# ø22 Switches & Pilot Lights

# HW Series



Complete with finger-safe contact blocks. Ensure safety and save wiring time.



• DC-DC converter types are not approved by standards. • See website for details on approvals and standards.



HW Series Illuminated Pushbuttons



HW1Z Illuminated Buzzer

HW Series Pilot Lights (short body)











# **HW Series Selection Guide**

Function			Pushbutton		
Category	Flush	Extended	ø29mm Mushroom	ø40mm Mushroom	ø60mm Mushroom
Galeguly	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary
Shape					6
Model	HW1B-M1 HW1B-A1	HW1B-M2 HW1B-A2	HW1B-M3 HW1B-A3	HW1B-M4 HW1B-A4	HW1B-M5
Page	B-187	B-187	B-187	B-187	B-187
Function			Pushbutton		
Category	Square Flush	w/Square Bezer w/Square Bezer		ø29mm Mushroom w/Square Bezel	
	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained
Shape					
Model	HW2B-M1 HW2B-A1	HW2B-M2 HW2B-A2	HW3B-M1 HW3B-A1	HW3B-M2 HW3B-A2	HW3B-M3 HW3B-A3
Page	B-188	B-188	B-189	B-189	B-189
Function		Pilot	Liaht		
Category	Flush (Marking)	Extended (Dome)	Square Flush (Marking)	Jumbo Dome	
Shape	1	<b>``</b>	P		
Model	HW1P-1	HW1P-2	HW2P-1	HW1P-5	
Page	B-190	B-190	B-190	B-190	
Function			Illuminated Pushbutton		
	Flush	Extended	Extended w/Full Shroud	Square Flush	Flush w/Square Bezel
Category	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained

Category	Flush	Extended	Extended w/Full Shroud	Square Flush	Flush w/Square Bezel		
Category	Category Momentary/Maintained Momentary/Maintained Momentary/Maintained		Momentary/Maintained	Momentary/Maintained			
Shape							
Model	HW1L-M1 HW1L-A1	HW1L-M2 HW1L-A2	HW1L-MF2 HW1L-AF2	HW2L-M1 HW2L-A1	HW3L-M1 HW3L-A1		
Page	B-192	B-192	B-193	B-194	B-194		

Function	Illuminated Pushbutton					
Category	Flush	Extended	Extended w/Full Shroud			
Galegory	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained			
Shape						
Model	HW1L-M3 HW1L-A3	HW3L-M3 HW3L-A3	HW1L-M4 HW1L-A4			
Page	B-195	B-195	B-196			

AUTO-ID
Flush Silhouette
ø16
ø30
Miniature
Pilot Lights

TW
YW

APEM

Control Boxes Emergency Stop Switches Enabling Switches Safety Products Explosion Proof Terminal Blocks Relays & Sockets Circuit Protectors Power Supplies LED Illumination Controllers Operator Interfaces Sensors

# **HW Series Selection Guide**

		Tunction
APEM Switches &		Category
Pilot Lights		
Control Boxes		
Emergency Stop Switches		Shape
Enabling Switches		
Safety Products		Model
Explosion Proof		NIUGEI
		Page
Terminal Blocks		E
Relays & Sockets		Function Category
Circuit		
Protectors		
Power Supplies		Ohana
LED Illumination		Shape
Controllers		
Operator Interfaces		Model
Sensors		Page
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AUTO-ID		Function
		Category
Flush Silhouette	-	Shape

ø16

ø30 Miniature Pilot Lights

> TW YW

Function		Dual Pus	shbutton		
FUNCTION	w/o Pilo	ot Light	w/ Pilot Light		
Category	Flush (top) Flush (bottom)	Flush (top) Extended (bottom)	Flush (top) Flush (bottom)	Flush (top) Flush (bottom)	
	Momentary/Interlocking	Momentary/Interlocking	Momentary/Interlock	ing Momentary/Interlocking	
Shape					
Model	HW7D-B11 HW7D-B21	HW7D-B12 HW7D-B22	HW7D-L11 HW7D-L21	HW7D-L12 HW7D-L22	
Page	B-199	B-199	B-200	B-200	
Function		Selector Switch		Illuminated Selector	

Function				d Selector	Pushbutton Selector	
Category	Selector	Pin Tumbler Key	Disc Tumbler Key	Knob Operator	Lever Operator	Fusibulion Selector
Shape						
Model	HW1S	HW1K-□P	HW1K	HW1F	HW1F-□L	HW1R
Page	B-203	B-204	B-206	B-208	B-209	B-214

Function	Mono-Lever Switch				
Category	Standard	Interlocking			
Shape					
Model	HW1M	HW1M-L			
Page	B-215	B-215			

For more information, visit http://eu.idec.com

# Ø22 HW Series Switches & Pilot Lights

# Complete with finger-safe contact blocks Ensure safety and save wiring time

- Finger-safe terminal blocks
- Self-cleaning rolling action contacts.
- Degree of protection: IP65 (except dual pushbutton: IP40)
- Dual pushbutton switches available with two pushbuttons and a pilot light integrated into one space-saving unit.
- A wide range of operating voltages for worldwide application.



### Application for dual pushbuttons:

Ideal for use as power switches and start/stop switches (available with I/ON and O/OFF markings on the buttons and a pilot light in the center).

Interlock type prevents two pushbuttons from being pressed at the same time, providing the best solution for up/down switches.

# **Specifications and Ratings**

### **Contact Ratings**

Pushbuttons	Rated insulation voltage	600V
Illuminated Pushbuttons Dual Pushbuttons	Rated continuous current	10A
Selector Switches Illuminated Selector Switches Selector Pushbuttons	Contact ratings by utilization category IEC60947-5-1	AC-15 (A600) DC-13

# **Contact Ratings by Utilization Category**

### HW-U10 (NO contact), HW-U01 (NC contact)

Operating Voltage		24V	48V	50V	110V	220V	440V	
AC	AC-12 Control of resistive loads and solid state loads	10A	_	10A	10A	6A	2A	
Operating	50/60 Hz	AC-15 Control of electromagnetic loads (> 72 VA)	10A	—	7A	5A	ЗA	1A
Current	DC	DC-12 Control of resistive loads and solid state loads	10A	5A	—	2.2A	1.1A	—
	DC	DC-13 Control of electromagnets	5A	2A	—	1.1A	0.6A	—

### HW-U10R (EM contact/NO contact), HW-U01R (LB contact/NC contact)

Operating Voltag	е		24V	48V	50V	110V	220V	440V
AC	AC	AC-12 Control of resistive loads and solid state loads	5A	—	5A	5A	3A	1A
Operating	50/60 Hz	AC-15 Control of electromagnetic loads (> 72 VA)	5A	—	3.5A	2.5A	1.5A	0.5A
Current	DC	DC-12 Control of resistive loads and solid state loads	5A	2.5A	—	1.1A	0.55A	—
	DC	DC-13 Control of electromagnets	2.5A	1A	_	0.55A	0.3A	—

• The operating current represents the classification by making and breaking currents (IEC 60947-5-1).

Contact materials: Silver contacts

• Minimum applicable load: 3V AC/DC, 5 mA (applicable range may vary with operating conditions and load types)

Power Supplies

LED Illumination

Controllers

Operator

Interfaces Sensors

# Miniature

ø30

Pilot Lights

Switches & Pilot Lights

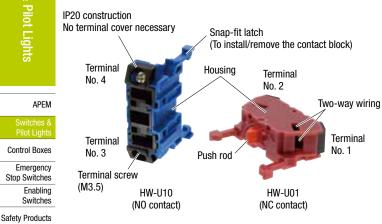
APEM

Control Boxes

Emergency Stop Switches Enabling Switches Safety Products Explosion Proof Terminal Blocks Relays & Sockets Circuit Protectors

# ø22 HW Series Switches & Pilot Lights

# **HW-U Contact Block**



Part No.	HW-U10	HW-U01	HW-U10R	HW-U01R			
Contact		~~		~~			
Contact	1N0	1NC	EM (NO) (early make)	LB (NC) (late break)			
Contact No.	3-4	1-2	3-4	1-2			
Housing	Blue	Purple red	Blue	Purple red			
Push Rod	Green	Red	Black	White			
Weight	Approx. 11g						

• Up to 2 layers (4 blocks) can be attached.

· Gold contacts available (gold-plated silver)

# **LED Specifications**

Terminal Blocks	· ·							
Terminar Diocks	Unit						LED	lamp
Relays & Sockets	Unit	Color	Rated Voltage		Operating Voltage		Lamp Base	Part No.
Circuit			6V AC/DC		6V AC/DC			LSTD-6*
Protectors			12V AC/DC 24V AC/DC		12V AC/DC			LSTD-1*
Power Supplies					24V AC/DC			LSTD-2*
	Illuminated pushbutton	R (red)	100/110V AC		100/110V AC		BA9S/13	LSTD-6*
LED Illumination	Illuminated selector switch	G (green)	115/120V AC	50/60 Hz	115/120V AC (*1)	. 100/		
Controllers	Pilot light	Y (yellow) A (amber)	200/220V AC		200/220V AC	±10%		
Operator	Dual pushbutton	S (blue)	230/240V AC		230/240V AC (*1)	-		
Interfaces	(with pilot light)	PW (pure white)	380V AC		380V AC			
Sensors			400/440V AC		400/440V AC			
			480V AC		480V AC	]		
AUTO-ID			110V DC		90 to 140V DC			

• See B-182. for details on LED lamp ratings.

• For the LED lamp used in jumbo dome pilot lights, see B-182.

• Yellow (Y) cannot be used with dual pushbuttons. Flush Silhouette

• Color codes for units without LED lamps: ø16

R (red), G (green), A (amber), Y (yellow), S (blue)

When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of HW series cannot be guaranteed when a commercially available lamp is used.

# **Power Unit Terminal**

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Miniature

Pilot Lights			Illuminated Unit	Pilot Light				
	Power Unit	Full voltage adapter	Transformer		DC-DC converter	Full voltage adapter	Transformer	DC-DC converter
	Rated Voltage	6, 12, 24V AC/DC	100 to 240V AC	380V AC min.	110V DC	6, 12, 24V AC/DC	100 to 480V AC	110V DC
HW	Polarity	None	None	None	X1 (+) X2 (–)	None	None	X1 (+) X2 (–)
TW		X1						
YW		6 9	STATE OF THE OWNER.					
	Shape/Terminal	X2	x1 X2	t	X1 X2	X1 X2	T	X1 X2

Explosion Proof

# LED Lamp Ratings

	ehr Jumpr	Dome Plic	n Ligins)						i i i i i i i i i i i i i i i i i i i				
Part No.			LSTD-6*		l	LSTD-1* LS			Ē				
Lamp Base		BA9S/13					L.		ilot Lights				
Rated Voltag	ge	6V AC/DC			12V AC/DC	24V AC/DC		24V AC/DC		12V AC/DC		24V AC/DC	
Voltage Ran	nge	6V AC/DC	±10%		12V AC/DC ±10%		24V AC/DC ±10%	6					
_	Color	R, A	G, PW	S	R, G, A, PW	S	R, G, A, PW	S	APEM				
Current Draw	DC	7mA	5.5mA	4.5mA	10mA	8mA	10mA	8mA	Switches &				
Diaw	AC	8mA	8mA	7mA	11mA	9mA	11mA	9mA	Pilot Lights				
Lamp Base	Color	Same as	illumination color	r (PW: gray)					Control Boxes				
Voltage Mar	rking	Die stamp	oed on the base						Emergency				
Life (referen	nce value)		0,000 hours nance is reduced	I to 50% the ini	tial intensity when use	d on complete DC a	at 25°C.)		Stop Switches Enabling Switches				
		X 1 4		2	Symbols	Example:	LSTD-2PW		Safety Products				
Internal Circ	cuit			× Xián					Explosion Proof				
	oun				Zener diode	2		Terminal Blocks					
		X 2 4	·		- Resistor		Base Color		Relays & Sockets				
Weight		Approx. 2	g						Circuit Protectors				

 $\bullet$  Specify a color code in place of \*. R (red), G (green), A (amber), S (blue), PW (pure white)

• Use a pure white (PW) LED for yellow (Y) illumination.

### LSTDB (For Jumbo Dome Pilot Lights HW1P-5Q4 Only)

Part No.	LSTD	)B-2*					
Lamp Base	BA9S/13						
Voltage Range	24V AC/DC±10%						
Current Draw	15mA						
Rated Voltage	24V AC/DC						
Life (reference value)	Approx. 20,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.)						
	R, A						
Internal Circuit		- H LED chip - H Rectifier diode - H Zener diode - □ Resistor					
	G, S, PW	-					

• Specify a color code in place of \*. R (red), G (green), A (amber), S (blue), PW (pure white)

• Use a pure white (PW) LED for yellow (Y) illumination.

Power Supplies

LED Illumination

Flush Silhouette

ø16

ø30 Miniature Pilot Lights

ΤW

YW

Controllers Operator Interfaces Sensors AUTO-ID

# Ø22 HW Series Switches and Pilot Lights

# **Specifications**

<b>2</b> 0	opeemeations						
& Pilot Liç	Operating Temperature	Non-illuminated: -25 to +60°C (no freezing) Illuminated: -25 to +50°C (no freezing) Jumbo dome pilot lights: -25 to +55°C (no freezing)					
ght	Operating Humidity	45 to 85% RH (no condensation)					
	Storage Temperature	-40 to +80°C (no freezing)					
	Contact Resistance	50 mΩ maximum (initial value)					
APEM	Insulation Resistance	100 MΩ minimum (500V DC megger)					
Switches & Pilot Lights	Dielectric Strength	Between live and dead metal parts: 2,500V AC, 1 minute (Full voltage and illuminated units: 2,000V AC, 1 minute) (*1)					
ntrol Boxes	Vibration Resistance	Damage limits: 30 Hz, amplitude 1.5 mm					
Emergency	VIDIATION RESISTANCE	Operating extremes: 5 to 55 Hz, amplitude 0.5 mm					
p Switches	Chask Desistance	Damage limits: 1,000m/s <sup>2</sup>					
Enabling Switches	Shock Resistance	Operating extremes: 100m/s <sup>2</sup>					
ty Products		Pushbutton, Illuminated pushbutton Momentary······5,000,000					
osion Proof		Maintained					
inal Blocks	Mechanical Life (minimum	Dual pushbutton       -500,000         Selector switch       -500,000         Key selector switch (Disc tumbler)       -500,000					
s & Sockets	operations)	Key selector switch (Pin tumbler)					
Circuit Protectors		Pushbutton selector switch 250,000					
		Mono-lever switches · · · · · · · · · · · · · · · · · · ·					
er Supplies		Pushbutton, Illuminated pushbutton					
llumination		Momentary					
Controllers		Dual pushbutton•••••••••••••••••••••••••••••••••••					
Operator	Electrical Life (*5)	Selector switch					
Interfaces		Key selector switch (Disc tumbler)••••••500,000 (*3) Key selector switch (Pin tumbler)••••••100,000 (*3)					
Sensors		Illuminated selector switch					
AUTO-ID		Pushbutton selector					
		66g (HW1B-M122) 20g (HW1P-1Q4) 84g (HW1L-M122Q4)					
n Silhouette		66g (HW1S-2T22)					
ø16	Weight (Apporox.)	94g (HW1K-2A22) 72g (HW1K-2JPC11) 84g (HW1F-222Q4)					
ø22		71g (HW1R-2A22) 82g (HW1M-2222-22N9)					
ø30		72g (HW7D-B111111) 90g (HW7D-L11111114)					
Miniature							

\*1) Dielectric strength for dual pushbuttons are as follows:

Full voltage type: 1,000V AC, 1 minute (between live and dead metal parts) Transformer and DC-DC converter types: 2,000V AC, 1 minute (between live and dead metal parts)

\*2) Switching frequency 1,800 operations/h, duty ratio 40%

\*3) Switching frequency 1,200 operations/h, duty ratio 40%

\*4) Switching frequency 900 operations/h, duty ratio 40%

\*5) Load condition 220V AC, 3A (AC-15)

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Pilot Lights

# **Ordering Information**

# Standard models

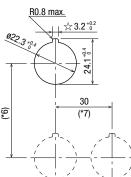
- · Specify Ordering No. when ordering.
- . Specify a button or lens color code in place of \*.
- · Pilot lights, illuminated pushbuttons, and illuminated selector switches have an LED lamp installed unless otherwise specified.
- Nameplates and accessories for mono-lever switch are ordered separately. See B-216 to B-218.
- · Color codes for units without LED lamps:
- R (red), G (green), A (amber), Y (yellow), S (blue)

When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of HW series cannot be guaranteed when a commercially available lamp is used.

# **Mounting Hole Layout**

(Dimensions in mm)





- . The minimum mounting centers are applicable to switches with one layer of contact blocks (one to two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers in consideration of convenience for wiring.
- . When high temperature is expected, take necessary measures such as securing sufficient mounting centers or using a cooling fan.

### Minimum Mounting Centers

winning contors					
Unit	A (*6)	B (*7)			
ø40mm mushroom button	50	40			
Pushbutton selector	50	50			
Mono-lever switch	72	72			
Pilot light	30	30			
Jumbo dome pilot light	85	85			
Dual pushbutton switch	55	30			
Illuminated selector switch	50	50			

. When using the safety lever lock, determine the vertical spacing (\*6) in consideration of convenience for installing and removing the safety lever lock. (Recommended vertical spacing: 100 mm) The minimum length of vertical spacing (\*6) is 45 mm when safety lever lock is not used.

 The 3.2 mm recess is for preventing rotation and is not necessary when the nameplate or anti-rotation ring is not used.

# **Degree of Protection**

Unit	IEC 60529
All units except dual pushbutton switches	IP65 (*8)
Dual pushbutton switches	IP40 (*9)

\*8) When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on B-216 are used. (IP40 when other ø22 namplates such as NWA are used)

\*9) IP65 protection degree when HW9Z-D7D button cover is used.

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Relays &

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### Pilot Lights (B-190)

When specifying LED operating voltage:

**Ordering Information** 

HW1B-M1 11 R -MAU

When specifying gold-plated silver contact and contact configuration:

Optional contact

Operating voltage

Contact configuration

Pushbuttons (B-187 to B-189)

HW1P-1 <u>H2</u> R

Without LED lamp QO: Q2: 6V AC/DC 12V AC/DC Q3: 04: 24V AC/DC H2: 100/110V AC H22: 115/120V AC M2: 200/220V AC 230/240V AC M42: S2: 380V AC T2: 400/440V AC T82: 480V AC D2: 110V DC

MAU: Gold contact

1N01NC

2N02NC

1N03NC 3N01NC

1N02NC 2N01NC

1N0 1NC

2N0

2NC

4N0

4NC

3N0

3NC

10:

01:

11: 20:

02:

22:

40:

04:

13:

31:

30:

03:

12:

21:

Note: Color codes for units without LED lamps: R (red), G (green), A (amber), Y (yellow), W (white), S (blue) When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of HW series cannot be guaranteed when a commercially available lamp is used.

### Illuminated Pushbuttons (B-192 to B-196)

When specifying gold-plated silver contact, contact configuration, and LED operating voltage:

HW1L-M1 <u>11 H2</u> R - <u>MAU</u> **Optional contact** MAU Gold contact Without LED lamp **Operating Voltage** 00: Q2: 6V AC/DC 12V AC/DC Q3: Q4: 24V AC/DC H2: 100/110V AC H22: 115/120V AC M2: 200/220V AC M42: 230/240V AC 380V AC S2: 400/440V AC T2: T82: 480V AC 110V DC D2: Contact configuration 10: 1N0 01: 1NC 1N01NC 11: 20: 2N0 02: 2NC 22: 2N02NC 40: 4N0 04: 4NC 13: 1N03NC 31: 3N01NC 30: 3N0 03: 3NC 12: 1N02NC 21: 2N01NC

Note:

· Color codes for units without LED lamps: R (red), G (green), A (amber), Y (yellow), S (blue)

When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of HW series cannot be guaranteed when a commercially available lamp is used.

• Odd number of contact blocks, such as 1N0, 1NC, 3N0, 2N0-1NC, 1N0-2NC, and 3NC, is not available for transformer type or DC-DC converter type.

