MAXITROL®

Selectra® Series 20 & 21 Condensed Catalog

Electronic Modulation Gas-Fired Temperature Controls/Indirect Fired Applications

DESCRIPTION

Selectra® systems from Maxitrol maintain precise, stable gas-fired temperatures. Selectra's unique electronic Modulator-Regulator valves control gas flow with instantaneous response and continual adjustment. They are the superior alternative to mod motors and butterfly valves.

OEM or retrofit applications include environmental climate control, as well as industrial or commercial heating processes. Suitable for application in natural, manufactured, mixed gases, liquefied petroleum gases and LP gas-air mixture piping systems.

Available standard companion electronics include temperature selectors, amplifiers, and temperature sensors, in a variety of configurations. The amplifier supplies output voltage to the MR valve.

Figure 1: MR Valves

SPACE HEATING APPLICATIONS

Series 20 System (replaces Series 20/30)

Selectra® Series 20 electronic gas flame modulation systems are designed primarily for commercial and light industrial space heating, as components of indirect fired units with atmospheric burners.

Combining the capability of the Series 20 and 30, the current Series 20 is designed for single or multiple (up to four) furnace operations. It may be field installed on existing equipment or specified for new equipment installation.

The system uses Modulator-Regulator valves. High Fire ignition selection (0, 5 or 25 second) is standard on all models. A wall mounted Selectrastat senses space temperature and has an integral selector with a 60° to 85°F range. Optionally, a remote Temperature Sensor paired with a separate Temperature Selector (60° to 85°F) can be substituted for the Selectrastat.

MAKE UP AIR APPLICATIONS

Series 21 System (replaces Series 21/31)

Selectra® Series 21 electronic gas flame modulation systems are designed primarily for make-up air heating, as components of indirect fired units with atmospheric burners.

Combining the capability of the Series 21 and 31, the current Series 21 is designed for single or multiple (up to four) furnace operations. It may be field installed on existing equipment or specified for new equipment installation.

The system uses Modulator-Regulator valves. Amplifiers are available with integral or remote temperature selection. High Fire ignition selection (0, 5 or 25 second) is standard on all models. A discharge air temperature sensor is mounted within a mixing tube housing. Optionally, a room override thermostat when used in conjunction with the remote temperature selector provides space temperature control by raising the discharge air temperature to a pre-selected point.

Also optional, an inlet air sensor (and mixing tube) provides inverse change in discharge air for each degree change in inlet air - when installed in a convenient duct location upstream of the burner.

SPACE HEATING APPLICATION - Series 20 System

Series 20 Basic System			Options	
Valves	**Amplifier**	**Selectrastat**	**Space Temperature Selector**	**Space Temperature Sensor**
MR410, MR510, MR610	A1010U (replaces A1010A, B or A1011A, B)	T120	TD120	TS120

SYSTEM COMPONENTS

Series 20 Amplifier

A1010U

Modulator-Regulator Valves

MR410
3/8" and 1/2" pipe sizes

MR510
1/2" and 3/4" pipe sizes

MR610
3/4" and 1" pipe sizes

Selectrastat: selector and integral sensing

T120 - 60° to 85°F

Space Temperature Selector: selection only

TD120: 60° to 85°F - For use with TS120

Optional: *ETD-1 enclosure EFP-1 cover plate only - no enclosure*

Space Temerature Sensor: remote sensing

TS120 - For use with TD120

SPECIFICATIONS

Power Requirements:
Single Furnace.....24V AC, 40VA capacity
Multiple Furnace.....24V AC, 100VA capacity

NOTICE

Transformer secondary must not be grounded in any portion of the circuit external to a Maxitrol amplifier. If existing transformer is grounded, a separate, independent transformer must be used. Electrical interference may affect performance and/or damage equipment.

Temperature Control Range: 60º to 85ºF

Ambient Limits: -30º to 125ºF / -34º to 52ºC

Gases: Suitable for natural, manufactured, mixed gases, liquefied petroleum gases, and LP gas-air mixtures.

