



FEDERAL ELECTRIC

Quadbreak and Twinbreak Switch and Fusegear



SUPERMOON

Powering modern work and life

Order at 訂貨熱線：

香港批發/分銷 T (852) 2781 2855

澳門批發/分銷 T (853) 2822 2751

工程/商業項目 T (852) 2691 9166

E enquiry@supermoon.hk

www.supermoon.hk

Wall Mounting Switch and Fusegear



Quadbreak Range



ASTA Certification



Twinbreak Range

Quadbreak



- Tested and constructed to BS EN 60947-3
- Unrestricted access by means of removable cross members
- Shrouded terminals
- Clear visual indication of contact position
- Easy access fuses
- Quick make and break silver plated contacts
- Available as a Switch Disconnecter Fuse or Switch Disconnecter with fuses or links fitted as standard
- Full AC23 ratings (to 630A)
- ASTA Certified 50kA short circuit rating
- Padlockable in ON or OFF position



Breaking with Tradition

Based on a proven track record the Federal Electric Quadbreak range advances fused switch products to an unparalleled simplicity in installation and selection.

Fully rated to meet the requirements of AC23 to 630A, Quadbreak eliminates the need to have complete knowledge of the circuit and its application before selecting a device.

Quadbreak is available as a Switch Disconnecter Fuse or a Switch Disconnecter and is supplied complete with fuse or isolator links. It is complemented by a range of cable entry boxes and busbar chambers.



ENCLOSURE DESIGN

- Removable cross rails allow cables to be laid without barrier
- Fully shrouded terminals
- Direct front access for cabling without dismantling the mechanism
- Clear shrouds allow easy access for inspection and visual indication of contact position
- Lift off door opens within its overall dimensions allowing Quadbreak units to be mounted directly adjacent to each other
- Padlocking facilities are provided for locking the Quadbreak in either the on or off position
- Optional Castell locks can be factory fitted
- The single folded construction ensures that the Quadbreak enclosure easily withstands the rigours of installation and the distortions that large cables can bring

MECHANISM

The Quadbreak switching mechanism has fixed fuses and moving contacts which provide a Switch Disconnecter on each side of the fuse link, each Switch Disconnecter has two switching breaks giving a total of 4 breaks per phase hence Quadbreak

- Positive contact indication is guaranteed
- Quick make Quick break independent spring driven mechanism
- Use of advanced materials for contacts gives extended life
- Easy access fuses
- Door interlock defeat mechanism



Quadbreak



ORDER REFERENCES SWITCH DISCONNECTOR FUSE SUPPLIED WITH FUSES

RATING ¹ AC21/22/23	SINGLE PHASE & SWITCHED NEUTRAL	THREE PHASE WITH NEUTRAL LINK	RECOMMENDED CABLE ENTRY BOX	CABLE STUD	PALM WIDTH	MAX. CABLE SIZE ²
63A	XQE63SNK	XQE63TNK	CX1	M6	20mm	50mm ²
100A	XQE100SNK	XQE100TNK	CX1	M8	20mm	50mm ²
160A	XQE160SNK	XQE160TNK	CX2	M8	20mm	50mm ²
250A	XQE250SNK	XQE250TNK	CX3	M10	30mm	120mm ²
400A	-	XQE400TNK	CX4	M12	50mm	400mm ²
500A	-	XQE500TNK	CX4	M12	50mm	400mm ²
630A	-	XQE630TNK	CX5	M12	50mm	400mm ²

¹ 8 hour duty. For continuous duty consult us.

² Assumes correct cable box is fitted.



