Foxboro FCM10E P0914YM

01 Map the two communication domains

Prepare the topology

Start with the physical trunk and the FBM group it serves. The FCM10E joins two communication domains with different rates and electrical interfaces. A fault on one side must be distinguished from a fault on the other before a module is replaced.

Trace the installed path

01	Identify the I/A Series control station connected to the 10 Mbps Ethernet trunk.
02	Locate the FCM10E interface or redundant pair assigned to the affected group.
03	Trace the separate 2 Mbps module Fieldbus from that interface to its FBMs.
04	Count the group membership and retain the A/B path identification before disconnecting anything.

Planning boundaries

Boundary	Requirement
Trunk side	10BASE2 coaxial Ethernet at 10 Mbps
Module side	2 Mbps Fieldbus for the associated FBMs
Group capacity	Up to 30 FBMs for one interface or pair
Trunk capacity	Up to 30 FCM10E pairs
Redundancy	Two FCM10E modules for each redundant group

Distinguish a redundant pair from a second group

Two modules protecting the same group do not create two independent FBM allocations. Record the group as one service boundary and identify which physical interfaces provide its redundant communication paths.

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02 Arrange baseplates and cable paths

Baseplate connections

The interface mounts on a modular baseplate that carries Fieldbus, power and I/O cable connections. Baseplates may be DIN-rail or rack mounted. The described baseplate supports up to eight FBMs or a combination of FBMs and FCMs.

Connection-side checks

Area	Inspection
Controller-facing trunk	Identify the 10BASE2 Ethernet circuit and its intended continuation.
FBM-facing segment	Trace the 2 Mbps circuit to the correct local equipment group.
Redundant branch	Retain A and B identities through each connection.
Power connection	Confirm the baseplate supply circuit feeding the interface.
Media conversion	Locate separate converters where the trunk includes optical cable.

Keep these arrangements separate

Group layout
Several baseplates can participate in one interface grouping.

Slot capacity
The number of physical positions remains a constraint on each baseplate.

Trunk extension
The optical segment uses separate media converters at its ends.

Module service
The interface can be exchanged without removing power or communication cabling.

Avoid a cross-connected branch

A path carrying traffic is not necessarily connected to the intended group. Check the controller destination and FBM identities as well as the existence of traffic before releasing a changed cable arrangement.

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03 Check electrical and enclosure conditions

Supply and thermal planning

Item	Planning value
One module	7 W maximum consumption; 7 W maximum heat
Two-module pair	14 W calculated maximum consumption and heat
Nominal supply	24 V DC
Lower supply boundary	21.6 V DC, calculated from -10%
Upper supply boundary	25.2 V DC, calculated from +5%
Nominal current allowance	About 0.292 A for one module, calculated as 7 W / 24 V

Environmental limits

Condition	Module boundary
Operating temperature	-20 to +70 °C
Humidity	5–95% RH without condensation
Operating altitude	-300 to +3000 m
Vibration	0.75 g from 5 to 200 Hz
Contamination	Class G3 harsh environment; pollution degree 2

Use calculations as planning aids

The voltage endpoints and current allowance above are arithmetic consequences of the stated ratings. They do not replace the supply manufacturer’s sizing rules, startup considerations or the power requirements of other equipment on the baseplate.

Assess the enclosure as a system

Include both interfaces when a redundant pair is fitted. Keep local temperature, condensation and the enclosure protection arrangement inside the applicable installed-system limits.

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04 Observe communication during commissioning

Observation sequence

Stage	Observation	Acceptance focus
Power and operation	Inspect the red and green operating-status LEDs.	Resolve an abnormal module state before interpreting traffic.
Controller-facing traffic	Observe amber indications associated with transfer to or from the control station.	Check the intended controller can exchange data.
FBM-facing traffic	Observe transfer activity for the associated modules.	Verify actual FBM status rather than relying only on a flashing indication.
Redundancy	Exercise the approved changeover test for the installed pair.	Confirm the affected group retains the intended communication service.
Restoration	Return all isolated paths to their planned state.	Confirm both the topology and normal application indications.

Interpret the indicators

Operating state
Red and green indications concern the FCM itself.

Traffic direction
Amber indications distinguish communication activity and direction.

Field measurement
Network activity does not establish analog sensor accuracy.

End-to-end communication
The intended controller and FBM group must exchange the expected data.

Coordinate a path test

A communications test can affect multiple measurements and outputs in the group. Plan the test condition with the operating process and record which path was isolated, the resulting status and the restored state.

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05 Locate communication faults

Fault-isolation boundaries

Observation	Investigation	Reason
One group unavailable	Inspect its interface pair, local supply and module Fieldbus.	A local group fault differs from a common trunk interruption.
Several groups unavailable	Trace shared trunk connections and upstream control-station communication.	The failed boundary may be common to multiple interfaces.
Traffic indication without valid data	Check the expected controller destination and FBM membership.	Activity alone does not prove correct data association.
Optical extension interrupted	Inspect the separate converters and the optical segment.	The FCM10E is a coaxial trunk interface, not the converter.
Redundancy lost	Review the second interface and its physical path.	Continued service on one path can conceal a loss of redundancy.

Module replacement

Keep the existing power and communications cables identified and seated. The module can be removed without taking those cables off the baseplate, but the effect of removing the interface still depends on whether the installed group has a working redundant path.

Handover information

Retain the group membership, A/B route, interface position, controller destination, LED observations and changeover result. This information is more useful for the next communication fault than a record that only says the module was exchanged.

Explore other Foxboro catalogue pages

Foxboro FBM218 P0922VW

Foxboro FBM4/39/44

Technical basis

Foxboro PSS 21H-2Y1 B3, Fieldbus Communications Module FCM10E, August 2007, pp. 1–4; PSS 21H-2X2 B4, Modular Baseplates, FCM10E P0914YM identification.