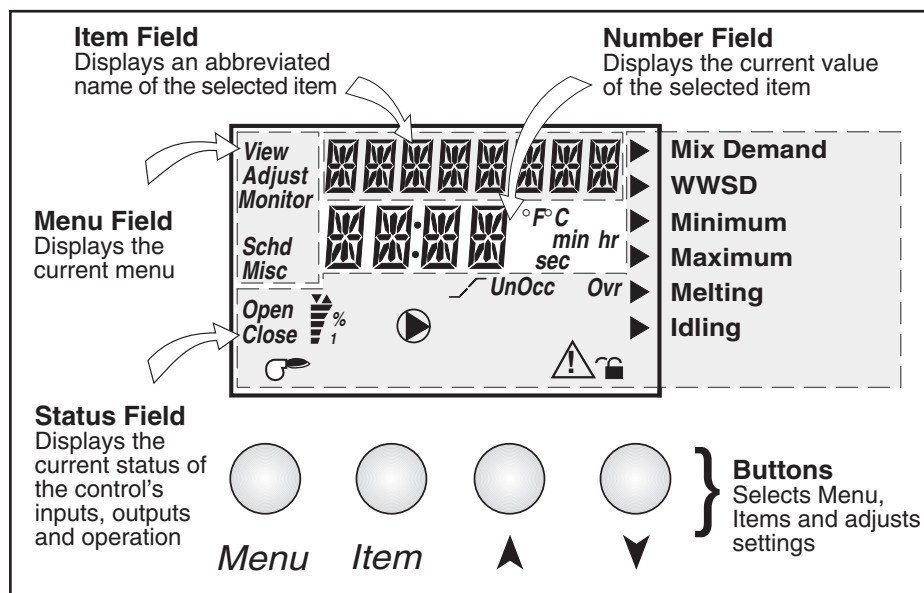# tekmar® - User Brochure

Mixing Control 362

The Mixing Control 362 is a microprocessor base control designed to operate either a variable speed injection pump or a floating action mixing valve in order to provide a mixed supply water temperature to a hydronic system. The control is designed to operate in two distinct modes. Mode 1 allows for the control to provide a reset mixed supply water temperature to maximize the comfort and efficiency of a hydronic heating system. Multiple zone temperature control is achieved by using either thermostats or tekmar Zone Controls. Mode 2 allows for control of a snow melting slab. Standard features include boiler protection (when a boiler sensor is installed), pump exercising, and digital temperature readouts.

User Interface

Access Level(s) The tekmar Mixing Control 362 has four access levels which are **LTD** (limited), **USER**, **INST** (Installer), and **ADV** (advanced). This brochure only covers the **LTD** (Limited) and **USER** levels. Only qualified service people should adjust the **INST** (Installer) and **ADV** (advanced) access levels.

Open Close	**Open / Close** Displays when the actuator is opening or closing the valve.
	Mixing Device Output Scale Shows output of injection pump or mixing valve. Arrows show whether the output is increasing or decreasing.
	Burner Displays when the boiler relay is turned on.
	Pump Displays when mixing pump is operating.
	Boost Displays when the control is in boost after setback.
UnOcc	**UnOccupied** Displays when control is in unoccupied mode.
Occ	**Occupied** Displays when the control is in occupied mode.
Ovr	**Override** Displays when the control is in override mode.
⚠	**Warning** Displays when an error exists or a limit has been reached.
🔓	**Lock - Unlock** Displays whether access levels are locked or unlocked.
°F, °C, sec, min, hr	**°F, °C, sec, min, hr,** Units of measurement.
▶	**Pointer** Displays control operation as indicated by text.

The tekmar Mixing Control 362 has a Liquid Crystal Display (LCD) and four push buttons (*Menu*, *Item*, ⋀,⋁) which are used to view and adjust the settings.

Menu ◐ ○ ○ ○

All of the items displayed by the control are organized into various menus. These menus are listed on the left hand side of the display (Menu Field). To select a menu, use the *Menu* button. By pressing and releasing the *Menu* button, the display will advance to the next available menu. Once a menu is selected, there will be a group of items that can be viewed within that menu.

Item ○ ◐ ○ ○

The abbreviated name of the selected item will be displayed in the item field of the display. To view the next available item, press and release the *Item* button. Once you have reached the last available item in a menu, pressing and releasing the *Item* button will return the display to the first item in the selected menu.

Adjust ○ ○ ◐ ◐

To make an adjustment to a setting in the control, begin by selecting the appropriate menu using the *Menu* button. Then select the desired item using the *Item* button. Finally, use the ⋀ and/or ⋁ button to make the adjustment.

Additional information can be gained by observing the Status and Pointers fields of the LCD. The status field will indicate which of the control's outputs are currently active. Most symbols in the status field are only visible when the View Menu is selected.

Note: Depending on the settings the installer make in the control, certain menu items may not appear.

