



Feedwater Center
JC-FWC-NV
— & —
JC-FWC-NV-OIT

Quick Start Guide

Feedwater Center

Model JC-FWC-NV

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INTRODUCTION

This guide is designed to simplify the commissioning process by detailing the initial parameters required to properly setup a Preferred Instruments Feedwater Center - Full Control with no VSD operation. This guide is to be used in conjunction with the Installation and Operation Manual, SDI-JC-FWC-NV.

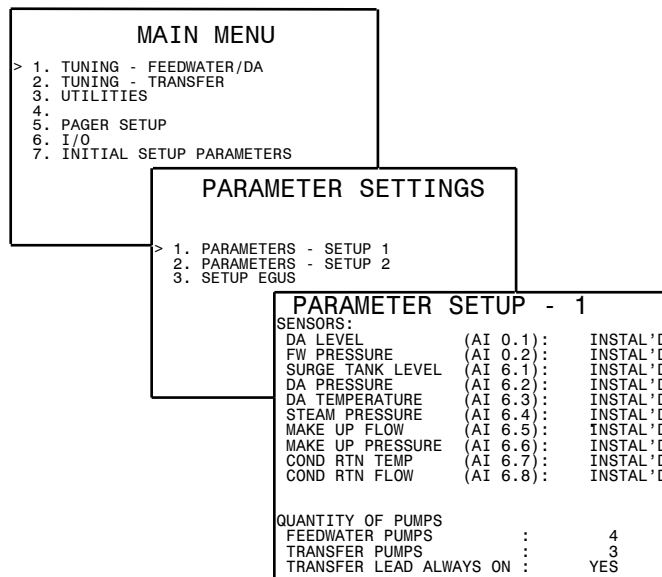
QUICK START GUIDE

INITIAL PARAMETER SETUP

The Preferred Instruments Feedwater Center - Full Control with no pump VSD Operation 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 SDI-JC-FWC-NV that provides an area to record each setting for future use in case the unit must be replaced.



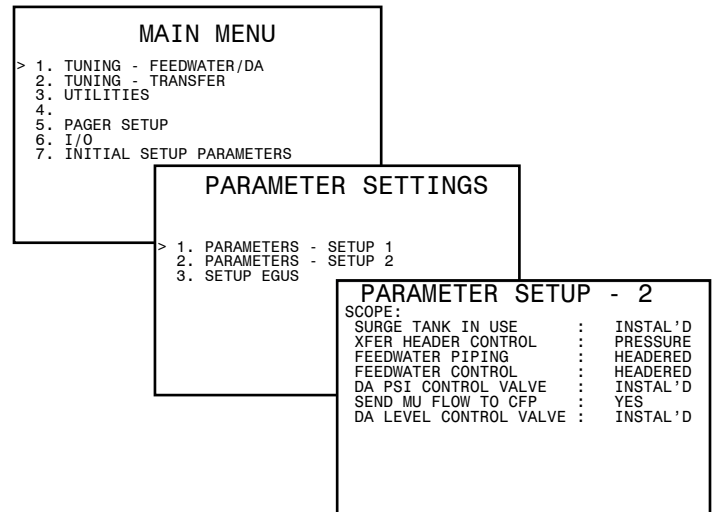
PARAMETERS - INSTALLED DEVICES

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

FACTORY VALUE	DESCRIPTION	HELP/COMMENTS
NOT USED	DA TANK LEVEL	If the system being setup has a level sensor on the DA tank, turn the 'NOT USED' to 'INSTAL'D'
NOT USED	FW PRESSURE	If the system being set up has a Pressure sensor on the Feedwater Header, turn the 'NOT USED' to 'INSTAL'D'
NOT USED	DA PRESSURE	If the system being set up has a Pressure sensor in the Deaerator tank, turn the 'NOT USED' to 'INSTAL'D'
NOT USED	DA TEMPERATURE	If the system being set up has a temperature sensor in the Deaerator tank, turn the 'NOT USED' to 'INSTAL'D' by using the UP and DOWN arrow keys and highlighting the 'NOT USED' and pressing enter.
NOT USED	STEAM HEADER	If the system being set up has a Pressure sensor in the Steam Header, turn the 'NOT USED' to 'INSTAL'D'
NOT USED	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 'NOT USED' to 'INSTAL'D'
NOT USED	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 'NOT USED' to 'INSTAL'D'
NOT USED	COND RTN TEMP	If the system being set up has a Temperature sensor on the Condensate return line, turn the 'NOT USED' to 'INSTAL'D'
NOT USED	COND RTN FLOW	If the system being set up has a Flow sensor on the Condensate return line, turn the 'NOT USED' 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.
0	v	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 - INSTALLED DEVICES

FACTORY VALUE	DESCRIPTION	HELP/COMMENTS
NO	TRANSFER LEAD ALWAYS ON	Enabling this, changing 'NO' to 'YES', will ensure that the Lead Transfer pump runs continuously.



