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## DG Series — Easy to Read Large Character Display

**Compact 0.314" (8mm) Wide**
**Available in 3 Operator Styles**
**Choice of 6 Output Codes**

**Key features of the DG series include:**

- **Standard size, dustproof construction**
- **Glass-epoxy PC boards for reliability, long life**
- **Easy to read large character display 0.27"H x 0.13"W (7mm x 3.4mm)**
- **Units available in three operator styles: set-lock, dual button, and thumbwheel**
- **Variety of output codes: 2-position repeat, decimal, BCD, complementary BCD, hexadecimal, and duodecimal**
- **Solder mount terminals**
- **Easy to assemble snap-fit construction**
- **A stop mechanism can be incorporated to restrict wheel rotation to user-defined limits; see page C-22 for instructions on how to specify the stop mechanism in the part number designation**



C

**Specifications**

| | |
|---|---|
| **Front Size** (H x W) | 1.287" x 0.314" (33 x 8mm) |
| **Character Size** (H x W) | Decimal unit:<br>0.273" x 0.133" (7 x 3.4mm) |
| **Operator Style** | Set-lock, dual button, and thumbwheel |
| **Assembly Method** | Snap-fit |
| **Mounting Method** | Snap-fit |
| **Housing Color** | Black |
| **Character Color** | White characters on black background |
| **Terminal Style** | Solder |
| **Output** | 2-position repeat, decimal, binary coded decimal (BCD), duodecimal, and hexadecimal setting, and complementary BCD |
| **Connector Types** | Solder |
| **Operating Voltage** | 50V AC, 28V DC |
| **Operating Current** | 0.1A (resistive load) |
| **Thermal Current** | 1A (non-switching) |
| **Dielectric Strength** | Between live and dead parts: 1,000V AC, 1 minute<br>Between live parts: 500V AC, 1 minute |
| **Insulation Resistance** | Between live and dead parts: 1,000MΩ min<br>Between live parts: 10MΩ min |
| **Contact Resistance** | 200mΩ maximum |
| **Vibration Resistance** | 50m/sec$^2$ (approximately 5G) maximum |
| **Shock Resistance** | 100m/sec$^2$ (approximately 10G) maximum |
| **Life Expectancy** (operations) | Electrical: 100,000 minimum<br>Mechanical: 1,000,000 minimum |
| **Operating Temperature** | –20 to +60°C (do not freezing) |

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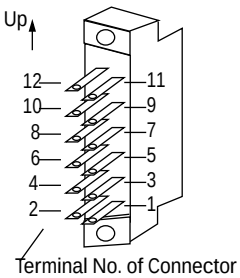
## Part Numbers

### Part Numbers: DG Series

| Operator Style | Output Code | Part No. | Comments |
|---|---|---|---|
| Set-lock | 2-position repeat | DGAN-001-B | — |
| | | DGAN-001D-B* | Connecting diodes |
| | Decimal | DGAN-010-B | — |
| | BCD | DGAN-031-B | — |
| | | DGAN-031D-B* | Connecting diodes |
| | | DGAN-031P-B | Odd parity |
| | Complementary BCD | DGAN-131-B | — |
| | Duodecimal | DGAN-032-B | — |
| | | DGAN-032D-B* | Connecting diodes |
| | Hexadecimal | DGAN-036-B | — |
| | | DGAN-036D-B* | Connecting diodes |
| Thumbwheel | 2-position repeat | DGCN-001-B | — |
| | | DGCN-001D-B* | Connecting diodes |
| | Decimal | DGCN-010-B | — |
| | BCD | DGCN-031-B | — |
| | | DGCN-031D-B* | Connecting diodes |
| | | DGCN-031P-B | Odd parity |
| | Complementary BCD | DGCN-131-B | — |
| Dual button | 2-position repeat | DGBN-001-B | — |
| | | DGBN-001D-B* | Connecting diodes |
| | Decimal | DGBN-010-B | — |
| | BCD | DGBN-031-B | — |
| | | DGBN-031D-B* | Connecting diodes |
| | | DGBN-031P-B | Odd parity |
| | Complementary BCD | DGBN-131-B | — |
| | Duodecimal | DGBN-032-B | — |
| | | DGBN-032D-B* | Connecting diodes |
| | Hexadecimal | DGBN-036-B | — |
| | | DGBN-036D-B* | Connecting diodes |

*1. * Extended PC boards for installing diodes. Diodes must be purchased separately.*
*2. For dimensions, see page C-19.*
*3. For output codes, see page C-12.*
*4. For terminal arrangements, see page C-21.*

**DG Series**




*5.The DG series has connector terminals. The terminal numbers of the switch do not coincide with those of the connector.*

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## Accessories

### Part Numbers: DG Series Accessories

| Description | Used On | Part No. |
|---|---|---|
| **Spare Unit** | DGAN, DGBN | DGNY-1-B |
| | DGCN | DGCY-1-B |
| **Connector**  | With solder terminals | DMC-1 |
| | With PC board terminals | DMC-2 |

| Description | Used On | Part No. |
|---|---|---|
| **End Plate** (in pairs) | DGAN, DGBN 0.078" (2mm) thick | DGNW-1-B |
| | DGCN 0.078" (2mm) thick | DGCW-1-B |
| | DGAN, DGBN 0.156" (4mm) thick | DGNW-2-B |
| | DGCN 0.156" (4mm) thick | DGCW-2-B |

