



# CONTOUR™

## Acoustic Volume Mapping

**3D Volume Mapping that Takes Volume Measurement to a Whole New Level**

Count on CONTOUR™ for 3D visualizations of the bulk solids and powders stored in your bins and silos — and the accurate volume measurement you need to take your business to the next level.



# CONTOUR™

## Acoustic Volume Mapping

An ideal solution for bulk solids and powders, CONTOUR™ acoustic volume mapping can help you make informed inventory control and usage decisions. With CONTOUR you can:

- Easily calculate the cost of goods sold (COGS) for materials you're storing to give you the data you need to enhance your process efficiency and benefit your bottom line.
- Measure the volume of bulk solids and powders in any size or shape of storage vessel.

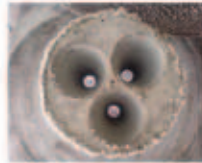
### Accuracy You Can Count On

#### Measure Any Bulk Solid or Powder

- CONTOUR accurately measures bulk solids and powders in any type of container, silo or open bin — regardless of the type of material or product characteristics — to provide continuously reliable volume and inventory information.
- Measure challenging applications that were previously not possible, including buildup loads and random irregularities that can occur over time.

#### Measure in Any Environment

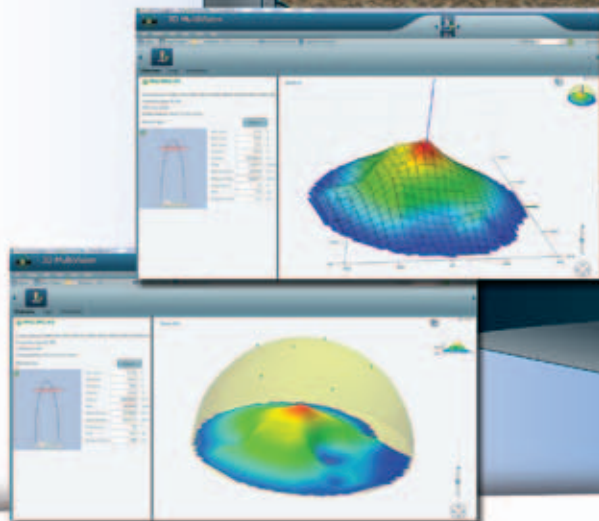
- Unlike other technologies that lose signal in harsh and dusty environments, CONTOUR features innovative dust-penetrating technology that delivers incomparable measurement accuracy.
- CONTOUR also offers proprietary self-cleaning capabilities that stop dust from sticking to internal components to provide continuously dependable performance.



### Advanced Measurement and 3D Mapping Capabilities

#### Acoustic Mapping

- A three-antenna array sends low frequency acoustic signals — and receives echoes from the entire solids surface — to accurately measure the level, volume and mass of content in your silo or bin.
- In contrast to single-point solutions, CONTOUR's three antenna measure the time/distance of each echo, as well as the direction of each echo, to generate a three-dimensional representation of the surface.
- An advanced digital signal processor translates the signals received into a 3D diagram that you can view on a remote computer screen to see precisely where material is located in your silo or bin.



**Dust-penetrating, low-frequency acoustic technology:**

Provides accurate results in harsh environments.

**Multiple-point accuracy:**

Measures multiple points to encompass variations on material surfaces.

**Long measurement range:**

Works well in tall silos, with a measurement range up to 70 m/230 feet.



## Multiple Industry Applications

CONTOUR gives you precise volume measurement of bulk solid materials to enable efficient batch processing for a wide array of industrial applications, including:

- Energy and Power – Coal, Fly Ash and Biomass
- Chemical Processing – Calcium Carbonate, Soda Ash and Detergent Production
- Petrochemicals – Plastic Pellets and PVC Powders
- Cement and Aggregates – Clinker and Concrete Production
- Food Processing – Cocoa Processing and Cereal, Seed Oil, Pastry, Beer, Flour and Sugar Production
- Mining – Potash, Talc, Lime and Salt Production and Iron Ore and Coal Processing



### 70-degree beams:

Illuminates and maps the entire surface of your materials.

### 3D graphics:

Displays a visualization of the surface map on your computer screen.

## Better Technology, Greater Inventory Control

CONTOUR provides better inventory control, which enables you to optimize safety stock levels – and minimize carrying costs.

Feature	CONTOUR	Non-Contact Radar	Non-Contact Ultrasonic	Guided Wave Radar
Unaffected by dust generation		•		•
True volume measurement				
3D surface visualization				
Reliable and accurate in very wide silos				
Suitable for open bins, warehouses, bunkers and open areas				
Measures volume as well as minimum and maximum levels				
Works with solids and powders that have low dielectric constants			•	
Self-cleaning sensor				
Free of mechanical loads		•	•	
Non-contact continuous measurement		•	•	

**Take the guesswork out of measuring the volume of material inside your vessels. CONTOUR can provide the 3D acoustic mapping technology that you need to visualize bulk solids and powders in silos and bins – and the accurate volume measurement, inventory management and COGS information your operation requires.**



# CONTOUR™

## Acoustic Volume Mapping

### CONTOUR™ Acoustic Volume Mapping Specifications

#### FEATURES

- Measures level and volume of solids and powders independent of dielectric constant.
- Measures minimum, maximum and average level with a range of up to 70 m (230 feet).
- Operates in dusty and moisture-rich environments.
- Profiles of adhesions to vessel walls.
- Acoustic energy vibration provides for self-cleaning of antenna.
- Mapping visualization tool allows 3D view of materials in bin/vessel.
- PC software provides assistance for location of unit and remote configuration.
- Supply voltage: 18-32 VDC.
- Power consumption: Maximum 1.5W @ 24 VDC.
- Output signal: 4–20 mA, HART®, RS-485 and Modbus®
- Emitting frequency of 2 to 10 kHz.
- Beam angle: 30-70 degrees.
- Ambient temperature: -40 to +85° C (-40 to +185° F).
- Process temperature: -40 to +180° C (-40 to +350° F).
- Process pressure: -0.2 to 3 bar (-2.9 to 43.5 psi).
- Operator interface: 4-line × 20 character LCD and 4-button keypad.
- Housing: Painted Aluminum Die Casting

#### APPLICATIONS

- All types of solids, such as: Ores, powders, plastic pellets, fertilizers and fly ash.

#### AGENCY APPROVALS

- |            |  |
|------------|--|
| ATEX       | II 1/2D, Ex ibD/iaD 20/21 T110° C.<br>II 2G Ex ia/ib/IIB T4.       |
| cFMus      | Intrinsically Safe Class I, II, Division I, Groups C, D, E, F & G. |
| EMC        | EN 61326-1: 2006.  |
| NSR        | EN 61010-1: 2001.  |
| Protection | IP67 per IEC 60529.  |



**For process intelligence that will impact your bottom line, contact your Magnetrol representative to demo the CONTOUR Acoustic Volume Mapping transmitter today. Put the power of Magnetrol to work for you.**



CORPORATE HEADQUARTERS

5300 Belmont Road • Downers Grove, Illinois 60515-4499 USA • Phone: 630-969-4000 • Fax: 630-969-4499

magnetrol.com • info@magnetrol.com

Bulletin: 61-250.0 • Effective: February 2013

