

iClass - Long Range Reader Setup & Instructions

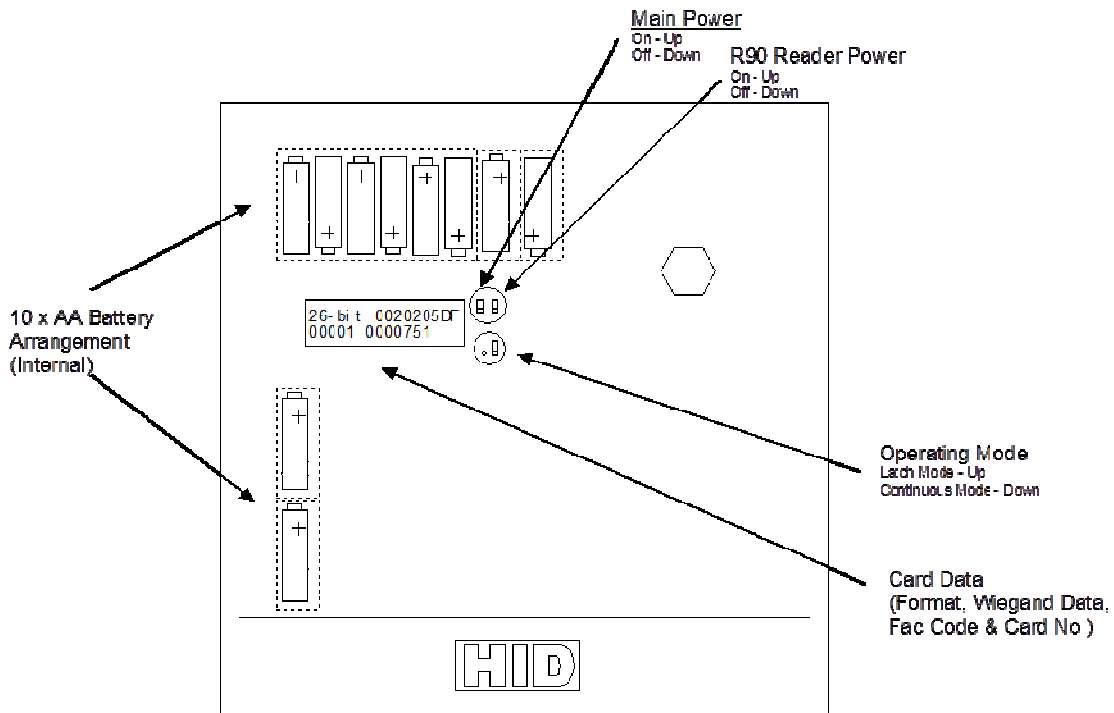


Figure 1. Modified HID R90 iClass Reader Mechanical Layout

Setup:

The R90 iClass Reader is a standalone unit and requires no external equipment to operate.

1. Remove the Top cover assembly by removing the 4 screws located on each corner of the unit.
2. Install 10 "AA" size Alkaline batteries with the correct orientation/polarity as shown above.
3. Ensure that the R90 Reader power switch (on right) is in the ON position (up).
4. Turn on the Main power switch (on left) by placing the switch in the up position. The blue LCD display should light up and display a "Scanning..." message. The R90 reader should also initialize itself with a series of LED blinks, beeps and "autotune" relay chattering. When initialization is complete the red LED behind the hexagon lens should be lit. The unit is now ready to read a card.

Operating Mode:

The switch near the lower right corner of the LCD display is used to select the operating mode. If the switch is placed in the "down" position the reader will attempt to read a card and update the display whenever a new card is placed within its read range. In this "Continuous Update" mode, the blue LED will flash, the reader will beep, and the LCD will be updated for each card read.

If the switch is placed in the "up" position then the reader will operate in a "Latch" mode of operation. In this mode the LCD display will only be updated for the first card read. After the first card is read, the blue LED will be set "on" and will remain lit until the mode is changed or power has been cycled. The unit will not beep while operating in the "Latch" mode. Any card that is read after the LCD and LED have been latched will not cause the LCD information to be updated.

To Read a Card:

1. Hold a 13.56 Mhz iClass access card within 12-18 inches of the R90 iClass reader. If the card is a properly formatted 13.56 Mhz iClass card, then the reader will output the wiegand data stream to the LCD where it will be decoded. When the LCD has finished receiving the Wiegand data the "Blue" LED will blink to indicate that a card code has been captured and is now being displayed on the LCD display.

