PXF4 CONDENSED PROGRAMMING MANUAL

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Table of Contents

PXF4 CONDENSED PROGRAMMING MANUAL 1
List of Figures 3
List of Tables 4
General Layout 5
Parameters 7
Programming Steps 10
Wiring Connections 12

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List of Figures

Figure 1: PXF4 Front Face 5
Figure 2: PXF4 Basic Operation 6
Figure 3: Terminal Connection Diagram (Standard Type) 12

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List of Tables

Table 1: Front Face Layout 5
Table 2: Operation control parameters 7
Table 3: Channel 1 Control Parameters 8
Table 4: Channel 5 Alarm Parameters 8
Table 5: Channel 6 Setup Parameters 9
Table 6: Input Sensor Type and Ranges in Parameter No. 530 9
Table 7: Channel 12 Configuration Parameters 10

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General Layout

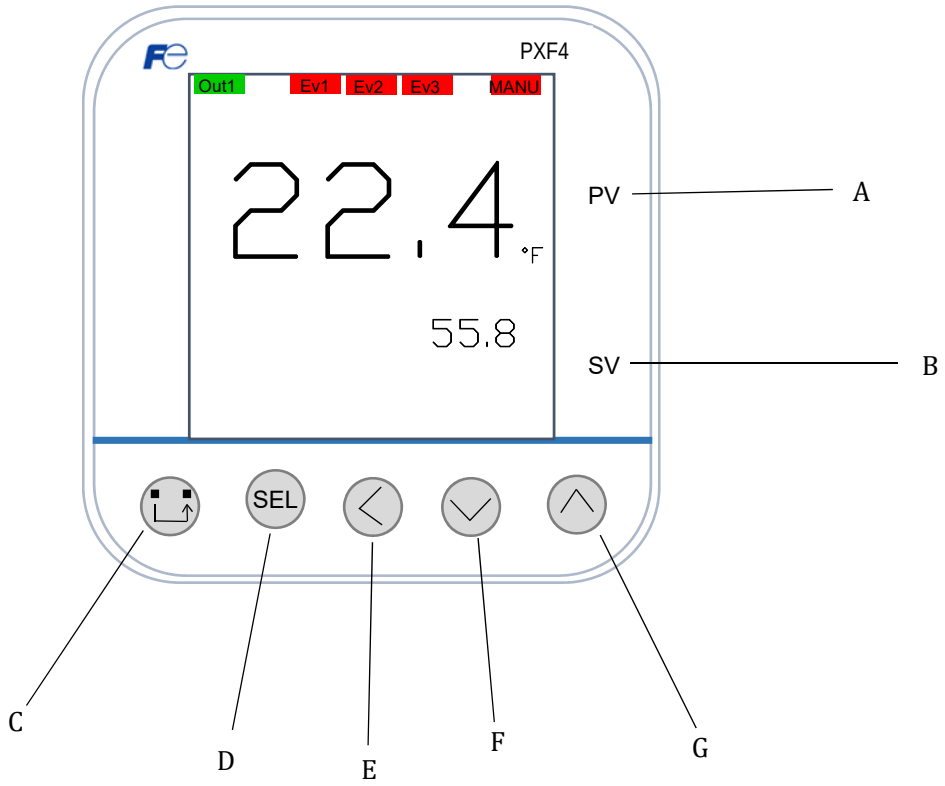

Figure 1: PXF4 Front Face

Table 1: Front Face Layout

	Name	Function
A	Process Value (PV)	•Indicates PV (as a recorded temperature)
B	Set Value (SV)	•Displays parameter SV
C	User Key	•Used to revert back to home screen
		•Used to toggle between display modes on operation screen
D	Select Key	•Key used to select options
		•Press & hold to display channel selection mode from operation mode or setup mode
E	Toggle Keys	•Used to toggle between parameters and channels in the respective direction of the arrow head
F		
G		

