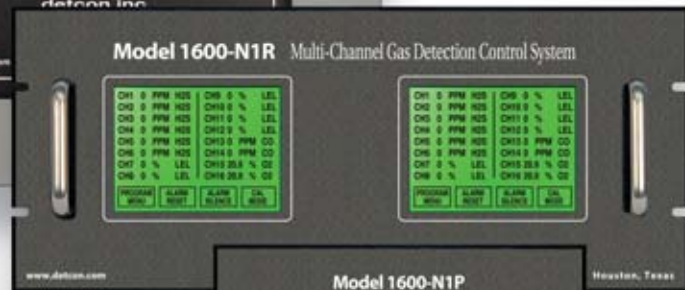
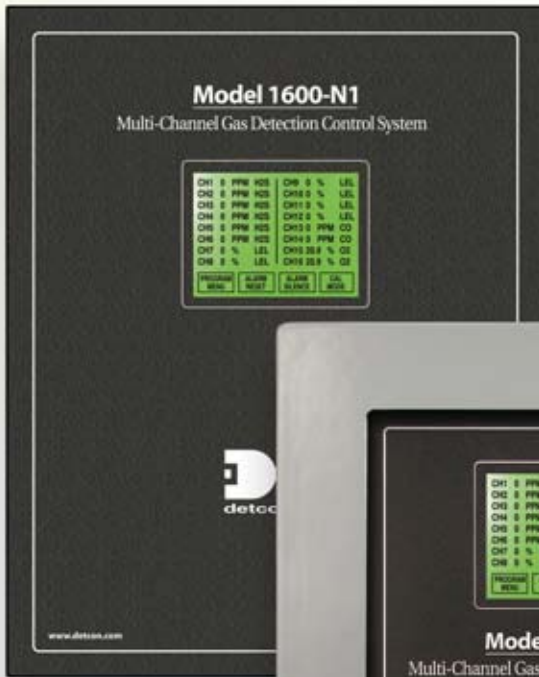


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detcon

Model Series 1600

Gas Detection Alarm & Control Systems



DC
detcon inc.

Catalog #1600-1104

www.detcon.com

ISO 9001 • Certified

Model Series 1600 Control Systems

Description

Detcon Model 1600 is a “user-configurable” multi-channel gas alarm control system. The system can be programmed to supervise up to 16 field devices, display real time readings or device status and provide alarm relay outputs in accordance with user defined requirements. It can receive and supervise 4-20 milliamp DC inputs, contact closure type inputs, or it can be configured to poll up to 16 serial devices via RS-485 Modbus RTU.

The status of each active input is displayed on a backlit LCD 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 based on fault detection functions integral to the system. 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’s, and SCADA systems.

The Model 1600 controller features a modular design that allows the user to customize their selection of stand-alone input and output modules. I/O modules are addressable. Four standard I/O functions are available and consist of 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 din-rail mounted and stackable allowing 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 also be configured for input to the control system. Features include one-touch Alarm Inhibit, Alarm Reset, and Alarm Silence (Acknowledge) functions.

