

Remote - Stock Management

AGGREGATE⁺™
V1.0



Perplexity of Measurement

15 16

OUR MONITORING AND LEVEL MEASURING EXPERTISE

AGGREGATE⁺ offers an exceptional tank and silo stock measuring solution, formulating highly precise calibration data for tanks and silos of various capacities. The combination of years of levels & capacity measurement experience along with the latest software enables us to provide highly precise, cost effective tank and silo capacities in real time.

The use of **Frequency Modulated Continuous Wave (FMCW)** Radar technology offers a quicker, safer and low-cost solution for bulk storage silos and vessels. Detailed algorithms are compiled for each tank or silo, according to the client's requirements, to provide precise stock details.

Our aim is to provide increased accuracy and procedural safety by automating the level measuring process, through **AGGREGATE⁺** software powered by Python.



HOW IT GENERALLY WORKS

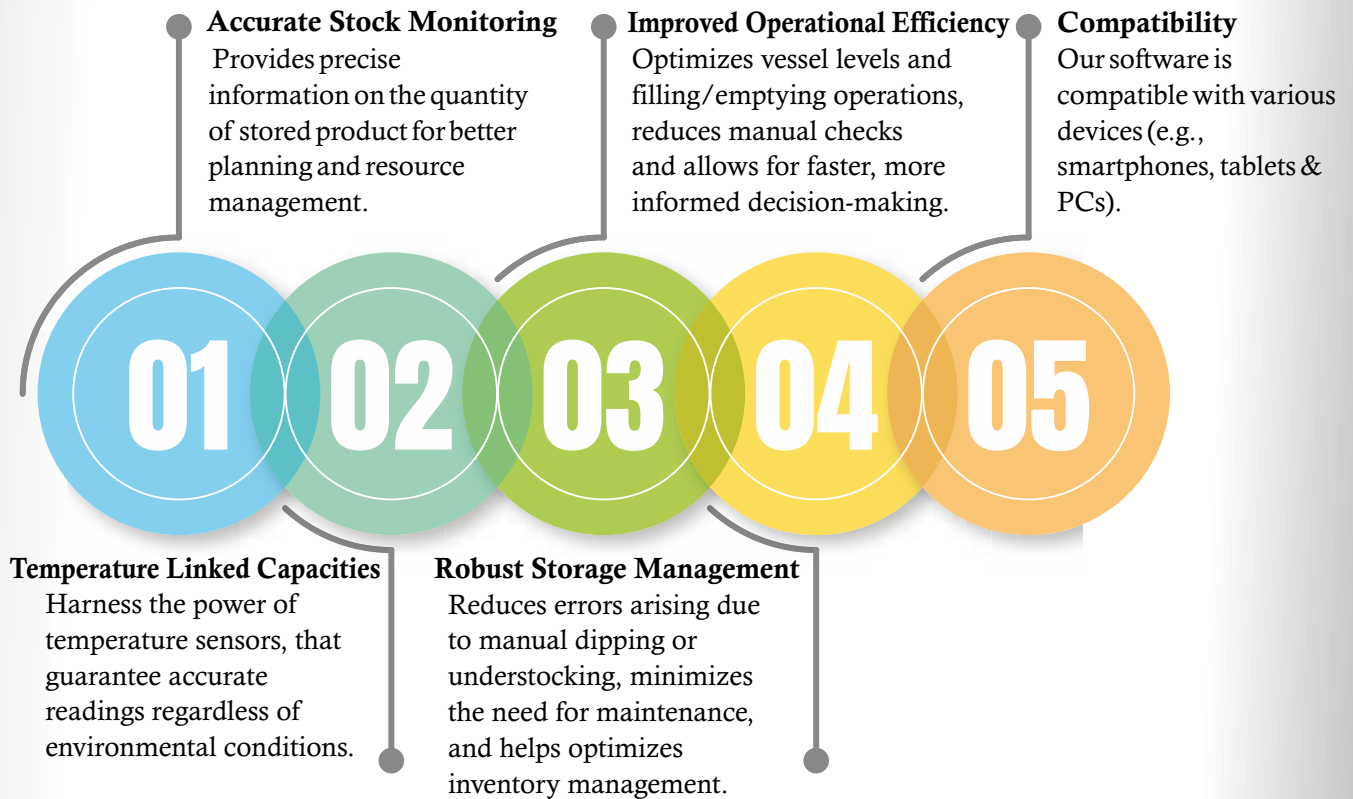
It is a level monitoring solution which processes level through a series of algorithms by considering temperature, humidity, density etc into capacities in real time through **Aggregate+** software. It is a digital tool designed to accurately track and manage the levels and volume within storage vessels/silos by **FMCW technology**.

