

Technical Data Sheet

i-select Hand Operated Rotary Switches (Motor Control)





Description

Hand operated rotary switches provide the most cost effective method of providing complex contact switching functions. However, every item of electrical equipment needs a method of disconnecting it safely from the supply, and here again, the rotary switch with *positive break* contacts, performs that function effectively.

Simple Forward & Reverse switches with an isolation position are fairly common items, however there are numerous and complex ways motors can be wound, and matching control and switching arrangements can become very specific. There is not room in this document to show even the most common of these arrangements, we would therefore advise you to contact our technical sales for advise.



Technical Specifications - Electrical Ratings to BS EN 60947-3 For Dimensions see Page 8

					
Range		R6	R16	Minirotary	R40
Thermal rating (A)	I_{th}	6	16	20	40
Position indexing options		90° & 45°	90° & 45°	90° & 45°	90°, 60°, 45° & 30°
Standard operating knob		Included	Included	Included	Included
Rated voltage (V)	U_i	690	690	690	690
Switching Characteristics					
AC20A		6A at 250V & 415V	16A at 250V & 415V	20A at 250V & 415V	40A at 250/415/660/690V
AC21A		6A at 250V & 415V	16A at 250V & 415V	20A at 250V & 415V	32A at 250V & 415V
AC22A		6A at 250V & 415V	16A at 250V & 415V	20A at 250V & 415V	32A at 250V & 415V
AC23A		6A/0.75kW at 250V 6A/2.5kW at 415V	16A/2.5kW at 250V 16A/5.5kW at 415V	20A/3.0kW at 250V 20A/9.5kW at 415V	28A/3.75kW at 250V 28A/15.0kW at 415V
Rated short time withstand (A)	(1 sec)	120	240	434	800
Maximum BS 88 backup fuse (A)		6	20	32	40
Finger protected terminals		IP2X	IP2X	—	IP2X
Contact material		Ag/Ni	Ag/Ni	Fine Silver	Ag/CdO
Mechanical life		>0.5 x 10 ⁶	>0.5 x 10 ⁶	>0.5 x 10 ⁶	>0.5 x 10 ⁶
Termination size		M3.5	M3.5	M4	M5
Maximum connecting cable size	mm ²	4.0	4.0	2 x 4.0	6.0
Standard shaft size (sq)	mm	5.5	5.5	4.8	5.5

Brief Descriptions

- R6/R16** The R6 & R16 rotary switches are built upon a common frame, the R16 deriving its increased rating from larger contacts. These items lend themselves to the more common rotary switch functions such as 'isolation' and 'Ammeter and Voltmeter' selectors. Due to their small size they are also ideal for the specialist OEM user.
- Minirotary** The 'Minirotary' switch is one of the most versatile items in the rotary switch families. Its design permits the addition of a wide range of accessories. The switch is well proven in arduous conditions, being particularly favoured for Rail applications with its ability to withstand the required 'shock & vibration' tests.
Control panel manufacturers favour the Minirotary switch for its rear facing terminals which can be useful in terminating in confined spaces.



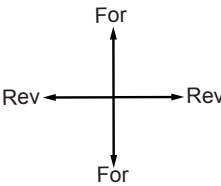
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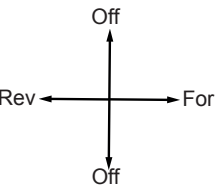
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Catalogued Items - **Switch Length 'L'** (For Individual connection diags. place cat no. in the website product finder)

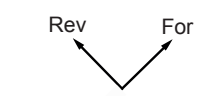
Unrestricted - 90° Four Position Stayput - For/Rev/For/Rev

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence - SEQ 8 	6A	2	42	R6D28
	16A	2	42	R16D28
	20A	2	41	MD28
	40A	2	49	RD3228

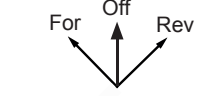
Unrestricted - 90° Four Position Stayput- Off/For/Off/Rev

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence SEQ 9 	6A	2	42	R6D29
	6A	3	52	R6T39
	16A	2	42	R16D29
	16A	3	52	R16T39
	20A	2	41	MD29
	20A	3	51	MT39
	40A	2	49	RD3229
	40A	3	62	RT3239

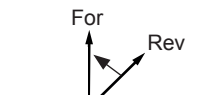
Restricted - 90° Two Position Stayput - For/Rev

