

RadFET (the sensor) and DOSFET (the control box) Names

These are radiation monitoring devices, so the Device Type is RADM:.

The hard x-ray side uses DOSFET controllers for undulator dosimeters, so the area will be UNDH:. The soft x-ray side will use the Keithley RadFET system, so the area for those will be UNDS:. Some sensors and one DOSFET box will be in the dump area.

PVs that apply to one RadFET sensor module

In this table, the "PV Name" column defines the user/programming interface with DEV defined by sensor location, e.g. DEV=RADM:GUNB:621: for a sensor at location 621 in GUNB. Each sensor board has two radiation dose sensors and one temperature sensor on it, so the DOSFET radiation dose readings have an instance 1: and an instance 2:. For the Keithley/SXR system, the sensors are wired in parallel and read out together, so the INST field is not used. It does not have a temperature sensor.

PV Name	Type	Description
\$(DEV):\$(INST):RAW	ai	Raw voltage readback.
\$(DEV):\$(INST):ZERO_VOLTS	ai	Raw voltage corresponding to 0 accumulated dose.
\$(DEV):\$(INST):DELTA_VOLTS	ai	Raw voltage difference, from 0 to now.
\$(DEV):\$(INST):DOSE	calc	Accumulated dose. Calculated from DELTA_VOLTS, with an equation in the CALC field configured by radiation physicists
\$(DEV):\$(INST):STATUS	mbbi	Sensor status. ("Ok", "Over Linear Range", "Error")
\$(DEV):TEMP	ai	Temperature of the sensor board, in C. [DOSFET only]
\$(DEV):\$(INST):ZERO	bo	Expert screen, define latest voltage readback as 0 dose
\$(DEV):\$(INST):ZERO_TOD	stringin	Date/time string when dose was zeroed, i.e. latest voltage readback defined as ZERO_VOLTS

PVs that apply to the whole DOSFET chassis

In this table, DEV is a chassis name. One DOSFET chassis has four of the sensor modules defined above. One Keithley system has 112 modules.

PV Name	Type	Description
\$(DEV):VERSION	stringin	DOSFET controller version [DOSFET only]
\$(DEV):ID	stringin	DOSFET serial number
\$(DEV):DELAY	ai	Readback of pause between applying readback current and reading voltage
\$(DEV):SET_DELAY	ao	Set pause time between applying readback current and reading voltage
\$(DEV):BIAS	ai	Readback bias voltage used between dose readings
\$(DEV):SET_BIAS	ao	Set bias voltage used between dose readings
\$(DEV):SAVE_SETTINGS	bo	Save delay and bias settings in the chassis non-volatile storage.
\$(DEV):SET_POLL_INT	ao	Dose readback sampling interval setting
\$(DEV):BOARD_TEMP	ai	DOSFET chassis main board temperature [DOSFET only]
\$(DEV):POLL_ENABLE	bo	Enable/disable dose readback polling.
\$(DEV):POLL_TIMER	ao	Dose readback sampling interval readback

HXR DOSFET locations and sensor to chassis mapping

DHCP info may be found at <https://www.slac.stanford.edu/grp/cd/soft/unix/slaconly/dhcpd.conf>

DOSFET controller rack/ nearest undulator cell location	Network host name	Controller connection	Sensor undulator #	Sensor apx. z-location (ft)	Device PV \$DEV
HXUC-2/HXU14	radm-undh-rm01	A	HXU13	11702	RADM:UNDH:1377:

		B	HXU14	11716	RADM:UNDH:1477:
		C	HXU15	11728	RADM:UNDH:1577:
		D	HXU16	11742	RADM:UNDH:1677:
HXUC-6/HXU18	radm-undh-rm02	A	HXU17	11755	RADM:UNDH:1777:
		B	HXU18	11768	RADM:UNDH:1877:
		C	HXU19	11781	RADM:UNDH:1977:
		D	HXU20	11795	RADM:UNDH:2077:
HXUC-10/HXU22	radm-undh-rm03	A	Self Seeding	11808	RADM:UNDH:2177:
		B	HXU22	11820	RADM:UNDH:2277:
		C	HXU23	11833	RADM:UNDH:2377:
		D	HXU24	11846	RADM:UNDH:2477:
HXUC-14/HXU26	radm-undh-rm04	A	HXU25	11860	RADM:UNDH:2577:
		B	HXU26	11873	RADM:UNDH:2677:
		C	HXU27	11887	RADM:UNDH:2777:
		D	Self Seeding	11900	RADM:UNDH:2877:
HXUC-18/HXU30	radm-undh-rm05	A	HXU29	11913	RADM:UNDH:2977:
		B	HXU30	11932	RADM:UNDH:3077:
		C	HXU31	11932	RADM:UNDH:3177:
		D	HXU32	11932	RADM:UNDH:3277:
HXUC-22/HXU34	radm-undh-rm06	A	HXU33	11932	RADM:UNDH:3377:
		B	HXU34	11932	RADM:UNDH:3477:
		C	HXU35	11952	RADM:UNDH:3577:
		D	HXU36	11965	RADM:UNDH:3677:
HXUC-26/HXU38	radm-undh-rm07	A	HXU37	11978	RADM:UNDH:3777:
		B	HXU38	11991	RADM:UNDH:3877:
		C	HXU39	12005	RADM:UNDH:3977:
		D	HXU40	12018	RADM:UNDH:4077:
HXUC-30/HXU42	radm-undh-rm08	A	HXU41	12031	RADM:UNDH:4177:
		B	HXU42	12044	RADM:UNDH:4277:
		C	HXU43	12058	RADM:UNDH:4377:
		D	HXU44	12071	RADM:UNDH:4477:
HXUC-34/HXU46	radm-undh-rm09	A	HXU45	12084	RADM:UNDH:4577:
		B	HXU46	12097	RADM:UNDH:4677:

SXR Keithley RadFET sensor mapping

Controller channel	Sensor undulator #	Sensor apx. z-location (ft)	Device PV \$DEV
1	SXU26	11883	RADM:UNDS:2677:
2	SXU27	11897	RADM:UNDS:2777:
3	SXU28	11911	RADM:UNDS:2877:
4	SXU29	11926	RADM:UNDS:2977:
5	SXU30	11941	RADM:UNDS:3077:
6	SXU31	11955	RADM:UNDS:3177:
7	SXU32	11670	RADM:UNDS:3277:
8	SXU33	11976	RADM:UNDS:3377:

9	SXU34	11998	RADM:UNDS:3477:
10	SXU35	12012	RADM:UNDS:3577:
11	SXU36	12027	RADM:UNDS:3677:
12	SXU37	12041	RADM:UNDS:3777:
13	SXU38	12056	RADM:UNDS:3877:
14	SXU39	12070	RADM:UNDS:3977:
15	SXU40	12084	RADM:UNDS:4077:
16	SXU41	12099	RADM:UNDS:4177:
17	SXU42	12114	RADM:UNDS:4277:
18	SXU43	12128	RADM:UNDS:4377:
19	SXU44	12142	RADM:UNDS:4477:
20	SXU45	12157	RADM:UNDS:4577:
21	SXU46	12171	RADM:UNDS:4677:
22	SXU47	12186	RADM:UNDS:4777:

INTERNAL ONLY name mapping for maintenance reference.

NOT PART OF THE NAMING CONVENTION

NOT APPEARING ON ANY SCREENS

In this table, the "PV Name" column defines the user/programming interface with DEV defined by sensor location, e.g. DEV=RADM:GUNB:621: for a sensor at location 621 in GUNB, and "Wrapped internal name" is the names used internally, for which "PV Name" is a wrapper (not exposed on screens) which reflect the chassis channel labeling and manufacturer's documentation, e.g. P=RADM:GUNB:RM01: and SENSOR=B for channel B of the second chassis in GUNB. SENSOR on the chassis side is A, B, C, or D.

PV Name	Wrapped internal name	Description
\$(DEV):1:RAW	\$(P):\$(SENSOR)1:RAW	Raw voltage readback. Channel 1 of RadFET pair.
\$(DEV):1:ZERO_VOLTS	\$(P):\$(SENSOR)1:ZERO_VOLTS	Raw voltage at 0 accumulated dose. Channel 1 of RadFET pair.
\$(DEV):1:DELTA_VOLTS	\$(P):\$(SENSOR)1:DELTA_VOLTS	Raw voltage difference, from 0 to now. Channel 1 of RadFET pair.
\$(DEV):1:DOSE	\$(P):\$(SENSOR)1:DOSE	Accumulated dose. Channel 1 of RadFET pair. Calculated from DELTA_VOLTS, with an equation configured by radiation physicists
\$(DEV):1:RAW_STATUS	\$(P):\$(SENSOR)1:RAW_STATUS	Sensor status. Channel 1 of RadFET pair.
\$(DEV):2:RAW	\$(P):\$(SENSOR)2:RAW	Raw voltage readback. Channel 2 of RadFET pair.
\$(DEV):2:ZERO_VOLTS	\$(P):\$(SENSOR)2:ZERO_VOLTS	Raw voltage at 0 accumulated dose. Channel 2 of RadFET pair.
\$(DEV):2:DELTA_VOLTS	\$(P):\$(SENSOR)2:DELTA_VOLTS	Raw voltage difference, from 0 to now. Channel 2 of RadFET pair.
\$(DEV):2:DOSE	\$(P):\$(SENSOR)2:DOSE	Accumulated dose. Channel 2 of RadFET pair.
\$(DEV):2:RAW_STATUS	\$(P):\$(SENSOR)2:RAW_STATUS	Sensor status. Channel 2 of RadFET pair.
\$(DEV):TEMP	\$(P):\$(SENSOR)TEMP	Temperature of the sensor board.