

For Indirect Operation of Electrical Machinery

COB 70 series







Outline

The COB 70 series are range of unit assembly type pushbutton stations, for which a wide variety of switch units can be selected in accordance with your needs.

Built-in button packing is provided within the case.

The standard case is formed from shockproof ABS, rendering it lightweight and risk-free in terms of electrical shocks, so it can be used safely.


Basic type list

Type name	COB 71	COB 72	COB 73	COB 74	COB 75	COB 76
Appearance						
Number of buttons	2 (1 pair)	4 (2 pairs)	6 (3 pairs)	8 (4 pairs)	10 (5 pairs)	12 (6 pairs)
Button packing	Built-in structure					


Remark : The photos above are samples of the completed assembly.

General specifications

Specifications

Item	Rating
Degree of protection	IP65 (JIS C 0920) Electrical Appliance and Material Safety Law  : Rainproof type
Material/ Color	Case : Shockproof ABS Resin ^{Note} / Orange (Munsell 7.5YR7/13 equivalent) Case-tightening screws: Stainless (± screws) Cable bushing: Synthetic rubber / Black
Vibration proof	Operational Tolerance 10 to 55Hz Displacement 1.0mm
Shockproof	Durability 500m/s ² Operational Tolerance 100m/s ²
Ambient temperature	−15°C to +40°C (must be free of ice or condensation)
Relative humidity	45 to 85% RH
Installation position	Must be installed with the cabtire cable slot uppermost using appropriate cabtire cabling.

Compliance standards

Name of standards
JIS C 8201-5-1
NECA C4520
JIS C 0920
Electrical Appliance and Material Safety Law  (compliant products)

Parts Configuration

Required unit can be selected from our extensive range of switches to suit every need.

Power
Switches

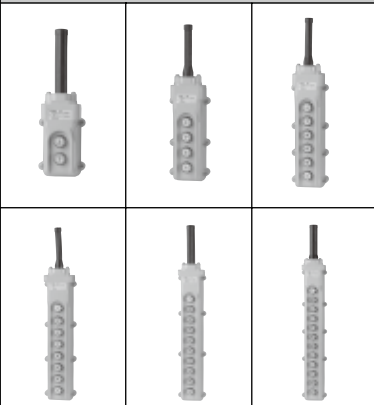
Hoist Push-Button
Switches

Operating Push
Button Switches

Foot
Switches

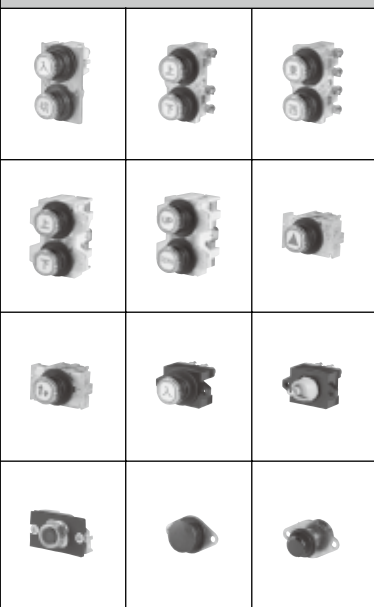
Liquid Level
Relays

Case



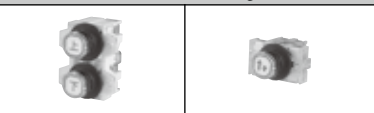
Please select one in accordance with required number of buttons ranging from 2 to 12.

Switches




Various functions and contact-point configurations are available.

Button markings



In addition to standard markings, numerous special characters are also prepared. Customization is also available.

Cable bushing

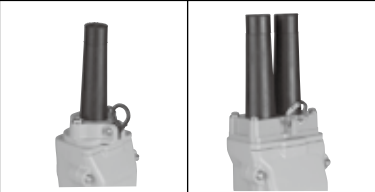


A variety of sizes are available to suit electric cable diameters ranging from ϕ 6.8 to ϕ 29.1 (mm).
(Dual entry: COB 74 to COB 76)

Bushing holder

Single and dual entry are available.
(Dual entry: COB 74 to COB 76)

Suspension clasp



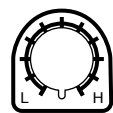
Suspension clasp Suspension ring

This clasp is used to suspend the main unit. Suspension clasps and rings are available.

