



# **STANDARD** **OPERATING PROCEDURE**

<b>Ref:</b>	<b>SOP-0335-02-N-DEV</b>
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<b>Description:</b>	<b>Classic Push Buttons - Starpoint Technical Information</b>
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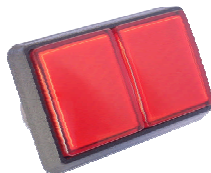
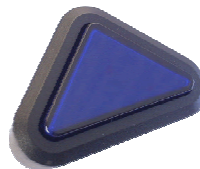
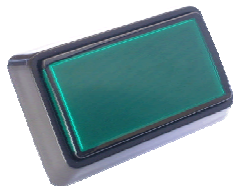
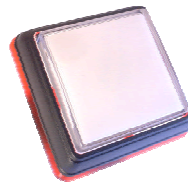
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## CLASSIC PUSH BUTTONS

### Examples





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## INTRODUCTION

This document provides a complete insight on how to build up a Push Button system using the Starpoint Classic range of Push Buttons. Starting from a description of the construction of a Push Button the document builds up information on unique options of connection, illumination and switching. Finally details are provided on how to order from the many variations available.

The Classic range Push Button system is a variety of shapes in different designs, allowing the games designer the flexibility to select a Push Button to meet his needs. Details of the different designs are available on the Starpoint web site. [www.starpoint.uk.com](http://www.starpoint.uk.com)

The mechanical details of the Classic range are detailed on pages 9 to 18. The component parts of the Classic range are of modular design allowing a Push Button system to be constructed, which meets individual cabinet needs. Details of the options available and how to select them are shown in 'Ordering information' section on page 27.

In all instances throughout this document, where a selection is offered then option 1 is the *Normal* configuration.

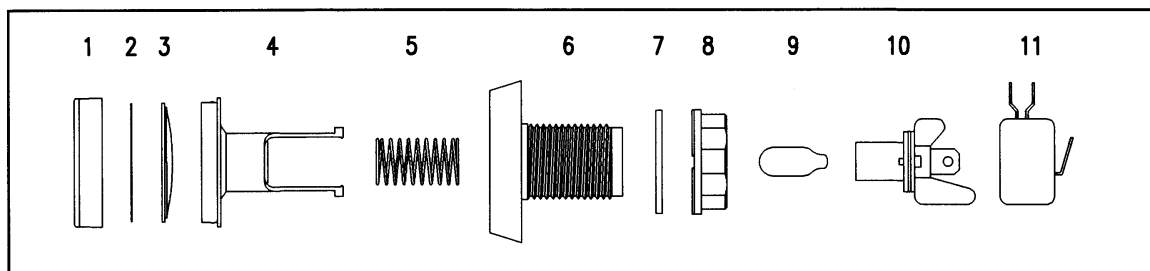
There is an identification chart for each button giving name, shape size and profile in Appendix A.

## BUILD OPTIONS

There are two build options available, Standard and Advanced Technology (AT).

### 1. Standard Build Option – (Spade terminals)

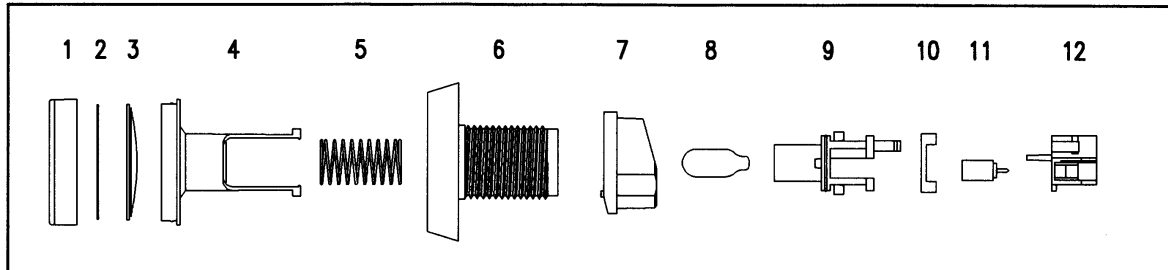
The Standard build of Classic Push Buttons is shown below.



1	Lens Cap
2	Printed Insert
3	Legend plate
4	Plunger
5	Spring
6	Bezel
7	Washer
8	Nut
9	Bulb / LED
10	Switch / Lamp holder Moulding
11	Micro Switch

## 2. Advanced Technology Build Option (AT)

The Advanced Technology build option of Classic Push Buttons is shown below.



1	Lens Cap
2	Printed Insert
3	Legend plate
4	Plunger
5	Spring
6	Bezel
7	AT Quick Nut™
8	Bulb / LED
9	Switch / Lamp holder Moulding
10	Bridge Piece
11	AT connector

### Advantage of AT over Standard options

The 'AT' option offers the following features above that of the Standard build option.

- ?? The Quick Nut™, a unique push and twist nut for fast fixing of the Push Button onto a panel.
- ?? Fewer connections than Standard build option giving a quicker machine build.
- ?? Easy to fit, right first time connection giving lower assembly costs.
- ?? Proven IDC connector system terminated by a one-shot pneumatic air tool for volumes or by hand tool for smaller quantities.
- ?? Quicker wire termination in harness manufacture giving reduced costs.
- ?? Easier field servicing giving increased reliability.
- ?? Standardisation of harnesses with all Push Button types.
- ?? Optional integrated diodes allow easy lamp and switch matrixing.
- ?? High reliability illumination using LED technology – See page 22.

### **Printed Inserts - Text and Graphic Options.**

All Starpoint Push Buttons are available with pre-printed inserts, these can have either text or graphics on to suit the individual game requirements. The construction of the Push Button has a lens cap and legend plate (or diffuser plate). Any text or information, which is on the Push Button, will be printed on an insert, retained between the lens cap and the legend plate. The quality of illumination can be varied by selection of suitable legend plates. The legend plates can be translucent, opal or clear, which will give a different illumination to the message on the button. It may be necessary at times to experiment with the colours to achieve the desired effect. For instance if a clear lens cap is selected an opal legend plate is recommended for the best effect.

The Push Buttons can be supplied in one of three formats, as below: -

- 1) With no printed insert - Where a coloured lens cap with matching legend plate is recommended
- 2) With text in black printed on an insert – Where a clear lens cap is recommended
- 3) With coloured graphics printed on an insert – Where a clear lens cap is recommended

The legend plate should be selected which provides appropriate illumination. The insert can be supplied by either the customer or by Starpoint to the customer's specification. The dimensions for the insert size are detailed in Mechanical Specifications section starting on page 10. It may be necessary for the insert to be fitted by the customer, which can be accommodated for. The standard build option will be that if Starpoint are to fit the insert then the lens cap will be snapped into position, and if the insert is not to be fitted then the lens cap will be supplied loose. The Push Buttons can then be fitted onto the panels and when the inserts are available, these can be fitted in the Push Buttons and the lens caps snapped in place. Should there be a different requirement then advise Starpoint when placing the order / requesting a quotation. For information on how to detail printing requirements contact Starpoint on + 44 (0)20 8391 7700.



## MECHANICAL SPECIFICATIONS

Each push button has its own specific information regarding panel cut out size, insert dimensions and orientation information. This section details the above for each push button, as well as the fixing nut options and 'AT' Connector orientation.

### Fixing nut options

The Classic range of Push Buttons have been designed to fit panel sizes up to 18mm. Dependant on panel thickness it is possible to use different fixing nuts on individual Push Buttons. Appendix C shows the relationship between panel thickness and nuts available.

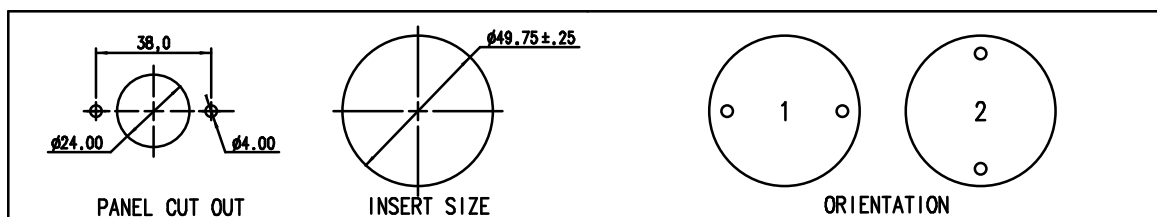
### Panel Cut Out / Insert / Orientation Information

Note the following:-

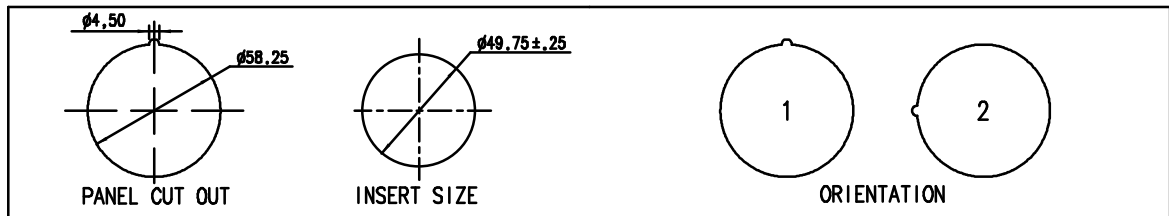
- ?? All Dimensions are in millimetres
- ?? The insert material thickness should be a maximum of 0.25 mm and a minimum of 0.10 mm.
- ?? Unless otherwise stated all tolerances are + 0.2 mm / -0.0 mm
- ?? Unless stated otherwise the orientation is viewed from the front of the Push Button.

