



HS200R-Series Read/Write Tags

Features

- Up to 32KB of Memory
- 3000 Bytes/Second Data Transfer — Reading and Writing
- Epoxy Encapsulated
- Unaffected by Paints, Dust, Dirt and Solvents

Applications

- Material Handling
- Sortation Systems
- Work-in-Progress Monitoring
- Quality Control

Use With

- HS500-Series Antennas
- HS814 / HS816 Portable Reader/Writers

EMS, a Datalogic Group Company, is the field-proven leader in the development and application of Radio Frequency Identification (RFID) Tags/Labels/PCBs, Antennas, Controllers and network interface modules for tough industrial environments. With over a dozen years of RFID successes in the automotive, electronics, material handling and food processing industries, EMS has built a global reputation in providing customers with complete supply chain solutions – from production to retail EMS has the complete solution!

Technical Description

The HS200R-Series Tags incorporate from 64 bytes up to 32,768KB of fast, random-access memory and are epoxy encapsulated to withstand the harshest industrial environments. Advanced digital signal processing techniques allow a data transmission speed of 3,000 bytes per second while still using reliable, safe, low-frequency RF. EMS Tags are the only low-frequency RF Tags on the market with such high speed data transfer capability.

The approximately six-inch Read/Write range of the HS200R-Series Tags make them ideal for use in pallet based automated systems. Once the Tag is mounted, the pallet becomes “intelligent,” and can carry with it all information regarding the product or material on the pallet. The very long life of the Tag means that it doesn’t have to be removed. Other than replacing batteries, the Tag does not require maintenance.

The HS200R-Series Tags contain a replaceable lithium battery power source. The battery will

power the Tag for 150 million bytes transferred or ten years, whichever comes first. The lifetime of the battery can be easily calculated according to the number of bytes to be transferred to and from the Tag per day. For example, if the application calls for 200 bytes to be transferred to or from the Tag every minute for eight hours per day, seven days per week. Multiplying 200 bytes/operation times 480 operations/day yields 96,000 operations per day. The battery can therefore be expected

**REPLACEABLE
BATTERIES
GIVE THE
HS200R
TAGS
VIRTUALLY
UNLIMITED LIFE**

to have a lifetime of 150,000,000 divided by 96,000, or 1,563 days (4.2 years).

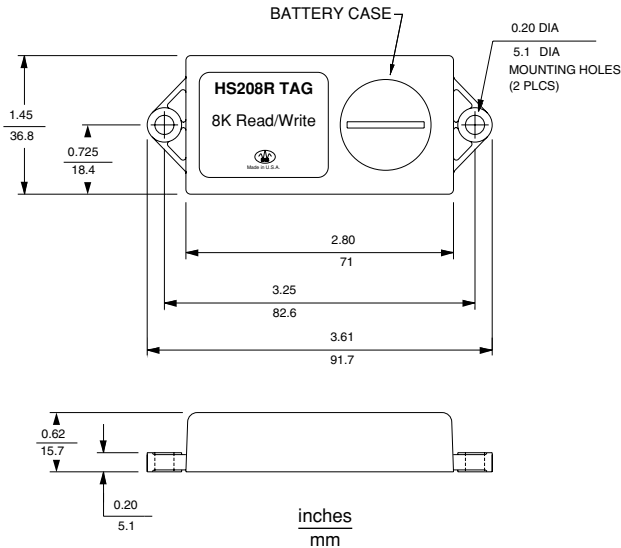
Battery life can be tracked using the Tag’s internal battery counter. Byte 0 of the Tag contains the results of an internal timer, which keeps approximate track of the total time which the Tag has been active. Byte 0 reads 70 hours of actual transmitting time. For the HS200R-Series Tags, the battery should be replaced when the timer value reaches fifteen. The Tag battery can be easily changed by unscrewing the removable battery cap from the Tag.

Unlike competitive RFID systems, the HS200R-Series Tags are insensitive to the direction of travel or to the orientation of the Tag face to the Antenna.

