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detcon

Model Series 1600/6400

Distributed Gas Detection Alarm & Control Systems

detcon inc.

Catalog #1600-1206

www.detcon.com

ISO 9001:2000 • Certified

Model Series 1600/6400 Control Systems

Description

Detcon Model 1600 and Model 6400 are multi-channel gas alarm control systems utilizing distributed I/O as the foundation for application and installation flexibility. Model 1600 can be programmed for up to 16 sensor inputs and Model 6400 can be programmed for up to 64 inputs. System features include display of real time readings, complete device status, and an almost limitless number of alarm relay outputs. The main CPU functions as a Modbus Master and can be configured to poll any combination of addressable field devices and addressable analog input modules.

The status of each active input is displayed on a backlit touch screen that also serves as a user interface. Typical input status indication includes channel number, tag name, gas type, concentration, and alarm status. Each input can be configured for up to 3 alarm levels. A fourth alarm is fault detection integral to the system and any reported error from intelligent field devices. Each system design can consist of either common or discrete alarm relays or a combination of both. RS-485 or RS-232 serial output is provided for communication with PLC's, PC's, DCS, and SCADA systems.

Model 1600/6400 controllers feature a modular design that allows the user to customize their selection of stand-alone input and output modules. Four standard I/O modules are available; a 4-channel 4-20 mA input module, a 4-channel contact closure input module, a 4-alarm relay output module, and 4-channel 4-20 mA output module. Modules are designed for stackable din-rail mounting, which allows for seamless system expansion. These addressable I/O modules may be housed internal to the main system enclosure or they may be packaged for remote mounting in a separate enclosure suitable for the area classification in which they will be installed. The remote mounting option can in some cases significantly reduce wiring and installation cost.

The control system can be powered by 110/220 VAC or 11.5-30 VDC. The system is available in NEMA 1 panel or wall mount enclosures, NEMA 4X weatherproof enclosure, and NEMA 7 explosion proof enclosure. Detcon's full range of gas sensors, which are purchased separately, can be mixed and matched to create a gas detection system consisting of toxic gas, combustible gas, or oxygen deficiency. A wide range of field devices such as liquid level, temperature, pressure, flow, etc. can be configured for input to the control system. Alarm control features one-touch Alarm Inhibit, Alarm Reset, and Alarm Silence (Acknowledge) functions.

Detcon Model 1600/6400 controllers provide a unique combination of user programming flexibility and customizable expansion capability, in a low-cost and simple-to-operate package.

Typical Applications

Oil and Gas Industry

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

Municipal Water Treatment

- Chemical Feed Systems
- Confined Space Monitoring
- Digesters and Treatment Plants

Refining and Petrochemical

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

Other Industrial Applications

- Underground Vaults
- Beverage and Bottling Processes
- Indoor/Outdoor Air Quality

Monitoring and Control Options

Gas Detection Sensor Technology

- Combustible Gas: Catalytic & Infrared
- H2S Gas: Solid State MOS & Electrochemical
- Toxic Gas: Electrochemical & Photo Ionization
- O2 Deficiency/Enrichment: Air Battery Electrochemical

