SMC10 SYNCHRONIZER MODULE

This note describes the operation, application and outline (see Figure 1) of the SMC 10 Synchronizer Module. This module is used in multiple unit installations where mutual interference between Models 380/385 and Model 310B sensors is possible.

SPECIFICATIONS:

Dimensions: 4.5” x 4.25” x 1.25”

Output Drive: RS422 Levels

Input Voltage: 10.5 – 15.0 VDC @ 120 mA

Maximum Units: 7 Models 380 or 385, 1 Model 310B-33253 per Phase

Signal Cable: #22 or #24 Gauge twisted shielded pair

End of Line Termination: 120 ohm ¼ watt

Maximum Distance from SMC10 to each Unit: 1,000 feet

Sync Unit Models: 310B-33253, -33255 and -33258, 380, 385, 380-33453, 385-33301

Figure 1 – Outline Dimensions
Figure 2 shows a block diagram of the SMC10. An 8.192 MHz crystal oscillator serves as the master clock and is divided to provide a 1 kHz master clock for the Model 380 or Model 385 transceiver. The output is coupled to the transceivers through a RS422 line driver that provides the proper differential voltage levels to drive up to seven (7) transceivers. The master oscillator is also connected to a sequencing circuit which provides a 16 kHz, 25% duty cycle to drive two (2) microwave links at different phases so that only one link is on at a time. The overall system timing is such that the transceivers are gated on from the leading edge of the 1 kHz synchronizing signal. The time position of their transmission is selected by the address switch located on each transceiver.

Figure 1 – Block Diagram

Figure 3 shows a typical wiring configuration. One (1) to seven (7) Model 380 or Model 385 transceivers can be connected in parallel from the XCVR output of the SMC10 module. Two (2) Model 310B microwave links can be driven from the Phase One (Ø 1) and Phase Two (Ø 2) outputs. Connections are made to both the transmitter and receiver. It is recommended that all connections be made with #22 or #24 gauge twisted shielded pair cable. The last unit on the line must be terminated with a 120 ohm ¼ watt resistor to ensure that no reflections occur due to line mismatch.

Figure 3 – Wiring Diagram
INSTALLATION:

The SMC10 must be installed in a weatherproof enclosure (not supplied) when installed outdoors. The unit can operate from -40 to 150 degrees F. Shielded wire is recommended.

Refer to Model 380, Model 385 and Model 310B-33253 technical manuals for alignment, installation and set-up instructions. To synchronize the sensors, connect the units as shown in Figure 3. The XCVR, Phase 1 and Phase 2 outputs of the SMC10 connect to the slave terminals of the transceiver, transmitter and receiver. Set the address code in each transceiver sequentially 9 through 15 (or 9-F) so that only one unit occupies each time slot. Note: a maximum of seven (7) transceivers is allowed on this connection. Terminate the last unit with a 120 ohm resistor. Test each transceiver and adjust the RCO and sensitivity to meet the detection requirements. Set each microwave link to the 0° phase position (located within each transmitter and receiver) and set the channel select PCB jumper (E10) to the external position (E11) on the transmitter. Test each link and adjust sensitivity to meet the detection requirements.