



CONSPEC[®]

Innovation that digs deeper.

WIOD



SMART HEAD[®]

Smart Solutions for Safety and Productivity.



The Conspec/Northern Light Technologies Smart Head WIOD WiFi Gas Monitors provide improved accuracy, response time and long life while reducing cost, equipment redundancy, and configuration time.

Each Smart Head WIOD WiFi Gas Monitor operates on standard 802.11b/g/n WiFi eliminating the separate need for communications cabling while providing secure MODBUS communications using WEP, WPA/WPA2 authorization where WiFi is available.

- **Plug and Play Sensor Technology – Smart Head WIOD WiFi Gas Monitors Store Important Values Including Sensor Technology, Sensor Ranges, Temperature Compensation Tables, Calibration Values and History**
- **Secure MODBUS communications over standard 802.11 b/g/n WiFi with WEP, WPA/WPA2**
- **Reduced Signal Noise as Sensor Reading is Digitized at the Source**
- **Fully Configurable via Conspec CDI Software**
- **Full Range of Electrochemical, Point Infrared and Ultraviolet Photo-Ionization Gas Sensors and Mini-Weather Station (Wet & Dry Bulb Temperature, Barometric Pressure and Humidity Available)**
- **Hot Swappable Replacement Sensor Heads for Ease of Maintenance and Calibration**
- **3-4 Hour Battery Backup**
- **Low Power Consumption**
- **One Year Warranty**

Ease of Installation

Smart Head WIOD WiFi Gas Monitors can be easily deployed wherever standard 802.11 WiFi is available and are easily re-deployable when monitoring needs change.

Increased Accuracy

Smart Head Remote Sensors are easily mounted at the ideal location for the target gas thus increasing accuracy with heavier and lighter than air gases.

Plug and Play Sensor Technology

Smart Head WIOD WiFi Gas Monitors auto-detects and configures itself to the default settings for the specific Smart Head Sensor type connected to it.

High Environmental Immunity

Smart Head WIOD WiFi Gas Monitors undergo factory calibration through the full operating range of the sensor to allow individualized temperature compensated readings through the full span of the sensor cell. Humidity is also controlled through the unique design of the sensor cell assembly.

Preventative Maintenance Condition Monitoring

Calibration Alert Mode can be activated to remind users ahead of pre-planned calibration schedule for each attached Smart Head Sensor. Calibration History for all attached Smart Head Sensors is stored and analysis mode can be activated to alert for the need for plug-in sensor replacement.

Increased Sensor Data Through Digital Communications

Each Smart Head WIOD WiFi Gas Monitor communicates to the surface using digital communications (MODBUS RTU, MODBUS TCP-IP) through standard 802.11 WiFi Networks. This ensures that signal noise is significantly reduced and allows for the retrieval of other important operating parameters such as operating temperature and voltage for improved sensor cell performance analysis.



WIOD Specifications

Mechanical

Enclosure	NEMA 4x/IP67 ABS/Polycarbonate Enclosure, Membrane Fine Texture Polyester Pad
Dimensions	
Weight	
Mounting	Multiple Mounting Options

Electrical

Operating Voltage	5VDC 1A, External AC Input (110-220VAC)
Cable Connections	Power Cable, Optional Digital I/O Module (1 x Output, 2 x Input)
Current Consumption	20-60mA depending on Sensor Type
Communication protocol	MODBUS RTU or MODBUS TCP-IP over 2.4 GHz 802.11 b/g/n WiFi
Radio Output Power	17dBm
Security	WEP, WPA/WPA2 Authority

Environmental

Operating Temperature	14°F to 120°F (-10°C to 50°C)
Operating Humidity	10% to 95% RH Non-Condensing
Temperature Compensation	Full Range

System

Display	2.3" (5.9cm) LCD Display
Keypad	8 Button Keypad
Status LEDs	2 x Status LEDs – Power On/Off, WiFi Indicator
Operating Modes	2 – Normal and Calibration
Alarm Set Points	3 Alarm Set Points
Remote Configuration	Conspec CDI Windows Software (Included with Purchase), Conspec Senturion SCADA System Software, Northern Lights Technologies Digital Mines Software.