Detcon Model 1600 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

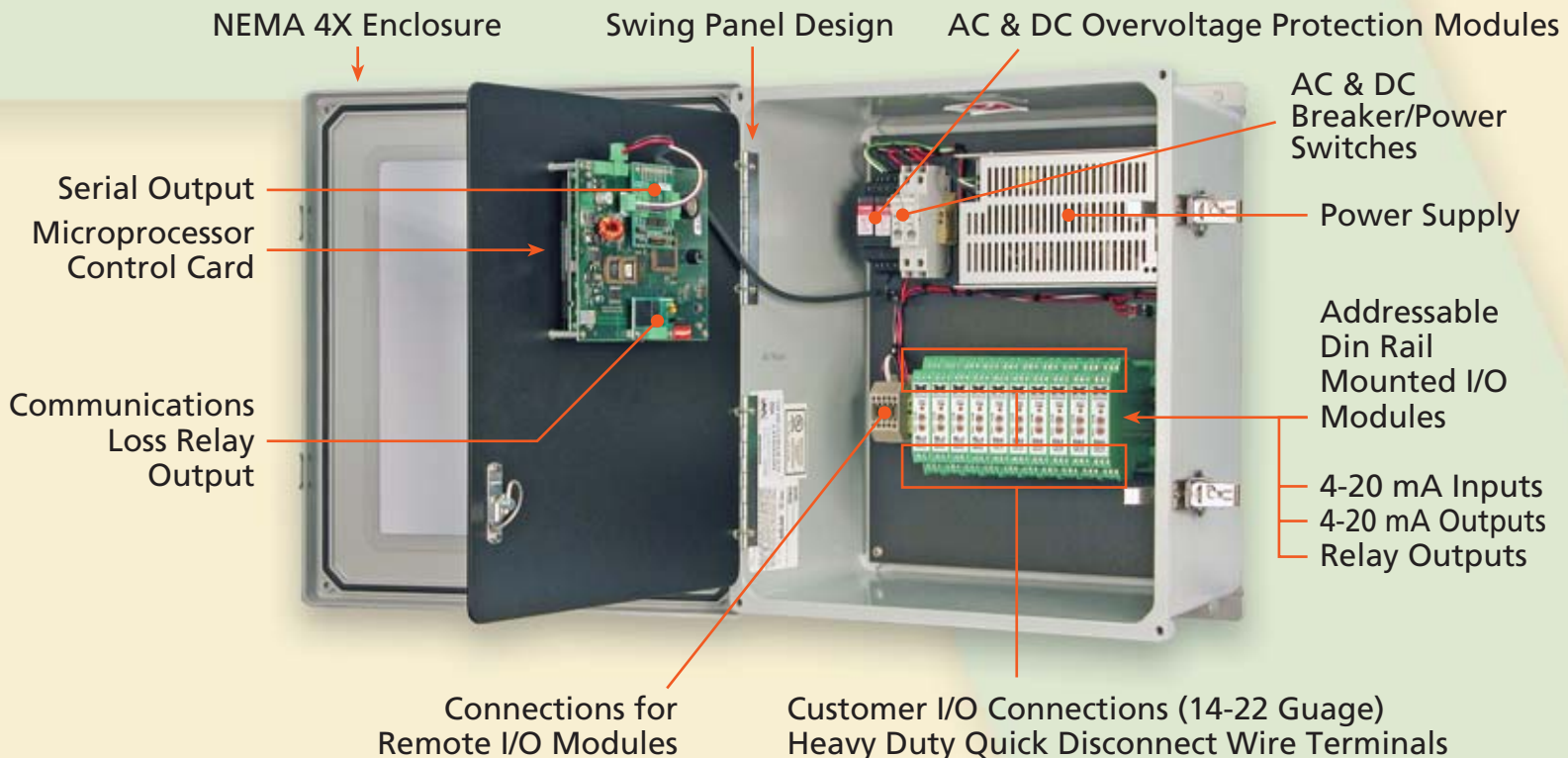
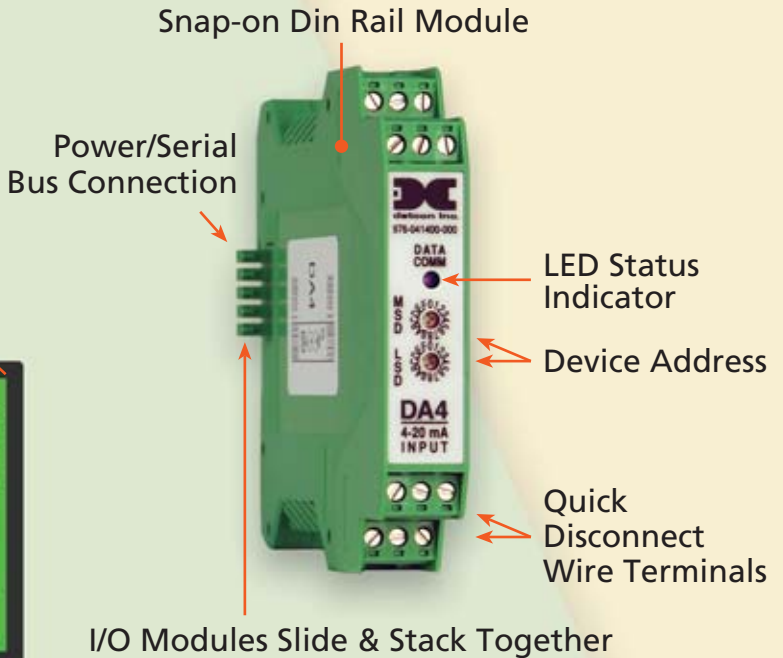
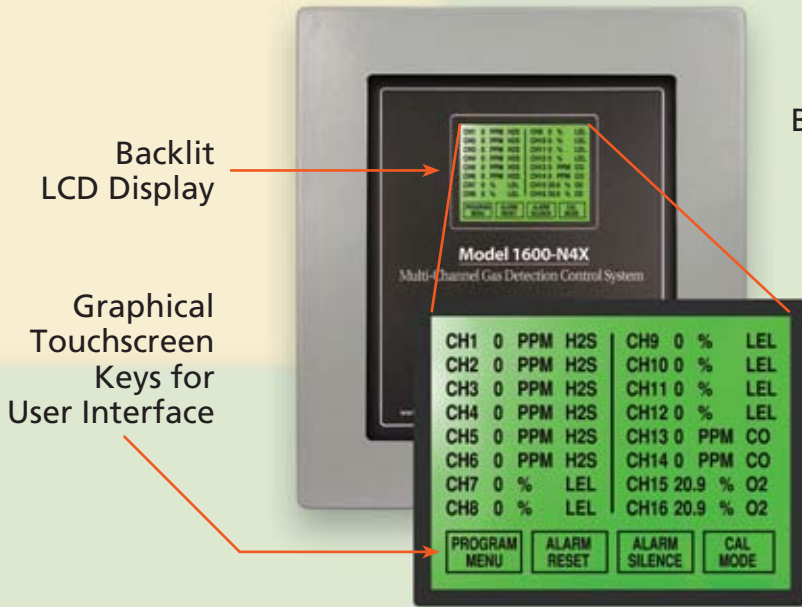
Safety Controls

