



Accurately Weighing Africa



# BULK STORAGE MEASUREMENT

SOLUTIONS FOR BOTH  
FLUIDS AND SOLIDS



BSM-24-01

SMART SUPPORT  
0861 422 134  
OR +27 83 680 0722  
E-mail: [info@sascoafrica.com](mailto:info@sascoafrica.com)  
Web: [www.sascoafrica.com](http://www.sascoafrica.com)  
24 hours, 7 Days a week

## SASCO WEIGHING SYSTEMS

GROUP SUPPORT H/O  
2 Blackburn Street  
Apex Industrial | Benoni

Phone: +27 (0) 11 746 6000  
Fax: +27 (0) 11 746 6100

SASCO BULK STORAGE MEASUREMENT offers cost effective and highly accurate volumetric measurement solutions for bulk storage tanks.

Storage tanks are an essential part of many industries, including oil and gas, chemical, and food processing. The accurate measurement of the contents of these tanks is critical for the proper management of inventory, production planning, and ensuring compliance with regulatory requirements. One popular method of measuring the level of bulk products and fluids in storage tanks is through the use of radar scanners.

The type of radar scanner used can vary depending on the type of product being stored.



## Scanners for Bulk Products

Bulk products, such as grains, powders, and solids, can be challenging to measure accurately due to their varying densities and surface characteristics. Radar scanners for bulk products typically use non-contact measurement techniques, such as time-domain reflectometry or guided wave radar. These techniques rely on sending a radar signal into the product and measuring the time it takes for the signal to bounce back from the surface.

One advantage of radar scanners for bulk products is their ability to measure through obstructions such as dust, foam, or vapors. This is particularly useful for dusty or powdery products, where traditional level sensors may be obstructed or coated. Radar scanners can also measure the level of products with varying dielectric constants, which can be useful when dealing with mixed materials.

However, one limitation of radar scanners for bulk products is their ability to measure accurately at the surface of the product. This is due to the presence of a layer of air or product that can cause reflections and interfere with the radar signal. As a result, radar scanners for bulk products may require calibration or adjustment to compensate for this interference.

# Scanners for Fluids

Fluids, such as water, oil, or chemicals, are more straightforward to measure than bulk products as they have a flat surface and consistent density. Radar scanners for fluids typically use a contact measurement technique, such as frequency-modulated continuous wave or pulse radar. These techniques rely on sending a radar signal through the air and measuring the time it takes for the signal to bounce back from the surface of the fluid.

One advantage of radar scanners for fluids is their ability to measure accurately at the surface of the fluid, which is essential for managing inventory and preventing overflows. They can also measure the level of fluids with varying densities or dielectric constants.







However, one limitation of radar scanners for fluids is their sensitivity to changes in the surface of the fluid. This can occur due to changes in temperature, pressure, or agitation. As a result, radar scanners for fluids may require additional filtering or smoothing algorithms to ensure accurate measurements.

## Product Specifications

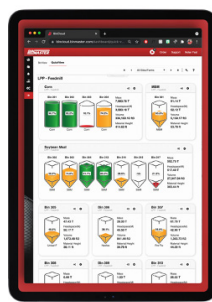
Sasco's range of scanners for solids and fluids comprise the CNCR family of radar level sensors. These sensors utilize GHz technology that narrowly focuses the radar signal in an 8-degree beam delivering accuracy to within 0.6cm.



## Controller Features Comparison

	CNCR - 110	CNCR - 120	CNCR - 130	CNCR - 190	CNCR - 210	CNCR - 230
The Sensors						
Measuring Principle	Radar	Radar	Radar	Radar	Radar	Radar
Measuring Range	Liquids 8m Solids 3.7m	Liquids 15m Solids 7.3m	Liquids 15m Solids 7.3m	Liquids 30m Solids 7.3m	Liquids 15m Solids 7.3m	Liquids 15m Solids 7.3m
Frequency	80 GHz	80 GHz	80 GHz	80 GHz	80 GHz	80 GHz
Beam Angle	8 degrees	8 degrees	8 degrees	4 degrees	8 degrees	8 degrees
Dead Zone	None	None	None	None	None	None
Error	<5mm	<2mm	<2mm	<2mm	<2mm	<2mm
Voltage	12-35VDC	12-35VDC	12-35VDC	12-35VDC	12-35VDC	12-35VDC
Output	2 wires, 4-20mA	2 wire 4-20mA ,4 wire Modbus	2 wire 4-20mA ,4 wire Modbus	2 wire 4-20mA ,4 wire Modbus	2 wire 4-20mA ,4 wire Modbus	2 wire 4-20mA ,4 wire Modbus
Enclosure Material	PVDF	PVDF	PVDF	PVDF	PVDF	PVDF
Seal Material	FKM	FKM	FKM	FKM	FKM	FKM
Rating	IP66/IP60 (3 bar)	IP66/IP60 (3 bar)	IP66/IP60 (3 bar)	IP66/IP60 (3 bar)	IP66/IP60 (3 bar)	IP66/IP60 (3 bar)
Mounting	1.5" Thread	1.5" Thread	1.5" Thread	1.5" Thread	1.5" Thread	1.5" Thread
Connection	10m	25m	25m	25m	1 1/2" NPT	1 1/2" NPT
Process Pressure	-1 / +3 bar	-1 / +3 bar	-1 / +3 bar	-1 / +3 bar	-1 / +3 bar	-1 / +3 bar
Process Temp	-40C/+60C	-40C/+60C	-40C/+60C	-40C/+60C	-40C/+60C	-40C/+60C

CNCR sensors are set up using Bluetooth app downloaded to cell phone or tablet. Setup can be done on a PC or using a Bluetooth USB adapter. Viewing of level measurement and changes to bin parameters can be done via the App.



# Application Example

## BULK STORAGE MEASURE-

**Company A** is an importer of sunflower oil which arrives at the national port and is pumped into large storage tanks where it is stored prior to being discharged into road tankers.

Road tankers departing are weighed on an accurate weighbridge so the volume of oil leaving the premises is known. The issue is that the pumping system used to transfer the oil from the ship to the storage tanks is not accurate.

**Company A** therefore requires an accurate “measuring system” to determine the volume of oil in the storage tanks at any time in order that accurate records and reconciliations’ can be made between the amount of oil that is claimed is delivered and the estimated amount actually delivered.

The solution Sasco delivered was to fit CNCR sensors on each tank and to activate the App to enable executives to view the storage levels real time on their mobile phones.



### SMART SUPPORT

0861 422 134

OR +27 83 680 0722

E-mail: [info@sascoafrica.com](mailto:info@sascoafrica.com)

Web: [www.sascoafrica.com](http://www.sascoafrica.com)

24 hours, 7 Days a week

This brochure contains a general guide of the product only and shall not form part of any contract unless specifically agreed by Sasco Africa in writing in each case on the Order Acknowledgement. The specification of the product described herein may vary from time to time and may be altered without notice.

### LOCAL SUPPORT AGENT