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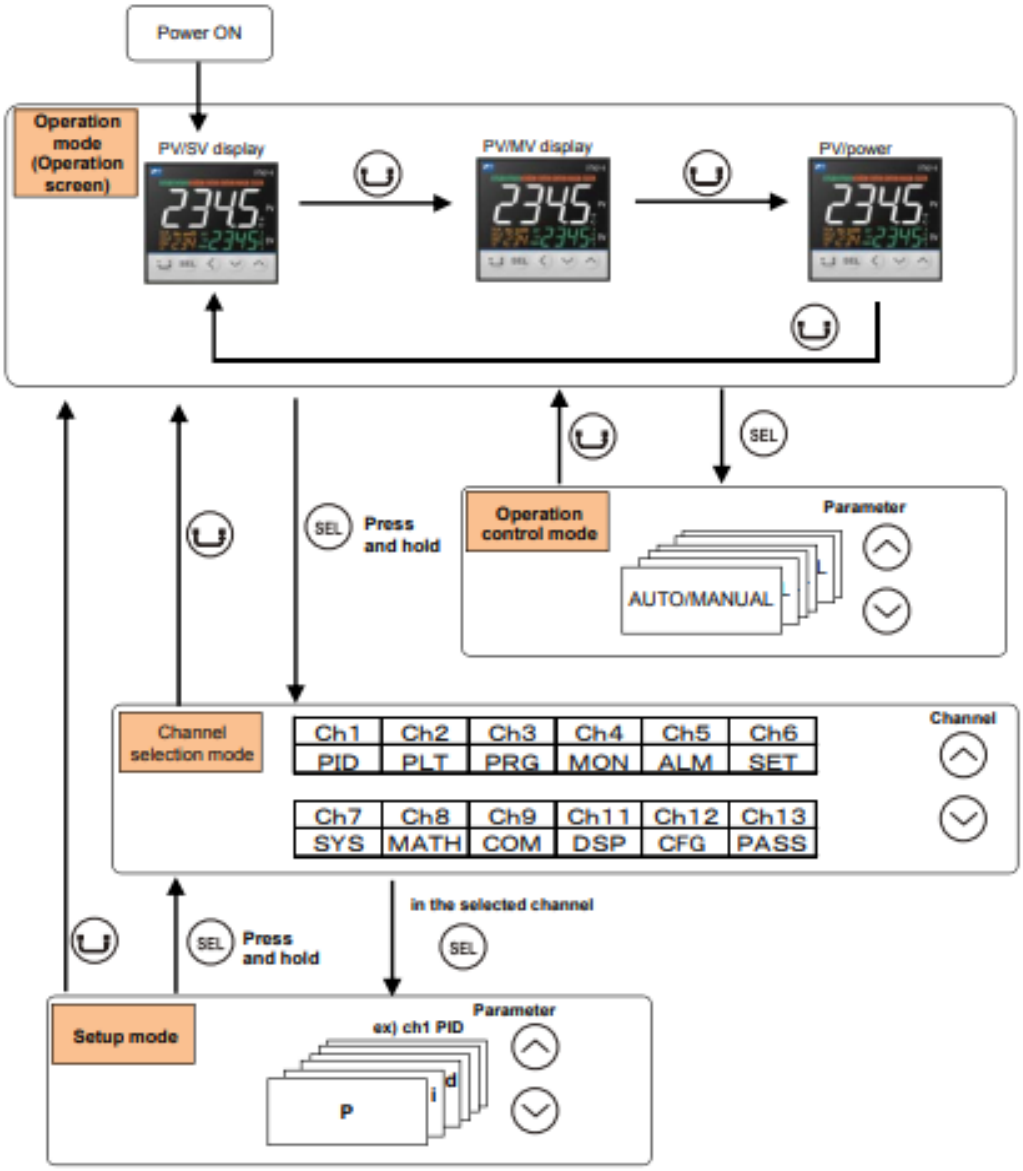

