

Diamond Knowledge Base

System Sentry - Storage Format

The following chart describes the binary storage format used by the System Sentry:

Byte	Bit	Description
	7	Voltage @ 12V Battery/DC Charger Value is in 1/20th of a volt (0.05V). This is the average voltage during the period. (9 bits, 0x1FF, from 0 to 511 which equals 0.00V to 25.55V)
	6	
	5	
	4	
	3	
	2	
	1	
1	7	Voltage @ ATR Battery Value is in 1/20th of a volt (0.05V). This is the average voltage during the period. (9 bits, 0x1FF, from 0 to 511 which equals 0.00V to 25.55V)
	6	
	5	
	4	
	3	
	2	
	1	
2	7	Solar/DC Charger Current Measurement Value is in 1.63mA increments. This is the average current during period. (12 bits + sign bit = 13 total, 0xFFF for data, 0mA to 6675mA) A positive number indicates power coming from the DC Charger, a negative number (normally not possible) indicates power going into the DC Charger.
	6	
	5	
	4	
	3	
	2	
	1	
3	7	
	6	
	5	
	4	
	3	
	2	
	1	

4	7	<p>12V Battery Current Measurement</p> <p>Value is in 1.63mA increments. This is the average current during period. (13 bits, 12 data bits + sign bit, 0xFFF for data, 0mA to 6675mA)</p> <p>A positive number indicates the battery is being drained and a negative number indicates the battery is being charged.</p>
	6	
	5	
	4	
	3	
	2	
	1	
5	7	<p>Modem Current Measurement</p> <p>Value is in 0.84mA increments. This is the average current during period. (11 data bits, no sign, 0x7FF for data, 0mA to 1719mA)</p> <p>This always positive number indicates power going into the Modem (a drain on the system).</p>
	6	
	5	
	4	
	3	
	2	
	1	
6	7	
	6	
	5	
	4	
	3	
	2	
	1	
6		
7	7	<p>ATR Power In Current Measurement</p> <p>Value is in 0.84mA increments. This is the average current during period. (12 bits, 11 data bits + sign bit, 0x7FF for data, 0mA to 1719mA)</p> <p>A positive number indicates power going into the ATR. A negative number (normally not possible) indicates power coming from the ATR.</p>
	6	
	5	
	4	
	3	
	2	
	1	
8	7	<p>ATR Battery Current Measurement</p> <p>Value is in 0.84mA increments. This is the average current during period. (12 bits, 11 data bits + sign bit, 0x7FF for data, 0mA to 1719mA)</p> <p>A positive number indicates power being drained from the ATR battery. A negative number indicates power being fed into the ATR battery (charging the ATR battery).</p>
	6	
	5	
	4	
	3	
	2	
	1	

9	7	Temperature Value is 0.5 degrees C. This is the average temperature during period. (8 bits plus 9th sign bit sign, 0xFF for data, -128.5C to +128.5C)
	6	
	5	
	4	
	3	
	2	
	1	
10	7	
	6	
	5	
	4	
	3	
	2	
	1	

NOTE:
The actual current measurement varies slightly over the range of the converter. For example, at 117mA of draw on the ATR battery, the measurement is actually 0.873mA per increment. At 345mA, the measurement is closer to 0.835mA. TrafMan uses the simpler straight conversion which leads to a slight discrepancy in the displayed value.

<http://support.diamondtraffic.com/knowledgemanager/questions/69/>