
SELECTRONIX, INC.
WOODINVILLE, WA

SUPERSTEP SERIES 4000
SEQUENCING STEP
CONTROLLERS

INSTALLATION & OPERATING
ADDENDUM

LOAD LIMIT INPUT CONFIGURATIONS

1	Various DC Voltage - 100 % Load Limit Input Configuration	3
1.1	0-5 VDC.....	3
1.1.1	Additional Components Required.....	3
1.2	0-10 VDC.....	3
1.2.1	Additional Components Required.....	3
1.2.2	DC Voltage Configuration With Resistor Divider Network Wiring Diagram.....	4
1.3	0-1.2 VDC.....	4
1.3.1	Additional Components Required.....	4
1.3.2	DC Voltage - Direct Connection Wiring Diagram	4
2	4-20 ma 100 % Load Limit Input Configuration	5
2.1	4-20 ma Pre-programmed at the factory (includes resistor assembly).....	5
2.2	4-20 ma Field Programming	5
2.2.1	Additional Components Required.....	5
2.3	Programming for 4-20 ma Load Limit Input	5
2.3.1	Steps To Program the Load Limit Input for 4-20 ma.....	5
2.3.2	4-20ma DC Current Wiring Diagram	6
3	Potentiometer 100 % Load Limit Input Configuration	7
3.1.1	Potentiometer Wiring Diagram.....	7
4	Standby Generator Load Limiting Configuration.....	8
4.1.1	Standby Generator Wiring Diagram	8
5	Relay Closure Shutdown Configuration	9
5.1.1	Relay Closure Shutdown Wiring Diagram	9

Introduction

This addendum describes how to configure the Series 4000 controllers for the various Load Limit input configurations and signal sources. It also has a block diagram for connecting to a Building Automation System.

The following configurations provide for 100% load limiting, which means that at the minimum command, all relay stages are enabled, and at the maximum command 0 stages are enabled.

100% load limiting allows for the command to also act as an alternate shutdown command.

1 Various DC Voltage - 100 % Load Limit Input Configuration

1.1 0-5 VDC

1.1.1 Additional Components Required

- R1 1.50K ohm 1%, ¼ watt or greater Available as SLC4040-1.50K
- R2 499 ohm 1%, ¼ watt or greater Available as SLC4040-499

Note that SLC4040 Resistor Adapter Assemblies contain the resistor, 2 female and 1 male ¼” quick connect terminals and 2 ‘Y’ terminal tab adapters for mounting flexibility.

Install ‘Y’ adapters on TB5 and TB6. Connect free end of R1 to field wiring using insulated male quick connect and secure to chassis. See Figure 1 for connection schematic.

1.2 0-10 VDC

1.2.1 Additional Components Required

- R1 3.48K ohm 1%, ¼ watt or greater Available as SLC4040-3.48K
- R2 499 ohm 1%, ¼ watt or greater Available as SLC4040-499

Note that SLC4040 Resistor Adapter Assemblies contain the resistor, 2 female and 1 male ¼” quick connect terminals and 2 ‘Y’ terminal tab adapters for mounting flexibility.

