



Zebra Enterprise Solutions

# Dart UWB Hub & Sensors



DATASHEET

## Ultra-Wideband Real Time Locating System

Zebra Dart Ultra-Wideband (UWB) is the most advanced system available for precision asset tracking and real-time locating. Using patented short-pulse, UWB technology, Dart provides a capability and performance level which far exceeds that of other Real Time Locating Systems (RTLS). Dart provides an extensible and flexible architecture that enables real-time tracking of thousands of assets and personnel in challenging environments. Dart offers real-time location accuracy of better than 30 cm (1 foot) with read ranges of up to 100 meters (328 feet) and tag battery life in excess of 7 years while transmitting every second. Dart is the proven choice for demanding industrial, manufacturing, supply chain and badging applications where high resolution tracking of critical assets and personnel is essential.

### Dart Hub

Embedded software on the hub allows for system configuration and display of real-time tag locations via a browser-based GUI interface based on a Java™ run-time environment. The hub provides power, data, and clock to the Dart sensors over a single shielded Ethernet cable enabling simple and fast sensor installation. For full-scale deployments, RTLS edgware solutions are available from a variety of vendors.

A new tool available in the Dart portfolio is that every model of the Dart Sensor can be enabled to operate in “proximity” mode via the Hub. A typical RTLS Sensor can now be turned into a presence reader with fully attenuable UWB read range. This allows for easy extension of an RTLS application to include presence detection capabilities (RFID) through the hub and its data output.

The Dart solution includes System Builder, a powerful virtual planning tool designed to aid in the installation and optimization of the Dart UWB system. SystemBuilder is used to define the site and sensor coordinate system, model the coverage of the Dart sensors and define reference and virtual groups to optimize the performance of the installation. System Builder generates a site file that is downloaded to the hub to get the system up and going and can be reiterated as required for expanding the infrastructure.

### Dart Sensors

Dart sensors are placed throughout the site originating from the hub and then typically daisy-chained from one sensor to the next. The Dart portfolio offers three standard integrated sensors (High-gain, Mid-gain and Omni) which in combination provides industry-leading range and flexibility which translates to the minimal infrastructure required to achieve the high-level UWB location accuracy.

New in the Dart portfolio is a bulk-head sensor with an external antenna for use in outdoor and hazardous environments. This combination allows for the sensor to be placed within a weatherproof or intrinsically safe enclosure with antenna external to the enclosure, achieving optimum range and performance similar to the performance seen in the standard, integrated sensor offering. For hazardous environments, ZES offers a pre-assembled sensor within an enclosure that is certified for use in potentially explosive environments as defined by the ATEX Directive.

### Dart Hub & Sensor Features:

- Virtual planning tool with site file downloadable to hub
- Exceptional performance — Performs in high multi-path environments
- Excellent real-time location accuracy — Better than 30cm (1 foot) line of sight
- Long RTLS Range — Up to 100 meters (328 feet)
- Unmatched RTLS tag throughput — Up to 3500 1Hz tags/ hub
- Fast intuitive setup — Typical single location set-up in one day
- Sensor “proximity” mode via Hub — Provides fully attenuable presence detection capabilities
- Weatherproof external antenna solution
- Fully assembled ATEX Zone1, IIB + H2,T5 sensor (optional)

## Dart Hub Specifications\*

Part Number	
Hub	UWH-1100-A-00AA
Performance	
Data Throughput	Up to 3,500 1 Hz tags/ hub
Tag Capacity	Up to 10,000 tags/ hub
Environmental/Physical	
Operating Temperature	10°C to 50°C (32°F to 104°F)
Length	35.6 cm (14.0 in)
Width	22.9 cm (9.0 in)
Height	8.9 cm (3.5 in)
Weight	1.64 kg (58oz)
Power	100 – 240 VDC 50/60 Hz 2.5 A (Provides power for up to 64 total sensors)
Wired Communications Interface	
Network	Ethernet/Cat 5e
Regulatory Approvals	
North America	FCC part 15 subpart B, ICES-003, UL60950-1, CAN/CSA-22.2 No. 60950-1-07
European Union	CE, EN55024, EN55022, IEC 60950-1

\*Specifications subject to change without notice.

