INTRODUCTION TO NIM Standard

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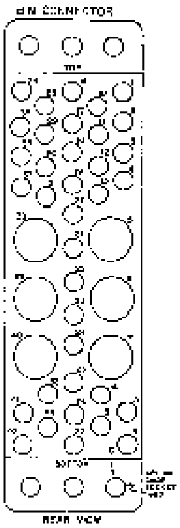
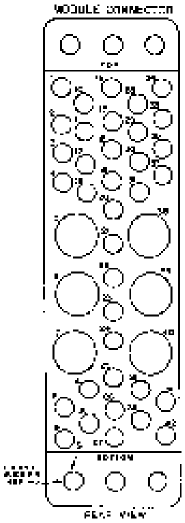
The NIM standard (DOE/ER-0457), originally an acronym for Nuclear Instrumentation Methods, was established in 1964 for the nuclear and high energy physics communities. The goal of NIM was to promote a system that allows for interchangeability of modules. Even today experimenters use NIM modules to assemble a system which meets the specific requirements of their experiment.

Standard NIM modules are required to have a height of 8.75", and must have a width which is a multiple of 1.35". Modules with a width of 1.35" are referred to as single width modules and modules with a width of 2.7" are double width modules, etc. The NIM crate, or NIM bin, is designed for mounting in EIA 19" racks, providing slots for 12 single-width modules. The power supply, which is in general, detachable from the NIM bin, is required to deliver voltages of +6 V, -6 V, +12 V, -12 V, +24 V, and -24 V. The standard NIM power connectors and pinouts are shown below:

Bin Connector Diagram



Module Connector Diagram



Pin/Function Table

PIN	FUNCTION
1	RESERVED
2	RESERVED
3	SPARE
4	RESERVED
5	
6	
7	
8	+200 V D.C.
9	SPARE
* 10	+6 V
* 11	-6 V
12	RESERVED
13	SPARE
14	SPARE
15	RESERVED
* 16	+12 V
* 17	-12 V
18	SPARE
19	RESERVED
20	SPARE
21	SPARE
22	RESERVED
23	RESERVED
24	RESERVED
25	RESERVED
26	SPARE
27	SPARE
* 28	+24 V
* 29	-24 V
30	SPARE
31	SPARE
32	SPARE
33	117 V.A.C. (HOT)
* 34	POWER RETURN GND
* 35	RESET
36	GATE
37	SPARE
38	
39	
40	
* 41	117 V.A.C. (NEUTRAL)
* 42	HIGH QUALITY GND
G	GROUND GUIDE PIN

* Must be bussed to all bin connectors GP1B through PG12B.

The NIM standard also specifies three sets of logic levels. In fast-negative logic, usually referred to as NIM logic, logic levels are defined by current ranges. Since the standard also requires 50 W input/out impedances, these current ranges correspond to voltages of 0 V and -0.8 V for logic 0 and 1 respectively. Fast-negative logic circuitry can provide NIM signal with rise times of order 1 nsec. Slow-positive logic, is rarely used in fast-pulse electronics due to the slow rise times involved, and is not implemented in LeCroy modules. Specifications for ECL (emitter-coupled logic) voltage levels and interconnections have been added to the NIM standard at the request of LeCroy. The logic levels, header sizes, cable terminations, etc., is specified in the standard. The TTL logic system may be used in NIM modules, but is not specified in the NIM standard.