**PUSH BUTTON SWITCHES (Momentary)**

**Series - 27**

**DESCRIPTION**

**Integral Series 27 Push Button Switches** is a unique design wherein the operative portion is separate from the Switch Element. The Basic Switch Series 49 is used as SWITCH ELEMENT.

The all metal Push Button is built for rugged operation in Machine tools and can be offered with Plunger of standard colours like White, Red, Yellow, Green, etc.,

The Push Button can be fixed on the panel (dia 16 hole) and the Switch Element is ‘clicked’ on to the same behind the Panel, this offers the advantage of replacing only the Switch Element at the customer end in the field, thereby saving cost.

The Switching Element is Integral Series 49 Micro Reset Switch which is a snap acting momentary switch suitable for low level and power level switching. High switching reliability is built into the design of the switch. By using a double make double-break design, the current rating is increased and the switch can also be used for DC switching. Low contact resistance and protection against surge currents, due to INDUCTIVE and CAPACITANCE loading, is ensured by the design.

**DIMENSIONAL DETAILS**

<table>
<thead>
<tr>
<th>SQUARE TYPE</th>
<th>ROUND TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIMENSIONAL DRAWING</strong></td>
<td><strong>DIMENSIONAL DRAWING</strong></td>
</tr>
<tr>
<td><strong>DIMENSIONS IN mm</strong></td>
<td><strong>DIMENSIONS IN mm</strong></td>
</tr>
</tbody>
</table>

**DIMENSIONAL DETAILS**

1. **FIT THE FRONT BUSH TO THE PANEL AS SHOWN. TIGHTEN NUT.**
2. **‘CLICK’ THE SWITCH TO THE SPRING ON THE BUSH.**

*For Switch Selection & Bracket Selection Ref. Back Sheet*

**ALL DIMENSIONS IN mm**
ELECTRICAL SPECIFICATIONS

CONTACT CONFIGURATION: (Double throw two circuit)

CONTACT RATING : With 200+50gms operating force 5 Amps (Resistive load) at 28 V DC / 230 V AC

CONTACT RESISTANCE : 100 milli ohms initial

ELECTRICAL LIFE : 20,000 operations at rated load. With lower contact-loads life will be correspondingly higher

MECHANICAL LIFE : 100,000 operations

INSULATION RESISTANCE : 100 Megohms min.

DIELECTRIC STRENGTH : 1000 V RMS

PRETRAVEL : 1.27 mm (max)

OVERTRAVEL : 0.25 mm (min)

MATERIALS & FINISHES

BODY & COVER : Glass filled PBT (UL approved)

PLUNGER : Acetal

BEZEL & PLUNGER : Aluminium/ABS moulded

NUT : G/F 30% Nylon

FRAME : Stainless Steel

TERMINALS : Brass, Silver plated

Contact : Refer Contact Selection.

NOTE : Standard/Low level combination could be used in low level or power circuits. However if low level rating is exceeded, gold plating is likely to be removed from contact interface and the switch is no longer recommended for low level currents.

ORDERING INFORMATION

The switch can be ordered as given below

<table>
<thead>
<tr>
<th>BRACKET SELECTION</th>
<th>BEZEL COLOUR</th>
<th>SHAPE OF BEZEL</th>
<th>COLOUR OF PLUNGER</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1 Black</td>
<td>1 Round 18</td>
<td>0 Cu-(Ag.Plt)</td>
</tr>
<tr>
<td>7</td>
<td>2 Silver</td>
<td>2 Square 18</td>
<td>1 Cu-(Au.Plt)</td>
</tr>
<tr>
<td></td>
<td>3 Any other</td>
<td></td>
<td>2 Ag-(Ag.Plt)</td>
</tr>
<tr>
<td></td>
<td>(Specify)</td>
<td></td>
<td>3 Ag-(Au.Plt)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTACT SELECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order Code</td>
</tr>
<tr>
<td>0 STANDARD CONTACTS : 1.5A @ 230 VAC Resistive Load Copper alloy with Silver Plating</td>
</tr>
<tr>
<td>1 LOW LEVEL (DRY CIRCUITS) : 0.4 VA maximum at 20 volts AC or DC maximum Copper alloy with gold plating over nickel barrier</td>
</tr>
<tr>
<td>2 HIGH POWER : 5A @ 230 V AC and 28 V DC resistive load Coin silver</td>
</tr>
<tr>
<td>3 HIGH POWER/Low Level COMBINATION CONTACTS : Coin silver with gold plating over nickel barrier</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TERMINALS DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 Solder Type</td>
</tr>
<tr>
<td>3 3 PC Type</td>
</tr>
<tr>
<td>5 5 PCR Type (Horizontal Mounting)</td>
</tr>
</tbody>
</table>

INTEGRAL SYSTEMS AND COMPONENTS PRIVATE LIMITED
D-388/1, 1st Block, 1st Stage, Peenya Industrial Estate, Bangalore - 560 058, India
Telefax: (080) 2839 1707 / 2839 1708 / 2839 1709 / 2839 1710
Website: www.integralsys.in E-mail: inty.systems@gmail.com / sales@integralsys.in

An ISO 9001:2008 Company
**DESCRIPTION**

**Integral Series 40 Micro Switch** is a heavy duty switch with an extra long life spring mechanism. (Has successfully been tested up to 14 million cycles) High reliability is designed into the switch which can be used in a wide variety of application such as Industrial Equipments, Business Machines, Home Appliances etc.

