Allen-Bradley 1762-IQ16

01 Record the slot and both common groups

Map terminal identity

Record the host controller, expansion position and full module series. Trace terminals 0–7 to their common and terminals 8–15 to the other common; identify separately supplied banks.

Retain program references

Save the accepted hardware configuration and input-address list. Label the field wires with the physical terminal and the machine function; a matching wire number alone does not confirm its controller address.

Position	Expansion slot and configured module agree
Bank 0	Inputs 0–7 and common identified
Bank 1	Inputs 8–15 and common identified

Why can moving 1762-IQ16 one expansion position change which machine function responds?

The expansion slot forms part of the controller input address. The terminal number still identifies the bit, but its slot prefix changes. Update and verify the hardware configuration and program references before returning the machine to service.

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02 Check sensor compatibility before termination

Measure both switching states

With the process in an approved maintenance state, verify the field supply and sensor output against the intended common. Record on-state voltage and off-state residual current under the actual connected load.

Inspect the conductor interface

Use the permitted copper conductor range, keep the fingersafe cover in place and secure each conductor under the pressure plate. Check torque and stray strands; do not allow adjacent terminals to share an unintended conductor.

Solid conductor	0.34–2.5 mm²; copper rated 90 °C
Stranded conductor	0.34–1.5 mm²; copper rated 90 °C
Terminal screw	0.90 N·m

Why might a two-wire sensor keep an input of 1762-IQ16 on after the sensor switches off?

Residual sensor current or an added indicator can keep the input above its off-state limits. Measure the actual off-state voltage and current with the sensor connected; select a compatible interface instead of assuming that a nominal 24 V sensor is suitable.

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03 Validate simultaneous thermal demand

Use the worst credible input pattern

List the maximum number of inputs that can be active at the same time, including abnormal process states. Compare the measured input voltage and local ambient with the permitted point count.

Check mounting and ventilation

Retain horizontal mounting, the prescribed surrounding clearance and the grounded mounting surface. Complete nearby drilling and wiring before removing the debris strip and energizing.

26.4 V / 55 °C	16 simultaneous points
26.4 V / 65 °C	12 simultaneous points
30 V / 55 °C	10 simultaneous points
30 V / 65 °C	8 simultaneous points

Can sixteen active inputs remain on 1762-IQ16 at 26.4 V DC and 65 °C?

No. The thermal chart permits twelve simultaneous points at that condition. Reduce the active-point load or change the approved thermal arrangement; do not average short inactive periods to justify an excessive simultaneous load.

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04 Prove the input image and event timing

Walk every point

Apply each approved field state separately and compare the terminal, module indication and controller input bit. Confirm that the intended function changes and that adjacent bits remain unaffected.

Test the shortest accepted event

Use a controlled event duration representative of the application. Compare the observed input and program response; a slow hand-operated switch test cannot validate a short sensor pulse.

Data word	Read-only word 0
Bit allocation	Bit 0–15 follows terminal 0–15
Expansion addressing	First expansion position is slot 1; embedded I/O is slot 0

Would a 4 ms pulse be reliably captured by 1762-IQ16?

Not from the module rating alone. The specified input on-delay can be as long as 8 ms, and controller scan timing adds another observation constraint. Use an approved pulse-capture or high-speed input solution when the event duration cannot satisfy the complete timing path.

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05 Restore interlocks and retain acceptance results

Remove temporary test conditions

Reconnect the actual field devices, remove temporary test sources and restore approved program conditions. Verify both common groups after all temporary wiring has been removed.

Release against recorded evidence

Retain input walk-test results, measured field voltage, operating temperature and the accepted simultaneous-point count. Confirm the controlled process response before ending the maintenance state.

Circuit	Correct polarity and commons retained
Program	No unintended force or temporary bypass remains
Handover	Module series, slot and test results recorded

Other automation product references

Foxboro P0922YU FPS400-24

Honeywell 10302/2/1

Honeywell CC-PCNT02 51454551-275

Independent references; no substitution or compatibility is implied.