Yokogawa AFV10D S2

Duplexed Field Controller

01 / DUPLEXED FIELD-CONTROL ARCHITECTURE

Yokogawa AFV10D S2 is a rack-mounted duplexed field control unit that combines two CP451 processor modules, two power modules and dual-redundant Vnet/IP paths. Local FIO and ESB-bus node units form a controlled I/O domain around that redundant core.

Dual processor control → **Redundant Vnet/IP** → **Local and remote FIO**

Two active hardware paths

The duplexed FCU uses paired processor and power modules. Redundancy does not remove the need to identify each physical slot and network route.

Local expansion boundary

Up to eight local I/O modules are installed in the FCU. Additional node units use the documented ESB or ER-bus architecture.

Licensed node capacity

LFS1500 supplies the basic control package. Expansion to the documented maximum requires LFS1550 and the applicable node-unit licenses.

Style-specific capability

SEM for Vnet/IP is supported from Style 2. Confirm the component tag rather than inferring style from the product family name.

Engineering boundary

The AFV10D family identity establishes architecture and capacity limits. The omitted supply-voltage suffix remains an ordering attribute that must be checked on the installed unit before replacement.

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Processor modules	Two CP451 modules in the duplexed arrangement
Processor core	VR5432 at 133 MHz
Main memory	32 Mbyte
Memory backup	Battery retention up to 72 hours
Battery recharge	At least 48 hours
FCU status contact	NC/C contact opens on FCU failure
Contact rating	30 V DC, 0.3 A maximum
Mounting	19-inch rack using eight M5 screws

Battery-backed memory

The retention interval is finite. A long unpowered period requires configuration and startup planning rather than an assumption that memory contents remain available.

Failure indication

The dry status contact provides a field indication path. Its rating is an electrical limit, not a command to apply the maximum load.

Identity before procurement

Record the full nameplate identity, style, installed software package and the power-supply execution. AFV10D S2 alone does not encode every selectable ordering attribute.

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Domain	Documented limit or interface	Implementation note
Vnet/IP paths	Dual-redundant network interface	CAT5e or better UTP to the Layer 2 switch
Local FIO	Eight local I/O modules maximum	Installed in the FCU local slots
Node units	Fourteen maximum per FCU	Subject to package and license limits
ESB bus	Nine node units maximum	Coupled through EC401 modules
Basic package	LFS1500	Three-node basic allowance
Expansion package	LFS1550 plus license	Extends the configured node capacity

Capacity is a system property

The maximum values are not a promise that every project can add nodes without engineering review. Existing node allocation, software licensing, network design and the selected ESB or ER-bus path govern the as-built system.

Network route

Keep the two Vnet/IP paths distinguishable through switches and cabling. A visually similar cable route is not evidence of independent redundancy.

Node inventory

Reconcile physical node positions with the project database before changing coupler or field-control hardware.

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Configuration	Physical rule	Boundary
Redundant ESB connection	Install EC401 modules in slots 7 and 8.	Both couplers participate in the redundant processor arrangement.
Single ESB connection	Install one EC401 in slot 7 and leave slot 8 empty.	Do not populate the second slot merely to imitate the duplexed layout.
Barrier-equipped I/O	Install the T9083ND insulating partition kit.	The partition requirement follows the I/O module execution.
SEM for Vnet/IP	Use Style 2 or later.	Read the style from the component tag.

ESB and ER bus are not synonyms

Identify which remote-I/O path is engineered. Coupler placement and project configuration must agree with the selected bus.

Slots are functional identities

Retain slot numbers, installed module serials and cable destinations in the maintenance record before removal.

Insulation is execution-dependent

Do not omit a required partition or add an unverified substitute because a neighboring I/O slot looks similar.

Style belongs to the component

A software display or sales description cannot replace the physical style marking used for SEM compatibility.

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Use pattern	AFV10D S2 role	Engineering limit
Duplexed process control	Parallel processor, power and Vnet/IP paths support a controlled high-availability architecture.	Confirm project ownership of every redundant path before intervention.
Local FIO concentration	Up to eight local I/O modules provide short-path field integration around the FCU.	Module type and channel design remain separate evidence.
Distributed node expansion	ESB or ER-bus node units extend field I/O beyond the FCU rack.	Capacity and licenses must be checked together.
Failure contact monitoring	The NC/C contact can report an FCU failure to a separate circuit.	Contact state does not identify the failed subassembly.
Maintenance recovery	Battery-backed memory supports a bounded unpowered interval.	Exceeding the interval requires restoration planning and verification.

Do not diagnose by redundancy alone

A common network switch, shared node configuration or incorrect slot assignment can affect both paths. Use processor status, network diagnostics, physical slot records and controlled I/O tests as separate evidence.

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Technical reference record

Yokogawa Duplexed Field Control Unit AFV10D

GS 33K50E30-50E, 4th edition, March 2013; selected pages 2-4.

Verified scope

This brief uses the manufacturer general specification for the AFV10D architecture, documented limits, slot rules and Style 2 SEM condition. Supply-voltage selection is intentionally not asserted because it is absent from the requested model string.

Related Apter Power catalog references

Catalog navigation only. These entries do not establish compatibility, substitution or approval of a changed installation.

Yokogawa MRI-234*B | View Yokogawa MRI-234*B page

Yokogawa S9129FA | View Yokogawa S9129FA page

Yokogawa ADV551-P10 S2 | View Yokogawa ADV551-P10 S2 page

CONTACT APTER POWER

WHATSAPP / PHONE +86 180 3023 5313

EMAIL sales13@apterpower.com

WEBSITE www.apterpower.com

Send the exact model, quantity and requested condition for a quotation.

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