1.2.2 DC Voltage Configuration With Resistor Divider Network Wiring Diagram

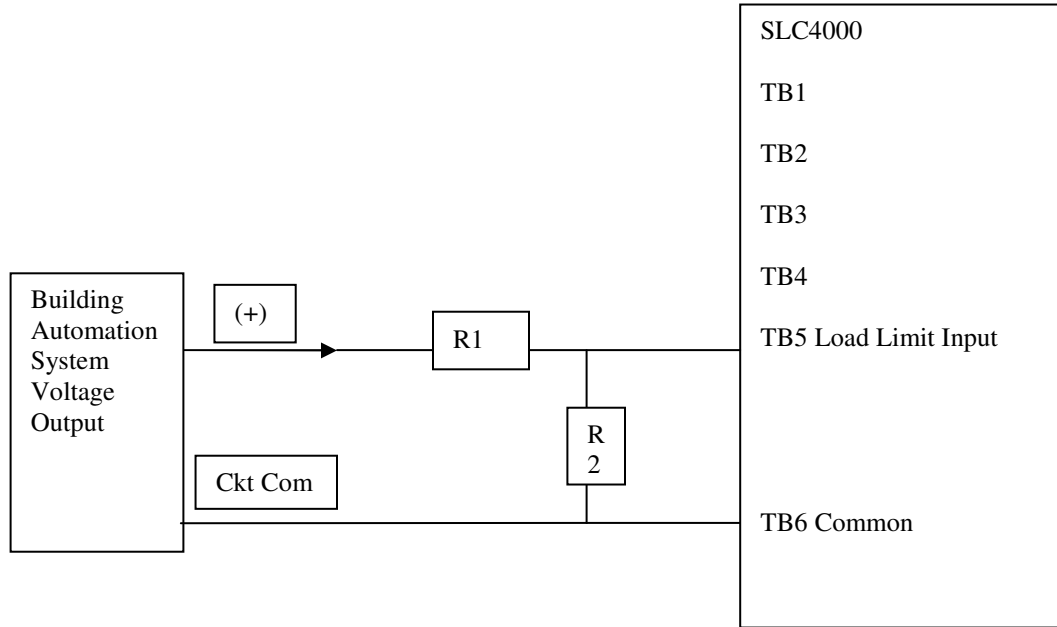


Figure 1 DC Voltage Configuration With Resistor Divider Network Wiring Diagram

1.3 0-1.2 VDC

1.3.1 Additional Components Required

- None
See Figure 2 for connection schematic

1.3.2 DC Voltage - Direct Connection Wiring Diagram

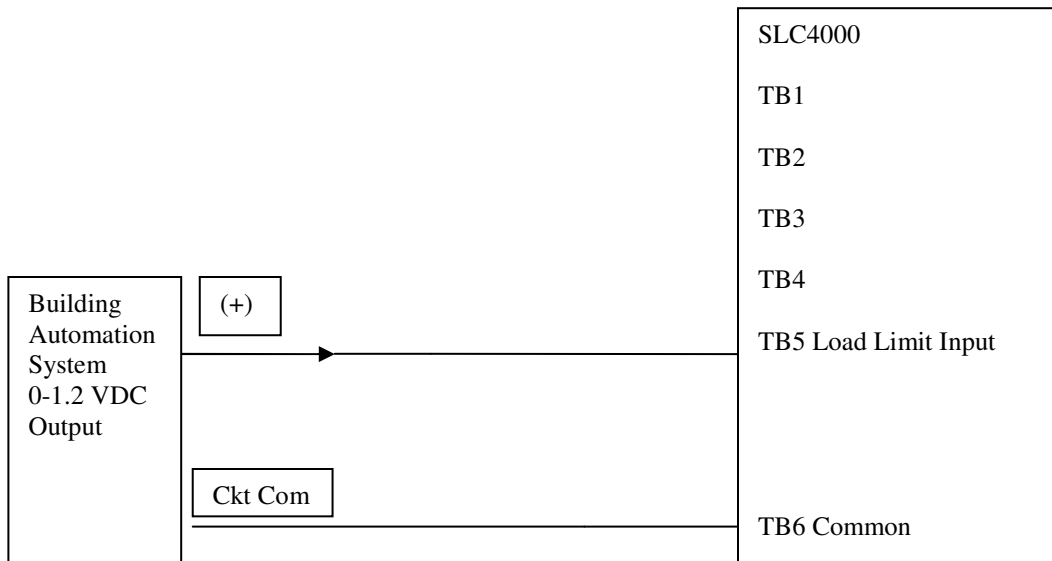


Figure 2 DC Voltage - Direct Connection Wiring Diagram

2 4-20 ma 100 % Load Limit Input Configuration

2.1 4-20 ma Pre-programmed at the factory (includes resistor assembly)

- You can order Series 4000 with the load limit programmed for 4-20ma and the resistor assembly included.
- Order SLC4000-8-02 or SLC4000-4-02.

2.2 4-20 ma Field Programming

2.2.1 Additional Components Required

- R1 61.9 ohm 1%, ¼ watt or greater Available as SLC4040-61.9

Note that SLC4040 Resistor Adapter Assemblies contain the resistor, 2 female and 1 male ¼” quick connect terminals and 2 ‘Y’ terminal tab adapters for mounting flexibility. Install ‘Y’ adapters on TB5 and TB6. Connect positive (+) to TB5, and minus(-) to TB6.

2.3 Programming for 4-20 ma Load Limit Input

The Load Limit input must be programmed for a 20% offset to accommodate the 4 ma offset.

2.3.1 Steps To Program the Load Limit Input for 4-20 ma

Turn the control power off, and disconnect any wires connected to TB1, TB2, and TB3.

