



Zebra Enterprise Solutions

CONCEPT2
SOLUTION

Sapphire DART Hub and Receivers



DATASHEET

Ultra-Wideband Real-Time Locating System

Sapphire DART, developed by Multispectral Solutions, part of Zebra Enterprise Solutions, is the most advanced system available for precision asset tracking and real-time locating. Using Multispectral's patented short-pulse, Ultra-Wideband (UWB) technology, *Sapphire* provides a capability and performance level which far exceeds that of other Real Time Locating Systems (RTLS) technologies.

Sapphire DART provides an extensible and flexible architecture that enables real-time tracking of thousands of assets and personnel in challenging environments. *Sapphire* DART offers real-time location accuracy of better than 30 cm (1 foot) with read ranges of up to 90 meters (295 feet) and tag battery life in excess of 7 years while transmitting every second. *Sapphire* is the proven choice for demanding industrial, manufacturing, supply chain and badging applications where high resolution tracking of critical assets and personnel is essential.

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. For full-scale deployments, RTLS edgware solutions are available from a variety of vendors. Alternatively, custom edgware solutions can be developed utilizing the *Sapphire* Application Programming Interface (API).

● ● SAPPHERE DART HUB AND RECEIVER FEATURES:

- 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 90 meters (295 feet)
- Unmatched RTLS tag throughput — Up to 2700 tags/ second/ hub
- Fast intuitive setup — typical single location set-up in one day

Sapphire Dart Starter Solution

The following recommended *Sapphire* DART starter solution includes the hardware and software necessary to fully assess the superior performance and capabilities of this unique RTLS technology. This starter solution is fully extensible and allows customers to easily transition from pilot evaluation to full-scale deployments.

Recommended <i>Sapphire</i> DART Starter Solution		
Quantity	Product	Part Number
1*	<i>Sapphire</i> DART Hub with embedded software	H651A
4*	<i>Sapphire</i> DART Receivers	R651-X
4*	<i>Sapphire</i> Dual option ceiling mounts	MA651-DO9
4*	Shielded Cat 5e cables (150')	C651-150
2*	<i>Sapphire</i> 1x1 Asset, 1 Hz Tags for reference tags	T651-1x1-401
10*	<i>Sapphire</i> 1x1 Asset, 1 Hz Tags	T651-1x1-401
2	<i>Sapphire</i> 1x1 Asset, 5 Hz Tags	T651-1x1-405
2	<i>Sapphire</i> Mini Badge, 1 Hz Tags	T651-BDG-401
2	<i>Sapphire</i> Mini Badge, 5 Hz Tags	T651-BDG-405
2	<i>Sapphire</i> Micro Asset, 0.5 Hz Tags	T651-MIC-4005
2	<i>Sapphire</i> Micro Asset, 1 Hz Tags	T651-MIC-401

* Denotes minimum quantity for evaluation

Sapphire DART Hub and Receiver Specifications*

Receiver: Model R651-X

Performance	
Frequency Range (-10dB)	5.94 to 7.12 GHz
Antenna Gain	<ul style="list-style-type: none"> R651-O (Omni): 2.5 dBi R651-MG (Mid-Gain): 8 dBi R651-HG (High-gain): 12 dBi
Environmental/ Physical	
Operating Temperature	10°C to 50°C (50°F to 122°F)
Humidity	0 to 95%, Non-condensing
Length	14.0 cm (5.5 in)
Width	6.4 cm (2.5 in)
Height	6.4 cm (2.5 in)
Weight	0.45 kg (16 oz)
Power	20 – 48 VDC (24 mA @ 48VDC)
Power/Wired Communications Interface	
Power/Clock/Data	Shielded Cat 5e – special configuration providing both data and power (ask for provided specification)
Regulatory Approvals	
North America	<ul style="list-style-type: none"> FCC Part 15 Subpart B UL60950-1/CSA60950-1

Hub: Model H651A

Performance	
Data Throughput	Up to 2700 tag events/second
Data Throughput	Up to 5000 tag events/second
Environmental/Physical/Power	
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 VAC 50/60 Hz 2.5A
	(Provides power for up to 64 receivers)
Wired Communications Interface	
Network	Ethernet/Cat 5e
Regulatory Approvals	
North America	<ul style="list-style-type: none"> FCC Part 15 Subpart B UL60950-1/CSA60950-1

*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.

2 For more information, please visit us at www.concept2solution.com or email us at sales@concept2solution.com.

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