Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Item	Appearance	Description/Usage	Part Number
Replacement Jumbo Dome Lens		Polycarbonate Replacement Lens (If using yellow lens, use white LED.)	HW1A-P5① ① = (A, G, R, S, W, Y))
Replacement Jumbo LED Diffusing Lens			HW9Z-PP5C
Replacement LED Lamps for HW Jumbo Dome		Replacement LED Lamp - applicable for jumbo pilot lights only	LSTDB-2① ① = (A, G, R, S, W)
Rubber Cover for Dual Pushbuttons		Clear Silicon rubber cover	HW9Z-D7D
Barrier for Dual Pushbuttons		Plastic barrier. Used when mounting the HW7 units on 30mm horizontal centers, to prevent possible interconnections between adjoining terminals.	HW-VU1
EMO Sticker	**EMO**	Emergency stop nameplate sticker	HW9Z-EMO-NP-TK2120

Item	Appearance	Description/Usage	1NC	1NO
Contact Blocks (with side entry)		These contacts are applicable for wires terminated by ring, fork, terminals, **not recommended for bare wire connections**.	HW-U01 HW-U01-MAU HW-U01R HW-U01R-MAU (with side entry)	HW-U10 HW-U10-MAU HW-U10R HW-U10R-MAU (with side entry)
Contact Blocks (without side entry)		These contacts are applicable for wires terminated by ring, fork, or ferule terminals, and **also bare wire connections**.	HW-U01-F HW-U01-MAU-F HW-U01R-F HW-U01R-MAU-F (no side entry)	HW-U10-F HW-U10-MAU-F HW-U10R-F HW-U10R-MAU-F (no side entry)

E-Stop Shrouds

Style	Part Numbers	E-Stop Types	Applicable Standards
	HW9Z-KG1	40mm Mushroom Head	SEMI S2-0703, 12.5.1 Compliant
	HW9Z-KG2	40mm Mushroom Head	SEMI S2-0703, 12.5.1 & SEMATECH Compliant

Style	Part Numbers	E-Stop Types	Applicable Standards
	HW9Z-KG3	40mm Mushroom Head	SEMI S2 Compliant (Approved by TUV) ISO 13850
	HW9Z-KG4	40mm Mushroom Head	SEMI S2 Compliant (Approved by TUV) & SEMATECH ISO 13850

Contact Assemblies

Standard Contact Assemblies
For use with Non-Illuminated Pushbuttons & E-Stops

Style	Contacts	Part Number
Standard Finger-Safe Contacts	1NO	HW-CBF10
	1NC	HW-CBF01
	1NO/1NC	HW-CBF11
	2NO	HW-CBF20
	2NC	HW-CBF02
	2NO/2NC	HW-CBF22

ℹ️ Gold contact option is available. Add suffix "MAU" to end of part number. For example, HW-CBF20 becomes HW-CBF20-MAU.

Full Voltage Contact Assemblies
For use with Illuminated Pushbuttons.

Style	Contacts	Part Number
	1NO	HW-FL10Q0
	2NO	HW-FL20Q0
	1NO/1NC	HW-FL11Q0
	1NC	HW-FL01Q0
	2NC	HW-FL02Q0

ℹ️ Order LED separately.

Transfomer Contact Assemblies
For use with Illuminated Pushbuttons.

| Style	Contacts	Part Number
120V AC with LED	1NO	HW-FL10H2-②
	2NO	HW-FL20H2-②
	1NC	HW-FL01H2-②
	1NO/1NC	HW-FL11H2-②
240V AC with LED	1NO	HW-FL10M4-②
	2NO	HW-FL20M4-②
	1NC	HW-FL01M4-②
	1NO/1NC	HW-FL11M4-②
480V AC with LED	1NO	HW-FL10T8-②
	2NO	HW-FL20T8-②
	1NC	HW-FL01T8-②
	1NO/1NC	HW-FL11T8-②

ℹ️ 1. In place of ②, specify the LED Color Code.
  ② = A, G, R, S, or W
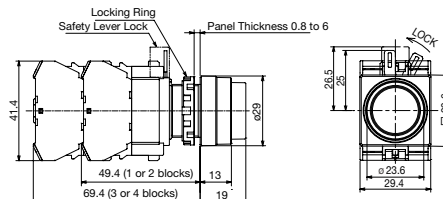
2. 6V LED included.