Pressure Limits:
Inlet (maximum): MR410, 510, 610.....1 psi / 69 mbar

Outlet (maximum fire)
standard spring*.....3.0" to 5.0" w.c. / 7 to 12 mbar
H - models.....7.5" to 12" w.c. / 19 to 30 mbar
Max. set point not to exceed 10" w.c. above min. set point

Outlet (minimum fire)
standard spring*.....0.2" to 1.2" w.c. / .5 to 3 mbar
(-1) spring*.....1" to 2.8" w.c. / 2.5 to 7 mbar
*(*other spring ranges available - Consult Maxitrol Company.)*

MAKE UP AIR APPLICATIONS - Series 21 System

Series 21 Basic System					Options	
Valves	**Amplifier**	**Selection Method**	**Remote Selector Model (if applicable)**	**Discharge Temp. Sensor**	**Override Stat**	**Inlet Air Sensor**
MR410, MR510 & MR610	A1010U (replaces A1010A, B or A1011A, B)	Remote	TD121	TS121 / MT1 or 2	T115	TS10765
	AD1010U (replaces A1010E, F or A1011E, F)	Integral	—	TS121 / MT1 or 2	T115	TS10765
		Note: Selector and sensor must have same temperature range to be compatible.				

SYSTEM COMPONENTS

Series 21 Amplifier (A1010U Shown)

A1010U

AD1010U - integral temp. selector

Modulator-Regulator Valves

MR410
3/8" and 1/2" pipe sizes

MR510
1/2" and 3/4" pipe sizes

MR610
3/4" and 1" pipe sizes

Remote Temperature Selectors

TD121: 55° to 90°F
TD121A: 80° to 130°F
TD121B: 120° to 170°F
TD121C: 160° to 210°F
TD121D: 200° to 250°F
TD121E: 100° to 250°F
TD121F: 40° to 80°F

Note: *Remote Selector and Discharge Temperature Sensor must have same temperature range to be compatible.*

Optional: *ETD-1 enclosure, EFP-1 cover plate only - no enclosure.*

Discharge Temp. Sensors: use with Mixing Tube

TS121: 55° to 90°F
TS121A: 80° to 130°F
TS121B: 120° to 170°F
TS121C: 160° to 210°F
TS121D: 200° to 250°F
TS121E: 100° to 250°F
TS121F: 40° to 80°F

Mixing Tubes: use with Sensors

MT1-9 OR MT2-9: 9" length
MT1-12 OR MT2-12: 12" length
MT1-23 OR MT2-23: 23" length
MT1-28 OR MT2-28: 28" length
MT1-57: 57" length

OPTIONAL: Inlet Air Sensors - use with Mixing Tube

TS10765A - 8:1 ratio
TS10765B - 5:1 ratio
TS10765C - 3:5:1 ratio

OPTIONAL: Override Stat - use with TD121 only

T115: 40° to 90°F

SPECIFICATIONS

Gases: Suitable for natural, manufactured, mixed gases, liquefied petroleum gases, and LP gas-air mixtures.

NOTICE

Transformer secondary must not be grounded in any portion of the circuit external to a Maxitrol amplifier. If existing transformer is grounded, a separate, independent transformer must be used. Electrical interference may affect performance and/or damage equipment.

Power Requirements:
Single Furnace.....24V AC, 40VA capacity
Multiple Furnace.....24V AC, 100VA capacity

Temperature Control Range:
Standard.....55° to 90°F
Optional ranges to....250°F

Ambient Limits: -30º to 125ºF / -34º to 52ºC

SPECIFICATIONS CONTINUED

Pressure Limits:
CSA certified (Inlet).....1/2 psi
Maxitrol tested (Inlet).....1 psi
Inlet (maximum): MR410, 510, 610.....1 psi / 69 mbar

