Eaton Fireman's Switch
Safety First

according to VDE-AR-E 2100-712

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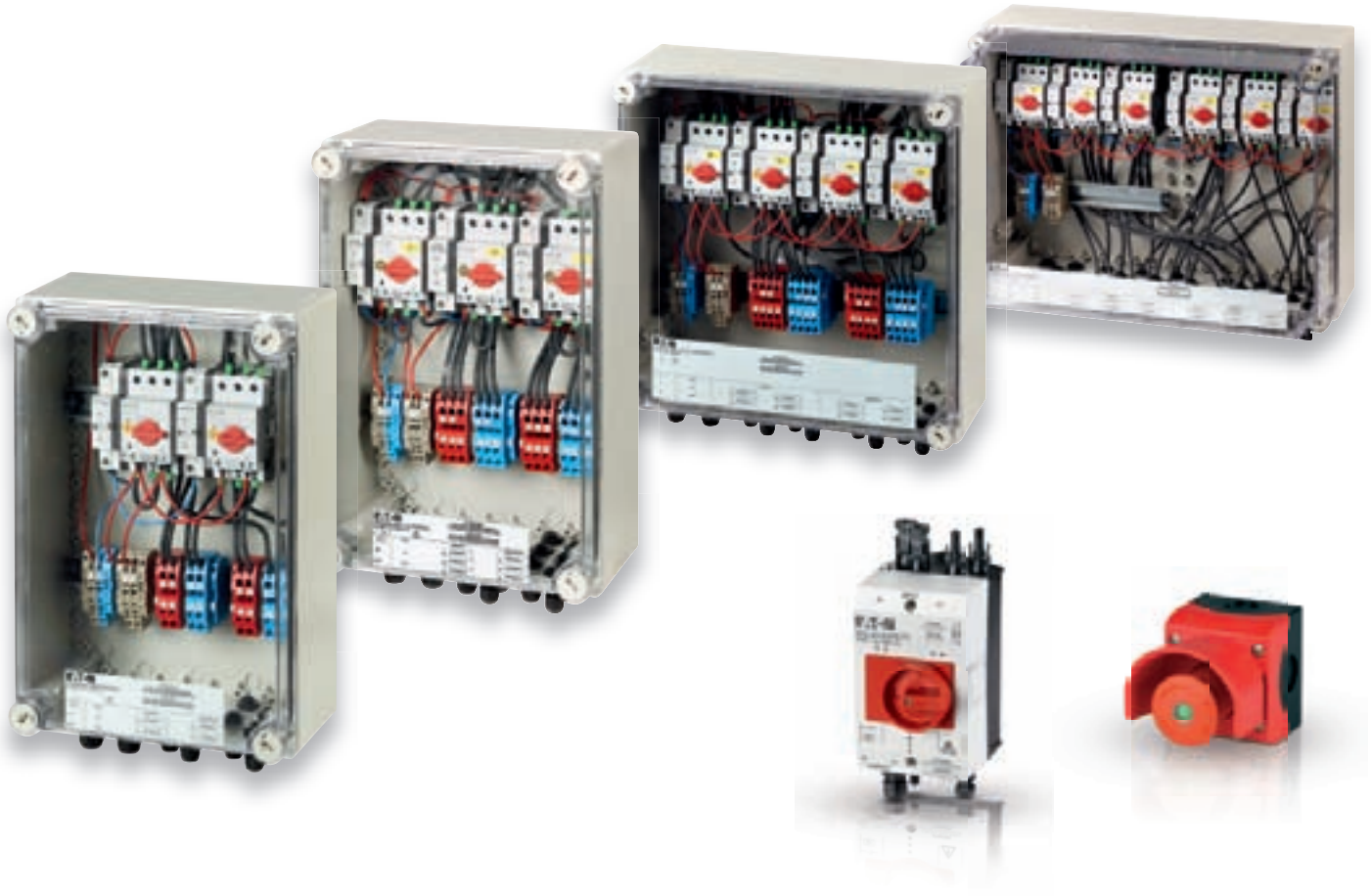


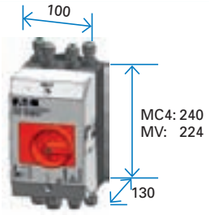
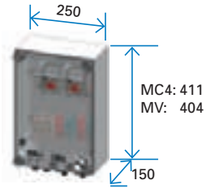
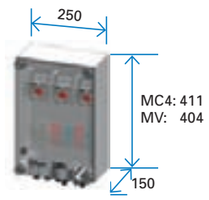
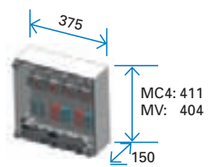
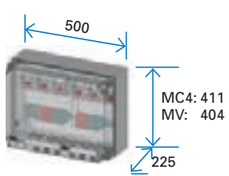
Big protection for little money

