# Allen-Bradley 1769-IQ32

## 01 32-point input architecture

## Product function

Allen-Bradley 1769-IQ32 is a 32-point, 24 V DC sinking/sourcing input module that transfers discrete field-device states to a Compact I/O controller system.

## At a glance

**32 field states**
Two sixteen-bit input words carry the full channel set.

**4 isolated groups**
Eight input points share each group common.

**24 V DC category**
Each group can use sinking or sourcing wiring.

**Individual indication**
Front-panel LEDs help trace the applied point states.

## Application context

Allen-Bradley 1769-IQ32 lets a machine panel arrange its input circuits in four electrically isolated groups, so each group can follow the polarity of its connected field devices.

## Input-group map

| Points | Common | Circuit |
|---|---|---|
| IN 0-7 | DC COM 1 | First eight-point circuit |
| IN 8-15 | DC COM 2 | Second eight-point circuit |
| IN 16-23 | DC COM 3 | Third eight-point circuit |
| IN 24-31 | DC COM 4 | Fourth eight-point circuit |

## Signal path

Field device → DC input terminal and group common → input state → Compact I/O bus → controller input image. Read the whole image before assigning machine status to the input data.

## Field and bus boundary

The field input circuits are isolated from the Compact bus. A field common is part of its input circuit and is not a substitute for chassis grounding. The module’s four-group architecture should remain visible in the wiring schedule.

## Physical interface

Removable finger-safe termination supports planned exchange of the module while retaining the field-wire arrangement. Tongue-and-groove guides and bus locking levers establish the adjacent-module connection.

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## 02 Electrical capability map

### Signal levels and loading

| Parameter | Value |
|---|---|
| Digital inputs | 32 |
| Input grouping | 4 isolated groups; 8 points per group |
| Signal category | 24 V DC sink/source |
| Operating input range | 10-30 V DC at 30 °C; 10-26.4 V DC at 60 °C |
| Maximum input delay | 8 ms ON; 8 ms OFF |
| Backplane current at 5.1 V | 170 mA |
| Maximum heat dissipation | 4.6 W |
| Maximum OFF-state voltage | 5 V DC |
| Maximum OFF-state current | 1.5 mA |
| Minimum ON-state voltage | 10 V DC |
| Minimum ON-state current | 2 mA |
| Maximum input inrush | 250 mA |
| Nominal input impedance | 5.2 kΩ at 24 V DC; 6.1 kΩ at 30 V DC |

### Isolation and data interface

| Parameter | Value |
|---|---|
| Isolation test | 1200 V AC or 1697 V DC for 1 s |
| Working isolation voltage | 75 V DC; IEC Class II reinforced insulation |
| Power-supply distance rating | 8 modules |
| Input data image | 2 words × 16 bits; read-only |
| IEC input compatibility | Type 1+ |
| Electronic identification | Vendor 1; product type 7; product code 68 |

### Interpreting the voltage ratings

The input operating range, OFF-state threshold and working isolation voltage describe different engineering limits. A dielectric test value is a short-duration insulation verification; it does not permit continuous operation at that voltage.

### Temperature matters

The upper operating input voltage decreases from 30 V DC at 30 °C to 26.4 V DC at 60 °C. Check the actual enclosure temperature and supply tolerance together when assessing a DC field circuit.

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## 03 Integration and field connections

## Wire and terminal data

| Connection | Value |
| --- | --- |
| Terminal screw torque | 0.68 N·m |
| Terminal-block retaining torque | 0.46 N·m |
| Solid conductor range | 22-14 AWG copper, 90 °C |
| Stranded conductor range | 22-16 AWG copper, 90 °C |
| Replacement terminal block | 1769-RTBN18 |

## Host-side integration

| Interface | Requirement |
| --- | --- |
| Compatible supply families | 1769-PA2, 1769-PB2, 1769-PA4, 1769-PB4 |
| Bus distance | No more than eight modules from the supply or controller |
| Input access | Two read-only words, sixteen bits per word |
| Bus termination | 1769-ECR right or 1769-ECL left end cap |

## Selection boundary

Check the total assembly current budget and the controller configuration before selecting a supply.

## Application examples

**Machine sequence feedback**
Collect limit-switch and proximity-sensor states for sequence logic that uses conventional discrete DC inputs.