Aluminum faceplate

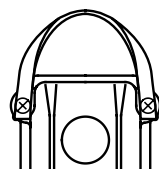
Expand/contract

Up/down



Display plate on which specific characters can be engraved and another faceplate for volume settings are prepared.

Hoop band



This is used to hang the main unit.



For Indirect Operation of Electrical Machinery

COB 70 series

I Case

The case and bushing holder are prepared as a set. The number of buttons (2,4,6,8, 10, 12) and bushing holder type (single entry small, single entry large, dual entry) are set. Accordingly, when complete products are ordered, the case does not need to be specified. The case type is automatically determined by simply specifying the basic type and cable bushing.

The material of the standard case is high impact resin.

Product name	Type	General mass (g)
Case for COB71	UN 1 ST	230
Case for COB72	UN 2 □	320
Case for COB73	UN 3 □	390
Case for COB74	UN 4 □	440
Case for COB75	UN 5 □	490
Case for COB76	UN 6 □	560

Remark : Specification code for bushing holder should be entered in the square space after each type.

ST : Single entry small

L : Single entry large

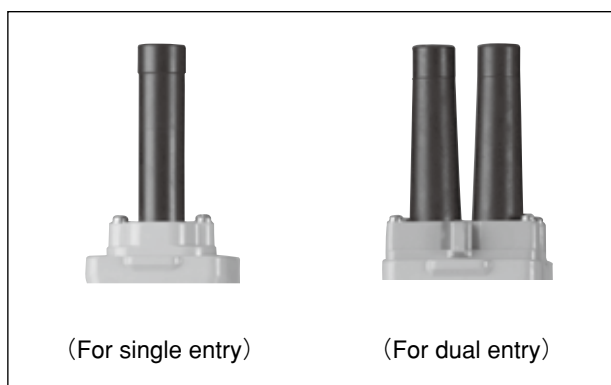
TW: Dual entry

II Cable bushing

Please select the optimal type in accordance with the diameter of the cable used.

Two cables can be wired on the COB 74 to COB 76 units. Please choose two cables from the C7 to CA20 cable bushings. In this case, the case and bushing holder will be dual entry type.

Cable bushing types that can be selected for COB 70 series are as follows.



COB 70 Series cable bushing

Cable bushing type	Appropriate cable diameter range	General mass (g)	Appropriate case					
			COB71	COB72	COB73	COB74	COB75	COB76
C7	φ 6.8 to φ 7.9	40	UN 1 ST (Single entry small)	UN 2 ST (Single entry small)	UN 3 ST (Single entry small)	UN 4 ST	UN 5 ST	UN 6 ST
C8	φ 7.7 to φ 8.8	40				(Single entry small)	(Single entry small)	(Single entry small)
C9	φ 8.9 to φ 10.0	30				UN 4 TW	UN 5 TW	UN 6 TW
C10	φ 10.0 to φ 11.0	30				(Dual entry)	(Dual entry)	(Dual entry)
C12	φ 10.6 to φ 11.8	30						
C125	φ 11.4 to φ 12.6	40						
C13	φ 12.3 to φ 13.5	30						
C14	φ 12.7 to φ 14.1	50						
C15	φ 14.3 to φ 15.5	40						
C16	φ 15.4 to φ 16.6	40						
C17	φ 15.7 to φ 17.1	40						
C18	φ 17.2 to φ 18.4	30						
C19	φ 18.4 to φ 19.6	30						
CA20	φ 20.0 to φ 21.0	30						
CA21	φ 21.0 to φ 22.0	50	—	UN 2 L (Single entry large)	UN 3 L (Single entry large)	UN 4 L (Single entry large)	UN 5 L (Single entry large)	UN 6 L (Single entry large)
CA22	φ 22.3 to φ 23.0	50						
CA23	φ 22.5 to φ 23.5	50						
CA24	φ 23.9 to φ 25.3	60						
CA26	φ 25.7 to φ 27.2	40		—	—			
CA27	φ 26.5 to φ 27.7	40						
CA28	φ 27.9 to φ 29.1	30						

Remark : COB A1 to B2 for COB 80 series can also be used.




