

DIALATROL INDICATING CONTROLLER R7372 (Position Proportioning)

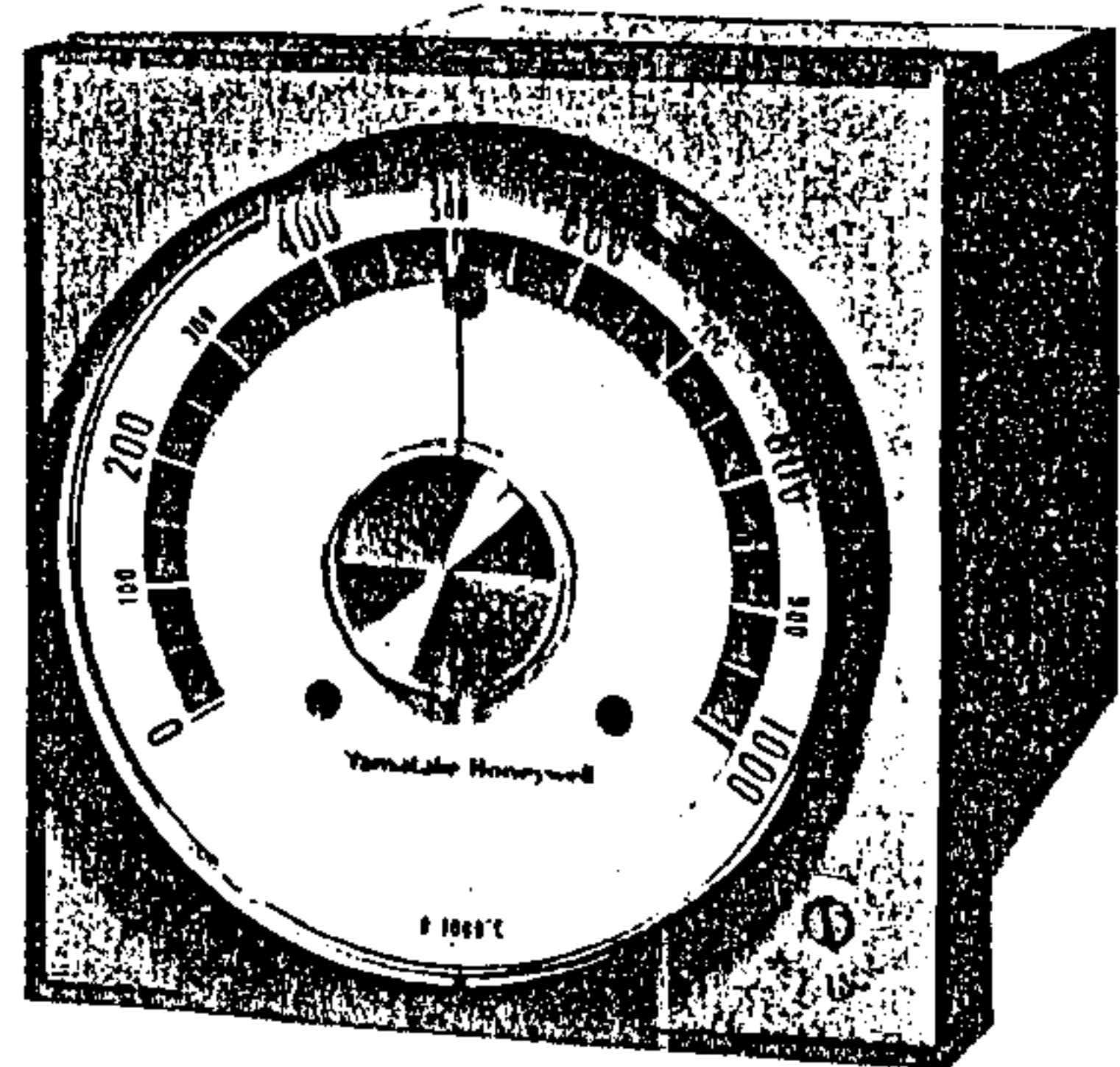
General

The R7372 Dialatrols are potentiometric Indicating Controllers of input signal from thermocouple or resistant coil, or 0 to 10mV dc, or 4 to 20 mA dc.

They provide position proportioning control mode with relay contacts output. As actuators, modutrol-motors which have feed back potentiometer such as M944B, M944J, M940B and M904F are used.

In addition to those models, also available are cascade models which are programmable from ± 4 V external setpoint.

The 240° wide angle indication with 210 mm scale enables superior readability.



