



TECHNICAL NOTE 05-96

RS-232 INPUT INTERFACE FOR MMP AND RANS SYSTEMS

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INTRODUCTION

The RS-232 serial alarm input interface is available on the Mobile Map Plus (MMP) or Roving Alarm Notification System (RANS). The circuitry is built into the encoder circuit boards but must be selected in software to operate. When the serial interface is selected in software, the discrete (closed contact) inputs are disabled.

CONNECTION

Connection is made to the 9-pin female connector on the encoder circuit board. A standard 9-pin serial cable can be used to connect to the serial port of the host computer system. All other connections to the encoder circuit board remain the same.

COMMUNICATION PROTOCOL

The alarm communications consist of an individual byte for each alarm input sent to the alarm encoder. The serial input buffer has a capacity of 16 individual alarms. Alarms are contained in a first-in, first-out buffer (fifo) and sent out in the order that they are received into the buffer. The communications protocol consists of 9600 baud, 8 bits, no parity, and 1 stop bit. The operation for each alarm transmission is as follows:

- Host computer sends an RTS (request-to-send).
- The alarm encoder returns a CTS within 100 msec. maximum if the encoder input

buffer is not full. The host program should contain a timeout of greater than 100 msec. A timeout of 1 second is recommended to avoid hangups.

Typical time to return CTS is 0-5msec.

- Host computer sends the alarm data byte

The alarm data byte consists of 8 bits:

The first bit is a status bit—

A zero in the first bit indicates the byte contains an alarm to be sent.

The next seven bits are the binary number of the alarm input number. For example,

00000111 indicates an alarm in zone 7

00001010 indicates an alarm in zone 10

If the first bit is a 1, a control instruction is sent. For example,

If the first bit is a 1, followed by all zeros, the input buffer is reset and all alarm transmissions are aborted.

Note: Any voice message transmissions in progress will be completed.

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- The input register will accept up to 16 alarms at any time. As alarms are transmitted, locations in the input register are freed for use by new alarms. If the buffer is full (16 alarms) a CTS is not returned until the next alarm is sent and a “place” is available in the buffer.

SAMPLE SOFTWARE

Included with the serial alarm input interface is sample software for testing or assisting in setting up the serial interface. The software program is written in Qbasic™ which is available with MSDOS 5.0 and later. The program name is RSINPUT.BAS and will load after Qbasic. The Com port is defaulted to COM 1, but can be changed if necessary in the program. Running the program will allow you to selectively send alarms to the encoder from the PC.

The following is the sample program listing:

This is a sample loop to test for INPUT of multiple alarms.

```
CLS
PRINT ""
getzone:
INPUT "ALARM ZONE ", z%
IF z% = 0 THEN GOTO finish
PRINT ""
OPEN
  "COM1:9600,N,8,1,BIN,CD0,CS1000,DS0"
  FOR OUTPUT AS #1
PRINT #1, CHR$(z%)
CLOSE #1
GOTO getzone
finish:
END
```

Notes to the sample program:

1. CD0 disables carrier detect.
2. CS1000 is the key option. It tells the program to wait for 1000 msec. for CTS to go high before error (break in program).
3. DS0 disables DSR (data set ready).

If you have any questions, please contact **CDT**.