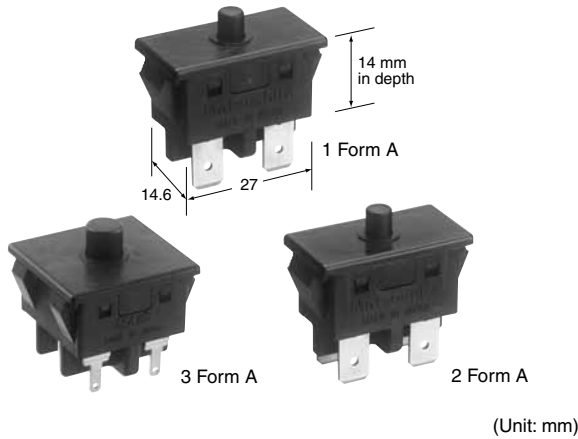




**Compact Size Fail-safe
Door Interlock Switches**

AGX (GX) SWITCHES



RoHS compliant

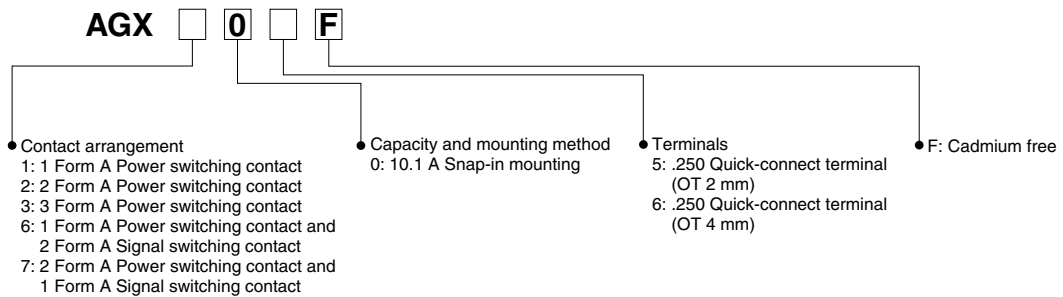
FEATURES

- 14 mm in depth
- Contact gap is greater than 4mm (Conforming to IEC60950-1)
- Ensure more than 4 mm insulation distance between open contacts
- Constructed with dual restoration springs and double cut-off for safety
- Combination of power contact and signal contact is available (for 3 Form A type)

TYPICAL APPLICATIONS

- Office equipment: Copiers, Printers
- Power supply devices

ORDERING INFORMATION

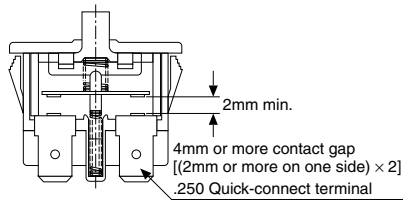


PRODUCT TYPES

Type	Overtravel (OT)	Contact form	Sequence operation		Terminal	Part number	
			1st ON	2nd ON			
Standard type 10.1A 250V AC	Min. 2 mm	1 Form A	—	—	.250 Quick-connect terminal	AGX105F	
		2 Form A	—	—		AGX205F	
	Min. 4 mm	1 Form A	—	—		AGX106F	
		2 Form A	—	—		AGX206F	
		3 Form A	3 Form A Power	3 Form A power		—	AGX306F
			1 Form A Power 2 Form A Signal	1 Form A power		2 Form A signal	AGX606F
			2 Form A Power 1 Form A Signal	2 Form A power		1 Form A signal	AGX706F

CONSTRUCTION (Dual safety construction)

- Dual restoration spring
- Double cut-off type



SPECIFICATIONS

■ Contact rating

Contact type	Resistive load (cos $\phi \approx 1$)	Motor load* (EN61058-1) (cos $\phi \approx 0.6$)
Standard type power switching contact	10.1A 125V AC 10.1A 250V AC 6A 30V DC 3A 48V DC (3 Form A type only)	3A 125V AC 3A 250V AC
Signal switching contact (3 Form A only)	0.1A 48V DC Contact Low-level circuit: 1mA 5V DC	—