**Grouped panel wiring**
Allocate different field circuits to separate input groups while keeping each group’s common and signal conductors together.

**Dense status acquisition**
Bring numerous equipment-ready, contact and position indications into one Compact I/O assembly.

**Maintainable I/O stations**
Use removable termination and individual indicators to support circuit tracing during planned service.

## Environmental conditions

| Condition | Value |
| --- | --- |
| Operating temperature | 0-60 °C |
| Storage temperature | -40 to 85 °C |
| Operating humidity | 5-95% RH, noncondensing |
| Enclosure rating | Open style |

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## 04 Technical questions and precautions

### Circuit and data decisions

**Can separate 1769-IQ32 input groups use different sinking and sourcing arrangements?**
Yes. The four isolated groups can operate in either configuration. Keep the polarity and DC common consistent within each group of eight; do not treat every point as an independently isolated circuit.

**Why does reading only word 0 leave some 1769-IQ32 signals out of the controller application?**
The input image contains words 0 and 1, with sixteen readable bit positions in each. The application must include both words to use all thirty-two input states.

**Which circuit should be checked when only inputs 16-23 on 1769-IQ32 stop responding?**
These eight inputs belong to the group using DC COM 3. Check that group’s field supply, common conductor and polarity before investigating the other three groups.

**How should two conductors be selected for one 1769-IQ32 wiring terminal?**
Each terminal accepts up to two conductors within the specified ranges: 22-14 AWG solid copper or 22-16 AWG stranded copper, with a 90 °C wire rating. Secure both conductors under the pressure plate and verify neither is loose.

### Installation precautions

| | |
|---|---|
| 01 | Isolate the controller-side supply and field circuits before inserting or removing the module. |
| 02 | Discharge static electricity before handling the bus connectors or circuit assembly. |
| 03 | Keep drilling debris and stripped conductor fragments out of the module openings. |
| 04 | Lock the module bus lever fully left after aligning the adjacent connectors. |
| 05 | Do not connect the DC input terminals to an AC power source. |
| 06 | Keep the finger-safe cover in place while terminating field wires. |
| 07 | Use a grounded metal mounting surface and keep the ventilation paths unobstructed. |
| 08 | Restore terminal identification labels so the complete channel-to-field-device mapping remains readable. |

### Check the point and the application

Check both halves of the input image against the terminal labels before releasing the machine to automatic operation.

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## 05 Service decisions and related portfolio

## Assembly and isolation decisions

**What terminates the Compact I/O bus when 1769-IQ32 is the last module?**
Fit and lock the appropriate 1769-ECR right end cap or 1769-ECL left end cap. A mechanically complete row still requires its bus terminator.

**Does the 1200 V AC isolation test make 1769-IQ32 suitable for a 1200 V operating circuit?**
No. That value is a one-second dielectric test, not a continuous operating rating. The working isolation voltage is 75 V DC, and the field inputs remain low-voltage DC circuits.

**Can the wired terminal block be detached while replacing a 1769-IQ32?**
Yes, after power is removed. Identify the terminal block's left or right position, loosen its retaining screws, and retain the existing field-wire assignments while the module is exchanged.

**Why must the neighboring bus lever be released before a mounted 1769-IQ32 is withdrawn?**
The right-hand neighboring module is mechanically and electrically connected to the unit being removed. Unlock that connection as well as the target module's lever before sliding the module forward, then relock both interfaces after replacement.

## Do not substitute ratings

The insulation test does not change the DC input voltage category. Check both the signal range and the working isolation boundary.

## Acceptance record

Keep each tested terminal number with its group common, input-word assignment and observed equipment state. This makes a later wiring or software change traceable to the physical signal that was checked.

## Related catalogue pages

**Allen-Bradley 1769-L19ER-BB1B**

**Allen-Bradley 1769-PB4**

**Allen-Bradley 1769-IQ16K**

## Catalogue navigation

These links open other Allen-Bradley catalogue pages. Review each product independently for its own technical function and system requirements.

## Reference identity

Technical basis: Rockwell Automation 1769-IN032A-EN-P (April 2003), pp. 3-15; 1769-TD006H-EN-P (November 2023), pp. 2, 14.

## Technical enquiry

For a circuit review, include the complete module model, controller type, input group, field-device polarity and the measured DC signal conditions.