

Manifold Panel Series

Installation Guide

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Safety Precautions



Only suitably qualified individuals with formal training in electrical controls and hydronic systems should attempt the installation of this panel. Incorrect installation will affect the warranty provided with this panel.

During installation and operation, avoid injury from touching the hot surface of the pipe.

Please follow all warning signs on the panel for your own safety while dealing with the installation and service of this panel.

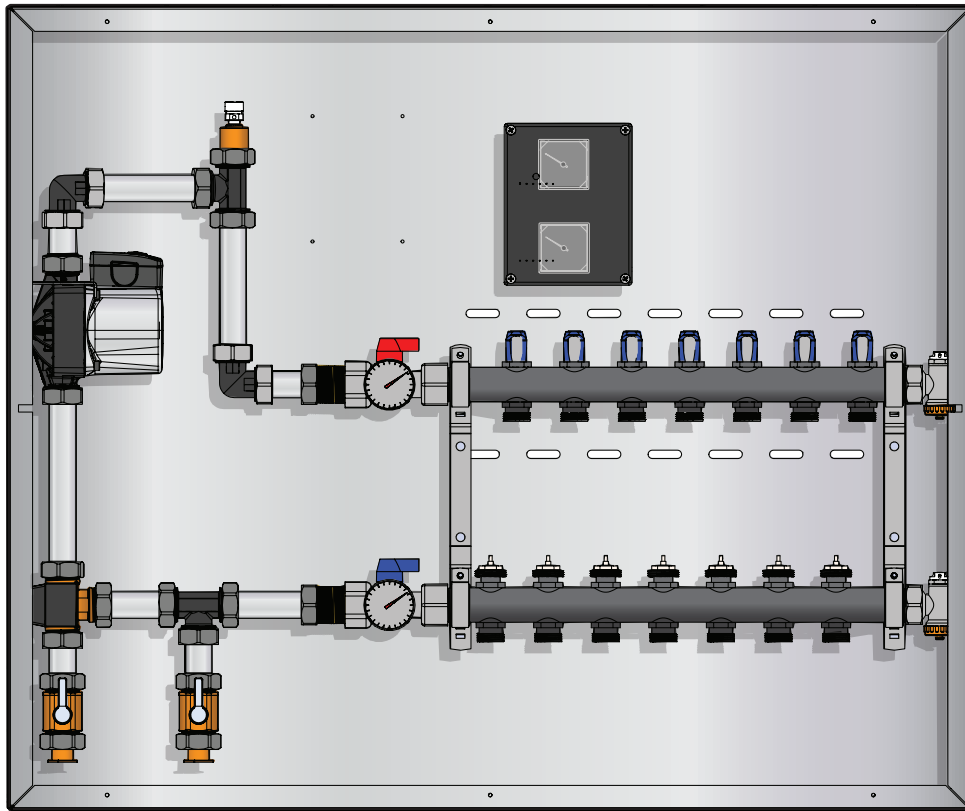
This User Guide is Applicable to:

Tamas Manifold Cabinet Panels

- T-LO-ZM-2L** Low Temperature Manifold panel with 2 zones
- T-LO-ZM-3L** Low Temperature Manifold panel with 3 zones
- T-LO-ZM-4L** Low Temperature Manifold panel with 4 zones
- T-LO-ZM-5L** Low Temperature Manifold panel with 5 zones
- T-LO-ZM-6L** Low Temperature Manifold panel with 6 zones
- T-LO-ZM-7L** Low Temperature Manifold panel with 7 zones
- T-LO-ZM-8L** Low Temperature Manifold panel with 8 zones
- T-LO-ZM-9L** Low Temperature Manifold panel with 9 zones
- T-LO-ZM-10L** Low Temperature Manifold panel with 10 zones
- T-LO-ZM-11L** Low Temperature Manifold panel with 11 zones

*** Note:**

The following parts lists and application drawings are general samplings. Each panel configuration dictates the required components, including pump type. See the Technical Data section of the manual for specific information on each part in your particular variation of the Tamas I.B.C. Boiler Board.



Description

The Tamas Manifold Cabinet (T-LO-ZM-XL) has been designed for distributing hydronic heat for radiant floor heating systems.

The panel can be utilized for floor warming and area heating such as bathrooms, basements, kitchens, sunrooms and tiled floors.

