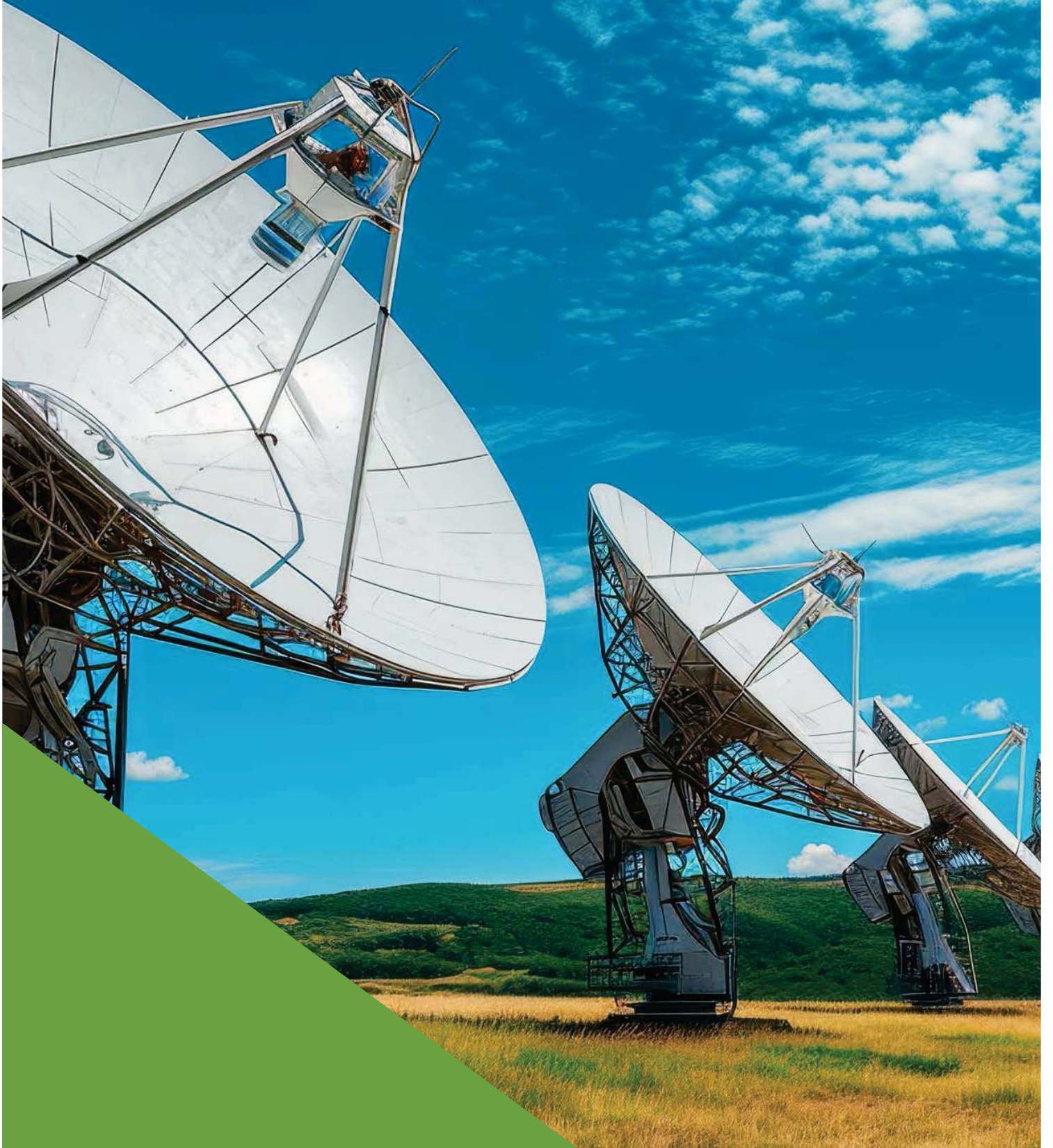


TELECOMMUNICATION PROTECTION

Telecommunication
Data centres
Battery Protection
Alternative Energy Infrastructure







TELECOMMUNICATION PROTECTION

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Foreword

CBI-electric: low voltage – Your partner in customer specific solutions for electrical protection and IoT

Thank you for your interest in our company and the products and solutions we offer. CBI-electric: low voltage is a company that exists to support our customers and industries across the world to manage their low voltage energy needs. We do this by engineering, manufacturing and distributing devices that oversee the protection of electrical infrastructure, devices that measure and communicate energy data, electrical wiring accessories, IoT enabled devices, switchgear and many other products and solutions that enable the safe and effective use of electrical energy.

We are very proud of our over 76 year history as a Global supplier into the world's Telecommunications industries, Data centers, Renewable Energy, Railway signaling and a vast array of other mission critical applications. We are the only manufacturer of scale in the southern hemisphere and in Africa. Being geopolitically independent from the usual points of global manufacture we offer our customers some safety from supply risks associated with global political shifts, health risks, and other major events that can disrupt supply chains.

We have an extensive range of products and solutions with multiple global certifications and we welcome all opportunities to engage directly with our customers to understand their needs and partner to solve our customers' unique challenges.

Charl Osborne
Managing Director



CBI-electric: low voltage at Elandsfontein, Johannesburg

Company Profile

CBI-electric: low voltage is a wholly owned South African subsidiary of Reunert Ltd., which is listed on the Johannesburg Stock Exchange. CBI has more than 76 years of experience in the design and manufacture of a comprehensive range of technically advanced hydraulic-magnetic circuit breakers for electrical protection. Founded in 1949, the company is a world leader in circuit breakers and residual current devices for residential, industrial and equipment protection applications.

While the company is a world leader in the design of hydraulic-magnetic circuit breaker technology, it also uses thermal-magnetic and electronic sensing operating principles in some of its products. The company has excelled as a technology leader through continual and substantial investment in the research and development of its products and in maintaining its modern manufacturing facilities.

While the company is a world leader in the design of hydraulic-magnetic circuit breaker technology, it also uses thermal-magnetic and electronic sensing operating principles in some of its products. The company has excelled as a technology leader through continual and substantial investment in the research and development of its products and in maintaining

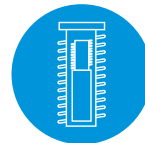




**OVERLOAD
PROTECTION**



**SHORT CIRCUIT
PROTECTION**



**HYDRAULIC-MAGNETIC
TECHNOLOGY**

 LISTED
(UL 489A)


(UL 1077, CSA C22.2 No.235-04)


(DIN / EN 60934)


(GB 14048.2 ; GB 17701)


(IEC 60934)

Features of the Hydraulic-Magnetic Technology

- Circuit breakers carry 100% of rated current, independent of ambient temperature
- Do not require de-rating for temperature
- Immediate resetting after trip
- Any current rating possible, even fractions of amperes
- Large range of time delays available
- Can mount a large number of circuit breakers side by side
- Compact design
- Energy saving, sustainable product

CIRCUIT BREAKERS FOR COMMUNICATION AND SUPPORTING EQUIPMENT

Critical infrastructure in the Telecommunication, Data centres, energy storage, battery protection and renewable energy infrastructure need to be protected by high precision circuit breakers against overload, short-circuit, while ensuring other critical considerations such as low temperature rise and ease of application.

CBI Electric's hydraulic magnetic circuit breakers are all tested to the various national and international standards to ensure compliance as well enhance performance in the power distribution units (PDU) that supply power to critical infrastructure.

CBI Electric's Sales and Technical Staff often work with the Design Engineers at companies that manufacture power distribution and other equipment to develop or select the most appropriate product for such applications. CBI Electric also works with its customers to develop specific customized solutions.

CBI Electric is a world leader in both DC and AC circuit protection. The products offer a wide range of features to suit the application such as different types of handles, termination, mounting requirements as well as various tripping characteristics.

Major considerations in the selection of these circuit breakers are total cost of ownership, life-cycle cost of equipment, mounting footprint, termination, handle style as well as actuator design. When operated with other features such as auxiliary switches, trip alarm, shunt trip, relay trip as well as remote tripping and resetting capabilities, CBI Electric's circuit breakers assist the customers technical staff in their quest for the highest quality design.

Common features

- High energy AC and DC circuit breaker
- Ultra compact design
- Hydraulic-magnetic technology
- Can be switched on immediately after tripping
- DIN mount, 45 mm front escutcheon (Grey, 13 mm only)
- DIN mount, 57 mm front escutcheon (Black, 13 mm only)
- Dual (DIN & mini rail) mount, 57 mm front escutcheon (Black, 13 mm only)
- Suitable for electrical isolation
- 100 % rating capability, independent of ambient temperature
- RoHS and REACH compliant

Standards

Our circuit breakers are designed and comply with the following standards:

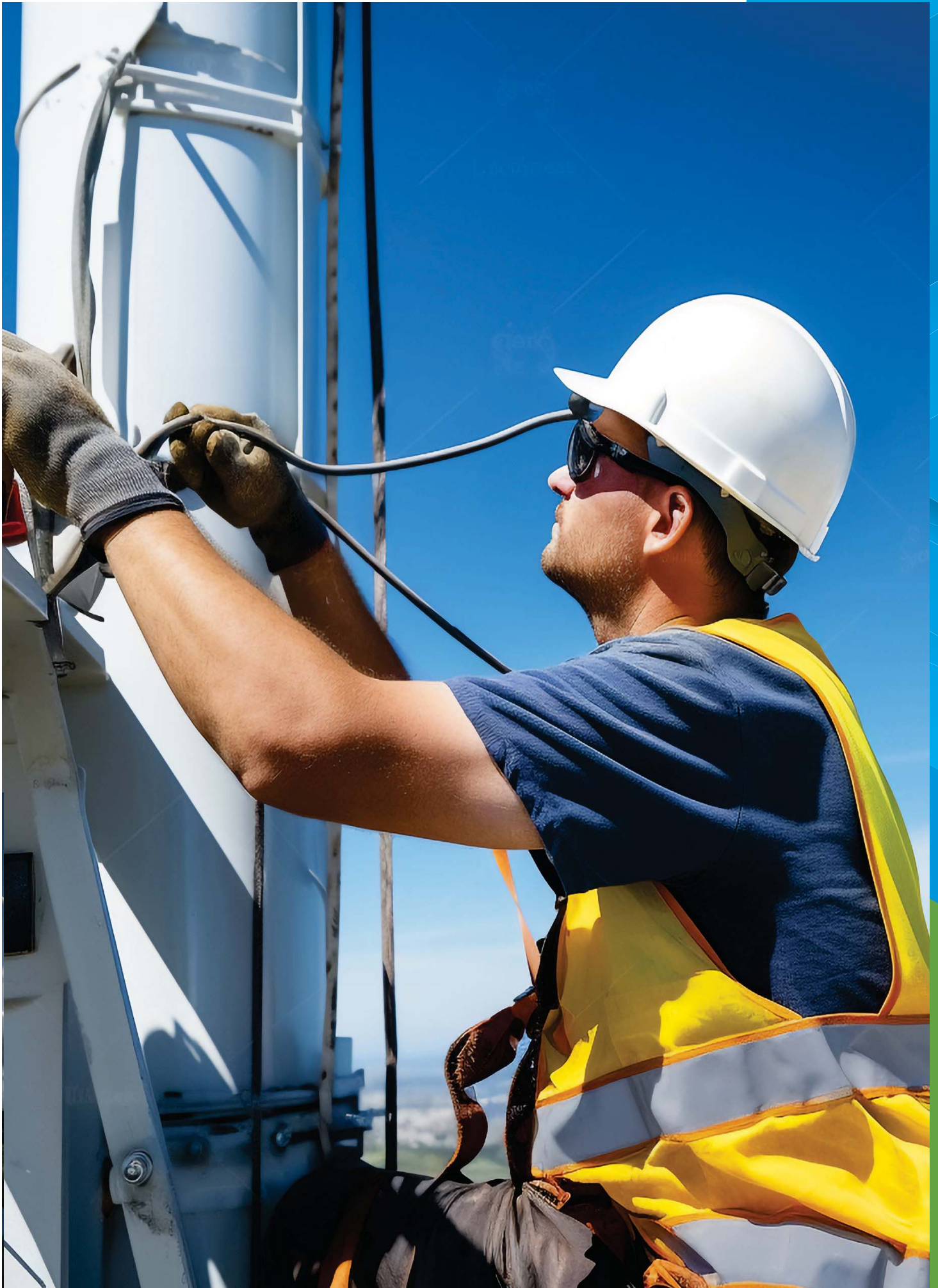
- UL489, UL489A , UL1077, UL508, IEC60947-2, GB14048.2, GB17701
- CE, UKCA, VDE, CCC, UL



Applications

- Power Distribution Units
- Rack power systems
- Energy storage systems
- Battery protection systems





B - Frame - Circuit Breakers



The B-Frame is a very compact yet robust circuit breaker. Used in various applications where space is constrained, the B-Frame is available in a variety of configurations, with different types of handles such as standard, rocker, protected rocker, push-pull, and push-to-reset handle types. The B-Frame is suitable for various applications in telecoms, lighting, railway signalling and solar applications. The B-Frame is also available as a 300 Vdc double pole switch.

Features

- AC and DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability independent of ambient temperature
- Up to two poles
- VDE, EAC and CCC approved, CE certified
- UL compliant (recognised / listed)
- Ratings 0.1 A to 30 A (Specific certifications)
- Precision tripping characteristics
- Wide range of circuits, mountings, terminations and time delays
- Optional auxiliary switch
- Optional illuminated rocker handle
- 300 Vdc switch (2 pole)

Applications

- Lighting equipment
- Office equipment
- Power supplies
- Telecom power distribution
- Small generators and motors
- Railway signalling systems
- Entertainment systems
- Vending machines
- Power distribution units (PDU)
- Suitable for motor starting
- Solar and renewable power



Technical Data

Product Type	B-Frame
Ambient Operating Temperature	-40°C to +85°C
Endurance	Minimum of 1000 operations with current (UL 489A Clause 12)* 6000 operations with current (UL 1077 Clause 22, UL 508 Clause 48)*
Dielectric Strength	1000 Vac plus twice the rated voltage for one minute (UL 489A Clause 8, UL 1077 Clause 23, UL 508 Clause 51)*
Rated Impulse Withstand Voltage	2.5 kV (IEC 60934 Clause 8.1.3.1.1)*
Weight	30 g single pole, 60 g double pole (unpacked)
Altitude	Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	50 G to IEC 60068-2-27
Vibration	10 G to MIL-STD-202F
Flammability	I3 - Ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.
Accessories	Mounting accessories, legend plate

Product Type	Circuit Breaker	Circuit Breaker	Circuit Breaker	Switch
Approvals	UL 1077, DIN / EN 60934, GB17701, CE, UKCA, EAC	UL 489A, DIN / EN 60934, GB17701	GB 14048.2	UL 508
Number of Poles	1, 2	1	1, 2	2 (Series)
Maximum Voltages	240 Vac, 65 Vdc	80 Vdc	48 Vdc	300 Vdc
Current Ratings	0.1 - 30 Aac, 0.1 - 25 Adc	0.1 - 30 Adc	0.5 - 15 Adc	15 Adc
Interrupting Capacity	1 kA @ 240 Vac 0.5 kA @ 65 Vdc	0.6 kA @ 80 Vdc 1.5 kA @ 65 Vdc (UL & GB only)	1 kA	-
DC Polarity	-	Polarity sensitive		

C - Frame MKII - Circuit Breakers



The C-Frame MKII is a traditional circuit breaker with a front mount profile.

Features

- AC and DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability independent of ambient temperature
- Up to three poles
- VDE approved, CE certified
- UL compliant (Listed / recognised)
- Ratings 0.1 A to 30 A (Specific certifications)
- Precision tripping characteristics
- Wide range of circuits, mountings, terminations and time delays
- Optional auxiliary switch

Applications

- Telecom DC power distribution
- UPS equipment
- Mobile power generation equipment
- Power conditioning equipment
- Alternative energy equipment
- Lighting control

Approvals

The C-Frame MKII carries various approvals such as VDE, cURus and is CE certified. It is also recognised to UL 1077 and listed to UL 489A.



Technical Data

Product Type	C-Frame MKII
Ambient Operating Temperature	-40 °C to +85 °C
Endurance	10000 operations DC, 6000 operations AC (IEC 60934 Clause 9.11)* 6000 operations with current (UL1077 Clause 22)*
Dielectric Strength	1000 - 2000 Vac for one minute (IEC 60934 Clause 9.7)*
Weight	50 g per pole (unpacked)
Altitude	Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	100 G to MIL-STD-202G, test method 213B, test condition 1
Vibration	10 G to MIL-STD-202G test method 204D, test condition A
Flammability	I3 - Ignition does not persist at 850 °C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.
Accessories	Protective splash boot, mounting hardware 6 - 32, M3 Screws

* Refer to the standard for details

Product Type	Circuit Breaker	Circuit Breaker	Circuit Breaker
Approvals	UL 489A	UL 1077	DIN / EN 60934, CE, UKCA
Number of Poles	1	1 - 3	1 - 3
Maximum Voltages	30 Vdc	240 Vac, 277 Vac, 65 Vdc	240 Vac, 65 Vdc
Current Ratings	0.1 - 30 A	0.1 - 30 A (AC & DC)	0.1 - 30 A (AC & DC)
Interrupting Capacity	5 kA	3 kA (AC), 1 kA (DC)	3 kA (AC), 1 kA (DC)

Verify approvals for specific ratings in accordance with the relevant test certificates.

C - Frame MKIV - Circuit Breakers



The C-Frame MKIV is the most traditional distribution and equipment protection circuit breaker and is available in 1 to 4 poles. This front mounted circuit breaker is available for panel mounting, and is available with a standard handle and rocker handle.

The C-Frame MKIV circuit breaker is used in power distribution units, lighting control and in other equipment.

Features

- AC and DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability independent of ambient temperature
- Up to four poles
- VDE, EAC and CCC approved, CE certified
- UL compliant (Listed / recognised)
- Ratings 0.1 A to 50 A (Specific certifications)
- Precision tripping characteristics
- Wide range of circuits, mountings, terminations and time delays
- Two colour handle indication (Two tone flush rocker)
- Optional auxiliary switch and trip alarm

Applications

- Telecom DC Power distribution
- UPS equipment
- Mobile power generation equipment
- Alternative energy equipment
- Lighting control

Approvals

The C-Frame MKIV is CE certified and carries various approvals such as VDE, cURus, EAC and CCC. It is also recognised to UL 1077, UL 1500 and UL 508, and listed to UL 489 and UL 489A.



(CSA C22.2 No. 5-09)



(CSA C22.2 No. 235-04)



(DIN / EN / IEC 60934)



(GB17701)



(IEC 60934)



Technical Data

Product Type	C-Frame MKIV
Ambient Operating Temperature	-40 °C to +85 °C
Endurance	10000 operations DC, 6000 operations AC (IEC60934 Clause 9.11)* 10000 operations, 6000 with current, 4000 without current (UL489 Clause 7.1.5)* As per UL489 or minimum of 1000 operations with current (UL489A Clause 12)*, 6000 operations with current (UL1077 Clause 22)*
Dielectric Strength	1000 - 2000 Vac for one minute (Clause 9.7)* 1000 Vac plus twice the rated voltage for one minute (UL489, Clause 7.1.9; UL489A Clause 8, UL1077 Clause 23)*
Weight	70 g per pole (unpacked)
Altitude	Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	100 G to MIL-STD-202G, test method 213B, test condition 1
Vibration	10 G to MIL-STD-202G test method 204D, test condition A
Flammability	I2 - No ignition at 850 °C with an oxygen index of ≥ 32
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