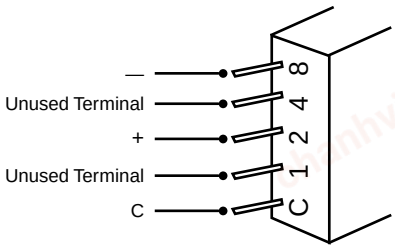
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## Output Codes

### 2-Position Repeat Unit

*Do not connect any wiring to the unused terminals.*



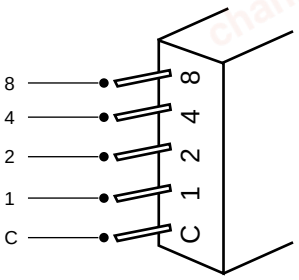

| | | Contact Condition | | |
|---|---|---|---|---|
| **Code No.** | | C | + | — |
| **Contact Configuration and Switch Unit** | | | | |
| **Terminal No.** | | C | 0 | 1 |
| **Connector Terminal No.** | DL | — | — | — |
| | DE | — | — | — |
| | DF | 7 | 9 | 5 |
| | DG | 6 | 4 | 8 |
| **Preset Position** | + | | • | |
| | — | | | • |
| | + | | • | |
| | — | | | • |
| | + | | • | |
| | — | | | • |
| | + | | • | |
| | — | | | • |
| | + | | • | |
| | — | | | • |

**Applicable Units**

DL series (001)
DE series (001)
DF series (001)
DG series (001)

### BCD (Binary Coded Decimal)

.

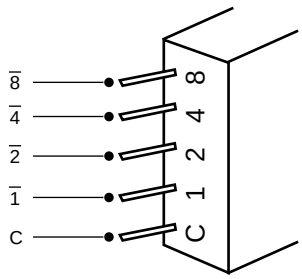



| | | Contact Condition | | | | |
|---|---|---|---|---|---|---|
| **Code No.** | | C | 1 | 2 | 4 | 8 |
| **Contact Configuration and Switch Unit** | | | | | | |
| **Terminal No.** | | C | 1 | 2 | 4 | 8 |
| **Connector Terminal No.** | DL | — | — | — | — | — |
| | DE | — | — | — | — | — |
| | DF | 7 | 11 | 9 | 5 | 3 |
| | DG | 6 | 2 | 4 | 8 | 10 |
| **Preset Position** | 0 | | | | | |
| | 1 | | • | | | |
| | 2 | | | • | | |
| | 3 | | • | • | | |
| | 4 | | | | • | |
| | 5 | | • | | • | |
| | 6 | | | • | • | |
| | 7 | | • | • | • | |
| | 8 | | | | | • |
| | 9 | | • | | | • |

**Applicable Units**

DL series (431)
DE series (031)
DF series (031)
DG series (031)

### Complementary BCD




| | | Contact Condition | | | | |
|---|---|---|---|---|---|---|
| **Code No.** | | C | 1 | 2 | 4 | 8 |
| **Contact Configuration and Switch Unit** | | | | | | |
| **Terminal No.** | | C | 1 | 2 | 4 | 8 |
| **Connector Terminal No.** | DL | — | — | — | — | — |
| | DF | 7 | 11 | 9 | 5 | 3 |
| | DG | — | — | — | — | — |
| **Preset Position** | 0 | | • | • | • | • |
| | 1 | | | • | • | • |
| | 2 | | • | | • | • |
| | 3 | | | | • | • |
| | 4 | | • | • | | • |
| | 5 | | | • | | • |
| | 6 | | • | | | • |
| | 7 | | | | | • |
| | 8 | | • | • | • | |
| | 9 | | | • | • | |

**Applicable Units**

DF series (131)
DG series (131)



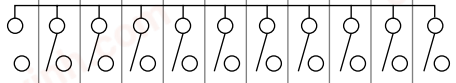
USA: (800) 262-4332 or (408) 747-0550, Western Canada: (888) 578-9988 or Eastern Canada (888) 317-4332

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## Output Codes, continued

### Decimal

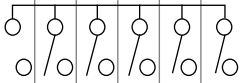
| | | Contact Condition | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Code No.** | | C | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| **Contact Configuration and Switch Unit** | |  | | | | | | | | | | |
| **Terminal No.** | | C | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| **Connector Terminal No.** | DE | — | — | — | — | — | — | — | — | — | — | — |
| | DF | 6 | 11 | 10 | 9 | 8 | 7 | 5 | 4 | 3 | 2 | 1 |
| | DG | 6 | 2 | 3 | 4 | 5 | 7 | 8 | 9 | 10 | 11 | 12 |
| **Preset Position** | 0 | | • | | | | | | | | | |
| | 1 | | | • | | | | | | | | |
| | 2 | | | | • | | | | | | | |
| | 3 | | | | | • | | | | | | |
| | 4 | | | | | | • | | | | | |
| | 5 | | | | | | | • | | | | |
| | 6 | | | | | | | | • | | | |
| | 7 | | | | | | | | | • | | |
| | 8 | | | | | | | | | | • | |
| | 9 | | | | | | | | | | | • |

