

FIREFIGHTER SAFETY SWITCH

/ Compatible DC disconnecter & short circuit switches

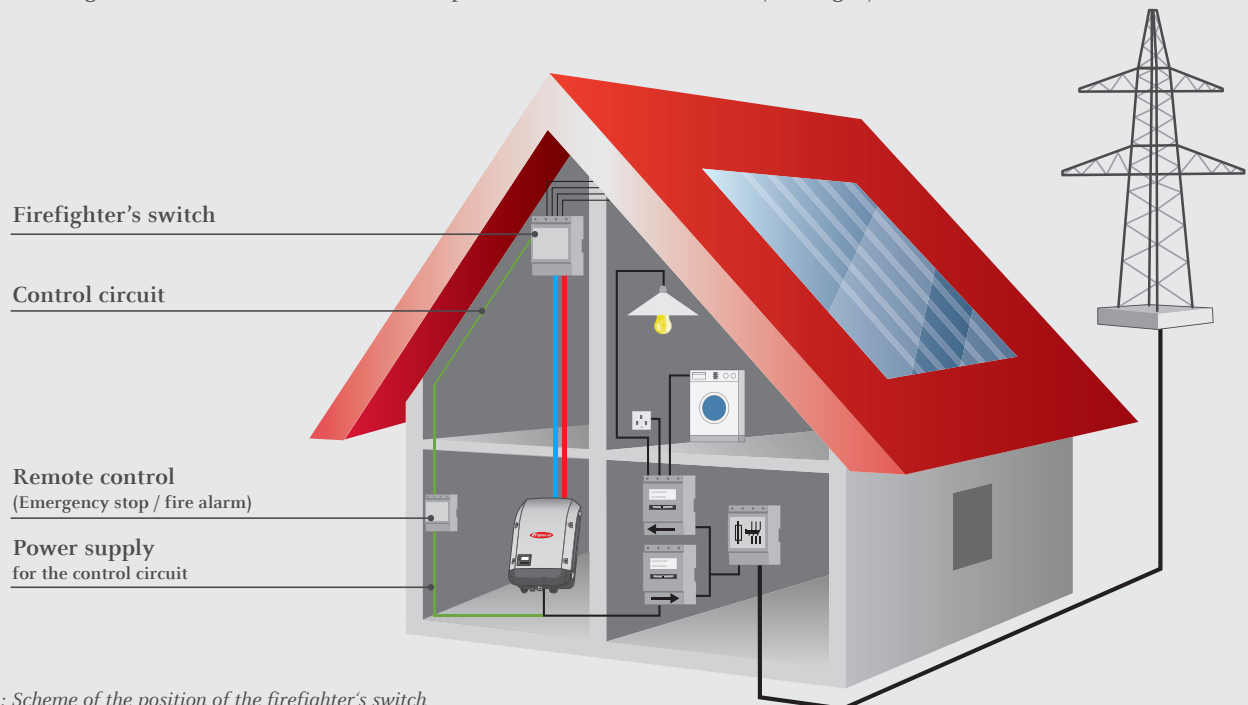


/ In the unlikely event that the entire PV system needs to be stopped immediately, an emergency stop button can simply be fitted to any system using Fronius inverters. A number of third party switches are available that can be installed at or shortly after the entry of the DC string lines into the building between the PV generator and inverter.

Two primary types of switches can be distinguished between “DC disconnectors” and “short circuit switches”. A DC disconnector isolates the lines between the PV generator and inverter, whereas a short circuit switch connects the “plus” and “minus” of the lines to ensure a short circuit of the PV generator. Firefighter switches with DC disconnectors are more common in the market.

POSITION OF THE FIREFIGHTER'S SWITCH

In general, a firefighter’s switch should be as close as possible to the PV generator. Usually they are installed at the entry of the building to keep the DC lines inside the building disconnected in case of an emergency. Most of the switches can be mounted outside, although it is recommended to place them underneath a roof. Operation temperatures of the switch should be considered and accessibility kept in mind for switches that need to be manually reset. The power supply of the control circuit should be connected shortly after the AC output of the inverter to ensure a release of the firefighter’s switch as soon as the AC power at the inverter is off (see Fig 1).



/ Fig 1: Scheme of the position of the firefighter's switch

FIREFIGHTER'S SWITCHES

The following table shows a short summary and comparison about three firefighter's switches of "DC disconnect" type:

	Santon DFS	ETA PVSEC	Eaton PV Sol30 Safety
Rated operating voltage (U_e)	1000 (650)V	1000V	1000V
Rated operational current (I_e)	16 (32)A	35A	30A
Protection type	IP65	IP20	IP65
Ambient temperature	-20 to +50 °C	-30 °C to +60 °C	-25 to 60 °C
Control voltage	230VAC	24VDC	230VAC
Enables remote tripping	•	•	•
Remote switch offered by manufacturer			•
Under voltage release	•	•	•
Automatic reengagement	•	•	
Possibility to include a fire safety system	•	•	•
Mounting type	wall mounting	rail mounting	wall mounting
Max number of strings in parallel (6-inch cells)	2 strings (DFS-1) 4 strings (DFS-14)	4 strings	4 strings (SOL30-SAFETY) 24 strings (SOL30X6-SAFETY)
Number of connections per box	1 string (DFS-1) 2 strings (DFS-14)	1 string	2 (in) and 1 (out) (SOL30-SAFETY) 6 (in) and 6 (out) (SOL30X6-SAFETY)
Connection type	MC4 or M12	screw thread M4	MC4 or M12
Dimensions	210x175x105mm	143x90x93mm	240x100x130mm (SOL30-SAFETY/2MC4-U) 411x500x225mm (SOL30X6-SAFETY-MC4-U)

The above table only shows a short summary of each switch. Please see manufacturer's data for additional features.

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