- ▷ Intrusion
- ▷ Thermal
- ▷ Smoke
- ▷ Flame

Anatomy of a 1600 Controller

Design Features

- ▷ Fully Field Programmable
- ▷ Simple User Interface
- ▷ Addressable I/O Modules
- ▷ Seamless System Expansion
- ▷ Full Data Logging Capability
- ▷ Flexible Integration Options
- ▷ Modular Field Replacable Subassemblies



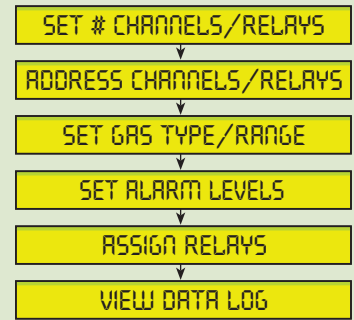
T echnology Features

Simple Intuitive User Interface

Model 1600 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



Wide-Range Sensor Input Capability

Model 1600 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 Model 1600 controller.



Reading/Status
Type/Units

4-20 mA Transmitters

- Gas Sensors
- Temperature Sensors
- Pressure Sensors
- Humidity Sensors
- Flow Sensors

Contact Closure Inputs

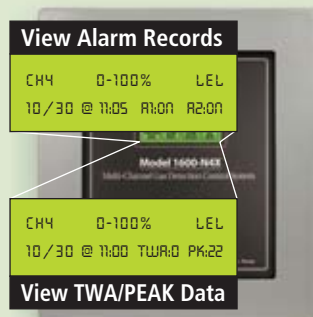
- Smoke Detectors
- Thermal Detectors
- Intrusion Sensors
- Flame Detectors

Modbus Serial Input

- Any Sensor

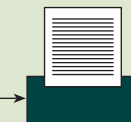
Embedded Data Logging

Model 1600 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.