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence - SEQ 8/2 	6A	2	42	R6D28/2
	16A	2	42	R16D28/2
	20A	2	41	MD28/2
	40A	2	49	RD3228/2

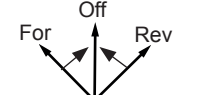
Restricted - 45° Three Position Stayput- For/Off/Rev

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence SEQ 9/3 	6A	2	42	R6D29/3
	6A	3	52	R6T39/3
	16A	2	42	R16D29/3
	16A	3	52	R16T39/3
	20A	2	41	MD29/3
	20A	3	51	MT39/3
	40A	2	49	RD3229/3
	40A	3	62	RT3239/3

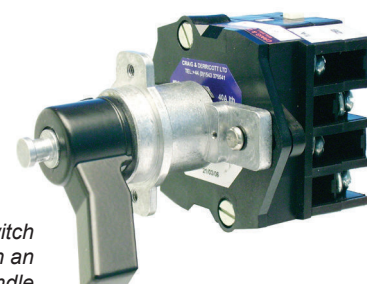
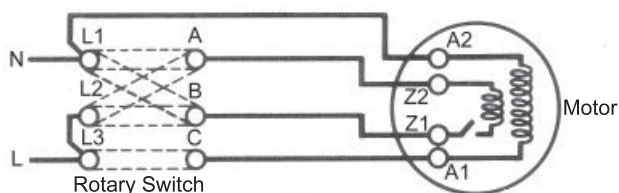
Restricted - 45° Two Position Spring Return - For<Rev

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence - SEQ 8/SR 	6A	2	42	R6D28/SR
	16A	2	42	R16D28/SR
	20A	2	41	MD28/SR
	40A	2	49	RD3228/SR

Restricted - 45° Three Position Spring Return - For>Off<Rev

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence SEQ 9/SR 	6A	2	42	R6D29/SR
	6A	3	52	R6T39/SR
	16A	2	42	R16D29/SR
	16A	3	52	R16T39/SR
	20A	2	41	MD29/SR
	20A	3	51	MT39/SR
	40A	2	49	RD3229/SR
	40A	3	62	RT3239/SR

Connection diagram for utilising a three phase reversing switch for a single phase motor.



R40 rotary switch
assembled with an
'SAI HC' locking handle




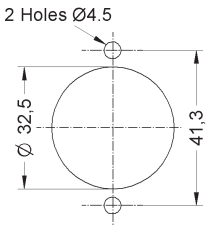
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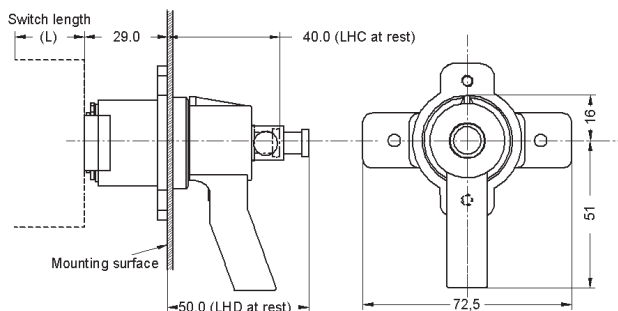
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Accessories