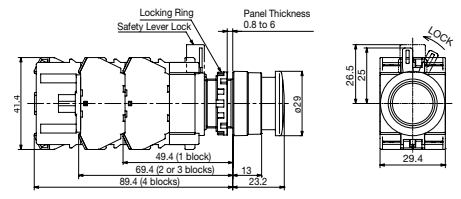## Dimensions (mm)

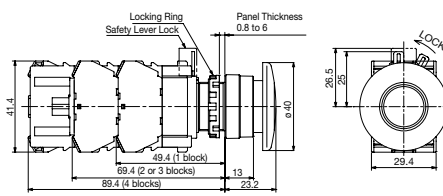**Non-Illuminated Pushbuttons**

Flush (HW1B-M1, -A1)
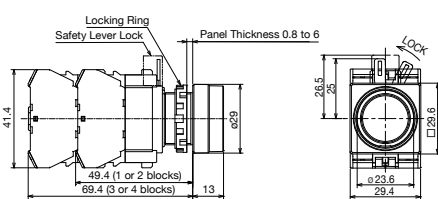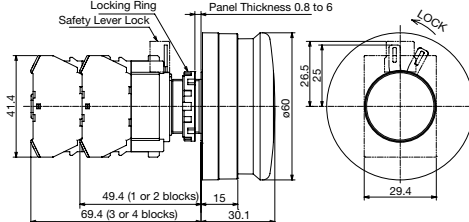

Extended (HW1B-M2, -A2)
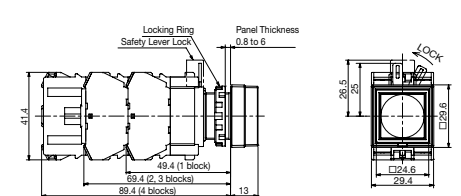

ø29mm Mushroom (HW1B-M3 -A3)
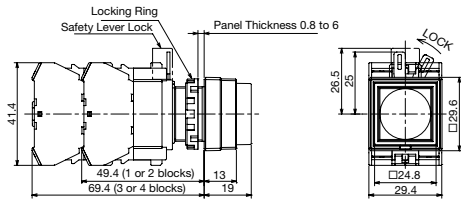

ø40mm Mushroom (HW1B-M4, -A4)
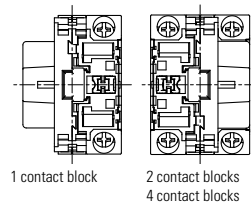

ø60mm Mushroom (HW1B-M5)

Square Flush (HW2B-M1, -A1)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Square Extended (HW2B-M2, -A2)

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6
LOCK
41.4
49.4 (1 or 2 blocks)
69.4 (3 or 4 blocks)
13
19
26.5
25
□29.6
□24.8
29.4

Contact Block (Bottom View)

1 contact block
2 contact blocks
4 contact blocks

Terminal Wiring

Arrows indicate access directions for wiring

Operators

Dimensions (mm)

Flush (Round & Square)

Panel Thickness
0.8 to 6

Round **Square**

LOCK
25
ø23.6
41.4
13
29.4
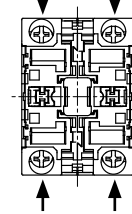
LOCK
25
□29.6
41.4
□24.8
29.4

Extended

LOCK
ø23.5
25
ø23.6
41.4
13
18.5
29.4
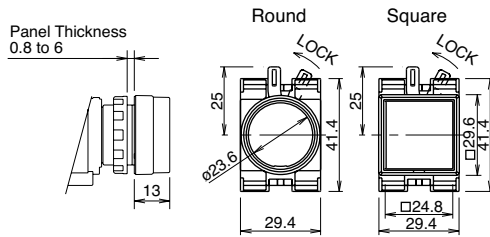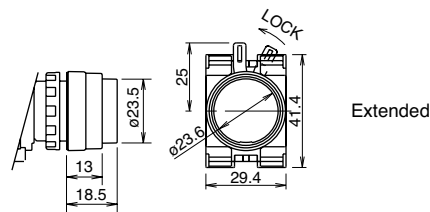
Extended

Extended with Full Shroud

LOCK
ø29.5
25
ø23.6
41.4
18.5
29.4

ø40mm Mushroom
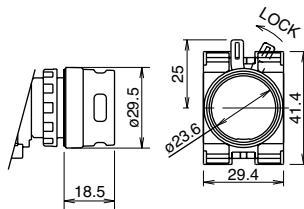
LOCK
ø40
25
41.4
13
23.2
29.4
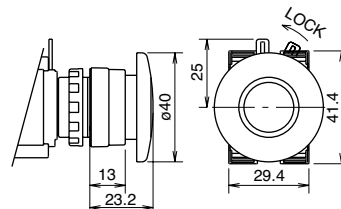
Emergency Stop Pushbuttons

