

## 7 SIAMs

Five VME SIAMS located in rack B620B-10 interlock the high voltage system and the electronics power supplies; produce the annunciator alarm that indicates a failure of the chiller system; and generate the PEP-II injection inhibit.

A chiller failure is indicated either by signals from the chiller (input or output temperature out of range; low flow; low pressure) or by the presence of water in the drift chamber bulkhead regions. The LV and HV supplies are shut off in response to such a failure, or in response to a gas system alarm.

SIAM #1 provides the capability to ramp the HV to a safe level without shutting it off completely. The input to the SIAM is generated in EPICs using a VME output module. The second output of SIAM #1 is used to inhibit PEP-II injection via a SIAM located in the CEN-BIP crate in rack B620B-18.

The complete list of inputs and outputs of the five SIAMs is given in Table 1. In all cases, inputs are “normally closed” contacts—an open contact will cause the SIAM to trip. The normal output is a closed contact, with the exception of output 1 of SIAM 1, where the normal output corresponds to a 5V level.

Table1. Inputs and outputs of the drift chamber SIAMs located in the electronics house. Inputs are labeled by their alarm (open-contact) state.

SIAM #0 Shut down HV	Channel	Description	Source
	0	gas sys HV not enabled	HV enable nano output 3-1
	1	Humidity interlocks	SIAM 2 Out 1
	2		
	3		
	4		
	5		
	6		
	7		
	Output 1	Interlock input of SY527	
	Output 2		

SIAM #1 Ramp HV	Channel	Description	Source
	0	EPICs HV ramp down	VME I/O Reg output 2
	1		
	2		
	3		
	4		
	5		
	6		
	7		
	Output 1	V0/V1 set input of SY527	
	Output 2	PEP-II Injection Inhibit	

SIAM #2 Humidity Fault	Channel	Description	Source
	0	moisture in rear bulkhead	rear moisture sensor
	1	moisture in front bulkhead	front moisture sensor
	2		
	3		
	4		
	5		
	6		
	7		
	Output 1	SIAM 0 Ch 1	
	Output 2	SIAM 4 Ch 3	

SIAM #3 Chiller fault	Channel	Description	Source
	0	Low outlet flow	flow sensor on return line
	1	Low chiller flow	Supply Flow
	2	Chiller temperature #1	Supply line TRD
	3	Chiller temperature #2	Return line TRD
	4	moisture in rear bulkhead	rear moisture sensor
	5	moisture in front bulkhead	front moisture sensor
<b>Normally Inhibited</b>	6	BCS Flow	BCS flow switch
	7		
	Output 1	SIAM 4 CH 0	
	Output 2	Beta Alarm and DCH Chiller voice alarm	

SIAM #4 Interlock LV	Channel	Description	Source
	0	DCH Chiller	SIAM 3 Out 1
<b>Normally Inhibited</b>	1	BCS Flow	BCS flow switch
	2	gas sys LV not enabled	LV enabled nano output 3-2
	3	Humidity fault	SIAM 2 Out 2
	4	Electronics Temp Alarm	I/O Reg chan 7
	5		
	6		
	7		
	Output 1	LV Chassis Interlock	
	Output 2	LV Interlock	