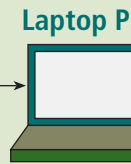


Serial Printer

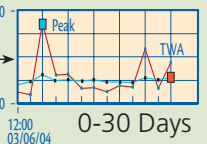
RS-232 Port



RS-232 Port



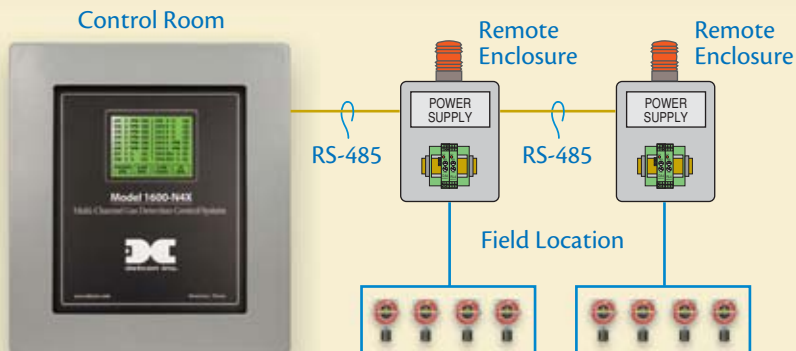
TWA/Peak Trends



Excel Graphing

Remote I/O Modules

Model 1600 controllers use addressable I/O modules and a Modbus protocol that enables the system design to localize field wiring requirements. This can result in significant savings in installation costs and provides for seamless system expansion as system design requirements change.

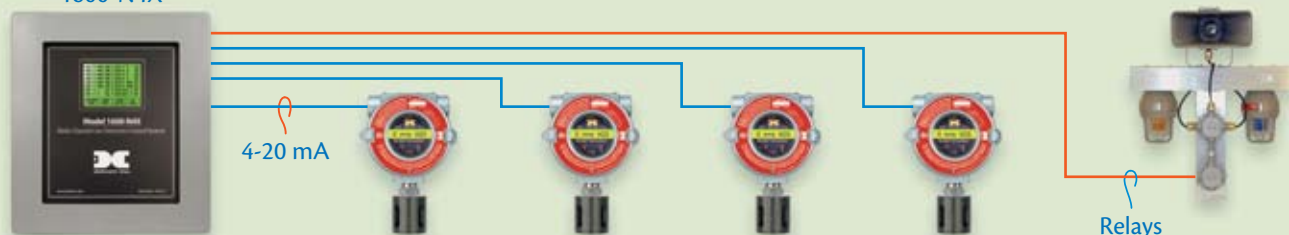


Installation & Integration Options

Model 1600 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.

