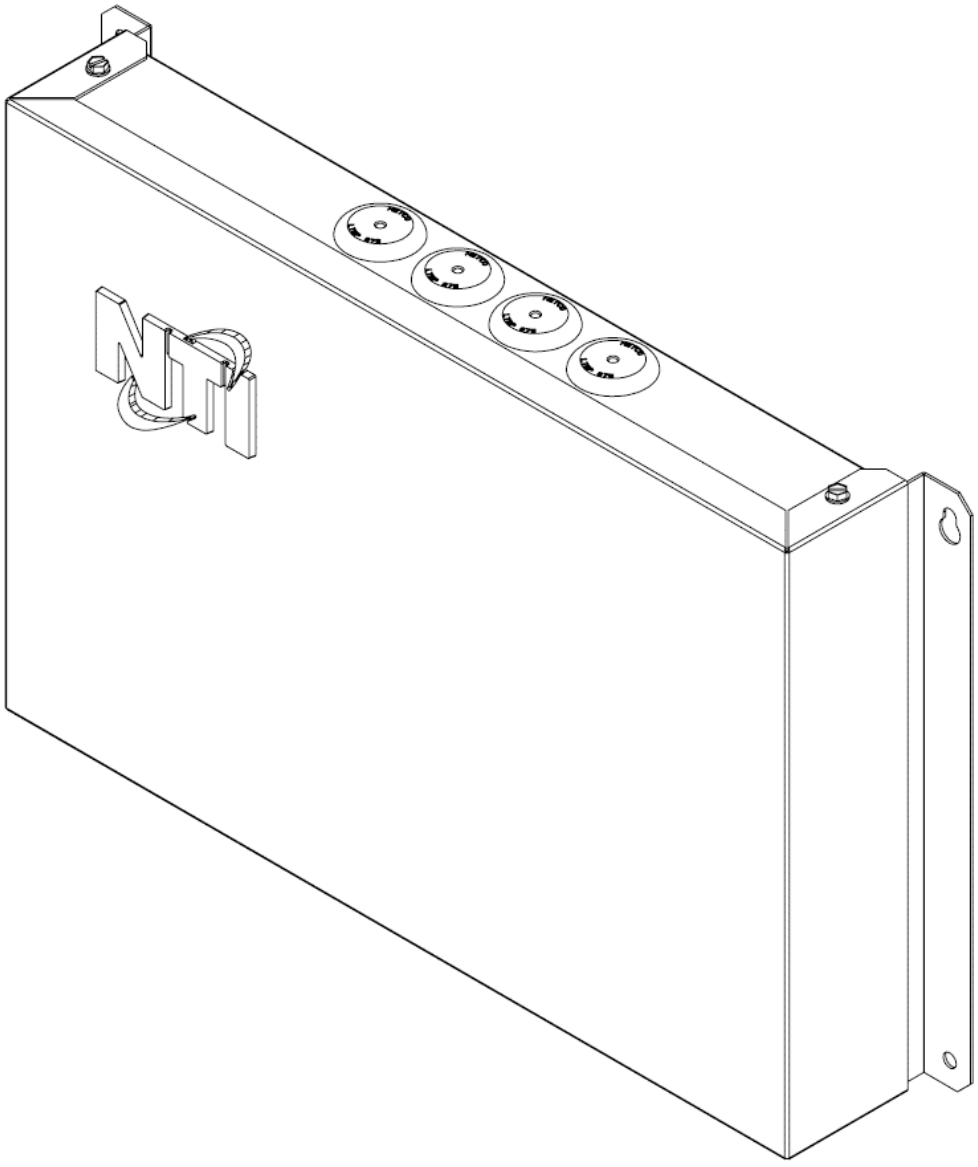
Installation Instructions

N-Link (3-Zone Control Module)



1 Overview

The **N-Link** (3-Zone Control Module) is designed to connect to **TFTN** series boilers, enabling the control of up to (3) additional heating zones. Together with the boiler's integrated zone controls, this allows for a combined total of up to (6) distinct heating zones. The **N-Link**'s unique communication with NTI boilers allows it to take full advantage of the connected boiler's HMI, including full control of each heating zone's individual parameters. Unlike other, more rudimentary zone controllers, the **N-Link** maintains awareness of each heating zone's specific requirements during heating demands and can therefore serve multiple, different heating zones within a household or commercial application more effectively.