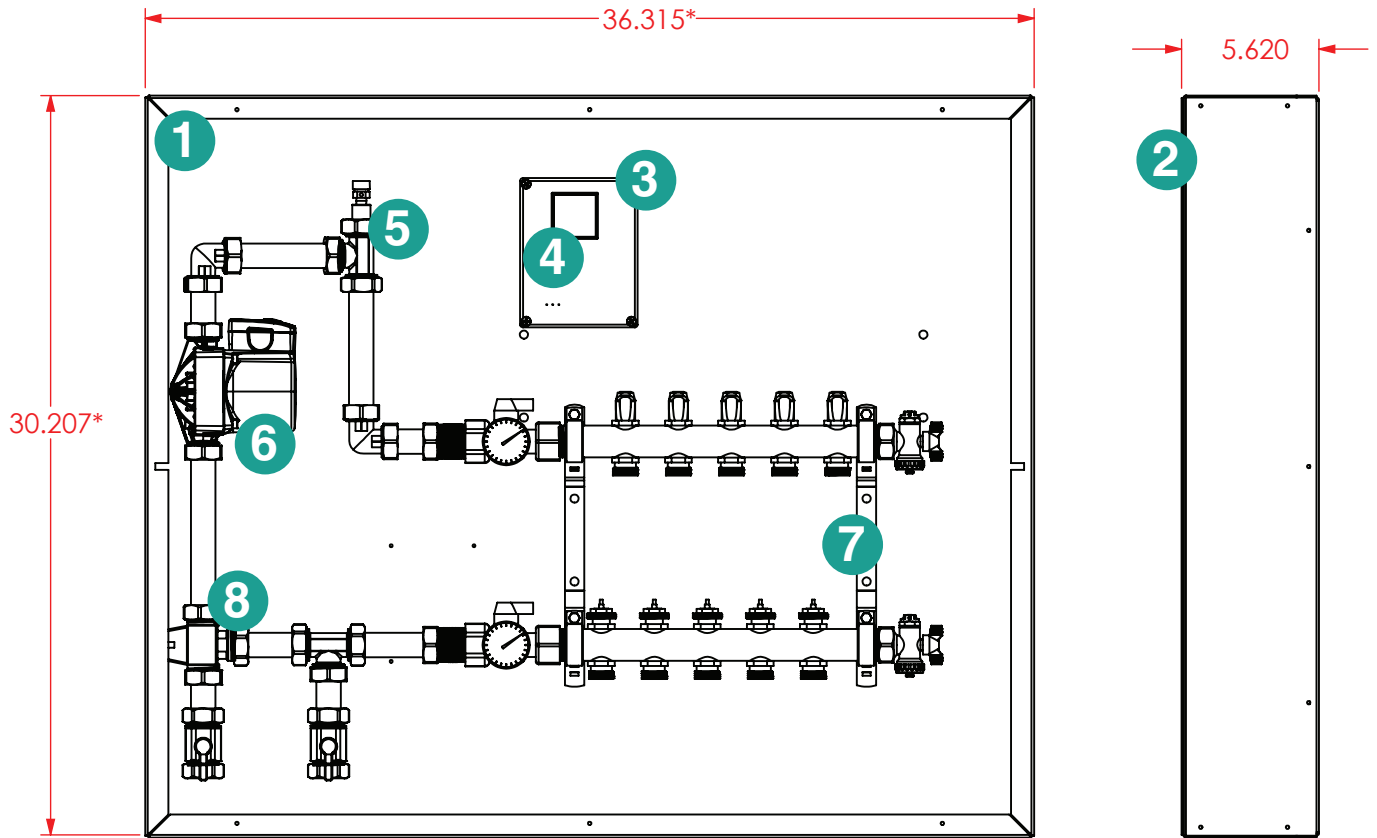
The panel uses a composite manifold to provide consistent heat distribution through the different zones. A thermostatic mixing valve and 3 speed circulating pumps function to temper and distribute the water to the system.

Main Features

- Galvanized steel back plate and lockable Galvanized Paintable steel cover
- Stainless Steel Piping
- Thermostatic Mixing Valve