Features

- High accuracy control of 0.5% of span at setpoint and indication.
- Wide scale of 210 mm plus overlap at each end, providing an effective scale length of 240 mm for superior readability and settability.
- 12 o'clock setpoint enables operator to quickly observe the slightest deviation. Setpoint lock makes it possible to lock the setpoint to prevent accidental or unauthorized changing.
- High reliability by all solid state circuitry and latest state of the art design. No mechanical choppers. Built for use in harsh industrial environments.
- Modular construction plug-in circuit boards, relay and chassis make this unit exceptionally easy to install, start up and service.
- Control is independent of temperature indication—unique concept combines the advantages of an analog scale and deviation pull balance control, providing precision control in addition to indicating process variable temperature.
- Space Economy due to the 144 mm in depth minimizes the use of space in the panel with attractive light weight of 1.9 Kg.
- High input impedance eliminates need for calibration of thermocouple extension wire length—allows parallel operation with high-impedance recorder.
- Rugged — shock and vibration resistant. Controller can be mounted directly on the machine.
- Multiple operating voltage 100-110, 200-220 V ac 50-60 Hz or 120, 240 V ac 50-60 Hz models.

Specifications

MODELS:

R7372A, B, N, P: Dialatrols—Indicating Controllers of input signals of T/C (Thermocouple), 0 to 10 mV dc, 4 to 20 mA dc, or RTD (Resistance Thermometer Detector). Control mode is Proportioning with Manual reset. Models N, P are available for program/cascade control.

R7372C, D, Q, R: Dialatrols—Indicating Controllers of input signals of T/C (Thermocouple), 0 to 10 mV dc, 4 to 20 mA dc, or RTD (Resistance Thermometer Detector). Control mode is P + I. Models Q, R are available for program/cascade control.

R7372E, F, S, T: Dialatrols—Indicating Controllers of input signals of T/C (Thermocouple), 0 to 10 mV dc, 4 to 20 mA dc, or RTD (Resistance Thermometer Detector). Control mode is P + I + D. Models S, T are available for program/cascade control.

R7372G, H, U, V: Dialatrols—Indicating Controllers of input signals of T/C (Thermocouple), 0 to 10 mV dc, 4 to 20 mA dc, or RTD (Resistance Thermometer Detector). Control mode is Proportioning with Manual reset and Hi-Limit. Models U, V are available for program/cascade control.

Type	Thermocouple To Be Used	Symbol	Use	Temperature Range (°C)	Surface Insulator Color
Wire for R	P (PR)	RX-G	General	0 to 90	Black
		RX-H	High temp.	0 to 150	
Wire for K	K (CA)	KX-G	General	-20 to 90	Blue
		KX-GS			
		KX-H	High temp.	0 to 150	
		KX-HS			
Wire for E	E (CRC)	EX-G	General	-20 to 90	Purple
		EX-H	High temp.	0 to 150	
Wire for J	J (IC)	JX-G	General	-20 to 90	Yellow
		JX-H	High temp.	0 to 150	
Wire for T	T (CC)	TX-G	General	-20 to 90	Brown
		TX-H	High temp.	0 to 150	