2 Specifications

2.1 High-Voltage I/O

Table 2-1: High-Voltage Barrier Connections

Connection		Description
MAIN POWER INPUT (120VAC)	LINE	Line (L1) input for 120VAC power supply
	NEUTRAL	Neutral (L2) input for 120VAC power supply and 120VAC zone loads (e.g. 120VAC zone pumps)
ZONE OUPUTS (120VAC or 24VAC)	ZONE 1/4	- Activate on CH demand from respective *THERMOSTAT INPUT* (or NTI Room Sensor configured to respective zone); output voltage sourced from *ZONE INPUT* - Deactivate (following overrun time) on DHW demand - Each circuit protected by dedicated 5A fuse (slow-blow)
	ZONE 2/5	
	ZONE 3/6	
120VAC or 24VAC	120V	Jumper to *ZONE INPUT* for 120VAC zone outputs (e.g. zone pumps)
	ZONE INPUT	Jumper to required voltage supply for zone outputs (e.g. to *120V* for 120VAC zone pumps or *R* (24V) for 24VAC zone valves)
	R (24V)	Jumper to *ZONE INPUT* for 24VAC zone outputs (e.g. zone valves)
24VAC RETURN	COMMON	- Return/Neutral leg of 24VAC power supply - Connection point for Return/Neutral leg of optional 24VAC loads (e.g. zone valves) - Complete circuit protected by single 2A blade fuse (fast-blow)

2.2 Low-Voltage I/O

Table 2-2: Low-Voltage PCB Connections

Connection			Description
THERMOSTAT INPUTS	ZONE 1/4	R	- Circuit closure between *R* and *W* initiates CH demand and activates output for respective zone (see **Table 2-1**) - R = 24VAC output; W = 24VAC input; C = common - Protected by single 2A blade fuse (fast-blow) - For 2-wire devices, connect only to *R* and *W* (do NOT connect to *C*)
		W	
		C	
	ZONE 2/5	R	
		W	
		C	
	ZONE 3/6	R	
		W	
		C	
ALRM (Alarm)			- Dry contacts (NO); close during lockout or other alarm condition; may be connected to BMS - Maximum capacity = 2A (MAX) at 24VAC
EBUS		B	- Connection point for external BUS devices (e.g. NTI Room Sensors, NTI boilers, NTI SENSYS, other N-Links, etc.) - B = (+) input; T = (-) or GND input
		T	
		B	
		T	