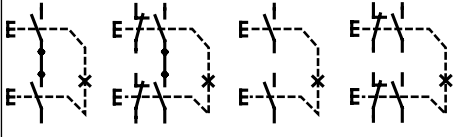

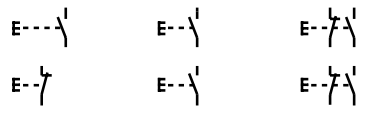

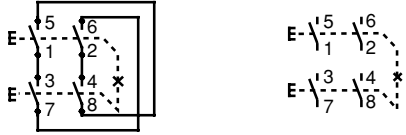


Reference : When inserting into the bushing, it is recommended to lubricate the cable and cable slot with wet soap to ease insertion. Do not use lubricating oil, as this may damage the bushing.

For Indirect Operation of Electrical Machinery

COB 70 series

III Switch units

(1/3)

Product name/appearance	Type	General mass (g)	Rating	Contact arrangement	Memo
On/Off switch 	UNB CH10	60	Note 1	UNB CH10 (1NO) 	<ul style="list-style-type: none"> Turn on/off power for operation. Pressing On button (top) turns power on and self-maintenance is performed. Press Off button (bottom) to open.
Operation switch with interlock 	UNC CHK□ UNC CHK10 UNC CHK11 UNC CHD□ UNC CHD10 UNC CHD11	— 50 90 — 50 90	Note 1	UNC CHK10 (1NO-1NO) UNC CHK11 (1NO+1NC-1NO+1NC) UNC CHD10 (1NO-1NO) UNC CHD11 (1NO+1NC-1NO+1NC) 	<ul style="list-style-type: none"> This is for typical circuits, such as up/down, east/west. Seesaw-type mechanical interlock is included, so simultaneous use is impossible.
General operation switch 	UNJ CHD□ UNJ CHD01 UNJ CHD10 UNJ CHD11	— 50 50 80	Note 1	UNJ CHD01 (1NO-1NC) UNJ CHD10 (1NO-1NO) UNJ CHD11 (1NO+1NC-1NO+1NC) 	<ul style="list-style-type: none"> This is for typical circuits. No mechanical interlock is included, so two buttons can be operated independently.
Operation switch with/without interlock 	UNK CHK□ UNK CHK20 UNK CHD□ UNK CHD20	— 90 — 90	Note 2	UNK CHK20 (2NO-2NO) UNK CHD20 (2NO-2NO) 	<ul style="list-style-type: none"> Electrical machinery can be opened/closed directly. Seesaw-type mechanical interlock is included, so simultaneous use is impossible.
General operation switch 	UNKA CHK□ UNKA CHK20 UNKA CHD□ UNKA CHD20	— 90 — 90	Note 1	UNKA CHK20 UNKA CHD20 	<ul style="list-style-type: none"> 2NO-2NO type for typical circuit. Seesaw type with mechanical interlock like the UNC type, renders simultaneous use is impossible.

Remark : Specification code for contact arrangement is entered as □ of the type.

Note : Rating for each switch unit

Item	Note 1	Note 2
Rated insulation voltage	500V AC	
Rated thermal current	5A	7A
Rated operating voltage	220V/440V AC	220V/440V AC
Rated operating current	2A	Capacity of application electricmotor 3 φ 1kW
AC15 / Inductive load	1A	Capacity of application electricmotor 3 φ 1kW
Insulation resistance	100MΩ or more (500 V DC Megger)	
Withstand voltage	2500V AC / minute	
Connected terminal	M4 screws (Pressure terminal type)	

Caution : Care must be taken as combination two-button units (UNB, UNC, UNJ, UNK, UNKA) cannot be installed across the 2nd & 3rd or 4th & 5th button positions, etc. Unit installation holes in the case are coupled from the top, such that the 1st & 2nd, and 3rd & 4th button positions, etc. are paired. Accordingly, please install combination two-button units as per these paired positions.