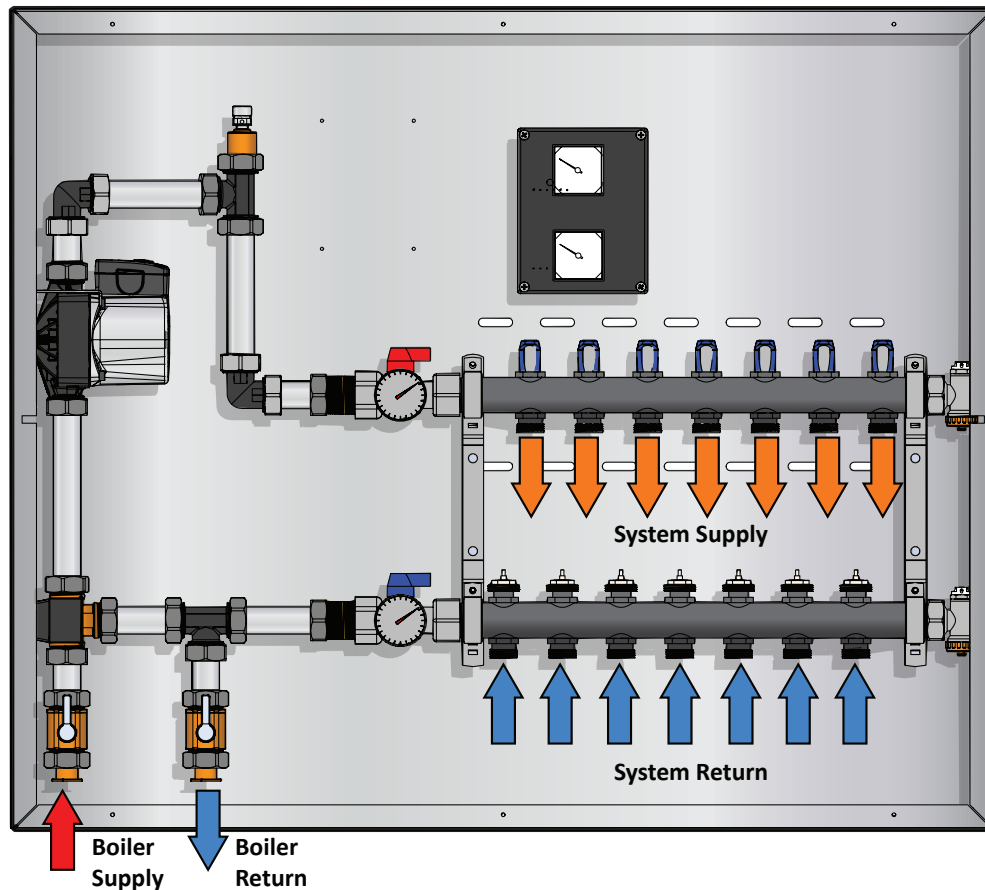
Technical Data

- Max. Operating Temperature: 93°C/200°F
- Max. Ambient Temperature: 49°C/120°F
- Power Supply: 110V (AC) max current 6amp



*Panels over 5 Zones will require a 47" x 30" Enclosure

Part List			
1	Galvanized Back Plate	5	Air Eliminator
2	Galvanized Mild Steel Cover (Paintable)	6	System Pump UPS 15-58
3	Tamas Control Box	7	Engineered Composite Heating Manifold
4	Temperature Gauge	8	Thermostatic Mixing Valve



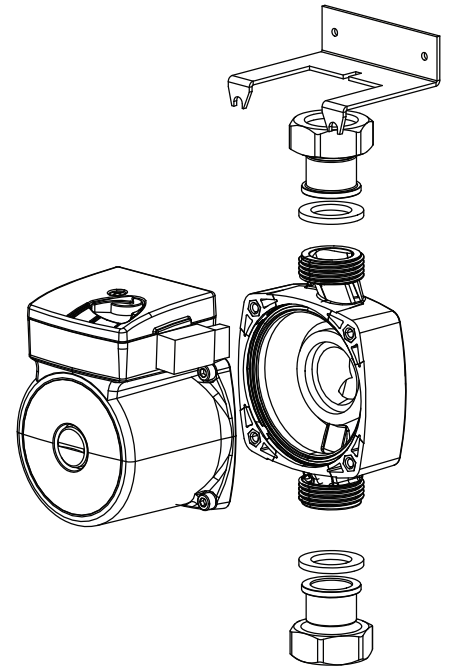
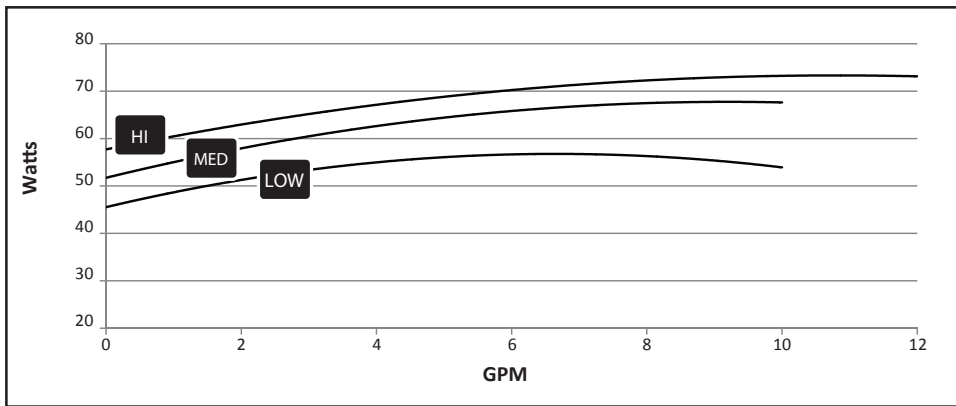
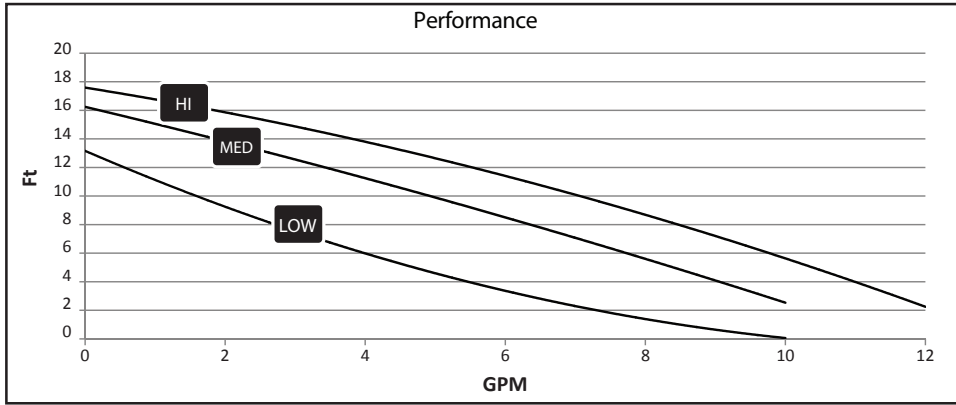
Operation of the Primary

