



Q3 *ENERGIE*

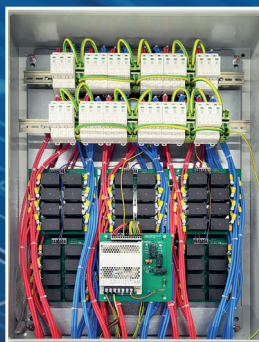
GmbH & Co. KG



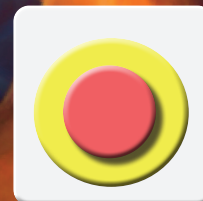
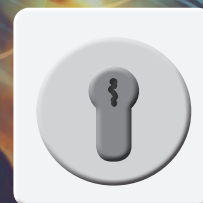
Q^{Fire}

PV Firefighter Safety Switch

Up to 20 A at 1,500 V DC per String



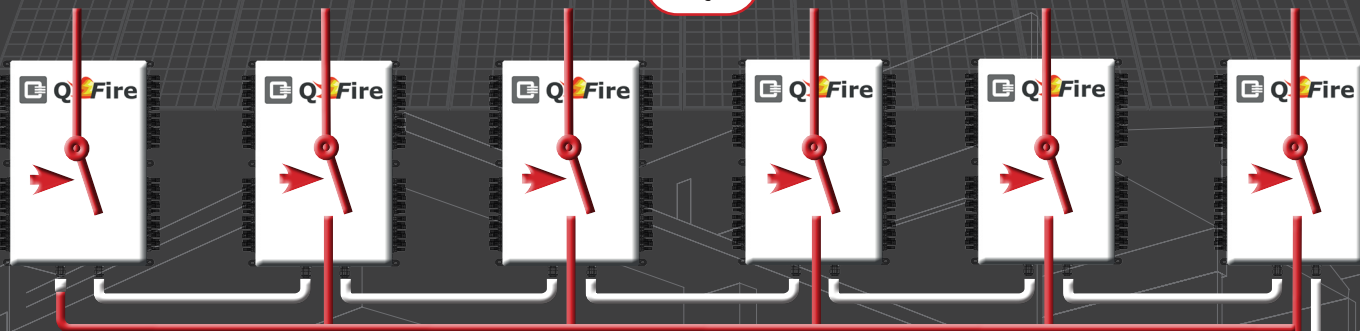
Galvanic isolation
IEC 60947-3-compliant



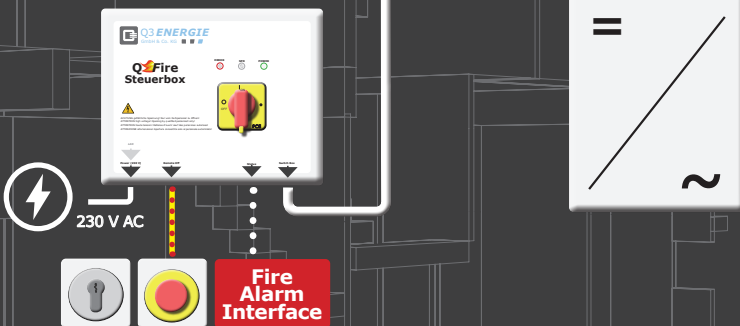
**Fire
Alarm
Interface**

Q3. The Box Makers.

1



2



3

QFire

How Does the QFire Firefighter Safety Switch Work?

QFire is a PV generator disconnect device for the automatic galvanic isolation of PV strings in accordance with IEC 60947-3:2020.

1 The QFire switch boxes are installed close to the roof entry point, where all cables coming from the PV array can be safely disconnected without arcing by means of specially developed high-performance relays.

2 The QFire control box is installed centrally near the inverter or at another easily accessible location.

This allows the entire DC supply from the PV generator to be disconnected from a single central point.

3 The system can be activated:

- Manually at the control box
- Via an external emergency stop switch
- Via connection to a fire alarm system

as well as:

- Via AC mains coupling in the event of a power failure – when mains power returns, the system automatically reconnects
- Via undervoltage detection caused by cable failure or severe fluctuations in the AC supply



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Advantages of the QFire Firefighter Safety Switch for PV Systems

QFire firefighter safety switches are tested in accordance with IEC 60947-3, individually engineered for each project and manufactured at our facility in Kaufbeuren, Germany.

