

# Canary 'SmarTox-OP'



## Portable Phosphine Monitor

### 'Environmentally Rugged'

The 'SmarTox-OP' has been developed for portable continuous operation in aggressive outdoor environments. Such as would be experienced at sea where stored grain is held under controlled fumigation throughout a voyage.

The 'SmarTox-OP' functions as a parts per million (PPM) monitor for phosphine ( $\text{PH}_3$ ) measuring in the range 0- 2000PPM. It utilizes proven electrochemical sensor technology for accurate concentration measurement together with sample pre-conditioning to ensure repeatability of readings and extended sensor life.

The 'SmarTox-OP' has been designed for portability. Offered in the package is a rechargeable battery. This provides upto 12 hours of continuous portable use before recharging. The large 16mm LED display provides good visibility in low light conditions and settable external relay contacts are optional.

Two channels are provided standard on the front panel meter. Channel 1 is a concentration readout in parts per million (PPM) Phosphine. Channel 2 is readout of the battery condition. Large tactile push button switches allow easy front panel programming. A 3rd input channel is available for another gas and measuring range to be specified as a future option.



### Canary SmarTox-OP Features

Front panel LED meter readout of PPM phosphine and battery volts.  
5 digit LED display 16mm high intensity.  
Analog retransmission of 4-20 mA or 0-10 vdc is selectable.  
Low battery warning light.  
System ready (Online) light.

Adjustable rotameter for flow control (0-1.0 l/min).  
Weather proof enclosure (IP65).  
Programmable digital filter.  
All internal tubing prior to sensor is chemically inert Teflon  
12 bit data-logging system with 8000 data points  
Optional external NO/NC relay contact

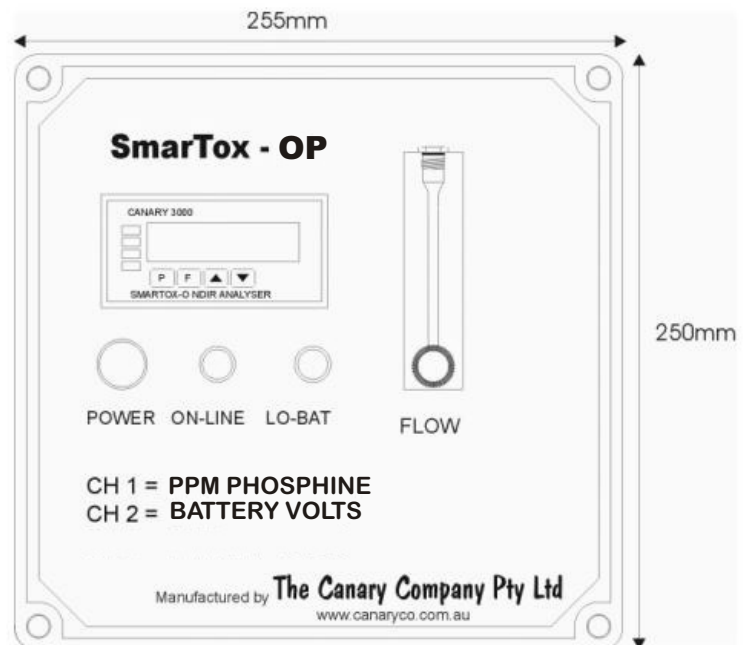
**LOW COST - HIGH ACCURACY - NO USER SERVICEABLE PARTS**

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## TECHNICAL DESCRIPTION

The instrument consists of 5 main sub assemblies.

1. **Gas Sensor.** A field proven technique utilizing an electrochemical transducer forms the functional unit or eye of the Canary 'SmarTox-OP' module. The sensor is plugged into a dedicated amplifier and signal transmitter printed circuit board (PCB). The circuit contains the necessary interface for calibrating the sensor. The sensor has been chosen for it's accuracy, stability, low level interference to gases typically coexisting in the stored grain market. Recalibration frequency is bi-annual and sensor cell life is typically in excess of 2 years
2. **Sample Conditioning.** In order for the sensor to perform at its best it is necessary to make sure the sample applied to it is as free of contaminates (including condensation) as possible. The system consists of a moisture trap, a sample heater, a pump to draw the sample and the rotameter for flow control.
3. **Power Supply.** This basically consists of a 90-270vac mains operation and 12 volt storage rechargeable sealed lead acid battery. This provides a continual usage of a minimum of 8 hours when disconnected from mains supply
4. **Digital Display.** This provides the visual output and a user configurable output (0-1VDC, 0-10VDC or 4-20mA) for the gas monitoring system. A battery condition monitor is also provided on channel 2.
5. **Data Retention & Retransmission.** The data-logger has a 12 bit analog to digital converter for accurate storage and recall of readings in memory. The memory of the logger allows 8192 readings to be taken. A realtime proportional 0-10VDC or 4-20ma output is also available through a quick connect port on the side of the instrument
6. **Construction.** The robust glass filled polyester fiberglass portable enclosure and interfacing connections are all IP rated for use in outdoor environments



### DIMENSIONS

#### Physical dimensions

Weight: 5kg (11 lbs)

Width x height x depth: 255mm x 250mm x 125mm (10 x 97/8 x 5 ins)



Manufactured in Australia By: Distributed By:

**The Canary Company Pty Ltd**

(A C N 065 558 563)

Suite 1, 163 Burns Bay Rd

LANE COVE NSW AUSTRALIA 2066

For the Full Range of Canary Products & Services Visit our website at: [www.thecanaryco.com](http://www.thecanaryco.com)

Email: [sales@canaryco.com.au](mailto:sales@canaryco.com.au)

Ph: +61 2 9418-6666

Fax: +61 2 9427 3522