**Applicable Units**

DE series (010)
DF series (010)
DG series (010)

*The DL and DE series do not have connector terminals. The DF and DG series have connector terminals.*

### BCD with Odd Parity

| | | Contact Condition | | | | | |
|---|---|---|---|---|---|---|---|
| **Code No.** | | C | 1 | 2 | 4 | 8 | P |
| **Contact Configuration and Switch Unit** | |  | | | | | |
| **Terminal No.** | | C | 1 | 2 | 4 | 8 | P |
| **Connector Terminal No.** | DF | 7 | 11 | 9 | 5 | 3 | 1 |
| | DG | 6 | 2 | 4 | 8 | 10 | 12 |
| **Preset Position** | 0 | | | | | | • |
| | 1 | | • | | | | |
| | 2 | | | • | | | |
| | 3 | | • | • | | | • |
| | 4 | | | | • | | |
| | 5 | | • | | • | | • |
| | 6 | | | • | • | | • |
| | 7 | | • | • | • | | |
| | 8 | | | | | • | |
| | 9 | | • | | | • | • |

**Applicable Units**

DF series (031P)
DG series (031P)

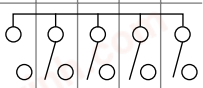
C

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## Output Codes, continued

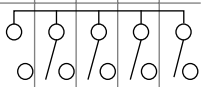
### Duodecimal

| | | Contact Condition | | | | |
|---|---|---|---|---|---|---|
| **Code No.** | | C | 1 | 2 | 4 | 8 |
| **Contact Configuration and Switch Unit** | |  | | | | |
| **Terminal No.** | | C | 1 | 2 | 4 | 8 |
| **Connector Terminal No.** | DF | 7 | 11 | 9 | 5 | 3 |
| | DG | 6 | 2 | 4 | 8 | 10 |
| **Preset Position** | 0 | | | | | |
| | 1 | | • | | | |
| | 2 | | | • | | |
| | 3 | | • | • | | |
| | 4 | | | | • | |
| | 5 | | • | | • | |
| | 6 | | | • | • | |
| | 7 | | • | • | • | |
| | 8 | | | | | • |
| | 9 | | • | | | • |
| | 10 | | | • | | • |
| | 11 | | • | • | | • |

**Applicable Units**

DF series (032)
DG series (032)

### Hexadecimal

| | | Contact Condition | | | | |
|---|---|---|---|---|---|---|
| **Code No.** | | C | 1 | 2 | 4 | 8 |
| **Contact Configuration and Switch Unit** | |  | | | | |
| **Terminal No.** | | C | 1 | 2 | 4 | 8 |
| **Connector Terminal No.** | DF | 7 | 11 | 9 | 5 | 3 |
| | DG | 6 | 2 | 4 | 8 | 10 |
| **Preset Position** | 0 | | | | | |
| | 1 | | • | | | |
| | 2 | | | • | | |
| | 3 | | • | • | | |
| | 4 | | | | • | |
| | 5 | | • | | • | |
| | 6 | | | • | • | |
| | 7 | | • | • | • | |
| | 8 | | | | | • |
| | 9 | | • | | | • |
| | A | | | • | | • |
| | B | | • | • | | • |
| | C | | | | • | • |
| | D | | • | | • | • |
| | E | | | • | • | • |
| | F | | • | • | • | • |

**Applicable Units**

DF series (036)
DG series (036)

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## Dimensions and Mounting Hole Layouts

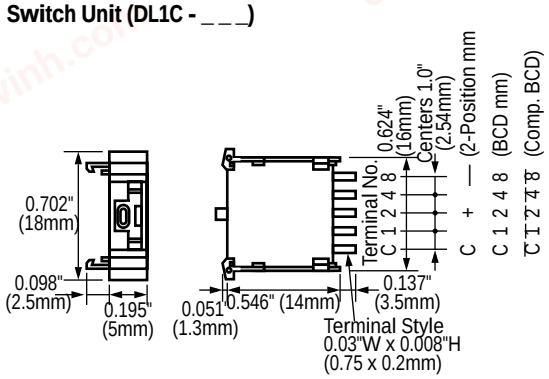
### DL Series

**Front Mount 0.195" (5mm) Wide**

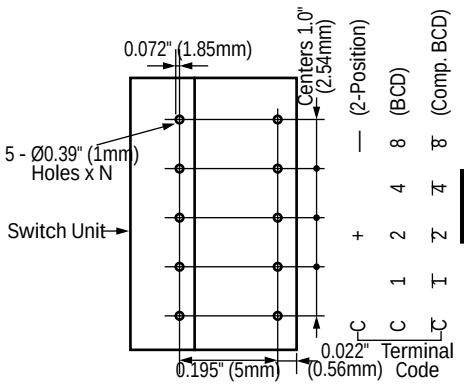
**Thumbwheel Operator**
(front view)



