

# Control & Signalling Units $\phi$ 22.5mm Metal

## Product Characteristics

### General Characteristics

|                      |                                                                                                                                      |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Products             | Push Buttons, Selector Switches, Key Selector Switches, Latching Mushroom Head Push Buttons, Pilot Lights & illuminated Push Buttons |
| Reference Standard   | IEC 60947-5-1, EN 60947-5-1, IEC 337-1, UL 508, CSA C-22-2 n° 14                                                                     |
| Approval             | UL, cUL, CSA, CE                                                                                                                     |
| Protection Degree    | IP 65 / IP 66 according to IEC 60947-1;                                                                                              |
| Pollution Degree     | 3                                                                                                                                    |
| Temperature          | -40°C ~ + 70°C (Storage)<br>-25°C ~ + 70°C (Working)                                                                                 |
| Vibration Resistance | →60mm Mushroom Head Push Buttons: 8g, Other Push Buttons & Pilot Lights: 15g (40Hz<frequency<500 Hz) conforming to IEC 68-2-6        |
| Shock Resistance     | Push Buttons : 70g, Mushroom Head Push Buttons: 15g, Selector Switches : 200g conforming to IEC 68-2-27                              |
| Working Position     | All working positions are allowed                                                                                                    |
| Mechanical Life      | Push Buttons & Selector Switches 1 million operations, Latching Emergency Mushroom Push Buttons 300,000 operations                   |

### Contact Elements Characteristics

|                                |                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------|
| Rated Thermal Current $I_{th}$ | 10A                                                                                      |
| Rated Insulation Voltage $U_i$ | 500V conforming to IEC 60947-1, UL 508 & CSA 22-2 n° 14                                  |
| Insulation Category            | Group C conforming to NF C 20-040, VDE 0110                                              |
| Operating Force                | Push Buttons – 1 'NO' = 10N, 1 'NC' = 8N<br>Additional contacts – 'NO' = +5N, 'NC' = +3N |
| Dielectric Strength            | 2.5KV for 1 minute                                                                       |
| Insulation Resistance          | 2M Ohm min (500 VDC)                                                                     |
| Initial Contact Resistance     | ≤ 25 milli Ohm                                                                           |
| Short Circuits Protection      | 10A 500V, Cartridge Fuse g1 or N conforming to IEC 337-1                                 |
| Cabling/Terminal Capacity      | 1x0.5mm <sup>2</sup> ....2x1.5mm <sup>2</sup>                                            |
| Contact Operation              | Slow action, Positive Opening                                                            |
| Rated Power                    | Conforming to IEC 60947-5-1; utilization categories AC 15 & DC 13                        |

### DC Supply

Power broken in W

For 1 million operations

|                       |     |     |      |
|-----------------------|-----|-----|------|
| <b>Voltage</b>        | 24V | 48V | 120V |
| <b>Inductive Load</b> | 65W | 48W | 40W  |

### AC Ratings, Inductive – NEMA A600

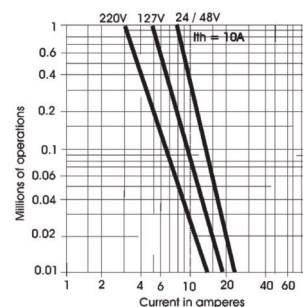
35% Power Factor

| Volts | Make Amperes | VA   | Break Amperes | VA  | Continuous carrying Amperes | Resistive 75% Power factor Make, Break & continuous Amperes |
|-------|--------------|------|---------------|-----|-----------------------------|-------------------------------------------------------------|
| 120   | 60           | 7200 | 6             | 720 | 10                          | 10                                                          |
| 240   | 30           | 7200 | 3             | 720 | 10                          | 10                                                          |
| 480   | 15           | 7200 | 1.5           | 720 | 10                          | 10                                                          |
| 600   | 12           | 7200 | 1.2           | 720 | 10                          | 10                                                          |

