Temp Alarm Command/Response Set

V1.1, 03 Jun 2006

1. Command Set.

    a. Command Structure-2 bytes:

        @X (2 characters must be sent)

        Where:

            @=Command Prefix. *Python note: Sent as the '@' character.*
            X=Command Character. *Python note: Sent as a character.*

    b. Command Characters (Upper-case only):

        i. R. Master Reset. Reboots Temp Alarm processor.
        ii. A. Attention. Requests a response from the Temp Alarm, but no specific action. Useful to determine if Temp Alarm is active and to check for cancel conditions.
        iii. S. System Status. Requests the System State, Temperature Scale, Alarm Set Point and the System Uptime. System Uptime is useful to detect system crashes and reboots, if current value is less than the previously-read value (excluding variables overflows).
        iv. D. Read Data. Read Current temperature sensor readings.

2. Response Set.

    a. Acknowledgement Status Characters:

        i. !. Positive Acknowledgement. Command received and understood.
        ii. ?. Negative Acknowledgement. Command invalid or not understood.

    b. Response Structure

        i. "R" and "A" commands (2 bytes):

            AB(2 characters must be sent)

            Where:

                A=Acknowledgement Status.
                B=Command Character being acknowledged--the Command Character sent with the most recent command (Upper-case only).

ii. “S” command (16 bytes):

ABSTPPPPUUUUUUUU

Where:

A=Acknowledgement Status
B=Command Character being acknowledged--the Command Character sent with the most recent command (Upper-case only).
S=System State. 0=Armed, 1-Alarm.
T=Temperature Scale. F=Fahrenheit, C=Celsius.
PP=Alarm Set point. 4 hex digits, for a total numeric value of 0-65535.. Most significant digit sent first.
UUUU=System Uptime. 8 hex digits, for a total numeric value -2147483647 to +2147483648, of which 0 to +2147483648 will be used. Most significant digit sent first.

iii. “D” command (19 bytes):

AB1111222233334444O

Where:

A=Acknowledgement Status
B=Command Character being acknowledged--the Command Character sent with the most recent command (Upper-case only)
11=Thermocouple 1 Temperature. 4 hex digits, for a total numeric value of 0-65535. Most significant digit sent first.
22=Thermocouple 2 Temperature. 4 hex digits, for a total numeric value of 0-65535. Most significant digit sent first.
33=Thermocouple 3 Temperature. 4 hex digits, for a total numeric value of 0-65535. Most significant digit sent first.
44=Thermocouple 4 Temperature. 4 hex digits, for a total numeric value of 0-65535. Most significant digit sent first.
O=Thermocouple Open States. 1 byte bit-mapped with open indicator bits starting with the MSB of the low nibble for thermocouple 1 and mapping the remaining low nibble bits respectively for the rest. Therefore, the bit-mapping for this byte looks like (numbers represent thermocouple numbers, zeroes are undefined bits): 00001234