



Dart UWB Hub & Sensors



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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. It uses patented UWB techniques to provide accurate, precise, and real-time location with tags that feature exceedingly long battery life. In addition, the Zebra Dart UWB is the world's first UWB solution that is compliant with the new International UWB Standard, IEEE 802.15.4.f, as well as the ISO-24730-61 Draft International standard. This secures your infrastructure investment by making it compatible not only with Zebra's, but also other standards-compliant UWB tags. 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 200 meters (650 feet) and tag battery life in excess of 7 years while transmitting every second. The Zebra Dart UWB system is easy to install and configure. It does not require complex calibration nor exacting Sensor pointing or positioning. The Zebra Dart Sensors connect to one another in a daisy-chain fashion, thus minimizing your cabling and installation costs. 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 & Sensor Features

- Virtual planning tool with site file downloadable to hub
- Exceptional performance — Performs in high multi-path environments
- Compliant with International UWB Standard, IEEE 802.15.4.f
- Excellent real-time location accuracy — Better than 30 cm (1 foot) line of sight
- Long RTLS Range — Up to 200 meters (650 feet)
- Unmatched RTLS tag throughput — Up to 3500 1 Hz 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 UWB HUB & SENSORS

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.

The Hub software allows you to use any Dart Sensor in “proximity” mode. A typical RTLS Sensor can now be turned into a proximity reader with fully attenuable UWB read range.

The Dart solution includes System Builder, a powerful virtual planning tool designed to aid in the installation and optimization of the Dart UWB system. System Builder 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 and is used to configure all RTLS parameters.

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 sensors, each with an integral antenna (High-gain, Mid-gain and Omni). The Zebra Dart solution gives you industry leading range and design flexibility while providing world-class UWB location accuracy at minimal investment.

The Dart portfolio also includes a bulk-head sensor, which connects to an external antenna and is used 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, Zebra offers a pre-assembled sensor within an enclosure that is certified for use in potentially explosive environments as defined by the ATEX Directive.

SPECIFICATIONS

Dart Hub

Part Number

UWH-1100-A-00AA

Performance

Data Throughput

Up to 3,500 1 Hz tags/second per hub

Tag Capacity

Up to 10,000 tags/ hub

Environmental/Physical

Operating Temperature

0° C to 40° 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 (58 oz)

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

Sensor

High speed serial, RJ-45, shielded CAT 5e cabling or unshielded with use of Zebra ferrite kit

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

Dart Sensor

Part Numbers

High-Gain: UWC-1100-A-00AB
Mid-Gain: UWC-1200-A-00AB
Omni: UWC-1300-A-00AB
Bulkhead: UWC-1400-A-00AB
Bulkhead w/ ATEX Enclosure: UWC-1410-A-0AAA

Performance

Frequency Range

6.35 to 6.75 GHz

Antenna Gain

High-Gain: 12.3 dBi
Mid-Gain: 9.4 dBi
Omni: 5.0 dBi

Environmental/Physical

Operating Temperature

-40° C to 70° C (-40° F to 158° F)

Environmental Rating

High-Gain: IP40
Mid-Gain: IP40
Omni: IP40
Bulkhead: IP30
(IP66 w/ optional enclosure)
Bulkhead w/ ATEX Enclosure: IP66

	Length	Width
High-Gain:	15.5 cm (6.1 in)	6.4 cm (2.5 in)
Mid-Gain:	15.5 cm (6.1 in)	6.4 cm (2.5 in)
Omni:	25.4 cm (10.0 in)	6.4 cm (2.5 in)
Bulkhead:	16.0 cm (6.3 in)	6.4 cm (2.5 in)
Bulkhead w/ ATEX Enclosure:	34.0 cm (13.4 in)	31.8 cm (12.5 in)
	Height	Weight
High-Gain:	7.1 cm (2.8 in)	0.45 kg (1.0 lb)
Mid-Gain:	7.1 cm (2.8 in)	0.45 kg (1.0 lb)
Omni:	7.1 cm (2.8 in)	0.54 kg (1.2 lb)
Bulkhead:	7.1 cm (2.8 in)	0.45 kg (1.0 lb)
Bulkhead w/ ATEX Enclosure:	15.7 cm (6.2 in)	17.2 kg (38.0 lb)

Power

20 – 48 VDC (24mA @ 48VDC)

Power/Wired Communications Interface

Power/Clock/Data

High speed serial, shielded CAT 5e cabling or unshielded with use of Zebra ferrite kit

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

Bulkhead w/ ATEX Enclosure:

CE, 0539 Ex II 2 G

Ex d [ia] IIB+H2 T5 -40C ≤ Ta ≤ 70C

Dart Antenna

(For use with Bulkhead Sensor products)

Part Numbers

High-Gain: UA-110-0A
Mid-Gain: UA-120-0A
Omni: UA-130-0A

Performance

Frequency Range

6.35 to 6.75 GHz

Antenna Gain

	w/ Bulkhead	w/ Bulkhead in ATEX Enclosure
High-Gain:	13.0 dBi	12.1 dBi
Mid-Gain:	5.7 dBi	4.6 dBi
Omni:	4.2 dBi	3.3 dBi

Environmental/Physical

Operating Temperature

-40° C to 70° C (-40° F to 158° F)

Environmental Rating

IP66

Length (with mount fully extended)

High-Gain: 15.7 cm (6.2 in)
Mid-Gain: 15.7 cm (6.2 in)
Omni: 24.4 cm (9.6 in)

Width (with mount)

High-Gain: 16.3 cm (3.4 in)
Mid-Gain: 16.3 cm (3.4 in)
Omni: 6.4 cm (2.5 in)

Height (with mount)

High-Gain: 18.0 cm (3.5 in)
Mid-Gain: 18.0 cm (3.5 in)
Omni: 18.0 cm (3.5 in)

Weight (with mount and cable)

High-Gain: 0.42 kg (0.93 lb)
Mid-Gain: 0.42 kg (0.93 lb)
Omni: 0.37 kg (0.81 lb)

Communications Interface

RF

SMA connector

Accessories

- Weather Proof Mount Enclosure for Bulkhead Sensor: UM-110-00
- Dual Option Ceiling Mount for Dart Sensor: MA651-D09
- Industrial use Mount Bracket and Adapter: UM-120-00, UM-130-00
- Ferrite Kit: CBK-030-00

Specifications are subject to change without notice.



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