CONTROLS
KITS AND ACCESSORIES

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ZONE LINK

INSTALLATION INSTRUCTIONS FOR ZONE LINK (11W27; 100751-01) USED WITH L CONNECTION® NETWORK

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

⚠ CAUTION

ELECTROSTATIC DISCHARGE (ESD) Precautions and Procedures

Electrostatic discharge can affect electronic components. Take precautions during unit installation and service to protect the unit's electronic controls. Precautions will help to avoid control exposure to electrostatic discharge by putting the unit, the control and the technician at the same electrostatic potential. Neutralize electrostatic charge by touching hand and all tools on an unpainted unit surface before performing any service procedure

Shipping and Packing List

Package 1 of 1 contains:

- 1- Zone Link
- 1- Mounting panel (used on 090-360 units only)

Bag assembly containing:
- 4- #6 - 32 X 3/8" Screws
- 2- #10 - 16 X 5/8" Screws
- 1- Wiring diagram sticker

Check panel for shipping damage. Receiving party should contact last carrier immediately if shipping damage is found.

These instructions are intended as a general guide and do not supersede local codes in any way. Authorities having jurisdiction should be consulted before installation.

Cable Requirements

Thermostat Wire

Standard thermostat wire (one pair 20 AWG minimum) may be used to wire the Zone Link to the optional wall plug 24V transformer 18M13, the unit 24 VAC supply, or other field-provided 10VA, 18-30VAC output transformer.
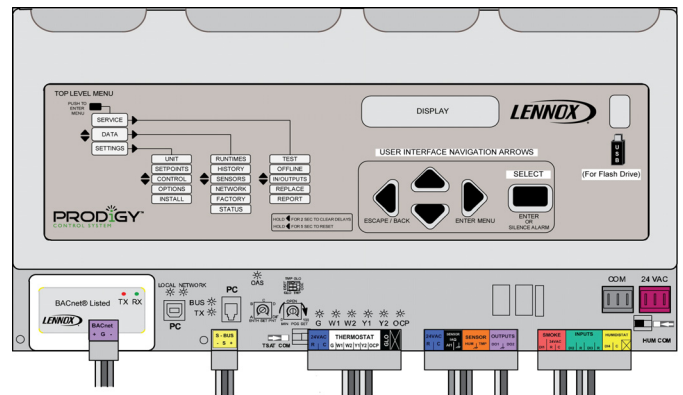
Communication Wire

Use one of the following communication wire types depending on the application:

SysBus - Standard or plenum, yellow, Lennox part no.-
   27M19 (500-ft. roll)
   94L63 (1000-ft. roll)
   68M25 (2500-ft. roll)

ZoneBus - Standard or plenum, purple, Lennox part no.-
   23W99 (500-ft. roll)
   24W00 (1000-ft. roll)
   24W01 (2500-ft. roll)

Application

The Zone Link is used in zoning applications and as a bus expander. Use only on rooftop units equipped with Unit Controller (M1-7 [version 5.02 and higher], M1-8, M2 or M3, Network Thermostat Controller (NTC) 1.10+, and Network Control Panel (NCP) version 2.00+.

Figure 1. M2 Unit Controller

Figure 2. M3 Unit Controller

0215
505090M
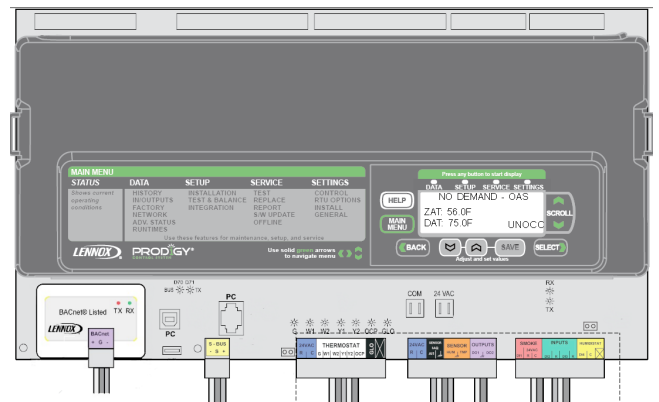
Installation

⚠WARNING

Electric shock hazard.

Can cause injury or death.

Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

⚠CAUTION

Physical contact with metal edges and corners while applying excessive force or rapid motion can result in personal injury. Be aware of, and use caution when working near these areas during installation or while servicing this equipment.

NOTE - To prevent damage to the Zone Link, do not over-tighten mounting screws.

1. Install the module directly on the wall in a mechanical equipment room (see figure 3). OR,

   Install the module inside the unit in the control area if space is available. The module can be installed outside of the unit if a NEMA 3 approved enclosure is used.

2. Connect 24VAC to terminal block on Zone Link as shown in figure 4.

3. Connect SysBus and ZoneBus communication cable to the Zone Link as shown in figure 4. Figure 5 shows an example of a zoning network with typical addresses.

4. Affix wiring diagram provided in kit on inside unit panel or near Zone Link when installed in a mechanical room.

NOTE - Do not install single and zoned units on the same ZoneBus. Single and zoned units can be installed on the same SysBus.
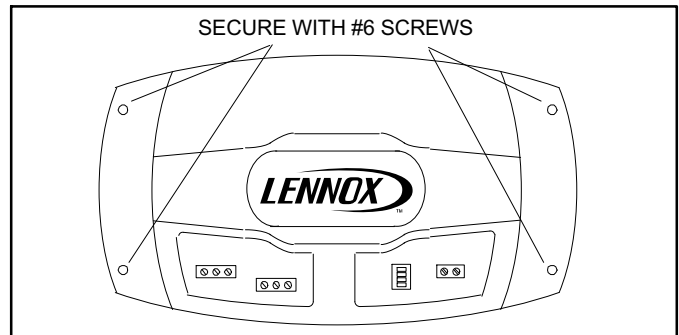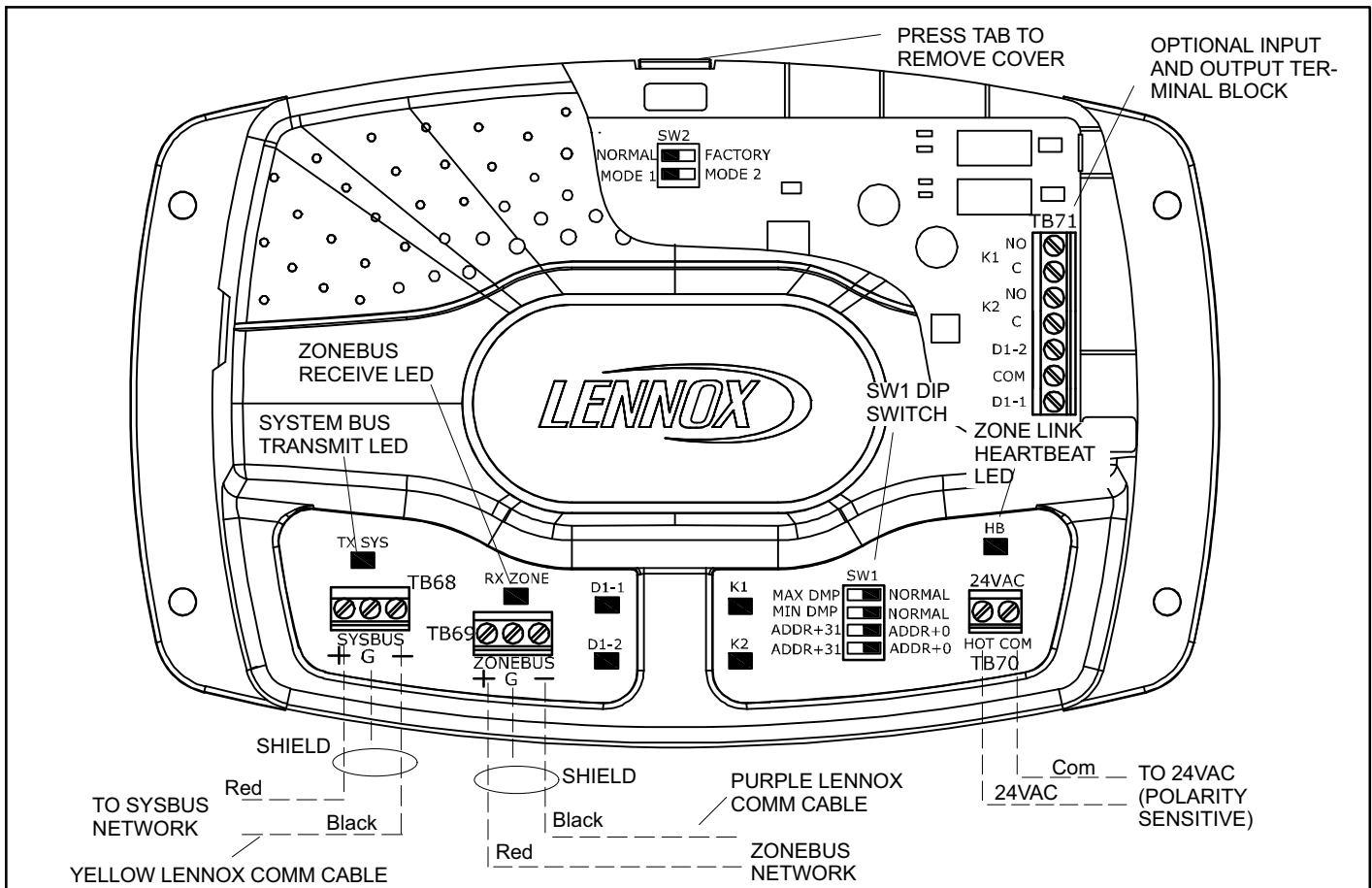