Table 3 Specifications of Compensation Wires

Application Examples

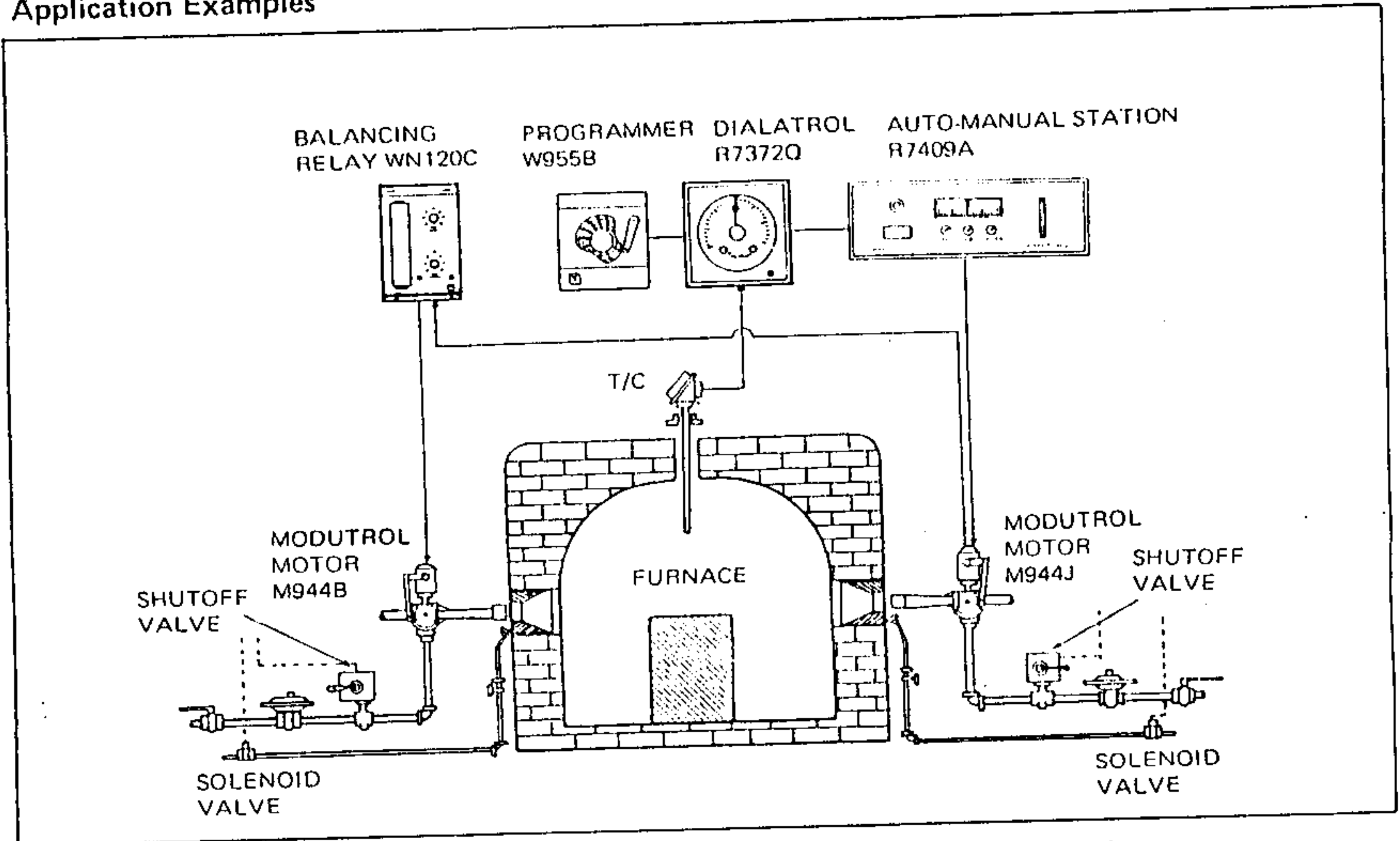


Fig. 4 Programming Control of Furnace with R7372Q (PI + Cascade)

