CONTROL SWITCH

M TYPE, ML TYPE



FEATURES

This micro drum switch is compact and highly functional with high reliability. The control switch has critical roles among the control devices that constitute the core of the neural system of a plant. The micro drum switch ensures stable reliability in emergency as well as in normal use. In addition, it effectively utilizes the panel surface as the interface for the control devices, and plays great roles for improving the panel design.

Sliding contact method

The sliding contact method has been adopted to ensure high contact reliability. In this method, the contacting

surfaces of the contactors rub each other so that dust and other foreign matter can be cleaned completely.

High density of mounting

LED indicators are mounted in the nameplate part. This design further improves the density of mounting on the panel (ML type).

Correspond to various power sources

The power source for indicators is selectable from 110 and 220V AC, 24, 48, 110, and 125V DC. This variety of options allows for complying with different needs.

SPECIFICATIONS (RATINGS, PERFORMANCE)

Type	M TYPE, ML TYPE					
Rated insulation voltage (Ui)	250V					
Rated current-carrying capacity (Ith)	8A					
Max. wire size	5.5mm ²					
Screw size	M4×8					
Withstand voltage	2,500V AC / 1 min.					
Lightning impulse	±7kV 1.2 / 50µs					
Contact resistance	50m Ω or less					
Mechanical life	50,000 operations or more, Class 5					
Electrical life	10,000 operations or more, Class 5					
Shock resistance	294m/s ²					
Vibration resistance	Acceleration: 50Hz, 20 m/s ² , Time: 2 hours (3 directions)					
Operating temperature	–20 to 50°C					
Storing temperature	–40 to 70°C					
Altitude	2,000 m or less					

Br	eaking capac	ιτy [e	electric	ai iite	e of 10,000 d	operati	ons (class 5	<u>)</u>				
	AC					_		DC					
Rated	voltage Rated ope	rating	Rated op	rating	Rated voltage	Rated ope	erating	Rated oper	ating	2 contacts used in series	2 contacts used in series		
	(V) (resistance	nt oad) (A)	curre (inductive l	nt bad) (A)	(V)	curre (resistance)	nt load) (A)	(inductive log	t ad) (A)	(resistance load) (A)	(inductive load) (A)		
	110 8	,,,	8	,,,,			-	`	, ()				
	220 5		4		48	8		8		8	8		
		-		-	110	3		2		3	3		
		-		-	220	1		0.1	7	1	1		
			* Indu	ctive loa	d: For AC: Power fa	ctor 0.6 to 0).7 (Clas	s: AC11) , F	or DC:	Time constant 40±	6ms (Class: DC12)		
но	W TO OR	DEF	Circui	No. (arra o A115 s	angement) Please see tandard arrangement	page diagram.	Whe LED	n indicators display circu	are pro iit type	vided:			
M	-H 4-	2 F	32	Δ_	SD-I	3 1	1	51.	F	МΔ	-000		
1	$\overline{2}$ $\overline{3}$	4	5 4	5		$\overline{7}$ $\overline{8}$	9	10 11	12				
No.	Item		Code	Ŭ		Detai				N	lote		
			М		M type	switch (basic t	ype)					
			ML		M type	switch wi	th indi	cator					
1	Basic type		M-KH		M type switc	n with pa	dlock r	nechanism	۱		_		
			ML-KH	Mt	/pe switch with i	ndicator a	and pa	dlock med	hanis	m			
			M-KMC		M type swi	tch (key (operat	ed type)					
2	Notch code			Plea	se see page A10)6 for No	tch co	de.		Page	e A106		
3	No. of units		1-8		Max. 8	3 units (8	conta	cts)					
(4)	No. of contacts									-	_		
(5)	Contact code		D:	Pleas	e see page A10	7 for Con	itact co	ode.	-	Page	Page A107		
6	Handle code		Pistol	shape:	SP Rose shap	e:SD Oc	ctagon	al shape:S	it i	Page	e A107		
		_	_		Munsell co	lor code		Flores		_			
\bigcirc	⑦ Handle color		-	N1.5 N1.5			_	_					
		-	BG	_	75862/25		7	5BC4 / 1	5	_			
		_	1	-	1.5005 / 5.5	re)	1.	Eor DC	5	-			
		_	2		(for 2 indicato	rc)		For DC		_			
		-	3	Н	Y (for 2 indicate	nrs)		For AC		* For special	specifications		
(8)	Circuit	_	4		S (for 1 indicato	rs)	F	or AC / D0	2	please mai	e enquiry to		
~			5	T.	C (for 3 indicat	ors)	F	r AC / DC	2	Fuii Electri	c Industry.		
			6	Y (P-	common for 2 indi	cators)		For DC	-				
			9	- 0	Special								
			1			24V D	С						
			2			48V D	С						
			3		1	00 / 110	V DC			* For specia	l specifications,		
9	Voltage		4		1	00 / 110	V AC			please mai	ke enquiry to		
			5		2	00 / 220	V AC			Fuji Electri	c Industry.		
			6	_		125V D	DC			_			
		_	9			Specia	al						
			-	_		W (White	te)			_			
		_	2			R (Rec	(k			_			
		_	3	_		G (Gree	en)						
10	Display color	_	4			dmA) U	er)			* For specia	specifications,		
	5				CWP				Euii Electri	ce enquiry to			
			7		GWK					- Fuji Electri	c maastry.		
			9			Specia	əl						
		_	1			4/1 5							
1	Frame color		2			B					_		
~		_	9			Specia	al			-			
13	Terminal encoification		なし			Screw	V						
C2	reminal specificatio	ul —	F		V	/ith fasto	n tab				_		
13	Nameplate				Please select a r	ameplate	No.			Page	e A116		