Figure 3. Zone Link Module (A148)

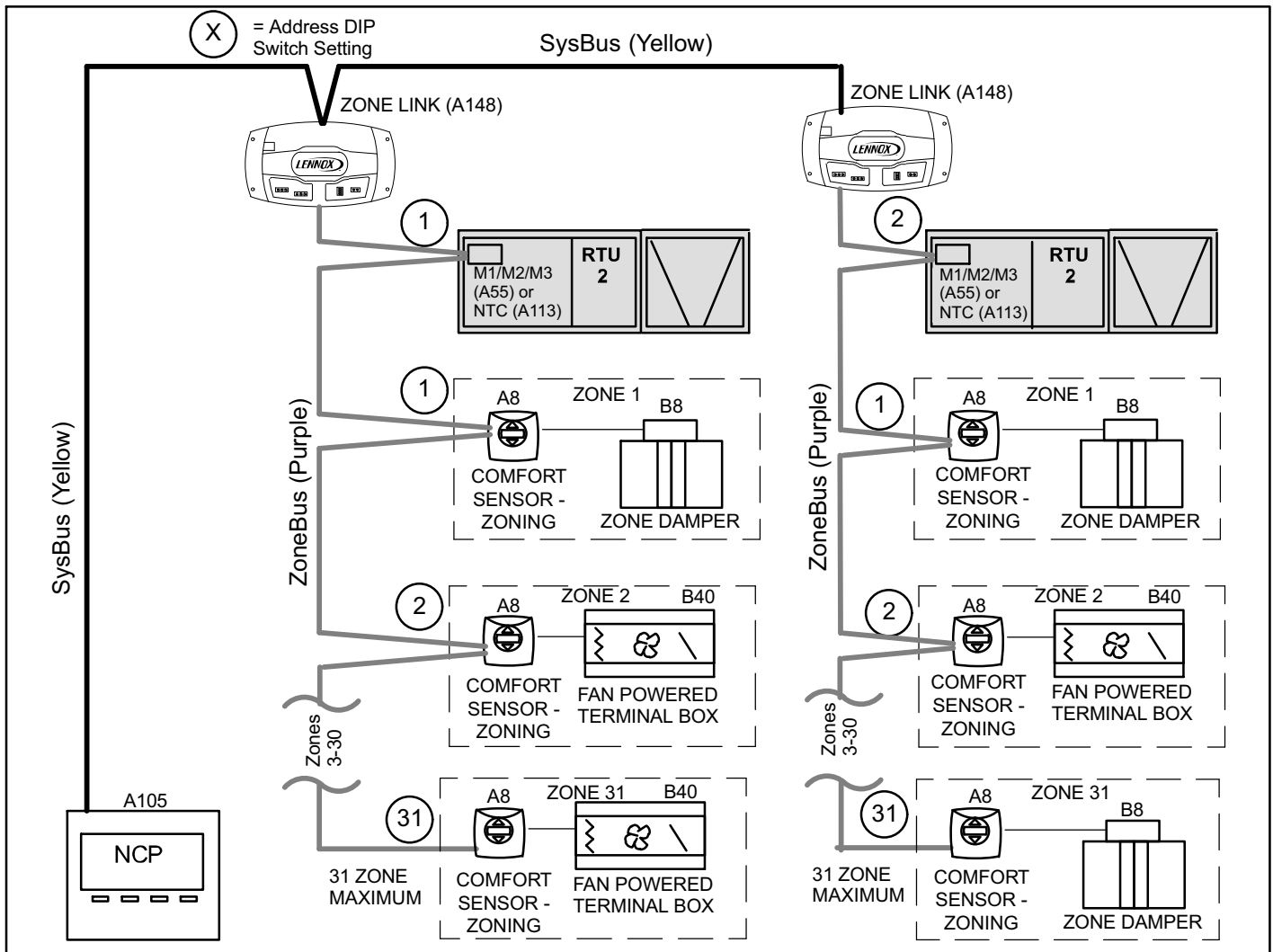**Figure 4. Zone Link Wire Connections (A148)**

Figure 5. Example of a Zoning Network

Optional Inputs and Outputs

Optional 24VAC inputs and outputs are located on TB71 under the Zone Link cover. Press downward on the tab on top of the Zone Link to open the cover. See figure 4.

Input and output function can be adjusted using Unit Controller software. See M1 / M2 ECTOs and M3 Parameters) in the Zone Link Configuration section of this manual.

DI-1 Input—Default operation is set to function as a time clock input. A time clock is used in applications which do not use a Network Control Panel (NCP).

DI-2 Input—Default operation is set to purge air from a building by:

Opening zone dampers to 100%.
Energizing zone box fans on.
Energizing the unit blower on.
Opening outdoor air dampers to 100%.
Energizing unit exhaust fans.
De-energizing all heating and cooling.

K1 Relay Output —Default operation is to energize the output when CO_2 of any occpied zone is above 750 ppm and open when CO_2 drops below 520 ppm.

K2 Relay Output—Default operation is to energize the output when the RH level of any occupied zone is above 60% RH and open when the RH level drops below 57%.

Zoning LG/LC/SG/SC VAV Unit Setup (M1 and M2 Unit Controller) and LG/LC Unit VAV Unit Setup Only (M3 Unit Controller)

The following is required when installing a LG/LC/SG/SC variable air volume unit in zoning applications (M1 and M2 only):

1. Move or install RT6 discharge air sensor 45L78.
2. Install A30 static pressure sensor 78M19.
3. Change unit unit controller settings.

Discharge Air Temperature Sensor (RT6)

LG/LC/SG/SC units used in zoning applications must be set to operate in Discharge Air Control (DAC) mode. DAC mode requires the unit factory-installed discharge air temperature sensor (RT6) be moved from the unit supply air to the supply duct. Position RT6 after a 90 degree turn or before the first diffuser.

IMPORTANT - RT6 sensor must be moved to the supply duct for proper operation.

Units can be ordered with an RT6 remote discharge sensor as a factory option. In that case RT6 will be provided in a kit in the bottom of the compressor area. Install RT6 according to instructions provided in kit.

When access to RT6 is difficult, install RT6 kit 45L78 instead of moving RT6. Install RT6 according to instructions provided in kit. Remember to disconnect wiring to the factory-installed RT6 and splice into wiring routed to the new location.

Move factory-installed RT6:

1. Disconnect wiring to factory-installed RT6.
2. Move RT6 to the supply air duct preferably after a 90 degree turn.
3. Connect two-conductor, 18 gauge thermostat wire to the disconnected wires in the unit. Route wires through the bottom power entry to RT6.

   IMPORTANT - Do not exceed 25 feet (7.6m) total wire run.

4. Connect wires to RT6. RT6 is not polarity sensitive, wires can be connected to either terminal.

Supply Duct Static Pressure Sensor (A30)

VAV units (equipped with a VFD blower) are factory-set to operate in the VAV mode. This mode requires a supply duct static pressure sensor (A30). The pressure sensor is shipped in a box in the unit blower section. Install the sensor according to the manufacturer's instructions. Set the sensor range to 0-5"w.c. and the output to 0-10vdc (M3 unit controller requires 0.5VDC signal). Install according to instructions provided with sensor.

