



HUMATICS

**KinetIQ™ 300**

**3D CM-SCALE  
Microlocation System**



## The world's first ultra-precise 3D wireless microlocation system

### FEATURES & BENEFITS

#### 2 CENTIMETER PRECISION

Reliably locate robots, drones and autonomous vehicles

#### 500 METER RANGE

Cover larger areas with fewer beacons

#### SCALABILITY

A meshable hardware/software system

#### ROBUST TECHNOLOGY

Operates in any weather or lighting condition

#### RUGGED DESIGN

IP67-certified to work in harsh industrial conditions

#### INTUITIVE SOFTWARE

Provision, monitor and analyze with Humatics' KinetIQ OS browser-based software

#### EASY INTEGRATION

Quick retrofitting of mobile robot fleets with light infrastructure requirements

Precise object localization and tracking is challenging in industrial environments. Today's radio-based local area positioning technologies (GPS, RTLS, RFID) have limited precision, with uncertainties ranging from many centimeters to several meters. Camera-based systems are expensive and sensitive to lighting conditions. Humatics' breakthrough system captures cm-scale position and motion data at low cost, indoors and out, creating an entirely new product category – microlocation.

The KinetIQ 300, Humatics' cm-scale hardware and software solution, opens new possibilities for industrial microlocation applications such as:

- Automated guided vehicle (AGV) and mobile robot navigation
- Industrial vehicle tracking, collision avoidance, and platooning
- Tool tracking
- Crane and gantry positioning
- Drone navigation
- Industry 4.0, Digital Twin and other IIoT applications
- Rail signaling

The KinetIQ 300's spatial intelligence can help take your localization and tracking capabilities to new levels. Moving objects can be localized via Beacon units with primarily two hardware configurations:

1. two or four mounted Ranger AV Mobile Beacon units in conjunction with a Ranger AV Mobile Hub for locating larger objects, or
2. an internal or external antenna-based Ranger unit for locating smaller objects.

## SYSTEM COMPONENTS

This page contains information on a preproduction product. Specifications and information herein are subject to change without notice.

### Beacon



Deployed in a constellation to fully cover large spaces.  
Size: 20 cm x 8 cm x 5 cm  
Weight: 450 grams (0.44 lbs)

### Ranger



Location and heading for smaller vehicle applications. Location, heading, and range for non-vehicle applications. Embedded Location Engine calculates range, location, and heading. Interfaces with optional external odometry.  
Size: 20 cm x 8 cm x 5 cm  
Weight: 400 grams (0.88 lbs)  
*Dual antenna version available*

### Ranger AV



#### Mobile Beacon

2 or 4 Mobile Beacons provide position data to Mobile Hub.  
Size: 20 cm x 8 cm x 5 cm  
Weight: 450 grams (0.44 lbs)

#### Mobile Hub

Embedded Location Engine calculates location and heading. Interfaces with optional external odometry.  
Size: 22 cm x 19 cm x 6 cm  
Weight: 300 grams (0.66 lbs)

## SYSTEM SPECIFICATIONS

Performance	
Horizontal Position Repeatability <sup>1,2</sup>	+/- 2 cm
Range	500 m
Heading Repeatability <sup>1,2,3</sup>	+/- 3 degrees
Max Vehicle Speed	8 m/s
Update Rate	30 Hz
Power & Charging	
Power Supply	12-48 DC (PoE optional for Beacon)
Battery	Optional
Control & Comms	
Data Comm	Ethernet (UDP, Ethernet/IP, PROFINET)
Environmental Requirements	
Ambient Temperature	-40 C to +75 C (Beacon, Mobile Beacon) -10 C to +60 C (Mobile Hub)
Storage Temperature	-40 C to +85 C
Permissible Relative Humidity	10% to 95%
Operating & Survival (Random Vibration)	8 g
Mechanical Shock (Survival)	75 g
Warranty	1 year parts and labor
Extended Warranty	1 year increments
International Protection Rating	IP67
Electromagnetic Compatibility (EMC)	EN 61000-6-1 (2007-10) EN 61000-6-2 (2005-08) EN 61000-6-4 (2007-01) + A1 (2011)
Regulatory	Region 1, US FCC Part 15 (certified) Region 2 (EU)

<sup>1</sup> 1σ standard deviation

<sup>2</sup> Varies based on RF line of sight and beacon geometry

<sup>3</sup> Varies based on distance between antennas; listed spec is for 0.8m antenna separation

Humatics leverages the quality systems of each of our manufacturing partners to deliver quality product in accordance with our Quality Strategy. Raw material is procured, manufactured and tested by external manufacturing partners that have ISO 9001 certified quality systems.



**Headquarters**  
101 Main Street  
Cambridge, MA 02142

**Humatics South**  
Cummings Research Park  
4955 Corporate Drive  
Huntsville, AL 35805