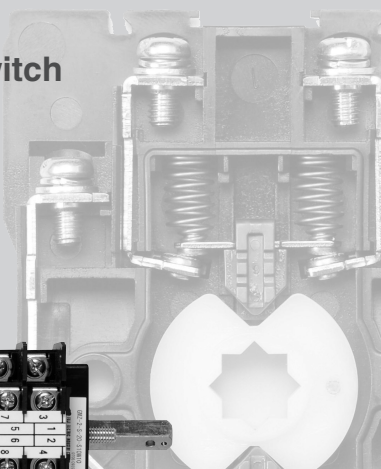
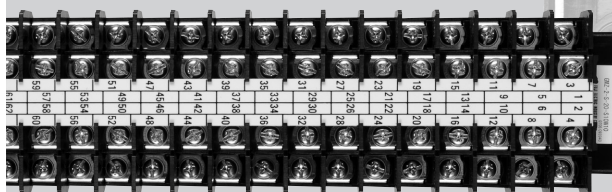




AUXILIARY SWITCH

GMZ TYPE

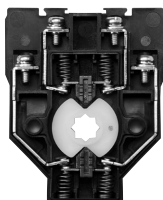
Compact and high reliability
High performance auxiliary switch



FEATURES

High dust resistance structure

By providing a rib structure for the units, it's ensure to raise an airtight and improve high dust resistance. So that prevents foreign substance invasion.



Wide contact variations

3 kinds of contacts, single silver-plating contacts, double bridge silver or gold-plating contacts that's a high contact reliability are available, which meets various usages.



Single silver-plating contacts

Double bridge silver-plating contacts

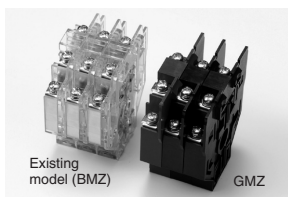
Double bridge gold-plating contacts

Minute electric current application

Double bridge gold-plating contacts cover minute electric current application of DC5V, 1mA or more. Also double bridge silver-plating contacts cover DC5V 5mA. (50,000 cycle switching)

High anti-flammability

High anti-flammable PBT (Poly-Butylene Terephthalate) plastic is adopted. (class UL94,V-0)



Existing model (BMZ)

GMZ

Safety Structure on live portion

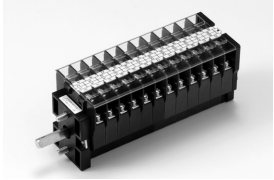
A terminal cover(Polycarbonate) is equipped as standard equipment for safety improvement.



Combination of different contact units in one switch

Three different contact units can be assembled in one switch assembly.

* One switch unit can be provided with only one kind contact.



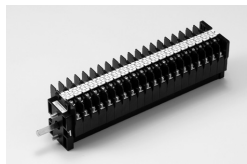
Chattering prevention

High-pressure springs on contact portion enhance vibration resistance performance.



Max. 20 unit assembly is available

Low twist structure of the switch enables to assemble long switches as many as 20 units (40 contacts). Wide range application such as parallel connection is available.



Max. wire size is 5.5mm²

Max. wire size is 2 to 5.5 mm² in spite of its small body.

Rated insulation voltage is 600V

The rated insulation voltage is higher than the previous model. (250V → 600V)

SPECIFICATIONS (RATING, PERFORMANCE / NORMAL SERVICE CONDITION)

Standard : IEC60947-1, IEC60947-5-1

Specification		GMZ	
Rating	Rated insulation voltage (Ui)	600V	
	Lightning impulse	±6kV (1.2×50μs)	
	Rated current-carrying capacity (Ith)	20A (silver contacts), 2A (gold contacts)	
	Max. wire size	5.5mm ²	
	Screw size	M4×9	
Performance	Withstand voltage	2,500V AC / 1min.	
	Contact resistance	50mΩ or less (default)	
	Mechanical life	500,000 times (angular speed: 5π rad/s)	
	Electrical life	Single silver contacts	50,000 (110V DC 5A, L / R = 40ms)
		Double bridge silver contacts	100,000 (110V DC 5A, L / R = 40ms)
	Shock resistance	500m/s ² or more (6 directions)	
Normal service condition	Vibration resistance	Frequency: 16.7Hz Amplitude: 3mm Time: 1 hour (3 axial directions)	
	Operating temperature	-20 to 60°C	
	Relative humidity	45 to 85%	
	Altitude	2,000 m or less	



