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Overview

The following brochure describes how to wire the tekmarNet®4 User Switch 481. The 481 has 3 user buttons to select the scene or setpoint device enable. There are 3 relay contact outputs to provide alarms or scene status outputs to third party devices.

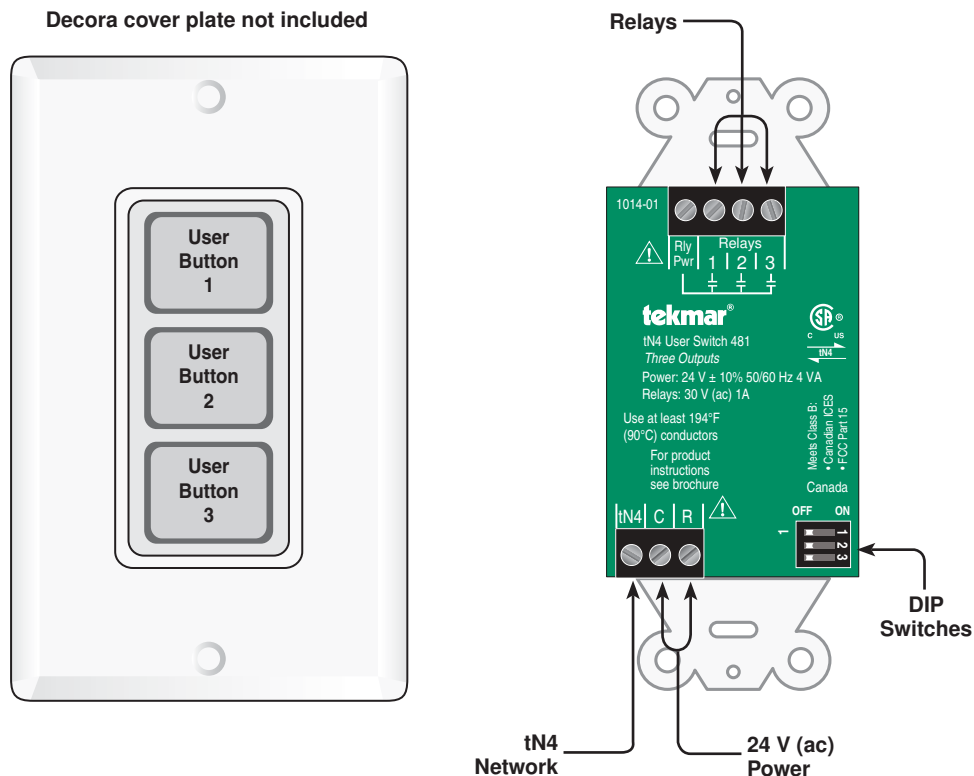


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Definitions

The following defined terms and symbols are used throughout this manual to bring attention to the presence of hazards of various risk levels, or to important information concerning the life of the product.



– Caution: Refer to accompanying documents.



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**INSTALLATION
CATEGORY II**

– Local level appliances.

⚠ Caution ⚡

Improper installation and operation of this control could result in damage to the equipment and possibly even personal injury or death. It is your responsibility to ensure that this control is safely installed according to all applicable

codes and standards. Do not attempt to service the control. Refer to qualified personnel for servicing. Disassembly of the control voids warranty and could result in damage to the equipment.

Rough-In Wiring

The 481 is designed to fit in standard electrical switch boxes. It is recommended that the User Switch be installed in a dedicated switch box. Multiple User Switches can be installed in a double or wider switch box. It is not recommended to mix the User Switch with high voltage wiring. In the event that a User Switch shares the switch box with a line powered device, a suitable barrier must be installed which is in accordance to local codes.