Explosion Proof

Terminal Blocks

Relays & Sockets

Power Supplies

LED Illumination

Controllers

Operator

Interfaces

Sensors

AUTO-ID

Flush Silhouette

ø16

ø30

ΤW

YW

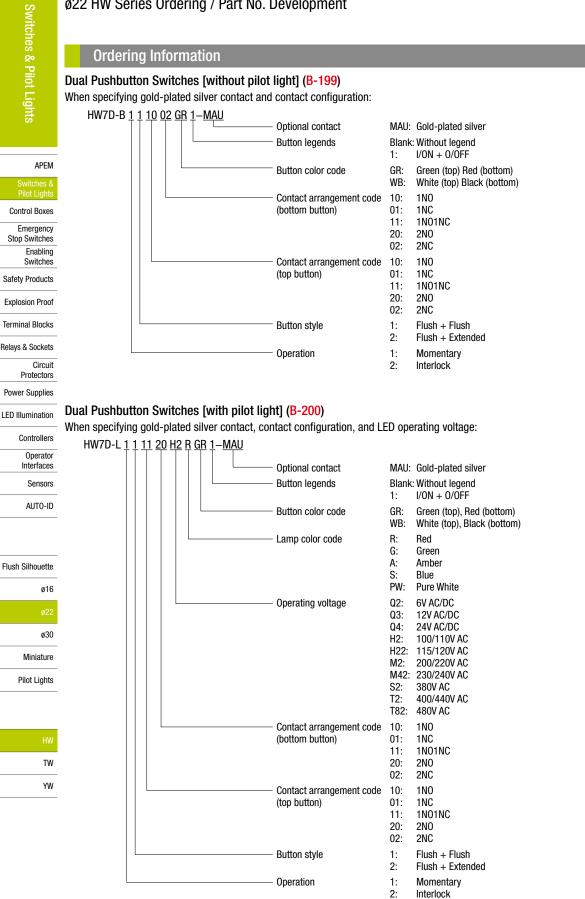
Miniature

Pilot Lights

Circuit

Protectors

Ordering	Information
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Note: Transformer type cannot have a contact arrangement of 3 contact blocks for the total of top and bottom.

n specifying gold-plated si				
		וופוווטעמו אסצוווטוו, מווע אפא	numper.	ot Lights
HW1K- 2 J P A 01 -	<u>501</u> - <u>MAU</u>	— Optional contact	MAU: Gold-plated silver	lts
		— Different key number	-501 - 515	
		— Key removal position	2-position A: Removable in all positions	
		· · · <b>,</b> · · · · · · · · · · · · · · · · · · ·	B: Removable in the left only	APEM
			C: Removable in the right only 3-position A: Removable in all positions	Switches & Pilot Lights
			B: Removable in the left and center	Control Boxes
			C: Removable in the right and center D: Removable in center only	Emergency
			E: Removable in right and left	Stop Switche
			G: Removable in left only H: Removable in right only	Enabling Switches
		— Cam code	Blank, J, or S	Safety Produ
		— Operator position code	2: 2-position, maintained	Explosion Pro
			21: 2-position, spring return from right	
			3: 3-position, maintained 31: 3-position, spring return from right	Terminal Bloo
			32: 3-position, spring return from left	Relays & Soc
Note:			33: 3-position, spring return two way	Circuit
<ul> <li>The key cannot be remained</li> </ul>				Protectors
<ul> <li>The key number is englished</li> </ul>	raved on the key cy	linder. (default key is not eng	raved with a number)	Power Supp
				LED Illumina
Selector Switches (Dis	c Tumbler Key)	) (B-206 to B-207)		Controllers
n specifying gold-plated si		removal position, and key	number:	Operator
HW1K- <u>3 J A</u> 22 - <u>1</u>	<u>H</u> - <u>MAU</u>	On the well as entropy	MALL Orld stated silver	Interfaces
		<ul> <li>Optional contact</li> </ul>		
			MAU: Gold-plated silver	Sensors
		— Different key number	-1H, -2H, -3H	Sensors AUTO-ID
			-1H, -2H, -3H (same as pin tumbler key shown above)	
		<ul> <li>Different key number</li> <li>Key removal position</li> </ul>	-1H, -2H, -3H	
Note:		<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above)	AUTO-ID
<ul> <li>The key cannot be remained</li> </ul>		<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above)	AUTO-ID
<ul> <li>The key cannot be remained</li> </ul>		<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above)	AUTO-ID
<ul> <li>The key cannot be remained</li> </ul>		<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above)	AUTO-ID Flush Silhou
The key cannot be rem     The key number is enginated Selector Switcl	raved on the key cy hes ( <mark>B-208 to B</mark>	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>linder. (default key is not engineration)</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above)	AUTO-ID Flush Silhou ø16 ø22
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>linder. (default key is not engineration)</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above)	AUTO-ID Flush Silhou ø16 ø22 ø30
The key cannot be rem     The key number is enginated Selector Switcl	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>dinder. (default key is not engr</li> <li>3-209)</li> <li>LED operating voltage:</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number)	AUTO-ID Flush Silhou ø16 ø22
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>dinder. (default key is not engined)</li> <li>3-209)</li> <li>LED operating voltage:</li> <li>Optional contact</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver	AUTO-ID Flush Silhou ø16 ø22 ø30
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>dinder. (default key is not engr</li> <li>3-209)</li> <li>LED operating voltage:</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver QO: Without LED lamp M2: 200/220V AC	AUTO-ID Flush Silhou ø16 ø22 ø30 Miniature
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>dinder. (default key is not engined)</li> <li>3-209)</li> <li>LED operating voltage:</li> <li>Optional contact</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver Q0: Without LED lamp Q2: 6V AC/DC Q3: 12V AC/DC S2: 380V AC	AUTO-ID Flush Silhou ø16 ø22 ø30 Miniature
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>dinder. (default key is not engined)</li> <li>3-209)</li> <li>LED operating voltage:</li> <li>Optional contact</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver Q0: Without LED lamp M2: 200/220V AC Q2: 6V AC/DC M42: 230/240V AC Q3: 12V AC/DC S2: 380V AC Q4: 24V AC/DC T2: 400/440V AC	AUTO-ID Flush Silhou ø16 ø22 ø30 Miniature Pilot Lights
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>dinder. (default key is not engined)</li> <li>3-209)</li> <li>LED operating voltage:</li> <li>Optional contact</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver Q0: Without LED lamp Q2: 6V AC/DC Q3: 12V AC/DC S2: 380V AC	AUTO-ID Flush Silhou ø16 ø22 ø30 Miniature Pilot Lights
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>dinder. (default key is not engined)</li> <li>3-209)</li> <li>LED operating voltage:</li> <li>Optional contact</li> <li>Operating voltage</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver Q0: Without LED lamp M2: 200/220V AC Q2: 6V AC/DC M42: 230/240V AC Q3: 12V AC/DC M42: 230/240V AC Q3: 12V AC/DC S2: 380V AC Q4: 24V AC/DC T2: 400/440V AC H2: 100/110V AC T82: 480V AC H22: 115/120V AC	AUTO-ID Flush Silhou ø16 ø22 ø30 Miniature Pilot Lights
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>dinder. (default key is not engined)</li> <li>3-209)</li> <li>LED operating voltage:</li> <li>Optional contact</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver Q0: Without LED lamp M2: 200/220V AC Q2: 6V AC/DC M42: 230/240V AC Q3: 12V AC/DC S2: 380V AC Q4: 24V AC/DC S2: 380V AC Q4: 24V AC/DC T2: 400/440V AC H22: 115/120V AC Blank (Knob), L (Lever)	AUTO-ID Flush Silhou ø16 ø22 ø30 Miniature Pilot Lights
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>linder. (default key is not engined</li> <li>3-209)</li> <li>LED operating voltage:</li> <li>Optional contact</li> <li>Operating voltage</li> <li>Operating voltage</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver Q0: Without LED lamp M2: 200/220V AC Q2: 6V AC/DC M42: 230/240V AC Q3: 12V AC/DC M42: 230/240V AC Q3: 12V AC/DC S2: 380V AC Q4: 24V AC/DC T2: 400/440V AC H2: 100/110V AC T82: 480V AC H22: 115/120V AC	AUTO-ID Flush Silhou ø16 ø22 ø30 Miniature Pilot Lights HW TW
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>linder. (default key is not engination)</li> <li>B-209)</li> <li>LED operating voltage:</li> <li>Optional contact</li> <li>Operating voltage</li> <li>Operator shape</li> <li>Cam code</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver Q0: Without LED lamp M2: 200/220V AC Q2: 6V AC/DC M42: 230/240V AC Q3: 12V AC/DC S2: 380V AC Q4: 24V AC/DC S2: 380V AC Q4: 24V AC/DC T2: 400/440V AC H2: 100/110V AC T82: 480V AC H22: 115/120V AC Blank (Knob), L (Lever) Blank, J, or S 2: 2-position, maintained 21: 2-position, spring return from right	AUTO-ID Flush Silhou ø16 ø22 ø30 Miniature Pilot Lights HW TW
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>linder. (default key is not engination)</li> <li>B-209)</li> <li>LED operating voltage:</li> <li>Optional contact</li> <li>Operating voltage</li> <li>Operator shape</li> <li>Cam code</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver Q0: Without LED lamp M2: 200/220V AC Q2: 6V AC/DC M42: 230/240V AC Q3: 12V AC/DC S2: 380V AC Q4: 24V AC/DC S2: 380V AC Q4: 24V AC/DC T2: 400/440V AC H22: 115/120V AC Blank (Knob), L (Lever) Blank, J, or S 2: 2-position, maintained 21: 2-position, spring return from right 3: 3-position, maintained	AUTO-ID Flush Silhour ø16 ø22 ø30 Miniature Pilot Lights HW TW
The key cannot be remute The key number is engineering minated Selector Switch on specifying gold-plated si	raved on the key cy hes (B-208 to B lver contact and I	<ul> <li>Different key number</li> <li>Key removal position</li> <li>Cam code</li> <li>Operator position code</li> <li>urn position.</li> <li>linder. (default key is not engination)</li> <li>B-209)</li> <li>LED operating voltage:</li> <li>Optional contact</li> <li>Operating voltage</li> <li>Operator shape</li> <li>Cam code</li> </ul>	-1H, -2H, -3H (same as pin tumbler key shown above) (same as pin tumbler key shown above) (same as pin tumbler key shown above) raved with a number) MAU: Gold-plated silver Q0: Without LED lamp M2: 200/220V AC Q2: 6V AC/DC M42: 230/240V AC Q3: 12V AC/DC S2: 380V AC Q4: 24V AC/DC S2: 380V AC Q4: 24V AC/DC T2: 400/440V AC H2: 100/110V AC T82: 480V AC H22: 115/120V AC Blank (Knob), L (Lever) Blank, J, or S 2: 2-position, maintained 21: 2-position, spring return from right	AUTO-ID Flush Silhou ø16 ø22 ø30 Miniature Pilot Lights HW TW

Color codes for units without LED lamps: R (red), G (green), A (amber), Y (yellow), S (blue) Note:

When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of HW series cannot be guaranteed when a commercially available lamp is used.

MAU: Gold-plated silver

### Selector Switches (B-203)

When specifying gold-plated silver contact

**Ordering Information** 

Key Selector Switches (Pin Tumbler Key) (B-204 to B-205)

HW1S- 2T11 - MAU

**Optional contact** 

• See **B-203** for operator position.

bownload catalogs and CAD from http://eu.idec.com/downloads

# ø22 HW Series Pushbuttons

# Flush / Extended / Mushroom Pushbuttons

Pilo						Package Quantity: 1		
Pilot Lights	Shape	Operation	Contact	Part No.	Color Code	Dimensions (mm)		
ght	Flush		1N0	HW1B-M110*				
S	HW1B-M1		1NC	HW1B-M101*				
	HW1B-A1	Momentary	1NO-1NC	HW1B-M111*		Locking Ring Safety Lever Lock Panel Thickness 0.8 to 6		
APEM			2N0 2NC	HW1B-M120* HW1B-M102*	В	Safety Lever Lock		
Switches &			2NO-2NC	HW1B-M102*	G R			
Pilot Lights			1N0	HW1B-A110*	Y			
Control Boxes			1NC	HW1B-A101*	S			
Emergency		Maintained	1NO-1NC	HW1B-A111*	W	49.4 (1 or 2 blocks) 69.4 (3 or 4 blocks) 13		
Stop Switches Enabling		Wallaneu	2N0	HW1B-A120*		69.4 (3 or 4 blocks) 13		
Switches			2NC	HW1B-A102*				
Safety Products			2NO-2NC 1NO	HW1B-A122*				
Explosion Proof	Extended HW1B-M2		1NC	HW1B-M210* HW1B-M201*				
Terminal Diacks	HW1B-A2		1NO-1NC	HW1B-M201*		Looking Ping		
Terminal Blocks		Momentary	2N0	HW1B-M220*	_	Locking Ring Safety Lever Lock Panel Thickness 0.8 to 6		
Relays & Sockets			2NC	HW1B-M202*	B G			
Circuit			2NO-2NC	HW1B-M222*	R			
Protectors			1N0	HW1B-A210*	Y			
Power Supplies			1NC	HW1B-A201*	S W			
LED Illumination		Maintained	1NO-1NC	HW1B-A211*		49.4 (1 or 2 blocks) 13 69.4 (3 or 4 blocks) 19		
Controllers			2N0 2NC	HW1B-A220* HW1B-A202*		n n n n n n n n n n n n n n n n n n n		
Operator			2NO-2NC	HW1B-A202*				
Interfaces	ø29mm Mushroom		1N0	HW1B-M310*				
Sensors	HW1B-M3		1NC	HW1B-M301*				
AUTO-ID	HW1B-A3	Momentary	1NO-1NC	HW1B-M311*		Locking Ring		
			2N0	HW1B-M320*	B	Safety Lever Lock		
			2NC	HW1B-M302*	G			
			2NO-2NC 1NO	HW1B-M322*	R Y			
Flush Silhouette			1NC	HW1B-A310* HW1B-A301*	S			
ø16			1N0-1NC	HW1B-A311*	W	49.4 (1 or 2 blocks) 13		
ø22	-	Maintained	2N0	HW1B-A320*		69.4 (3 or 4 blocks) 23.2		
			2NC	HW1B-A302*				
ø30			2N0-2NC	HW1B-A322*				
Miniature	ø40mm Mushroom		1N0	HW1B-M410*				
Pilot Lights	HW1B-M4 HW1B-A4		1NC	HW1B-M401*				
		Momentary	1NO-1NC 2N0	HW1B-M411* HW1B-M420*		Locking Ring Safety Lever Lock Panel Thickness 0.8 to 6		
			2NC	HW1B-M402*	В			
			2NO-2NC	HW1B-M422*	G R			
HW			1N0	HW1B-A410*	Y			
TW			1NC	HW1B-A401*	S W			
		Maintained	1NO-1NC	HW1B-A411*		49.4 (1 or 2 blocks) 13 69.4 (3 or 4 blocks) 23.2		
YW			2N0	HW1B-A420*		le ou la calanta de cole el		
			2NC 2N0-2NC	HW1B-A402* HW1B-A422*				
	a60mm Muchroom					Ladia Nac. Deci Misiano Adri A		
	ø60mm Mushroom HW1B-M5		1N0 1NC	HW1B-M510* HW1B-M501*		Lacking Ring Salety Lever Lock		
	F		1NO-1NC	HW1B-M511*	В			
		Momentary	2N0	HW1B-M520*	G R			
			2NC	HW1B-M502*		49.4 (1 or 2 blocks) 15 29.4		
			2N0-2NC	HW1B-M522*		49.4 (1 or 2 blocks) 15 69.4 (3 or 4 blocks) 30.1		

• Specify a color code in place of \* in Part No. B (black), G (green), R (red), Y (yellow), S (blue), W (white)

- Pushbuttons with 1 or 3 contact blocks have a dummy block.
- See B-184 for other contact configurations and gold-plated silver contacts.
- Pushbuttons: M3.5 Terminal screws integrated terminal cover

Switches &

# Square Flush / Square Flush Pushbuttons

					Package Quantity: 1	i Pij
Shape	Operation	Contact	Part No.	Color Code	Dimensions (mm)	1 E
Square Flush HW2B-M1 HW2B-A1		1N0 1NC 1N0-1NC	HW2B-M110* HW2B-M101* HW2B-M111*	_		Pilot Lights
	Momentary	2N0	HW2B-M120*	-	Locking Ring Safety Lever Lock Panel Thickness 0.8 to 6	
		2NC	HW2B-M102*	B		APEM
		2N0-2NC	HW2B-M122*	– G R		Switches &
		1N0	HW2B-A110*	Y	│╶╬╶ <b>╢</b> ╍╌╌ <b>╢</b> ╍╌╌ <b>╢</b> ╌┼╌╎╫┨┇╢╌┤┼╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴╴	Pilot Lights
		1NC	HW2B-A101*	S W		Control Boxes
	Maintained	1N0-1NC	HW2B-A111*	VV	49.4 (1 or 2 blocks) 69.4 (3 or 4 blocks) 13	Emergency Stop Switches
	Walitaliteu	2N0	HW2B-A120*			Enabling
		2NC	HW2B-A102*			Switches
		2N0-2NC	HW2B-A122*			Safety Products
Square Extended		1N0	HW2B-M210*			
HW2B-M2		1NC	HW2B-M201*			Explosion Proof
HW2B-A2	Momentary	1NO-1NC	HW2B-M211*		Locking Ring Safety Lever Lock	Terminal Blocks
	literiteriterity	2N0	HW2B-M220*	В	Safety Lever Lock Panel Thickness 0.8 to 6	Relays & Sockets
		2NC	HW2B-M202*	G		
		2N0-2NC	HW2B-M222*	R		Circuit Protectors
		1N0	HW2B-A210*	Y S		Power Supplies
11 155		1NC	HW2B-A201*	- W		Power Supplies
	Maintained	1N0-1NC	HW2B-A211*		49.4 (1 or 2 blocks) 13 69.4 (3 or 4 blocks) 19	LED Illumination
		2N0	HW2B-A220*			Controlloro
		2NC	HW2B-A202*			Controllers
		2N0-2NC	HW2B-A222*			Operator Interfaces

• Specify a color code in place of \* in Part No. B (black), G (green), R (red), Y (yellow), S (blue), W (white)

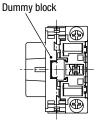
• Pushbuttons with 1 or 3 contact blocks have a dummy block.

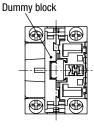
• See B-184 for other contact configurations and gold-plated silver contacts.

• Pushbuttons: M3.5 Terminal screws

# **Bottom View**

• See B-227 for wiring. • Integrated terminal cover





1NO contact block

• For 1NC contact, the contact block will mount on the opposite side.

