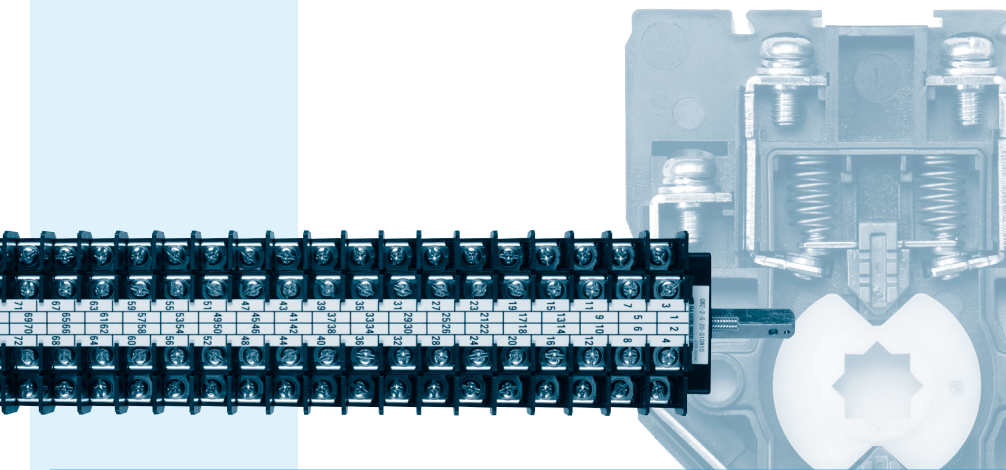


Compact and high reliability High performance auxiliary switch

GMZ TYPE

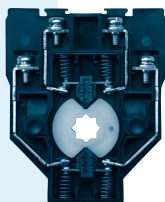
Auxiliary switch



● FEATURES

High dust-tight structure

High dust-tight structure by rib inside the unit prevents foreign substance invasion.



Low energy contact application

Double bridge gold-plating contacts cover low energy application of DC5V, 1mA or more.
Double bridge silver-plating contacts cover DC5V 5mA. (50,000 cycle switching)

Wide contact variations

3 kinds of contacts, single silver-plating contacts, double bridge silver or gold-plating contacts are available, which meets various requirements.



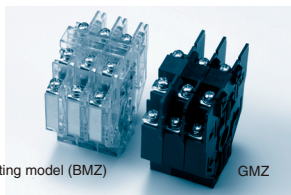
Single silver-plating contacts

Double bridge silver-plating contacts

Double bridge gold-plating contacts

High anti-flammability

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



Existing model (BMZ)

GMZ

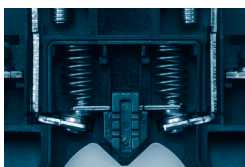
SWITCH

Safety Structure on live portion

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

**Chattering prevention**

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

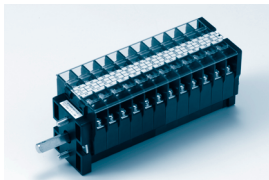
**Max. applicable wire size is 5.5mm²**

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

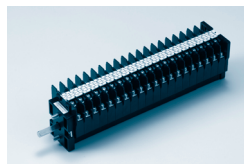
Combination of different contact units in one switch

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

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

**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.

**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

Specifications		GMZ
Rating	Rated isolation voltage (Ui)	600V AC / DC
	Rated impulse withstand voltage	±6,000V (1.2×50μs)
	Rated current-carrying capacity (Ith)	20A (silver contacts), 2A (gold contacts)
	Applicable wire size	5.5mm ² max.
	Screw size	M4X9
Performance	Power frequency withstand voltage	AC2,500V / 1min
	Insulation resistance	50m Ω or less (default)
	Mechanical life	500,000 times (angular speed: 5 π rad/s)
	Electrical life	Single silver contacts : 50,000 (DC110V 5A, L/R=40ms) Double bridge silver contacts : 100,000 (DC110V 5A, L/R=40ms)
	Shock resistance	500 m/s ² or more (6 directions)
	Vibration resistance	Frequency: 16.7Hz Amplitude: 1.5mm Time: 1 hour (3 axial directions)
Normal service condition	Operating temperature	-20 to +60°C
	Relative humidity	45 to 85%
	Altitude	2,000m max.

● 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)	Re. p.04"Shaft shape"
④	Unit No.	2 to 20	
⑤	Contact type and contact No.	S□: Unit No. of single silver contacts	
		W□: Unit No. of double bridge silver contacts	
		U□: Unit No. of double bridge gold contacts	
A	Central position of operation	ex) ST: operation at the center of T position	Re. p.03"Operating position"
B	Operating angle	ex) 090: operation angle = 90°	
C	Contact ON angle	No code: Contact ON angle = 22°	Re. p.05"Contact ON angle"
		S: Contact ON angle = 19°	
D	Contact arrangement		Re. p.04"Contact arrangement"

(2) Special type coding

GMZ - 10 - 03X□□□-□

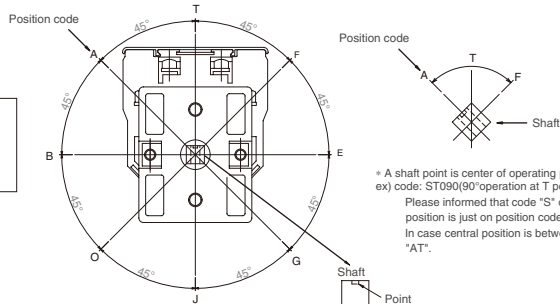
Standard type Unit No. Specific No.

