultaneously. Comparing messages at external interfaces helps expose a hardware fault. Both modules run self-diagnostics after detection so that the non-defective processor can continue control.

Do not count the pair twice

A second processor provides fault tolerance. It does not double the station block ceiling or provide a second independent 120-FBM allocation. Assess the controlled application as one station while accounting for the electrical load of both modules.

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04 Observe startup and processor health

Diagnostic layers

Diagnostic function	What to observe
Power-up self-check	Starts automatically when power is applied; tests processor functional elements.
Front indicators	Red and green LEDs show the progress or result of the startup phases.
Run-time checking	Continuously monitors processor functions during normal operation.
Watchdog checking	Supervises operation alongside the run-time diagnostic functions.
System messages	Printed or displayed messages inform the operator of a detected malfunction.
Off-line diagnostics	Temporary comprehensive testing can isolate or confirm a suspected fault.

Separate a processor fault from an I/O fault

A failed field measurement does not automatically identify the processor as the failed component. Examine whether the symptom affects one FBM, one interface group or the whole station, and compare it with processor diagnostics and communication status.

Record meaningful startup evidence

Initial state
Record the module and station condition before energization.

Indicator sequence
Observe the actual red and green startup indications.

Application state
Confirm that the intended strategy and I/O population are present.

Pair state
For a redundant station, confirm normal operation of both processors.

Off-line testing boundary

Comprehensive diagnostic testing can interrupt normal processor use. Plan it in the approved maintenance condition and distinguish a diagnostic test result from verification of the running control application.

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05 Service and return the station

Service decisions

Situation	Service focus
Front reset	The recessed control forces a power-off/on reboot without removal.
Processor replacement	Retain the station identity, paired arrangement and network assignments.
Suspected intermittent failure	Compare runtime messages with the affected function and time of occurrence.
Lost redundancy	Investigate the second module and its connections even if control continues.
Return to operation	Verify diagnostics, application execution and the intended paired state.

Reset is a control-system event

A reboot changes the operating state of the selected processor. Before pressing the front reset button, establish the process maintenance condition and whether another healthy processor is available in the installed arrangement. Mechanical access to the button is not evidence that a reset is harmless.

Acceptance after service

Check the control application and affected field communication in addition to the processor indicators. For a paired station, verify restored fault tolerance rather than accepting operation on only one healthy processor as the final condition.

Explore other Foxboro catalogue pages

Foxboro FBM201 P0916AA

Foxboro P0922YU FPS400-24

Technical basis

Foxboro PSS 21H-1B7 B3, Control Processor 60, February 2006.