3 contact blocks



2/4 contact blocks

ø16
ø30
Miniature
Pilot Lights

Sensors

AUTO-ID

Flush Silhouette

TW	
YW	

# ø22 HW Series Pushbuttons

Switches

# Round Flush / Round Extended /Mushroom with Square Bezel

Pilot Lights						Package Quantity: 1		
E	Shape	Operation	Contact	Part No.	Color Code	Dimensions (mm)		
ght	Round Flush with Square Bezel		1N0	HW3B-M110*				
ŝ	HW3B-M1		1NC	HW3B-M101*				
	HW3B-A1	Momentary	1NO-1NC	HW3B-M111*		Locking Ring		
		womentary	2N0	HW3B-M120*	В	Safety Lever Lock		
APEM			2NC	HW3B-M102*	G			
Switches & Pilot Lights			2N0-2NC	HW3B-M122*	R			
			1N0	HW3B-A110*	Y	Ĩ <sup>+</sup>		
Control Boxes			1NC	HW3B-A101*	S W			
Emergency Stop Switches		Maintained	1NO-1NC	HW3B-A111*		49.4 (1 or 2 blocks) 69.4 (3 or 4 blocks) 13		
Enabling		Maintaineu	2N0	HW3B-A120*				
Switches			2NC	HW3B-A102*				
Safety Products			2N0-2NC	HW3B-A122*				
	Round Extended		1N0	HW3B-M210*				
Explosion Proof	with Square Bezel		1NC	HW3B-M201*				
Terminal Blocks	HW3B-M2 HW3B-A2	Momentary	1NO-1NC	HW3B-M211*	B G R	Looking Ring		
Delaur & Ocalista			2N0	HW3B-M220*		Safety Lever Lock		
Relays & Sockets			2NC	HW3B-M202*				
Circuit Protectors			2N0-2NC	HW3B-M222*				
		Maintained	1N0	HW3B-A210*	Y S			
Power Supplies			1NC	HW3B-A201*	W			
LED Illumination			1N0-1NC	HW3B-A211*		49.4 (1 or 2 blocks) 13 69.4 (3 or 4 blocks) 19		
Controllers		maintainou	2N0	HW3B-A220*		He -		
	_		2NC	HW3B-A202*				
Operator Interfaces			2N0-2NC	HW3B-A222*				
Sensors	ø29mm Mushroom		1N0	HW3B-M310*				
56115015	with Square Bezel HW3B-M3		1NC	HW3B-M301*				
AUTO-ID	HW3B-A3	Momentary	1NO-1NC	HW3B-M311*		Locking Ring		
			2N0	HW3B-M320*	В	Safety Lever Lock Panel Thickness 0.8 to 6		
			2NC	HW3B-M302*	G			
			2NO-2NC	HW3B-M322*	R			
Flush Silhouette			1N0	HW3B-A310*	Y S			
ø16			1NC	HW3B-A301*	Ŵ			
الو		Maintained	1NO-1NC	HW3B-A311*		49.4 (1 or 2 blocks) 13 69.4 (3 or 4 blocks) 23.2		
ø22			2N0	HW3B-A320*				
ø30			2NC	HW3B-A302*				
90U			2N0-2NC	HW3B-A322*				
Miniature	• Specify a color code in place of *		-1.) 0 ()			91 A		

Miniature • Specify a color code in place of \* in Part No. B (black), G (green), R (red), Y (yellow), S (blue), W (white)

Dummy block

• Pushbuttons with 1 or 3 contact blocks have a dummy block.

• See B-184 for other contact configurations and gold-plated silver contacts.

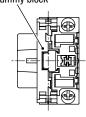
• Pushbuttons: M3.5 Terminal screws

# **Bottom View**

ΤW YW

Pilot Lights



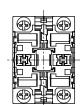


1NO contact block

3 contact blocks

• For 1NC contact, the contact block will mount on the opposite side.

- See B-227 for wiring.
- Integrated terminal cover



2/4 contact blocks

# Ø22 HW Series Pilot Lights



• Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)

• Pilot lights have an LED lamp installed unless otherwise specified.

• See B-184 for other operating voltages.

• See B-191 for bottom view.

• See **B-191** for how to specify units without LED lamps.

• When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape.

Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used. \*1) Jumbo dome pilot lights contain an exclusive LED. See B-182 and B-221.

Gasket

Locking Ring

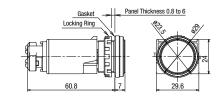
43.3

# Pilot Lights

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

Panel Thickness 0.8 to 6

6, 12, 24V AC/DC, Without LED lamp 100/110V AC, 200/220V AC (240V AC maximum)



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

Gasket

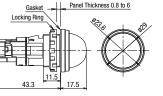
Locking Ring

Panel Thickness 0.8 to 6

£

### Extended Terminal screws: M3.5, integrated terminal cover

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

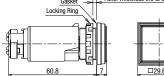


### Square Flush Terminal screws: M3.5, integrated terminal cover

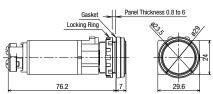
6, 12, 24V AC/DC, Without LED lamp

Panel Thickness 0.8 to 6 Gasket Locking Ring \_11 43.3

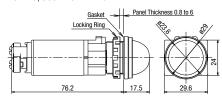
124



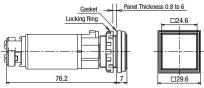
110V DC, 380V AC minumum



### 110V DC, 380V AC minimum



### 110V DC, 380V AC minimum



Flush Silhouette ø16 ø30 Miniature Pilot Lights

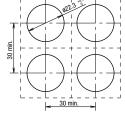
Locking Ring Ga Ś 0.5 34. 50.5



Panel Cut-Out **Mounting Centers** (Except jumbo dome)

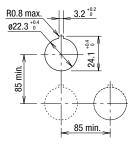
Panel Thickness 1 to 5

Close mounting on 30 mm centers



When mounting 100/110V AC, 200/220V AC, 110V DC units on 30mm centers vertically and horizontally, keep the ambient temperature below 40°C.

**Mounting Centers** (Jumbo dome)

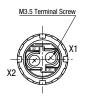


Determine the minimum mounting centers in consideration of convenience for wiring.

# **Pilot Light Bottom View**

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

# 100/110V AC, 200/220V, 110V DC





 For DC-DC Converter types, terminal X1 is ⊕, X2 is⊖. • See B-228 for wiring.

100/110V AC, 200/220V AC (240V AC maximum) Panel Thickness 0.8 to 6 Gasket 124



APEM

Control Boxes

Emergency Stop Switches Enabling

Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

LED Illumination

Controllers

Operator

Interfaces Sensors

AUTO-ID

Circuit

Protectors Power Supplies 60.8 17.

Ē

				Contact			
Shape	Illumination	Operation	Rated Voltage	Configuration	Part No.	Color Code	2 Pilot Lights
Round Flush (Marking type)				1N0	HW1L-M110Q4*		nts
W1L-M1				1NC	HW1L-M101Q4*		
IW1L-A1				1NO-1NC	HW1L-M111Q4*		
			24V AC/DC	2N0	HW1L-M120Q4*		APEM
				2NC	HW1L-M102Q4*	R	
				2N0-2NC	HW1L-M122Q4*	G	Switches Pilot Light
(24V AC/DC)		Momentary		1NO-1NC	HW1L-M111H2*	Y	Control B
		WOMENTALY	100/110V AC	2N0	HW1L-M120H2*	A	
			100/1100 AC	2NC	HW1L-M102H2*	S PW	Emergen Stop Swi
				2N0-2NC	HW1L-M122H2*	PW	Enabling
				1N0-1NC	HW1L-M111M2*		Switches
			200/220V AC	2N0	HW1L-M120M2*		Safety Pr
			200/220110	2NC	HW1L-M102M2*		
	LED -			2N0-2NC	HW1L-M122M2*		Explosior
				1N0	HW1L-A110Q4*		Terminal
				1NC	HW1L-A101Q4*	[	
			24V AC/DC	1NO-1NC	HW1L-A111Q4*	[	Relays &
				2N0	HW1L-A120Q4*		Circuit
				2NC	HW1L-A102Q4*	R	Protector
		Maintained		2NO-2NC	HW1L-A122Q4*	G	Power Si
With transformer (100/110V AC)			100/110V AC	1NO-1NC	HW1L-A111H2*	A S	
				2N0	HW1L-A120H2*		LED Illun
				2NC	HW1L-A102H2*	- PW	Controlle
				2NO-2NC	HW1L-A122H2*		
				1N0-1NC	HW1L-A111M2*	_	Operator Interface
			200/220V AC	2N0 2NC	HW1L-A120M2* HW1L-A102M2*		
				2NC 2NO-2NC	HW1L-A102M2*		Sensors
				1N0	HW1L-M210Q4*		AUTO-ID
ound Extended (Marking type) W1L-M2				1NC	HW1L-M201Q4*		
W1L-M2 W1L-A2				1N0-1NC	HW1L-M211Q4*		
			24V AC/DC	2N0	HW1L-M220Q4*		
				2NC	HW1L-M202Q4*	_	Flush Sil
				2N0-2NC	HW1L-M222Q4*	R R	
121				1NO-1NC	HW1L-M211H2*	G Y A	ø16
The second se		Momentary		2N0	HW1L-M220H2*		ø22
			100/110V AC	2NC	HW1L-M202H2*	S	022
				2N0-2NC	HW1L-M222H2*	PW	ø30
				1NO-1NC	HW1L-M211M2*		Minist
(24V AC/DC)			000/0001/ 40	2N0	HW1L-M220M2*		Miniature
			200/220V AC	2NC	HW1L-M202M2*		Pilot Ligh
				2N0-2NC	HW1L-M222M2*		
	LED –			1N0	HW1L-A210Q4*		
				1NC	HW1L-A201Q4*		
				1NO-1NC	HW1L-A211Q4*		HW
			24V AC/DC	2N0	HW1L-A220Q4*		
				2NC	HW1L-A202Q4*	R	TW
				2N0-2NC	HW1L-A222Q4*	G	104
		Maintained		1NO-1NC	HW1L-A211H2*	Y	YW
		Wantalleu	100/110V AC	2N0	HW1L-A220H2*	A	
			TUU/TTUV AC	2NC	HW1L-A202H2*	S	
With transformer				2N0-2NC	HW1L-A222H2*	PW	
(100/110V AC)				1NO-1NC	HW1L-A211M2*		
•			200/220VAC	2N0	HW1L-A220M2*		
			200/220VA0	2NC	HW1L-A202M2*		
			1	2NO-2NC	HW1L-A222M2*		

• Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)

Round Flush / Round Extended (Marking Type)

• Illuminated pushbuttons have an LED lamp installed unless otherwise specified.

• See B-184 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.

• See B-184 for other contact configurations and gold-plated silver contacts.

• Illuminated pushbutttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.

• See B-198 for bottom view.

LED

• See B-184 for how to specify units without LED lamps.

• When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

# ø22 HW Series Illluminated Pushbuttons

APEM

Switches Pilot Ligi Control Boxes Emergency Stop Switches Enabling Switches Safety Products Explosion Proof Terminal Blocks Relays & Sockets Circuit Protectors Power Supplies LED Illumination Controllers Operator Interfaces Sensors AUTO-ID

						Package Quanti
Shape	Illumination	Operation	Rated Voltage	Contact	Part No.	Color Code
Round Extended with Full Shroud				1N0	HW1L-MF210Q4*	
(Marking type)				1NC	HW1L-MF201Q4*	
HW1L-MF2			24V AC/DC	1NO-1NC	HW1L-MF211Q4*	
IW1L-AF2			24V AC/DC	2N0	HW1L-MF220Q4*	
				2NC	HW1L-MF202Q4*	
				2N0-2NC	HW1L-MF222Q4*	R G
		Managhan		1NO-1NC	HW1L-MF211H2*	Y
		Momentary	100/110V AC	2N0	HW1L-MF220H2*	A
	LED –		TUU/TTUV AC	2NC	HW1L-MF202H2*	S PW
(24V AC/DC )				2N0-2NC	HW1L-MF222H2*	
			200/220V AC	1NO-1NC	HW1L-MF211M2*	
				2N0	HW1L-MF220M2*	
				2NC	HW1L-MF202M2*	
				2N0-2NC	HW1L-MF222M2*	
				1N0	HW1L-AF210Q4*	
				1NC	HW1L-AF201Q4*	
				1NO-1NC	HW1L-AF211Q4*	
			24V AC/DC	2N0	HW1L-AF220Q4*	
				2NC	HW1L-AF202Q4*	
				2N0-2NC	HW1L-AF222Q4*	R G
		Maintained		1NO-1NC	HW1L-AF211H2*	Y
		Maintained	100/110/ 40	2N0	HW1L-AF220H2*	A
			100/110V AC	2NC	HW1L-AF202H2*	S
With transformer				2N0-2NC	HW1L-AF222H2*	PW
(100/110V AC)				1NO-1NC	HW1L-AF211M2*	
· · · · ·			200/2201/ 40	2N0	HW1L-AF220M2*	
			200/220V AC	2NC	HW1L-AF202M2*	
				2N0-2NC	HW1L-AF222M2*	

• Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)

• Illuminated pushbuttons have an LED lamp installed unless otherwise specified.

• See B-184 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.

• See B-184 for other contact configurations and gold-plated silver contacts.

• Illuminated pushbutttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.

• See B-198 for bottom view.

• See **B-184** for how to specify units without LED lamps.

• When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape.

Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used. Miniature

Pilot Lights

Flush Silhouette

ø16

ø30

τw	Т	W
YW	Y	w

# ø22 HW Series Illluminated Pushbuttons

# Switches

LED Squar	e Flush / Ro					<b>D</b> 1 0	
<b>a</b> i	I I	<b>a</b>	· · · · · · ·		5	Package Quantity: 1	nes & Pilot Lights
Shape	Illumination	Operation	Illumination	Contact	Part No.	Color Code	Lig
quare Flush (Marking type)			-	1N0 1NC	HW2L-M110Q4* HW2L-M101Q4*		hts
IW2L-M1 IW2L-A1				1NO-1NC			
			24V AC/DC		HW2L-M111Q4*		
			-	2N0 2NC	HW2L-M120Q4*		
				2NC 2NO-2NC	HW2L-M102Q4*	— R	APEM
A CONTRACTOR OF THE				1NO-1NC	HW2L-M122Q4*	G	Switches &
		Momentary	-		HW2L-M111H2*	Y A	Pilot Lights
			100/110V AC	2N0 2NC	HW2L-M120H2*	S S	Control Bo
				2NC 2NO-2NC	HW2L-M102H2*	- PW	Emergenc
					HW2L-M122H2*		Stop Swite
(24V AC/DC)			-	1NO-1NC	HW2L-M111M2*		Enabling Switches
			200/220V AC	2N0	HW2L-M120M2*		
(211710/20)				2NC	HW2L-M102M2*		Safety Pro
	LED			2NO-2NC	HW2L-M122M2*		Explosion
				1N0	HW2L-A110Q4*		
				1NC	HW2L-A101Q4*		Terminal E
and the second s			24V AC/DC	1NO-1NC	HW2L-A111Q4*		
With transformer (100/110V AC)				2N0	HW2L-A120Q4*		Relays & S
				2NC	HW2L-A102Q4*	R	Circuit
		Maintained		2N0-2NC	HW2L-A122Q4*	G Y	Protectors
			100/110V AC	1NO-1NC	HW2L-A111H2*	— A	Power Su
				2N0	HW2L-A120H2*	S	
				2NC	HW2L-A102H2*	PW	LED IIIum
			200/220V AC	2N0-2NC	HW2L-A122H2*		Controller
				1NO-1NC	HW2L-A111M2*		Operator
				2N0	HW2L-A120M2*	_	Interfaces
				2NC	HW2L-A102M2*		Concoro
				2N0-2NC	HW2L-A122M2*		Sensors
und Flush with Square Bezel				1N0	HW3L-M110Q4*		AUTO-ID
arking type)				1NC	HW3L-M101Q4*		
V3L-M1				1NO-1NC	HW3L-M111Q4*		
V3L-A1			24V AC/DC	2N0	HW3L-M120Q4*		
				2NC	HW3L-M102Q4*	R	Flush Silh
				2N0-2NC	HW3L-M122Q4*	G	
and the second s				1NO-1NC	HW3L-M111H2*	Y	ø16
		Momentary	100/110/100	2N0	HW3L-M120H2*	A S	
			100/110V AC	2NC	HW3L-M102H2*	S	ø22
				2NO-2NC	HW3L-M122H2*		ø30
				1NO-1NC	HW3L-M111M2*		
				2N0	HW3L-M120M2*		Miniature
			200/220V AC	2NC	HW3L-M102M2*		Dilet List
(24V AC/DC)				2NO-2NC	HW3L-M122M2*		Pilot Light
	LED			1N0	HW3L-A110Q4*		
				1NC	HW3L-A101Q4*		
				1NO-1NC	HW3L-A111Q4*		
			24V AC/DC	2N0	HW3L-A120Q4*		HW
				2NC	HW3L-A102Q4*		TW
				2N0-2NC	HW3L-A122Q4*	- R	1 1 1 1
				1NO-1NC	HW3L-A111H2*	G Y	YW
		Maintained		2N0	HW3L-A120H2*	f	
			100/110V AC	2NC	HW3L-A102H2*	S	
				2NC 2NO-2NC	HW3L-A122H2*	PW	
With transformer				1NO-1NC			
(100/110V AC)					HW3L-A111M2*		
			200/220V AC	2N0	HW3L-A120M2*		
	1			2NC	HW3L-A102M2*		

• Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)

• Illuminated pushbuttons have an LED lamp installed unless otherwise specified.

 $\bullet$  See B-184 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.

• See B-184 for other contact configurations and gold-plated silver contacts.

• Illuminated pushbutttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.

• See B-198 for bottom view.

• See **B-184** for how to specify units without LED lamps.

• When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

# ø22 HW Series Illluminated Pushbuttons

# Mushroom (ø29mm) / Mushroom (ø29mm) with Square Bezel (Marking Type)

les & Pilot Lights	LED Mushr	oom (ø29mi	m) / Mushroon	n (ø29mm) wi	th Square B	ezel (Marking Type	e)
Pilot		,,					Package Quantity
E I	Shape	Illumination	Operation	Illumination	Contact	Part No.	Color Code
gh	ø29mm Mushroom				1N0	HW1L-M310Q4*	
ST 1	(Marking type)				1NC	HW1L-M301Q4*	
	APEM HW1L-M3			24V AC/DC	1N0-1NC	HW1L-M311Q4*	
				24V A0/D0	2N0	HW1L-M320Q4*	
APEM					2NC	HW1L-M302Q4*	R
Switches &					2N0-2NC	HW1L-M322Q4*	G
Pilot Lights			Momentary		1N0-1NC	HW1L-M311H2*	Y
Control Boxes	(24V AC/DC)		Womontary	100/110V AC	2N0	HW1L-M320H2*	A
Emergency				100/1101/10	2NC	HW1L-M302H2*	S PW
Stop Switches					2N0-2NC	HW1L-M322H2*	F W
Enabling				_	1NO-1NC	HW1L-M311M2*	
Switches				200/220V AC	2N0	HW1L-M320M2*	
fety Products				200/2201110	2NC	HW1L-M302M2*	
		LED -			2N0-2NC	HW1L-M322M2*	
plosion Proof					1N0	HW1L-A310Q4*	
rminal Blocks					1NC	HW1L-A301Q4*	
				24V AC/DC	1NO-1NC	HW1L-A311Q4*	
ays & Sockets				211710/20	2N0	HW1L-A320Q4*	
Circuit					2NC	HW1L-A302Q4*	R
Protectors					2N0-2NC	HW1L-A322Q4*	G
ower Supplies	With transformer (100/110V AC)		Maintained		1NO-1NC	HW1L-A311H2*	Y
) Illumination			mantaniou	100/110V AC	2N0	HW1L-A320H2*	A
Jillullillation					2NC	HW1L-A302H2*	S PW
Controllers					2N0-2NC	HW1L-A322H2*	
Operator					1NO-1NC	HW1L-A311M2*	
Interfaces				200/220V AC	2N0	HW1L-A320M2*	
Sensors					2NC	HW1L-A302M2*	
					2N0-2NC	HW1L-A322M2*	
AUTO-ID	ø29mm Mushroom with Square				1N0	HW3L-M310Q4*	
	Bezel (Marking type)				1NC	HW3L-M301Q4*	
	HW3L-M3 HW3L-A3			24V AC/DC	1NO-1NC	HW3L-M311Q4*	
	HW3L-A3			-	2N0	HW3L-M320Q4*	
sh Silhouette				-	2NC	HW3L-M302Q4*	R
					2NO-2NC	HW3L-M322Q4*	G
ø16			Momentary	-	1NO-1NC	HW3L-M311H2*	Y A S
ø22				100/110V AC	2N0	HW3L-M320H2*	
					2NC	HW3L-M302H2*	
ø30					2NO-2NC	HW3L-M322H2*	
Miniature					1NO-1NC	HW3L-M311M2*	
	(24)(40(50)			200/220V AC	2N0 2NC	HW3L-M320M2* HW3L-M302M2*	
Pilot Lights	(24V AC/DC)				2NC 2NO-2NC	HW3L-M302M2*	
		LED –			2N0-2NC 1N0	HW3L-M322M2*	
					1NC	HW3L-A310Q4*	
				-	1NO-1NC		
HW				24V AC/DC	2N0	HW3L-A311Q4*	
				-	2N0 2NC	HW3L-A320Q4* HW3L-A302Q4*	
TW					2NC 2NO-2NC	HW3L-A302Q4*	R
YW					2NO-2NC 1NO-1NC	HW3L-A322Q4* HW3L-A311H2*	G
1 44			Maintained		2N0	HW3L-A311H2*	Y
				100/110V AC			S S
					2NC 2NO-2NC	HW3L-A302H2* HW3L-A322H2*	
	With transformer				2NO-2NC 1NO-1NC	HW3L-A322H2*	
	(100/110V AC)				2N0	HW3L-A311M2*	
				200/220V AC	2N0 2NC	HW3L-A320M2*	
					2N0-2NC	HW3L-A322M2*	

• Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)

• Illuminated pushbuttons have an LED lamp installed unless otherwise specified.