Locate sensor on the side of the supply duct two-thirds of the way down the longest duct. Use two single pair twisted shielded cables or Lennox communication cable 22 gauge minimum. One pair is used for input/output signal and the other pair is used for 24VAC power.

IMPORTANT - Maximum cable length is 50 ft. (15.2m) for 20 gauge and 150 ft. (45.7m) for 18 gauge.

Make wire connections as shown in figure 6.

M1 / M2 ECTOs and M3 Parameters)

Refer to the unit controller manual provided with the rooftop unit to set values as follows:

System Modes			
M1 & M2 ECTO	M3 Parameter	Value	Description
6.01	Go to Menu selection SETUP>NETWORK INTEGRATION to adjust this parameter.	6	Remote demand with RAT backup.
5.04	111	4	Cooling discharge air control.
5.09	112	1	Heating discharge air control.

(M1, M2 and M3 Unit Controllers)			
M1 & M2 ECTO	M3 Parameter	Value	Description
0.01	5	63	Setting for VFD blowers.
0.02	6	*	During smoke detection.
0.03	None	*	During ventilation.
0.04	7	*	During heating.
0.05	8	*	During cooling.

*Adjust static pressure setpoint set design specification (1"w.c. default).
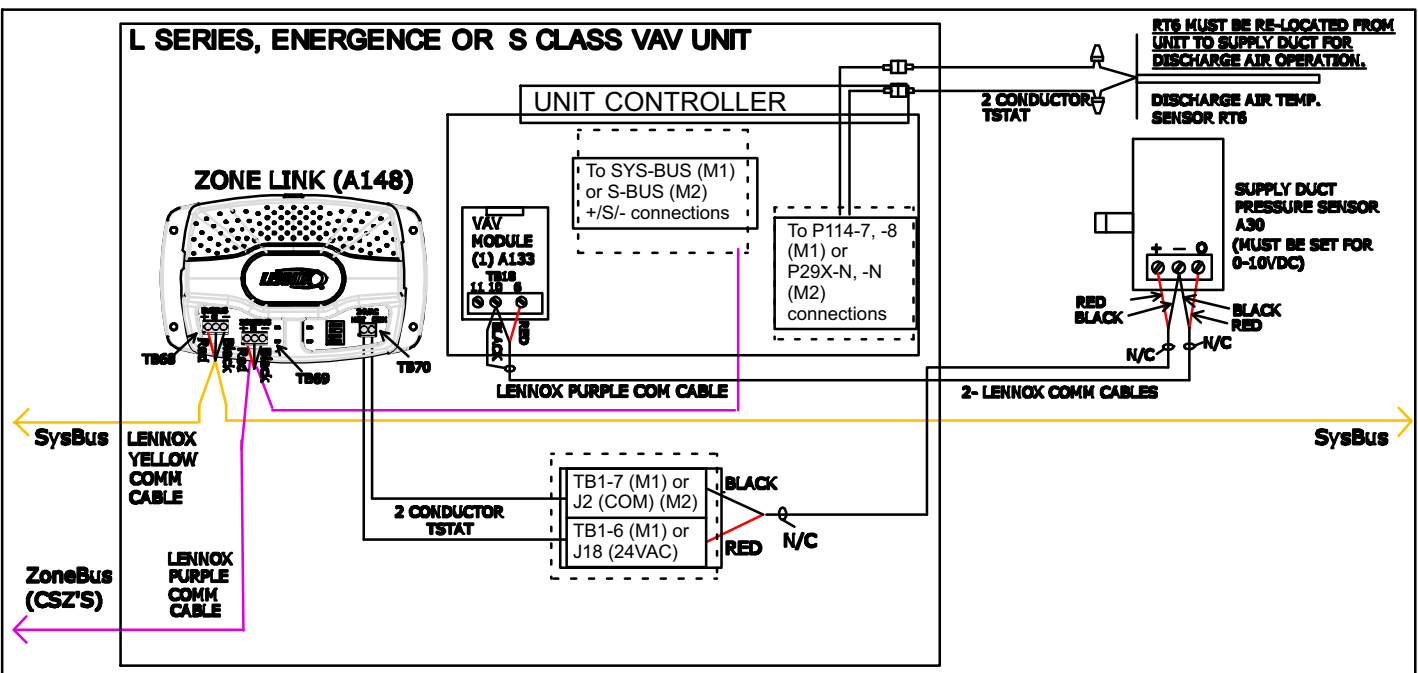

Figure 6. L-Series/S-Class VAV Unit Low Voltage Wiring for Zoning (M1 and M2 only) - Currently not supported for M3

Zoning LG/LC/SG/SC CAV Unit Setup

The following are required when installing a LG/LC/SG/SC constant air volume unit in zoning applications:

1- Install VAV (GP1) module 86M71 (required for M1 and M2 Unit Controllers only)
2- Move or install RT6 discharge air sensor 45L78.
3- Install A30 static pressure sensor 78M19.
4- Install bypass damper and actuator 12W98.
5- Change unit controller settings.

VAV Module Kit (M1 and M2 Unit Controllers Only)

Units which are not equipped with optional variable supply air use a bypass damper to vary air volume. VAV (GP1) Module Kit is required to control the unit bypass damper actuator. Install the GP1 board on the unit controller as shown in the instructions provided with VAV (GP1) module kit. Install TB18 on the GP1 board.

Discharge Air Temperature Sensor (RT6)

LG/LC/SG/SC units used in zoning applications must be set to operate in Discharge Air Control (DAC) mode. DAC mode requires the unit factory-installed discharge air temperature sensor (RT6) be moved from the unit supply air to the supply duct.

IMPORTANT - RT6 sensor must be moved to the supply duct for proper operation.

Units can be ordered with an RT6 remote discharge sensor as a factory option. In that case RT6 will be provided in a kit in the bottom of the compressor area. Install RT6 according to instructions provided in kit.

Access to RT6 in LG/LC090-150 units is limited; installation of RT6 kit is recommended instead of moving RT6. Install RT6 according to instructions provided in kit. Remember to disconnect wiring to the factory-installed RT6 and splice into wiring routed to the new location.

Move factory-installed RT6:

1. Disconnect wiring to factory-installed RT6.

2. Move RT6 to the supply air duct preferably after a 90 degree turn.

3. Connect two-conductor, 18 gauge thermostat wire to the disconnected wires in the unit. Route wires through the bottom power entry to RT6.

    IMPORTANT - Do not exceed 25 feet (7.6m) total wire run.

4. Connect wires to RT6. RT6 is not polarity sensitive, wires can be connected to either terminal.

Supply Duct Static Pressure Sensor (A30)

Units equipped with a bypass damper must be set to operate in Constant Air Volume Bypass (CAVB) mode. This mode requires a supply duct static pressure sensor (A30). Set the sensor range to 0-5"w.c. and the output to 0-10vdc. Install according to instructions provided with sensor.

Locate sensor on the side of the supply duct two-thirds of the way down the longest duct. Use two single pair twisted shielded cables or Lennox comm cable 22 gauge minimum. One pair is used for input/output signal and the other pair is used for 24VAC power.

IMPORTANT - Maximum cable length is 50 ft. (15.2m) for 20 gauge and 150 ft. (45.7m) for 18 gauge.

Make wire connections as shown in figure 7.

Bypass Damper Actuator (B9)

Install bypass damper actuator on bypass damper according to instructions provided with the actuator. Route three-conductor, 18 gauge thermostat wire from the actuator to the unit control area. Make wire connections as shown in figure 7.

IMPORTANT - Maximum cable length is 100 ft. (30.4m) for 18 gauge wire.

Unit Controller M1 or M2 ECTOs and M3 Parameters

Refer to the unit controller manual provided with the rooftop unit to set M1 or M2 ECTO or M3 Parameter values as follows:

System Modes			
M1 & M2 ECTO	M3 Parameter	Value	Description
6.01	136	6	Remote demand with RAT backup.
5.04	111	4	Cooling discharge air control.
5.09	112	1	Heating discharge air control.

Changeover By-Pass Zoning Applications (CAV Units)

ECTO	M3 Parameter	Value	Description
0.01	5	1	Setting for CAV blowers with supply air by-pass damper.
0.13	34	*	During smoke detection.
0.14	35 and 46	*	During ventilation.
0.15	36	*	During heating.
0.16	37	*	During cooling.
*Static pressure setpoint set per design specification (1"w.c. default).			

L SERIES, ENERGENCE OR S CLASS VAV UNIT

UNIT CONTROLLER

ZONE LINK (A148)

RT6 MUST BE RE-LOCATED FROM UNIT TO SUPPLY DUCT FOR DISCHARGE AIR OPERATION.