Item	LTD	USER	362 **View** Menu	Range
OUTDOOR	○	●	Current outdoor air temperature as measured by the outdoor sensor. This is also the default display for the control.	-67 to 149°F (-55 to 65°C)
ROOM TRG		●	Target room air temperature. "— — —" denotes no heat is required. Will not display if RTU is connected.	- - -, 35 to 100°F (2 to 38°C)
ROOM	○	●	Measured room air temperature at the indoor sensor. Will not display if RTU is connected.	-58 to 167°F (-50 to 75°C)
SNOWMELT	○	●	Current operating status of the snow melting system.	STRT, STOP, IDLE, EXT, 00:0 to 17:00 hr, - - -, INF, WWSD, CWCO
MIX SUP		●	Current mixed supply water temperature as measured by the mixing sensor.	-31 to 266°F (-35 to 130°C)
Boil SUP		●	Current boiler supply water temperature as measured by the boiler sensor.	-31 to 266°F (-35 to 130°C)
Boil RET		●	Current boiler return water temperature as measured by the boiler sensor.	-31 to 266°F (-35 to 130°C)

Item	LTD	USER	362 **Adjust** Menu	Range
MELTING		●	When operating with a slab sensor, this item is the desired slab surface temperature while in the Melting Mode. When operating without a slab sensor, this item is the mixing supply water temperature while in the Melting Mode.	32 to 92°F or 140°F (0 to 35°C or 60°C)
RUN TIME	○	●	The time for which the slab is operated once it has reached the MELTING temperature. This item cannot be viewed if a Remote Start / Stop Module 039 has been connected.	OFF, 0:30 to 17:00 *hr* INF (Infinity)
ROOM Occ	○	●	The desired room air temperature during an Occupied period. In LTD access level, this setting can only be adjusted ±3°F (±1°C).	35 to 100°F (2 to 38°C)
ROOM UnOcc		●	The desired room air temperature during an UnOccupied period.	35 to 100°F (2 to 38°C)
SLAB MIN		●	The minimum temperature at the slab sensor provided that the control is not in Warm Weather Shut Down. This item can only be adjusted if a tekmar sensor is connected.	OFF, 35 to 120°F (OFF, 2 to 49°C)
SETBACK		●	The amount that the mixing supply temperature will be reduced when the control is in an UnOccupied Mode.	0 to 50°F (0 to 28°C)
WWSD Occ		●	The system's warm weather shut down during the Occupied period. Mode 1 is for Heating. Mode 2 is for Snow Melting.	35 to 100°F, OFF (2 to 38°C, OFF)

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Note: Depending on the settings the installer make in the control, certain menu items may not appear.

Item	LTD	USER	362 **Monitor** Menu	Range
OUT HI	●	●	The highest outdoor air temperature recorded since this item was last cleared. To clear this item, press and hold the ▲ and ▼ buttons until 'CLR' is displayed.	-67 to 149°F (-55 to 65°C)
OUT LO	●	●	The lowest outdoor air temperature recorded since this item was last cleared. To clear this item, press and hold the ▲ and ▼ buttons until 'CLR' is displayed.	-67 to 149°F (-55 to 65°C)
SLAB HI	●	●	The highest recorded temperature at the slab sensor since this item was last cleared. To clear this item, press both the ▲ and ▼ buttons until "CLR" is displayed.	-58 to 167°F (-50 to 75°C)
SLAB LO	●	●	The lowest recorded temperature at the slab sensor since this item was last cleared. To clear this item, press both the ▲ and ▼ buttons until "CLR" is displayed.	-58 to 167°F (-50 to 75°C)

Item	LTD	USER	362 **Schd (Schedule)** Menu	Range
OVERRIDE	●	●	The type of setback override that is in effect. **DIP switch = *Setback*** AWAY is available even if DIP ≠ Setback	NONE, TMPY Occ, PERM Occ, TMPY UnOcc, PERM UnOcc, AWAY

None – No override. ***TMPY Occ*** – Overrides to Occupied setting for 3 hours. ***PERM Occ*** – Overrides to Occupied setting until new override is selected. ***TMPY UnOcc*** - Overrides to UnOccupied for 3 hours. ***PERM UnOcc*** – Overrides to UnOccupied setting until new override is selected. ***AWAY*** – Room & WWSD temperature at 62°F (17°C), no DHW.

Item	LTD	USER	362 **Misc (Miscellaneous)** Menu	Range
UNITS		●	The units of measurement in which all of the temperatures are to be displayed by the control.	°F, °C
BACKLITE		●	The operating mode for the back lighting of the LCD and the time until the control returns to the view menu after any button was pressed. **If Backlight is set to** OFF**,** the control returns after 10 seconds and the backlight stays off. **If Backlight is set to** 30 SEC**,** the control returns after 30 seconds and the backlight stays on for 30 seconds after any button press. **If Backlight is set to** ON**,** the control returns after 90 seconds and the backlight stays on.	OFF, 30 *sec*, ON
ACCESS	●	●	The access level that is to be used by the control. **DIP switch = 🔒** *Only qualified service people should adjust items in the* ADV *(Advance) and* INST *(Installer) access levels.*	ADV, INST, USER, LTD

Room Temperature Unit (RTU) 062, 063

A single RTU can be connected to the Mixing Control 362 in order to provide the control with indoor temperature feedback for the mixing side of the heating system (Refer to Essay E 002). When using an RTU, several items related to the mixing side of the heating system are no longer available in the control's User Interface. These items are available only in the RTU's User Interface. Also, the number of items that are available on the RTU depends on the type of RTU that is connected to the control.