Breaking capacity [electrical life of 10,000 operations (class 5)]

Notch code

Code	Н	Т	F	S	SB
Notch configuration	B A	B T	A F B	B C A	I
Operation	(90°-2) 2 notches	(45°-3) 3 notches	(45°-4) 4 notches	(45°-3) 3 notches	Automatic rotating return
		Manual return		Automatic return	Automatic axial return

(Note) In the above table, the ● mark indicates the ordinary stop position of the switch. The → mark shows that the switch moves in this direction and then automatically stops in the arrowhead position.

CONTROL SWITCH

MTYPE, ML TYPE

Contact code

Code	Graphic symbol Type		Description	Code	Graphic symbol	Туре	Description
в	+	Normal	Making at the B position ${<}45^{\circ}{>}$	(B)L	+-+-+	Over-lapping contact	Shows for overlap contact. To be added to the standard contact symbol (B to F).
A	++	contact	Making at the A position ${<}45^{\circ}{>}$	м	++	Continuous	Contacts close between left and center positions.
т	+-++	Normal	Making at the T position ${<}45^{\circ}{>}$	N	++++	closing contact	Contacts close between right and center positions.
F	++++	contact	Making at the F position ${<}45^{\circ}{>}$				

Handle code

Code	SP	SD	SF
Shape	Pistol shape	Rose shape	Octagonal shape

LED display circuit type

Code	1	2	3
	H circuit (for DC circuit)	Y circuit (for DC circuit)	H.Y circuit (AC circuit only)
Circuit diagram		P	
Code	4	5	6
	S circuit (for AC / DC circuit)	T.C circuit (for AC / DC circuit)	Y circuit (for DC circuit, P common)
Circuit diagram	P(DC)	P(DC)	

ML type lamp circuit R: Limit resistor D: Rectifying diode LED: LED element

c	1 lamp	2 lamps	2 lamps	2 lamps, P common	
ran	S circuit (DC circuit)	H circuit (DC circuit)	Y circuit (DC circuit)	Y circuit (DC circuit)	
Lamp circuit diag	© ↓ LED R W F F G O				
c	3 lamps	1 lamp	2 lamps	3 lamps	
ran	T.C circuit (DC circuit)	S circuit (AC circuit)	H.Y circuit (AC circuit)	T.C circuit (AC circuit)	
Lamp circuit diag		© ^{LED} ^D ^R () W COM R O			

OUTLINES M TYPE

Automatic return and manual return type



Automatic return type by pulling



Automatic return and manual return type (with padlock mechanism)







ORemove the padlock and push the lock release lever, then allows you to operate the switch. After finishing the operation, if you release your finger, the switch will be locked automatically. Padlock size: 5 mm.