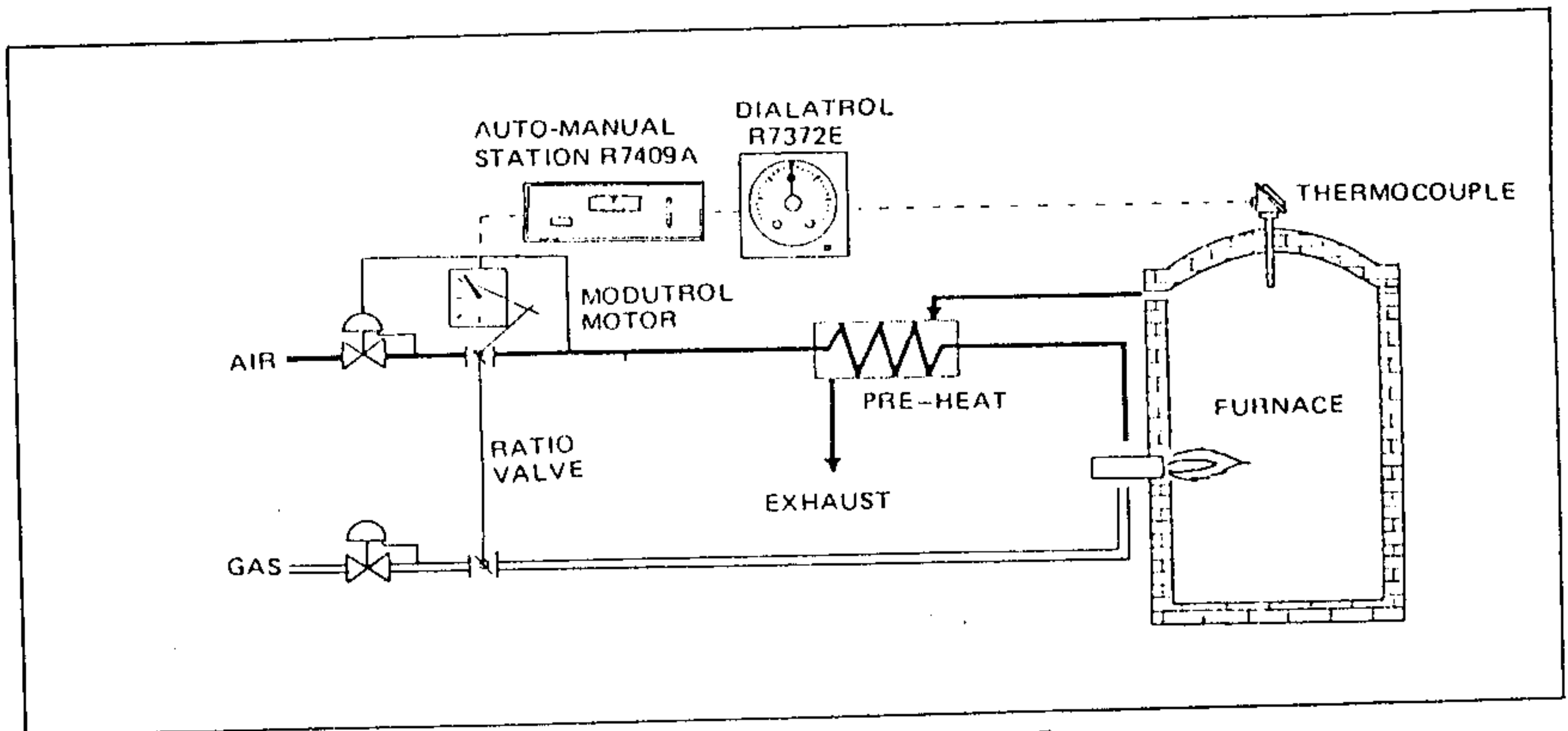


Fig. 5 Control of Furnace with R7372E

ELECTRICAL RATINGS: (See Table 1)
VOLTAGE AND FREQUENCY—
 100-110, 200-220 V ac 50-60 Hz or 120, 240 V
 ac 50-60 Hz
SUPPLY VOLTAGE LIMITS—See Table 2
POWER CONSUMPTION: 8 watts maximum
AMBIENT OPERATING TEMPERATURE RATINGS:
 Minus 20° to plus 55°C
AMBIENT OPERATING HUMIDITY RATINGS:
 90% RH maximum at 40°C

SAFE TEMPERATURE FOR STORAGE AND SHIPPING
 Minus 20° to plus 60°C
VIBRATION LIMIT: 0.5 G between 10 Hz and 60 Hz
WEIGHT: 1.9 Kg
DIMENSIONS: See Figure 1
COLOR FINISH: M4Y 7.2/1.3 (light beige)
 10YR 4.7/0.5 (dark beige)
ATTACHMENT: Mounting bracket
 (Part No. N3050); One set
SCALE LENGTH: 210 mm

ITEM	SPECIFICATIONS	MODELS																	
		A	B	C	D	E	F	G	H	N	P	Q	R	S	T	U	V		
TYPE	Position-proportioning + Manual-reset	X	X																
	Position-proportioning + Manual-reset + Cascade										X	X							
	Position-proportioning + I			X	X								X	X					
	Position-proportioning + I + Cascade					X	X												
	Position-proportioning + I + D														X	X			
	Position-proportioning + I + D + Cascade																		
	Position-proportioning + Manual-reset + Hi-Limit								X	X								X	X
INPUT (Input Impedance 300K ohm min.)	T/C (R, K, J), 0 to 10mV dc, 4 to 20mA dc	X		X		X		X		X		X		X		X		X	
	RTD (JIS Pt 100 ohm, Nickel 508 ohm)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
INDICATION SPAN	±50% of Full Span	X	X					X	X	X	X							X	X
	P + Manual Reset			X	X								X	X					
CONTROL MODE	P + I					X	X							X	X				
	P + I + D									X	X	X	X	X	X	X	X	X	
	CASCADE/PROGRAM CONTROL							X	X									X	X
Hi LIMIT	+3 to +50% of span from setpoint (adj.)																		
OUTPUT (Control)	SPDT (Neutral position available) Resistive load — 5A 250V ac 3A 30V dc Inductive load — 3A 250V ac	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	SPDT relay contacts: Resistive load — 5A 250V ac 3A 30V dc Inductive load — 3A 250V ac								X	X								X	X
OUTPUT (Hi-Limit)		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
PROPORTIONING BAND	1 to 50% of Full Span			X	X	X	X						X	X	X	X			
RESET TIME	30 sec to 20 minutes (adjustable)	X	X					X	X	X	X							X	X
MANUAL RESET RANGE	±50% of proportioning band (adjustable)	X	X					X	X									X	X
RATE TIME	2 sec to 6 minutes (adjustable)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
DEAD ZONE	0.2 to 2% of Full Span (adjustable)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
SOURCE RESISTANCE	250 ohm maximum		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
WIRING RESISTANCE	4 ohm maximum	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
COLD JUNCTION	Cold Junction Compensator included	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
BURNOUT	Up scale at sensor break	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
SETPOINT ACCURACY	±0.5% of Full Span										X	X	X	X	X	X	X		
	±1.0% of Full Span at Cascade control	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
INDICATION ACCURACY	±0.5% of Full Span (around the setpoint)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	±2.0% of Full Span at cascade control										X	X	X	X	X	X	X		
COMMON MODE REJECTION	120dB (250V ac, 50/60Hz)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
NORMAL MODE REJECTION	60dB (double the span voltage 50/60Hz)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

