

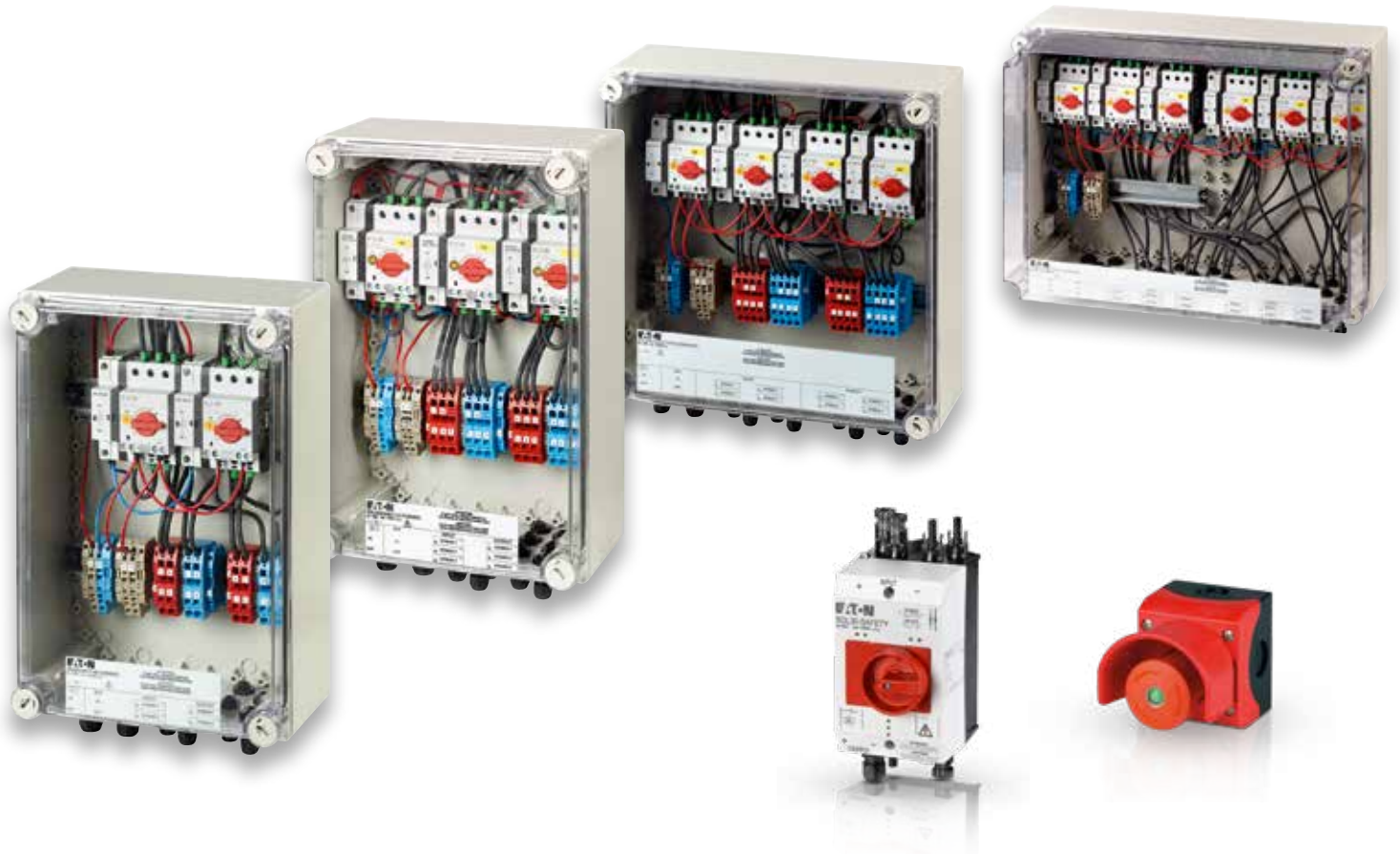
Eaton Fireman's Switch Safety First

according to VDE-AR-E 2100-712



EATON

Powering Business Worldwide



Big protection for little money



PV fireman's switches are DC switch-disconnectors that isolate the lines between solar modules and inverters. They allow firefighters to operate without risk of electrocution. In addition to the SOL30-Safety for small installations Eaton offers prefabricated fireman's switches housing 2, 3, 4 or 6 switch-disconnectors in a common enclosure. In contrast to generator terminal boxes the individual strings are not connected in parallel but can be fed separately to the inverter. This allows the use of several MPP trackers and helps optimize the inverter's performance.