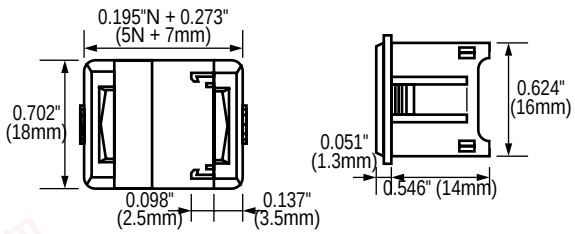

**Switch Unit (DL1C - _ _ _)**



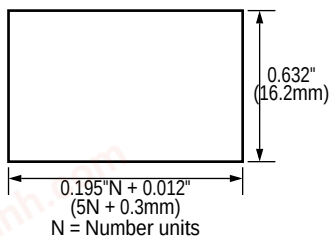

**PC Board Layout** (top view)




**Endplate (DL9Z - 1W - _)**



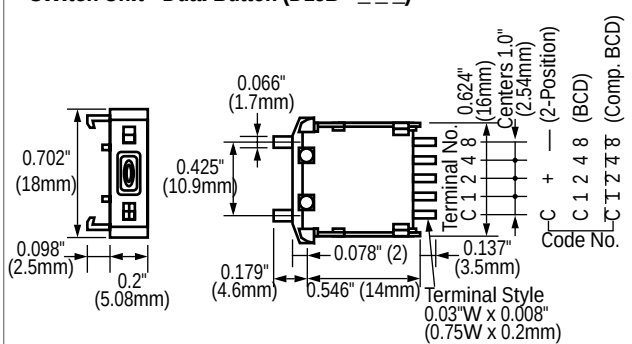

**Panel Cut-Out**
(when using end plate Part No. DL9Z-1W)



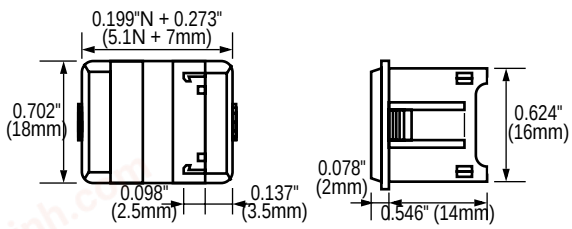

**Dual Button Operator Unit: DL3B - _ _ _**
(front view)



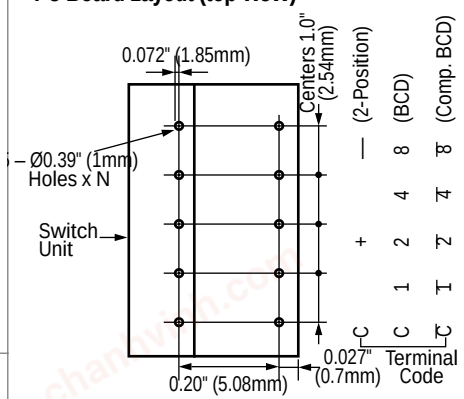

**Switch Unit - Dual Button (DL3B - _ _ _)**



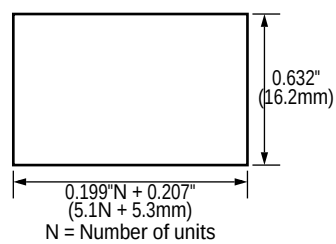

**Endplate (DL9Z - 3W - _)**




**PC Board Layout (top view)**




**Panel Cut-Out**




1. *N=The number of switch and spare units. Panel thickness = 0.078" (2mm).*
2. *The width of the panel cut-out applies to a maximum of 10 switch units mounted (including spare units).*

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## Dimensions and Mounting Hole Layout, continued

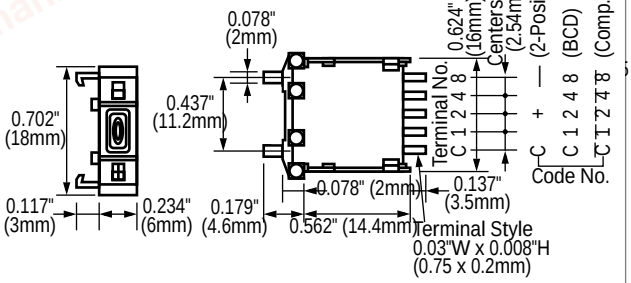
### DL Series

**Front Mount 0.234" (6mm) Wide**

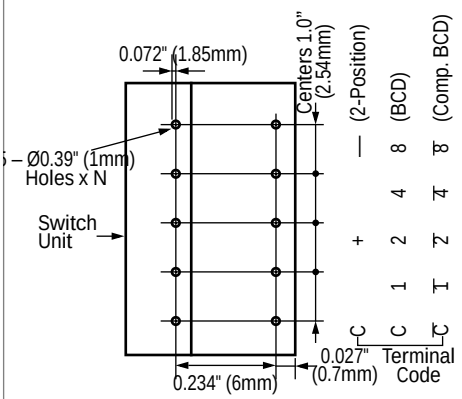
**Dual Button Operator Unit: DL5B - _ _ _**
(front view)



