

Feedwater Center

Model SDI-JC-FWC-NS



Quick Start Guide

SDI-JC-FWC-NS-QS
5/06/09

INTRODUCTION

This guide is designed to simplify the commissioning process by detailing the initial parameters required to properly setup a Preferred Instruments Feedwater Center . This guide is to be used in conjunction with the Installation and Operation Manual, SDI-JC-FWC-NS.

CONTENTS

Initial Parameter Setup	2
Parameters - Installed Devices	2
Parameters - Scope	3
Parameters - Engineering Units	3
Wiring Diagram	4
Wiring Diagram	5
Modbus List	6-12
Trouble Shooting I/O	13-14

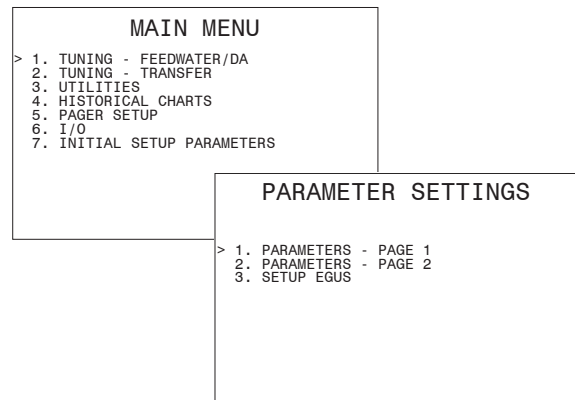
QUICK START GUIDE

INITIAL PARAMETER SETUP

The Preferred Instruments Feedwater Center is designed to be field adjustable for multiple applications. In order to customize to your installation some preliminary settings must be entered.

After initial powerup, the homepage should be displayed. To set initial parameters, Press the MAIN MENU button, and then “7” for Initial Parameter Menu

There is a detailed list of these parameter values found in the operation and instruction manual that provides an area to record each setting for future use in case the unit must be replaced.



PARAMETERS - INSTALLED DEVICES

PARAMETERS - PAGE 1 deals with the installed devices. Set each sensor to INSTAL'D if it is included in this application.

FACTORY VALUE	DESCRIPTION	HELP/COMMENTS
UNUSED	DA TEMPERATURE	If the system being set up has a temperature sensor in the Deaerator tank, turn the 'UNUSED' to 'INSTAL'D' by using the UP and DOWN arrow keys and highlighting the 'UNUSED' and pressing enter.
UNUSED	DA PRESSURE	If the system being set up has a Pressure sensor in the Deaerator tank, turn the 'UNUSED' to 'INSTAL'D'
UNUSED	FW PRESSURE	If the system being set up has a Pressure sensor on the Feedwater Header, turn the 'UNUSED' to 'INSTAL'D'
UNUSED	MAKE UP FLOW	If the system being set up has a Flow sensor on the Make Up water line going into the Surge tank, turn the 'UNUSED' to 'INSTAL'D'
UNUSED	MAKE UP PRESSURE	If the system being set up has a Pressure sensor on the Make Up water line going into the Surge tank, turn the 'UNUSED' to 'INSTAL'D'
UNUSED	COND RTN TEMP	If the system being set up has a Temperature sensor on the Condensate return line, turn the 'UNUSED' to 'INSTAL'D'
UNUSED	COND RTN FLOW	If the system being set up has a Flow sensor on the Condensate return line, turn the 'UNUSED' to 'INSTAL'D'
0	FEEDWATER PUMPS	Enter the number of Feedwater Pumps installed in the system (up to four), the JC-FWC-FC will only run that number of pumps in the program.

PARAMETERS - SCOPE

PARAMETERS - PAGE 2 deals with the scope and type of control being used. A description of the effect of each parameter are provided.