Table 1 Electrical Ratings of R7372

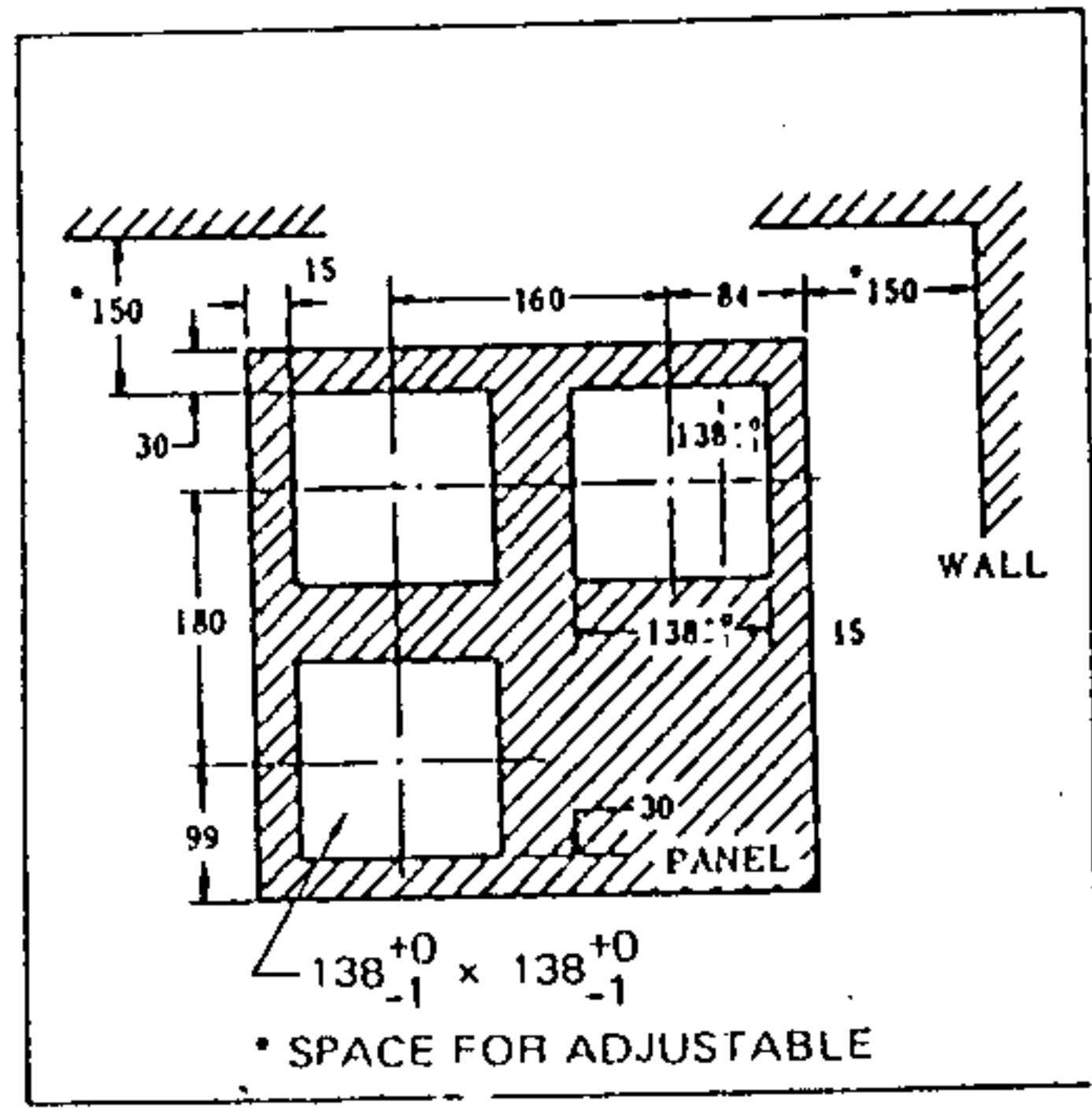