• See B-184 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.

• See B-184 for other contact configurations and gold-plated silver contacts.

• Illuminated pushbutttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.

• See B-198 for bottom view.

- See **B-184** for how to specify units without LED lamps.
- When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

						Package Quantity: 1	Pilot Lights						
Shape	Illumination	Operation	Illumination	Contact	Part No.	Color Code	E						
ø40mm Mushroom				1N0	HW1L-M410Q4*		gh						
(Marking type)				1NC	HW1L-M401Q4*		S.						
HW1L-M4 HW1L-A4			24V AC/DC	1NO-1NC	HW1L-M411Q4*								
HW1L-A4			24V AG/DG	2N0	HW1L-M420Q4*								
				2NC	HW1L-M402Q4*		APEM						
				2N0-2NC	HW1L-M422Q4*	R G	Switches &						
		Momentary		1NO-1NC	HW1L-M411H2*	Ŷ	Pilot Lights						
THE .		Momentary	100/110V AC	2N0	HW1L-M420H2*	A	Control Boxes						
			TUU/TTUV AC	2NC	HW1L-M402H2*	S PW	Emergency						
(24V AC/DC)				2N0-2NC	HW1L-M422H2*	- PW	Stop Switches						
	LED -		200/220V AC	1NO-1NC	HW1L-M411M2*		Enabling Switches						
				2N0	HW1L-M420M2*		Safety Products						
				2NC	HW1L-M402M2*								
				2N0-2NC	HW1L-M422M2*		Explosion Proof						
			24V AC/DC	1N0	HW1L-A410Q4*		Terminal Blocks						
				1NC	HW1L-A401Q4*								
				1NO-1NC	HW1L-A411Q4*		Relays & Sockets						
A REAL PROPERTY AND A REAL				2N0	HW1L-A420Q4*		Circuit						
				2NC	HW1L-A402Q4*	р	Protectors						
				2N0-2NC	HW1L-A422Q4*	R G	Power Supplies						
		Maintained		1NO-1NC	HW1L-A411H2*	Ŷ	LED Illumination						
		Wallitalleu	100/110V AC	2N0	HW1L-A420H2*	A							
The second			TUU/TTUV AC	2NC	HW1L-A402H2*	S PW	Controllers						
				2N0-2NC	HW1L-A422H2*	Γ VV	Operator						
With transformer				1NO-1NC	HW1L-A411M2*		Interfaces						
(100/110V AC)		200/2221/ 40	200/2201/ 40	200/220V AC	200/220V AC	200/220V AC	200/220V AC	200/220V AC	200/220V AC	2N0	HW1L-A420M2*		Sensors
			200/220V AC							200/220V AC	200/220V AC	200/220V AC	200/220V AC
				2N0-2NC	HW1L-A422M2*								

• Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (Amber), S (blue), PW (pure white)

Mushroom (ø40mm) (Marking Type)

• Illuminated pushbuttons have an LED lamp installed unless otherwise specified.

 $\bullet$  See <code>B-184</code> for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.

• See B-184 for other contact configurations and gold-plated silver contacts.

• Illuminated pushbutttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.

• See B-198 for bottom view.

LED

• See B-184 for how to specify units without LED lamps.

• When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

Flush Silhouette

HW	
TW	
YW	

<b>•</b>	

Panel Th

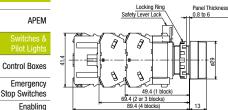
0.8 to 6

## **Dimensions**

# Illuminated Pushbuttons (Momentary / Maintained)

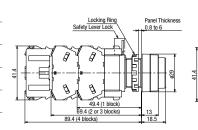
Round Flush Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp 100/110V AC, 200/220V AC (240V maximum)

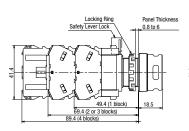


Round Extended Terminal screws: M3.5, integrated terminal cover

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

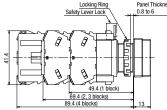


### **Round Extended with Full Shroud** 6, 12, 24V AC/DC, Without LED lamp



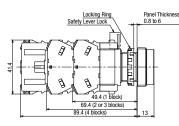
### Square Flush Terminal screws: M3.5, integrated terminal cover

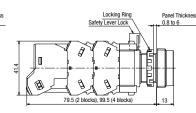
6, 12, 24V AC/DC, Without LED lamp



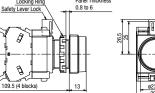
1.4

Flush with Square Bezel Terminal screws: M3.5, integrated terminal cover 6, 12, 24V AC/DC, Without LED lamp 100/110V AC, 200/220V AC (240V maximum)





Panel Thickness 0.8 to 6 Locking Ri Lever Loc Safety L



0.8 to 6 Safety Lev ĝ

13

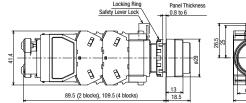
18.5

0.8 to 6

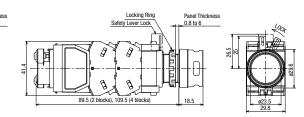
0.8 to 6

Panel Thi

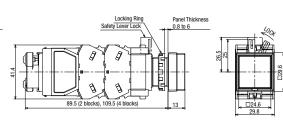
0.8 to 6







110V DC, 380V AC minimum



110V DC, 380V AC minimum

79.5(2 blocks), 99.5 (4 blocks)

Ø

B

B

B

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

79.5 (2 blocks), 99.5 (4 blocks)

Safety I

ð

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

Safety L

Ĝ

Terminal screws: M3.5, integrated terminal cover

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

Locking Ring

Safety Level

ģ

110V DC, 380V AC minimum

110V DC, 380V AC minimum

Safety Lever

ģ

89.5 (2 blocks), 109.5 (4 blocks)

Switches Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets Circuit

LED Illumination

Controllers Operator Interfaces

Sensors

AUTO-ID

Flush Silhouette

ø16

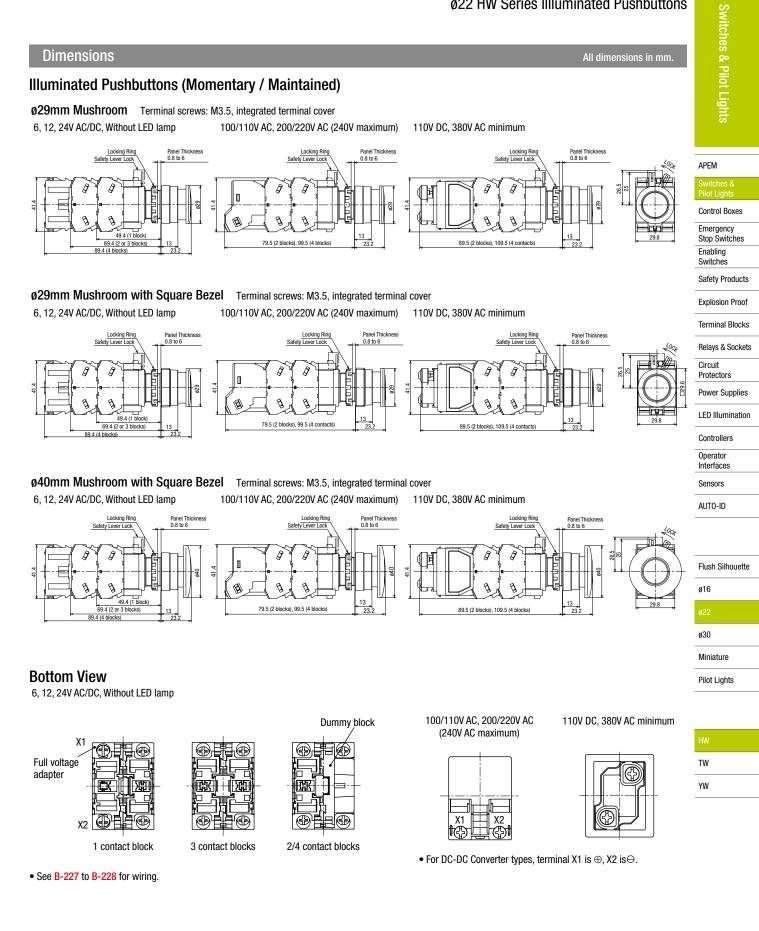
ø30 Miniature

ΤW

YW

Pilot Lights

Protectors Power Supplies



# ø22 HW Series Dual Pushbuttons

hes & Pilot Lights		IShbuttons (with color code in place o HW7D			of 3 in the Part No.		Package Quantity: 1
õ							
APEM	Shape				ON	_ CM	
Switches &							
Pilot Lights Control Boxes					O off	0	
						OPT	
Emergency Stop Switches							
Enabling	Operation	Button Style		ntact	Part No.	2 Button Color Code	3 Legend Code
Switches	operation	Button Otyle	Top Button	Bottom Button	raitivo.		
Safety Products			1N0	1NC	HW7D-B111001 2 3		
Explosion Proof		Eluch (top)	1N0	1N0	HW7D-B111010 2 3		
2.0.0010111001		Flush (top) Flush (bottom)	1NO-1NC	1NO-1NC	HW7D-B111111 2 3		
Terminal Blocks			2N0	2NC	HW7D-B112002 2 3		
Relays & Sockets	Momentary		2N0	2N0	HW7D-B112020 2 3		
Circuit	Womentary		1N0	1NC	HW7D-B121001 2 3		
Protectors		Flush (top)	1N0	1N0	HW7D-B121010 2 3		
Power Supplies		Extended (bottom)	1NO-1NC	1NO-1NC	HW7D-B121111 2 3		
			2N0	2NC	HW7D-B122002 2 3	GR: Green (top)	Blank: Without legend
LED Illumination			2N0	2N0	HW7D-B122020 2 3	Red (bottom)	1: I / ON (top)
Controllers			1N0	1NC	HW7D-B211001 2 3	WB: White (top)	0 / 0FF (bottom)
Operator		Flush (top)	1N0	1N0	HW7D-B211010 2 3	Black (bottom)	, <i>,</i> ,
Interfaces		Flush (bottom)	1NO-1NC	1NO-1NC	HW7D-B211111 2 3		
			2NO	2NC	HW7D_B212002 2 3		

2N0

2N0

1N0

1N0

1NO-1NC

2N0

2N0

• For other contact arrangements, see Ordering Information on B-185 and Contact Arrangement Chart on B-202.

\*1) Interlock: Momentary operation. When one of the buttons is pressed, the other button cannot be operated.

2NC

2N0

1NC

1N0

1NO-1NC

2NC

2N0

Do not operate top and bottom buttons at the same time. Operating the buttons at the same time may lead to malfunctions.

HW7D-B212002 2 3

HW7D-B212020 2 3

HW7D-B221001 2 3

HW7D-B221010 2 3

HW7D-B221111 2 3

HW7D-B222002 2 3

HW7D-B222020 2 3

Miniature

Flush Silhouette

ø16

ø30

τw YW

Pilot Lights

Sensors

AUTO-ID

Interlock (\*1)

Flush (top)

Extended (bottom)

• Dual pushbuttons with 3 contact blocks have a dummy block. • See B-202 for top and bottom button contact mounting positions.

# For more information, visit http://eu.idec.com

LED

# **Dual Pushbuttons (with Pilot Light)**

	HW7D LED: LSTD-2* (24V	AC/DC)							Pilot Lights					
Shape					ol	ON			APEM					
						110			Switches & Pilot Lights					
					0 OF	O			Control Boxes					
		1	0						Emergency Stop Switches					
Operation	Button Style	Illumination	Тор	ntact Bottom	Part No.	LED	2 Button Color Code	3 Legend Code	Enabling Switches					
			Button 1NO	Button 1NC	HW7D-L111001Q4 1 2 3				Safety Product					
			1N0	1NC	HW7D-L11100104 1 2 3				Explosion Proc					
	Flush (top)	24V AC/DC	24V AC/DC	24V AC/DC	1NO-1NC	-	HW7D-L11111104 1 2 3				Territed Disc			
	Flush (bottom)				24110/00	211710/20	2N0	2NC	HW7D-L112002Q4 1 2 3	1			Terminal Blo	
			2N0	2N0	HW7D-L112020Q4 1 2 3				Relays & Soc					
<i>l</i> omentary		24V AC/DC	1N0	1NC	HW7D-L121001Q4 1 2 3				Circuit					
			24V AC/DC	24V AC/DC	1N0 1N0 HW7D-L121010Q4 1 2 3			Protectors						
	Flush (top) Extended (bottom)					24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC
			2N0	2NC	HW7D-L122002Q4 1 2 3	R	GR: Green (top)	Blank: Without	LED Illuminat					
			2N0	2N0	HW7D-L122020Q4 1 2 3	G	Red (bottom)	legend	0					
			1N0	1NC	HW7D-L211001Q4 1 2 3	S	WB: White (top)	1: I / ON (top)	Controllers					
	Flush (top)		1N0	1N0	HW7D-L211010Q4 1 2 3	PW	Black (bottom)	0 / OFF (bottom)	Operator Interfaces					
	Flush (bottom)	24V AC/DC	1NO-1NC	1NO-1NC	HW7D-L211111Q4 1 2 3				Sensors					
			2N0	2NC	HW7D-L212002Q4 1 2 3									
nterlock (*1)			2N0	2N0	HW7D-L212020Q4 1 2 3				AUTO-ID					
			1N0	1NC	HW7D-L221001Q4 1 2 3									
	Flush (top)	24V AC/DC	1N0 1N0-1NC	1N0 1N0-1NC	HW7D-L221010Q4 1 2 3									
	Extended (bottom)	24V AC/DC	2N0	2NC	HW7D-L221111Q4 1 2 3 HW7D-L222002Q4 1 2 3									
			2N0 2N0	2NC 2NO	HW7D-L222002Q4 1 2 3				Flush Silhou					
			2110	2110					ø16					

Only W (white) lens is available.

• See B-185 for other operating voltage such as 100/110V AC and 200/220V AC.

See B-202 for other contact configurations

• See B-185 for gold-plated silver contacts.

• Illuminated pushbutttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.

• See B-202 for top and bottom button contact mounting positions.

\*1) Interlock: Momentary operation. When one of the buttons is pressed, the other button cannot be operated. Do not operate top and bottom buttons at the same time. Operating the buttons at the same time may lead to malfunctions. ø30

Miniature

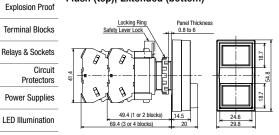
Pilot Lights

# **Dual Pushbuttons**

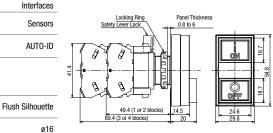
Without Pilot Light Terminal screws: M3.5, integrated terminal cover Flush (top), Flush (bottom)

LOCKING Ri Safety Lever Loc ģ 49.4 (1 or 2 blocks 24.6 29.8 69.4 (3 or 4 blo

Flush (top), Extended (bottom)



Flush (top), Extended (bottom) (with legend)



# **Bottom View**

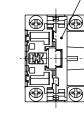
ø30 Without Pilot Light Miniature

ΤW

YW

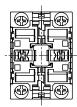
Pilot Lights

**Dummy Block** 



3 contact bocks

With Pilot Light 6, 12, 24V AC/DC



3 contact bocks

• See B-227 to B-228 for wiring.

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(D)

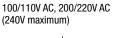
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ľÐ

Dummy Block

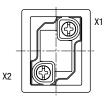
(FD)

2/4 contact blocks



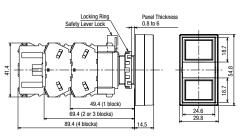


380V AC minimum

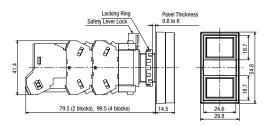


All dimensions in mm.

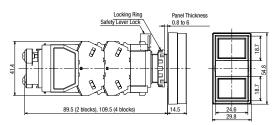
With Pilot Light Terminal screws: M3.5, integrated terminal cover Flush (top), Flush (bottom) (24V AC/DC)



### Flush (top), Flush (bottom) (240V AC maximum)



### Flush (top), Flush (bottom) (380V AC minimum)



For more information, visit http://eu.idec.com

APEM

Control Boxes Emergency Stop Switches

Enabling

Switches Safety Products

Controllers

Operator

2/4 contact blocks . Mounting position of the dummy block may change according to the contact configuration of the top and bottom buttons.

# **Contact Arrangement Chart**

	Contact		Contac	t Block	Тор В	utton	Bottom	Button
Top Button	Bottom Button	Contact Code	Mounting Position	Contact	Normal	Push	Normal	Push
1N0	1N0	1010	1	NO		٠		
INU	INU	1010	2	NO				•
1N0	1NC	1001	1	NO		•		
INU	INC	1001	2	NC				
1NC	1N0	0110	1	NC	•			
INC	INO	0110	2	NO				•
			1	NO		•		
1N0	1NO-1NC	1011	2	NO				•
INU		1011	3	—		Dumm	iy Block	
			4	NC			•	
			1	NO		•		
2N0	2N0	2020	2	NO				•
	2110		3	NO		•		
			4	NO				•
		2011	1	NO		•		
2N0	1NO-1NC		2	NO				•
2110			3	NO		•		
			4	NC			•	
			1	NO		•		
2N0	2NC	2002	2	NC			•	
2110	2110	2002	3	NO		•		
			4	NC			•	
			1	NO		•		
1NO-1NC	1NO-1NC	1111	2	NO				•
			3	NC				
			4	NC				
			1	NO		•		
1NO-1NC	2NC	1102	2	NC				
INO-INC	ZNU	1102	3	NC				
			4	NC				

# **Contact Block Mounting Position**



With Pilot Light (Full Voltage Type)

With Pilot Light (Transformer Type)

# Part No. Example HW7D-B12<u>1111</u>GR

Explosion Proof
Terminal Blocks
Relays & Sockets
Circuit
Protectors
Power Supplies
LED Illumination
Controllers
Operator
Interfaces
Sensors
AUTO-ID

**Switches & Pilot Lights** 

APEM

Control Boxes Emergency Stop Switches Enabling Switches Safety Products

Flush Silhouette Ø16 Ø22 Ø30 Miniature Pilot Lights

TW	
YW	

### • Transformer types cannot mount 3 contact blocks.

 $\bullet$  Contact blocks  $\odot$  and  $\odot$  are actuated by the top button. Contact blocks @ and  $\circledast$  are actuated by the bottom button.