### Standard Contact Blocks

AC Supply (50/60Hz)

Inductive



### DC Ratings, NEMA Type Q600

Inductive and resistive

| Volts | Make & Break (Amp.) | Continuous (Amp.) |
|-------|---------------------|-------------------|
| 125   | 0.55                | 2.5               |
| 250   | 0.27                | 2.5               |
| 600   | 0.10                | 2.5               |



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## Pilot Light Heads & Bodies



PB-BV04



PB-BV6■



PB-BVN6



PB-BVL7



PB-B7-IVL-73

### Pilot Light Heads

| Description                                      | Colour   | Reference |
|--------------------------------------------------|----------|-----------|
| For Incandescent Bulbs                           | ○ White  | PB-BV01   |
|                                                  | ● Green  | PB-BV03   |
|                                                  | ● Red    | PB-BV04   |
|                                                  | ● Amber  | PB-BV05   |
|                                                  | ● Blue   | PB-BV06   |
|                                                  | ● Clear  | PB-BV07   |
| High Contrast, for use With Neon Bulbs** or LEDs | ○ White  | PB-BVL01  |
|                                                  | ● Green  | PB-BVL03  |
|                                                  | ● Red    | PB-BVL04  |
|                                                  | ● Amber  | PB-BVL05  |
|                                                  | ● Blue   | PB-BVL06  |
|                                                  | ● Clear  | PB-BVL07  |
|                                                  | ● Yellow | PB-BVL08  |

### Complete Pilot Light Bodies

| Description                                                        | Supply voltage                                                     | Colour   | Reference |
|--------------------------------------------------------------------|--------------------------------------------------------------------|----------|-----------|
| Direct<br>BA 9s Filament<br>Bulb* Supplied                         | 12V / 24V / 48V / 110V / 130V (AC)(DC)○                            | -        | PB-BV6■   |
| Through Resistor<br>BA 9s, 130V Filament<br>Bulb Supplied          | 240V (AC)(DC)                                                      | -        | PB-BV7    |
| Through Resistor & Diode<br>BA 9s, 130V Filament<br>Bulb Supplied  | 240V (AC)                                                          | -        | PB-BVD7   |
| Via Integral Transformer 1.2VA<br>BA 9s, 6V Filament Bulb Supplied | 110V / 6V (AC)                                                     | -        | PB-BV3    |
|                                                                    | 220V-240V / 6V (AC)                                                | -        | PB-BV4    |
| Direct BA 9s, Neon<br>Bulb Supplied                                | 220V / 380V / 415V (AC)(DC)                                        | ● Green  | PB-BVN63■ |
|                                                                    |                                                                    | ● Red    | PB-BVN64■ |
|                                                                    |                                                                    | ● Amber  | PB-BVN65■ |
| Integral Circuit & Cluster LED                                     | 12V, 24V, 48V (AC)(DC)<br>110VAC, 110VDC<br>220V (DC)<br>240V (AC) | ○ White  | PB-BVL71■ |
|                                                                    |                                                                    | ● Green  | PB-BVL73■ |
|                                                                    |                                                                    | ● Red    | PB-BVL74■ |
|                                                                    |                                                                    | ● Amber  | PB-BVL75■ |
|                                                                    |                                                                    | ● Blue   | PB-BVL76■ |
|                                                                    |                                                                    | ● Clear  | PB-BVL77■ |
|                                                                    |                                                                    | ● Yellow | PB-BVL78■ |

### Integrated LED Pilot Lamps (Barrel Type LEDs) ♦

| Description                | Supply voltage                                                 | Colour   | Reference  |
|----------------------------|----------------------------------------------------------------|----------|------------|
| Integrated LED Pilot Lamps | 12V, 24V, 48V (AC)(DC)<br>110VAC<br>110VDC<br>220VDC<br>240VAC | ○ White  | PB-B7IVL71 |
|                            |                                                                | ● Green  | PB-B7IVL73 |
|                            |                                                                | ● Red    | PB-B7IVL74 |
|                            |                                                                | ● Amber  | PB-B7IVL75 |
|                            |                                                                | ● Blue   | PB-B7IVL76 |
|                            |                                                                | ● Clear  | PB-B7IVL77 |
|                            |                                                                | ● Yellow | PB-B7IVL78 |

