SmartWireless® Gas Detection Technology
for Today's Industrial Environment
Detcon’s advanced SmartWireless Site Sentinel is a lightweight, transportable gas detection system that can be fitted with one, or a combination of electrochemical and infrared sensors to monitor toxic gases and/or combustible hydrocarbons in heavy industrial environments. Designed for reliability in rugged environments, each system includes a tripod, network HMI, gas detection sensor(s), and alarm warning devices. An optional Sentinel SiteWatch provides remote access to system data via Ethernet or cellular communication. Power to the sensor assembly is supplied by a rechargeable Smart Battery Pack, disposable batteries or directly from HMI. Flexible and expandable, a Site Sentinel network can include up to 32 devices and consist of any combination of wireless and/or wired sensors, one or more HMI panels and optional solar panels. Additional sensors and/or remote alarm stations on tripods can be added as needed to assure widespread alert to site personnel.
Detcon’s Model CX sensor is a wired version of the Model CXT that can be used with SmartWireless® Site Sentinel CX/CXT Controllers as well as other Detcon control systems. Standard outputs include 4-20 mA, and RS-485 Modbus.

SmartWireless Sensor Technology

Wireless Battery Powered Devices Eliminate Expensive Installation Costs

- Quick and Easy Deployment
- Permanent or Temporary Installations
- Fault Tolerant Safety Network
- Network Capacity up to 32 Devices
- No Single Point of Failure
- Universally Acceptable Frequency 2.4 GHz
- Low Power Requirement
- 1.5 Mile Line-of-Sight Range

Description

As wireless capabilities reach new technological milestones the integration of wireless gas detection systems in industrial applications is increasing. Among the smartest and most revolutionary product lines available today is Detcon’s SmartWireless technology. Easy to customize for a wide range of locations and heavy industrial applications, wireless components include toxic and infrared combustible gas detectors, controllers, remote HMI’s, network configuration tablets, audio visual alarm stations, solar panels and rechargeable or disposable batteries. For remote access via ethernet or cellular application, the Sentinel SiteWatch is a new innovative solution.

CXT Sensor Assemblies

Detcon’s Model CXT sensor is a compact, low powered, wireless gas detector that monitors for dangerous combustible & toxic gases and oxygen deficiency. This environmentally bulletproof gas detector has a built-in display and is powered by either rechargeable or disposable batteries.

CX Sensor Assemblies

Detcon’s Model CX sensor is a wired version of the Model CXT that can be used with SmartWireless® Site Sentinel CX/CXT Controllers as well as other Detcon control systems. Standard outputs include 4-20 mA, and RS-485 Modbus.

Detectable Gases

- Combustible Hydrocarbons
  - Hydrogen Bromide Hbr
  - Ammonia NH3
  - Arsenic AsH3
  - Bromine Br2
  - Butadiene C4H6
  - Carbon Monoxide CO
  - Chlorine CL2
  - Chlorine Dioxide CLO2
  - Diborane B2H6
  - Ethanol C2H5OH
  - Ethyl Mercaptan CH3SH
  - Ethylene C2H4
  - Fluorine F2
  - Hydrazine N2H4;l
- Detectable Gases
  - Hydrogen Chloride HCL
  - Hydrogen Cyanide HCN
  - Hydrogen Fluoride HF
  - Hydrogen Sulfide H2S
  - Methanol CH3OH
  - Methyl Mercaptan CH3SH
  - Nitric Oxide NO
  - Nitrogen Dioxide NO2
  - Oxygen Deficiency O2
  - Ozone O3
  - Phosphine PH3
  - Silane SiH4
  - Sulfur Dioxide SO2
SmartWireless HMI

- Up to 32 Devices, Wired or Wireless
- NEMA 4X Div 1 & Div 2 Packages Available
- Configurable up to eight zones
- SD card with datalogging
- Alarm and Fault Condition LEDs
- Display Indicates: Field Device Location, Alarm Status, Channel, Gas Reading, Battery Life & Signal Strength

Site Sentinel CXT Controller
The SmartWireless® Site Sentinel CXT Controller provides operator interface to the network and real time status display of all network devices. Flexible and expandable, a Site Sentinel network consists of any combination of (up to 32) wireless and/or wired sensors, one or more control panels, and alarm warning devices. Command functions include alarm reset, alarm acknowledge, alarm test and radio silence. The control panel displays real time gas concentrations, field device status, battery levels, network RF signal quality and fault diagnostic conditions. Display indications include field device location, alarm status, channel, gas reading, battery life & link signal strength.

Site Sentinel CX Sensor Station
The Site Sentinel CX Sensor Station transmits data from up-to 4 wired gas detectors back to a CXT controller. The sensor station includes a battery that powers the radio, alarm devices, and the attached sensors.

