Feb 2000

List of" raw " parameters to readout

Crate with CAN bus interface:

- Crate Address binary, 1 byte
- Status information binary, 2 byte (10 bits of different meaning)
- Range Definition binary, 7 byte
- Voltage/Current +5V binary, 4 byte
- - V -I -5V ----------------
- -2V ----------------
- +12V ----------------
- -12V ----------------
- -15V -----------------

+15V -----------------

- Temperature fan tray air - binary, 1 byte
- Temperature power supply -binary, 1 byte
- Fans speed binary, 2 byte + <number of existing fans>

Crate without interface

- Status of Crate binary, 1 bit (ON/OFF)
- Voltage/ Current for : +/-5V, +/-12V, +/-15V binary, 2 byte for each V or I
- Temperature inside Crate binary, 1 byte

Standard HV power supply with CAENnet bus interface:

- Number of HV channels in use

For each HV channel:

- Status	1 bit	ON/OFF
- V0 set	2 byte	
- I0 set	2 byte	
- V1 set	2 byte	
- I1 set	2 byte	
- V ch mon	2 byte	HV value
- I ch mon	2 byte	Current inside spill
- I ch mon	2 byte	Current outside spill
- Trip		Deviation from V0set
- RampUp		Speed of increasing of HV
- RampDown		Speed of decreasing of HV

Special HV (for calorimetry):

There are total about 8500 HV ch for ECAL1, HCAL1, ECAL2, HCAL2, TOF detectors. The principle of design of HV systems **not allows** measurement of HV and Current individually for each channel.

For central HV power supplier can be define as min. 2 parameters:

- HV 2 byte
- Status ON/OFF

Low Voltage power supply module with CAN bus i/f

- LV crateAddress binary, 1 byte
- Status information binary, 2 byte (10 bits of different meaning)
- Range Definition binary, 7 byte
- Voltage/Current +5V binary, 4 byte
- - V -I -5V ----------------
- -2V ----------------
- +12V ----------------
- -12V ----------------
- -15V -----------------

+15V -----------------

- Temperature fan tray air - binary, 1 byte
- Temperature power supply -binary, 1 byte

Low Voltage module without remote control

_Number of parameters for each LV could be min **3**(depends from extra electronics circuitry to be design)

Analog sensors

_Each sensor produce 1 parameter with **2 byte data**

Digital in/out

_Number of data depends of scheme of optimal connection of status signals (TTL/ NIM level - High/Low) from equipment to Inputs Registers(readout electronics module) - min 8- 9 byte

Detectors

RICH 1

1. Crate VME 9U (28 CATCH) CANbus - 2pc, all items

2. HV SY 527, CAENet bus - 28ch, all itemsg

3. LV with CAN bus -5 pc, all items

4.FE board(BORA) monitoring - 192 Voltage - V
-192 Temperature - T
5. PLC for Gas system 150 -200 parameters for monitor
C4F10 transparence measurement system - ?
6 Sensors - gas purity, O2 contamination
- gas purity H20 contamination
FE cooling system - cooling water T monitor
- water flow monitor
Vessel cooling system - T air monitor
- T vessel monitor

STRAW

.1. Crate VME 9U CANbus - 1 -2‘pc, all items

2. HV SY 527, CAENet bus - app200ch, all items

3. LV (remote control -?) - app. 100 ch.

4. PLC for Gas system N parameters for monitor
5. Sensors 10 ch. temperature T
1 ch air pressure monitor
10 ch .Humidity monitor
1 ch Magnetic field

6 Status of ALL STRAW channels (map) -- 20000 ch
7. Threshold table 20000 ch
8. TDC and CATCH configuration files 256 bit/TDC s

MWPC

.1. Crate VME 9U CANbus - 3 pc, all items

2. HV SY 527, CAENet bus - 40ch, all items

3. LV (36 pc) - 72 Voltage measure V
72 Current I
36 status ON/OFF
4. PLC for Gas system N parameters for monitor
5. Sensors 15 ch. temperature

u Megas/Drift

.1. Crate VME 9U CANbus - 1 pc, all items

2. HV SY 127 , CAENet bus - 20 ch. all items

SciFiJ

.1. Crate VME 9U CANbus - 1pc, all items

2. HV SY 527 , CAENet bus - 50ch, all itemsing

3. LV (remote control -?) - 8ch : 16 Voltage V
16 Current I
ON/OFF
4. Sensors 8 ch. temperature
4 magnetic field
6 Status of ALL SciFbi channels (wire map) -- 800 ch
7. Threshold table 1600 ch
8. TDC and CATCH configuration files 256 bit/TDC