This software integrates with sensors installed within or on the storage vessels. These sensors utilize various technologies (e.g., Radar, ER, CS etc.) to continuously collect data on levels, temperature and humidity etc. This data is then transmitted to a controller and then to software platform for processing, analysis and visualization.

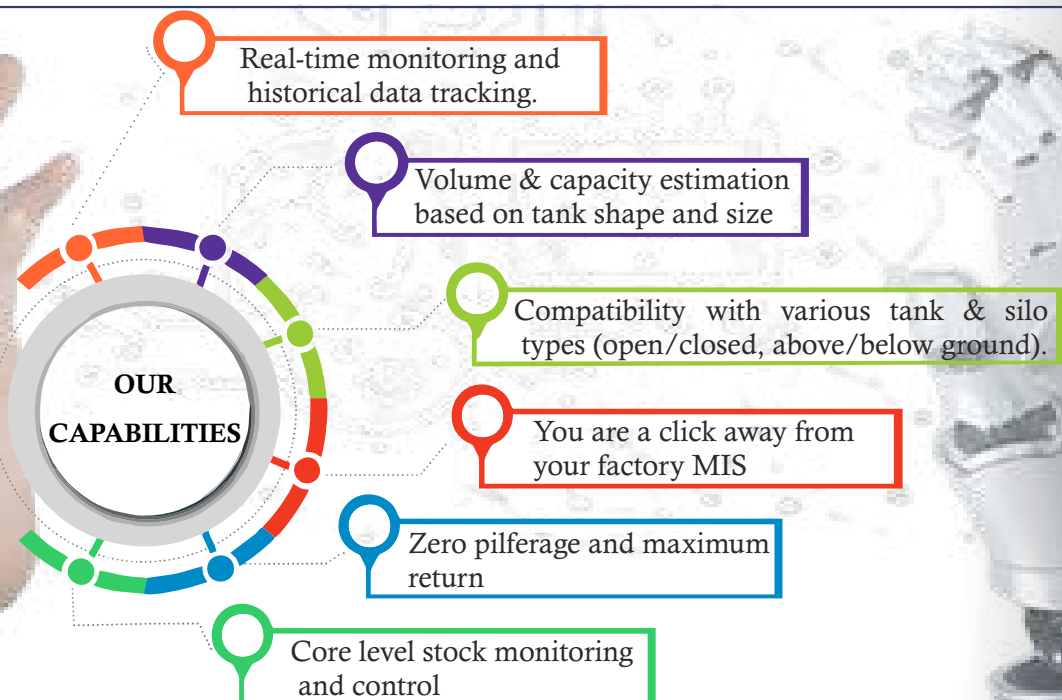
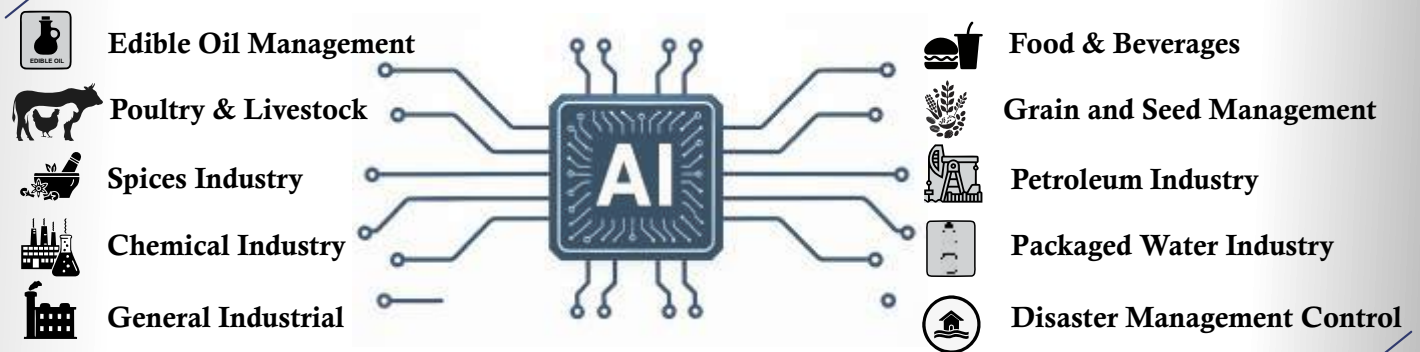
CORE FUNCTIONALITIES