Process Controls

- Pressure
- Temperature
- Humidity
- Flow
- Liquid Level

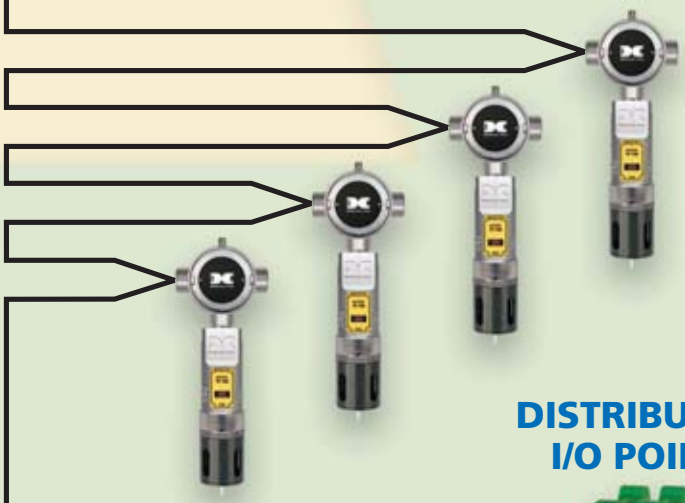
Safety Controls

- Intrusion
- Thermal
- Smoke
- Flame

Anatomy of a 1600/6400 Distributed I/O System

MANAGE DISTRIBUTED I/O AND ALARM LOGIC PROCESSING

1600-N1R



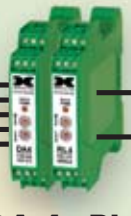
SERIAL OUTPUT SENSORS

ALARM 1

DISTRIBUTED I/O POINT

Modbus RTU RS-485

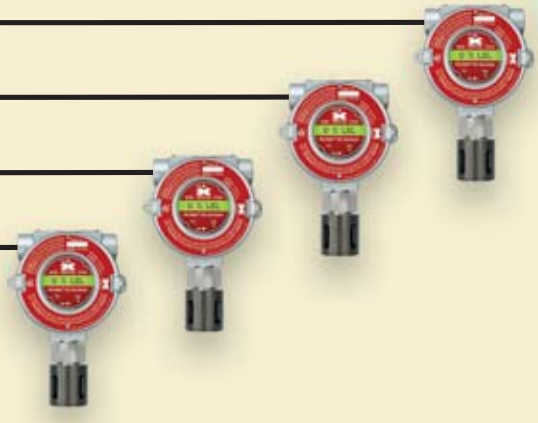
4-20 mA



DA-4 mA Input Module

RL-4 Relay Output Module

ALARM 2



ANALOG OUTPUT SENSORS

Technology Features

Simple Intuitive User Interface

Model 1600/6400 controllers are completely field programmable. This is accomplished via graphical touchscreen keys and a large backlit LCD screen. Enter the "PROG" menu to initiate and set-up number of channels, gas type, range, alarm setting, and relay configuration. System configuration is completely intuitive via embedded software and requires no special tools. The unit features a one-touch alarm acknowledge/reset function with alarm status indicated on-screen.

Menu Tree

- SET # CHANNELS/RELAYS
- ADDRESS CHANNELS/RELAYS
- SET GAS TYPE/RANGE
- SET ALARM LEVELS
- ASSIGN RELAYS
- VIEW DATA LOG

Wide-Range Sensor Input Capability

Model 1600/6400 controllers support an extensive list of sensor input types via selection from an internal lookup table. Contact closure inputs are displayed as OK or Alarm. Modbus RTU serial inputs are also fully compatible with the 1600/6400 controller.

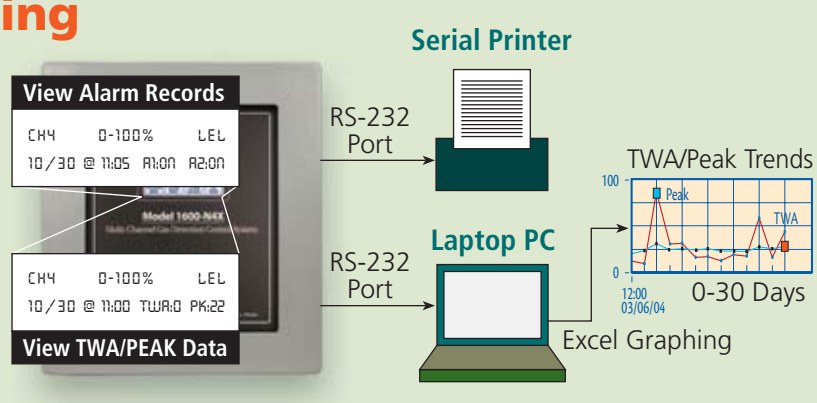
4-20 mA Transmitters
Gas Sensors
Temperature Sensors
Pressure Sensors
Humidity Sensors
Flow Sensors

Contact Closure Inputs
Smoke Detectors
Thermal Detectors
Intrusion Sensors
Flame Detectors

Modbus Serial Input
Any Sensor

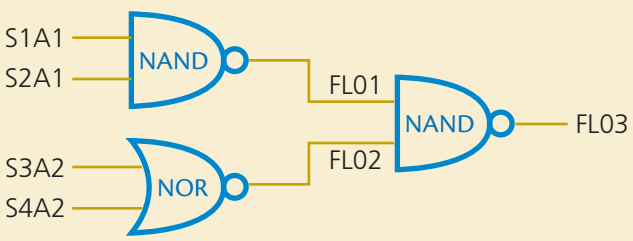
Embedded Data Logging

Model 1600/6400 Series controllers include data logging 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 first-in-first-out arrangement. Alarm incidents are also logged and recorded. TWA/Peak data can be downloaded for external graphical presentation or sent to a local serial printer.



Alarm Logic Processing

Features of the Model 1600/6400 controllers include Alarm Logic Processing capability. The user can program relays to be activated by satisfying the conditions of Boolean equations, externally generated by the user and, uploaded to the controller. This allows user created zones, votes and conditions appropriate to the control scheme of the project.