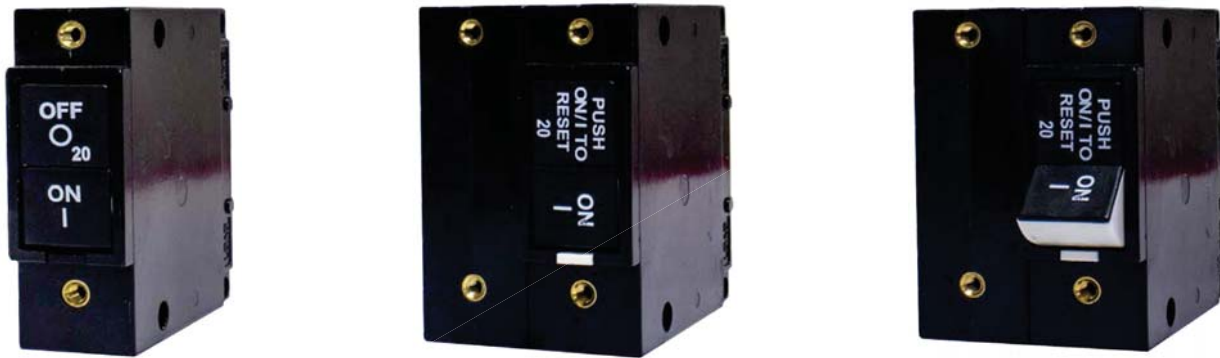
* Refer to the standard for details

Product Type	Circuit Breaker	Circuit Breaker	Circuit Breaker	Circuit Breaker
Approvals	UL 489	UL 489A	UL 1077	UL 1500
Number of Poles	1, 2	1, 2	1 - 4	1, 2
Maximum Voltages	120 Vac, 120 / 240 Vac	80 Vdc	240 Vac, 277 Vac 80 Vdc	120/240 Vac 65 Vdc, 32 Vdc
Current Ratings	0.05 - 20 Aac	0.05 - 50 Adc	0.05 - 50 A (AC & DC)	0.05 - 50 A (AC & DC)
Interrupting Capacity	5 kA	5 kA	2 kA (AC), 7.5 kA (DC)	1.5 kA, C1 & 3 kA, C1

Product Type	Circuit Breaker	Switch
Approvals	DIN/EN/IEC 60934, CE, UKCA, GB17701	UL 508
Number of Poles	1 - 4	1 - 4
Maximum Voltages	240 Vac, 80 Vdc	240 Vac, 277 Vac, 80 Vdc
Current Ratings	0.05 - 50 A (AC & DC)	50 A
Interrupting Capacity	2 kA (AC), 4 kA (DC)	-

Verify approvals for specific ratings in accordance with the relevant test certificates.

C - Frame MKV - Circuit Breakers



The C-Frame MKV is a robust low profile circuit breaker designed specifically for higher breaking capacity and protection. It is capable of providing high levels of short circuit protection and is suitable for a variety of applications which requires high levels of power density.

The C-Frame MKV circuit breaker is used in power distribution units, lighting control and in a variety of other equipment. This product can be structured according to your preference and is available in 1 or 2 poles with a breaking capacity of 10 kA.


Features

- AC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability independent of ambient temperature
- Up to two poles
- **Ratings 1 A to 20 A**
- Precision tripping characteristics

Applications

- Telecommunications, datacom
- UPS equipment
- Mobile power generation equipment
- Alternative energy equipment
- Lighting control

Approvals


(UL 489)
(CSA C22.2 No.5)


(GB 14048.2)


(IEC 60947-2)



Technical Data

Product Type	C-Frame MKV
Ambient Operating Temperature	-40°C to +85°C
Endurance	10 000 operations, 8 500 without current, 1 500 with current (IEC 60947-2 Clause 8.3.3.4)* 10 000 operations, 6000 with current, 4 000 without current (UL 489 Clause 7.1.5)* As per UL 489 or minimum of 1 000 operations with current
Dielectric Strength	1 000 - 2 000 Vac for one minute (Clause 9.7)* 1 000 Vac plus twice the rated voltage for one minute (UL 489, Clause 7.1.9; UL 489A Clause 8)*
Weight	70 g per pole (unpacked)
Altitude	Certification tests done at altitude ≈ 2 000 metres. Will operate at higher altitudes.
Flammability	I2 - No ignition at 850°C with an oxygen index of ≥ 32
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

* Refer to the standard for details

Product Type	Circuit Breaker
Approvals	UL 489
Number of Poles	1, 2
Maximum Voltages	240 Vac
Current Ratings	1 - 20 A
AIC	10 kA
Product Type	Circuit Breaker
Approvals	IEC 60947-2
Number of Poles	1, 2
Maximum Voltages	240 Vac
Current Ratings	1 - 20 A
Ultimate S/C Breaking Capacity (Icu)	10 kA
Product Type	Circuit Breaker
Approvals	GB 14048.2
Number of Poles	1, 2
Maximum Voltages	240 Vac
Current Ratings	1 - 20 A
Ultimate S/C Breaking Capacity (Icu)	10 kA



DD Frame - Circuit Breakers



The DD-Frame is a compact yet very powerful circuit breaker. Using hydraulic-magnetic technology which ensures that breaker performance is unaffected by ambient temperature, the CBI DD-Frame series is suitable for various applications in telecom and datacom equipment. These applications include being the main breaker for battery applications, power supplies, distribution breaker for larger loads in DC branch protection, lighting control, UPS, inverters and DC power switching and in power distribution units (PDU). The DD-Frame is also available as a switch.

Due to its robustness and ability to withstand harsh environmental conditions, the DD-Frame breaker is also used in military applications, railway infrastructure, railway signalling and rolling stock and also in renewable energy solutions for protection in combiner boxes and other battery and storage applications.

DD-Frame profile

The DD-Frame is available in various configurations and can be structured to suit specific requirements. Available in 1 to 6 poles, this robust and versatile circuit breaker comes in both AC and DC configurations with a choice of various time delay characteristics.

Among the common configurations are the front mount standard handle and flush rocker handle options. As for the termination, metric and imperial stud terminals, plug-in (bullet terminal), screw, and clamp terminal configurations are available. The breaker comes with the option of an auxiliary switch and trip alarm. Customer specific configurations, DIN rail mount and various other options are available.

The DD-Frame compact and precision circuit breaker is made of high quality thermoset material, which offers increased electrical and mechanical endurance. The self-cleaning mechanism of the contact actuators ensures that the circuit breaker contacts are kept clean and operate smoothly, offering longer life span.

Approvals

The DD-Frame circuit breaker is CE & CCC compliant and carries various approvals such as VDE, cURus, EAC and CCC. It is also recognised to UL 1077 and UL 508, and listed to UL 489 and UL 489A. Compliant with AS/NZS 60947-2.



(UL489A)



(UL489; CSA C22.2 NO.5)



(UL1077; CSA C22.2 NO.235-04)



(CSA C22.2 No. 5-16)



(IEC / EN 60947-2; IEC / EN 60934)



(GB14048.2; GB17701)



(IEC 60947-2; IEC 60934)



(IEC 60947-2)

Features

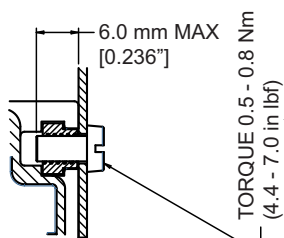
- AC and DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability independent of ambient temperature
- Up to six poles
- VDE, EAC and CCC approved, CE certified
- UL compliant (Listed / recognised)
- Ratings 0.1 A to 100 Aac and 400 Adc (Specific certifications)
- Precision tripping characteristics
- Wide range of circuits, mountings, terminations and time delays
- Two colour handle indication (Two tone flush rocker)
- Optional mid-trip indication (Standard handle)
- Optional auxiliary switch and trip alarm
- Optional remote switching (see RAU data sheet)

Applications

- AC and DC branch circuit installations
- Power conditioning
- Telecom DC and Datacom power distribution
- Alternative energy equipment
- UPS equipment
- Lighting control
- Mobile power generation equipment
- Battery protection
- Railway signaling and infrastructure protection

DD-Frame HCR (High Current Rating)

CBI-electric: low voltage offers a higher current rated product, capable of handling current ratings up to 125 A in a single pole, 250 A in a two pole configuration, and 300 A in a three pole configuration at 60 Vdc.



MOUNTING SCREW TERMINALS

T - Frame - Circuit Breakers



The T-Frame is a compact, low profile circuit breaker. It is available in single and double pole configurations and its low profile design makes it ideal for power distribution applications. The T-Frame has the rocker handle configuration and is available in both AC and DC.

Features

- AC and DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability independent of ambient temperature
- Up to two poles
- VDE approved, CE certified
- UL Listed
- Ratings 0.1 A to 30 A (specific certifications)
- Precision tripping characteristics
- Wide range of time delays
- Two colour handle indication (two tone flush rocker)

Applications

- AC and DC branch circuit installations
- Power conditioning
- Telecom power distribution
- Alternative energy equipment
- UPS equipment
- Lighting control
- Mobile power generation equipment

Approvals

The T-Frame circuit breaker carries various approvals such as DIN/EN 60947-2, GB 14048.2, VDE, cURus and is CE certified. It is also recognised and listed to UL 489.



Technical Data

Product Type	T-Frame
Ambient Operating Temperature	-40°C to +85°C
Mounting Options	Front mounting, rectangular aperture and flush rocker handle type
Endurance	10 000 operations; 1 500 with current, 8 500 without current (IEC 60947-2 Clause 7.2.4.2)* 10 000 operations; 6 000 with current, 4 000 without current (UL 489 Clause 7.1.5)*
Dielectric Strength	1 000 - 2 000 Vac for one minute (IEC 60947-2 Clause 8.3.3.3)* 1 000 Vac plus twice the rated voltage for one minute (UL 489 Clause 7.1.9)*
Rated Impulse Withstand Voltage	4 kV (IEC 60947-2 Clause 8.3.3.2)*
Weight	90 g per pole (unpacked)
Altitude	Certification tests done at altitude ≈ 2 000 metres. Will operate at higher altitudes.
Flammability	I3 - Ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

Product Type	Circuit Breaker		Circuit Breaker	
Approvals	UL 489			
Number of Poles	1		2	
Maximum Voltages	240 Vac, 80 Vdc	120 Vac	120/240 Vac, 240 Vdc, 80 Vdc	12 /240 Vac
Current Ratings	0.1 A - 30 A	0.1 A - 20 A	0.1 A - 30 A	0.1 A - 20 A
AIC	10 kA	22 kA	10 kA	22 kA

Product Type	Circuit Breaker		Circuit Breaker	
Approvals	IEC 60947-2, GB/T 14048.2, CE, UKCA			
Number of Poles	1		2	
Maximum Voltages	240 Vac, 80 Vdc			
Current Ratings	0.1 A - 30 A		0.1 A - 30 A	
Icu	5 kA			

Verify approvals for specific ratings in accordance with the relevant test certificate.