Power Switches

Hoist Push-Button Switches

Operating Push Button Switches



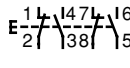
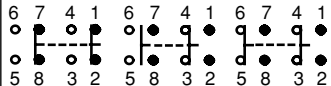

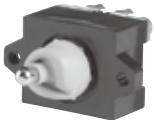
Foot Switches

Liquid Level Relays

For Indirect Operation of Electrical Machinery

COB 70 series

(2/3)




Product name/appearance	Type	General mass (g)	Rating	Contact arrangement			Memo
	UNS CH □	—	Note 1	UNS CH01 (1NC)	UNS CH10 (1NO)	UNS CH11 (1NO+1NC)	<ul style="list-style-type: none">• This is for typical circuits.• It is an independent single switch, so flexible arrangement combinations are possible.
	UNS CH01	30					
	UNS CH10	30					
	UNS CH11	40					
	UND CH22	60	Note 1	UND CH22 Neutral	Neutral 1st layer 2nd layer		<ul style="list-style-type: none">• This is for speed control and for 2-circuit control.• Contacts are operated in two different stages.• Connection board (between terminal Nos. 3 to 5 and 4 to 6) is prepared for wiring convenience.
							
	UNE CH □	—	Note 2	UNE CH10 (1NO)	UNE CH20 (2NO)	UNE CH11 (1NO+1NC)	<ul style="list-style-type: none">• This is to turn the operating power on/off.• Each press of the button turns the power ON or OFF alternately. (Do not use it for purposes subject to shock.)
	UNE CH10	40					
	UNE CH20	50					
	UNE CH11	50					
	UNF □	—	Note 3	UNF 10 (1NO)	UNF 11 (1NO+1NC)		<ul style="list-style-type: none">• This is to turn the operating power on/off.• Degree of protection is IP53.• Lever operates left and right.
	UNF 10	50					
	UNF 11	60					

Remark : Specification code for contact arrangement must be entered in the square space after each type.

Note : Rating for each switch unit

Item	Note 1	Note 2	Note 3	Note 4
Rated insulation voltage	500V AC			
Rated thermal current	5A	3A	1A	10A
Rated operating voltage	220V/440V AC	220V AC	220V AC	220V/440V AC
Rated operating current	220V AC	2A	2A	1A
AC15 / Inductive load	440V AC	1A	—	—
Insulation resistance	100MΩ or more (500 V DC Megger)			
Withstand voltage	2500V AC / minute	1000V AC / minute	1500V AC / minute	2500V AC / minute
Connected terminal	M4 screws (Pressure terminal type)			

(3/3)

Product name/appearance	type	General mass (g)	Rating	Memo
	UN 70 G ■	30	<ul style="list-style-type: none"> UN 70 G■(Neon lamp) ^{Note 1} UN 70 GD■(LED lamp) ^{Note 1} 6V/48VDC and 24V/48VAC can also be produced. M4 screws (pressure terminal type) and soldered terminals can also be produced. Insulation resistance: 100 MΩ or more (500 V DC) Withstand voltage: 1500 V AC / minute Marked on the positive (+) side of the LED lamp. 	<ul style="list-style-type: none"> This lamp is installed in a switch unit hole.
	UN 70 GD ■	30		
	UN 70 GD24BC	30		
	UN 70 GD12BC	30		
	UNH	20	<ul style="list-style-type: none"> Packing for spare hole: Black rubber Packing holder: Steel plate 	<ul style="list-style-type: none"> This rubber cover also improves the appearance.
	UNV	50	<ul style="list-style-type: none"> Variable resistor: RV24YN, knob attachment (Please specify rating.) ^{Note 2} Soldered terminal The top of the case is the standard installation position. Insulation resistance: 100 MΩ or more (500 V DC Megger) Withstand voltage: 1500 V AC / minute 	<ul style="list-style-type: none"> Degree of protection is IP53.

