

**Introducing the all new state of the art
Smart Head[®] Gas Monitoring System
from Conspec Controls**

Smarter than your average monitor
because it's digital



CONSPEC[®]

It monitors, records, remembers, warns and advises if it needs replacement... the new state of the art Smart Head Gas Monitoring System

Smarter than your average monitor yet because it's digital there is

- less complexity
- at a lower cost
- with greater reliability, and
- the ability to provide accurate fault finding through greater knowledge communication via the Modbus protocol,
- to allow Condition Monitoring Preventative Maintenance...

Smarter than analogue monitors

Smart Heads are the absolute state of the art. Superior to the opposition monitors which use an analogue signal, i.e. 4-20mA, to transmit the gas value to their controller. The Smart Head digitises the gas signal directly at the sensor, the gas value is read from the sensor cell, linearised, temperature compensate and scaled into the units that the particular Smart Head is calibrated for, i.e. ppm or %V/V. CO or CH4 etc. The Sensor transmits that value to the Controller, along with the temperature, operating voltage etc. if requested.

It has functions for, calibration, alarm configuration, outputs to drive strobes, or sirens and data memory.

Smarter design reduces material cost

The Smart Head Monitoring System is designed to reduce cost, equipment redundancy and configuration time, when several gases are being monitored at the same location by using a "smart" sensor, and separating the Sensor from the Controller.

The device consists of a micro processor, a gas sensor, temperature sensor and memory to store configuration parameters and current readings for access and communication by the Main Host using the Modbus protocol.

Smarter because it communicates using the most widely used protocol Modbus

Each Smart Head Controller can interface with up to eight Smart Head Sensors, each reading a different gas. The Smart Heads are powered from and communicate over a single four conductor backbone cable that is connected to the Controller. All serial communication uses the Modbus RTU open protocol, a widely used, rugged secure industrial protocol.

Smarter because it enables planned maintenance rather than response to critical failure

Important operating parameters stored in each Smart Head, such as a guaranteed unique serial number for unit life time tracking, all of which are available from the controlling host computer, to enable management to plan maintenance rather than respond to a perhaps critical sensor failure as with monitors that use analogue signal.

Characteristics	Smart Head Sensor DIGITAL	Competitor's Sensor ANALOG
Signal digitised at source, Gas value, temperature, etc, no analogue signals	YES	NO
Transmitted signal Noise immunity	Very High	Medium to low
Transmitted Signal Error Detection, CRC	YES	NO
Low power consumption	YES	Varies with gas level
Characterised over operating gas and temperature range	YES	NO
Use Open Modbus protocol	YES	NO
Stores Operating data for real time analysis	YES	NO
Unique embedded Serial Number for lifetime records	YES	NO
Stores previous calibration values, for real time sensor cell analysis	YES	NO
Smart device, stores all its operating parameters available in real time	YES	NO
IP66 rated, o ring sealed, in custom designed tough antistatic Nylon & SS case	YES	NO
SS plenum chamber sensor	YES	NO
Operating and Historic Data available in real time in the control room	YES	NO

Smarter initial range of 4 growing to 9 monitors to cover all eventualities

For stage one certification there are the four main coalmine gas sensors, Oxygen, Carbon Monoxide, Carbon Dioxide and Methane. Stage two will include an analogue input Smart Head, Airflow monitor Smart Head and a Smoke detector Smart Head. Stage two will also include the certification of a high speed local controller; all of these will be certified as I.S. Equipment.

Smarter from the experience of supplying the Australian market.

Smarter and lower cost. Greenfields installations are expected to cost 10% (at Jan 2010) less than the analogue competition.

How the Smart Head Gas Monitoring System can help mines in the Journey to Operational Excellence.

Sandy Dunn of Assetivity (see Condition Monitoring) has argued that the size of the benefits on offer to an organisation by utilising Condition Monitoring techniques...varies, depending on where...that particular organisation is on the Journey to Operational Excellence as illustrated below:

1st and 2nd stage - "Don't Fix it"....."Reactive"

In these days of responsible management, organisations have moved beyond "Don't fix it" and "Reactive" fix it after a fault has developed. This is no longer acceptable because of the costs of down time due to loss of production and safety can be compromised.

The problem can be the technology to move beyond this old paradigm. Hence the need for digital.

3rd stage "Planned"

This is the realm of the Conspec Smart Head, Its whole design is based on the premise that planned preventative maintenance is the required maintenance scheme for gas monitoring of equipment.