				•	-	•	-	•
			4			Ċ	1	
¢Ϊ	5		4	-				9
-	3					1	1	
-17		1-8	-	-	-	Φų	0-17	

No. of units	1	2	3	4	5	6	7	8
L (mm)	58.5	68.5	78.5	88.5	98.5	108.5	118.5	128.5

Key-operated type: Automatic return type and manual return type

M-KMC-S,H,T,F

Key lock	position]					
S	Н	HA	HB	1			
		HA HB The figure show more than 10 ki					

Т

F



The figure shows the switch with the C-88MS type cylinder lock. There are no more than 10 kinds of keys available and no master key is supplied. In case of the key type C110, there are more than 10 kinds of keys available and the master key comes with the switch, the L dimension of the switch becomes longer by 5 mm. Please see page A14 for key system and specify the key No.

No. of units	1	2	3	4	5	6	7	8
A (mm)	31	41	51	61	71	81	91	101
L (mm)	66	76	86	96	106	116	126	136

<u>2- \$4.5</u>



Automatic return type and manual return type with indicators

ML-S,H,T,F



Automatic return type by pulling



Automatic return type and manual return type with padlock mechanism



STANDARD ARRANGEMENT DIAGRAM

a) For voltmeter (standard handle: SD)



b) For ammeter (standard handle: SD)



* Please select a nameplate from page A116.

DRUM SWITCH MTYPE, ML TYPE

STANDARD ARRANGEMENT DIAGRAM

Automatic return type and pulling type (S) (SB)

2 contacts (2 units)

-	· · ·			\mathbf{v}		
Type (automatic return)	S2001M	S2002M	S2003M	S2004M	S2005M	S2101M
Detail	S2-1C1A	S2-1B1A	S2-1M1N	S2-1N1B	S2-1N1A	S2-1A1B
Contact arrangement	$\begin{array}{c c} 3 & & & & 4 \\ 1 & & & & 2 \\ B & C & A \end{array}$	$\begin{array}{c} 3 \\ 1 \\ B \\ C \\ A \end{array}$	$\begin{array}{c} 3 \\ \hline \\ 0 \\ \hline \\ B \\ \hline \\ C \\ A \end{array} $	$\begin{array}{c} 3 \\ \hline \\ 0 \\ \hline \\ B \\ \hline \\ C \\ A \end{array} $	$\begin{array}{c c} 3 & & & & 4 \\ 1 & & & & & 2 \\ B & C & A \end{array}$	$\begin{array}{c} 3 \\ 1 \\ B \\ C \\ A \end{array}$
Type (pulling)	SB2001M	SB2002M	SB2003M	SB2004M	SB2005M	SB2101M

(S) C "∿5°★**5°_{\$} A

в

(SB)

*

●3 contacts (3 units)

Type (automatic return)	S3001M	S3002M	S3003M	S3004M	S3005M	S3006M
Detail	S3-1C1B1A	S3-1B2A	S3-1M1N1A	S3-1N1B1A	S3-1N2A	S3-2N1B
Contact arrangement	$\begin{array}{c c} 5 & 6 \\ 3 & 4 \\ 1 & 2 \\ B & C & A \end{array}$	$\begin{array}{c} 5 \\ \hline \\ 3 \\ \hline \\ B \\ \hline \\ B \\ \hline \\ C \\ \hline \\ C \\ \hline \\ A \\ \hline \\ C \\ A \\ \hline \\ C \\ C \\ \hline \\ C \\ C \\ \hline \\ C \\ C \\ \hline \\ C \\ C$	6 3 0 B C A	$\begin{array}{c c} 5 & 6 \\ 3 & 4 \\ 1 & 2 \\ B & C & A \end{array}$	5 3 6 4 0 B C A	$ \begin{array}{c} 5 \\ \hline 6 \\ \hline 3 \\ \hline B \\ \hline C \\ A \end{array} $
Type (pulling)	SB3001M	SB3002M	SB3003M	SB3004M	SB3005M	SB3006M

●4 contacts (4 units)

