Hydronic & HVAC Control Systems

Thermostats | Zoning | Boiler & Mixing | Multi-Staging | Snow Melting | Setpoint | Alternative Energy

tekmarControls.com

tekmar®

A **WATTS** *Brand*

Better Design, Better Control, Better Systems.

At tekmar Control Systems, we believe the indoor comfort of a building depends on the performance of its heating, ventilating & air conditioning (HVAC) system. That's why tekmar offers affordable control solutions designed to produce the best in comfort, efficiency & system performance.

Our focus on innovation to add greater value to our products & services allows us to pioneer technologies & anticipate the needs of tomorrow. We stand by our products & offer in-depth technical support & training to ensure our customers are completely satisfied.

World Class Technical Support

Our local Representatives are knowledgeable experts in both HVAC controls & their operating mechanical systems. They offer assistance in system design, product selection & installation support. We're here when you need us most. To contact a Representative in your area, visit tekmarControls.com

Dependable Warranty

We strive to provide the highest quality products to our customers. In keeping with that goal, all of our products are 100% quality tested, & backed by the most dependable 3-year limited warranty in the industry.

We Offer the Complete Solution

- A wide range of products to match the needs of today's systems

- Manufactured in a state-of-the-art Canadian facility

- A network of experienced & knowledgeable representatives

- Training & technical tools available to support your success

- Dedicated staff focused on innovation & customer service

For more information regarding tekmar products, visit

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Thermostats
Radiant, Conventional & Heat Pump Thermostats

Thermostat Classic Series

Operate stand-alone & WiFi thermostats in an on/off hydronic heating zone to gain energy savings and indoor comfort.

Product	Type	Description	Auxiliary Sensor Options
	518	Thermostat 518 One Stage Heat	Room, Floor, Outdoor
	519	Radiant Thermostat 519 One Stage Heat (Includes Slab Sensor 079)	Room, Floor, Outdoor
	521	Programmable Thermostat 521 Two Heat or Heat-Cool (Includes Slab Sensor 079)	Room, Floor, Outdoor
	561	WiFi Thermostat 561 One Stage Heat	Room, Floor, Outdoor
	562	WiFi Thermostat 562 Two Stage Heat, One Stage Cool, Fan	Room, Floor, Outdoor
	563	WiFi Thermostat 563 Conventional 2H/2C or Heat Pump 4H/2C	Room, Floor, Outdoor, Humidity
	564	Invita® WiFi Thermostat 564 Solves the 2-wire problem. White finish.	Room, Floor, Outdoor, Humidity
	564B	Invita® WiFi Thermostat 564B Solves the 2-wire problem. Black finish.	Room, Floor, Outdoor, Humidity

Thermostat Performance & Designer Series

Use tekmarNet® communication between the thermostats and the system control to optimize energy savings and comfort.

Two or Four-Wire Product	Type	Description	Auxiliary Sensor Options
	532	tekmarNet® Thermostat 532 One Stage Heat	Room, Floor, Outdoor
	552	tekmarNet® Thermostat 552 One Stage Heat	Room, Floor, Outdoor
	553	tekmarNet® Thermostat 553 Two Stage Heat, One Stage Cool, Fan	Room, Floor, Outdoor, Duct, Coil
	554	tekmarNet® Thermostat 554 One Stage Heat, One Stage Cool, One Fan	Room, Floor, Outdoor
	557	tekmarNet® Thermostat 557 Radiant Floor, 2 Heat Pump/Cool, Backup, Humidity	Room, Floor, Outdoor, Duct, Coil, Humidity

▶ Compare Thermostats

System Requirements		518	519	521	532	554	552	553	557	561	562	563	564 564B
Heat Stages 2 Stage Example: Radiant 1st stage & fan coil 2nd stage		1	1	1 or 2*	1	1	1	2	2	1	2	2	2
Cool Stages 2 Stage Example: 2 stage air conditioner		-	-	1	-	1	-	1	2	-	1	2	2
Heat Pump Stages For direct control of heat pump from thermostat		-	-	-	-	-	-	1	2	-	-	4	4
Fan/ERV/HRV Ventilation		-	-	1	-	1	-	1	1	-	1	1	1
Auxiliary Sensor Inputs Number of external sensor connections		1	1	2	2	2	2	2	3	2	2	3	3
Auxiliary Sensor Input Options Support a wider range of applications with these types of external sensors	Outdoor	•	•	•	•	•	•	•	•	•	•	•	•
	Room	•	•	•	•	•	•	•	•	•	•	•	•
	Floor	•	•	•	•	•	•	•	•	•	•	•	•
	Duct	-	-	-	-	•	-	•	•	-	-	-	-
	Coil	-	-	-	-	•	-	•	•	-	-	-	-
	Humidity	-	-	-	-	-	-	-	•	•	-	•	•
Humidity Control On-board humidity sensor		-	-	-	-	-	-	•	•	-	-	•	•
tekmarNet® Communication - 2 or 4 wire Number of conductors for power & communication		-	-	-	2 or 4	2 or 4	2 or 4	2 or 4	2 or 4	-	-	-	-
Radiant Floor Heating Designed to operate for maximum comfort		•	•	•	•	•	•	•	•	•	•	•	•
Radiant Floor Cooling Cool using radiant cooling		-	-	-	-	-	-	•	•	-	-	-	-

