

JOB or CUSTOMER:					
ENGINEER:					
CONTRACTOR:					
SUBMITTED BY:		APPROVED BY:		ORDER NO:	
Date:		Date:		Date:	

SUBMITTAL | SPECIFICATIONS

The Enovative[®] **AutoHot[®]** Energy Management System (EMS) is a comprehensive monitoring, control, and fault detection system for domestic hot water systems in any building type.

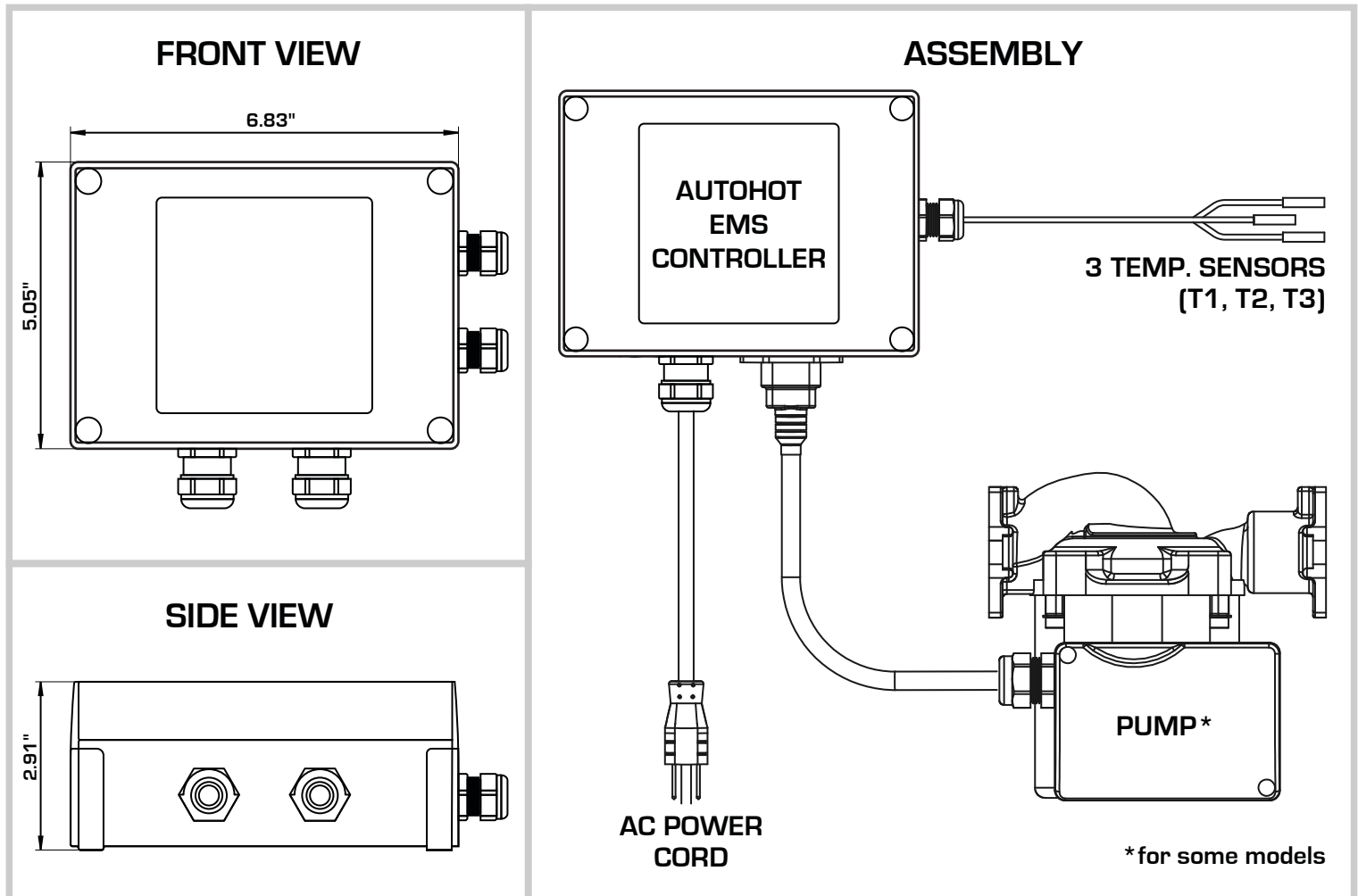
The on-demand recirculation control reduces pump runtime by as much as 90% by activating at the time that a hot water draw, or demand is initiated in the building and turning off when there is a temperature rise or a set point achieved on the hot water return line. Multiple pump options and activation sensor options are available.