- ◈ **Real-Time Level and Volume Tracking:** Provides continuous monitoring of product levels and automatically calculates the corresponding volume, which is essential for accurate inventory management.
- ◈ **High Accuracy:** Specialized algorithms and measurement techniques ensure high accuracy in volume determination, often with accuracy of upto 99.9%.
- ◈ **Data Visualization and Reporting:** Presents key metrics through interactive dashboards and tables for easy interpretation and analysis.
- ◈ **Remote Monitoring:** Enables users to access and monitor data from any internet-enabled device, improving operational efficiency and reducing the need for manual inspections.
- ◈ **Alerts and Notifications:** Triggers automated alerts (e.g., email, SMS) when predefined thresholds (e.g., low level, high level and overfill) are exceeded, ensuring timely response to critical situations.
- ◈ **Error Reduction:** Features like automated data acquisition and processing minimize human error and improve the reliability of results.
- ◈ **Customizable Reporting:** The software can generate detailed reports in PDF format for easy analysis, auditing and regulatory compliance.

ADVANCED FEATURES AND BENEFITS



SPECIFIC APPLICATION AREAS



FMCW Radar Sensor

Frequency-Modulated Continuous Wave (FMCW) radar upto 80GHz is a high-frequency, non-contact sensing technology optimized for precision level measurement in industrial environments. It operates by continuously transmitting a frequency-modulated signal and analysing the frequency shift between transmitted and received waves to determine distance.



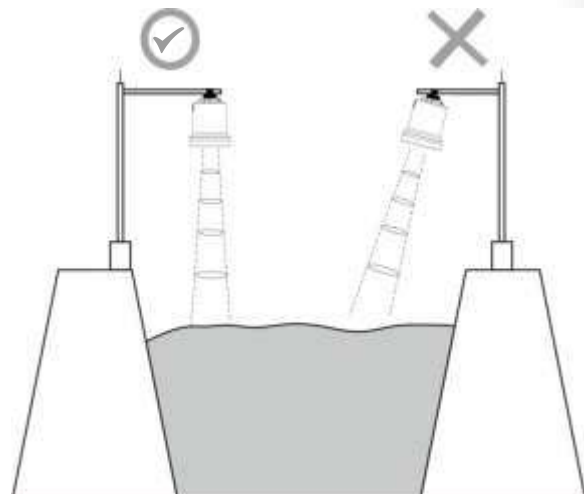
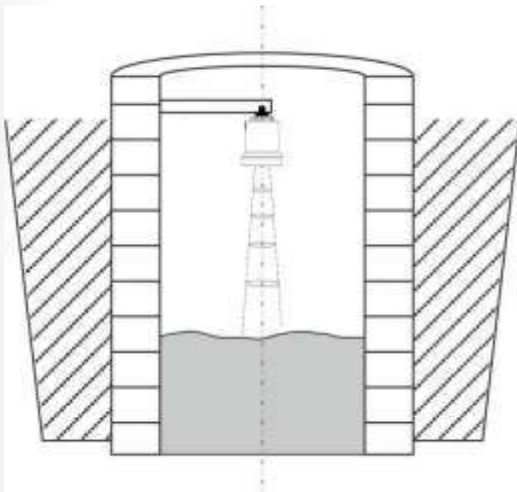
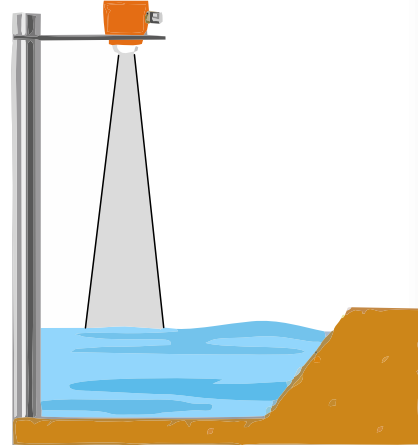
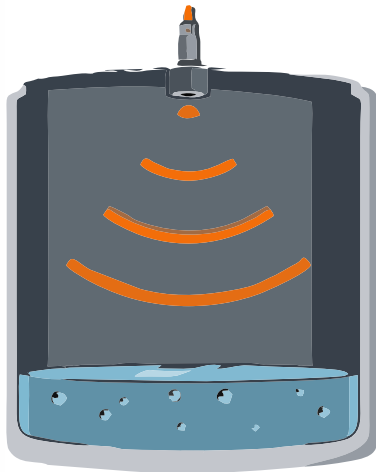
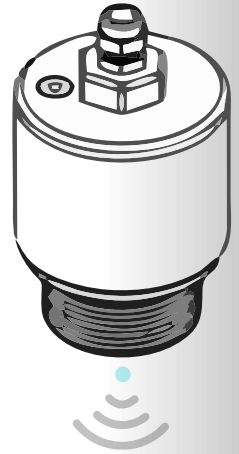
Operating Principle

