Tamas Hydronic Panels

100 000 BTU Snow Melt Submittal

Technical Data

Job or Customer :	
Location :	
Engineer :	
☐ Complies with Spec ☐ Alternate	Notes :
Contractor :	
Tamas Rep :	
Submitted By :	Date :
Approved By :	Date :
P.O. Number :	Date :

Description

The Tamas Snowmelt Panel, in conjunction with the snowmelt control, socket, and sensor, utilizes optics rather than continuity based on/ off sensors. This method of snowmelt detection allows for great efficiencies and set point controllability.

The control on the panel measures slab temperature, as well as boiler loop temperature to ensure the return water going back to the boiler does not shock the boiler heat exchanger.

The snowmelt system pump is piped independently from the boiler loop so that the only head loss that needs to be calculated in the system is the piping from the panel to the manifold, and the loops in the slab. This feature allows for higher flow rates and head losses if needed, which in turn expands the range of pumping ability for the system pump.

Nominal Panel Output

Qty	Model #	BTU Rating	Boiler Pump	System Pump	Injection Pump	Heat Exchanger	Snow Melt Control
	T-SM-HBX-100 HX	100 000	UPS 15-58	UPS 15-58	UPS 15-58	LA14-20	HBX SNO-0550

Technical Data

Material:
Backpan..... Stainless Steel
Optional Lockable Enclosure..... Stainless Steel
Piping..... Copper Type L

Mixing Device..... Injection Pump

Flow Capacity Rating of Balancing Valve..... 11.76 m^3/hr

Max Ambient Temperature..... 120°F (49°C)

Max Water Temperature..... 200°F (93°C)

Power Supply..... 110V (AC) Max Current 6amp

Standards/Listings

- CSA C22.2 No. 14-95
- UL 598A
- ETL No. 3032227

PROJECT DATA SHEET

Heat Load	100 000 BTU/h		
LMTD	61.9 deg. F		
Min. Oversizing	0 %		
	Hot Side	**Cold Side**	
Fluid	water	glycol_(propylene)_50%	
Inlet Temperature	185.00 deg. F	69.00 deg. F	
Outlet Temperature	150.00 deg. F	139.00 deg. F	
Mass Flow	2857.60 lb/h	1631.49 lb/h	
Inlet Volume Flow	5.88 USGal/min	3.14 USGal/min	
Outlet Volume Flow	5.81 USGal/min	3.22 USGal/min	
Max. Pressure Drop	14.50 psi	14.50 psi	

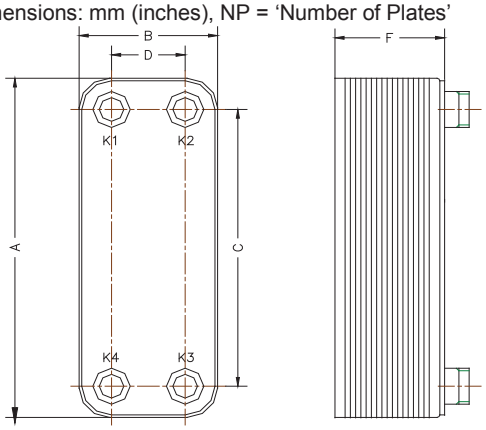
HEAT EXCHANGER SELECTION

Heat Exchanger Type	LA14 - 20	
# of Units Parallel	1.00	
Heat Transfer Area	2.6 ft2	
Fouling Factor	0.0003 ft2hf/BTU	
OHTC Clean	790.6 BTU/ft2hf	
OHTC Fouling	621.8 BTU/ft2hf	
Oversize	27.2 %	
	Hot Side	**Cold Side**
Calculated Pressure Drop	1.53 psi	0.70 psi
Heat Transfer NTU	-	-

PHYSICAL PROPERTIES

	Hot Side	**Cold Side**
Fluid	water	glycol_(propylene)_50%
Pressure	30.0 psig	30.0 psig
Reference Temperature	167.5 deg. F	104.0 deg. F
Density	60.961 lb/ft3	63.989 lb/ft3
Heat Capacity	1.0 BTU/lbF	0.876 BTU/lbF
Thermal Conductivity	0.38 BTU/fthF	0.218 BTU/fthF
Dynamic Viscosity	0.381 cP	2.792 cP

Dimensions: mm (inches), NP = 'Number of Plates'



A	B	C	D	F	K1	K2	K3	K4
194 (7.6)	80 (3.1)	152.4(6)	39.9(1.57)	10.0 + 2.3NP(0.39+ 0.09NP)	3/4"	3/4"	3/4"	3/4"

Specifications and dimensional data shall be used as guidelines and may change without notice.
For guaranteed performance, please verify selections with the manufacturer.

