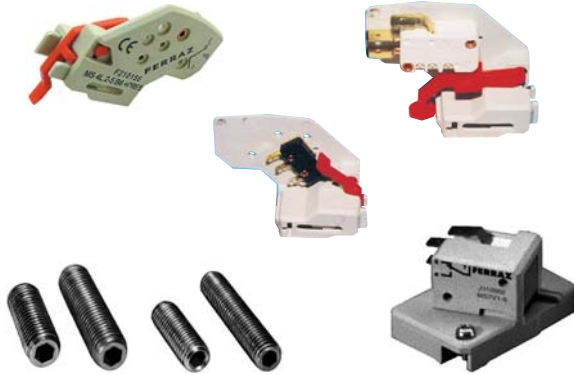


MICROSWITCHES & STUDS

ACCESSORIES



Features/Benefits

- Microswitch systems adapted to the following fuses:
 - PSC sizes 30, 31, 32, 33 / 70, 71, 72, 73
 - Blade-type PSC (PA) sizes 0-1, 2-3 / 70, 71, 72, 73
 - PSC sizes 000 / 00
- Highly resistant studs offering optimized connection, excellent electrical contact and high mechanical withstand for stud-style fuses.

Applications Data

CODE	AC VOLT ***	POSITIVE OPERATING VOLT/CURRENT	RATED CURRENT	NATURE OF CURRENT	INTERRUPTING RATING						AC VOLTAGE WITHSTAND TEST	IMPULSE VOLTAGE TEST UIMP 1.2/50	FIRE CLASS UL 94	
					NON -INDUCTIVE CIRCUIT			INDUCTIVE CIRCUIT						
					30V	110V	250V	30V	110V	250V				
MS 3V 1-5	1000 V	20 V 50 mA	10 A	50/60 Hz	10A	10A	10A	10A	10A	10A	8,5 kV*	14 kV**	H.B	
MS 7V 1-5	1500 V			DC	8A	0,4A	.2A	4A	.2A	.1A				12 kV*
MS 3V 1-5 BS	1000 V	10 V	3 A	50/60 Hz	3A	3A	3A	2A	1A	1A	8,5 kV*	14 kV**		H.B
MS 3V 1-9 BS														
MS 7V 1-5 BS														
MS 7V 1-9 BS														
MS 3V 1-5 ET	1000V	10 V	3 A	50/60 Hz	3A	3A	3A	2A	1A	1A	8,5 kV*	14 kV**	H.B.	
MS 7V 1-5 ET	1500V	10 mA		DC	3A	0.5A	-	2A	0.2A	-	12 kV*	20 kV**		
MS PA 2-5	1500 V	20 V	10 A	50/60 Hz	10A	10A	10A	10A	10A	10A	9 kV*	13 kV**	VO	
MS PA 2-9		50 mA		DC	8A	0,4A	0,2A	4A	0,2A	0,1A				
MS PA 2-5 B2	1500 V	20 V	5 A	50 Hz	4A	4A	5A	-	5A	5A	12 kV*	16 kV**	VO	
MS 4L 2-5 B2	1000 V	100 mA		DC	-	-	-	-	2A	0,4A	8 kV*	13 kV**		
MS 4L 2-5 B6	1000 V	20 V	10 A	50/60 Hz	10A	10A	10A	10A	10A	10A	8 kV*	10 kV**	VO	
		50 mA		DC	8A	0,4A	0,2A	4A	0,2A	0,1A				
MC 6,3 GR 2-5N	1000 V	20 V	5A	50/60 Hz	-	5A	3A	-	3A	2A	3.5 kV*	-	H.B.	
		100 mA		DC	4A	0.4A	-	3A	0.4A	-				
MC 36 GR 2-5	1000 V	20 V	5A	50/60 Hz	-	5A	5A	-	5A	5A	7.5 kV*	-		
		100 mA		DC	4A	0.4A	-	2A	0.4A	-				

* Between power circuit and microswitch terminals as per IEC 60 and 694 and NFC 64010 (50/60 Hz 1 min. duration in dry air)

** Between power circuit and microswitch terminals Uimp: impulse voltage as per IEC 947-1

***Between power circuit and microswitch terminals

EACH MICROSWITCH WEIGHS LESS THAN 100 g, THEREFORE NO FUME AND SMOKE GRADE IS REQUIRED BY NF F 16-102 STANDARD

PSC MICROSWITCHES

ACCESSORIES

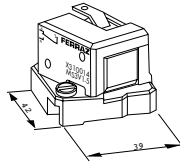


Fig. 1

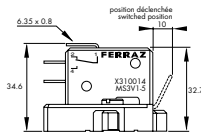


Fig. 2

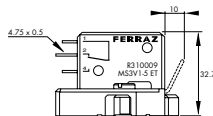


Fig. 3

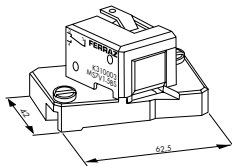


Fig. 4

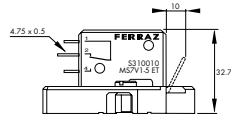


Fig. 5

MS 3V Fuse Sizes: 30 - 33

Fuse Size	Code	Ref. Number	Indication Style	Weight (g)
Sizes 30, 31, 32, 33	MS 3V 1-5 (fig. 1)	X310014	Standard NO-NC	34
	MS 3V 1-5 BS (3)	W310013	Low level NO-NC	34
	MS 3V 1-9 BS (4)	T310011	Low level NO-NC	44
	MS 3V 1-5 ET (fig. 3)	R310009	Low level NO-NC	34

