

SVT Interlocks & Alarms Update

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Hardware Interlocks

FEB Interlocks

supply/return at min/max of 16-26 (no changes)

Chiller power and flow interlocks are also on

Also switched svt supply/return in all GUIs

The screenshot displays a control interface for an SVT PLC (Allen Bradley) with the title 'svt_plc.adl'. The interface is divided into two main sections: 'SVT Chiller' and 'Frontend Board (FE) Chiller'. Each section contains a list of parameters with their current values and control options.

SVT Chiller Parameters:

AC Power Enable	Dis	Ena	1
Flow			0
Flow Good Value	0	1	1
Flow Intick Enable	Dis	Ena	Enabled
Flow Alarm Status			Alarm
Supply RTD			25.00
Supply RTD Low Lim	10.00		10.00
Supply RTD High Lim	25.00		25.00
Supply RTD Intick Enable	Dis	Ena	Disabled
Supply RTD Alarm Status			OK
Return RTD			24.20
Return RTD Low Lim	10.00		10.00
Return RTD High Lim	25.00		25.00
Return RTD Intick Enable	Dis	Ena	Enabled
Return RTD Alarm Status			OK
Valve PLC Ctrl Enabled			1
Valve Status			Closed

MPOD Parameters:

PLC MPOD Enabled?			0
EPICS Control	Normal	Trip	0

Interlock Bypass Parameters:

EPICS Bypass	Normal	Bypass	0
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Frontend Board (FE) Chiller Parameters:

AC Power Enable	Dis	Ena	1
Flow			0
Flow Good Value	0	1	1
Flow Intick Enable	Dis	Ena	Enabled
Flow Alarm Status			Alarm
Supply RTD			25.40
Supply RTD Low Lim	16.00		16.00
Supply RTD High Lim	26.00		26.00
Supply RTD Intick Enable	Dis	Ena	Enabled
Supply RTD Alarm Status			OK
Return RTD			25.40
Return RTD Low Lim	16.00		16.00
Return RTD High Lim	26.00		26.00
Return RTD Intick Enable	Dis	Ena	Enabled
Return RTD Alarm Status			OK
Valve PLC Ctrl Enabled			1
Valve Status			Closed

Vacuum Parameters:

Vacuum			1.40e-05
Vacuum Low Lim	0.00e+00		0.00e+00
Vacuum High Lim	1.00e-03		1.00e-03
Vacuum Intick Enable	Dis	Ena	Enabled
Vacuum Alarm Status			OK

Hardware Interlocks

SVT Interlocks

supply/return at min/max of 10-25
(plan on 15 degrees chiller temp)

Was at -24 - +23 for supply and -24 -
+14 for return

Supply interlocks are currently
disabled since it is broken

Chiller power and flow interlocks are
also on (flow previously off)

The screenshot displays the SVT PLC (Allen Bradley) control interface, showing two main sections: SVT Chiller and Frontend Board (FE) Chiller. The interface includes various status indicators, interlock settings, and temperature limits.

SVT Chiller

Parameter	Dis	Ena	Value
AC Power Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
Flow			0
Flow Good Value	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
Flow Intick Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Enabled
Flow Alarm Status			Alarm
Supply RTD			25.00
Supply RTD Low Lim			10.00
Supply RTD High Lim			25.00
Supply RTD Intick Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Disabled
Supply RTD Alarm Status			OK
Return RTD			24.20
Return RTD Low Lim			10.00
Return RTD High Lim			25.00
Return RTD Intick Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Enabled
Return RTD Alarm Status			OK
Valve PLC Ctrl Enabled			1
Valve Status			Closed

MPOD

PLC MPOD Enabled?			0
EPICS Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0

Interlock Bypass

EPICS Bypass	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0
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Frontend Board (FE) Chiller

Parameter	Dis	Ena	Value
AC Power Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
Flow			0
Flow Good Value	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
Flow Intick Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Enabled
Flow Alarm Status			Alarm
Supply RTD			25.40
Supply RTD Low Lim			16.00
Supply RTD High Lim			26.00
Supply RTD Intick Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Enabled
Supply RTD Alarm Status			OK
Return RTD			25.40
Return RTD Low Lim			16.00
Return RTD High Lim			26.00
Return RTD Intick Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Enabled
Return RTD Alarm Status			OK
Valve PLC Ctrl Enabled			1
Valve Status			Closed