*If 2 heat stages are used, then no cooling is available

Features & Benefits	518	519	521	532	554	552	553	557	561	562	563	564 564B
Built-In Programmable Schedule Program savings without affecting comfort	-	-	•	-	•	•	•	•	•	•	•	•
Touchscreen Technology Large touchscreen makes programming easy	-	-	-	-	•	•	•	•	•	•	•	•
Mobile App Remote Access Adjust thermostat settings from the tekmar Connect app using a WiFi connection	-	-	-	-	-	-	-	-	•	-	•	•
Gateway Remote Access Access tekmarNet® systems via the internet with a Gateway 486	-	-	-	•	•	•	•	•	-	-	-	-
System Wide Control Add a User Switch to quickly override all thermostats	-	-	-	•	•	•	•	•	-	-	-	-
Zone Synchronization Coordinate heat demands, minimize equipment cycling	-	-	-	•	•	•	•	•	-	-	-	-
Air Group Master Interlock multiple heating zones within a single cooling zone	-	-	-	-	•	-	•	•	-	-	-	-
Air Group Member Interlocked by the 'Air Group Master'	-	-	-	•	-	•	•	•	-	-	-	-
Supports Network Scheduling Centralized scheduling for all thermostats	-	-	-	•	•	•	•	•	-	-	-	-
Integrate with Home Automation Systems Connect with a Gateway 482	-	-	-	•	•	•	•	•	-	-	-	-

Zoning

Switching Relays & Zone Valve Controls

Zoning Classic Series

Operate stand-alone thermostats in an on/off hydronic heating zone to gain energy savings and indoor comfort.

Product	Type	Description	Auxiliary Sensor Options
	301P	Switching Relay One Zone	None
	302P	Switching Relay Two Zones with Priority	None
	303P	Switching Relay Three Zones with Priority	None
	304P	Switching Relay Four Zones with Priority	None
	306P	Switching Relay Six Zones with Priority	None
	303V	Zone Valve Control Three Zones with Priority	None
	304V	Zone Valve Control Four Zones with Priority	None
	305V	Zone Valve Control Five Zones with Priority	None
	306V	Zone Valve Control Six Zones with Priority	None

Zoning Performance Series

Use tekmarNet® communication between the thermostats and the system control to optimize energy savings and comfort.

Two or Four-Wire Product	Type	Description	Auxiliary Sensor Options
Two-Wire Product	**Type**	**Description**	**Auxiliary Sensor Options**
	313	tN2 Wiring Center 313 Four Zone Valves	Outdoor
	314	tN2 Wiring Center 314 Four Zone Pumps	Outdoor
Four-Wire Product	**Type**	**Description**	**Auxiliary Sensor Options**
	315	tN4 Wiring Center 315 Six Zone Valves	None
	316	tN4 Wiring Center 316 Four Zone Pumps	None

Zoning Designer Series

Access more features to support greater functionality for integration of air and hydronic applications.

Four-Wire Product	Type	Description	Auxiliary Sensor Options
	325	tN4 Zone Expansion Module 325 Six Zone Valves	None
	326	Zone Expansion Module 326 Three Zone Pumps	None
	335	tN4 Zone Manager 335 Six Zone Valves	None
	336	tN4 Zone Manager 336 Four Zone Pumps	None

Two-Wire Product	Type	Descriptions	Auxiliary Sensor Options
	324	tN2 Zone Expansion Module 324 Four Zones, Cooling & Fan	None
	334	tN2 Zone Manager 334 Four Zones, Cooling & Fan	None

▶ Compare Switching Relays, Zone Valve Controls, Wiring Centers & Zone Managers

Features & Benefits	301P	303V 304V 305V 306V	302P 303P 304P 306P	313	314	315	316	334	335	336	324	325	326
tekmarNet® Communication - 2 or 4 wire Select number to match thermostats	4	4	4	2	2	4	4	2	4	4	2	4	4
Zone Control with Valves (V) or Pumps (P) Includes number of on-board zone outputs	1 P	3, 4, 5 or 6 V	2, 3, 4 or 6 P	4 V	4 P	6 V	4P	4 V or P	6 V	4 P	4 V or P	6 V	3 P
RoomResponse™ Use a 0-10 V(dc) or 4-20 mA output to adjust boiler target temperature according to load	-	●	●	-	-	-	-	-	-	-	-	-	-
Built-in End Switch Enables an external device such as a boiler	●	●	●	●	●	●	●	-	-	-	-	-	-
Zone Group Pump Local 115 V (ac) pump output	-	●	-	●	-	●	-	●	●	●	●	●	●
Remote Manifold Wiring Center Provides convenient wiring with as few as 2 conductors to mechanical room	-	-	-	●	●	●	●	-	-	-	-	-	-
Supports Classic Thermostats Combine tekmar zone solutions with any thermostat	●	●	●	-	-	●	●	-	-	-	-	-	-
Built-In Transformer Internal transformer for 24 V (ac) power	●	●	●	-	-	-	-	●	●	●	●	●	●

Boiler & Mixing

Controls with Outdoor Reset & Indoor Temperature Feedback

Boiler & Mixing Classic Control Series

Operate hydronic heating equipment with outdoor temperature reset to gain energy savings and indoor comfort.