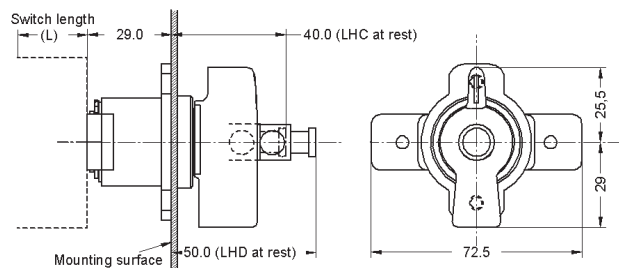
x = Not available, ✓ = OK

Photograph	Dimensions	Description	R6	R16	MR	R40	Catalogue Ref
	<p>(See below for dimensions)</p>  <p>Drilling details for both LHC & LHD handle forms</p>	Multi position Locking Handles Designed specifically to offer the maximum padlocking flexibility, these robust assemblies can be fitted to the complete range of switches. Offered with two different handle shapes and several locking position options.					
		Pull to lock (Pull out central plunger to insert padlock)	✓	✓	✓	✓	...LHC...
		Press to release (Remove padlock and depress central plunger to release switch)	✓	✓	✓	✓	...LHD...
		General selector type knob	✓	✓	✓	✓	SM...
		Small pointer style knob	✓	✓	✓	✓	SA...
		<i>The Seq figures in red dictate which switches must be used with the various locking positions.</i>					
		Locking Position(s). 12:00 & 6:00 o'clock } Seq 8 & 9	✓	✓	✓	✓	...5
		12:00/3:00/6:00/9:00 o'clock }	✓	✓	✓	✓	...6
		10:30 & 1:30 o'clock } SEQ 8/2	✓	✓	✓	✓	...10
		10:30 o'clock only } 1:30 o'clock only }	✓	✓	✓	✓	...9 ...11
		12:00 o'clock only SEQ 9/3	✓	✓	✓	✓	...7
		12:00 o'clock only SEQ 8/SR	✓	✓	✓	✓	...20
		12:00 o'clock only SEQ 9/SR	✓	✓	✓	✓	...21
		N.B. All three segments of the locking handle part number need to be stated e.g. SALHC9 . Add as a suffix to the switch catalogue number:- RD3228/ SMLHD5 or R16T39/SR/ SALHC21 . If the locking position is not stated, the assembly will be supplied lockable in all positions.					

LHC/LHD Locking Handle with SA shape knob



LHC/LHD Locking Handle with SM shape knob


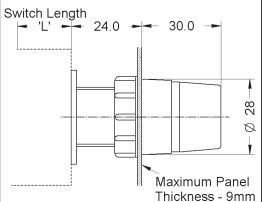

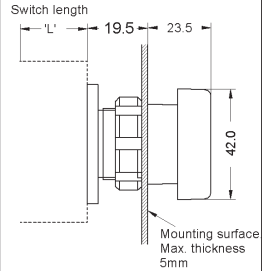

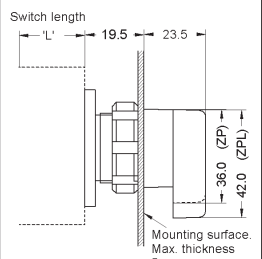

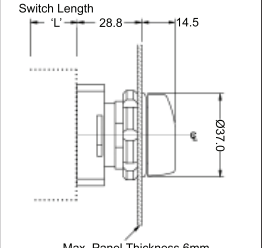

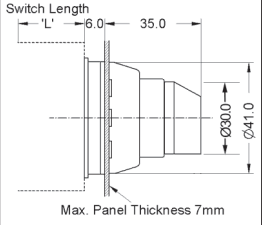

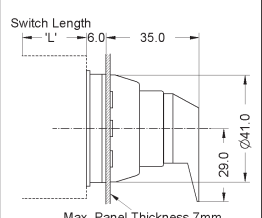


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Single Hole Knob Actuators

Photograph	Dimensions	Description	R6	R16	MR	R40	Catalogue Ref
		Knob Actuators - Single hole fixing Ø22 Mounting - IP65 All moulded construction. <i>Cannot be sold separately. Add as prefix to switch ref. e.g. 22Z/R16T39, 22Z/MD28</i>	✓	✓	✓	x	22Z/...
		Knob Actuators - Single hole fixing Ø22 Mounting - Die-cast - IP65 'Tee bar' knob with full width line 'Tee bar' knob with half width line <i>Please check availability before ordering on these items.</i>	x	x	✓	x	22/ZTF...
		Knob Actuators - Single hole fixing contd. Ø22 Mounting - Die-cast - IP65 Pointer knob (Short tail) Pointer knob (Long tail) <i>Please check availability before ordering on these items.</i>	x	x	✓	x	22/ZP...
		Knob Actuators - Single hole fixing. Ø30.5 Mounting - Die-cast body - IP65 Pointer knob <i>Cannot be sold separately. Add as prefix to switch ref. e.g. N309B1/MD29/3</i>	x	x	✓	x	N309B1...
		Knob Actuators - Single hole fixing. Ø32.0 Mounting - Die-cast body and locking ring with silver anodised finish die-cast knob finished black - IP65 Pointer knob <i>Cannot be sold separately. Remove 'M' from switch ref & add Z as prefix e.g. ZT39</i>	x	x	✓	x	Z...
		Knob Actuators - Single hole fixing. Ø32.0 Mounting - Die-cast body and locking ring with silver anodised finish, die-cast knob finished black - IP65 Metal pointer knob <i>Cannot be sold separately. Remove 'M' from switch ref & add Z1 as prefix e.g. Z1T39/3</i>	x	x	✓	x	Z1...