PARAMETERS - SCOPE

PARAMETER - SETUP 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
NOT USED	SURGE TANK IN USE	If the system being set up has a Surge tank installed, turn the 'NOT USED' to 'INSTAL'D' by using the UP and DOWN arrow keys and highlighting the 'NOTUSED' and pressing enter.
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 pumps. In Headered/PSI, the number of pumps running is determined by the Lead/Lag control.
NOT USED	DA PSI CONTROL VALVE	If the system being set up has a control valve on the DA Tank, change 'NOT USED' 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'.
NOT USED	DA LEVEL CONTROL VALVE	If the system being set up has a control valve on the DA Tank, change 'NOT USED' to "INSTAL'D" This enables the Level Control Valve output.

PARAMETERS - ENGINEERING UNITS

The ability to field adjust engineering units has been added to the Feedwater Controller in order to allow each installation to accommodate 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-NV.

ID	NAME	VALUE 0%	VALUE 100%	DECPT	HELP/COMMENTS
A1	DA LVL	0.0	100.0	1	DA Tank Level in “WC
A2	ST LVL	0.0	1000	1	Surge Tank Level in “WC
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	STMP SI	0	200	0	Steam Pressure in PSI
A9	CR F	-50	300	0	Condensate Return Temperature in °F
A10	CR FLO	0	100	0	Condensate Return Flow in GPM
A11					
A12					
A13	DEMAND	0	100	0	Demand (it is not recommended to change this value)

MODBUS ADDRESSING

MODBUS ADDRESSING NUMBERS

MODBUS: The following information applies to all JC-FWC-NV Feedwater Center-Full Control.

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 Register Address	Description	Read/ Write Allowed	EGU for register = 10000	EGU for register = 0	Units	Notes:
40001	FeedWater PID gain	Y	100	0		
40002	Feedwater PID Repeats	Y	100	0	rpts/min	
40003	Feedwater PSI Set point	Y	200	0	PSI	
40004	Feedwater PSI Low Alarm Set point	Y	200	0	PSI	
40005	Feedwater PSI Low Alarm Time Delay	Y	100	0	Sec	
40006	Feedwater PSI High Alarm Set point	Y	100	0	PSI	
40007	Feedwater PSI High Alarm Time Delay	Y	100	0	Sec	
40008	Feedwater Pump Demand	Y	60	0	8FP Hz	
40009	Feedwater Pump Start Lag SP Deviation	Y	200	0	psi	
40010	Feedwater Pump Demand % Add a lag	Y	100	0	%	
40011	FeedWater Pump Add a lag delay seconds	Y	100	0	Sec	
40012	Feedwater Pump Stop Lag SP Deviation	Y	200	0	PSI	
40013	Feedwater Pump Demand % stop a lag	Y	100	0	%	
40014	Feedwater Pump Stop a lag delay seconds	Y	100	0	Sec	
40015	Feedwater Pump Add'l start delay	Y	100	0	Sec	
40016	Feedwater Pump Add'l stop delay	Y	100	0	Sec	
40017	Feedwater Pump Qty called to start	Y	100	0	pumps	
40018	Feedwater Pump Rotate Run Time	Y	10000	0	Sec	
40019	Number of FW pumps in System	Y	100	0	pumps	
40020	Surge Tank Low-Low Level Alarm Setpoint	Y	100	0	%	
40021	Surge Tank Low-Low Level Alarm Delay	Y	100	0	Sec	
40022						
40023	Feedwater Pump Rotate Overlap Time	Y	100	0	Sec	
40024	Feedwater Pump Lead	Y	100	0	pump #	
40025	Feedwater Pump Fault Delay Seconds	Y	100	0	Sec	