FACTORY VALUE	DESCRIPTION	HELP/COMMENTS
PER BLR	FEEDWATER PIPING	Piping must be set to 'PER BLR' or 'HEADERED'
PER BLR	FEEDWATER CONTROL	If Piping is set to 'PER BLR' then control MUST be 'PER BLR'. In that setup, each boiler has its own specific pump that runs any time the BLR RUN input is turned on. If Piping is Headered, then the control setting can be 'PER BLR' or 'PSI'. In Headered/per blr, the number of boilers running determines the number of boilers. In Headered/PSI, the number of pumps running is determined by the Lead/Lag control.
UNUSED	DA PSI CONTROL VALVE	If the system being set up has a control valve on the DA Tank, change 'UNUSED' to "INSTAL'D' This enables the Pressure control Valve output.
NO	SEND MU FLOW TO CFP	If Makeup Flow is being monitored, that signal can be re-sent to a cemical feed system. If desired, set to 'YES'.

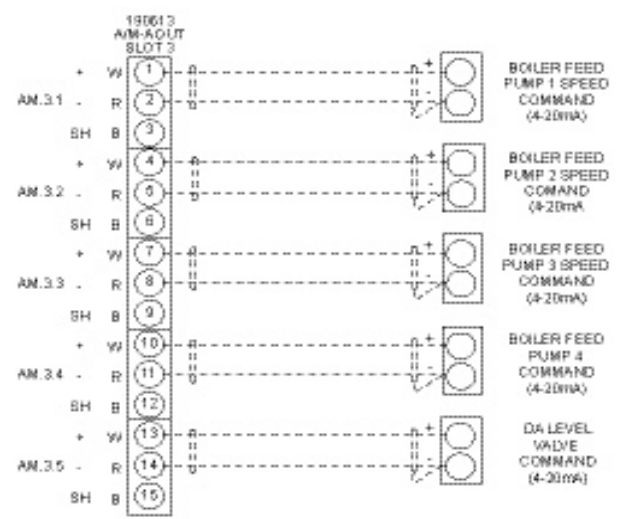
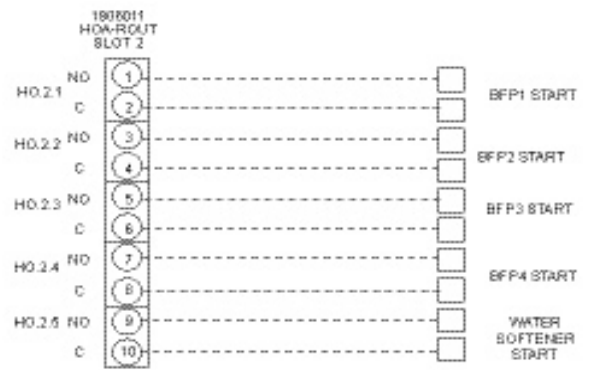
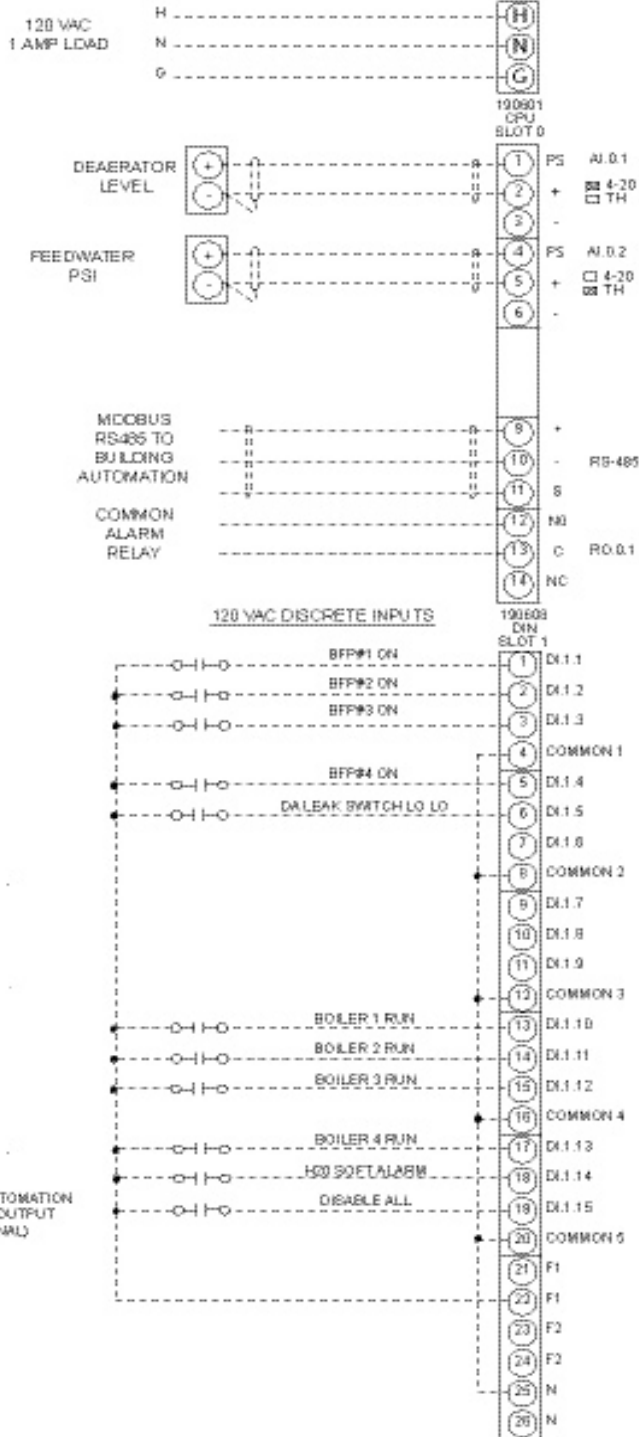
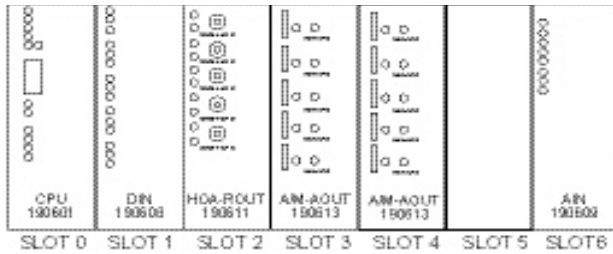
PARAMETERS - ENGINEERING UNITS

