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# Model Series X40

## Gas Detection Alarm & Control Systems



Catalog #X40-1004

[www.detcon.com](http://www.detcon.com)  
ISO 9001:2000 • Certified

# M Model Series X40 Control Systems

## Description

**Detcon Model Series X40** systems are a family of control products that supervise from 1 to 8 inputs, display the real time status of each input and output critical alarm action in accordance with user configurable requirements. Each system is housed in a NEMA 4X weather proof enclosure. The product series includes a Model 140-N4X, Model 240-N4X, Model 440-N4X and Model 840-N4X, respectively a single, dual, four and eight channel input capacity. The design is a microprocessor based control circuit that can supervise and display the condition of virtually any type of field mounted gas detection sensor or process control function with a 4-20mA analog signal, a serial RS-485 output or a contact closure. Gas sensor types include combustible gas, oxygen deficiency, and more than 40 toxic compounds. Process inputs include, but are not limited to, temperature, humidity, pressure, liquid level, and flow. Additional safety devices such as stand alone thermal detectors, smoke detectors and flame detectors can also be incorporated into a system application. The controller is completely user programmable. A backlit alpha/numeric display provides real time reading and status for each field device. The display is also used to provide simple menu driven operator interface during system programming including type of input, range of sensitivity, alarm level adjustment and alarm relay configuration. One of the unique features of Model X40 control systems is logging of calibration and alarm history. Historical calibration and alarm data can be displayed on the LCD or the data can be downloaded to a PC via the RS-232 serial port.

## Typical Applications

### Oil and Gas Industry

- ▶ Remote Well Sites
- ▶ Small Treating Plants
- ▶ Offshore Production Platforms
- ▶ Tank Farms
- ▶ Gas Metering Stations

### Refining and Petrochemical

- ▶ Analyzer Shelters
- ▶ Skid Mounted Process Manifolds
- ▶ Control Room Air Quality Monitoring
- ▶ Loading Racks
- ▶ Flare Stacks

### Municipal, Waste Water and Sewage Treatment

- ▶ Chemical Feed Systems (Chlorine, Sulfur Dioxide)
- ▶ Confined Space Monitoring (Wet wells, Dry Wells)
- ▶ Digesters and Waste Treatment Plants

### Other Industrial Applications

- ▶ Underground Vaults
- ▶ Fence Line Monitoring
- ▶ Beverage and Bottling Processes
- ▶ Indoor/Outdoor Air Quality
- ▶ Laboratories
- ▶ Pulp and Paper Mills
- ▶ Fruit and Produce Processing
- ▶ Green House Monitoring and Control

## Monitoring and Control Options

### Gas Detection Sensor Technology

- ▶ **Combustible Gas**  
Catalytic & Infrared
- ▶ **Hydrogen Sulfide Gas**  
Solid State MOS & Electrochemical
- ▶ **Toxic Gas**  
Electrochemical & Photo Ionization
- ▶ **Oxygen Deficiency/Enrichment**  
Air Battery Electrochemical