Smart PDU
DC Distributions

Remote Actuator Unit (RAU) for DD-Frame (D7)



The remote actuation unit (RAU) is a factory-fitted module that enables the automated switching of a DD-Frame circuit breaker. The RAU internally actuates the circuit breaker both ON and OFF. The RAU is mounted on the left hand side of the circuit breaker and can actuate up to three poles.

The RAU is available with circuit breakers with a standard toggle handle only. The unit has an LED that provides an indication of the mode of operation (PULSE or CONSTANT).

A colour flag shows the position of the latch mechanism of the connected circuit breaker - green for OFF and red for ON. The RAU provides the option to set the actuation signal voltage between pulse or constant mode. This is selected by a switch situated on the front of the RAU.

Features

- Remote actuator unit is factory-fitted on the left hand side of the DD-Frame circuit breaker
- The RAU module is designed to function on a wide voltage range: 15 Vdc to 80 Vdc
- The RAU can be supplied from main system voltage or a standalone source
- The DD-Frame circuit breaker operates on the main system voltage, AC or DC
- LED for status indication
- Selectable pulse or constant actuate signal operation
- Provides status of the load side of the circuit breaker
- Can be paired with up to a 3 pole DD-Frame circuit breaker state of circuit breaker
- Actuation of circuit breaker occurs internally
- Compact size (19 mm, matching DD-Frame outline)

Applications

- Battery management
- Telecommunications
- Railways
- Solar
- System automation
- Switching operations in distant, inconvenient or unreachable environments

Approvals



(UL 489A)



(CSA C22.2 No. 5-16)



(UL 489; CSA C22.2 NO.5)



(UL 1077; CSA C22.2 NO.235-04)



(IEC/EN 60947-2;
IEC/EN 60934)



(GB 14048.2; GB 17701)



(IEC 60947-2; EC 60934)



(IEC 60947-2)

Technical Data

Product Type	RAU		DD Frame
Supply voltage	15 Vdc to 80 Vdc		All values as per DD Frame Circuit Breaker Data Sheet
Actuation signal voltage (For other voltages refer to page 11)	HIGH (ON)	Min. 3.3 Vdc to Max. 60 Vdc	
	LOW (OFF)	Min. 0.0 Vdc to Max. 0.5 Vdc	
Starting current	< 250 mA		
Number of poles that can be actuated	1 to 3 pole DD-Frame - factory fitted		
Ambient operating temperature	-40°C - +65°C		
Typical actuation time	OFF state to ON state	2 seconds	
	ON state to OFF state	1 second	
Power consumption	Idle mode	< 250 mW	
	During actuation	< 7.5 W	
Number of operations	In excess of 2 000		
Flammability	I3 No flames persistence at 850°C		
Toxicity	F2 - Smoke index of ≤ 40		
Pollution degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.		
Signal Out Resistance to LOAD terminal	330 kΩ ±5% (2 W)		

Product Type	Circuit Breaker	Circuit Breaker	Circuit Breaker	Circuit Breaker
Approvals	IEC/EN 60947-2, GB 14048.2, CE, UKCA	IEC/EN 60947-2, GB 14048.2, CE, UKCA	IEC 60947-2, CE, UKCA	AS/NZS 60947-2, UKCA
Number of Poles	RAU + 1, RAU + 2, RAU + 3	RAU + 2, RAU + 3	RAU + 1, RAU + 2, RAU + 3	RAU + 1, RAU + 2
Maximum Voltages	240/415 Vac, 80 Vdc	80 Vdc	60 Vdc	125 Vdc
Current Ratings	0.1 A to 60 A (ac) 0.1 A to 100 A (dc)	110 A to 250 A	125 A, 250 A, 300 A	0.1 A to 60 A
Ics	5 kA (DC), 1.25 kA (AC)	5 kA	2.5 kA	2.5 kA
Icu	3 kA (AC), 5 kA (AC) 10 kA (DC)	10 kA	5 kA	5 kA

Product Type	Circuit Breaker	Circuit Breaker	Circuit Breaker
Approvals	UL 489	UL 489 A, CSA C22.2 No. 5-16	UL 489A, CSA C22.2 No. 5-16
Number of Poles	RAU + 1, RAU + 2, RAU + 3	RAU + 1, RAU + 2, RAU + 3	RAU + 2, RAU + 3
Maximum Voltages	120 Vac, 120 / 240 Vac, 240 Vac, 80 Vdc	60 Vdc	80 Vdc
Current Ratings	0.1 A to 80 A (ac) 0.1 A to 100 A (dc)	125 A, 250 A, 300 A	110 A to 250 A
AIC	AC - 10 kA, DC - 20 kA	14 kA	20 kA

Product Type	Circuit Breaker	Circuit Breaker
Approvals	IEC / EN 60934, CE, GB 17701	UL 1077, cURus
Number of Poles	1 - 4	1 - 6
Maximum Voltages	240 Vac / 415 Vac, 80 Vdc	277/480 Vac, 80 Vdc
Current Ratings	0.1 A to 100 A (1 p), 0.1 A to 70 A (2 - 3 p)	0.1 A to 100 A (1 p), 0.1 A to 70 A (2 - 4 p)
Interrupting Capacity	-	2 kA / U2 / U3 (AC) 5 kA / C1 (AC) 5 kA U2 / U3 (DC)
Rated conditional S/C	3 kA (AC) PC1, 5 kA (DC) PC1	-
Icm	-	-

Verify approvals for specific ratings in accordance with the relevant test certificate

Intelligent Protection (RMU) for DD-Frame (D8)



The Intelligent Protection Device (IPD) is a monitoring unit integrated with a CBI-electric DD-frame circuit breaker. The Intelligent Protection Device measures the current flow and the circuit breaker's status. It communicates the information via a RS-485 serial bus and enables the host system to monitor current usage and ON / OFF / Tripped contact status. The unit has an active health monitor for condition-based maintenance with the number of operations stored to memory (on-load, no-load and overload operations combined with operating conditions). Along with a readout of manufacturing information, each device has a unique ID number for traceability. It has RGB status LEDs, visible at the top and bottom, configurable for various status displays.

The RMU circuit breaker current range is from 3 A to 100 A on a single pole, up to 200 A on a double pole and up to 300 A on a three pole. The plug-in terminals are suitable for a hot-pluggable busbar style panel that includes a PCB strip with data connectors. The RMU modules self-identify their positions on the bus, based on a simple resistor scheme.

The breaker footprint allows the panel to be backwards compatible with the CBI-electric DD-Frame circuit breakers fitted with trip-alarm auxiliary, so that a panel can accommodate both intelligent and standard breakers.

Features

- Intelligent Protection + Monitoring
- Real time status monitoring
 - Circuit Breaker status (On, Off, Trip Alarm)
 - Current measurement (Amps and direction of flow)
 - Diagnostics (overload, temperature, operating hours, switching operation counters)
 - Circuit Breaker Health Estimate* (percentage remaining life, based on operating conditions)
- LED indication of circuit breaker status. Visible top and bottom.
 - Configurable color scheme for RGB LED
 - Automatic lamp test sequence while powering on
- Circuit breaker digital Information
 - Unique 64-bit ID for inventory traceability
 - Current rating (and number of paralleled poles)
 - Manufacturing date
 - Ordering information
- Modbus over RS-485 data bus, up to 40 breakers on one serial bus
- Rear plug-in data terminal for simplified back-plane design
- Hot-swappable – inserted breakers self-identify on data bus

Applications

- Telecoms
- Dark Data Centers
- Digital Twin
- Condition Based Maintenance
- Energy optimisation
- Battery management



Technical Data:

Product Type	Circuit Breaker			
Approvals	UL489A			
Number of Poles	1P	2P Parallel	3P Parallel	
Maximum Voltages	80 Vdc	80 Vdc	80 Vdc	60 Vdc
Current Ratings	3 - 100 A	110 - 200 A	160 - 250 A	300 A
AIC	10 kA			

Verify approvals for specific ratings in accordance with the relevant test certificate

Breaker specifications – see DD-Frame Circuit Breaker Data Sheet

RMU Parameter	Value
RMU module supply voltage	6 Vdc to 12 Vdc
Supply current consumption	<75 mA, per pole
Operating Ambient Temperature	-20°C to 60°C
Isolation (Breaker terminals w.r.t. data bus)	1.5 kV AC for 1 minute
Current Measurement Accuracy:	
DC Reading Error (-In < I < In)	< ±2% of In
DC Measurement Range	-1.5 to 1.5 x In
Temperature Indication Accuracy	±5°C
Modbus RS-485 Interface:	
See application note for further details	115200 bps, half-duplex (1 pair)
Bus address range, (maximum number of devices)	1 to 40, (40)



YA - Frame - Circuit Breakers



1 Pole
DIN mount



1 Pole
DIN mount



2 Pole
DIN mount



4 Pole
DIN mount

Product Category

- **POLARISED PRODUCT**
300 Vdc, 1 Pole & 2 Pole; (300 Vdc per Pole)
400 Vdc, 4 Pole (2 Pole in series + 2 Pole in series)
600 Vdc, (2 Pole in series)
- * Verify approvals

Features

- High energy DC circuit breaker
- Ultra compact - 13 mm wide module
- Hydraulic-magnetic technology
- Can be switched on immediately after tripping
- **YAD** - DIN mount, **45 mm** front escutcheon (**Grey**)
- **YAM** - DIN mount, **57 mm** front escutcheon (**Black**)
- **YAK** - Dual (Din & Mini) mount, **57 mm** front escutcheon (**Black**)
- ON and OFF indication
- Suitable for electrical isolation
- 100% rating capability, independent of ambient temperature
- RoHS compliant
- Box type main terminals

Applications

- Telecom / datacom
- DC circuit protection
- UPS equipment
- Alternative energy equipment
- Battery protection

Auxiliary Switch and Trip Alarm Features

- Auxiliary switch
- AC and DC voltages
- IEC 60947-5-1 (6 A 250 Vac, 0.5 A 110 Vdc)
- GB 14048.5 approved
- Factory fitted
- Attached to right hand side of circuit breaker
- Compact 6.5 mm width



Technical Data

Product Type	Circuit Breaker YA, Polarised Product		
Approvals	IEC 60947-2, GB14048.2, CE, UKCA, AS/NZS 60947-2		
Number of Poles	1 Pole	2 Pole	4 (2 pole in series + 2 pole in series)
Operating Voltages & Interrupting Capacity	300 Vdc @ 6 kA	300 Vdc @ 6 kA 600 Vdc @ 6 kA (Series)	400 Vdc @ 6 kA
Minimum Current Rating	0.5 A	0.5 A	0.5 A
Maximum Current Rating	50 A	50 A	32 A

Product Type	Circuit Breaker YA, Polarised Product		
Approvals	UL 489A, CSA C22.2 No. 5-16		
Number of Poles	1 & 2 Poles	2 Pole in series	4 (2 Pole in series + 2 Pole in series)
Operating Voltages & Interrupting Capacity	300 Vdc @ 10 kA	600 Vdc @ 5 kA	400 Vdc @ 10 kA
Minimum Current Rating	0.5 A	0.5 A	0.5 A
Maximum Current Rating	50 A	50 A	32 A

Verify approvals for specific ratings in accordance with the relevant test certificates.