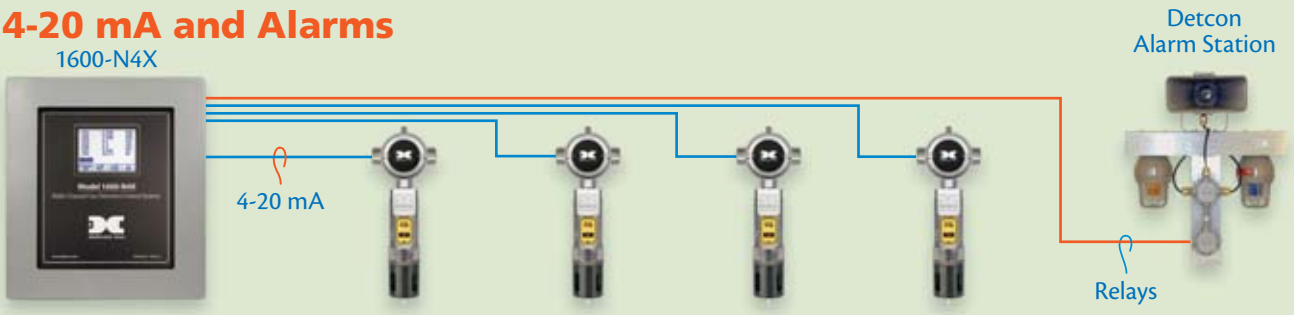
S = Sensor
A = Alarm
FL = Flag

i.e. FL03 = 1 Drives Relay 05

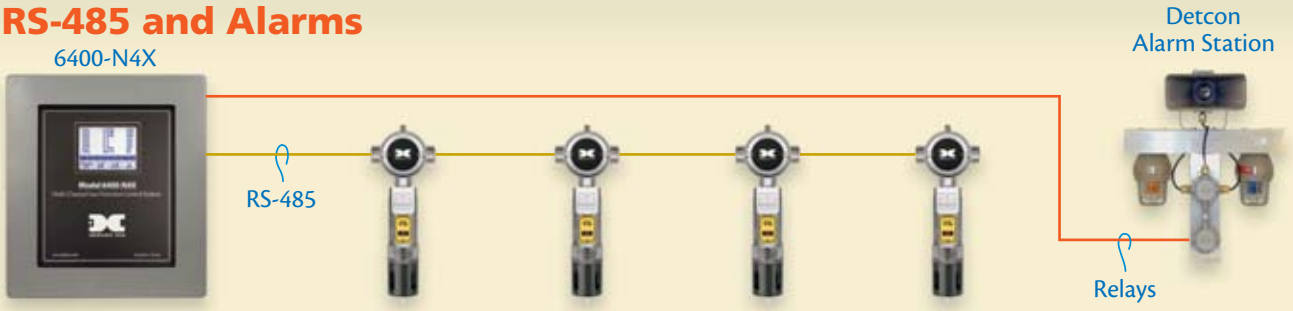
Installation & Integration Options

Model 1600/6400 Series control systems include the option to utilize either hard wire 4-20 mA, contact closure, or RS-485 serial input from field devices. The I/O modules can be located remotely from the main controller and this allows field wiring to be simplified. An additional feature is the ability to create simple and economical remote display of real time readings.

