Installation & Configuration Guide

MIQ-IO12F • MIQ-IO24F |

Document status: DRAFT. Electrical ratings, wiring limits, fuse coordination, component suitability and certification requirements are subject to verification. Not approved installation instructions for unrestricted commercial field use.

1 Intended function

MonitorIQ modules consolidate 24 VDC PLC sourcing-output protection, replaceable blade fuses, channel activity indicators and PLC common-source fuse protection into one open-type DIN-rail interface. Primary applications include relay coils and high-impedance control inputs. The modules do not generate, switch or regulate PLC outputs.

2 Models and connection groups

Feature	MIQ-IO12F	MIQ-IO24F
Fused signal paths	12 channels	24 channels (A: 1–12; B: 13–24)
Channel protection	1 A each (proposed)	1 A each (proposed)
PLC source protection	One source-fuse position	F25 (A) and F26 (B)
Supply indication	One PWR LED	PWR A and PWR B LEDs
Common-source jumper	Not applicable	J5; use only as described in §4
Approx. PCB outline	108 × 105 mm	108 × 155 mm
DIN carrier	PHCR-100 series	PHCR-150 series

3 Wiring function and limits

Interface	Purpose
PLC common-source supply	Separate source input / fused source output feeds PLC common-sourcing terminal(s). Supply current must pass through the selected source fuse.
CH input and output	PLC switched output → MonitorIQ channel INPUT → 1 A fuse → channel OUTPUT → external load.
Channel LEDs	Indicate asserted/energized channel status at the local sensing point; not dedicated blown-fuse indicators.
PWR indicators	Indicate voltage present at the respective fused source bus; do not establish PLC operation or load-current delivery.
0 V / load returns	Follow the PLC and field-device wiring instructions; not supplied by a general-purpose internal return bus.

Fuse format: standard ATO/ATC automotive blade fuse in black Keystone 3557-2 holders. The channel-fuse value is 1 A; 2 A and 4 A source-fuse values are proposed configuration ratings, not approved protection performance.

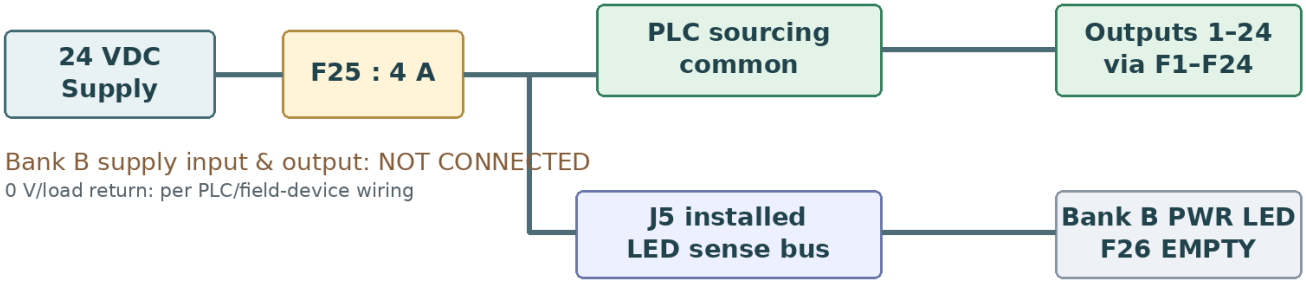
4 Supply configurations

F25/F26 protect the PLC 24 VDC common-source feed; F1–F24 protect the individual switched output paths. Source-fuse current is the sum of load currents actually supplied through that source feed. The module does not force PLC load currents to flow through the source fuses if the PLC is fed by other wiring.

Application	Source fuse(s)	J5	Source wiring
MIQ-IO12F — 12-channel PLC	One 2 A source fuse (proposed)	N/A	Connect 24 VDC supply to source input; connect fused source output to PLC source/common terminal.
MIQ-IO24F — dual-source / two 12-channel groups	F25 = 2 A; F26 = 2 A	REMOVE	Use dedicated Bank A and Bank B source feed paths. Keep independent supplies isolated.
MIQ-IO24F — one common-source 24-channel PLC	F25 = 4 A; F26 = EMPTY	INSTALL	Supply Bank A input; feed full PLC sourcing common through Bank A fused output. Bank B source input and output remain disconnected.

4.1 Common-source operation (MIQ-IO24F)

For a PLC module with one common 24 VDC sourcing connection serving more than twelve outputs, the proposed installation uses F25 as a 4 A common-feed fuse. F26 is omitted. J5 energizes the Bank B source-present LED from the Bank A fused bus. Since Bank B source input and output are unused, J5 is intended to carry Bank B indicator current only; switched channel currents flow through the PLC and their respective 1 A signal fuses.



Conceptual functional diagram only; terminals/pin numbering omitted.

4.2 Independent source operation

Remove J5. Install 2 A source fuses in F25 and F26. Connect each source feed and its fused output only to the intended corresponding PLC common-source group. Do not install J5 with two independent supply sources. Supply isolation and PLC power-input grouping must match the actual PLC module documentation.

5 Installation sequence

- De-energize and isolate the 24 VDC supply and all PLC / field power sources. Verify absence of voltage before wiring, replacing fuses or moving J5.
- Install the PCB/carrier on DIN rail within a suitable industrial electrical enclosure. Provide adequate clearance for wiring, fuses and ventilation.
- Identify the actual PLC module type: one shared 24 VDC sourcing common, or two independently supplied 12-channel groups.
- Select the applicable F25/F26 and J5 configuration from §4 before wiring. Verify F26 is empty and Bank B source terminals are unused in single-source MIQ-IO24F operation.
- Connect the fused source output(s) to the appropriate PLC sourcing common terminal(s), then wire PLC switched signals through matching channel INPUT and OUTPUT terminals to the loads.
- Connect load 0 V returns per the PLC and load manufacturers' instructions. Provide appropriate relay-coil transient suppression at the coils/sockets.
- Inspect terminal seating, polarity, conductors, fuse types/ratings and J5 location. Energize and verify supply and channel LED operation.

6 Functional verification / acceptance checklist

Check	Expected / record
Fuses installed	F1–F12 (or F1–F24): 1 A ATO/ATC. Source fuse value and quantity match selected configuration.
J5 and B source terminals	J5 position matches §4. With a common source, F26 absent and Bank B source terminals unused.
Indicators	PWR A/B follows intended bus voltage. Channel LEDs follow energized PLC output circuits; indicators are not fuse-health detectors.
Voltage and load	Verify proper 24 VDC at the PLC and load terminals, expected current at worst-case simultaneous operation and no excessive voltage drop.
Abnormal operation	Validate source short-circuit behavior, fuse time-current selectivity, PCB/terminal heating and supply recovery using controlled test fixtures.

7 Safety and engineering restrictions

- Open-type equipment: install only inside an appropriate industrial control enclosure; qualified personnel only. Do not replace fuses or move J5 while energized.
- Do not assume a 1 A, 2 A or 4 A fuse constitutes a hard current limit or guarantees isolation before the power supply enters current limit. Fuse interrupting rating and available fault current must be verified.
- The 1 A rating applies to each protected channel; it is not permission to draw 1 A from every channel simultaneously. PLC source limits, connector/wire ratings, PCB conductors, ambient temperature and supply limits apply.