Remark : Specification code for lamp voltage and color in ■ at the end of each type.

For Indirect Operation of Electrical Machinery

COB 70 series

Note 1 : Pilot lamp rating

Type	Rated voltage	Color
UN 70 G (Neon lamp)	2R 200V AC	Red
	1R 100V AC	
	2G 200V AC	Green
	1G 100V AC	
	2O 200V AC	Orange
	1O 100V AC	
	2W 200V AC	White
	1W 100V AC	

Type	Rated voltage	Color
UN 70 GD (LED lamp)	24R 24V DC	Red
	12R 12V DC	
	24G 24V DC	Green
	12G 12V DC	
	24O 24V DC	Orange
	12O 12V DC	
	24W 24V DC	White
	12W 12V DC	
	24BC 24V DC	Blue
	12BC 12V DC	

Caution : When lead wire is soldered to the pilot lamp of the soldered terminal, solder the lead wire outputting to the terminal from inside of the main unit at the same time.

Note 2 : Variable resistor rating

- Standard product: RV24YN (Carbon mixed variable resister)
Resistance law: B

Resistance value	Rated current	Resistance value	Rated current
50 Ω	0.4W	20k Ω	0.25W
100 Ω	0.4W	50k Ω	0.25W
200 Ω	0.4W	100k Ω	0.25W
500 Ω	0.4W	200k Ω	0.25W
1k Ω	0.4W	500k Ω	0.25W
2k Ω	0.3W	1M Ω	0.25W
5k Ω	0.3W	2M Ω	0.25W
10k Ω	0.3W		

(Source: Volume maker standard rating list)

- Specified product: RA25Y (Wire wound variable resister)
Resistance law: B

Resistance value	Rated current	Resistance value	Rated current
10 Ω	1.2W	1k Ω	1.2W
20 Ω	1.2W	2k Ω	1.2W
50 Ω	1.2W	5k Ω	1.2W
100 Ω	1.2W	10k Ω	1.2W
200 Ω	1.2W		
500 Ω	1.2W		

(Source: Volume maker standard rating list)

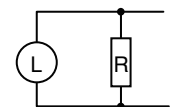
Reference : Erroneous lighting of the neon lamp (half-lighting when switch is turned off)

When the switch is turned off, the neon lamp may appear half lit. The following three causes can be considered.

1. Effect from inductive power within the parallel line
2. Effect from current leaking from the condenser between contacts
3. Effect from current leaking due to reduced insulation between contacts

The following methods should be used to counteract the above.

1. Light does not come on if the voltage is maintained at the same as or lower than discharge lamp through partial pressure by inserting a parallel resister. Lower resistance value is more effective, but about 100k Ω/W is sufficient.
2. Light does not come on if the voltage is maintained at the same as or lower than discharge lamp through partial pressure based on parallel resistance. 100kΩ/W or less is needed.

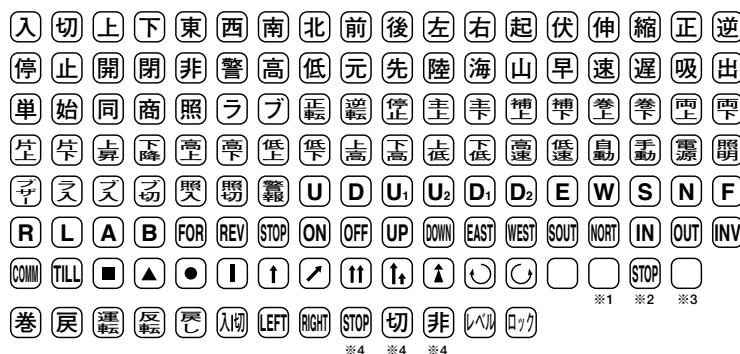


Parallel resister

IV Button markings

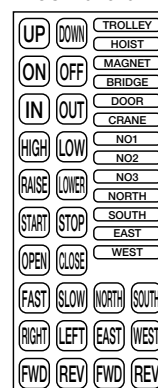
Chips are adopted for the button area. Transparent chips can be removed and markings boards can be attached. The markings board is standard to the COB 270 and COB 60 series. Alphabetic lettering sheets are also available. Please enquire about production of characters/markings other than the above.