AUXILIARY SWITCH

GMZ TYPE

HOW TO ORDER

(1) Standard type coding

GMZ / 2S - 10 - S18U02 / ST 090 - S 9(1A1B)1AU1BU

① ② ③ ④ ⑤ A B C D

No.	Item	Description	Remark
①	Basic type		
②	Fix bolt	1: M6 bolt X 2 pcs (front), 10mm	
		2: M6 bolt X 4 pcs (front and back), 10mm	
		3: M6 bolt X 2 pcs (front), 13mm	
		4: M6 bolt X 4 pcs (front and back), 13mm	
		5: M6 bolt X 2 pcs (front), 15mm	
		6: M6 bolt X 4 pcs (front and back), 15mm	
③	Shaft shape	S: Standard shaft 8mm (square)	Please see the "Shaft shape"
④	No. of units	2 to 20	
⑤	Contact type and No. of contacts	S□: Unit No. of single silver contacts	
		W□: Unit No. of double bridge silver contacts	
		U□: Unit No. of double bridge gold contacts	
A	Center position code	ex) ST: operation at the center of T position	Please see the "Operating position"
B	Operating angle	ex) 090: operation angle = 90°	
C	Contact ON angle	No code: Contact ON angle = 22°	Please see the "Contact ON angle"
		S: Contact ON angle = 19°	
D	Contact arrangement		Please see the "Contact arrangement"

(2) Special type coding

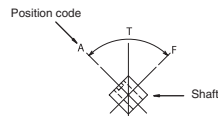
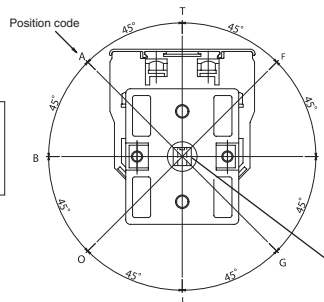
GMZ - 10 - 03X□□□-□

Standard type No. of units Specific No.

OPERATING POSITION

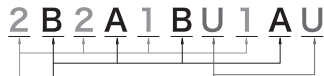
ST 090

Center position code Operating angle

Front View
(Shaft sticking out side)

* A shaft point is center of operating position.
ex) code: ST090 (90° operation at T position as center)
Please informed that code "S" on initial in case central position is just on position code.
In case central position is between "A" and "T", please code "AT".

CONTACT ARRANGEMENT

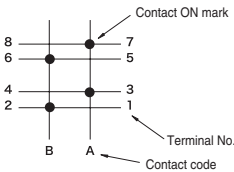


No. of Contact contacts code
Contact type code
*Refer to the right table

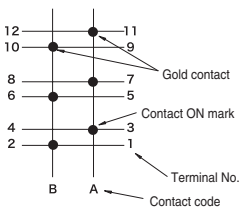
Code	Contact type
No code	Single silver contacts
W	Double bridge silver contacts
U	Double bridge gold contacts

*Usually 1 case unit has 2 contacts, depending on their contact arrangement.
1 case unit can be provided with one kind of contacts.

ex) 2 (1B1A)

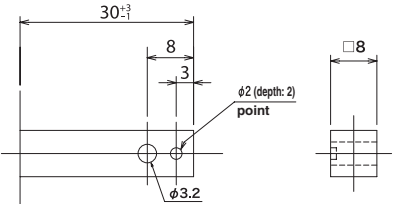


ex) 2 (1B1A) 1BU1AU

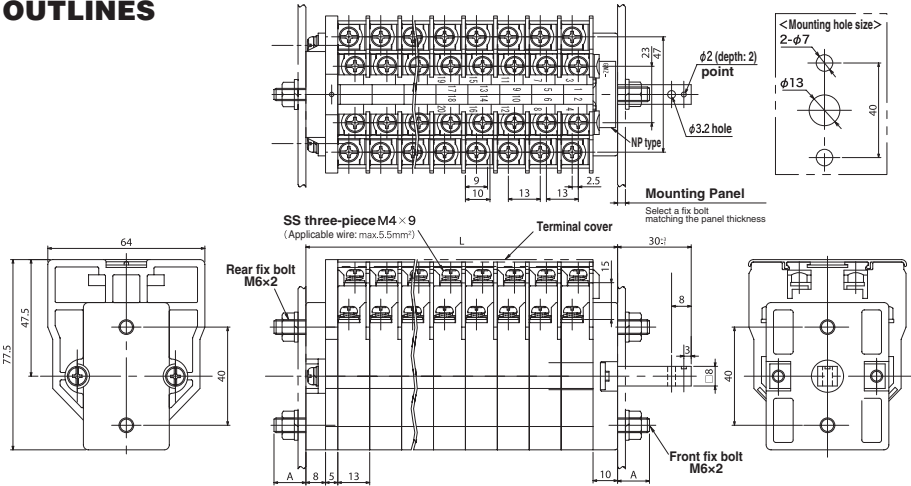


SHAFT SHAPE

Code: S



OUTLINES



No. of Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L (mm)	36	49	62	75	88	101	114	127	140	153	166	179	192	205	218	231	244	257	270	283