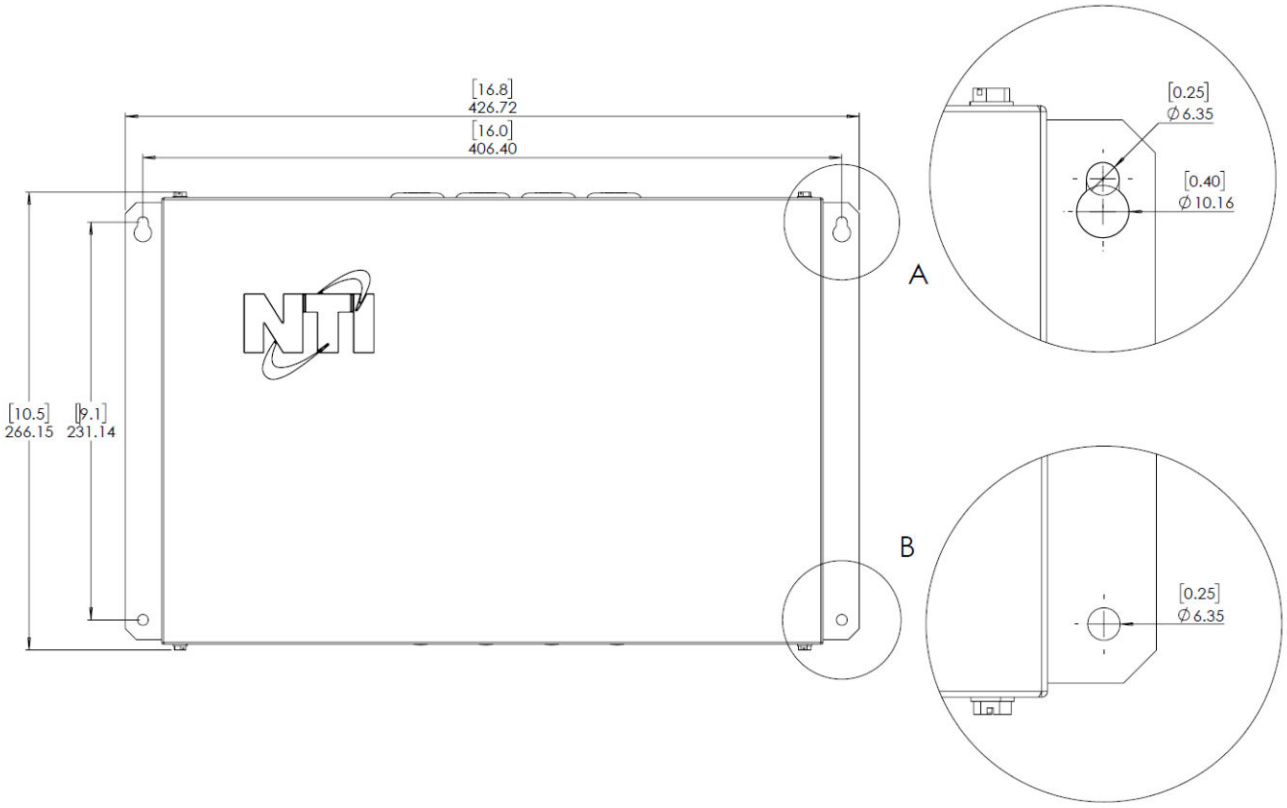
3 Installation

3.1 Wall-Mounting

1) Select a suitable location near the boiler to secure the **N-Link** to the wall.
2) Position the **N-Link** against the wall and mark the position of the (2) keyholes at the top corners of the mounting flanges [A].
3) Install (2) fasteners of the appropriate type into these marked positions and mount the **N-Link** via the (2) keyholes [A]:

    - For 16” stud spacing or plywood installation, use appropriately sized wood screws
    - For drywall or masonry installation, use appropriately sized drywall or masonry screws and anchors

4) Secure the **N-Link** by installing (2) additional fasteners through the bottom screw holes [B].



3.2 Field-Wiring

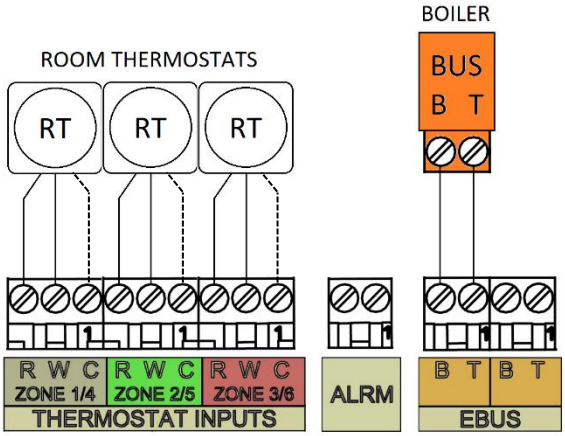
1) To remove the **N-Link**'s protective cover panel, loosen the (4) screws in the slotted cut-outs along its top and bottom edges, then gently slide it towards you (away from the wall).

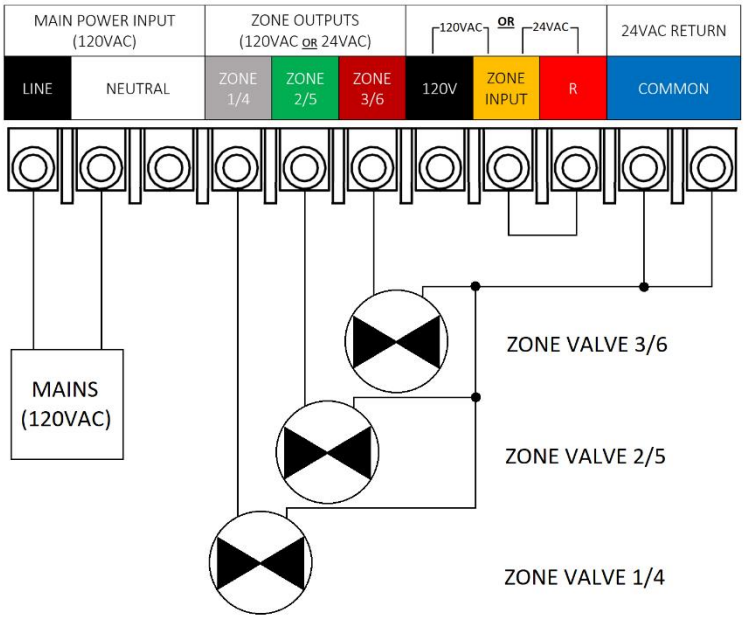
2) For the low-voltage wiring, there are (4) cut-outs at the top of the **N-Link** with (3) provided grommets, which----if needed----must be removed and replaced with strain-reliefs suitable for 18-22AWG wiring.