MODBUS ADDRESSING

MODBUS ADDRESSING NUMBERS

Modbus Register Address	Description	Read/ Write Allowed	EGU for register = 10000	EGU for register = 0	Units	Notes:
40025	Feedwater Pump Fault Delay Seconds	Y	100	0	Sec	
40026	DA Level PID Gain	Y	100	0		
40027	DA Level PID Repeats	Y	100	0	rpts/min	
40028	DA Level Set point	Y	66.6	0	"WC	
40029	DA Level Valve Demand	Y	100	0	%	
40030	Softener Regeneration Duration	Y	1.67	0	sec	
40031	Time Between Regenerations	Y	10000	0	Hrs	
40032	DA Level Low Alarm Set point	Y	66.6	0	"WC	
40033	DA Level Low Alarm Time Delay	Y	100	0	Sec	
40034	DA level High Alarm Set point	Y	66.6	0	"WC	
40035	DA level High Alarm Time Delay	Y	10000	0	Sec	
40036	Surge Tank Level for 100% MU Valve	Y	100	0	%	
40037	Surge Tank Level for 0% MU Valve	Y	100	0	%	
40038						
40039	Surge Tank Level Valve Demand	Y	100	0	%	
40040	Surge Tank Level Low Alarm Set point	Y	100	0	%	
40041	Surge Tank Level Low Alarm Time Delay	Y	100	0	Secs	
40042	Surge Tank Level High Alarm Set point	Y	66.6	0	%	
40043	Surge Tank Level High Alarm Time Delay	Y	100	0	Secs	
40044	DA PSI PID Gain	Y	100	0	%	
40045	DA PSI PID Repeats	Y	100	0	%	
40046	DA PSI Set point	Y	25	0	PSI	
40047	DA PSI Valve Demand	Y	0	100	PSI	
40048	DA PSI Low Alarm Set point		0	25	PSI	
40049	DA PSI Low Alarm Time Delay	Y	0	100	Sec	
40050	DA PSI High Alarm Set point	Y	0	25	PSI	
40051	DA PSI High Alarm Time Delay	Y	0	100	Sec	
40052	Surge Tank Pump Start Lag SP Deviation	Y	0	66.6	"WC	
40053	Surge Tank Pump Demand Add a Lag	Y	0	100	%	
40054	Surge Tank Pump Add a Lag Delay	Y	0	100	Sec	
40055	Surge Tank Pump Stop Lag SP Deviation	Y	0	66.6	"WC	
40056	Surge Tank Pump Demand Stop a Lag	Y	0	100	%	
40057	Surge Tank Pump Stop a Lag Delay	Y	0	100	Sec	
40058	Surge Tank Pump Add'l Start Lag Delay	Y	0	100	Sec	
40059	Surge Tank Pump Add'l Stop Lag Delay	Y	0	100	Sec	
40060	Surge Tank Pump Quantity	Y	0	100	Sec	
40061	Surge Tank Pump Rotate Runtime Hours	Y	0	100	%	
40062	Surge Tank Pump 1 Fault Delay	Y	0	100	Sec	
40063	Number of Transfer Pumps in System	Y	0	100	pumps	
40064	Surge Tank Pump Rotate Overlap Time	Y	0	10000	secs	
40065	Surge Tank Pump Lead	Y	0	100	pump #	
40066	Synchronize Time Value		0	100		
40067	FW/Steam Header Normalizig Scaling		0	100	%	
40068	Steam Header Transmitter Span	Y	0	200	PSI	

MODBUS ADDRESSING

Modbus Register Address	Description	Read/ Write Allowed:	EGU for register = 0	EGU for register = 10000	Units	Notes:
40069						
40070						
40071						
40072						
40073						
40074						
40075	Deaerator Level		0	66.6	"WC	
40076	Surge Tank Level		0	66.6	"WC	
40077						
40078						
40079						
40080						
40081	Surge Tank Make Up water Valve		0	100	%	
40082						
40083						
40084						
40085	DA MU Valve		0	100	%	
40086	DA PSI Control Valve		0	100	%	
40087	Deaerator Tank Temperature		-50	300	°F	
40088	Deaerator Tank Pressure		0	25	PSI	
40089	Feedwater PSI		0	200	PSI	
40090	Steam Header Pressure		0	200	PSI	
40091	Make Up Water Flow		0	100	GPM	
40092	Make Up Water Pressure		0	25	PSI	
40093	Condensate Return Temperature		-50	300	°F	
40094	Condensate Return Flow		0	100	GPM	
40095	Surge Tank Pump 1 Elapsed Time		0	10000	Hrs	2
40096	Surge Tank Pump 2 Elapsed Time		0	10000	Hrs	2
40097	Surge Tank Pump 3 Elapsed Time		0	10000	Hrs	2
40098	Feedwater Pump 1 Elapsed		0	10000	Hrs	
40099	Feedwater Pump 2 Elapsed		0	10000	Hrs	
40100	Feedwater Pump 3 Elapsed		0	10000	Hrs	
40101	Feedwater Pump 4 Elapsed		0	10000	Hrs	
40102	Chemical Pump Retransmit		0	100		
40103	Softener Regen. Time Remaining		0	100		
40104	Hours Between Regeneration		0	100	Hrs	
40105						
40106	Controller Version					
40107						
40108						
40109						
40110						
40111						
40112						
40113						