Type (automatic return)	S4001M	S4002M	S4003M	S4004M	S4005M	S4006M
Detail	S4-1C1B2A	S4-2C1B1A	S4-2B2A	S4-1N1B2A	S4-1N1C1B1A	S4-1M1N1B1A
Contact arrangement	$\begin{array}{c c} 7 & \bullet & 0 \\ \hline 0 & \bullet & 0 \\ \hline 0 & \bullet & 0 \\ 0 & \bullet & 0 \end{array}$		$\begin{array}{c c} 7 & \bullet & 8 \\ \hline 5 & \bullet & 6 \\ \hline 3 & \bullet & \bullet \\ \hline 0 & \bullet & \bullet \\ B & C & A \end{array}$	$\begin{array}{c c} \hline 0 \\ \hline 0 \hline \hline 0 \\ \hline 0 \\ \hline 0 \hline \hline 0 \\ \hline 0$	$\begin{array}{c} 7 \\ 5 \\ \hline \\ 6 \\ \hline \\ 0 \\ \hline \\ B \\ \hline \\ C \\ A \end{array} = \begin{array}{c} 8 \\ 6 \\ \hline \\ 6 \\ \hline \\ 0 \\ \hline \\ B \\ \hline \\ C \\ A \end{array}$	$\begin{array}{c} 7 \\ \hline 6 \\ \hline 6 \\ \hline 3 \\ \hline \\ B \\ \hline C \\ A \end{array} $
Type (pulling)	SB4001M	SB4002M	SB4003M	SB4004M	SB4005M	SB4006M
Type (automatic return)	S4007M	S4008M	S4009M	S4010M	S4011M	S4101M
Type (automatic return) Detail	S4007M S4-1M1N2A	S4008M S4-2N1B1A	S4009M S4-2N2B	S4010M S4-2N2A	S4011M S4-2M2N	S4101M S4-2 (1A1B)
Type (automatic return) Detail Contact arrangement	S4007M S4-1M1N2A 5 5 6 6 3 4 4 1 9 6 6 3 4 4 1 9 6 6 6 3 4 2 8 6 6 8 6 6 8 6 8 7 4 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 8 8 8 8 9 8 8 9 8 8 8 8 9 8 8 8 9 8 9 8 9 8 9 8 9 9 8 9 9 8 9 9 8 8 9 8 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 8 9 8 9 8 9 8 8 8 9 8 8 8 8 9 8 9 8 8 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 8 8 8 9 8 9 8 8 8 9 8 9 8 8 8 9 8 9 8 8 9 8 9 8 8 9 8 9 8 9 8 9 8 9 8 9 8 8 9 8 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 8 9 8 8 8 8 8 9 8 9 8 8 8 8 9 8 8 8 8 8 8 8 8 9 8 8 9 8 8 9 8 8 8 8 8 9 8	S4008M S4-2N1B1A 5 6 3 4 9 6 6 3 4 9 0 9 6 6 3 4 9 0 9 6 6 8 6 6 8 6 8 6 8 8 6 8 9 9 9 9 9 9	S4009M S4-2N2B 5 6 3 4 0 8 5 6 6 3 4 0 0 8 5 4 2 8 6 6 8 6 8 6 8 7 4 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	S4010M S4-2N2A (5) (6) (3) (4) (1) (2) (3) (4) (1) (2) (4) (2) (4) (2) (4) (4) (2) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	S4011M S4-2M2N 5 6 6 6 3 4 4 1 9 6 6 6 0 2 4 2 8 6 6 6 7 4	S4101M S4-2(1A1B) 5 6 3 4 1 8 6 6 3 4 0 1 8 6 4 0 1 8 6 7 4 8 7 4 8 7 8 8 7 8 8 7 8 8 7 8 7 8 8 8 8

●6 contacts (6 units)

Type (automatic return)	S6001M	S6002M	S6003M	S6004M	S6005M	S6006M
Detail	S6-3B3A	S6-2B4A	S6-4B2A	S6-2C1B3A	S6-2C2B2A	S6-2N2B2A
Contact arrangement	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c} 1 & - & 12 \\ 9 & - & 10 \\ 7 & - & 8 \\ 5 & - & 6 \\ 3 & - & 4 \\ 1 & - & - & 2 \\ B & C & A \end{array}$	1) 9 7 6 6 3 6 6 3 6 6 7 6 6 7 6 7 6 7 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	1) 9 7 8 5 6 3 4 1 B C A	10
Type (pulling)	SB6001M	SB6002M	SB6003M	SB6004M	SB6005M	SB6006M
Type (automatic return)	S6007M	S6008M	S6009M			
Detail	S6-2N4A	S6-3N3A	S6-1M1N2B2A			
Contact arrangement	1 - 2 9 - 10 7 - 8 5 - 6 3 - 4	1) 9 7 6 3 4	1) 9 7 6 3 3 4			
			1 + + 2 B C A			