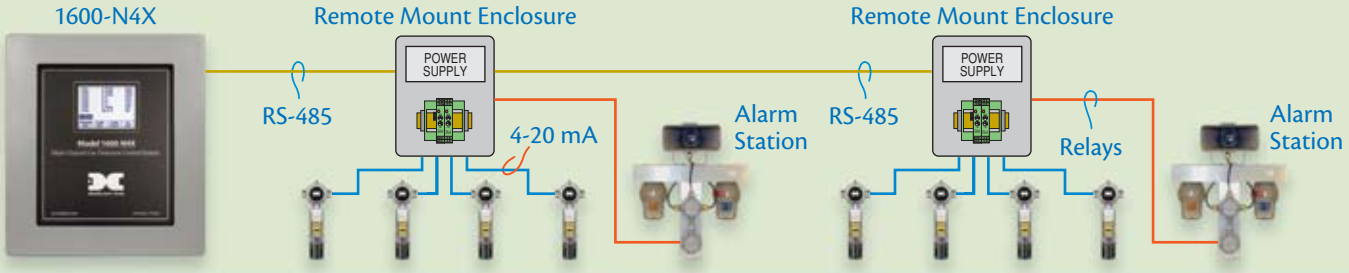
4-20 mA and Alarms



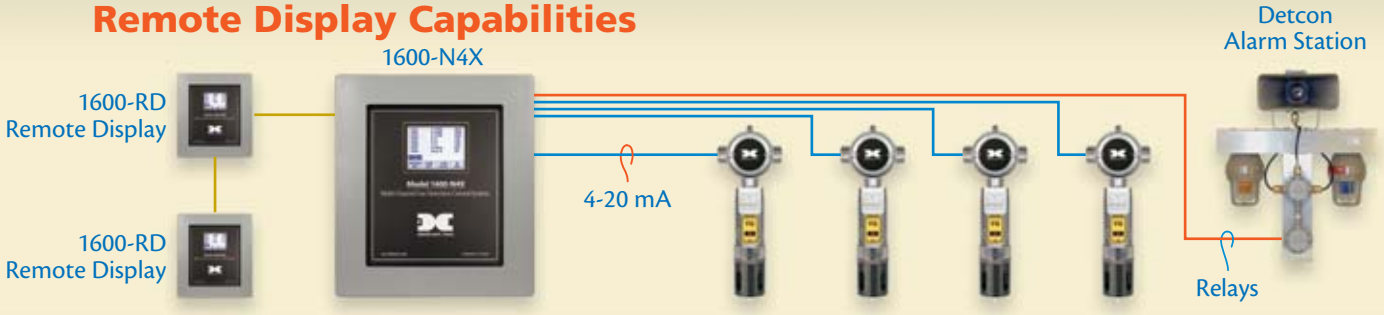
RS-485 and Alarms



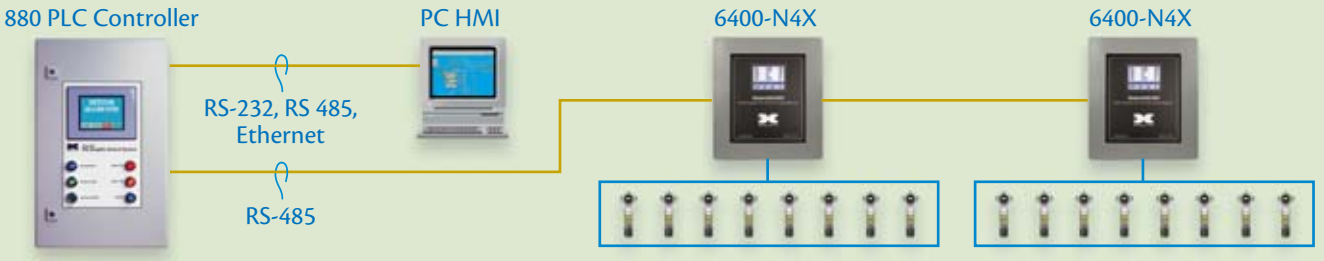
Remote I/O Modules



Remote Display Capabilities



Serial Network



Ordering Information

Model #	Description
1600-N4X	16 Channel gas detection and alarm system in NEMA 4X enclosure.
1600-N1P	16 Channel gas detection and alarm system in panel mount package.
1600-N7	16 Channel gas detection and alarm system in NEMA 7 enclosure.
1600-RD	Remote display for 1600 (specify NEMA 1, NEMA 4X, or NEMA 7).
6400-N4X	64 Channel gas detection and alarm system in NEMA 4X enclosure.
6400-N1P	64 Channel gas detection and alarm system in panel mount package.
6400-N7	64 Channel gas detection and alarm system in NEMA 7 enclosure.
6400-RD	Remote display for 6400 (specify NEMA 1, NEMA 4X, or NEMA 7).
DA-4	4 Channel 4-20 mA input module.
RL-4	4 Channel relay output module.
AO-4	4 Channel 4-20 mA output module.
DI-4	4 Channel dry contact input module.
MI-485	Serial communication isolation module.
N1R	19 inch rack mount adapter panel (for use with N1P)

Model 1600/6400 Distributed I/O Enclosure Options

NEMA 4X weatherproof enclosure.
NEMA 7 explosion proof enclosure.

Model 1600/6400 Distributed I/O Power Supplies

Din rail power supply 30 watts including breaker and overvotage modules (for up to 4 remote sensors)
Din rail power supply 75 watts including breaker and overvotage modules (for up to 8 remote sensors)
Din rail power supply 120 watts including breaker and overvotage modules (for up to 16 remote sensors)

1600/6400 Controller Specifications

Input Voltage
117/220 VAC and/or 11.5 to 28 VDC

Power Consumption (max @ 24 VDC)
Base Controller: 13 Watt
Total Power dependent on: Number of I/O Modules, Number of Gas Sensors, Type of Sensor Inputs.

Display
Backlit LCD, Touch-screen

Inputs
Analog 4-20 mA, Contact Closure, RS-485 Modbus™ RTU

Outputs
User Configurable: 4-20 mA, Form "C" Relay Contacts (Rated 5A @ 30 VDC/250 VAC). Standard: RS-485. RS-232 optional

Capacity (User Configurable).
1600: Up to 16 Analog or Serial Input
6400: Up to 64 Analog or Serial Input

Operating Temperature Range
-4°F to +167°F; -20°C to +75°C

Warranty
One Year

Warranty

Detcon Inc. warrants each new 1600/6400 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.