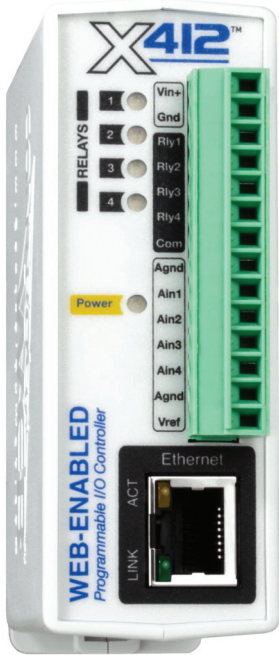


PRODUCT OVERVIEW



The X-412™ four analog input and four relay module is ideal for taking sensor data and building control logic to operate equipment such as motors, actuators, lights, and more. This I/O combination is especially useful in liquid and gas process control environments. Like all 400 series modules, the X-412 is easy to use and can seamlessly integrate into an existing control system.

Access the X-412 through a simple web browser—no software required. Communicating with the device is also easy; it uses common protocols such as Modbus TCP/IP, HTTP/S, and SNMP. It can also serve an XML or JSON file with current I/O data. These flexible options work with most SCADA software, cloud environments, PLCs, and other industrial control systems.

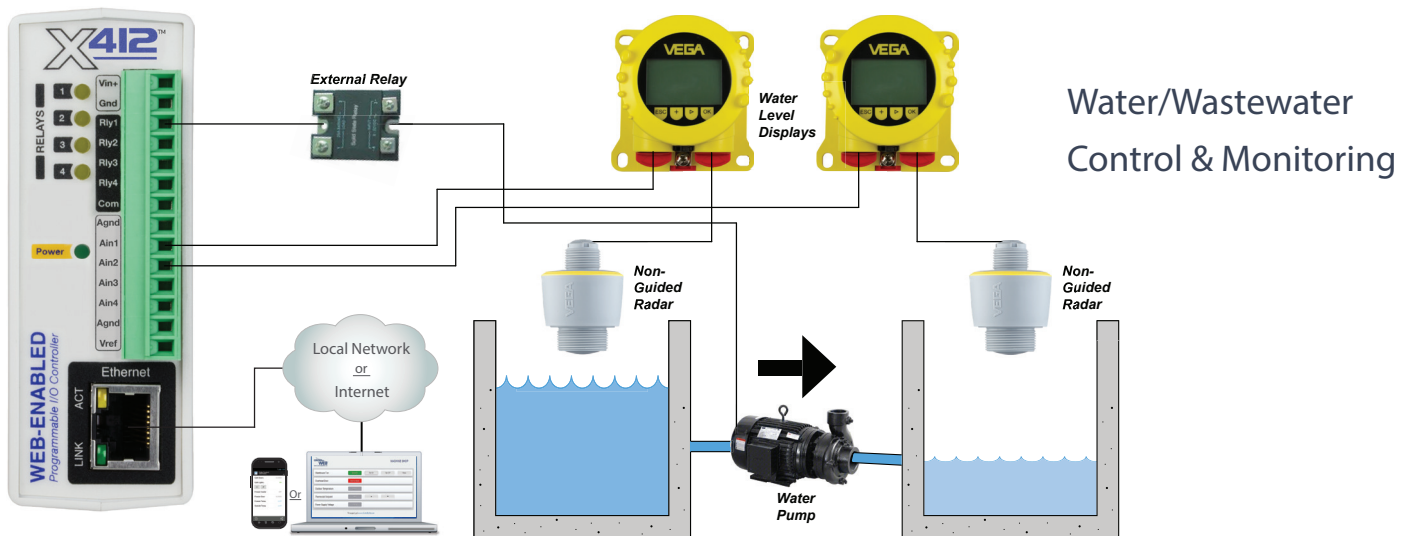
A strength of our 400 series devices is the no-code, on-board logic that allows the X-412 to be used as a standalone edge controller. The logic is fast to deploy and has proven to be reliable in the field over many years. Proprietary peer-to-peer communication allows a network of ControlByWeb devices with on-board logic to operate independently or integrate with nearly any local or remote control system. The X-412 has no operating system or file structure, making it naturally resilient to cyber attacks. It supports TSL V1.2 encryption and HTTPS connections for encrypted emails and P2P communication. We work with third-party consultants to ensure our devices are highly secure.

X-412 Features:

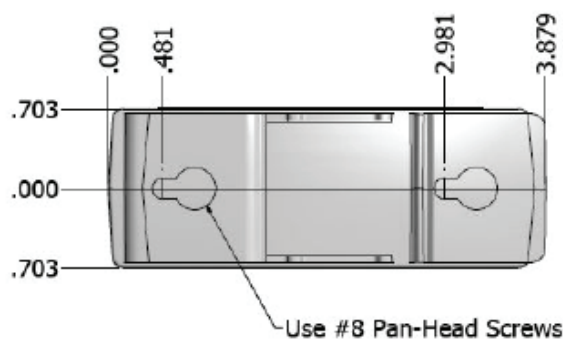
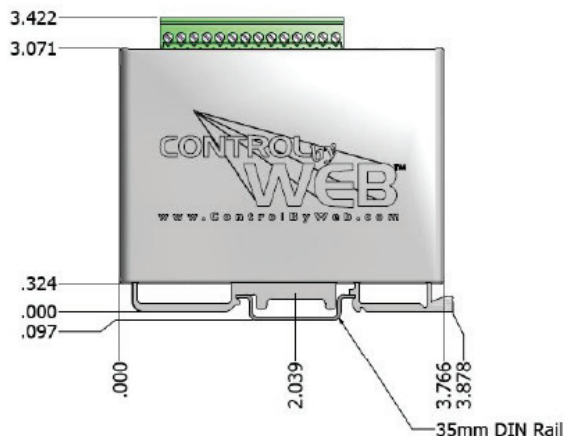
- Four electro-mechanical relays (shared common) independently controlled
- Four analog inputs (shared ground)

400 Series Features:

- Peer-to-peer network to control, monitor, and log 32 remote modules, or up to 64 I/O
- User Permissions: Admin, Manager, User
- Optional ControlByWeb Cloud service for logging, device data, and reports
- Send email alerts based on user-defined conditions
- Highly configurable - Almost any combination of input/relay control possible
- No software required
- Customizable web-based Control Page
- BASIC script support for advanced flexibility
- Configurable logging
- HTTPS/TLS encrypted
- Modbus, SNMP, Remote Service, IP Filtering
- 5-Year Warranty



APPLICATIONS & SPECS



*Dimensions are shown in inches

Power Requirements

- **Voltage:**
 - X-412-I: 9-28 VDC
 - X-412-E: POE and/or 9-28VDC
 - X-412W-I: 9-28VDC
 - X-412CW-I: 9-28VDC
- **Max Current:** 295mA

Relays

- **Number of Relays:** 4
- **Max Voltage:** 28VAC, 24VDC
- **Max Current:** 1A
- **Contact Type:** SPST (Form 1A) - All relays have a shared common
- **Load Type:** General Purpose
- **Contact Resistance:** 1 milliohm max
- **Contact Material:** AgNi
- **Electrical Life:** 100K operations (Min)
- **Mechanical Life:** 5M cycles (Min)
- **Environmental Rating:** Over voltage Category II, Pollution Degree 2
- **Relay Modes:** ON/OFF or Pulsed
- **Pulse Timer Duration:** 0.1 to 86,400 Seconds (1-day)

Analog Inputs

- **Number of Inputs:** 4
- **Resolution:** 16-bit, SAR
- **Type:** Single-ended, differential, 4-20mA (0-20mA), or a combination
- **Input Range:** ±1.28V, ±2.56V, ±5.12V, ±10.24V
- **Max Input Voltage (Vin):** -12.5V < Vin < +12.5V
- **Input Impedance (Zin):** > 500Meg Ohm
- **Channel Off Leakage:** ±0.6nA (typ)
- **Input Common Mode Rejection:** >100dB
- **Total Unadjusted Error:** -9LSB (min), +9LSB (max)
- **Voltage Reference Drift:** ±5 ppm/°C
- **Internal 4-20mA input shunt:** 200-ohm, ±0.1%, 25ppm (uses ±5.12V range)
- **Logging Rate:** 25 Hz

Real-Time Clock

- Manual or NTP(Network Time Protocol) setup
- **NTP Sync Period:** Once, Daily, Weekly, On Power-up
- Auto Daylight Savings Adjustment

Capacitor Power Backup

- **Backup Functions:** Retain Real-Time Clock, External Variables, Relay State, and Counters
- **Backup Duration:** 24 hours

Network

- **Type:** 10/100 Base-T Ethernet Port
- **Setup:** Static IP address assignment. TCP port selectable
- **Wireless:** WiFi Communication (X-412W/CW models only)
- **Cellular:** Cellular Modem (X-412CW model only)

Connectors

- **Power/Input/Relays:** 14-Position, 3.81mm, Removable
- **Network:** 8-pin RJ-45
- **Cell Antenna:** Male SMA Connector (X-412CW model only)

LED Indicators

- **Number of LEDs:** 7
 - Power on
 - Relay coil energized 1-4
 - Network linked
 - Network activity

Physical

- **Operating Temperature:** -40°F to 150°F (-40°C to 65.5°C)
- **Size:**
 - 1.41in (35.7mm) wide
 - 3.88in (98.5mm) tall
 - 3.1in (78mm) deep (not including connector)
- **Weight:** 5 oz (142 grams)
- **Enclosure Material:** Lexan 940 Polycarbonate Plastic
- **Enclosure Flame Rating:** UL94 V0

Protocols

- HTTP, HTTPS, SSL, XML, JSON, Modbus TCP/IP, SNMP, SMTP, Remote Services

Logging

- **Log File Size:** 3072K (up to 50,688 log entries depending on configuration)
- **Storage:** Nonvolatile Flash
- **Buffer Architecture:** Circular Buffer
- *Log data can be periodically read and stored on a computer*

Advanced Features

- Task Builder
 - 50 Scheduled Tasks
 - 50 Conditional Tasks
 - 16 Automatic Reboot Tasks
 - 20 Override Schedules
- BASIC interpreter
- Remote services

Password Settings

- **Password protection on setup page:** Yes
- **Password protection on control page:** Optional
- **Password Encoding:** Base 64
- **Max Password Length:** 18 Characters

Electromagnetic Compliance

- IEC CISPR 22, CISPR 24
- EU EN55024, EN55022
- X-412-I: FCC 47CFR15 (Class B)
- X-412-E: FCC 47CFR15 (Class A)