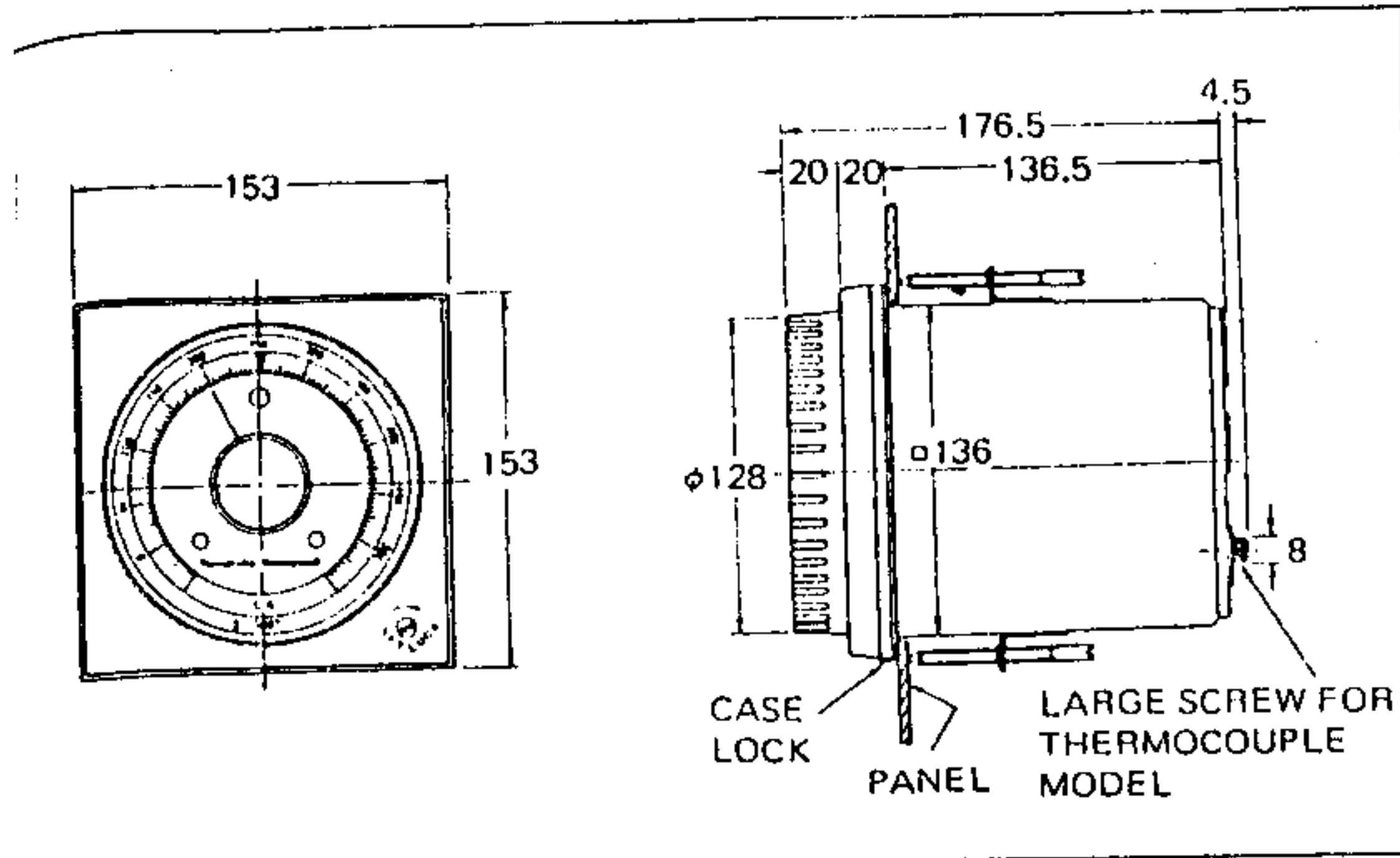


