

Controller Selection Guide

Controller	2104	8003	8004	8004VA	1601	1603
Description	Controller	Controller	Controller	Valve Actuator	Controller	Controller
Control Loops	Single	Single	Single	Single	Single	Single
Indication/Display	Dual 4-Digit	Dual 3-Digit	Dual 4-Digit	Dual 4-Digit	Single 3-Digit	Dual 3-Digit
Inputs						
Thermocouple	J,K,T,E,R,S,B	J,K,N,L	J,K,N,L,R,S	J,K,T,B,L,B,R,S	J,K,L,N	J,K,L,N
RTD	Y	Y	Y	Y	Y	Y
Current, Voltage	4-20 mA 0-5 Vdc, 1-5 Vdc		0-60 mV, 12-60 mV 0-20 mA, 4-20 mA 0-5V, 1-5V, 2-10V, 0-10V	0-60 mV, 12-60 mV 0-20 mA, 4-20 mA 0-5V, 1-5V, 2-10V, 0-10V		
Digital	1		1	3		
Outputs						
Relay	Y	Y	Y	Y	Y	Y
SSR Drive	Y	Y	Y		Y	Y
Triac	Y					
4-20mA	Y					
Number of Control Outputs	2	2	2	2	1	2
Number of Alarms	3	2	3	1	1	2
Number of Events	3 ¹					
Panel Cutout (DIN)	1/4	1/8	1/8	1/8	1/16	1/16
Agency Approvals	UL, CUL	UL, CE, CUL	UL, CE, CUL	CE	UL, CE, CUL	UL, CE, CUL
Operating Environment	NEMA 4X	NEMA 4X	NEMA 4X	NEMA 4X	NEMA 4X	NEMA 4X
Control Modes						
ON/OFF	Y	Y	Y		Y	Y
Limit						
Proportional (w. manual reset)	Y	Y	Y		Y	Y
PID	Y	Y	Y	Y	Y	Y
Auto Tune PID	Y	Y	Y	Y	Y	Y
Valve Drive w/Feedback				Y		
Ramp and Soak	Y					
Intervals	16					
Ramp to Set Point	Y	Y	Y	Y		Y
Action	Heat or Cool Heat/Cool	Heat or Cool Heat/Cool	Heat or Cool Heat/Cool	Heat or Cool Heat/Cool	Valve Actuator Heat or Cool	Heat or Cool Heat/Cool
Other	Loop Break Alarm		Heater Breakdown			
Remote Setpoint	Y					
Retransmit Output	Y					
Communications						
RS-232, RS-422, RS-485	Y		Y (RS-485 only)			
See Page	H-11	H-14	H-16	H-18	H-21	H-22

1. Some outputs are field selectable as Alarms or Events. 3. PI control
 2. Approvals Pending

Controller Selection Guide

Controller	1604	1604mA	1605	3204	3910	3282	2001	2002
Description	Controller	Controller	Controller	Controller	Controller	Controller	Controller	Controller
Control Loops	Single	Single	Single	Single	Single	Single	Single	Single
Indication/Display	Dual 4-Digit	Dual 4-Digit	Dual 4-Digit	Single 4-Digit	Single 4-Digit	None	Dual 4-Digit	Dual 4-Digit
Inputs								
Thermocouple	J,K,N,R,S,T,L	J,K,N,R,S,T,L	J,K,N,R,S,T,L	J,K,T,E,R,S,N	J,K	J,K	J,K,E,T,N,R,S	J,K,E,T,N,R,S
RTD	Y	Y	Y	Y			Y	Y
Current, Voltage	0-60 mV, 12-60 mV 0-20 mA, 4-20 mA 0-5V, 1-5V, 2-10V, 0-10V	0-60 mV, 12-60 mV 4-20 mA, 4-20 mA 0-5V, 1-5V, 2-10V, 0-10V	0-60 mV, 12-60 mV 4-20 mA, 4-20 mA 0-5V, 1-5V, 2-10V, 0-10V	0-50 mV			4-20 mA, 1-5V	4-20 mA, 1-5V
Digital	1	1	1					
Outputs		3	3	2	2	1	3	3
Relay	Y	Y	Y	Y	Y	Y	Y	Y
SSR Drive	Y		Y	Y	Y		Y	Y
Triac							Y	Y
4-20mA		Y					Y	Y
Number of Controls	2	2	1	2	1	1	1	2
Number of Alarms	2	2	2	1	1		2	1
Number of Events			2*				2*	1*
Panel Cutout (DIN)	1/16	1/16	1/16	1/32	1/4		1/4	1/4
Agency Approvals	UL, CE, CUL	UL, CUL, CE	UL, CUL, CE	CE	UL, CSA	UL, CSA	UL, CUL	UL, CUL
Operating Environment	NEMA 4X	NEMA 4X	NEMA 4X	NEMA 4X				
Control Modes ON/OFF	Y	Y	Y	Y	Y	Y	Y	Y
Limit								
Proportional (w. manual reset)	Y	Y	Y	Y	Y		Y	Y
PID	Y	Y	Y	Y			Y	Y
Auto Tune PID	Y	Y	Y	Y			Y	Y
Valve Drive w/Feedback								
Ramp and Soak			Y	Y			Y	Y
Intervals			4	2			16	16
Ramp to Set Point	Y	Y	Y					
Action	Heat or Cool Heat/Cool	Heat or Cool Heat/Cool	Heat or Cool	Heat or Cool Heat/Cool	Heat	Heat	Heat or Cool	Heat/Cool
Other	Heater Breakdown							
Remote Setpoint							Y	Y
Retransmit Output		Y					Y	Y
Communications RS-232, RS-422, RS-485	Y (RS-485 only)			Y (no RS-422)			Y	Y
See Page	H-23	H-25	H-27	H-29	H-31	H-33	H-34	H-36