The Manifold Cabinet Panel is composed of a thermostatic mixing valve, a system pump and a supply/return manifold. The water supplied from the boiler passes through the thermostatic mixing valve, mixing hot water from the boiler and warm water from the return manifold.

The air eliminator located in the highest point in the panel continuously removes the air contained in the water. The circulation of fully de-aerated water enables the panel to operate under optimum conditions, free from noise, corrosion, localized or mechanical damage. The water coming from the thermostatic mixing valve is pumped into the supply manifold through the system pump re-circulates the water through the pipes embedded in the slab.

The temperature of each zone is controlled by actuators (optional) installed on the return manifold. The actuators in conjunction with thermostats (sold separately) control the desired temperature for each zone.

UPS 15-58 Pump Specifications



Thermo-Hydraulic Actuator Specifications

The actuator is a 24 volt AC or DC powered thermo-hydraulic actuator. When the actuator is energized, an internal wax element gradually heats up opening the valve and when the actuator opens halfway, the internal end switch closes. The slow actuation of the valve is desirable to eliminate water hammering which is associated with quick acting valves.

Suitable applications	1) Chilled or hot water applications 2) Low pressure steam systems
Supply voltage	24V ac/dc, 50/60Hz
Power consumption	1.8W
Travel time for full open	Approx. 3 min.
Ambient temperature	32° - 140°F (0° - 60°C)
Wire lead length	3ft (1 m)
End switch, max. output	24Vac: 3A ohm inductive load, 1A inductive load
Maximum Δp (ABRA)	8.7psi (0.6 bar)



Composite Manifold Specifications

The Engineered Composite Heating Manifold Assemblies feature isolation valves and balancing valves with flow meters, and come fully assembled, ready for installation in hydronic radiant heating and cooling systems. The manifolds are available in 2 through 11 Zones, the body ends feature R32 unions and the loop outlets have R20 male threads. Use only propylene glycol in radiant systems with EP Heating Manifolds; never use ethylene glycol.

Technical Data

Manifold, Connecting Piece, Elbow, End Part:	PA66-GF30	Max. Test Pressure (24 h, ≤ 86°F) tested with water:	145 psi (10 bar)
Bracket, Locking Screw:	PA66-GF15	Max. Test Pressure (24 h, ≤ 70°F) tested with air:	100 psi (7 bar)
Valve Insert (all plastic parts), Hand Wheels:	POM	Max. Water Flow per Manifold:	0.97 l/s 15.4 gpm
Adjusting Screen:	ABS	Cv Value Inlet/Outlet Valves:	1.4
Glass Flow Meter	PA12	Spring:	Stainless Steel
Metal Inserts:	Brass C38500	O-ring:	EPDM
Axel:	Stainless Steel	Flat Gasket:	IT-C
Adaptable Actuators:	EP Heating Manifold, two-wire Actuator (A3030522); Thermal Actuator, four-wire (A3010522) with EP Heating Manifold Actuator Adaptor (A2671300)		
Maximum Operating Temperature and Pressure:	6 bar at 60°C 87 psi at 140°F	5 bar at 70°C 72 psi at 158°F	
	4 bar at 80°C 58 psi at 176°F	3 bar at 90°C 44 psi at 194°F	