- **Frequency Sweep:** The radar emits a continuous wave whose frequency linearly sweeps across a bandwidth (typically 78–82GHz).
- **Beat Frequency Analysis:** The difference between transmitted and reflected frequencies (beat frequency) is proportional to the distance to the target surface.
- **High Resolution:** The wide bandwidth (4-5GHz) enables fine resolution and accurate detection even in complex or cluttered environments.



Key Features

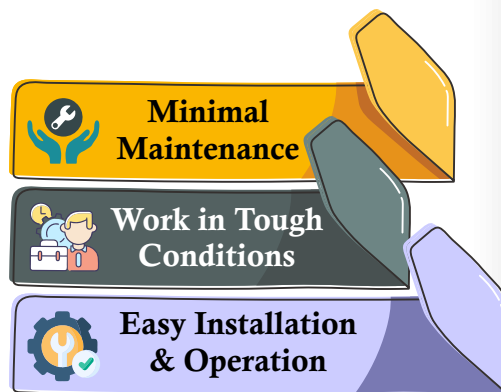
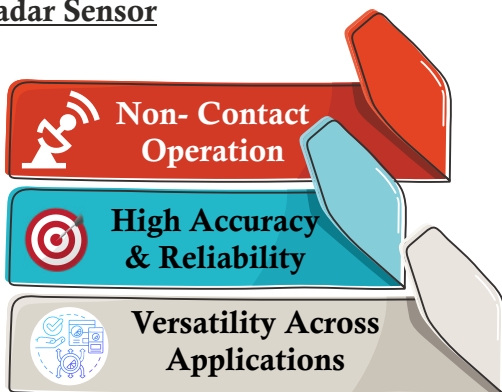
- **Narrow Beam Angle:** Ideal for small or tall vessels; minimizes interference from tank internals.
- **High Signal Dynamics:** Enhances sensitivity and target discrimination in noisy or dusty conditions.
- **Robust Against Environmental Factors:** Unaffected by temperature, pressure, vapour, or foam; suitable for harsh industrial settings.
- **Dual Measurement Capability:** Can simultaneously measure range and velocity using Doppler shift analysis.



ADVANTAGES OF RADAR TECHNOLOGY



Radar Sensor



Technical Data

Measuring Range	Upto 30m
Accuracy	±3mm
Beam Angle	6° & 8°
Measuring Frequency	Upto 80 GHz technology
Signal Output	4-20mA/RS485 Modbus/HART
Power Supply	12~38V DC
Process Pressure	-1....+3 Bar
Process Temperature	-40°....+70°C/High Temperature (Optional)
Protection Rating	IP65/IP66/ IP67/ IP68
Housing Material	PVDF,PE etc.

This radar technology represents the cutting edge of industrial sensing, combining precision, reliability, and adaptability.



Humidity and Temperature Sensor

Humidity and temperature sensors are essential components in monitoring systems, used to measure atmospheric conditions in industrial and commercial applications. These sensors often come integrated in a single module to provide simultaneous readings of ambient temperature and relative humidity.