Dimensions (mm)

ø29mm Head Pushlock Turn Reset (HW1B-V3)

Panel Thickness 0.8 to 6
Gasket
Terminal Screw M3.5
Locking Ring
LOCK
1 contact block
2 contact blocks
4 contact blocks
ø29
25
41.4
50.2 (1 or 2 blocks)
13
70.2 (4 blocks)
32
29.4

ø40mm Head Pushlock Turn Reset (HW1B-V4)
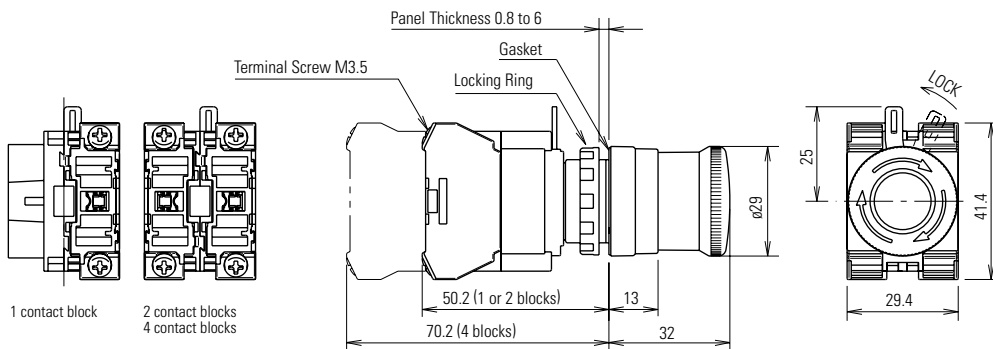
LOCK
ø40
25
41.4
13
32
29.4
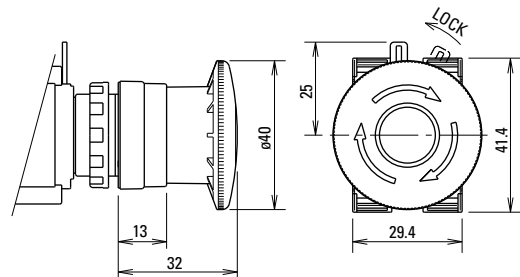
ø40mm Head EMO Pushlock Turn Reset (HW1B-V4)

Locking Ring
LOCK
Lock Lever
ø40
26.5
25
20
41.4
EMO
50.2 (1 or 2 blocks)
13
70.2 (4 blocks)
32
29.4
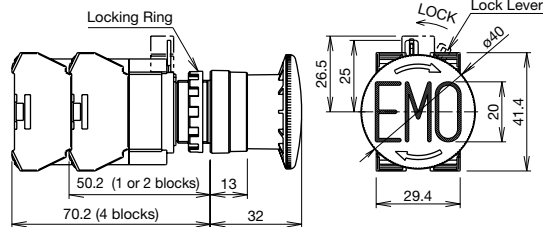
ø40mm Head Pushlock Key Reset (HW1B-X4)
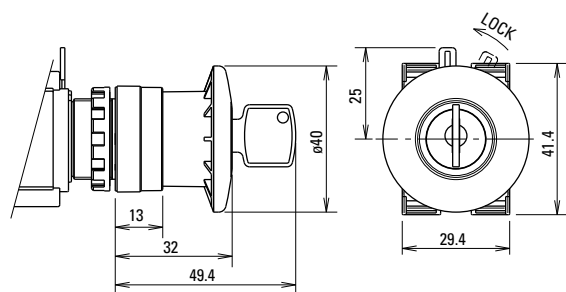
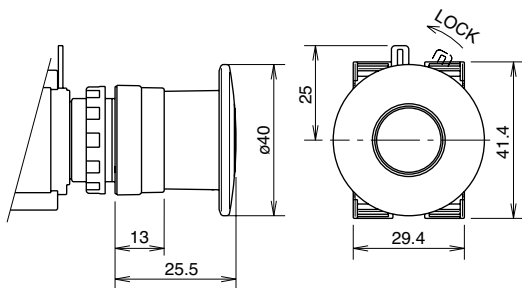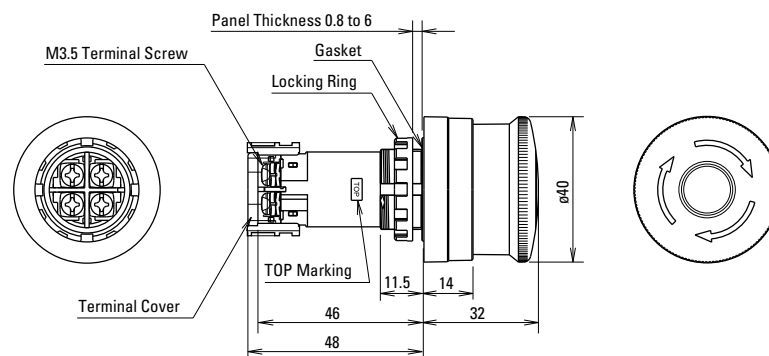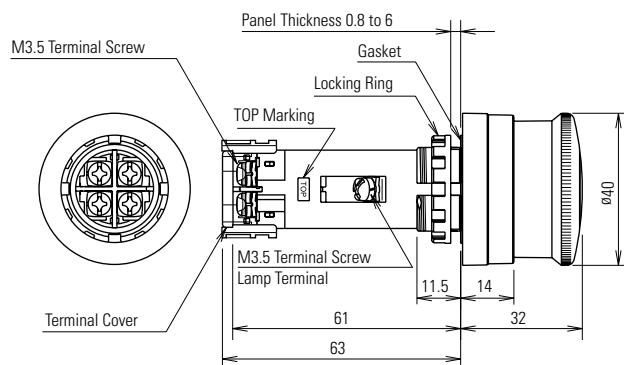ø60mm Head Pushlock Turn Reset (HW1B-V5)
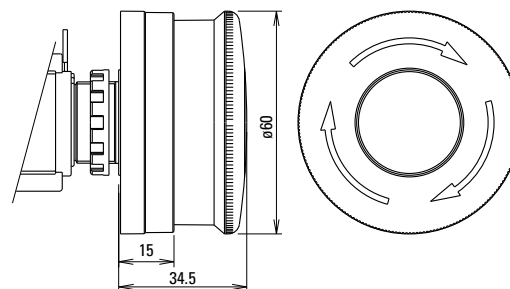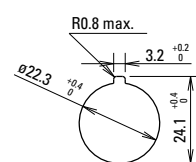
ø40mm Head Push-Pull (HW1B-Y2)

