



## 3M™ Detcon™ Smartwireless® Model CXT-DM

Toxic Gas Detection Sensor

### Description

Detcon Model CXT-DM SmartWireless® gas detection sensors are easily and economically deployable in both permanent and temporary installations. These low power sensors assemblies utilize electrochemical technology for a long list of toxic gases. All component parts are rated for Class 1; Division 1, Group C, D hazardous areas. These advanced field devices consist of a Detcon Model Series CXT low power gas detection sensor, and wireless transceiver packaged in a single enclosure. Power is provided by an internal battery pack options:

Disposable “C” cell (3.6V) batteries capable of continuous operation for greater than 45 days. Lithium ion rechargeable battery pack allows for 4 months operation. Battery pack with disposable “D” cell (3.6V) batteries is capable of delivering up to 6 months operation.

Detcon’s proprietary “Self Healing Mesh” technology operates at 2.4 GHz and conforms to non licensed radio frequency appliance usage around the world. Wireless network integrity and security is accomplished using direct sequence spread spectrum DSSS programming topology. Wireless applications can be as simple as a single field device communicating with a host display or any number of field devices forming a network of subscribers. Each device in the network is assigned its unique device identification or a UID. Every device in the network can act as a router and repeater for all other devices in the network. This means that subscribers can “hop” through neighboring devices to communicate with each other thereby widening network access points. This unique and innovative technology is designed to create a robust network that automatically routes around congestion and line-of-sight obstacles while improving throughput as subscriber device density increases.

### Features

- Universally accepted 2.4 GHz non-licensed frequency
- Low power gas detection sensors with built- in transceivers
- Built-in display for gas sensor/field device HMI
- Disposable battery packs (Non-ATEX)

### Applications

- Oil and Gas Drilling Rigs
- Work-over and pulling units
- Oil and Gas Production
- Turn-a-rounds in Refining and Petrochemical Plants



