**Field-Equipment**

- RS232C
- Analog Filter
- Analog Input
- Digital Input
- Analog to ASII Conversion
- Modem Control Dial-up/Lease/Radio (RTS)
- Output Relay Control from Remote DH D1,D2
- Control Feedback from Transverter
- Send Digital Status to Transverter
- RS232 COMMUNICATION

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**Algorithms**

- Analog to ASII Conversion
- Modem Control Dial-up/Lease/Radio (RTS)
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**Legend**

- = Algorithm Number
- = Begin Algorithm
- = End Algorithm

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**WARNING**

For SCADA overall system design must incorporate other safeguards in addition to the ICS for operating conditions hazardous to personnel, equipment, or property; such as the use of "deadman" or "suresafe interlocks" and red tag access etc.

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**VOCABULARY LIST**

DATATRAN
TRANSVERTER
DATE/TIME
DATA LOGGING

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**Knowledge Map**

AGM Electronics, Inc.
Tucson, Arizona

REV: A - 1/16/2017 - Doubled L and D Connect Delay

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**Drawn By:** JG
**Checked By:** RF
**Signature:** XXXX
**Date:** XXXX
**Ref:** SP35RIKM
**Sheet:** 1 of 3
To Access the super puk configuration, type 'SCADA' from the drive/directory installed with the software provided in this shipment. You can use any terminal program that supports serial ASCII communications and use the same active commands. The terminal program provided herewith contains help notes on the super puk configurations. This program defaults to serial port COM:1.

L=Lease Line,  D=Dialup Phone lines,  R=Radio

**Analog Filter (sec):** Enter the analog input filter delay in seconds. This value is used for the averaging of the analog input, to prevent bounce or erroneous readings. **TYPICAL = 5 seconds.**

**Transmission Interval (sec):** Enter the communication interval delay in seconds. At each interval the analog and digital information will be transferred between the two SPM units. **TYPICAL: L=10, D=30, R=20.**

**Comm Fail Delay (sec):** Enter the communication fail delay in seconds. This value is used to control the analog output if communication are stopped or in error. If the communications are not continue for the length of the fail delay the analog output will be set to the Initial analog value, until communications is restored. **TYPICAL: L=300, D=300, R=300.**

**Connect Delay (sec):** Enter the delay between connection and the start of data transmission. **TYPICAL: L=40, D=60, R=1.**

**Modem Init String:** Enter an initialization string when a modem is used. The string can be 25 charters long and contain any type of charter. **TYPICAL: L=ATX1D, D=ATE0V0DT(phone #), R=none.**

**CallInp (N):** The default is “N”. If carriage return is pressed, the configuration will continue with the next line allowing changes of the engineering units without physically putting in the 0% and 100% analog signal levels. If a “Y” is entered, the actual relationship between the physical input and engineering units will be changed. This requires applying the raw input signals to the analog input. If you do not have a means to enter the raw signals at this time do not replay “Y”.

**ZeroInp(0.0000):** This message will be displayed to prompt you to set the zero scale engineering units.

**FullInp(100.0000):** Enter in the desired value for datalogging when the input is at full scale. This will complete the calibration process.

**Radio Communications ? (N):** The default is NO. If “Y” is entered the RTS delay will need to be answered. POWER MUST BE RESET in order for the new configuration to take effect.

**RTSdly: X1.7msec:** Enter the RTS delay used in radio communications. This value should be set to zero if a radio modem is not used. The entered value is multiplied by 1.7 msec. The maximum entry for RTS delay is 255 (255 x 1.7 = 433.5 msec).
**Data Handler Operations**

The Data Handler (SPM 9000-D2I) is designed to transfer two analog and one digital contact to a remote 'TRANSVERTER' model SPM 9000-D2I for current and (V) for voltage output. The communication carrier is a dial-up / lease line modem or radio modem and requires a transparent communication channel. The analog input is averaged over a customer selectable time delay and transmitted to the TRANSVERTER based on an adjustable communication interval. A digital input will be transferred to a digital output on the opposite side at each communication interval. A communication fault will become active whenever the communication channel is interrupted. During setup the operator can request the status of the analog and digital inputs and the digital outputs. The setpoints and calibration are operator adjustable through the RS232C communication port. The DATATRAN is addressed as 1.

### Active Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1$ VERS</td>
<td>Data handler version</td>
<td>Display Version of Data Handler</td>
</tr>
<tr>
<td>$1$ CD</td>
<td>Configure Data</td>
<td>Enable Configure Routines</td>
</tr>
<tr>
<td>$1$ RD</td>
<td>Read Data</td>
<td>Displays analog input and output</td>
</tr>
</tbody>
</table>

- **Format**
  - $\text{IN} =$ Analog input $\text{filtered analog}$
  - $\text{D1} =$ 1 or 0 $\text{Local digital input}$
  - $\text{R1} =$ 1 or 0 $\text{Remote digital input}$
  - $\text{R2} =$ 1 or 0 $\text{Communication Failure}$

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**DATATRAN**

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**TRANSVERTER**

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**COMM FAULT**

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**REFER TO WSD 30083-1**