WIOD Specifications

	Oxygen WIOD-1125	Carbon Monoxide (CO) WIOD-03XX, (XX- range)	Nitric Oxide (NO) WIOD-0912
Specifications			
Sensor Type	Electrochemical	Electrochemical	Electrochemical
Detection Range	0-25% Vol.	0-50ppm, 0-100ppm, 0-500ppm, 0-1000ppm	0-100ppm
Performance			
Response Time	T90: <15s	T50: <10s T90: <30s	T90: <10s
Accuracy	0.1% Vol.	0.5ppm	0.5ppm
Zero Drift	<5% per year	<5% per year	Max. 9ppm
L-T Output Drift	<0.1% of signal per year	<1% of signal per year	2% of signal per month
Certifications			
CSA/ESA	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available
IECeX	Pending	Pending	Pending
CE/ATEX	Pending	Pending	Pending
MSHA	Pending	Pending	Pending
UL	Pending	Pending	Pending
Recommended Sensor Placement			
Placement	4-6ft./120-180cm above Ground/Floor	4-6ft./120-180cm above Ground/Floor	4-6ft./120-180cm above Ground/Floor
Replacement Sensor Cell			
Part Number	CA0037	CA0040	CA0050
	Nitrogen Dioxide (NO2) WIOD-1051	Ammonia (NH3) WIOD-0112	Sulfur Dioxide (SO2) WIOD-1322
Specifications			
Sensor Type	Electrochemical	Electrochemical	Electrochemical
Detection Range	0-50ppm	0-100ppm	0-200ppm
Performance			
Response Time	T50: <10s T90: <40s	T50: <20s T90: <120s	T90: <15s
Accuracy	0.1ppm	2ppm	0.1%
Zero Drift	Max. 0.2ppm	<10% per 6 months	Max: 0.1ppm
L-T Output Drift	<2% of signal per month	<5% of signal per month	<2% of signal per month
Certifications			
CSA/ESA	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available
IECeX	Pending	Pending	Pending
CE/ATEX	Pending	Pending	Pending
MSHA	Pending	Pending	Pending
UL	Pending	Pending	Pending
Recommended Sensor Placement			
Placement	4-6ft./120-180cm above Ground/Floor	6-18inches/15-45cm below Ceiling	6-18inches/15-45cm above Ground/Floor
Replacement Sensor Cell			
Part Number	CA0007	CA0004	CA0046

WIOD Specifications

	Hydrogen (H2) WIOD-0623	Hydrogen Chloride (HCl) WIOD-0751	Hydrogen Sulfide (H2S) WIOD-0822
Specifications			
Sensor Type	Electrochemical	Electrochemical	Electrochemical
Detection Range	0-2000ppm	0-50ppm	0-200ppm
Performance			
Response Time	T50: <25s T90: <50S	T50: <25s T90: <120s	T50: <10s T90: <35s
Accuracy	2ppm	0.5ppm	0.25ppm
Zero Drift	Max -35ppm	Max 1.5ppm	Max. 2ppm
L-T Output Drift	<2% of signal per month	<2% of signal per month	<1% of signal per month
Certifications			
CSA/ESA	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available
IECeX	Pending	Pending	Pending
ATEX	Pending	Pending	Pending
MSHA	Pending	Pending	Pending
UL	Pending	Pending	Pending
Recommended Sensor Placement			
Placement	6-18inches/15-45cm below Ceiling	6-18inches/15-45cm above Ground/Floor	4-6ft./120-180cm above Ground/Floor
Replacement Sensor Cell			
Part Number	CA0015	CA0005	CA0008
<hr/>			
	Hydrogen Cyanide (HCN) WIOD-XX31	Chlorine (Cl2) WIOD-0421	Mini-Weather Station WIOD-MW
Specifications			
Sensor Type	Electrochemical	Electrochemical	Temperature, Barometric Pressure, Humidity
Detection Range	0-30ppm	0-20ppm	
Performance			
Response Time	T50: <25s T90: <50s	T50: <30s T90: <60s	<10s
Accuracy	0.5ppm	0.1ppm	<1%
Zero Drift	<5%	Max. 0.2ppm	Max 1%
L-T Output Drift	<5% per month	<2% of signal per month	<1% of signal per year
Certifications			
CSA/ESA	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available
IECeX	Pending	Pending	Pending
ATEX	Pending	Pending	Pending
MSHA	Pending	Pending	Pending
UL	Pending	Pending	Pending
Recommended Sensor Placement			
Placement	6-18inches/15-45cm above Ground/Floor	6-18inches/15-45cm above Ground/Floor	4-6ft./120-180cm above Ground/Floor
Replacement Sensor Cell			
Part Number	CA0053	CA0014	N/A