SmartWireless X40 Alarm & Control System
Model X40 controller provides many of the same features and capabilities of the Site Sentinel CXT controller and can include up to 32 wired devices whereas the CXT controller can accommodate up to 4 wired devices. The Model X40 also allows for expanded use of Detcon addressable I/O modules that include a 4-channel 4-20mA input module (DA-4), a 4-alarm relay output module (RL-4), a 4-channel 4-20mA output module (AO-4), and a 4-relay contact input module (DI-4). Detcon modules can be mounted within the main system enclosure or installed remotely to simplify field wiring.

SmartWireless MCX-32 Alarm & Control System
In addition to providing many of the same capabilities of the Model X40, the MCX-32 adds 64-channel capability and an advanced touch screen display.

Log File Viewer Data Logging Software
Detcon Log File Viewer is an advanced catalog viewing system designed for use with the Site Sentinel, X40 and MCX-32 controllers. The software allows gas sensor information that is recorded by the controller to be stored on a secure digital memory card that can then be uploaded and viewed on a PC, laptop or tablet. Detcon Log File Viewer displays detailed sensor information in an easy-to-read chart format that can be examined by date, individual channel, or by event to include alarms, communication errors, calibration cycles, and TLV-TWA/Peak readings.
Detcon SmartWireless audio-visual alarm stations are easily and economically deployable in both permanent and temporary installations. These devices feature a battery powered audio visual alarm station designed as a wireless cordless system component and are available in Class 1; Div 1 and Class I; Div 2, packages.

The standard rechargeable battery packs are capable of delivering enough energy for 4-6 hours of continuous operation in a full alarm condition or 5-6 months (no alarm condition). An optional solar charging panel can be used to extend operating time and maintain full battery charge levels for virtually any application. An optional battery pack that uses disposable “D” cells (3.6V) is capable of delivering even longer operating times.

Alarm relay options include adjustable set points and latching/non-latching relays. The audible alarm can be configured for acknowledge/silence via operator interface at the SmartWireless controller (CXT/X40/MCX-32).

Alarm Bar audio visual alarm stations consist of a siren and packaging options for two or four strobes. The Horn and Strobes meet NEMA 4X watertight, dust-tight requirements and are rated Class 1, Div 2. Alarm components are pre-assembled and packaged in a NEMA 4X rain tight enclosure that can be pipe or wall mounted.

Detcon's Model CXT wireless gas detection sensors can be configured with an integral visual alarm strobe. The visual alarm supplements zoned alarm indicators by providing point indication of hazardous gas conditions.
Sentinel SiteWatch is an advanced networking device that provides remote access to any Detcon gas detection system via Ethernet or cellular communication. The Sentinel SiteWatch Ethernet version provides an IP addressed web page that can be accessed via any web browser and both the Ethernet and Cellular versions provide automated emails for all alarm and fault conditions instantaneously. SiteWatch technology can be embedded into the Detcon Model CXT, X40 & MCX-32 wireless controllers.

The Sentinel SiteWatch allows web browser access to real time data from the gas detection system that includes: detector type, serial number, location/name, gas concentration, gas type and alarm status. In addition, when used with Detcon SmartWireless systems, the data includes battery life and link quality of all devices in the network via LAN connection.

Sentinel SiteWatch allows convenient and efficient access to remote system data by computer (desktop, portable, tablet) and cellular devices (iPhone, Droid, etc.) — virtually any device that has ethernet, wifi or cellular access.

### Description
Sentinel SiteWatch is an advanced networking device that provides remote access to any Detcon gas detection system via Ethernet or cellular communication. The Sentinel SiteWatch Ethernet version provides an IP addressed web page that can be accessed via any web browser and both the Ethernet and Cellular versions provide automated emails for all alarm and fault conditions instantaneously. SiteWatch technology can be embedded into the Detcon Model CXT, X40 & MCX-32 wireless controllers.