The ability to field adjust engineering units has been added to the Feedwater Controller in order to allow each installation to accomodate the installed field sensors. Each Engineering unit listed is editable from the "Set EGU's" page. For details on how to work with the Global Engineering Unit Editor, please reference the Operation and Installation manual SDI-JC-FWC-FC.

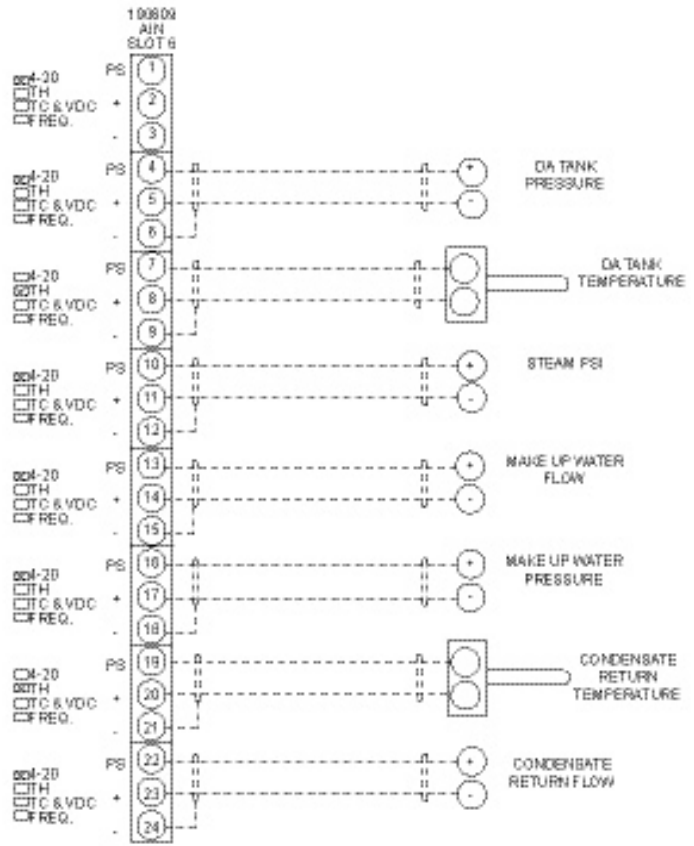
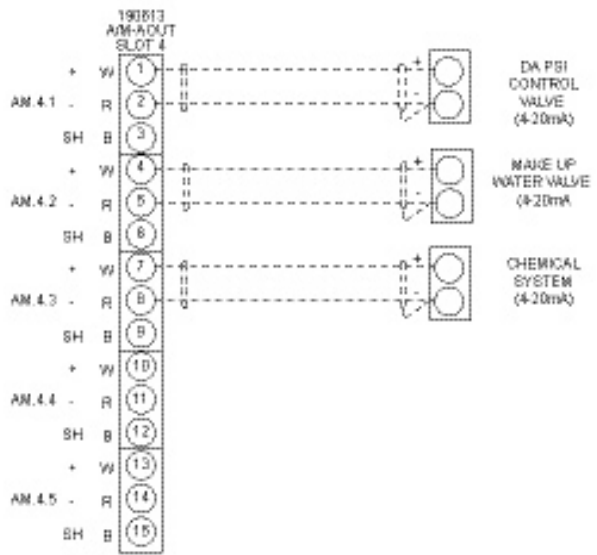
ID	NAME	VALUE 0%	VALUE 100%	DECPT	HELP/COMMENTS
A1	DA LVL	0.0	100.0	1	DA Tank Level in "WC
A2					
A3	DA PSI	0.0	25.0	1	DA Pressure in PSI
A4	DA F	-50	300	0	DA Temperature in °F
A5	FW PSI	0	200	0	Feedwater Pressure in PSI (Must be same as Steam Header if using Steam PSI to generate feedwater setpoint)
A6	MU PSI	0.0	25.0	1	Makeup Pressure in PSI
A7	MU FLO	0	100	0	Makeup Flow in GPM
A8	FW FLO	0	100	0	Feedwater Flow in GPM
A9	CR F	-50	300	0	Condensate Return Temperature in °F
A10	CR FLO	0	100	0	Condensate Return Flow in GPM
A11	FW VSD	0	60	0	Feedwater Pump VSD in Hz
A12					
A13	DEMAND	0	100	0	Demand (it is not recommended to change this value)

QUICK START GUIDE

WIRING DIAGRAM



QUICK START GUIDE WIRING DIAGRAM CON.



MODBUS ADDRESSING

MODBUS ADDRESSING NUMBERS

MODBUS: The following information applies to all JC-FWC-NS model, not all models will use these modbus addresses, refer to the model specific Quick Start Guide.

NOTE:

MODBUS addresses below are for the NON-OIT version, this does not include points that are used on the touch screen.

	Default:	Options:
Device Address:	1	1-31
Baud:	19200	1200, 2400, 4800, 9600, 19200, 38400
Parity:	ODD	ODD, EVEN
Data Format:	RTU	RTU, ASCII
Wiring Interface:	RS485, 2 wire, isolated	