● OPERATING POSITION

ST 090

Central position code Operating angle

Front View
(Shaft sticking out side)

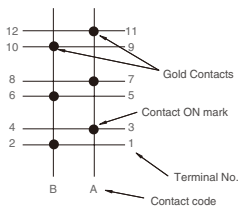
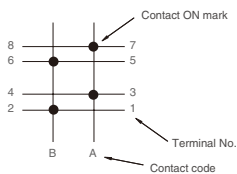


* A shaft point is center of operating position.
ex) code: ST090(90°operation at T position as center)
Please informed that code "S" on initial in case central position is just on position code.
In case central position is between "A" and "T", please code "AT".

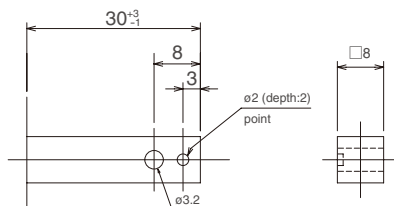
Contact No.	Contact code	Contact type code
		* Refer to right table

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

ex2) 2 (1B1A) 1BU1AU



Code: S

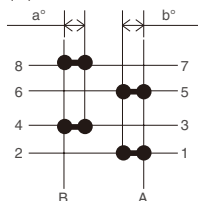
[illegible]

Unit No.	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

[Techical information]

● CONTACT ON ANGLE

(ex)



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.

● CLOSE AND BREAK CAPACITY

[Switching load under normal conditions]

Single, Double bridge Silver contacts

Load class	Make			Break		
	Current (A)	Voltage (V)	Cos ϕ T _{0.95} (ms)	Current (A)	Voltage (V)	Cos ϕ 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: 6050 times

[Switching load under abnormal conditions]

Single, Double bridge Silver contacts

Load class	Make			Break		
	Current (A)	Voltage (V)	Cos ϕ T _{0.95} (ms)	Current (A)	Voltage (V)	Cos ϕ 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 ENDURANCE

Single, Double bridge Silver contacts

Load class	Make			Break		
	Current (A)	Voltage (V)	Cos ϕ T _{0.95} (ms)	Current (A)	Voltage (V)	Cos ϕ 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: 2 π rad/s

No. of 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	Cos ϕ =0.3
DC110	7	5	L/R=40ms

Angular rate: 3.6 π rad/s

No. of switching: 50,000 (Single contact)
100,000 (Double bridge contact)

Frequency of switching: 1200 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: 3.6 π rad/s

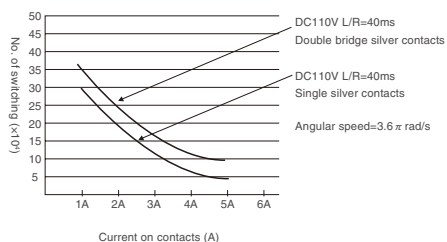
No. of switching: 100,000 times
Frequency of switching: 1200 times/h

● RATED OPERATING VOLTAGE, CURRENT

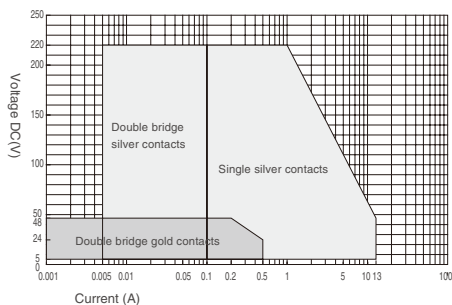
Rated operating current (V)	AC			DC		
	Rated operating current (A)			Rated operating current (A)		
	Inductive load $\text{COS}\phi = 0.3 \text{ to } 0.4$		Resistive load	Inductive load $\text{L/R} = 40\text{ms}$		Resistive load
	Single silver contact S	Double bridge silver contact W	Double bridge gold contact U	Single silver contact S	Double bridge silver contact W	Double bridge gold contact U
24	—	—	1	—	—	0.5
48	—	—	—	13	—	—
110	—	10	—	5	—	—
220	—	—	—	1	—	—
240	—	5	—	—	—	—

[Reference]

■ Electrical endurable curve



■ Indication for choice of contact type (DC)



Single double bridge silver contacts = Inductive load ($\text{L/R}=40\text{ms}$)
Double bridge gold contacts = Resistive load

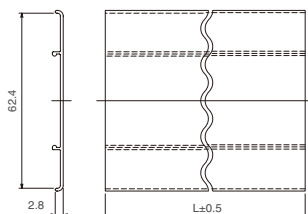
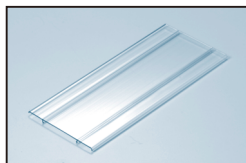
■ Minimum applicable load

	Single silver contact S	Double bridge silver contact W	Double bridge gold contact U
Minimum applicable load	DC5V 100mA or more	DC5V 5mA or more	DC5V 1mA or more

[Accessory]

● TERMINAL COVER G-CV□P

Order unit: 10



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

* Terminal cover is standard equipment.