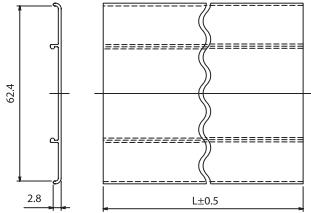
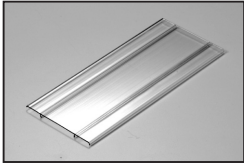
AUXILIARY SWITCH

GMZ TYPE

ACCESSORIES

TERMINAL COVER G-CV□P

(Order unit: 10)

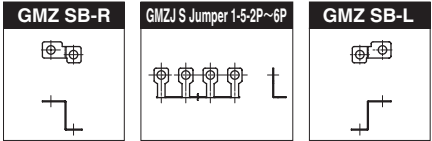
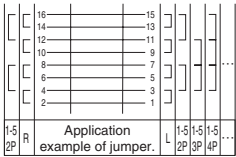


* Terminal cover is a standard accessory.

<Dimensions>

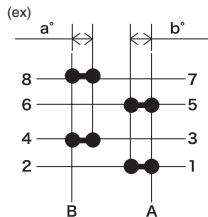
Unit No.	L (mm)	Unit No.	L (mm)
-	-	11	143
2	26	12	156
3	39	13	169
4	52	14	182
5	65	15	195
6	78	16	208
7	91	17	221
8	104	18	234
9	117	19	247
10	130	20	260

JUMPER



TECHNICAL DATA

CONTACT ON ANGLE



Type code	Angle a	Angle b	Allowance
No code	22°	22°	±3°
S	19°	19°	

* Contact ON angle may move left or right caused by a gap of shaft attachment or something. Please confirm the contact timing to be expected.

MAKE AND BREAK CAPACITY

[Switching load under normal conditions]

Single, Double bridge Silver contacts

Load class	Make			Break		
	Current (A)	Voltage (V)	Cosφ T _{0.95} (ms)	Current (A)	Voltage (V)	Cosφ T _{0.95} (ms)
AC-15	30	240	0.3	3	240	0.3
DC-13	0.55	250	300	0.55	250	300

Switching: 6,050 times

[Switching load under abnormal conditions]

Single, Double bridge Silver contacts

Load class	Make			Break		
	Current (A)	Voltage (V)	Cosφ T _{0.95} (ms)	Current (A)	Voltage (V)	Cosφ T _{0.95} (ms)
AC-15	30	264	0.3	30	264	0.3
DC-13	0.605	275	300	0.61	275	300

Switching: 10 times

ELECTRICAL DURABILITY

Single, Double bridge Silver contacts

Load class	Make			Break		
	Current (A)	Voltage (V)	Cosφ T _{0.95} (ms)	Current (A)	Voltage (V)	Cosφ T _{0.95} (ms)
AC-15	30	240	0.7	3	240	0.3
DC-13	0.55	250	300	0.55	250	300

Angular rate: 2π rad/s
Switching: 100,000 times (AC-15)
20,000 times (DC-13)
Frequency of switching: 360 times/h

Single, Double bridge Silver contacts

Test Voltage (V)	Test Current		Load type
	Make (A)	Break (A)	
AC240	50	5	Cosφ=0.3
DC110	7	5	L/R=40ms

Angular rate: 3.6π rad/s
Switching: 50,000 (Single contact)
100,000 (Double bridge contact)
Frequency of switching: 1,200 times/h

Double bridge Gold contacts

Test Voltage (V)	Test Current		Load type
	Make (A)	Break (A)	
AC24V	10	1	Resistance load
DC24V	0.7	0.5	

Angular rate: 3.6π rad/s
Switching: 100,000 times
Frequency of switching: 1,200 times/h