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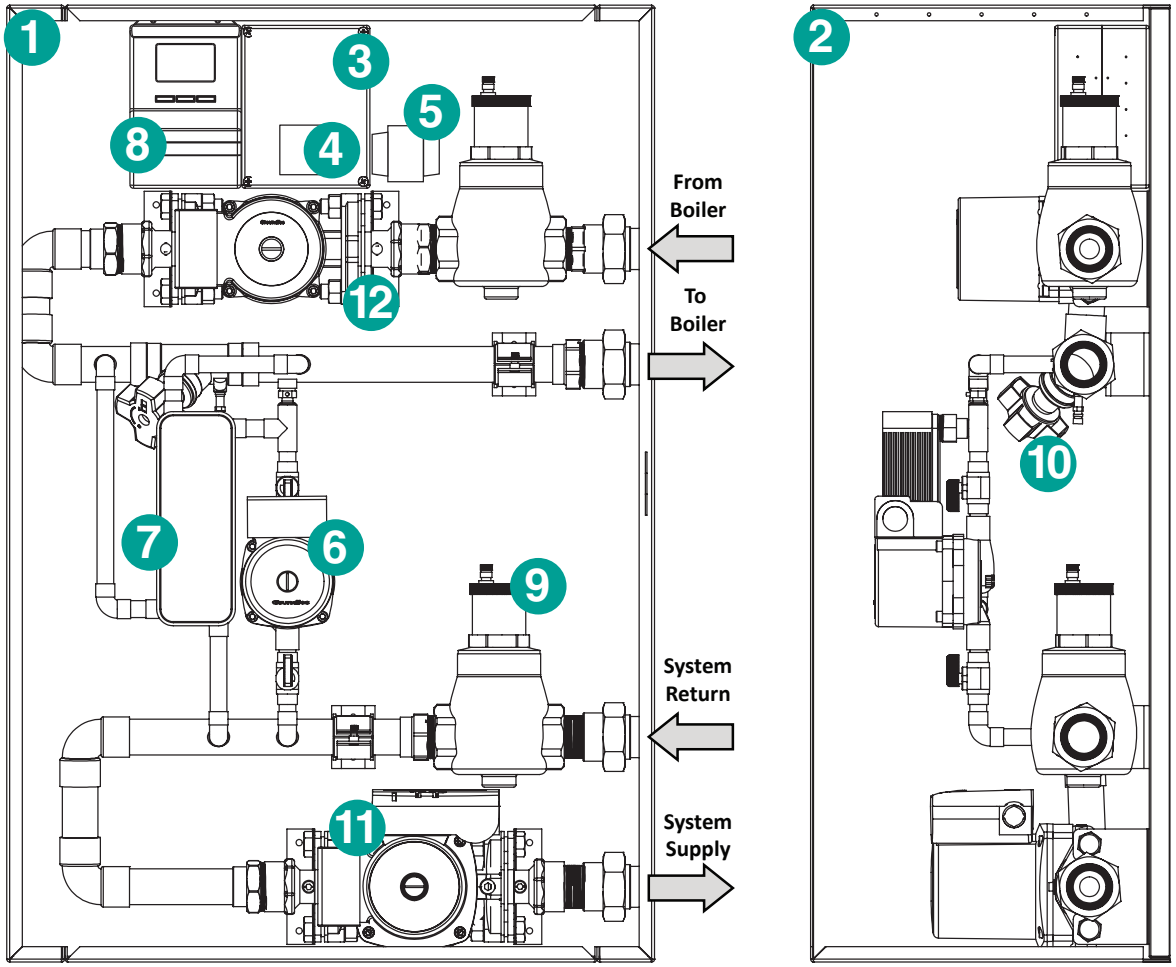
Panel Components