Item	LTD	USER	062	063	362 RTU **View** Menu	Range
ROOM	●	●	●	●	Current room air temperature.	14 to 167°F (-10 to 75°C)
ROOM TRG		●	●	●	Target room air temperature.	35 to 100°F (2 to 38°C)
OUTDOOR	●	●	●	●	Current outdoor air temperature as measured by the outdoor sensor.	-67 to 149°F (-55 to 65°C)
SLAB		●		●	Current slab sensor temperature. This item is only available if a tekmar slab sensor is connected to a RTU 063.	-58 to 167°F (-50 to 75°C)

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Note: Depending on the settings the installer make in the control, certain menu items may not appear.

Item	LTD	USER	062	063	362 RTU **Adjust** Menu	Range
ROOM Occ	●	●	●	●	The desired room air temperature during an Occupied period for this mixing zone. In LTD access level, this setting can only be adjusted ±3°F (±1°C).	35 to 100°F (2 to 38°C)
ROOM UnOcc	●	●	●	●	The desired room air temperature during an UnOccupied period for this mixing zone. In LTD access level, this setting can only be adjusted ±3°F (±1°C).	35 to 100°F (2 to 38°C)
SLAB MIN	●			●	The minimum temperature desired at the slab sensor while the control is not in WWSD. This item can only be viewed if a tekmar slab sensor is connected to a RTU 063.	OFF, 35 to 120°F (OFF, 2 to 49°C)

Item	LTD	USER	062	063	362 RTU **Monitor** Menu	Range
OUT HI	●	●	●	●	The highest outdoor air temperature recorded since this item was last cleared. To clear this item, press and hold the ⋀ and ⋁ buttons until 'CLR' is displayed.	-67 to 149°F (-55 to 65°C)
OUT LO	●	●	●	●	The lowest outdoor air temperature recorded since this item was last cleared. To clear this item, press and hold the ⋀ and ⋁ buttons until 'CLR' is displayed.	-67 to 149°F (-55 to 65°C)
ROOM HI		●	●	●	The highest room air temperature recorded since this item was last cleared. To clear this item, press and hold the ⋀ and ⋁ buttons until 'CLR' is displayed.	14 to 167°F (-10 to 75°C)
ROOM LO		●	●	●	The lowest room air temperature recorded since this item was last cleared. To clear this item, press and hold the ⋀ and ⋁ buttons until 'CLR' is displayed.	14 to 167°F (-10 to 75°C)

Item	LTD	USER	362 RTU **Schd (Schedule)** Menu	Range
OVERRIDE		●	The type of setback override that is in effect. **DIP switch = Setback** AWAY is available even if DIP ≠ Setback	NONE, TMPY Occ, PERM Occ, TMPY UnOcc, PERM UnOcc, AWAY

None – No override.   *TMPY Occ* – Overrides to Occupied setting for 3 hours. *PERM Occ* – Overrides to Occupied setting until new override is selected.   *TMPY UnOcc* - Overrides to UnOccupied for 3 hours.   *PERM UnOcc* – Overrides to UnOccupied setting until new override is selected.   *AWAY* – Room & WWSD temperature at 62°F (17°C), no DHW.

Item	LTD	USER	062	063	362 RTU **Misc (Miscellaneous)** Menu	Range
UNITS		●	●	●	The units of measurement in which all of the temperatures are to be displayed by the control.	°F, °C
BACKLITE		●	●	●	The operating mode for the back lighting of the LCD and the time until the control returns to the view menu after any button was pressed. *If Backlight is set to* OFF, the control returns after 10 seconds and the backlight stays off. *If Backlight is set to* 30 SEC, the control returns after 30 seconds and the backlight stays on for 30 seconds after any button press. *If Backlight is set to* ON, the control returns after 90 seconds and the backlight stays on.	OFF, 30 *sec*, ON
ACCESS	●	●	●	●	The access level that is to be used by the RTU. **DIP switch =** 🔒 *Only qualified service people should adjust items in the* ADV *(Advance) and* INST *(Installer) access levels.*	ADV, INST, USER, LTD

Remote Display Module (RDM)

An optional Remote Display Module can be connected up to the 362 if an RTU is not used. All items displayed on the 362 menu will also be displayed on the remote module. Adjustments can be made from the Remote Display Module. This module is connected to the control through two wires and has the same physical appearance as an RTU.