Vacuum

Vacuum			1.40e-05
Vacuum Low Lim			0.00e+00
Vacuum High Lim			1.00e-03
Vacuum Intick Enable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Enabled
Vacuum Alarm Status			OK

Hardware Interlocks

Vacuum - $1e-3$ (previously turned off)

Currently no hybrid/FEB temp interlock (tough to do)

The screenshot displays a control interface for an SVT PLC (Allen Bradley) with the title bar 'svt_plc.adl' and 'COMM: NO_ALARM'. The interface is divided into two main sections: 'SVT Chiller' and 'Frontend Board (FE) Chiller'. Each section contains a list of parameters with their current values and control options.

Parameter	Control	Value
AC Power Enable	Dis Ena	1
Flow		0
Flow Good Value	0 1	1
Flow Intick Enable	Dis Ena	Enabled
Flow Alarm Status		Alarm
Supply RTD		25.40
Supply RTD Low Lim		10.00
Supply RTD High Lim		25.00
Supply RTD Intick Enable	Dis Ena	Disabled
Supply RTD Alarm Status		OK
Return RTD		24.20
Return RTD Low Lim		10.00
Return RTD High Lim		25.00
Return RTD Intick Enable	Dis Ena	Enabled
Return RTD Alarm Status		OK
Valve PLC Ctrl Enabled		1
Valve Status		Closed

Parameter	Control	Value
AC Power Enable	Dis Ena	1
Flow		0
Flow Good Value	0 1	1
Flow Intick Enable	Dis Ena	Enabled
Flow Alarm Status		Alarm
Supply RTD		25.40
Supply RTD Low Lim		16.00
Supply RTD High Lim		26.00
Supply RTD Intick Enable	Dis Ena	Enabled
Supply RTD Alarm Status		OK
Return RTD		25.40
Return RTD Low Lim		16.00
Return RTD High Lim		26.00
Return RTD Intick Enable	Dis Ena	Enabled
Return RTD Alarm Status		OK
Valve PLC Ctrl Enabled		1
Valve Status		Closed

Parameter	Control	Value
PLC MPOD Enabled?		0
EPICS Control	Normal Trip	0

Parameter	Control	Value
Vacuum		$1.40e-05$
Vacuum Low Lim		$0.00e+00$
Vacuum High Lim		$1.00e-03$
Vacuum Intick Enable	Dis Ena	Enabled
Vacuum Alarm Status		OK

Parameter	Control	Value
EPICS Bypass	Normal Bypass	0

Software Interlocks

FEB Interlocks

supply/return at min/max of 16-26 for PLC
(SW at 17-25)

Did not change

svtintk.adl
PLC COMM: NO_ALARM Software Interlocks

SVT Chiller		
Supply RTD Value		25.00
SW Scale [0-1]	0.90	
Min - PLC/SW	16.00	11.50
Max - PLC/SW	26.00	23.50
Interlock Delay (s)	10	10
Interlock Bypass	Normal Bypass	Bypass
First Check Status		0
Second Check Status		0
Interlock Reset/Status	Reset	OK
Return RTD Value		24.00
SW Scale [0-1]	0.90	
Min - PLC/SW	16.00	11.50
Max - PLC/SW	26.00	23.50
Interlock Delay (s)	10	10
Interlock Bypass	Normal Bypass	Normal
First Check Status		1
Second Check Status		1
Interlock Reset/Status	Reset	Fault

Frontend Board (FE) Chiller		
Supply RTD Value		25.40
SW Scale [0-1]	0.90	
Min - PLC/SW	16.00	17.00
Max - PLC/SW	26.00	25.00
Interlock Delay (s)	10	10
Interlock Bypass	Normal Bypass	Normal
First Check Status		1
Second Check Status		1
Interlock Reset/Status	Reset	Fault
Return RTD Value		25.40
SW Scale [0-1]	0.90	
Min - PLC/SW	16.00	17.00
Max - PLC/SW	26.00	25.00
Interlock Delay (s)	10	10
Interlock Bypass	Normal Bypass	Normal
First Check Status		1
Second Check Status		1
Interlock Reset/Status	Reset	Fault