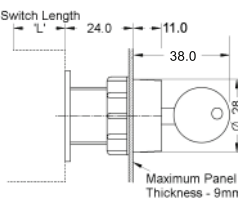


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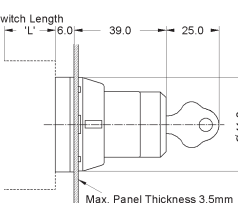
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Single Hole Key Actuators

Photograph	Dimensions	Description	R6	R16	MR	R40	Catalogue Ref
		Key Actuators - Single hole fixing. Ø22 Mounting - All moulded - IP65					
		Locking Position(s) - Key free.					
		12:0 & 6:00 o'clock	✓	✓	✓	x	22K5...
		12:0/3:00/6:00/9:00 o'clock } SEQ 8&9	✓	✓	✓	x	22K6...
		10:30 o'clock	✓	✓	✓	x	22K9...
		10:30 & 1:30 o'clock } SEQ 8/2	✓	✓	✓	x	22K10...
		1:30 o'clock	✓	✓	✓	x	22K11...
		12:00 o'clock only	✓	✓	✓	x	22K7...
		12:00 o'clock only	✓	✓	✓	x	22K20...
		12:00 o'clock only	✓	✓	✓	x	22K21...


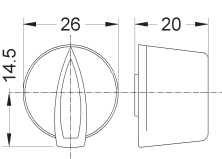

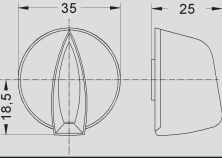

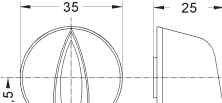
'300' key series. Unless otherwise requested, key actuators will be supplied with 2 off '301' keys. Key differs 302 - 399 available on request. Cannot be sold separately. Add as prefix to switch ref. e.g. 22K9/R6D28/2

		Key Actuators - Single hole fixing. Ø32 Mounting - Die-cast - IP65					
		Locking Position(s) - Key free.					
		12:0 & 6:00 o'clock	x	x	✓	x	K5...
		12:0/3:00/6:00/9:00 o'clock } SEQ 8&9	x	x	✓	x	K6...
		10:30 o'clock only	x	x	✓	x	K9...
		10:30 & 1:30 o'clock } SEQ 8/2	x	x	✓	x	K10...
		1:30 o'clock only	x	x	✓	x	K11...
		12:00 o'clock only	x	x	✓	x	K7...
		12:0 o'clock	x	x	✓	x	K20...
		12:0 o'clock	x	x	✓	x	K21...

DC800' key series. Unless otherwise requested, key actuators will be supplied with 2 off 'DC800' keys. Key differs DC801 - DC820 available on request.

Cannot be sold separately. Remove 'M' from switch ref & add K as prefix e.g. K20D28/SR

Alternative Knobs

Photograph	Dimensions	Description	R6	R16	MR	R40	Catalogue Ref
		Moulded skirted knob Ø26					
		Supplied as std. with R6 & R16 sws. Supplied loose as spare	✓ ✓	✓ ✓	x x	x x	- MZK/B/HAN
		Moulded skirted knob Ø35					
		Supplied fitted to selected switch Supplied loose as spare	✓ ✓	✓ ✓	x x	✓ ✓	.../ZK ZK/B/HAN
		Moulded skirted knob Ø35					
		Supplied as std. with MR sws. Supplied loose as spare	x x	x x	✓ ✓	x x	- SZK/B/HAN

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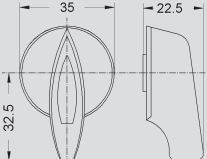

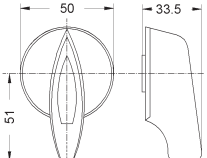

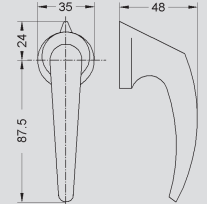

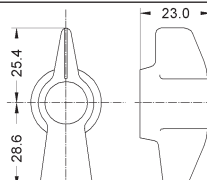

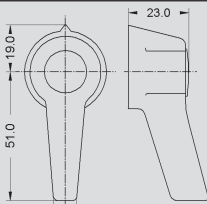

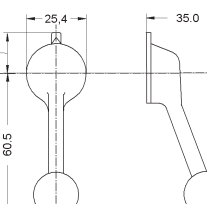

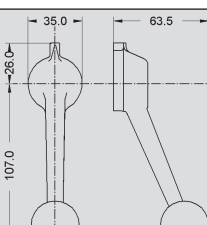
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Alternative Knobs Contd.