Figure 2: PXF4 Basic Operation

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Parameters

Table 2: Operation control parameters

Operation control parameter			
Parameter			**Function**
No.	Display	Name	
001	MAN	Switchover between auto and manual mode	Switchover between auto and manual modes
002	Stby	Switchover between RUN and standby	Switchover the operation mode between RUN and standby
003	REM	Local/remote switchover	Switches SV between local/remote
004	PRoG	Ramp soak control command	Changes ramp soak run states
005	At	Auto-tuning run command	Runs auto-tuning
006	LACH	Alarm output latch release command	Cancels the alarm output latch state
007	SVN	SV selection	Chooses the SV No. used for control
008	PL1M	PID selection	Chooses the PID No. used for control
009	AL 1	ALM1 set value	Sets the alarm value for ALM1
010	A1-L		
011	A1-H		
012	AL 2	ALM2 set value	Sets the alarm value for ALM2
013	A2-L		
014	A2-H		
015	AL 3	ALM3 set value	Sets the alarm value for ALM3
016	A3-L		
017	A3-H		
018	AL 4	ALM4 set command	Sets the alarm value for ALM4
019	A4-L		
020	A4-H		
021	AL 5	ALM5 set command	Sets the alarm value for ALM5
022	A5-L		
023	A5-H		
028	LoC	Key lock	Sets the key lock to prevent wrong operation

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Table 3: Channel 1 Control Parameters

Ch. 1 PID (control parameters)			
Parameter			**Function**
No.	Display	Name	
050	P	Proportional band (%)	Sets the proportional band of the PID parameter
051	ɾ	Integration time	•Sets the integration time of the PID parameter •Setting "0" will turn off integration
052	d	Differential time	•Sets the differential band of the PID parameter •Setting "0" will turn off differentiation
058	REV	Normal/reverse operation	•Selects single control or dual control •Sets the control action (normal or reverse)
059	SVL	SV limit (lower)	Sets the lower limit of SV
060	SVH	SV limit (upper)	Sets the upper limit of SV

Table 4: Channel 5 Alarm Parameters

Ch. 5 ALM (alarm parameters)			
Parameter			**Function**
No.	Display	Name	
470	A1tP	ALM1 alarm type	Set the alarm type for ALM1
471	A1HY	ALM1 hysteresis	Sets the alarm hysteresis for alarm output 1 ON/OFF
472	dLy1	ALM1 delay	Sets the delay before detecting alarm output 1
473	dL1U	ALM1 delay time units	Sets the delay time units for alarm 1 output
474	RoP1	ALM1 option function	•Assigns the optional functions to ALM1 •Ones digit: alarm output latch •Tens digit: error alarm •Hundreds digit: inverted output •Thousands digit: hold/reset
.	.	.	.
.	.	.	.
.	.	.	.
490	AStP	ALM5 alarm type	Set the alarm type for ALM5
491	ASHY	ALM5 hysteresis	Sets the alarm hysteresis for alarm output 5 ON/OFF
492	dLyS	ALM5 delay	Sets the delay before detecting alarm output 5
493	dlSU	ALM5 delay time units	Sets the delay time units for alarm 5 output
494	RoPS	ALM5 option function	•Assigns the optional functions to ALM1 •Ones digit: alarm output latch •Tens digit: error alarm •Hundreds digit: inverted output •Thousands digit: hold/reset

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Table 5: Channel 6 Setup Parameters

Ch. 6 SET (setup parameters)			
Parameter			Function
No.	Display	Name	
530	PVt	PV input type	Sets the type of input sensor
531	PVb	PV input lower limit	Sets the lower limit of PV input
532	PVF	PV upper limit	Sets the upper limit of PV input
533	PVd	Decimal point position	Sets the decimal point position for the PV/SV
534	PVU	Temperature unit selection	Sets the temperature reading to Celsius or Fahrenheit
536	PVoF	PV input shift	Sets the amount of shift/offset for PV input
537	SVoF	SV input shift	Sets the amount of shift/offset for SV input
539	AdJO	PV display zero adjustment	Adjusts zero side of PV display
540	AdJS	PV display span adjustment	Adjusts span side of PV display