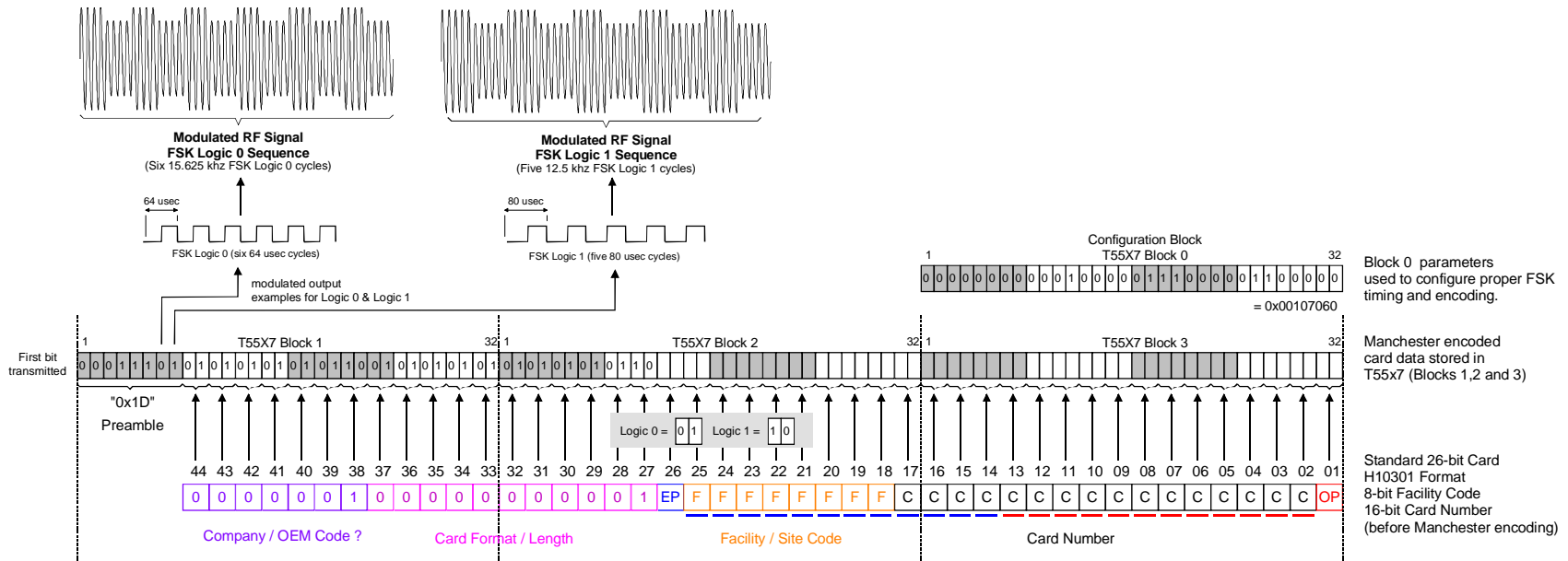
- The first line of the LCD display shows the card format/length followed by the hexadecimal value of the Wiegand data received from the reader. The Wiegand data stream consists of a combination of parity, facility code and card number information. The exact breakdown of the information is dependent on the format of the card being read.

- The second line of the display shows the decimal (base10) value of the card's facility code (only displayed for 26-bit, 35-bit, and 37-bit cards) followed by the decimal value of the card's internal serial number. The card number that is displayed is usually (but not always) the same as what has been inkjet printed on the back of the card.

Note: *The R90 iClass reader will only send the read data "a single time" regardless of how long the card is held in the proximity of the reader. To re-read the card it must be removed from the vicinity of the reader and then re-entered into the readers range again.*

While operating in "Continuous Update" mode, if the user desires to prevent the reader/cloner from reading or capturing additional card data, the R90 power switch (on right) can be turned off. The display will continue to display the data from the last valid card read. The power to the reader can also be turned off to save battery power once a card has been read (Approximately 90% of the total power is being consumed by the iClass reader while less than 10% is being used by the wiegand decoder and LCD display).

If there are any questions or concerns, please contact Carl at info@proxclone.com



Note : Tag Transmits the preamble and all 44 bits but commercial RFID receivers only output weigand data for the last 26-37 bits (dependent on card format) .

Note:
Bits used for even parity calculation are underlined in blue.
Odd parity bits are underlined in red.