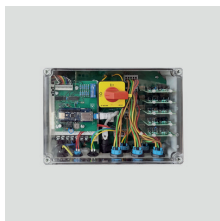
Custom-Engineered Design

- Up to 24 strings per switch box
- Surge protection devices and fuses available as optional extras
- Plug-in connectors or terminal connections – Standard: MC4-Evo 2 (Stäubli)
- Polycarbonate or steel enclosure
- String reduction possible (e.g. 8 in → 4 out)
- Plug & Play (matching connectors included)

Thanks to our modular design concept, all connection technology components can be combined precisely to suit the requirements of compact or highly customised PV system layouts.

QFire·BIG·EDITION

Custom-engineered safety disconnect system for commercial and utility-scale PV installations



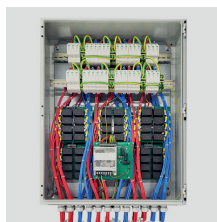
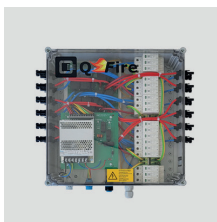
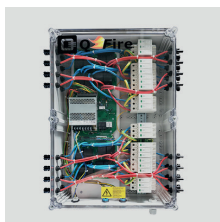
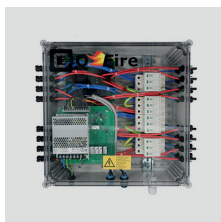
**Galvanic Isolation
IEC 60947-3 Compliant**

Firefighter Safety Switch

**PV String Disconnect System
according to IEC 60947-3:2020**

Technical Data – Control Box

Connections	Wieland (matching mating connectors included)
Standards	CE-compliant control unit for operating QFire switch boxes according to IEC 60947-3
Enclosure (incl. mounting brackets)	
Material	Polycarbonate
IP Rating	IP 66/67
Impact Resistance	IK08 (+35°C/-25°C)
Certification	EN 62208:2011
Installation Location	Protected outdoor installation
Dimensions L x W x D (mm)	250 x 175 x 100
Weight	Approx. 1.1 kg
Electrical Data	
Operating Voltage	230 V AC
Fuse Protection	B6 circuit breaker (provided on site)
Control Voltage	24 V DC (12 V DC)
Communication	Status indication via LEDs, optional LAN/Ethernet interface
Operating Temperature	- 25°C to +50°C
Humidity	0–99% RH (non-condensing)
Options	External key switch or emergency stop, volt-free contact (for status indication or AC-side disconnection)