ORDER REFERENCES SWITCH DISCONNECTOR SUPPLIED WITH ISOLATOR LINKS

RATING ³ AC21/22/23	SINGLE PHASE & SWITCHED NEUTRAL	THREE PHASE WITH NEUTRAL LINK	RECOMMENDED CABLE ENTRY BOX	CABLE STUD	PALM WIDTH	MAX. CABLE SIZE ²
63A	XQE63SNL	XQE63TNL	CX1	M6	20mm	50mm ²
100A	XQE100SNL	XQE100TNL	CX1	M8	20mm	50mm ²
160A	XQE160SNL	XQE160TNL	CX2	M8	20mm	50mm ²
250A	XQE250SNL	XQE250TNL	CX3	M10	30mm	120mm ²
400A	-	XQE400TNL	CX4	M12	50mm	400mm ²
500A	-	XQE500TNL	CX4	M12	50mm	400mm ²
630A	-	XQE630TNL	CX4	M12	50mm	400mm ²
800A ⁴	-	XQE800TNL	CX5	M12	50mm	400mm ²

³ For continuous duty.

⁴ AC21/AC22 only; it must be used with CX5 (except where mounted on Quadbreak Busbar Chambers.)



ORDER REFERENCES SWITCH DISCONNECTOR SUPPLIED WITHOUT FUSES OR LINKS FITTED*

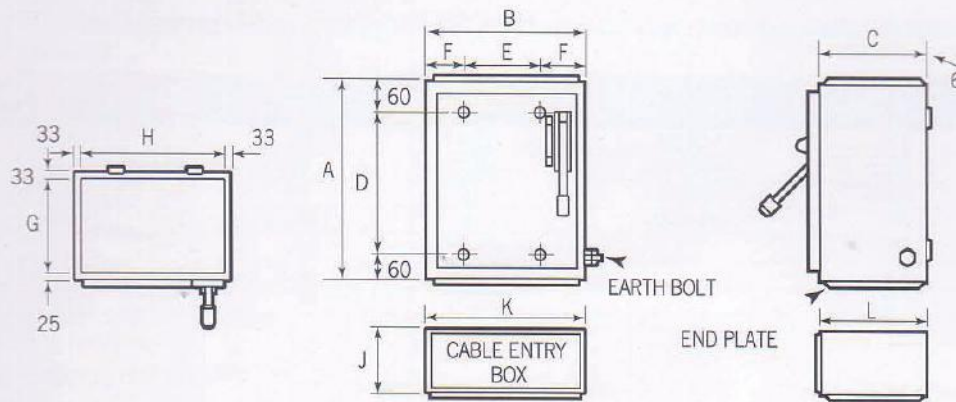
RATING ³ AC21/22/23	SINGLE PHASE & SWITCHED NEUTRAL	THREE PHASE WITH NEUTRAL LINK	RECOMMENDED CABLE ENTRY BOX	CABLE STUD	PALM WIDTH	MAX. CABLE SIZE ²
100A	XQE100SN	XQE100TN	CX1	M8	20mm	50mm ²
160A	XQE160SN	XQE160TN	CX2	M8	20mm	50mm ²
250A	XQE250SN	XQE250TN	CX3	M10	30mm	120mm ²
400A	-	XQE400TN	CX4	M12	50mm	400mm ²
500A	-	XQE500TN	CX4	M12	50mm	400mm ²
630A	-	XQE630TN	CX4	M12	50mm	400mm ²

*Available only to non EC customers

LINKS FOR ABOVE

100A	160A	200A	250A	315A	400A	500A	630A
XCL100	XCL160	XCL200	XCL250	XCL315	XCL400	XCL500	XCL630

Quadbreak Switch Disconnectors



DIMENSION

CURRENT RATING	REFERENCE No.	SWITCH ENCLOSURES (mm)								PACKED WEIGHT kg	CABLE ENTRY BOX (mm)			
		A	B	C	D	E	F	G	H		REFERENCE No.	J	K	L
100A	XQE100SN									12.60				
	XQE100TN	380	292	200	260	130	81	142	226	15.60	CX1	100	292	200
160A	XQE160SN									12.60				
	XQE160TN	380	292	200	260	130	81	142	226	15.60	CX2	150	292	200
250A	XQE250SN									15.50				
	XQE250TN	380	340	200	260	180	81	142	274	19.50	CX3	180	340	200
400A	XQE400TN	455	489	270	335	289	100	212	423	36.20	CX4	300	489	270
500A	XQE500TN	455	489	270	335	289	100	212	423	36.20	CX4	300	489	270
630A	XQE630TN	455	489	270	335	289	100	212	423	36.20	CX5	400	489	270
800A*	XQE800TN	455	489	270	335	289	100	212	423	36.20	CX5	400	489	270

*800A unit is provided with cable entry box and the final dimensions is 1455H x 489W.

