⚠ DANGER

This Quick Operation Guide is not a replacement for adequate training and safety procedures for this product. Read S&C Instruction Sheets 676-510, 676-515, and 676-540 thoroughly and carefully before using this Quick Operation Guide. **Failure to have adequate training and understanding of these instructions will likely result in serious personal injury or death if the instructions, including recommended precautions, are not followed.**

⚠ WARNING

The EdgeRestore Underground Distribution Restoration System must be installed, operated, and maintained by qualified persons who are knowledgeable in underground electric power distribution equipment and the associated hazards. For more information on the requirements of a qualified person, see the "Introduction" section of S&C Instruction Sheet 676-540. **These instructions are not intended to be a substitute for adequate training and experience in safety procedures for this type of equipment. Failure to follow these operating and safety procedures can result in serious injury.**

Figure 1. LED indicators on a normally closed control.

⚠ WARNING

The voltage indicator LEDs provide an indication of voltage. The absence of a lit voltage LED light should NOT be used to check for voltage on the cables. Test the cables for voltage in accordance with your utility practices before performing any work on the circuit. **Failure to follow these operating and safety procedures can result in serious injury.**

Table 1. CONTROL LED Indicators – Normally Closed Control

LED Description	State	Description
No LED Indication	All LEDs dark	Indicates no control power. Use the cordless power module as required.
Delay	Red/Flashing	Flashes once per second for 10 seconds during a **Closing** sequence. Otherwise off.
Control Power	Red/Solid	Lit when control is powered either through 120 Vac or when using the 9-Vdc cordless power module.
	Red/Flashing	Indicates control power is present but the control is not charged enough to close a bushing well interrupter.
Source Voltage	Red/Solid	Solid light indicates the presence of good voltage.
	Red/Flashing	Alternating flashing of the Source Voltage and Load Voltage LEDs indicates 25% or greater system voltage across the open bushing well interrupter. In this state it will not close.
Load Voltage	Red/Solid	Solid light indicates the presence of good voltage.
	Red/Flashing	Alternating flashing of the Source Voltage and Load Voltage LEDs indicates 25% or greater system voltage across the open bushing well interrupter. In this state it will not close.
Abnormal/PLC	Green/Solid	Power line carrier communications is functioning and the control is in its **Normal** state.
	Green/Flashing	Power line carrier communications is functioning and control power is off. The control will flash green in its **Normal** state.
	Red/Solid	One or both bushing well interrupters is in the **Open** position, an operating lever is locked out, or voltage normalization is not working.
	Red/Flashing	The system is in an **Abnormal** condition—either because it is in the wrong state, an operating lever is locked out, or voltage normalization is not working—and the control power is off.
	White/Solid	Power line carrier communications is in **Testing** mode. Will remain white while searching for neighboring controls, and then change to green when it communicates with a neighbor control.
	White/Flashing	If only this LED and the DELAY LED are flashing, the control is in **Testing** mode and without control power. This is a **Normal** state. If the CONTROL POWER LED (red), SOURCE VOLTAGE LED (red), LOAD VOLTAGE LED (red), and the ABNORMAL/PLC LED (white) are all blinking, the firmware has not passed its integrity check. Contact the local S&C Sales Office for more information.
	Blue/Solid	One or both bushing well interrupters are at their end of life, and the control is in a **Normal** condition.
	Blue/Flashing	One or both bushing well interrupters are at their end of life, and there is no control power. The control is in its **Normal** state.
	Blue/Red Alternating or Blue-off-Red-off flashing	One or both bushing well interrupters are at end of life, and the system is in an **Abnormal** condition because it's either in the wrong state, a lever is locked out, or voltage normalization is not working. (The LED will flash blue-off/red-off when the control power is disconnected.)