### Process Controls

- ▶ Pressure
- ▶ Temperature
- ▶ Humidity
- ▶ Flow
- ▶ Liquid Level

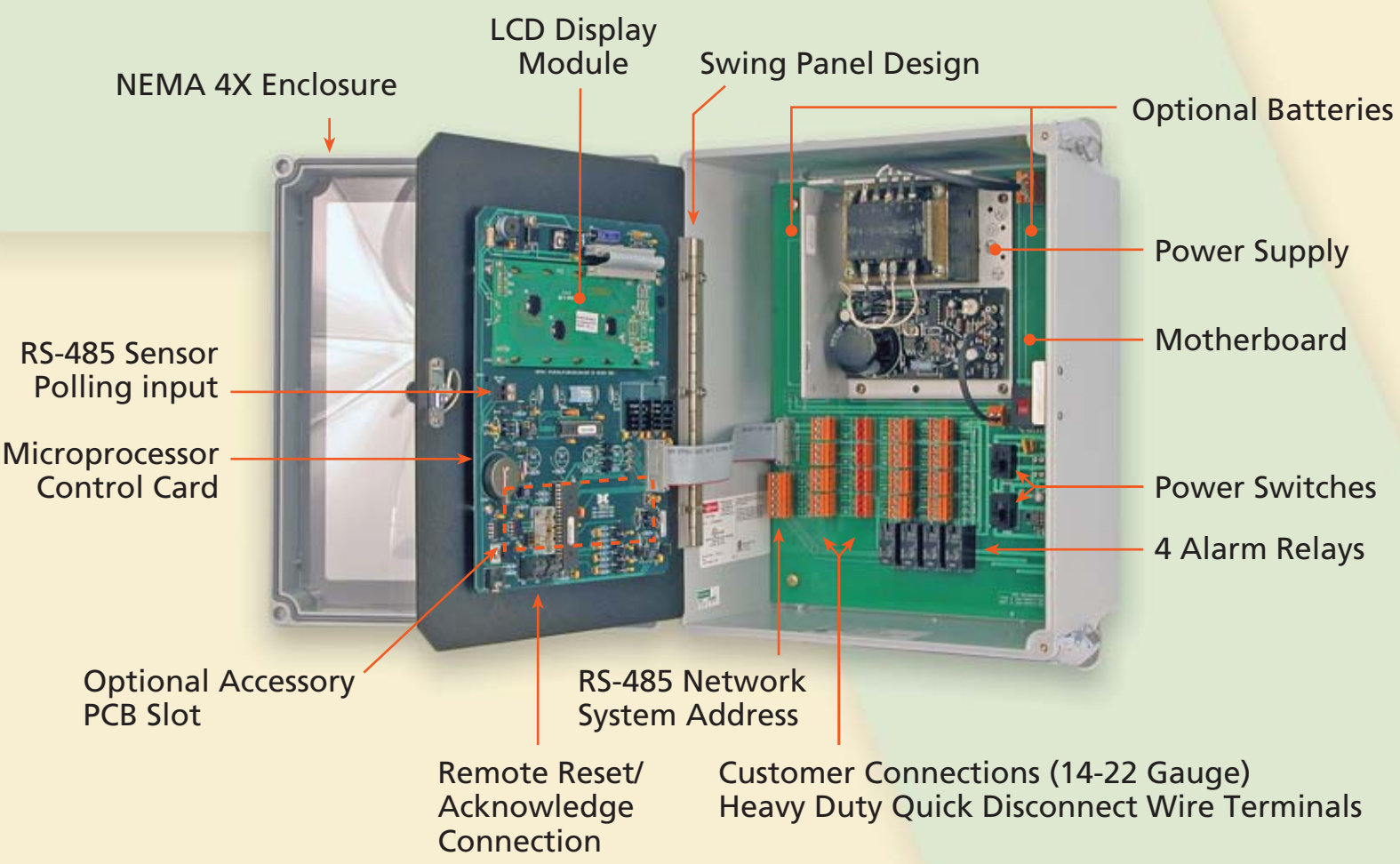
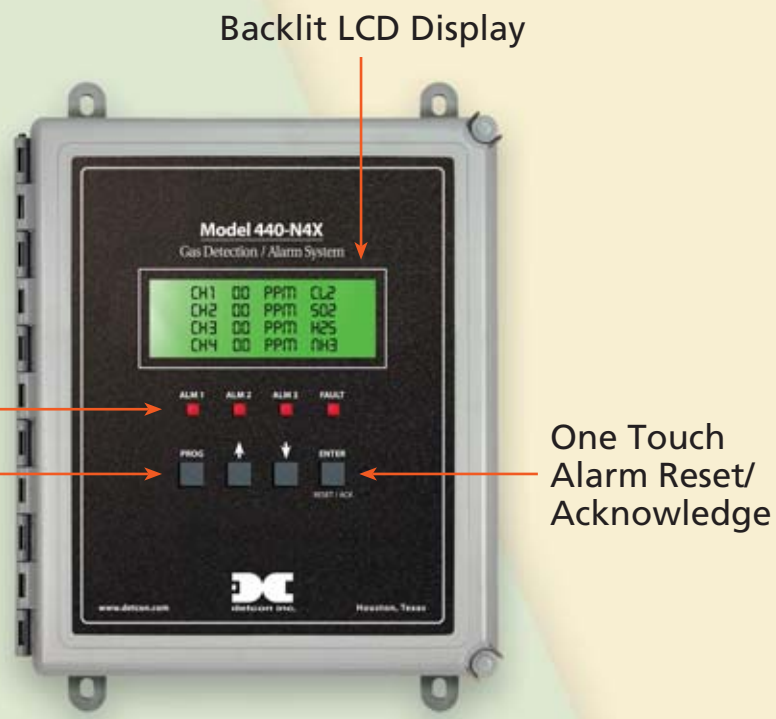
### Safety Controls

- ▶ Intrusion
- ▶ Thermal
- ▶ Smoke
- ▶ Flame

# Anatomy of an X40 Controller

## Design Features

- ▷ Fully Field Programmable
- ▷ Simple User Interface
- ▷ Full Data Logging Capability
- ▷ Totally Modular Design
- ▷ Readily Field Replaceable Subassemblies
- ▷ Flexible Integration Options
- ▷ Built for Industrial Environments



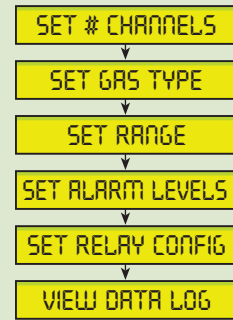
# T echnology Features

## Simple Intuitive User Interface

The X40 Series controllers are 100% field programmable. This is accomplished via four push buttons and a large backlit LCD screen. Simply hit the "PROG" button to initiate the menu and set-up for gas type, range, alarm setting, and relay configurations is completely intuitive. The unit features a one-touch alarm acknowledge/reset function and alarm status LED indicators.