2 CONDUCTOR TSTAT

DISCHARGE AIR TEMP. SENSOR RT6

To SYS-BUS (M1) or S-BUS (M1 or M2) +/S/- connections

VAV MODULE (1) A133
TB18
11 10 6
BLACK RED

To P114-7, -8 (M1) or P29X-N, -N (M2) connections

SUPPLY DUCT PRESSURE SENSOR A30 (MUST BE SET FOR 0-10VDC)

RED
BLACK
BLACK
RED
N/C
N/C

TB68
TB69
TB70

LENNOX PURPLE COM CABLE

2- LENNOX COMM CABLES

SysBus
SysBus

LENNOX YELLOW COMM CABLE

2 CONDUCTOR TSTAT

ZoneBus (CSZ'S)

LENNOX PURPLE COMM CABLE

TB1-7 (M1) or J2 (COM) (M2)
TB1-6 (M1) or J18 (24VAC) (M2)

BLACK
RED
N/C

B9
2-10VDC +
24VAC HOT COM

BYPASS DAMPER ACTUATOR

3 CONDUCTOR TSTAT

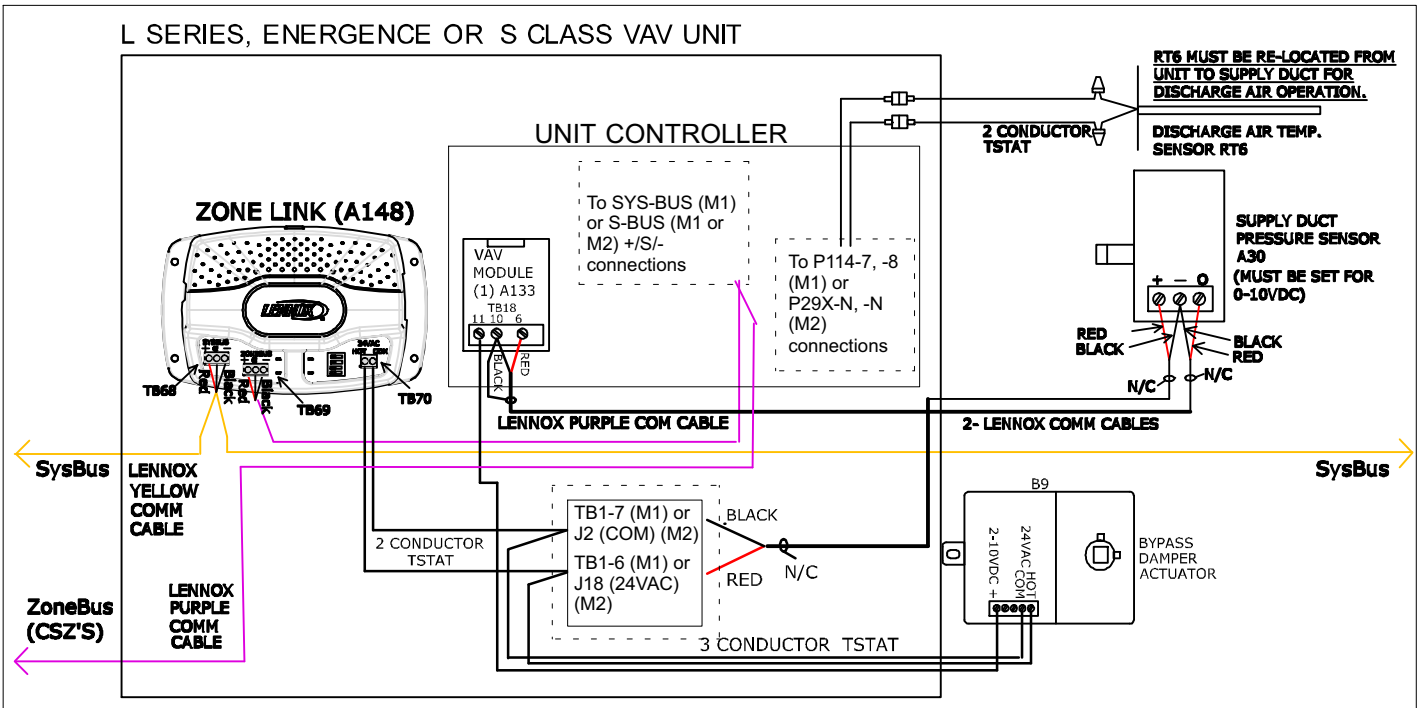**Figure 7. L-Series/S-Class Standard Unit Low Voltage Wiring for CAV Bypass Zoning**
(M1 and M2 Unit Controllers Only)

M3 UNIT CONTROLLER (A55)

ZONE LINK (A148)

RT6 MUST BE RE-LOCATED FROM UNIT TO SUPPLY DUCT FOR DISCHARGE AIR OPERATION.

2 CONDUCTOR TSTAT

DISCHARGE AIR TEMP. SENSOR RT6

S-BUS +/S/- connections

To P259, pin 4

To P267 pin 7 (black wire)
To P267 pin 6 (red wire)
BLACK
RED

To P264, pins 1 and 2

SUPPLY DUCT PRESSURE SENSOR A30 (MUST BE SET FOR 0-10VDC)

RED
BLACK
BLACK
RED
N/C
N/C

TB68
TB69
TB70

LENNOX PURPLE COM CABLE

2- LENNOX COMM CABLES

SysBus
SysBus

LENNOX YELLOW COMM CABLE

2 CONDUCTOR TSTAT

ZoneBus (CSZ'S)

LENNOX PURPLE COMM CABLE

(COM)
(24VAC)

BLACK
RED
N/C

B9
2-10VDC +
24VAC HOT COM

BYPASS DAMPER ACTUATOR
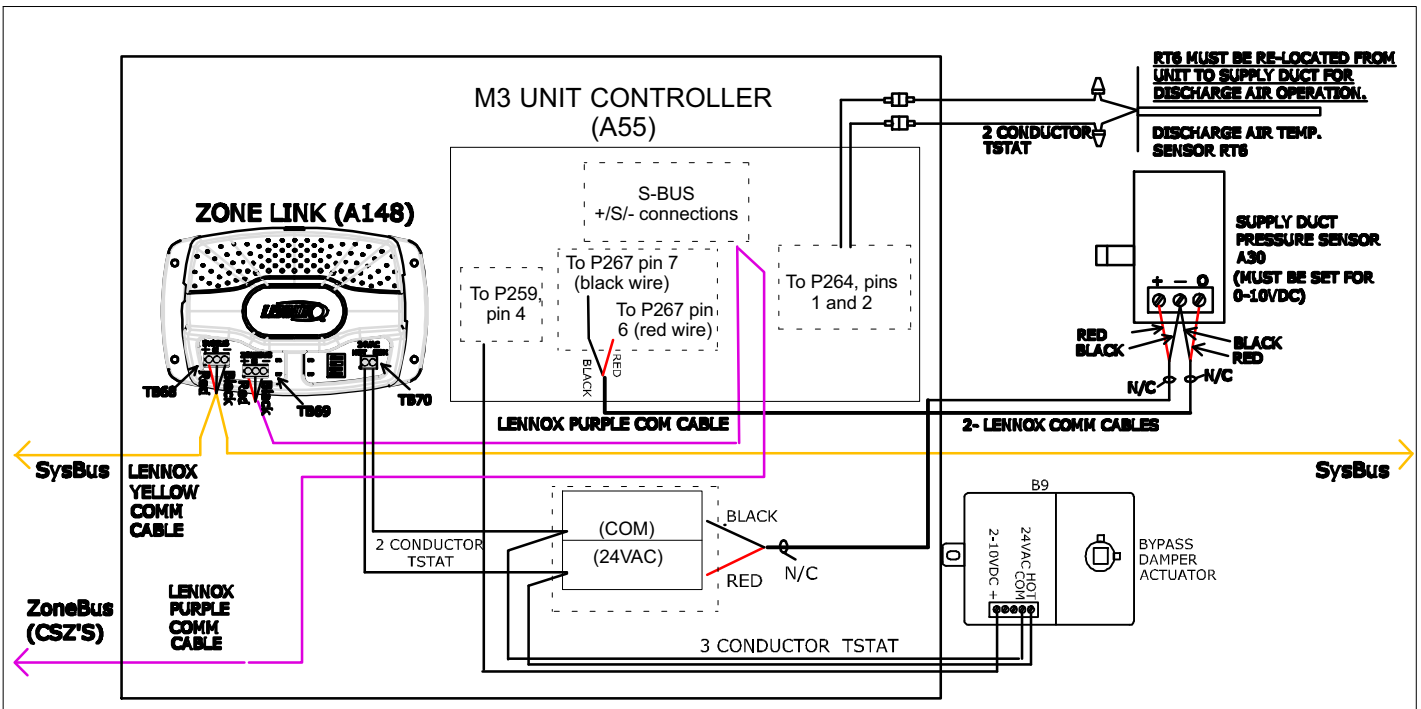
3 CONDUCTOR TSTAT