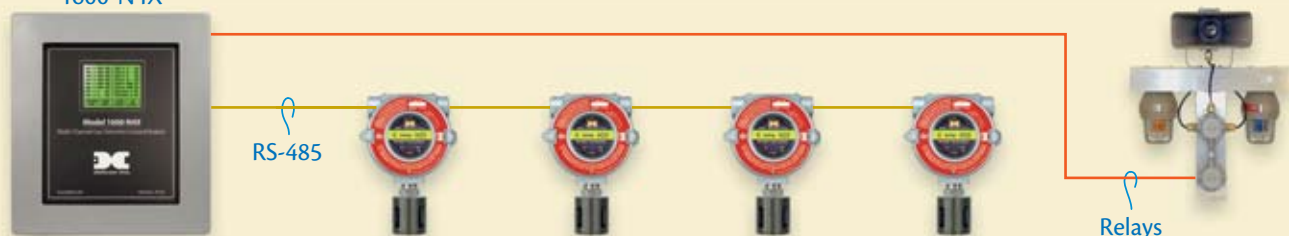
4-20 mA and Alarms

1600-N4X



RS-485 and Alarms

1600-N4X



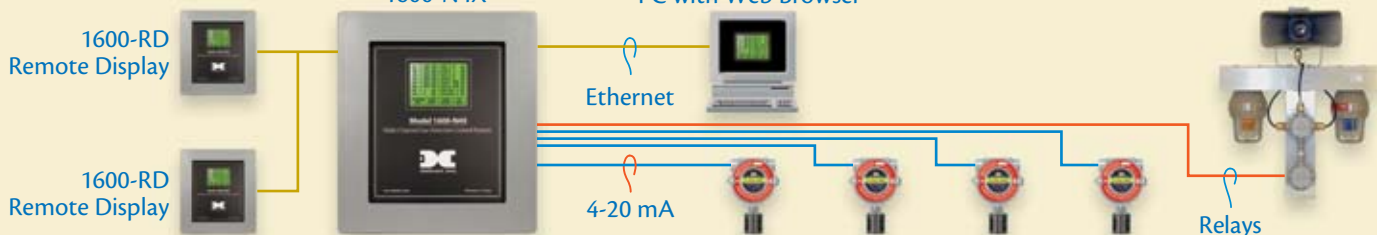
Remote I/O Modules

1600-N4X



Remote Display Capabilities

1600-N4X



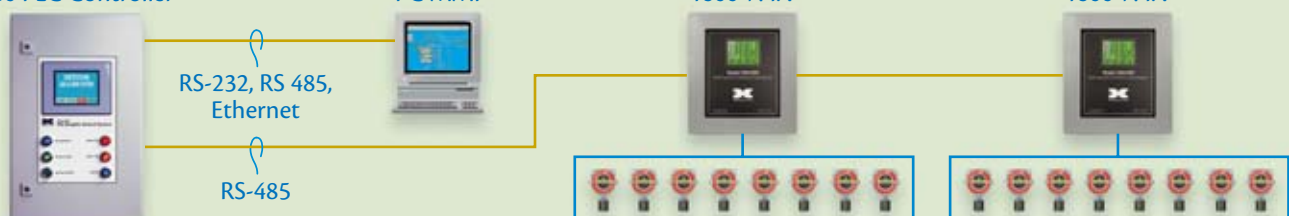
Serial Network

880 PLC Controller

PC MMI

1600-N4X

1600-N4X



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-N1R	16 or 32 Channel gas detection and alarm system in rack mount package.
1600-N1	16 Channel gas detection and alarm system in NEMA 1 enclosure.
1600-N7	16 Channel gas detection and alarm system in NEMA 7 enclosure.
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.

Options/Accessories

Remote-Mount Enclosures (includes power supply)
NEMA 7 and NEMA 1 Packages
Integral Horn/Strobe
Remote Display
Web Server PCB Interface
RS-232 Output
Battery Backup Module

Specifications

Electrical Classification

NEMA 4X Weatherproof (1600-N4X), NEMA 1 (1600-N1P, 1600-N1R, & 1600-N1)

Dimensions

16"W x 18"H x 9"D (1600-N4X), 19"W x 8"H x 12"D (1600-N1P), 10.5"W x 8"H x 12"D (1600-N1R), 15"W x 18.75"H x 7"D (1600-N1)

Input Voltage

117/220 VAC and/or 11.5 to 28 VDC

Power Consumption (max @ 24 VDC)

Base 1600 Controller: 13 Watts (26 Watts for Dual Controller 1600-N1R)

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-232 or RS-485

Capacity

User Configurable: Up to 16 Analog or Serial Inputs (32 for Dual Controller 1600-N1R)

Operating Temperature Range

-4°F to +167°F; -20°C to +75°C

Warranty

One Year

Warranty

Detcon Inc. warrants each new 1600 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.