

BDG_1090

Tag at 2.45GHz - Semi-Passive

Application - Vehicle identification in harsh environment



HYPER X™

IDENTIFICATION SYSTEMS
Long Range Technology

I - INTRODUCTION

This tag model is designed to resist to harsh environment: temperature, UV, immersion, shocks and vibrations.

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

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

After an appropriate preparation, this tag model can comply with the most rigorous intrinsic standards for the explosive areas. It can be certified Eex xxxx.

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 HYPER X tag can be programmed 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 thus choose the coding scheme best suited to his needs.

IV - OPERATING MODES

The HYPER X 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 HYPER X 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.

HIGH PROTECTION LEVEL

TEMPERATURE FROM -40° TO +85°C

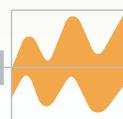
LONG LIFE TIME

RE-PROGRAMMABLE

Eex TAG CERTIFIED

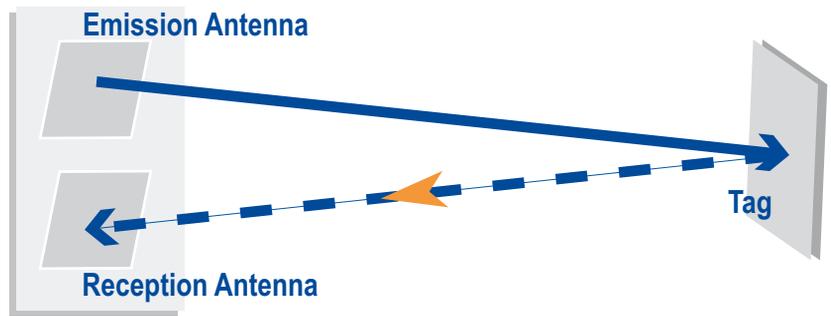


BALOGH



OPERATING PRINCIPLE

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



CODIFICATION

Except for the first three characters (18bits), the HYPER X 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

The tag is designated as semi-passive. The incident wave is reflected by the tag which does not need any power for this :

- The tag life time is constant regardless of the number of read sequences
- All tags are identified at the same distance with regard to a reference area

This is necessary in order to :

- 1 - guarantee a satisfactory hands-free reading distance for personnel (from 10 cm to 10 m) and vehicles.
- comfort of use.
- 2 - reduce antenna dimensions
- visual aspect
- easy intallation
- 3 - reduce environmental interference
- antenna installed on metallic or semi- metallic walls or partitions (concrete walls, aluminium door jambs,...)
- 4 - install several readers in the same zone
- reader adapts to requirements and not vice-versa
- 5 - simultaneously identify several tags present in front of the same antenna.
- conserve benefits of "hands free" detection in all situations
- 6 - identify a tag on board a moving vehicle
- tag uniqueness, the same tag for all applications

KEY FEATURES

Sizes	75x 50 x 20mm
Weight	80 g
Color	Light grey & White (Coverlay)
Operating temperature range	- 40°C to +85° C
Storage temperature range	- 40°C to + 85°C
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 à 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	> 5 tag/s
Multi-identification* (Normal mode)	> 100 km/h
High Speed Identification (Fast mode)	3+27 characters
Memory capacity	Certifications Ex

EEx ia I - LOM 00.E.1042 X
EEx ia IIC T4 - LOM 00.E.2043 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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