Quadbreak Cubicle Mounting



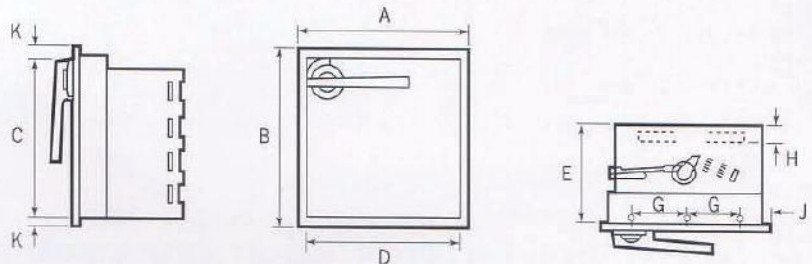
ORDER REFERENCES SWITCH DISCONNECTOR FUSE SUPPLIED WITHOUT FUSES OR LINKS FITTED

RATING ¹ AC21/22/23	SINGLE PHASE & SWITCHED NEUTRAL	THREE PHASE WITH NEUTRAL LINK	CABLE STUD	PALM WIDTH	MAX. CABLE SIZE ²
63A	RQ63SN	RQ63TN	M6	20mm	50mm ²
100A	RQ100SN	RQ100TN	M8	20mm	50mm ²
160A	RQ160SN	RQ160TN	M8	20mm	50mm ²
250A	RQ250SN	RQ250TN	M10	30mm	120mm ²
400A	-	RQ400TN	M12	50mm	400mm ²
500A	-	RQ500TN	M12	50mm	400mm ²
630A	-	RQ630TNN	M12	50mm	400mm ²

LINKS FOR ABOVE

63A	100A	160A	200A	250A	315A	400A	500A	630A
XCL63	XCL100	XCL160	XCL200	XCL250	XCL315	XCL400	XCL500	XCL630

¹ 8 hour duty. For continuous duty consult us.



DIMENSION

CURRENT RATING	REFERENCE No.	SWITCH CHASSIS (mm)										PACKED WEIGHT kg
		A	B	C	D	E	F	G	H	J	K	
63A	RQ63SN											9
	RQ63TN	365	265	222.5	327	171	250	-	20.8	19	21.25	9
100A	RQ100SN											9
	RQ100TN	365	265	222.5	327	171	250	-	20.8	19	21.25	9
160A	RQ160SN											9
	RQ160TN	365	265	222.5	327	171	250	-	20.8	19	21.25	9
250A	RQ250SN											12
	RQ250TN	365	315	272.5	327	181.5	250	-	21.6	19	21.25	12
400A	RQ400TN											29
	RQ400TN	465	465	422.5	428	269.5	300	150	34	18.5	21.25	29
500A	RQ500TN											29
	RQ500TN	465	465	422.5	428	269.5	300	150	34	18.5	21.25	29
630A	RQ630TN											29
	RQ630TN	465	465	422.5	428	269.5	300	150	34	18.5	21.25	29

Twinbreak

- Tested and constructed to BS EN 60947-3
- Simple layout with easy cable access
- Live terminal barriers
- Clear visual indication of contact position
- Door interlock mechanism
- Easy access fuses
- Quick make and break silver plated contacts
- Available as a Switch Disconnecter Fuse with fuses fitted as standard or as Switch Disconnecter
- Full AC23 ratings (to 100A) AC22 to 160A
- ASTA Certified 50kA short circuit rating
- Removable pan assembly
- Handle padlockable ON or OFF
- IP42 degree of protection



Breaking with Tradition

Based on a proven track record the Federal Electric Twinbreak range has an unparalleled simplicity in installation and selection.