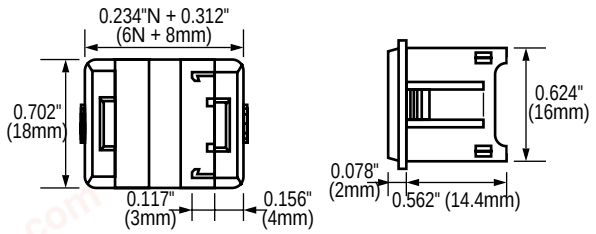

**Switch Unit – Dual Button (DL5B - _ _ _ )**



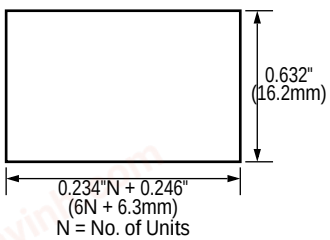

**PC Board Layout** (top view)




**Enplate (DL9Z - 5W - _)**




**Panel Cut-Out**
(when using end plate Part No. DL9Z-5W)




*1. N=the number of switch and spare units. Panel thickness = 0.078" (2mm).*
*2. The width of the panel cut-out applies to a maximum of 10 switch units mounted (including spare units).*

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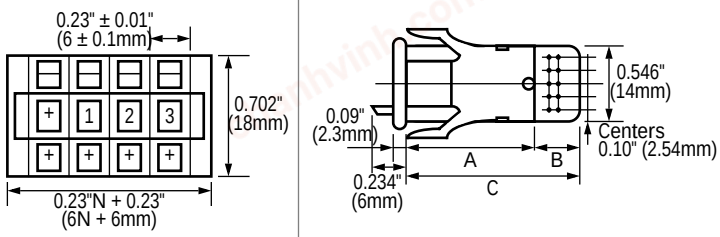


## Dimensions and Mounting Hole Layout, continued

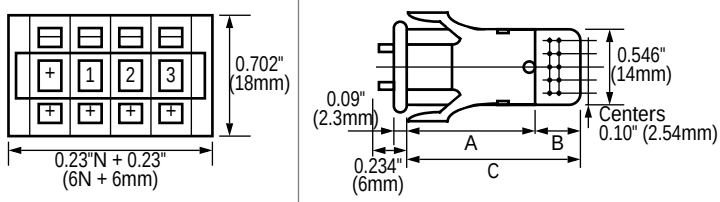
### DE Series

**Front Mount 0.234" (6mm) Wide**

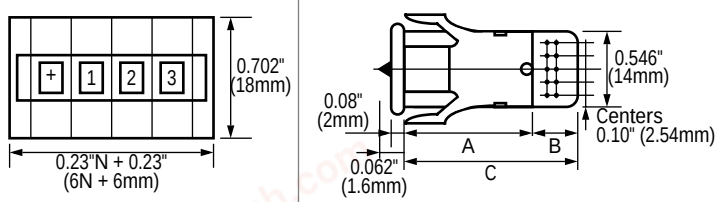
**DEAN** (set lock)




**DEBN** (dual button)

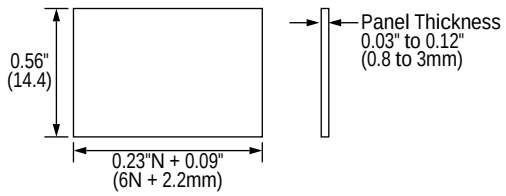



**DECN** (thumbwheel)




*N = the number of switch units and spare units mounted, excluding endplates.*

**Front Mount (DE _)**




**Panel Cut-Out Dimensions (DE)**

| | Standard | With Diode Extension |
|---|---|---|
| **A** | 0.59" (15mm) | 0.66" (16mm) |
| **B** | 0.312" (8mm) | 0.74" (18.5mm) |
| **C** | 0.9" (23mm) | 1.4" (34.5mm) |
| **D** | 0.9" (23mm) | 1.3" (33.5mm) |

C

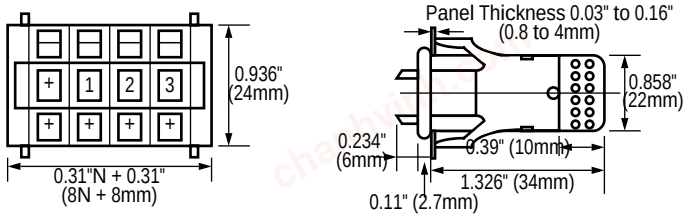
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## Dimensions and Mounting Hole Layout, continued