MODBUS ADDRESSING

Modbus Register Address	Description	Read/Write	EGU for register = 0	EGU for register = 10000	Units	Notes:
40001	FeedWater PID gain	Y	0	100		
40002	Feedwater PID Repeats	Y	0	100		
40003	Feedwater PSI Set point	Y	0	100		
40004	Feedwater Low Alarm Time Delay	Y	0	100		
40005	Feedwater Low Alarm Set point	Y	0	100		
40006	Feedwater High Alarm Set point	Y	0	100		
40007	Feedwater High Alarm Time Delay	Y	0	100		
40008	Feedwater Pump Demand	Y	0	100		
40009	Feedwater Pump Start Lag SP Deviation	Y	0	100		
40010	Feedwater Pump Demand % Add a lag	Y	0	100		
40011	FeedWater Pump Add a lag delay seconds	Y	0	100		
40012	Feedwater Pump Stop Lag SP Deviation	Y	0	100		
40013	Feedwater Pump Demand % stop a lag	Y	0	100	%	
40014	Feedwater Pump Stop a lag delay seconds	Y	0	10000	Secs	
40015	Feedwater Pump Add'l start delay	Y	0	10000	Secs	
40016	Feedwater Pump Add'l stop delay	Y	0	10000	Secs	
40017	Feedwater Pump Qty called to start	Y	0	100		
40018	Feedwater Pump Rotate Run Time		0	10000	Secs	
40019	Feedwater Pump 1 Elapsed	Y	0	1.67	Min	
40020	Feedwater Pump 2 Elapsed	Y	0	1.67	Min	
40021	Feedwater Pump 3 Elapsed	Y	0	1.67	Min	
40022	Feedwater Pump 4 Elapsed	Y	0	1.67	Min	
40023	Feedwater Pump Rotate Overlap Time	Y	0	1.67	Min	
40024	Feedwater Pump Lead	Y	0	100		
40025	Feedwater Pump Fault Delay Seconds	Y	0	1.67	Min	
40026	DA Level PID Gain	Y	0	100		
40027	DA Level PID Repeats	Y	0	100		
40028	DA Level Set point	Y	0	66.6	"WC	
40029	DA Level Valve Demand	Y	0	100	%	
40030	Da Valve Demand to open MU Valve	Y	0	100	%	
40031	DA MU Valve Demand		0	100	%	
40032	DA Level Low Alarm Set point	Y	0	100		
40033	DA Level Low Alarm Time Delay	Y	0	10000	Secs	
40034	DA level High Alarm Set point	Y	0	100		
40035	DA level High Alarm Time Delay	Y	0	10000	Secs	
40036						
40037						
40038						
40039						
40040						
40041						
40042						
40043						
40044	DA PSI PID Gain		0	100	%	
40045	DA PSI PID Repeats		0	100	%	

MODBUS ADDRESSING

Modbus Register Address	Description	Read/Write Allowed:	EGU for register = 0	EGU for register = 10000	Units	Notes:
40047	DA PSI Valve Demand		0	100		
40048	DA PSI Low Alarm Set point		0	100		
40049	DA PSI Low Alarm Time Delay	Y	0	10000	Secs	
40050	DA PSI High Alarm Set point	Y	0	100		
40051	DA PSI High Alarm Time Delay	Y	0	10000	Secs	
40052						
40053						
40054						
40055						
40056						
40057						
40058						
40059						
40060						
40061						
40062						
40063						
40064						
40065						
40066	Chemical Feed Pump	Y	0	100		
40067						
40068						
40069						
40070						
40071						
40072						
40073	H2O Regen Manual Over Ride	Y	0	10000		
40074						
40075	Deaerator Level	Y	0	66.6	"WC	
40076						
40077	Boiler Feed Pump 1 Speed		0	100		
40078	Boiler Feed Pump 2 Speed	Y	0	100		
40079	Boiler Feed Pump 3 Speed	Y	0	100		
40080	Boiler Feed Pump 4 Speed	Y	0	100		
40081						
40082						
40083						
40084						
40085	DA MU Valve		0	100	%	
40086	DA PSI Control Valve		0	100	%	
40087	Deaerator Tank Temperature		0	500	°F	
40088	Deaerator Tank Pressure		0	50	PSI	
40089	Feedwater PSI		0	300	PSI	
40090	Condensate Return Header Pressure		0	100	PSI	
40091	Make Up Water Flow		0	60	GPM	
40092	Make Up Water Pressure		0	100	PSI	

MODBUS ADDRESSING

Modbus Register Address	Description	Read/Write Allowed:	EGU for register = 0	EGU for register = 10000	Units	Notes:
40093	Condensate Return Temperature	Y	0	500	°F	
40094	Condensate Return Flow		0	100	GPM	
40095						
40096						
40097						
40098						
40099						
40100	Water Softener Run Time Minutes	Y	0	1.67	Mins	
40101	Hours Between Run Times	Y	0	10000	Hrs	
40102	Number Of Feedwater Pumps	Y	0	10000		
40103						
40104	Level For Mu Valve 100% Open	Y	0	10000		
40105	Level For MU valve 0% Open (Closed)	Y	0	10000		
40106	Controler Version					
40107	DA PSI Control Valve AM					
40108						
40109						
40110						
40111						
40112						
40113						
40114						
40115						
40116						
40117						
40118						
40119						
40120						
40121						
40122						
40123						
40124						
40125						
40126						
40127						
40128						