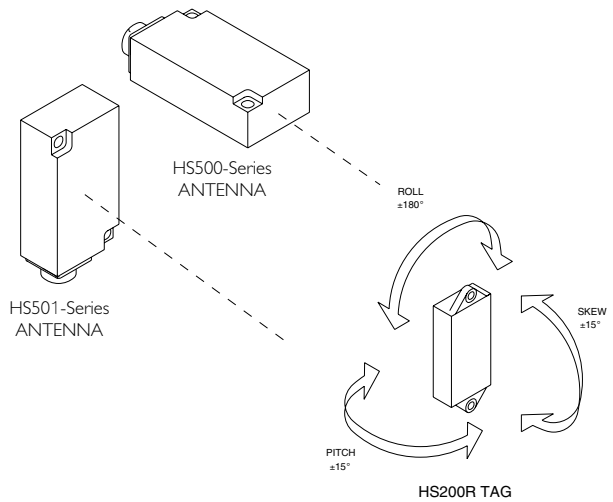
HS200R-Series Read/Write Tags

Electrical	Battery Type	Replaceable Long-Life Lithium Batteries
	Battery Life	10 Years or 150 Million Bytes Transferred to/from Tags
Memory	Memory Type	CMOS Static RAM
	Memory Capacity	
	HS200R	64Bytes
	HS208R	8KB
	HS232R	32KB
RF Interface	Data Transfer Rate	3000 Bytes/Second
Mechanical Specifications	Dimensions (W x H x D)	3.61 x 1.45 x 0.62in. (92 x 37 x 16mm)
	Weight	2.6oz. (74g)
	Enclosure	ABS Shell, Epoxy Encapsulated
Environment	Operating Temperature	-14° to 120°F (-10° to 49°C)
	Storage Temperature	-40° to 185°F (-40° to 85°C)
	Humidity	Water-Resistant
	Protection Class	NEMA 4X (IP67)

Mechanical Dimensions



Tag-to-Antenna Orientation



Read/Write Ranges

HS200R-Series Read/Write Tags

Reading & Writing Ranges with HS500-Series Read/Write Antennas

	HS500(A)	HS501(A)	HS510	HS550A	HS814	HS816
Typical Range (Y) (inches/mm)*	5.91/150	5.00/127	**	4.49/114	1.77/45	1.77/45
Guaranteed Operating Range (X)	4.72/120	4.02/102	**	3.58/91	1.42/36	1.42/36

* Proximity to metal, CRT devices and other sources of electromagnetic radiation may affect the range of the Antenna.

**Not recommended.

Available Models

Model	Description
HS200R	64Byte Read/Write Tag
HS208R	8KB Read/Write Tag
HS232R	32KB Read/Write Tag

**Active Read/Write Radio Frequency Identification (RFID)
Typical & Guaranteed Read/Write Ranges**

(inches/mm)*

Antennas	Tags			
	HS200R-Series	HS200XL-Series	HS200LR-Series	
HS500(A)	Typ.	5.91/150	5.71/145	18.70/475
	Guar.	4.72/120	4.57/116	15.00/380
HS501(A)	Typ.	5.00/127	5.00/127	13.00/330
	Guar.	4.02/102	4.02/102	10.40/264
HS510	Typ.	**	**	2.00-29.00/50-737
	Guar.	**	**	2.00-23.23/50-590
HS550A	Typ.	4.49/114	5.90/150	16.50/420
	Guar.	3.58/91	4.72/120	13.20/335
HS814	Typ.	1.77/45	1.77/45	1.77/45
	Guar.	1.42/36	1.42/36	1.42/36
HS816	Typ.	1.77/45	1.77/45	1.77/45
	Guar.	1.42/36	1.42/36	1.42/36

*Proximity to metal, CRT devices and other sources of electromagnetic radiation may affect the range of the Antenna.

**Not recommended

**Active Read/Write Radio Frequency Identification (RFID) – European
Typical & Guaranteed Read/Write Ranges**

(inches/mm)*

Antennas	Tags		
	HL200R-Series	HL200XL-Series	
HL500(A)	Typ.	3.74/95	3.90/100
	Guar.	2.99/76	3.15/80
HL501(A)	Typ.	3.70/94	3.70/94
	Guar.	2.96/75	2.96/75
HL814	Typ.	0.47/12	0.47/12
	Guar.	0.39/10	0.39/10
HL816	Typ.	0.47/12	0.47/12
	Guar.	0.39/10	0.39/10

*Proximity to metal, CRT devices and other sources of electromagnetic radiation may affect the range of the Antenna.