Product Type	Circuit Breaker YA
Ambient Operating Temperature	-40 °C to +85 °C
Mounting Options	Dual (DIN and Mini rail), DIN rail mount
Time Delay Curves	Various
Endurance	10000 operations; 1500 with current, 8500 without current (IEC 60947-2 Clause 7.2.4.2)* Minimum of 1000 operations with current (UL 489A Clause 12)*
Dielectric Strength	1000 - 2000 Vac for one minute (IEC 60947-2 Clause 8.3.3.3)* 1000 Vac plus twice the rated voltage for one minute (UL 489A Clause 8)*
Rated Impulse Withstand Voltage	4 kV (IEC 60947-2 Clause 8.3.3.2)*
Weight	110 g per pole
Altitude	Certification tests conducted at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	20 G (IEC 60068-2-27)
Vibration	3 G (IEC 60068-2-6) (sinusoidal wave)
Flammability	I3 - Ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

Circuit Breaker	Wire Size (IEC)	Wire Gauge (UL)	Torque (IEC)	Torque (UL)	Comments
Main Terminals	2.5 mm ² to 16 mm ²	14 – 6 AWG	3.5 N.m	30 lbf.in	Pz #2 Combi head

* Refer to the standard for details

YB - Frame - Circuit Breakers



1 Pole
DIN mount



1 Pole
DIN mount



2 Pole
DIN mount

Product Category

- **UNPOLARISED PRODUCT**
150 Vdc (1P & 2P), 300 Vdc (2P in series)
300 Vdc 4 (2P in series + 2P in series) and
600 Vdc (4P in series)
(Reverse feedable)
- * Verify approvals

Features

- High energy DC circuit breaker
- Ultra compact - 13 mm wide module
- Hydraulic-magnetic technology
- Can be switched on immediately after tripping
- **YBD** - DIN mount, **45 mm** front escutcheon (**Grey**)
- **YBM** - DIN mount, **57 mm** front escutcheon (**Black**)
- **YBK** - Dual (Din & Mini) mount, **57 mm** front escutcheon (**Black**)
- ON and OFF indication
- Suitable for electrical isolation
- 100% rating capability, independent of ambient temperature
- RoHS compliant
- Box type main terminals

Applications

- Solar equipment
- DC circuit protection
- Telecom / datacom equipment
- UPS equipment
- Alternative energy equipment
- Battery protection

Auxiliary Switch and Trip Alarm Features

- Auxiliary switch
- AC and DC voltages
- IEC 60947-5-1 (6 A 250 Vac, 0.5 A 110 Vdc)
- GB 14048.5 approved
- Factory fitted
- Attached to right hand side of circuit breaker
- Compact 6.5 mm width



(UL 489B)

(CSA C22.2 No. 305)



(DIN / EN 60947-2)

Pending



(GB 14048.2)



(IEC 60947-2)



AS/NZS 60947-2



Technical Data: Approvals

Product Type	Circuit Breaker YB			
Approvals	IEC 60947-2, GB14048.2, CE, UKCA, AS/NZS 60947-2			
Number of Poles	1 Pole, 2 Pole	2P (Series)	4P (Series)	4 (2 Pole in series + 2 Pole in series)
Operating Voltages & Interrupting Capacity	150 Vdc @ 6 kA	300 Vdc @ 6 kA	600 Vdc @ 6 kA	300 Vdc @ 6 kA
Minimum Current Rating	0.5 A	0.5 A	0.5 A	0.5 A
Maximum Current Rating	50 A	50 A	50 A	50 A

Product Type	Circuit Breaker YB	
Approvals	UL 489B	
Number of Poles	1 Pole	2 Pole
Operating Voltages & Interrupting Capacity	150 Vdc @ 10 kA	150 Vdc @ 10 kA
Minimum Current Rating	0.5 A	0.5 A
Maximum Current Rating	50 A	50 A

Verify approvals for specific ratings in accordance with the relevant test certificates.

Product Type	Circuit Breaker YB
Ambient Operating Temperature	-40 °C to +85 °C
Mounting Options	Dual (DIN and Mini rail)
Time Delay Curves	Various
Endurance	10000 operations; 1500 with current, 8500 without current (IEC 60947-2 Clause 7.2.4.2)* 1000 operations with current, 1000 operations without current (UL 489B Clause 10)*
Dielectric Strength	1000 - 2000 Vac for one minute (IEC 60947-2 Clause 8.3.3.3)* 1000 Vac plus twice the rated voltage for one minute (UL 489B Clause 15)*
Rated Impulse Withstand Voltage	4 kV (IEC 60947-2 Clause 8.3.3.2)*
Weight	110 g per pole
Altitude	Certification tests conducted at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	20 G (IEC 60068-2-27)
Vibration	3 G (IEC 60068-2-6) (sinusoidal wave)
Flammability	I3 - Ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

* Refer to the standard for details

Breaker YB	Wire Size (IEC)	Wire Gauge (UL)	Torque (IEC)	Torque (UL)	Comments
Main Terminals	2.5 mm ² to 16 mm ²	14 – 4 AWG	2.5 N.m	30 lbf.in	Pz #2 Combi head

YS - Frame - Miniature Switch Disconnect



1 Pole
DIN mount



1 Pole
DIN mount



2 Pole
DIN mount

Product Category

- **POLARISED PRODUCT**
300 Vdc, 1 Pole & 2 Pole
600 Vdc, 2 Pole in series
600 Vdc, 4 Pole (2 Pole in series + 2 Pole in series)
- **UNPOLARISED PRODUCT**
150 Vdc, 1 Pole & 2 Pole
300 Vdc, 2 Pole in series

Applications

- Solar equipment
- DC circuit isolation
- UPS equipment
- Alternative energy equipment
- Battery & switching

Features

- High energy DC switch
- Ultra compact - 13 mm wide module
- **YSD** - DIN mount, **45 mm** front escutcheon (**Grey**)
- **YSM** - DIN mount, **57 mm** front escutcheon (**Black**)
- ON and OFF indication
- Suitable for electrical isolation
- RoHS compliant
- Box type main terminals



Technical Data

Product Type	Switch Disconnecter YS		
Approvals	UL 489 B, GB 14048.3, IEC 60947-3		
Number of Poles	1	2	4 (2 pole in series + 2 pole in series)
Operating Voltages & Withstand Capacity	150 Vdc @ 1 kA unpolarised 300 Vdc @ 1 kA polarised	150 Vdc @ 1 kA polarised 300 Vdc @ 1 kA unpolarised	600 Vdc @ 1 kA polarised
Current Rating	70 A	70 A	40 A

Verify approvals for specific ratings in accordance with the relevant test certificates.

Product Type	Switch Disconnecter YS
Ambient Operating Temperature	-40°C to +85°C
Mounting Options	Dual (DIN & mini rail) mount, DIN rail mount
Endurance	10000 operations; 1500 with current, 8500 without current (IEC 60947-3 Clause 8.3.4.1)* 1000 operations with current, 1000 operations without current (UL 489B Clause 10)*
Dielectric Strength	1000 - 2000 Vac for one minute (IEC 60947-3 Clause 8.1.3.3)* 1000 Vac plus twice the rated voltage for one minute (UL 489B Clause 15)*
Rated Impulse Withstand Voltage	4 kV (IEC 60947-3 Clause D.7.2.3)*
Weight	110 g per pole
Altitude	Certification tests conducted at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	20 G (IEC 60068-2-27)
Vibration	3 G (IEC 60068-2-6) (sinusoidal wave)
Flammability	I3 - Ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

* Refer to the standard for details

QY - Miniature Circuit Breakers



1 pole
DIN mount



1 pole
Dual (DIN & mini rail) mount



2 pole
Dual (DIN & mini rail) mount



4 Pole + Auxiliary
Dual (DIN & mini rail) mount

Features

- DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability, independent of ambient temperature
- VDE, EAC and CCC approved, CE certified
- UL listed (UL 489A)
- Ratings 0.1 A to 63 A (1 & 2 pole), 3 pole parallel (150 A maximum), 4 pole parallel (200 A maximum)
- Optional shunt trip (Approvals pending)
- Wide range of time delays and operating currents
- Precision tripping characteristics
- Ultra compact – 13 mm wide module
- Trip indication with mid-trip handle
- Can be switched on immediately after tripping
- DIN mount, 45 mm front escutcheon (Grey)
- Dual (DIN & mini rail) mount, 57 mm front escutcheon (Black)
- 80 Vdc devices are reverse feedable
- 125 / 250 / 600 Vdc devices are polarity sensitive
- Suitable to use for electrical isolation

Optional Accessories

- Handle lock - QFAP001
- Surface mounting clips - SAAX000
- Busbar - SABBM54
- 57 mm escutcheon blank (Dual mount only) - 235608
- 57 mm safety blank (Dual mount only) - SAEB000