## Dart Sensor Specifications\*

	High-Gain	Mid-Gain	Omni	Bulkhead	Bulkhead w/ ATEX Enclosure
Part Number					
Sensors	UWC-1100-A-00AA	UWC-1200-A-00AA	UWC-1300-A-00AA	UWC-1400-A-00AA	UWC-1410-A-0AAA
Performance					
Frequency Range	6.35 to 6.75 GHz				
Antenna Gain	14 dBi	7.5 dBi	4.5 dBi	n/a	
Environmental/Physical					
Operating Temperature	-40°C to 70°C (-40°F to 158°F)				
Environmental Rating	IP40			IP30 (IP66 w/ optional enclosure)	IP66
Length	15.5 cm (6.1 in)	15.5 cm (6.1 in)	25.4 cm (10.0 in)	16.0 cm (6.3 in)	34.0 cm (13.4 in)
Width	6.4 cm (2.5 in)	6.4 cm (2.5 in)	6.4 cm (2.5 in)	6.4 cm (2.5 in)	31.8 cm (12.5 in)
Height	7.1 cm (2.8 in)	7.1 cm (2.8 in)	7.1 cm (2.8 in)	7.1 cm (2.8 in)	15.7 cm (6.2 in)
Weight	0.45 kg (1.0 lb)	0.45 kg (1.0 lb)	0.54 kg (1.2 lb)	0.45 kg (1.0 lb)	17.2 kg (38.0 lb)
Power	20 – 48 VDC (24mA @ 48VDC)				
Power/Wired Communications Interface					
Power/Clock/Data	Shielded Cat 5e				
Regulatory Approvals					
North America	FCC part 15 subpart B, ICES-003, UL60950-1, CAN/CSA-22.2 No. 60950-1-07				
European Union	CE, EN55024, EN55022, IEC 60950-1				
ATEX					CE 0539 (Ex) II 2 G Ex d [ia] IIB+H2 T5 -40C ≤ Ta ≤ 70C

\*Specifications subject to change without notice.

For more information please visit us at [www.zebra.com/zes](http://www.zebra.com/zes)

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# Dart Antenna Specifications\*

(For use with Bulkhead Sensor products)

		High-Gain	Mid-Gain	Omni
<b>Part Number</b>				
Antennas		UA-110-0A	UA-120-0A	UA-130-0A
<b>Performance</b>				
Frequency Range		6.35 To 6.75 GHz		
Antenna Gain	w/ Bulkhead	14 dBi	7.5 dBi	4.5 dBi
	w/ Bulkhead in ATEX Enclosure	12.9 dBi	5.6 dBi	2.6 dBi
<b>Environmental/Physical</b>				
Operating Temperature		-40°C to 70°C (-40°F to 158°F)		
Environmental Rating		IP66		
Length (with mount fully extended)		15.7 cm (6.2 in)	15.7 cm (6.2 in)	24.4 cm (9.6 in)
Width (with mount)		16.3 cm (3.4 in)	16.3 cm (3.4 in)	6.4 cm (2.5 in)
Height (with mount)		18.0 cm (3.5 in)	18.0 cm (3.5 in)	18.0 cm (3.5 in)
Weight (with mount & cable)		0.42 kg (0.93 lb)	0.42 kg (0.93 lb)	0.37 kg (0.81 lb)
<b>Communications Interface</b>				
RF		SMA connector		

\*Specifications subject to change without notice.

### About Zebra Enterprise Solutions

Zebra Enterprise Solutions, a division of Zebra Technologies Corporation, extends Zebra's reach beyond passive RFID by employing state-of-the-art software and hardware solutions to locate, track, manage, and optimize high-value assets, equipment and people across the world's largest supply chains. Whether tracking containers through a port, optimizing parts for manufacturing, or managing ground support equipment at an airport, the real-time asset management solutions from the combination of Navis, WhereNet, proveo, and Multispectral Solutions provide improved visibility and velocity to gain measurable business improvements. Utilizing products that are based on ISO/IEC 24730-2, Cisco CCX Wi-Fi, precision GPS, and UWB technologies, Zebra Enterprise Solutions offers a wide range of location solutions that are "application matched," enabling its customers to put the right asset in the right place at the right time.

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