

i-select Hand Operated Rotary Switches (Panel Metering)





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.

Panel metering switches fall generally into two groups - Ammeter and Voltmeter switches. Ammeter switches can be directly connected, but more generally are fed from current transformers (C/T's). When C/T fed, the switch must have make-before-break contacts when switching between phases, as an open circuit could generate dangerously high voltages. We show some standard sequences in this data sheet, however if you need a special arrangement, please contact our sales team for assistance.



Technical Specifications - Electrical Ratings to BS EN 60947-3 For Dimensions see Page 6

					
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.
- R40** The R40 rotary switch represents the ultimate in versatility. To this frame size we have added the facility of both 30° & 60° indexing. With excellent switching performance and a high level of mechanical strength, the R40 is *the* choice for isolation duties.

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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 - Off/L1/L2/L3

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence - SEQ AM1	6A	-	63	R6AM1
	20A	-	62	MAM1
	40A	-	74	R32AM1

A

For C/T connection.
To meter the current in each phase with Off

Unrestricted - 90° Four Position Stayput - Out of Balance/L1/L2/L3

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence - SEQ AM2	6A	-	63	R6AM2
	20A	-	62	MAM2
	40A	-	74	R32AM2

A

For C/T connection.
To meter the current in each phase with leakage or out of balance current

Unrestricted - 90° Four Position Stayput - Neutral/L1/L2/L3

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence - SEQ AM3	6A	-	63	R6AM3
	20A	-	62	MAM3
	40A	-	74	R32AM3

A

For C/T connection.
To meter the current in each phase and neutral, with neutral C/T.

Unrestricted - 45° Eight Position Stayput - Off/L1-N/L2-N/L3-N/Off/L1-L2/L2-L3/L1-L3

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence - SEQ V1	6A	-	84	R6V1
	20A	-	82	MV1
	40A	-	100	R32V1

V

Meters voltages between phases & between phases & neutral with Off

Unrestricted - 90° Four Position Stayput - Off/L1-N/L2-N/L3-N

Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence - SEQ V3	6A	-	52	R6V3
	20A	-	51	MV3
	40A	-	74	R32V3

V

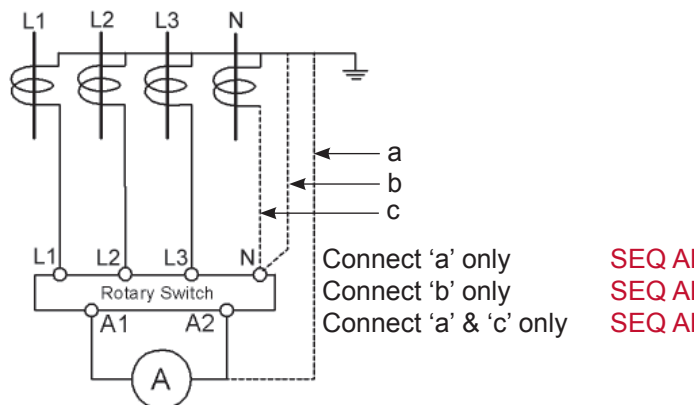
Meters voltage between phases & neutral with Off. (Switched neutral)

Unrestricted - 90° Four Position Stayput - Off/L1-L2/L2-L3/L1-L3

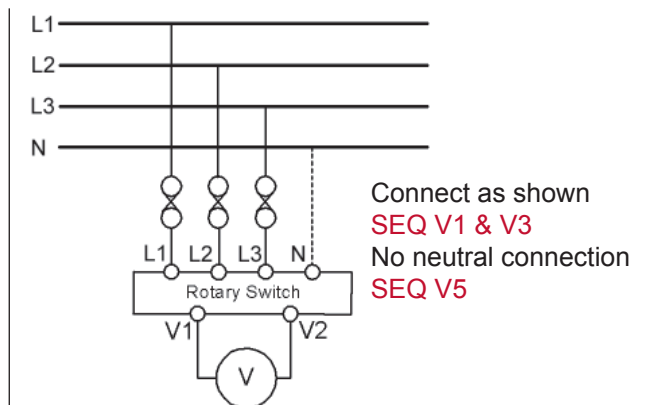
Posn. Diag	Rating	Poles	'L'	Cat. No
Sequence - SEQ V5	6A	-	52	R6V5
	20A	-	51	MV5
	40A	-	74	R32V5

