



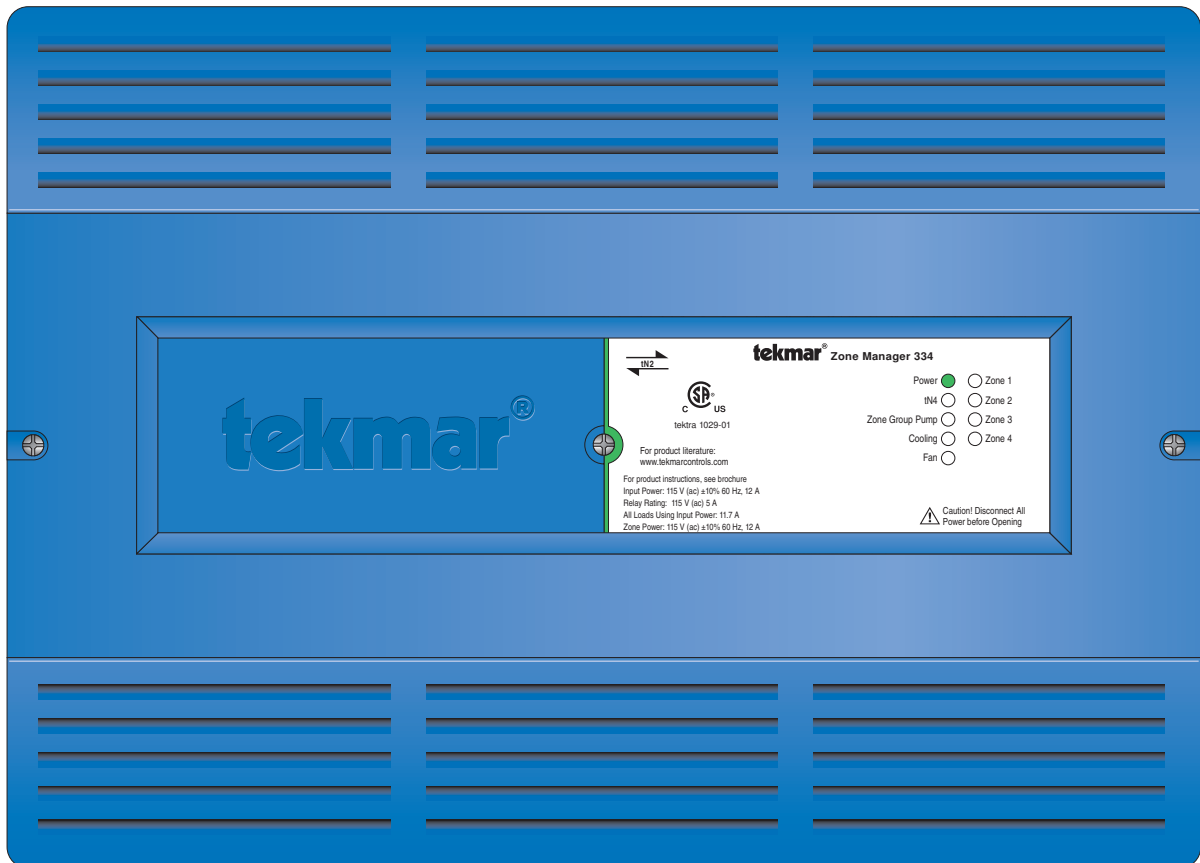
<b>1 Information Brochure</b> Choose controls to match application	<b>2 Application Brochure</b> Design your mechanical applications	<b>3 Rough-in Wiring</b> Rough-in wiring instructions	<b>4 Wiring Brochure</b> Wiring and installation of specific control	<b>5 Data Brochure</b> Control settings and sequence of operation	<b>6 Job Record</b> Record settings & wiring details for future reference
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## Introduction

The tN2 Zone Manager 334 is designed to allow 2-wire tekmarNet®2 Thermostats to connect to a tN4 System Control such as a 420, 421, 422, 423, 274, or 275. The 334 operates up to four zone valves or zone pumps.

## Features:

- Only Requires 2 Wires Per Zone
- For use with tN2 Thermostats 527, 528, 530
- tN4 System Control Compatible
- Four Zone Valves or Zone Pumps
- Time Delay for Thermal Motor Zone Valves
- CSA C US Certified for use in USA and Canada



## Sequence of Operation

### General

The 334 can connect to four tekmarNet®2 (tN2) Thermostats. When a thermostat calls for heat, the 334 turns on the corresponding zone output which can either provide power to a zone pump or a zone valve. Zone 4 can be connected to a Heat – Cool thermostat. When the thermostat is operating the cooling system, the 334 turns on the cooling relay. When the thermostat is operating the fan, the 334 operates the fan relay.