ø40mm Head Unibody Pushlock Turn Reset (HW1B-BV4)

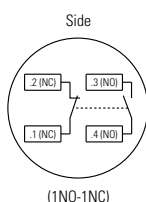Illuminated E-Stop Pushbuttons (HW1E-LV4)

Mounting Hole

The minimum mounting centers shown below are applicable to E-Stop switches with one layer of contact blocks (two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers for ease of wiring.

Unit	Vertical Spacing	Horizontal Spacing
HW1B-V3 HW1B-V4 HW1B-X4 HW1B-Y2	50 mm	50 mm
HW1B-V5	60 mm	60 mm

Terminal Arrangement (Bottom View)

HW1E-BV4   Side

.2 (NC)   .3 (NO)

.1 (NC)   .4 (NO)

(1NO-1NC)

HW1E-LV4

TOP

X1

LAMP

.2 (NC)   .3 (NO)

.1 (NC)   .4 (NO)

X2

(1NO-1NC)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
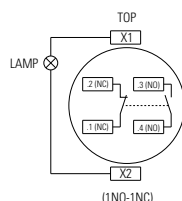
Emergency Stop Stations
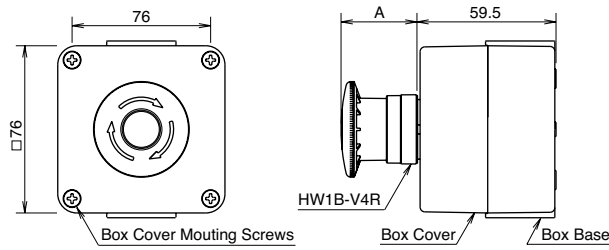
Dimensions (mm)

Operator	Dimension A (mm)
Pushlock Turn Reset	32
Pushlock Key Reset	32 (Key inserted: 49.4)
Push Pull	25.5
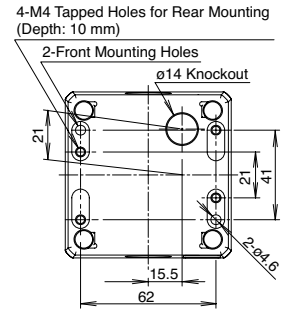
76

□76

A   59.5

HW1B-V4R

Box Cover Mouting Screws   Box Cover   Box Base

Mounting Hole Layout

4-M4 Tapped Holes for Rear Mounting (Depth: 10 mm)

2-Front Mounting Holes

ø14 Knockout

21   21   41

2-ø4.6

15.5

62

Pilot Lights

Dimensions (mm)