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<table>
<thead>
<tr>
<th>TYPE</th>
<th>SERIAL #</th>
<th>LOCATION/NAME</th>
<th>CONCENTRATION</th>
<th>GAS TYPE</th>
<th>ALARM</th>
<th>STATUS</th>
<th>BATTERY LIFE</th>
<th>LINK QUALITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXT SENSOR</td>
<td>937643</td>
<td>SHALE SHAKER</td>
<td>0</td>
<td>PPM H2S</td>
<td>OK</td>
<td>OK</td>
<td>45+ DAYS</td>
<td>100%</td>
</tr>
<tr>
<td>CXT SENSOR</td>
<td>937644</td>
<td>MUD TANK</td>
<td>50</td>
<td>% LEL</td>
<td>ALARM 3</td>
<td>OK</td>
<td>45+ DAYS</td>
<td>100%</td>
</tr>
<tr>
<td>ALARM STATION</td>
<td>937645</td>
<td>MUD PIT/SHALE SHAKER</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>OK</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>HMI</td>
<td>937646</td>
<td>DOG HOUSE</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>OK</td>
<td>45+ DAYS</td>
<td>100%</td>
</tr>
</tbody>
</table>
The BM 25W is a rugged, user-friendly and transportable multi-gas monitoring system that offers a wide range of applications. It was designed for mobile or temporary work applications, team protection, area surveillance or places where fixed detection systems are not suitable.

The BM 25W is durable and versatile. It is suitable for a wide range of industries including refineries and pharmaceutical production. Applications include turnaround work sites, rig overhauls and fence-line surveillance.

The system detects up to 5 gases and can include up to 30 devices in a standard network. Should a device fail or an obstruction occur, communication automatically re-routes allowing the network to remain in operation. Powered by a NiMH battery pack, the BM 25W offers up to 135 hours of continuous run time.

The monitor is equipped with a 360° flashing signal and an audible alarm rated 103 dB at 3 feet. Standard features include STEL and TWA values and data logging capacity of more than four months (for 5 gas configuration). An intrinsically safe trickle charger is also available for long-term area monitoring in classified zones.

Wireless communication is made via a 2.4 GHz radio and emitted power is less than 100 mW. Maximum distance between two communicating devices is 0.6 mile line of sight. The BM 25W is compatible with Detcon's CXT, X40 & MCX-32 Wireless controllers.
Detcon's SmartWireless systems are available in two technologies - **Standard Mesh Network** (320 System), and **Fault Tolerant Safety Network** (300 System). Both use an innovative “mesh” network topology that allows each device in the network to act as a router and repeater for every other device in the network. Therefore, if an instrument’s signal is obstructed from communicating with the Master it will automatically reroute through another instrument to maintain communication. This technology creates a robust network that is not hindered by line-of-sight obstacles. Configuration and commissioning in the Standard Mesh Network is at the network HMI (CXT, X40 or MCX-32 Controller).

**Standard Mesh Network**

Detcon's proprietary **Fault Tolerant Safety Network** is designed with an additional and unique innovation in mesh-networking to ensure network protection and stability. Data processing capability is embedded in each device in the network, guaranteeing that no single point of failure will interrupt communication between devices. Therefore, if the master device fails the network automatically elects another device to take over as master. This feature significantly enhances the redundancy and overall safety level of the wireless system. Detcon’s Configuration Tablet is used to configure and commission the Fault Tolerant Safety Network.

**Fault Tolerant Safety Network**
SmartWireless Applications

**Tank Farm**
- Tank with CXT-IR LEL Sensor
- Tanks connected by X40
- Alarms
- Alarms connected to Plant Wide Annunciation
- Doghouse connected to PLC via RS-485

**Completion Site**
- CX Sensor Station with Solar
- Workover Rig
- Perimeter Fence Line
- Fluor Stack
- SO2
- MCX-32 in Trailer
Battery Options for Wireless Applications

Rechargeable and Disposable

Battery options include rechargeable packs as well as packs with disposable/replaceable batteries. Both use lithium ion technology and are available in low and high capacity versions. Detcon battery packs provide continuous run times for months at a time. Paired with a solar charging option Detcon SmartWireless® system components can provide indefinite run times.

The battery packs are packaged as a plug in module that uses a mechanical guide and gold plated mating connectors. A smaller compact version is packaged with a twist-lock design. Both are housed and secured inside a Division 1 enclosure. Optional solar charging panels are available in Class I, Div 1 (1.5 and 3 Watt) and Class I, Div 2 packages (5, 10, 20, 30 and 40 Watt).

Integrated safety circuitry continuously monitors each battery pack. If the discharge current exceeds the battery rating the output will be turned off until reset. If the voltage drops below operating levels the output will be turned off until the battery is recharged (rechargeables) or replaced (replaceables). Rechargeable packs are also protected from over voltage during charging.