Product	Type	Description	Included
	256	Boiler Control 256 One Stage Boiler	1 x Outdoor Sensor 070 1 x Universal Sensor 071
	260	Boiler Control 260 One Stage Boiler & DHW	1 x Outdoor Sensor 070 1 x Universal Sensor 082
	261	Boiler Control 261 Two Stage Boiler & Setpoint	1 x Outdoor Sensor 070 1 x Universal Sensor 082
	279	Steam Control 279 One Stage	1 x Outdoor Sensor 070 1 x Universal Sensor 071
	356	Mixing Control 356 Variable Speed	1 x Outdoor Sensor 070 2 x Universal Sensor 071
	360	Mixing Control 360 Floating Action	1 x Outdoor Sensor 070 2 x Universal Sensor 082
	361	Mixing Control 361 Variable Speed	1 x Outdoor Sensor 070 2 x Universal Sensor 082
	374	Universal Reset Control 374 Two Mixing, Two Stage Boiler, DHW & Setpoint	1 x Outdoor Sensor 070 3 x Universal Sensor 082

Boiler & Mixing Performance Control Series

Use tekmarNet® communication between a single boiler or mixing control & the thermostats to optimize energy savings & comfort.

Product	Type	Description	Included
	400	tN2 House Control 400 Boiler, DHW & Setpoint, Four Zone Valves	1 x Outdoor Sensor 070 1 x Universal Sensor 082
	401	tN2 House Control 401 Boiler, DHW & Setpoint, Four Zone Pumps	1 x Outdoor Sensor 070 1 x Universal Sensor 082
	402	tN2 House Control 402 Boiler, DHW & Setpoint, Mixing, Four Zone Valves	1 x Outdoor Sensor 070 2 x Universal Sensor 082
	403	tN2 House Control 403 Boiler, DHW & Setpoint, Mixing, Four Zone Pumps	1 x Outdoor Sensor 070 2 x Universal Sensor 082

Boiler & Mixing Designer Control Series

Access more features to support greater flexibility in advanced multiple boiler & mixing water temperature applications.

Product	Type	Description	Included
	422	Universal Reset Module 422 Two tN4, Mixing, Boiler, DHW & Setpoint	1 x Outdoor Sensor 070 2 x Universal Sensor 082
	423	Universal Reset Module 423 Four tN4, Two Boiler, DHW & Setpoint	1 x Outdoor Sensor 070 1 x Universal Sensor 082
	441	Mixing Expansion Module 441 Actuating Motor	1 x Universal Sensor 082
	444	Mixing Expansion Module 444 Variable Speed / Floating Action / Modulating	1 x Universal Sensor 082
	346	Power Manager 346 Three Auxiliary Pumps, Four Demands	None

Designer series reset modules are used in combination with a zone or power manager. Zone managers are featured in the zoning section of this brochure.

Boiler & Mixing
Controls with Outdoor Reset & Indoor Temperature Feedback

▶ Compare Boiler & Mixing Controls

System Requirements	256	260	261	279	356	360	361	374	400	401	402	403	422	423
Number of Water Temperatures — Flexibility for custom applications	1	1	1	-	1	1	1	3	1	1	2	2	1&1*	4*
Number of Boilers — Outdoor Temperature Reset control	1	1	2	1	1	1	1	2	1+	1+	1+	1+	1	2
Boiler Type — On/Off (O) Modulating (M) or Steam (S)	O	O	O	S	O	O	O	O	O/M	O/M	O/M	O/M	O/M	O/M
Multi-Stage Boiler Expansion via EMS — Control of additional boilers	-	-	-	-	-	-	-	-	●	●	●	●	●	●
DHW Through Valves (V) or Pumps (P) — Domestic hot water operation	-	V/P	-	-	-	-	-	V/P	P	P	P	P	P	V/P
Setpoint Operation — Hot water for hot-tubs, pools & snow melt	-	-	●	-	-	-	-	●	●	●	●	●	●	●
Mixing — Protects boiler	-	-	-	●	●	●	●	●	-	-	●	●	●	●*
Zone Control with Valves (V) or Pumps (P) — Up to four on-board zones	-	-	-	-	-	-	-	-	V	P	V	P	-	-
Features & Benefits	256	260	261	279	356	360	361	374	400	401	402	403	422	423
Outdoor Temperature Reset — Adjust water temperature based on outdoor temperature for energy savings	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Warm Weather Shut Down — Shut down heating systems in warmer weather	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Automatic Differential — Manage boiler run times to reduce cycling	●	●	●	-	●	●	●	●	●	●	●	●	●	●
Boiler Return Protection — Limits the amount of cool return water to boiler	-	-	-	-	●	●	●	●	-	-	●	●	●	●
DHW Priority — DHW has priority over space heating	-	●	-	-	-	-	-	●	●	●	●	●	●	●
Pump Exercising — Briefly run pump to prevent seizing	-	●	●	-	●	●	●	●	●	●	●	●	●	●
tekmarNet® Communication - 2 or 4 Wire — Network communication provides greater functionality	-	-	-	-	-	-	-	-	2	2	2	2	2 or 4	2 or 4