### Single Lamp Illumination

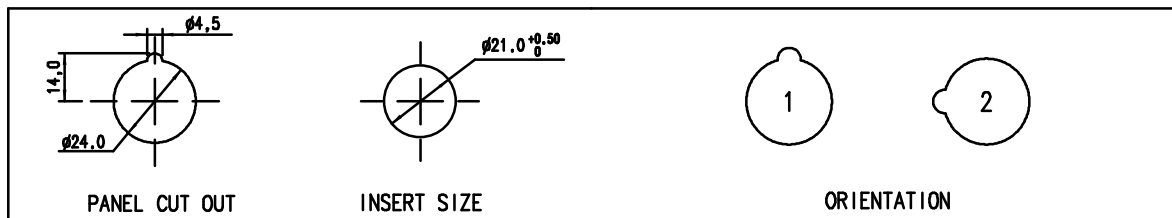
## CPB - Circular Push Button



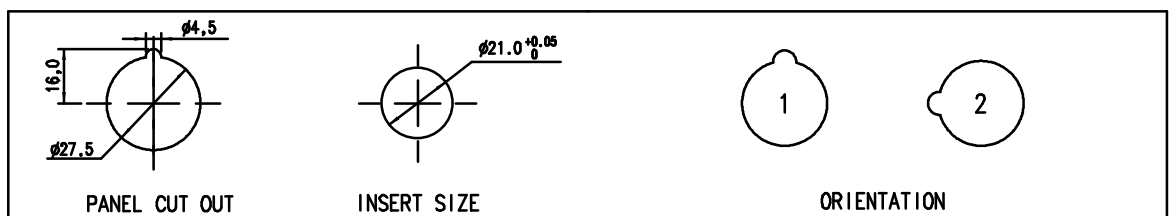
## CPBL – Circular Push Button Low Profile (Also see DCPBL & TCPBL)



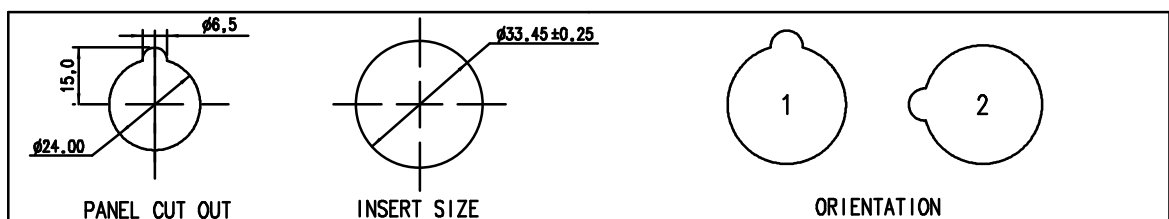
## MPB – Miniature Push Button



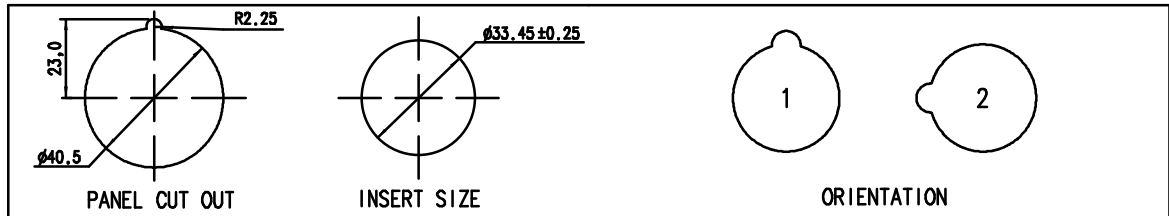
## MPBL – Miniature Push Button Low Profile



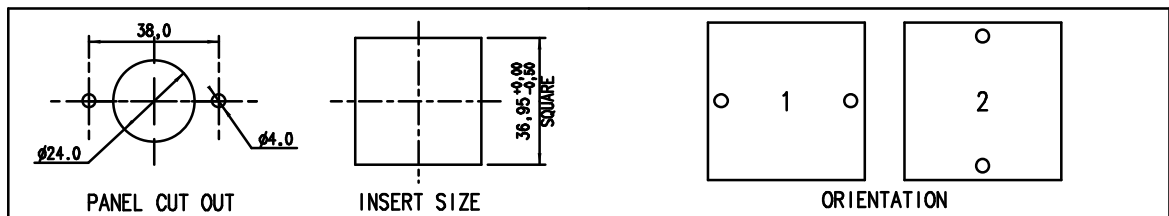
## MCPB – Medium Circular Push Button



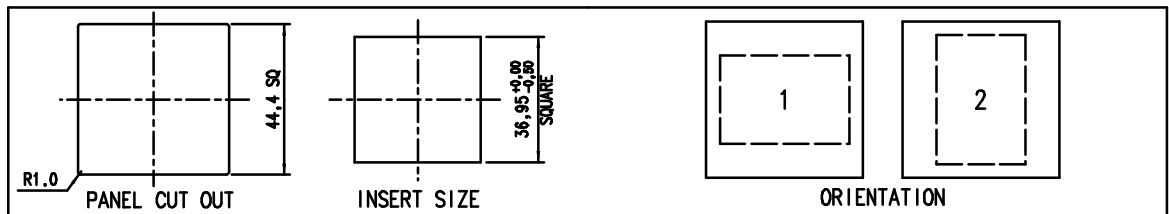
## MCPBL – Medium Circular Push Button Low Profile



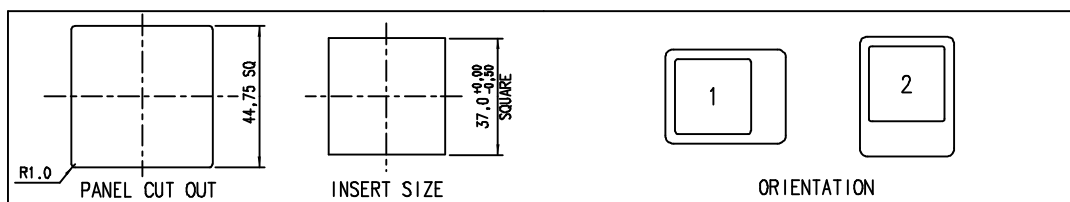
## SPB -Square Push Button



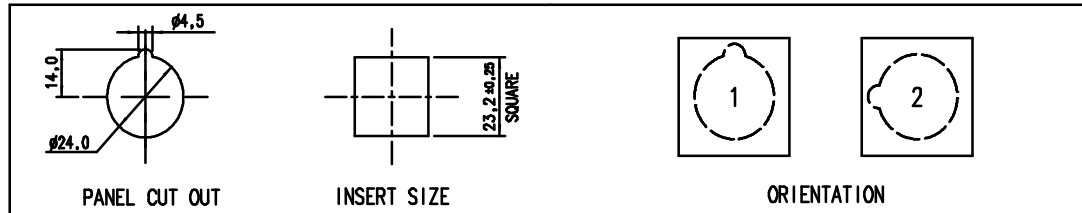
## SPBL – Square Push Button Low Profile



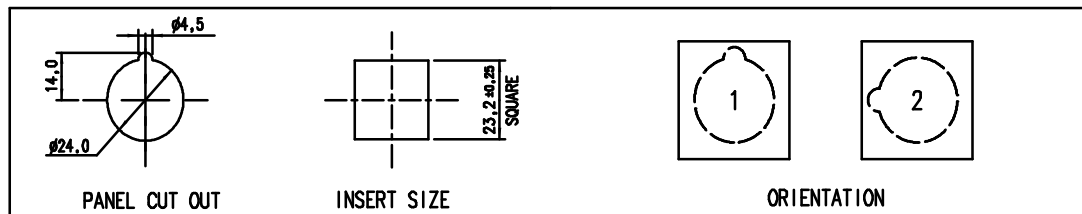
## SAPL – Square Angled Push Button Low Profile



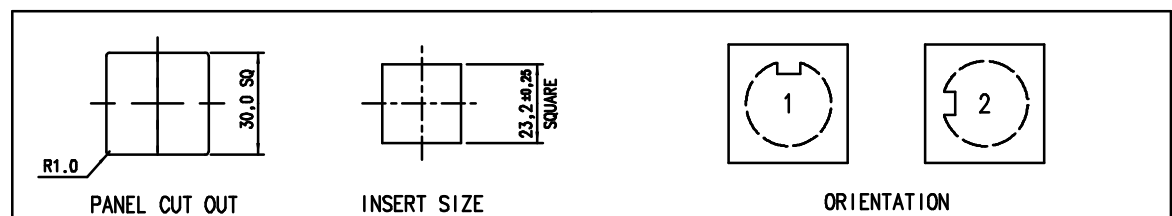
## MSPB – Medium Square Push Button



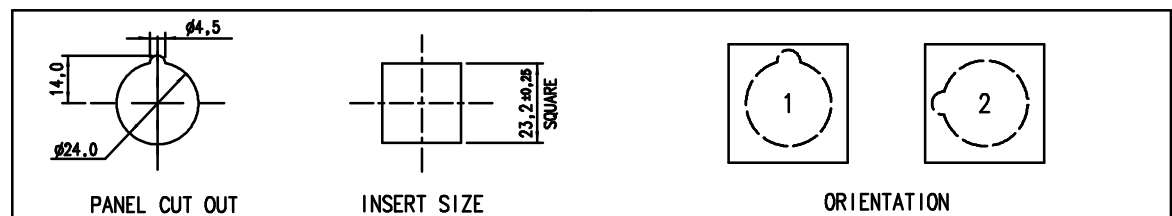
## MSPBA – Medium Square Push Button



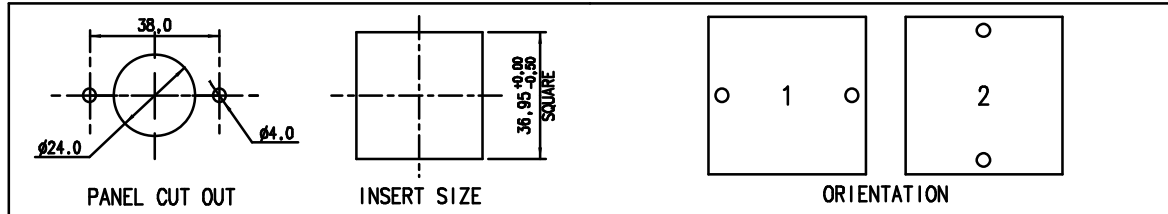
## MSPBL – Medium Square Push Button Low Profile



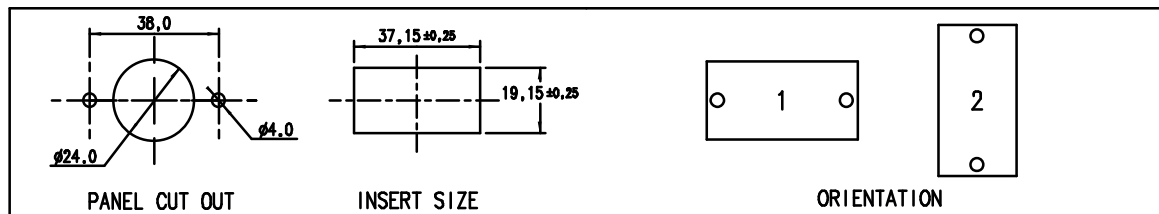
## SSC42 – Square Push Button With Luminescent Profile & Restyle



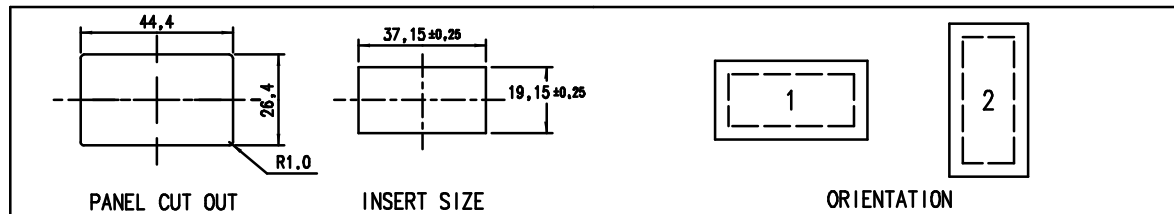
## SSC44 – Square Push Button With Luminescent Profile & Restyle



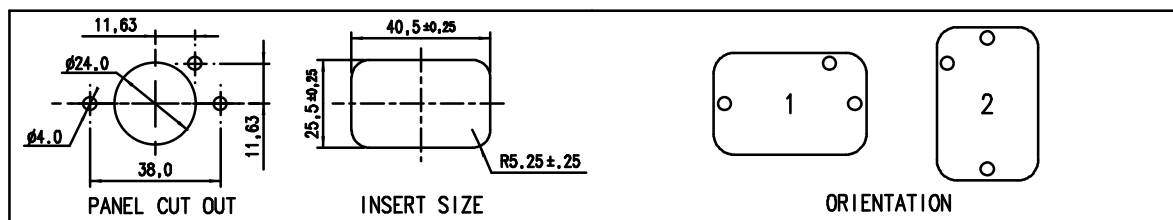
## RPB – Rectangular Push Button



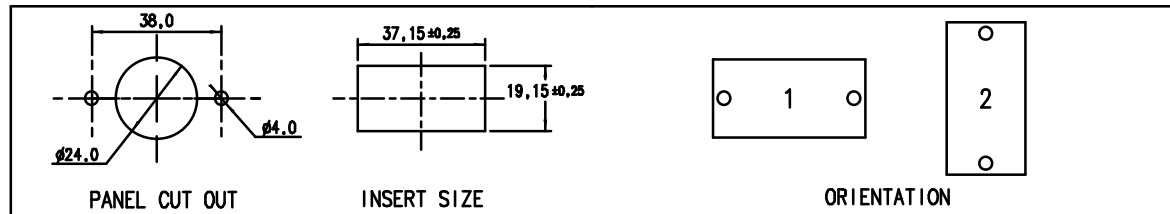
## RPBL - Rectangular Push Button Low Profile



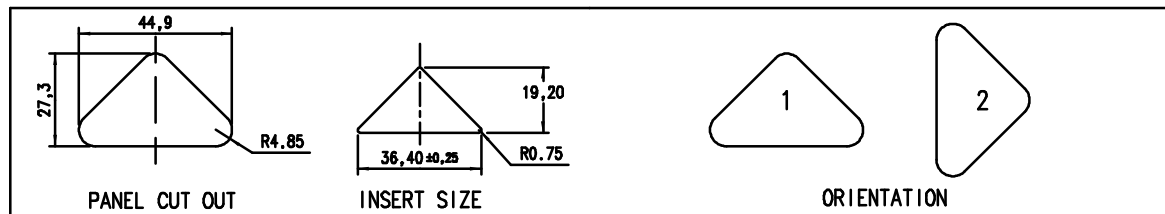
## HRPB – High Rectangular Push Button



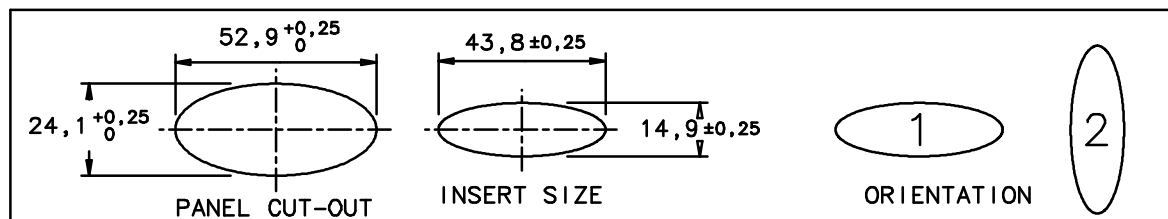
## RSC44 - Rectangular Push Button With Luminescent Profile & Restyle



## TPB –Triangular Push Button

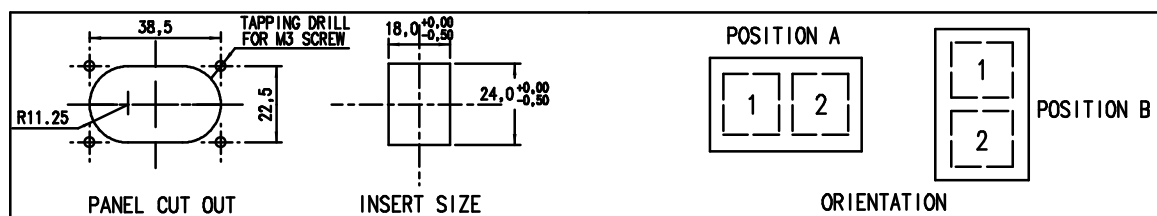


## OSC42 –Oval Push Button With Luminescent Profile.



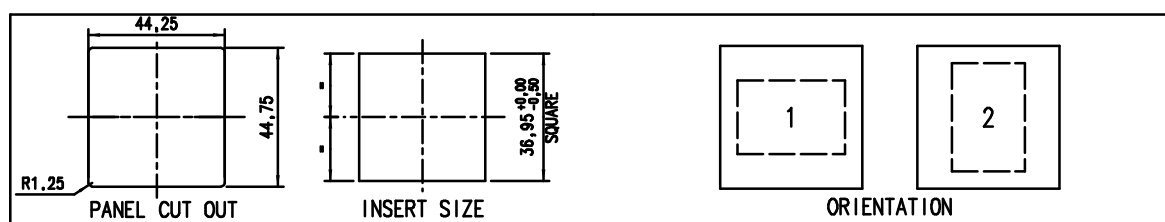
## Dual Lamp Illumination

### DPB – Double Push Button



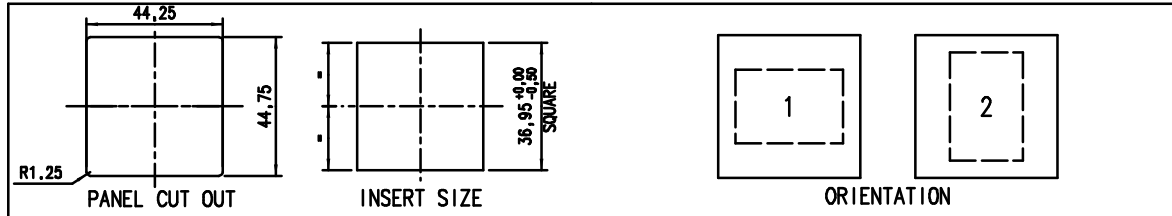
The DPB has two micro switches and two lamps, which provides a true dual, function Push Button. This button **is not** designed to accept AT build option.

### DSPB – Dual Square Push Button



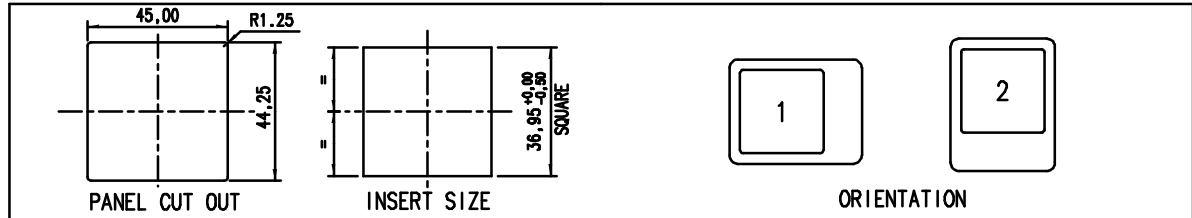
The DSPB has one micro switch and two separate lamps to illuminate the Push Button. This is provided to remove confusion for the player when the Push Button has a dual function such as Hold & Nudge. By illuminating the half of the button, which is relevant, helps the player during the game. The additional bulb is held in a Starpoint lamp holder, which would normally be fitted to the machine harness, (lamp holder type LHL or LHD). Although the AT option is available for this Push Button, the use of the Quick Nut **is not** recommended.

## DSPBL – Dual Square Push Button Low Profile



The DSPBL has one micro switch and two separate lamps to illuminate the Push Button. This is provided to remove confusion for the player when the Push Button has a dual function such as Hold & Nudge. By illuminating the half of the button, which is relevant, helps the player during the game. The additional bulb is held in a Starpoint lamp holder, which would normally be fitted to the machine harness, (lamp holder type LHL or LHD). Although the AT option is available for this Push Button, the use of the Quick Nut **is not** recommended

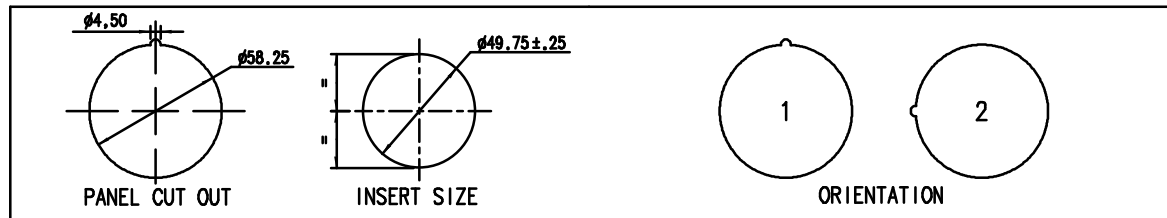
## DSAPL – Dual Square Angled Push Button Low Profile



The DSAPL has one micro switch and two separate lamps to illuminate the Push Button. This is provided to remove confusion for the player when the Push Button has a dual function such as Hold & Nudge. By illuminating the half of the button, which is relevant, helps the player during the game. The additional bulb is held in a Starpoint lamp holder, which would normally be fitted to the machine harness, (lamp holder type LHL or LHD). Although the AT option is available for this Push Button, the use of the Quick Nut **is not** recommended.

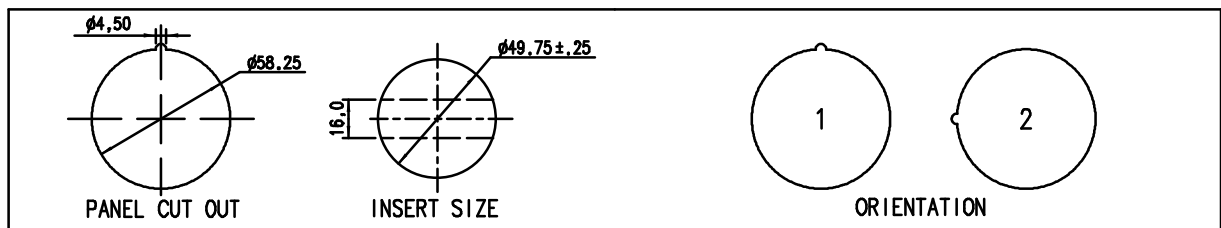


## DCPBL – Dual Circular Push Button Low Profile



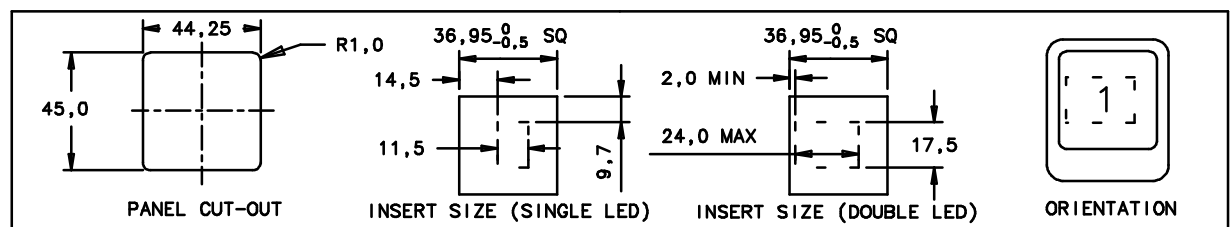
### Triple Lamp Illumination

## TCPBL – Triple Circular Push Button Low Profile

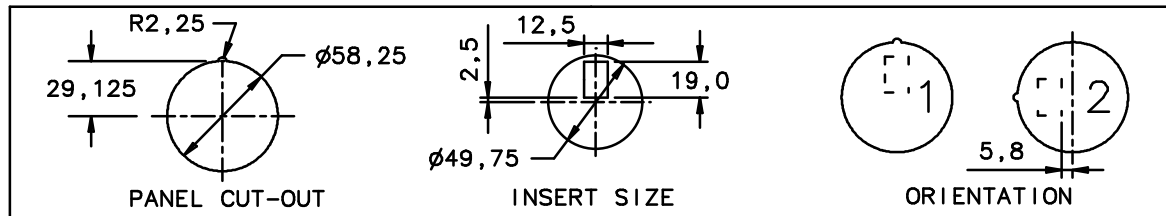


### Seven Segment Push Buttons

## SSPB – 1 & 2 Digit

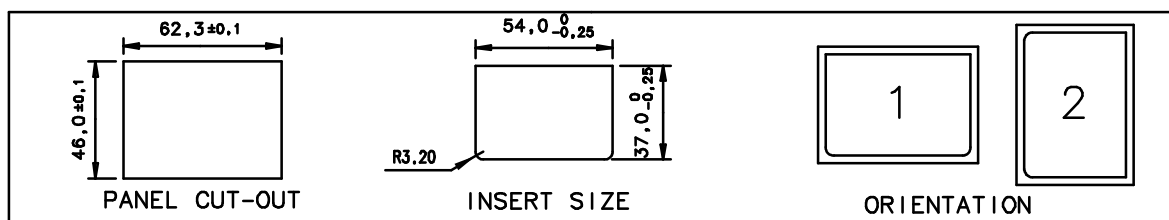


## SSCPBL – Seven Segment Circular Push Button



### Feature Pushbutton

## Feature Button - BFML



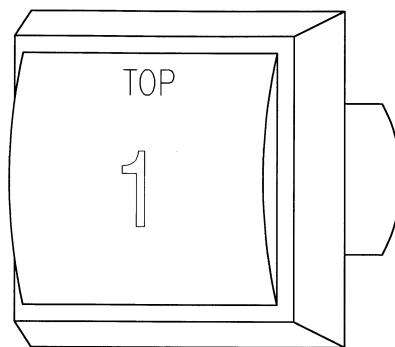
There is a table which shows the space envelope – Height / Width / Depth – for each Push Button, which can be used when designing onto button panels. This can be found in Appendix B

## ORIENTATION

The Classic Push Button may be assembled into the panel in different orientations. When deciding a configuration there are four items to consider, depending on build option required.

### 1. Lens Cap

The lens cap is of a curved design. On a circular or rectangle button this is a fixed option. For the square button there are two ways the lens cap can be fitted. The standard option is always to fit the lens cap from top to bottom (Vertical), as seen below. All push buttons will be assembled this way. Should the requirement be to fit the lens cap in a side-to-side (horizontal), orientation then please contact the sales department with your requirement (+44 (0) 208 391 7700).



### 2. Insert

By default if the printed insert is to be fitted by Starpoint then the standard build will be to fit this with the text horizontal as the diagram above suggests – If this is to be different then again contact Starpoint's sales department with your requirement.

### 3. Bezel

The bezels can be fitted where the locating pegs are either horizontal (1) or vertical (2).

4.

## Switch Position

a). If the switch Lamp holder is the spade connector type, then this will be placed loose in the button in the packaging. This is because the assembled push button will not fit through the panel hole.

b). If the 'AT' build option is being used, then the switch lamp holder will be snapped home, as this will pass through the panel cut out. The switch lamp holder can be fitted in two positions, one for horizontal bezel locating lugs (position 1) and one for vertical bezel location lugs (position 2).

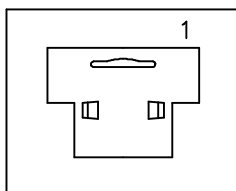
The AT connector will be fitted as shown below, Viewed from the rear of button depending on the Push Button orientation. To view the choices first see what list the required push button is on. This dictates where the 1 & 2 positions are fitted.

The number 1 shown in the diagram indicates the terminal position as moulded into the AT BLOCK.

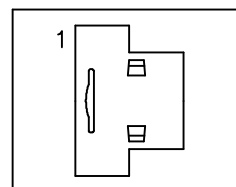
### FOR PUSH BUTTON TYPES:-

SPB
SPBL
CPB
MSPBL
RPB
RPBL
HRB
SAPL
TPB
DSPBL
DSPB
SSC44
RSC44

### ORIENTATION 1



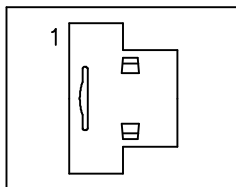
### ORIENTATION 2



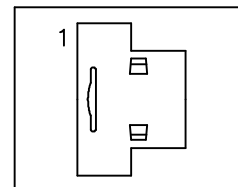
**FOR PUSH BUTTON TYPES**

<b>MSPB</b>
<b>MPB</b>
<b>MPBL</b>
<b>MCPB</b>
<b>MCPBL</b>
<b>CPBL</b>
<b>DCPBL</b>
<b>TCPBL</b>
<b>DSAPL</b>
<b>SSC42</b>

**ORIENTATION 1**



**ORIENTATION 2**



## ILLUMINATION

The Classic push buttons can be illuminated with either bulbs or light emitting diodes (LED's). Below is a table with all the illumination options available, (Non illuminated can also be selected).

LAMPS	
6.3V	0.25a
12.0V	1.2W
12.0V	2.2W
14.0V	0.08a
14.0V	0.19a
24.0V	2.0W
28.0V	0.06a
LED's	
Single Blue	
Double Blue	
Single Green	
Double Green	
Single White	
Double White	
Single Red	
Double Red	
Single Yellow	
Double Yellow	

### Bulb Illumination.

There are seven lamp types that can be selected, all 10mm wedge base. Select the build type that suits the requirement from the list above.

### Advanced Technology ('AT') LED illumination

The Classic Push Button is also available with LED illumination for the long life application. Using the unique Starpoint patented carrier, high intensity LED's can be fitted which provide illumination combined with the reliability characteristics of a semi-conductor LED device. The carrier is available with one or two LED's fitted dependant on the illumination requirement.

When using LED's it is important to connect to the correct polarity, failure to do so will cause damage to the LED's. The AT configuration solves this difficult problem because the connections cannot be made incorrectly. Therefore, it is strongly recommended that LED's are only used with the AT option Push Buttons. In the long term the LED / AT combination offer significant cost savings in production time and service call outs.

As it is not possible to identify the colour of the LED without applying a voltage, the Starpoint LED carrier is moulded in the same colour as the LED's to allow easy visible colour recognition.

**NB:** The Push Button switch / LED assembly is supplied with the LED's fitted. The LED's and carrier should not be removed from the switch / LED assembly as damage may occur to the electrical connections. This may invalidate any guarantees given.

## Starpoint LED Carrier

The Starpoint LED carrier has been designed to replace the standard wedge based lamp and has a number of unique features not readily apparent. The base is designed to interface to both the 10mm and 5mm wedge base lamp holder.

An orientation pip is present to ensure there is always a correct polarity connection of the LED when mounted in the switch lamp holder moulding. The unique intermediate centre terminal locator allows for two LED's to be fitted serially to increase illumination.

## LED Options

The LED illuminated Push Button is assembled with either a single LED or a double LED for extra illumination. See Appendix F for preferred option. Also, using the AT connection system the LED's can be driven from a 12v supply, with the integral resistors fitted. If a different drive voltage is used the appropriate resistor value should be fitted. In this case use the equation below to work the value required.

$$R1 = \frac{V_{cc} - V_t}{I_t}$$

Where: -

R1	=	Value of current limiting resistor (Ohms)
V <sub>cc</sub>	=	Supply Voltage
V <sub>t</sub>	=	Typical Forward Voltage
I <sub>t</sub>	=	Typical Forward Current

## Direct Connection Option

In this configuration the user connects to the terminals of the Push Button or the AT connector, a voltage and current specific to the LED type. The following table details the individual voltage and current requirements.

	LED Colour	Carrier Colour	Max. Forward Voltage	Typical Forward Voltage	Absolute Max. Forward Current	Maximum Reverse Voltage
<b>Single LED</b>	RED	RED	2.5v	2v	50mA	4v
	YELLOW	YELLOW	2.5v	2v	50mA	4v
	BLUE	BLUE	4.0v	3.5v	30mA	5v
	GREEN	GREEN	4.0v	3.5v	30mA	5v
	WHITE	WHITE	4.0v	3.5v	25mA	5v
<b>Double LED</b>	RED	RED	5v	4v	50mA	8v
	YELLOW	YELLOW	5v	4v	50mA	8v
	BLUE	BLUE	8v	7v	30mA	10v
	GREEN	GREEN	8v	7v	30mA	10v
	WHITE	WHITE	8v	7v	25mA	10v

**NB:** Damage will occur if excess current is applied to the LED's.

## 12v dc Option AT Build Standard Only

As can be seen from the direct connection table above different colour LED's require a different current. The 12v option overcomes this difficulty by including a current limiting resistor within the AT connector. If the LED illumination option is required, the AT connector provides added security of ensuring the electrical connections are available. A direct connection to the LED's is made by using the Yellow connector, and a 12v connection via the Blue and Green connectors. The table below details the current drawn by the LED's and the colour code of the connector required, for 12v operation. See drawing No. G6D028-01-ZZZZ.

	LED Colour	Carrier Colour	AT Connector Colour	Current Drawn
<b>Single LED</b>	BLUE	BLUE	GREEN	20mA
	GREEN	GREEN	GREEN	20mA
	WHITE	WHITE	GREEN	20mA
	RED	RED	BLUE	40mA
	YELLOW	YELLOW	BLUE	40mA
<b>Double LED</b>	BLUE	BLUE	BLUE	20mA
	GREEN	GREEN	BLUE	20mA
	WHITE	WHITE	BLUE	20mA
	RED	RED	BLUE	40mA
	YELLOW	YELLOW	BLUE	40mA



### Advanced Technology Connectors

The AT connector is identical to the Casino Push Button system (Series 2) using the same production tools. The connectors must be specified and ordered separately from the Push Button and are available as either a connector, or with integral diodes to allow lamp and / or switch matrixing. Appendix D is the Option Table, which details the different build standards available for the AT IDC, (Insulation displacement connector). See drawing for view of AT connector.

A colour code system is used for the connector moulding to identify, at a glance the build standard. The option to include a diode allows for matrixing of the lamps and switches, hence reducing wire interconnects and circuitry. Drawing number G6D028-01-ZZZZ shows the physical layout of the asymmetrical connector.

If the LED illumination option is required, the AT connector provides the added security of ensuring the electrical connections are available. A direct connection to the LED's is made by using the Yellow connector and a 12v connection via the Blue and Green connectors. See page 22 for further information.

## 'AT' Harness Products.

The 'AT' connector blocks are supplied (ordered) separately, as the most efficient way to use them is to build them onto the wiring looms. To compliment these there are tools to aid the wiring process.

### 1. Pneumatic Air Tool

A custom designed compressed Air tool see Drawing No G6D039-01-ZZZZ, which terminates all the IDC connector wires in a single operation.

### 2. Hand Tools

These are hand operated IDC insertion tools for use with small volumes or where an air tool is not available- see Drawing No. 31S002-01-ACBK for insertion tool and see drawing No. 31S003-01-ACBK for the extraction tool. The AT connector is designed for use with industry standard 7/0.2 wire (7 strands x 0.2mm diameter).

### 3. Harness Fixture

A fixture which retains the AT connector during harness manufacture and provides connection for Automatic Test Equipment to check interconnection of the harness see Drawing No.GS2001-02-ZZZZ. The part number is also G2S001-02-ZZZZ.

### 4. Insulating Cover

In applications where CE or UL approval is required and the AT connector has more than 40 volts applied to the terminals. The insulating cover should be fitted to protect against accidental contact with the terminals. The insulating cover should be ordered separately when ordering the AT connectors. The part number is 28S003-01-AATR.

## ORDERING INFORMATION

The production build standard for each of the Classic Push Buttons is defined in a specification sheet. Each Push Button has its own Specification / Quotation sheet, an example is shown in Appendix E. These sheets are available on the Starpoint Web site [www.starpoint.uk.com](http://www.starpoint.uk.com) or can be obtained via e-mail through [sales@starpoint.uk.com](mailto:sales@starpoint.uk.com). It is most important to complete the specification sheet when ordering. All of the blue sections need to be completed. These forms can also be used when enquiring for a quotation. If difficulty is experienced in completing the sheet, assistance can be obtained by contacting Starpoint on +44 (0) 20 8391 7700. If you have a requirement that is not on the specification sheet then contact the sales department who will be able to advise on your requirements.

The following explains each section in order down the specification sheet.

### **Customer**

Complete the purchasing Company's name.

### **Customer Part Number**

Enter the Customer part number as this will be cross-referred to the Configuration / Specification Number. Both numbers are included on the order and invoice documents.

### **Date**

Complete the date when the specification sheet is completed.

### **Comments**

An area is available to highlight any special instructions.

### **Lens Cap Colour**

Select the colour of the lens cap. Fill the blue box with the code required

### **Insert**

State what the insert requirement is. Fill the blue box with the code required.  
In the case where a customer insert is to be fitted then advise sales of your requirements.

## ORDERING INFORMATION - continued

### **Legend plate colour**

Select the colour of the legend plate. Fill the blue box with the relevant code.

### **Bezel Colour**

Select the colour of the bezel. Fill the blue box with the relevant code

### **Illumination**

Select the illumination requirement, either bulb – various voltage, current requirements - or LED. Fill the blue box with the code required.

### **Bezel Orientation**

This selects the orientation of the button – See the orientation section on page 19 for explanation.

### **Switch**

Select the required switch option; Fill the blue box with the relevant code.

### **Nut and Washer**

Select the code for the required option. Fill the blue box with the relevant code.

### **Luminescent Washers.**

This is only available for the Classic Luminescent push buttons (SSC42, SSC44, RSC44 & OSC 42) select the colour required, and fill the blue box with the relevant code.

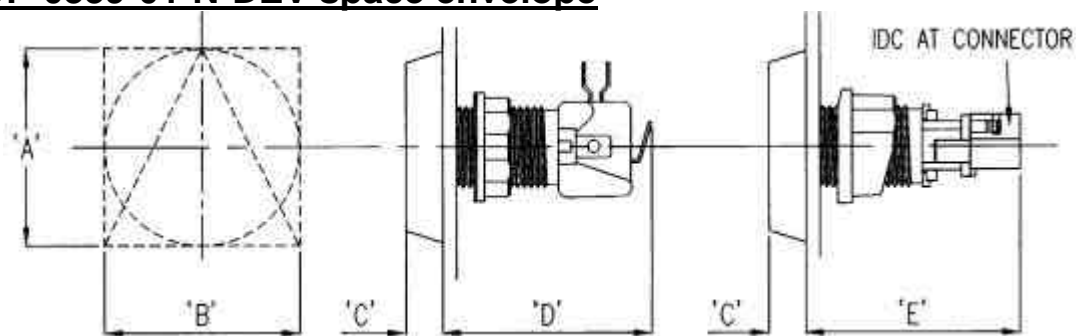
**APPENDIX A**

**CLASSIC PUSH BUTTON IDENTIFICATION CHART**

NAME OF BUTTON	CODE	SHAPE	SIZE	PROFILE
CPB	CL	Round	Large	High
CPBL	CM	Round	Large	Low
DCPBL	DD	Round	Large	Low
MCPB	CN	Round	Medium	High
MCPBL	CP	Round	Medium	Low
MPB	CQ	Round	Small	High
MPBL	CR	Round	Small	Low
SSCPBL	DP	Round	Large	Low
TCPBL	DE	Round	Large	Low
OSC42	ER	Oval	Small	Low
DSAPL	DC	Square	Large	Low
DSPB	DA	Square	Large	High
DSPBL	DB	Square	Large	Low
MSPB	CC	Square	Medium	High
MSPBA	CE	Square	Medium	Very High
MSPBL	CD	Square	Medium	Low
SAPL	CF	Square	Large	Low
SPB	CA	Square	Large	High
SPBL	CM	Square	Large	Low
SSPB – 1 digit	DN	Square	Large	Low
SSPB – 2 digit	DN	Square	Large	Low
SSC42	CU	Square	Medium	High
SSC44	CT	Square	Large	High
DPB	DT	Double Square	Large	High
HRB	CK	Rectangle	Large	High
RPB	CG	Rectangle	Large	High
RPBL	CH	Rectangle	Large	Low
RSC44	CV	Rectangle	Large	High
TPB	CS	Triangle	Large	Low

## APPENDIX B

### SOP-0339-01-N-DEV space envelope



BUTTON TYPE	A	B	C	D	E
CPB	Ø63.5	-	19.0	59.0	64.0
CPBL	Ø66.0	-	7.0	75.5	80.5
DCPBL	Ø66.0	-	7.0	75.5	80.5
MCPB	Ø44.0	-	13.5	59.0	64.0
MCPBL	Ø48.5	-	4.5	67.0	72.0
MPB	Ø34.0	-	9.5	59.0	64.0
MPBL	Ø35.5	-	4.0	62.5	67.5
SSCPBL	Ø66.0	-	7.0	75.5	80.5
TCPBL	Ø66.0	-	7.0	75.5	80.5
OSC42	62.2	32.25	13.25	57.5	62.5
DSAPL	60.5	52.25	16.0	56.5	61.5
DSPB	51.0	51.0	14.0	59.0	64.0
DSPBL	52.5	52.5	4.5	67.0	72.0
MSPB	33.5	33.5	11.5	59.0	64.0
MSPBA	35.75	35.75	13.5	59.0	64.0
MSPBL	37.75	37.75	4.0	65.0	70.0
SAPL	60.5	52.25	16.0	56.5	61.5
SPB	51.0	51.0	14.0	59.0	64.0
SPBL	52.0	52.0	4.5	67.0	72.0
SSPB - 1 Digit	60.5	52.25	16.0	31.0	-
SSPB - 2 Digit	60.5	52.25	16.0	31.0	-
SSC42	33.5	33.5	11.5	59.0	64.0
SSC44	51.0	51.0	14.0	59.0	64.0
DPB	52.0	36.0	14.5	57.5	-
HRB	65.5	50.5	17.0	55.5	60.5
RPB	51.0	33.0	14.0	59.0	64.0
RPBL	52.0	34.5	5.0	67.0	72.0
RSC44	51.0	33.0	14.0	59.0	64.0
TPB	52.2	36.6	4.5	67.0	72.0

**Note:-** All dimensions are in mm

## **APPENDIX C**

### **SOP-0341 NUT THICKNESS**

Below are listed the fixing nut options (STD=Standard) together with the maximum recommended panel thicknesses for each Classic Push Button.

<b>Button Type</b>	<b>Nut Type</b>	<b>Maximum Panel Thickness for the Standard Nut</b>	<b>Quick Nut</b>	<b>Maximum Panel Thickness For the Quick Nut</b>
<b>CPB</b>	STD	18	✗	10
<b>CPBL</b>	Half Nut	14	N/A	N/A
<b>DCPBL</b>	Half Nut	14	N/A	N/A
<b>MCPB</b>	STD	18	✗	10
<b>MCPBL</b>	STD	16	✗	8
<b>MPB</b>	STD	18	✗	10
<b>MPBL</b>	STD	14	✗	6
<b>SSCPBL</b>	Half Nut	14	N/A	N/A
<b>TCPBL</b>	Half Nut	14	N/A	N/A
<b>OSC42</b>	STD	11	N/A	N/A
<b>DSAPL</b>	STD	8	N/A	N/A
<b>DSPB</b>	STD	8	N/A	N/A
<b>DSPBL</b>	STD	8	N/A	N/A
<b>MSPB</b>	STD	18	✗	10
<b>MSPBA</b>	STD	18	✗	10
<b>MSPBL</b>	STD	14	✗	6
<b>SAPL</b>	STD	14	✗	6
<b>SPB</b>	STD	18	✗	10
<b>SPBL</b>	STD	16	✗	6
<b>SSPB – 1 DIGIT</b>	STD	10	N/A	N/A
<b>SSPB – 2 DIGIT</b>	STD	10	N/A	N/A
<b>SSC42</b>	STD	18	✗	10
<b>SSC44</b>	STD	18	✗	10
<b>DPB</b>	N/A	8	N/A	N/A
<b>HRB</b>	STD	18	✗	10
<b>RPB</b>	STD	18	✗	10
<b>RPBL</b>	STD	14	✗	6
<b>RSC44</b>	STD	18	✗	10
<b>TPB</b>	Thin nut	16	N/A	N/A

## **APPENDIX D**


### **SOP-0340 AT CONNECTOR OPTION TABLE**

<b>Code</b>	<b>Micro switch Type</b>	<b>Micro switch Diode Fitted</b>	<b>Lamp or LED Fitted</b>	<b>Lamp Diode Fitted</b>	<b>Body Colour</b>	<b>Part Number</b>
<b>A</b>	2 Way	No	Lamp	No	Yellow	E5S003-01-ZZZZ
<b>B</b>	2 Way	No	Lamp	Yes	Beige	E5S007-01-ZZZZ
<b>C</b>	2 Way	Yes	Lamp	Yes	White	E5S005-01-ZZZZ
<b>G</b>	3 Way Contact	No	Lamp	No	Grey	E5S008-01-ZZZZ
<b>H</b>	3 Way Contact	No	Lamp	Yes	Red	E5S002-01-ZZZZ
<b>J</b>	3 Way Contact	Yes	Lamp	Yes	Black	E5S001-01-ZZZZ
<b>L</b>	2 Way	No	LED	No	Green	E5S004-01-ZZZZ
<b>M</b>	2 way	No	LED	No	Blue	E5S006-01-ZZZZ

Refer to Drawing G6D028-01-ZZZZ for Circuit Connection in the Classic Information Pack (SOP-0335-01-N-DEV)



## APPENDIX E. (Example of specification sheet)

STARPOINT		CPB SPECIFICATION / QUOTATION SHEET			
		CUSTOMER:			
		CUSTOMER PART NUMBER:			
		DATE:			
		QUOTATION REQUIRED:	YES / NO		
		QUANTITY REQUIRED:	XXXX		
		COMMENTS:			
BUTTON	CIRCULAR				
LENS CAP COLOUR	G CLEAR	J TRANSLUCENT AMBER	K TRANSLUCENT GREEN		
INSERT	1 STARPOINT PRINTED	Z NOT REQUIRED			
LEGEND PLATE COLOUR	B BLUE	D GREEN	AMBER		
BEZEL COLOUR	AP BLUE	CP YELLOW	DP GREEN	EP AMBER	
ILLUMINATION	01 6.3V 0.25A BULB	02 12V 2CP BULB	03 14V 0.19A BULB	04 24V 2W BULB	05 12V 1.2W BULB
	06 28V 0.06A BULB	08 14V 0.8A BULB	10 BLUE LED	11 GREEN LED	12 WHITE LED
	13 RED LED	14 YELLOW LED	15 BLUE LED x 2	16 GREEN LED x 2	17 WHITE LED x 2
	18 RED LED x 2	19 YELLOW LED x 2	ZZ NO ILLUMINATION		
BEZEL ORIENTATION	1 PEGS HORIZONTAL	2 PEGS VERTICAL	Z NOT APPLICABLE		
SWITCH	A S/P 1 x 10A 250V AC SWITCH	B CHERRY GOLD CROSS SWITCH	C HOLDER BUT NO SWITCH	E S/P N/O 2A 250V AC SWITCH	F AT SWITCH SILVER CONTACTS
	G AT SWITCH GOLD CONTACTS	H MINI SWITCH AND CARRIER	Q S/P N/O 250V 3/16" SPADE	Z NO SWITCH OR HOLDER	
NUT & WASHER	1 STANDARD NUT AND WASHER IN BULK	2 AT NUT IN BULK	3 STANDARD NUT ONLY IN BULK		
	4 STANDARD NUT AND WASHER FITTED	Z NO NUTS OR WASHERS			





















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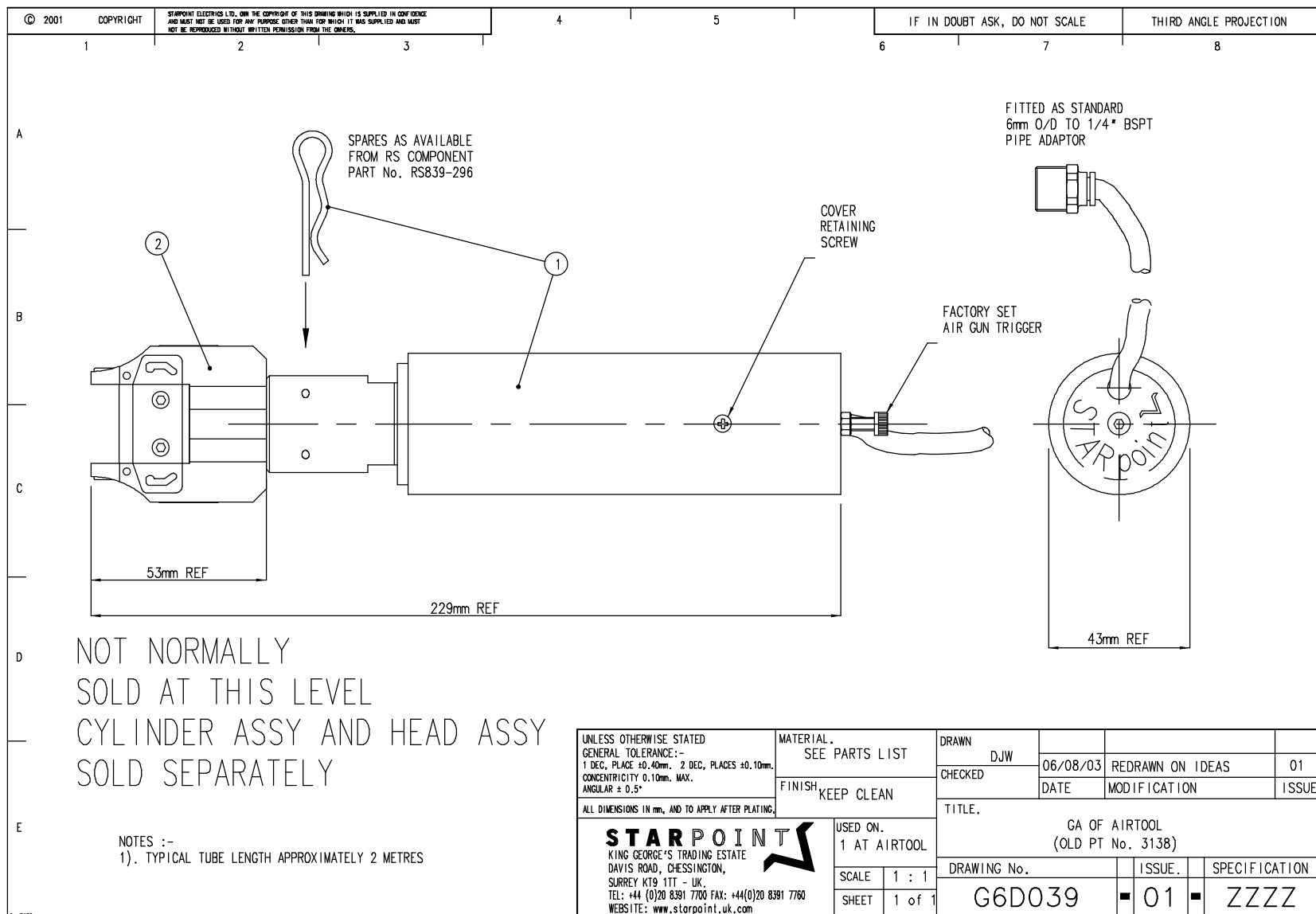
**APPENDIX F**

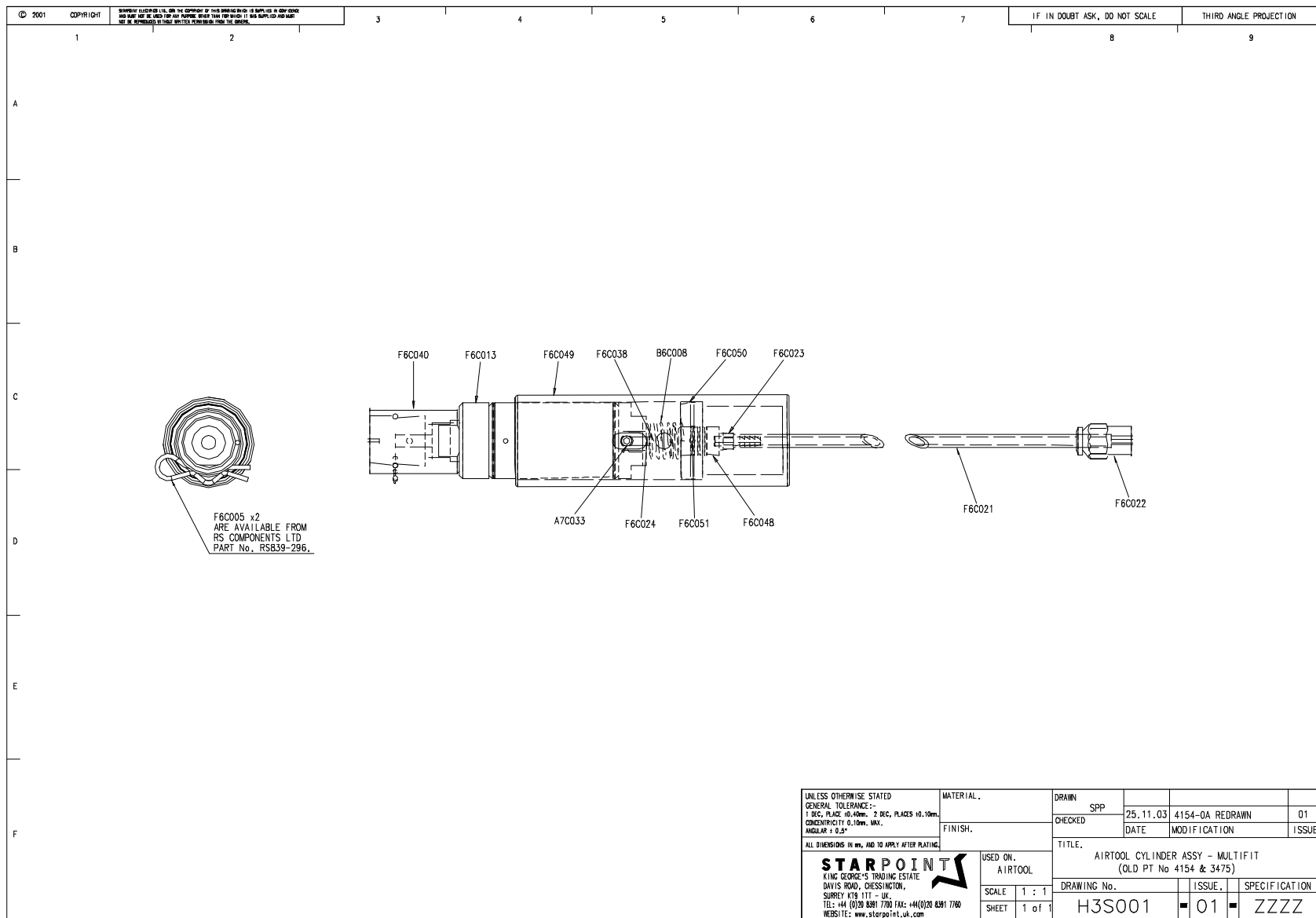
**CLASSIC Push Button LED Suitability Table**

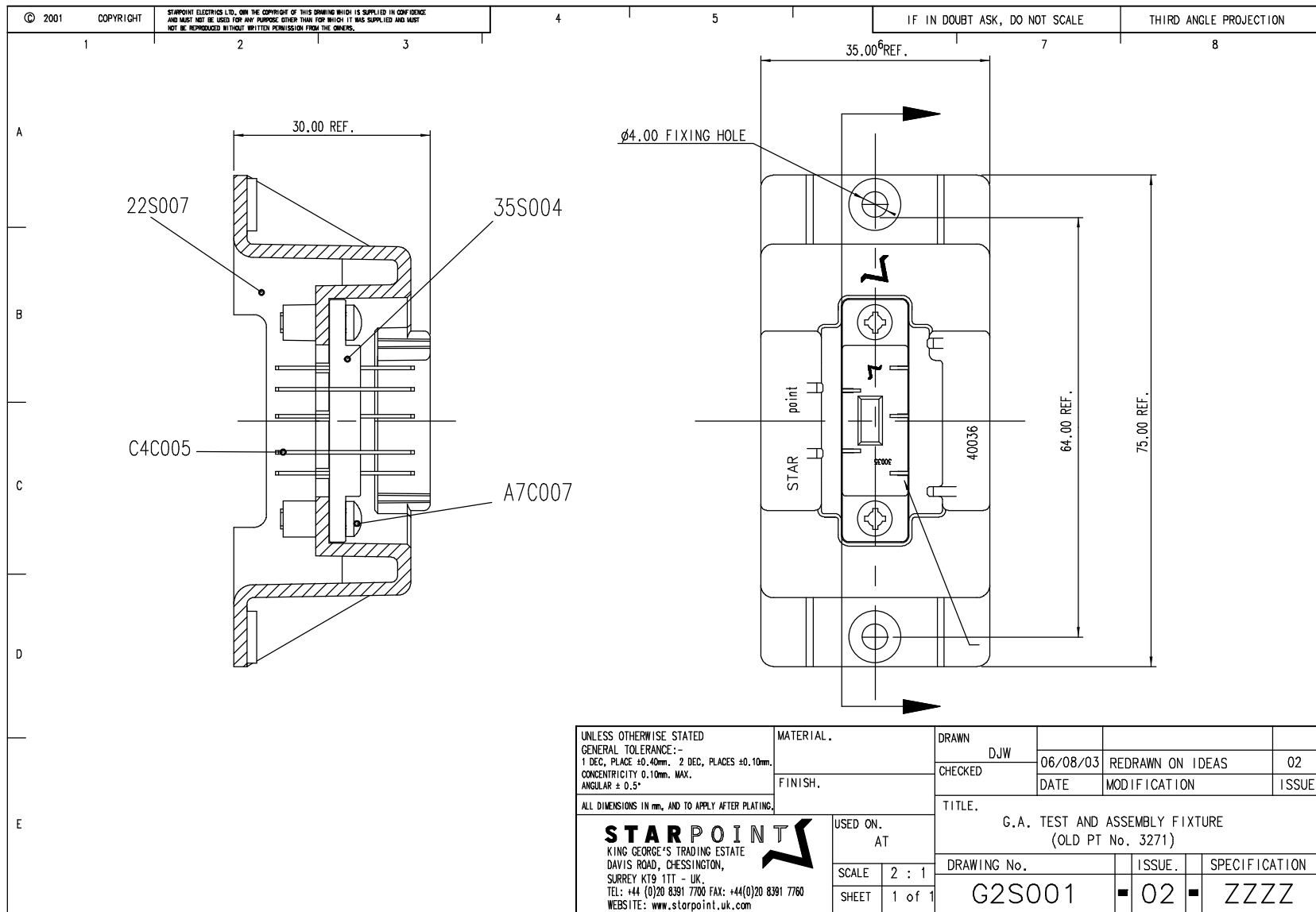
**For use with Advanced Technology (AT) Lamp Holders**

<b>Classic Button Style</b>	<b>1 x LED</b>	<b>2 x LED</b>
<b>CPB</b>		
<b>CPBL</b>		
<b>MCPB</b>		
<b>MCPBL</b>		
<b>MPB</b>		
<b>MPBL</b>		
<b>OCS42</b>		
<b>MSPB</b>		
<b>MSPBA</b>		
<b>MSPBL</b>		
<b>SAPL</b>		
<b>SPB</b>		
<b>SPBL</b>		
<b>SSC42</b>		
<b>SSC44</b>		
<b>RSC44</b>		
<b>DPB</b>		
<b>HRB</b>		
<b>RPB</b>		
<b>RPBL</b>		
<b>TPB</b>		

Note: The following Classic Push Buttons are not recommended for use with LED's  
DSPB, DSPBL, DSAPL, DCPBL & TCPBL.

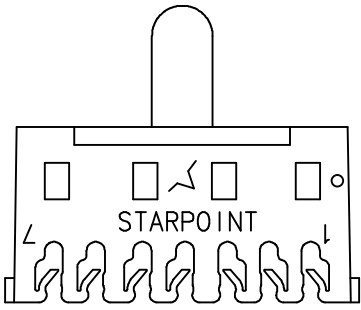


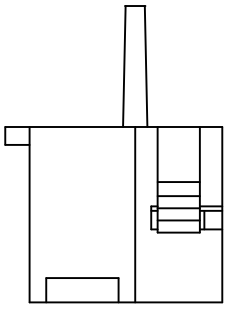




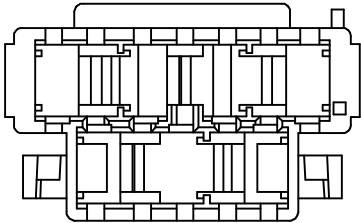
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1	2	3	4	5
6				

A

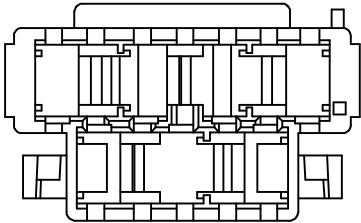




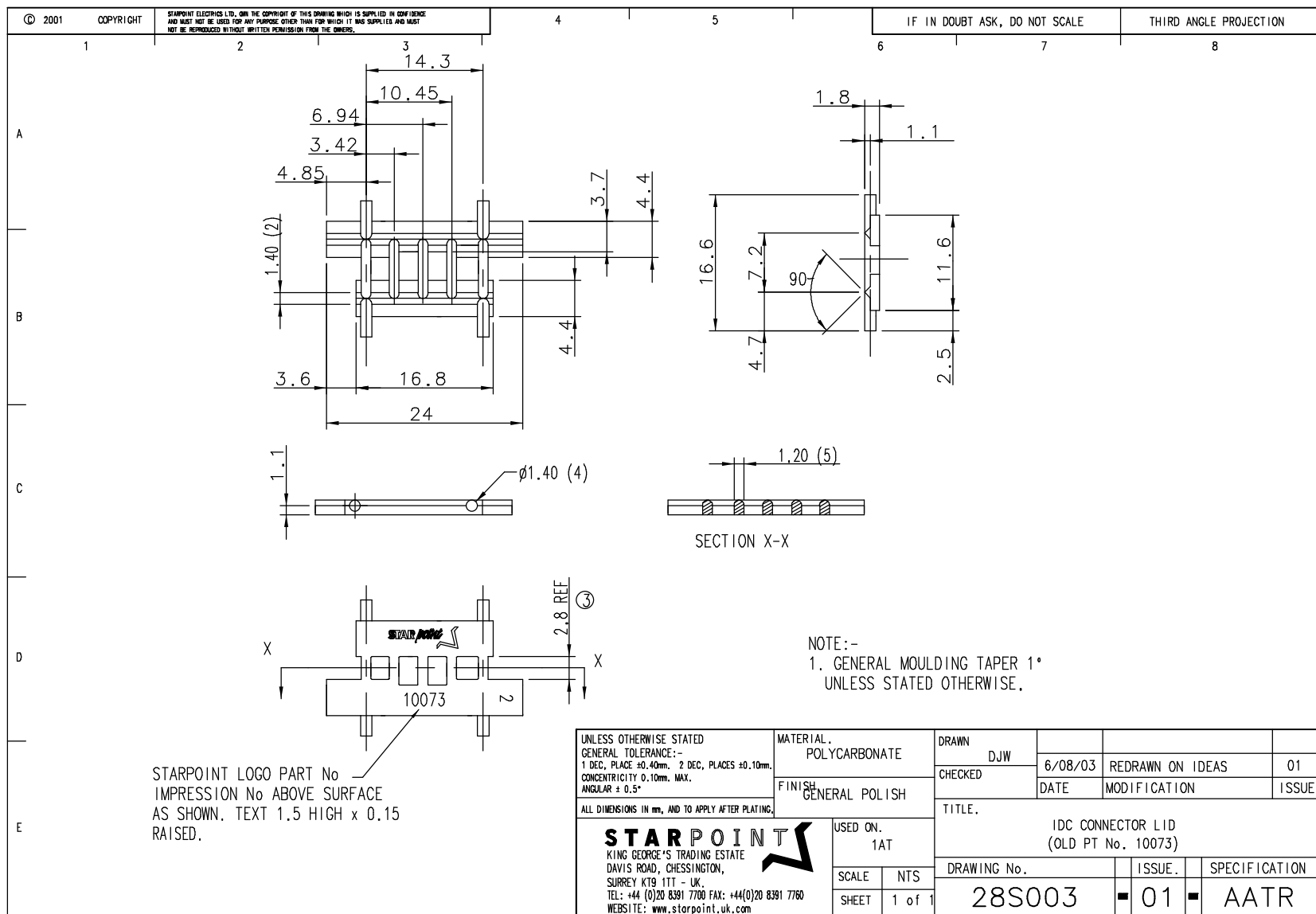
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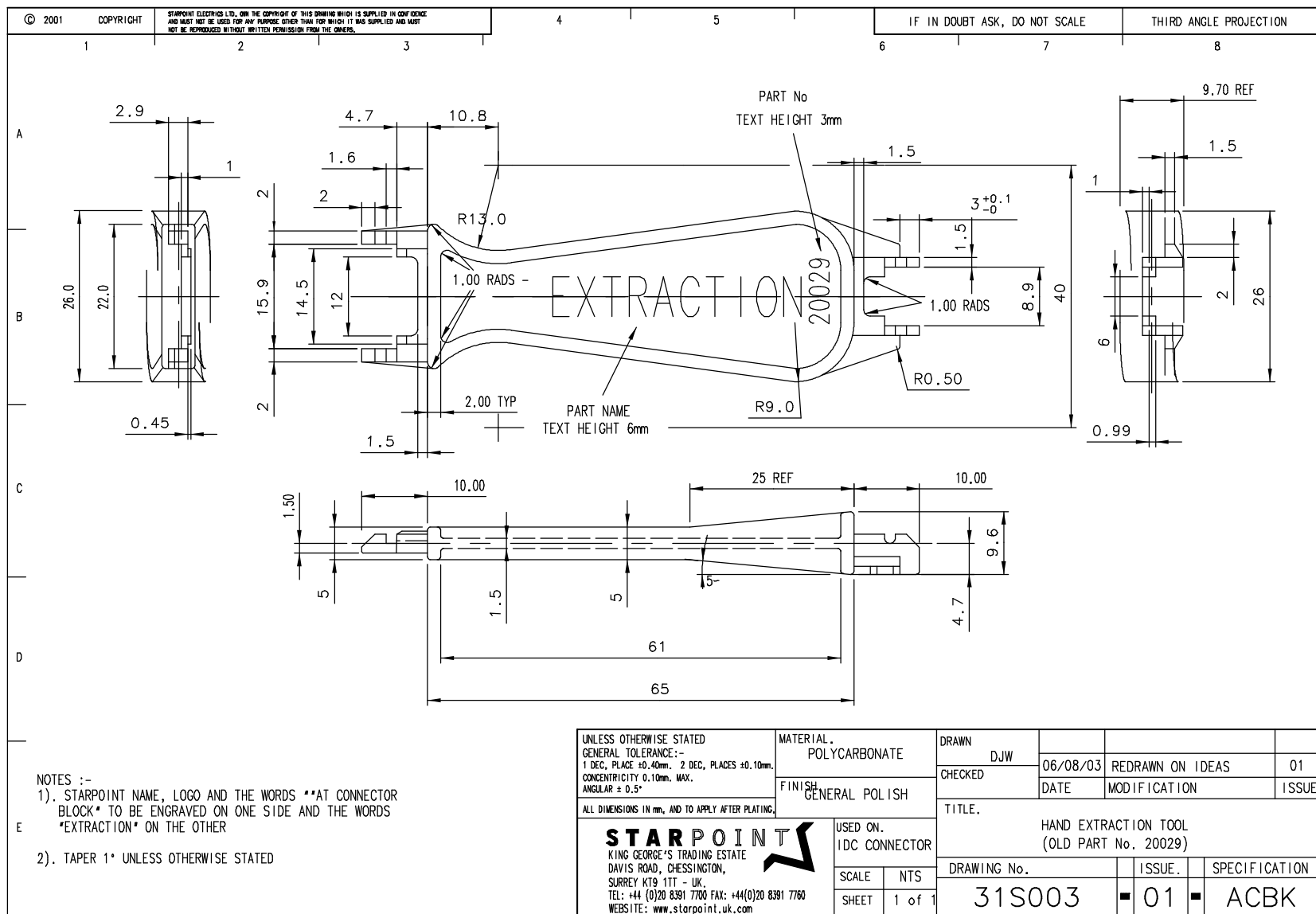


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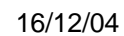


<p><b>STARPOINT</b></p> <p>KING GEORGE'S TRADING ESTATE DAVIS ROAD, CHESSINGTON SURREY KT9 1TT - UK. TEL: +44 (0)20 8391 7700 FAX: +44 (0)20 8391 7760 WEBSITE: <a href="http://www.starpoint.uk.com">www.starpoint.uk.com</a></p>	UNLESS OTHERWISE STATED GENERAL TOLERANCE:- 1 DEC, PLACE ±0.40mm. 2 DEC, PLACES ±0.10mm. CONCENTRICITY 0.10mm. MAX. ANGULAR ± 0.5°	MATERIAL.	DRAWN DJW			
		FINISH.	CHECKED	15/10/03	DRAWN	
				DATE	MODIFICATION	ISSUE
	ALL DIMENSIONS IN mm, TO APPLY AFTER PLATING.	SCALE	NTS	USED ON. PUSH BUTTONS		SHEET 1 of 1
	TITLE. 3 VIEWS OF AT BLOCK	DRAWING No.		ISSUE.	SPECIFICATION	
	E5S000		■ XX ■	XXXX		









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1	2	3	4
---	---	---	---

**A**

TYPE A

**H**

TYPE H

**B**

TYPE B

**J**

TYPE J

**C**

TYPE C

**L**

TYPE L

**D**

TYPE G

**M**

TYPE M

UNLESS OTHERWISE STATED GENERAL TOLERANCE:- 1 DEC, PLACE ±0.40mm. 2 DEC, PLACES ±0.10mm. CONCENTRICITY 0.10mm. MAX. ANGULAR ± 30° ALL DIMENSIONS IN mm, AND TO APPLY AFTER PLATING.	MATERIAL.	DRAWN DJW			
	FINISH.	CHECKED	06/08/03	REDRAWN ON IDEAS	01
		SCALE	DATE	MODIFICATION	
		NTS	TITLE. AT PUSH BUTTON CONNERTOR OPTIONS (OLD PT No. 10039)		

<b>STARPOINT</b> KING GEORGE'S TRADING ESTATE DAVIS ROAD, CHESSINGTON, SURREY KT9 1TT - UK. TEL: +44 (0)20 8391 7700 FAX: +44(0)20 8391 7760 WEBSITE: www.starpoint.uk.com	USED ON. P/B SHEET 1 of 1	DRAWING No. <b>G6D028</b>	ISSUE. <b>01</b>	SPECIFICATION <b>ZZZZ</b>
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