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SciFiG

.1. Crate VME 9U CANbus - 1pc, all items

2. HV SY 403 , CAENet bus - 256ch, all items

3. LV (remote control -?) - 8ch : 16 Voltage V
16 Current I
ON/OFF
4. Sensors 8 ch. temperature
5 Status of ALL SciFbi channels (map) -- 1280 ch
6. Threshold table 2560 ch
7. TDC and CATCH configuration files 256 bit/TDCs

BMS

.1. Crate VME 9U CANbus - 1pc, all item

2. HV SY 527, CAENet bus - 256ch, all items

3. LV (remote control -?) - 12ch - 12 Voltage

4 Status of ALL SciFbi channels (map) 256 ch
6. Threshold table 256 ch
7. TDC and CATCH configuration files 256 bit/TDC

Silicon

.1. Crate VME 9U CANbus - 1pc, all itemsg

2. HV SY 527 , CAENet bus - 30ch, all items

3. LV (remote control -?) - 20 ch,

4. Sensors Temperatura 60 ch
Pressure 15 ch
Gas/ liquid flow 15 ch

GEM

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.1. Crate VME 9U CANbus - 1pc, all items

2. HV SY 527 , CAENet bus - 60ch, all items

3. LV (remote control -?) - 20 ch,

4. Sensors Temperatura 30 ch
Gas/ liquid flow 20 ch

Mu wall 1

1. Crate VME 9U CANbus - 1pc, all items g
   Crate VME 6U CANbus - 6 pc
2. HV SY 527 , CAENet bus - 18ch, all items
3. LV (remote control -?) - 32ch Voltage, V
   32ch Current I
4. Sensors
   Temperatura 1 ch
   Pressure
   Gas/ liquid 16 ch

Mu wall 2

1. Crate VME 9U CANbus - 1pc, all items
2. HV SY 127 , CAENet bus - 12ch, all itemsg
3. LV (remote control -?) - 18ch Voltage, V
4. Sensors
   Temperatura atm. 1 ch
   Air Pressure 1 ch
   Gas flow 16 ch.

Trigger / HOD

1. Crate VME 9U CANbus - 2-3pc, all items
   Crate VME 6U CANbus -1-2pc
2. HV SY 527 , CAENet bus - 1000ch, all itemsg
3. LV (remote control -?) - 50ch Voltage,
4. Sensors
   Temperatura 10 - 20 ch
   Hunidity 2-3 ch
   Magnetic field 1ch

5 Threshold table 1000 ch

HCAL1

1. Crate VME 9U CANbus - 1pc, all items
2. Special HV system - 486ch, NO direct HV monitoring

3. LV (remote control -?)	- 10ch Voltage,
4. Sensors	Position
5 HV table for setting HV	486 ch. 1KByte
6. Pedestall	486 ch.
Gain monitoring	486 ch.

HCAL2

1. Crate VME 9U CANbus - 1pc, all items

2. Special HV system - 220 ch, NO direct HV monitoring

3. LV (remote control -?) - 5ch Voltage, V

4. Pedestall 220 ch
   Gain monitoring 220 ch

ECAL 1

1. Crate VME 9U CANbus - 4pc, all items

2. Special HV system - 3320ch, NO direct HV monitoring

3. LV (remote control -?) - 20ch Voltage, V

4. Pedestall 3620 ch
   Gain monitoring 3620 ch

\- **ECAL2**

1. Crate VME 9U CANbus - 4-5pc, all items

2. Special HV system - 4700ch, NO direct HV monitoring

3. LV (remote control -?) - 20ch Voltage,

4. Pedestall 4700 ch
   Gain monitoring 4700 ch

TOF

1. Crate VME 9U CANbus	- 1 ADC module
2. Special HV system	- 60ch, NO direct HV monitoring
3. LV (remote control -?)	- 5ch Voltage, V
4. Pedestall	60 ch
Gain monitoring	60 ch

Total number of parameters for monitoring:

Crates with CANbus	24 x n (n = min 10) = 240
Crates other	23 x k (k= 3-5) appr 100
HV standard	2000x m(m= min 10) =20000
HV special	8400 gain param, pedestals =17000
LV	min 200 x l (l = min 3) = 600
Analog	260 + (2-3 PLC) = 800
Boolean (status)	70

Total number parameters for control and monitoring appr 38K