Figure 8. Energence Unit Low Voltage Wiring for CAV Bypass Zoning
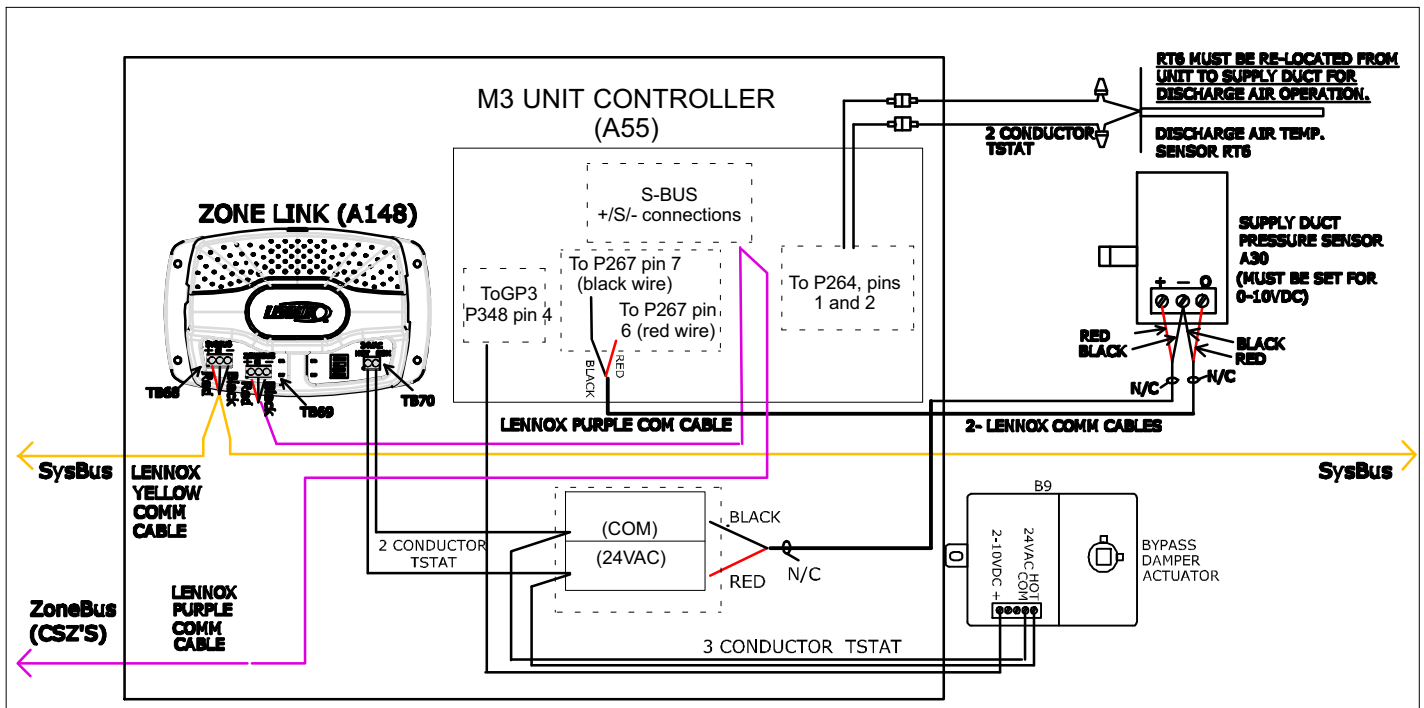**(M3 Unit Controller Only)**

Figure 9. Energence Unit Low Voltage Wiring for LGH/LGC 036H-060H Zoning (M3 Unit Controller Only)

Zoning TG/TC/TH and Third-Party CAV Unit Setup

The following are required when installing a TG/TC/TH or third-party constant air volume unit in zoning applications:

1. Install NTC module 17M10.
2. Install RT6 discharge air sensor 99K64.
3. NTC Bypass Setpoint Controller 11W30.
4. Install A30 static pressure sensor 78M19.
5. Install bypass damper and actuator 12W98.
6. Change unit NTC settings.

Network Thermostat Control NTC (A1)

Units which are not equipped with a unit controller require an NTC to operate in a zoning application. Install and wire the NTC as shown in the instruction provided in the NTC (A1) kit.

Discharge Air Temperature Sensor (RT6)

TG/TC/TH and third-party units used in zoning applications must be set to operate in Discharge Air Control (DAC) mode. DAC mode requires a discharge air temperature sensor be installed (Lennox part no. 99K64). Install the sensor in the supply air duct preferably after a 90 degree turn.

Wire the sensor to the unit NTC P178 terminals 5 & 6. See figure 10. The sensor is not polarity sensitive.

IMPORTANT - Maximum cable length is 25 ft. (7.6m) for 18 gauge wire.

NTC Bypass Controller (A153)

Units which are not equipped with a unit controller require an NTC Bypass Controller to control the bypass damper. Install and wire the Bypass Controller as shown in the instruction provided in the NTC Bypass Controller (A153) kit.

Supply Duct Static Pressure Sensor (A30)

Units equipped with a bypass damper must be set to operate in Constant Air Volume Bypass (CAVB) mode. This mode requires a supply duct static pressure sensor (78M19). Set the sensor range according to the instructions provided with the NTC Bypass Controller. Set the output to 0-5vdc. Install according to instructions provided with sensor.

Locate sensor on the side of the supply duct two-thirds of the way down the longest duct. Use two single-pair twisted shielded cables. One pair is used for input/output signal and the other pair is used for 24VAC power.

IMPORTANT - Maximum cable length is 50 ft. (15.2m) for 20 gauge and 150 ft. (45.7m) for 18 gauge.

Make wire connections as shown in figure 10.

Bypass Damper Actuator (B9)

Install bypass damper actuator on bypass damper according to instructions provided with the actuator. Route three-conductor, 18 gauge thermostat wire from the actuator to the unit control area. Make wire connections as shown in figure 10.

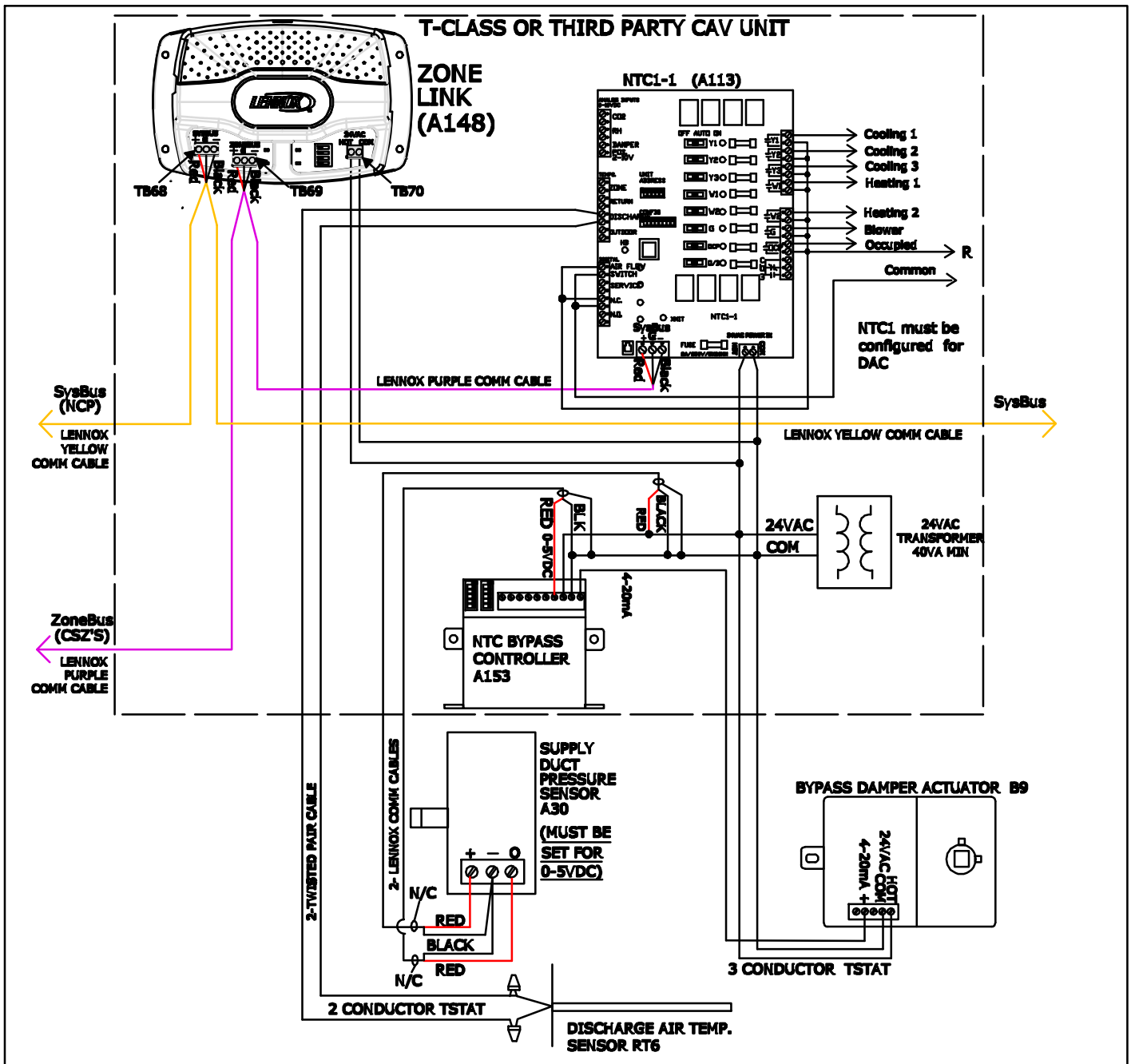*IMPORTANT - Maximum cable length is 100 ft. (30.5m) for 18 gauge wire.*

