MicroWIS System Timing

The MicroWIS sensor unit sample rate is programmed via the Personal Computer Interface Unit (PCIU). The MicroWIS sensor unit can be programmed using the graphical user interface to acquire and transmit a sample at the following intervals (seconds):

1	2	4	8	16	30	60	120	240	480	960	1800	3600

The MicroWIS sensor unit will send its acquired temperature to the PCIU after a random delay of 12 to 25 milliseconds. This transmission has a duration of 1.134 milliseconds. The sensor unit then switches to "receive" mode for 1.60 milliseconds to listen for an acknowledge. If no acknowledge is received the sensor unit initiates a retransmit sequence that randomly delays for 12 to 25 milliseconds, then retransmits the acquired temperature. This sequence can occur up to four times for each temperature sample. The PCIU acknowledge transmission also has a duration of 1.134 milliseconds. Up to 32 sensor units may communicate with the PCIU.

The command to set the sample rate is included in the communication acknowledge message. The sensor unit changes the sample rate, if instructed to do so, immediately after decoding the acknowledge message. The following chart shows timing for valid reception on the first transmission of the sensor unit:

Sensor Unit	Random Delay	Transmit	Receive	No RF……..
PCIU	Listen	Receive	Acknowledge	No RF……..
Timing	12.0 to 25 mS	1.134 mS	1.60 mS	Programmed Interval

If the PCIU acknowledge message is not received by the sensor unit, the sensor unit will attempt to retransmit after a random delay. The retransmit occurs a maximum of three times. The next chart shows the sequence for an acknowledge message NOT received after the first transmission but successfully received after the second transmission.

Sensor Unit	Random Delay	Transmit	Listen	Random Delay	Transmit	Receive
PCIU	Listen	Receive	Acknowledge	Listen	Receive	Acknowledge
Timing	12.0 to 25 mS	1.134 mS	1.60 mS	12.0 to 25 mS	1.134 mS	1.60 mS