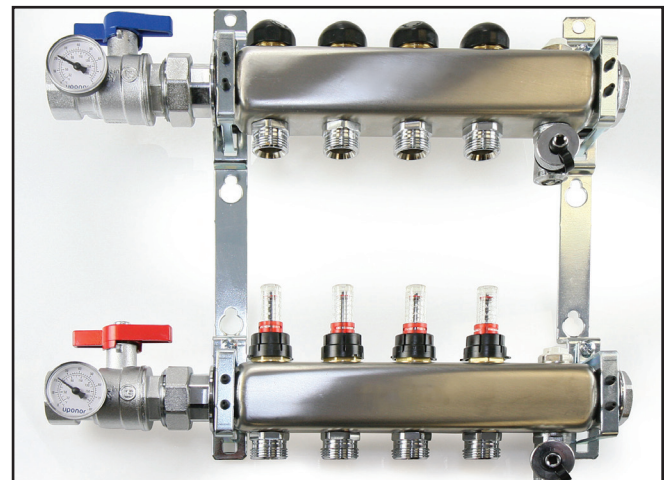


Stainless Steel Manifold Specifications (Optional)

The 1" Stainless-steel Manifold Assembly with flow meter comes fully assembled and ready for installation. Use the included flow meters located on the supply manifold to balance the loops across the manifold. The return manifold comes equipped with isolation valves for easy loop isolation. For multiple zoning on the manifold, the black caps are removed and replaced with Thermal Actuators.

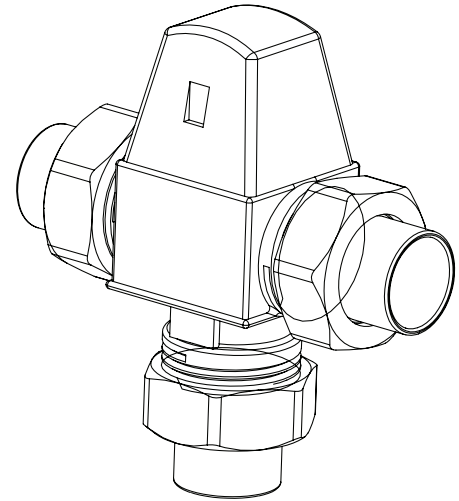
Technical Data

Manifold Material:	Stainless steel AISI304
Manifold Components:	Brass CW614N-UNI EN12164 CW617N-UNI EN12165
Manifold Body Size (I.D.):	1"
Manifold Assembly Loop Cv (flow with valve wide open):	1.1 Cv
Manifold Body Threaded Connections:	R32
Manifold Loop Threaded Connections:	R20
Maximum Fluid Flow Rate:	14 GPM
Hydrostatic Temp/Pressure Rating:	68°F (20°C) at 145 psi 158°F (70°C) at 87.4 psi 194°F (90°C) at 43.8 psi



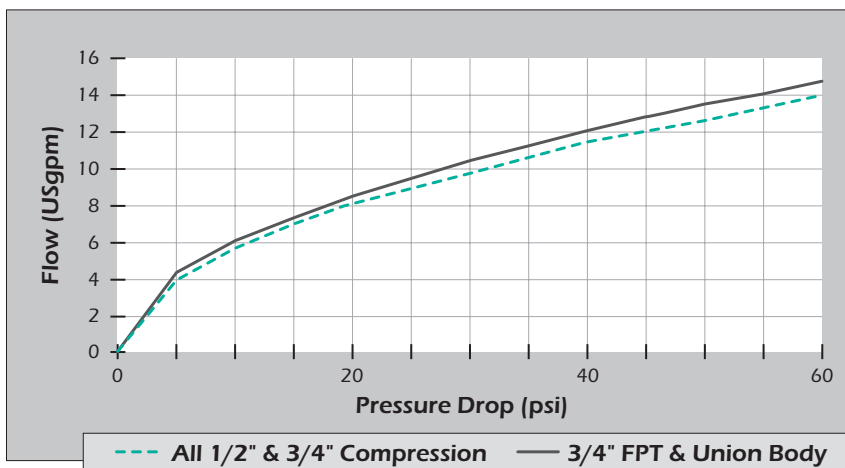
Thermostatic mixing valve (ASSE-1017 listed*)

- Anti-scald function.
- Snap-on cover for protection and to prevent unauthorized adjustment or tampering.
- Cover label for recording settings including recorded outlet temperature and date installed.
- Available temperature ranges:
 - 70°F – 110°F (20°C - 45°C)*
 - 85°F – 120°F (29°C - 49°C)*
 - 95°F – 140°F (35°C - 60°C)*
 - 85°F – 160°F (30°C - 70°C)*(3/4" only)
- Available connections:
 - Threaded body (FPT).
 - Union solder.
 - Union solder w/ 1 check valve.
 - Union solder c/w 2 check valves.
 - Union CPVC.
 - Compression (3/4" only).
- Maximum working pressure: 150 psi (10 bar)**.
- Maximum system differential pressure between hot and cold: 44 psi (3 bar).
- Maximum system differential pressure: 72 psi (5 bar).
- Maximum hot water inlet temperature: 194°F (90°C).
- Minimum required flow***: 0.5 US gpm.