Fig. 2 Panel Cutout and Minimum Space Required for Installation and Maintenance (In Millimeters)

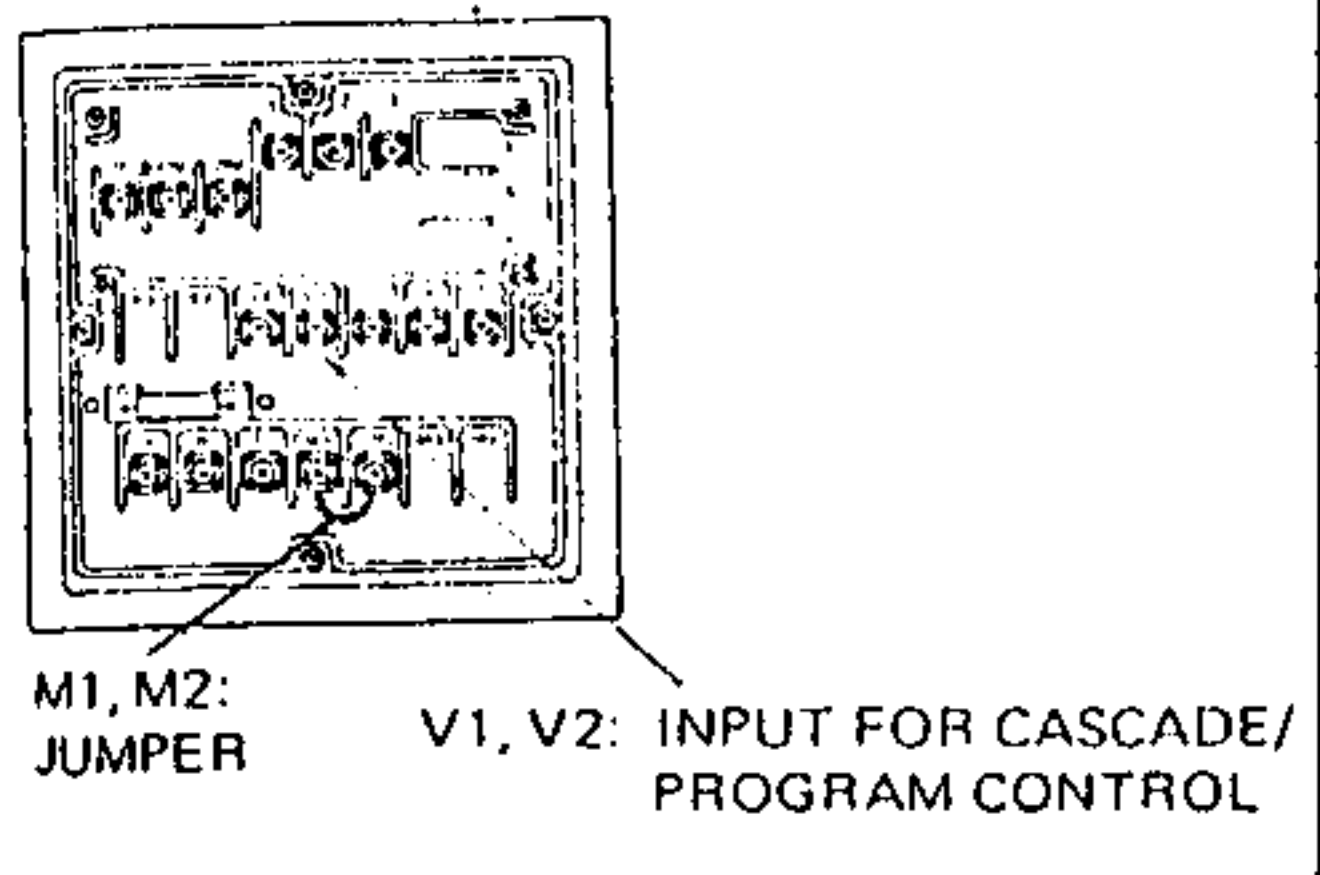


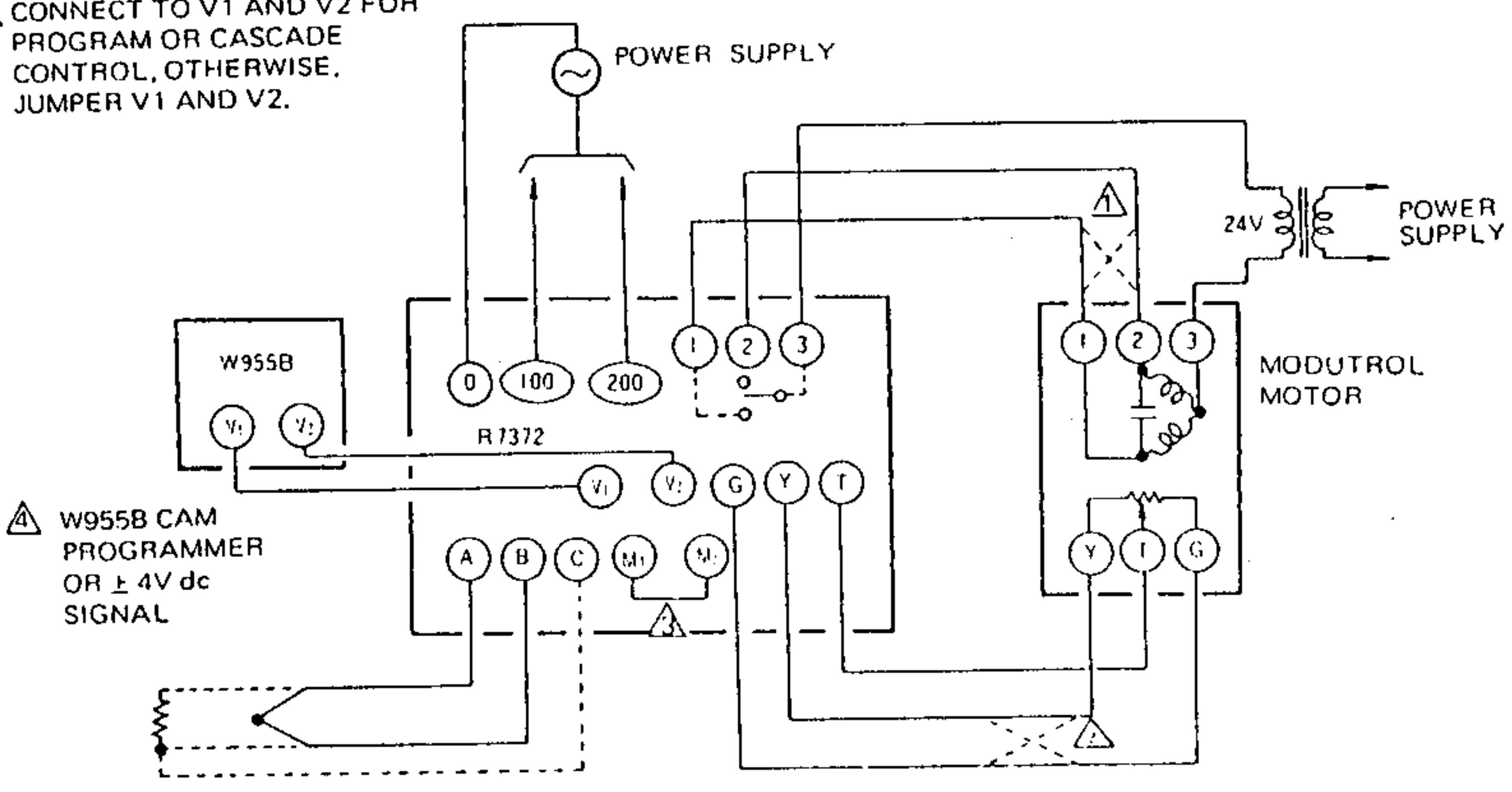
Fig. 1 Dimensions of R7372 (In Millimeters)

MODEL	TERMINAL	SUPPLY VOLTAGE LIMIT
100-110, 200-220V ac Input	0 - 100	90 to 120V ac
	0 - 200	180 to 242V ac
120, 240V ac Input	0 - 100	102 to 132V ac
	0 - 200	204 to 264V ac

Table 2 Supply Voltage Limits

Wiring

⚠ CONNECT TO V1 AND V2 FOR PROGRAM OR CASCADE CONTROL, OTHERWISE, JUMPER V1 AND V2.



⚠ W955B CAM PROGRAMMER OR ± 4V dc SIGNAL

⚠ CONNECT TO R7409 THE AUTO MANUAL STATION M1 AND M2 AS REQUIRED, OTHERWISE, JUMPER M1 AND M2.

⚠ ⚠ WIRING BETWEEN MODUTROL MOTOR AND R7372 MAKES CONTROL VALVE (MOTOR) OPEN WHEN TEMPERATURE FALLS.

FOR CONTROL VALVE TO CLOSE WHEN TEMPERATURE FALLS, CONNECT AS SHOWN BY DOTTED LINE.