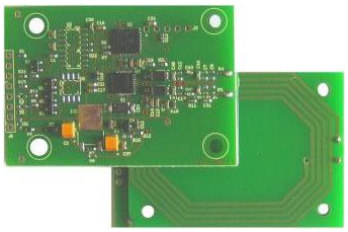
RFID TRANSPONDER TECHNOLOGY

DOC. 147-R3

HFLP 13.56MHz ISO14443A MIFARE LOW POWER READER



HFLP-PCB

HLFP-ONDA

HFLP-SHELL

1.0 FEATURES AND SPECIFICATIONS

The **HFLP** is a Serial Code Reader with **built-in Antenna operating at very low current absorption**, specifically studied for Battery operated plants.

POWER SUPPLY:LEAD-ACID BATTERY 6VDC min 5.5VDC max 7.5VDC
LIPO BATTERY 3.7VDC min 3.6V DC max 4.2VDC
SERIAL COMM: TTL at 3.3VDC or 6VDC baud rate:9600-8-N-1
ABSORTION: with no card present **247uA** at 1second sampling time.

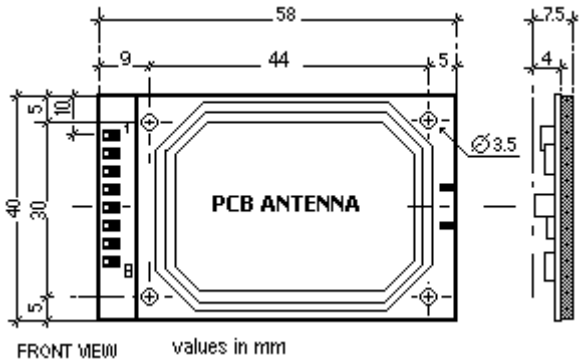
TAG SUPPORTED:
CLASSIC 1K Serial Code Number 4 bytes.
CLASSIC 4K Serial Code Number 4 bytes.
ULTRALIGHT Serial Code Number 7bytes.
PLUS Serial Code Number 7bytes.
DESFIRE,EV1,EV2 Serial Code Number 7bytes.

2.0 VERSIONS
HFLP-TTL-MH-(Case) TTL interface. Spontaneous.

Glossary: **HFLP=**Model Interface: **TTL**
M= TAG MIFARE
H= Spontaneous
Case= PCB**/**SHELL/ONDA

2.0 MOUNTING

DIMENSIONS



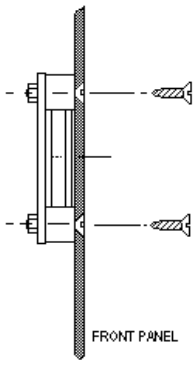
CONNECTION HFLP-TTL
The on-board connector is an 8 pin .1" soldering type.

Pin Number	Description	
1	**BATTERY 6VDC min+5.5V to+7.5V**	
2	**GND**	
3	**RX**	TTL input
4	**TX**	TTL output
5		
6		
7		
8	**LED-OUT**	TTL output trough internal 1kΩ

INSTALL

Due to the Radio Frequency emissions of the Reader Antenna is important to avoid the usage of metal panels in front, rear and lateral sides of the Reader.

Although the HFLP provides an high resistance to EMC corruption, avoid to install it in high RF emission environments, the reading distance may result reduced.



3.0 PROTOCOL

The standard protocols for the HFLP :

MH Spontaneous Suitable for application point to point. The HFLP transmits data only when a TAG is read. The HOST normally works in receive mode.

The protocol FORMAT is described below.

STX Start of string synchronization code.
DEVICE.....Is the Device Number always **00H.**
LENGTH.....Is the number of bytes following the LENGTH.
Example: STX-DEVICE-LENGTH-FUNCTION-DATA0....DATA11-BCC
The length is 14 DEC = 0D HEX.
STATUS..... Is the FUNCTION to be executed or the STATUS of an operation executed.
SPARE0 to SPARE3.....Is an area reserved for future use.
DATA0 to DATAn.....Are the data exchanged.
BCC..... Is calculated as the XOR of all bytes from STX to last DATA included.
Example: STX-DEVICE-LENGTH-STATUS-BCC → 02H-00H-02H-01H-BCC
where BCC= 01H.

3.1 PROTOCOL HFLP

REPLY#0 : SERIAL CODE

DESCRIPTION	STX	DEVICE	LENGTH	STATUS	FRB	DATAn n=4-7	BCC
HEX VALUE	02H	00H	07H or 13H	SeeVALUE	00H	HEX	HEX

FUNCTION VALUE DESCRIPTION
MIFARE CLASSIC:
READ SCN 04H LENGHT=07H DATAn=4 bytes contains the **Serial Code Number**.
MIFARE ULTRALIGHT:
READ SCN 44H LENGHT=0AH DATAn=7 bytes contains the **Serial Code Number**.
MIFARE DESFIRE D40:
READ SCN 43H LENGHT=0AH DATAn=7 bytes contains the **Serial Code Number**.
MIFARE DESFIRE EV1:
READ SCN 45H LENGHT=0AH DATAn=7 bytes contains the **Serial Code Number**.
MIFARE DESFIRE EV2:
READ SCN 46H LENGHT=0AH DATAn=7 bytes contains the **Serial Code Number**1.
MIFARE PLUS:
READ SCN 42H LENGHT=0AH DATAn=7 bytes contains the **Serial Code Number**.

4.0 READER SPECIFICATIONS

OPERATING

Power Requirements max. Ripple 10mVp-p	5 VDC ± 5% at max 90mA (peak) 3.3 VDC ± 5% at max 90mA (peak) only for TTL version.
Serial interface **Data = 8bit Parity = none Stop = 1bit**	MH: BINARY asynchronous half duplex, spontaneous protocol
Baud Rate	9600 bits per second
Reading Distance (with TAG in center of RF field)	CARD: typ. 60mm
Writing Distance (with TAG in center of RF field)	CARD: typ. 50mm

MECHANICAL PCB

Dimensions	40mm x 58mm x 10 mm
Weight	Max 60g

ENVIRONMENTAL

Temperature Operating Storage	-10°C to 60°C -30°C to 70°C
Humidity Operating Storage	10% to 90% non condensing 0% to 95% non condensing