The 334 includes two wiring plugs. The top plug provides tN4 communication and 24 V (ac) to the left hand module. When the top plug is installed to an outdoor reset module, the 334 is connected to bus 1. The bottom plug provides 120 V (ac) power.

### tekmarNet®2 Operation

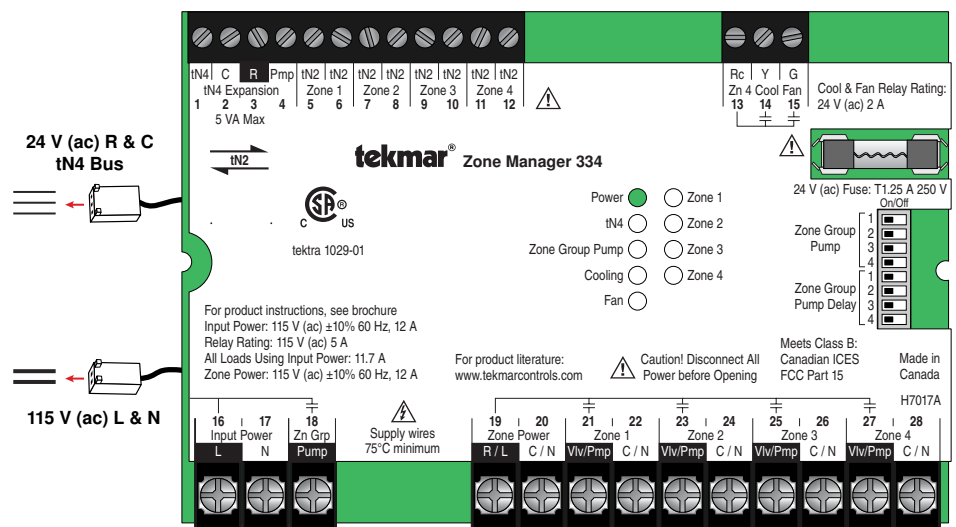
The 334 uses tekmarNet®2 (tN2) communication to connect to tN2 compatible thermostats. The 334 in turn translates the information to tekmarNet®4 (tN4) communication. The tN2 thermostats appear on the tN4 communication bus in the same manner as tN4 thermostats.

#### Important Note:

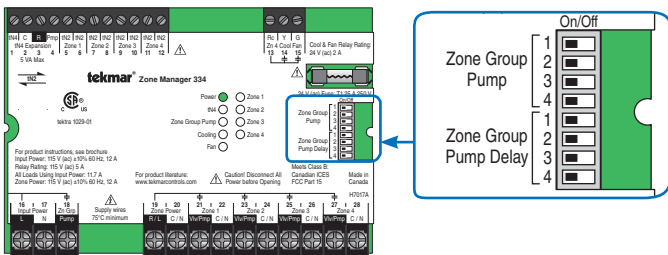
The 334 is NOT compatible with previous generation tN2 products such as the Remote Display Module 040 or the Start / Stop Module 039.

### tekmarNet®4 Expansion

The 334 has four wiring terminals to allow for tN4 expansion to other tN4 devices. The tN4 expansion can be used to connect the 334 to other Zone Managers or Zone Expansion Modules to add extra heating zones. The tN4 expansion can also be wired to a Mixing Expansion Module. This option requires the use of a tN4 Outdoor Reset Control to operate the mixed water temperature. The tN4 expansion also allows the installation of a tN4 Timer 033, a single tN4 Thermostat or a single tN4 Setpoint Control. The powered zone group pump is activated by the Mixing Expansion Module, Thermostat, or Setpoint Control whenever the pump input (terminal 4) is powered with 24 V (ac).



## DIP Switch Settings



The DIP switches are found on the right hand side of the 334.

### Zone Group Pump

Each zone has a corresponding Zone Group Pump DIP switch.

#### Zone Group Pump DIP switch set to On:

- The Zone Group Pump turns on when the zone calls for heat.

#### Zone Group Pump DIP switch set to Off:

- The Zone Group Pump does not turn on when the zone calls for heat.

### Zone Group Pump Delay

Each zone has a corresponding Zone Group Pump Delay DIP switch.