Fully rated to meet the requirements of AC23 up to 100A, Twinbreak eliminates the need to have complete knowledge of the circuit and its application before selecting a device.

Twinbreak is available as a Switch Disconnecter Fuse or a Switch Disconnecter and is supplied complete for individual mounting, or for mounting to the Twinbreak range of busbar chambers.

The Twinbreak design brings you the benefits of

ENCLOSURE DESIGN

- Removable pan assembly means easier cabling
- Barrier over live terminals
- Direct front access for cabling without dismantling the unit
- Lift off front door giving greater access in restricted areas. The door also opens within its overall dimension allowing Twinbreak units to be mounted directly adjacent to each other
- Padlocking facilities are provided for locking the Twinbreak in either the on or off position with up to 4 padlocks
- The single folded construction ensures that the Twinbreak easily withstands the rigours of installation

MECHANISM

The Twinbreak switching mechanism has fixed fuses and moving contacts which provide a Switch Disconnecter; Twinbreak has two switching breaks per phase hence Twinbreak

- Clear visual indication of the contact position with the door open
- Positive contact indication is guaranteed
- Quick make Quick break independent spring driven mechanism
- Easy access fuses
- Door interlock mechanism with integral defeat mechanism

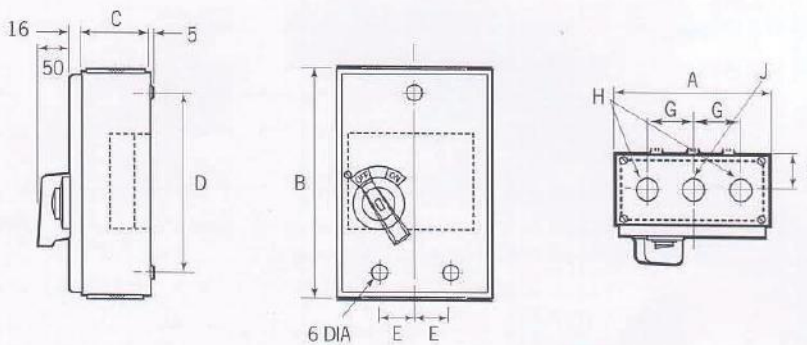


Twinbreak Switch Disconnectors

ORDER REFERENCES

RATING ¹ AC21/22/23	SWITCH DISCONNECTOR FUSE		SWITCH DISCONNECTOR FUSE*		SWITCH DISCONNECTOR	
	SINGLE PHASE & SWITCHED NEUTRAL	THREE PHASE WITH NEUTRAL LINK	SINGLE PHASE & SWITCHED NEUTRAL	THREE PHASE WITH NEUTRAL LINK	SINGLE PHASE & SWITCHED NEUTRAL	THREE PHASE WITH NEUTRAL LINK
20A	TB20SFSNK	TB20SFTNK	TB20SFSN	TB20SFTN	TB20SD	TB20STN
32A	TB32SFSNK	TB32SFTNK	TB32SFSN	TB32SFTN	TB32SD	TB32STN
63A	TB63SFSNK	TB63SFTNK	TB63SFSN	TB63SFTN	TB63SD	TB63STN
100A	TB100SFSNK	TB100SFTNK	TB100SFSN	TB100SFTN	TB100SD	TB100STN
	Supplied with fuses			Supplied without fuses*		

*Available only to non EC customers



DIMENSION

CURRENT RATING	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	PACKED WEIGHT kg
20A	210	243.2	106	185	50	45	44	20	25	6
32A	210	243.2	106	185	50	45	44	20	25	6
63A	235	351.6	106	270	55	45	50	32	32	8
100A	260	403.2	120	320	65	52	60	40	40	8

¹ With fuses Twinbreak has 8 hour duty. For continuous duty consult us. When used as an isolator Twinbreak is continuously rated.