(3) Same as fig. 1

(4) Same dimensions as fig. 1 but with 2 microswitches side by side

(9) Watertightness class

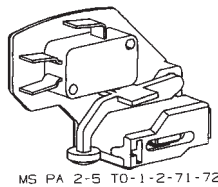
Fuse Size	Code	Ref. Number	Indication Style	Weight (g)
Sizes 70, 71, 72, 73	MS 7V 1-5 (fig. 4)	J310002	Standard NO-NC	45
	MS 7V 1-5 BS (7)	K310003	Low level NO-NC	45
	MS 7V 1-9 BS (8)	P310007	Double pole NO-NC low level	55
	MS 7V 1-5 ET (fig. 5)	S310010	Low level NO-NC IP 50 (9)	55

(7) Same as fig. 4

(8) Same dimensions as fig. 4 but with 2 microswitches side by side

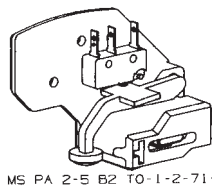
(9) Watertightness class

Attention: Microswitch systems exclusively designed for FERRAZ SHAWMUT PSC fuses are fitted with a patented trip-indicator, saving the use of an EDV.



MS PA 2-5 TO-1-2-71-72

Fig. 7



MS PA 2-5 B2 TO-1-2-71-72

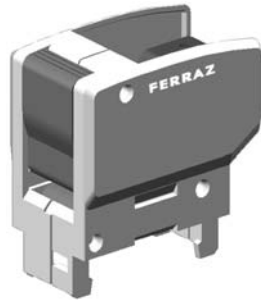
Fig. 8

MS PA Fuse Sizes: 0 - 70

Fuse Size	Code	Ref. Number	Indication Style	Weight (g)
Sizes 0, 1, 2, 3, 71, 72, 73	MS PA 2-5	H210158	OF Standard (fig. 7)	32,5
	MS PA 2-9V	J210159	Double (fig. 7) OF side by side	39,5
	MS PA 2-5 B2	C210360	OF Terminals 2,8	27
70	MS PA 2-5	T210398	OF Standard (fig. 7)	31
	MS PA 2-9	V210399	Double (fig. 7) OF side by side	37
	MS PA 2-5 B2	W210400	OF Terminals 2,8 (fig. 8)	27

Exclusive "MS PA" indication systems are automatically resettable

PROTISTOR FUSE MICROSWITCHES ACCESSORIES



PROTISTOR® FUSES

MICROSWITCH SYSTEMS FOR ROUND AND SQUARE-BODY FUSES (not for PSC Fuses)

Features/Benefits

- Remote signaling systems for fitting on Ferraz Shawmut fuses equipped with microswitch support
- Indication of fuse status
- Manual Reset
- Standard and low current models with different insulation ratings
- Watertight types for use in corrosive atmospheres

CHARACTERISTICS

TYPE	CATALOG NUMBER	AC or DC Insulation voltage rating Ui (V)	AC voltage withstand test (.)	Impulse voltage test Uimp 1,2/50 hs (.)	Positive operating min.voltage /min.current	Current rating							
							Current	Non-inductive circuit			inductive circuit L/R = 25ms		
								30 V	110 V	250 V	30 V	110 V	250 V
Standard	MC3E 1-5N	1250V	15 kV	20 kV	20 V	5 A	50/60 Hz	10 A	10 A	7 A			6 A
	MCR3E 1-5N	2200V	20 kV	30 kV	50 mA		DC	5 A	0.5 A		1.6 A	0.3A	
Low level	MC3E 1-5NBS	1250V	15 kV	20 kV	10 V 10 mA	3 A	50/60 Hz	3 A	3 A	3 A	2 A	1 A	1 A
	MC3E 1-9NBS												
	MCR3E 1-5NBS	2200V	20 kV (1)	30 kV			DC	3 A	0.5 A	0.25 A	3 A	0.2 A	0.1 A
	MCR3E 1-9NBS		23 kV (2)										
	MC2R3E 1-5BS	6000V	24 kV (1)	40 kV									
	MC2R3E 1-9NBS		26 kV (2)										
Watertight IP 50	MC3E 1-5NET	1250V	11 kV	16 kV	10 V 10 mA	3 A	50 Hz		3 A	3 A		1 A	1 A
	MCR3E 1-5NET	2200V	20 kV (1)	30 kV			DC		0.5A			0.2 A	
	MC2R3E 1-5NET	6000V	24 kV (2)	40 kV									