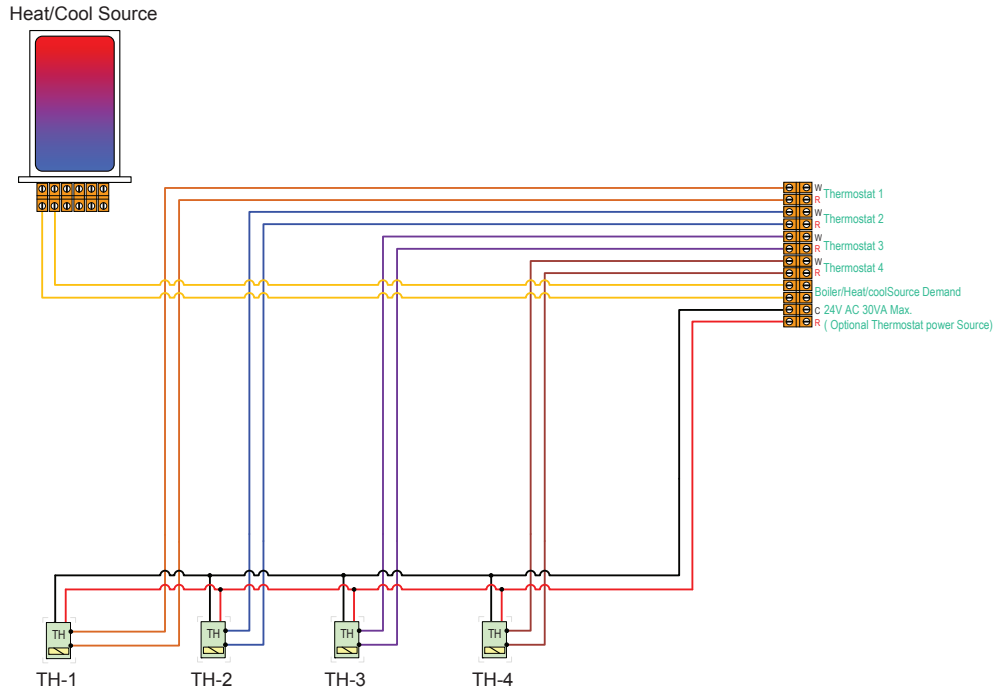
The thermostatic mixing valve will provide a mixed water temperature according to the table below. The outlet temperatures stated are approximate, based on given hot water supply temperature and a cold water supply of 50°F (10°C). For other cold water temperatures correct the outlet temperature by 1°F for every 10°F (or 1°C for every 10°C) deviation from 50°F (10°C), up or down.

Hot Water Temperature	70°F – 110°F						85°F – 120°F						95°F – 140°F					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
120°F	67	74	81	87	94	109	80	90	97	102	107	115	95	106	115	124	131	136
140°F	68	75	82	90	97	113	81	91	99	104	109	117	97	108	117	126	133	140
160°F	69	76	84	92	100	118	82	93	100	106	112	118	99	109	118	127	135	145
180°F	70	77	86	95	102	122	82	95	102	108	114	120	100	111	120	129	136	149