1+ Single modulating boiler **or** 2-stage boiler

* Requires addition of mixing expansion module

▶ Compare Boiler & Mixing Controls Continued

Features & Benefits	256	260	261	279	356	360	361	374	400	401	402	403	422	423
Indoor Feedback Indoor zones report exact heating needs to the system control	-	-	-	●	-	-	-	-	●	●	●	●	●	●
Zone Synchronization Coordinate heat demands, minimize equipment cycling	-	-	-	-	-	-	-	-	●	●	●	●	●	●
Remote Monitoring Access tekmarNet® systems via the internet with a Gateway 486	-	-	-	-	-	-	-	-	●	●	●	●	●	●
Integrate with Home Automation Systems Connect to home automation systems with a Gateway 482	-	-	-	-	-	-	-	-	●	●	●	●	●	●
System Wide Control Add a User Switch to quickly adjust all networked thermostat settings	-	-	-	-	-	-	-	-	●	●	●	●	●	●

▶ Compare Modulating Boiler Signals

	400	401	402	403	422	423
0-10 V (dc)	●	●	●	●	●	●
4-20 mA	●	●	●	●	-	-
EMS Stager	●	●	●	●	●	●
Temperature Target	●	●	●	●	-	-

▶ Compare Designer Series Mixing Expansion Modules

Pair mixing expansion modules with designer series reset modules to easily operate a mixing device within a tekmarNet® control system.

	441	444
Variable Speed	-	●
Floating Action	-	●
0-10 V (dc)	-	●
2-10 V (dc)	-	●
0-20 mA	-	●
4-20 mA	-	●
tekmarNet® valve actuator	●	-

Multi-Staging

Multiple Boilers & Pumps

Multi-Staging Classic Series

Stage multiple heat sources to provide outdoor temperature reset for hydronic heating and domestic hot water generation.

Product	Type	Description	Included
	132	Pump Sequencer 132 Stand-by / 2-Stage	None
	263	Boiler Control 263 Two Stage / One Modulating Boiler, DHW & Setpoint	1 x Outdoor Sensor 070 1 x Universal Sensor 082
	265	Boiler Control 265 Three Modulating Boiler & DHW / Setpoint	1 x Outdoor Sensor 070 2 x Universal Sensor 071
	268	Boiler Control 268 Nine Stage Boiler & DHW / Setpoint	1 x Outdoor Sensor 070 2 x Universal Sensor 082

Multi-Staging Performance Series

Use tekmarNet® communication to stage multiple heat sources, optimize system operation and provide remote monitoring and alerts capability.

Product	Type	Description	Included
	274	Boiler Control 274 One tN4, Four Stage Boiler & DHW / Setpoint	1 x Outdoor Sensor 070 2 x Universal Sensor 082
	275	Boiler Control 275 One tN4, Four Modulating Boiler & DHW / Setpoint	1 x Outdoor Sensor 070 2 x Universal Sensor 082

Multi-Staging Designer Series

Access more features for the most flexible, efficient boiler plant solution. Remote monitoring and adjustment options are available through BACnet®, Modbus® or tekmarNet® communication.

Product	Type	Description	Included
	284	Boiler Control 284 Four tN4, BAS, Four Boiler, DHW & Setpoint	1 x Outdoor Sensor 070 2 x Universal Sensor 082

▶ Compare Multi-Staging Controls

System Requirements		263	265	268	274	275	284
On/Off Boilers Maximum Number of each type	1 Stage	2	-	9**	4	4	4*
	2 Stage	1	-	4	2	-	4*
	3 Stage	-	-	3**	1	1	1
	4 Stage	-	-	2	1	1	1
Modulating Boilers Maximum Number of each type	Burner Firing Rate	1	3	-	-	4	4*
	Target Temperature	-	-	-	-	-	4*
Mixed Boiler Plant Control Combine condensing & non-condensing boiler groups		-	-	-	-	-	●

*   Total number can be combinations of modulating & on/off boilers.

** Only 8 boiler outputs are available if using domestic hot water. The 9th output is used for DHW generation.

System Requirements (Continued)

	263	265	268	274	275	284
DHW Through Valves (V) or Pumps (P) — Indirect domestic hot water (IDHW) operation	V/P	V/P	V/P	P or	P or	P
Stand-by Pump Operation — Automatic back-up pump start to improve system reliability	-	-	-	•	•	•
Setpoint Operation — Hot water for hot-tubs, pools & snow melt	•	•	•	Setpoint or DHW	Setpoint or DHW	•
Dedicated DHW Operation — Hot water for dedicated domestic hot water tank						•
BACnet® & Modbus® Communication — Remote monitoring & adjustment capability with BAS	-	-	-	-	-	•
Accept EMS 0-10 V (dc) — Connect to tekmarNet® / EMS systems	-	•	•	•	•	•

