INTELLIGENT CONTROLS INC
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FAQ Note

Maximum Distance between 1250 and Synchro Transmitter

Problem:
There is no hard specification for the maximum distance of the wiring run between a synchro transmitter and the 1250 receiver.

Explanation:
The 1250 uses a high-impedance, voltage input to monitor the position of the synchro transmitter. The output of the synchro is three separate 0 to 90 volts, 60Hz AC signals, which are relatively immune to noise – especially 60Hz noise. The 1250 does not measure the absolute voltage of each synchro stator output, but rather analyzes the relationship of the voltages and phase of each stator output, to determine synchro shaft position. Since there is very little current flowing, there is very little signal loss through the field wiring. The ultimate limiting factor for maximum distance is the signal to noise ratio. In very quiet environments the maximum distance would be longer than in noisy environments.

Solution:
There are many field installations of the INCON 1250 where the cable runs are very long – as much as a mile, using 16AWG shielded-twisted-pair cable. These are mostly at Locks and Dams, monitoring spillway gate position or water level.

INCON recommends using 20AWG or larger cable for runs of up to 300 feet. For runs up to 1200 feet we recommend 16AWG cable. This cable does not need to be shielded or twisted-pair. For cable runs longer than 1200 feet, shielded and/or twisted-pair cable is recommended.