Round Flush   Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø29
ø23.5
11.5   7
43.3

100/110V AC, 200/220V AC (240V AC maximum)

Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø23.5   ø29
24
60.8   7   29.6

110V DC, 380V AC minumum

Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø23.5   ø29
24
76.2   7   29.6
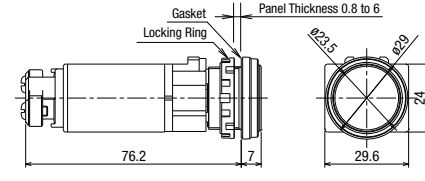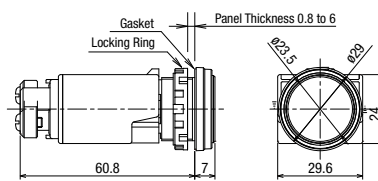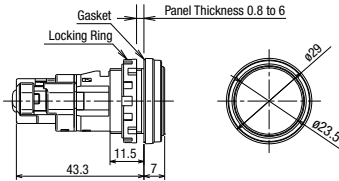
Extended   Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø23.6   ø29
11.5   17.5
43.3

100/110V AC, 200/220V AC (240V AC maximum)

Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø23.6   ø29
24
60.8   17.5   29.6

110V DC, 380V AC minimum

Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø23.6   ø29
24
76.2   17.5   29.6
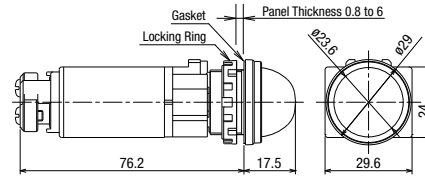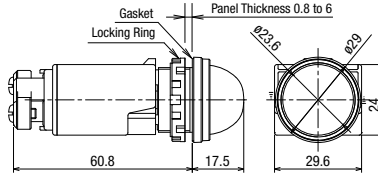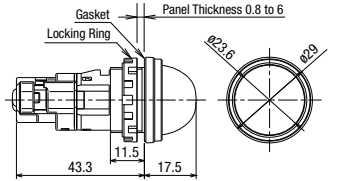
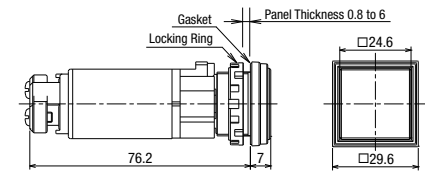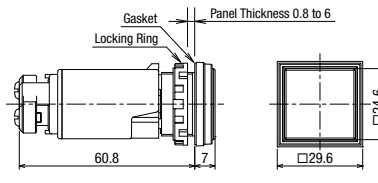### Square Flush   Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

Gasket
Locking Ring
Panel Thickness 0.8 to 6
□24.6
11.5   7
□29.6

100/110V AC, 200/220V AC (240V AC maximum)

Gasket
Locking Ring
Panel Thickness 0.8 to 6
□24.6
60.8   7   □29.6

110V DC, 380V AC minimum

Gasket
Locking Ring
Panel Thickness 0.8 to 6
□24.6
76.2   7   □29.6
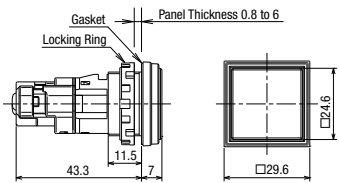
Jumbo Dome Pilot Light   Terminal screws: M3.5, integrated terminal cover