In the event of fire or other hazards, undervoltage releases trip the fireman's switches. The undervoltage releases respond with a delay of 600 ms, so that more than 93% of all brief power failures and voltage drops will not cause a trip, preventing downtimes caused by erroneous tripping.

All fireman's switches feature auxiliary contacts with one N/O and one N/C contact. The N/C contacts in the combinations are factory-wired and connected to the modular terminals. This allows the switching position of the PV fireman's switches to be queried and, for example, indicated with an external indicator

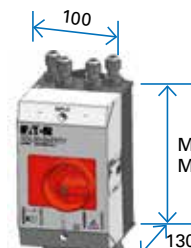
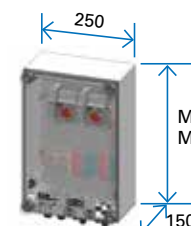
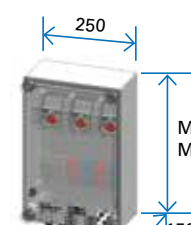
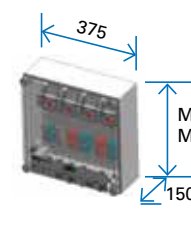
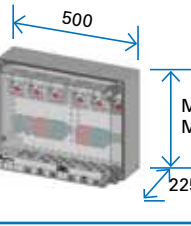
lamp. The fireman's switches are available with metric screw connection or with MC4 sockets. On the metric devices all cables are connected to the modular terminals, which guarantee a fast and simple installation.

The enclosures have degree of protection IP65 and feature a pressure equalization element to avoid condensate formation in the enclosure. This makes Eaton's fireman's switches ideal for outdoor use, although a protected mounting location is recommended.

SOL30X...-SAFETY fireman's switch

- Rated operating voltage 1000 VDC
- Rated operational current of each switch-disconnector 30 A
- DC-PV1 and DC-PV2 utilization category
- Switch-disconnectors tested to IEC/EN 60947-3
- Prewired ready for connection
- IP65 protection type
- Admissible ambient temperature range -25°C up to +60°C
- According to VDE-AR-E 2100-712

- Scope of application: DC isolation in photovoltaic systems between PV generator and inverter for disconnecting power
- Remote tripping with integrated undervoltage release 230V, 50Hz
- Undervoltage release responds with a delay of 0.6 seconds to bridge short-term mains voltage fluctuations
- Signalling of switch state via auxiliary contact 1 N/O and 1 N/C
- Internal resistance of each switch-disconnector 7mΩ
- Pressure equalization element