Vacuum		
Vacuum		1.40e-06
SW Scale [0-1]	0.90	
Max - PLC/SW	1.00e-03	9.00e-04
Interlock Delay (s)	10	10
Interlock Bypass	Normal Bypass	Normal
First Check Status		0
Second Check Status		0
Interlock Reset/Status	Reset	Fault

SVT Bias Voltages, Ramp Down - NO BEAM		
HPS Halo FSD		FSD NOT TRIPPED
Interlock Delay (s)	0	0
Interlock Bypass	Normal Bypass	Bypass
First Check Status		0
Second Check Status		0
Interlock Reset/Status	Reset	OK

Software Interlocks

SVT Interlocks

supply/return at min/max of 10-25 for PLC
(SW at 11.5-23.5)

Was at -24 - +23 for supply and -24 - +14
for return

Supply is currently on bypass since it's
broken

The screenshot displays a software interface for interlocks, titled "svtintk.adl" and "Software Interlocks". The interface is divided into three main sections: SVT Chiller, Frontend Board (FE) Chiller, and Vacuum. Each section contains a list of parameters and their current values, along with control buttons.

SVT Chiller

Supply RTD Value		25.00
SW Scale [0-1]	0.90	
Min - PLC/SW	10.00	11.50
Max - PLC/SW	25.00	23.50
Interlock Delay (s)	10	10
Interlock Bypass	Normal	Bypass
First Check Status		0
Second Check Status		0
Interlock Reset/Status	Reset	OK
Return RTD Value		24.00
SW Scale [0-1]	0.90	
Min - PLC/SW	10.00	11.50
Max - PLC/SW	25.00	23.50
Interlock Delay (s)	10	10
Interlock Bypass	Normal	Normal
First Check Status		1
Second Check Status		1
Interlock Reset/Status	Reset	Fault

Frontend Board (FE) Chiller

Supply RTD Value		25.40
SW Scale [0-1]	0.90	
Min - PLC/SW	15.00	17.00
Max - PLC/SW	25.00	25.00
Interlock Delay (s)	10	10
Interlock Bypass	Normal	Bypass
First Check Status		1
Second Check Status		1
Interlock Reset/Status	Reset	Fault
Return RTD Value		25.40
SW Scale [0-1]	0.90	
Min - PLC/SW	15.00	17.00
Max - PLC/SW	25.00	25.00
Interlock Delay (s)	10	10
Interlock Bypass	Normal	Normal
First Check Status		1
Second Check Status		1
Interlock Reset/Status	Reset	Fault

Vacuum

Vacuum		1.40e-06
SW Scale [0-1]	0.90	
Max - PLC/SW	1.00e-03	9.00e-04
Interlock Delay (s)	10	10
Interlock Bypass	Normal	Bypass
First Check Status		0
Second Check Status		0
Interlock Reset/Status	Reset	Fault

SVT Bias Voltages, Ramp Down - NO BEAM

HPS Halo FSD		FSD NOT TRIPPED
Interlock Delay (s)	0	0
Interlock Bypass	Normal	Bypass
First Check Status		0
Second Check Status		0
Interlock Reset/Status	Reset	OK

Software Interlocks

Vacuum - PLC at $1e-3$ and SW at $9e-4$
(seems stable under $1.5e-5$)

Beam interlocks are turned off

*Currently no hybrid/FEB temp interlock
(tough to do)*

The screenshot displays the 'svIntlk.adl' software interface, which is a control panel for software interlocks. The interface is organized into three main sections, each with a red header bar. The top-left section is for the 'SVT Chiller', the top-right for the 'Frontend Board (FE) Chiller', and the bottom for 'Vacuum'. Each section contains a list of parameters, some with input fields and others with status indicators or buttons. The 'SVT Chiller' and 'Frontend Board (FE) Chiller' sections show similar parameters: Supply RTD Value, SW Scale [0-1], Min - PLC/SW, Max - PLC/SW, Interlock Delay (s), Interlock Bypass, First Check Status, Second Check Status, and Interlock Reset/Status. The 'Vacuum' section shows Vacuum, SW Scale [0-1], Max - PLC/SW, Interlock Delay (s), Interlock Bypass, First Check Status, Second Check Status, and Interlock Reset/Status. The 'Frontend Board (FE) Chiller' section also includes 'SVT Bias Voltages, Ramp Down - NO BEAM' and 'HPS Halo FSD'. The interface uses a color-coded system: green for normal/OK status, red for fault/bypass status, and grey for input fields.

