



Better Air is Our Business®

AmericanAirFilter®

SAAFSHIELD™

Detecting Unit Real-time Reactivity Monitor

- Prevent electronics and sensitive materials from damage due to corrosive gases
- Avoid costly downtime and lost production time
- Determine causes of corrosion events by trending data over time
- Easily deployed at multiple locations without power
- Patent pending hardware and method of corrosion measurement
- Monitor multiple locations/units with only one SAAFshield Reading Unit

Applications

The SAAFshield Real-time Reactivity Monitor technology is ideal to monitor air reactivity for sites housing electronic control equipment or other reactive materials. These applications include the following:

Commercial Facilities:

- Museums
- Archives
- Data Centers

Industrial Plants:

- Pulp & Paper Mills
- Petrochemical Refineries
- Geothermal Power Plants
- Chemical and Industrial Plants
- Tire Manufacturing Plants
- Rubber Manufacturing Plants

Specifications

Corrosion Sensors

Operation & Material:
6 MHz, AT cut crystal, 4000Å Silver or Copper coating on Titanium base

Operating Parameters:
Relative humidity:
0 - 100% RH, non-condensing
Temperature:
-50°C - 150°C

Service life:
Up to 4000 Å of cumulative corrosion

Compliance (as supplied)
ROHS Compliant Components

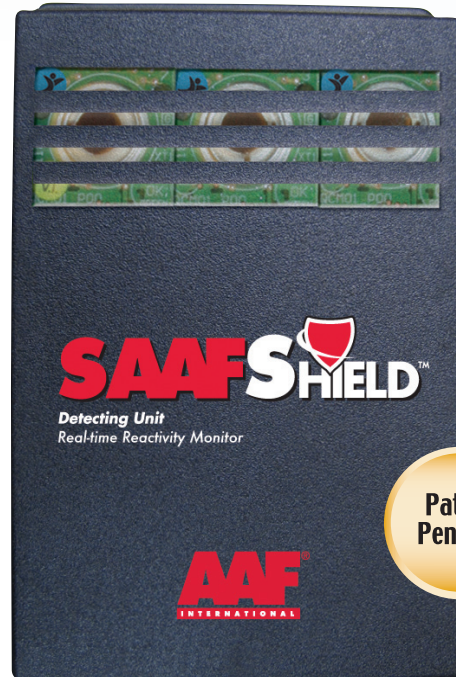
Electrical Properties

Communications:
Industrial grade, 26-pin ribbon connector cable with corrosion-resistant, redundant gold-coated pins and positive locking system for mounting-reading unit communication.

Housing Properties

L x W x D (inches):
7.87 x 4.93 x 1.6

Material:
Thermoplastic, Black



Patent Pending

SAAFshield Technology

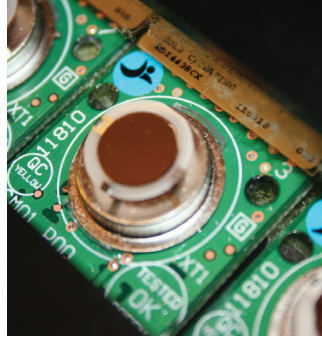
SAAFshield Real-Time Reactivity Monitor technology is a powerful system that allows users to monitor corrosion in real time or on a periodic basis to determine equipment or material vulnerability to corrosion. The cost of downtime is the most significant consequence of electronic equipment corrosion. In manufacturing, corrosion of electronic control equipment can lead to shutdown of the process – lost production time. In other industries, corrosion of servers means data center downtime- transactions must stop, software applications for logistics can't run, data can't be stored. The SAAFshield reactivity monitor lets you take immediate action to protect expensive electronics.

The SAAFshield Detecting Unit is the sensing side of the technology. It works together with the SAAFshield Reading Unit to display and trend corrosion data over time. The data can be used to evaluate operational procedures, environmental factors, or other items that occur at specific times for their impact on producing a corrosive environment. The Detecting Unit is non-powered, providing a low cost option that can be easily deployed at multiple locations without power and read periodically with the SAAFshield Reading Unit. Alternatively, constant trending of corrosion rates is possible when combined with a Reading Unit.

