tekmar® - Data Brochure Addendum

Snow Detector & Melting Control 667

The tekmar Snow Detector & Melting Control 667 has been modified to include the following features:

- Temporary Idle
- Adjustable Warm Weather Shut Down
- View Mix Target Temperature
- Monitor the energy usage with ΔT hours

The changes are included in controls starting with Lot 09. The date code and lot number is listed on the right hand side of the 667.

Added Features

Features listed below have been added to the 667 Snow Detector & Melting Control. The sections in this addendum now supplement the D 667 brochure dated 09/02.

Section A: Temporary Idle (TMPY IDL)

The temporary idle allows the control to enter the idle state for a set amount of time. If the snow ice detector does not detect snow during the temporary idle period, the control then leaves the idle state and returns to the OFF state. This is useful in applications where there is the possibility of snow and the slab can be pre-heated in order to have a short heat up time if snow is detected.

To enable a temporary idle, the *Temporary Idle* setting in the ADJUST menu must be set from OFF to the length of the temporary idle. The DIP Switch must be set to IDLE DEMAND and the IDLING setting must be set to a temperature. To activate a temporary idle, a voltage between 24 and 240 V (ac) must be applied across the *Melt/Idle Demand* terminals for at least 4 seconds.

When a temporary idle is selected, the control has three available states: OFF, Temporary Idle, and Melting. The table below describes the action of the control:

Control State	Action	Result
OFF	External Idle Demand	Temporary Idle
OFF	Manual or Auto Melt Start	Melting
Melting	External Idle Demand	Melting
Melting	Manual or Auto Melt Start	Melting
Melting	Manual or Auto Melt Stop	OFF
Temporary Idle	Temporary Idle Expires	OFF
Temporary Idle	Manual or Auto Melt Start	Melting
Temporary Idle	Manual Melt Stop	OFF

## Section B: Warm Weather Shut Down (WWSD)

The control has a warm weather shut down that prevents the control from entering the melt or idle modes in order to conserve energy. While in WWSD, the word WWSD is displayed in the STATUS item in the VIEW menu and the WWSD pointer is on the display. The WWSD item in the ADJUST menu can be either set to Automatic or it can be set to a temperature.

AUTOMATIC (AUTO)

When the WWSD is set to AUTO, the WWSD occurs when the slab temperature and the outdoor temperature exceed the *Melting* setting by 2°F (1°C). The control exits the WWSD when the slab or outdoor temperature falls to the *Melting* setting temperature.

ADJUSTABLE WWSD

When the WWSD is set to a temperature, the WWSD occurs when the outdoor air temperature exceeds the *WWSD* setting by 1°F (0.5°C) and when the slab temperature exceeds 34°F (1°C). The control exits WWSD when the outdoor temperature falls 1°F (0.5°C) below the *WWSD* setting or if the slab temperature falls below 34°F (1°C). This allows the *Melting Temperature* setting to be set higher than the WWSD. This is useful where high slab temperatures are required to melt the snow or ice. A good example of this is installations using paving bricks on top of sand and concrete layers.

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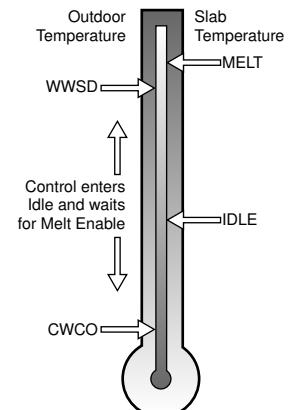
Section C: Mixing Target (MIX TRG)

The mixing target temperature is the supply fluid temperature calculated by the control. The control will operate the snow melt system so that the mix supply temperature reaches the mixing target except while providing boiler return protection for the boiler.

Section D: ΔT Hours (Relative Energy Usage)

The control records the temperature difference (ΔT) multiplied by the number of hours the control is in the Melt or Idle modes. This allows the user to estimate the amount of energy used by the snow melt system. The energy consumption can be estimated by multiplying the ΔT Hours by the system flow rate (in US GPM) and by the constant K shown below. ***Note:*** K values are calculated averages for most ethylene glycol solutions at 50°F (10°C). K increases with higher temperatures.

% Glycol by Weight	Freezing Point	K (°F x hr)	K (°C x hr)
0	32°F (0°C)	500	900
10	25°F (-4°C)	496	893
20	15°F (-9°C)	487	877
30	3°F (-16°C)	477	857
40	-13°F (-25°C)	462	832
50	-35° (-37°C)	439	720

Example: ΔT Hours = 5225 °F x hr, System flow = 20 US GPM, Fluid = 40% glycol and 60% water, therefore K= 462.
Energy Usage = 5225 x 20 x 462 = 48,279,000 BTU.

To clear the current ΔT Hours recorded, press the ▲ and ▼ arrow buttons while viewing the ΔT Hours in the MONITOR menu.

The following items have been added to the menus of the D 667 brochure dated 09/02.

667 **View** Menu (1 of 1)

Item Field	Section	LTD	USER	INST	ADV	Description	Range
STATUS		●	●	●	●	**Status** Operating status.	STRT, STOP, IDLE, EXT, 0:00 to 23:59 hr, −−−, INF, WWSD, CWCO, DET, IDLE
MIX TRG	C				●	**Mix Target** The current mix target temperature as calculated by the control.	−−−, -25 to 248°F (−−−, -32 to 120°C)

667 **Adjust** Menu (1 of 1)

Item Field	Section	LTD	USER	INST	ADV	Description	Range	Actual Setting
TMPY IDL	A				●	**Temporary Idle** Time for which the temporary idle is active.	OFF, 0:30 to 40:00 hr Default = OFF	
WWSD	B		●	●		**WWSD** Warm Weather Shut Down. Slab must exceed 34°F to enter WWSD.	AUTO, 32 to 95°F (AUTO, 0 to 36°C) Default = AUTO	

667 **Monitor** Menu (1 of 1)

Item Field	Section	LTD	USER	INST	ADV	Description	Range
ΔT HOURS	D		●	●		**ΔT HOURS** The amount of energy that has been used.	0 to 9999°F hr (0 to 9999°C hr)