SWITCH

Automot	ic return type and n	(S) (SB									
 Automat 8 conta 	B contacts (8 units)										
Type (automatic return)	S8001M	S8002M	S8003M								
Detail	S8-4B4A	S8-2N2B4A	S8-2M2N2B2A								
Contact arrangement	$\begin{array}{c c} & & & & & & & & & & & & & & & & & & &$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	15 13 10 10 10 10 10 10 10 10 10 10								
Type (pulling)	SB8001M	SB8002M	SB8003M								

-90-

■90° 2-position changeover (H) (H)

●1 contact (1 unit)

1 conta	ict (1 unit)	\sim	●2 contacts (2 units)				
Туре	H1001M	H1002M	H2001M	H2002M	H2003M	H2004M	
Detail	H1-1A	H1-1B	H2-2A	H2-2B	H2-1B1A	H2-1BL1AL	
Contact arrangement				3 1 B A			

•3 contacts (3 units)

Туре	H3001M	H3002M	H3003M	H3004M	H3005M
Detail	H3-3A	H3-3B	H3-1B2A	H3-2B1A	H3-1B2BL
Contact arrangement	5 3 (1) B A (2) (3) (4) (2) (3) (4) (2) (4) (5) (4) (5) (5) (4) (5) (5) (5) (6) (6) (6) (7) (7) (7) (7) (7) (7) (7) (7	5 3 4 1 B A	5 6 3 6 9 4 0 8 A	5 3 4 0 B A	5 6 3 4 0 4 B A

●4 contacts (4 units)

Туре	H4001M	H4002M	H4003M	H4004M	H4005M	H4006M
Detail	H4-4A	H4-4B	H4-1B3A	H4-3B1A	H4-2B2A	H4-1B1A1BL1AL
Contact arrangement	7 5 6 3 4 1 B A	7 + 8 5 - 6 3 - 4 1 - 2 B A	7 + 8 5 - 6 3 - 4 B A	7 + 8 5 6 3 4 1 B A	7 5 6 3 4 1 B A	7 5 6 3 4 1 B A

Type H4007M		H4008M	H4102M	
Detail	H4-2BL2AL	H4-1BL3AL	H4-2AL2B	
Contact arrangement	7 5 3 6 3 4 8 6 3 4 2 8 4	7 5 6 3 4 8 8 4 2 B A		

DRUM SWITCH MATTYPE, ML TYPE

STANDARD DEVELOPMENT DIAGRAM

■90° 2-position changeover (H)



●6 contacts (6 units)

Туре	H6001M	H6002M	H6003M	H6004M	H6005M
Detail	H6-6A	H6-6B	H6-3B3A	H6-1B5A	H6-2B4A
Contact arrangement	11 9 7 6 6 3 4 1 8 8 4 1 8 8 8	1) 2 9 10 7	1)	10 9 7 8 5 6 3 4 1 8 A	11 12 9 10 7
Туре	H6006M	H6007M	H6008M	H6009M	
Detail	H6-4B2A	H6-5B1A	H6-2BL4AL	H6-3BL3AL	
Contact arrangement					

●8 contacts (8 units)

