2.45 GHz

ATEX Approved

BDG 1090-X0

Tag at 2.45GHz - Semi-Passive
Applications - Vehicle identification in Explosive Areas

HIGH PROTECTION LEVEL

TEMPERATURE FROM -40C°

TO +85C°

RE-PROGRAMMABLE

LONG LIFE TIME

ATEX APROVALS

Ex ia I - ⟨Ex⟩ I M1

Ex ia IIC T4 - ⟨Ex⟩ II 1GD

I - INTRODUCTION

The HyperX™ BDG 1090-X0 tag is designed to resist harsh environments: temperature, UV, immersion, shocks and vibrations.

It can be mounted against a metallic surface and fixed by means of 2 holes located on the box diagonally.

The electronics are powered by a lithium cell. They are coated with a special resin and protected in a grey rigid box made from Nylon loaded fibreglass. The tag is perfectly waterproof.

The identification code can be programmed inside the tag memory with a computer via a special device. The programming connectors are located on the backside.

II - OPERATING PRINCIPLE

Electromagnetic radiation characteristics in the 2.45 GHz frequency band allow high data transmission rates and directional antenna beams. Tag detection is therefore very rapid and relatively insensitive to environmental interference.

The HyperX™ tag is electro-magnetically inactive when outside of the reader's range. It's state-of-the-art feature (registered patent) is its capacity to reflect incident microwaves - a tag receiving a 2.45 GHz carrier will echo this signal, modulated by its individual identification code, back to the reader. The reader receives and processes this signal, sending the data to a host system via a standard serial interface.

III - TAG CONTENTS

The HyperX™ tag can be progammed many times. Its memory capacity is 180 bits or 30 alphanumeric characters. The first 18 bits are reserved for use as an integrator code. This ensures that tags from different integrators do not have identical codes.

The remaining 162 bits are available to be programmed freely as desired (eg. as 27 6-bit characters). The integrator can therfore select the coding scheme best adapted to Customer requirements.

IIV - OPERATING MODES

The HyperX™ tag can be read at a range of from a few cms to several meters. By using microwave-based communication, data transmission times are short, from 2 to 8ms, depending on the data stored. The data is emitted in bursts which are continually generated by the tag's electronics. There are two burst modes :
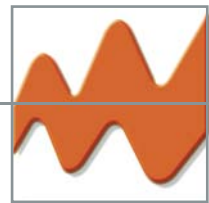
- "NORMAL" mode, in which the time interval between bursts is random, lying between 75 and 130ms. Using this mode, a reader can identify 5 tags in less than a second .

- "FAST" mode, in which the time interval between bursts is very short and constant - 20ms. Using this mode, a vehicle- type reader can identify a tag-equipped vehicle travelling at speeds over 100Km/h.

## V - DETECTION OF BATTERY FAILURE

The HyperX™ tag emits no microwaves. As the tag electronics are always powered up and the power consumption is constant, the tag lifetime is a relatively well-known parameter.

Previous to battery failure the tag transmits a "battery low" signal to the readers which can inform the host systems and the holders.

100 %

RF3Id

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OPERATING PRINCIPLE

The tag echoes its identification code when receiving a 2.45 GHz carrier emitted by the antenna

Emission Antenna

Reception Antenna

Tag
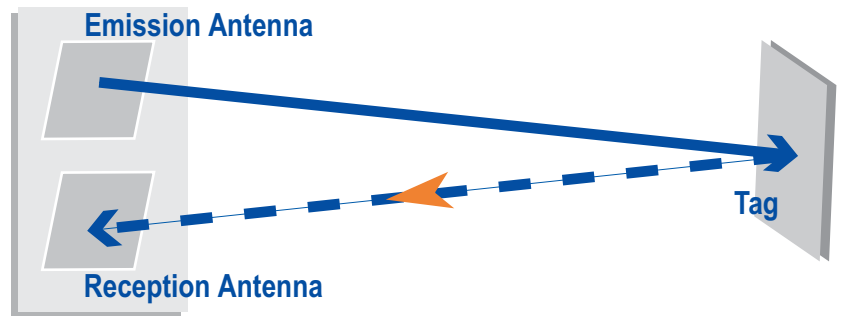
CODIFICATION

Except for the first three characters (18bits), the HyperX™ tag is programmed according to customer's needs.

Integrator Code

User code

| 3 Figures | 27 Alphanumeric Characters of 6bits |

- Binary Format - WIEGAND 26bits
- Digital Format - ISO2
- ASCII Format (6bits)- Alphanumeric

TECHNOLOGY

SEMI-PASSIVE TAG

Balogh's HyperX™ tag is a semi passive technology.
The tags reflect the incident beam generated by the reader, modulating it with their own unique code.

- There is no generation of RF energy.
- Therefore tag life time is long and constant.
  It is independant of tag utilisation.

Total hands free guaranteed long distance read range for vehicle applications

- Comfort of use

Compact sized antenna dimensions

- Discreet and easy installation

Readers adapted to environment

- Antenna Installation on metallic or semi metallic surfaces
- Multi antennas in same zone without perturbation

Multi tag identification – anti-collision features

- True hands free in all situations
- Multi Application possibilities : simultaneous identification of vehicle and driver (person).

KEY FEATURES

Sizes	75 x 50 x 20mm
Weight	80 g
Color	Light grey & White (back)
Operating temperature range	- 40C° to +85C°
Storage temperature range	- 40C° to +85C°
Protection level	I.P. 67
Service lifetime* (Normal/Fast)	10 years / 10 years
Frequency	2.45 GHz
Data rate	30000 bauds
Burst transmission time	3 to 8 ms
Id. burst rate (Normal/Fast)	100±30ms/20ms
Error protection	HDLC
Type de modulation	BPSK
Error rate/No read rate*	1E-7/1E-4*
Performance rate	
Multi-identification* (Normal mode)	> 5 tag/s
High Speed Identification (Fast mode)	> 100 km/h
Memory capacity	3+27 characters
Aprovals	Ex ia I - I M1 - LOM 03.ATEX.2098 X
	Ex ia IIC T4 - II 1GD - LOM 003.ATEX.2098 X

(*) Normal conditions of use
(**) Specifications do not form part of any contract and may be changed without notice

CAUTION

Metallic surfaces or persons coming between tags and the reading antennas create shadow zones in the identification area. The proximity of a tag and a metallic surface or a person (<5mm) reduces the reading distance.

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