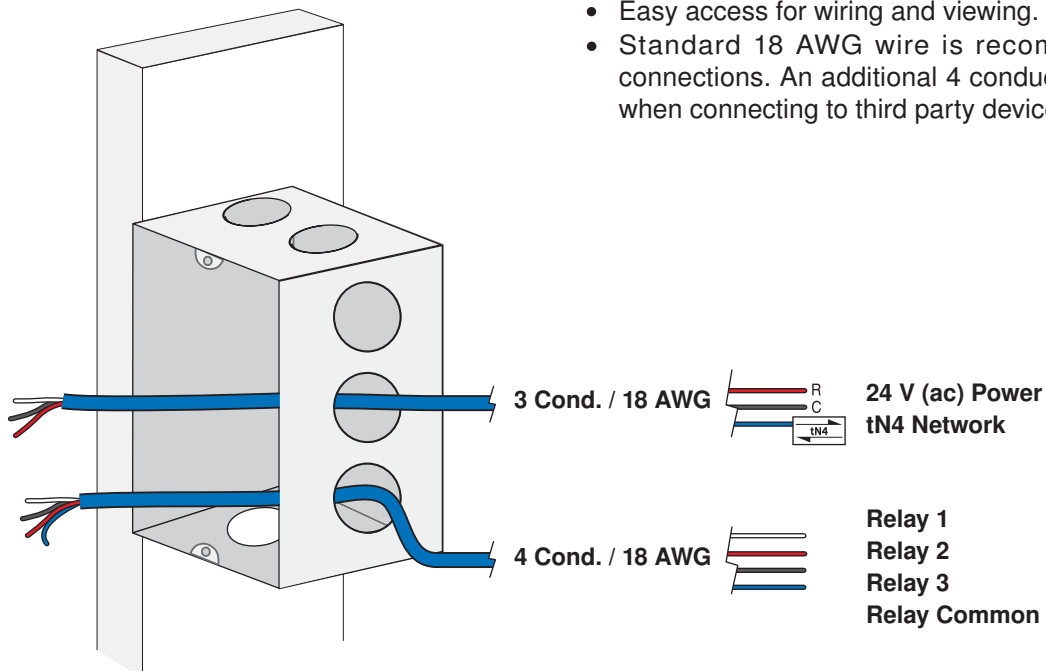
Each tN4 bus cannot exceed 24 devices. Devices include thermostats, setpoint controls, mixing expansion modules, and user switches.

When using multiple User Switches at the same location, they can be installed adjacent to each other in the same switch box.

Choose the placement of the User Switch early in the construction process to enable proper wiring during rough-in.

Consider the following:

- Interior wall.
- Keep dry in a non-condensing environment.
- No exposure to extreme temperatures beyond 32 - 122 °F (0 - 50 °C).
- Easy access for wiring and viewing.
- Standard 18 AWG wire is recommended for all connections. An additional 4 conductors are required when connecting to third party devices.



Note: When multiple wires run to the same equipment location, wiring conductors can share one wire jacket.

Third Party Devices


The 481 is designed to provide outputs to third party devices such as:

- Telephone switches
- Automation systems
- Security alarm systems

It is up to the installer to determine if a particular third party device is compatible with the 481.

For suggestions on compatible third party devices, please contact your tekmar sales representative.

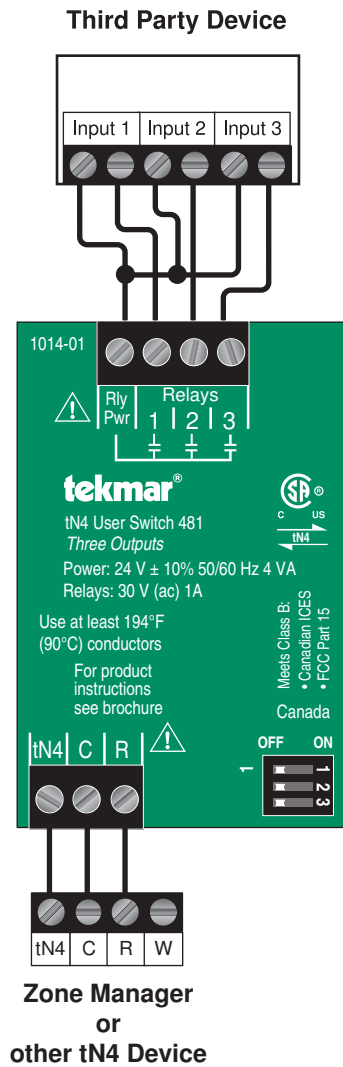
Electrical Drawings

 The electrical drawing examples on the following pages show the 481 in common applications. These drawings have a brief explanation of what is being operated in each system. Choose the components in your system and use the drawings as a guide to aid in wiring your system.

These are only concept drawings, not engineered drawings. They are not intended to describe a complete system nor any particular system. It is up to the system designer to determine the necessary components for and configuration of the particular system being designed including additional equipment isolation relays (for loads greater than the controls specified output ratings) and any safety devices which in the judgment of the designer are appropriate in order to properly size, configure and design that system and to ensure compliance with building and safety code requirements.

