Calibration procedures for I/M-7018Z, I/M-7019R

1) The module should be switched to DCON protocol.
   a. Ensure module is connected on INIT mode. Power OFF module, switch to INIT setting, and power ON module:

   ![INIT and Normal mode switch](image1.png)

   b. INIT mode is only to change baud rate and checksum settings on the module if desired. (Default Baud rate is 9600, Checksum disabled).
   c. Power OFF module, change back to Normal mode, and power ON module again.

2) Use DCON Utility to set DCON Protocol, and send commands to module.

3) Please ensure that the module has been powered on and warmed up for at least 30 minutes.

4) Set the type code to calibrate for each channel by sending command $AA7CiRrr:
   
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<tr>
<th>S</th>
<th>AA</th>
<th>7</th>
<th>Ci</th>
<th>Rrr</th>
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<td>$</td>
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   $ = Delimiter Character  
   AA = Address of the module in HEX format (00 to FF)  
   7 = Command to set channel range code  
   Ci = i specifies the input channel (0 to 7)  
   Rrr = rr represents the type code to be set for the channel

   For example: $017C0R01, sets module with address 01, channel 0, to type code 01 +/- 50mV. (See Section 1.11 of Manual for Configuration Tables)
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5) The following steps must be performed 3 times for each channel, to ensure accurate calibration procedure. Each channel is independent and can be set to different types of inputs.

1. Enable calibration per channel:
   Send command \(\sim\)AAEV:
   \(\sim\) = Delimiter character
   AA = Address of the module in HEX format (00 to FF)
   E = Command to enable/disable calibration
   V = 1: enable calibration
       0: disable calibration
   For example: \(\sim\)01E1, sets module with address 01, to enable calibration.

2. Apply zero calibration voltage. (0 mV for type 01).

3. Send zero calibration command
   Send command $AA0Ci:
   $ = Delimiter character
   AA = Address of the module in HEX format (00 to FF)
   0 = Command for the zero calibration
   Ci = i specifies the input channel (0 to 7)
   For example: $010C0, sets module with address 01, channel 0, to accept 0 mV calibration.
   Response should be: !AA, or !01 for module address 01.
   ** Please note this command takes 16 seconds. Do not disconnect zero calibration voltage input during this time. **

4. Apply span calibration voltage. (50mV for type 01).

5. Send span calibration command
   Send command $AA1Ci:
   $ = Delimiter character
   AA = Address of the module in HEX format (00 to FF)
   1 = Command for the span calibration
   Ci = i specifies the input channel (0 to 7)
   For example: $011C0, sets module with address 01, channel 0, to accept 50 mV calibration.
   Response should be: !AA, or !01 for module address 01.
   ** Please note this command takes 16 seconds. Do not disconnect zero calibration voltage input during this time. **

6. Repeat steps 1 through 5, 3 times for each independent channel.

6) Calibration is complete once each channel has received 3 measurements of zero voltage and 3 measurements of span voltage. Set module back to ModBus protocol.