Features & Benefits

	263	265	268	274	275	284
Outdoor Temperature Reset — Adjust water temperature based on outdoor temperature for energy savings	•	•	•	•	•	•
Warm Weather Shut Down — Shut down heating systems in warmer weather	•	•	•	•	•	•
Automatic Differential — Manage boiler run times automatically to reduce cycling	•	•	•	•	•	•
Indirect DHW Priority — Suspends space heating to focus on indirect domestic hot water (IDHW)	•	•	•	•	•	•
Equal Run Time Rotation — Boilers run equal amounts of time & receive equal wear	•	•	•	•	•	•
Pump Exercising — Briefly run pumps to prevent seizing	•	•	•	•	•	•
Pump Post Purge — Run pumps to flush residual heat energy from the boiler	•	•	•	•	•	•
Primary Pump Rotation — Pumps run equal amounts of time & receive equal wear	-	-	-	•	•	•
Fixed Lead Option — Run high efficiency boilers first to maximize energy savings	-	•	•	•	•	•
Fixed Last Option — Run inefficient boilers last to improve overall plant efficiency	-	-	•	•	•	•
tekmarNet® Communication - 2 or 4 Wire — Network communication provides greater functionality	-	-	-	4	4	4
tekmarNet® Communication - Number of Boiler Buses — Up to 24 tekmarNet® devices can be connected per bus	-	-	-	1	1	4
Remote tekmarNet® Monitoring — Access tekmarNet® systems via the internet with a Gateway 486	-	-	-	•	•	•
Built-in Setback — Simple, programmable schedule for greater energy savings	•	-	-	•	•	•
DHW Recirculation Pump — Conserve energy by running pump on a schedule	-	-	-	•	•	Recirc. or C.A.
Combustion Air Damper Output — Close damper when system is off & open before operation	-	C.A. or Alert	C.A. or Alert	C.A. or Alert	C.A. or Alert	
Alert Output — Provide notification of error & warning events	-	C.A. or Alert	C.A. or Alert	C.A. or Alert	C.A. or Alert	•
Energy, Flow & Pressure Monitoring — Provide advanced system monitoring	-	-	-	-	-	•
Boiler Outlet & Vent Temperature Monitoring & Limiting — Provide advanced monitoring & limiting to improve overall plant reliability	-	-	-	-	-	•
Flow Proof — Proof of flow to enable backup primary pump or trigger failure notification	-	-	-	Flow or C.A.	Flow or C.A.	•
Combustion Air Proof — Proof of combustion air before allowing boiler plant operation	-	-	-	Flow or C.A.	Flow or C.A.	•

Snow Melting

Controls & Snow / Ice Sensor

Snow Melting Performance Series

tekmarNet® communication provides zoning and remote access options for snow melting systems.

Product	Type	Description	Included
	654	Snow Melting Control 654 tekmarNet® Electric or Hydronic Boiler / Mixing	1 x Outdoor Sensor 070 1 x Universal Sensor 082
	670	WiFi Snow Melting Control 670 Boiler & Mixing / Electric	1 x Outdoor Sensor 070 2 x Universal Sensor 082
	671	WiFi Snow Melting Control 671 Pulse Width Modulation	1 x Outdoor Sensor 070

Snow Melting Designer Series

Remote monitoring and adjustment options are available through BACnet® or Modbus®.

Product	Type	Description	Included
	680	Snow Melting Control 680 BAS, Boiler & Mixing	1 x Outdoor Sensor 070 3 x Universal Sensor 082

▶ Compare Snow Melting Controls

System Requirements	654	670	671	680
Heat Source Electric (E), Hydronic (H), Steam (S)	E/H/S	E/H/S	E/H/S	E/H/S
On / Off Boilers	•	•	•	•
Modulating Boilers	•	•	-	•
Number of Stages One or two on/off boiler stages	1	2	1	1
Mixing Operation Protect non-condensing boilers by controlling return water temperature	•	•	-	•
Floating Action Output Control for floating motor	-	•	-	•
Analog 4-20 mA or 0 - 10 V (dc) Options for control of valve actuators or VFD pump	•	•	-	•
Variable Speed Output Precise mixing injection using a standard wet-rotor circulator	-	•	-	•
BACnet® Modbus Communication	-	-	-	•
Features & Benefits	**654**	**670**	**671**	**680**
Automatic Snow/Ice Detection	•	•	•	•
Slab Outdoor Reset Vary the slab core temperature as the outdoor temperature changes	•	•	•	•
Slab Protection Control heat delivery to the slab to prevent cracking	•	•	-	•
tekmarNet® Communication — User Switch 480 or 481 enable/disable	•	•	•	-
tekmarNet® Communication — Gateway 482 or 486 enable/disable	•	•	•	-
tekmarNet® Communication — tekmarNet® System Control communication	•	•	•	-
Remote Enable Supports an external melt on/off signal	-	•	•	-
Compatible with Snow / Ice Sensor 090 or 094 Supports the installation of the inslab, automatic Snow / Ice Sensor 090 or 094	•	•	•	•
Tandem Snow / Ice Detection Two Snow / Ice Sensor 090s or 094s in a single zone for added accuracy and redundancy	•*	•*	•*	•
Compatible with Snow Sensor 095 Supports the installation of the aerial retrofit Snow Sensor 095	•	•	•	•
Melting Setpoint Control the melting surface temperature for efficient system operation	•	•	•	•
Idling Setpoint Maintain a warm slab surface for faster response time	•	•	•	•
Storm or Temporary Idle Timed slab pre-heat for anticipated snow fall	•	•	•	•
Warm Weather Shut Down Avoid snow melt operation in warmer weather for energy savings	•	•	•	•
Cold Weather Cut Out Avoid snow melt operation in extremely cold weather for energy savings	•	•	•	•
Programmable Schedule Scheduled snow melt operation for commercial applications	•	-	-	-

tekmarNet® Communication — Network communication allows for greater functionality

