



# SCS 30/60

## **SENTRY COMMUNICATIONS SYSTEMS**

### **DUAL FREQUENCY RECEIVER / MUX**

#### **RM-100-XR**

### **GENERAL DESCRIPTION & OPERATION**

The RM-100-XR is a standard DUAL FREQUENCY receiver and MUX-100 combination. The following information applies to all receiver and MUX-100 combinations.

The receiver portion operates as the first of twenty possible receivers and/or auxiliary units associated with the MUX portion of the combination. The RM-100-XR receives and processes the two frequencies transmitted by the LC or LX type transmitters (a 43Khz carrier and a low frequency sub-carrier) to detect an alarm signal. The timing pulses generated by the sub-carrier must be exact to generate a DUAL FREQUENCY alarm. Upon receiver activation the red LED on the faceplate will flash and will be visible up to fifty feet (indoors). The receiver portion also supports a normally open or normally closed dry contact reed relay with a current capacity rated at 10 VA at 500 m A. This relay can be used to control auxiliary equipment. In addition, the receiver supports a mosfet open drain that may be used to operate additional auxiliary equipment.

The MUX portion uses the same microprocessor controlled zone communication format as a MUX-100. It processes a momentary or latched contact closure and transmits that information to any of the master control and annunciator units (MPA 30/60) where the alarm signal is latched. The RM-100-XR also supports a 24 VDC local alarm output which drops low for 1/2 second upon reset from the master control and annunciator. The system communication and power lines are transient and short circuit protected.

### **COMMUNICATION**

Communication with the MPA 30/60 Annunciator is via an RS485 two-conductor, shielded AWG #20 cable at 19,200 BAUD. Each RM-100-XR is polled a minimum of four times per second.

### **PROGRAMMING**

Programming is accomplished by setting a six-position dipswitch to a separate address for each RM-100-XR using a six-position BCD code. Fig. 1 shows a BCD code setting of the dipswitch for zone number 22.

### **COVERAGE**

The range for reliable reception of the signal from any SCS transmitter is not more than 50 feet at any angle up to 70 degrees off-axis. At greater than 70 degrees, range is dependent on the room acoustics but generally decreases to about 30 feet. The range of the RM-100-XR may be adjusted by turning the 20K $\Omega$  clockwise to decrease and counterclockwise to increase sensitivity. NOTE: The 20 K $\Omega$  is located on the receiver PC board and is the only field adjustment that may be required or should be made.

### **ELECTRICAL**

The RM-100-XR operates at 24 VDC and requires 15mill amperes quiescent current. The RM-100-XR is capable of supplying up to 500 m A divided between the output to the MUX receiver and the local alarm output. All connections are made through removable screw clamp terminal blocks which will accept wires from AWG #22-#14. (See Fig. 2)

### **MECHANICAL**

The RM-100-XR is 2.75 x 2.75 x 2.5 inches. It will fit into a standard 2-gang, extra-deep electrical outlet box. The RM-100-XR is the standard DUAL FREQUENCY receiver and MUX-100 combination. As such, the unit is mounted on a 2-gang stainless steel plate, operates with DUAL FREQUENCY transmission, supports a normally open relay and has a single transducer. The receiver and MUX combinations can support various contact inputs mechanical and

electrical offered by Sentry Products, Inc. (See Fig. 3). These include multiple head configurations, variations in faceplate materials, weather resistant and high security options, as well as single and dual transmission frequencies and audio capabilities. When designing a system be sure to use the exact model designation for the desired receiver and MUX combination.

## CONNECTIONS

System connections are by the seven-pin terminal block located on the back of the RM-100-XR (See Fig. 2). System wiring includes a shielded, twisted pair AWG #22 RS485 line for communication (Belden 8761, West Penn D291, or equivalent) and an AWG #14, #16 or #18 pair for system power.

Local connections are by the six-pin terminal block on the back of the RM-100-XR (See Fig. 2). Local connections are only necessary if additional receivers or sensor devices are desired. Up to nineteen additional devices may be added to any receiver and MUX-100 combination. A 2 to 6 conductor wire is necessary for local connections, depending upon the additional equipment that is used with the RM-100-XR.

A latched, local alarm output is also provided from the two-pin terminal block on the back of the RM-100-XR (See Fig. 2).

## TROUBLESHOOTING

Three LED's allow local monitoring of the operation of the RM-100-XR. The green LED on indicates proper communication with the master control and annunciation panel. The yellow LED on indicates a fault condition in the local wiring. The red LED comes on when the RM-100-XR is triggered into alarm.

## MAINTENANCE

Normally no maintenance is required on the RM-100-XR. In the unlikely event of failure, please consult the factory. In most cases the unit can be repaired within 48 hours of receipt at the factory.

## ENGINEERING SPECIFICATION

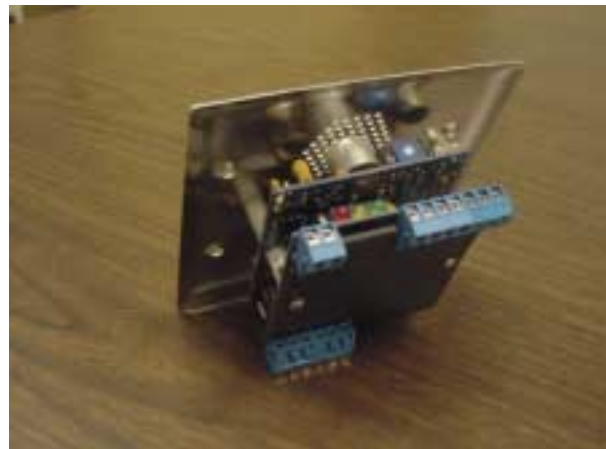
The zone communicator and receiver combination must have the capability to function as a single unit and be mounted in a single, 2-gang, extra-deep electrical outlet box. It must be able to support alarm contact closures of greater than 0.25 seconds. Communication must be via an RS485 two-conductor shielded cable at 19,200 BAUD. The unit must have a latched, local alarm output of 24 VDC. It must have the ability to reset the local alarm output and the duress

devices by command. The dimensions shall not exceed 2.75 x 2.75 x 2.5 inches. All connections, both system and local, shall be via pluggable terminal blocks. One of sixty addresses must be selectable. The unit must be able to support up to nineteen other local devices.

In addition, the unit shall have a flashing red alarm LED that is visible up to fifty feet. It shall have a range of not more than fifty feet up to 70 degrees off-axis from any given transducer. It must be available in configurations that allow for cell, room, dayroom, corridor, laundry, shower and outdoor areas. It must also have configurations that allow for both single and dual transmission frequencies, latching or momentary receiver alarm and audio monitoring, if necessary.



**FIGURE 1**  
ADDRESS DIPSWITCHES SET FOR ZONE 22



**FIGURE 2**  
Sensitivity Pot, and terminal blocks as described in text

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