Photograph	Dimensions	Description	R6	R16	MR	R40	Catalogue Ref
		Moulded skirted knob Ø35 with tail Supplied as std. with R40 sws. Supplied fitted to selected switch Supplied loose as spare	x ✓ ✓	x ✓ ✓	x x x	✓ x ✓	- .../SK SK/B/HAN
		Moulded skirted knob Ø50 with tail Supplied fitted to selected switch Supplied loose as spare	x x	x x	x x	✓ ✓	.../LK LK/B/HAN
		Moulded pistol grip handle - Black Supplied fitted to selected switch Supplied loose as spare	x x	x x	x x	✓ ✓	.../BP BP/B/HAN
		Die-Cast knobs - General purpose pointer style knob Supplied fitted to selected switch Supplied loose as spare (MR) Supplied loose as spare (R40)	x x x	x x x	✓ ✓ x	✓ x ✓	.../SM SM/16/HAN SM/32/HAN
		Die-Cast knobs - Pointer style knob with tail Supplied fitted to selected switch Supplied loose as spare (MR) Supplied loose as spare (R40)	x x x	x x x	✓ ✓ x	✓ x ✓	.../SA SA/16/HAN SA/32/HAN
		Die-Cast knobs - Machine Tool style (Small) Bright chrome finish with black ball knob Supplied fitted to selected switch Supplied loose as spare (MR) Supplied loose as spare (R16/R16/ R40)	✓* x ✓*	✓* x ✓*	✓ ✓ x	✓ x ✓	.../SMT SMT/16/HAN SMT/32/HAN
		<i>* Only suitable for non-restricted switches</i>					
		Die-Cast knobs - Machine Tool style (Large) Bright chrome finish with black ball knob Supplied fitted to selected switch Supplied loose as spare (R40)	x x	x x	x x	✓ ✓	.../MT MT/32/HAN

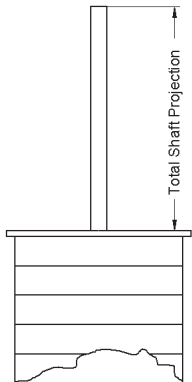
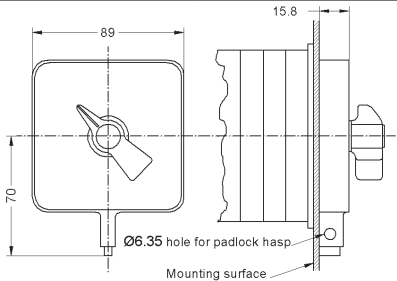


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Additional Features

Diagrams	Dimensions	Description	R6	R16	MR	R40	Catalogue Ref
		Extended Shafts - Shaft projections in excess of the std. can be specified by making reference to the suffixes as shown. Total shaft projection (4.8 sq) 20.5 25.5 33.5 40.0 46.0 52.5 59.0 Total shaft projection (5.5 sq) 23.5 36.5 49.0 62.0 75.0 87.5 100.0					
		Gold Surfaced Contacts - For low power circuits Gold flashed contacts Gold plated contacts <i>Plated contacts offer a significantly thicker deposit, and are better suited to withstand mechanical wear and minor contact arcing.</i>	✓ x	✓ x	✓ ✓	x x	.../GF .../GP
		IP65 Sealing Kit - To enhance the std. panel mounting switches to IP65. Factory fitted to switch Supplied loose as kit (MR) Supplied loose as kit (R40)	✓ x x	✓ x x	✓ ✓ x	✓ x ✓	.../G G/16/KIT G/32/KIT
		Base Mounting - Provides the facility to base mount the panel mounted switch form. Base mounted form <i>To specify, add the letter 'B' after the pole designation in the cat. ref. e.g. R6TB21, MYB31/2</i>	✓	✓	✓	✓	.B...
		Faceplate Padlocking - Heavy duty, all metal, padlocking device. Can be made lockable in one or more position (45° indexing). Basic padlocking device <i>Locking positions can be supplied as advised, or the customer can effect locking positions by modifying the supplied locking disk. Please specify your requirements when ordering.</i>	x	x	x	✓	.../PL
		Additional terminal protection - Loose items Individual terminal shrouds (R6/R16) Individual terminal shrouds (MR) Flexible PVC shroud* <i>* The MR 0134 shroud is designed to cover the</i>	✓ x x	✓ x x	x ✓ ✓	x x x	SRC 0108 MR 1048 MR 0134