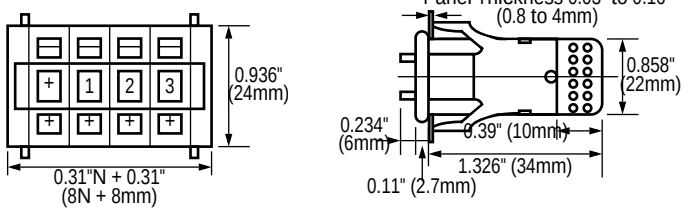
### DF Series

**DFAN** (set-lock)

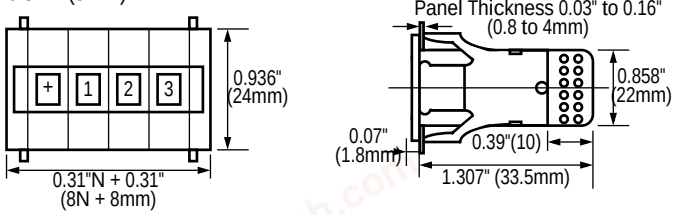



C

**DFBN** (dual button)
**0.312"** (8mm)

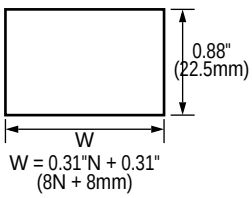



**DFCN** (thumbwheel)
**0.312"** (8mm)



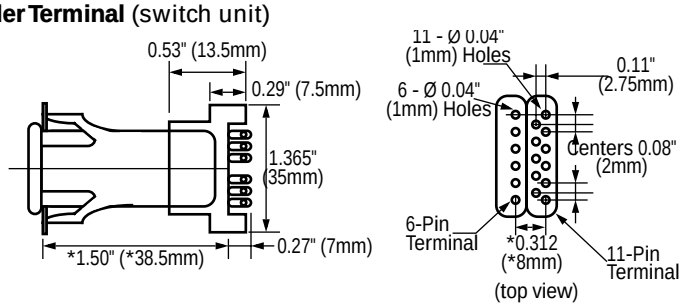

*N = the number of switch units and spare units mounted, excluding endplates.*

**Panel Cut-Out Dimensions (DF)**




N = Number of Units

**Solder Terminal** (switch unit)



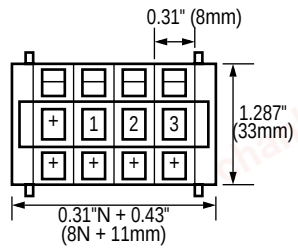
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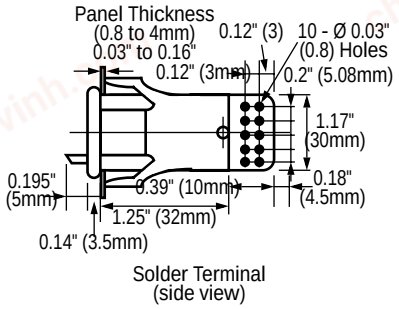
## Dimensions and Mounting Hole Layout, continued

### DG Series)

**DGAN** (set-lock)

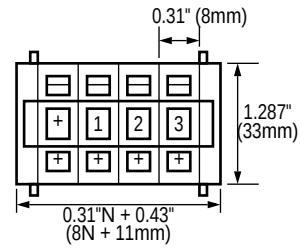



(front view)

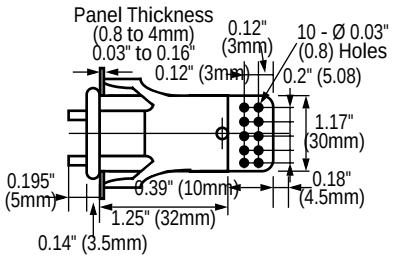



Solder Terminal (side view)

**DGBN** (dual button)

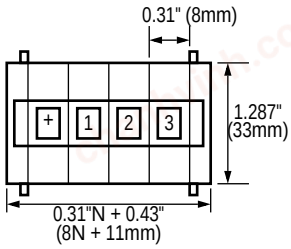



(front view)

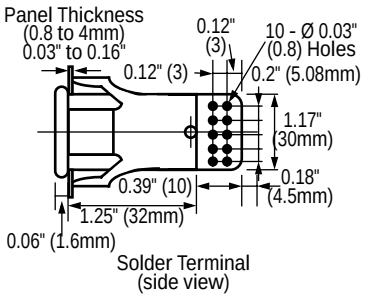



Solder Terminal (side view)

**DGCN** (thumbwheel)

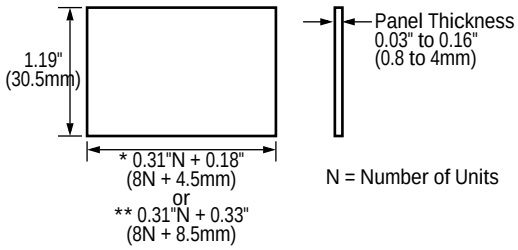



(front view)

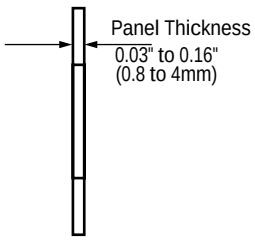



Solder Terminal (side view)

