Installation Instructions

Original Instructions

Allen-Bradley
by ROCKWELL AUTOMATION

Guardmaster®

GuardLink EtherNet/IP Network Interface

Catalog Number 432ES-IG3

Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Updated mounting hardware to M3 (#4)	Throughout
Updated step 3	2
Updated Wire the Module	2
Updated Table 5, Table 6, and Table 7	3

⚠️ **ATTENTION:** Understand the installation, wiring instructions, and requirements of all applicable codes, laws, and standards. In accordance with applicable codes of practice, suitably trained personnel are required to install, adjust, put into service, use, assemble, disassemble, and/or maintain this equipment. The protection that is provided by this equipment can be impaired if the equipment is used in a manner outside of manufacturer specifications.

Product Overview

Figure 1 - Approximate Dimensions [mm (in.)]
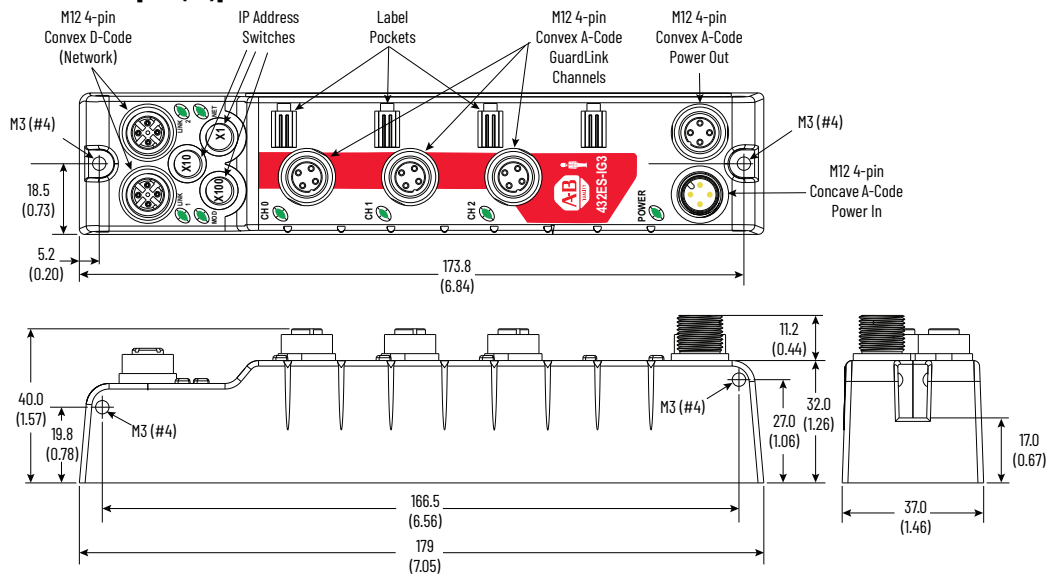
Assign Network Address

The 432ES-IG3 network interface must be assigned a fixed (static) address to maintain continued communication with the network. The network address is set with the three switches: X100, X10, and X1.

Value	Description
000	Clear Explicit Protected mode
001…254	Network address (192.168.1.X100 X10 X1)
888	Factory reset
900	Set explicit protected mode [1]
999	DHCP
All others	Do not use

(1) When Explicit Protective mode is set, explicit messages that affect the operation of the device are blocked. Examples of blocked messages are changes to the IP address, reset of the module, and update of the firmware. Explicit messages can fetch diagnostic information.

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There are four ways of assigning the network address:

1. Use the X100, X10, and X1 rotary switches to set the network address.
2. Use the Rockwell Automation BootP/DHCP tool, version 2.3 or later, which ships with the Studio 5000® environment (RSLogix 5000® software).
3. Use FTLinx software.
4. Have your network administrator configure the network interface via the network DHCP server.

If the 432ES-IG3 network interface is replaced, use the BOOTP/DHCP tool to assign the network address to the MAC ID of the new network interface.

Perform the steps in before you change the IP address from a private address to a non-private address, or vice versa.

Reset to Factory Default and Protective Mode

At any time, you can set the 432ES-IG3 network interface to the factory default, or set or clear the Protective mode, by the following steps:

1. Turn off power to the 432ES-IG3 network interface.
2. Set the X100, X10, and X1 rotary switches:
   - 888 to reset to factory default
   - 900 to set explicit Protective mode
   - 000 to clear explicit Protective mode
3. Apply 24V DC to the 432ES-IG3 network interface.
4. After 5 seconds, the module status indicator blinks red. All other indicators are off.
5. Assign the new network address by setting the X100, X10, and X1 rotary switches.
6. Apply 24V to the 432ES-IG3 network interface.

Wire the Module

> ⚠ **ATTENTION:** Disconnect power to the system before installation or device wiring.

> ⚠ **ATTENTION:**
> - Calculate the maximum current in each power and common wire.
> - Observe all electrical codes that dictate the maximum current allowable for each wire size.
> - Current above the maximum ratings can cause wiring to overheat, which can cause damage.