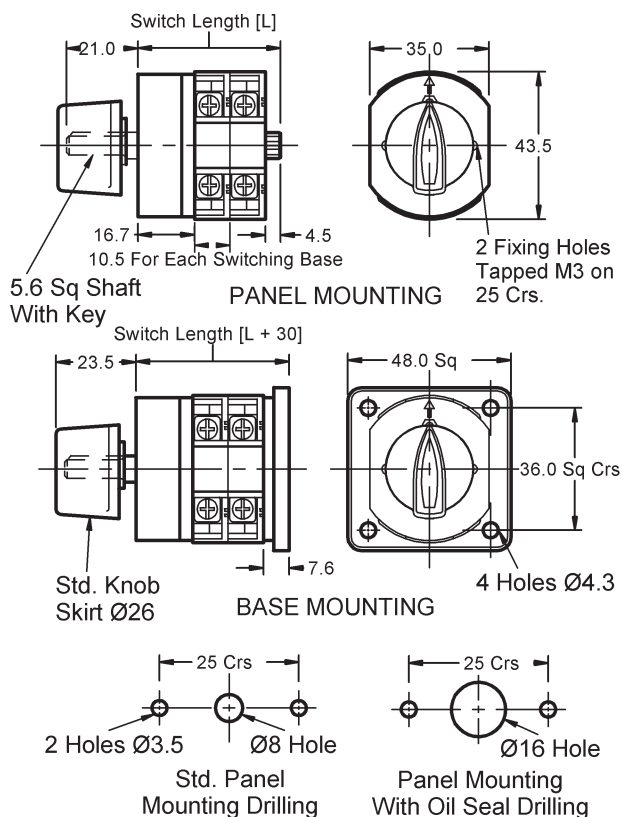
WWW.CABLEJOINTS.CO.UK
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Technical Data Sheet

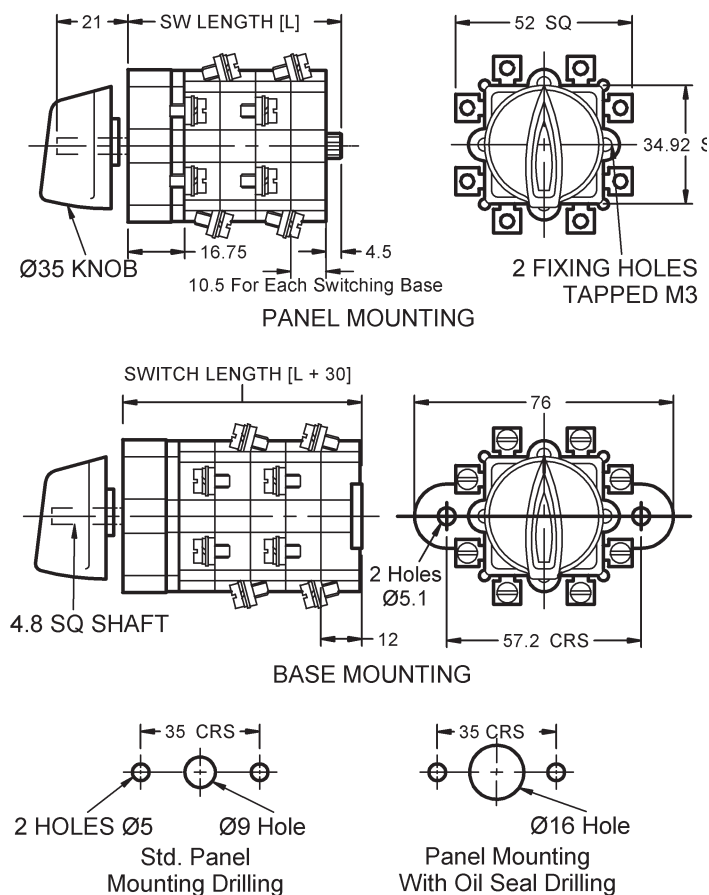
i-select Hand Operated Rotary Switches (Motor Control)

