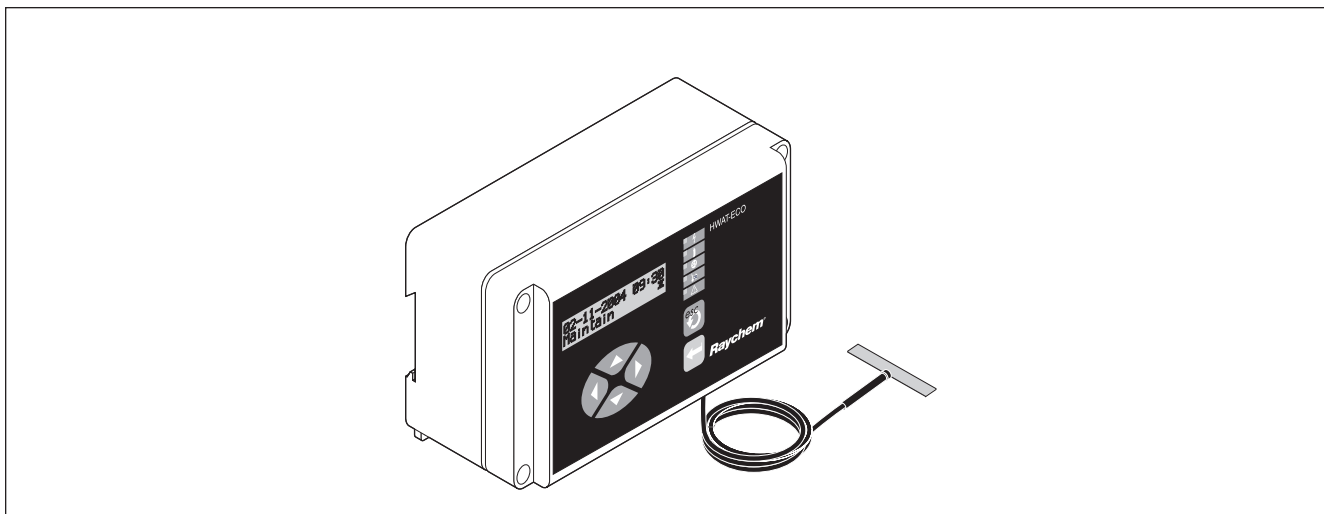


**Electronic controller for hot water temperature maintenance systems**

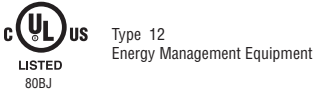
The Raychem HWAT-ECO controller is designed for operation with HWAT-Y2 and HWAT-R2 self-regulating heating cables.

The HWAT-ECO controller provides the following features:

- Flexible temperature control of hot water temperature maintenance systems.
- Integrated function that lowers the maintain temperature during low use hours to save energy.
- Heat-up cycle function that increases the water temperature of a hot water system that is not in use.
- Building Management System (BMS) interface that receives a DC voltage to determine the desired maintain temperature.
- Alarm relay to signal power, temperature or communication problems.
- Water heater sensor function that alarms and lowers the maintain temperature if the water heater temperature is too low.
- Master/slave function that allows one HWAT-ECO to control up to eight additional HWAT-ECO controllers.
- Nine predefined programs that can be customized by the user.



**General**

Area of use	Nonhazardous locations
Approvals	
Maintain temperature setpoint	105°F (40°C) to 140°F (60°C)
Controller ambient temperature	40°F (5°C) to 105°F (40°C)
Switching capacity	24 A @ 208/240 Vac maximum SPST
Operating voltage	208/240 (±10%), 60 Hz
Internal power consumption	2.5 W
Circuit protection	Maximum 30 A with 30 mA ground-fault protection
Internal temperature alarm	185°F (85°C)
BMS control voltage	0 – 10 Vdc
Alarm contacts	Maximum 24 Vdc or 24 Vac, 1 A, SPST, voltage free