The boiler modulation control reduces hot water energy consumption by reducing the supply temperature when hot water demand is determined to be low with an adjustable fixed control schedule.

These control strategies achieve the optimal balance between comfort, water savings and energy efficiency.

In addition to control of the water heating equipment, the **AutoHot[®]** EMS provides monitoring and fault detection. The system includes logging of sensor data to a micro SD card.

Remote monitoring and control is available, providing alerts when system energy and performance exceed thresholds. Remote monitoring also enables the ability to control the system setpoints from a computer or phone.



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CONTROLLER FEATURES

Recirc Pump Control	Activation with hot water demand (multiple sensor options), turn off with temperature rise adjustable between 5°F and 25°F, and set lockout point between 80°F and 125°F. Max runtime after activation of 10 minutes. Autoprime feature, pulses pump activation based on intervals between 10 minutes and 4 hours. Onboard dipswitches allow changes to other pump control modes. Modes include on-demand, continuous, temp based, or sensor based operation.
Boiler Temp. Modulation (Boiler Setback Schedule)	Create a fixed setpoint schedule adjustable to be compliant with various jurisdictions and codes. Adjustable setback temperature between 60°F and 160°F for each hour of the day.
OR	OR
Outdoor Reset control for heating system pumps	Control a heating system pump on an outdoor reset adjustable based on the hour of the day.
Local Data Logging and Diagnostics	Record data to onboard SD card such as up to 3 temperature points (min, max, avg), 4 CT switches for equipment runtime (totalized and per period), and sensor activity. Onboard LED's provide diagnostic information on relay runtime, lockout status, and equipment runtime activity.

COMPLIANCE AND APPROVALS

Pumps compliant with NSF 61 low lead requirements, Controls have UL and IAPMO PS115-2007 compliance, meeting CA Title 24 code requirements for on-demand recirculation pump operation, boiler temperature modulation.

MODEL #	DESCRIPTION	INPUTS	
DC000A	AutoHot [®] EMS recirculation and boiler controller, 3 temp sensors, SD Card, Standalone control unit	Power Input	120VAC, 60HZ
DC055A	AutoHot [®] EMS recirculation and boiler controller, 55-series pump, 3 temp sensors, MicroSD Card	Fuse	Fuse holder for 5x25mm cartridge, includes 10A slow blow fuse.
DC099A	AutoHot [®] EMS recirculation and boiler controller, 99-series pump, 3 temp sensors, MicroSD Card	(3) Temperature Sensors	3 inputs for 10k thermistors, 2 thermistors included
DC150A	AutoHot [®] EMS recirculation and boiler controller, 150-series pump, 3 temp sensors, MicroSD Card	(1) Dry switch activation	Activation by dry contact switch, such as momentary push button, flow meter reed switch.
BC000A	AutoHot [®] Temperature modulation Commercial Boiler controller. One temp sensor, SD Card, stand alone control unit	(1) Dry switch activation	Activation by dry contact switch, such as momentary push button, flow meter reed switch.
PHYSICAL CHARACTERISTICS		(1) micro SD slot	SD card included on all commercial models.
		(1) Activation input, with 5v/12v DC power supply	Compatible with activators such as wireless receivers, flow switches.
		(2 to 4) Dry contact, CT switch inputs	2 mainboard CT switch inputs to track equipment runtime such as gas valves, pumps. 2 additional CT ports with remote monitored models, Models with "R" at the end.
SYSTEM ACCESSORIES	DESCRIPTION	OUTPUTS	
CTS	Copper Temperature Sensor	Relay 1 - Output 1	16A Normally Open relay for recirc pump control, external relay option available for control of large pumps.
CT-100	Current Transducer (CT) logger	Relay 2 - Output 2	16A Normally Closed for boiler setpoint control or outdoor reset of a heating pump.
ERK-001	External Relay Kit, for use with AutoHot controller and pumps greater than 1/3 HP, or pumps without capacitors		

