



## G1 Microwave Switch Series

### Description

The Gladiator Microwave Switch can be used for blockage detection, barrier detection, machine detection and point level measurement, and detection of objects or material between two points.

### Points of Difference

#### Why Use G1 Microwave?

##### Advantages

- **INCREASED** Receiver Gain Sensitivity
- This increase allows for better penetration through product and product build up
- Circular polarization allows for minimal signal loss
- Unwanted reflected signal does not cancel out signal on receiver (can occur with linear polarized units)
- Decreased alignment issues
- Increased capability to penetrate conductive build-up and automatically compensate
- Ability to monitor ambient RF noise and compensate to avoid false trips
- Re-designed electronics and simplified software with advance filters and signal identification
- Application specific predictive diagnostics for maintenance support.

### Principle of Operation

A high power circular polarized Microwave pulse is emitted from the Sending unit to the Receiving unit in a transmission chain of approximately 100 pulses per second.

If the path between the Sender and Receiver is blocked by any object or material which absorbs or reflects microwave energy the Receiving unit will no longer detect the complete transmission chain and indicate via Relay for automatic indication and process control requirements.

### Primary Areas of Application

- Asphalt
- Brewing
- Cement
- Chemical
- Dairy
- Edible oil
- Fertilizer
- Food & Beverage
- Glass
- Mining & Metals
- Oil & Gas
- Packaging
- Paint
- Paper
- Pharmaceutical
- Plastics
- Power Generation
- Refining
- Semiconductor
- Sugar
- Textile
- Water & Wastewater.

### Features

- State of the art circular polarisation
- Simple sensitivity adjustment and calibration
- Theoretical range up to 300m (984ft)
- Simple '1-minute' setup application presets
- Relay outputs: Integral (1 + failsafe)
- Remote test function
- Adjustable ON and OFF delays (0-20 sec)
- Remote 3G HawkLink connection option
- Bright visual status indication on sensors
- Independent housing alignment after mounting sensor.





## Application Reference - G1 Microwave Switch

### Fertilizer Blending Flow Switch

A fertilizer manufacturer using HAWK's new Circular Polarized Microwave has improved their process. The fertilizer manufactured consists of a base fertilizer with additives blended in the process to meet formulated recipes. This blending occurs at load-out and it is important to get the ratios correct.

#### Application problem

The current method of measuring the flow of additive is a load cell with a flapper arrangement on the side of the screw conveyor to measure force when product is flowing. The load cells are sensitive to pick up slight movement, however because of the sensitivity needed, they often fail because of corrosion or mechanical damage. This can stop production or worse, send a signal that a blend is getting an additive when it's not. The team at manufacture went in search for an alternative.

#### Solution

G1 Microwave being used as a flow / no flow switch. In this application we are looking for the inverse of a blocked chute. The set up was to tune the Gladiator Microwave at its most sensitive to detect if product was present or absent. The aim was to detect the fall curtain.

#### Technical issues

HAWK had to manufacture a set of 316 SS microwaves as the environment is very chemically aggressive. The photo's show all equipment wrapped up in Denso tape. The G1 Microwave would not trigger at first in a low flow situation. The beam spread was thought to be too wide and going around the product to make the connection with the receiver. The client installed a short section of stainless steel pipe to act as a wave guide and focus the beam. This produced repeatable results. The client plans to fit out the remaining hoppers as capital allows.

#### Ordering Information

##### G1 Microwave:

G1SCBTNX - Sender

G1RCBTNX - Receiver

Qty 2: MA2-UW

