

## GENERATOR EMERGENCY SHUTDOWN SWITCH COMPARISON

**Synopsis** – Confusion and misinformation exists regarding NEC requirements for Generator Emergency Shutdown Switches in one- and two family dwellings. The NEC Defines performance requirements for generator emergency shutdown switches in Section 445.19, but is lacking in requirements for construction and ratings, both electrical and environmental. This whitepaper defines the requirements for a generator emergency shutdown switch and identifies different levels of performance that would satisfy these requirements. This information is provided in a table which identifies the different levels of performance and the characteristics of a switch that would provide such performance and satisfy NEC requirements. The table also compares the characteristics of the TCERDirect® emergency shutdown switch to characteristics of switches that would provide other levels of performance. The TCERDirect® switch provides a better solution to satisfying NEC requirements for generator emergency shutdown switches than other switches which are only minimally acceptable. Please refer to the table on the following page for these comparisons.

**Best practice:** As local inspectors may not be aware of NEC requirements for generator emergency shutdown, and to preclude delays in final inspection approval, TCERDirect® and Gen-Pro Products strongly encourage that prior to selecting an emergency shutdown switch for generator installations in one- and two family dwellings, installers should confirm with their local building inspector that the proposed installation meets with their approval.

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## GENERATOR EMERGENCY SHUTDOWN SWITCH COMPARISON TABLE

Switch Requirements	Minimally Acceptable	Better (TCERDirect®)	Best
<b>NEC 445.19(A)(1)</b> Be equipped with provisions to disable all prime mover start control circuits to render the prime mover incapable of starting	Any switch with a control circuit or pilot duty rating	Any switch with a control circuit or pilot duty rating	Any switch with a control circuit or pilot duty rating
<b>NEC 445.19(A)(2)</b> Initiate a shutdown mechanism that requires a mechanical reset	Ordinary pushbutton, mechanical reset inherent in circuit design	Locking or latching-type manual resettable pushbutton	Locking or latching-type manual resettable pushbutton
Construction	Nothing specific	Switch has a mushroom-shaped head so that it can be easily activated with the palm of a hand and the actuator is red in color so that it is easily identified  Exposed plastic parts are UV-rated	Switch has a mushroom-shaped head so that it can be easily activated with the palm of a hand and the actuator is red in color so that it is easily identified  Exposed plastic parts are UV-rated
Environmental Rating	**IP65 or equivalent UV-rated plastic parts if outdoors	**IP65/NEMA Type 3R/4/4X, UV-rated plastic parts	**UL Type 3R/4/4X
Markings	Generator Emergency Stop label	Generator Emergency Stop ring with yellow background	Generator Emergency Stop ring with yellow background
Certification	None	CE/CCC or VDE/TUV (Third-party)	UL
Compliance standard	Not identified	IEC/UL 60947-5-1	UL 60947-5-5

*\*\* If switch is mounted on the exterior of the structure and contained in an enclosure separate from the transfer switch, the enclosure should be constructed of UV rated material and IP65 (or better) rated*