TracXP™
Industrial Gas Solutions
by Macurco

WIRELESS APPLICATION AND PRODUCT GUIDE

This guide provides an overview of TracXP Wireless products, applications and solutions for contractors, emergency responders, engineers, integrators and other safety professionals.

MACURCO

GAS DETECTION

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WHY UTILIZE A GAS DETECTION SYSTEM?

SAFETY

Critical safety monitoring is paramount in industrial settings to protect personnel, facilities, the environment, and surrounding areas and populations. Continuous monitoring ensures around the clock protection in hazardous environments for toxic and combustible gases. Wireless gas detection provides flexibility in deployment options to provide the ultimate in area coverage and notification. Wireless gas detection can provide quickly deployable systems for temporary monitoring needs such as planned outages, turnarounds and emergency response.

SYSTEM FLEXIBILITY

As processes and hazards in the industrial workplace are ever-evolving, wireless gas detection provides flexibility and scalability that hard-wired systems cannot. Magnetically mounted wireless gas transmitters in single or dual sensor configurations can easily be relocated as processes and hazards change. Additional protection can be installed in most cases by simply adding additional detectors to an established wireless network. Remote monitoring via cellular and/or satellite connectivity provides the ultimate solution for remote monitoring, notification and data archiving.

ECONOMICS

Wireless gas detection systems can greatly reduce engineering time and costs. With minimal labor and materials required for typical wireless setups, installation costs are also greatly reduced. Battery powered units are quickly deployable in urgent monitoring situations and for emergency response. Wireless systems are also well suited for remote and un-manned locations without power as low voltage DC solar panel options are available.

APPLICATIONS

Wireless gas detection is used in a wide variety of industrial applications. In North America, the robust 900 MHz radios provide line-of-sight communications up to three miles. Outside of North America, license free 2.4 GHz radios can provide up to 1,500 feet of line-of-sight communications and are generally accepted across the globe. Signal validation tools, antenna options and remote monitoring via cellular and/or satellite networks provide near real-time alarm annunciation, call-out capability and archiving of critical data.

Wireless gas detection systems are used extensively in Oil & Gas applications, particularly upstream applications such as drilling, flowback and fracking operations. Wireless monitoring is also a great alternative for tank batteries and production pads. These can also provide perimeter monitoring in Mid-Stream and Down-Stream facilities as well as temporary monitoring during unit turnarounds.

Other application examples include, but are not limited to, the following:

- **Oil and Gas** - Due to size and infrastructure, tank farms and terminals can benefit from greatly reduced installation times and costs through utilization of wireless gas detection systems for hydrogen sulfide, combustible gases and others.

- **Water and Wastewater Treatment** - Water sent to these facilities can contain chemicals, oils and human waste. Various treatment processes involving the use of chemicals and gases can create oxygen deficient, toxic and/or combustible environments. Wireless systems are easily deployable outdoors for communication across vast distances of the site.

- **Chemical and Petrochemical** - Chemical and petrochemical manufacturing can utilize wireless gas detection systems for combustible and toxic gases to monitor specific units and buildings as well as perimeter monitoring. In some cases, hybrid systems consisting of both wired and wireless devices may be utilized for the ultimate in gas detection protection.

- **Manufacturing** - Any general manufacturing facility with combustible and/or toxic gas detection needs looking for rapidly deployable systems can benefit through utilization of a wireless solution.

- **Power Generation** - Power plants, in part due to their expansive size and open layout, are great candidates for wireless gas detection. Plants utilizing ammonia injection for emission control can place wireless detection around ammonia storage areas as well as other locations in the facility with combustible or other toxic gas hazards.

- **Warehouses** - Gas hazards in warehouse facilities may derive from vehicle emissions, storage of toxic and/or combustible gases, battery charging stations and others. Wireless systems allow for easier installations when retrofitting an older building or facility.

- **Food and Beverage** - Food and beverage facilities, including meat packing plants, may be required to monitor for ammonia, carbon dioxide, oxygen, hydrogen sulfide and many other gases depending on the processes involved. New installs and retrofits utilizing wireless detection technologies reduce the amount of conduit, cable, labor and engineering involved.

- Virtually any facility with continuous or temporary gas detection needs will benefit from utilizing wireless technologies for a combustible and/or toxic gas detection system.