Part List			
1	*Stainless Steel Back Plate*	7	*Brazed Plate Heat Exchanger LA14-20*
2	*Lockable Stainless Steel Cover (Optional)*	8	*HBX Controls SNO-0550*
3	*Tamas Control Box*	9	*1" Air Eliminator*
4	*Temperature Gauge*	10	*1" Balancing Valve*
5	*24V Transformer*	11	*System Pump UPS 15-58*
6	*Injection Pump UPS 15-58*	12	*Boiler Pump UPS 15-58*

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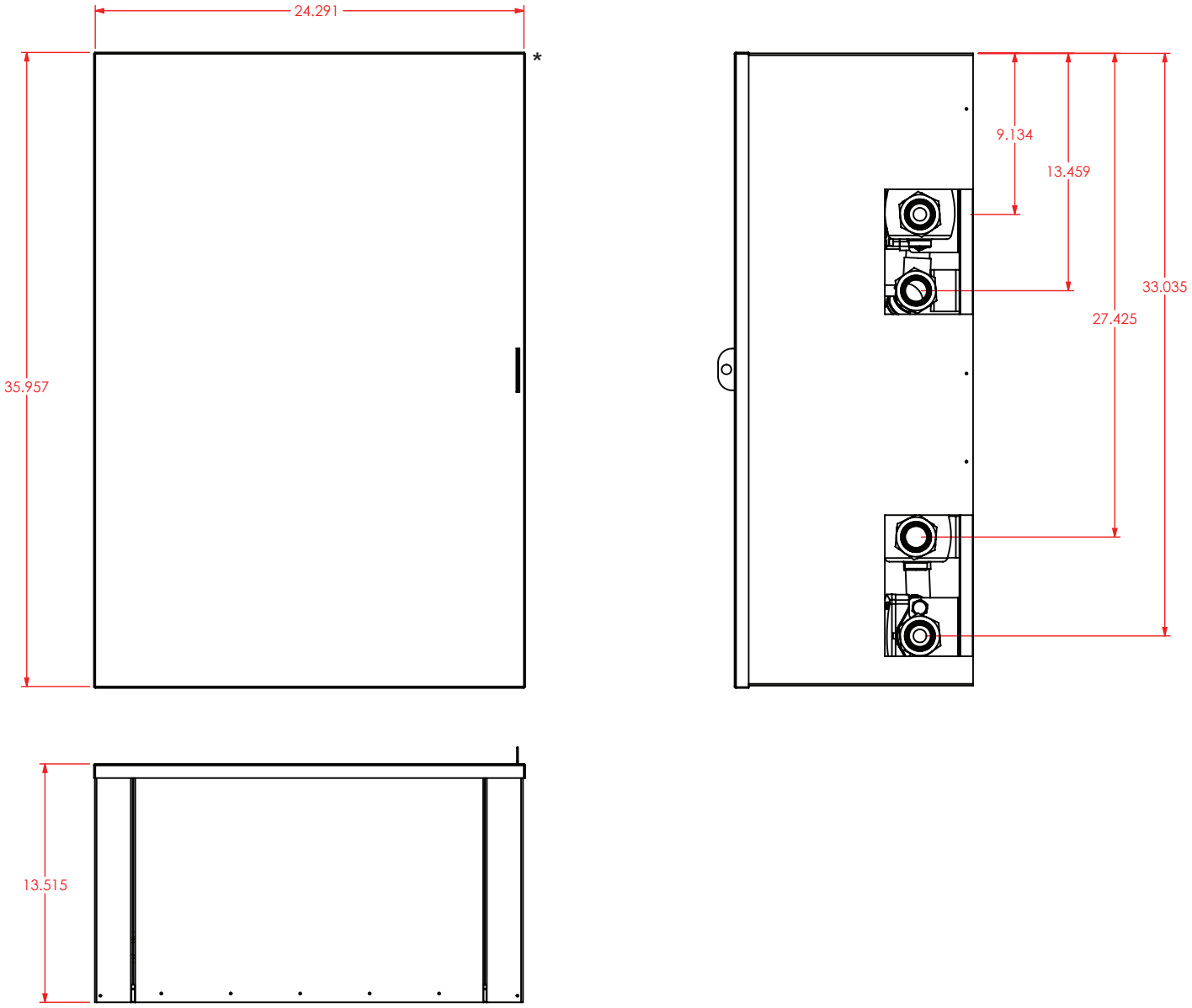
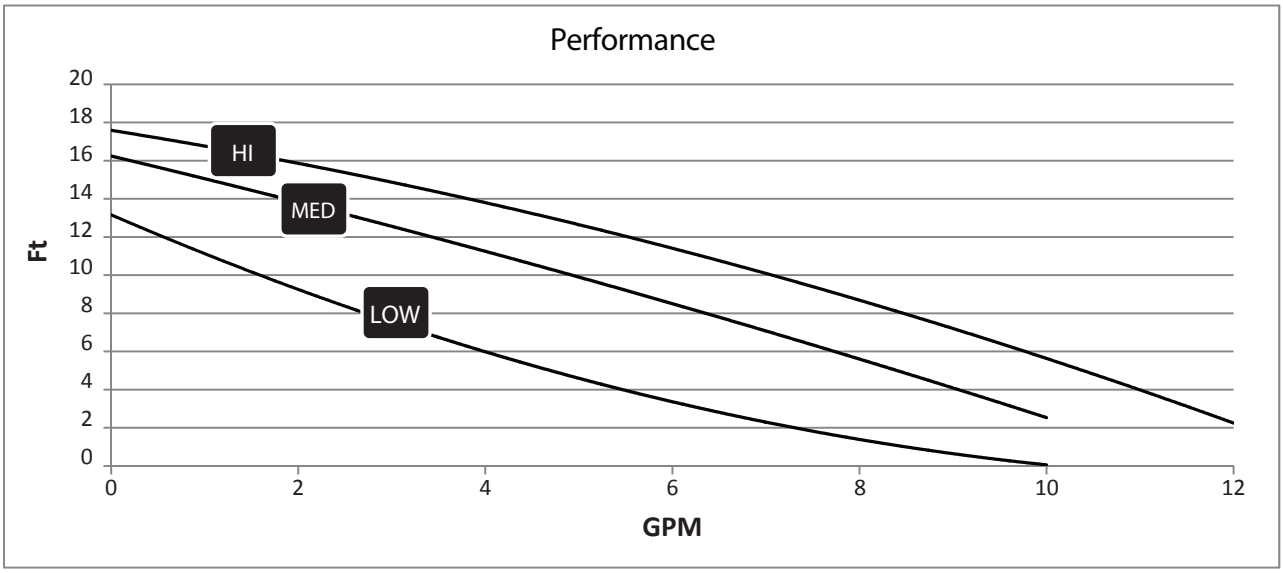
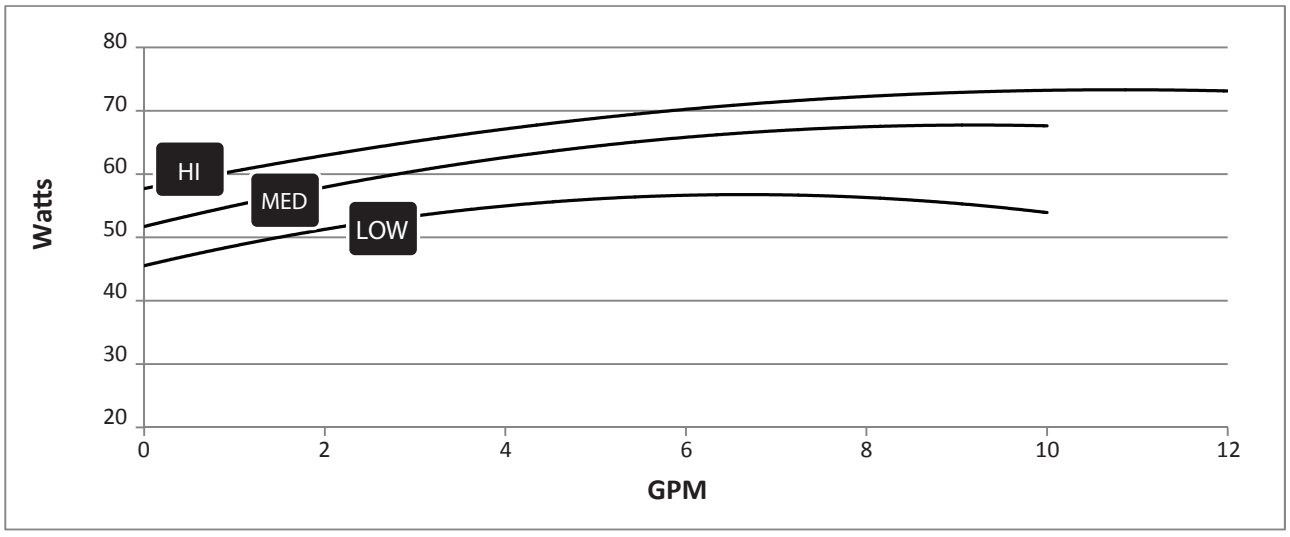
Panel Dimensions