**DIMENSIONAL DETAILS**

**TERMINAL ARRANGEMENTS:**
- **SOLDER TYPE**
- **QUICK CONTACT**
- **M3 SCREW TYPE**

**ACTUATOR:**
- M12 KNURLED NUT
- PLASTIC
- M12 PLASTIC DOME NUT
- INSULATOR

**MOUNTING:**
- M12 PBUSH
- Ai. PLUNGER
- M6 BUSH
- PLASTIC PLUNGER

All Dimensions in mm.
**SPECIFICATIONS**

**CONTACT RATING:**

<table>
<thead>
<tr>
<th>OPERATING FORCE AT PIN PLUNGER</th>
<th>RATING (Resistive Load)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver Alloy 300 gmf</td>
<td>5A 250VAC, 0.5A 125VDC</td>
</tr>
<tr>
<td>Gold Plated Low Level 200 gmf</td>
<td>24VDC 1mA</td>
</tr>
</tbody>
</table>

If not specified, Standard Operating Force will be 300 gmf.

**CONTACT RESISTANCE:** < 50 mΩ Initial

**INSULATION RESISTANCE:** > 100 MΩ (at 500 VDC)

**DIELECTRIC STRENGTH:** > 1000 VAC (1 min)

**OPERATING TEMP:** -25°C to +80°C

**HOW TO ORDER:**

1. For standard switches by describing as given below
2. For Special switches please consult factory with Samples/Drawings

**MATERIALS & FINISHES**

**BODY & COVER:** PBT 30GF (UL APPROVED)

**PLUNGER:** Acetal / PA

**CONTACTS:** Silver Alloy

**TERMINALS:** Silver (Silver or Tin plated)

**ROCKER:** Brass Silver plated

**SPRING:** Beryllium Copper

(If not specified, the COMMON Terminal will be Silver Plated and the NO & NC Terminals will be Tin Plated)

**CONTACT SELECTION**

0 - SPST (NO)
1 - SPST (NC)
2 - SPDT (NO-NC)

**CONTACT RESISTANCE:** < 50 mΩ Initial

**INSULATION RESISTANCE:** > 100 MΩ (at 500 VDC)

**DIELECTRIC STRENGTH:** > 1000 VAC (1 min)

**OPERATING TEMP:** -25°C to +80°C

**HOW TO ORDER:**

1. For standard switches by describing as given below
2. For Special switches please consult factory with Samples/Drawings

**SWITCH (WITHOUT MOUNTING BRACKET)**

**ORDERING CODE**

1. **CONTACT**
   - 1 - Ag (Ag. Plated)
   - 2 - Ag (Au. Plated)

2. **TERMINATION ARRANGEMENTS**
   - Quick Connect Type
     - 1 - Ag Plated
     - 5 - Tin Plated
   - Solder Type
     - 2 - Ag. Plated
     - 6 - Tin Plated
   - PC Type
     - 3 - Ag. Plated
     - 7 - Tin Plated
   - Screw Type
     - 4 - Ag. Plated
     - 8 - Tin Plated

3. **ACTUATOR**
   - 0 - Pin Plunger
   - 1 - Hinge Lever (Std. - 22 36 60)
   - 2 - Roller Lever (Std. 21 34)
   - 3 - Simulated Roller Lever (Std. 33)
   - Note: Specify length of Lever in mm
   - 4 - Mushroom Plunger

4. **COLOUR PLUNGER PLASTIC**
   - 0 - NO CAP
   - 1 - Black
   - 2 - Red
   - 3 - Blue
   - 4 - Yellow
   - 5 - White
   - 6 - Green
   - 7 - Al. Plunger Anodized Black
   - 8 - Other

5. **MOUNTING**
   - 0 - W/O Bracket
   - 1 - With Bracket M12 x 0.75 bush
   - 2 - With Bracket M6 x 0.75 bush
   - 3 - Same as 2 with Dome Nut
   - 4 - Same as 1 with Plastic Dome Nut
   - 5 - Same as 1 with Plastic Knurled Nut
   - 6 - Same as 2 with Metal Dome Nut
   - 7 - Same as 5 with Metal Round Nut

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An ISO 9001:2008 Company

D4
**Integral Micro Push Button Switch** are built with high reliable Micro Switches with Snap Action momentary with butterfly Mechanism. A pair of Double Make Double Break. Switching function helps the switch to use in higher current rating & D.C application in small volume. The switches can be used in Inductive, capacitance loading and against surge current since it is protected by its design. Housing and accessories are made with fine quality of engg. Plastics for their ultimate end use.

### Dimensions

<table>
<thead>
<tr>
<th>Feature</th>
<th>ROUND NUT TYPE</th>
<th>DOME NUT TYPE</th>
<th>PC MOUNTING TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width (max)</td>
<td>19.2 mm</td>
<td>21.5 mm</td>
<td>9.5 mm</td>
</tr>
<tr>
<td>Height (max)</td>
<td>41.0 mm</td>
<td>22.00 mm</td>
<td>2.50 mm</td>
</tr>
<tr>
<td>Depth (max)</td>
<td>16.40 mm</td>
<td>45.5 (max)</td>
<td>18.30 mm</td>
</tr>
<tr>
<td>WAVE WASHER NUT M12 x 0.75x3mm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All Dimensions in mm.
ELECTRICAL SPECIFICATIONS

CONTACT CONFIGURATION : (Double throw two circuit)
CONTACT RATING : 6 Amps (Resistive load)
at 28 V DC, 2A @ 230 VAC
CONTACT RESISTANCE : < 20 milli ohms max Initial
INSULATION RESISTANCE
@ 500V DC : < 20 Megohms min.
VOLTAGE PROOF
(DIELECTRIC STRENGTH) : 1000 AC to 1 minute
OPERATING TEMPERATURE : - 30° C to +85°C
ELECTRICAL & MECHANICAL LIFE : 50,000 Cycles
PRETRAVEL : 1.4 mm ± 0.30
OVERTRAVEL : 0.60 mm ± 0.20
OPERATING FORCE : 350 gms ± 0.50
REALING FORCE : 125 gms ± 0.50

ORDERING INFORMATION
The switch can be ordered as given below

CONTACT SELECTION

Order Code
0 STANDARD : 2A @ 230 VAC Resistive Load
Copper alloy with Silver plating
1 HIGH POWER : 6A @ 230 V AC and 28 V DC
resistive load
CONTACTS : Coin silver
2 LOW LEVEL : 0.4 VA maximum at
CONTACTS : Copper alloy with gold plating
over nickel barrier
3 HIGH POWER/LOW LEVEL COMBINATION
CONTACTS : Coin silver with gold plating
over nickel barrier

CONTACT SELECTION

0 Cu-(Ag.Plt)
1 Ag-(Ag.Plt)
2 Cu-(Au.Plt)
3 Ag-(Au.Plt)
4 - 1 NO 1NC
(Single Switch)
8 - 2 NO 2NC
(Double Switch)

ORDERING CODE

MATERIALS & FINISHES

BODY & COVER : Diallyl phthalate (DAP)/PBT
PLUNGER : Acetal
ACTUATOR : Brass, Silver plated
CONTACTS : Coin Silver, Gold plated
TERMINALS : Brass, Silver plated
COIN Silver, Gold plated
SPRINGS : Spring steel, Natural

NOTE : Standard/Low level combination could be used in
low level or power circuits. However if low level rating
is exceeded, gold plating is likely to be removed and
the switch is no longer recommended for low level currents.

TERMINALS

2 - Solder Type
3 - PC Type

BODY

1 - DAP Blue
2 - PBT Black

Color of
Plunger
0 - No Plunger
1 - Black
2 - Red
3 - Blue
4 - Yellow
5 - White
6 - Green
7 - Al. Plunger Anosided Black
(Only M12 Bushes)
8 - Others

MOUNTING
(Metal Bush Std.)

0 - W/O Bracket
1 - With Metal Bracket M6x0.75 Hex Nut
2 - Same as 1 with Metal Dome Nut
3 - With Metal Bracket M12x0.75 Hex Nut
4 - Same as 3 with Plastic Dome Nut
5 - Same as 3 with Metal Round Nut
6 - With Metal Bracket M12x1.0 Hex Nut
7 - Same as 6 with Plastic Dome Nut
8 - Same as 6 with Metal Round Nut

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**DESCRIPTION**

Integral Series 46 Micro Switches are characterized by their high functional reliability and switching accuracy.

**SPECIFICATIONS**

- **CONTACT RATING**: 5A @ 250 V AC
  (Operating force of 150 ± 30 gms)
- **CONTACT RESISTANCE**: <50 m ohms initial
- **LIFE (ELECTRICAL)**: 50,000 Cycles @ Rated Load
- **LIFE (MECHANICAL)**: 1,000,000 Cycles
- **INSULATION RESISTANCE**: > 100 M ohms @ 500 V DC
- **DIELECTRIC STRENGTH**: 1000V AC (1 min.)

**MATERIALS & FINISHES**

- **BODY**: PBT GF(30) UL94V0
- **PLUNGER**: Nylon 6.6 (Black Std.)
- **CONTACTS**: Silver Alloy
- **TERMINALS**: Brass, Silver / Tin Plated
- **SPRING**: Stainless Steel

**ORDERING INFORMATION:**

Given below are the variations possible and corresponding Ordering Code

**ORDERING CODE**

- **4**
- **6**
- **0**
- **0**

**CONTACT SELECTION**

- **Order Code**
  - 1 - Ag-Alloy
  - 2 - Ag-Au Plated

**FUNCTION**

- **Order Code**
  - 0 - 1 NO
  - 1 - 1 NC
  - 2 - 1 NO / 1 NC

**TERMINATION**

- **Order Code**
  - 1 - Plug in type
  - 2 - Solder type
  - 3 - PC type

**ACTUATOR**

- **Order Code**
  - 0 - Mushroom plunger
  - 1 - Pin plunger
  - 2 - Hinge Lever - 20.50 mm
  - 3 - Roller Lever - 17.40 mm
  - 4 - Simulated Roller Lever
DESCRIPTION

Integral Series 47 Micro Switch is a snap acting single pole change over switch actuated by plunger. It is a sensitive type switch intended for use in AC and DC applications, suitable for industrial and Commercial Equipment, Communication Equipment, Vending Machines, Security Systems, Data Systems, Medical Equipment, Cassette Recorders, VCR's etc. The switch is ideal due to its small size, low operating force and high reliability.

DIMENSIONAL DETAILS

CONTACT CONFIGURATION: Single pole change over (Snap acting type)
CONTACT RATING: with 80 ± 20 gms, Operating force, 2 Amps (Resistive Load) at 250 V AC
CONTACT RESISTANCE: initial 50 milli ohms maximum
ELECTRICAL LIFE: 500,000 at 20 CPM at 28V 10 mA
INSULATION RESISTANCE: Minimum 100 Meg ohms at 500 V DC
DIELECTRIC STRENGTH: 1000 VRMS
PRE TRAVEL: 0.60mm maximum
OVER TRAVEL: 0.4 mm maximum

SPECIFICATIONS

CONTACT CONFIGURATION: Single pole change over (Snap acting type)
CONTACT RATING: with 80 ± 20 gms, Operating force, 2 Amps (Resistive Load) at 250 V AC
CONTACT RESISTANCE: initial 50 milli ohms maximum
ELECTRICAL LIFE: 500,000 at 20 CPM at 28V 10 mA
INSULATION RESISTANCE: Minimum 100 Meg ohms at 500 V DC
DIELECTRIC STRENGTH: 1000 VRMS
PRE TRAVEL: 0.60mm maximum
OVER TRAVEL: 0.4 mm maximum

MATERIALS & FINISHES

BODY & COVER: 30% Glass filled PBT UL 94 V.O
PLUNGER: Nylon 6/6 (Block)
CONTACT PINS: See below under contact selection
TERMINALS: Copper Alloy Silver plated
CONTACT BRIDGE: Beryllium Copper

CONTACT SELECTION

ORDER CODE
0 Contacts & all Terminals: Copper alloy silver plated Rating: 0.1 Amps at 250 V AC (Resistive)
1 Contacts Terminals: Coin Silver Rating: Copper alloy silver plated or 28 V DC
2 Contact & Terminals: Copper alloy Gold Plated Rating: 0.4 VA max @ 20 V AC or DC (Resistive)
3 Contacts Terminals: Coin silver with Gold plate over Nickel Rating: Copper alloy with Gold plate over Nickel plate or 2 Amps at 250 V AC or 28 V DC.

TERMINATION

Order Code
2 - Solder Type
3 - PC Straight (Self Standing)

ACTUATOR *

0 - Pin Plunger (std)
1 - Short hinge lever - 20.0
2 - Long hinge Lever - 24.3
3 - Roller lever - 17.40
4 - Simulated lever

All Dimensions in mm.
Integral Series 48 Micro Reset Switch is a snap acting momentary switch suitable for low level and power level switching. High switching reliability is built into the design of the switch. By using a double-make double-break design, the current rating is increased and the switch can also be used for DC switching. Low contact resistance and protection against surge currents, as in Inductive and Capacitance loading, is ensured by the design.

DIMENSIONAL DETAILS

All Dimensions in mm.
ELECTRICAL SPECIFICATIONS

CONTACT CONFIGURATION: (Double throw two circuit)

CONTACT RATING: With 200±50gms operating force 5 Amps (Resistive load) at 28 V DC / 230 V AC

CONTACT RESISTANCE: 100 milli ohms max initial

ELECTRICAL: 20,000 operations at rated load. With lower contact-loads life will be correspondingly higher

MECHANICAL LIFE: 100,000 operations

INSULATION RESISTANCE: 100 Megohms min.

DIELECTRIC STRENGTH: 1000 V RMS

PRETRAVEL: 1.27 mm (max)

OVERTRAVEL: 0.25 mm (min)

MATERIALS & FINISHES

BODY: Glass filled PBT (UL approved)

PLUNGER: Acetal

NOTE: Standard/Low level combination could be used in low level or power circuits. However if low level rating is exceeded, gold plating is likely to be removed and the switch is no longer recommended for low level currents.

ORDERING INFORMATION

The switch can be ordered as given below

CONTACT SELECTION

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>STANDARD</td>
<td>1.5A @ 230 VAC Resistive Load</td>
</tr>
<tr>
<td>1</td>
<td>LOW LEVEL (DRY CIRCUITS)</td>
<td>0.4 VA maximum at 20 volts AC or DC maximum</td>
</tr>
<tr>
<td>2</td>
<td>HIGH POWER</td>
<td>5A @ 230 V AC and 28 V DC resistive load</td>
</tr>
<tr>
<td>3</td>
<td>HIGH POWER/LOW LEVEL COMBINATION</td>
<td>Coin silver with gold plating over nickel barrier</td>
</tr>
</tbody>
</table>

TERMINALS (Br.Ag.pltd.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Terminal Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Solder Type</td>
</tr>
<tr>
<td>3</td>
<td>PC Type (Straight)</td>
</tr>
<tr>
<td>5</td>
<td>PCR Type (Horizontal Mounting)</td>
</tr>
</tbody>
</table>

ACTUATOR

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Plunger</td>
</tr>
<tr>
<td>4</td>
<td>Lever</td>
</tr>
<tr>
<td>5</td>
<td>Lever with Roller</td>
</tr>
</tbody>
</table>

MOUNTING (Br.Ag.pltd.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>W/O mounting bracket</td>
</tr>
<tr>
<td>2</td>
<td>With mounting bracket M6 X 0.75 bush and an additional plunger</td>
</tr>
<tr>
<td>3</td>
<td>Same as 2 with Dome nut</td>
</tr>
<tr>
<td>4</td>
<td>Same as 3 with Red Plunger</td>
</tr>
<tr>
<td>5</td>
<td>Side Plate with Lever (without bush)</td>
</tr>
<tr>
<td>6</td>
<td>Same as 2 with Red plunger</td>
</tr>
</tbody>
</table>

CAP COLOUR

<table>
<thead>
<tr>
<th>Code</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No Cap</td>
</tr>
<tr>
<td>1</td>
<td>Red</td>
</tr>
<tr>
<td>2</td>
<td>Black</td>
</tr>
<tr>
<td>3</td>
<td>Grey</td>
</tr>
<tr>
<td>4</td>
<td>Green</td>
</tr>
<tr>
<td>5</td>
<td>Blue</td>
</tr>
<tr>
<td>6</td>
<td>Yellow</td>
</tr>
<tr>
<td>7</td>
<td>White</td>
</tr>
</tbody>
</table>

ORDERING CODE

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
**Integral Micro Push Button Switch** are built with high reliable Micro Switches with Snap Action momentary with butterfly Mechanism, Double Make Double Break. Switching function helps the switch to use in higher current rating & D.C application in small volume. The switches can be used in Inductive, capacitance loading and against surge current since it is protected by its design. Housing and accessories are made with fine quality of engg. Plastics for their ultimate end use.
## ELECTRICAL SPECIFICATIONS

**CONTACT CONFIGURATION:** (Double throw two circuit)

**CONTACT RATING:** With 200±50gms operating force 5 Amps (Resistive load) at 28 V DC / 230 V AC

**CONTACT RESISTANCE:** 100 milli ohms max Initial

**ELECTRICAL:** 20,000 operations at rated load. With lower contact-loads life will be correspondingly higher

**MECHANICAL LIFE:** 100,000 operations

**INSULATION RESISTANCE:** 100 Megohms min.

**DIELECTRIC STRENGTH:** 1000 V RMS

**PRETRAVEL:** 1.27 mm (max)

**OVERTRAVEL:** 0.25 mm (min)

## MATERIALS & FINISHES

**BODY:** Glass filled PBT (UL approved)

**PLUNGER:** Acetal

**NOTE:** Standard/Low level combination could be used in low level or power circuits. However, if low level rating is exceeded, gold plating is likely to be removed and the switch is no longer recommended for low level currents.

## MATERIALS & FINISHES

<table>
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<th>ORDERING INFORMATION</th>
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<tbody>
<tr>
<td>The switch can be ordered as given below</td>
</tr>
</tbody>
</table>

## CONTACT SELECTION

<table>
<thead>
<tr>
<th>Order Code</th>
<th>STANDARD</th>
<th>LOW LEVEL (DRY CIRCUITS)</th>
<th>HIGH POWER</th>
<th>HIGH POWER/LOW LEVEL COMBINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.5A @ 230 VAC Resistive Load</td>
<td>0.4 VA maximum at 20 volts AC or DC maximum</td>
<td>Copper alloy with gold plating over nickel barrier</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1.5A @ 230 VAC Resistive Load</td>
<td>0.4 VA maximum at 20 volts AC or DC maximum</td>
<td>Copper alloy with gold plating over nickel barrier</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>5A @ 230 V AC and 28 V DC resistive load</td>
<td>Coin silver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5A @ 230 V AC and 28 V DC resistive load</td>
<td>Coin silver with gold plating over nickel barrier</td>
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</tbody>
</table>

## TERMINALS

<table>
<thead>
<tr>
<th>TERMINALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - Solder Type</td>
</tr>
</tbody>
</table>

## MOUNTING

<table>
<thead>
<tr>
<th>MOUNTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Plastic Black Colour Std.)</td>
</tr>
<tr>
<td>1 - With DomeNut</td>
</tr>
<tr>
<td>2 - With Knurled Nut</td>
</tr>
<tr>
<td>3 - Metal Bracket (M12 Round Nut)</td>
</tr>
<tr>
<td>4 - Same as 1 with Metal Finish</td>
</tr>
<tr>
<td>5 - With Red Colour Knurled Nut</td>
</tr>
<tr>
<td>6 - Same as 1 with metal base back nut</td>
</tr>
<tr>
<td>7 - same as 2 with metal base back nut</td>
</tr>
</tbody>
</table>

## COLOR OF PLUNGER

<table>
<thead>
<tr>
<th>COLOR OF PLUNGER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Red</td>
</tr>
<tr>
<td>2 - Black</td>
</tr>
<tr>
<td>3 - Green</td>
</tr>
<tr>
<td>4 - Yellow</td>
</tr>
</tbody>
</table>
TINY PUSH BUTTON SWITCHES

Series 50 (1 Pole - Momentary)

DESCRIPTION

Integral Tiny Push Switches embody all the design features of our highly popular miniature Toggle Switches such as epoxy sealing of terminals, silver inlay contacts for higher current operation, gold plated contacts for low-level circuit operation, various type of switching function, etc., PC. versions with mounting on 0.1" (2.54mm) centres with very small volume and height, save space in PCB. This data sheet offers the normally used types of the switch. Many other variations can be offered on specific enquiry.

All Dimensions in mm.
SPECIFICATIONS

CONTACT RATING : See below under CONTACT SELECTION
ELECTRICAL LIFE : 30,000 make-and-break cycles at full load
CONTACT RESISTANCE : Below 20 milliohms initial @ 2-6 V DC.
100 mA for both silver and gold plated contacts.
INSULATION RESISTANCE : 1000 Megohms (min)
DIELECTRIC STRENGTH : 1000 V RMS min. @ sea level.
OPERATING TEMP. : -30°C to 85°C.

CONTACT SELECTION

Order Code | CONTACTS & ALL TERMINALS | RATING | END CONTACTS | CENTRE CONTACTS & ALL TERMINALS | RATING | CENTRE CONTACTS & ALL TERMINALS | RATING |
--- | --- | --- | --- | --- | --- | --- | --- |
0 | Copper/Copper alloy Silver plated | 100 mA @ 120 V AC or 28 V DC | Coin silver, silver plated | Copper alloy silver plated. | 1 Amps @ 120 V AC or 28 V DC | Copper alloy with gold plate over nickel plate. | 0.4 VA max. @ 20 V AC or DC max. or 1 Amps @ 120 V AC or 28 V DC |
1 | Solder Type Contacts | 3 | Straight PC Contacts | 4 | Bent PC Contacts for vertical operation (PCRV) | 5 | Bent PC Contacts for horizontal operation (PCR) |

ORDERING INFORMATION : Given below are the variations possible and corresponding ordering code.

ORDERING CODE

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Switch Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>SPST</td>
</tr>
<tr>
<td>1</td>
<td>SPDT</td>
</tr>
</tbody>
</table>

TERMINATION

Order Code | PARK DT | SPDT |
--- | --- | --- |
2 | Solder Type Contacts | 3 |
4 | Bent PC Contacts for vertical operation (PCRV) | 5 | Bent PC Contacts for horizontal operation (PCR) |

PLUNGER

Order Code | Color Plunger w/o Cap |
--- | --- |
70 | Black Color Plunger w/o Cap |
71 | Red Color Plunger w/o Cap |
72 | Plunger with Black Color Cap |
73 | Plunger with Red Color Cap |
74 | Plunger with Green Color Cap |
77 | Black Colour Plunger (10.8 Long) with rubber boot ** |
78 | Black Colour Plunger (10.8 Long) ** Refer page -D7 |

MOUNTING

Order Code | Panel Thickness |
--- | --- |
0 | M5 x 0.5, 5.5 long |
1 | M6 x 0.75, 6.1 long (without collar) |
5 | M6 x 0.75, 5.0 x 0.5, 5.5 long |
6 | Panel Sealing M6 x 0.75 |
7 | M6 x 0.75, 10.0 long (without collar) |

ORDERING CODE

** Rubber Boot can be given only with plunger length 10.8mm long and bush length 10.0mm long

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Website: www.integralsys.in E-mail: inty.systems@gmail.com / sales@integralsys.in
An ISO 9001:2008 Company
Integral Series 60 Push Button Switches are designed to incorporate all the advantages of the time tested Toggle switches. The actuation is Push to On / Push to Off and the cap size and colour can be selected to match the front panel requirements. The switches are also available for direct P.C.B. Mounting and provide an elegant and robust way to switch-on equipments.

### SPDT

<table>
<thead>
<tr>
<th>Type</th>
<th>Function</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDT</td>
<td>1/2 N/O</td>
<td>12.70 x 5.72</td>
</tr>
<tr>
<td>SPDT</td>
<td>1/2 N/O</td>
<td>12.70 x 8.4</td>
</tr>
</tbody>
</table>

### DPDT

<table>
<thead>
<tr>
<th>Type</th>
<th>Function</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPDT</td>
<td>1/4 N/O</td>
<td>12.70 x 11.43</td>
</tr>
<tr>
<td>DPDT</td>
<td>1/4 N/O</td>
<td>12.70 x 3.10</td>
</tr>
</tbody>
</table>

### SOLDER TYPE

<table>
<thead>
<tr>
<th>Type</th>
<th>Function</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solder</td>
<td>Epoxy Seal</td>
<td>11.43 x 3.94</td>
</tr>
<tr>
<td>Solder</td>
<td>Epoxy Seal</td>
<td>3.94 x 1.8</td>
</tr>
</tbody>
</table>

### PC TYPE

<table>
<thead>
<tr>
<th>Type</th>
<th>Function</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC Type</td>
<td>Epoxy Seal</td>
<td>4.83 x 2.02</td>
</tr>
<tr>
<td>PC Type</td>
<td>Epoxy Seal</td>
<td>4.83 x 1.27</td>
</tr>
</tbody>
</table>

All Dimensions in mm.
**SPECIFICATIONS**

- **CONTACT RATING**: 3 Amp @ 250 V AC; 5A @ 28 V DC
- **ELECTRICAL LIFE**: 40,000 make-and-break cycles at full load on all models.
- **CONTACT RESISTANCE**: Below 10 milliohms initial @ 2-6 V DC, 100 mA for both silver and gold plated contacts.
- **INSULATION RESISTANCE**: 1000 Megaohms min @ 500 VDC
- **DIELECTRIC STRENGTH**: 1000 VRMS min. @ sea level.
- **OPERATING TEMP.**: -30° C to 65° C

**MATERIALS & FINISHES**

- **BODY**: Dialyl Phthalate (DAP)
- **ACTUATOR**: Glass Filled Nylon
- **HOUSING**: Stainless Steel
- **BUSHING**: Brass Nickel Plated
- **HARDWARE**: Brass Nickel plated
- **TERMINAL SEAL**: Epoxy
- **CONTACTS**: See below under CONTACT

**ORDERING INFORMATION**: Given below are the variations possible and corresponding ordering code.

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Contacts and all Terminals Rating</th>
<th>Copper alloy Silver plated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>End contacts, Centre contacts and all Terminals Rating</td>
<td>2 Amps. @ 250 V AC</td>
</tr>
<tr>
<td>2</td>
<td>Contacts and all Terminals Rating</td>
<td>Copper alloy Silver plated</td>
</tr>
<tr>
<td>3</td>
<td>Centre contacts and all Terminals Rating</td>
<td>Copper alloy Silver plated</td>
</tr>
</tbody>
</table>

(This contact can be used where either dry circuit or power conditions exist. However when dry circuit rating is exceeded the gold plating is removed from the contact and the switch cannot be used in dry circuits.)

<table>
<thead>
<tr>
<th>POLE SELECTION</th>
<th>One</th>
<th>Two</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order Code</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

- **POLE SELECTION**

| ORDERING CODE | 6   | 1   |

**SWITCH CONNECTION**

<table>
<thead>
<tr>
<th>Pos. 1</th>
<th>Pos. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONNECTED TERMINALS</td>
<td>ON</td>
</tr>
<tr>
<td>1 POLE</td>
<td>2 - 3</td>
</tr>
<tr>
<td>2 POLE</td>
<td>2 - 3</td>
</tr>
</tbody>
</table>

**CAP COLOUR**

<table>
<thead>
<tr>
<th>ORDER CODE</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>Red</td>
<td>Black</td>
</tr>
</tbody>
</table>

**TERMINATION**

<table>
<thead>
<tr>
<th>CAP</th>
<th>ORDER CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No Cap</td>
</tr>
<tr>
<td>1</td>
<td>Ø 9.50 x 6.35</td>
</tr>
<tr>
<td>2</td>
<td>Ø 7.85 x 6.35</td>
</tr>
<tr>
<td>3</td>
<td>Ø 5.00 x 3.95</td>
</tr>
<tr>
<td>4</td>
<td>Same as 2 with dome nut</td>
</tr>
</tbody>
</table>

**MOUNTING**

<table>
<thead>
<tr>
<th>MOUNTING</th>
<th>ORDER CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M6 x 0.75 Threaded</td>
</tr>
<tr>
<td>2</td>
<td>Ø 6 unthreaded</td>
</tr>
</tbody>
</table>
**PUSH BUTTON (ILLUMINATED)**

Series 64

**DESCRIPTION**

**Integral Series 64** Illuminated Push Button Switches are of modular construction giving a freedom to the customer to build his own switch given all the sub-assemblies. A robust construction using stainless steel sheets, the switch is built to take rough usage over a long period of time. The design enables the user to change the multi-chip LED’s from the front of the panel without removing the switch from the panel. Consisting of the Push Button, Body and the Switch modules the switch assembly lends itself to a large number of combinations.

**DIMENSIONAL DETAILS:**

All Dimensions in mm.

<table>
<thead>
<tr>
<th>Dimensions Type</th>
<th>Number of units</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short barrier</td>
<td></td>
<td>36.1</td>
<td>68.0</td>
<td>99.9</td>
<td>131.8</td>
<td>163.6</td>
<td>195.5</td>
<td>227.4</td>
<td>259.3</td>
<td>291.1</td>
<td>323.0</td>
<td>354.9</td>
<td>386.7</td>
</tr>
</tbody>
</table>

Dimensional tolerance is ±0.30 mm
in the case of gang-mounting of 12 units or more, calculate as follows

Short barrier type: 31.86n + 4^0.30

All Dimensions in mm.
SPECIFICATION

Electrical & Machanical

1. Allowable Operating Frequency:
   A) Mechanical
      (I) Momentery Max 120 operation/min
      (II) Alternating Max 60 operation/min
   B) Electrical - Max 20 operation/min.

2. Current Rating
   Resistive Load 5 A @ 250V AC OR 30V DC
   Inductive Load 3 A @ 250V AC OR 30V DC

3. Insulation resistance
   Max 100 M ohms @ 500 V DC

4. Dielectric strength
   Between non-continuous terminals - 600 V AC for 1 min.
   Between different poles 2000 V AC for 1 min.
   Between each terminals and ground - 2000 V AC for 1 min.

5. Mechanical life
   Min 100,000 operations

6. Electrical life
   Min 100,000 operations at 2A @ 250V AC / 28V DC @ +40 C

7. Initial Contact resistance
   Max 60 m ohms

8. Terminal strength
   Soldered terminal 12 N for 1 min

9. Stroke
   Approx 3 mm

ORDERING DETAIL FOR PRE ASSEMBLED COMPLETE SWITCH.

<table>
<thead>
<tr>
<th>COMPONENTS</th>
<th>PART No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWITCH MODULE</td>
<td>64 SW</td>
</tr>
<tr>
<td>BODY</td>
<td>64 BD</td>
</tr>
<tr>
<td>BARRIER</td>
<td>64 BR</td>
</tr>
<tr>
<td>LED</td>
<td>64 LD</td>
</tr>
<tr>
<td>COLOUR PLATE</td>
<td>64 CP</td>
</tr>
<tr>
<td>BUTTON</td>
<td>64 BT</td>
</tr>
</tbody>
</table>

A Special customer specific number will be allotted keeping the above Configuration.

Ordering Detail Example:

Switch Module 64 SW 2 M means 2 Switch Momentery Type.
Body 64 BD S A 2 4 means Body for full display 24V Switch
Barrier 64 BR K means Black Short Barrier
LED 64 LD R means Red Colour LED
Colour Plate 64 CP 1 R means Red Colour full display lens.
Button 64 BT S A 2 4 means Button for full display 24 V Switch

1. Temperature
   a) Storage : -25°C to + 65°C
   b) Operating: -20°C to + 40°C

2. Damp Heat : 16 hrs @ RH 85% at 40°C

3. Vibration : 10 - 55 Hz, 3mm peak (1 hr.on each axis)

4. Impact Shock : Peak acceleration 750 m/s² for 5 m sec duration In all 6 direction.

5. Salt mist : As per JSS 50101 For 48 hrs.

MATERIAL & FINISH

METALS:- Stainless Steel, Berrylum Copper and Brass as required.

PLASTICS:- Thermoset and Termoplastic are UL-94 V0 grade.

PLATING:- Heavy Silver OR Gold on Nickel as required.

All Dimensions in mm.
MICRO SWITCHES  SNAP ACTION

Series 66

DESCRIPTION:

Integral Series 66 Micro Switches are characterized by their high functional reliability and switching accuracy. Can be used for Office Equipment, Industrial Machinery, Household Equipment.

DIMENSIONS:

All Dimensions in mm.

SPECIFICATION:-

| CONTACT RATING | 5A (Resistive Load) @ 250v AC/30V DC |
| CONTACT RESISTANCE | 100 m ohms (max) at 2-6V DC, 0.1 A Initial |
| INSULATION RESISTANCE | 100 M ohms (min) @ 500V DC |
| DIELECTRIC STRENGTH | 1000V AC (1min) |
| LIFE (ELECTRICAL) | 50,000 Cycles @ full electrical load |
| LIFE (MACHANICAL) | 300,000 Cycles |
| OPERATING TEMPERATURE RANGE | -25° to +85° C |

MATERIALS & FINISHES

- BASE : DAP (Glass filled) UL approved
- CONTACTS : Silver Rivets
- TERMINALS : Copper Alloy Silver plated
- SPRING : Beryllium Copper

ORDERING CODE

6 6

CONTACT SELECTION Order Code
1 - Ag - Alloy
2 - Ag - Au plated

FUNCTION Order Code
0 - 1 NO
1 - 1 NC
2 - 1 NO/1NC

TERMINATION Order Code
1- Plug in type
2 - Solder type
3 - PC type

ACTUATOR Order Code
0 - Mushroom Plunger
1 - Pin Plunger
2 - Hinge Lever
3 - Roller Lever
4 - Simulated Roller Lever
5 - Pin plunger (tall)

For Future Development

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TACTILE SWITCHES

Series - 68

DESCRIPTION

Integral Series 68 Tactile switch is characterized by its high functional reliability and switching accuracy. Mounted on a PC Board the total height of the switch can be altered as per customer specification (L). The tactile feel is provided by a Stainless Steel Spring whereas the actual Contact is established between Silver Plated Copper alloy parts.

DIMENSIONAL DETAILS

![DIMENSIONAL DETAILS Diagram]

SPECIFICATIONS

- **SWITCHING CURRENT**: 30mA @ 30 V DC
- **CONTACT RESISTANCE**: 30 m ohms max. Initial
- **INSULATION**: 100 M ohms min.
- **DIELECTRIC STRENGTH**: 500V AC/1 min
- **OPERATING FORCE**: 100 ± 50 gms.
- **LIFE (MECHANICAL)**: 100,000 Cycles
- **OPERATING TEMPERATURE**: -25°C to +60°C

MATERIALS & FINISHES

- **BODY**: PBT GF(30) UL94V0
- **CAP**: ABS
- **CONTACTS**: Copper alloy Silver plated.
- **TERMINALS**: Copper alloy Silver plated.
- **SPRING**: Stainless Steel

ORDERING INFORMATION:

<table>
<thead>
<tr>
<th>ORDERING CODE</th>
<th>CONTACT MATERIAL</th>
<th>CAP (L=Length)</th>
<th>CAP COLOUR</th>
<th>CAP SHAPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 8 8 3</td>
<td>* 0 - Cu - (Ag.Plt.)</td>
<td>1 - Short - 10.75</td>
<td>1 - RED</td>
<td>1 - ROUND</td>
</tr>
<tr>
<td></td>
<td>1 - Ag - (Ag.Plt.)</td>
<td>2 - Long - 14.45</td>
<td>2 - BLACK</td>
<td>2 - SQUARE</td>
</tr>
<tr>
<td></td>
<td>2 - Cu - (Ag.Plt.)</td>
<td></td>
<td>3 - GREEN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 - Ag - (Au.Plt.)</td>
<td></td>
<td>4 - YELLOW</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 - WHITE</td>
<td></td>
</tr>
</tbody>
</table>

* Standard

All Dimensions in mm.