TYPES OF GASES FOUND

Typical toxic and combustible gases that can be monitored with TracXP wireless gas detection systems include:
- Ammonia • Carbon Dioxide • Carbon Monoxide • Chlorine • Chlorine Dioxide • Hydrogen • Hydrogen Chloride • Hydrogen Cyanide • Hydrogen Sulfide • Mercaptan • Nitric Oxide • Nitrogen Dioxide • Oxygen (deficiency and/or enrichment) • Ozone • Phosphine • Sulfur Dioxide **As well as a wide variety of hydrocarbons including:** Propane • Methane • Butane • Ethanol • Acetylene • Many others

CONNECTIVITY OR INTEGRATION

There are many forms of wireless communication used within the TracXP product family.

900 MHz

900 MHz is a robust, license free (North America) radio band used for local communications and transmits up to two to three miles line-of-sight (LOS). This is how the interaction occurs between the Wireless Transmitter Assembly (TXP-WTA), the Wireless Control Receiver (TXP-WCR) and the Wireless Alarm Relay (TXP-WAR). The TXP-WAR is the core of our wireless notifcation, such as the Alarm Notification Assembly (TXP-ANA) or the Wireless Alarm Bar (TXP-WAB). If distance needs to be increased, a Wireless Radio Repeater (WRR) is available. Prior to installation and set up, all monitoring points should be validated for signal strength via the Signal Validation Tool (TXP-SVT).

Wi-Fi

Wi-Fi is a family of wireless network protocols commonly used for local area networking of devices and internet access. This is an add-on option for the TXP-WCR, and provides real-time notification of site-specific alarm and trouble conditions. Remote programming of alarm setpoints and other configurable options is also possible with this technology. Wi-Fi on the TXP-WCR uses the 2.4 GHz radio band.

Satellite

Satellite communciations utilize high frequency radio waves to enable data transmission in remote locations. Our Remote Monitoring Solution (TXP-RMS) delivers real-time field and operational intelligence for any wireless or wired gas detection system. The TXP-RMS is available in both non-hazardous and Class 1, Division 2 configurations, and provides users with a secure method for data collection and a convenient way to view and analyze it. This solution supports economical satellite transmission through communication of alarm and trouble events and exceptions in lieu of streaming data.
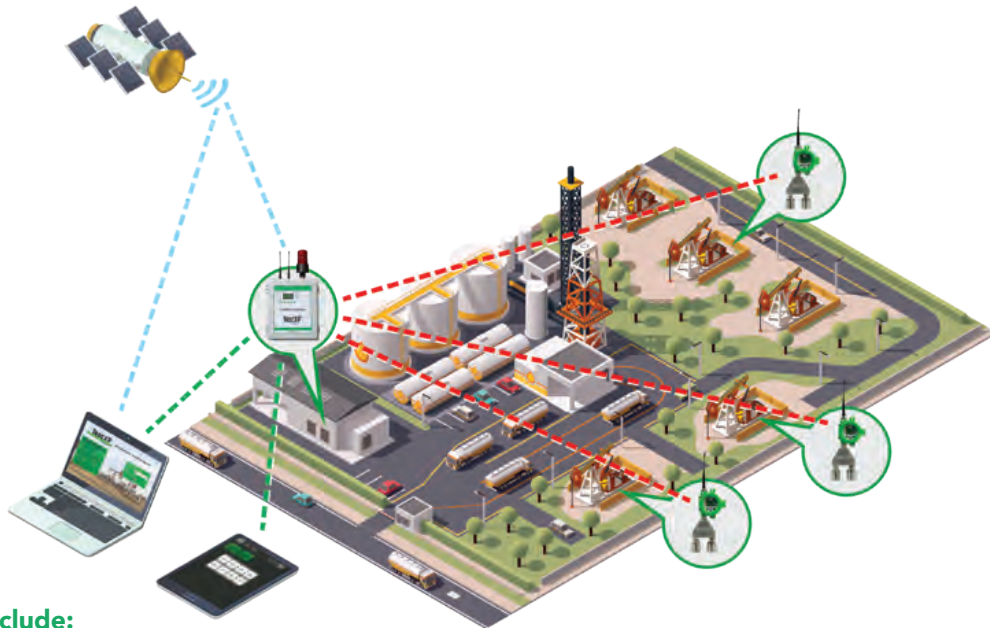
TXP-RMS features include:

- Automated Phone Callout (APC) function includes phone, text messaging and email communication
- Requires remote acknowledgment for callout cancellation
- Continuous datalogging provides historical event logging and data archival
- 24/7/365 real-time knowledge of what's happening, where and when
- Geographical mapping functionality provided through a user-friendly Graphical User Interface (GUI) supports multiple sites

TracXP INDUSTRIAL GAS MONITORS

The **TXP-WTA** is a dual sensor universal transmitter capable of detecting a wide variety of combustible and toxic gases.

TXP-WTA KEY FEATURES

- Dual sensor capable with integral & remote sensor options
- Remote sensor kit provides provides up to 15' of separation
- Class 1, Div. 2 (standard) w/ Class 1, Div. 1 option
- Rugged aluminum or polycarbonate enclosure options
- Intuitive, nonintrusive magnetic user interface w/ optional password for menu security
- Operates on 3.6V D cell lithium-ion disposable battery
- Powered 12-24 VDC option is suitable for solar panel installation and includes a 4-20mA input
- Magnetic mount kits allow for rapid deployment and installation flexibility
- Optional rainshield and calibration adapter for increased functionality and water ingress protection
- Straightforward two-point calibration (zero and span) accomplished in four keystrokes per sensor

The **TXP-WCR** is a wireless controller and receiver that provides local hazard monitoring, alarm annunciation and data retransmission capabilities for up to 32 sensor inputs.

TXP-WCR KEY FEATURES

- Robust 900 MHz or 2.4 GHz Radios
- Wi-Fi option for local area network (LAN) access to embedded webpage and alarm notification
- Nonintrusive magnetic interface & internal push buttons
- Supports up to (32) wireless sensor inputs
- (8) Standard programmable relays
- Polycarbonate Class 1, Division 2 enclosure
- Stainless steel Class 1, Division 2 enclosure available
- Powered by 100-240 VAC or 10-30 VDC
- Options:
  - Wired and wireless Modbus
  - Ethernet w/ embedded webpage
  - Event logging
  - TXP-RMS remote monitoring solution
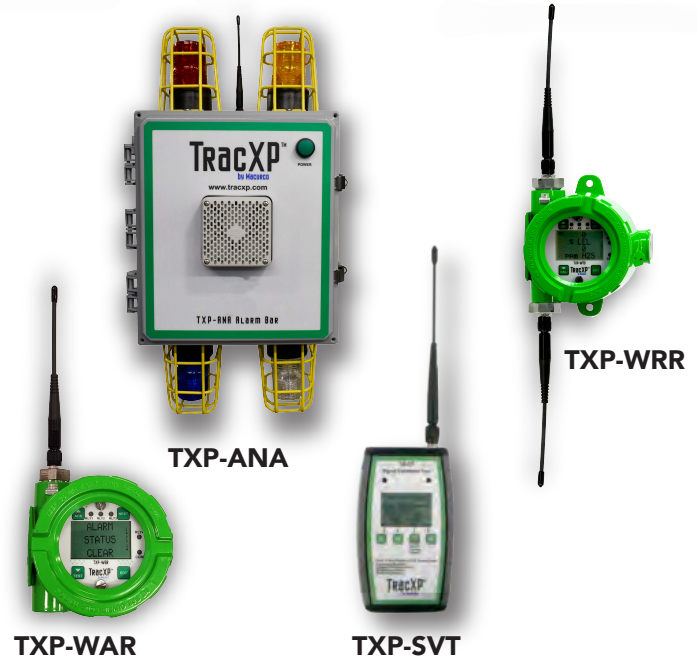
TracXP Industrial Gas Monitors

ACCESORIES

TXP-ANA (Alarm Notificiation Assembly)

TXP-WAR (Wireless Alarm Relay)

TXP-WRR (Wireless Radio Repeater)

TXP-SVT (Signal Validation Tool)

TXP-WRR

TXP-ANA

TXP-WAR

TXP-SVT

Yagi directional

Class 1, Division 1 dipole

High-gain base station

Omni-directional fiberglass

The standard antenna is 2.5 dBi (decibel relative to isotrope).

ADDITIONAL ANTENNA OPTIONS

- Yagi directional (3 dBi or 6 dBi)
- High-gain base station (5 dBi)
- Omni-directional fiberglass (8 dBi)
- Class 1, Division 1 flexible dipole antenna and connector (2 dBi)
- Remote antenna via coax cable extension (10', 25' and 50' lengths available)