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-21A 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 V	Rated operational current I_e of each switch-disconnector A	Number and type of Terminal type INPUT	OUTPUT	Terminal capacity Flexible with ferrule mm²	Weight kg	Dimensions mm	Part no. Article no.
	1	1000	30	2xMC4 (+) 2xMC4 (-)	1xMC4 (+) 1xMC4 (-)	max.6	0.47		**SOL30-SAFETY/2MC4-U (230V50HZ)** 144122
	1	1000	30	2xM12 (+) 2xM12 (-) *1)	1xM12 (+) 1xM12 (-)	1x(max.6), 2x(max.6)	0.47		**SOL30-SAFETY/2MV-U (230V50HZ)** 144123
*2) 	2	1000	30	2xMC4 (+) 2xMC4 (-)	2xMC4 (+) 2xMC4 (-)	max.6	5.1		**SOL30X2-SAFETY-MC4-U (230V50HZ)** 168098
	2	1000	30	2xM12 (+) 2xM12 (-)	2xM12 (+) 2xM12 (-)	max.6	5.1		**SOL30X2-SAFETY-MV-U (230V50HZ)** 168099
*2) 	3	1000	30	3xMC4 (+) 3xMC4 (-)	3xMC4 (+) 3xMC4 (-)	max.6	5.5		**SOL30X3-SAFETY-MC4-U (230V50HZ)** 168100
	3	1000	30	3xM12 (+) 3xM12 (-)	3xM12 (+) 3xM12 (-)	max.6	5.5		**SOL30X3-SAFETY-MV-U(230V50HZ)** 168101
*2) 	4	1000	30	4xMC4 (+) 4xMC4 (-)	4xMC4 (+) 4xMC4 (-)	max.6	6.8		**SOL30X4-SAFETY-MC4-U (230V50HZ)** 168102
	4	1000	30	4xM12 (+) 4xM12 (-)	4xM12 (+) 4xM12 (-)	max.6	6.8		**SOL30X4-SAFETY-MV-U(230V50HZ)** 168103
*2) 	6	1000	30	6xMC4 (+) 6xMC4 (-)	6xMC4 (+) 6xMC4 (-)	max.6	9.5		**SOL30X6-SAFETY-MC4-U (230V50HZ)** 168104
	6	1000	30	6xM12 (+) 6xM12 (-)	6xM12 (+) 6xM12 (-)	max.6	9.5		**SOL30X6-SAFETY-MV-U (230V50HZ)** 168105

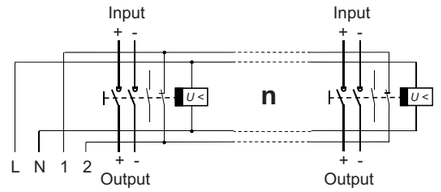
*1) Two strings can be connected in parallel
*2) All fireman's switches are fingerproof through IP4X cover

PV off switch

- IP 65 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-PVT45PMPI11Q** 150644
	Complete with guard-ring, 2 N/C	**M22-SOL-PVT45PMPI02Q** 150645
	Complete, 1 N/O 1 N/C, sealable	**M22-SOL-PVLPL11-230Q** 152627

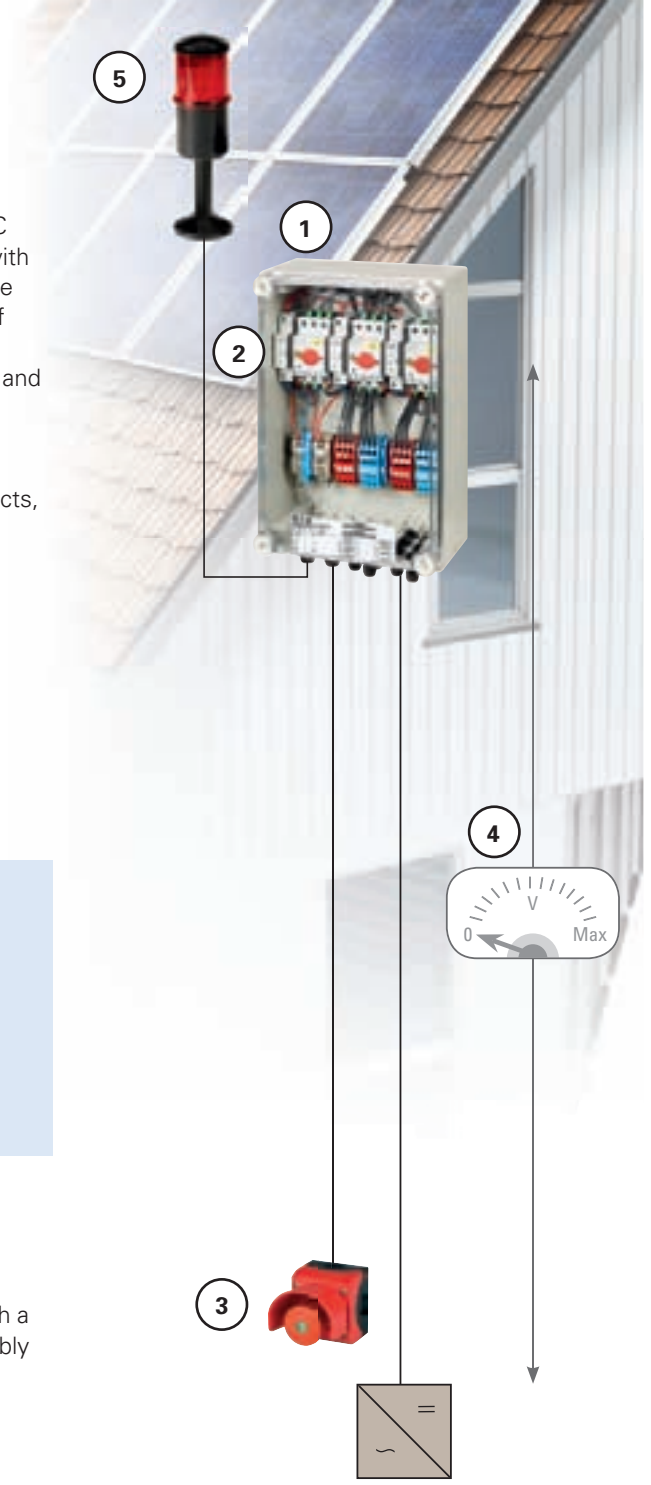
Wiring diagram of fireman's switch SOL30X...-SAFETY



*** 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 30 A at 1000 V DC 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 is dedicated to ensuring that reliable, efficient and safe power is available when it's needed most. With unparalleled knowledge of electrical power management across industries, experts at Eaton deliver customized, integrated solutions to solve our customers' most critical challenges.

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