Rated Duty

All equipment built to BSEN 60947 - Low Voltage Switchgear and Controlgear have ratings based on an 8 hour duty cycle (clause 4.3.1). The ratings of Quadbreak and Twinbreak are accordingly based on this clause of the standard.

For Switch Disconnecter Fuse units we recommend that for uninterrupted (continuous) duty Quadbreak and Twinbreak loading does not exceed 80% of its current rating.

- e.g. (1) Full load current 250A for 16 hours a day 7 days a week use XQE315TNK
(2) Full load current 250A for 8 hours a day then 40A for remaining period use XQE250TNK

Switch Disconnectors (isolators) do not require derating.

Utilisation Category/ Motor Starting

BS EN 60947-3 details various categories of duty which relate to the nature of the load:

Utilisation Category	Typical Applications
	Connecting and disconnecting under no-load.
AC20	Assumes all switching operations are carried out by other capable devices.
	Switching of resistive loads including moderate overloads.
AC21	Suitable for purely resistive type loads. Devices can switch 150% of its rated current under fault conditions.
	Switching of mixed resistive/inductive loads, including moderate overloads.
AC22	Suitable for mixed resistive/inductive loads. Device can switch 300% of its rated current under fault conditions.
	Switching of highly inductive loads.
AC23	Devices complying with AC23 are provided mainly as back-up to other means of switching e.g. Contactors. In the event of failure of the functional device, an AC23 type device can safely interrupt a stalled motor current.

Since Twinbreak 20 - 100A and Quadbreak 63 - 630A are all rated at AC23, Federal Electric provides a complete range which can be used without prior knowledge of the circuit configuration.

Quadbreak and Twinbreak should not be routinely used for direct starting of motors.

Capacitor Switching

When used for switching and protection of capacitive loads i.e. Power Factor Correction capacitor banks, Twinbreak and Quadbreak should be derated by 50%.

Technical Data

TWINBREAK

RATINGS	20A	32A	63A	100A	125A	160A
Standard	BS EN 60947-3 I.E.C. 947-3					
Rated current I_e	20A	32A	63A	100A	125A	160A
Voltage $U_e/U_p/U_{imp}$ 50/60Hz	415V/500V/6kV					
Rated short time withstand I_{cw}	416A	416A	756A	1300A	1300A	1300A
Rated short circuit making capacity I_{cm}^1	1.35kA	1.35kA	1.35kA	3.5kA	3.5kA	3.5kA
Rated short circuit breaking capacity I_{cn}^1	50kA	50kA	50kA	50kA	50kA	50kA
Utilization category	AC20/21/22A/23B			AC20/21/22B		
Kilowatt ratings	11kW	15kW	30kW	55kW	55kW	55kW
Mechanical endurance	As per BS EN 60947-3					
Electrical endurance	As per BS EN 60947-3					
Rated service temperature	40°C					

QUADBREAK

RATINGS	63A	100A	160A	200/250A	315/400A	500A	630A	800A
Standard	BS EN 60947-3 I.E.C. 947-3							
Rated current I_e	63A	100A	160A	200/250A	315/400A	500A	630A	800A
Voltage $U_e/U_p/U_{imp}$ 50/60Hz	415V/500V/8kV							
Rated short time withstand I_{cw}	3.4kA	3.4kA	3.4kA	5.23kA	12kA	12kA	12kA	12kA
Rated short circuit making capacity I_{cm}^1	5kA	5kA	5kA	8kA	24kA	24kA	24kA	24kA
Rated short circuit breaking capacity I_{cn}^1	50kA	50kA	50kA	50kA	50kA	50kA	50kA	50kA
Utilization category	AC20/21/22/23A			AC20/21/22/23B			AC20/21/22B	
Kilowatt ratings	30kW	55kW	90kW	110/130kW	175/220kW	250kW	300kW	
Mechanical endurance cycles	As per BS EN 60947-3							
Electrical endurance	As per BS EN 60947-3							
Rated service temperature	40°C							

¹ Provided the correct fuselinks are fitted.