Panel Thickness 1 to 5

Locking Ring
Gasket
0.5
34.4   50.5
ø66

LED Lamp LSTDB

Light blue: LSTDB

Base BA9S/13
Illumination Color
ø10.6
20.4

Mounting Hole Layout

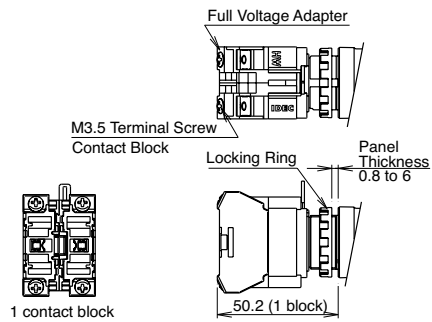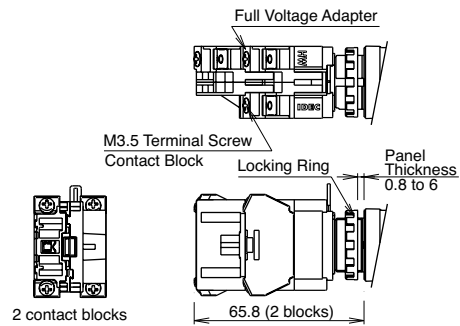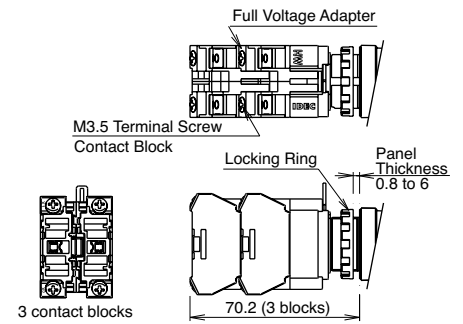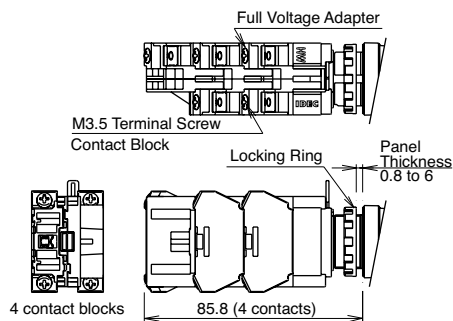R0.8 max.   3.2 +0.2/0
ø22.3 +0.4/0
24.1 +0.4/0
85
85
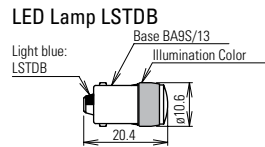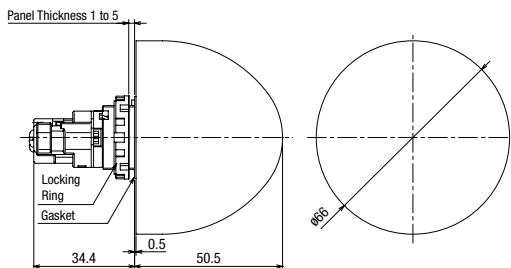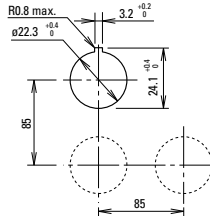
Mounting Hole Layout

Close mounting on 30mm centers
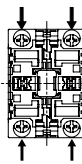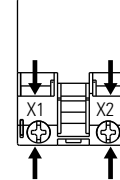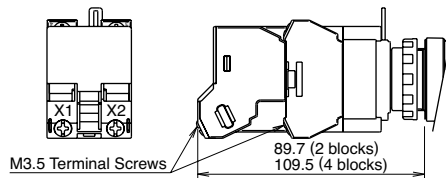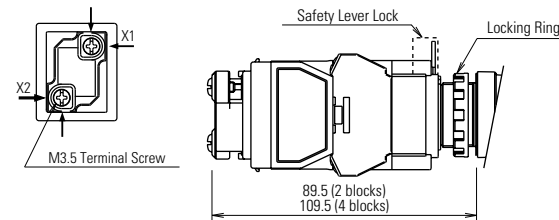Degree of protection: IP65

ø22.3 +0.4/0
30 min.
30 min.
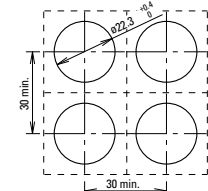
When mounting transformer or DC-DC converter type units on 30mm centers vertically and horizontally, keep the ambient temperature below 40ºC.

Switches & Pilot Devices

Illuminated Pushbuttons
Full Voltage Models

1 Contact Block

Full Voltage Adapter
M3.5 Terminal Screw
Contact Block
Locking Ring
Panel Thickness 0.8 to 6
1 contact block
50.2 (1 block)

2 Contact Blocks

Full Voltage Adapter
M3.5 Terminal Screw
Contact Block
Locking Ring
Panel Thickness 0.8 to 6
2 contact blocks
65.8 (2 blocks)

3 Contact Blocks

Full Voltage Adapter
M3.5 Terminal Screw
Contact Block
Locking Ring
Panel Thickness 0.8 to 6
3 contact blocks
70.2 (3 blocks)

Illuminated Pushbuttons con't

Dimensions (mm)

4 Contact Blocks

Full Voltage Adapter
M3.5 Terminal Screw
Contact Block
Locking Ring
Panel Thickness 0.8 to 6
4 contact blocks
85.8 (4 contacts)

Terminal Wiring
Arrows indicate access directions for wiring.