Technical Data

RH Accuracy	±2%RH
Temp. Accuracy	±0.2°C
Output	4-20mA
Power Supply	18-30V DC
Humidity Measurement Range	0-100%
Temperature Measurement Range	-20°....+70°C/High Temperature (Optional)

ABOUT AGGREGATE+ SOFTWARE: THE BACKBONE BEHIND THE TECHNOLOGY

Our software is a specialized solution designed for precise level measurement and capacity calculation in tanks and silos. It integrates seamlessly with level sensors to capture accurate level data and, through an inbuilt algorithm, converts these readings into real-time volume and capacity outputs. Unlike conventional systems, the software dynamically adjusts measurements by factoring in temperature and humidity variations, ensuring high accuracy even under changing environmental conditions.

With its intelligent processing and user-friendly interface, the software provides operators with reliable insights for inventory management, process optimization, and loss reduction across industries such as oil & gas, chemicals, water treatment, food & beverages, and bulk material handling.



BENEFITS

Improved Accuracy



Our software provides precise and reliable level & capacity measurements.

Enhanced Safety



It provides real-time monitoring of level data, allowing users to detect changes and anomalies that could indicate a safety risk.

Enhanced Productivity



Our software increases productivity by automating tasks, reducing errors, and improving efficiency.

Our software automates level measurements thereby converting into capacities, hence reducing the need for manual measurement.

Increased Efficiency



It ensures that products meet quality standards by providing accurate and reliable quantity measurements in batching & blending.

Improved Quality



HOW IT WORKS



Setup and Configuration:

Install and configure the software on a computer/Mobile.



Data Analysis:

The software analyzes the collected data to determine the level of the liquid and solid & converts the level data through inbuilt algorithm in combination with temperature & humidity data into real-time capacities.

The level measuring device sends data to signal/data processor every second. The software receives and processes the data in real-time.

Data Collection:



Data Logging and Reporting:

The software provides various interface of data logging through report formats & stock historical data for future reference.

Alerts and Notifications:

This software can send alerts to the user via SMS and email in addition to real-time PC/Mobile viewing.



INTERFACE OF SOFTWARE



REPORT

ALITA INTERNATIONAL DELHI CONSOLIDATED OIL STOCK REPORT					
REPORT NO. : 01		DATE 29-08-2025		TIME 07:11 P.M	
S.no	Commodity	Tankyard-1	Tankyard -2	Packaging Section	Total (MT)
1	Crude Soya Oil	600	100	0	700
2	Refined Soya Oil	300	350	50	700
3	KGMO	200	175	200	575
4	Mustard Fatty	20	35		55
5	Soya Fatty	10	25		35
6	RiceBran Oil			400	400
7	Corn Oil			250	250
<div>DOWNLOAD</div> <div>PRINT</div>					
Report Generated by Aggregate+					

ALITA INTERNATIONAL DELHI CRUDE SOYABEAN OIL TANK REPORT			
TANKYARD NO. : 01		DATE 02-09-2025	
ITEM: CRUDE SOYABEAN OIL		TIME 07:11 P.M	
S.NO	DESCRIPTION	VALUE	UNIT
1	Tank Capacity	1000	MT
2	Tank Height	10000	mm
3	Tank Temperature	36	MT
4	Tank Humidity	28	RH %
4	Oil Level	5368	mm
5	Live Oil Quantity	420	MT
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Report Generated by Aggregate+			



Our software can generate detailed reports in PDF format.
We can also customize your report format as well.

ALITA INTERNATIONAL DELHI MUSTARD SEED SILO REPORT			
SILO NO. : 01		DATE 02-09-2025	
ITEM: MUSTARD SEED		TIME 07:11 P.M	
S.NO	DESCRIPTION	VALUE	UNIT
1	Silo Capacity	8000	MT
2	Silo Height	15000	mm
3	Silo Temperature	35	°C
4	Silo Humidity	25	RH %
5	Seed Level	45	mm
6	Live Seed Quantity	7634	MT
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Report Generated by Aggregate+			

WHY CHOOSE US?

Aggregate⁺ v1.0 sets a new standard in level & capacity measurements, along with interactive sensor technology software, combining precision, versatility, and user-friendly customization. Experience the unparalleled control and confidence in your capacity measurements, empowering smooth operations with the accuracy they demand.



Scan to Download Brochure

Contact our experts to discuss your requirements.

“Storage Precision, Powered by Technology”



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