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## Toxic Gas Sensors

Gas	Part Number	Warranty	Measuring	Accuracy	Response Time	Operating Temp	Storage Temp	Operating Humidity
Ammonia	96C-17020D-100	2 years	0-100 ppm	±2% FS	T90≤90 seconds	-40 to 122°F/-40 to 50°C	-31 to 131°F/-35 to 55°C	15-90% RH non-condensing
Arsine	96C-19020D-001	1.5 years	0-1 ppm	±2% FS	T90≤60 seconds	-4 to 104°F/-20 to 40°C	-31 to 131°F/-35 to 55°C	20-95% RH non-condensing
Bromine	96C-75020D-005	2 years	0-5 ppm	±2% FS	T90≤60 seconds	-4 to 122°F/-20 to 50°C	-31 to 131°F/-35 to 55°C	15-95% RH non-condensing
Carbon Monoxide	96C-44020D-100	3 years	0-100 ppm	±2% FS	T50≤10 sec./ T90≤30 sec.	-40 to 122°F/-40 to 50°C	-31 to 131°F/-35 to 55°C	15-90% RH non-condensing
Chlorine	96C-74020D-010	2 years	0-10 ppm	±2% FS	T90≤60 seconds	-4 to 122°F/-20 to 50°C	-31 to 131°F/-35 to 55°C	15-90% RH non-condensing
Chlorine Dioxide	96C-76020D-050	2 years	0-50 ppm	±2% FS	T90≤120 seconds	-4 to 104°F/-20 to 40°C	-31 to 131°F/-35 to 55°C	10-95% RH non-condensing
Chlorine Dioxide	96C-77020D-001	2 years	0-1 ppm	±2% FS	T90≤60 seconds	-4 to 104°F/-20 to 40°C	-31 to 131°F/-35 to 55°C	15-90% RH non-condensing
Diborane	96C-21020D-005	1.5 years	0-5 ppm	±2% FS	T90≤60 seconds	-4 to 104°F/-20 to 40°C	-31 to 131°F/-35 to 55°C	20-95% RH non-condensing
Ethanol	96C-E0020D-100	2 years	0-100 ppm	±2% FS	T90≤140 seconds	-4 to 122°F/-20 to 50°C	-31 to 131°F/-35 to 55°C	15-90% RH non-condensing
Ethylene (*See Note 2)	96C-ED020D-100	2 years	0-100 ppm	±2% FS	T90≤140 seconds	-4 to 122°F/-20 to 50°C	-31 to 131°F/-35 to 55°C	15-90% RH non-condensing
Ethylene Oxide	96C-EJ020D-100	2 years	0-100 ppm	±2% FS	T90≤140 seconds	-4 to 122°F/-20 to 50°C	-31 to 131°F/-35 to 55°C	15-90% RH non-condensing
Fluorine	96C-27020D-001	1.5 years	0-1 ppm	±2% FS	T90≤80 seconds	14 to 104°F/-10 to 40°C	-31 to 131°F/-35 to 55°C	10-95% RH non-condensing
Formaldehyde	96C-EP020D-100	2 years	0-100 ppm	±2% FS	T90≤140 seconds	-40 to 122°F/-20 to 50°C	-31 to 131°F/-35 to 55°C	15-90% RH non-condensing
Germane	96C-25020D-002	1.5 years	0-2 ppm	±2% FS	T90≤60 seconds	-40 to 104°F/-20 to 40°C	-31 to 131°F/-35 to 55°C	20-95% RH non-condensing
Hydrazine	96C-26020D-001	1 year	0-1 ppm	±2% FS	T90≤120 seconds	14 to 104°F/-10 to 40°C	-31 to 131°F/-35 to 55°C	10-95% RH non-condensing
Hydrogen (1%)	96C-07020D-01P	2 years	0-1% volume	±2% FS	T90≤60 seconds	-4 to 104°F/-40 to 40°C	-31 to 131°F/-35 to 55°C	5-90% RH non-condensing
Hydrogen PPM	96C-84020D-100	2 years	0-100 ppm	±2% FS	T90≤30 seconds	-40 to 122°F/-20 to 50°C	-31 to 131°F/-35 to 55°C	15-90% RH non-condensing
Hydrogen Bromide	96C-08020D-030	1.5 years	0-30 ppm	±2% FS	T90≤70 seconds	-4 to 104°F/-20 to 40°C	-31 to 131°F/-35 to 55°C	10-95% RH non-condensing
Hydrogen Chloride	96C-09020D-030	1.5 years	0-30 ppm	±2% FS	T90≤70 seconds	-4 to 104°F/-20 to 40°C	-31 to 131°F/-35 to 55°C	10-95% RH non-condensing
Hydrogen Cyanide	96C-13020D-030	2 years	0-30 ppm	±2% FS	T90≤40 seconds	-40 to 104°F/-40 to 40°C	-31 to 131°F/-35 to 55°C	5-95% RH non-condensing
Hydrogen Fluoride	96C-33020D-010	1.5 years	0-10 ppm	±2% FS	T90≤90 seconds	-4 to 95°F/-20 to 35°C	-31 to 131°F/-35 to 55°C	10-80% RH non-condensing
Hydrogen Sulfide	96C-24020D-100	2 years	0-100 ppm	±2% FS	T50≤10 sec./ T80≤30 sec.	-40 to 122°F/-40 to 50°C	-31 to 131°F/-35 to 55°C	5-90% RH non-condensing
Methanol	96C-EE020D-100	2 years	0-100 ppm	±2% FS	T90≤140 seconds	-4 to 122°F/-20 to 50°C	-31 to +131°F/-35 to 55°C	15-90% RH non-condensing
Methyl Mercaptan	96C-EK020D-100	2 years	0-100 ppm	±2% FS	T90≤45 seconds	-40 to 122°F/-40 to 50°C	-31 to +131°F/-35 to 55°C	15-90% RH non-condensing
Nitric Oxide	96C-94020D-100	3 years	0-100 ppm	±2% FS	T90≤10 seconds	-4 to 122°F/-20 to 50°C	-31 to +131°F/-35 to 55°C	15-90% RH non-condensing
Nitrogen Dioxide	96C-64020D-010	2 years	0-10 ppm	±2% FS	T90≤40 seconds	-4 to 122°F/-20 to 50°C	-31 to +131°F/-35 to 55°C	15-90% RH non-condensing
Oxygen	96C-34020D-025	2 years	0-25% volume	±1% FS	T90≤10 seconds	-4 to 122°F/-20 to 50°C	-40 to 122°F/-40 to 50°C	15-90% RH non-condensing
Ozone	96C-39020D-001	2 years	0-1 ppm	±2% FS	T90≤120 seconds	14 to 104°F/-10 to 40°C	-31 to +131°F/-35 to 55°C	10-95% RH non-condensing
Phosphine	96C-20020D-005	1.5 years	0-5 ppm	±2% FS	T90≤30 seconds	-4 to 104°F/-20 to 40°C	-31 to +131°F/-35 to +55°C	20-95% RH non-condensing
Silane	96C-23020D-050	1.5 years	0-50 ppm	±2% FS	T90≤60 seconds	-4 to 104°F/-20 to 40°C	-31 to 131°F/-35 to +55°C	20-95% RH non-condensing
Sulfur Dioxide	96C-55020D-020	2 years	0-20 ppm	±2% FS	T90≤20 seconds	-4 to 122°F/-20 to 50°C	-31 to +131°F/-35 to +55°C	15-90% RH non-condensing

\*Note2: This product is a safety device to detect hazardous conditions, and is not intended for process control application in fruit ripening operations.

# 3M™ Detcon™ SmartWireless® Model CXT-DM

## Toxic Gas Detection Sensor

### System Specifications

#### Sensor Type

- Continuous diffusion/adsorption
- 2-electrode electrochemical cell
- Plug-in field replaceable

#### Measurement Range

See sensor specifications on prior page.

