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AMS Tracker slow control

The JinFt communicates with the various slow control boards through a LeCroy bus. Commands can be directly sent to a selected bus, or the JinF can execute macro commands to determine the status of all slow control boards: so-called AMSWire "sub-detector specific" commands have been implemented to perform checks and readout of all the slow control devices with simple calls.

- **2E14 1001:** Read the slow-control state, compare with pre-defined values, and give the list of discrepancies. The output format is as follows:

Word #	Content
0	Provided by mainframe
1	Provided by mainframe
2	Provided by mainframe
3	Actel mask
4	Number n of discrepancies
5	Discr. #1 (var. name)
6	Discr. #1 (var. content)
...	...
$4+(2n-1)$	Discr. # n (var. name)
$4+2n$	Discr. # n (var. content)

For the discrepancies, the variable content is the *actual setting*, the one seen by the JinF when reading out the slow control devices.

- **2E14 1012:** After having executed a 2E14 1001 command, you can also get the list of currents and voltages read out from the JinF: **2E14 1012**. Please note that *the output will have a valid meaning only if you have previously executed a 2E14 1001 command*. The output format is as follows:

Word #	Content	TCrate correspondance
0	Error word 1 of TBS 5	
1	Voltage of LR0 Hot, TBS 5	Power group 0 (H)
2	Voltage of LR0 Cold, TBS 5	Power group 0 (C)
3	Voltage of LR1 Hot, TBS 5	Power group 1 (H)
4	Voltage of LR1 Cold, TBS 5	Power group 1 (C)
5	Current of channel 0, TBS 5	TDR 0
6	Current of channel 1, TBS 5	TDR 1
7	Current of channel 2, TBS 5	TDR 4
8	Current of channel 3, TBS 5	TDR 5
9	Current of channel 4, TBS 5	TDR 8
10	Current of channel 5, TBS 5	TDR 9
11	Current of channel 6, TBS 5	TDR 12
12	Current of channel 7, TBS 5	TDR 13
13	Current of channel 8, TBS 5	TDR 16
14	Current of channel 9, TBS 5	TDR 17
15	Current of channel 10, TBS 5	TDR 20
16	Current of channel 11, TBS 5	TDR 21
17	Error word 1 of TBS 15	
18	Voltage of LR0 Hot, TBS 15	Power group 2 (H)
19	Voltage of LR0 Cold, TBS 15	Power group 2 (C)
20	Voltage of LR1 Hot, TBS 15	Power group 3 (H)
21	Voltage of LR 1 Cold, TBS 15	Power group 3 (C)

22	Current of channel 0, TBS 15	TDR 22
23	Current of channel 1, TBS 15	TDR 23
24	Current of channel 2, TBS 15	TDR 18
25	Current of channel 3, TBS 15	TDR 19
26	Current of channel 4, TBS 15	TDR 14
27	Current of channel 5, TBS 15	TDR 15
28	Current of channel 6, TBS 15	TDR 10
29	Current of channel 7, TBS 15	TDR 11
30	Current of channel 8, TBS 15	TDR 6
31	Current of channel 9, TBS 15	TDR 7
32	Current of channel 10, TBS 15	TDR 2
33	Current of channel 11, TBS 15	TDR 3

The ADC to voltage and current value is done as follows:

1. Voltage conversion (in V): $V=2+(ADC-270.4)/41.45$
2. Current conversion (in uA): $I=(a - 0.0735*ADC)$ constant 'a' is actually specific to every ADC channel. The attached file gives you the parameter list.

- [tbscurrentconversion.xls](#): TBS ADC to current (uA) conversion parameters

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