

01 Readiness and operating boundary

Schneider Electric 140CPU43412

CPU Module

Schneider Electric 140CPU43412 is a Modicon Quantum CPU with 2 MB SRAM, two RS-232 Modbus ports and one Modbus Plus network port. It executes the configured control application and coordinates local, remote and distributed I/O within the supported Quantum architecture.

Identify the non-A controller

Use 140CPU43412 as the CPU identity in the controller configuration. The similarly named A version is not a license to interchange flash executives. For a hot-standby pair, both CPUs must have matching A or non-A identities.

01	Processor identity	140CPU43412, non-A
02	Programming environment	Concept model support is confirmed by FA309888
03	Executive boundary	Do not interchange the A and non-A executive
04	Hot-standby pairing	Two non-A CPUs or two A CPUs

Evidence: 35013379 pp.151,162

Separate the two communication paths

The two Modbus ports are RS-232 serial interfaces. The separate Modbus Plus port is an RS-485 network interface. Connect the host or field device to the appropriate path; matching connector shape alone does not establish the same protocol or modem capability.

01	Modbus port 1	Serial client and full modem interface
02	Modbus port 2	Normal serial communication; no modem support
03	Modbus Plus	Network node path, separate from the serial ports
04	Programming cable references	990NAA26320 or 990NAA26350, with applicable connector arrangement

Evidence: 35013379 pp.153,160

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02 Configuration and interface setup

Choose fixed or software-defined serial settings

The front communication selector establishes fixed ASCII, fixed RTU or software-defined parameters. The fixed modes cannot be retuned in software. The fixed modes also place the CPU in bridge operation, allowing a panel on the Modbus port to reach nodes on the Modbus Plus network.

01	Top / ASCII	2400 baud; even parity; 7 data bits; 1 stop bit
02	Middle / RTU	9600 baud; even parity; 8 data bits; 1 stop bit
03	Bottom / software	Permits application-selected communication parameters
04	Fixed-mode address	Set by the rear rotary switches

Evidence: 35013379 pp.156-157

Set and validate the node address

The upper rear switch provides the tens digit and the lower switch provides the units digit. Use a unique node in the supported range. A steady Modbus Plus indication after an address change can identify an invalid selection rather than a cable fault.

01	Valid rear-switch nodes	1-64
02	Example: node 11	SW1 = 1; SW2 = 1
03	Example: node 64	SW1 = 6; SW2 = 4
04	Invalid selection	Zero or greater than 64; Modbus Plus LED stays on

Evidence: 35013379 pp.157-158

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03 Installation decision sequence

Account for I-O words and expansion

Capacity is a configured word allocation, not a count of free sockets. Register words and blocks of discrete I-O consume the available I-O image. A second local rack requires an expander, and three distributed networks require the two specified Modbus Plus option modules.

01	Local I-O	64 input / 64 output words; two racks only with expander
02	RIO	31 remote drops; 64 input / 64 output words per drop
03	DIO network	500 input / 500 output words; account for overhead
04	DIO node	30 input / 32 output words
05	DIO expansion	Two 140NOM21x00 modules for three networks
06	Option-module interface	Up to six modules; only two MB+ modules with full DIO support

Evidence: 35013379 pp.152-153

Control program access before starting

The memory-protection controls must match the authorized work. The key's Mem Prt position protects against programmer changes but does not itself change the current run state. Moving to Start can start a stopped controller, so application and output-state checks must precede that transition.

01	Stop	Controller stopped; programmer changes disabled
02	Mem Prt	Run state retained; programmer changes disabled
03	Start	Programmer changes permitted; programmer start/stop accepted
04	Left front slide switch	Top selects memory protection; middle and bottom do not

Evidence: 35013379 pp.156,159

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04 Verification and fault isolation

Distinguish diagnostic readiness from execution

Observe the indicators separately. Ready is a diagnostic result, not proof that logic is running. Run confirms execution. A Modbus activity indication does not prove Modbus Plus communication, and Error A points to the Modbus Plus path.

01	Ready / green	Power-up diagnostics passed
02	Run / green	Controller started and solving logic
03	Bat Low / red	Battery absent or requires replacement
04	Modbus / green	Serial-port communication active
05	Modbus Plus / green	Network-port communication active
06	Error A / red	Modbus Plus communication error
07	Mem Prt / amber	Memory write-protected

Evidence: 35013379 p.154

Interpret a Run blink group before service

Count the blink group and obtain the associated diagnostic code through the applicable utility before choosing a service action. The group identifies a diagnostic domain, not a universal replacement instruction. Preserve the recorded code and the exact executive identity for troubleshooting.

01	Two blinks	RAM sizing / run-output / MB command-handler domain
02	Three blinks	CPU ASIC or backplane-bus domain
03	Four blinks	UPI or communication-interface domain
04	Five or six blinks	RAM or processor self-test domain
05	Seven blinks	Executive not loaded or checksum domain
06	Eight blinks	PROM / flash / unexpected executive-return domain

Evidence: 35013379 pp.154-156

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05 Acceptance and service handover

Respect timing and backup resources

The software-adjustable watchdog is documented separately from logic solve performance. The battery supports the powered-off memory function; monitor Bat Low rather than interpreting its capacity as an unlimited service interval. Clock accuracy is tied to the stated operating-temperature band.

01	Watchdog	250 ms, adjustable in software
02	Logic solve performance	0.1-0.5 ms per k
03	Battery	3 V lithium, 1200 mAh
04	Power-off battery load	7 microA typical; 210 microA maximum
05	TOD accuracy	+/-8 seconds/day over 0-60 degrees C

Evidence: 35013379 pp.152-153

Release the restored configuration

Confirm the correct programming environment and restored configuration, then check node address, serial settings and the actual I-O map. Verify Ready and Run separately and check the intended network path. Maintain matching non-A identities if the processor participates in hot standby.

Evidence: 35013379 pp.152-160; FA309888

Related portfolio navigation

These separate product pages are reference navigation, not a statement of interchangeability or approval for the installed system.

Schneider Electric 140DDI35300	View Schneider Electric 140DDI35300 page
Schneider Electric 140DDO35300	View Schneider Electric 140DDO35300 page
Schneider Electric 140XBP00600	View Schneider Electric 140XBP00600 page
Schneider Electric 990XCP98000	View Schneider Electric 990XCP98000 page

Technical evidence record

Quantum with Concept and ProWORX, Hardware Reference Manual - 35013379, 12/2013

Quantum CPU programming-software compatibility - FA309888

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