MODBUS ADDRESSING

Note: Modbus address "00xxx" means Holding Register xxx

Modbus Coil Address		Read/Write	coil = 0	coil = 1		
00001	Common Alarm		Enabled	Disabled		
00002	Feedwater Pressure High		Normal	Alarm		
00003	FeedWater Pressure Low		Normal	Alarm		
00004	Feedwater Pump Demand Auto Manual	Y	Manual	Auto		
00005	Feedwater Pump Quantity Auto Manual	Y	Manual	Auto		
00006	Feedwater Pump Lead Rotate Auto Manual	Y	Manual	Auto		
00007	Feedwater Pump 1 Lead		Holiday	Standard		
00008	Feedwater Pump 2 Lead	Y	Auto	Manual		
00009	Feedwater Pump 3 Lead	Y	Auto	Manual		
00010	Feedwater Pump 4 Lead	Y	Rotate	Manual		
00011	Feedwater Pump 1 Fault		Normal	Alarm		
00012	Feedwater Pump 2 Fault		Normal	Alarm		
00013	Feedwater Pump 3 Fault		made	open		
00014	Feedwater Pump 4 Fault		normal	lockout		
00015	Feedwater Pump Reset Push Button		stop	start		
00016	Deaerator Tank Low Level Alarm		Normal	Alarm		
00017	Deaerator Tank High Level Alarm		On or Off	Auto		
00018	Deaerator Level Valve Auto Manual		stop	start		
00019	DA MU Valve Auto Manual		Manual	Auto		
00020						
00021						
00022						
00023						
00024						
00025						
00026						
00027						
00028						
00029						
00030						
00031						
00032						
00033						
00034						
00035						
00036	Boiler Feed Pump 1 ON		stop	start		
00037	Boiler Feed Pump 2 ON		Normal	Alarm		
00038	Boiler Feed Pump 3 ON		On or Off	Auto		
00039	Boiler Feed Pump 4 ON		stop	start		
00040	DA LO LO		Manual	Auto		
00041						
00042						
00043						
00044	Feed Pump 1 ON		Normal	Alarm		

MODBUS ADDRESSING

00045	Feed Pump 2 ON		On or Off	Auto		
00046	Feed Pump 3 ON		stop	start		
00047	Boiler Feed Pump 1 Start		Manual	Auto		
00048	Boiler Feed Pump 2 Start		made	open		
00049	Boiler Feed Pump 3 Start		normal	lockout		
00050	Boiler Feed Pump 4 Start		stop	start		
00051						
00052						
00053						
00054	SWR Start		Manual	Auto		
00055	DA Level Valve AM in Auto		made	open		
00056	DA PSI Valve AM in Auto		normal	lockout		
00057	DA MU Valve AM in Auto		stop	start		
00058	Chem Feed Pump AM in Auto		Normal	Alarm		
00059	Boiler Feed Pump 1 Speed AM in Auto		On or Off	Auto		
00060	Boiler Feed Pump 2 Speed AM in Auto		stop	start		
00061	Boiler Feed Pump 3 Speed AM in Auto		Manual	Auto		
00062	Boiler Feed Pump 4 Speed AM in Auto		made	open		
00063						
00064						
00065						
00066						
00067						
00068						
00069	RASPB		made	open		
00070						
00071						
00072						
00100	Feed Water Pump 1 Active		On or Off	Auto		
00101	Feed Water Pump 2 Active		stop	start		
00102	Feed Water Pump 3 Active		Manual	Auto		
00103	Feed Water Pump 4 Active		made	open		
00104						
00105						
00106						
00107	Has Deaerator Temperature Sensor		On or Off	Auto		
00108	Has Deaerator Pressure Sensor		stop	start		
00109	Has Feedwater Header Pressure Sensor		Manual	Auto		
00110	Has Transfer Pressure Sensor		Enabled	Disabled		
00111	Has Make Up Water Flow Sensor	Y	No	Yes		
00112	Has Make Up Water Pressure Sensor	Y	No	Yes		
00113	Has Condensate Return Temperature	Y	No	Yes		
00114	Has Condensate Return Flow	Y	No	Yes		
00115						
00116	Feedwater Headered Based	Y	No	Yes		
00117	Feedwater Headered PSI Based	Y	No	Yes		
00118						
00119	Has Da PSI Control Valve					