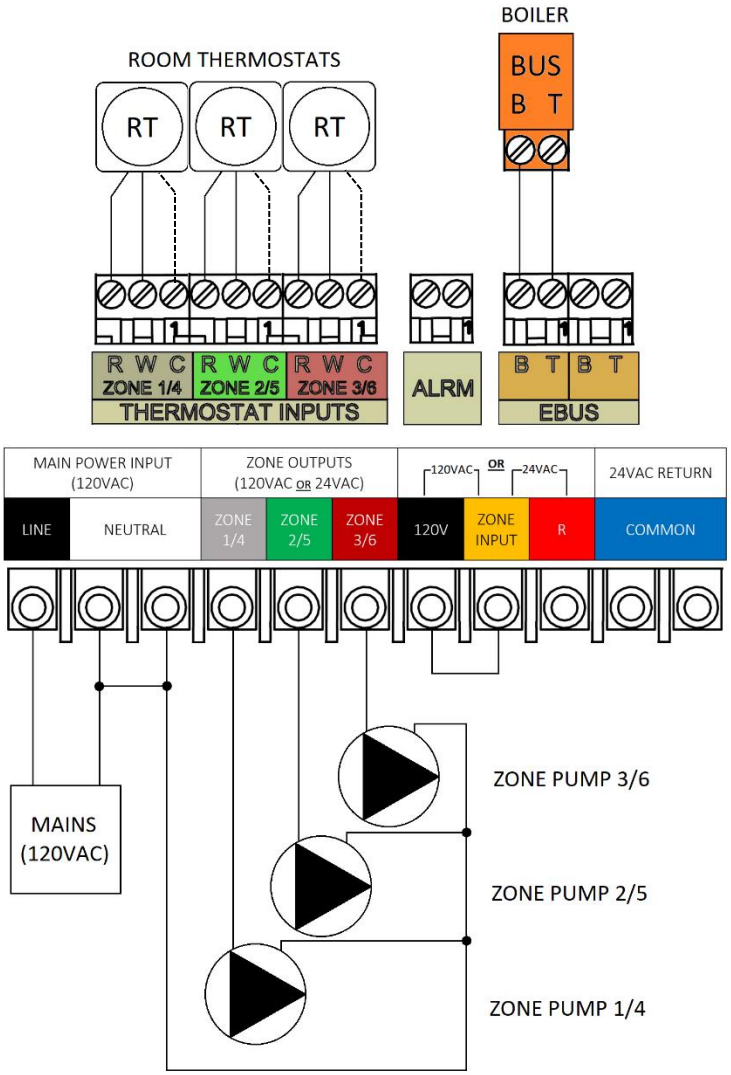
3) For the high-voltage wiring, there are (4) cut-outs at the bottom of the **N-Link**, with (3) provided grommets, which----if needed----must be removed and replaced with strain-reliefs suitable for 14-18AWG wiring.

Zone Pumps (120VAC)

- Wire the "*hot*" connection for up to (3) zone **pumps** to barrier position(s): *ZONE 1/4*, *ZONE 2/5*, and *ZONE 3/6*, respectively
- Wire the "*return*" connection for up to (3) zone **pumps** to barrier position(s): ***NEUTRAL***
- Jumper between barrier position(s): *ZONE INPUT* and ***120V***
- Connect to the boiler via its BUS connector, respecting the polarity: **B-B**, **T-T**







Zone Valves (24VAC)

- Wire the "*hot*" connection for up to (3) zone **valves** to barrier position(s): *ZONE 1/4*, *ZONE 2/5*, and *ZONE 3/6*, respectively
- Wire the "*return*" connection for up to (3) zone **valves** to barrier position(s): ***COMMON***
- Jumper between barrier position(s): *ZONE INPUT* and ***R***
- Connect to the boiler via the BUS