Battery Run Times

<table>
<thead>
<tr>
<th>CXT Gas Detectors</th>
<th>“C” Cell Replaceable</th>
<th>Rechargeable</th>
<th>High Capacity Rechargeable</th>
<th>“D” Cell Replaceable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model CXT-DM and CXT-IR</td>
<td>2 months</td>
<td>5 months</td>
<td>6 1/2 months</td>
<td>9 months</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Audio Visual Alarms*</th>
<th>“C” Cell Replaceable</th>
<th>Rechargeable</th>
<th>High Capacity Rechargeable</th>
<th>“D” Cell Replaceable</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Alarms</td>
<td>na</td>
<td>5 months</td>
<td>6 1/2 months</td>
<td>6 1/2 months</td>
</tr>
<tr>
<td>Full Alarms - Continuous</td>
<td>na</td>
<td>4-7 hours</td>
<td>5-9 hours</td>
<td>5-9 hours</td>
</tr>
</tbody>
</table>

* Typical - See product data sheet for specific run times
Specifications (Abbreviated - See Specific Product Data Sheets for Full Specifications)

CX & CXT Sensor Assemblies

Sensor Type
Electrochemical for Toxics and Oxygen
Non-dispersive Infrared Optical (NDIR) - Combustible Gas
Sub-miniature Plug-in Field Replaceable

Input/Output
2.4GHz DSSS Radio Transmission (CXT)
4-20 mA and RS-485 Modbus (CX)

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

Safety Approvals
Explosion proof

CE/CASUS Class I, Division 1, Groups C, D (Tamb = -40°C to +60°C)
Class I, Zone 1, Group IIB
ATEX* Ex ib IIB T4 Gb (Tamb = -40°C to +60°C)
CE Marking*
IECEx*
* “C” cell battery pack version only for CXT

Performance Approvals
<CSA>CX: Performance tested to ISA 12.13.01-2000 and CSA 22.2 #152

Site Sentinel HMI

Capacity
Up to 32 Input Devices

Display
1 1/4” x 6” Backlit LCD

Electrical Classification (Designed to)
Class I; Division 2; Groups A, B, C, D
NEMA4 General Purpose

Power Input
External: 11.5-30 VDC
Internal: Rechargeable Smart Battery (up to 60 days operation)

Operating Temperature Range
-20°C to +70°C; -4°F to +158°F

Alarms Stations

Input Voltage
24VDC

Electrical Classifications Available
Class I; Div 1; Groups C, D
Class I; Div 2; Groups A, B, C, D

Sound Output
115dB @ 1m (1kHz) (Div 2 Version)
95dB @ 1m (1kHz) (Div 1 Version)

Tones
On-board choice of 15 tones (Div 2 Version)
32 Selectable (Div 1 Version)

Strobe Colors
Amber, Blue, Clear, Green, Purple, Red (Div 2 Version)
Amber, Blue, Clear, Green, Opal, Red, Yellow (Div 1 Version)

Alarm Bar

Input Voltage: 12-48VDC

Electrical Classification: NEMA 4X Class I; Div 2; Groups A,B,C,D

Sound Output: 115dB @ 1m

Tones: 32 Selectable

Strobe Colors: Amber, Blue, Clear, Green, Purple, Red

Sentinel SiteWatch

Signal Input: RS-485
Signal Output: Ethernet; Cellular
Power Input: 115-230 VAC

Electrical Classification
NEMA 4X corrosion resistant weatherproof

Network Configuration Tool

Display
10.1" Wide (LED Backlit, 1366x768) Dual Bonded

Processor/Cache
Intel Atom Z670 processor (1.5 Ghz)

Inputs
Touch (Capacitive Multi-Touch) and Pen (Active Stylus)

Input Voltage
100-240VAC~1.5A, 50-60Hz
Lithium-ion Battery with 43WHr capacity (up to 8 hours)

Operating Temperature Range
41ºF to +109ºF, +5°C to +43°C

BM 25W

Display: LCD with backlight

Sensor Type
Electrochemical for Toxics and Oxygen
Catalytic Diffusion for Combustible Gas
PID for Isobutylene
Infrared for CO2, Methane, Propane Butane, Isobutane, LPG, Ethanol and Pentane

Audible Alarm
103 dB @ 1 meter

Visual Alarm
Ultrabright LED beacon visible 360 degrees

Run Time: 135 hours

Battery Options

Smart Rechargeable Pack

Power Rating - 13.2 AH; High Capacity Version - 17.4 AH

Operating Temperature Range
-20°C to +60°C; -4°F to +140°F

Pack with Disposable “C” Cells (3.6V)

Power Rating
8.5 AH

Operating Temperature Range
-55°C to +85°C; -67°F to +185°F

Pack with Disposable “D” Cells (3.6V)

Power Rating
19 AH; High Output Version - 13 AH (for alarms only)

Operating Temperature Range
-55°C to +85°C; -67°F to +185°F
-40°C to +85°C; -40°F to +185°F (High Output Version)

Solar Power Options

Electrical Classification
1.5 and 3 Watt - Class I; Div 1 Groups C, D
5, 10, 20 and 40 Watt - Class 1, Div 2