



MITE WIS™

A Wireless Miniature Multi-Channel Data Acquisition Unit

**MODEL
IVC1761004**

INVOCON, INC. 19221 IH-45 South, Suite 530 • Conroe, TX 77385 • Ph 281-292-9903 • Fx 281-298-1717 • www.invocon.com

- **Wireless Data Acquisition Unit**
- **RF Data Transmission and Commanding**
- **Data Recording in On-Board Memory**
- **4 Transducer Channels**
- **Programmable Sample Rates**
- **Replaceable Battery**
- **Environmentally Sealed**

Description

The MITE WIS is one of a series of products in Invocon's Micro WIS family (Microminiature Wireless Instrumentation System). MITE WIS is a **small**, extremely **low-power**, autonomous, **wireless** device designed for **extended data acquisition** and **recording** applications. Each unit can be configured for up to four channels of voltage or resistive sensors: strain gages, resistive thermal devices (RTDs), pressure sensors, humidity sensors, accelerometers, etc. Units are factory-configured for specific customer transducer requirements.

Data is transmitted wirelessly to an RF (radio frequency) receiver, which is connected to a PC via the RS-232 or USB connection. Any number of MITE WIS units can be placed within a single RF coverage area. There are **three modes of data transfer** from the MITE WIS units to the Receiver: (1) data is transmitted **via RF in real-time** and graphically displayed while being stored in the PC as an ASCII file; (2) data is **stored** into non-volatile memory and later downloaded via RF to the Receiver; or (3) a **combination** of modes 1 and 2, transmitting data in real-time while storing the data locally.

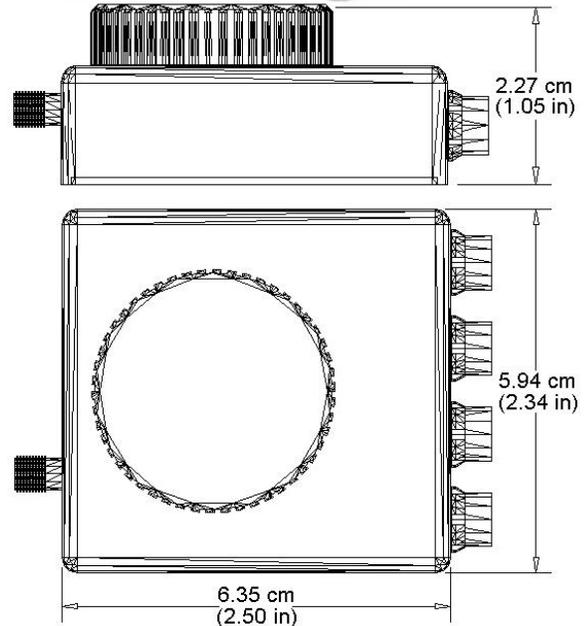
The MITE WIS unit was designed as an **extended-life** unit. The battery has a life of two years under typical operating conditions and with most transducers. The battery is commonly available and easily replaced by removing the threaded cap.

Each data transmission from the MITE WIS is passed to the PC where the Graphical User Interface (GUI) decodes, time-stamps, saves, and plots the incoming data in real-time. Sample rates are **programmable** with the GUI from 1 sample per 15 seconds to 1 sample per hour. The GUI incorporates temperature-compensated calibration coefficients for each MITE WIS channel allowing for accurate, simultaneous conversion to engineering units for any type of sensor.

The electronics are entirely encapsulated, the battery is sealed with a gasket, and all connectors are intended for rugged outdoor usage.



**Model IVC1761004
Records and
Transmits via RF
4 Channels of
Sensor Data**



**Model IVC911003
RF Receiver Unit with RS-232 or
USB connector**



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SPECIFICATIONS

MITE WIS – Model IVC1761004

Sample Rate	1 sample every 15 seconds to 1 sample/hour, programmable via wireless link (Optional: Up to one sample/second configured at factory with reduced number of units in operation)
Memory	2 Mbytes – Stores up to 145 days of data when sampling all four channels plus internal temperature.
Transmission Rate	55.6 kilobits/second
Communication Mode	Half duplex @ 916.5 MHz
Max Transmit Power	1 milliwatt
Coverage Range	Direct Line-Of-Site (LOS): Up to 200 feet No LOS: Up to 100 feet

Battery

Type	Lithium-Ion, 3.6 volts, Tadiran model TL-5135 (for applications with operation below 0°C use TL-2135)
Life	2 yrs @ one sample/minute (Reduce battery life by 50% when continuous operation below 0°C.)

Unit Storage/Operating Temperature	-35 to +85°C
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Transducers

See the *Common Applications and Sensor Unit Selection Guide* for more information regarding common transducers and applications (available at http://www.invocon.com/MITE_WIS.html)

Quantity	Up to four input channels
Type	Resistive, optional full bridge completion or Voltage-output
Excitation	1.2 to 2.5V, factory set
Gain/Filter	Factory set to customer requirements
A/D	16-bit Sigma Delta
Connector	4-pin, Fischer 102-Series

Internal Temperature Sensor

Type	10-bit Digital
Accuracy	±2°C
FS Range	-35 to +85°C
Resolution	0.25°C

Antenna

Type	902 MHz Duck Antenna (9 cm length)
Connector	SMA (optional 90° elbow as pictured on page 1)

Dimensions	(see outline drawing on page 1)
Packaging	Ruggedized, environmentally sealed
Weight	135gm (4.8oz)
Case Material	Delrin®

RF RECEIVER UNIT – Model IVC911003

Receives data from any MITE WIS Unit in its RF space. Plugs into RS-232 or USB port (with RS-232/USB adapter) of PC.
Dimensions 9 x 4 x 1.7cm, 9 cm antenna, minimum 35 cm cable length

MITE WIS Software – Model IVC1761013

Software that provides a simple user interface for monitoring, graphically displaying, and storing transducer data, and for setup (e.g. sample rates) of MITE WIS units. One license supplied with each Model IVC911003 Receiver unit. This software is Windows NT/2000/XP compatible.

Included Accessories

IVC1761021-001	Tadiran TL-5135 replaceable battery
IVC1761022-001	90° SMA Elbow
IVC1761023-001	902 MHz Duck Antenna (¼ wave)

Optional Accessories

IVC1761024-0y ^x	Connector Kits for transducer cable 1 each: Fischer S102 A053-130+ Plug Fischer E31 102.2/#+B Cable Clamp Fischer E4 102.190.x Bend Relief
IVC1761025-001	RS-232 Serial-to-USB Adapter Kit
IVC1761026-001	Chrome Receptacle Sealing Cap Fischer 102.1575 (pictured on page 1)
IVC1761027-001	Delrin® Receptacle Sealing Cap Fischer 102.776

y	Cable Diameter
0	1.5-2.1mm
1	2.1-2.6mm
2	2.6-3.1mm
3	3.1-3.6mm
4	3.6-4.1mm
5	4.1-4.3mm

x	Strain Relief Color
1	Black
2	Green
3	Blue
4	Yellow
5	Red
6	Grey

Ordering Information:

For the MITE WIS Sensor unit please refer to the *Common Applications and Sensor Unit Selection Guide* available at http://www.invocon.com/MITE_WIS.html.

IVC911003	RF Receiver Unit
IVC1761013	Graphical User Interface (GUI) software on CD