*Some outputs are field selectable as Alarms or Events.

Controllers

Controller Selection Guide

Controller	2020	2030	2040	3101	1600	3901	3283
Description	Controller	Controller	Controller	High/Low Limit	High/Low Limit	High Limit	High Limit
Control Loops	Single	Dual	Dual	Single	Single	Single	Single
Indication/Display	Dual 4-Digit	Dual 4-Digit	Dual 4-Digit	Dual 4-Digit	Single 4-Digit	Single 4-Digit	None
Inputs							
Thermocouple	J,K,E,T,R,S	T	J,K	J,K,T,E,R,S,B	J,K,T,E,N,S,R,B,L,G,U,D,C	J,K	J,K
RTD	Y	Y	Y	Y	Y		
Current, Voltage	4-20 mA, 1-5V	4-20 mA, 1-5 Vdc		4-20 mA, 1-5 Vdc, 0-5V	0-60 mV, 12-60 mV 0-20 mA, 4-20 mA 0-5V, 1-5V, 2-10V, 0-10V		
Digital	8	3	1	1		1	1
Outputs	11	12	3	3	2	1	1
Relay	Y		Y	Y	Y	Y	Y
SSR Drive	Y	Y	Y	Y			
Triac	Y	Y					
4-20mA	Y	Y					
Number of Controls	2	4	2	0	0	0	0
Number of Alarms	2	4	3	3	2	1	1
Number of Events	10*	8*					
Panel Cutout (DIN)	1/4	1/4	1/4	1/4	1/16	1/4	1/4
Agency Approvals			UL, CSA	UL, CUL, FM	UL, FM, CE	UL, CUL, FM	UL, CSA, FM
Operating Environment				NEMA 4X	NEMA 4X		
Control Modes ON/OFF	Y	Y	Y				
Limit			Y	Y	Y	Y	Y
Proportional (w. manual reset)	Y	Y	Y				
PID	Y	Y	Y				
Auto Tune PID			Y				
Valve Drive w/Feedback							
Ramp and Soak	Y	Y	Y				
Intervals	32	64	2				
Ramp to Set Point							
Action	Heat or Cool	Heat/Cool Dehumidify	Heat or Cool Heat/Cool	Limit/Alarm Humidify/	Limit/Alarm	High Limit Alarm	High Limit
Other		Environmental Chamber					
Remote Setpoint	Y						
Retransmit Output	Y	Y		Y			
Communications RS-232, RS-422, RS-485	Y	Y	Y	Y			
See Page	H-38	H-40	H-42	H-44	H-46	H-47	H-48

*Some outputs are field selectable as Alarms or Events.

Controller Selection Guide - Multi Loop

Controller	3390	3290	3421
Description	Controller	Controller	Monitor
Control Loops	Ten	Ten	Eight
Indication/Display	Dual 4-Digit	Dual 4-Digit	Dual 4-Digit
Inputs			
Thermocouple	J,K,T,E,R,S		J,K,E,T
RTD	Y	Y	3 Types
Current, Voltage	4-20 mA, 1-5V		4-20 mA, 1-5V
Digital	2	4	0
Outputs	21	13	8
Relay	Y	Y	Y
SSR Drive	Y	Y	
Triac	Y	Y	
4-20mA	Y		
Number of Controls	10	10	0
Number of Alarms	11	3	8
Number of Events			
Panel Cutout (DIN)			1/2
Agency Approvals	UL, CSA, FM		
Operating Environment			
Control Modes ON/OFF	Y	Y	Monitor
Limit			
Proportional (w. manual reset)	Y		
PID	Y		
Auto Tune PID	Y		
Valve Drive w/Feedback			
Ramp and Soak			
Intervals			
Ramp to Set Point			
Action	Heat or Cool	Heat	Alarm
Other			
Remote Setpoint			
Retransmit Output			
Communications RS-232, RS-422, RS-485	Y		
See Page	H-55	H-58	H-59

Controllers