MODBUS ADDRESSING

Modbus Register Address	Description	Read/ Write Allowed:	EGU for register = 0	EGU for register = 10000	Units	Notes:
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 Allowed	coil = 0	coil = 1		
00001	Feedwater Fault Pump Reset	Y	Reset	Normal		
00002	DA Level Control Valve Auto/Manual	Y	Auto	Manual		
00003	ST Level Control Valve Auto/Manual	Y	Auto	Manual		
00004						
00005	Feedwater Pump Quantity Auto Manual	Y	Auto	Manual		
00006	Feedwater Pump Lead Rotate Auto Manual	Y	Rotate	Manual		
00007	DA Pressure Control Valve Auto/Manual	Y	Auto	Manual		
00008	Transfer Pump Quantity Auto/Manual	Y	Auto	Manual		
00009	Transfer Pump Lead Select Auto/Manual	Y	Rotate	Manual		
00010	Transfer Pump Fault Reset	Y	Reset	Normal		
00011	Remote Alarm Silence	Y	Reset	Normal		
00012	Water Softener Manual Regen Pushbutton	Y	Start	ACKNOWL		
00013	Water Softener Schedule Enable/Disable	Y	Enabled	DISABLED		
00014	Has DA Temperature	Y	NOT USED	INSTAL'D		
00015	Has DA Pressure	Y	NOT USED	INSTAL'D		
00016	Has Feedwater Header Pressure	Y	NOT USED	INSTAL'D		
00017	Has Steam Pressure	Y	NOT USED	INSTAL'D		
00018	Has Makeup Water Flow	Y	NOT USED	INSTAL'D		
00019	Has Makeup Water Pressure	Y	NOT USED	INSTAL'D		
00020	Has Condensate Return Temperature	Y	NOT USED	INSTAL'D		
00021	Has Condensate Return Flow	Y	NOT USED	INSTAL'D		
00022	Has Surge Tank Installed	Y	Valve	PUMP		
00023	Has Feedwater Headered	Y	Per BLR	HEADERED		
00024	Feedwater Header is Pressure Based	Y	Per BLR	PSI		
00025	Has DA Pressure Control Valve	Y	NOT USED	INSTAL'D		
00026	Send Makeup Flow to CFP	Y	NO	YES		
00027	Transfer Pump Always On	Y	NO	YES		
00028	Has DA Level Control	Y	NOT USED	INSTAL'D		
00029	Synchronize Time	Y	FALSE	TRUE		
00030	Has Surge Tank Level	Y	NOT USED	INSTAL'D		
00031	Feedwater Pressure Setpoint Auto/Manual	Y	Auto	Manual		
00032	Softener Regen Cancel	Y	CANCEL	ACKNOWL		
00033						
00034						
00035						
00036						
00037						
00038						
00039						
00040	Common Alarm		Alarm	Normal		
00041	Feedwater Pressure High Alarm		Alarm	Normal		
00042	Feedwater Pressure Low Alarm		Alarm	Normal		
00043	Feedwater Pump 1 Lead		Is Lead	Not Lead		
00044	Feedwater Pump 2 Lead		Is Lead	Not Lead		

MODBUS ADDRESSING

MODBUS ADDRESSING NUMBERS (CONTINUED)