- Connect a jumper between TB2 and TB3
- Record the original switch settings for SW1-1 through SW1-5
- Set the Input Configuration switches to the following
- SW1-1 OFF
- SW1-2 OFF
- SW1-3 OFF
- SW1-4 OFF
- SW1-5 OFF
- Apply control power, and verify the status LED is flashing Red, then Grn, at 1 Hz, indicating the programming mode.
- Press and hold the Test Dn pushbutton for greater than 1 second, until the status LED turns off, then cycles Grn, Org, and Red. It returns to flashing Red and Grn.
- Turn off control power
- Remove the jumper between TB2 and TB3
- Set the Input Configuration switches back to the original setting.
- Re-connect the normal sensor inputs, as required.

2.3.2 4-20ma DC Current Wiring Diagram

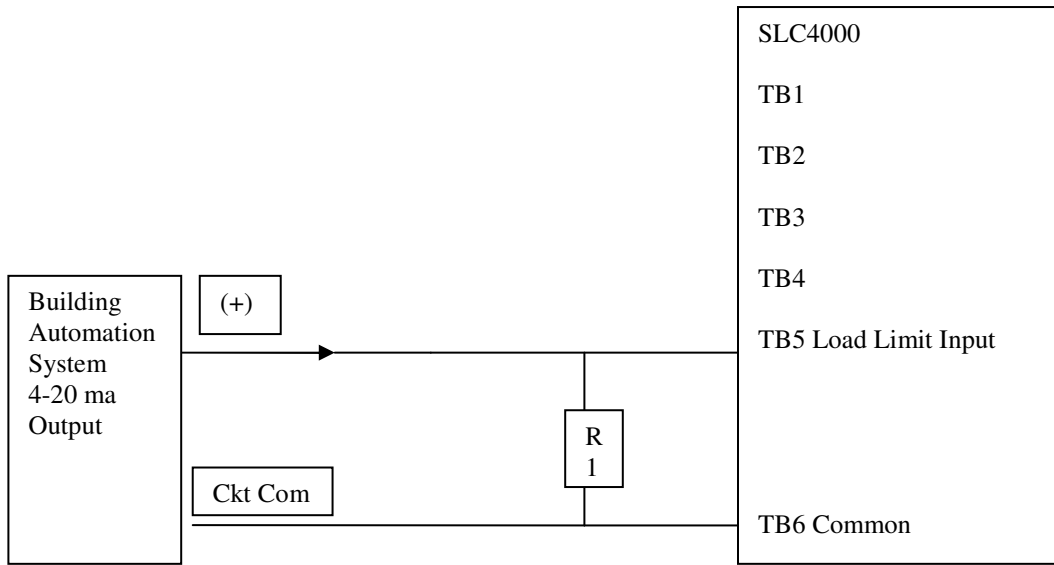


Figure 3 4-20ma DC Current Wiring Diagram

3 Potentiometer 100 % Load Limit Input Configuration

1. Connect a 1K to 5K, 2 watt potentiometer as shown below for 100% load limiting.
 - Full Clockwise (CW) will allow all the stages to come on.
 - For full Counter-Clockwise to allow all stages to come on, reverse TB4 and TB6 connections.

3.1.1 Potentiometer Wiring Diagram

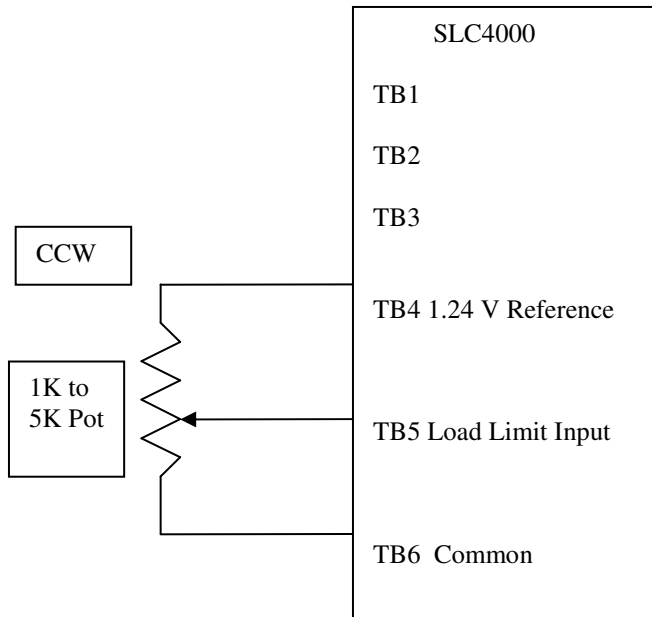
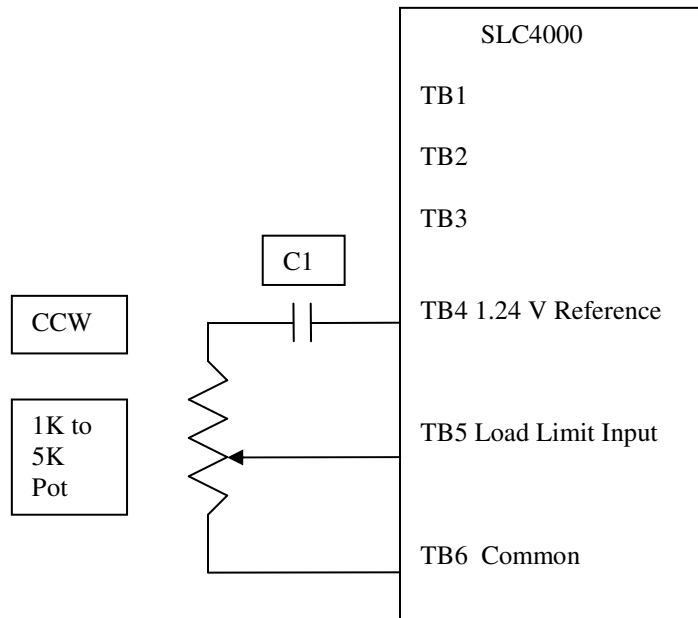