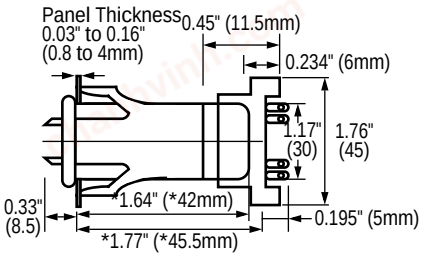
**Panel Cut-Out**




*When using End Plates DGNW-1 or DGCW-1
**When using End Plates DGNW-2 or DGCW-2




**Solder Terminal Connector Dimensions**




*The width of the panel cut-out applies to a maximum of 10 switch units mounted (including spare units).*

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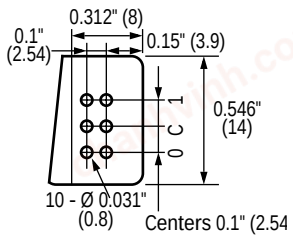
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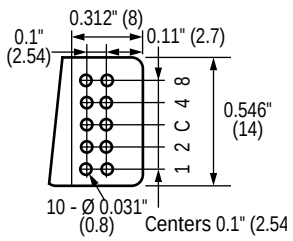
## DE Terminal Arrangements

*Dimensions in inches (mm).*

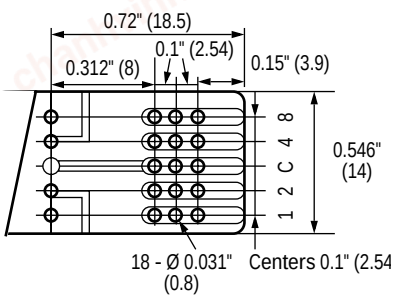
**2-Position Repeat**



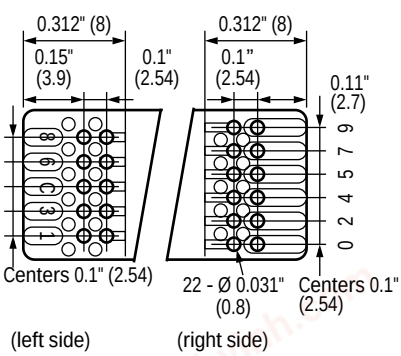

**BCD**




**BCD with Connecting Diodes**



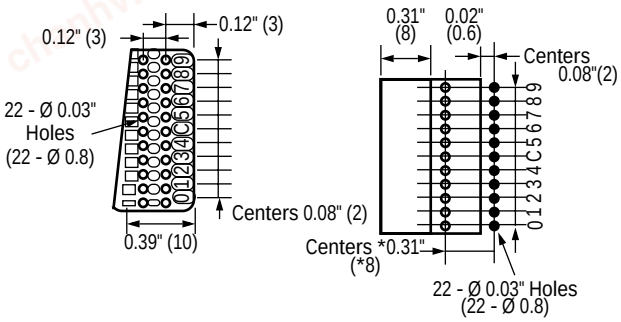

**Decimal**



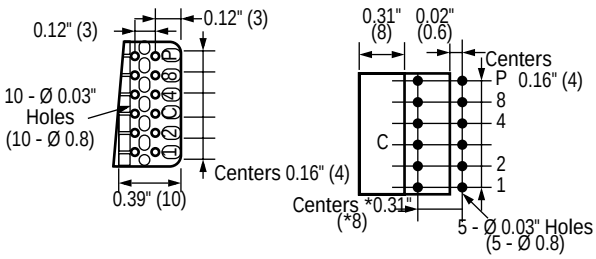

## DF Terminal Arrangements

*Dimensions in inches (mm).*

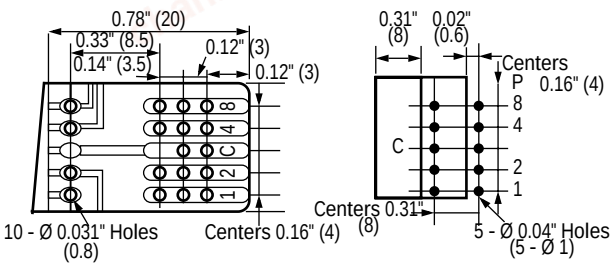
**Decimal Unit**



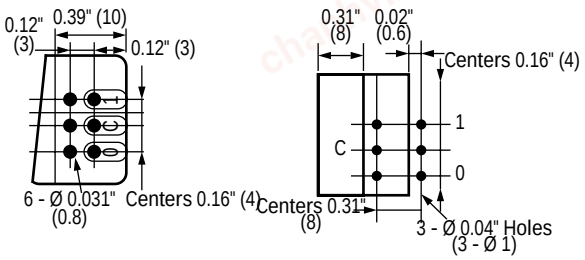

**BCD with Odd Parity**




**BCD with Connect-ing Diodes**




**2-Position Repeat**



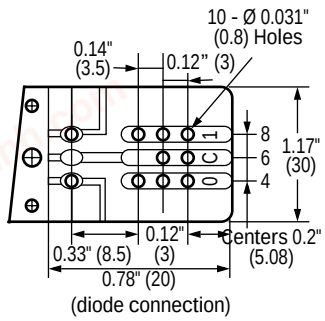
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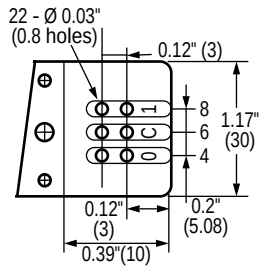
## DG Terminal Arrangements