	Number Switch-disconnectors	Rated operating voltage U_e	Rated operational current I_e of each switch-disconnector		Number and type of Terminal type		Terminal capacity Flexible with ferrule mm ²	Weight kg	Dimensions mm	Part no. Article no.
			V	A	INPUT	OUTPUT				
			DC-PV1	DC-PV2						
*1)	1	1000	30	10	2xMC4 (+) 2xMC4 (-)	1xMC4 (+) 1xMC4 (-)	max.6	0.47		SOL30-SAFETY/2MC4-U (230V50HZ) 144122
	1	1000	26	10	2xM12 (+) 2xM12 (-)	1xM12 (+) 1xM12 (-)	1x(max.6),2x(max.6)	0.47	MC4: 240 MV: 224	SOL30-SAFETY/2MV-U (230V50HZ) 144123
	1	1000	26	10	2xM12 (+) 2xM12 (-)	1xM12 (+) 1xM12 (-)	1x(max.6),2x(max.6)	0.47		SOL30-SAFETY/2MV-U (24VDC) 172945
*2)	2	1000	30	10	2xMC4 (+) 2xMC4 (-)	2xMC4 (+) 2xMC4 (-)	max.6	5.1		SOL30X2-SAFETY-MC4-U (230V50HZ) 168098
	2	1000	26	10	2xM12 (+) 2xM12 (-)	2xM12 (+) 2xM12 (-)	max.6	5.1		MC4: 411 MV: 404
*2)	3	1000	30	10	3xMC4 (+) 3xMC4 (-)	3xMC4 (+) 3xMC4 (-)	max.6	5.5		SOL30X3-SAFETY-MC4-U (230V50HZ) 168100
	3	1000	26	10	3xM12 (+) 3xM12 (-)	3xM12 (+) 3xM12 (-)	max.6	5.5		MC4: 411 MV: 404
*2)	4	1000	30	10	4xMC4 (+) 4xMC4 (-)	4xMC4 (+) 4xMC4 (-)	max.6	6.8		SOL30X4-SAFETY-MC4-U (230V50HZ) 168102
	4	1000	26	10	4xM12 (+) 4xM12 (-)	4xM12 (+) 4xM12 (-)	max.6	6.8		MC4: 411 MV: 404
*2)	6	1000	30	10	6xMC4 (+) 6xMC4 (-)	6xMC4 (+) 6xMC4 (-)	max.6	9.5		SOL30X6-SAFETY-MC4-U (230V50HZ) 168104
	6	1000	26	10	6xM12 (+) 6xM12 (-)	6xM12 (+) 6xM12 (-)	max.6	9.5		MC4: 411 MV: 404

*1) Two strings can be connected in parallel

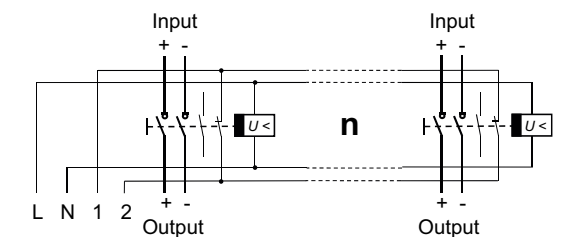
*2) All fireman's switches are fingerproof through IP4X cover

PV off switch

- IP65 protection type
- Tamper-proof according to ISO 13850/EN 418
- Pull to release or rotate
- Color enclosure top: red

	Description	Part no. Article no.
	Complete with guard-ring, 1 N/O, 1 N/C	M22-SOL-PVT45PMP111Q 150644
	Complete with guard-ring, 2 N/C	M22-SOL-PVT45PMP102Q 150645
	Complete, 1 N/O 1 N/C, sealable	M22-SOL-PVLPL11-230Q 152627

Wiring diagram of fireman's switch SOL30X...-SAFETY



* IP4X cover of fireman's switches



Safety for firefighters

The Eaton fireman's switch is installed at or shortly after the entry of the DC string lines into the building ①. The fireman's switch opens automatically with the aid of its built-in undervoltage release ② when the firefighters isolate the fire location from mains power through the public utility and/or at the PV Off switch ③.

Tripping of the fireman's switch isolates the DC lines between PV modules and inverter ④.

This protects emergency personnel from both direct contact with live cables and indirect contact, for example through flooding.

Tripping is indicated through a signal lamp connected to the feedback contacts, provided power is present ⑤.