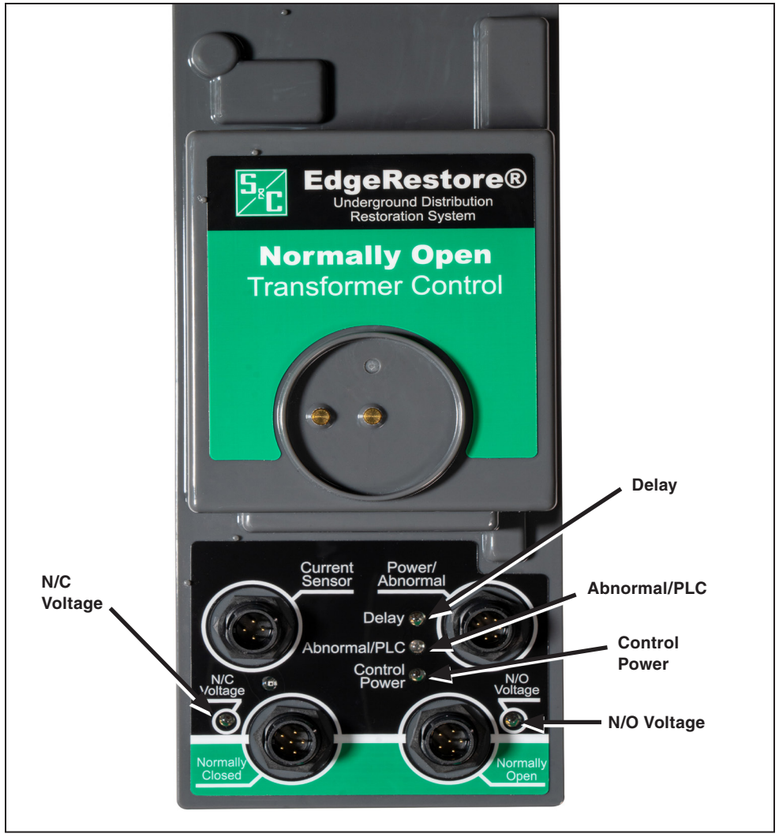

Figure 2. LED indicators on a normally open control.

Table 2. CONTROL LED Indicators – Normally Open Control

LED Description	State	Description
No LED Indication	All LEDs dark	Indicates no control power. Use the cordless power module as required.
Delay	Red/Flashing	Flashes once per second for 10 seconds during a **Closing** sequence. Otherwise off.
Control Power	Red/Solid	Lit when control is powered either through 120 Vac or when using the 9-Vdc cordless power module.
	Red/Flashing	Indicates control power is present but the control is not charged enough to close a bushing well interrupter.
N/C Voltage	Red/Solid	Solid light indicates the presence of good voltage.
	Red/Flashing	Alternating flashing of the N/C Voltage and N/O Voltage LEDs indicates 25% or greater system voltage across the open bushing well interrupter. In this state it will not close.
N/O Voltage	Red/Solid	Solid light indicates the presence of good voltage.
	Red/Flashing	Alternating flashing of the N/C Voltage and N/O Voltage LEDs indicates 25% or greater system voltage across the open bushing well interrupter. In this state it will not close.
Abnormal/PLC	Green/Solid	Power line carrier communications is functioning and the control is in its **Normal** state. **Note:** The normally open control may display a white (not-green) LED indication if there are no normally closed EdgeRestore system controls communicating on both sides of the normally open control.
	Green/Flashing	Power line carrier communications is functioning and control power is off. The control will flash green in its **Normal** state.
	Red/Solid	One or both bushing well interrupters is not in its **Normal** position, there is no voltage on the normally open cable, an operating lever is locked out, or voltage normalization is not working.
	Red/Flashing	The system is in an A**bnormal** condition—either in the wrong state, an operating lever is locked out, a fault is next to the normally open bushing well interrupter, or voltage normalization is not working—and the control power is off.
	White/Solid	Power line carrier communications is in **Testing** mode. Will remain white while searching for neighboring controls.
	White/Flashing	If only this LED and the DELAY LED are flashing, the control is in **Testing** mode and without control power. This is a **Normal** state. If the CONTROL POWER LED (red), N/C VOLTAGE LED (red), N/O VOLTAGE LED (red), and the ABNORMAL/PLC LED (white) are all blinking, the firmware has not passed its integrity check. Contact the local S&C Sales Office for more information.
	Blue/Solid	One or both bushing well interrupters are at their end of life, and the control is in a **Normal** condition.
	Blue/Flashing	One or both bushing well interrupters are at their end of life, and there is no control power. The control is in its **Normal** state.
	Blue/Red Alternating or Blue-off-Red-off flashing	One or both bushing well interrupters are at end of life, and the system is not in its **Normal** position, either because there is no voltage on the normally open cable, an operating lever is locked out, or voltage normalization is not working. (The LED will flash blue-off/red-off when the control power is disconnected.)