Applications

- DC branch circuit protection (UL 489A, DIN / EN 60947-2)
- Telecom / datacom equipment
- UPS equipment
- Alternative energy equipment
- Battery protection & switching
- Telecommunication DC power distribution
- Railway signalling equipment

Auxiliary Switch, Trip Alarm & Combo:

Features

- Factory fitted
- Attached to right hand side of circuit breaker
- Compact 6.5 mm width
- Auxiliary switch (DIN and Dual mount)
- Auxiliary switch + trip alarm (Dual mount only)
- Trip alarm (Dual mount only)
- UL 489A listed & IEC 60947-5-1
110 Vdc, 0.5 A; 240 Vac, 6A



(UL 489A)



(CSA C22.2 No. 5-16)



(DIN / EN 60947-2)



(GB 14048.2)



(IEC 60947-2)



Technical Data

Approvals	DIN / EN 60947-2						
Number of Poles	1	2	2 parallel	2 parallel	3 parallel	4 parallel	2 series
Operating Voltages	80 Vdc, 125 Vdc		80 Vdc	125 Vdc	80 Vdc		250 Vdc
Minimum Current Rating	0.1 A	0.1 A	30 A	30 A	110 A	200 A	0.1 A
Maximum Current Rating	63 A	50 A	100 A	100 A	150 A	200 A	50 A
Ultimate S/C Breaking Capacity (Icu)	10 kA						

Approvals	UL 489A, CSA C22.2 No. 5 - 16							
Number of Poles	1	2	2 parallel	2 parallel	3 parallel	4 parallel	2 series	4 series
Operating Voltages	80 Vdc, 125 Vdc		80 Vdc	125 Vdc	80 / 125 Vdc	80 Vdc	250 Vdc	600 Vdc
Minimum Current Rating	0.1 A	0.1 A	30 A	20 A	110 A	200 A	0.1 A	0.1 A
Maximum Current Rating	63 A	50 A	100 A	100 A	150 A	200 A	50 A	20 A
Ampere Interrupting Capacity (AIC)	10 kA							

Approvals	GB 14048.2						
Number of Poles	1	2	2 parallel	2 parallel	3 parallel	4 parallel	2 series
Operating Voltages	80 Vdc, 125 Vdc		80 Vdc	125 Vdc	80 Vdc		250 Vdc
Minimum Current Rating	0.1 A	0.1 A	30 A	30 A	110 A	200 A	0.1 A
Maximum Current Rating	63 A	50 A	100 A	100 A	150 A	200 A	50 A
Ultimate S/C Breaking Capacity (Icu)	10 kA						

Verify approvals for specific ratings in accordance with the relevant test certificates.

Product Type	QY
Ambient Operating Temperature	-40 °C to +85 °C
Mounting Options	Dual (DIN & mini rail) mount, Surface mounting clip
Time Delay Curves	1, 9, U2, U3, OP
Endurance	10000 operations - 1500 with current, 8500 without current (IEC 60947-2 Clause 7.2.4.2)* Minimum of 1000 operations with current (UL 489A Clause 12)*
Dielectric Strength	1000 - 2000 Vac for one minute (IEC 60947-2 Clause 8.3.3.3)* 1000 Vac plus twice the rated voltage for one minute (UL 489A Clause 8)*
Rated Impulse Withstand Voltage	4 kV (IEC 60947-2 Clause 8.3.3.2)*
Weight	102 g per pole, 160 g with auxiliary (unpacked)
Altitude	Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	16 G (IEC 60068-2-27)
Vibration	2 G (IEC 60068-2-6) (sinusoidal wave)
Flammability	I3 - Ignition does not persist at 850 °C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

QT(26) - Miniature Circuit Breakers



1 pole
Dual (DIN & mini rail) mount



2 pole
Dual (DIN & mini rail) mount



4 pole
Dual (DIN & mini rail) mount

Features

- DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability, independent of ambient temperature
- One, two, two pole parallel and four pole (2pole + 2pole parallel)
- VDE and CCC approved, CE certified
- UL 489A listed
- IEC 60947-2 and AS/NZS 60947-2 approved
- Ratings 70 A to 250 A
- Precision tripping characteristics
- Can be switched immediately after tripping
- Dual (DIN & mini rail) mount, 57 mm front escutcheon (Black)

Optional Accessories

- Handle lock - SAAP001
- Escutcheon blank -SFEB000
- Safety blank - SAEB0

Applications

- DC circuit protection (DIN / EN 60947-2)
- Telecom / datacom equipment
- UPS equipment
- Alternative energy equipment
- Mobile power generation equipment
- Railway signalling equipment
- Industrial equipment



AS / NZS 60947-2

Technical Data

Product Type	Circuit Breaker			
Approvals	UL 489A, CSA C22.2 No. 5 -16			
Number of Poles	1	2	2 pole bridged	4 pole (2pole + 2pole) Parallel Bridged
Operating Voltages	80 Vdc			
Standard Current Rating	70 A to 125 A		250 A	250 A
Interrupting S/C Capacity (Ics)	10 kA			

Product Type	Circuit Breaker			
Approvals	GB14048-2, DIN / EN 60947-2, CE, UKCA			
Number of Poles	1	2	2 pole bridged	4 pole (2pole + 2pole) Parallel Bridged
Operating Voltages	80 Vdc			
Minimum Current Rating	70 A		140 A	
Maximum Current Rating	125 A		250 A	
Interrupting S/C Capacity (Ics)	5 kA			
Ultimate S/C Breaking Capacity (Icu)	10 kA			

Product Type	Circuit Breaker			
Approvals	AS / NZS 60947-2			
Number of Poles	1	2	2 pole bridged	4 pole (2pole + 2pole) Parallel Bridged
Operating Voltages	80 Vdc			
Minimum Current Rating	70 A		140 A	
Maximum Current Rating	125 A		250 A	
Interrupting S/C Capacity (Ics)	5 kA		2.5 kA	
Ultimate S/C Breaking Capacity (Icu)	10 kA			

Verify approvals for specific ratings in accordance with the relevant test certificates.

An aerial photograph of a winding asphalt road through a lush green landscape. The road curves from the bottom left towards the center. To the left of the road are rows of green crops, possibly corn. To the right are rolling green hills and fields. In the far distance, two large white wind turbines are visible against a blue sky with scattered white clouds. The overall scene is bright and sunny, suggesting a clear day.

GBi electric

low voltage

a Reuert company



QF17



QF17A
Dual (DIN & CBI Mini rail) mount



QF17C
Dual (DIN & CBI Mini rail) mount

The QF17 type ground fault device is available with or without overload protection as a circuit breaker and as a switch. The overload version has the suffix A and the version without overload has the suffix C.

Features

- Hydraulic-magnetic technology
- 100% rating capability, independent of ambient temperature
- VC 8035 compliant
- VDE, CCC and AS/NZS 60947-2 approved, CE certified
- UL recognised (UL 1053)
- Earth leakage sensitivity 30 mA, **Type A**
- Single pole plus switched neutral earth leakage protection
- Switch versions fitted with short circuit protection
- Available in various currents ratings
- Precision tripping characteristics
- Compact 26 mm wide module
- Trip indication with mid-trip position
- Can be switched on immediately after tripping
- Suitable to use for electrical isolation
- Shell designed for easier installation onto busbar

Auxiliary Switch, Trip Alarm & Combination: Features

- Factory fitted
- Attached to right hand side of circuit breaker
- Compact 6.5 mm width
- Auxiliary switch
- Auxiliary switch + trip alarm
- Trip alarm
- AC and DC voltages
- UL 489 (Auxiliary switch: 6 A 240 Vac, 0.5 A 110 Vdc)
- IEC 60947-5-1 approved (Auxiliary switch: 6 A 240 Vac, 0.5 A 110 Vdc; trip alarm: 6 A 240 Vac, 0.5 A 110 Vdc)

Applications

- Residential and commercial applications requiring high sensitivity earth leakage protection from electrical shock and fire hazards
- Earth leakage protection (DIN / EN 60947-2, Annexure B and Annexure L)
- Telecom / datacom equipment
- Lighting control
- UPS equipment
- Alternative energy equipment
- Mobile power generation equipment
- Railway signalling equipment
- Industrial equipment

Optional Accessories

- Rear studs (factory fitted)
- Handle lock - QFAP001
- Surface mounting clips - SAAX000
- Escutcheon blank - SFEB000
- Safety blank - SAEB000

VC 8035

AS/NZS 60947-2

(DIN / EN 60947-2)



UL US
(UL 1053)



(GB 14048.2)



(IEC 60947-2)

Technical Data

Product Type	QF17A	QF17C
Approvals	VC 8035	
Number of Poles	2 (1+N)	2 (1+N)
Standard Ampere Ratings	5 to 63 A	40 and 63 A
Sensitivity	30 mA	30 mA
Rated Voltage	230 Vac	230 Vac
Rated S/C Withstand Capacity (Icw)	-	5 kA / 50 ms
Ultimate S/C Breaking Capacity (Icu)	5 kA	-

Product Type	QF17A	QF17C
Approvals	AS/NZS 60947-2, DIN / EN 60947-2, CE, UKCA	
Number of Poles	2 (1+N)	2 (1+N)
Standard Ampere Ratings	5 to 40 A	40 A
Sensitivity	30 mA	30 mA
Rated Voltage	240 Vac	240 Vac
Rated S/C Withstand Capacity (Icw)	-	6 kA
Ultimate S/C Breaking Capacity (Icu)	6 kA	-

Product Type	QF17A	QF17C
Approvals	UL 1053	
Number of Poles	2 (1+N)	2 (1+N)
Standard Ampere Ratings	1 to 40 A	40 A
Sensitivity	22 mA	22 mA
Rated Voltage	240 Vac	240 Vac

Product Type	QF17A	QF17C
Approvals	GB 14048.2	
Number of Poles	2 (1+N)	2 (1+N)
Standard Ampere Ratings	5 to 40 A	40 A
Sensitivity	30 mA	30 mA
Rated Voltage	240 Vac	240 Vac
Rated S/C Withstand Capacity (Icw)	-	6 kA
Ultimate S/C Breaking Capacity (Icu)	6 kA	-

Verify approvals for specific ratings in accordance with the relevant test certificates.