Contac	t Block	Top B	utton	Bottom	Button	← Button Position
Mounting Position	Contact	Normal	Push	Normal	Push	← Pushbutton Operation
1	NO		•			]
2	NO				•	
3	NC	•				
4	NC			•		

# ø22 HW Series Selector Switches

# Selector Switches (Knob Operator)

Package Quantity: 1

_	lio	
	t Lights	
	APEM	
	Switches & Pilot Lights	
	Control Boxes	
	Emergency Stop Switches	
	Enabling Switches	
9	Safety Products	90
2	Explosion Proof	2- 60
	Terminal Blocks	2-
	Relays & Sockets	
	Circuit Protectors	
-	Power Supplies	
-	LED Illumination	
-	Controllers	
-	Operator Interfaces	
-	Sensors	
	AUTO-ID	
-	Flush Silhouette	
	ø16	45
3.	ø22	3-
	ø30	
	Miniature	
-	Pilot Lights	

	r											Package Quantity:	
Shape	Knob Opera HW1S	ator											
	Contact	Contact	Block	(	Opera	ator P	osition		Maintained (90°)	Spring Return from Right (60°)	_		
		Mounting Position	Contact	1	2								
	1N0	0	NO		•				HW1S-2T10	HW1S-21T10	/	/	
90°	(10)	2	—		Dun	nmy E	Block		11013-2110	110013-21110			
2-position/	1NO-1NC	0	NO		•				HW1S-2T11	HW1S-21T11			
60° 2-position	(11)	2	NC	•									
	2N0	0	NO		•				HW1S-2T20	HW1S-21T20			
	(20)	2	NO		•								
		0	NO		•								
2NO-2NC	2	NC	•					HW1S-2T22	HW1S-21T22				
(22)		3	NO	-	•	-							
	ļ	4	NC	٠				_					
	Contact	Contact	Block	(	Operator		osition		Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way	
		Mounting Position	Contact	1	0	2			$\bigvee$				
	2N0	0	NO	•					HW1S-3T20	HW1S-31T20	HW1S-32T20	HW1S-33T20	
	(20)	2	NO			•	1		HW15-3120	HW15-31120	HW15-32120	пw15-33120	
	2NC	0	NC						HW1S-3T02	HW1S-31T02	HW1S-32T02		
	(02)	2	NC						11W13-3102	110013-31102	110013-32102	HW1S-33T02	
		0	NO	•									
	2N0-2NC	2	NO			•			HW1S-3T22N1	HW1S-31T22N1	HW1S-32T22N1	HW1S-33T22N1	
	(22N1)	3	NC				-						
45°		4	NC										
3-position		0	NO	•			-						
	4N0	2	NO			•			HW1S-3T40	HW1S-31T40	HW1S-32T40	HW1S-33T40	
	(40)	3	NO	•									
		4	NO			•		_					
		0	NC										
	4NC	2	NC				-		HW1S-3T04	HW1S-31T04	HW1S-32T04	HW1S-33T04	
	(04)	3	NC	_			-						
		4	NC										
	2NO-1NC	0	NO	•	-	-	-						
	(21N1)	2	NO NC			•	{		HW1S-3JT21N1	—	—	_	
	<b>`★</b> ☆	3	NC		•			-					
		(4)			Dun	imy E	Block						

• Knob operator: white indicator on black body

• On the contact arrangement marked with 🖈 in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.

 $\bullet$  For models with  $\precsim$  , contacts may overlap when the operator position is changed.

• Other contact arrangements are also available. See B-211 to B-213.

• Selector switches with one or three contact blocks contain a dummy block.

• See **B-186** for gold-plated silver contacts.

• Turn the operator to each position accurately.

### **Contact Block Mounting Position**



τw

YW

# Key Selector Switches (Pin Tumbler Key)

									Package Quantity: 1	Pilo
	No. of		Contact	Block	Operator Position				Maintained	Pilot Lights
Shape	Positions	Contact	Mounting Position	Contact	1	2		Cam Code		Ints
in Tumbler Key		1NC	0	NC	•				HW1K-2PA01	
HW1K		(01)	2		Dur	nmy Bl	ock	_	TIWTR-2FA01	APEM
		1NO-1NC	0	NO		•			HW1K-2PA11	Switches &
		(11)	2	NC	•			_	IIWIR-ZIATI	Pilot Lights
		2NC (02)	0	NC	•				HW1K-2PA02	Control Box
			2	NC	•					Emergency
		2NO-1NC (21)	0	NO		•				Stop Switch
			2	NO		•			HW1K-2PA21	Enabling
	90°		3	NC	•					Switches
	2-position		4	—	Dummy Block		ock			Safety Prod
			0	NC	•					Explosion P
		3NC	2	NC	•			_	HW1K-2PA03	
		(03)	3	NC	•					Terminal Blo
			4	—	Dur	nmy Bl	ock			Relays & Soc
			0	NO		•				Circuit
		2NO-2NC	2	NC	•				HW1K-2PA22	Protectors
$\rightarrow$ (NC contact only)		(22)	3	NO		٠				Power Supp
			4	NC						LED Illumina

• Each selector key switch is supplied with two keys.

• 15 types of key numbers are available in addition to standard (500) key. See below for details.

• Spring-return type is also available. See below for details.

• Key retained position can be selected. See below for details.

### **Ordering Information**

Example: HW1K - 2JPA01 - 501

Not specified: 500 (default key) 501-515: The key number is engraved on the key cylinder. Key removable/retained positions Cam code: Blank or J Operator position code: C: Removable in right only

2: 2-position, maintained 21: 2-position, spring return from right

Maintained (9	0° 2-position)	Spring Return (60° 2-position)
1 2	2 1	Spring return from right 1 - 2
Cam code: blank	Cam code: J	Cam code: blank

• For more contact arrangement, see **B-211** to **B-213**.

• Key selector switches with one or three contact blocks contain a dummy block.

• See B-186 for gold-plated silver contacts.

• Turn the operator to each position accurately.

### **Contact Block Mounting Position**



① ②: Key removal position • Contract the second s

1

A (removable in

all positions)

A (removable in

all positions)

2

Note: The key cannot be removed in a spring return position.

AUTO-ID

Controllers

Operator

Interfaces Sensors

Flush Silhouette

ø16

ø30

ΤW

YW

C (removable in right only)

C (removable in

right only)

1

0

Miniature

Pilot Lights

A: Removable/retained in all positions B: Removable in left theft only

Key Retained Position

B (removable in

left only)

Cam code: blank Key Retained Position

B (removable in

left only)

Cam code: J

2

0

ി



Controllers

Operator

Sensors

AUTO-ID

ø16

# Key Selector Switches (Pin Tumbler Key)

Pilot Lights		No. of	Conta	Ope	rator Pos	ition	Cam	Maintained		
hts	Shape	Positions	Contact Code	Mounting Position	Contact	1	0	2	Code	
	Pin Tumbler Key		2NC	1	NC					HW1K-3PA02
APEM	HW1K		(02)	2	NC					TIWTK-SFAU2
Switches &				1	NO	•				
Pilot Lights			2NO-2NC	2	NO			•		HW1K-3PA22N1
ontrol Boxes			(22N1)	3	NC					INTROTAZZIUT
Emergency				4	NC					
op Switches			4NC (04)	1	NC					HW1K-3PA04
Enabling				2	NC					
Switches		45°		3	NC					
ety Products		3-position		4	NC					
losion Proof				1	NO	•				
			2NO-1NC (21N1)	2	NO			•	J	HW1K-3JPA21N1
ninal Blocks			(2111) ★☆	3	NC		•			IIWIN-33FA2 INT
vs & Sockets				4	_	Du	ummy Blo	ck		
Circuit				1	NC			•		
Protectors			4NC (04)	2	NC	•			s	HW1K-3SPA04
ver Supplies	(NC contact only)		(04) ★	3	NC			•		TWTK-35PA04
				4	NC	•				

• On the contact arrangement marked with 🖈 in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.

• For models with  $rac{1}{\sim}$ , contacts may overlap when the operator is changed.

• For contact block mounting position, see the figure on the right. Interfaces

· Each key selector switch is supplied with two keys.

• 15 types of key numbers are available in addition to standard (500) key. See below for details.

- Spring-return type is also available. See below for details.
- Key retained position can be selected. See table below details.

**Contact Block Mounting Position** 

# **Ordering Information**

ø30
Miniature
Pilot Lights

Flush Silhouette

Example: HW1K - 3 S P A 04 - 501

Not specified: 500 (default key) 501-515: The key number is engraved on the key cylinder.

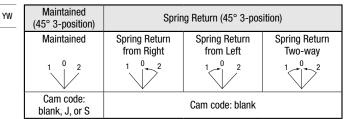
Cam code: Blank, J, or S

Operator position code:

3: 3-position, maintained

- 31: 3-position, spring return from right
- 32: 3-position, spring return from left
- 33: 3-position, spring return two way

ΤW



• For more contact arrangement, see B-211 to B-213.

. Key selector switches with one or three contact blocks contain a dummy block.

- See B-186 for gold-plated silver contacts.
- Turn the operator to each position accurately.

Key removal/retained positions

- A: Removable in all positions
- B: Removable in left and center C: Removable in right and center
- D: Removable in center only
- E: Removable in right and left
- G: Removable in left only
- H: Removable in right only

Note: The key cannot be removed in a spring return position.

	Key Retained Position (45° 3-position)												
A (removable in all positions)	B (removable in left and center)	C (removable in right and center)	D (removable in center only)										
			000										
E (removable in right and left only)	G (removable in left only)	H (removable in right only)											
	0 0 2												

①①②: Key removal position

OOO: Key retained position

Note: The key cannot be removed in a spring return position.

# Key Selector Switches (Disc Tumbler Key)

								Package Quantity: 1	Pio
	Disc Tumbler K HW1K	еу							Pilot Lights
No. of Positions	(NC cont	act only)				<u> </u>			APEM Switches &
									Pilot Lights
	Conta	ct Configurat	ion	Operator	Position		Maintained (90°)	Spring Return from Right (60°)	Control Boxes
	Contact Code	Mounting Position	Contact	1	2	Cam Code			Emergency Stop Switches
	1N0	1	NO		•		HW1K-2A10	HW1K-21B10	Enabling Switches
	(10)	2	—	Dumm	y Block		HWIK-2A10	HWIK-2IDIU	Safety Products
	1NC	1	NC	•			HW1K-2A01	HW1K-21B01	Explosion Proof
	(01)	2		Dumm	y Block		TIWTR-2A01	110111-21001	
	1NO-1NC	0	NO		•		HW1K-2A11	HW1K-21B11	Terminal Blocks
	(11)	2	NC	•					Relays & Sockets
	2N0	1	NO		•		HW1K-2A20	HW1K-21B20	Circuit
	(20)	2	NO		•				Protectors
	2NC	1	NC	•			HW1K-2A02	HW1K-21B02	Power Supplies
90°	(02)	2	NC	•					LED Illumination
2-position/		1	NO		•				Controllers
60° 2-position	2NO-1NC	2	NO		•		HW1K-2A21	HW1K-21B21	Operator
2 poolition	(21)	3	NC	•					Interfaces
		4		Dumm	y Block				Sensors
		1	NC	•					AUTO-ID
	3NC	2	NC	•			HW1K-2A03	HW1K-21B03	
	(03)	3	NC	•		_			
		4		Dumm	y Block				
		0	NO		•	-			Flush Silhouette
	2NO-2NC	2	NC	•		_	HW1K-2A22	HW1K-21B22	ø16
	(22)	3	NO		•				ø22
		4	NC	•					022

• Each key selector switch is supplied with two keys.

• 3 types of key numbers are available in addition to standard key.

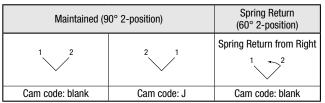
• Key retained position can be selected. See table below for key retained positions.

### **Ordering Information**

Example: HW1K - 2JA01 - 1H

Not specified: 231 (default key) The key number is engraved on the key cylinder. 1H 2H

- ЗH
- Cam code: Blank or J
- Operator position code:
- 2: 2-position, maintained
- 21: 2-position, spring return from right



<sup>•</sup> For more contact arrangement, see B-211 to B-213.

. Key selector switches with one or three contact blocks contain a dummy block.

• See B-186 for gold-plated silver contacts.

• Turn the operator to each position accurately.

Key removal/retained positions A: Removable in all positions B: Removable in left only C: Removable in right only Key Retained Position A (removable in B (removable in C (removable in all positions) left only) right only) 1 0 1 Ø 0 2 Cam code: blank Key Removal Position A (removable in B (removable in C (removable in all positions) left only) right only) 1 0 A 1 Cam code: J

O : Key removal position

● ②: Key retained position

Note: The key cannot be removed in a spring return position.



**Contact Block Mounting Position** 

- Pilot Lights
- ΤW
- YW

# ø22 HW Series Key Selector Switches

# Key Selector Switches (Disc Tumbler Key)

Pilot												Package Quantity: 1
Pilot Lights		Disc Tumbler HW1K	Кеу									
APEM	No. of Positions	(NC cor	ntact only)									
Switches & Pilot Lights	1 Coldono	Contact	t Configurat	ion		perato Positio			Maintained	Spring Return	Spring Return	Spring Return
Control Boxes			-		F	osilio		Cam	0	from Right	from Left	Two-way
Emergency Stop Switches		Contact Code	Mounting Position	Contact	1	0	2	Code				
Enabling Switches		2N0	0	NO	•							
		(20)	2	NO			•	1 —	HW1K-3A20	HW1K-31B20	HW1K-32C20	HW1K-33D20
Safety Products		2NĆ	0	NC					HW1K-3A02	HW1K-31B02	HW1K-32C02	HW1K-33D02
Explosion Proof		(02)	0	NC	l				HWIK-SAUZ	HWIK-SIDUZ	HWIK-32002	HWTK-33D02
Explosion Trool			0	NO	•			-				
Terminal Blocks		2NO-2NC	2	NO				-	HW1K-3A22N1	HW1K-31B22N1	HW1K-32C22N1	HW1K-33D22N1
		(22N1)	3 ④	NC NC				-				
Relays & Sockets			0	NO	-							
Circuit		4N0	Q	NO	-		•	1				
Protectors		(40)	3	NO	•		-	1 —	HW1K-3A40	HW1K-31B40	HW1K-32C40	HW1K-33D40
Power Supplies	45°	()	4	NO			•	1				
	3-position		0	NC								
LED Illumination		4NC	2	NC				1	HW1K-3A04	HW1K-31B04	HW1K-32C04	HW1K-33D04
Controllers		(04)	3	NC				] —	HWIK-3A04	HWIK-SIDU4	HWIK-32604	HW1K-33D04
			4	NC								
Operator Interfaces		4NC	0	NC				-				
Internaces		(04)	2	NC	•			S	HW1K-3SA04	_	_	_
Sensors		` <b>★</b>	3	NC NC	•		•	-				
			(4) (1)	NO	•							
AUTO-ID		2N0-1NC	 	NO	-		•	-				
		(21N1)	3	NC		•	-	J	HW1K-3JA21N1	-	—	-
		★☆ <u>③ NC</u> <u>●</u> <b>①</b> Dummy I	-	lock	1							
		1			Dun	ing D	1001			<u> </u>	J	

• On the contact arrangement marked with 🖈 in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact Flush Silhouette block. The rated insulation voltage and the rated thermal current remain unchanged.

Not specified: 231 (default key) The key number is engraved on the key cylinder.

• For models with \*, contacts may overlap when the operator is changed. Each key selector switch is supplied with two keys.

3 types of key numbers are available in addition to standard key.

• Key retained position can be selected. See table below for key retained positions.

### **Contact Block Mounting Position**

### **Ordering Information**





Pilot Lights

ø16

ø30 Miniature

> 2H 3H Cam code: Blank, J, or S Operator position code:

3: 3-position, maintained

1H

- 31: 3-position, spring return from right
- 32: 3-position, spring return from left
- 33: 3-position, spring return two way

Maintained (45° 3-position)	Sprin	g Return (45° 3-pos	ition)
Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way
Cam code: blank, J, or S		Cam code: blank	

• For more contact arrangement, see B-211 to B-213.

. Key selector switches with one or three contact blocks contain a dummy block.

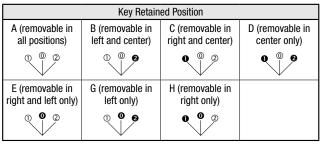
• See B-186 for gold-plated silver contacts.

Turn the operator to each position accurately.



- A: Removable in all positions
- B: Removable in left and center
- C: Removable in right and center D: Removable in center only
- E: Removable in right and left G: Removable in left only H: Removable in right only

Note: The key cannot be removed in a spring return position.



①①②: Key removal position

**O O O**: Key retained position

Note: The key cannot be removed in a spring return position.

LED

o. of ositions	Knob Oper HW1F Contac	ator											& Pilot Lights
(	Contac												hts
(	Contac												APEM
(		t Configura	ation		perat ositic		Operating	Maintained (90°)	Spring return from right (60°)			Color	Switches & Pilot Lights Control Boxes
1NO-1N	Contact Code	Mounting Position	Contact	1	2		Voltage	1 2	1 2	_	_	Code	Emergency Stop Switche
		0	NO		•		24V AC/DC	HW1F-211Q4*	HW1F-2111Q4*				Enabling
90°	NO-1NC (11)	0	NC	•			100/110V AC	HW1F-211H2*	HW1F-2111H2*				Switches
2-position/	(11)						200/220V AC	HW1F-211M2*	HW1F-2111M2*			Ь	Safety Produ
60°	2010	0	NO				24V AC/DC	HW1F-220Q4*	HW1F-2120Q4*			R G	Explosion Pro
2-position	2N0 (20)	2	NO				100/110V AC	HW1F-220H2*	HW1F-2120H2*			Y	Terminal Blo
	(20)						200/220V AC	HW1F-220M2*	HW1F-2120M2*			A	
		1	NO		•		24V AC/DC	HW1F-222Q4*	HW1F-2122Q4*			S PW	Relays & Soc
2	2NO-2NC	2	NC	•			100/110V AC	HW1F-222H2*	HW1F-2122H2*				Circuit
	(22)	3	NO	-	•		200/220V AC	HW1F-222M2*	HW1F-2122M2*				Protectors
		4	NC	•							/		Power Suppl
Conta	Contac	Contact Configuration			perat ositic		Operating	Maintained	Spring return from right	Spring return from left	Spring Return Two-way	Color	LED Illumina
	Contact Code	Mounting Position	Contact	1	0	2	Voltage					Code	Controllers Operator
		0	NO	•			24V AC/DC	HW1F-320Q4*	HW1F-3120Q4*	HW1F-3220Q4*	HW1F-3320Q4*		Interfaces
	2N0 (20)	2	NO			•	100/110V AC	HW1F-320H2*	HW1F-3120H2*	HW1F-3220H2*	HW1F-3320H2*		Sensors
	(20)						200/220V AC	HW1F-320M2*	HW1F-3120M2*	HW1F-3220M2*	HW1F-3320M2*		AUTO-ID
	010	1	NC				24V AC/DC	HW1F-302Q4*	HW1F-3102Q4*	HW1F-3202Q4*	HW1F-3302Q4*		
	2NC (02)	2	NC				100/110V AC	HW1F-302H2*	HW1F-3102H2*	HW1F-3202H2*	HW1F-3302H2*		
	(02)						200/220V AC	HW1F-302M2*	HW1F-3102M2*	HW1F-3202M2*	HW1F-3302M2*		
45°		1	NO	•			24V AC/DC	HW1F-322N1Q4*	HW1F-3122N1Q4*	HW1F-3222N1Q4*	HW1F-3322N1Q4*	R	Flush Silhou
	2NO-2NC	2	NO			•	100/110V AC	HW1F-322N1H2*	HW1F-3122N1H2*	HW1F-3222N1H2*	HW1F-3322N1H2*	G	
	(22N1)	3	NC				200/220V AC	HW1F-322N1M2*	HW1F-3122N1M2*	HW1F-3222N1M2*	HW1F-3322N1M2*	Y	ø16
		4	NC									A S	ø22
		0	NO	•			24V AC/DC	HW1F-340Q4*	HW1F-3140Q4*	HW1F-3240Q4*	HW1F-3340Q4*	PW	<b>*</b> 20
	4N0	2	NO	-		•	100/110V AC		HW1F-3140H2*	HW1F-3240H2*	HW1F-3340H2*		ø30
	(40)	3	NO	•			200/220V AC	HW1F-340M2*	HW1F-3140M2*	HW1F-3240M2*	HW1F-3340M2*		Miniature
_		<u>(4)</u>	NO				0.41/ A.O./D.O.						Pilot Lights
		0	NC				24V AC/DC	HW1F-304Q4*	HW1F-3104Q4*	HW1F-3204Q4*	HW1F-3304Q4*		
	4NC (04)	2	NC				100/110V AC		HW1F-3104H2*	HW1F-3204H2*	HW1F-3304H2*		
	(04)	3 ④	NC NC				200/220V AC	HW1F-304M2*	HW1F-3104M2*	HW1F-3204M2*	HW1F-3304M2*		
			l					 llow), A (amber), S (bli					HW

• See B-211 to B-213 for other contact arrangements.