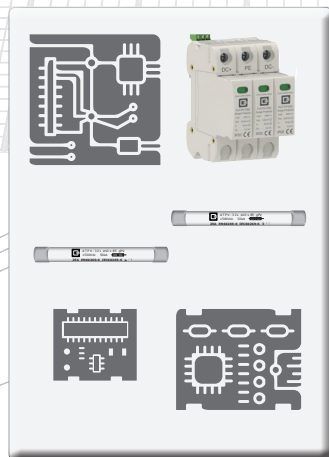


Technical Data – Switch Box

Switching Method	Galvanic Isolation		
Connections	Stäubli MC4-Evo 2 4–6 mm² optional terminal connections		
Number of Strings	Modular design expandable with 1 to unlimited switch boxes		
Standards	CE, IEC 60947-3, suitable for VDE-AR-E 2100-712		
Switch Box Enclosure 2–16 Strings			
Material	Polycarbonate	Colour	Grey, lid grey or transparent
Impact Resistance	IK08 (+35°C/-25°C)	IP Rating	IP 66/67
Installation Location	Protected outdoor installation	Certification	EN 62208:2011
Dimensions L x W x D	300 x 300 to 400 x 600 mm (may be larger depending on optional components)	Weight	Approx. 2–12 kg (depending on configuration)
Switch Box Enclosure 18-24 Strings			
Material	Sheet Steel	Colour	Grey
Impact Resistance	IK10 (+60°C/-25°C)	IP Rating	IP 66
Installation Location	Protected outdoor installation	Certification	EN 62208:2011
Dimensions L x W x D	600 x 600 to 600 x 800 mm (may be larger depending on optional components)	Weight	Approx. 14–20 kg (depending on configuration)
AC (via integrated control unit, Article Q-502102)			
Operating Voltage	230 V AC for control unit	Fuse Protection	B6 circuit breaker (provided on site)
DC Connection			
Number of Strings	2 to 24	Max. Isc	20 A per string
Max. Switching Voltage at 20 A	1.500 V DC		
Surge Protection (integrated, optional)			
Category	DC Type 1+2	Max. Discharge Current	Imax 40 kA
Compliance	IEC 61643-31:2018 EN 50539-111:2012+A1:2014	Remote Signalling Contact	Yes
Control Cable Surge Protection (optional): Protection of all five control conductors against transient overvoltages			
Communication	Status indication via LEDs		
Operating Temperature	-25°C to +50°C		
Humidity	0–99% RH (non-condensing)		

QFire QFIRE MODULAR SYSTEM

SWITCH BOX



Connection Options:

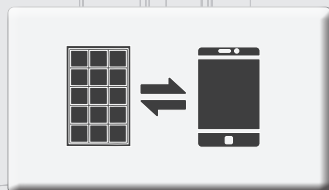
Stäubli MC4-EVO2 (standard)

Optional: Sunclix/H4

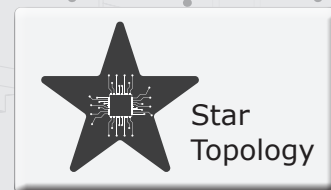
Optional: Terminal Connections

Up to 24
strings per
switch box

CONTROL BOX



or



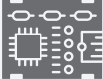
Cluster Control Box
For up to 5 independent
roof areas

ACCESSORIES



External Emergency Stop Switches

SWITCH BOX – INTEGRATED ACCESSORIES

Part No.	Description	
Q-502102	Control Unit Assembly For integration into the QFire BIG switch box	
Q-595012	Q3 Surge Protection Device Type 1+2 Combined arrester with remote signalling contact. One unit required per MPPT. Other brands available on request.	
100574	Fuse and Fuse Holder in Positive Pole	
100575	Fuse and Fuse Holder in Negative Pole	
991010	Delayed Shutdown Module For grid-friendly shutdown of large-scale PV systems	
595014	QFire High-Performance Protection Device for Control Cables Effective protection against overvoltages. Electrical characteristics and performance comparable to Type 1 and Type 2 surge protection devices.	

CONTROL BOX – INTEGRATED ACCESSORIES

Part No.	Description	
500666	QFire Power Patcher – Data Communication Connection to the control box. Data transmission to the Q3 Cloud via TCP/IP through the customer router. Monitoring of status and operating condition (ON/OFF).	
500567	QFire Cluster Control Box Control of up to five cluster contacts for operating up to five QFire BIG systems.	
500569	QFire Cluster Card Accessory for the Cluster Control Box. One card required per cluster.	

EXTERNAL SWITCHING DEVICES

Part No.	Description	
500001	QFire Emergency Stop Switch, Surface Mounted IP66 according to IEC 60529 IP67 IP69 IP69K	
500003	QFire Key Switch, Surface Mounted Schneider Electric XALD144 IP66 according to IEC 60529 IP67 IP69 IP69K	
500005	QFire Emergency Stop Switch, Surface Mounted, Behind Break Glass GMC-120-DKM-G-Y IP52 according to EN 60529 Standard: EN 12094-3	