The figures for Switch Disconnectors assume an upstream HRC fuse with a rating not exceeding I_e .

Replacement Fuse links

TWINBREAK

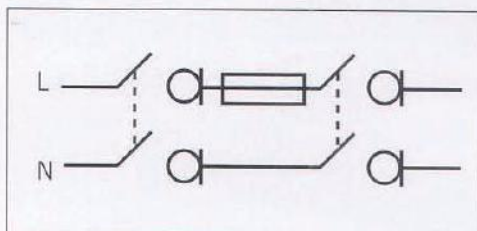
RATING	BS 88 REFERENCE	GEC REFERENCE	BUSSMAN REFERENCE
20A	A1 44.5mm	NIT20	NITD20
32A	A2 73mm	TIA32	AA032
63A	A3 73mm	TIS63	BA063
100A	A4 93.7mm	TCP100	CE0100

QUADBREAK

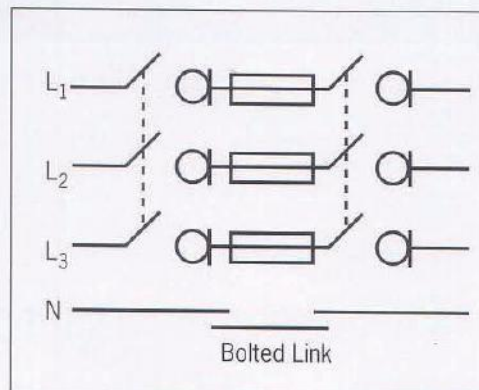
RATING	BS 88 REFERENCE	GEC REFERENCE	BUSSMAN REFERENCE
63A	-	TBC63	BD63
100A	B1 111mm	TC100	CD100
160A	B2 111mm	TF160	DD160
200A	B2 111mm	TF200	DD200
250A	B3/4 111mm	TKF250	ED250
315A	C1 133mm	TKM315	EFS315
400A	C1 133mm	TM400	EF400
500A	C2 133mm	TTM500	FF500
630A	C2 133mm	TTM630	FF630

Quadbreak Wiring Diagrams

SWITCH DISCONNECTOR FUSE

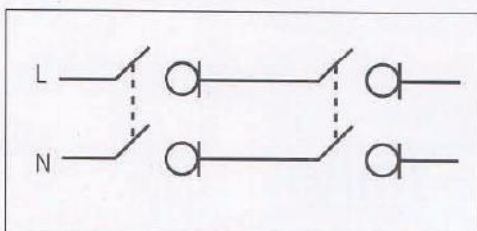


XQE100SN(K)
XQE160SN(K)
XQE200SN(K)
XQE250SN(K)

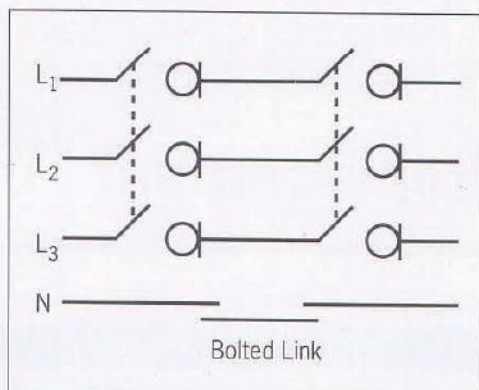


XQE100TN(K)
XQE160TN(K)
XQE200TN(K)
XQE250TN(K)
XQE315TN(K)
XQE400TN(K)
XQE500TN(K)
XQE630TN(K)