*Dimensions in inches (mm).*

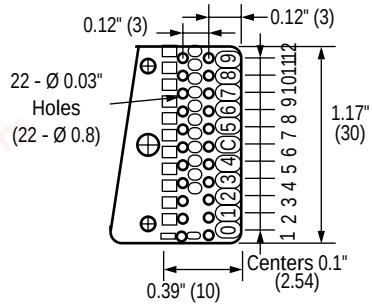
**2-Position Repeat — Diode Connection**



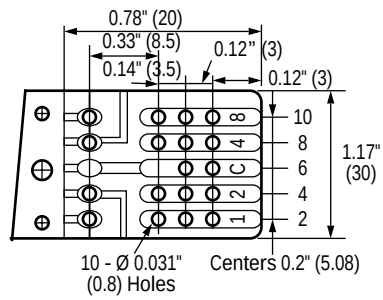

**2-Position Repeat**



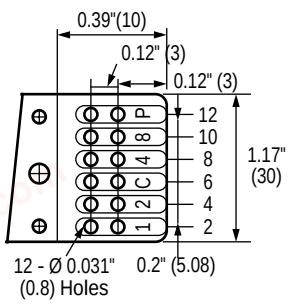

**Decimal**




**BCD, Duodecimal, Hexadecimal** (diode connection)




**BCD, Duodecimal, Hexadecimal**




C

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## General Instructions

### Instructions

With the dual button units, the lower button is for incrementing and the upper button is for decrementing. Rotating the thumbwheel down increments the number, and rotating the thumbwheel up decrements the number.

### Set-Lock Type

The button should be made accessible only when rotating the thumbwheel. Return the button to the recessed position when not used to prevent inadvertent actuation.

### Installation and Maintenance

Since the units snap together with hooks, no hardware is necessary for assembly. When mounting the switches into a panel cut-out, hold the assembly at the end plates and insert it from the front of the panel.

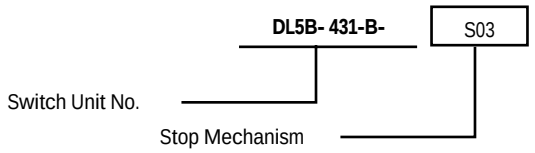
Use rubbing alcohol to clean the surfaces of the switch units, the soldered parts on the terminals, and the other molded parts. Do not use thinner or acids. Make sure that no solvent enters the switch housing.

When soldering, prevent the soldering flux and detergent from entering the switch housing.

To disassemble the switch units in the DL series, pull the units apart from the front. When using a flat screwdriver to disassemble, insert the screwdriver under the latch and turn gently.

### Specifying Units with a Stop Mechanism

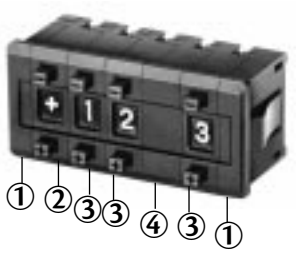
Example: Digital switch units with a stop mechanism to restrict wheel rotation within 0 and 3:

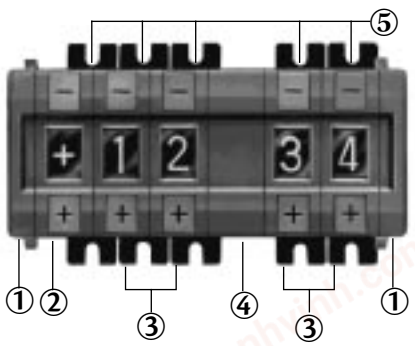



*A stop mechanism can be actuated to restrict wheel rotation within 9 positions; -S09 or -S10 is not available. The wheel cannot be prevented from rotating between adjoining positions such as between 0 and 1 or between 9 and 0.*

## Ordering Information

When ordering, specify the part numbers and quantity of the switch units and accessories as shown in the following examples.




### Specification Examples, Mounted Units

| Unit | Item | Part No. | Qty. Req'd | Qty. in Pkg. |
|---|---|---|---|---|
| ① | End plates | DL9Z-5W-B | 2 | 2 |
| ② | Switch unit | DL5B-001-B | 1 | 1 |
| ③ | Switch unit | DL5B-431-B | 3 | 1 |
| ④ | Spare unit | DL9Z-5Y-B | 1 | 1 |

### Specification Examples, DFAN Assembly

| Unit | Item | Part No. | Qty. Req'd | Qty. in Pkg. |
|---|---|---|---|---|
| ① | End plates | DFNW-1-B | 2 | 2 |
| ② | Switch unit | DFAN-001-B | 1 | 1 |
| ③ | Switch unit | DFNY-1-B | 1 | 1 |
| ④ | Spare unit | DFAN-031-B | 4 | 1 |
| ⑤ | Connector | DAC-061 | 5 | 1 |