QFire·LITE·EDITION

The cost-effective safety disconnect solution for small PV systems

Firefighter Safety Switch

PV String Disconnect System according to IEC 60947-3:2020

QFire·LITE·



Galvanic Isolation
IEC 60947-3 Compliant

Technical Data		QFire LITE 2	QFire LITE 4
Switching Method		Galvanic Isolation	
Connections		Stäubli MC4-Evo 2 4-6 mm²	
Number of Strings Input Output		2 2	4 4
Standards		CE, IEC 60947-3	
Enclosure			
Material	Polycarbonate	Colour	Grey
IP Rating (EN60529)	IP 67	Installation Location	Protected outdoor installation
Impact Resistance	IK08 (+35°C/-25°C)	Dimensions L x W x D	300 x 300 x 132 mm
Certification	EN 62208:2011	Weight	1.5 kg
Electrical Data			
Operating Voltage		230 V AC	
Fuse Protection (provided on site)		B6 circuit breaker	
Power Consumption		Approx. 40 mA at 230 V AC + max. 1.8 W per string	
Rated Insulation Voltage		1.500 V DC	
Max. System Voltage per String		1.500 V DC	
Max. Switching Current per String (Isc)		20 A at 1.500 V DC	
Compliance		IEC 61643-31:2018, EN 50539-111:2012+A1:2014	
Operating Temperature		- 25°C to +50°C	
Humidity		0–99% RH (non-condensing)	
Automatic Reconnection		Yes	
Options		External key switch or emergency stop, volt-free status contact, 230 V AC	

- Cost-effective LITE version
- Available with or without integrated SPD
- Certified QFire switching technology

Safe. Simple. Efficient.

Up to 20 A per String. Up to 1,500 V DC.

QFire LITE + SPD

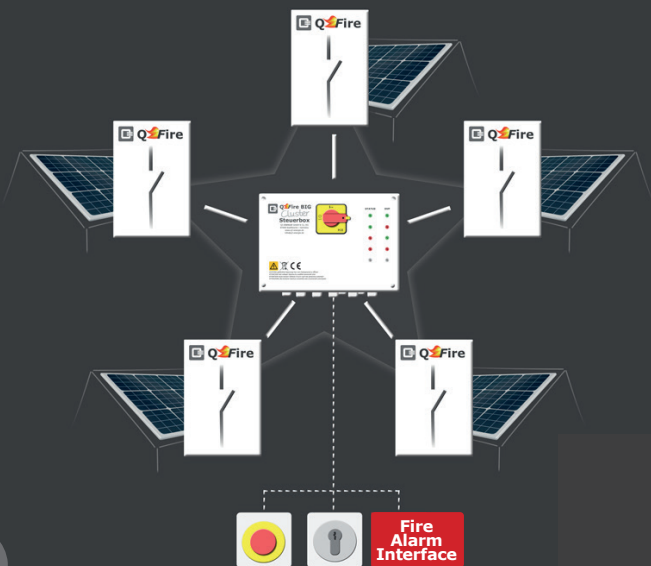
Firefighter Safety Switch with Integrated Surge Protection



Galvanic Isolation
IEC 60947-3 Compliant

Technical Data		LITE 2 + SPD	LITE 4 + SPD
Switching Method		Galvanic Isolation	
Connections		Stäubli MC4-Evo 2 4-6 mm²	
Number of Strings Input Output		2 2	4 4
Number of MPPTs		1	2
Integrated Surge Protection		T1+2 1.500 V DC	
Standards		CE, IEC 60947-3	
Enclosure			
Material	Polycarbonate	Colour	Grey Transparent Lid
IP Rating (EN60529)	IP 67	Installation Location	Protected outdoor installation
Impact Resistance	IK08 (+35°C/-25°C)	Dimensions L x W x D	300 x 400 x 132 mm
Certification	EN 62208:2011	Weight	4.9 5.6 kg
Electrical Data			
Operating Voltage		230 V AC	
Fuse Protection (provided on site)		B6 circuit breaker	
Power Consumption		Approx. 40 mA at 230 V AC + max. 1.8 W per string	
Rated Insulation Voltage		1.500 V DC	
Max. System Voltage per String		1.500 V DC	
Max. Switching Current per String (Isc)		20 A at 1.500 V DC	
Compliance		IEC 61643-31:2018, EN 50539-111:2012+A1:2014	
Operating Temperature		- 25°C to +50°C	
Humidity		0–99% RH (non-condensing)	
Automatic Reconnection		Yes	
Options		External key switch or emergency stop, volt-free status contact, 230 V AC	

Cluster Control System



Control up to five independent roof areas with a single control box

Each individual cluster not only indicates its ON/OFF status but also monitors the condition of the control cable and, where applicable, the operational status of the surge protection device.