Auxiliary Module	
Auxiliary Switch	DIN and CBI mini rail mounted
Trip Alarm	CBI mini rail mount only
Auxiliary Switch + Trip Alarm	CBI mini rail mount only



QF(26) HR - Miniature Circuit Breakers



1 Pole
Dual (DIN & mini rail)
mount

2 Pole
Dual (DIN & mini rail)
mount

3 Pole
Dual (DIN & mini rail)
mount

3 Pole + N
Dual (DIN & mini rail)
mount

Features

- AC circuit breaker
- Hydraulic-magnetic technology
- 100% rated current capability, independent of ambient temperature
- One, two, three pole, 1+N and 3+N (VDE)
- VC 8036 (SANS 556-1) and CE compliant
- VDE and EAC approved
- Ratings 60 A to 100 A (UL 489)
- Ratings 70 A to 125 A (IEC 60947-2)
- Available in various currents and time delays
- Precision tripping characteristics
- Can be switched immediately after tripping
- Dual (DIN & mini rail) mount, 57 mm front escutcheon (Black)
- Suitable to use for electrical isolation

Applications

- AC branch circuit protection (DIN / EN 60947-2)
- Switch disconnector (DIN / EN 60947-3, UL 508)
- Telecom / datacom equipment
- Lighting control
- UPS equipment
- Mobile power generation equipment
- Railway signalling equipment
- Residential equipment
- Industrial equipment

Optional Accessories

- Handle lock - SAAP001
- Surface mounting clips - 2096001
- Escutcheon blank - SFEB000
- Safety blank - SAEB000



VC 8036 (SANS 556-1)
(SANS IEC 60947-2)



Technical Data

Product Type	Circuit Breaker				
Approvals	DIN / EN 60947-2, EAC, CE, UKCA, VC 8036 (SANS 556-1)				
Number of Poles	1	2 (1+N)	2	3	4 (3+N)
Operating Voltages	240 Vac		415 Vac		
Minimum Current Rating	70 A				
Maximum Current Rating	125 A				
Ultimate S/C Breaking Capacity (Icu)	6 kA (IEC), 5 kA (VC 8036)				

Product Type	Circuit Breaker			
Approvals	GB/T14048.2			
Number of Poles	1	1 + N	2, 3, 3 + N, 4	
Operating Voltages	240 Vac		415 Vac	
Minimum Current Rating	70 A			
Maximum Current Rating	125 A			
Ultimate S/C Breaking Capacity (Icu)	6 kA			

Product Type	Circuit Breaker	
Approvals	UL 489	
Number of Poles	1	2
Operating Voltages	120 Vac	120 / 240 Vac
Minimum Current Rating	60 A	
Maximum Current Rating	100 A	
Ampere Interrupting Capacity (AIC)	10 kA	

Product Type	Switch Disconnecter				
Approvals	VC 8036 (SANS 556-1), DIN / EN 60947-3, UL 508, GB/T14048.3				
Number of Poles	1	2	3	4	4 (3+N)
Operating Voltages	240 Vac	415 Vac			
Current Rating	125 A				
Short-time Withstand	6 kA / 50 ms				

QL - Miniature Circuit Breakers



1 Pole
Dual (DIN & mini rail) mount



2 Pole
DIN mount



3 Pole
Dual (DIN & mini rail) mount

Features

- AC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability, independent of ambient temperature
- One, two and three pole (UL). One, two, three pole and 1+N, 3+N (VDE).
- VDE, EAC and CCC approved, CE certified
- UL 489 Listed
- Ratings 0.5 A to 25 A
- Optional shunt trip (Approvals pending)
- Wide range of time delays and operating currents
- Precision tripping characteristics
- Ultra compact – 13 mm wide module
- Trip indication with mid-trip handle
- Can be switched on immediately after tripping
- DIN mount, **45 mm** front escutcheon (**Grey**)
- Dual (DIN & mini rail) mount, **57 mm** front escutcheon (**Black**)
- Ring terminal ready (Terminal screw is removable)

Auxiliary Switch, Trip Alarm & Combo: Features

- Factory fitted
- Attached to right hand side of circuit breaker
- Compact 6.5 mm width
- Auxiliary switch (DIN and Dual mount)
- Auxiliary switch + trip alarm (Dual mount only)
- Trip alarm (Dual mount only)
- UL 489 listed & IEC 60947-5-1
- 110 Vdc, 0.5 A; 240 Vac, 6 A

Applications

- AC branch circuit protection
- Telecom / datacom equipment
- Lighting control
- UPS equipment
- Energy equipment
- Mobile power generation equipment
- Power conditioning equipment

Optional Accessories

- Handle lock - QFAP001
- Surface mounting clips - SAAX000
- 57 mm escutcheon blank (Dual mount only) - 235608
- 57 mm safety blank (Dual mount only) - SAEB000



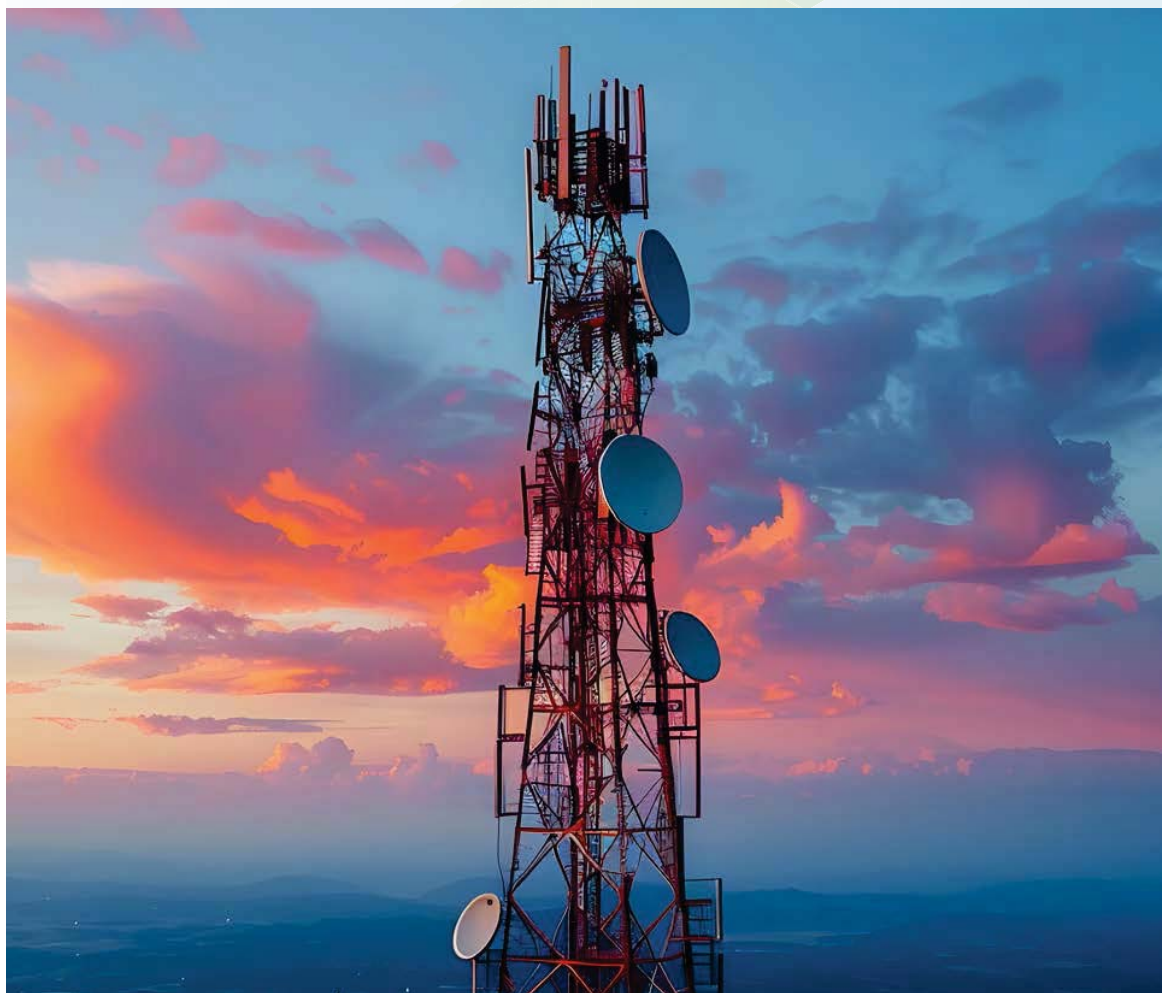
Technical Data

Product Type	Circuit Breaker			
Approvals	UL 489			
Number of Poles	1	1	2	2 & 3
Operating Voltages	120 Vac	240 Vac	120 / 240 Vac	240 Vac
Minimum Current Rating	0.5 A			
Maximum Current Rating	25 A	20 A	25 A	25 A
Ampere Interrupting Capacity (AIC)	10 kA	5 kA	10 kA	10 kA

Product Type	Circuit Breaker				
Approvals	DIN / EN 60947-2, CE, UKCA				
Number of Poles	1	2 (1+N)	2	3	4 (3+N)
Operating Voltages	240 Vac		415 Vac		
Minimum Current Rating	0.5 A				
Maximum Current Rating	25 A				
Ultimate S/C Breaking Capacity (Icu)	6 kA				

Product Type	Circuit Breaker				
Approvals	GB 14048.2				
Number of Poles	1	2 (1+N)	2	3	4 (3+N)
Operating Voltages	240 Vac		415 Vac		
Minimum Current Rating	1 A				
Maximum Current Rating	25 A				
Specific Ratings (Verify Certification)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 20, 25 A				
Ultimate S/C Breaking Capacity (Icu)	6 kA				

Verify approvals for specific ratings in accordance with the relevant test certificates.
For other ratings, consult CBI



QZ - Miniature Circuit Breakers



1 Pole
Dual (DIN & Mini Rail) Mount



2 Pole
Dual (DIN & Mini Rail) Mount



3 Pole
Dual (DIN & Mini Rail) Mount

Features

- AC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability, independent of ambient temperature
- One, two and three pole (UL). One, two, three pole and 1+N, 3+N (VDE).
- DIN / EN, EAC approved, CE certified
- UL 1077 recognised (Supplementary protector)
- Ratings 0.1 A to 60 A - UL 1077
- Optional shunt trip (Approvals pending)
- Wide range of time delays and operating currents
- Precision tripping characteristics
- Ultra compact – 13 mm wide module
- Trip indication with mid-trip handle
- Can be switched on immediately after tripping
- DIN mount product in grey shells
- Dual (DIN and mini rail) mount product in black shells