Figure 4 Potentiometer Wiring Diagram

4 Standby Generator Load Limiting Configuration

- A variation of the potentiometer load limiting may be used to limit the maximum load when a standby generator is activated.
- Install a relay, C1, whose contacts close when the generator is activated, using the Normally Open contacts. Alternately, wire the relay to be energized with line power using the Normally Closed contacts, so that when the relay is de-energized, the load limit takes effect.
- If a non-adjustable load limit is desired, replace the potentiometer with 2 resistors, R1 and R2, in a voltage divider configuration to provide the desired percentage of the 1.24V reference.
 - Assuming R1 is 1K ohm, 1/4 Watt, then R2 is determined by:
 $X = \text{Desired load, in percent}$
 $R2 = (100,000/X) - 1000$ in ohms
 - Example:
 - Desired load percent = 30%
 - $R2 = (100,000/30) - 1000$
 $= 2333$ ohms
 Obtain the closest standard 5%, 1/4 watt value of 2.4K ohms

4.1.1 Standby Generator Wiring Diagram

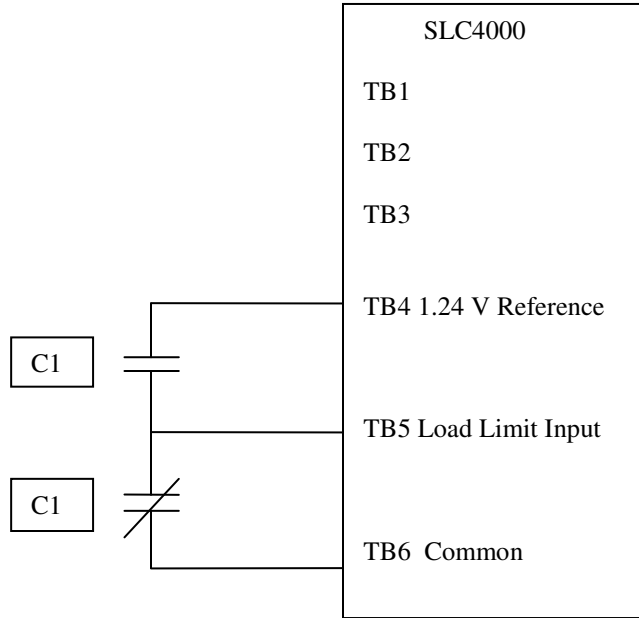


• Figure 5 Standby Generator Wiring Diagram

5 Relay Closure Shutdown Configuration

- A normally open or normally closed set of contacts may be used to command all in-service relay outputs to sequence off. This might be used as a **low water, fault or general purpose output shutdown**.

5.1.1 Relay Closure Shutdown Wiring Diagram



• Figure 6 Relay Closure Wiring Diagram

Optional wiring

Action	Contact set connects	Additional Component and connections	Remarks
Closing contact causes graceful shutdown	TB4 and TB5	N/A	
Opening contact causes graceful shutdown	TB5 and TB6	Resistor (5Kohms or less) TB4 to TB5	SLC4040-1.50K resistor kit is suitable and has 'Y' quick connect adapters included