- ○ Body assemblies (suitable for bulb 2.6W max.) upto 230V max. available without bulb
- \* Bulb rating 12V to 130V, 2.6W (max.)
- \*\* For Neon bulbs, only Green, Red & Amber is available.
- ■ Please mention voltage while ordering
- For accessories refer page C-9 & C-10
- For legend plates refer page C-10
- ♦UL approved

# Control & Signalling Units $\phi$ 22.5mm Plastic

**Double Colour LED, Buzzer & Assemblies for Illuminated /  
 Non-Illuminated type Push Buttons & Selector Switches**



PB-B7-IVL-734■



PB-KS■

## Double Colour LED ❖

| Description       | Application & Supply Voltage                                                                                                                                                                    | Colour   | Reference    |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|
| Double Colour LED | Instead of two Pilot Lamps, only one is required.<br>When installed with the circuit, during on stage Green will glow and when tripped Red will glow.<br><br>12V, 24V, 48V, 110V, 240V (AC)(DC) | ● Red    | PB-B7IVL734■ |
|                   |                                                                                                                                                                                                 | ● Green  |              |
|                   |                                                                                                                                                                                                 | ● Red    | PB-B7IVL736■ |
|                   |                                                                                                                                                                                                 | ● Blue   |              |
|                   |                                                                                                                                                                                                 | ● Red    | PB-B7IVL713■ |
|                   |                                                                                                                                                                                                 | ○ White  |              |
|                   |                                                                                                                                                                                                 | ● Yellow | PB-B7IVL738■ |
|                   |                                                                                                                                                                                                 | ● Green  |              |
|                   |                                                                                                                                                                                                 | ● Yellow | PB-B7IVL768■ |
|                   |                                                                                                                                                                                                 | ● Blue   |              |
|                   |                                                                                                                                                                                                 | ● Yellow | PB-B7IVL718■ |
|                   |                                                                                                                                                                                                 | ○ White  |              |

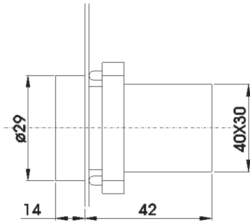
## Buzzer ❖

| Description | Application & Supply Voltage                                                                                         | Colour | Reference |
|-------------|----------------------------------------------------------------------------------------------------------------------|--------|-----------|
| Buzzer      | Intermittent Sounding Flashing Buzzer 15~20mA, Sound level 80dB.<br>12V, 24V, 48V, 110V (AC)(DC)<br>220V DC, 240V AC | ● RED  | PB-KS■    |

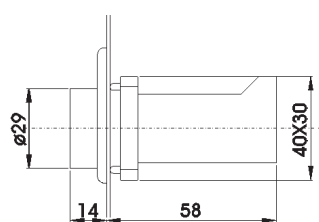
Not UL Approved

# Control & Signalling Units $\phi$ 22.5mm Metal

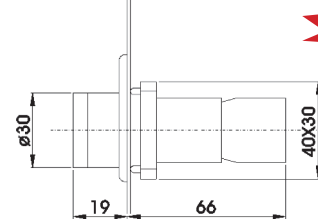
## Dimensions / Complete Units' Reference



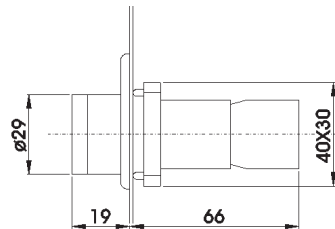
PB-BV0●+PB-BV6  
PB-BV0●+PB-BVN6  
PB-BV0●+PB-BV7  
PB-BV0●+PB-BVD7  
PB-BVL0●+PB-BVL7●