Each Smart Head stores operational parameters; a copy of past calibration results, operating temperatures, real time records to enable suitable analysis of operating voltage etc. This enables the supervising system to log the operating parameters of the Smart Heads and for instance plot the internal periodic calibration records as a means of predicting the operating life of the sensing cell, allowing orderly replacement instead of an emergency response.

4th Stage" Proactive" - Improving the Smart Head

Because the Smart Head has all its operational information stored internally, Conspec Controls, or the equipment owner can periodically download that data, either in real time across the web or periodically at service or calibration check time. That data can then be stored, Conspec keeps lifetime performance & calibration records for all its gas monitors, and for the Smart Heads will be available to our customers via secure Internet.

Conspec will analyse this data to improve the performance of the Smart Heads over time as we have used the data from our previous range of gas monitors as a baseline for measuring and designing the Smart Heads.

Condition Monitoring in the 21st Century

Condition Monitoring is the use of advanced technologies in order to determine equipment condition, and potentially predict failure. It is the foundation for the use of Predictive or Condition-Based Maintenance techniques.

"In my view, the business need that is likely to dominate the industrial maintenance scene, at least for the first part of this century, is Asset Effectiveness - the need to extract maximum profits from the minimum investment in plant and equipment. How do we achieve this through the use of Condition Monitoring technologies? In one of five ways:

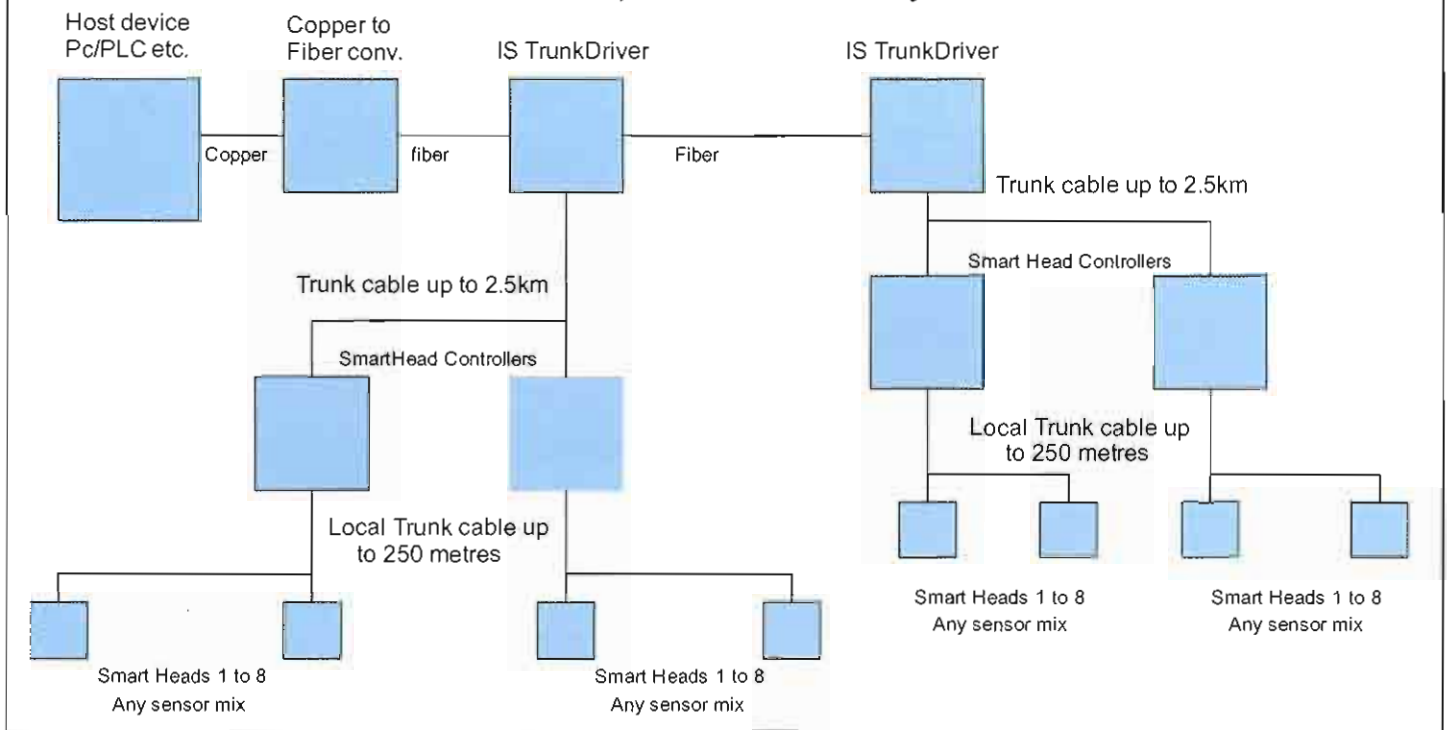
- By improving Equipment Reliability through the effective prediction (and then avoidance) of equipment failures
- By minimising downtime through the integrated planning and scheduling of repairs indicated by Condition Monitoring techniques with those indicated by other techniques.
- By maximising component life by avoiding the conditions that reduce equipment life (for example, by ensuring ongoing precision alignment, minimal lubricant contamination etc.)
- By utilising Condition Monitoring techniques to maximise equipment performance and throughput
- By minimising Condition Monitoring costs.

