



**CONSPEC**<sup>®</sup>

Innovation that digs deeper.

# T1218-IR



**SMART HEAD**<sup>®</sup>

Smart Solutions for Safety and Productivity.



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

Each T1218-IR 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 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**
- **Low Power Consumption – less than 60mA**
- **Fully Configurable via T1200 Smart Head Controller/Conspec CDI Software/Conspec Senturion SCADA System**
- **Full Range of Electrochemical Toxic Gases, Hydrogen (H2) and Oxygen (O2) 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**
- **Long Life – Point Infrared Smart Head Sensors Have a 5 Year Life**
- **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-IR 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 60mA
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-IR Sensor Specifications

## Specifications – Smart Head Remote Sensors - Infra-Red

	Combustibles T1218-1511	Combustibles T1218-1521	Carbon Dioxide (CO2) T1218-0253
<b>Specifications</b>	Specifications	Specifications	Specifications
Sensor Type	Point Infrared	Point Infrared	Point Infrared
Detection Range	0-5% Volume	0-100%LEL	0-5% Volume
<b>Performance</b>			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
<b>Certifications</b>			
CSA/ESA	Pending,	Pending,	Pending,
IECeX	Ex ia Ma	Ex ia Ma	Ex ia Ma
CE/ATEX	Pending	Pending	Pending
MSHA	Pending	Pending	Pending
UL	Pending	Pending	Pending
<b>Recommended Sensor Placement</b>			
Placement	Varies Depending on Target Gas	Varies Depending on Target Gas	4-6ft./120-180cm above Ground/Floor
<b>Replacement Sensor Cell</b>			
Part Number	CA0038	CA0049	CA0048

	Dual Combustibles/Carbon Dioxide (CO2) 1220-1531 Combustibles Specifications	Dual Combustibles/Carbon Dioxide (CO2) 1220-1531 Carbon Dioxide Specifications
<b>Specifications</b>		
Sensor Type	Point Infrared	Point Infrared
Detection Range	CH4: 0-100% Vol.	CO2: 0-5% Vol.
<b>Performance</b>		
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
<b>Certifications</b>		
CSA/ESA	Pending,	Pending,
IECeX	Ex ia Ma	Ex ia Ma
CE/ATEX	Pending	Pending
MSHA	Pending	Pending
UL	Pending	Pending
<b>Recommended Sensor Placement</b>		
Placement	Varies Depending on Target Gas Replacement Sensor Cell	4-6ft./120-180cm above Ground/Floor
<b>Replacement Sensor Cell</b>		
Part Number	CA0052	CA0052



# T1218-IR 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/ 4x3/16" 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)

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