Note: Motor load of EN61058-1 designates an inrush current switching capability of 6 times the indicated rating

■ Characteristics

Item		Specifications
Expected life	Mechanical	10 ⁶ min. (at 60 cpm)
	Electrical	10 ⁵ (at 10.1A 250V AC) (at 20 cpm, operating speed: 10mm/sec.)
Insulation resistance		100M Ω (at 500V DC)
Dielectric strength	Between non-continuous terminals	2,000Vrms for 1 minute
	Between each terminal and other exposed metal parts	2,500Vrms for 1 minute
	Between each terminal and ground	2,000Vrms for 1 minute
Contact resistance		Initial Max. 100m Ω (by voltage drop at 1A, 6 to 8V DC)
Temperature rise (terminal portion)		Initial Max. 45°C, After test Max. 55°C
Vibration resistance		10 to 55Hz at single amplitude of 0.75mm (Contact opening: 1 msec. max.), double amplitude of 1.5mm
Shock resistance		Min. 294m/s ² (Contact opening: 1 msec. max.)
Actuator strength		49N for 1 minute (For operating direction)
Tensile terminal strength		Min. 147N (Pulling for operating direction)
Allowable operating speed		10 to 300mm/sec.
Allowable operating cycle rate		60 cpm
Heat and cold resistance resistance		-40°C to -45°C: 48 hours, +80°C to +90°C: 48 hours
Ambient temperature		-25°C to +85°C no freezing and condensing
Flame retardancy		UL94V-0
Tracking resistance (CTI)		Min. 175
Contact specifications	Contact material	AgCuO alloy
Unit weight		Approx. 15 g
Protection grade		IP40

Note: Test condition and judgement are complying with "NECA C4505", "EN61058-1" and "UL1054".

■ Operating characteristics

- Standard type

Part number (Contact arrangement)	Operating Force (OF) Max.	Total operating Force (TF) Max. Push button position: 2.4mm	Free Position (FP) Max.	Operating Position (OP)	Total Travel Position (TTP)	Over Travel (OT) Min.
AGX105F (1 Form A)	3.92 N	4.90 N	8 mm	4.8±0.4 mm	2.4 mm	2.0 mm
AGX205F (2 Form A)	3.92 N	4.90 N	8 mm	4.8±0.4 mm	2.4 mm	2.0 mm
AGX106F (1 Form A)	3.92 N	6.86 N	10 mm	7.0±0.4 mm	2.4 mm	4.0 mm
AGX206F (2 Form A)	3.92 N	6.86 N	10 mm	7.0±0.4 mm	2.4 mm	4.0 mm
AGX306F (3 Form A)	2.94 N	5.88 N	10 mm	7.0±0.4 mm	2.4 mm	4.0 mm

Note: With the 3 Form A sequence operation type, the specifications for the contact where the operation position turns ON first are as per the above table. However, the specifications for the contact where the operation position turns ON later are delayed by approximately 0.8 mm compared with the above table.