WIOD Smart Head WiFi Gas Monitors for other gasses not listed are available upon request. Contact Conspec for Availability.

WIOD Specifications

	Combustibles WIOD-1511	Combustibles WIOD-1521	Carbon Dioxide (CO2) WIOD-0253
Specifications			
Sensor Type	Point Infrared	Point Infrared	Point Infrared
Detection Range	0-5% Volume, 0-100%LEL	0-100%LEL	0-5000ppm
Performance			
Response Time	T50: <10s T90: <15s	T50: <10s T90: <30s	T50:<10s T90: <30s
Accuracy	0.01% Vol.	0.1% Vol.	50ppm<2500ppm<100ppm
Zero Drift	<3%	<3%	<2%
L-T Output Drift	<0.1% of signal per year	<1% of signal per year	<1% of signal per month
Certifications			
CSA/ESA	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available
IECeX	Pending	Pending	Pending
CE/ATEX	Pending	Pending	Pending
MSHA	Pending	Pending	Pending
UL	Pending	Pending	Pending
Replacement Sensor Cell			
Part Number	CA0038	CA0049	CA0048

	Dual Combustibles/Carbon Dioxide (CO2) WIOD-1531 Combustibles Specifications	Dual Combustibles/Carbon Dioxide (CO2) WIOD-1531 Carbon Dioxide Specifications
Specifications		
Sensor Type	Point Infrared	Point Infrared
Detection Range	CH4: 0-100% Vol.	CO2: 0-5% Vol.
Performance		
Response Time	T50: <10s T90: <30s	T50: <10s T90: <30s
Accuracy	0.01%Vol.<5%Vol.<0.1%Vol.	0.01% Vol.
Zero Drift	<1%	<500ppm
L-T Output Drift	Max. <3% per year	500ppm per month
Certifications		
CSA/ESA	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available
IECeX	Pending	Pending
CE/ATEX	Pending	Pending
MSHA	Pending	Pending
UL	Pending	Pending
Replacement Sensor Cell		
Part Number	CA0052	CA0052

Smart Head Controllers with Internal Infrared Sensors can be configured for the detection of a variety of Combustible Gases such as Methane (CH4 and Propane (C3H8). Contact Conspec for availability of specific combustible gas configuration.