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SYSTEM ACCESSORIES

TEMPERATURE SENSOR

RESISTANCE @ +25°C = 10,000 Ω +/- 1%

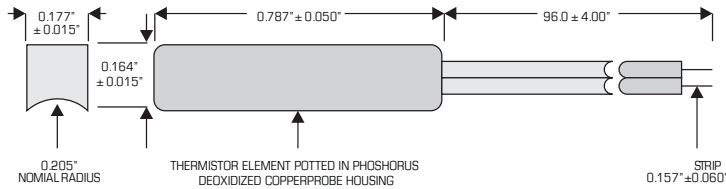
RESISTANCE/TEMPERATURE CURVE = "J"

TEMPERATURE COEFFICIENT @+25°C = -4.4%/°C NOMINAL

BETA "β" (0 TO +55°C) = 3,892°K NOMINAL

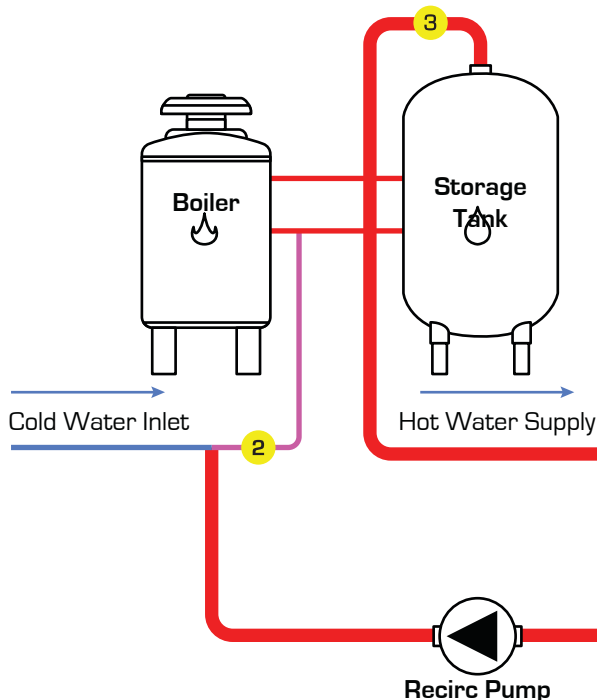
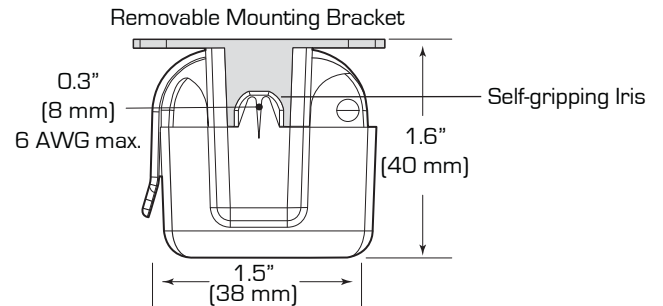
MAXIMUM TEMPERATURE RATING = +105°C

LEAD WIRE: 24 AWG, STRANDED CONDUCTOR, TWO CONDUCTOR, PVC INSULATED ZIPCORD



CT-100 CT SENSOR (Sold separately)

Function	Tracks equipment runtime (pumps, gas valves, fans, or other powered equipment)
Temperature Range	5 to 140°F
Function	UL 508 open device listing, CE:EN61010-1, CAT III, Pollution Degree 2, basic insulation
Amperage Range @50/60Hz Only	0.15A to 60A
Trip Point	0.15A or less
Housing	Split-core



Hot water return line sensor (T1) keeps pump off when at target temp

Cold water line sensor (T2) reads demand when there is a sudden drop in temperature from incoming cold water

Pump turns on when T1 is below target temp and T2 sees sudden drop in temp. Pump turns off when T1 at target temp