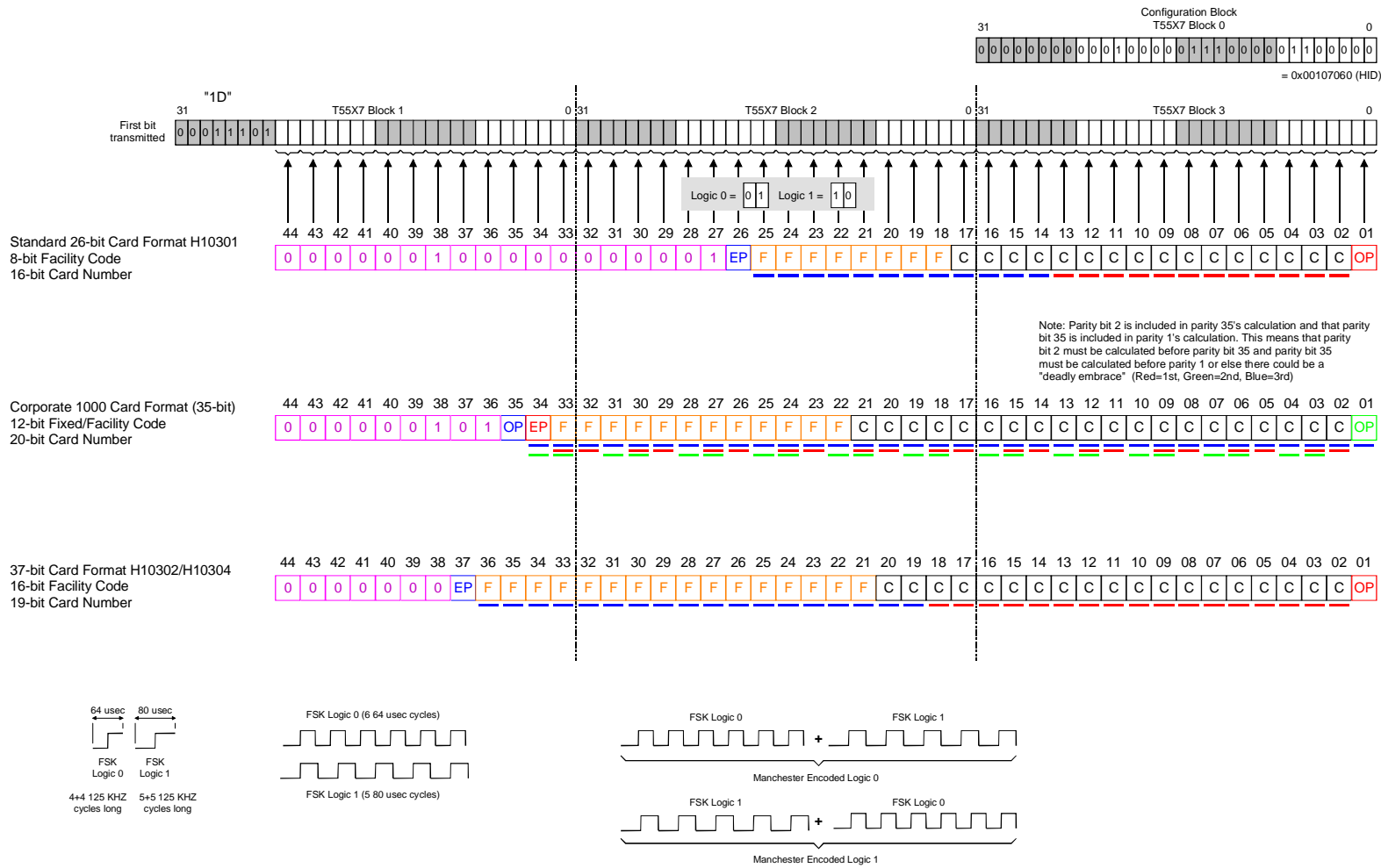
Programming a T5557/5567 read / write card to emulate a HID 26-bit 125 Khz RFID Card using FSK modulation

- Example -

Manchester Data Conversion Example

HID Card Data	T55x7 registers 32-bit data value
44-bit FSK=0x02006C6384A	0x00107060 Block 0
Facility Code = 0x63	0x1D555955 Block 1
Card No. = 0x1C25	0x5569A569 Block 2
Format - H10301 26-bit	0x5A956599 Block 3
	Unused Blocks 4-7

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Data Stream =(3) Logic 0's + (3) Logic 1's + 45-bits of Manchester coded 1's and 0's
 (Note: Tag Transmits all 3+3+45 bits but RFID receiver only outputs last 26,35, or 37 bits dependent on card format)

HID 26-bit, 35-bit, and 37-bit Card Formats