WIOD Specifications

	Photo-Ionization Sensor WIOD-PID21	Photo-Ionization Sensor WIOD-PID23	Photo-Ionization Sensor WIOD-PID14
Specifications			
Sensor Type	Ultra-Violet Photo-Ionization	Ultra-Violet Photo-Ionization	Ultra-Violet Photo-Ionization
Detection Range	0-20ppm (Isobutylene)	0-2000ppm (Isobutylene)	0-10000ppm (Isobutylene)
Performance			
Response Time	T90: <3s	T90: <3s	T90: <3s
Accuracy	0.01ppb	0.1ppb	1ppb
Min. Detectible Quantity	5ppb	50ppb	100ppb
Zero Drift	<1%	<1%	<1%
L-T Output Drift	Negligible	Negligible	Negligible
Certifications			
CSA/ESA	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available
IECeX	Pending	Pending	Pending
CE/ATEX	Pending	Pending	Pending
MSHA	Pending	Pending	Pending
UL	Pending	Pending	Pending
Replacement Sensor Cell			
Part Number	CA0054	CA0055	CA0056

Smart Head Controllers with Internal Ultraviolet Photo-Ionization Sensors can be configured for the detection of a variety of Gases.

List of some common gas types detectible by Conspec Ultraviolet Photo-Ionization Gas Sensors:

Acetic Acid (CH₃COOH), Acetone ((CH₃)₂CO), Ammonia (NH₃), Arsine (AsH₃), Benzene (C₆H₆), Butadiene (C₄H₆), Carbon Disulfide (CS₂), Diesel Fuel (Various), Ethanol (C₂H₆O), Ethyl Mercaptan (C₂H₆S), Gasoline (Various Grades), Heptane (C₇H₁₆), Hydrogen Sulfide (H₂S), Methanol (CH₄O), Methyl Mercaptan {Stench Gas} (CH₄S), n-Hexane (C₆H₁₄), Nitric Oxide (NO), Nitrogen Dioxide (NO₂), Octane (C₈H₁₈), o-Xylene (C₈H₁₀), p-Xylene (C₈H₄(CH₃)₂), Styrene (C₈H₈), Toluene (C₇H₈).

Contact Conspec for Availability of Ultraviolet Photo-Ionization Detection of Other Gases.

See the Smart Head Remote Sensors Spec Sheets for Additional Available Sensors for Connection to the Smart Head Controller.

Contact Conspec or your local Conspec Distributor for Further Information and Availability.



WIOD Specifications

Accessories

T1336-XXXX	Replacement Smart Head Plug In Sensor Assembly – Remote (XXXX - Specify Gas and Range)
T1336-MW	Replacement Smart Head Plug In Sensor Assembly – Remote Mini-Weather Station
CDI	Conspec CDI Software
P3013-SH	Smart Head Calibration Cap
P3013-SH-1	Smart Head Calibration Cap w/ 4'x3/16" I.D. x 5/16" O.D Tubing
P1879	Calibration Kits (see Calibration Supplies Specifications Sheet)
P1880	Calibration Gas Cylinders (see Calibration Supplies Specifications Sheet)

Conspec Controls Ltd.
 25 Klondike Drive
 Toronto, Ontario, Canada
 M9L 1S1

Phone: +1 (416) 661-0500 • Fax: +1 (416) 736-1684
 Toll Free (Can./US only): +1 (877) 526-6773
 sales@conspec.ca • www.conspec.ca

Conspec Controls Ltd.
 666 Burrard Street
 Vancouver, BC, Canada
 V6C 3P6

Phone: +1 (604) 642-6123 • Fax: +1 (604) 688-2419
 Toll Free (Can./US only): +1 (877) 526-6773
 sales@conspec.ca • www.conspec.ca

Conspec Controls Pty., Ltd.
 Suite 2, 1 Shaw Road
 Ingleburn, NSW 2565
 Australia

Phone: +61 (2) 9829-3633 • Fax: +61 (2) 9829-3488
 Toll Free (Can./US only): +1 (877) 526-6773
 sales@conspec.au • www.conspec.ca

© 2014 Conspec Controls Limited

The Conspec Logo is a trademark and service mark of Conspec Controls Limited. Conspec, Conspec Controls and Smart Head are registered trademarks of Conspec Controls Ltd. All other marks and logos are the property of their respective owners.

The contents of this publication are presented for information purposes only, and while effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.