Contact Block
Full Voltage Adaptor

Transformer

X1   X2

Transformer Models

X1   X2
M3.5 Terminal Screws
89.7 (2 blocks)
109.5 (4 blocks)

DC-DC Converter Models

X1
X2
M3.5 Terminal Screw
Safety Lever Lock
Locking Ring
89.5 (2 blocks)
109.5 (4 blocks)

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Switches & Pilot Devices

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Non-Illuminated Selector & Key Switches

Dimensions (mm)

Knob Operator

1 contact block
2 contact blocks
4 contact blocks

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

49.4 (1 block)
69.4 (2-3 blocks)
89.4 (4 blocks)

41.4
26.5
25
ø29
7
21

90° (2-position maintained)
45° (3-position) 45°
LOCK
29.4

Terminal Wiring

Arrows indicate access directions for wiring.

**Contact Block
Full Voltage Adaptor**

Key Operator

25
17
13
30.5

LOCK
ø29.4
41.4
29.4
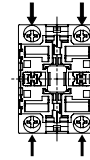
Tranformer

X1 X2
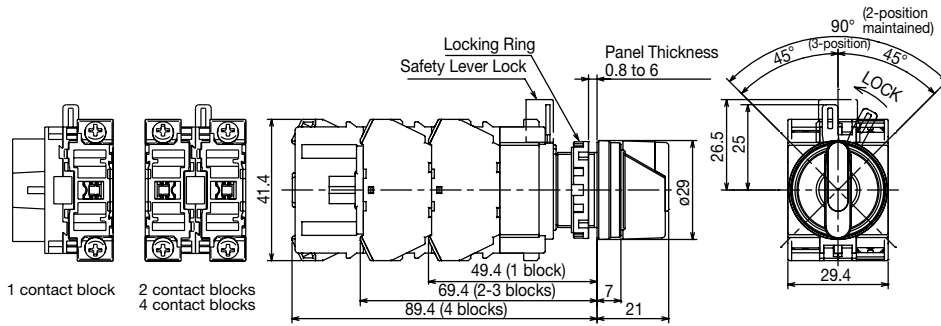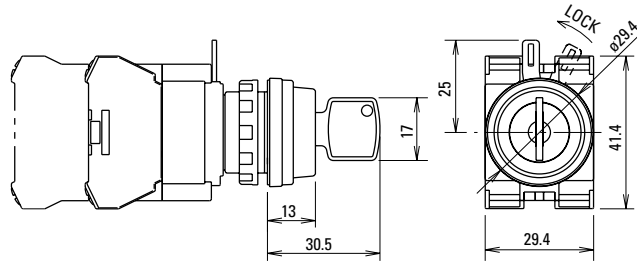
Illuminated Selector Switches

Full Voltage Model

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

41.4
26.5
25
ø29
25
49.4 (1 block)

90° (2-position maintained)
45° (3-position) 45°
LOCK

Transformer Model

X1 X2

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

41.4
26.5
25
ø29
25
7
21
79.5 (2 blocks), 99.5 (4 blocks)

90° (2-position maintained)
45° (3-position) 45°
LOCK
29.6

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Dual Pushbutton

Dimensions (mm)

Without Pilot Light

49.4 (2 contacts)
69.4 (3 or 4 contacts)

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

41.4

49.4 (1 or 2 blocks)   14.5
69.4 (3 or 4 blocks)   20

18.7
54.8
18.7

24.6
29.8

ON

OFF

18.7
54.8
18.7

24.6
29.8

Mounting Hole Layout

R0.8 max.

*3.2 +0.2/0

ø22.3 +0.4/0

24.1 +0.4/0

55 **

30

-The 3.2 mm recess is for preventing rotation and is not necessary when a nameplate or anti-rotation ring is not used.
-When using the safety lever lock, determine the vertical spacing in consideration of convenience for installing and removing the safety lever lock.
-Recommended vertical spacing: 100 mm
-The minimum mounting centers are applicable to switches with one layer of contact blocks (two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers for ease of wiring.

With Pilot Light

Full Voltage

Full Voltage Adapter

(Bottom Button)
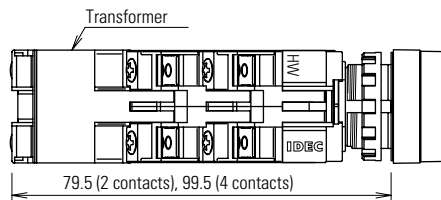
(Top Button)

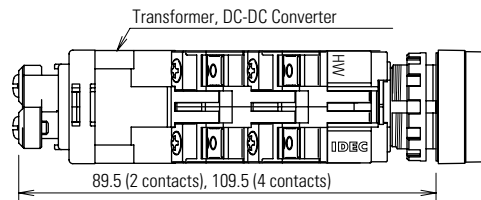69.4 (2 contacts), 89.4 (4 contacts)
(Note)
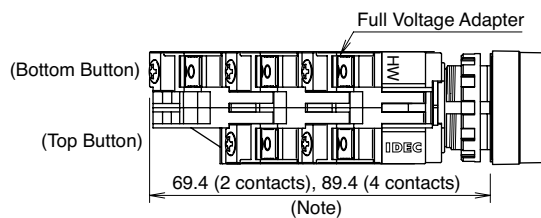
The depth of a 3-contact model depends on the combination of contact blocks at top and bottom pushbuttons.