Figure 10. T-Class/3rd Party Unit Low Voltage Wiring for CAV Bypass Zoning Control

Zone Link Configuration

The Zone Link will detect Comfort Sensors (CS) and Comfort Sensors-Zoning (CSZ) and control units based on default Zone Link ECTO settings. Use the Unit Controller software to adjust the following options. Options 1-10 apply to zoning systems only.

Connect the L Connection PC converter phone cable to the Zone Link or CS/CSZ to configure devices in that zone. Connect the L Connection PC converter phone cable to the Network Control Panel to configure all Zone Links and all other controllers on the network.

1. **Voting Weights -** The voting weight of larger zones can be increased to help even out heating and cooling if required. Default = 1.

2. **Minimum Votes -** Reduces the number of cycles by requiring a minimum number of votes before making a heating or cooling demand. Default =1.

3. **Maximum Call Wait Time -** The longest time the minority vote zones will have to wait before the unit will changeover to satisfy minority demand.

4. **Minimum Time Between Changeovers -** Prevents excessive numbers of changes between heating and cooling. Default = 15 minutes.

5. **Startup Air Mixing -** Opens all zones to circulate air on the first heating or cooling demand of the occupied time period.

6. **Output Relays -** Relay outputs can be configured to close based on RH, CO_2, occupied, or unit lockout conditions.

7. **Override Time -** The length of time a zone stays in override when the override button is pushed or a setpoint is adjusted. This option is used only in the time clock mode (no NCP). Override time can be set from an NCP when one is installed. Default 4 hours.

8. **Blower Mode -** The blower can be set to run continuously during the occupied time period or to cycle with demands. Default = continuous blower operation during the occupied time period.

9. **Heating and Cooling Season Settings -** This option defines the heating and cooling seasons and allows the votes to be weighted accordingly. A cooling demand will require more votes during the winter and a heating demand will require more votes during the summer. Default = off.

10. **Zone Temperature Reset -** Adjusts the heating and cooling discharge air temperature based on the average amount each occupied zone is above or below setpoint.

11. **Programmable Digital Inputs -** The digital inputs can be configured for use as a time clock, fresh air purge, unit shutdown, or smoke alarm input. This option applies to both single and zoning operation.

12. **Time Clock -** The heating and cooling setpoints during both the occupied and unoccupied time period can be adjusted. The setpoints can be set differently for every zone. This option applies to both single and zoning operation.

Table 1. M2 Zoning Heat Pump ECTO Options

| Control Parameter Name | Control Value | | | Units | *These parameters are used in both single unit and zoning applications. All other parameters are used in zoning only. Description |
	Min.	Default	Max		
Heat Pump Heating					
Zone_Wgt	0	1	10	Votes	Zone weight factor. Increase the vote count of larger zones or critical zones by this amount.
Min Votes Cooling Normal	1	1	10	Votes	Minimum number of weighted votes required for RTU cooling demand when not in heating season as defined in ZL1.036.
Min Votes Heating Normal	1	1	10	Votes	Minimum number of weighted votes required for RTU heating demand when not in cooling season as defined in ZL1.037.
Min Votes Cooling Off-season	1	1	10	Votes	Minimum number of weighted votes required for RTU cooling demand in heating season as defined in ZL1.036. Can be used to reduce cooling calls in the winter.
Min Votes Heating Off-season	1	1	10	Votes	Minimum number of weighted votes required for RTU heating demand in cooling season as defined in ZL1.037. Can be used to reduce heating calls in the summer.
Heating Season OAT	10	40	75	DegF	Heating season outdoor air temperature setpoint. Heating season if OAT equal to or less than this setting.
Cooling Season OAT	10	75	110	DegF	Cooling season outdoor air temperature setpoint. Cooling season if OAT equal to or greater than this setting.
Maximum changeover time	15	30	60	Mins	Maximum zone wait time before forced RTU changeover.
Minimum changeover time	10	15	60	Mins	Minimum time between RTU changeover.
Startup mode	0	0	2	Option	Unit operation on first occupied. 0- Air Mix: Zone dampers will go to max position, blower on, economizer closed, no demands. 1- Fresh air: Zone dampers will go to max position, blower on, economizer normal occupied, exhaust fan normal occupied, no demands. 2- Purge: Zone dampers will go to max position, blower on, economizer full open, exhaust fan on, no demands.

table continued on next page

| Control Parameter | Control Value | | | | *These parameters are used in both single unit and zoning applications. All other parameters are used in zoning only. |
Name	Min.	Default	Max	Units	Description
Startup mode duration	0	5	180	Mins.	Duration of startup mode in ZL1.040.
Relay 1 Output	0	0	4	Option	Variable or event that triggers relay output 1. 0- CO2 above setpoint 1- RH above setpoint 2- RH below setpoint 3- System Lockout 4- Unit occupied
Relay 2 Output	0	1	4	Option	Variable or event that triggers relay output 2. 0- CO2 above setpoint 1- RH above setpoint 2- RH below setpoint 3- System Lockout 4- Unit occupied
CO_2 Setpoint	50	750	2000	PPM	CO_2 setpoint that turns on selected relay output.
CO_2 Deadband	10	250	1000	PPM	CO_2 deadband. The CO_2 amount below setpoint to turn off selected relay output.
CO2 Mode	0	0	2	Option	Method used for calling for unit's demand control ventilation based on zone CO2 readings. 0- Maximum occupied zone 1- Average of all occupied zones 2- Average of all zones
RH Setpoint	10	60	100	%RH	RH setpoint that turns on selected relay output.
RH Deadband	1	3	30	%RH	RH deadband. The RH difference from setpoint to turn off selected relay output.
RH Mode	0	0	2	Option	Method used for zone RH readings 0- Maximum occupied zone 1- Average of all occupied zones 2- Average of all zones
Override Timer	0	240	1275	Mins	*Local override default time used for time clock operation.
DI1 Function	0	0	3	Option	Control function of digital input 1 (DI1). 0- *Time Clock Input- Used for time clock operation. 1- Purge- Purge mode opens each zone damper to 100%, turns on local fans (fan box or 100% fan in VAV boxes), turns on blower, opens the economizer damper to 100%, turns exhaust fan on and turns off all heating and cooling (bypassing all minimum run delays). 2- Shutdown – Turns off unit (bypassing all minimum run delays), closes economizer damper, turns off each zone fan and heat, opens zone damper to maximum position and opens unit bypass damper to 50%. 3- *Smoke Alarm-Field-installed smoke alarm input. Global for all RTUs and Comfort Sensors on the zone bus.
DI2 Function	0	1	3	Option	Control function of digital input 2 (DI2). 0- *Time Clock Input- Used for time clock operation. 1- Purge- Purge mode opens each zone damper to 100%, turns on local fan (fan box or 100% fan in VAV boxes), turns on blower, opens the economizer damper to 100%, turns exhaust fan on and turns off all heating and cooling (bypassing all minimum run delays). 2- Shutdown – Turns off unit (bypassing all minimum run delays), closes economizer damper, turns off each zone fan and heat, opens zone damper to maximum position and opens unit bypass damper to 50%. 3- *Smoke Alarm-Field-installed smoke alarm input. Global for all RTUs and Comfort Sensors on the zone bus.
Unit Blower Mode	0	1	1	Option	Operation of unit blower. 0- Blower Cycles 1- Continuous when occupied.
Cooling Reset Offset	0	0	3	DegF	Discharge air increases if average occupied zone temperature is below this offset from setpoint.
Cooling Reset Ratio	0	0	3	DegF	Amount of change in DAT relative to amount average zone temperature is below offset value.
Heating Reset Offset	0	0	3	DegF	Discharge air decreases if average occupied zone temperature is above this offset from setpoint.
Heating Reset Ratio	0	0	3	DegF	Amount of change in DAT relative to amount average zone temperature is above offset value.
Time Clock ECTO					
Occupied Heat	40	70	95	DegF	Zone 1 or unit 1.
Unocc Heat	40	60	95	DegF	Zone 1 or unit 1.