Table 6: Input Sensor Type and Ranges in Parameter No. 530

Parameter No. 530			
Input Sensor Type	**Setting Range**	**Input Sensor Type**	**Setting Range**
JPT1	0.0 to 150.0°C	K3	0.0 to 800.0°C
JPT2	0.0 to 300.0°C	K4	-200.0 to 1300°C
JPT3	0.0 to 500.0°C	R	0.0 to 1700°C
JPT4	0.0 to 600.0°C	B	0.0 to 1800°C
JPT5	-50.0 to 100.0°C	S	0.0 to 1700°C
JPT6	-100.0 to 200°C	T1	-199.9 to 200.0°C
JPT7	-199.9 to 600.0°C	PT2	-199.9 to 400.0°C
PT1	0.0 to 150.0°C	E1	0.0 to 740.0°C
PT2	0.0 to 300.0°C	E2	-150.0 to 740.0°C
PT3	0.0 to 500.0°C	E3	-200.0 to 740.0°C
PT4	0.0 to 600.0°C	L	-100.0 to 850.0°C
PT5	-50 to 100.0°C	U1	-199.9 to 400.0°C
PT6	-100.0 to 200.0°C	U2	-200.0 to 400.0°C
PT7	-199.9 to 600.0°C	N	-200.0 to 1300°C
PT8	-200 to 850.0°C	W	0.0 to 2300.0°C
J1	0.0 to 400.0°C	PL -2	0.0 to 1300.0°C
J2	-20.0 to 400.0°C	0-5 V	0 to 5 V
J3	0.0 to 800.0°C	1-5 V	1 to 5 V
J4	-100.0 to 1000.0°C	0-10 V	0 to 10 V
K1	0.0 to 400.0°C	2-10 V	2 to 10 V
K2	-20.0 to 500.0°C	MV	0 to 100 mV

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K3	0.0 to 800.0°C	0-20	0 to 20 mA
K4	-200.0 to 1300°C	4-20	4 to 20 mA

Table 7: Channel 12 Configuration Parameters

Ch. 12 CFG (configuration parameters)			
Parameter			Function
No.	Display	Name	
949	CMOD	Switch mode	Switch between PXF and PXR settings

Note: This is a condensed version of the PXF4's complete parameter list. The parameters listed above are pertinent for quickly setting up the PXF4 controller but a complete parameter list can be found in the *Fuji Electric PXF4 Instruction Manual.*

Programming Steps

1. Power on the PXF4
2. Choose your SV by pressing the up and down arrow keys when in the PV/SV display. If the up and down toggle keys do not change your SV, this is because you are not on the PV/SV display. In this case, refer to Figure 2.
3. In situations where a manual output is required, go into the parameter number 001 in the operation control parameter channel. Refer to Figure 2. The default parameter setting is OFF (auto).
4. If alarms are desired, they can be set within the operation control mode by toggling the parameter numbers.
5. To choose an alarm type (i.e. absolute value alarm, deviation alarm, zone alarm for single or dual set values), go to channel 5 and toggle through until parameter No. 470 is found. Use the SEL key to select this parameter option and the toggle keys to specify an alarm code. Refer to Section 11 of the *Fuji Electric PXF4 Instruction Manual* for all the alarm code types and functions.
6. To program the appropriate input type, specify your input sensor. Use Table 6 to reference the input sensor codes with ranges.
7. Use parameter No. 534 to choose a temperature input unit (°C/°F).
8. Once SV is set, the auto-tune command (parameter No. 005 in the Operation control parameter channel) can be used to parameterize your PID controller automatically, respective to your process.

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9. To view your output value (MV), press the User key in the Operation mode when in PV/SV display is showing. This will show PV/MV display. Press the User key again to view the PV/power display. Here the power output will show.

