



**CONSPEC**<sup>®</sup>

Innovation that digs deeper.

# T1218

## **SMART HEAD**<sup>®</sup> Smart Solutions for Safety and Productivity.



The T1218 Smart Head Remote Electrochemical Gas Sensors provide improved accuracy, response time and long life while reducing cost, equipment redundancy, and configuration time.

Each T1200 Smart Head Controller can interface with up to eight interchangeable Smart Head Sensors for toxic and combustible gases, air velocity, atmospheric conditions (wet and dry-bulb temperatures, barometric pressure, humidity) or any choice of third party analog (4~20mA) sensing devices.

- **Plug and Play Sensor Technology – Smart Head Remote Sensors Store Important Values Including Sensor Technology, Sensor Ranges, Temperature Compensation Tables, Calibration Values and History**
- **Reduced Signal Noise as Sensor Reading is Digitized at the Source**
- **Fully Configurable via T1200 Smart Head Controller/ Conspec CDI Software/Conspec Senturion SCADA System**
- **Full Range of Electrochemical Toxic Gases, Hydrogen (H<sub>2</sub>) and Oxygen (O<sub>2</sub>) Available**
- **Long Range Sensor Separation – Each Smart Head Remote Sensor Can Be Located Over 4000ft./1200m from T1200 Smart Head Controller**
- **Hot Swappable Replacement Sensor Heads for Ease of Maintenance and Calibration**
- **Low Power Consumption – less than 20mA**
- **One Year Warranty**

### **Ease of Installation**

Smart Head Remote Sensors connect to the T1200 Smart Head Controller by means of pre-measured cables with NEMA 4x/IP66 Quick Connects eliminating the need for complicated field wiring.

### **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**

The Smart Head Controller auto-detects and configures itself to the default settings for the specific Smart Head Remote Sensor connected to it via local Smart Head Trunk.

### **High Environmental Immunity**

Smart Head Remote Sensors 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. The T1200 Smart Head Controller can compensate readings based on known cross-sensitivities of the connected sensors, such as diesel discrimination or hydrogen compensation to reduce nuisance alarms.

### **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 Sensor communicates to the Smart Head Controller using digital communications (either MODBUS RTU or Conspec Accessor Protocols). This ensures that signal noise between the Smart Head Controller and each Smart Head Sensor 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.

### **Certified for use in Coal Mines**

Smart Head Remote Sensors are internationally certified for use in high methane environments when connected to a certified intrinsically safe power source.



# T1218 Specifications

## Mechanical

Enclosure	NEMA 4x/IP66 Anti-Static PVC & Stainless Steel Enclosure
Dimensions	4.75" x 4.75" x 8" / 12.1cm x 12.1cm x 20.3cm
Weight	1 ½ lbs / 0.7 kg
Mounting	Plate Mounted, Holes for Suspension, Grooves for Slot Usage
Conduit Entry	Two (¾" Cable Grip) for local Smart Head Trunk

## Electrical

Operating Voltage	12-24VDC (15VDC or 18VDC for Intrinsically Safe Operation)
Cable Requirements	4-Conductor 18 AWG Suggested, Conspec P1209 Trunk Cable Recommended
Cable Connections	2 x Female NEMA 4x/IP66 3 Pin Quick Connects
Current Consumption	less than 20mA
Communication protocol	MODBUS or Conspec Accessor via Smart Head Local Trunk

## Environmental

Operating Temperature	-4°F to 120°F (-20°C to 50°C)
Operating Humidity	10% to 95% RH Non-Condensing
Temperature Compensation	Full Range

## System

Status LEDs	1 x Dual Colour Status LED – Flashing Green: Normal Operation, Flashing Red: Comm./Sensor Fail Solid Green: Calibration Zero Gas, Solid Red: Calibration Span Gas
Operating Modes	2 – Normal and Calibration
Alarm Set Points	3 x User Defined Alarm Set Points.
Remote Configuration	T1200 Smart Head Controller, Conspec CDI Windows Software (Included with Purchase), Conspec Senturion SCADA System Software.



# T1218 Specifications

## Specifications – Smart Head Remote Sensors - Electrochemical

	Oxygen T1218-1125	Carbon Monoxide (CO) T1218-03XX (XX- range)	Nitric Oxide (NO) T1218-0912
<b>Specifications</b>			
Sensor Type	Electrochemical	Electrochemical	Electrochemical
Detection Range	0-25% Vol.	0-50ppm, 0-100ppm, 0-500ppm, 0-1000ppm	0-100ppm
<b>Performance</b>			
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
<b>Certifications</b>		<b>Certifications</b>	<b>Certifications</b>
CSA/ESA	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available
IECeX	Ma Ex d +ia I	Ma Ex d +ia I	Pending
CE/ATEX	Pending	Pending	Pending
MSHA	Pending	Pending	Pending
UL	Pending	Pending	Pending
<b>Recommended Sensor Placement</b>			
Placement	4-6ft./120-180cm above Ground/Floor	4-6ft./120-180cm above Ground/Floor	4-6ft./120-180cm above Ground/Floor
<b>Replacement Sensor Cell</b>			
Part Number	CA0037	CA0040	CA0050