* Tandem operation requires the addition of a 654

Snow Melting

Controls & Snow / Ice Sensor

▶ Compare Snow Melting Controls

Features & Benefits (continued)	654	670	671	680
Mobile App Remote Access Operate the snow melting system using the *tekmar Connect* app from your mobile phone	-	●	-	-
Auto Storm Automatically pre-heats the slab in anticipation of a storm based on internet weather data	-	●	-	-
Snow Melt Zoning With Priority Supports zoning and the prioritization of zones	●	●	●	●
Number of Snow Melting Zones The maximum number of coordinated snow melt zones in a system	12**	12**	12**	1**
Snow Melt Zone Tracking Automatic operation for multiple zones with a single Snow / Ice Sensor 090/094	●	●	●	-
EconoMelt Follow mechanical snow removal with a shortened melt cycle (Requires the Snow / Ice Sensor 090 or 094)	●	●	●	●
Manual Start with Timer A manual enable with a timed disable can result in large energy savings	●	●	●	●

** Requires one control per zone

Snow Melting Accessories

Ensure efficient and reliable operation with automatic snow and ice detection and slab temperature control.

Product	Type	Description
	072	Slab Sensor 072 20 ft. (6 m) wire
	073	Slab Sensor 073 40 ft. (12 m) wire
	090	Snow / Ice Sensor 090 In-slab 65 ft. (20 m) Wire
	094	Snow / Ice Sensor 094 In-slab 208 ft. (63 m) Wire

	Type	Description
	091	Snow / Ice Sensor Socket 091
	095	Snow Sensor 095 Aerial Mounting

▶ Compare Snow Melting Accessories

Features & Benefits	090/094	095	072/073
Automatic Start & Stop Start the system when snow or ice is detected and stop the system when the slab is dry	●	-	-
Automatic Start & Timed Stop Start the system when snow is detected and stop the system when a melt time has expired	-	●	-
Slab Temperature Control Measure the slab core temperature to allow for Slab Protection and Slab Outdoor Reset	●	-	●

Setpoint Classic Series

Operate the mechanical equipment to maintain a fixed heating or cooling temperature at the sensor location.

Product	Type	Description	Included
	150	One Stage Setpoint Control 150	1 x Universal Sensor 071
	152	Two Stage Setpoint Control 152	1 x Universal Sensor 071
	153	Mixing Setpoint Control 153 Floating Action	1 x Universal Sensor 071
	257	DHW Control 257 Two Stage	1 x Universal Sensor 082

Setpoint Performance Series

Use tekmarNet® communication between the setpoint control and the boiler control to optimize energy savings and comfort.

Product	Type	Description	Included
	161	tekmarNet® 4 Setpoint Control 161 One Stage Heat	1 x Universal Sensor 071
	162	tekmarNet® 4 Setpoint Control 162 One Stage Heat/Cool	1 x Universal Sensor 071

▶ Compare Setpoint Controls

System Requirements	150	152	153	257	161	162
Heat Stages One or two stages	1**	2*	-	2	1	1**
Cool Stages Use one control to cycle heating & cooling	1**	2*	-	-	-	1**
Floating Action Mixing Output 24 V (ac) control for floating motor to maintain a mixed loop	-	-	•	-	-	-
Features & Benefits	150	152	153	257	161	162
Adjustable Differential Customize heat stage on/off points	•	•	-	•	•	•
Pulse Width Modulation Minimize temperature swings for large heating & cooling loads	•	-	•	-	•	•
Equal Run Time Rotation Equipment runs equal amounts of time & receives equal wear	-	-	-	•	-	-
tekmarNet® Communication - 2 or 4 Wire Network communication provides greater functionality	-	-	-	-	4	4
Network Schedule Master Broadcast schedule to other controls & thermostats	-	-	-	-	-	•
Network Schedule Member Control follows centralized schedule	-	-	-	-	•	•
Built-In Setback Schedule Simple, programmable schedule for greater energy savings	-	-	-	-	-	•
Recirculation Pump Option Programmable for daily hot tub or pool filtration	-	-	-	-	-	•

* 1 stage of heat & 1 stage of cool **or** 2 stages of heat **or** 2 stages of cool

** 1 stage of heat or 1 stage of cool

Alternative Energy

Heat Pump & Solar Thermal

Alternative Energy Classic Series

Stand-alone controls for solar thermal systems.