**Note:** The Zone Group Pump Delay only operates if the Zone Group Pump DIP switch is set to On.

#### Zone Group Pump Delay DIP switch set to On:

- The Zone Group Pump turns on 3 minutes after the zone calls for heat.
- The Zone Group Pump turns off 15 seconds after the zone stops calling for heat.

#### Zone Group Pump Delay DIP switch set to Off:

- The Zone Group Pump turns on when the zone calls for heat.
- The Zone Group Pump turns off when the zone stops calling for heat.

## LED Status Indicators

### Power LED

**Green:**

- Normal operation.

**Amber:**

- Power is present but the fuse for the internal 24 V (ac) transformer is blown.

**Off:**

- No power to the Power Input of the Zone Manager.

### tN4 LED

**Green:**

- The Zone Manager has established tN4 communication.

**Off:**

- There is no tN4 communication.

### Zone Group Pump LED

**Green:**

- The Zone Group Pump relay is on.

**Off:**

- The Zone Group Pump relay is off.

### Cooling LED

**Green:**

- The cooling relay is on.

**Off:**

- The cooling relay is off.

### Fan LED

**Green:**

- The fan relay is on.

**Off:**

- The fan relay is off.

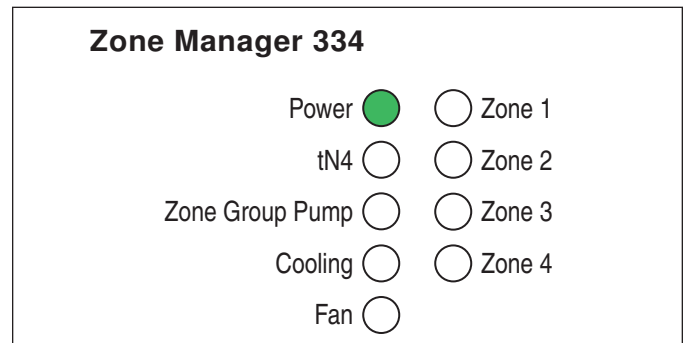
### Zone 1, 2, 3, 4 LEDs

**Green:**

- The zone is on.

**Off:**

- The zone is off.



## Flashing LED Indicated Error Messages

When an error is present, an LED will flash. If there are multiple errors, then multiple LEDs may flash. Once the error has been corrected, the LED will stop flashing.

Zone 1 LED Flashing	Zone 3 LED Flashing
<p>Power <input type="radio"/> Zone 1 <input checked="" type="radio"/></p> <p>tN4 <input type="radio"/> Zone 2 <input type="radio"/></p> <p>Zone Group Pump <input type="radio"/> Zone 3 <input type="radio"/></p> <p>Cooling <input type="radio"/> Zone 4 <input type="radio"/></p> <p>Fan <input type="radio"/></p>	<p>Zone 1 has an open or short circuit and communication to the thermostat on zone 1 has been interrupted. Check the wiring between the thermostat and the 334 for open or short circuits. If the thermostat was intentionally removed, power off the 334, wait 10 seconds, and then reapply power to the 334.</p>
<p>Power <input type="radio"/> Zone 1 <input type="radio"/></p> <p>tN4 <input type="radio"/> Zone 2 <input type="radio"/></p> <p>Zone Group Pump <input type="radio"/> Zone 3 <input checked="" type="radio"/></p> <p>Cooling <input type="radio"/> Zone 4 <input type="radio"/></p> <p>Fan <input type="radio"/></p>	<p>Zone 3 has an open or short circuit and communication to the thermostat on zone 3 has been interrupted. Check the wiring between the thermostat and the 334 for open or short circuits. If the thermostat was intentionally removed, power off the 334, wait 10 seconds, and then reapply power to the 334.</p>
Zone 2 LED Flashing	Zone 4 LED Flashing
<p>Power <input type="radio"/> Zone 1 <input type="radio"/></p> <p>tN4 <input type="radio"/> Zone 2 <input checked="" type="radio"/></p> <p>Zone Group Pump <input type="radio"/> Zone 3 <input type="radio"/></p> <p>Cooling <input type="radio"/> Zone 4 <input type="radio"/></p> <p>Fan <input type="radio"/></p>	<p>Zone 2 has an open or short circuit and communication to the thermostat on zone 2 has been interrupted. Check the wiring between the thermostat and the 334 for open or short circuits. If the thermostat was intentionally removed, power off the 334, wait 10 seconds, and then reapply power to the 334.</p>
<p>Power <input type="radio"/> Zone 1 <input type="radio"/></p> <p>tN4 <input type="radio"/> Zone 2 <input type="radio"/></p> <p>Zone Group Pump <input type="radio"/> Zone 3 <input type="radio"/></p> <p>Cooling <input type="radio"/> Zone 4 <input checked="" type="radio"/></p> <p>Fan <input type="radio"/></p>	<p>Zone 4 has an open or short circuit and communication to the thermostat on zone 4 has been interrupted. Check the wiring between the thermostat and the 334 for open or short circuits. If the thermostat was intentionally removed, power off the 334, wait 10 seconds, and then reapply power to the 334.</p>

## Cleaning the Control

The control's exterior can be cleaned using a damp cloth. Moisten the cloth with water and wring out prior to wiping the control. Do not use solvents or cleaning solutions.