Auxiliary Switch, Trip Alarm & Combo:

Features

- Factory fitted
- Attached to right hand side of circuit breaker
- Compact 6.5 mm width
- Auxiliary switch (DIN and Dual mount)
- Auxiliary switch + trip alarm (Dual mount only)
- Trip alarm (Dual mount only)
- UL 489 & IEC 60947-5-1
- 110 Vdc, 0.5 A; 240 Vac, 6A

Applications

- AC branch circuit protection (DIN / EN 60947-2)
- Supplementary protection (UL 1077)
- Telecom / datacom equipment
- Lighting control
- UPS equipment
- Mobile power generation equipment

Optional Accessories

- Handle lock - QFAP001
- Surface mounting clips - SAAX000
- 57 mm escutcheon blank (Dual mount only) - 2356208
- 57 mm safety blank (Dual mount only) - SAEB000



Technical Data

Product Type	Supplementary Protector						
Approvals	UL 1077						
	Tested with series fuse					Tested without series fuse	
Number of Poles	1	1	2	3	3	1	3
Operating Voltages	120 Vac	277 Vac	480 Vac	240 Vac	277 / 480 Vac	120 Vac	240 Vac
Minimum Current Rating	0.1 A					1 A	
Maximum Current Rating	60 A					50 A	
Specific Ratings (Verify Certification)	0.1, 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 20, 25, 30, 35, 40, 45, 50, 60 A						
Short Circuit Capacity (Ics)	5 kA					5 kA	

Product Type	Circuit Breaker				
Approvals	DIN / EN 60947-2, EAC, CE, UKCA				
Number of Poles	1	2 (1+N)	2	3	4 (3+N)
Operating Voltages	240 Vac		415 Vac		
Minimum Current Rating	5 A				
Maximum Current Rating	50 A				
Specific Ratings (Verify Certification)	5, 6, 7, 8, 9, 10, 12, 15, 16, 20, 25, 30, 35, 40, 45, 50 A				
Ultimate S/C Breaking Capacity (Icu)	3 kA				

Verify approvals for specific ratings in accordance with the relevant test certificates.
For other ratings, consult CBI

YF - Frame - Circuit Breakers



1 Pole
DIN mount



1 Pole
DIN mount



2 Pole
DIN mount



4 Pole
DIN mount

Features

- AC and DC circuit breaker
- Ultra compact - 13 mm wide module
- Hydraulic-magnetic technology
- Can be switched on immediately after tripping
- **YFD** - DIN mount, **45 mm** front escutcheon (**Grey**)
- **YFM** - DIN mount, **57 mm** front escutcheon (**Black**)
- **YFK** - Dual (DIN & Mini) mount, **57 mm** front escutcheon (**Black**)
- ON and OFF indication
- Suitable for electrical isolation
- 100% rated current capability, independent of ambient temperature
- One, two, three, four pole, 1P + N and 3P + N
- RoHS compliant
- Box type main terminals

Applications

- AC and DC branch circuit protection
- Telecom / datacom equipment
- Lighting control
- UPS equipment
- Alternative energy equipment
- Mobile power generation equipment
- Railway signalling equipment
- Residential equipment
- Industrial equipment

Auxiliary Switch and Trip Alarm Features

- Auxiliary switch
- AC and DC voltages
- IEC 60947-5-1 (6 A 240 Vac, 0.5 A 110 Vdc)
- GB14048.5 approved
- Factory fitted
- Attached to right hand side of circuit breaker
- Compact 6.5 mm width



Note:
All information subject to testing and certification. For the latest information contact CBI.

Technical Data

Product Type	Circuit Breaker YF				
Approvals	IEC 60947-2, GB 14048.2, CE, UKCA				
Number of Poles	1	2 (1+N)	2	3	4 (3+N)
Operating Voltages	240 Vac		415 Vac		
Minimum Current Rating	0.5 A				
Maximum Current Rating	32 A				
Ultimate S/C Breaking Capacity (Icu)	6 kA				

Product Type	Circuit Breaker YF			
Approvals	UL 489			
Number of Poles	1	2	2	3
Operating Voltages	240 Vac, 80 Vdc	240 Vac	120 / 240 Vac, 80 Vdc	240 Vac, 80 Vdc
Minimum Current Rating	0.5 A	0.5 A	0.5 A	0.5 A
Maximum Current Rating	32 A	25 A	32 A	32 A
Ampere Interrupting Capacity (AIC)	10 kA			

* YF Frame is also certified to operate at 80 Vdc
Verify approvals for specific ratings in accordance with the relevant test certificates.

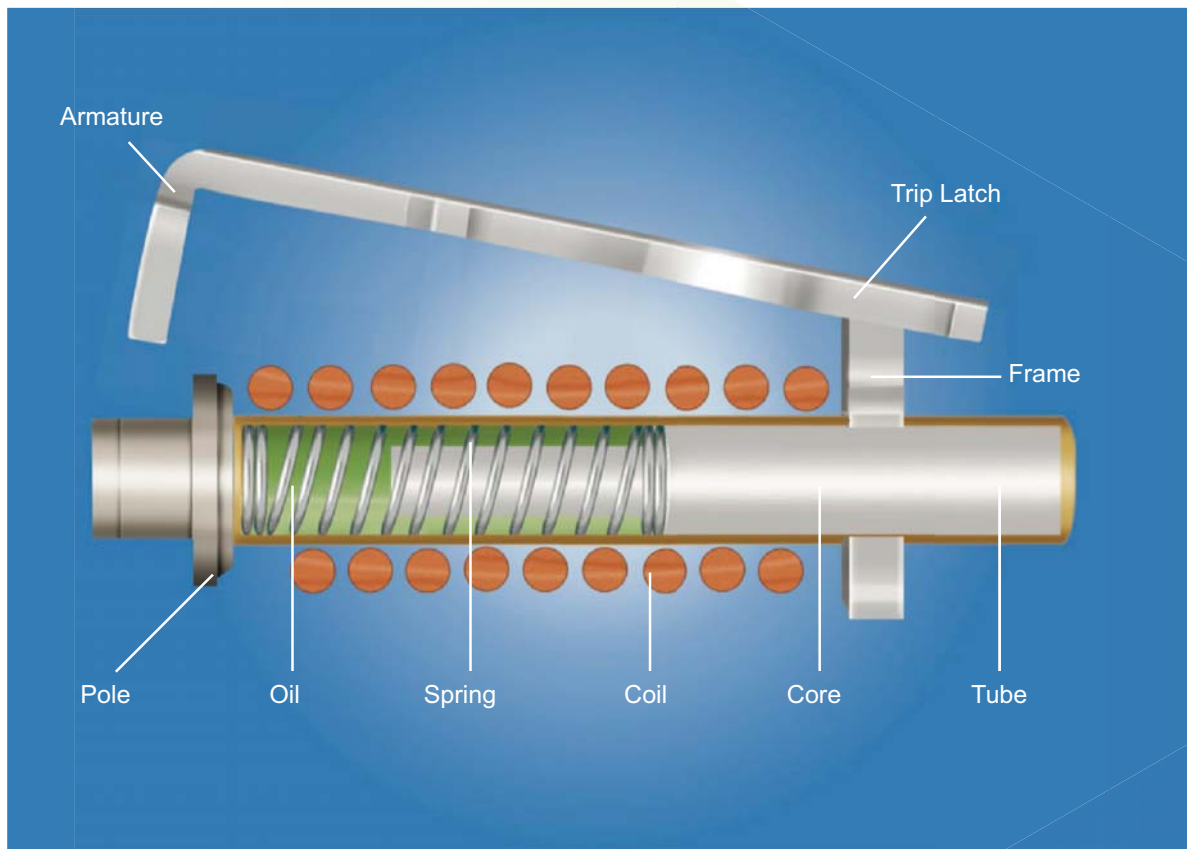
Product Type	Circuit Breaker YF
Ambient Operating Temperature	-40 °C to +85 °C
Mounting Options	Dual (DIN & Mini) mount, DIN rail mount
Time Delay Curves	Various
Endurance	10000 operations; 1500 with current, 8500 without current (IEC 60947-2 Clause 7.2.4.2)*
Dielectric Strength	1000 - 2000 Vac for one minute (IEC 60947-2 Clause 8.3.3.3)*
Rated Impulse Withstand Voltage	4 kV (IEC 60947-2 Clause 8.3.3.2)*
Weight	110 g per pole
Altitude	Certification tests conducted at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	20 G (IEC 60068-2-27)
Vibration	3 G (IEC 60068-2-64) (sinusoidal wave)
Flammability	I3 - Ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

* Refer to the standard for details



Hydraulic - Magnetic Technology

Hydraulic-magnetic circuit breakers operate on the magnetic force produced by a load current flowing through a series-connected solenoid coil that is wound around a hermetically sealed tube containing an iron core, a spring and dampening fluid.



Features of the Construction Common to all CBI Circuit Breakers

- **Trip free operation:** Even if the handle is locked in the ON position, the breaker will trip if an overload occurs
- **Positive ON and positive OFF:** The handle always indicates the status of the breaker contacts
- **Silver alloy contacts:** The contact tips ensure a long, trouble-free life, even in harsh environments, ensuring a low impedance connection throughout the life of the breaker
- **Superior quality polymer materials:** Materials meet or exceed the requirements laid down by international specifications for polymer materials to be used in circuit breaker applications, such as IEC 60947-2 and UL 489
- **Environmental Safety:** Ensures better safety properties for flammability, toxicity and isolation, ensure safety for users and the installation
- **Hermetically sealed sensing / time delay mechanism:** These ensure no aging or deterioration and thereby a longer service life, with precise time-delay and tripping characteristics throughout the life of the breaker
- **Multi-pole Circuit Breakers are fitted with common trips:** All CBI multi-pole circuit breakers are externally coupled with a handle tie-bar and internally with a common trip linkage, ensuring that all poles switch and trip simultaneously





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