Туре	H8001M	H8002M	H8003M	H8004M	H8005M
Detail	H8-8A	H8-1B7A	H8-2B6A	H8-3B5A	H8-4B4A
Contact arrangement	15 13 11 11 12 9 10 7 10 12 9 10 12 12 12 12 12 12 12 12 13 14 12 15 16 15 16 15 16 16 16 16 16 16 16 16 16 16	15 6 13 14 10 12 9 10 7 8 5 6 3 4 10 2 8 6 3 4 10 2 8 6 3 4 10 2 8 6 3 4 10 2 10 2 10 10 2 10 2 10 10 10 2 10 2 10 10 10 10 2 10 2 10 2 10 10 10 10 10 10	15 13 11 11 12 10 12 10 12 10 12 10 12 10 12 10 12 10 12 10 12 10 12 10 10 12 10 10 10 10 10 10 10 10 10 10	15 6 13 14 10 12 9 6 5 6 3 4 B A	15 13 11 12 12 12 12 12 12 12 12 12 12 12 12
Туре	H8006M	H8007M	H8008M	H8101M]
Detail	H8-5B3A	H8-6B2A	H8-4BL4AL	H8-4A4B	
Contact arrangement		15 -16 13 -19 10 -12 9 -10 0 -16 0 -16 0 -16 0 -16 0 -16 0 -16 0 -16 0 -16 0 -16 0 -16 0 -16 0 -16 0 -16 0 -16			

■45° 3-position changeover (T)



2 contacts (2 units)

			¥		
Туре	T2001M	T2002M	T2003M	T2004M	T2101M
Detail	T2-1A1T	T2-1B1A	T2-1B1T	T2-1BA1AT	T2-1AT1T
Contact arrangement			3 4 4 1 4 2 B A T	$\begin{array}{c} 3 \\ 1 \\ B \\ B \\ A \\ T \end{array}$	

SWITCH

■45° 3-position changeover (T)



•3 contacts (3 units)

Туре	T3001M	T3002M	T3003M	T3004M	T3005M	T3006M
Detail	T3-1A2T	T3-1B1A1T	T3-1BL1AL1TL	T3-1B2A	T3-2B1A	T3-1B1T1AT
Contact arrangement		5 3 4 0 B A T	5 3 4 0 B A T	5 3 4 0 B A T	5 3 4 0 B A T	$ \begin{array}{c} 5 \\ 3 \\ 1 \\ B \\ A \\ T \end{array} $

4 contacts (4 units)

Туре	T4001M	T4002M	T4003M	T4004M	T4005M
Detail	T4-2A2T	T4-2B2A	T4-1B1A2T	T4-1B2A1T	T4-2B2T
Contact arrangement	7 6 3 4 1 B A T	7 + 8 5 6 3 4 4 0 4 0 2 B A T	7 6 6 3 6 4 1 B A T	7 6 6 3 6 4 1 B A T	7 6 8 6 3 4 1 B A T
Туре	T4006M	T4007M	T4008M	T4009M	T4010M
Type Detail	T4006M T4-2B1A1T	T4007M T4-3B1T	T4008M T4-1B1A1T1BA	T4009M T4-1A1T2AT	T4010M T4-1BL1AL2TL

●6 contacts (6 units)

Туре	T6001M T6002M		T6003M	T6004M	T6005M
Detail	T6-2A4T	T6-1B1A4T	T6-1B3A2T	T6-1B4A1T	T6-2B2A2T
Contact arrangement	1) 9 7 7 8 6 3 4 8 6 6 3 4 0 8 6 6 4 0 9 8 7 8 8 6 8 8 6 9 4 0 9 4 7 10 10 10 10 10 10 10 10 10 10 10 10 10	1)		0 9 7 8 6 6 8 8 8 6 9 4 9 0 9 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1) 9 7 8 5 6 6 6 3 4 4 0 1 8 8 4 4 0 1 8 8 8 5 4 4 0 1 8 8 8 10 10 10 10 10 10 10 10 10 10 10 10 10
Туре	T6006M	T6007M	T6008M	T6009M	T6010M
Detail	T6-2B4T	T6-2B4A	T6-2B1A3T	T6-3B3A	T6-3B3T
Contact arrangement	10 9 7 5 6 3 8 6 3 4 9 4 9 6 3 4 9 4 9 7 8 6 3 4 9 4 9 7 8 8 6 9 4 9 7 8 8 8 9 7 8 8 8 9 7 9 7 8 8 8 9 7 9 7	11 4 12 9 4 10 7 8 5 6 3 4 4 1 4 8 A T	10 9 7 5 6 3 4 1 B A T	10 9 7 6 3 6 3 4 1 6 3 4 1 6 3 4 1 6 3 4 1 6 1 1 1 1 1 1 1 1 1 1 1 1 1	1) 9 7 4 5 5 6 3 4 1 4 1 B A T
Туре	T6011M	T6012M			
Detail	T6-2A2T2AT	T6-2BL2AL2TL			
Contact arrangement	1) 9 7 5 6 3 4 4 0 B A T	10 9 7 6 3 6 6 3 6 6 6 7 6 7 6 6 7 6 6 7 6 7			