### Menu Tree



## Wide-Range Sensor Input Capability

The X40 Series controllers allow for the direct labeling of any sensor input type by selecting range and then using an adjustable 10 character field for sensor "Type/Units". Contact closure inputs are displayed as OK or Alarm. Modbus RTU serial sensor inputs are also fully compatible with the X40 Series controller.



### 4-20 mA Transmitters

Gas Sensors  
Temperature Sensors  
Pressure Sensors  
Humidity Sensors  
Flow Sensors

### Contact Closures

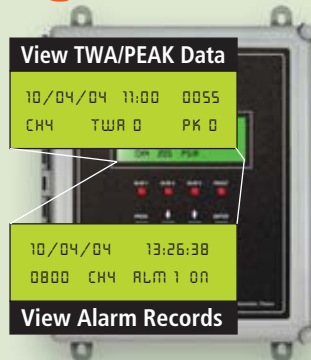
Smoke Detectors  
Thermal Detectors  
Intrusion Sensors  
Flame Detectors

### Modbus Serial Input

Any Sensor

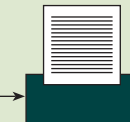
## Embedded Data Logging

The X40 Series controllers include a data logging feature capable of meeting standard Health and Safety recording requirements. TWA and Peak readings are continually logged and date/time stamped each hour and saved for 30 days minimum in a FIFO arrangement. Alarm incidents are also logged as they are recorded. TWA/Peak data can be downloaded for external graphical presentation or sent to a local serial printer.

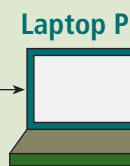


### Serial Printer

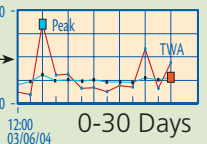
RS-232 Port



RS-232 Port



### TWA/Peak Trends



Excel Graphing

## Versatile I/O for Flexible Integration

The X40 Series controllers provide an extensive list of Input and Output capabilities that allow for use in almost any control system integration design. Standard outputs include Common Alarm Relays and Modbus Interface. Optional Outputs include 4-20 mA, Webserver Interface, and an Alarm Voting Module. The RS-232 port is standard and is used for uploading configuration data or downloading Data Logging results.

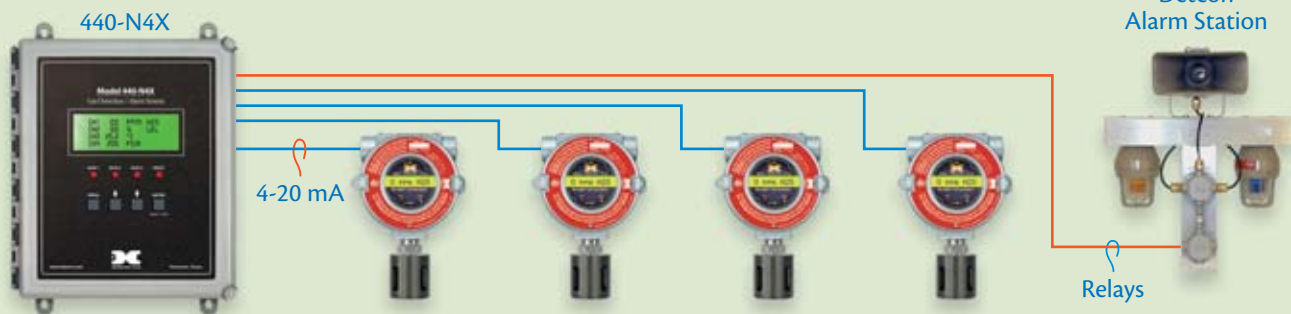


- Common Alarm Relay Contacts (x4 SPDT)
- RS-485 Modbus Interface to RTU/SCADA/DCS
- Local Annunciators
- RS-232 Data Log Download
- 4-20 mA Outputs
- Webserver Output via LAN or Internet
- Alarm Voting Module
- ← 4-20 mA Inputs
- ← Modbus Sensor Serial Inputs
- ← RS-232 Data Configuration

# Installation & Integration Options

**Model X40 Series** control system features include the option to utilize either hard wire 4-20 mA or RS-485 serial input from field devices. An additional feature is the ability to create simple and economical remote display of real time readings.