- Do not run signal or communications wiring and power wiring in the same conduit. Route wires with different signal characteristics by separate paths.
- Separate wiring by signal type. Bundle wiring with similar electrical characteristics together.
- Use tape, shrink-tubing, or other means to label wiring to all devices in the system. Use colored insulation to identify wires based on signal characteristics. For example, use blue for DC wiring and red for AC wiring.
- Use the internet switch sealing caps and the M12 protective caps to maintain an IP69K seal and help protect unused ports.

> **IMPORTANT** Fault exclusions for conductors and wiring must follow the requirements of EN ISO 13849-2 Table D.3 and D.4.
>
> A fault exclusion can reduce the overall safety rating of the related safety function to a maximum of PLd per EN ISO 13849-1.

Pinouts

Table 1 - Power In (M12 4-pin A-Code Convex)

View	Pin	Description
	1	Output power +24V DC
	2	Module power +24V DC
	3	Module power 0V
	4	Output power 0V

Table 2 - Power Out (M12 4-pin A-Code Concave)

View	Pin	Description
	1	Output power +24V DC
	2	Module power +24V DC
	3	Module power 0V
	4	Output power 0V

Table 3 - GuardLink Channels 0…2

View	Pin	Description
	1	24V DC
	2	GuardLink® safety signal
	3	0V
	4	CLU - Control Lock Unlock

Table 4 - Ethernet Links

View	Pin	Description
	1	Tx Data+
	2	Rx Data+
	3	Tx-
	4	Rx-

Status Indicators

Indicator	Status	Description
Module status (MOD)	Off	Module is not powered.
	Flashing red/green	Module is not configured, or module is in self-test.
	Flashing green	Module is idle. Waiting for connection from controller.
	Steady green	Module is powered, configured, and operating correctly (Running mode).
	Flashing red	Update in progress (Configuration mode). IP/ Target Unique Network Identifier (TUNID) mismatch - reset ownership with controller. Recoverable fault - cycle power to reset. Special modes: 000 - Disable explicit protection 888 - Restore factory default 900 - Set explicit protection
	Steady red	Unrecoverable fault detected (Critical Fault mode). Cycle the power and verify that the network is working properly.
Network status (NET)	Off	The module does not have an IP address and is operating in DHCP mode. Special modes: 000 - Disable explicit protection 888 - Restore factory default 900 - Set explicit protection
	Flashing red/green	250 ms flashing - Receiving target unique network identifier 500 ms flashing - Communications fault
	Flashing green	The module has an IP address, but no CIP™ connections are established. A module connection can be inhibited.
	Steady green	The module has an IP address and CIP connections are established; operating normally.
	Flashing red	An exclusive owner connection has timed out.
	Steady red	The module detected an error that prevents it from communicating on the network, such as a duplicate IP address is detected.
LINK1 or LINK2 status	Off	No link/no activity.
	Steady green	Link established.
	Flashing green	Transmit or receive activity.
Ch0...Ch2 status	Off	No GuardLink communications established.
	Green	Communication OK, operating normally.
	Flashing red/green	The client is updating on this link. The link is in a safe state.
	Flashing red	Incorrect configuration, fault on a tap or client, or short circuit happened on this link. Client number mismatch or GuardLink-enabled device mismatch.
	Red	Channel is in Safe mode. One or more clients are in the off-state.
Module power	Off	No power is applied.
	Steady green	Normal operation (20.6...26.4V)
	Steady red	Input power out of specification (outside of 20.4...26.4V)

Specifications

Table 5 - General Specifications

Attribute	Value
Power supply voltage	24.0V DC +10/-15% NEC Class 2 (max 4-amp supply), PELV - use SELV when alternative ground fault detection is used
Power supply cable length, max	30 m (98.42 ft)
Current (module)	80 mA/24V
Comm rate	EtherNet/IP™ 10/100 Mbps
Internet Protocol	IPv4 addressing
CIP Sync™	CIP sync/IEEE 1588 end-to-end transparent clock supported
CIP (safety) standards	IEC 61784-3-2: Functional safety field buses IEC 61158-1: Overview and guidance IEC 61158-3-2: Datalink layer service definition IEC 61158-4-2: Datalink layer protocol specification IEC 61158-5-2: Application layer service definition IEC 61158-6-2: Application layer protocol specification

Table 6 - Environmental Specifications

Attribute	Value
Operating temperature	-20...+60 °C (-4...+140 °F)
Storage temperature	-40...+85 °C (-40...+185 °F)
Relative humidity	Up to 95% (noncondensing)
Enclosure type rating	IEC 60529 • IP20 (unused ports unplugged) • IP66/67/69K (unused ports plugged)
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Emissions	CISPR 11 Group 1, Class A
ESD immunity	IEC 61000-4-2
RF immunity	IEC 61000-4-3
EFT immunity	IEC 61000-4-4
Surge transient immunity	IEC 61000-4-5
Conducted RF immunity	IEC 61000-4-6

Table 7 - Mounting Specifications

Attribute	Value
Screw torque	0.68 N•m (6 lb•in)
Screw size	M3 (#4) pan head
High vibration	Use a lock washer on top of a flat washer
Covers torque	0.15 ±0.005 N•m (1.3 ±0.04 lb•in)

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	rok.auto/support
Knowledgebase	Access Knowledgebase articles.	rok.auto/knowledgebase
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

Documentation Feedback

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Waste Electrical and Electronic Equipment (WEEE)

At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

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