Dimensions

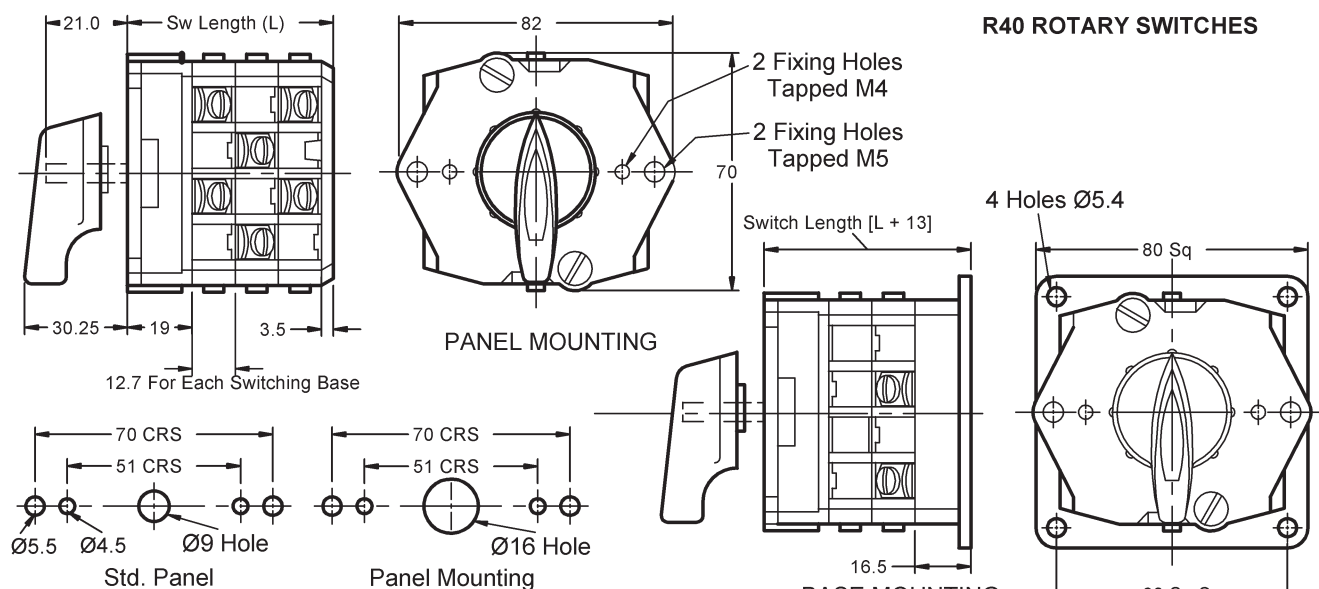
R6 & R16 ROTARY SWITCHES



MINIROTARY SWITCHES



R40 ROTARY SWITCHES



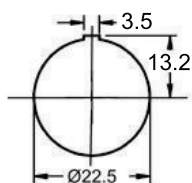
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T e c h n i c a l D a t a S h e e t

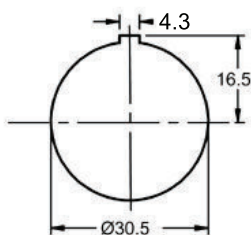
***i-select* Hand Operated Rotary Switches (Motor Control)**

Dimensions Contd.

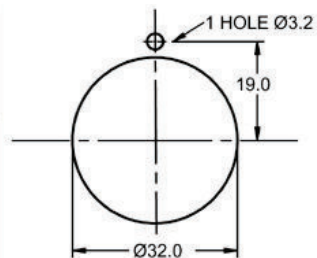
Single hole mounted components:-



All '22 Series' Components



All Std. '30.5 Series' Components



All '32 Series' Components

Conclusions

The Craig & Derricott 'Classic Range' of rotary switches offers a vast selection of assemblies in the catalogued options shown here. However, our service to industry concentrates on supplying bespoke arrangements that fulfil specific, and often unique, requirements. If you feel you would like to discuss your specific needs, please give our dedicated sales team a call, we have decades of experience in determining solutions in this field.

Although we show a good selection of accessories in this data sheet, there are common components such as **enclosures** and **indicator plates** that cut across more than one product range. Please refer to our separate data sheets for further information:-

- [Craig & Derricott Enclosures.pdf](#)
- [Craig & Derricott Indicator Plates.pdf](#)



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