Product	Type	Description	Included
	156	Difference Setpoint Control 156 On / Off	1 x Universal Sensor 071 1 x Solar Sensor 085

Alternative Energy Performance Series

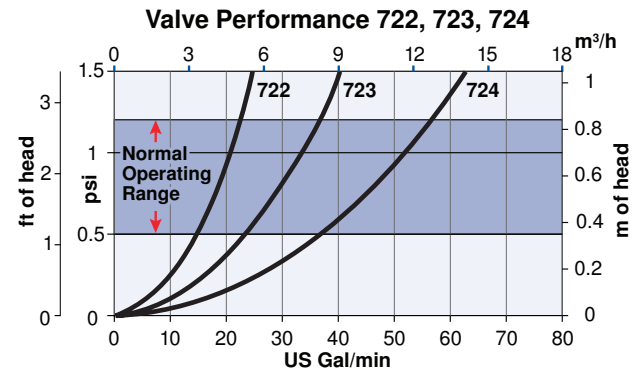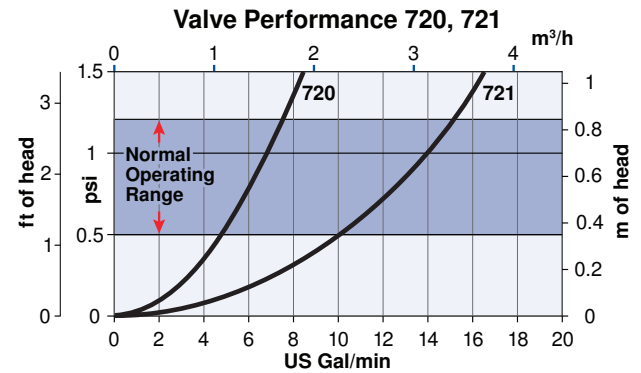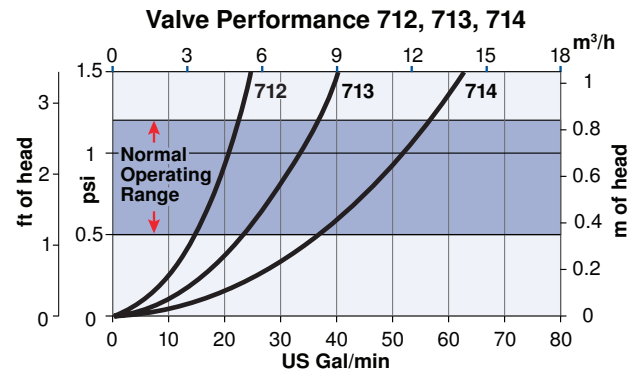Use tekmarNet® communication between the hydronic control and thermostats to maximize energy usage and coordinate the operation of all system components.

Product	Type	Description	Included
	406	tN2 House Control 406 Heat Pump & Backup, Four Zone Valves	1 x Outdoor Sensor 070 4 x Universal Sensor 082

▶ Compare Alternative Energy Controls

System Requirements	156	406
Heat pump applications Air or water source heat pump control	-	●
Solar thermal applications Obtain maximum energy transfer from solar panels	●	-
Features & Benefits	156	406
tekmarNet® communication Expand features & accessibility, improve comfort & efficiency	-	●
Complete HVAC system control Temperature control for space heating, cooling & DHW	-	●
Outdoor Temperature Reset with Indoor Temperature Feedback Provide comfort using lower water temperatures to save energy	-	●
Energy Calculation Information - calculate your return on investment	●	-

Valves & Actuators

Product	Type	Description
	710	3-Way Mixing Valve 710 3/4" Brass
	711	3-Way Mixing Valve 711 1" Brass
	712	3-Way Mixing Valve 712 1-1/4" Brass
	713	3-Way Mixing Valve 713 1-1/2" Brass
	714	3-Way Mixing Valve 714 2" Brass
	720	4-Way Mixing Valve 720 3/4" Brass
	721	4-Way Mixing Valve 721 1" Brass
	722	4-Way Mixing Valve 722 1-1/4" Brass
	723	4-Way Mixing Valve 723 1-1/2" Brass
	724	4-Way Mixing Valve 724 2" Brass
	741	Actuating Motor 741 Floating Action
	742	Actuating Motor 742 0-10 V (dc)

Valve Performance 710, 711

Valve Performance 712, 713, 714

Valve Performance 720, 721

Valve Performance 722, 723, 724
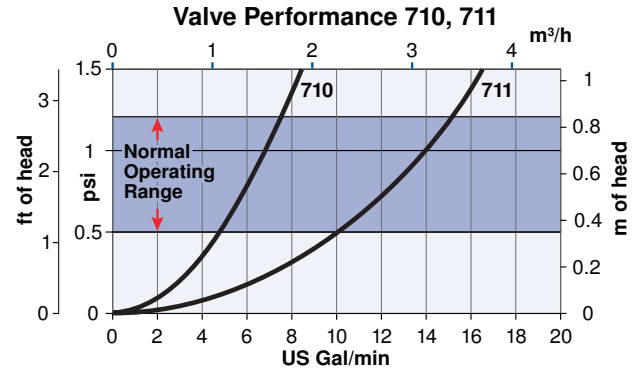
Accessories

Valves, Actuators, Timers, Remote Access, Sensors & More

Timers & Remote Access

Product	Type	Description
	033	tekmarNet®4 Timer 033
	480	tN4 User Switch 480 Three Inputs
	482	tN4 Gateway 482 RS232 (for Home Automation Systems)
	486	tekmarNet Gateway 486 Cloud Connectivity with Web & Mobile App