V

Meters voltages between phases with Off




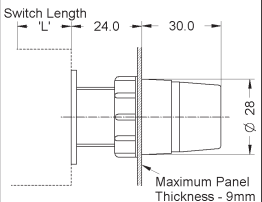

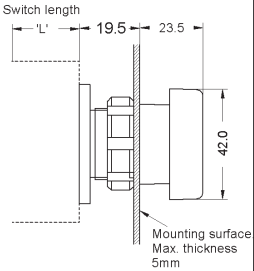

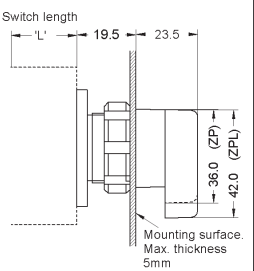

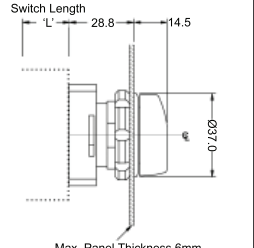

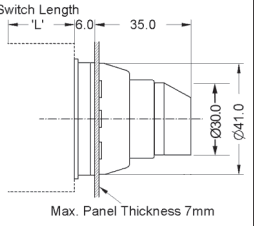

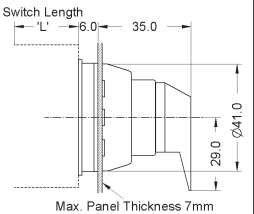
Application Schematic for Ammeter Switches



Application Schematic for Voltmeter Switches


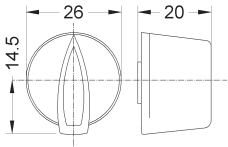

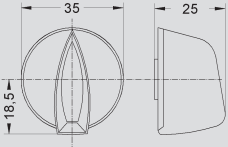

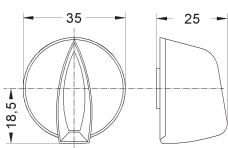

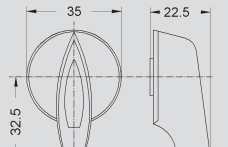

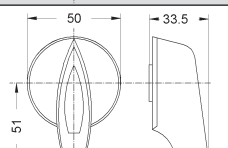

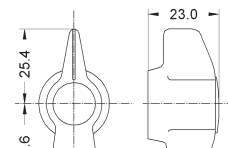

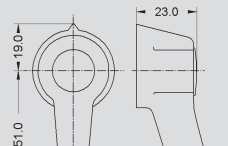
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Single Hole Knob Actuators

Photograph	Dimensions	Description	R6	R16	MR	R40	Catalogue Ref
		<p>Knob Actuators - Single hole fixing Ø22 Mounting - IP65</p> <p>All moulded construction.</p> <p><i>Cannot be sold separately. Add as prefix to switch ref. e.g. 22Z/R6AM1</i></p>	✓	✓	✓	X	22Z/...
		<p>Knob Actuators - Single hole fixing Ø22 Mounting - Die-cast - IP65</p> <p>'Tee bar' knob with half width line</p> <p><i>Please check availability before ordering on these items.</i></p>	X	X	✓	X	22/ZT...
		<p>Knob Actuators - Single hole fixing contd. Ø22 Mounting - Die-cast - IP65</p> <p>Pointer knob (Short tail)</p> <p>Pointer knob (Long tail)</p> <p><i>Please check availability before ordering on these items.</i></p>	X	X	✓	X	22/ZP... 22/ZPL...
		<p>Knob Actuators - Single hole fixing. Ø30.5 Mounting - Die-cast body - IP65</p> <p>Pointer knob</p> <p><i>Cannot be sold separately. Add as prefix to switch ref. e.g. N309B1/MV1</i></p>	✓	✓	✓	X	N309B1...
		<p>Knob Actuators - Single hole fixing. Ø32.0 Mounting - Die-cast body and locking ring with silver anodised finish, die-cast knob finished black - IP65</p> <p>Pointer knob</p> <p><i>Cannot be sold separately. Remove 'M' from switch ref & add Z as prefix e.g. ZV3</i></p>	X	X	✓	X	Z...
		<p>Knob Actuators - Single hole fixing. Ø32.0 Mounting - Die-cast body and locking ring with silver anodised finish, die-cast knob finished black - IP65</p> <p>Metal pointer knob</p> <p><i>Cannot be sold separately. Remove 'M' from switch ref & add Z1 as prefix e.g. Z1V1</i></p>	X	X	✓	X	Z1...