Simple PV fireman's switch

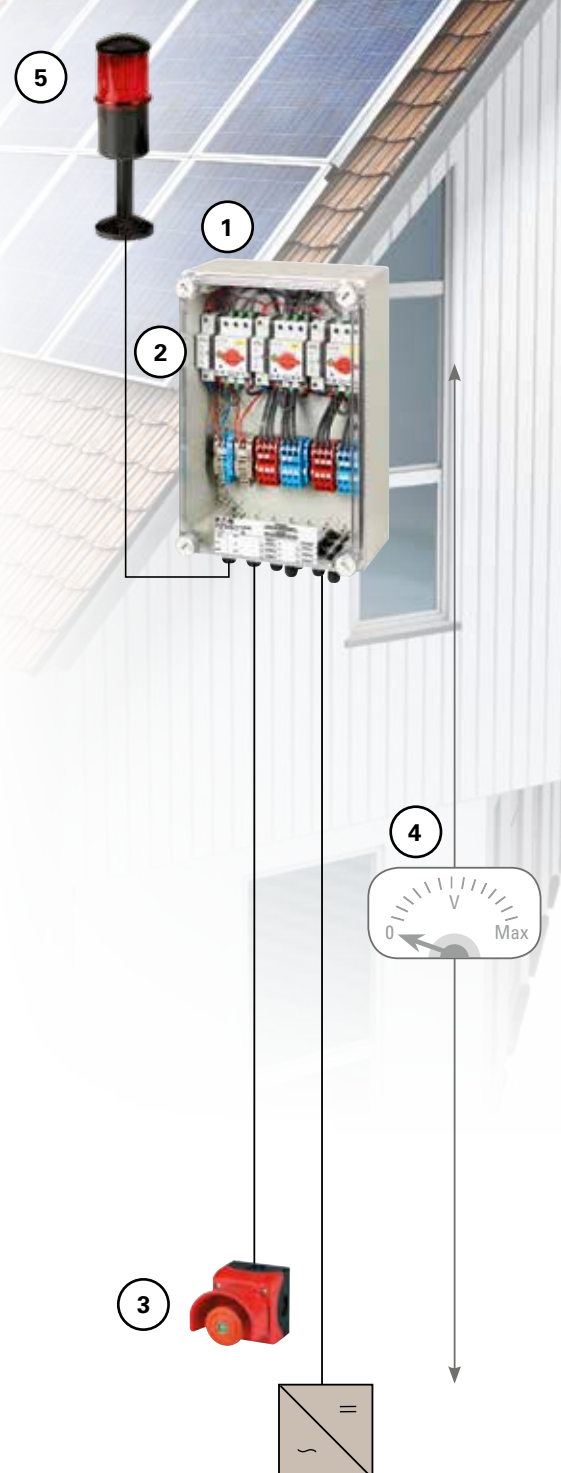
For smaller photovoltaic installations with one or two identical strings the simplest version of Eaton's proven fireman's switch is the ideal choice. With a current carrying capacity of up to 30 A at 1000 VDC this device is capable of reliably switching all popular module models.

And if the inverter does not contain a built-in switch-disconnector, the SOL30-SAFETY can fulfil this task according to VDE 0100-712.



Multi-way fireman's switch

If a photovoltaic installation consists of several strings – which is the case in all larger systems – the new versions of the fireman's switch with 2, 3, 4 or 6 inputs are the most efficient solution. Each string is routed through its own switch-disconnector and then on to the inverter. This is particularly interesting for plants whose strings have different characteristics or are exposed to differing shade ratios. Smaller inverters with several MPP trackers are often used here.



Eaton's electrical business is a global leader with deep regional application expertise in power distribution and circuit protection; power quality, backup power and energy storage; control and automation; life safety and security; structural solutions; and harsh and hazardous environment solutions. Through end-to-end services, channel and an integrated digital platform & insights Eaton is powering what matters across industries and around the world, helping customers solve their most critical electrical power management challenges.

Changes to the products, to the information contained in this document, and to prices are reserved; so are errors and omissions. Only order confirmations and technical documentation by Eaton is binding. Photos and pictures also do not warrant a specific layout or functionality. Their use in whatever form is subject to prior approval by Eaton. The same applies to Trademarks (especially Eaton, Moeller, Cutler-Hammer). The Terms and Conditions of Eaton apply, as referenced on Eaton internet pages and Eaton order confirmations.

Eaton Industries GmbH
Hein-Moeller-Str. 7-11
D-53115 Bonn/Germany

© 2021 by Eaton Corporation
All rights reserved
Publication No.: FL003001EN
January 2021