CONTROL SWITCH DRUM SWITCH ГYPE, ML TYPE

STANDARD ARRANGEMENT DIAGRAM (F)

■45° 4-position changeover (F)

S conta	cts (3 units)	B	4 contacts (4 unit	is)	
Туре	F3001M	F3002M	F4001M	F4002M	F4003M
Detail	F3-1A1T1F	F3-1F1TF1ATF	F4-1B1A1T1F	F4-1A1T2F	F4-1A2T1F
Contact arrangement	5 3 0 B A T F	5 3 B A T F	2 5 6 3 6 3 6 3 6 6 3 6 9 6 9 6 9 9 9 9 9 9	7 6 3 6 3 6 4 0 B A T F	0 6 3 6 4 0 B A T F

6 contacts (6 units)



8 contacts (8 units)



ACCESSORIES



Please check a dimensions from page A107.

ACCESSORIES

ML LED pack

	ML-2352									
	Circuit		Voltage	D	isplay color	F	rame color			
1	H (for 2 indicators)	1	24V DC	1	(White)	1	7.5BG4/1.5			
2	Y (for 2 indicators)	2	48V DC	2	(Red)	2	N1.5			
3	H.Y (for 2 indicators)	3	100 / 110V DC	3	G (Green)					
4	S (for 1 indicator)	4	100 / 110V AC	4	(Amber)					
5	T.C (for 3 indicators)	5	200 / 220V AC	5	GR					
6	Y (P-common for 2 indicators)	6	125V DC	6	GWB					
				7	GOR					
			1 1 1							
9	Special	9	Special	9	Special	9	Special			



Handle cap remover (selling separately)





* For circuits, see the specification of the LED display part circuit on A107.

Nameplate



Nameplate No.	В			Α	N
MA-000				Plai	n
MA-200	IJ]		入	
MA-201	手	動	自	動	
MA-202	単	独	連	動	
MA-209	停	止	運	転	
MA-211	現	場	電	気 室	
MA-212	電気	〔室	中	央	
MA-251	IJ,]		入	しゃ断器
MA-252	IJ.]		入	操作スイッチ
MA-253	手	動	自	動	切換スイッチ
MA-270	不侵	ミ用	使	用	切換スイッチ
MA-277	閉]		開	
MA-278	現	場	中	央	
MA-279	No	.1	N	lo.2	
MA-292	切]		入	しゃ断器テスト
MA-293	現	場	中	操	操作切換器
MA-227E	OP	EN	CLOSE		
MA-281E	OF	F	ON		CIRCUIT BREAKER
MA-282E	LOC	AL	RE	MOTE	CONTROL
MA-1201E	OF	F	(NC	AUTO RECLOSING

Material.....Aluminum

LetterRound Gothic



Nameplate No.	E	3	Α	1	r	N	
MA-290	ţ	ח	交流しゃ断器)	L .		
MA-291	切		線路開閉器	入			
MA-292	ţ	ח	しゃ断機テスト	7	l l		
MA-293	現	場	操作切换器	中操			
MA-300	ß	۶.	停止	F	司		
MA-376E	LOC	CAL	OFF	REMOTE		CONTRO)L



Nameplate No.	В	Α	Т	F	N
MA-452	0	R	S	Т	電圧計
MA-453	0	R-S	S-T	T-R	電圧計
MA-455	0	R	S	Т	電流計
MA-464	0	R-N	N-T	T-R	電圧計
MA-1401E	OFF	R	Y	В	AMMETER

MTYPE, MLTYPE

1 Graphic symbol

CONTROL SWITCH

Action of contact	Symbol
Normal making contact	•
Close keep contact	هــــه
Continuous closing contact	••
Over-lapping contact	H

DRUM SWITCH

Operation	Symbol
Manual return (rotating direction)	Not indicated
Manual return (axial direction)	••
Automatic return (return direction)	=
Automatic return (axial direction)	•