Detecting Unit

Quartz Crystal Microbalance Technology

The SAAFShield Detecting Unit utilizes quartz crystal microbalance to measure the corrosion of metal due to reactions with the environment. As the metal-coated quartz crystal corrodes, the frequency of oscillation changes. Other factors such as particulate matter in the air, temperature, and humidity can also change the oscillation frequency of the quartz crystal.

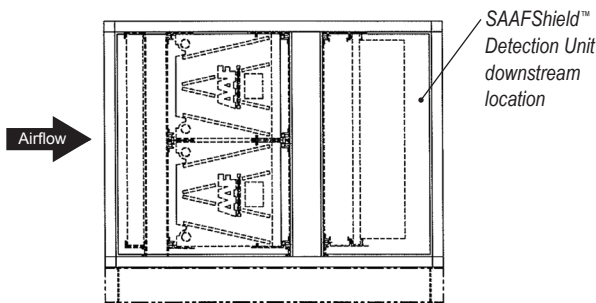


The SAAFShield Detecting Unit compensating hardware removes the effects of these non-corrosive environmental factors to provide more accurate and stable frequency readings and resulting reactivity detection.

Placement Locations

When determining the reactivity of a room or space within a building, the SAAFShield Detecting Unit should be placed in a location representative of the air that contacts the electronics or materials being protected. If the protected items are spread out within the space, then an approach similar to a thermostat should be used. If the protected items are concentrated in one area inside the space, then a location as close as possible to them is preferred.

When determining the condition downstream of a gas-phase filter or scrubber to evaluate media performance and life, the SAAFShield Detecting Unit should be placed after the final particulate filter (see below diagram). This will protect it from the majority of particulates and allow it to monitor the condition of the outlet air. When the rate of corrosion begins increasing beyond what is normal, it is time to change the media.



Applicable Standards

Traditional Corrosion Control (ISA 71.04-1985)

Applications: Paper Mills, Refineries, Industrial Plants, Wastewater Plants, Telecommunication Sites

Protected Equipment: Non-RoHS compliant circuitry in control rooms, motor control centers, or other such areas.

Class	Copper A/ 30 days	Reliability Statement
G1 (Mild)	< 300	Sufficiently controlled such that corrosion is not a factor
G2 (Moderate)	< 1000	The effects of corrosion are measurable
G3 (Harsh)	< 2000	There is a high probability that corrosive attack will occur
GX (Severe)	> 2000	Only specially designed and packaged equipment would be expected to survive

RoHS Compliant Corrosion Control (ASHRAE TC 9.9 Guideline)

Applications: Data Centers, Tire Manufacture Facilities, Rubber Manufacture Facilities, Paper Mills, Refineries

Protected Equipment: RoHS compliant circuitry in control rooms, motor control centers, or other such areas.

Class	Copper A/ 30 days	Silver A/ 30 days	Reliability Statement
G1 (Mild)	< 300	< 200	Acceptable
G2 (Moderate)	< 1000	< 1000	Not acceptable - corrosive attack may occur
G3 (Harsh)	< 2000	< 2000	
GX (Severe)	> 2000	> 2000	

Archive or Museum Environments

Applications: Archives, Metal Collections, Libraries, Museums, Museum Storage, Historic Houses

Protected Material: Archival material, rare books, or other material stored in application areas

Class	Copper A/ 30 days	Silver A/ 30 days	Applicable Areas and Acceptability
Extremely Pure	< 90	< 40	Archives, Metal Collections, Rare Books
Pure	< 150	< 100	Libraries, Museums, Museum Storage
Clean	< 250	< 200	Historic Houses
Slightly Contaminated	< 350	< 300	Short Term Acceptable
Polluted	> 350	> 300	Not Acceptable