	Nitrogen Dioxide (NO2) T1218-1051	Ammonia (NH3) T1218-0112	Sulfur Dioxide (SO2) T1218-1322
<b>Specifications</b>			
Sensor Type	Electrochemical	Electrochemical	Electrochemical
Detection Range	0-50ppm	0-100ppm	0-200ppm
<b>Performance</b>			
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
<b>Certifications</b>		<b>Certifications</b>	<b>Certifications</b>
CSA/ESA	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available	Pending, ESA Evaluation Available
IECeX	Ma Ex d +ia I	Ma Ex d +ia I	Pending
CE/ATEX	Pending	Pending	Pending
MSHA	Pending	Pending	Pending
UL	Pending	Pending	Pending
<b>Recommended Sensor Placement</b>			
Placement	4-6ft./120-180cm above Ground/Floor	6-18inches/15-45cm below Ceiling	6-18inches/15-45cm above Ground/Floor
<b>Replacement Sensor Cell</b>			
Part Number	CA0007	CA0004	CA0046



# T1218 Specifications

## Specifications – Smart Head Remote Sensors - Electrochemical

	Hydrogen (H2) T1218-0623	Hydrogen Chloride (HCl) T1218-0751	Hydrogen Sulfide (H2S) T1218-0822
<b>Specifications</b>			
Sensor Type	Electrochemical	Electrochemical	Electrochemical
Detection Range	0-2000ppm	0-50ppm	0-200ppm
<b>Performance</b>			
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
<b>Certifications</b>			
CSA/ESA	Pending, ESA Evaluation	Pending, ESA Evaluation Available	Pending, ESA Evaluation
IECeX	Available	Pending	Available
CE/ATEX	Pending	Pending	Pending
MSHA	Pending	Pending	Pending
UL	Pending		Pending
<b>Recommended Sensor Placement</b>			
Placement	6-18inches/15-45cm below Ceiling	6-18inches/15-45cm above Ground/Floor	4-6ft./120-180cm above Ground/Floor
<b>Replacement Sensor Cell</b>			
Part Number	CA0015	CA0005	CA0008

	Hydrogen Cyanide (HCN) T1218-XX31	Chlorine (Cl2) T1218-0421	Ozone (O3) T1218-1220
<b>Specifications</b>			
Sensor Type	Electrochemical	Electrochemical	Electrochemical
Detection Range	0-30ppm	0-20ppm	0-2ppm
<b>Performance</b>			
Response Time	T50: <25s T90: <50s	T50: <30s T90: <60s	T50: 30T90: <150s
Accuracy	0.5ppm	0.1ppm	20ppb
Zero Drift	<5%	Max. 0.2ppm	Max. 36ppb
L-T Output Drift	<5% per month	<2% of signal per month	<4% of signal per month
<b>Certifications</b>			
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
<b>Recommended Sensor Placement</b>			
Placement	6-18inches/15-45cm above Ground/Floor	6-18inches/15-45cm above Ground/Floor	6-18inches/15-45cm above Ground/Floor
<b>Replacement Sensor Cell</b>			
Part Number	CA0053	CA0014	CA0034

Smart Head Controllers with Internal Electrochemical Sensors for other gasses not listed are available upon request. See the Smart Head Remote Sensors Spec Sheets for Available Sensors for Remote Connection to the Smart Head Controller. Contact Conspec or your local Conspec Distributor for Availability.



# T1218 Specifications

## Accessories

T1336-XXXX	Replacement Smart Head Plug In Sensor Assembly – Remote (XXXX - Specify Gas and Range)
T1336-XXXX-IS	Replacement Smart Head Plug In Sensor Assembly – Remote (Intrinsically Safe) (XXXX – Specify Gas and Range)
CDI	Conspec CDI Software
EE0261-SHS	Replacement Smart Head Junction Box with NEMA 4x/IP66 Quick Connects for Smart Head Sensor Trunk
EE0261-SHJ	Smart Head Cable Splitter Box with NEMA 4x/IP66 Quick Connects
P1209SH-X	P1209 Smart Head Local Sensor Trunk Cable with NEMA 4x/IP66 Quick Connects (XX – Specify Length)
P1209AV-X	P1209 Smart Head Local Sensor Trunk Cable with NEMA 4x/IP66 Quick Connects for Conspec’s T1355 Air Velocity Remote Sensors (XX – Specify Length)
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.conspect.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.conspect.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.conspect.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.