2 Representation method for contact arrangement



- The development is diagrammatically represented as follows. For further details, see " S Example of diagrammatical representation of development".
- 1. Denote a terminal with \bigcirc and enter its number in that circle.
- 2. The extent of the development figure is defined by a solid-line frame.
- 3. An operation position is shown with a vertical thin line between terminals.
- An operation position name is shown on the handle in the development figure.
 The contact symbol in the above , which is shown on the thin line showing
- b. The contact symbol in the above II, which is shown on the thin line showing the operation position, indicates that the mutually opposite terminals in that position are closed.
- The function symbols showing the operation direction and the return position are shown on the handle in the development figure.
- 7. The handle of the switch is shown in the lower position of the figure.

3 Example of diagrammatic representation of development





The figure shows the switch that is designed to stop in the switching position. More specifically, when the switch is set to the AUTO position, the circuit between terminals 3 and 4 is closed and that between terminals 1 and 2 opened. When the switch is set to the MANU. position, opening and closing are reversed.

The figure shows the same switching position stop mechanism as in (1) with 4point switching.

The circuit between terminals 5 and 6 shows that it is continuously closed when the switch becomes positions A and T.

The circuit between terminals 9 and 10 shows that it is closed until the switch goes from position A to the middle between positions A and T, and is opened in position T.

The circuit between terminals 11 and 12 shows that it is closed until the switch goes from position T to the middle between positions T and A, and is opened in position A. Therefore, the circuit between terminals 9 and 10 and that between terminals 11 and 12 are simultaneously closed when the switch goes to the middle between positions A and T.

4 Example of selecting a contact arrangement figure



For example, please select the right figure T6005M from the standard development figures (A110 to A115) when the switch with the circuit in the left figure is required. In this case, the terminal numbers should be assigned as in the standard drawing.



TECHNICAL DATA

Breaking and making current capacity

Туре			AC		DC			
		Test voltage (V)	Test current (A)	Load condition	Test voltage (V)	Test voltage (V)	Load condition	
ſ		Rotating operation type	121	8		52.8	11	
I	M, ML		242	4	Power factor: Pf = 0.6 to 0.7	121	2.2	Time constant:
I			_	—	PT = 0.6 to 0.7	242	0.77	L / II = 40±0III3

Break / make circuit current capacity test

To conduct the break / make circuit current capacity test, connect the air-core reactor, which is connected in series to a resistor, to the switch as illustrated in Fig. 1 or 2. Using the test current specified in Table 1, perform CO 50 times for AC and 20 times for DC at intervals of 10 seconds when the voltage is 1.1 times the rated operating voltage of the switch. At this test, check for: (1) Short-circuit between poles or earth fault due to generated arc, or broken or burnt switch.

(2) Any other harmful fault in use

Note: CO means performing the making action (C) and then the breaking action (O) about 50 ms later. For a switch that has some identical structures used for the same electric potential, select an adjacent contact or a contact that is most likely to lead the arc to the frame and then carry out the test using the circuit shown in Fig. 1. For a switch in which an adjacent contact is used at a different electric potential, perform the test as shown in Fig. 2.





Table 1							
AC or DC	Class		Test c	urrent	Power factor (AC) or		
AC OF DC	Class	Test voltage	Making	Breaking	time constant (DC L / R: ms)		
	AC11	1.1 <i>Ue</i>	11.0 <i>le</i>	11.0 <i>le</i>	0.6 to 0.7		
Alternating current	AC12	1.1 <i>Ue</i>	2.2 le	2.2 le	0.6 to 0.7		
(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	AC13	1.1 <i>Ue</i>	1.1 <i>le</i>	1.1 <i>le</i>	0.9 to 1.0		
	DC11	1.1 <i>Ue</i>	1.1 <i>le</i>	1.1 <i>le</i>	100 ± 15		
Direct current	DC12	1.1 <i>Ue</i>	1.1 /e	1.1 <i>le</i>	40 ± 6		
(DC)	DC13	1.1 <i>Ue</i>	1.1 <i>le</i>	1.1 <i>le</i>	7±1		
	DC14	1.1 <i>Ue</i>	1.1 /e	1.1 /e	1 or less		

Note: le shows for rated operating current and Ue shows rated operating voltage.