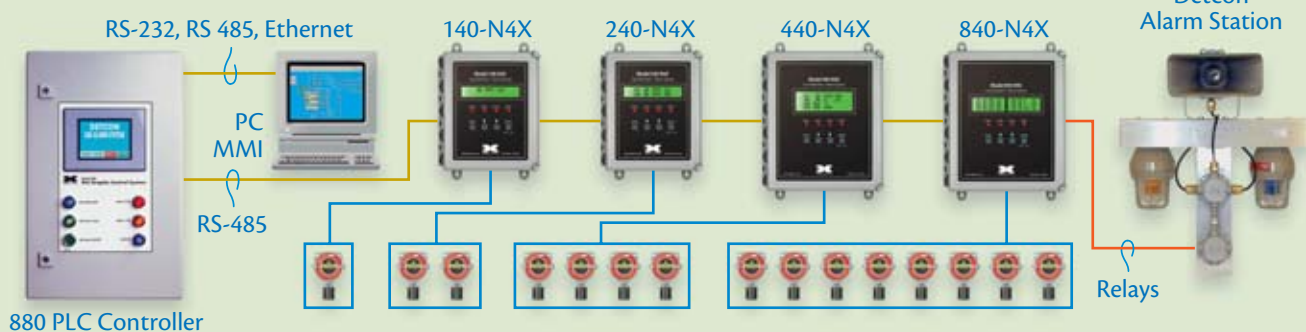
## 4-20 mA and Alarms



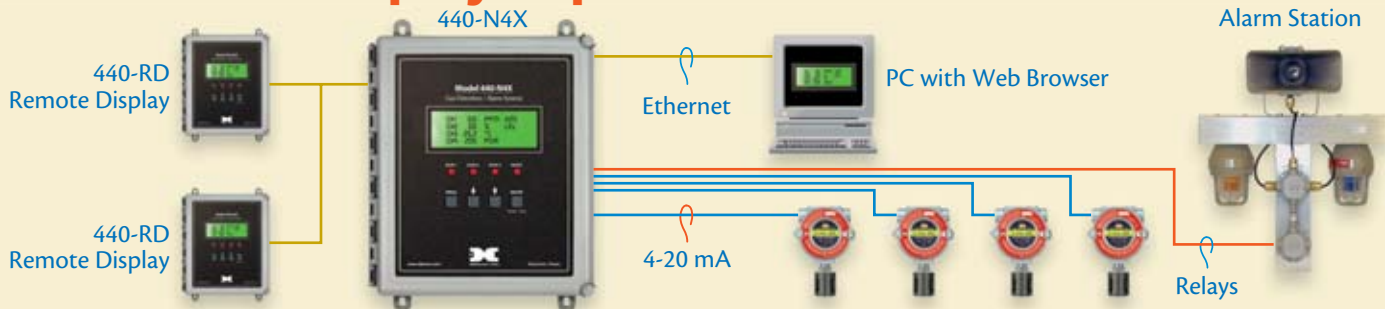
## RS-485 and Alarms



## Serial Network



## Remote Display Capabilities



# Ordering Information

## Model # Description

<b>140-N4X</b>	Single Channel gas detection and alarm system in NEMA 4X enclosure.
<b>240-N4X</b>	Dual Channel gas detection and alarm system in NEMA 4X enclosure.
<b>440-N4X</b>	Four Channel gas detection and alarm system in NEMA 4X enclosure.
<b>840-N4X</b>	Eight Channel gas detection and alarm system in NEMA 4X enclosure.

## Options/Accessories

NEMA 7 and NEMA 1 Packages  
4-20 mA Output  
1 Hour Battery Backup  
Integral Horn/Strobe  
Remote Display  
Alarm Logic Module  
Web Server PCB Interface

## Specifications

### Electrical Classification

NEMA 4X Weatherproof

### Dimensions

9"W x 12"H x 6.5"D (140-N4X & 240-N4X), 11"W x 14"H x 6.5"D (440-N4X & 840-N4X)

### Input Voltage

117/220 VAC and/or 11.5 to 28 VDC

### Power Consumption (maximum)

12 watts @ 24 VDC (all models), 26 watts @ 120VAC (all models)

### Indicators

Alarm Condition LEDs, Backlit Alpha/Numeric LCD

### Input

Analog 4-20 mA DC, RS-485 Serial, Contact Closure

### Outputs

RS-485 Serial, 4 SPDT Alarm Relays (rated 5 amp @ 30 VDC/250 VAC): Alarm 1, 2, 3, & Fault

### Operating Temperature Range

-40°F to +167°F; -40°C to +75°C

### Warranty

One Year

## Warranty

Detcon Inc. warrants each new X40 Control System to be free from defects in material and workmanship under intended normal use for a period of one year from the date of shipment to the original purchaser. All warranties are FOB the Detcon factory located in The Woodlands, Texas, USA.