Outlet (maximum fire)
standard spring*.....3.0" to 5.0" w.c. / 7 to 12 mbar
H - models.....7.5" to 12" w.c. / 19 to 30 mbar
Max. set point not to exceed 10" w.c. above min. set point

Outlet (minimum fire)
MR10B10L standard spring*.....0.2" to 1.2" w.c. / .5 to 3 mbar
MR10B10L (-1) spring*.....1" to 2.8" w.c. / 2.5 to 7 mbar
**other spring ranges available - Consult Maxitrol Company.*

DIMENSIONS

Series 20 System	
Model Number	**Dimensions**
A1010U	6" x 3.38" x 2" (152mm x 86mm x 51mm)
T120 Selectrastat	2.56" x 4.5" x 1.79" (65mm x 114mm x 46mm)
TD120 Space Temp. Selector	2.62" x 3" x 1.75" (67mm x 76mm x 44mm)
TS120 Space Temp. Sensor	2.52" x 4.5" x 1.79" (65mm x 114mm x 46mm)

Series 21 System	
Model Number	**Dimensions**
A1010U / AD1010U	6" x 3.38" x 2" (152mm x 86mm x 51mm)
TD121 Remote Temp. Selector	2.62" x 3" x 1.75" (67mm x 76mm x 44mm)
T115 Override Stat	2.96" x 4.69" x 2.56" (75mm x 119mm x 65mm)
ETD-1 (opt. TD121 enclosure) MT1 Mixing Tube enclosure (for sensor)	4.19" x 4.19" x 1.88" (106mm x 106mm x 48mm) [Tube lengths: 9" (229), 12" (305), 23" (584), 28" (711), 57" (1448)]
MT2 Mixing Tube enclosure (for sensor)	2.19" x 4.19" x 1.88" (56mm x 106mm x 48mm) [Tube lengths: 9" (229), 12" (305), 23" (584), 28" (711)]

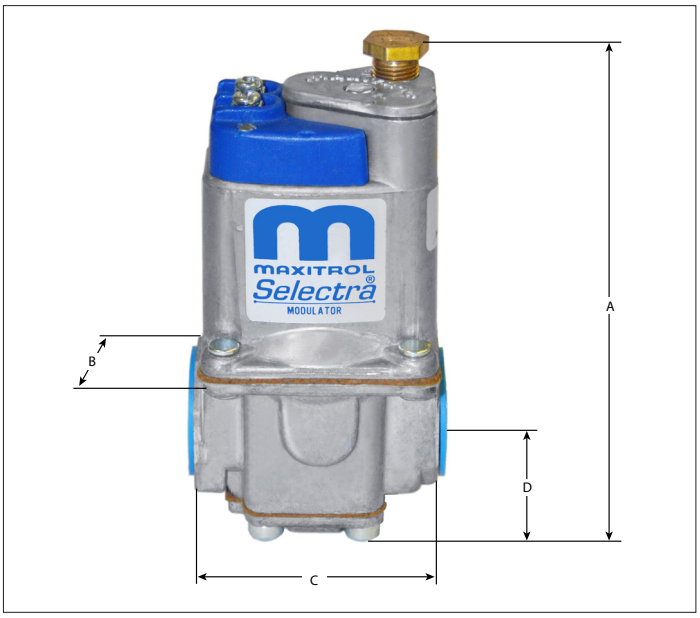

Figure 2: MR410, MR510, MR610

VALVE DIMENSIONS

MR Valves					
Model Number	**Swing Radius**	**Call-Outs**			
		A	**B**	**C**	**D**
MR410	3.1 (79)	3.9 (100)	2 (51)	2.1 (54)	.9 (24)
MR510	4.3 (109)	5.3 (135)	3.25 (83)	3.4 (86)	1.2 (30)
MR610	7.2 (183)	7.1 (180)	3.9 (99)	4 (102)	1.5 (37)

NOTE: Dimensions are to be used only as an aid in designing clearance. Actual production dimensions may vary somewhat from those shown.