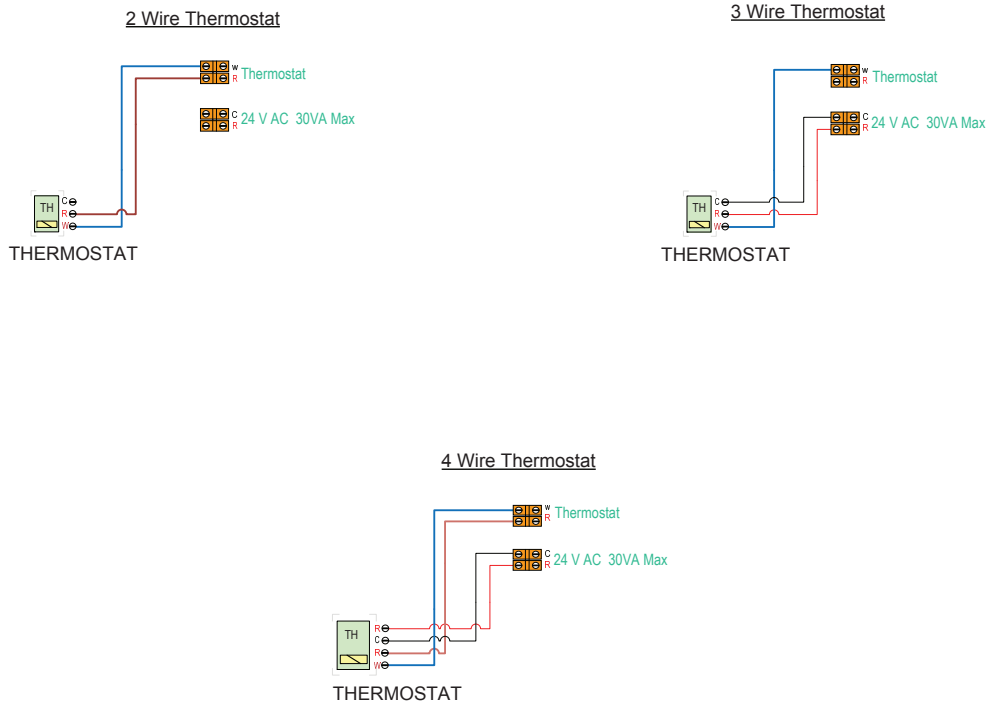


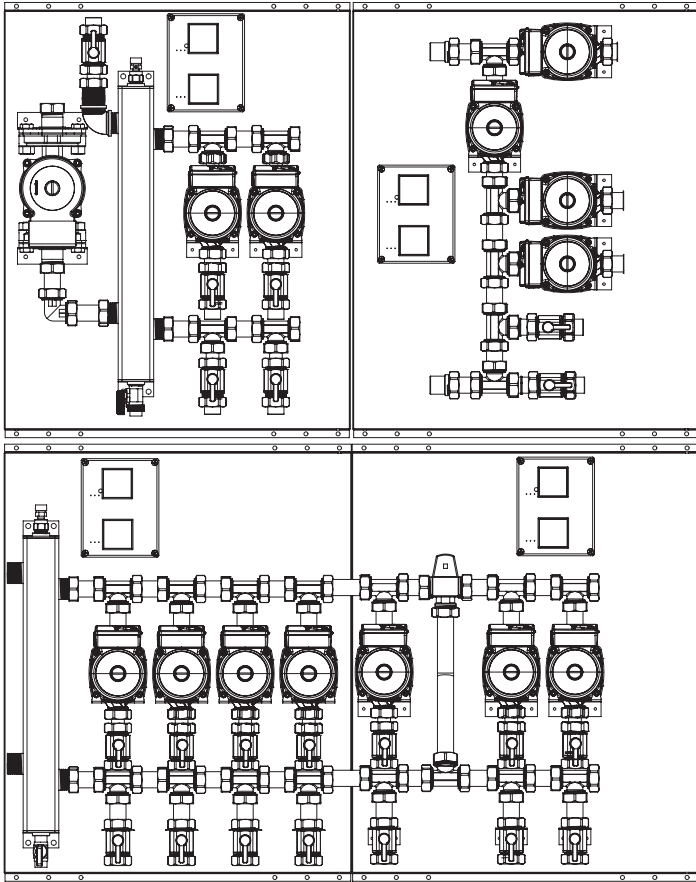
* Only ranges 85-120°F and 95-140°F are listed to ASSE-1017 standard
 **Max. working pressure for CPVC: 80 psi (5.5 bar)
 ***For Correct temperature control

T-LO-ZM-4L Field Wiring Diagram



Thermostat Wiring Diagram



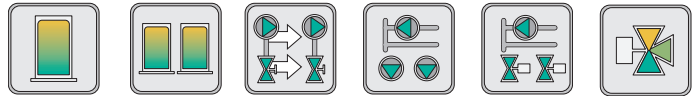


Tamas Hydronics Modular Panels

The Tamas Modular Panel line contains a series of expandable hydronic panels suited for a variety of applications and building sizes.

The comprehensive system provides a versatile method of distributing heat to a multitude of applications. Indoor/outdoor reset controls are utilized to improve system efficiency and management. Specific panels allow for system expansion, multiple boiler management, injection mixing and domestic hot water.

Available panels: Boiler, Staging, Expansion, Low Temperature Injection (Pump, Valve, TMV)





Limited Warranty

Tamas Hydronic Systems Inc. warrants each of its products to be free from defects in workmanship and materials under normal use and service for a period of 24 months from date of purchase from a Tamas Hydronic Systems inc. authorized Dealer.

If the product proves to be defective within the applicable warranty period, Tamas Hydronic Systems inc. on its sole discretion will repair or replace said product. Replacement product may be new or refurbished of equivalent or better specifications, relative to the defective product. Replacement product need not be of identical design or model. Any repair or replacement product pursuant to this warranty shall be warranted for not less than 90 days from date of such repair, irrespective of any earlier expiration of original warranty period. When Tamas Hydronic Systems Inc. Provides replacement, the defective product becomes the property of Tamas Hydronic Systems Inc.

Warranty Service, within the applicable warranty period, may be obtained by contacting your nearest Tamas Hydronics Systems inc. office via the original Authorized Agent and requesting a Return Material Authorization Number (RMA #). Proof of purchase in the form a dated invoice/receipt must be provided to expedite the issuance of a Factory RMA.