DIMENSIONS

(Unit: mm) General tolerance: ± 0.4

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>

1 Form A type

CAD Data

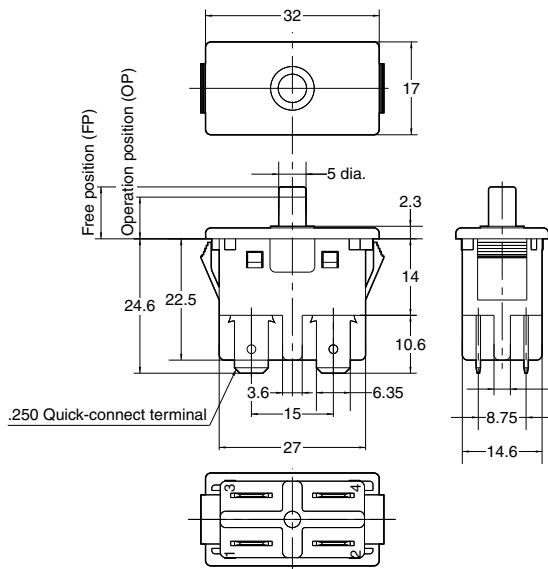


2 Form A type

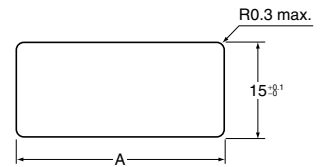
CAD Data



External dimensions



Recommended panel cutting dimension



Panel thickness	1.0 to less than 1.75	1.75 or more to 2.5
Dimension A	$30.2^{+0.1}_{-0}$	$30.5^{+0.1}_{-0}$

(Copper is standard as panel material)

- Notes: 1. 1 Form A type does not have terminal No.1 nor No.2
 2. For FP, OP and TTP, please refer to "Operating characteristics".

3 Form A type

CAD Data

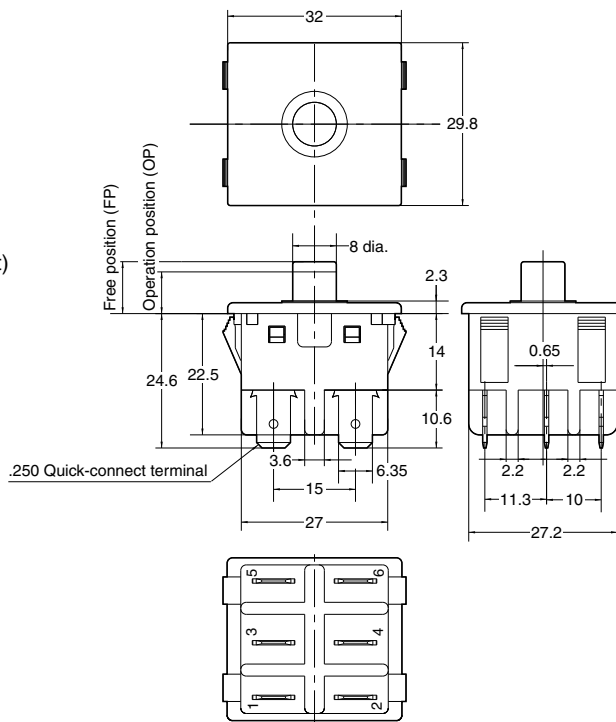


Sequence operation type
(With signal switching contact)

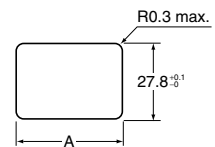


3 Form A power type

External dimensions



Recommended panel cutting dimension

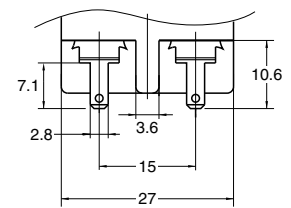


Panel thickness: 0.8 to 2.5mm

Panel thickness	0.8 to less than 1.75	1.75 or more to 2.5
Dimension A	$30.2^{+0.1}_{-0}$	$30.5^{+0.1}_{-0}$

(Copper is standard as panel material)

- Front view of sequence operation type (With signal switching contact)



Note: Power switching contact type has .250 Quick-connect terminal and signal switching contact type has .110 Quick-connect terminal.

CAUTIONS FOR USE

■ Switch mounting

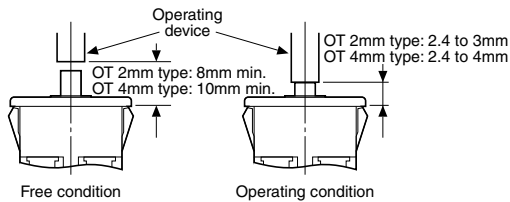
Mount the switch with the panel cutting dimensions shown in the drawing.

Please contact us if you consider using the other panel cutting dimensions.