#### Accuracy/Repeatability

See sensor specifications on prior page.

#### Response/ Clearing Time

See sensor specifications on prior page.

#### Span Drift

<5% signal loss per year (in first two years)

#### Input/Output

2.4Ghz DSSS Radio Transmission

#### Electrical Classification

- Explosion proof
  - CCSA Class I, Division 1, Groups C, D (Tamb = -40°C to +60°C)
  - Class I, Zone 1, Group IIB
  - ATEX\* Ex d ib IIB T4 Gb (Tamb = -40°C to +50°C)
  - CE Marking\*
  - IECEX\*

\*"C" cell battery pack version only

#### Ingress Protection

NEMA 4X

#### Warranty

Plug-in cell - 2 years; Transmitter - 2 Years

### Mechanical Specifications

#### Dimensions

With Stainless Steel Mini J-Box

18"H x 3.62"W x 4.3"D; 457mmH x 92mmW x 109mmD

18"H x 5.5"W x 4.3"D; 457mmH x 92mmW x 109mmD

(with XP Power Switch)

20.5"H; 520mmH (with splashguard)

With Aluminum J-Box (rechargeable battery pack version)

19"H x 5.8"D; 482mmH x 147mmW x 216mmD

19"H x 5.8"D; 482mmH x 147mmW x 216mmD (w/XP Power Switch)

21.5"H; 546mmH (with splashguard)

#### Weight

5.2lbs/2.36kg (w/stainless steel j-box); 6lbs/2.72kg (w/aluminum j-box)

### Accessory Options

Specifications subject to change without notice

Tripod for mounting (specify pole mount and/or leg mount brackets)

Mini tripod for mounting (specify pole mount and/or leg mount brackets)

7db gain antenna

Solar charging panel

### Electrical Specifications

#### Power Input

9-30 VDC and/or

Internal Battery Pack with "C" Size (3.6V) disposable batteries

Optional internal Battery Pack with "D" Size (3.6V) disposable batteries

Optional Lithium Ion Rechargeable Battery Pack

#### Power Consumption

20mW (Low Power Mode); 100mW (typical); 500mW (max)

#### RF

Outdoor RF Line of Sight (with standard antenna): 1.5 miles

Interface Data Rate: 9,600bps

Throughput Data Rate: 19,200bps

RF Data Rate: 250,000bps

Transceiver Sensitivity: -102dBm

Frequency: 2.40-2.48GHz

RF Channels: 16, each 5Mz wide

Output Power: 100mW (20.5dBm) EIRP

Spread Spectrum: DSSS (Direct Sequence Spread Spectrum)

Modulation: O-QPSK

Supported Network Topologies: Mesh, Point-to-Point

#### Antenna

5db flex whip; Screw on radome whip antenna guard included

#### I/O Protection

Over-voltage, Miswiring, EMI/RFI Immunity

#### Status Indicators

4-digit LED display with gas concentration

Full-script menu prompts for Auto Zero/AutoSpan, & Fault Reporting

#### Faults Monitored

Span, Memory, Processor, Clearing, Range, Zero, Sensor Fault 1, Sensor Fault 2

### Environmental Specifications

#### Operating Temperature Range

See sensor specifications on prior page.

#### Storage Temperature Range

See sensor specifications on prior page.

#### Operating Humidity Range

See sensor specifications on prior page.

#### Operating Pressure Range

Atmospheric ± 10%

### Battery Specifications

Battery Pack with Disposable "C" Cells (3.6V): 45 days sensor run time full function (-55°C to +85°C; -67°F to +185°F discharge temperature).

Battery Pack with Disposable "D" Cells (3.6V): 6 months sensor run time full function (-55°C to +85°C; -67°F to +185°F discharge temperature).

Smart Lithium Ion Rechargeable Battery: 4 months sensor run time full function (-20°C to +60°C; -4°F to +140°F discharge temperature; -30°C intermittent).

### Order Guide

Part Number Description

96C-340\_0\_-025 Model CXT-DM-O2, 0-25% Oxygen

XXX - XXX X - XXX ——— The last 3 digit of the part number designate range - other ranges available

To complete the part number please select from the options below.

2-CXT-DM with 320 mesh transceiver

- Position "9" Junction Box Selection & Power Selection
- 1-Aluminum Junction Box (no battery)
- 2-Stainless Steel Mini Junction Box, internal Battery Pack with Disposable "C" Cells (3.6V)
- 3-Stainless Steel Junction Box (no battery)
- 4-Aluminum Enclosure with Rechargeable Battery Pack
- 7-Aluminum Enclosure with High Output Rechargeable Battery Pack
- D-Aluminum Enclosure, internal Battery Pack with Disposable "D" Cells (3.6V)
- 5-None



## Gas & Flame Detection



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