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Wiring Connections

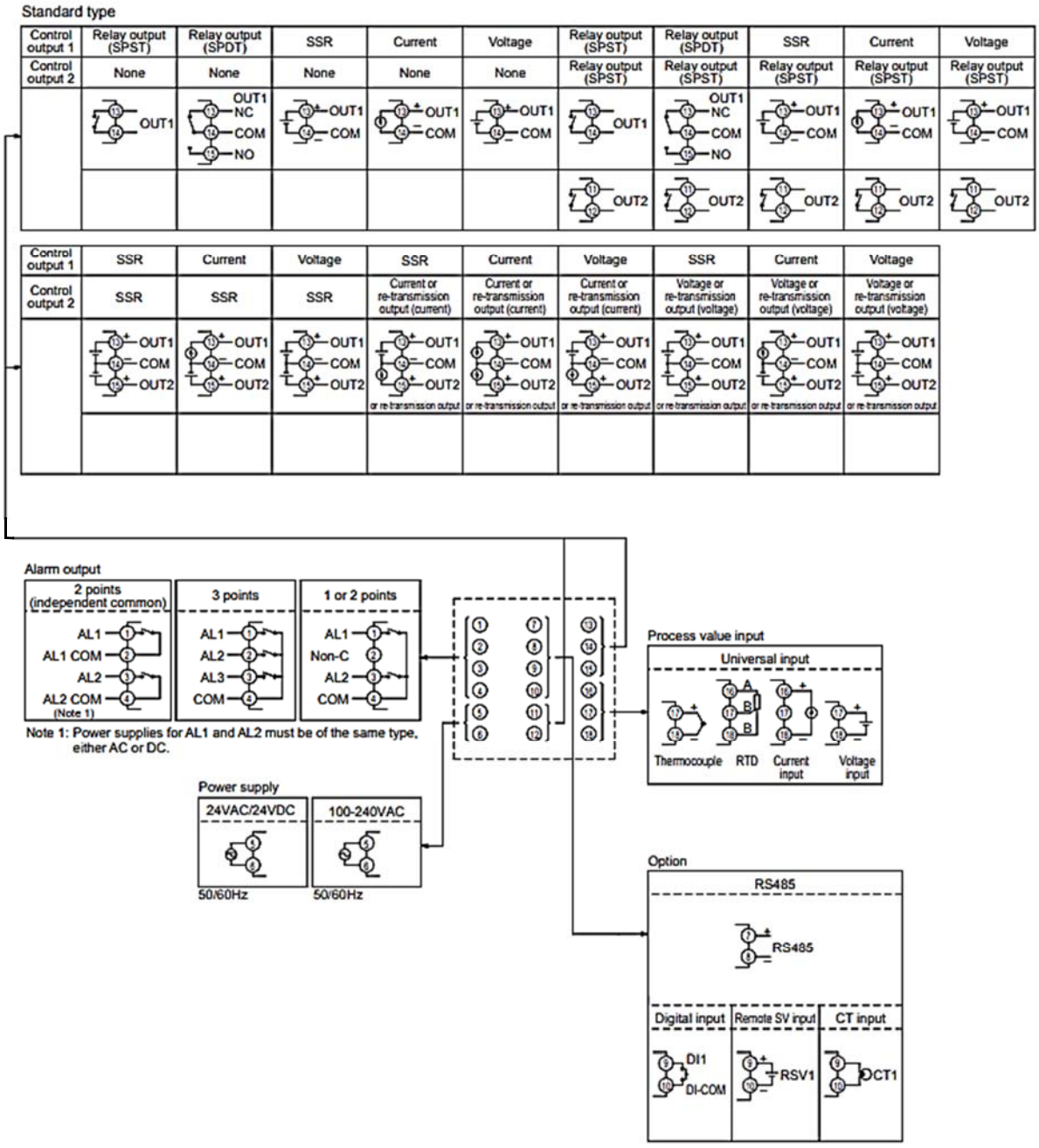

Figure 3: Terminal Connection Diagram (Standard Type)

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Control output 1
- Relay output (SPST)
  250 V AC, 3 A (resistive load)
- Relay output (SPDT)
  250 V AC, 5 A (resistive load)
- SSR output
  12 V DC, 20 mA
- Current output
  4 to 20 mA/0 to 20 mA (up to 500 Ω)
- Voltage output
  0 to 5 V/1 to 5 V/0 to 10 V/2 to 10 V (MIN. 10 kΩ)

Control output 2
- Relay output
  250 V AC, 3 A (resistive load)
- SSR output
  12 V DC, 20 mA
- Current output
  4 to 20 mA/0 to 20 mA (up to 500 Ω)
- Voltage output
  0 to 5 V/1 to 5 V/0 to 10 V/2 to 10 V (MIN. 10 kΩ)

Alarm output 1 and 3
- Relay output
  250 V DC, 1 A (resistive load)

Note) If you use PXF as a substitute for PXR or PXG which was used with SSR output, be careful about the control voltage of SSR, for it is different among PXR, PXG, and PXF.

Model	Output voltage range [V]	
	min	max
PXF	10.7	13.2
PXR	17.0	25.0
PXG	18.0	24.0

Note) It is not necessary to make a mistake in the wiring for themeasurements input terminal. There is a possibility that theinput circuit breaks when it makes a mistake in wiring.

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