Description:

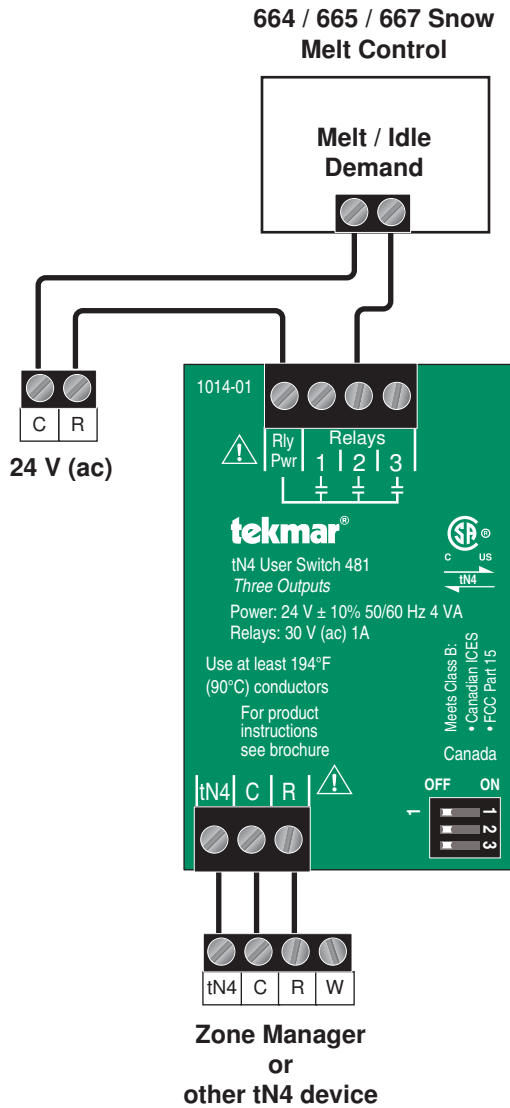
The User Switch provides outputs to a third party device.



DIP Switch positions will depend on application. Refer to D481 for details.

Description:

The User Switch provides an idle demand to a non-tN4 Snow Melt Control in order to prevent melting while the scene is set to Away.



Note: The idle temperature setting must be set to OFF and the DIP switch set to Idle on the Snow Melt Control.

DIP switch 1 = OFF
DIP switch 2 = OFF
DIP switch 3 = OFF

Installing the User Switch

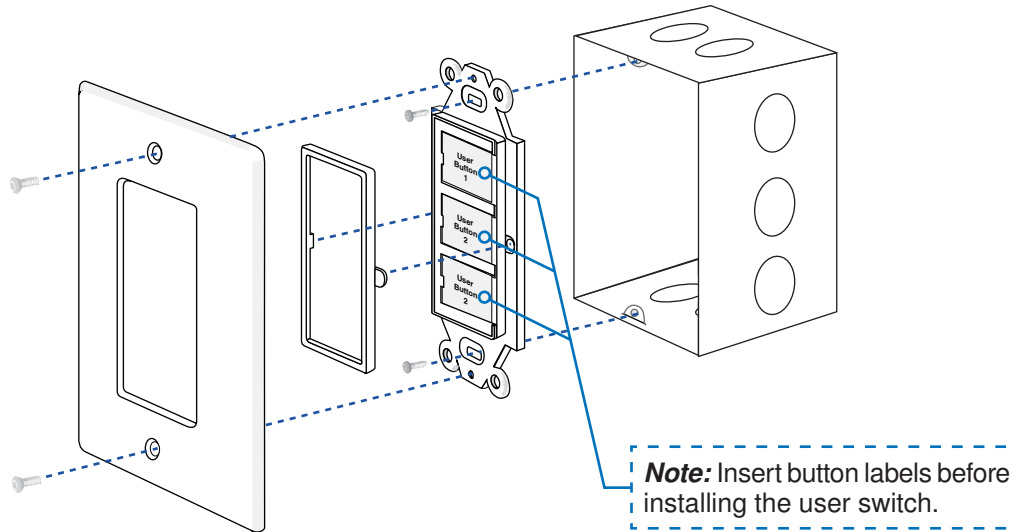
Note: Ensure that the DIP switches are properly set before installation. Read the Data Brochure D481 to select appropriate operation.

Note: Ensure the input button labels are installed before final installation. Read the Data Brochure D481 for instructions.

The User Switch is designed for use with Decora style cover plates which are not included.

Fasten the User Switch to the switch box using the supplied mounting screws.

Fasten the Decora cover plate over the User Switch.



Wiring the User Switch

⚠ Power (24 V (ac))

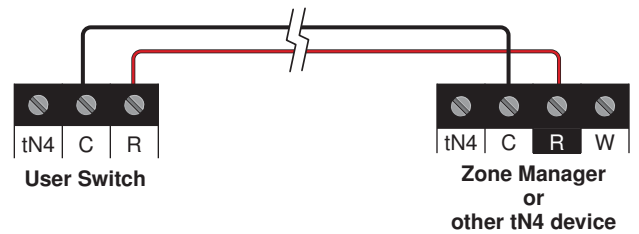
Wire 24 V (ac) to terminals C and R.