After an RMA number has been issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit. The RMA number must be visible on the outside of the package and a copy included inside the package. The package must be mailed or otherwise shipped back to Tamas Hydronic Systems Inc. with all costs of mailing/shipping/insurance prepaid by the warranty claimant.

Any package/s returned to Tamas Hydronic Systems Inc. without an approved and visible RMA number will be rejected and shipped back to purchaser at purchaser's expense. Tamas Hydronic Systems Inc. Reserves the right, if deemed necessary, to charge a reasonable levy for costs incurred, additional to mailing or shipping costs.

Limitation of Warranties.

If the Tamas Hydronic Systems Inc. product does not operate as warranted above the purchasers sole remedy shall be, at Tamas Hydronic Systems Inc.' s option, repair or replacement. The foregoing warranties and remedies are exclusive and in lieu of all other warranties, expressed or implied, either in fact or by operation of law, statutory or otherwise, including warranties of merchantability and fitness for a particular purpose/application. Tamas Hydronic Systems Inc. neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale, installation maintenance or use of Tamas Hydronic Systems Inc. products.

Tamas Hydronic Systems Inc. shall not be liable under this warranty; if its testing and examination discloses that the alleged defect in the product does not exist or was caused by the purchasers or third persons misuse, neglect, improper installation or testing, unauthorized attempts to repair or any other cause beyond the range of intended use, or by accident, fire, lightning or other hazard.

Limitation of Liability.

In no event will Tamas Hydronic Systems Inc. be liable for any damages, including loss of data, loss of profits, costs of cover or other incidental, consequential or indirect damages arising out of the installation, maintenance, commissioning, performance, failure or interruption of a Tamas Hydronic Systems Inc. product, however caused and on any theory of liability. This limitation will apply even if Tamas Hydronic Systems Inc. has been advised of the possibility of such damage.

Local Law.

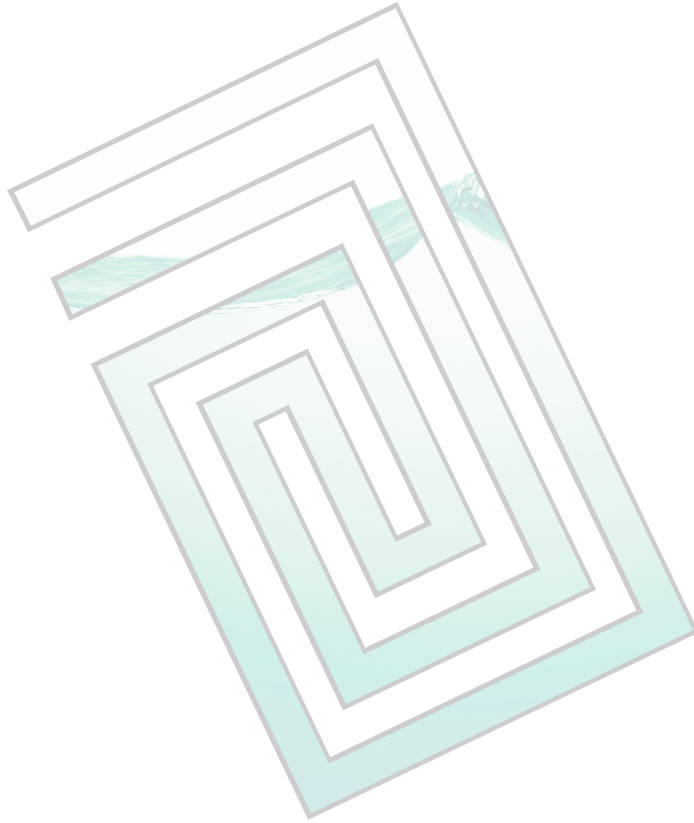
This limited warranty statement gives the purchaser specific legal rights. The purchaser may also have other rights which vary from state to state in the United States, from Province to Province in Canada and from Country to Country elsewhere in the world.

To the extent this Limited Warranty Statement is inconsistent with local law, this statement shall be deemed modified to be consistent with such local law. Under such local law, certain disclaimers and limitations of this statement may not apply to the purchaser. For example, some states in the United States, as well as some governments outside the United States (including Canadian Provinces), may:

Preclude the disclaimers and limitations in this statement from limiting the statutory rights of a consumer (e.g. United Kingdom);

Otherwise restrict the ability of a manufacturer to enforce such disclaimers or limitations; or

Grant the purchaser additional warranty rights which the manufacturer cannot disclaim, or not allow limitations on the duration of implied warranties.



Custom, Reliable Hydronic Systems

Tamas Hydronic Systems Inc.
4516 112 Avenue SE
Calgary, Alberta T2C 2K2

Phone: 1 (403) 279 0020
Fax: 1 (403) 279 0747
info@tamashydronic.com



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