table continued on next page

| Control Parameter	Control Value				*These parameters are used in both single unit and zoning applications. All other parameters are used in zoning only.
Name	Min.	Default	Max	Units	Description
Occupied Cool	40	74	95	DegF	Zone 1 or unit 1.
Unocc Cool	40	80	95	DegF	Zone 1 or unit 1.
Occupied Heat	40	70	95	DegF	Zone 31 or unit 31.
Unocc Heat	40	60	95	DegF	Zone 31 or unit 31.
Occupied Cool	40	74	95	DegF	Zone 31 or unit 31.
Unocc Cool	40	80	95	DegF	Zone 31 or unit 31.
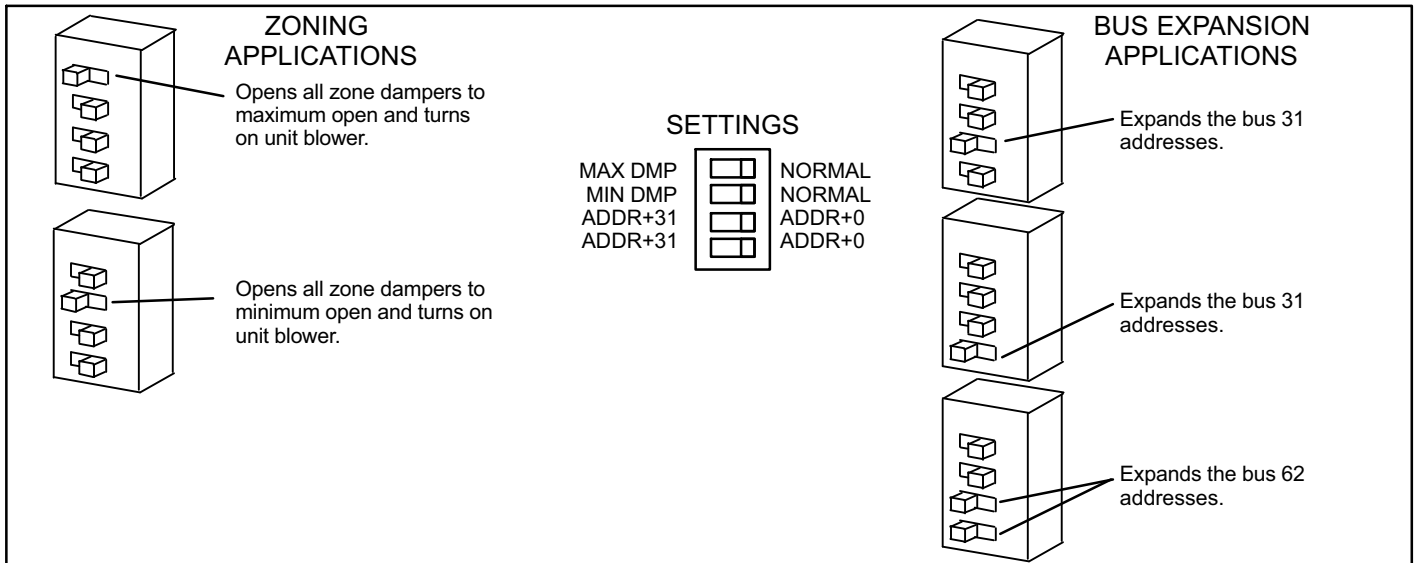
Figure 11. Zone Link SW1 DIP Switch (A148)

Air Balancing

IMPORTANT - Before beginning the air balance, make sure the unit is equipped with a functioning VAV system or bypass damper.

1. Set SW1 DIP switch to **MAX DMP** to open all dampers and bring on the unit blower. See figure 11. Units equipped with an unit controller will operate to maintain a default 1"w.c. static pressure setpoint. Units equipped with an NTC may require adjustment of the NTC Bypass Controller adjustment knob to meet design static pressure.

2. Check all zones for adequate air delivery and measure the static pressure. Adjust the supply air static pressure setpoint as necessary.

   NOTE - If air is not being supplied to a zone, move the damper rotation switch on the actuator. A switch on the CSZ associated with the zone can also be changed to reverse actuator rotation. Refer to instructions provided with actuator and/or CSZ.

3. Return SW1 **MAX DMP** switch to **NORMAL**.

4. Set SW1 DIP switch to **MIN DMP**. All zones will return to the minimum position. Factory default minimum position is 10%. Make sure each zone has at least the minimum airflow required. Adjust any zones that need more or less air using the Unit Controller software.

5. Return SW1 **MIN DMP** switch to **NORMAL**.

Bus Expansion

Use the Zone Link for bus expansion when there are more than 31 L Connection devices .

IMPORTANT - Although 36 devices are allowed on each bus, only 31 addresses can be assigned per bus.

See figure 12 for an example of the DIP switch settings on a bus expanded network. Set the Zone Link SW1 DIP switches as follows:

1. Switches remain at ADDR+0 on Zone Link 1 because the L Connection devices on the SysBus and first ZoneBus are assigned the first 31 addresses. Note that Comfort Sensors share the same address with the RTU and are not counted against the 31 total.

2. Move EITHER of the SW1 switches on Zone Link 2 to ADDR+31.

3. On initial start-up, one of the L Connection devices on Zone Link 2 ZoneBus must be set to address 1. The resulting address for the device will be 1+31 or 32.

See figure 13 for an example of the DIP switch settings when adding up to 93 devices to the network. Set the Zone Link SW1 DIP switches as follows:

4. Move EITHER of the SW1 switches on Zone Link 3 to ADDR+31.

5. Move BOTH of the SW1 switches on Zone Link 4 to ADDR+31.

6. On initial start-up, one of the L Connection devices on Zone Link 4 ZoneBus must be set to address 1. The resulting address for the device will be 1+62 or 63.

7. Move BOTH of the SW1 switches on Zone Link 5 to ADDR+31.

M2 Troubleshooting

Use the following steps to check communication between the Zone Link and rooftop units.

1. Make sure SysBus and ZoneBus components are on the correct bus and that the system layout conforms to design limits.

2. Verify the Zone Link is powered on with 24VAC and the heartbeat LED above the power connection is flashing.

3. Check the ZoneBus Receive LED. LED should flash on as messages are received. If the LED is constantly on one of the devices may be wired backwards. All bus connections are polarity sensitive. If the LED is off no units are being found. Check connections to each device on the network.

4. Single-Zone Systems - When only one unit controller is displayed under a Zone Link by Unit Controller (UC) software, make sure the unit controller has not been set for a zoning application. Refer to Unit Setup sections in this manual.

5. Single and zoned units cannot be wired to the same Zone Link. The UC software will not display all of the unit controller under that Zone Link. Wire zoned and non-zoned units to different Zone Links.

6. If the SysBus Transmit LED is off and the ZoneBus Receive LED is flashing, this may indicate there are units on the ZoneBus which are not being "seen" by the NCP. When the bus is expanded to more than 31 L Connection devices, one of the devices on that ZoneBus must be set to 1. This will allow the NCP to poll the rest of the devices on the ZoneBus.