▶ ## Compare System Access Products

	User Switch	Gateway	
	480	482	486
tekmarNet® Communication	●	●	●
Three Programmable Buttons	●	-	-
Scenes (System Override)	●	-	●
Setpoint Enable	●	-	●
Remote Scene Access (Phone or Security System)	●	-	-
Home Automation Integration	-	●	-
Web Browser Accessible	-	-	●
Mobile App	-	-	●
Remote Temperature Control	-	●	●
Schedule Adjustment	-	-	●
Email and Text Notifications	-	-	●
Data Graphing	-	-	●
Location Information	-	-	●
Heating System Data	-	-	●

Accessories

Valves, Actuators, Timers, Remote Access, Sensors & More

Sensors

Product	Type	Description
	070	Outdoor Sensor 070
	071	Universal Sensor 071 1' (300 mm) wire
	072	Slab Sensor 072 20' (6 m) wire
	073	Slab Sensor 073 40' (12 m) wire
	076	Indoor Sensor 076
	077	Indoor Sensor 077 Cover Plate
	078	Universal Sensor 078 15' (4.6 m) wire
	079	Slab Sensor 079 10' (3 m) wire
	080	Universal Sensor Enclosure 080
	081	Three Outdoor Sensor Module 081
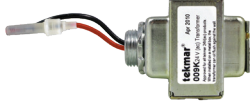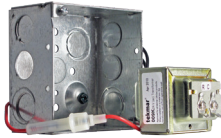
Product	Type	Description
	082	Universal Sensor 082 8' (2.4 m) wire
	083	Duct Sensor 083 6" Probe
	084	Indoor Sensor 084 Flush Mount
	085	Solar Sensor 085 5' (1.5 m) Wire
	086	Humidity & Temperature Sensor 086 Flush Mount
	087	Wireless Outdoor Sensor 087
	090	Snow / Ice Sensor 090 65 ft. (20 m) Wire
	094	Snow / Ice Sensor 094 208 ft. (63 m) Wire
	091	Snow / Ice Sensor Socket 091
	095	Snow Sensor 095 Aerial Mounting

▶ Compare	070	071	072	073	076	077	078	079	080	081	082	083	084	085	086	087	090	094	095
Floor / Slab	-	-	●	●	-	-	-	●	-	-	-	-	-	-	-	-	-	-	-
Indoor	-	-	-	-	●	●	-	-	-	-	-	-	●	-	●	-	-	-	-
Duct	-	-	-	-	-	-	-	-	-	-	-	●	-	-	-	-	-	-	-
Humidity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	-	-	-	-
Outdoor	●	-	-	-	-	-	-	-	-	●	-	-	-	-	-	●	-	-	-
Pipe	-	●	-	-	-	-	●	-	●	-	●	-	-	-	-	-	-	-	-
Snow Melt	-	-	●	●	-	-	-	-	-	-	-	-	-	-	-	-	●	●	●
DHW	-	-	-	-	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-
Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	●	-	-	-	-	-
Wire Length	-	1'	20'	40'	-	-	15'	10'	-	-	8'	-	-	5'	-	-	65'	208'	-

Accessories

Valves, Actuators, Timers, Remote Access, Sensors & More

Miscellaneous

Product	Type	Description
	002	10K Temperature Simulator 002
	003	Relay 003 24 V (ac) coil
	004	Relay 004 120 V (ac) coil
	005	0-135 Ω Converter 005
	007	Adaptor Plate 007 for 033, 076, 161, 162

Product	Type	Description
	009	24 V (ac) Transformer 009 40 VA
	009K	24 V (ac) Transformer Kit 009K 40 VA, Includes Mounting Box
	012	Adaptor Plate 012 for 518, 519, 521, 532
	013	24 V (ac) Transformer 013 96 VA, Includes Mounting Box
	014	Wall Plate Trim for 561, 562, 563
	M3069	Replacement 40 VA Transformer M3069, for 302P, 303P, 304P, 306P, 303V, 304V, 306V

Replacement Parts

Type	Description
M3022	Seal Kit – 1" to 2
M3023	Seal Kit – 2-1/2
M3024	Seal Kit – 3" to 4
M3025	Valve Handle Kit for 016 to 026 Valves
M3031	Replacement Shear Pins (3/pkg)
M3045	Actuating Motor Handle Kit for 741
M3046	Coupling Kit for Brass Valves
M3047	Mixing Valve Handle Kit for Brass Valves

Type	Description
M3048	Actuating Motor Adaptor Kit for 741
M3051	Replacement Fuses (5/pkg) 1.25 A 250 V (ac)
M3052	Replacement Fuses (5/pkg) 15 A 250 V (ac)
M3053	Replacement Fuses (5/pkg) 2.5 A 250 V (ac)
M3056	O-Ring Kit for 3/4" to 1-1/4" Brass Valves
M3057	O-Ring Kit for 1-1/2" to 2" Brass Valves
M3061	Mixing Valve Adapter Kit
M3062	Belimo Actuator - GMB24-3
M9303	DIN Snap Kit (10/pkg)

For more information:

Visit tekmarControls.com

Watch the tekmarVideo channel

Rely on the experts for all of your HVAC control needs. tekmar products are designed to add comfort, convenience, safety and reliability to homes and commercial buildings.