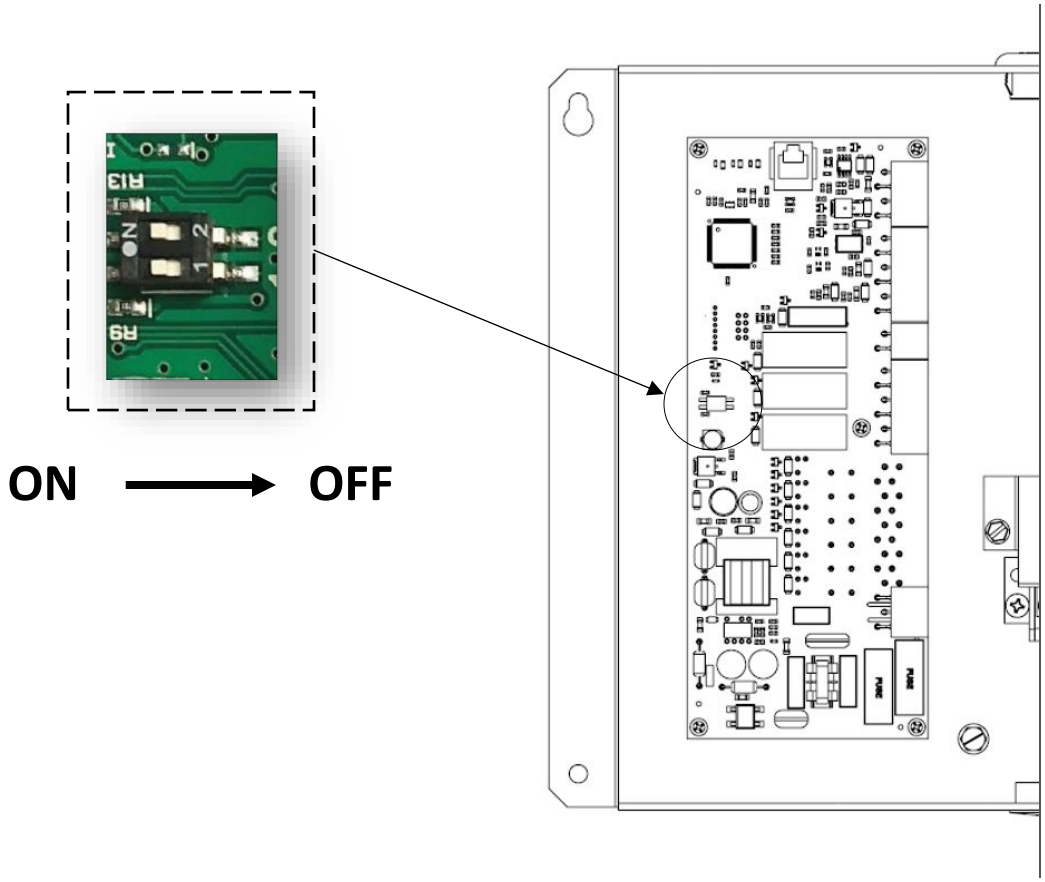
NTI Room Sensors

- If preferred, you can use up to (3) **NTI Room Sensors** with the **N-Link** instead of thermostats by connecting them via the EBUS connector----again, respecting the polarity: **B-B**, **T-T**

- Refer to the **NTI Room Sensor** instructions to assign the desired zone address for each zone (i.e. zone 1/4, 2/5, 3/6)

Dip Switches

- When connecting to TFTN boilers, ensure both dip switches on the **N-Link's** zone control PCB (C3Z) are toggled to the "**OFF**" position to assign it to control zones 4, 5, and 6, while the boiler controls zones 1, 2, and 3 (or vice versa, if desired)



4 Troubleshooting

4.1 Bus Collision

Table 4-1: EBUS traffic collisions

EBUS wiring	Ensure EBUS connections are wired with correct polarity: **B-B** and **T-T**
Dip switch settings	Ensure only (1) device with a Zone Control PCB (C3Z) has its dip switches in the "ON" position----either the **N-Link** or the **TFTN** boiler; not both
Cascade settings	If using boilers which are cascaded together… • Disconnect the **N-Link** and ensure the boiler addresses are set correctly with respect to each other • Remove the Wi-Fi harness from each "*follower*" boiler
Room Sensor address	If using NTI Room Sensors in lieu of thermostats… • Ensure each NTI Room Sensor is set to a unique zone address (i.e. 1-3 or 4-6). **See the NTI Room Sensor installation instructions**

4.2 Incorrect Zone Output Activation

1) Zone Outputs
    a. Ensure Zone Output wires are connected to the correct Zone Pump or Valve

2) Zone Inputs
    a. If using thermostats, ensure each is connected to the correct Zone Input
    b. If using NTI Room Sensors, ensure each is set to the correct Zone Address

4.3 Before calling NTI Technical Support

If you are still experiencing unexpected behaviour from your **N-Link**, please refer to the following guidelines before calling NTI Technical Support:

1) Check the LED indicator lights on the Zone Controller PCB (C3Z) for error warnings:
    - If any LEDs are '**RED'**, refer to the boiler's HMI for details on the error
    - Refer to the boiler's Installation & Operation Manual (IOM) for advice on how to clear the error from the system

2) Turn “OFF” the power to the **N-Link** and/or the boiler, wait 15 seconds, then turn it back “ON” to reinitialize the system:
    - Make sure to only do this while the boiler is in standby mode; do NOT do this during a heating demand.

