EDOC???

EUROGAM PROJECT

NSF DATA ACQUISITION SYSTEM

EUROGAM Database Requirements

Edition 1

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NSF Experimental Group
UK Science and Engineering Research Council
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The following document outlines the requirements of a user accessible database for the EUROGAM array. The database should contain all the information necessary for setting up and running an experiment, and also for general information.

1. Access

The database should be accessible for reading from the EUROGAM control station as it will contain parameters necessary for setting up an experiment. It should also be accessible from the network, as users at remote stations should have the information available for reading only. Ideally, access from France should also be available.

Clearly, input to the database will only be allowed selectively. For example, it is necessary for the detector laboratory staff to update the latest information on Ge detectors. Users in general will not be able to write to the database. The EUROGAM control system itself will be able to automatically update database parameters where necssary.

2. Information to be contained

The following is a list of parameters which should be stored along with an indication of where the information is obtained from, and how the information is provided.

(2.1) Array information

Each detector position in the array has a permanent number - as has been defined in the document EDOC046. For each array position, the following information should be contained.

(a) Number of the position
information in EDOC046 - not to be changed
(b) Number of the "face" (12 faces in the dodecahedral array) - this is relevant as each face has one VXI card, one autofill manifold, one pre-amp supply etc.
faces not defined yet - not to be changed once defined
(c) Angle of the detector with respect to the beam line
information in EDOC048 - not to be changed
(d) Ge VXI channel number and BGO VXI channel number
information to be written when setting up, and to be changed only when a VXI channel is changed
(e) Name of Ge detector currently occupying position

information written during setup of the array - to be changed automatically by the control software when a detector is changed.

(f) Name of last Ge detector to occupy position
information written automatically by computer - see above

(g) Name of BGO shield currently occupying position
information written during setup of the array - to be changed automatically by control software when a detector is changed.

(h) Name of last BGO detector to occupy position
information written automatically by computer - see above

(i) Number of the autofill manifold that fills detector position
information not defined - to be changed only by detector laboratory staff when necessary

(j) Channel number of Ge HV supply for that position in the array
not defined yet - not to be changed once defined

(j) Channel numbers of BGO HV supplies for that position in the array
not defined yet - not to be changed once defined

(2.2) Ge detector information.

Each Ge detector has a name assigned to it (see EDOC047). A typical name for a detector is GUOC5 - the first four letters define the type of detector, its country of origin and the manufacturer. The number at the end of the name is the number of the detector, and is particular to a detector. In the above example, detector number 5 refers only to GUOC5. If there are 45 detectors, they will be numbered 1 to 45. For each Ge detector, the following information will be required

(a) Name of detector
each detector is named by Daresbury as soon as it is delivered in the country

(b) Physical characteristics of detector. These should include the following:
- (i) Manufacturer
- (ii) University owenership of the detector
- (iii) Size of Ge crystal (front diameter, rear diameter and length)
- (iv) Bias voltage - this information must be accessible by the high voltage control software.

all the above information will be provided by the detector laboratory staff - updated when necessary

(c) Array information
- (i) Current position of detector in the array
- (ii) Last position of detector in the array.

This information will be written or updated by the control software automatically when a detector is changed

(d) Performance characteristics
- (i) Last measured efficiency (IEEE standard)
- (ii) Last measured 1.33 MeV resolution for amplifier shaping times of 2 and 6μs
- (iii) Last measured 0.122 MeV resolution for amplifier shaping times of 2 and 6μs
- (iv) Last measured timing measurements for 0.122 MeV and 1.33 MeV γ-rays
- (v) A selected set of measurements from the manufacturers specification sheet.

all the above information will be provided by the detector laboratory staff - updated when necessary

(e) General comments including known faults

information provided by detector laboratory staff when necessary

(2.3) BGO detector information

Each BGO detector has a name as defined in EDOC047. Like the Ge detector, it consists of a set of letters followed by the detctor number. For each BGO detector (or shield) the following information is required

(a) Name of detector

each detector is named by Daresbury when it is delivered

(b) Physical characteristics of detector

(i) Manufacturer

(ii) University ownership of detector

(iii) Bias voltage for each of the 10 shield elements (labelled a to j - see EDOC46) - this information must be accessible by the high voltage control software.

all the above information will be provided by the detector laboratory staff - updated when necessary

(c) Array information

(i) Current position of detector in the array

(ii) Last position of detector in the array.

This information will be written during setup, and updated by the control software automatically when a detector is changed

(d) Performance characteristics

(i) The last measured 0.667 MeV energy resolution. *information will be provided by the detector laboratory staff - updated when necessary*

(ii) A selected set of measurements from the manufacturers specification sheet.

(e) General comments including known faults

information provided by detector laboratory staff when necessary

3. Operation of database

Apart from providing users with information necessary to perform an experiment, the database should also provide information to the EUROGAM control system. For example, when it is required to apply the high voltage for the Ge detectors, the information that the HV control software requires is the value of the bias to applied for a particular detector position (each HV channel will correspond to a particular position in the array). This information is contained and retrieved from the database. The same philosophy applies to the BGO HV supply. When a detector (Ge or BGO) is placed, replaced, moved or removed in the array, this information must therefore be written to the database by the control software automatically. It is vital to ensure that this happens, as applying the wrong bias to a Ge detector can have serious consequences.