Parameter	Value	Status
Supply RTD Value		25.00
SW Scale [0-1]	0.90	
Min - PLC/SW	10.00	11.50
Max - PLC/SW	25.00	23.50
Interlock Delay (s)	10	10
Interlock Bypass	Normal	Bypass
First Check Status		0
Second Check Status		0
Interlock Reset/Status	Reset	OK
Return RTD Value		24.00
SW Scale [0-1]	0.90	
Min - PLC/SW	10.00	11.50
Max - PLC/SW	25.00	23.50
Interlock Delay (s)	10	10
Interlock Bypass	Normal	Normal
First Check Status		1
Second Check Status		1
Interlock Reset/Status	Reset	Fault
Vacuum		1.40e-06
SW Scale [0-1]	0.90	
Max - PLC/SW	1.00e-03	9.00e-04
Interlock Delay (s)	10	10
Interlock Bypass	Normal	Normal
First Check Status		0
Second Check Status		0
Interlock Reset/Status	Reset	Fault
SVT Bias Voltages, Ramp Down - NO BEAM		
HPS Halo FSD		FSD NOT TRIPPED
Interlock Delay (s)	0	0
Interlock Bypass	Normal	Bypass
First Check Status		0
Second Check Status		0
Interlock Reset/Status	Reset	OK

FEB Alarms

Return/supply and flow alarms are on

FEB temp alarms are also on

Nothing changed

ALARM INFORMATION FOR SVT:temp:fe:0:FebTemp0:t_rd

Present Values

SVT:temp:fe:0:FebTemp0:t_rd :	0.0e+00
Alarm Severity (SEVR):	MAJOR
Alarm Severity (STAT):	LOLO

Alarm Limits:

HIHI:	3.2e+01	Alarm Severity:	
HIGH:	3.0e+01	HIHI (HHSV):	MAJOR
LOW:	2.2e+01	HIGH (HSV):	MINOR
LOLO:	2.0e+01	LOW (LSV):	MINOR
		LOLO (LLSV):	MAJOR

ALARM INFORMATION FOR HPS_SVT:PLC:i:RTD_FE_Supply-Value

Present Values

HPS_SVT:PLC:i:RTD_FE_Supply-Value :	25.20e+00
Alarm Severity (SEVR):	MAJOR
Alarm Severity (STAT):	HIHI

Alarm Limits:

HIHI:	2.50e+01	Alarm Severity:	
HIGH:	2.40e+01	HIHI (HHSV):	MAJOR
LOW:	1.90e+01	HIGH (HSV):	MINOR
LOLO:	1.80e+01	LOW (LSV):	MINOR
		LOLO (LLSV):	MAJOR

ALARM INFORMATION FOR HPS_SVT:PLC:i:RTD_FE_Return-Value

Present Values

HPS_SVT:PLC:i:RTD_FE_Return-Value :	25.20e+00
Alarm Severity (SEVR):	MAJOR
Alarm Severity (STAT):	HIHI

Alarm Limits:

HIHI:	2.40e+01	Alarm Severity:	
HIGH:	2.31e+01	HIHI (HHSV):	MAJOR
LOW:	1.90e+01	HIGH (HSV):	MINOR
LOLO:	1.80e+01	LOW (LSV):	MINOR
		LOLO (LLSV):	MAJOR

Hybrid Alarms

aiocalc_alarm.adl

ALARM INFORMATION FOR HPS_SVT:PLC:i:RTD_SVT_Supply-Value

Present Values

HPS_SVT:PLC:i:RTD_SVT_Supply-Value : 24.60e+00

Alarm Severity (SEVR): MAJOR

Alarm Severity (STAT): HIHI

Alarm Limits:

HIHI:	1.00e+01	Alarm Severity:	HIHI (HHSV): MAJOR
HIGH:	9.00e+00		HIGH (HSV): MINOR
LOW:	5.00e+00		LOW (LSV): MINOR
LOLO:	4.00e+00		LOLO (LLSV): MAJOR

aiocalc_alarm.adl

ALARM INFORMATION FOR HPS_SVT:PLC:i:RTD_SVT_Supply-Value

Present Values

HPS_SVT:PLC:i:RTD_SVT_Supply-Value : 24.80e+00

Alarm Severity (SEVR): MAJOR

Alarm Severity (STAT): HIHI

Alarm Limits:

HIHI:	1.80e+01	Alarm Severity:	HIHI (HHSV): MAJOR
HIGH:	1.70e+01		HIGH (HSV): MINOR
LOW:	1.30e+01		LOW (LSV): MINOR
LOLO:	1.20e+01		LOLO (LLSV): MAJOR

aiocalc_alarm.adl

ALARM INFORMATION FOR HPS_SVT:PLC:i:RTD_SVT_Return-Value

Present Values

HPS_SVT:PLC:i:RTD_SVT_Return-Value : 850.00e+00

Alarm Severity (SEVR): MAJOR

Alarm Severity (STAT): HIHI

Alarm Limits:

HIHI:	-1.60e+01	Alarm Severity:	HIHI (HHSV): MAJOR
HIGH:	-1.70e+01		HIGH (HSV): MINOR
LOW:	-2.10e+01		LOW (LSV): MINOR
LOLO:	-2.20e+01		LOLO (LLSV): MAJOR

aiocalc_alarm.adl

ALARM INFORMATION FOR HPS_SVT:PLC:i:RTD_SVT_Return-Value

Present Values

HPS_SVT:PLC:i:RTD_SVT_Return-Value : 850.00e+00

Alarm Severity (SEVR): MAJOR

Alarm Severity (STAT): HIHI

Alarm Limits:

HIHI:	1.80e+01	Alarm Severity:	HIHI (HHSV): MAJOR
HIGH:	1.70e+01		HIGH (HSV): MINOR
LOW:	1.30e+01		LOW (LSV): MINOR
LOLO:	1.20e+01		LOLO (LLSV): MAJOR

Hybrid Alarms

Each hybrid originally had different alarm values, easy to change (now the same).

The screenshot shows a window titled 'aiaocalc_alarm.adl' with the following content:

ALARM INFORMATION FOR SVT;temp;hyb;0;0;temp0;t_rd

Present Values

SVT;temp;hyb;0;0;temp0;t_rd :	0.0e+00
Alarm Severity (SEVR):	MAJOR
Alarm Severity (STAT):	HIHI

OLD

Alarm Limits:	Alarm Severity:
HIHI: -1.1e+01	HIHI (HHSV): MAJOR
HIGH: -1.2e+01	HIGH (HSV): MINOR
LOW: -1.4e+01	LOW (LSV): MINOR
LOLO: -1.4e+01	LOLO (LLSV): MAJOR

The screenshot shows a window titled 'aiaocalc_alarm.adl' with the following content:

ALARM INFORMATION FOR SVT;temp;hyb;0;0;temp0;t_rd

Present Values

SVT;temp;hyb;0;0;temp0;t_rd :	0.0e+00
Alarm Severity (SEVR):	MAJOR
Alarm Severity (STAT):	LOLO

NEW

Alarm Limits:	Alarm Severity:
HIHI: 2.2e+01	HIHI (HHSV): MAJOR
HIGH: 2.0e+01	HIGH (HSV): MINOR
LOW: 1.1e+01	LOW (LSV): MINOR
LOLO: 1.0e+01	LOLO (LLSV): MAJOR

Things To Do

Update hybrid temp alarm values if necessary

Document

It *probably* works... but we should probably test this stuff (change interlock ranges to see if things trip, turn on SVT DAQ, etc.)

Also, VNC is port :4 on clonsl1 in JLab HallB