MODBUS ADDRESSING

MODBUS ADDRESSING NUMBERS (CONTINUED)

00120	Send Make Up Water Flow to CFP	Y	No	Yes		
00121						
00122	Feed Water Pump VSD	Y	No	Yes		
00123						

INPUT/OUTPUT BLOCK NUMBERS

Input and output block numbers are assigned according to the physical hardwired address. Knowing the signal channel number and I/O board slot number will allow you to determine the block number. The following table provides block numbers for all Feedwater Center Models. Disregard block numbers above the number of pumps in each model.

Block Numbers	Wiring Location		Description
	Board/Slot	I/O Channels	
600	CPU/0	AI.0.1	Deaerator Tank Level
601	CPU/0	AI.0.2	Feedwater PSI
602	CPU/0	RO.0.1	Common Alarm Relay
615	DIN/1	DI.1.1	Boiler Feed Pump 1 On
616	DIN/1	DI.1.2	Boiler Feed Pump 2 On
617	DIN/1	DI.1.3	Boiler Feed Pump 3 On
618	DIN/1	DI.1.4	Boiler Feed Pump 4 On
619	DIN/1	DI.1.5	Deaerator Level LoLo
620	DIN/1	DI.1.6	
621	DIN/1	DI.1.7	
622	DIN/1	DI.1.8	
623	DIN/1	DI.1.9	
624	DIN/1	DI.1.10	Boiler 1 Run
625	DIN/1	DI.1.11	Boiler 2 Run
626	DIN/1	DI.1.12	Boiler 3 Run
627	DIN/1	DI.1.13	Boiler 4 Run
628	DIN/1	DI.1.14	H2O Soft Alarm
629	DIN/1	DI.1.15	Stop All Pumps (BAS Contact)
630	HOA-ROUT/2	HOA.2.1	Boiler Feed Pump 1 Start Circuit
631	HOA-ROUT/2	HOA.2.2	Boiler Feed Pump 2 Start Circuit
632	HOA-ROUT/2	HOA.2.3	Boiler Feed Pump 3 Start Circuit
633	HOA-ROUT/2	HOA.2.4	Boiler Feed Pump 4 Start Circuit
634	HOA-ROUT/2	HOA.2.5	Surge Tank Pump 1 Start Circuit
645	A/M-AOUT/3	AM.3.1	Boiler Feed Pump 1 Demand
646	A/M-AOUT/3	AM.3.2	Boiler Feed Pump 2 Demand
647	A/M-AOUT/3	AM.3.3	Boiler Feed Pump 3 Demand
648	A/M-AOUT/3	AM.3.4	Boiler Feed Pump 4 Demand
649	A/M-AOUT/3	AM.3.5	Deaerator Valve Level Demand

TROUBLESHOOTING

INPUT/OUTPUT BLOCK NUMBERS (CONTINUED)

Block Numbers	Wiring Location		Description
	Board/Slot	I/O Channels	
660	A/M-AOUT/4	AM.4.1	Deaerator PSI Control Valve
661	A/M-AOUT/4	AM.4.2	
662	A/M-AOUT/4	AM.4.3	Chemical Feed Water Pump
690	AIN/6	AI.6.1	
691	AIN/6	AI.6.2	Deaerator Tank Pressure
692	AIN/6	AI.6.3	Deaerator Tank Temperature
693	AIN/6	AI.6.4	Steam Pressure
694	AIN/6	AI.6.5	Make Up Water Flow
695	AIN/6	AI.6.6	Make Up Water Pressure
696	AIN/6	AI.6.7	Condensate Return Temperature
697	AIN/6	AI.6.8	Condensate Return Flow

NOTES:

NOTES:



Preferred Instruments

<http://www.PreferredInstruments.com>

Preferred Instruments
A Division of Preferred Utilities Mfg. Corp.

31-35 South St.

Danbury, CT 06810

Phone: (203) 743-6741

Fax: (203) 798-7313

Email: info@preferred-mfg.com