*Optional Lockable Enclosure Shown

UPS 15-58 3 Speed Pump

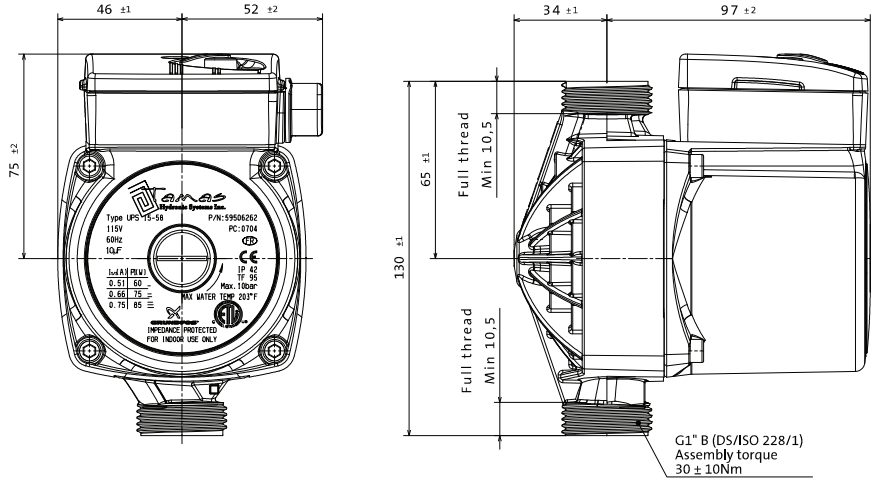




230° F	Max fluid temp (closed system)
150° F	Max fluid temp (open system)
36°F	Min fluid temp
10 Bar	Max system pressure

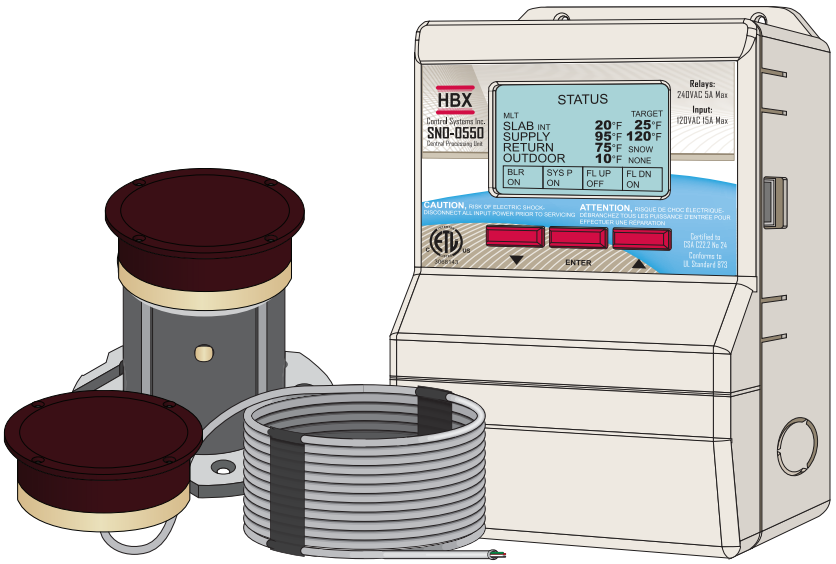
Approvals

ETL
NSF Std 61
Annex G



HBX Control Systems Inc Specification

Part 1: SNO-0550 Product



1. The Control must be capable of utilizing a multi-color backlight display.
2. The Hydronic Control must be a full microprocessor control with at least an 8-bit, 8MHz integrated microprocessor chip.
3. The Control must be capable of the following Input/Output Functions
    a. 1 x Demand Input/Dry contacts

    b. 1 x Boiler/BMS Output Relay
    c. 4 x Temperature Sensor Inputs:
        i. System
        ii. Return
        iii. Slab Sensor
        iv. Outdoor Air Temperature

    d. 3 x Output Relay (Pumps or Valve)

    e. 1 x Optical (digital) Snow sensor input

4. The Control must be capable of automatically calculating and resetting the system fluid target temperature based on the user defined system delta T for slab protection.

