

# Advanced Chemical Warfare Agent (ACWA) OEM Sensor Module Detector

Next generation surface acoustic wave (SAW) sensor module provides trace detection of chemical warfare agents (CWAs).



## Applications

ACWA OEM module features drop-in capability for use with:

- permanent or portable instruments
- unmanned aerial vehicle (UAV) platforms
- robots
- remotely operated vehicles

## Introduction

MSA, the world leader in the development of surface acoustic wave (SAW) chemical sensors, has developed a 4th generation sensor platform array for the detection of nerve and blister agents in harsh environments. This sensor platform features improved agent detection levels and response times, and is designed to be used as a component part module in a variety of applications. This platform is the next step in the evolution of our proven SAW technology, which has been extensively tested and deployed in hundreds of locations for CWA detection.

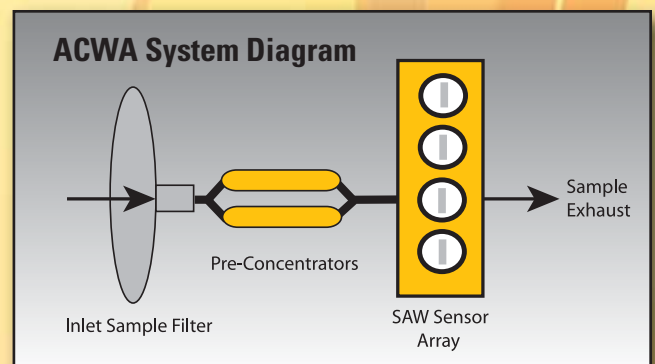


## Principle of Operation

SAW chemical sensors are piezoelectric crystals that detect the mass of chemical vapors absorbed into chemically selective coatings on the sensor's surface. This absorption causes a change in the resonant frequency of the sensor. The internal microcomputer measures this change and uses it to determine the presence and concentration of chemical agents. SAW sensor polymer coatings have unique physical properties which result in a rapid, reversible desorption of chemical vapors.

## Sample Collection

The ACWA sampling system collects and concentrates a vapor (air) sample prior to analysis. This technique offers two key advantages: enrichment of the sample concentration and rejection of potential vapor interferences. It enables a time-phased analysis of the chemical vapors as they are detected by the SAW sensor array.



## Specifications

Weight:	220 grams
Dimensions:	11 x 7 x 4 cm
Operating temperature:	0°C to 40°C (32°F to 104°F)
Storage temperature:	-10°C to 60°C (14°F to 140°F)
Warm up time 0°C start :	< 5 min.
Operating life:	> 5,000 hrs.
Shelf life:	5 yrs.
Inlet filter:	Teflon® membrane
Operating humidity:	0 to 100% RH not to exceed a 32°C (89°F) dew point

## ACWA Detection Levels

Typical response time:	G agents: 13 to 40 sec
	H agents: 13 to 80 sec

Response time over the temperature range -10° to +40° values at alarm concentration levels.

## Alarm concentrations

CW Agent	ACWA Alarm Concentrations (mg/m <sup>3</sup> )
GB	0.15
GD	0.1
GA	0.12
GF	0.1
HD	1
HN3	1
L	10
VX	0.1

Alarm response time:	18 sec nominal
False alarm rate:	minimal (~0.1%)
Power requirements:	9V (+/-0.3V) @ 2A max
Average power consumption:	6 watts

## External Communications Protocol

Output data:	RS232, 9600 baud
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## Ordering Information

Part Number	Description
10094381	ACWA OEM Sensor Module Developers Kit

### Kit Contents

- sensor module assembly
- external power supply
- DMMP (dimethylmethylphosphonate) test source
- sample inlet filter
- sensor module enclosure
- Data View Communication Software



Part Number	Description
10092085	ACWA OEM Sensor Unit



**Note:** This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.

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