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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
		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
		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

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

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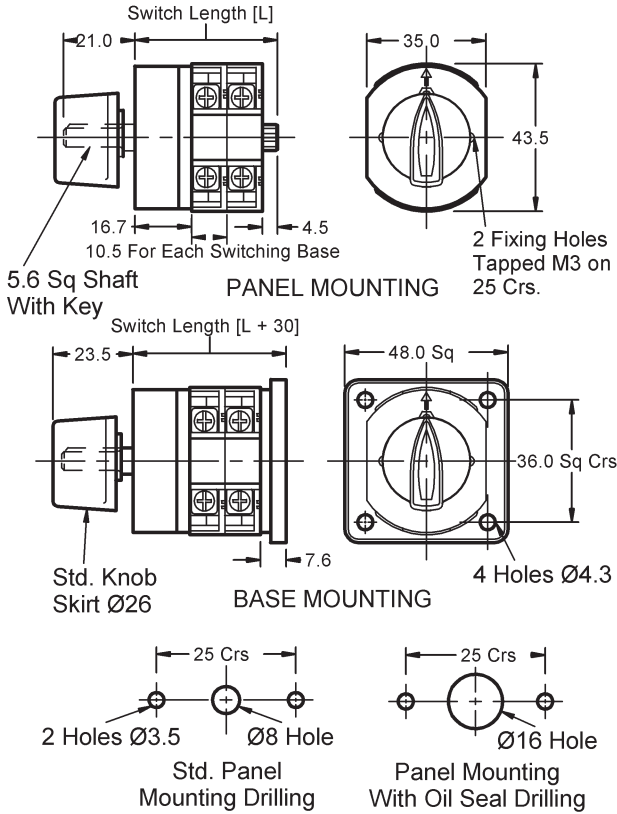
Additional Features

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	x	x	✓	x	(Std. Shaft)
		25.5	x	x	✓	x	.../SS1
		33.5	x	x	✓	x	.../SS2
		40.0	x	x	✓	x	.../SS3
		46.0	x	x	✓	x	.../SS4
		52.5	x	x	✓	x	.../SS5
		59.0	x	x	✓	x	.../SS6
		Total shaft projection (5.5 sq)					
		23.5	x	x	x	✓	(Std. Shaft)
		36.5	x	x	x	✓	.../SS2
		49.0	x	x	x	✓	.../SS4
		62.0	x	x	x	✓	.../SS6
		75.0	x	x	x	✓	.../SS8
	87.5	x	x	x	✓	.../SS10	
	100.0	x	x	x	✓	.../SS12	
		Gold Surfaced Contacts - For low power circuits					
		Gold flashed contacts	✓	✓	✓	x	.../GF
		Gold plated contacts	x	x	✓	x	.../GP
		<i>Plated contacts offer a significantly thicker deposit, and are better suited to withstand mechanical wear and minor contact arcing.</i>					
		IP65 Sealing Kit - To enhance the std. panel mounting switches to IP65.					
		Factory fitted to switch	✓	✓	✓	✓	.../G
		Supplied loose as kit (MR)	x	x	✓	x	G/16/KIT
		Supplied loose as kit (R40)	x	x	x	✓	G/32/KIT
		Base Mounting - Provides the facility to base mount the panel mounted switch form.					
		Base mounted form	✓	✓	✓	✓	.B...
		<i>To specify, add the letter 'B' after the pole designation in the cat. ref. e.g. R6TB21, MYB31/2</i>					
		Additional terminal protection - Loose items					
		Individual terminal shrouds (R6/R16)	✓	✓	x	x	SRC 0108
		Individual terminal shrouds (MR)	x	x	✓	x	MR 1048
		Flexible PVC shroud*	x	x	✓	x	MR 0134
		<i>* The MR 0134 shroud is designed to cover the complete switch and associated wiring. Easily cut to length to suit individual switch lengths.</i>					

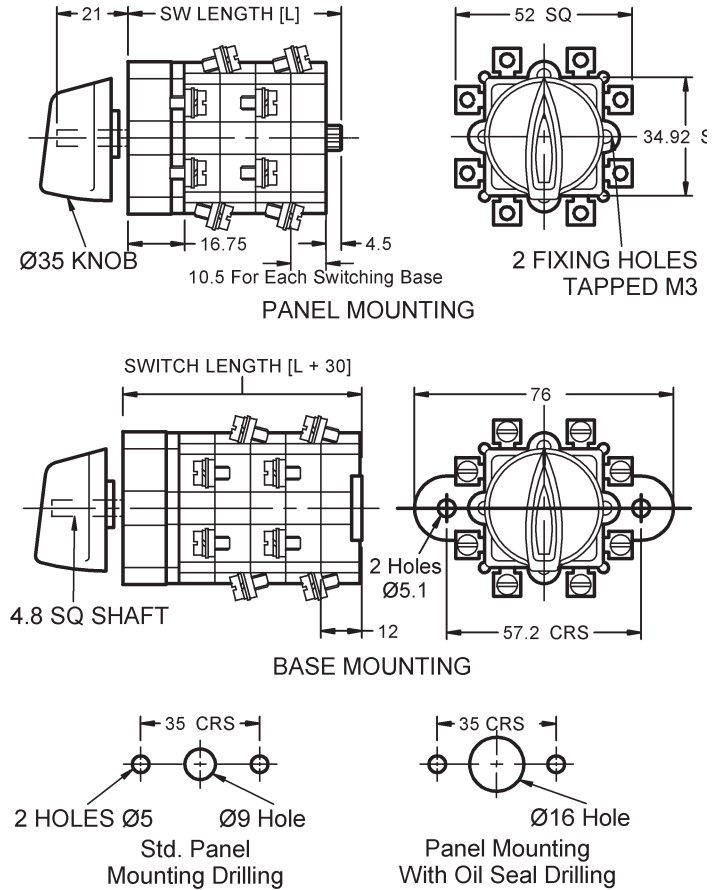
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Dimensions