Standard characters (Black characters)



※1 Plain red ※2 Red characters ※3 For engraved characters ※4 Black character on red background

Character sheet
COB70No701



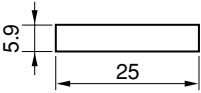
For Indirect Operation of Electrical Machinery

COB 70 series

V Aluminum faceplate

a) Display plate

Specified characters are to be engraved. Please use it for auxiliary explanation of switches.



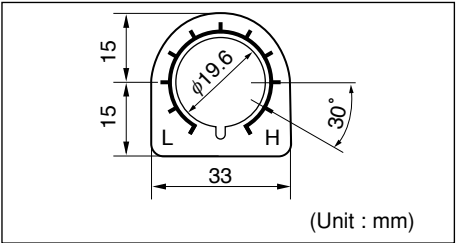
Character size	Maximum number of characters
3mm	6
4mm	5
5mm	4

(Unit: mm)

b) Aluminum faceplate

• for volume

This is an aluminum faceplate for the volume (Unit type name: UNV).



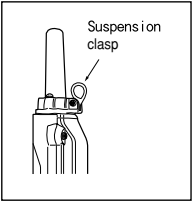
VI Others

Suspension clasp (steel)

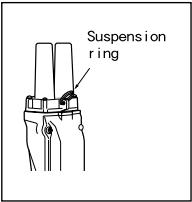
Metal clasp are available for suspension of the main unit. There are suspension clasp for single entry bushing holders and suspension rings for dual entry bushing holders.

It is possible to manufacture a stainless suspension clasp and stainless suspension ring.

As standard, a cable holder that secures the cables by tightening them up against the case, is included. A steel core attachment board for single cases subject to tensile forces applied to the cable by steel wires within the cable, etc. is also available, so please specify.



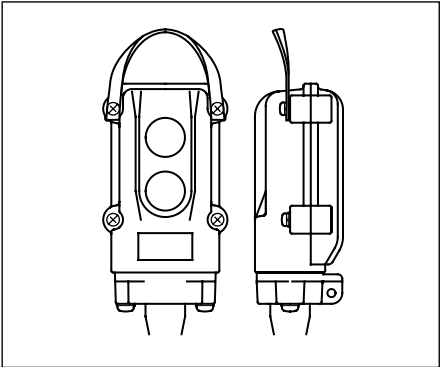
Suspension clasp



Suspension ring

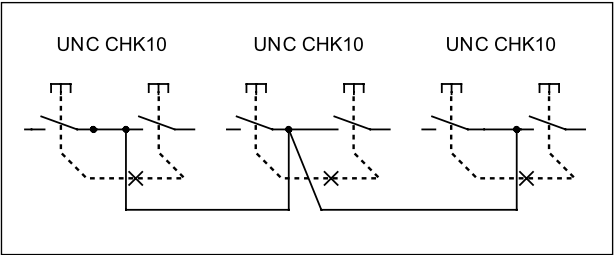
Suspension band

Suspension bands for suspension of the main unit are available. Please attach it below the screw head. Please do not put it between the case and cover of the main unit, as this will adversely affect its waterproofing.



Connection board

Various types of connection boards (short bars) that are convenient for common wiring between switch units and between contacts are available. Please contact us for details. A connection board indicated by the solid line in the diagram is included with the UNC unit in other cases, additional costs may be incurred.



Connection board usage example

Dimensions (Unit: mm)

COB 70 series					
	Single entry small type		Single entry large type		Dual entry type
	Basic type	L	L1 (Bushing area)		L2
			Single entry small, dual entry C7 to C13	Single entry large C14 to CA20	
COB 71	127.5	102	112	112	64
COB 72	195.5				72
COB 73	255.5				83.5
COB 74	327				
COB 75	387				
COB 76	447				