• See B-186 for gold-plated silver contacts.

• Turn the operator to each position accurately.

• See B-186 for how to specify units without LED lamps.

• When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape.

Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

### **Contact Block Mounting Position**

Full Voltage 4 Adapter 3 1 1

Illuminated (full voltage)

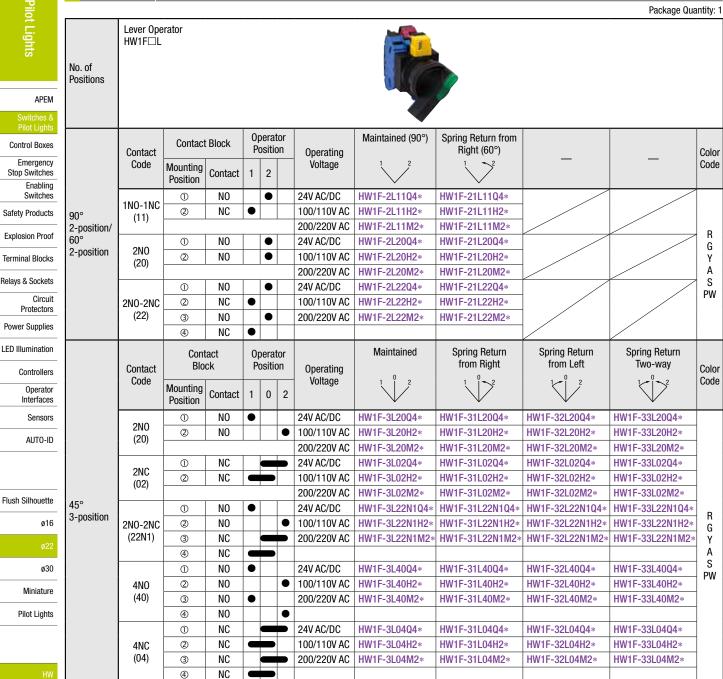
Illuminated (transformer)

▲ Download catalogs and CAD from http://eu.idec.com/downloads

YW

LED Selector Sw

Selector Switches (Lever Operator)



• Specify a color code in place of \* in the Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)

• See B-186 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.

Illuminated selector switches of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.

• See B-211 to B-213 for other contact arrangements.

• See B-186 for gold-plated silver contacts.

• Turn the operator to each position accurately.

• See B-186 for how to specify units without LED lamps.

 When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape.
 Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

### **Contact Block Mounting Position**

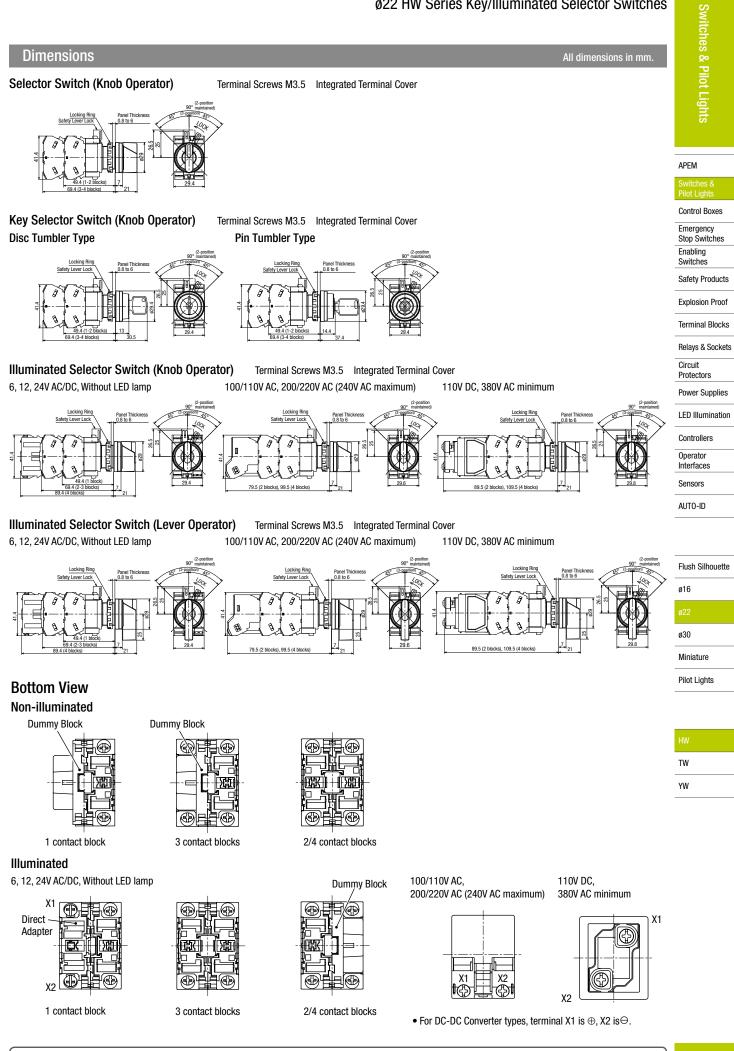


Illuminated (full voltage)

Illuminated (transformer)

ΤW

YW



# Selector Switch Contact Arrangement

90° 2-position (Spring Return 60° 2-position) < Maintained/Spring Return from Right>

ilot Lights		(oping)			-	Operation a	nd Circu	uit Avail	lability								
Ligh					Mainta				from Right		Operator Availability						
Its		Contact	Block			2		1	>2								
	Contact			Knob/ Lever	Key	Illuminated	Knob/	Key	Illuminated	Cam				Illuminated			
APEM	Code			Lever						Code	., .,		Diee				
Switches & Pilot Lights		Mounting	Contact	Operator Position			Operator Position				Knob/ Lever	Pin Tumbler	Disc Tumbler	6, 12, 24V AC/DC	100, 200V AC		
Control Boxes		Position	CUIIIACI			2 Ø			2 Ø					0, 12, 24V A0/D0	100, 200V AG		
Emergency Stop Switches	1N0	1	NO		·		<u> </u>										
Enabling	(10)	2		D	ummy	Block	D	ummy	Block	-	×	×	×	×	-		
Switches	1NC	1	NC	•			•				×	×	×	×			
Safety Products	(01)	2		D	ummy		D	ummy			~	~	~	~			
Explosion Proof	1NO-1NC	1 2	NO NC	•		•	•		•		×	×	×	×	×		
Tamainal Dia dia	(11) 2N0	1	NO	-		•	•		•								
Terminal Blocks	(20)	2	NO			•			•	-	×	×	×	×	×		
Relays & Sockets	2NC	1	NC	•			•		1		×	×	×	×	×		
Circuit	(02)	2	NC	•			•						<u>^</u>	^	^		
Protectors		1	NO			•	-		•								
Power Supplies	2NO-2NC (22)	2	NC NO	•		•	•		•		×	×	×	×	×		
LED Illumination	(22)	(4)	NC	•		•	•		•								
		1	NC	•		-	•										
Controllers	3N0-1NC	2	NO			•			•		x	×	×	×	×		
Operator	(31N1)	3	NO			•			•								
Interfaces		(4) (1)	NO NO			-											
Sensors	4N0	2	NO			•											
AUTO-ID	(40)	3	NO			•			•	—	×	×	×	×	×		
		4	NO			•			•								
	1NO-1NC ★	1	EM		-						×	×	×	×	×		
	(7S)	2	LB			-											
Flush Silhouette	2010	1 2	NC NC	•			•										
	3NC (03)	3	NC	•			•			—	×	×	×	×	-		
ø16	(00)	4		D	ummy	Block	D	ummy	Block								
ø22		1	NO			•			•								
ø30	2NO-1NC	2	NC	•		_	•		_	_	x	×	×	×	_		
000	(21)	3 4	NO		ummir	Plook		ummy	Plook		-   ×						
Miniature		4			ummy	DIUCK		unny	DIUCK								

Pilot Lights

TW YW

## 90° 2-position Cam Reversed (Maintained)

ſ				Operator Operation a										
				Maint	ained		Operator Availability							
	Contact	Contact Block		2	/	Cam								
'	Code			Knob/Key/I	lluminated	Code	Knob/	Pin		Illumii	nated			
_				Operator	Position				Disc					
_		Mounting Position			1		Lever	Tumbler	Tumbler	6, 12, 24V AC/DC	100, 200V AC			
		roonton			Ø									
- [	2NC	1	NC		•		×	×	×	×	×			
	(02)	2	NC		•	J	^		^	^	^			
		1	NC		•									
	3NC	2	NC		•		×	×	×	×				
	(03)	3	NC		•	J			~	~				
		4	—	Dumm	y Block									

• On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.

### 45° 3-position <Maintained>

		itact ock		Operato Positio		Cir	cuit Ava	ilability				Oper	ator Availability		ilot Lights
Contact			1	0	2				Cam		Pin	D:	Illumi	nated	l Italia
Code	Mounting Position	Contact	1	٢	Ø	Knob/ Lever	Key	Illuminated	Code	Knob/ Lever	Tumbler	Disc Tumbler	6, 12, 24V AC/DC	100, 200V AC	
1NO-1NC ★	1	NC		•		×	×	×	1	x	×	×	×	×	APEM
(11N1) <sup>公</sup>	2	NO			•		^	^	J				~	^	
*	-	NC			•										Switches &
4NC	2	NC				×	×	×	S	×	×	×	×	×	Pilot Lights
(04)	3	NC			•		^	^	3	^			^	^	Control Boxes
	4	NC				]									Emergency
2NO-1NC 📩	1	NO													Stop Switches
	2	NO			٠		~	~		~		~	×.		Enabling
(21N1)	3	NC		٠		×	×	×	J	×	×	×	×	_	Switches
	4	_	Dur	nmy B	lock	1									Safety Products

## 45° 3-position

### <Maintained/Spring Return from Right/Spring Return from Left/Spring Return Two-way>

	Con Blo			Operato Positior		Cir	cuit Ava	ilability				Opera	ator Availability		Relays & Socke
Contact									Cam				Illumi	nated	Protectors
Code	Mounting	Contact	1	0	2	Knob/	Kou	Illuminated	Code	Knob/	Pin	Disc			Power Supplies
	Position	Contact			Ø	Lever	Кеу	Illuminated		Lever	Tumbler	Tumbler	6, 12, 24V AC/DC	100, 200V AC	LED Illuminatio
1NO-1NC	1	NO	•				×	×		×	×	×	~	~	Controllers
(11)	2	NC				×	X	×	_	×	×	×	×	×	Operator Interfaces
1NO-1NC	1	NC NO				×	×	×	_	×	×	×	×	×	
(11N1) 2N0	1	NO	•		•										Sensors
(20)	2	NO	-		•	×	×	×	—	×	×	×	×	×	AUTO-ID
2NC	1	NC				~	×	×		~	×	x	~	~	
(02)	2	NC				×	X	X		×		~	×	×	
	1	NO													
2NO-2NC	2	NO			•	×	×	×	_	×	×	×	×	×	Flush Silhouett
(22N1)	3 (4)	NC NC													
	(4) (1)	NC													ø16
2NO-2NC	2	NO													ø22
(22N2)	3	NC				×	×	×	—	×	×	×	×	×	
. ,	4	NO			•	1									ø30
	1	NO													Miniature
4N0	2	NO			•	×	×	×		×	×	×	×	×	
(40)	3	NO	•												Pilot Lights
	<ul><li>④</li><li>①</li></ul>	NO NC			•										
4NC	2	NC													
(04)	3	NC				×	×	×	—	×	×	×	×	×	
X- /	4	NC				1									HW

• On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.

 $\bullet$  For models with  $\precsim,$  contacts may overlap when the operator is changed.

YW

Safety Products Explosion Proof

Terminal Blocks

# Ø22 HW Series Selector Switch Contact Arrangement Chart

# Switches & Pilot Lights

### **Operator Position** Maintained Contact Block Contact 2 3 Cam 1 4 Code Code ۲ ۲ Ø Mounting Contact Position Knob Operator 1 NO • Å 2 NC APEM 1NO-2NC x 3 NC • (12) 4 **Dummy Block** 1 LB Control Boxes 1NO-3NC 2 NC × Emergency (13N6) 3 NC . Stop Switches 4 NO • Enabling 1 NO Switches ★ . 2 NC 6 Safety Products 2NO-2NC × 3 NC • (22N3) Explosion Proof 4 NO

# 30° 5-position

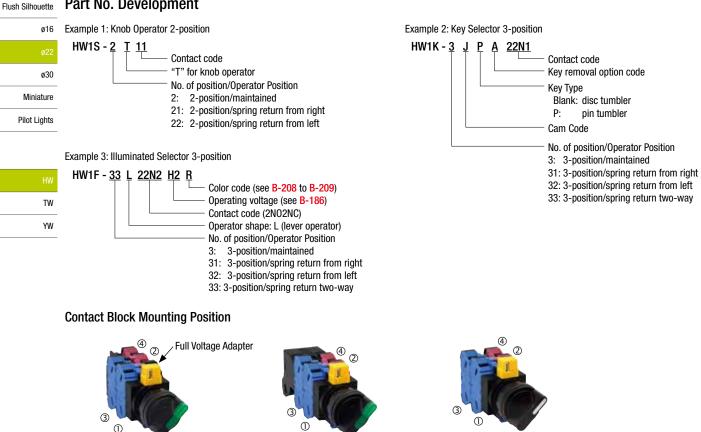
45° 4-position

Relays & Sockets		poordon									
			Operator Position							Maintained	
Circuit Protectors		Contact	Contac	t Block	1	2	0	4	F	2 4	Cam
Power Supplies	-	Code				®	3	4 Ø	5	15	Code
LED Illumination			Mounting Position	Contact	0				Ø	Knob Operator	
Controllers		*	1	NO							
0	21	NO-2NC ☆	2	NC		•					
Operator Interfaces	(22N3)		3	NC				•		×	_
Sensors			4	NO					•		

• On the contact arrangement marked with 🖈 in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.

• For models with  $rac{l}{\sim}$ , contacts may overlap when the operator is changed.

# Part No. Development



Illuminated Selector (Full Voltage)





# Controlle Opera Interfac Senso AUTO-ID

Terminal Blocks

Relays & Sock

# For more information, visit http://eu.idec.com

### **Pushbutton Selectors** Package Quantity: 1 $\bigcirc$ Contact Block **Ring Operator** Circuit Contact Button Shape Category Code Color Code Mounting Contact Normal Depressed Normal Depressed Part No. Position 1 NO • • 1N0-1NC HW1R HW1R-2A11\* (11)2 NC • APEM 1 NO • • 2N0 HW1R-2A20\* (20) 2 NO • А 1 NO • • Control Boxes 2 NC • 2NO-2NC Emergency HW1R-2A22\* (22) 3 NO • • Stop Switches (4) Enabling NC . Switches 1 NO • 2N0 HW1R-2D20\* Safety Products (20) 2 NO 1 NO Explosion Proof D 2 NO 2N0-2NC • HW1R-2D22N1\* Terminal Blocks (22N1) 3 NC В 4 NC Relays & Sockets . G \* 1 NO R Circuit Y S Protectors 2N0-2NC 2 NO Е HW1R-2E22N1\* (22N1) 3 NC Power Supplies W 4 NC LED Illumination 1 NO • ★ ☆ 2NO-2NC 2 NO • Controllers F HW1R-2F22N1\* (22N1) 3 NC • Operator 4 • Interfaces NC 1 ★☆ NC . Sensors 2 2N0-2NC NO • • Ν HW1R-2N22N2\* AUTO-ID (22N2) 3 NC . 4 NO • • 1 NO • . 2NO-2NC 2 NO • • Т Blocked HW1R-2T22N1\* Flush Silhouette (22N1) 3 NC • 4 NC • ø16

• Specify a button color code in place of \* in the Part No. B (black), G (green), R (red), Y (yellow), S (blue), W (white)

• When operating the pushbutton selector, do not turn the operator ring or the lock lever while the button is depressed. Otherwise the pushbutton selector may be damaged.

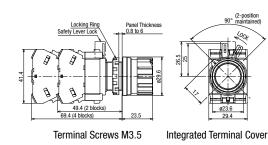
• On the contact arrangement marked page with 🖈 in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.

• For models with  $\dot{m}$ , contacts may overlap when the operator is changed.

# Dimensions

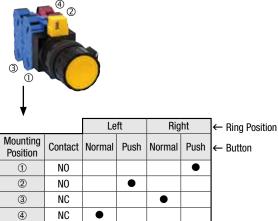
### All dimensions in mm.





• See B-210 for the bottom view.

Ļ		
Mounting Position	Contact	Norm



Miniature Pilot Lights

ø30

**Switches & Pilot Lights** 

Protectors Power Supplies

LED Illumination

Controllers Operator Interfaces Sensors AUTO-ID

8 80	Mono-Lever Switches										
Pilot Lights			Package Quantity: 1								
Ē	Shape	Positions	Part No. (Ordering No.)								
igh	HW1M		HW1M-1010-20								
ts –	Standard Lever		HW1M-2020-20								
		2 position	HW1M-0101-20								
		2-position	HW1M-0202-20								
APEM			HW1M-0101-40								
Switches &			HW1M-0202-40								
Pilot Lights			HW1M-1111-22N9								
Control Boxes		4-position	HW1M-2222-22N9								
Emergency	HW1M-L		HW1M-L1010-20								
Stop Switches	Interlocking Lever		HW1M-L2020-20								
Enabling Switches		2 position	HW1M-L0101-20								
Safety Products		2-position	HW1M-L0202-20								
			HW1M-L0101-40								
Explosion Proof			HW1M-L0202-40								
Terminal Blocks	- (1)		HW1M-L1111-22N9								
		4-position	HW1M-L2222-22N9								
Relays & Sockets	• On all mana lower awitahaa, the rated ourra	nt (load switching surront) is reduced to a half of the rated sur	rant of the contract block								

• On all mono-lever switches, the rated current (load switching current) is reduced to a half of the rated current of the contact block. Circuit The rated insulation voltage and the rated thermal current remain unchanged.

# **Contact Arrangement Chart**

2-position (Right/Left)											
Contact	Cont Bloc		Lever Operator Position								
Code	Mounting Position	Contact	Left	Center	Right						
20	1	NO	•								
20	2	NO			•						
	1	NO	٠								
40	2	NO			•						
40	3	NO	•								
	(4)	NO			•						

### 2-position (Up/Down)

=										
Contact	Cont Blo		Lever Operator Position							
Code	Mounting Position	Contact			Right					
20	1	NO	•							
20	2	NO			•					
	1	NO	•							
40	2	NO			•					
40	3	NO	•							
	4	NO			•					

### 4-position

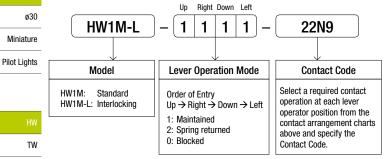
Contact	Cont Blo	Lever Operator Position						
Code	Mounting Position	Contact	Down	Left	Center	Up	Right	
	1	NC					•	
22N9	2	NC	•					
22119	3	NO		•				
	4	NO				•		

Flush Silhouette

ø16

YW

# Part No. Development



• The lever operator of the interlocking type HW1M-L is locked only in the center position. Pull on the interlocking lever before operating the lever up/down/right/left.

## **Contact Block Mounting Position and** Lever Operation Position

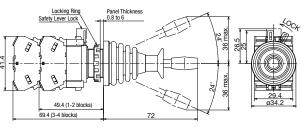


# Dimensions Standard Lever

# Safe 49.4 (1-2 blocks 69.4 (3-4 blocks)

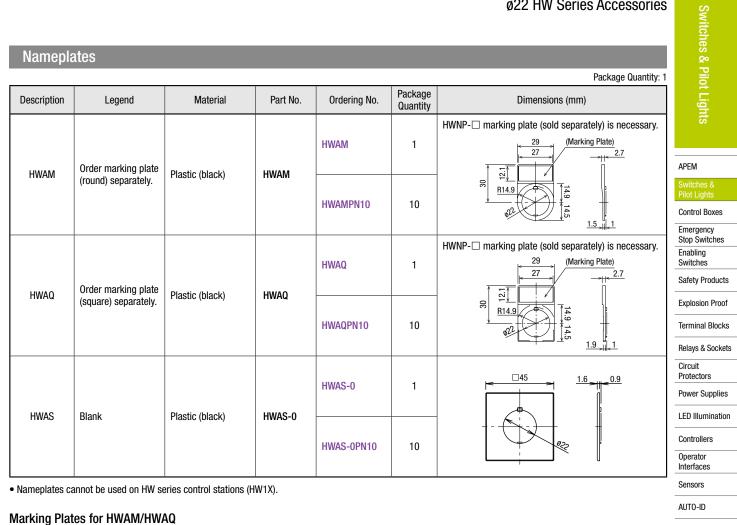
### Interlocking Lever

All dimensions in mm.



**Terminal Screws M3.5** Integrated Terminal Cover See B-210 for the bottom view.

# For more information, visit http://eu.idec.com



Description	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)	
	Aluminum (black)		HWNP-	1	White legend on black background. Engraving area: W25×H7	Flush Silhouette
HWNP	Thickness = 1.0mm	HWNP-□	HWNP-□PN10	10		ø22
	<u> </u>					ø30

 $\bullet$  Specify a legend code in place of  $\Box$  in the Ordering No.

### Legends

Code	Legend
0	(blank)
1	ON
2	OFF
3	START
4	STOP
31	OFF-ON
35	HAND-AUTO
53	HAND-OFF-AUTO

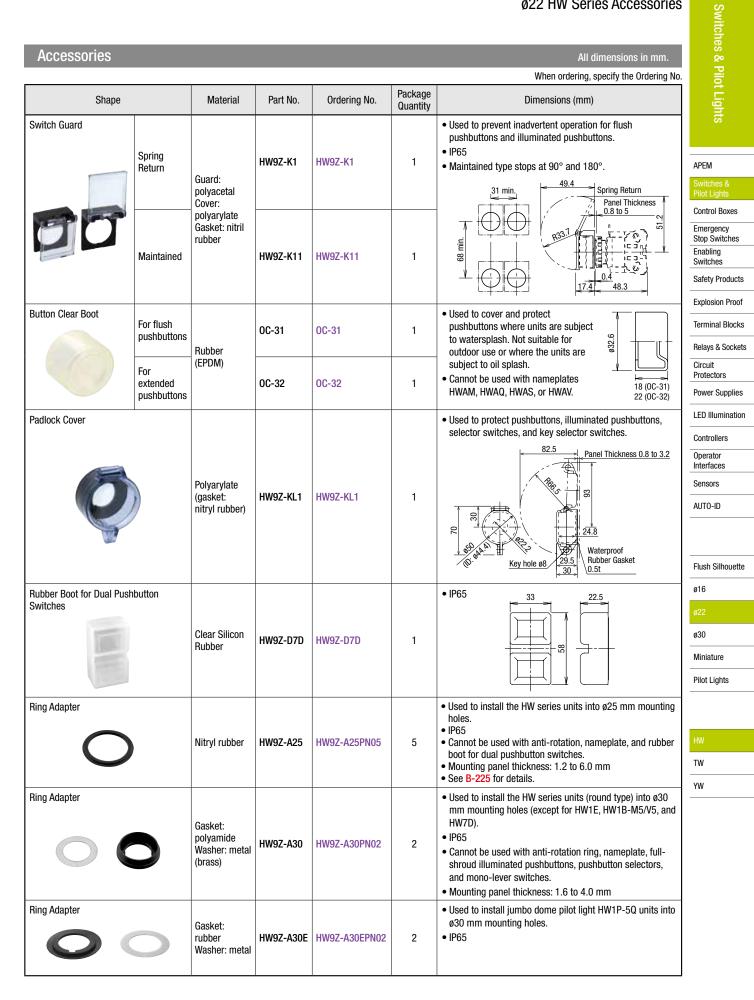
• See B-226 for how to install nameplates/marking plates, and how to remove marking plates.

HW	
TW	
YW	

# ø22 HW Series Accessories

nes & Pilot Lights	A	ccessories					All dimensions in mm.
ilot Li		Shape	Material	Part No.	Ordering No.	Package	When ordering, specify the Ordering No. Dimensions (mm)
ghts APEM		Locking Ring Wrench	Metal (brass) (weight: approx. 150g)	MW9Z-T1	MW9Z-T1	Quantity 1	Used to tighten the locking ring when installing the HW switch onto a panel.
Switches & Pilot Lights Control Boxes			(weight: approx. 130g)				
Emergency Stop Switches Enabling Switches Safety Products	Tool	Lamp Holder Tool	Nitrile rubber (black)	0R-55	0R-55	1	Used to install and remove the LED lamps. See B-223 to B-224 for how to install. A : BA9S     DR-55     TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
Explosion Proof Terminal Blocks Relays & Sockets Circuit Protectors Power Supplies LED Illumination Controllers		Contact Block Removal Tool	Zinc-plated metal Nitril rubber	TW-KC1	TW-KC1	1	Used to remove the contact block and transformer, and also to install/remove the pilot light and illuminated pushbutton lens. See B-224.
Operator Interfaces Sensors AUTO-ID	Anti-rotation Ring		Ring: polyamide Gasket: nitril rubber	HW9Z-RL	HW9Z-RLPN10	10	Used to prevent the operator from turning. Generally used when using no nameplates on selector switches and pushbutton selectors.
Flush Silhouette ø16 ø22 ø30 Miniature	Rub	ber Mounting Hole Plug	Nitril rubber (black)	0B-31	0B-31PN05	5	Used to plug the unused ø22.2 mm mounting holes. Degree of protection: IP65 (round hole) IP40 (with anti-rotation function)
Pilot Lights HW TW YW	Rubber Mounting Hole Plug		Plug: chrome-plated zinc diecast Locking ring: polyamide Gasket: nitril rubber	LW9Z-BM	LW9Z-BM	1	Used to plug the unused ø22.2 mm mounting holes. Degree of protection: IP66 (round hole) IP40 (with anti-rotation function) Tightening torque: 1.2 N·m <u>Gasket</u> <u>Locking Ring</u> <u>M22 P:1</u> Panel Thickness 0.8 to 6
	Metallic Mounting Hole Plug		Polyamide	LW9Z-BP1	LW9Z-BP1	1	Used to plug the unused ø22.2 mm mounting holes. Degree of protection: IP65 Tightening torque: 2.0 N·m     Ø29.0     Panel Thickness     0.8 to 6     Rubber Gasket     Locking Ring     M22 P: 1
	Barr	rier	Polyamide	HW-VU1	HW-VU1PN10	10	Used to prevent contact between adjacent lead wires when units are mounted closely (see B-227 for details). Barriers should always be used in close mounting.

# **Ø22 HW Series Accessories**



# **Maintenance Parts**

When ordering, specify the Ordering No.

$\overline{\mathbf{O}}$		when ordering, specify the ordering No.					
lot Lights	Shape	Material	Part No.	Ordering No.	Package Quantity	Remarks	
<u>8</u>	Contact Block	NO contact	HW-U10	HW-U10	-	Housing color: blue/Push rod color: green	
	HW-U	NO COMACI	HW-U10-MAU	HW-U10-MAU		MAU has gold contacts	
APEM		NC contract	HW-U01	HW-U01	-	Housing color: reddish purple/Push rod color: red	
		NC contact	HW-U01-MAU	HW-U01-MAU		MAU has gold contacts	
Switches & Pilot Lights		EM (early make)	HW-U10R	HW-U10R	_	Housing color: blue/Push rod color: black	
Control Boxes		contact	HW-U10R-MAU	HW-U10R-MAU		MAU has gold contacts	
Emergency		LB (late break)	HW-U01R	HW-U01R	_	Housing color: reddish purple/Push rod color: white	
Stop Switches	Weight: 11g (approx.)	contact	HW-U01R-MAU	HW-U01R-MAU		MAU has gold contacts	
Enabling Switches	Dummy Block					For HW-U contact blocks	
Safety Products		Polyamide	HW-DB	HW-DBPN10	10	<ul> <li>Used when the number of contact blocks and full voltage adapters is odd number.</li> </ul>	
Explosion Proof	Weight: 3.5g (approx.)					· · · · · · · · · · · · · · · · · · ·	
Terminal Blocks	Full Voltage Adapter					Applicable model:	
Relays & Sockets	for Illuminated (*1)	Debaarda				Illuminated pushbuttons Illuminated selector switches	
Circuit Protectors		Polyamide	HW-GA1N	HW-GA1NPN02	2	<ul> <li>Applicable load (LED lamp)</li> <li>LSTD-6 (6V AC/DC)/LSTD-1 (12V AC/DC)</li> </ul>	
Power Supplies	Weight: 12g (approx.)					LSTD-2 (24V AC/DC)	
LED Illumination	Transformer Unit (*1)	100/110V AC	HW-T16	HW-T16	1	Applicable model:     Illuminated pushbuttons	
Controllers						Illuminated selector switches	
Operator Interfaces	Weight: 12g (approx.)	200/220V AC	HW-T26	HW-T26	1	Applicable load (LED lamp)     LSTD-6 (6V AC/DC)	

Sensors \*1) Maintenance parts are used for maintenance parts only. Do not use these parts for expansion or remodeling purpose.

AUTO-ID	.)				provide a consecutive p	aipoooi	When ordering, specify the Ordering No.
	Sh	ape	Material/Dimensions	Part No.	Ordering No.	Package Quantity	Color Code *
Flush Silhouette	Lens	①Round flush	Polyarylate ø23.5 H4.2	HW9Z-L11*	HW9Z-L11*PN05	5	
ø16		©Square flush	Polyarylate ø24.6 H4	HW9Z-L21*	HW9Z-L21*PN05	5	R (red), G (green), Y (yellow), A (amber), C (clear), S (blue) (*2)
ø22	3 <del>(</del>	③Round extended	Polyarylate ø23.3 H10	HW9Z-L12*	HW9Z-L12*PN05	5	
ø30	5		AS, marking type	ALW31L-*	ALW31L-*PN02	2	R (red), G (green), S (blue), C (clear) (*2)
Miniature Pilot Lights		<pre>@ø29 mushroom</pre>	ø29 H12.7	ALW31LD-*	ALW31LD-*PN02	2	Y (yellow), A (amber)
	6		AS, marking type	ALW41L-*	ALW41L-*	1	R (red), G (green), S (blue), C (clear) (*2)
		5ø40 mushroom	ø40 H12.7		ALW41LD-*	1	Y (yellow), A (amber)
нw тw	0	©Jumbo dome	Polycarbonate ø66 H50	HW1A-P5*	HW1A-P5*	1	R (red), G (green), Y (yellow), A (amber), W (white), S (blue)
YW		⑦Dome for pilot light	AS ø23.5 H15.1	HW1A-P2*	HW1A-P2*PN05	5	R (red), G (green), Y (yellow), A (amber), W (white), S (blue) (*3)
	Button ① ②	①Round flush with round or square bezel	Polyacetal ø23.6 H3	HW1A-B1*	HW1A-B1*PN05	5	
	<b>Ö</b>	②Round extended with round or square bezel	Polyacetal ø23.6 H9.2	HW1A-B2*	HW1A-B2*PN05	5	
	3	3Square flush	Polyacetal □24.8 H3	HW2A-B1*	HW2A-B1*PN05	5	Use ${\mathbb O}$ for pushbutton selectors.
	5	@Square extended	Polyacetal □24.5 H9.2	HW2A-B2*	HW2A-B2*PN05	5	B (black), G (green), R (red), Y (yellow), S (blue), W (white)
	6	5ø29 mushroom	Polyacetal ø29 H12.7(M18P1.0)	HW1A-B3*	HW1A-B3*PN02	2	
		©ø40 mushroom	Polyacetal ø40 H12.7(M18P1.0)	HW1A-B4*	HW1A-B4*PN02	2	

\*2) Use C (clear) lens for PW (pure white) illumination.

\*3) Use W (white) lens for PW (pure white) illumination.

# ø22 HW Series Maintenance Parts

Μ	laintenance Pa	arts					All dimensions in mm.	es &
							When ordering, specify the Ordering No.	Pilo
	Shape		Material/Dimensions	Part No.	Ordering No.	Package Quantity	Remarks	hes & Pilot Lights
	Round flush		Acrylic ø21.5 Thickness = 1	HW9Z-P11	HW9Z-P11PN05	5	White     See B-225 for dimensions and     engraving area.	Its
j Plate	Round extended		Acrylic ø21.3 Thickness = 6.5	HW9Z-P12	HW9Z-P12PN05	5	eliyiaving area.	APEM Switches &
Marking Plate	Square flush		Acrylic 22.7 Thickness = 1	HW9Z-P21	HW9Z-P21PN05	5		Pilot Lights Control Boxes
	ø29/40 mm mushroom		Acrylic ø15.7 H3.4	ALW3B	ALW3BPN05	5		Emergency Stop Switches Enabling
	rator Knob for Illumina ctor Switch	ated				4	• Specify a color code in place of *. R (red), G (green), Y (yellow), A (amber),	Switches Safety Products
			- AS resin	HW9Z-FDY*	HW9Z-FDY*	1	W (white), S (blue) • Use W (white) knob/lever for pure white illumination.	Explosion Proof Terminal Blocks
	rator Lever for Illumina ctor Switch	ated		HW9Z-FDL*	HW9Z-FDL*	1		Relays & Sockets Circuit Protectors Power Supplies
	re Key c Tumber Key)	8	Metal (nickel-plated brass)	HW9Z-SK-231	HW9Z-SK-231PN02	2		LED Illumination Controllers Operator
	re Key Tumber Key)			LW9Z-SK-500	LW9Z-SK-500PN02		Standard key number	Interfaces Sensors
	19-101	5	Metal (nickel-plated brass)	LW9Z-SK-	LW9Z-SKPN02	2	• Key number	AUTO-ID
				LW9Z-SK-	LW9Z-SKPN02		• Key number	Flush Silhouette
Lock	kig Ring		Polyamide (black) ø28.4 H5 M22P1	HW9Z-LN	HW9Z-LNPN05	5		ø16 ø22 ø30
Cap 1 Swite		Standard	Nitryl rubber ø10 L20	HW9Z-CPM	HW9Z-CPM	1		ø30 Miniature Pilot Lights
Boot Mono Swite	o-lever	Standard	Nitryl rubber ø29.2 L34.4	HW9Z-BLM	HW9Z-BLM	1		HW TW
Diffu	using Lens		Polycarbonate ø22.2 H21	HW9Z-PP5C	HW9Z-PP5C	1	Used for LED type jumbo dome pilot lights only. Do not use for incandescent lamp illumination.	YW
Safety Lever Lock Pol		Polyacetal (yellow)	HW9Z-LS	HW9Z-LSPN10	10	• A safety lever lock is supplied with a standard HW series switch/pilot light.		
Gask	et C	>	Nitryl rubber (black)	HW9Z-WM	HW9Z-WMPN10	10	Thickness = $0.5$ $0.16 \pm 0.15$ $0.28.0 \pm 0.15$	
Conta Plug	tact Block	2	Polyamide	HW9Z-CBPL	HW9Z-CBPLPN10	10	Used to plug the hole in the center of contact block.	

Maintenance Parts
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HW Series LED Lamps (except for HW Jumbo Dome Pilot Lights)

All dimensions in mm.

### When ordering, specify the Ordering No. Current Draw Operating Illumination Package Shape/Dimensions Part No. Ordering No. Base Voltage Color Code Quantity DC AC 7mA (R, A, W) LSTD-6\* 1 8mA (except S) LSTD-6\* 6V AC/DC 5.5mA (G, PW) 7mA (S) LSTD-6\*PN10 10 APEM 4.5mA (S) LSTD-1\* 1 10mA (except S) 11mA (except S) (20.8)12V AC/DC LSTD-1\* BA9S/13 R, G , A, W, S, PW Control Boxes 18.4 8mA (S) 9mA (S) LSTD-1\*PN10 10 Emergency Stop Switches Eyelet (X1) LSTD-2\* 1 10mA (except S) 11mA (except S) Base (X2) BA9S/13 Enabling 24V AC/DC LSTD-2\* Voltage Switches 8mA (S) 9mA (S) LSTD-2\*PN10 10 Safety Products

Explosion Proof

Flush Silhouette

ø16

Terminal Blocks

### HW Series LED Lamps (used for HW Jumbo Dome Pilot Lights) Relays & Sockets

• Use a PW (pure white) LED lamp for Y (yellow) illumination.

• Specify a color code in place of \*. R (red), G (green), A (amber), W (white), S (blue), PW (pure white)

Relays & Sockets	IW Series LED Lamps (used for HW Jumbo Dome Pilot Lights) Package Quantity							
Circuit Protectors	Shape/Operating Voltage	Current Draw		Ordering No.	Illumination Color Code	Dimensions		
Power Supplies	24V AC/DC	00	70			Light blue: Base BA9S/13		
LED Illumination	15	15mA	15mA	LSTDB-2*	R, G , A, W, S, PW	LSTDB Illumination color		
Controllers		TOMA	TJIIA					
Operator Interfaces						20.4		

• Specify a color code in place of \*. R (red), G (green), A (amber), W (white), S (blue), PW (pure white) Sensors

• Use a PW (pure white) LED lamp for Y (yellow) illumination. AUTO-ID

# LED Lamps (LED Lamps for replacing incandescent lamps)

• Use the following replacement LED lamps to replace incandescent lamps.

· See HW series LED lamps shown above for ordering.

• LED lamps may have different brightness/color hue compared with incandescent lamps.

Incandescent Lamp								
Model (dimensions in mm)	Part No.	Rated Voltage	Lamp Ratings	Base				
LS	LS-6	6V AC/DC	1W(6V)					
	LS-8	12V AC/DC	1W(18V)					
	LS-2	AC/DC18V	1W(24V)	BA9S/13				
Glass bulb: ø11 Length: 23	LS-3	24V AC/DC	1W(30V)					
LSB (For Jumbo Dome Pilot Lights)								
E .	LSB-2	24V AC/DC	28V/0.17A	BA9S/13				
Glass bulb: ø10 Length: 27								

Replacement LED Lamp						
Ordering No.	Illumination Color Code	Rated Voltage	Base			
LSTD-6*		6V AC/DC				
LSTD-1*		12V AC/DC	BA9S/13			
LSTD-2*	R, G , A, S, PW	24V AC/DC	DA90/13			
LSTD-2*		24V AC/DC				
LSTDB-2*	R, G , A, S, PW	24V AC/DC	BA9S/13			

• Specify a color code in place of \*. R (red), G (green), A (amber), S (blue), PW (pure white)

• Use a PW (pure white) LED lamp for Y (yellow) illumination.

### Transformer

				Package Quantity: 1	Pilot
Shape	Operating Voltage	Operating Voltage Range	Ordering No.	Applicable Load	Ê
6V	100/110V AC	100/110V AC ±10%	100/110V AC ±10% TWR516 LSTD-6* (6V AC/DC, LED lamp)		Lights
	200/220V AC	200/220V AC ±10%	TWR526	Specify a color code in place of * in Part No.	
	400/440V AC	400/440V AC ±10%	TWR546	R (red), G (green), A (amber), S (blue), PW (pure white)	APEM
24V	100/110V AC	100/110V AC ±10%	TWR512	LSTD-2* (24V AC/DC, LED lamp) or	Switches & Pilot Lights
	200/220V AC	200/220V AC ±10%	TWR522	LSTDB-2* (24V AC/DC, LED lamp) Specify a color code in place of * in Part No.	Control Boxes Emergency Stop Switches
	400/440V AC	400/440V AC ±10%	TWR542	R (red), G (green), A (amber), S (blue), PW (pure white)	Enabling Switches

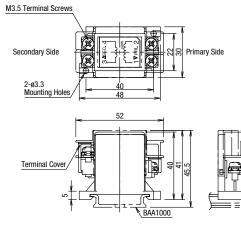
• Terminal cover (TWR-VL3) is installed on transformers as standard.

• Transformer is installed to one HW series unit.

# **Specifications**

Part No.	TWR5□6	TWR5□2	
Operating Voltage	100/110V AC, 200/220V AC 400/440V AC (50/60Hz)		
Current Draw	2.4VA		
Rated Insulation Voltage	600V		
Insulation Resistance	100MΩ minimum (500V I	DC megger)	
Operating Temperature	-30 to +60°C (no freezing	g)	
Operating Humidity	35 to 85% RH (no conder	nsation)	
Storage Temperature	-40 to +80°C (no freezing	g)	
Vibration Resistance	Damage limits: 30Hz, am Operating extremes: 5 to		
Shock Resistance	Damage limits: 1,000 m/s Operating extremes: 100		
Dielectric Strength	2500V AC, 1 minute		
Terminal Screw	M3.5		
Applicable Wire	2mm <sup>2</sup> maximum, 2 wires	maximum	
Weight (approx.)	87g		

## Dimensions



14/1-

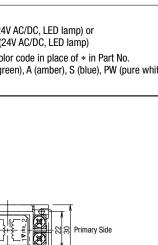
n ardarina

All dimensions in mm.

Accessories

Accessories					When ordering, specify the Ordering No.	ø3(
Shape	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)	Mi
DIN 35 mm Rail Weight: 200g approx.	Aluminum Length: 1000 mm	BAA1000	BAA1000PN10	10		Pile HW
DIN 35 mm Rail Weight: 320g approx.	Steel Length: 1000 mm	BAP1000	BAP1000PN10	10		YM
End Clip Weight: 15g approx.	Metal (zinc-plated steel) Applicable rail: AA1000 BAP1000	BNL6	BNL6PN10	10		

• See H-071 for DIN rail products.





ø30	
Miniature	
Pilot Lights	

Flush Silhouette

Switches & Pilot Lights

Safety Products

Explosion Proof Terminal Blocks

Relays & Sockets

LED Illumination

Controllers Operator Interfaces

Sensors AUTO-ID

Circuit Protectors Power Supplies

B-222

APEM

Control Boxes

Explosion Proof

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Circuit

Protectors

Operator

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Sensors

AUTO-ID

ø16

ΤW

YW

Emergency Stop Switches

Enabling Switches Safety Products

# Safety Precautions

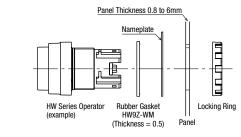
- Turn off the power to the HW series switches & pilot lights before starting installation, removal, wiring, maintenance, and starting installation, removing, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.
- To avoid a burn on your hand, use the lamp holder tool when replacing lamps.
- For wiring, use wires of a proper size to meet the voltage and current requirements. Tighten the terminal screws to the recommended tightening torque (see B-228). Failure to tighten terminal screws may cause overheat and fire.
- When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape.

Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

# **Operating Instructions**

# Panel Mounting

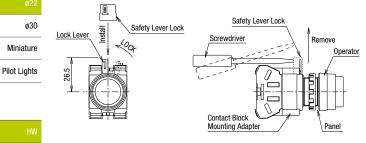
• Remove the contact block from the operator (for transformer type pilot lights, remove the transformer from the illumination unit). Remove the locking ring from the operator (for pilot lights, remove the locking ring from the illuminated unit). Insert the operator into the panel cut-out from the front. Tighten the locking ring from the back to install the contact block to the operator.



Mounting panel thickness is reduced by 1.5 mm when using a nameplate.

# Flush Silhouette Removing the Contact Block

• Remove the safety lever lock (yellow) from the lock lever by inserting a flat screwdriver into the safety lever lock and push upwards.



• Remove the operator from the contact block by turning the locking lever in the direction of the arrow shown below. Then the operator can be pulled out.





- To reinstall, place the TOP marking on the operator and the lock lever in the same direction, and insert the operator into the contact block mounting adapter. Then turn the locking lever in the opposite direction.
- Install the safety lever lock (yellow) on the lock lever. The safety lever lock cannot be installed when the lock lever is not upright.

# Safety Lever Lock

IDEC strongly recommends using the safety lever lock (HW9Z-LS, yellow) to ensure that lock lever is locked, or to prevent maintenance personnel from unlocking contacts during wiring.



### How to install

 Mount the HW series onto the panel, lock the lever, and push in the safety lever lock.

### **Spacing in Vertical Direction**

• HW series can be installed with a minimum of 50 mm spacing in vertical direction (mono-lever switch: 70 mm minimum). Be sure to take the space required for installing/removing the safety lever lock into consideration. When the spacing is narrower than the recommended value, install the HW series units in the order of low to high. When removing, do so in the opposite direction.

# **Notes for Panel Mounting**

Locking ring wrench recommended torque

Tighten the bezel to a tightening torque of 2.0  $\ensuremath{\text{N}$\cdot$m}.$ 

### Locking ring wrench

Locking ring wrench (MW9Z-T1) can be used to tighten the bezel. Do not use pliers. Excessive tightening will damage the locking ring.



Locking ring wrench (MW9Z-T1)

### Panel Thickness

HW series can be mounted on a panel with thickness of 0.8 to 6.0 mm. Take the thickness of nameplate and/or switch guard into consideration.

# **Replacement of LED Lamps**

LED lamps can be replaced by using the lamp holder tool (OR-55) from the front of the panel, or by removing the contact block from the operator unit. (See B-217 for lamp holder tool.)

### How to Remove

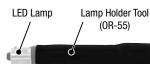
To remove, slip the lamp holder tool onto the lamp head lightly. Then push slightly, and turn the lamp holder tool counterclockwise.



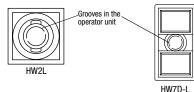
### **Operating Instructions**

### How to Install

Insert the lamp head into the lamp holder tool.



Place the pins on the lamp base to the grooves in the lamp socket. Insert the lamp and turn it clockwise.



Installing/Removing the Buttons and Lenses

<To install>

Pushbutton Button

Flush/Extended

Push in the button to install.



Insert a flat screwdriver between the button and the bezel to remove the button.



<To remove>

### Mushroom/Jumbo Mushroom

Button has threads. Turn clockwise to install the button.

Turn the button remove. Note: Jumbo mushroom button





# Illuminated Pushbutton Lens

• Flush/Extended Push in the lens holder into the operator unit.

Insert a flat screwdriver between the button and the bezel to remove the lens holder.



Lens has threads. Turn clockwise to install the lens.







Round Flush/Square Flush



### Insert a flat screwdriver between the lens and the bezel to remove.



Control Boxes Emergency

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Terminal Blocks

**Relavs & Sockets** 

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Circuit

Protectors

Switches

# **Removing the Contact Blocks/Full Voltage Adapters**

Insert a flat screwdriver (4 to 6 mm) into the snap-fit latches of the contact block or full voltage adapter and lift to remove.

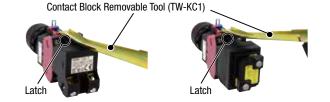


- Make sure to lift both latches. Contact blocks cannot be removed by lifting one latch only.
- Do not apply excessive force to the latches, otherwise damage maybe caused.

### **Transformer Units and DC-DC Converters**

Insert the end of the contact block removal tool (TW-KC1) into the snap-fit latch of the transformer units or DC-DC converter and pull the tool forward.

The contact block removable tool cannot be used to remove the HW-U contact blocks (HW-U), full voltage adapters (HW-GA1N), or dummy blocks (HW-DB).



# Transformer Units and DC-DC Converters for Pilot Lights

Insert a flat screwdriver into the snap-fit latch on the contact block and lift to remove.



Mhen replacing parts (contact block, dummy block, full voltage adapter, transformer) for maintenance, make sure to install the parts to the original position. Otherwise proper operation cannot be guaranteed.

Flush Silhouette
ø16
ø30
Miniature
Pilot Lights

	HW
	TW
	YW

### **Pilot Light Lens** Extended/Mushroom

Lens has threads. Turn clockwise to install the lens.







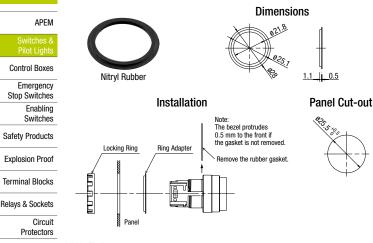


### **Operating Instructions**

# Using a Ring Adapter

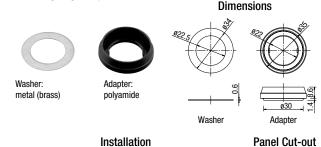
### HW9Z-A25

Install the ring adapter between the HW series unit and panel. Make sure that the side with ridges face the panel.



### Power Supplies HW9Z-A30

LED Illumination Controllers Controllers



Operator (example)

Washer Panel



ΤW

YW

Flush Silhouette

Operator

Interfaces

Sensors

AUTO-ID

# Replacement of Lens and Marking Plate

Adapter

### Removing the Lens Unit

Locking Ring

Remove the lens unit (color lens, marking plate, and lens holder) by inserting a small flat screwdriver into the recess of the lens through the bezel. Knob on illuminated selector switches can be removed by tilting sideways. No tool is required.



### **Removing the Lens**

Remove the lens by pushing the lens from the rear to disengage the latches between the lens and the lens holder, using a flat screwdriver as shown below. Marking plate can be removed after the lens is removed from the lens holder.



Note: The translucent filter in the lens holder cannot be removed because this filter is sealed to make the unit waterproof and oiltight.

Lens

Lens

Marking Plate

Marking Plate

Lens Holde

### Installing

[For Round Lens]

### Lens Marking Plate Lens Holder

- Place the marking plate on the lens holder with the anti-rotation projection engaged and press the lens onto the lens holder to engage the latches.
- 2. Place the marking plate in the correct orientation.

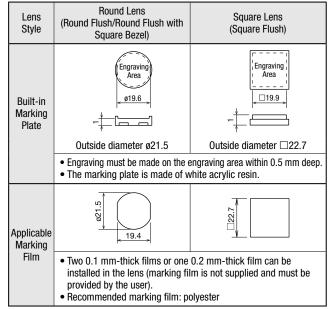
### [For Square Lens]

### Lens Marking Plate Lens Holder

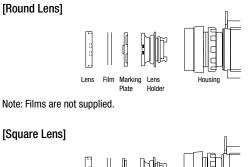
- 1. Place the marking plate on the lens holder and press the lens onto the lens holder to engage the latches.
- Place the marking plate in the correct orientation (note the directionality of marking plate).

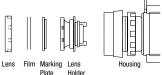
# Marking

For HW series illuminated pushbuttons and pilot lights, legends and symbols can be engraved on the built-in marking plates, or printed film can be inserted under the lens for labeling purposes. Films are not supplied with illuminated pushbuttons, and may be provided by the user.



# Insertion Order of Marking Plate and Film





Note: Films are not supplied. When inserting a film, make sure that the marking plate is installed with its uneven side facing the lens holder.

# Nameplate

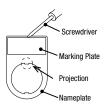
Mounting panel thickness is reduced by 1.5 mm when using a nameplate.

# Installing a Marking Plate

Insert a marking plate tin the direction of the arrow 0, and press in as shown 0.

# **Removing a Marking Plate**

Insert a flat screwdriver into the upper middle part of the marking plate and remove. When anti-rotation is not required, remove the projection from the nameplate using pliers.



Aarking Plate

Nameplate

0

### Replacing the Lens of Dual Pushbuttons Removing

Remove the lens by inserting a small flat screwdriver into the recess of the lens through the bezel.



### Installing

Install the lens in the recess between the buttons by pressing against the bezel.

# **Selector Switches**

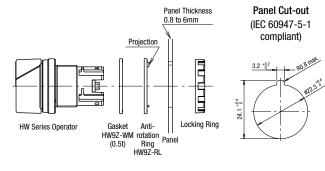
Turn the operator such as knob, lever, and key to each position accurately. Releasing halfway may cause the operator to return to the former position, or to get stuck between. On spring return two-way types, the center of operators may be misaligned slightly.

# **Key Selector Switches**

Insert the key completely before turning. Failure to do so may cause failures.

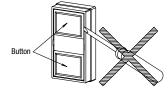
# Anti-rotation Ring and Panel Cut-out

Align the TOP marking on the operator, TOP marking on the antirotation ring with the recess in the mounting panel.



# **Dual Pushbutton Switches**

The pushbuttons cannot be removed or replaced. Do not attempt to remove using a flat screwdriver or pincers, otherwise the pushbuttons may be damaged.



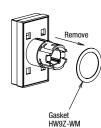
# Installing the Rubber Boot for Dual Pushbuttons

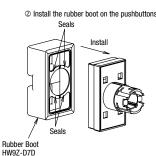
When using the HW7D pushbuttons in places where the pushbuttons are subject to water splash or an excessive amount of dust, make sure to use the HW9Z-D7D rubber boot (IP65) which is ordered separately. Recombs the rubber gasket pre-installed on the operator, and install the rubber boot from the front of buttons.

### Notes for Installing the Rubber Boot

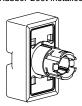
Remove the gasket from the operator, and install the rubber boot on the operator. Pull out the seals of the rubber boot and place them around the operator sleeve as shown. Make sure that the seals are not twisted or tucked inside and that the gasket does not remain, otherwise the normal waterproof and dustproof characteristics are not ensured.

① Remove the gasket





Rubber Boot Installed



APEM

Control Boxes

Emergency Stop Switches

Enabling

Terminal Blocks

Relays & Sockets

- Circuit Protectors
- Power Supplies

LED Illumination

- Controllers
- Operator
- Interfaces
- Sensors

AUTO-ID

Flush Silhouette ø16 ø22 ø30 Miniature

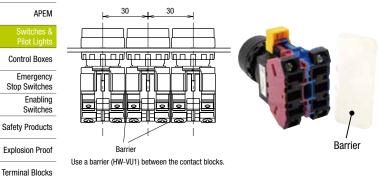
Pilot Lights

TW

### **Operating Instructions**

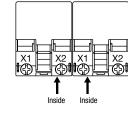
### **Close Mounting**

When mounting the units closely in a horizontal row on 30 mm centers, use optional barriers to prevent interconnection between adjoining terminals, and to increase the creepage distance. The barriers can be attached simply by pressing them onto the sides of contact blocks.

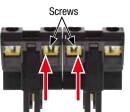


Note: Sufficient insulation distance cannot be obtained if barriers are not installed, or when other barriers such as HW-VG1 is used.

When using transformer type illuminated HW series of 240V AC maximum closely in a horizontal row on 30 mm centers, insert straight the solid wires or stranded wires into inside of the terminal screw on the transformer (see figure below) to prevent short circuit between adjoining terminals.



**Enlarged View of Terminal Part** 



Flush Silhouette

Relavs & Sockets

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

Circuit

Protectors

ø16	
ø22	
ø30	
Miniature	
Pilot Lights	





When using transformer type pilot lights closely mounted in horizontal and vertical rows on 30 mm centers, keep the ambient temperature below 40°C.

# Applicable Wiring

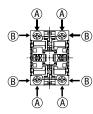
(1) Contact Block 0.3 to 3.5 mm<sup>2</sup> (solid wire Ø0.5 to 2.0 mm)

Pushbutton/illuminated pushbutton/dual pushbuttons (without pilot light), selector switch, illuminated selector switch, pushbutton selector, mono-lever switch

(A) and (B) show the wiring direction to the terminals.

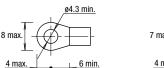
<Contact Block>

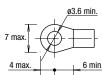
Terminal screws M3.5 (spring-up)



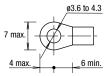
### **Applicable Crimping Terminal**

Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks. Crimping terminal for (A)

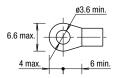




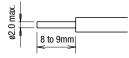
IP20 crimping terminal



### Crimping terminal for (B) (IP20)



### Solid wire



- . Strip the wire insulation 8 to 9 mm from the end.
- · Insert the wire until the insulation comes into contact with the terminal metal part.

### (1)-1 IP20 Degree of Protection

The terminal of HW-U contact block has IP20 degree of protection. When IP20 is required for wiring, observe the followings. Make sure to insert the crimping terminal or wire to the terminal straight and fully.

When using a crimping terminal Use IP20 crimping terminals.

### When using a solid wire

Strip the wire insulation 8 to 9 mm from the end and insert the wire to the terminal fully.

### When using a stranded wire

Strip the wire insulation 8 to 9 mm from the end and insert the wire to the terminal fully. Make sure that the wires are not loosened.

8 to 9mm

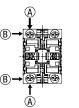
### **Operating Instructions**

(2) Power Unit 0.3 to 2 mm<sup>2</sup> (solid wire Ø0.5 to 1.6 mm)

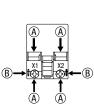
Illuminated pushbutton/illuminated selector switch (A) and (B) show the wiring direction to the terminals.

### <Full Voltage Adapter>

Terminal screws M3.5 (spring-up)

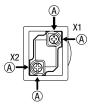


<Transformer Unit> 100/110V AC. 200/220V AC Terminal screws M3.5 (spring-up)



<DC-DC Convertor Unit/Transformer Unit>

110V DC, 380V AC minimum Terminal screws M3.5 (spring-up)



### **Applicable Crimping Terminal**

Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.

4 ma

Crimping terminal for (A)

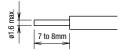
Crimping terminal for (B)



3.6 min.



### Solid wire



 Strip the wire insulation 7 to 8 mm from the end.

6 min.

 Insert the wire until the insulation comes into contact with the terminal metal part.

Terminal cover is integrated in the full voltage adapter and transformer unit. Note that the connection terminal is not IP20.

(2) Pilot Light 0.3 to 2 mm<sup>2</sup> (solid wire Ø0.5 to 1.6 mm)

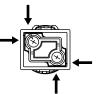
(Arrows show the wiring direction)

<Full Voltage Adapter> 6, 12, 24V AC/DC

Terminal screws M3.5 (spring-up)

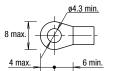


<Transformer, DC-DC Converter> 100/110V AC. 200/220V AC 110V DC, 380V AC minimum Terminal screws M3.5 (spring-up)



### Applicable Crimping Terminal

Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.



### Solid Wire

 Strip the wire insulation 8 to 9 mm from the end.

- Inset the wire until the insulation comes into contact with the terminal metal part.
- · Terminal cover is integrated but not IP20.
- · When selecting mounting centers and crimping terminals, take sufficient insulation distance into consideration.

# Cautions for Wiring

About DC-DC Converter Unit 1. Note the polarity for wiring when connecting to the DC-DC converter.

Terminal No. Polarity X1 Positive

- X2 Negative
- 2. Incandescent lamps cannot be used in DC-DC converter unit.
- 3. DC-DC converters are equipped with an electric circuit and noise may be heard inside the unit, which does not affect the performance of DC-DC converters.

### **Recommended Tightening Torque** Number of Wires

Unit	Wire		Number of Wires	Recommended Tightening Torque	Terminal Screw	Flush Silhoue
HW-U Contact Block	Crimping Terminal		2	1.0 to 1.3		ø16
	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)	2	1.0 to 1.3	M3.5	ø22
		ø1.7 to 2.0 mm (AWG12)	1	1.2 to 1.3		ø30 Miniature
	Stranded Wire	0.3 to 2.0 mm <sup>2</sup> (AWG14 to 22)	2	1.0 to 1.3		Pilot Lights
		2.1 to 3.5 mm <sup>2</sup> (AWG12)	1	1.2 to 1.3		
Illuminated Unit (*1)	Crimping Terminal					
	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)	2	1.0 to 1.3	M3.5	HW TW
	Stranded Wire	0.3 to 2.0 mm <sup>2</sup> (AWG14 to 22)				YW
Pilot Light	Crimping Terminal					
	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)	2	1.0 to 1.3 (M3.5)	M3.5	
	Stranded Wire	0.3 to 2.0 mm <sup>2</sup> (AWG14 to 22)				

\*1) Lamp terminal of illuminated pushbuttons, illuminated selector switches, dual pushbuttons with pilot lights

Switches & Pilot Lights APEM

# Control Boxes

### Emergency Stop Switches Enabling

Switches

Safety Products

- Explosion Proof
- Terminal Blocks
- Relays & Sockets

Circuit Protectors

Power Supplies

LED Illuminatio				
Controllers				

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Operator
Interfaces
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Sensors AUTO-ID

ette