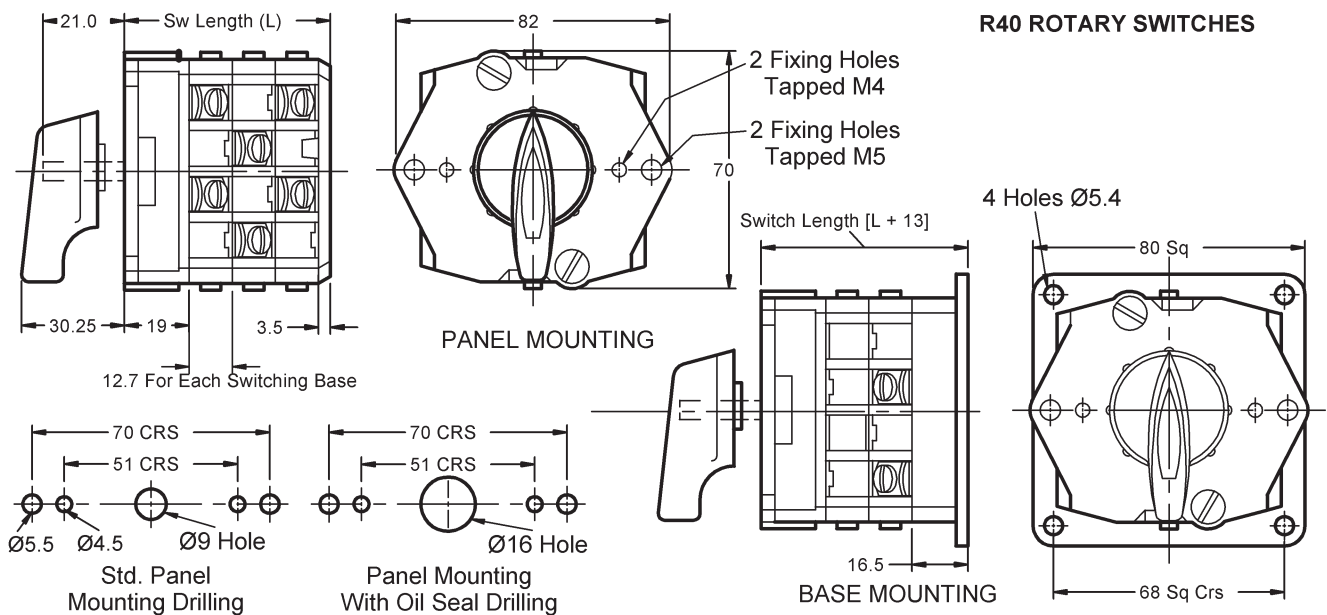
R6 & R16 ROTARY SWITCHES



MINIROTARY SWITCHES



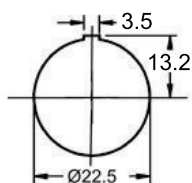
R40 ROTARY SWITCHES



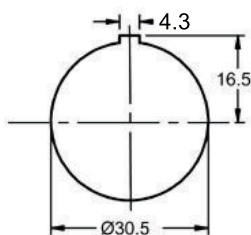
***i-select* Hand Operated Rotary Switches (Panel Metering)**

Dimensions Contd.

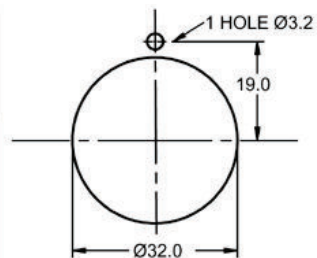
Single hole mounted components:-



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](#)