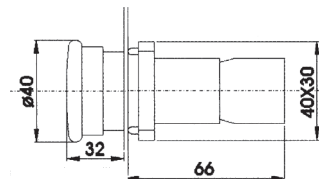
PB-BV0●+PB-BV3  
PB-BV0●+PB-BV4



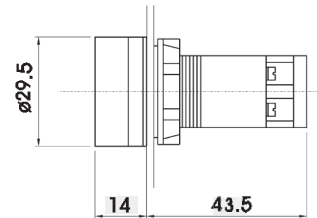
PB-BW5●+PB-BW06+PB-BE10❖  
PB-BW5●+PB-BW07+PB-BE10❖  
PB-BW5●+PB-BWD07+PB-BE10❖  
PB-BW5●+PB-BW06+PB-BE10❖



PB-BW3●+PB-BW06+PB-BE10❖  
PB-BW3●+PB-BW07+PB-BE10❖  
PB-BW3●+PB-BWD07+PB-BE10❖  
PB-BWL3●+PB-BWN06●+PB-BE10❖  
PB-BWL3●+PB-BWL7●+PB-BE10❖



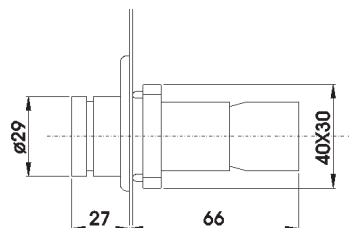
PB-BW4●+PB-BW06+PB-BE10❖  
PB-BW4●+PB-BW07+PB-BE10❖  
PB-BW4●+PB-BWD07+PB-BE10❖  
PB-BW4●+PB-BWN06●+PB-BE10❖  
PB-BW4●+PB-BWL7●+PB-BE10❖



PB-B7-IVL-7●

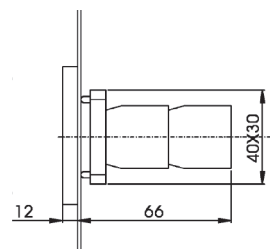
PB-BW1●+PB-BW06+PB-BE10❖  
PB-BW1●+PB-BW07+PB-BE10❖  
PB-BW1●+PB-BWD07+PB-BE10❖  
PB-BWL1●+PB-BWN06●+PB-BE10❖  
PB-BWL1●+PB-BWL7●+PB-BE10❖

PB-BW6●+PB-BW06+PB-BE10❖  
PB-BW6●+PB-BW07+PB-BE10❖  
PB-BW6●+PB-BWD07+PB-BE10❖  
PB-BW6●+PB-BWN06●+PB-BE10❖  
PB-BW6●+PB-BWL7●+PB-BE10❖

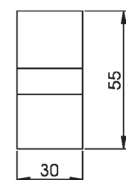


PB-BK12●+PB-BW06+PB-BE10❖  
PB-BK12●+PB-BW07+PB-BE10❖  
PB-BK12●+PB-BWD07+PB-BE10❖

PB-BK13●+PB-BW06+PB-BE10❖  
PB-BK13●+PB-BW07+PB-BE10❖  
PB-BK13●+PB-BWD07+PB-BE10❖



PB-BW9+PB-BW06+PB-BE10❖  
PB-BW9+PB-BW07+PB-BE10❖  
PB-BW9+PB-BWD07+PB-BE10❖  
PB-BW9+PB-BWN065+PB-BE10❖  
PB-BW9+PB-BWL75+PB-BE10❖



- Replace '❖' with codes for type of contacts (See page C-XX) & '●' with colour codes (see page C-4 & C-5)
- For illuminated push button heads, illuminated selector switches, refer page C-5
- For pilot lamp head, refer page C-8 & for double headed push button with pilot lamp, refer page C-6