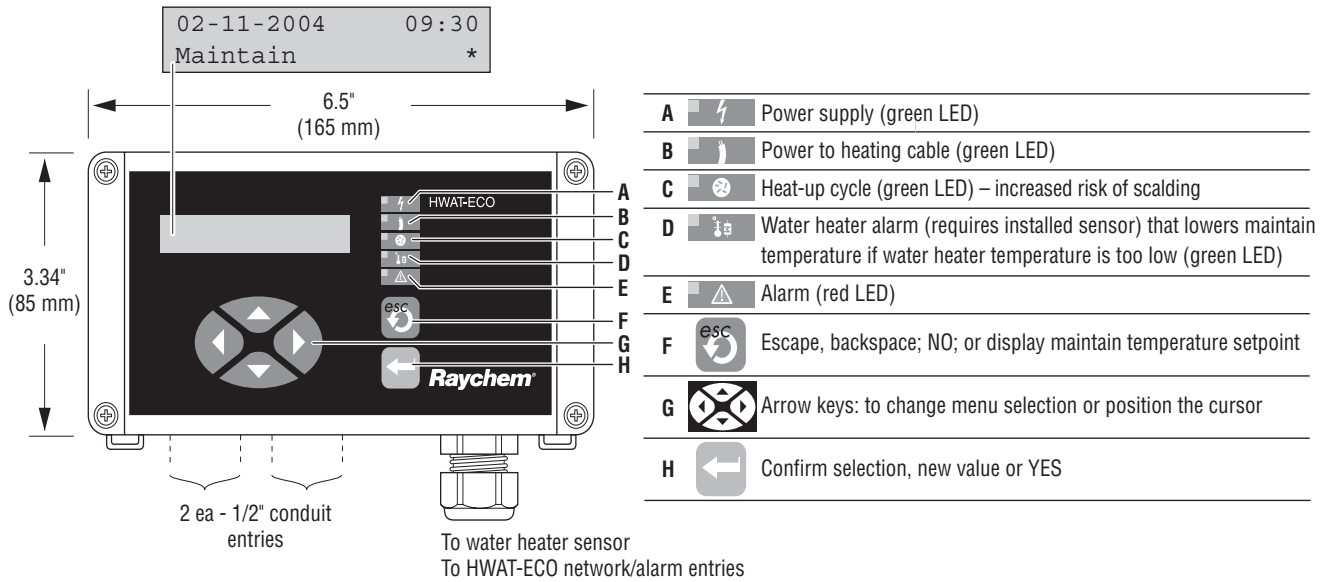
**General**

Alarm events	<ul style="list-style-type: none"> <li>• Loss of power</li> <li>• Controller reinitialized</li> <li>• Internal controller temperature too high</li> <li>• Water heater temperature too high</li> <li>• Water heater temperature too low</li> <li>• Master/slave error</li> </ul>
Power correction factor	To increase or decrease your actual pipe maintain temperature
Water heater sensor	Thermistor with 13 ft 3 in (4 m) lead
Electromagnetic Compatibility (EMC)	Complies to EN 50081-1/2 for emission and EN 50082-1/2 for immunity
Real time clock	Automatic daylight savings time and leap year correction
Clock accuracy	±10 minutes per year

**Enclosure**

Enclosure rating	NEMA 12 (IP52) – indoor use only
Enclosure material	ABS
Mounting	Wall mount with two screws or optional DIN rail
Conduit entries	Two each – 1/2 in conduit entries
Cable gland	3-hole grommet Maximum cable size: <ul style="list-style-type: none"> <li>• 2-wire: 20 AWG (0.5 mm<sup>2</sup>)</li> <li>• 4-wire: 24 AWG (0.2 mm<sup>2</sup>)</li> </ul>

**Typical Enclosure Dimensions and Module Layout**



**Programming**

Default programs	Nine predefined programs that can be customized by the user
Program settings	There are 48 1/2-hour time blocks of the following program settings: Off, Economy, Maintain, and Heat-up cycle

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**Networking**

Master/slave	Master is selectable in the controller, up to eight slaves can be connected
Master/slave cable	2-wire, 300 V, minimum 24 AWG twisted pair

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**Memory**

Parameters stored in memory	All parameters are stored in nonvolatile memory, except date and time
Clock back-up time	Eight hours $\pm$ 10%

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**Ground-Fault Protection**

To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of Tyco Thermal Controls and national electrical codes, you must use 30 mA ground-fault equipment protection on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection. The HWAT-ECO does not include ground-fault protection.

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**Ordering Details**

Catalog number	HWAT-ECO
Part number	P000000121
Weight	2 lb (1 kg)