

Switches & Pilot Devices

**Specifications**

Conforming to Standards	EN60947-5-1, UL508, CSA C22-2 No.14
Approvals	<b>CSA:</b> pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) <b>UL:</b> pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) <b>TÜV:</b> pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)
Operating Temperature	Operation: -25 to +50°C (illuminated versions) -25 ~ +70C non-illuminated Storage: -40 to +80°C (without freezing) C-> °C
Vibration Resistance	5 to 55Hz, 98m/sec <sup>2</sup> (10g) conforming to IEC60068-2-6
Shock Resistance	980m/sec <sup>2</sup> (100g) conforming to IEC60068-2-27
Electric Shock Protection	Class 2 conforming to IEC60664-1
Degree of Protection	IP65 (from front of the panel) (conforming to IEC60529) UL Type 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (conforming to NEMA ICS6-110)
Mechanical Life	Momentary pushbuttons: 5,000,000 (1800 operations per hour) All other switches: 500,000
Pollution Degree (conforming to IEC60947-1)	3

Signaling Lights

Relays & Sockets

**Mechanical-Electrical Specifications**

Rated Operational Characteristics	AC-15: A600																																																									
Rated Insulation Voltage	600V																																																									
Rated Impulse Withstanding Voltage Dielectric Strength	Between live and dead metal parts 2.5kV AC, 1 minute																																																									
Rated Thermal Current	10 Amp																																																									
Minimum Switching Capacity	5 mA at 3V AC/DC (applicable range may vary with operating conditions and load types)																																																									
Contact Operation	Slow break NC or NO																																																									
Operating Force	Flush and extended pushbuttons—with 1NO or 1NC contact: 6.2±2N (momentary), 9.0±1.5N Additional contacts—1NO or 1NC: +3.0N																																																									
Recommended Terminal Torque	<table border="1"> <thead> <tr> <th>Unit</th> <th>Wire</th> <th>Number of Wires</th> <th>Recommended Tightening Torque (Nm)</th> <th>Terminal Screw</th> </tr> </thead> <tbody> <tr> <td rowspan="6">HW-U Contact Block</td> <td colspan="2">Crimping Terminal</td> <td>2</td> <td>1.0 to 1.3</td> <td rowspan="6">M3.5</td> </tr> <tr> <td rowspan="2">Solid Wire</td> <td>ø0.5 to 1.6 mm (AWG14 to 22)</td> <td>2</td> <td>1.0 to 1.3</td> </tr> <tr> <td>ø1.7 to 2.0 mm (AWG12)</td> <td>1</td> <td>1.2 to 1.3</td> </tr> <tr> <td rowspan="2">Stranded Wire</td> <td>0.3 to 2.0 mm<sup>2</sup> (AWG14 to 22)</td> <td>2</td> <td>1.0 to 1.3</td> </tr> <tr> <td>2.1 to 3.5 mm<sup>2</sup> (AWG12)</td> <td>1</td> <td>1.2 to 1.3</td> </tr> <tr> <td rowspan="2">Illuminated Unit (*1)</td> <td colspan="2">Crimping Terminal</td> <td>2</td> <td>1.0 to 1.3</td> </tr> <tr> <td>Solid Wire</td> <td>ø0.5 to 1.6 mm (AWG14 to 22)</td> <td>2</td> <td>1.0 to 1.3</td> </tr> <tr> <td rowspan="4">Applicable Wire Size</td> <td rowspan="4">Pilot Light</td> <td colspan="2">Crimping Terminal</td> <td rowspan="4">0.6 to 1.0 (M3.0) 1.0 to 1.3 (M3.5)</td> </tr> <tr> <td>Solid Wire</td> <td>ø0.5 to 1.6 mm (AWG14 to 22)</td> </tr> <tr> <td>Stranded Wire</td> <td>ø0.3 to 2.0 mm (AWG14 to 22)</td> </tr> <tr> <td colspan="2">1. * refers to the lamp terminals of the illuminated push buttons and selector switches.</td> </tr> <tr> <td>Contact Resistance</td> <td>Initial contact resistance of 50mΩ or less</td> </tr> <tr> <td>Contact Gap</td> <td>4mm (NO and NC) 2mm (NO-EM and NC-LB)</td> </tr> <tr> <td>LED Ratings</td> <td>LEDs: 6V: 8mA, 12V: 11mA, 24V: 11mA, 120V: 8.8mA, 240V: 8.6mA</td> </tr> <tr> <td>Contact Material</td> <td>Silver</td> </tr> </tbody></table>					Unit	Wire	Number of Wires	Recommended Tightening Torque (Nm)	Terminal Screw	HW-U Contact Block	Crimping Terminal		2	1.0 to 1.3	M3.5	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)	2	1.0 to 1.3	ø1.7 to 2.0 mm (AWG12)	1	1.2 to 1.3	Stranded Wire	0.3 to 2.0 mm <sup>2</sup> (AWG14 to 22)	2	1.0 to 1.3	2.1 to 3.5 mm <sup>2</sup> (AWG12)	1	1.2 to 1.3	Illuminated Unit (*1)	Crimping Terminal		2	1.0 to 1.3	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)	2	1.0 to 1.3	Applicable Wire Size	Pilot Light	Crimping Terminal		0.6 to 1.0 (M3.0) 1.0 to 1.3 (M3.5)	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)	Stranded Wire	ø0.3 to 2.0 mm (AWG14 to 22)	1. * refers to the lamp terminals of the illuminated push buttons and selector switches.		Contact Resistance	Initial contact resistance of 50mΩ or less	Contact Gap	4mm (NO and NC) 2mm (NO-EM and NC-LB)	LED Ratings	LEDs: 6V: 8mA, 12V: 11mA, 24V: 11mA, 120V: 8.8mA, 240V: 8.6mA	Contact Material	Silver
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Timers

Contactors

Terminal Blocks

**Contact Ratings**

Contact Ratings by Utilization Category IEC 60947-5-1		AC-15 (A600)						
		DC-13 (P600)						
<b>Contact Ratings by Utilization Category</b>								
Operational Voltage			24V	48V	50V	110V	220V	440V
Operation Current	AC 50/60 Hz	AC-12 Control of resistive loads & solid state loads	10A	—	10A	10A	6A	2A
		AC-15 Control of electromagnetic loads (> 72VA)	10A	—	7A	5A	3A	1A
	DC	DC-12 Control of resistive loads & solid state loads	10A	5A	—	2.2A	1.1A	—
		DC-13 Control of electromagnets	5A	2A	—	1.1A	0.6A	—

Circuit Breakers