



# Application Note 2004-1

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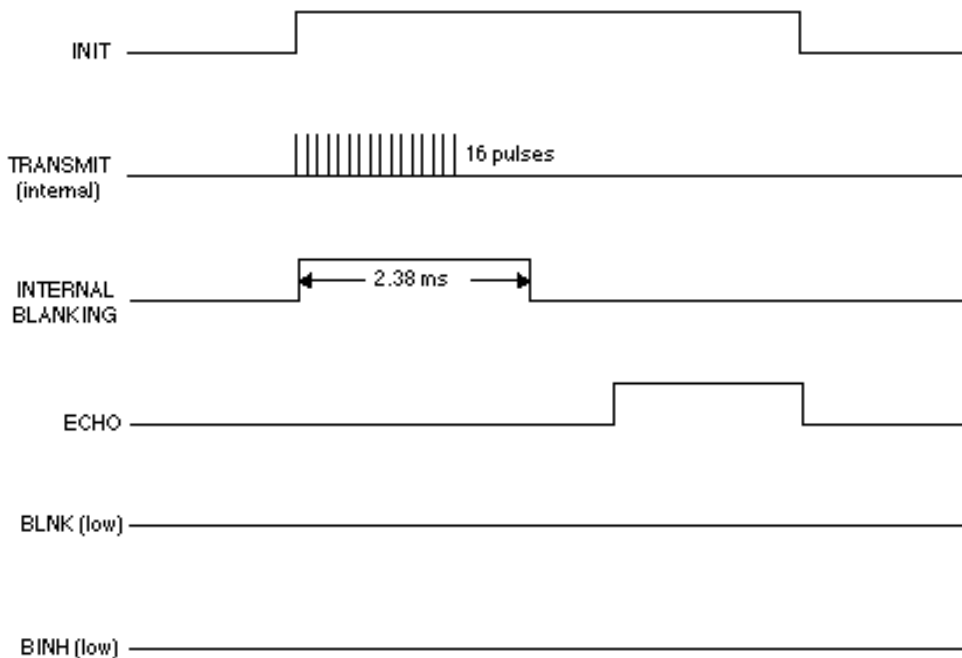
## 6500 Ranging Module – Inputs and outputs for normal operation

INIT – (Initialize Input) – TTL Logic Input. When you (the user) assert this input signal (by a low level to a high level transition), a write, then read, cycle is initiated. Note: the INIT signal must remain high in order for the returning ECHO signal to be detected.

1. The 6500 ranging module transmits 16 ultrasonic pulses out to the transducer
2. The 6500 module has internal blanking for 2.38 ms before it internally switches to the receiving mode (to compensate for transmitting and transducer ringing)
3. The transducer receives the returning echo into the 6500 ranging module, generating ECHO.

ECHO – (Echo Return Output) – A received echo is detected by the 6500 Ranging Module, which then outputs a return ECHO TTL level signal (by a low level to a high level transition).

For the above normal operation, BLNK and BINH inputs can be left un-connected, or be connected to a logic LOW (ground return).



Using the time between INIT and ECHO, you can then calculate the distance between the sensor and the target as follows:

$$D \text{ (distance)} = \frac{T \text{ (time: INIT to ECHO)} \times v \text{ (speed of sound)}}{2 \text{ (sensor to target and back to sensor)}}$$