Top Button	1 contact block	2 contact blocks
Bottom Button	2 contact blocks	1 contact block
Depth	89.4 mm	69.4 mm

Transfomer (240V minimum)

Transformer

79.5 (2 contacts), 99.5 (4 contacts)
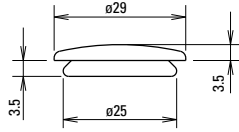
Transformer (480V)

Transformer, DC-DC Converter

89.5 (2 contacts), 109.5 (4 contacts)

Monolever

Dimensions

Standard Lever

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

41.4

49.4 (1-2 blocks)
69.4 (3-4 blocks)   72

24°
24°
36 max.
36 max.

26.5
25

LOCK

29.4
ø30

Interlocking Lever

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

41.4

49.4 (1-2 blocks)
69.4 (3-4 blocks)   72

24°
24°
36 max.
36 max.

26.5
25

LOCK

29.4
ø34.2

Terminal Screws M3.5   Integrated Terminal Cover

All dimensions in mm.

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Accessory Dimensions

LW9Z-BM
Metallic Mounting Hole Plug

ø25.8
3
12
Gasket
Locking Ring
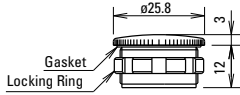
OB-31
Rubber Mounting Hole Plug

ø29
3.5
3.5
ø25

HW9Z-RL
Anti-Rotation Ring

1.5
ø29
ø22
TOP
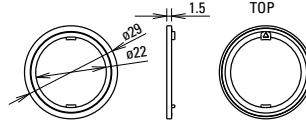
OR-55
Lamp/LED Removal Tool

ø14
ø11.6
59
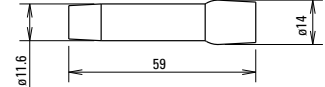
HW9Z-D7D
Dual Pushbutton Rubber Cover

33
22.5
58
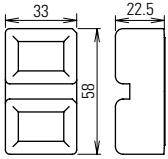
HW-VU1
Dual Pushbutton Barrier

45
20
1.5
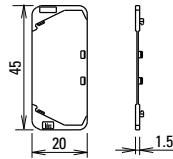
MW9Z-T1
Locking Ring Wrench

110
ø28

HW-VL1
Barrier

45
20
1.5

HW9Z-KL1
Padlock Cover

82.5
Panel Thickness 0.8 to 3.2
R66.5
93
30
70
ø50
(I.D. ø44.4)
ø22.2
24
Key Hole ø8
29.5
30
Waterproof Rubber Gasket 0.5t
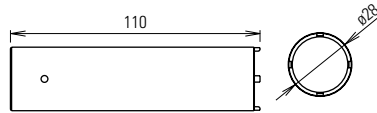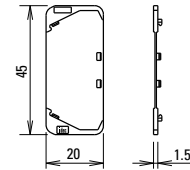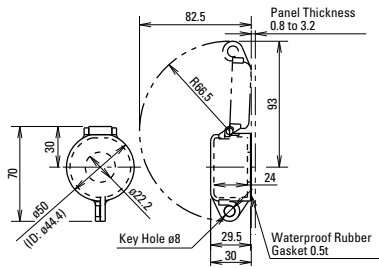
HWLS-TK1971
Safety Lever Lock

Safety Lever Lock
Screwdriver
Remove
Operator
Contact Block Mounting Adapter
Panel
Safety Lever Lock
Lock Lever
Install
LOCK
26.5

HW9Z-KG1

64
48
38
22
80
32
ø22
Gasket
TOP Marking
TOP Marking
Locking Ring
Operator
Panel Thickness: 1.2 to 4

HW9Z-KG2

36.5
ø22.2
ø76.1
ø90
Operator
Panel Thickness: 1.2 to 4

HW9Z-KG3

35
25
ø22
ø66
52
ø74
42

HW9Z-KG4

35
25
ø22
ø75
67
ø90
50

LSTD

ø9.5
ø10.6
20.4

IDEC

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