5. The Control must have the ability to program and control for Warm Weather Shut Down, and Cold Weather Shut Down.

6. The Control must be capable of operating a PMIp injection pump or a floating action valve for mixing purposes.

7. The Control/unit must operate using a three button user interface

8. The Control must also be capable of utilizing feedback from optical snow sensing technology with integrated slab temperature sensing.

9. The Control must have adjustable preset snow conditions to allow for snow and ice detector tuning.

10. The Control must have onboard testing capabilities to individually test each relay and to test control operations functionality.

11. The Control unit must be ETL approved.

Part 2: Acceptable Products

1. HBX SNO-0550 Control

Part 2: Technical Data, Main Parts & Labels

Inputs/Outputs:

3 x Thermistor Input (10K Ohm)
1 x Boiler/BMS Dry Contact (120 VAC, 2A) Output
3 x Relay Dry Contact (240VAC, 5A) Outputs
1 x Dry Contact Demand Input

Sensor Input:

1 x Optical Snow & Ice Detector / Slab Sensor Input
1 x Modulating Heater Output

Power supply:

120 VAC, 15A (protected by resetable fuse)

Supplied Parts:

1 x HBX 029-0022 – 10K Ohm Thermistor, 12" lead wire
1 x HBX OUT-0100 – 10K Ohm Outdoor Sensor

Dimensions:

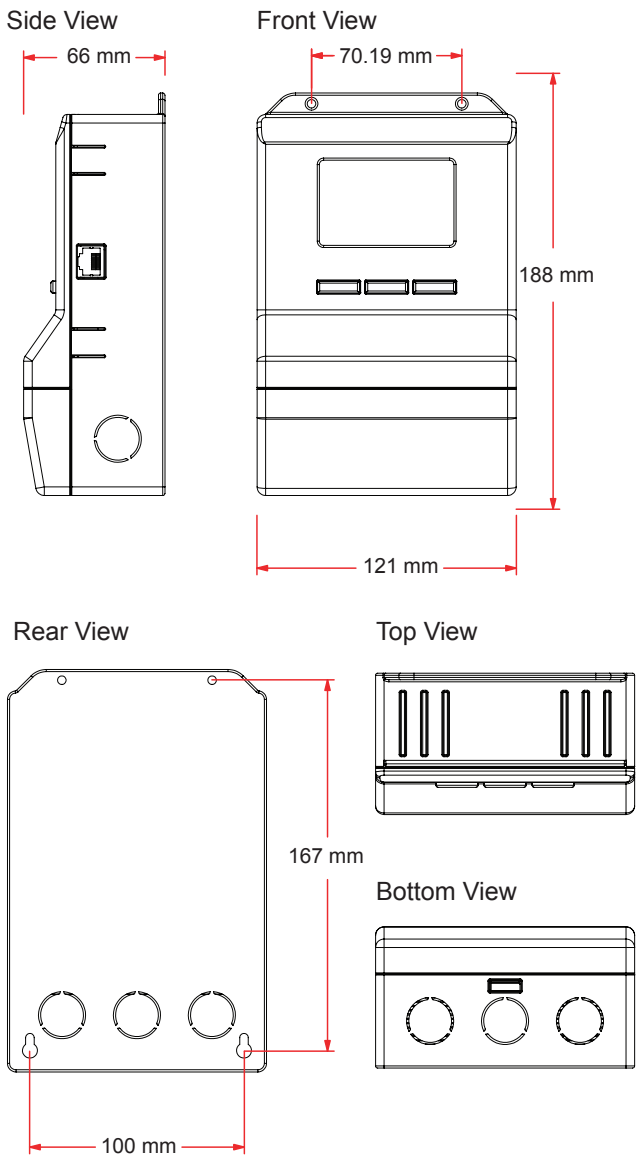
4.76" x 7.40" x 2.60" (121mm x 188mm x 66mm)

ETL Listings:

Meets CSA C22.2 No. 24
Meets UL Standard 873
ETL Control No. 3068143

Storage:

50°F to 104°F (10ºC to 40ºC)



Terminal Labels: