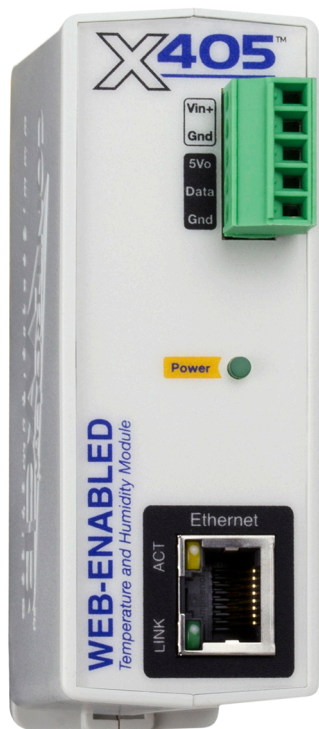## PRODUCT OVERVIEW

The X-405™ is a fully-featured, web-enabled temperature and humidity module that targets industrial applications.

Sensor values can be monitored over any TCP/IP network including private networks, IP-based industrial control networks, and the Internet. Users can operate the X-405 using a web browser, the CBW Mobile app, or custom applications written for a computer, PLC, or other automation controller.

The X-405's built-in interface allows you to create custom "Tasks" for simple and advanced control logic.

Create tasks based on time, or sensor status. The X-405 also has a built-in BASIC interpreter for custom applications not achievable through the Task Builder system.

Other features are also included such as, email notification, and logging. The X-405 can control and monitor up to 32 remote devices, graph logged data, FTP logged data, email logged data, send encrypted emails, and monitor its power supply voltage.

The X-405 supports a number of Ethernet protocols including: HTTP/HTTPS, Modbus/TCP, SNMP V1,V2 & V3, NTP, SMTP(Encrypted), and FTP/FTPS. The status of the device can be retrieved in human readable formats XML and JSON.

The X-405 supports TLS V1.2 encryption as well as cloud integration(not required) for easier configuration and access. Specifically the X-405 supports HTTPS connections, can send encrypted emails, can communicate with remote devices using TLS, and send logged data to FTP servers over an encrypted connection.

In addition, the X-405 can be configured to automatically connect to ControlByWeb.cloud, ControlByWeb's cloud service. This feature is not required, but does simplify the configuration process and internet access to an X-405 installed behind a network router by eliminating manual configuration of the device and port forwarding setup on routers.
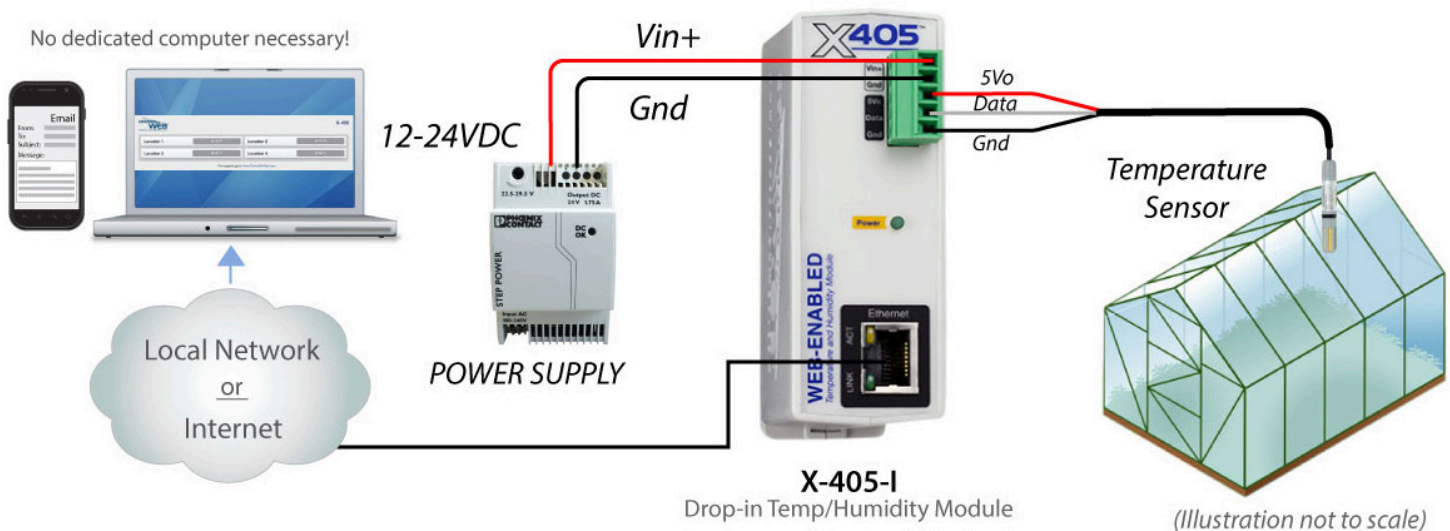
Features:

- 1-Wire Bus for up to 16 sensors (temperature, humidity, etc.)
- Monitor,log, and control up to 32 remote modules, or up to 100 I/O
- User Permissions: Admin, Manager, User
- Tasks
    - 50 Scheduled
    - 50 Conditional
    - 20 Override Schedules
- Send email alerts based on user-defined conditions (supports encrypted email servers, such as Gmail)
- Real-Time Clock with NTP server synchronization
- Automatic daylight savings and leap year adjustment
- No software required
- Customizable web-based Control Page
- BASIC script support for advanced flexibility
- Configurable logging
- Graphing (logged data)
- HTTPS/TLS encrypted
- Static or DHCP IP address configuration
- Modbus, SNMP, Remote Service, IP Filtering
- Field updatable
- Rugged DIN-Rail/wall-mountable enclosure

Example Control Page

Greenhouse Temperature & Humidity Monitoring

No dedicated computer necessary!

Local Network or Internet

12-24VDC

Vin+

Gnd

5Vo
Data
Gnd

POWER SUPPLY

Temperature Sensor

X-405-I
Drop-in Temp/Humidity Module

(Illustration not to scale)

Power Requirements

- **Voltage:**
  - X-405-I: 9-28 VDC
  - X-405-E: POE and/or 9-28VDC
- **Max Current:** 240mA

Temperature Sensors

- **Maximum Number of Sensors:** 16
- **Type:** Dallas Semiconductor DS18B20
- **Temperature Range:** -67°F to 257°F (-55°C to +125°C)
- **Accuracy:** ±0.5°C (from -10°C to +85°C)
- **Sensor Functions:** Monitor Temperature, Log Temperature, Email Alerts, SNMP Traps
- **Humidity Type:** Xytronix Model X-DTHS-P sensor
- **Humidity Range:** 0-100% RH
- **Accuracy:** ±2%
- **Max Cable Length:** 600 feet (180m) maximum combined cable length

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:** 3 days minimum

Network

- **Type:** 10/100 Base-T Ethernet Port
- **Setup:** Static IP address assignment. TCP port selectable

Connectors

- **Power/Input/Relays:** 14-Position, 3.81mm, Removable
- **Network:** 8-pin RJ-45

LED Indicators

- **Number of LEDs:** 3
  - Power on
  - 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, Modbus TCP/IP, SNMP, SMTP, Remote Services

Logging

- **Log File Size:** 512K (up to 8,448 logs)
- **Storage:** Nonvolatile Flash
- **Buffer Architecture:** Circular Buffer
- *Log data can be periodically read and stored on a computer*

Advanced Features

- Task Builder
- 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-405-I: FCC 47CFR15 (Class B)
- X-405-E: FCC 47CFR15 (Class A)

Product Safety Compliance

- IEC 61010-1

CE