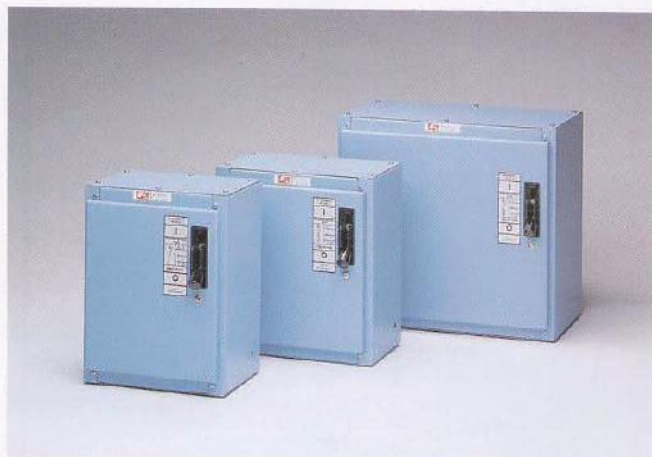
SWITCH DISCONNECTOR



XQE100SN(L) | RQ100SN
XQE160SN(L) | RQ160SN
XQE250SN(L) | RQ250SN

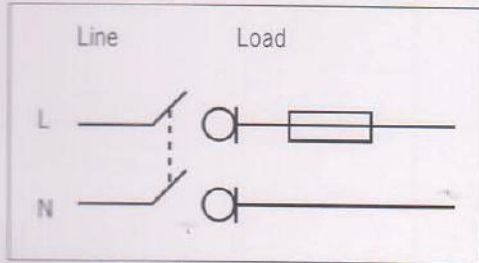


XQE63TN(L) | RQ63TN
XQE100TN(L) | RQ100TN
XQE160TN(L) | RQ160TN
XQE250TN(L) | RQ250TN
XQE400TN(L) | RQ400TN
XQE500TN(L) | RQ500TN
XQE630TN(L) | RQ630TN
XQE800TN(L)

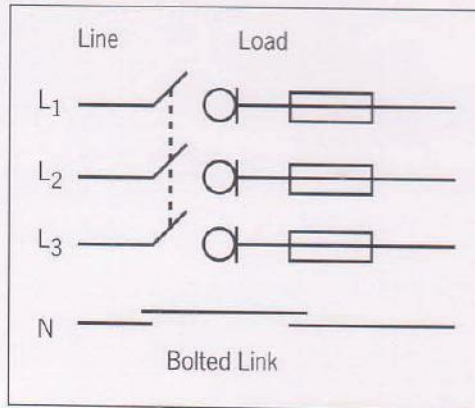


Twinbreak Wiring Diagrams

SWITCH DISCONNECTOR FUSE

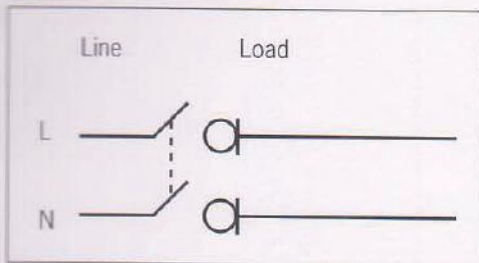


TB20SFSN(K)
TB32SFSN(K)
TB63SFSN(K)
TB100SFSN(K)

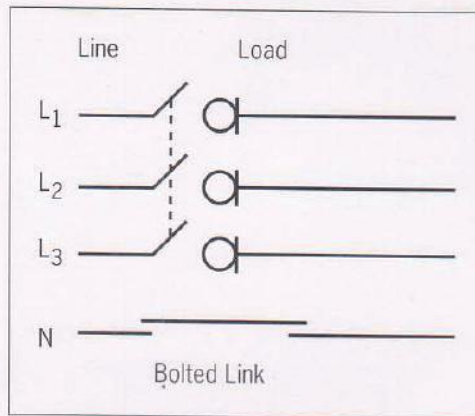


TB20SFTN(K)
TB32SFTN(K)
TB63SFTN(K)
TB100SFTN(K)

SWITCH DISCONNECTOR



TB20SD
TB32SD
TB63SD
TB100SD



TB20STN
TB32STN
TB63STN
TB100STN