Modbus Coil Address		Read/ Write Allowed	coil = 0	coil = 1		
00045	Feedwater Pump 3 Lead		Is Lead	Not Lead		
00046	Feedwater Pump 4 Lead		Is Lead	Not Lead		
00047	Feedwater Pump 1 Fault		Alarm	Normal		
00048	Feedwater Pump 2 Fault		Alarm	Normal		
00049	Feedwater Pump 3 Fault		Alarm	Normal		
00050	Feedwater Pump 4 Fault		Alarm	Normal		
00051	DA Low Level Alarm		Alarm	Normal		
00052	DA High Level Alarm		Alarm	Normal		
00053	DA Low Pressure Alarm		Alarm	Normal		
00054	DA High Pressure Alarm		Alarm	Normal		
00055	Transfer Pump 1 Lead		Is Lead	Not Lead		
00056	Transfer Pump 2 Lead		Is Lead	Not Lead		
00057	Transfer Pump 3 Lead		Is Lead	Not Lead		
00058	Transfer Pump 1 Fault		Alarm	Normal		
00059	Transfer Pump 2 Fault		Alarm	Normal		
00060	Transfer Pump 3 Fault		Alarm	Normal		
00061	Surge Tank Low-Low Level Alarm		Alarm	Normal		
00062	Surge Tank Low Level Alarm		Alarm	Normal		
00063	Surge Tank High Level Alarm		Alarm	Normal		
00064	Softener Regenerating		Start	Stop		
00065	Feed Water Pump 1 Active		Start	Stop		
00066	Feed Water Pump 2 Active		Start	Stop		
00067	Feed Water Pump 3 Active		Start	Stop		
00068	Feed Water Pump 4 Active		Start	Stop		
00069	Transfer Pump 1 Active		Start	Stop		
00070	Transfer Pump 2 Active		Start	Stop		
00071	Transfer Pump 3 active		Start	Stop		
00072	Feed Water Pump 1 On		Start	Stop		
00073	Feed Water Pump 2 On		Start	Stop		
00074	Feed Water Pump 3 On		Start	Stop		
00075	Feed Water Pump 4 On		Start	Stop		
00076	DA Low-Low Level		Alarm	Normal		
00077	Surge Tank Low Level Switch		Alarm	Normal		
00078	Transfer Pump 1 On		Start	Stop		
00079	Transfer Pump 2 On		Start	Stop		
00080	Transfer Pump 3 On		Start	Stop		
00081	Boiler 1 On		Start	Stop		
00082	Boiler 2 On		Start	Stop		
00083	Boiler 3 On		Start	Stop		
00084	Boiler 4 On		Start	Stop		
00085	Water Softener Alarm		Alarm	Normal		
00086	Disable All		Enabled	Disabled		
00087	Feedwater Pump 1 Start		Start	Stop		
00088	Feedwater Pump 2 Start		Start	Stop		
00089	Feedwater Pump 3 Start		Start	Stop		

MODBUS ADDRESSING

MODBUS ADDRESSING NUMBERS (CONTINUED)

Modbus Coil Address		Read/ Write Allowed	coil = 0	coil = 1		
00090	Feedwater Pump 4 Start		Start	Stop		
00091	Transfer Pump 1 Start		Start	Stop		
00092	Transfer Pump 2 Start		Start	Stop		
00093	Transfer Pump 3 Start		Start	Stop		
00094	Softener Start		Start	Stop		
00095						
00096						
00097						
00098						
00099	DA Valve Valve in Auto		Auto	On or Off		
00100	DA Pressure Valve in Auto		Auto	On or Off		
00101	Surge Tank MU Valve in Auto		Auto	On or Off		
00102	Chemical Feed Pump in Auto		Auto	On or Off		
00103						
00104						
00105						
00106						
00107						
00108						
00109						

TROUBLESHOOTING

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	Surge Tank Level Low
621	DIN/1	DI.1.7	Surge Tank Pump 1 On
622	DIN/1	DI.1.8	Surge Tank Pump 2 On
623	DIN/1	DI.1.9	Surge Tank Pump 3 On
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	Disable All (BAS Contact)
630	ROUT/2	RO.2.1	Boiler Feed Pump 1 Start Circuit
631	ROUT/2	RO.2.2	Boiler Feed Pump 2 Start Circuit
632	ROUT/2	RO.2.3	Boiler Feed Pump 3 Start Circuit
633	ROUT/2	RO.2.4	Boiler Feed Pump 4 Start Circuit
634	ROUT/2	RO.2.5	Surge Tank Pump 1 Start Circuit
635	ROUT/2	RO.2.6	Surge Tank Pump 2 Start Circuit
636	ROUT/2	RO.2.7	Surge Tank Pump 3 Start Circuit
637	ROUT/2	RO.2.8	Start Softener Regenerator

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	Surge Tank Make Up Water Valve
662	A/M-AOUT/4	AM.4.3	Make-Up Flow Retransmit to Chemical Feed Pump
663	A/M-AOUT/4	AM.4.4	DA Level Valve Demand
664	A/M-AOUT/4	AM.4.5	Sp
690	AIN/6	AI.6.1	Surge Tank Level
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:

REVISION HISTORY

REV	Description
0.0	FIRST ISSUE (02/13/2019



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