7. If single-zone unit controller are displayed by UC software but their associated Comfort Sensors are not, check ECTO 5.27. ECTO 5.27 tells the unit controller where to look for zone temperature, CO2, and indoor RH. Refer to the CS installation instruction.

8. If single-zone NTCs are displayed by UC software but their associated Comfort Sensors are not, check ECTO A4.07. ECTO A4.07 must be set to 1 for remote sensor.

9. If the master or PC software only finds part of the network, make sure the master or PC software interface is connected to the top level SysBus. The SysBus can be used to access every lower level ZoneBus but the ZoneBus cannot be used to access the SysBus.
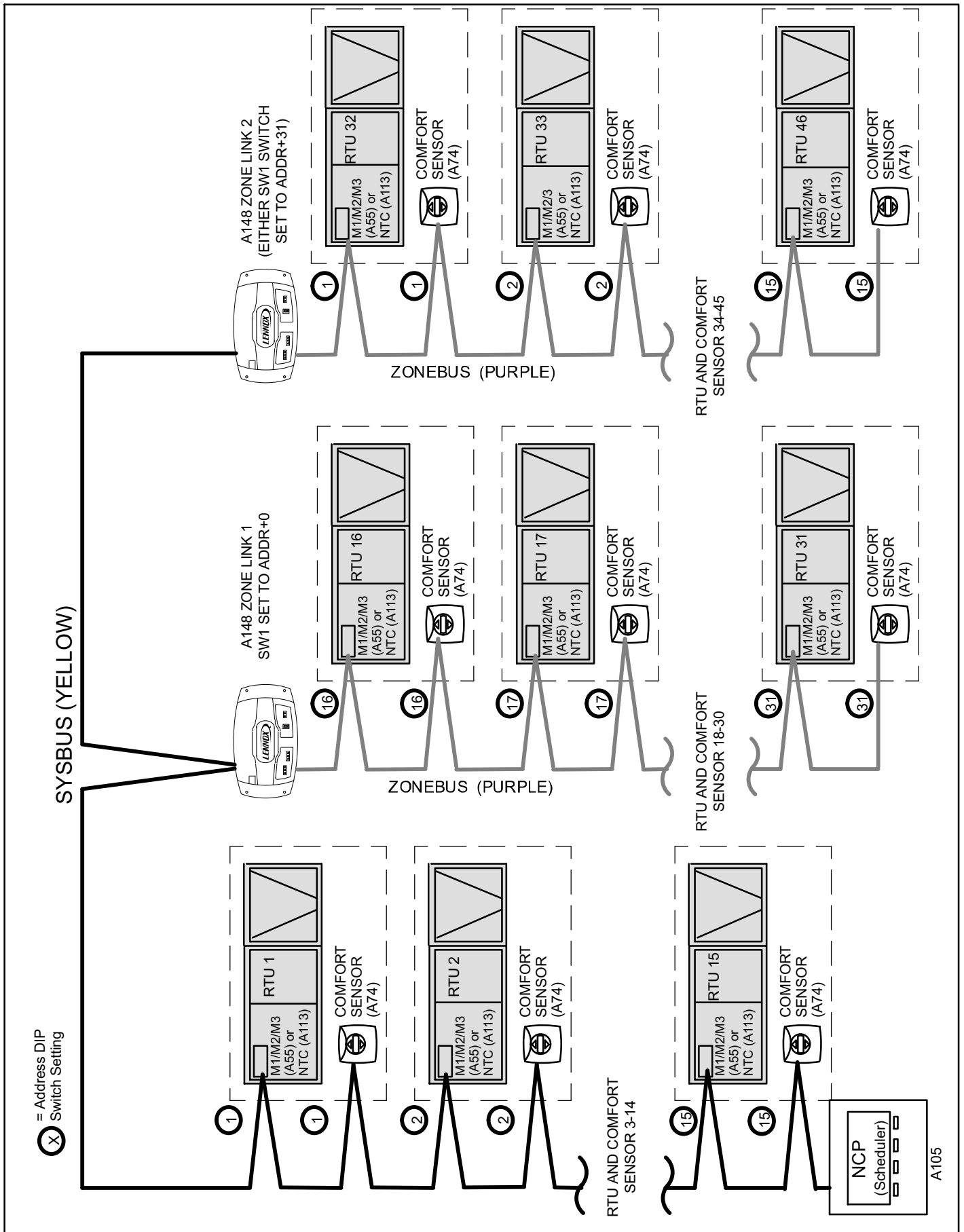
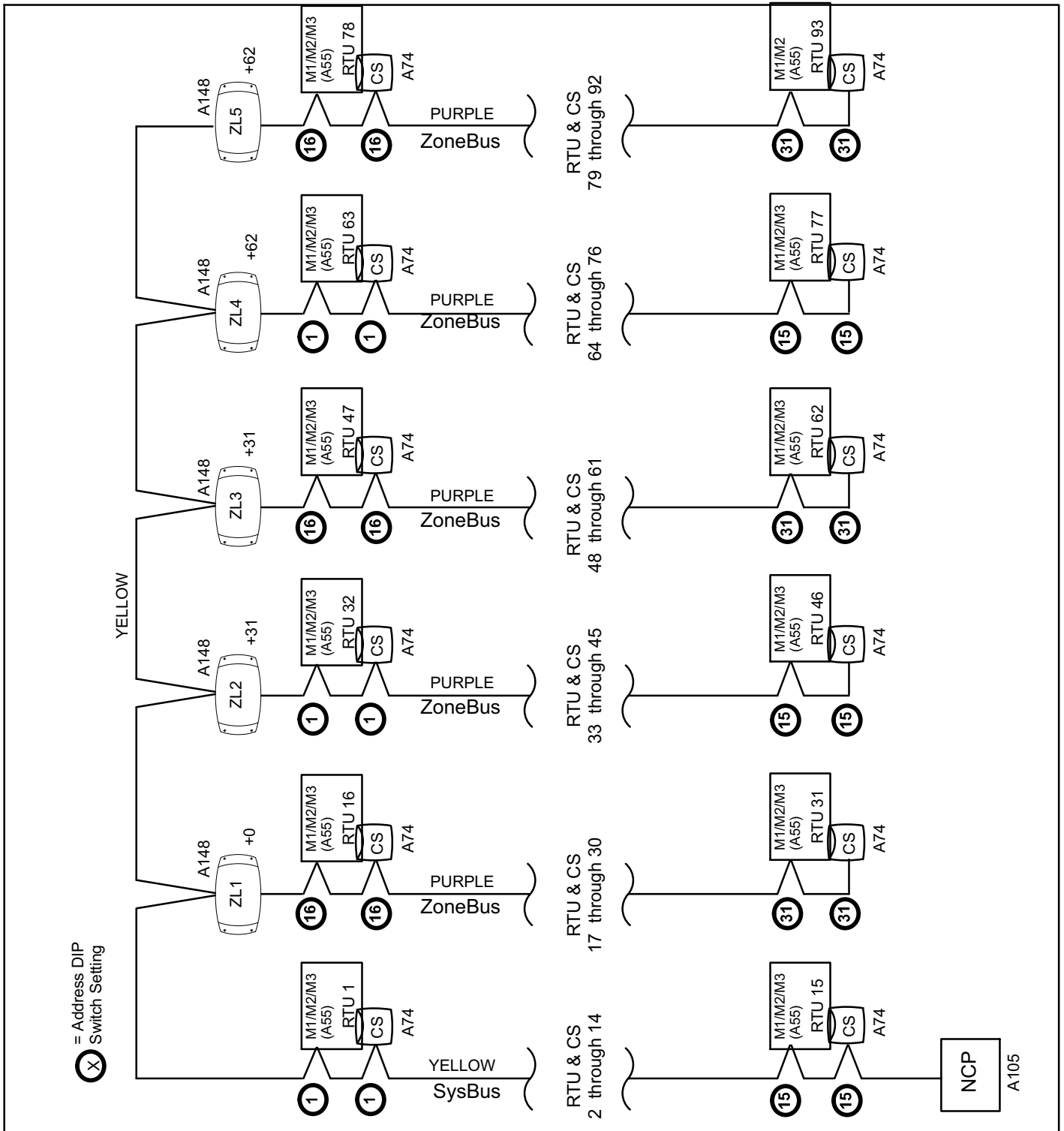**Figure 12. Example DIP Switch Settings for a Single Zone SYSBUS Expanded Network**

Figure 13. Example DIP Switch Settings for a Network Expanded to 93 Addresses (L Connection Devices)