(Courtesy of Sandy Dunn of Assetivity Pty Ltd. from his excellent article "Condition Monitoring in the 21st Century" who asserts full copyright.)

THE JOURNEY TO OPERATIONAL EXCELLENCE



New Conspec Smart Head System



**Smarter new
national distributor
for greater coverage,
better service**

Conspec Controls Australia is proud to announce the appointment of the HMA Group as our new national distributor, effective immediately.

Since 1966, the HMA Group has manufactured, sold and serviced a wide range of capital plant and equipment for Australia's most important industries, including mining, processing, materials handling, power generation and refineries.

With its focus on the coal industry, Conspec see this partnership with the HMA Group being able to offer customers better access to our product range through national coverage as well as providing an improved level of service with the right technical focus. The HMA Group's objective is to assist its customers to optimise operations for maximum safety and production efficiency.

The HMA Group's experienced team handles every detail of a project including application, installation, commissioning, training and full after sales service.

Whilst sales will be handled by the HMA Group, it will be backed by the full technical resources of Conspec Controls Australia.

Halley & Mellows Pty Ltd
An HMA Group Company
ABN: 83 000 558 627

NSW

WYONG - HEAD OFFICE
10 Hereford Street, Berkeley Vale NSW 2261
PO Box 5010 Chittaway NSW 2261
Tel: +61 (0)2 4389 6191
Fax: +61 (0)2 4389 6199
Email: info@hmagroup.com.au

Artarmon

48 Whiting Street, Artarmon NSW 2064
PO Box 177, Artarmon NSW 2064
Tel: +61 (0)2 9432 7300
Fax: +61 (0)2 9432 7399
Email: artarmon@hmagroup.com.au

Gladesville

33-37 College Street, Gladesville NSW 2111
Tel: +61 (0)2 9816 3377
Fax: +61 (0)2 9816 3806
Email: gladesville@hmagroup.com.au

VIC

South Melbourne

Level 4, 150 Albert Rd
PO Box 290, South Melbourne VIC 3205
Tel: +61 (0)3 9685 7598
Fax: +61 (0)3 9685 7599
Email: melbourne@hmagroup.com.au

Morwell

8 Jones Road, Morwell Vic 3840
PO Box 547, Morwell Vic 3840
Tel: +61 (0)3 5136 8400
Fax: +61 (0)3 5136 8499
Email: morwell@hmagroup.com.au

SA

Adelaide

PO Box 1280, North Haven SA 5018
Tel: +61 (0)8 8341 8067
Fax: +61 (0)8 8341 8067
Mobile: +61 (0)437 460 032
Email: adelaide@hmagroup.com.au

WA

Perth

Unit 1, 34 Ledger Road, Balcatta WA 6021
Tel: +61 (0)8 9345 3688
Fax: +61 (0)8 9344 8707
Email: perth@hmagroup.com.au

QLD

Brisbane

4th Floor, 49 Sherwood Road, Toowong
QLD 4066

PO Box 106, Toowong QLD 4066

Tel: +61 (0)7 3859 6800

Fax: +61 (0)7 3859 6869

Email: brisbane@hmagroup.com.au

Mackay

22-30 Southgate Drive,
Southgate Industrial Park, Paget QLD 4740
PO Box 6221, Mackay Mail Centre QLD 4741

Tel: +61 (0)7 4998 6900

Fax: +61 (0)7 4998 6999

Email: mackay@hmagroup.com.au

Gladstone

9 Neil St, Gladstone QLD 4680
PO Box 1731, Gladstone QLD 4680

Tel: +61 (0)7 4978 3128

Fax: +61 (0)7 4978 3127

Email: gladstone@hmagroup.com.au

Townsville

PO Box 347, Aitkenvale QLD 4814

Tel: +61 (0)7 4728 6300

Fax: +61 (0)7 4728 6388

Mobile: +61 (0)417 996 694

Email: townsville@hmagroup.com.au

HMA
HALLEY & MELLOWES AUSTRALASIA



CONSPEC®