## Limited Warranty and Product Return Procedure

**Limited Warranty** *The liability of tekmar under this warranty is limited. The Purchaser, by taking receipt of any tekmar product ("Product"), acknowledges the terms of the Limited Warranty in effect at the time of such Product sale and acknowledges that it has read and understands same.*

**The tekmar Limited Warranty to the Purchaser on the Products sold hereunder is a manufacturer's pass-through warranty which the Purchaser is authorized to pass through to its customers. Under the Limited Warranty, each tekmar Product is warranted against defects in workmanship and materials if the Product is installed and used in compliance with tekmar's instructions, ordinary wear and tear excepted. The pass-through warranty period is for a period of twenty-four (24) months from the production date if the Product is not installed during that period, or twelve (12) months from the documented date of installation if installed within twenty-four (24) months from the production date.**

The liability of tekmar under the Limited Warranty shall be limited to, at tekmar's sole discretion: the cost of parts and labor provided by tekmar to repair defects in materials and / or workmanship of the defective product; or to the exchange of the defective product for a warranty replacement product; or to the granting of credit limited to the original cost of the defective product, and such repair, exchange or credit shall be the sole remedy available from tekmar, and, without limiting the foregoing in any way, tekmar is not responsible, in contract, tort or strict product liability, for any other losses, costs, expenses, inconveniences, or damages, whether direct, indirect, special, secondary, incidental or consequential, arising from ownership or use of the product, or from defects in workmanship or materials, including any liability for fundamental breach of contract.

The pass-through Limited Warranty applies only to those defective Products returned to tekmar during the warranty period. This Limited Warranty does not cover the cost of the parts or labor to remove or transport the defective Product, or to reinstall the repaired or replacement Product, all such costs and expenses being subject to Purchaser's agreement and warranty with its customers.

Any representations or warranties about the Products made by Purchaser to its customers which are different from or in excess of the tekmar Limited Warranty are the Purchaser's sole responsibility and obligation. Purchaser shall indemnify and hold tekmar harmless from and against any and all claims, liabilities and damages of any kind or nature which arise out of or are related to any such representations or warranties by Purchaser to its customers.

The pass-through Limited Warranty does not apply if the returned Product has been damaged by negligence by persons other than tekmar, accident, fire, Act of God, abuse or misuse; or has been damaged by modifications, alterations or attachments made subsequent to purchase which have not been authorized by tekmar; or if the Product was not installed in compliance with tekmar's instructions and / or the local codes and ordinances; or if due to defective installation of the Product; or if the Product was not used in compliance with tekmar's instructions.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH THE GOVERNING LAW ALLOWS PARTIES TO CONTRACTUALLY EXCLUDE, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, DURABILITY OR DESCRIPTION OF THE PRODUCT, ITS NON-INFRINGEMENT OF ANY RELEVANT PATENTS OR TRADEMARKS, AND ITS COMPLIANCE WITH OR NON-VIOLATION OF ANY APPLICABLE ENVIRONMENTAL, HEALTH OR SAFETY LEGISLATION; THE TERM OF ANY OTHER WARRANTY NOT HEREBY CONTRACTUALLY EXCLUDED IS LIMITED SUCH THAT IT SHALL NOT EXTEND BEYOND TWENTY-FOUR (24) MONTHS FROM THE PRODUCTION DATE, TO THE EXTENT THAT SUCH LIMITATION IS ALLOWED BY THE GOVERNING LAW.

**Product Warranty Return Procedure** All Products that are believed to have defects in workmanship or materials must be returned, together with a written description of the defect, to the tekmar Representative assigned to the territory in which such Product is located. If tekmar receives an inquiry from someone other than a tekmar Representative, including an inquiry from Purchaser (if not a tekmar Representative) or Purchaser's customers, regarding a potential warranty claim, tekmar's sole obligation shall be to provide the address and other contact information regarding the appropriate Representative.



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