AUXILIARY SWITCH

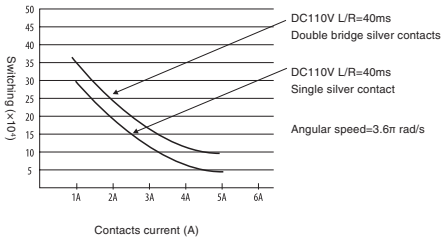
GMZ TYPE

RATED OPERATING VOLTAGE, CURRENT

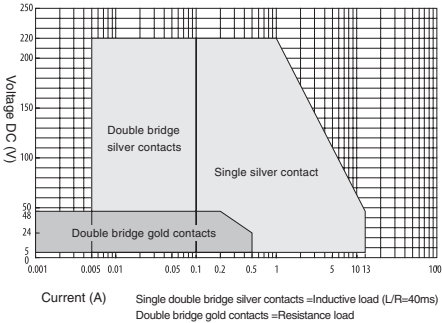
Rated operating voltage (V)	AC			DC		
	Rated operating current (A)			Rated operating current (A)		
	Inductive load $\text{COS}\phi = 0.3 \text{ to } 0.4$		Resistance load	Inductive load $L / R = 40\text{ms}$		Resistance load
	Single silver contact S	Double bridge silver contact W	Double bridge gold contact U	Single silver contact S	Double bridge silver contact W	Double bridge gold contact U
24	—	—	1	—	—	0.5
48	—	—	—	1.3	—	—
110	10	—	—	5	—	—
220	—	—	—	1	—	—
240	5	—	—	—	—	—

REFERENCE

■Electrical durable curve



■Indication for choice of contact type (DC)



■Minimum applicable load

	Single silver contact S	Double bridge silver contact W	Double bridge gold contact U
Minimum applicable load (Reference)	5V DC 100mA or more	5V DC 5mA or more	5V DC 1mA or more

Caution

Precautions for use

- Thoroughly check the operating conditions of the product with the specifications and outline drawing.
- Do not use the product in a condition exceeding the ratings, specifications and characteristic of the product. Failure to observe this instruction causes a fault of the product.
- To improve contact reliability, please use the product in a condition that does not exceed the ratings, even when the 2-pole or 3-pole contacts are used as a single pole.
- Do not to apply excessive pulling stress to the connection cable.
- Do not apply force in any direction other than the specified operating direction.
- The product performance has been evaluated at angular velocity of 2π rad/s. If the condition of angular velocity is different, verify actual performance of the product before use.
- With the operating link structure, care should be taken not to apply moment to the shaft rotation axis in any direction other than the specified rotating direction. Do not use the shaft rotation axis of this product as a rotation axis for driving other link. Failure to observe these instructions causes damage to the shaft and rotation axis.

Precautions for use, storage and transportation

- Avoid use and storage of the product in a place where the product may be exposed to ozone or corrosive gas. Otherwise, sulfide film or oxide film may deposit on the contact surface, causing unstable contact operation or contact failure.
- During storage and transportation of the product, avoid exposure to direct sunlight, and keep the product at normal temperature and normal humidity.
- If the ambient temperature rapidly changed in high-temperature/high-humidity environment, condensation may occur in the switch, which causes deterioration of insulation, break of coil, rusting, etc.
- Exercise caution about freezing when the ambient temperature becomes 0°C or lower. Freezing causes adhesion of moving parts and contact failure.
- This product is not waterproof, oil-proof and explosion-proof. Do not use this product in such an environment.
- Exercise caution about influence of external noise, surge, etc. on this product.

Precautions for mounting, removal and wiring

- If the product falls, product performance may deteriorate. In this case, do not use this product. To use this product, be sure to check appearance, specifications and performance of the product.
- Do not remove screws other than the terminal screw. Failure to observe this instruction cause a fault of the product.
- Recommended tightening torque for the terminal screw is 1.2 N·m.
- Before shipment of the product, the terminal screw is temporarily tightened. Securely tighten the screw before use, even if it is not used.
- If a mounting bolt is provided at the rear of the switch, be sure to fasten the switch at the front and rear securely.
- Recommended tightening torque for the mounting bolt (M6) at the rear of the switch is 2.5 N·m.
- Missed-connection may result in unintended operation, abnormal heating and fire.
- When mounting or removing the product, make sure that the product is not alive.
- For wiring of the product, be sure to use applicable cable and crimp terminal, in consideration of applied voltage and current.
- For a product which mounting pitch is fixed, be sure to observe the specified dimensions.

Precautions for inspection

- To clean the product, use vacuum, instead of air blow. Using air blow causes dust intrusion into the switch, resulting in contact failure.
- Do not disassemble the product during cleaning. Disassembling the product causes a fault of the product.
- If you find any damages to the product, replace it immediately.