Catalog Numbering system: MC3E 1-5 single pole microswitch - MC3E 1-9 double pole microswitch - MCR, MC2R reinforced insulation microswitch

* Between power circuit and microswitch terminals as per IEC 60 and 694 and NFC 64010 (50/60 Hz 1 min. duration in dry air)

** Between power circuit and microswitch terminals Uimp: impulse voltage according to IEC 947-1

***Between power circuit and microswitch terminals

EACH MICROSWITCH WEIGHS LESS THAN 100g, THEREFORE NO FUME AND SMOKE GRADE IS REQUIRED BY NF F16-102 STANDARD

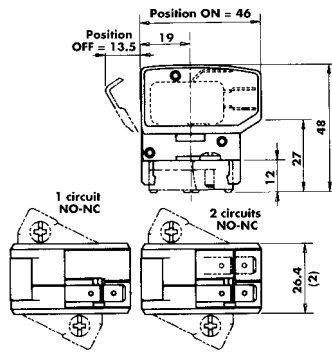
(1) for short body fuses (sizes 30 - 31 - 32 - 33 - 70 - 71 - 72 - 73 - 83 - 84) Except PSC

(2) for sizes 100 - 91 - 92 - 93 - 94 - 123 - 124 fuses and longer

(3) for sizes 171 - 172 - 173 - 174 fuses and longer

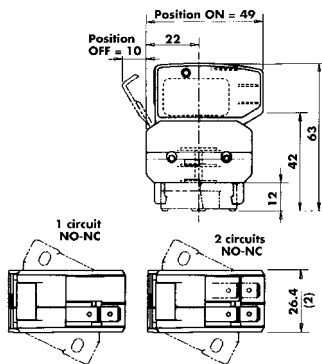
PROTISTOR FUSE MICROSWITCHES ACCESSORIES

Remote Signalling with 1250 V AC/DC Insulation Voltage



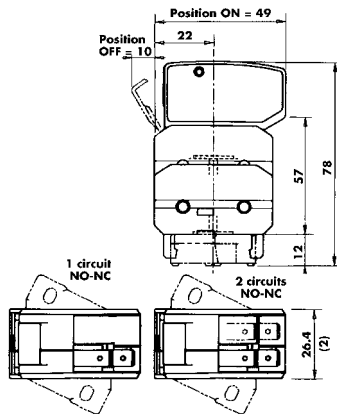
Quantity of NO-NC separated circuits	Contact	Catalog Number	Ref. Number	Weight (g)	Pack. (1)
1	standard	MC3E 1-5N	D310020	39.5	3
1	low level	MC3E 1-5NBS	E310021	39.5	3
2	low level	MC3E 1-9NBS	F310022	45.7	3
1	watertight	MC3E 1-5NET	L310027	40.2	3

Remote Signalling with Insulation Voltage up to 2200 V AC/DC



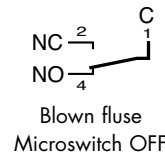
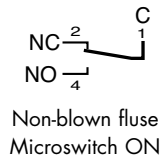
Quantity of NO-NC separated circuits	Contact	Catalog Number	Ref. Number	Weight (g)	Pack. (1)
1	standard	MCR3E 1-5N	G310023	51.7	1
1	low level	MCR3E 1-5NBS	P310030	51.7	1
2	low level	MCR3E 1-9NBS	H310024	58.0	1
1	watertight	MCR3E 1-5NET	Q310031	52.5	1

Remote Signalling with Insulation Voltage up to 6000 V AC/DC



Quantity of NO-NC separated circuits	Contact	Catalog Number	Ref. Number	Weight (g)	Pack. (1)
1	low level	MC2R3E 1-5NBS	J310025	64.0	1
1	watertight	MC2R3E 1-5NET	N310029	64.8	1
2	low level	MC2R3E 1-9NBS	K310026	70.3	1

Electrical diagram of each microswitch circuit



All of these signalling systems are had resettable and fitted with silver-plated 3-terminal microswitch C, NO and NC. The C terminal is on the top and connection is made via 6.35 mm clips except for watertight models whose clips are 4.8 mm wide

NOTE (2): The 26.4 dimension is the same with 1 or 2 separated circuits NO-NC.
 Tests with sine vibrations carried out at ambient with scanning of the three main holder axes.
 Spectrum: 1st segment (2 to 16 Hz) constant trip X = 5 mm peak
 2nd segment (16 to 250 Hz) constant acceleration γ + 5 g peak

Exponential scanning speed: 1 octave per minute.
 Duration: 2 hours per axis.