If a Zone Manager is used:

- Connect C on the User Switch to C on any zone of the Zone Manager.
- Connect R on the User Switch to R on any zone of the Zone Manager.
- The User Switch can be wired in parallel to thermostats.

If a 24 V (ac) transformer is used:

- Connect C on the User Switch to C on the transformer.
- Connect R on the User Switch to R on the transformer.



⚠ tN4 Communication

Wire the tN4 communication to terminals tN4 and C.

If a Zone Manager is used:

- Connect tN4 on the User Switch to the tN4 on any zone of the Zone Manager. The C terminal is already connected.

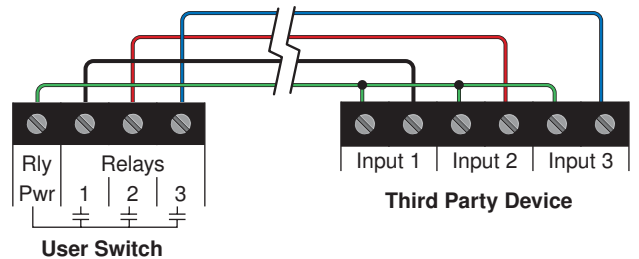
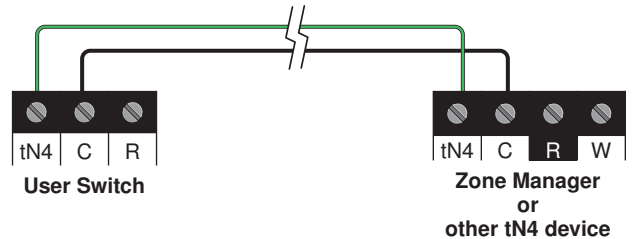
If a Zone Manager is not used:

- Connect tN4 to the tN4 terminal on another tN4 device on the same tN4 bus.
- Connect C to the C terminal on another tN4 device on the same tN4 bus.

⚠ Relay 1, 2 and 3

Wire each relay output to the third party device.

- Use these terminals as a switch to activate the inputs on the third party device.



Troubleshooting the Wiring

⚠ General

The following tests are to be performed using standard testing practices and procedures and should only be carried out by properly trained and experienced persons.

A good quality electrical test meter, capable of reading from at least 0 - 300 V (ac), 0 - 2,000,000 Ohms, and testing for continuity is essential to properly test the wiring and sensors.



Testing the Wiring

⚠ Testing 24 V (ac) Power Supply

1. Remove the User Switch.
2. Use an electrical test meter to measure (ac) voltage between the R and C terminals. The reading should be 24 V (ac) +/- 10%.
3. Reinstall the User Switch.

⚠ Testing the Relays

1. Remove the User Switch.
2. Disconnect the wires from the relay that is to be tested.
3. Use an electrical test meter and check for continuity across each relay. Each relay will not have continuity when power is removed.
4. Reconnect the wires to the relay.
5. Reinstall the User Switch.

Technical Data

tekmarNet[®]4 User Switch 481 Three Outputs	
Packaged Weight	0.46 lb. (210 g)
Enclosure	White PC+ABS plastic
Dimensions	4.09" H x 1.7" W x 0.8" D (104 x 43 x 20 mm)
Approvals	CSA C US, CSA/UL 61010-1, meets Class B: ICES and FCC Part 15
Ambient Conditions	Indoor use only, 32 to 122°F (0 to 45°C) 92% RH up to 104°F (40°C), 50% RH if > 104°F (40°C) Altitude <9840 feet (3000 m), Installation Category II, Pollution Degree 2
Power Supply	24 V (ac) ± 10% 50/60 Hz, 4 VA
Relays	30 V (ac) 1 A

The installer must ensure that this control and its wiring are isolated and/or shielded from strong sources of electromagnetic noise. Conversely, this Class B digital apparatus complies with Part 15 of the FCC Rules and meets all requirements of the Canadian Interference-Causing Equipment Regulations. However, if this control does cause harmful interference to radio or television reception, which is determined by turning the control off and on, the user is encouraged to try to correct the interference by re-orientating or relocating the receiving antenna, relocating the receiver with respect to this control, and/or connecting the control to a different circuit from that to which the receiver is connected.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.



Symbol for Separate Collection in European Countries

This symbol indicates that this product is to be collected separately. This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste. For more information, contact the local authorities in charge of waste management.



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