The distance between the control box and an individual cluster can be up to 1,200 metres. In the event of a power failure, all clusters switch to a safe state and automatically reconnects once mains power has been restored.

In the event of a shutdown, all PV strings of the system are disconnected from the PV generator at the switch boxes and are therefore safely de-energised.

When is a Firefighter Safety Switch Required for a PV System?

Safety is a key consideration in photovoltaic (PV) systems, particularly in the event of a fire. Technical standards and regulations play an important role in determining the requirements for electrical installations.

DIN VDE 0105-100 defines the general requirements for the operation of electrical installations, while the application rule VDE-AR-E 2100-712 specifies requirements for disconnecting PV systems to support emergency responders. In addition, IEC 60947-3 defines the requirements for switching and disconnecting devices used to safely isolate PV systems.



Together, these standards provide the technical basis for determining when a firefighter safety switch is required.

Plan, Install and Protect Safely – Training for Enhanced PV Fire Safety

As a planner or installer, you are responsible not only for the correct installation of photovoltaic systems but also for the safety of your customers.

Particularly in the field of fire protection, there are specific requirements that must be considered.

The QFire Firefighter Safety Switch online training provides the technical knowledge required to design and install photovoltaic systems safely and in accordance with current standards and regulations.

The training is free of charge.

Scan the QR code and register today.



Control Cable Protection

Long control cable runs and exposed cable routes may be subject to transient overvoltages caused by lightning currents, switching operations or electromagnetic interference.

For installations with increased requirements, Q3 offers an integrated high-performance protection device for the 12 V DC control cable. The protection circuit safeguards all five control conductors and improves system availability even under challenging environmental conditions.

Benefits

- Protection of all five control conductors
- Fully integrated and pre-wired
- No additional installation required
- Improved system stability and operational reliability
- Recommended for long cable runs and exposed rooftop installations

Your Installation Deserves the Right Solution

Every PV installation is different. For this reason, QFire firefighter safety switches are individually configured to suit the number of strings, inverter type, protection concept and system layout.

Scan the QR code and send us your project details. We will prepare a tailored proposal for your installation.

- Custom-engineered design
- Support with planning and product selection
- Proposal directly from the manufacturer
- Made in Germany

Configure Your Project Online

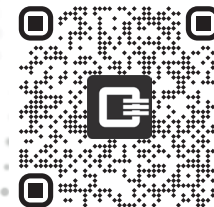
The QFire Configurator helps you select and design the most suitable firefighter safety switch solution for your project.

After submitting your project details, you will receive an individual proposal from our team.

>> We Build Every Box!

Custom-engineered AC/DC connection technology and firefighter safety switches. Configure your project online now:

Scan the QR code and send your enquiry.



BSFZ Seal for Innovation

This award recognises our commitment to innovation and our dedication to improving safety within the photovoltaic industry.

Project ID: 849-547-133/2024-2/1

Q3 has stood for reliable engineering for more than 15 years – developed, tested and manufactured in Kaufbeuren, Germany. Our products are not created just anywhere, but in an environment where experience, responsibility and engineering expertise make the difference.

Why This Matters

- Every unit is electrically tested and documented.
- Tested according to IEC 60947-3 by Bureau Veritas.
- 100% traceability through serial numbers.
- Premium components throughout (e.g. Stäubli MC4-Evo 2).
- True two-pole galvanic isolation – no compromises.
- Maintenance-free, durable and robust – designed for a service life of more than 20 years.

In Short: We Don't Sell Boxes – We Deliver Safety.



Print product with financial
climate contribution

ClimatePartner.com/12518-1907-1001

**The Gold Standard in PV
Generator Isolation**

Disclaimer: Information provided without guarantee. Technical modifications, errors and omissions excepted. Q3 assumes no liability for damages arising from incorrect or incomplete information.

MADE IN GERMANY

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