Continuous sample rates (applies to version 2.1)

For hx19 version 2.1, three sample rates can be selected. These are 4 s/s, 8 s/s and 16 s/s. Hx19 v1.1 is sensitive to the time required for ultrasound to travel to destination. It needs to receive, process and transmit the result within that timeframe. At 16s/s the situation gets tight, and there is only room to deliver the results from 6 receivers. At this rate the receivers can be lined up to transmit one after another. For the ultrasonic receiver the user needs to select the queue order (q command), i.e. give each receiver its place in the queue. If two receivers share the same place in the result queue, there will be transmission disorder. It is possible to get around this, by setting different RF transmission channels, for receivers sharing the same queue number. At the highest rate there is only time for 6 receivers per RF transmit channel; 127 RF channels are available. For sample rates 4s/s there is time for 90 results, while at 8s/s there is time for roughly 30.

The ‘f’ command Selection of sample rates

Version 2.1 base sample rate, is 4 s/s. Command ‘f’ will allow this rate to be altered. Command line “!&f1” will set all devices receiving commands to 4s/s. Similarly “!&f2” will set devices to 8s/s, and “!&f4” will select nominal 16s/s (15.75). Rates can be set privately like this. “M&f4 and T&f1”, in this case the hx19ms will synchronize 4 times before the transmitter emits RFID/USID once.

If can be decreased if devices are not all set at the same sample rates.

The ‘q’ command (Receivers v1.1 Only)

At 8 samples per second there is more time to transmit results than at 16 s/s. At 16 s/s there is time for only 8 receivers to broadcast their result. If a high speed precision sampling is required using more than 8 receivers, then the extra receivers must be set to broadcast on another frequency. For that another hx19ms would need to be set to monitor the other frequency. In this case data is coming through two USB/RS232 ports.

At 8 samples per second there is time for 30 receivers to transmit results. And at 4 s/s there is time for 100 receivers.

Syntax: R1&q3 (sets receiver 1 to transmit its distance result third in the queue), and R1&q3e stores this queue number permanently on EEPROM.

For 16s/s option is q1 through q8, and 4s/s is similarly q1 through q100

Waking up from sleep

If the devices have been shut down in slow mode, it may extend the time it takes to wake them. The hx19ms can accept f8, in this fast sync mode the sleeping device wake up certainty increases. Once the devices are awake, the hx19ms should be brought to the correct synchronization rate.