5 Parts List

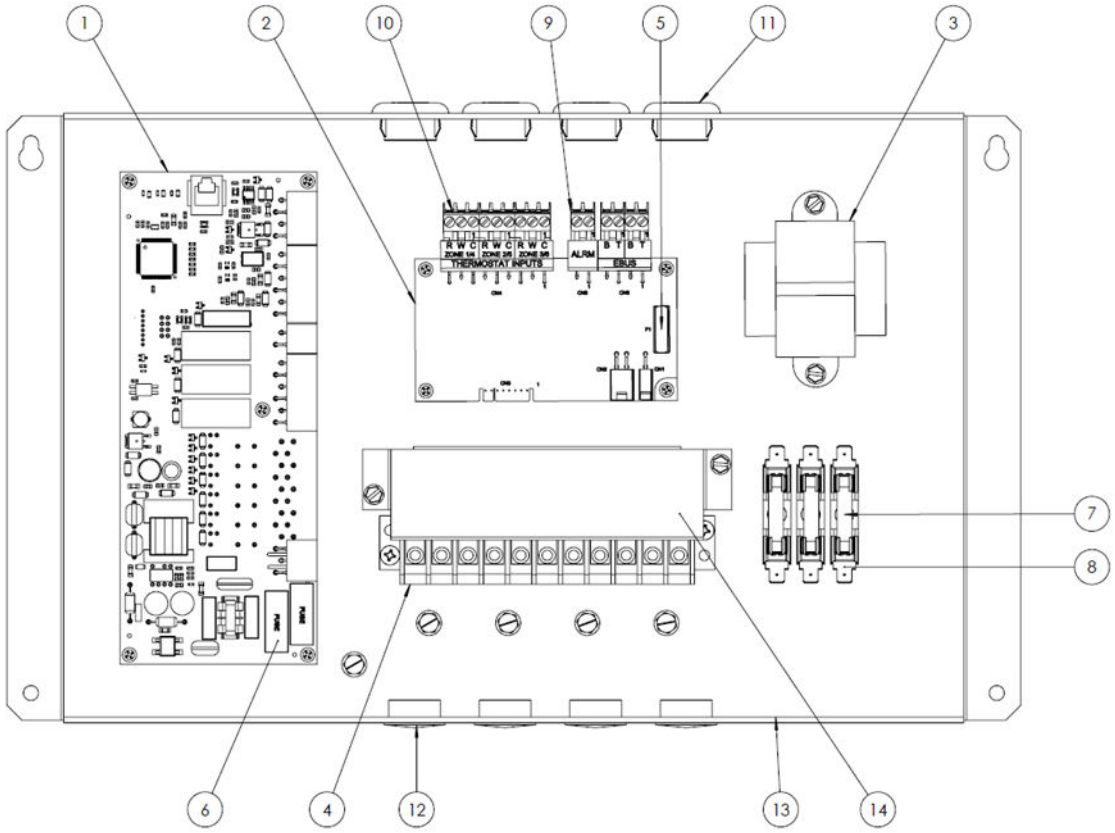


Table 5-1: Spare Parts List

#	Spare Part Code	Spare Part Description
1	64980499	PCB, Zone Controller (C3Z)
2	Contact Tech Support	PCB, Field Connection Board (FCB)
3	64980471	24Vac transformer (40VA)
4	Contact Tech Support	High-voltage, wiring barrier (11-pos)
5	64980476	Blade fuse, 2A (24VAC circuit)
6	64980480	Cartridge fuse, 2A (slow-blow, 5 x 20mm)
7	64980478	Cartridge fuse, 5A (slow-blow, 1/4" x 1-1/4”)
8	64980477	Fuse holder, panel-mount (1/4" x 1-1/4”)
9	65111933	Low-voltage, screw terminal connector (2-pos)
10	65111934-01	Low-voltage, screw terminal connector (3-pos)
12	6000084095	Wiring grommet (7/8”)

13	Contact Tech Support	Sheet metal base (with decal)
14	Contact Tech Support	High-voltage, barrier cover (with decal)
15	Contact Tech Support	Sheet metal cover (with NTI logo)