HEXACON MODEL lll SCADA SPECIFICATIONS

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1) Introduction

This document provides specifications for the optional Supervisory Control And Data Acquisition (SCADA) output of the Hexacon Model III system. This RS232 serial unidirectional data stream is intended to be connected to a serial port on the SCADA computer.

2) Serial Port Configuration

The serial output port is designed to be directly connected to a serial port on the SCADA computer. Table 1 documents the configuration of the serial port.

Parameter	Data
Direction	Unidirectional - Data out only
BAUD Rate	9600
Data Bits	8
Start Bits	1
Stop Bits	1
Parity	None

Table 1: Serial Port Configuration

3) Connector Configuration

Parameter	Data
Connector Type	DB
Equipment Type	DCE
Number of Pins	9
Polarity	Sockets
Pins 1,4,6,7,8,9	Not used
Pin 2	Transmit Data (Tx)
Pin 3	Reserved
Pin 5	Return

Table 2: Serial Connector Parameters

4) Electrical Parameters

Parameter	Data
Signal Levels	RS232
Max. Drive Distance	100 feet
Recommended Cable Type	Belden 1421A

Table 3: Electrical Parameters

5) Basic Output Messages

Table 4 documents each possible code that is transmitted by the Hexacon Model III System, the definition of the code, and the rate at which it is repeated. Fault codes are repeated as long as the fault persists. All codes are followed by a carriage return (ASCII: 0x0D) and a line feed (ASCII: 0x0A); these are the delimiting characters for each fault code.

For example:
A system that has two actuators attached and is 100% operational will report the following message string once per hour:

AO@ AA@ [0x0D] [0x0A] AO@ AB@ [0x0D] [0x0A]

Note: System faults will continue to be reported at a once per minute rate until the fault is cleared. If multiple system faults exist at the same time, they will be reported in the order that they appear in Table 4. Multiple fault codes will also be separated by the same delimiting characters: a carriage return (ASCII: 0x0D) and a line feed (ASCII: 0x0A).

ASCII Characters	Definition	Repetition Rate
OA / OB / OC / OD / OE / OF	Actuator A/B/C/D/E/F Armed and Ready, System is 100% functional	once per hour
EC	Emergency close initiated	at occurrence
ES	Emergency close successful	at occurrence
EF	Emergency close fault	at occurrence
TI	Test close initiated	at occurrence
TS	Test close successful	at occurrence
TU	Test close unsuccessful	at occurrence
VA / VB / VC / VD / VE / VF	Valve A/B/C/D/E/F closed and was torqued properly	at occurrence
DA / DB / DC / DD / DE / DF	Actuator A/B/C/D/E/F disconnected	at occurrence
TA / TB / TC / TD / TE / TF	Actuator A/B/C/D/E/F timed out while closing	at occurrence
SA / SB / SC / SD / SE / SF	Actuator A/B/C/D/E/F shorted during last activation	at occurrence
B1	The message that follows pertains to Battery/Charger 1	precedes BF/BL/BH/ CD/CF/CH
B2	The message that follows pertains to Battery/Charger 2	precedes BF/BL/BH/ CD/CF/CH
BF	Battery failed or is disconnected	once per minute
BL	Battery voltage is less than 12.4 volts	once per minute
BH	Battery voltage is greater than 15.0 volts	once per minute
CD	Charger is off; this could be an AC power fault	once per minute
CF	Charger voltage is less than 13.9 volts	once per minute
CH	Charger voltage is greater than 16.3 volts	once per minute
F1	The message that follows pertains to Fuse 1	precedes FO
F2	The message that follows pertains to Fuse 2	precedes FO
FO	40 Ampere Fuse is open or defective	once per minute
+5	+5V logic supply is out of range (4.6-5.3V)	once per minute
RS	System needs to be reset	once per minute
SR	System Reset (hardware or software reset)	at occurrence
ST	Self test failed	at occurrence

Table 4: Basic SCADA Codes and Definitions