■ Adjustment of the operating device

With respect to the position of the operating device and the switch body, set the position as indicated in the condition. If this condition is exceeded, the mechanical and electrical performance will be impaired. In addition, the force applied by the operating device should be in a perpendicular direction.

Even if the pushbutton is used in the full over travel "OT", there will be no influence on the life of the switch.



■ Confirming insulating distance

Before mounting and wiring, the insulating distance between terminals and between the terminals and ground should be checked for assurance of proper distance. With respect to the terminal connections, it is recommended that receptacles with insulating sleeves or positive lock connector be used. Also consideration should be given to the wiring not to apply force to the terminal section normally.

■ Regarding fastening lead wires to terminals

Use .250 receptacle (terminal thickness 0.8mm) or .110 receptacle (terminal thickness 0.5mm) should be used for connection. Make sure the sockets are straight. If they are skewed, the terminals will require excessive insertion force. The insertion force varies according to manufacturer's specifications. Check it for the sockets you are using.

■ Material of the mounting panel

Steel sheet is recommended as the mounting panel material. When using soft material, confirm the condition for actual use.

■ Quality check

To improve reliability, check the switch under actual loading conditions.

■ Environment

Avoid using and storing these switches in a location where they will be exposed to corrosive gases, silicon, or high dust levels, all of which can have an adverse effect on the contacts.

REFERENCE

■ Outline of UL1054 test

Overload test

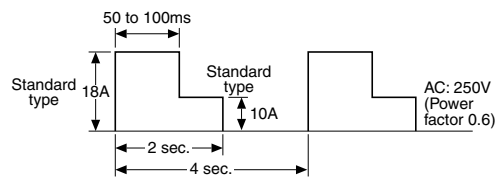
Standard type: 12.625A 250V AC
(Power factor 0.75 to 0.8)

Endurance test

Standard type: 10.1A 250V AC
(Power factor 0.75 to 0.8)

After testing, temperature rise of terminals should be less than 30°C and no abnormality should be observed in characteristics.

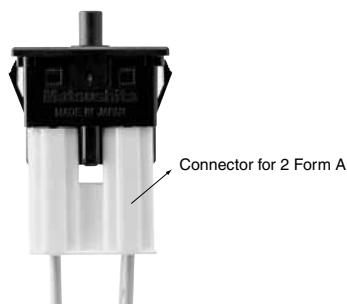
■ Outline of EN61058-1 test



After switching 25,000 times on the above load condition at both 85⁺⁵°C and 25±10°C, temperature rise of terminals should be less than 55°C and no abnormality should be observed in characteristics.

INTRODUCTION OF CONNECTORS FOR AGX (GX) SWITCHES (made by Nippon Tanshi Co., Ltd)

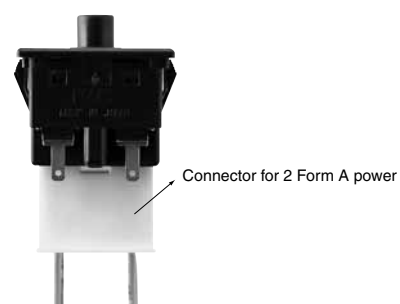
■ Connector for 2 Form A



Applicable AGX (GX) switch part No.: AGX205F, AGX206F

- Housing
Model number: N1620-4204
- Receptacle
Model numbers: 17168-2 (for narrow wires, post-plated product)
17168-M2 (for narrow wires, wood veneer plated product)
172131-M2 (for thick wires)

■ Connector for 2 Form A power terminal of 2 Form A power + 1 Form A signal type



Applicable AGX (GX) switch part No.: AGX706F

- Housing
Model number: N3220-4204
- Receptacle
Model numbers: 17901-M2, 17902-M2, 17903-M2 (wire size differences)
- If you have any questions, please directly contact:
Nippon Tanshi Co., Ltd.

Note: Please note that Panasonic does not sell the connector for AGX (GX) switches.