

INTRODUCTION

• This catalogue includes a number of more popular items of switches, including functional diagram, type number and dimensioned sketch. However, it only represents a small random selection from an almost inexhaustible range of possibilities. So please do not hesitate to contact us, should it not include your desired type.

Doing so, it would be helpful to use a copy of the enquiry-form on page 33.

• In the tables, the switches are arranged according to their thermal nominal current (Ith). Data regarding other application categories are listed on page 7-8.

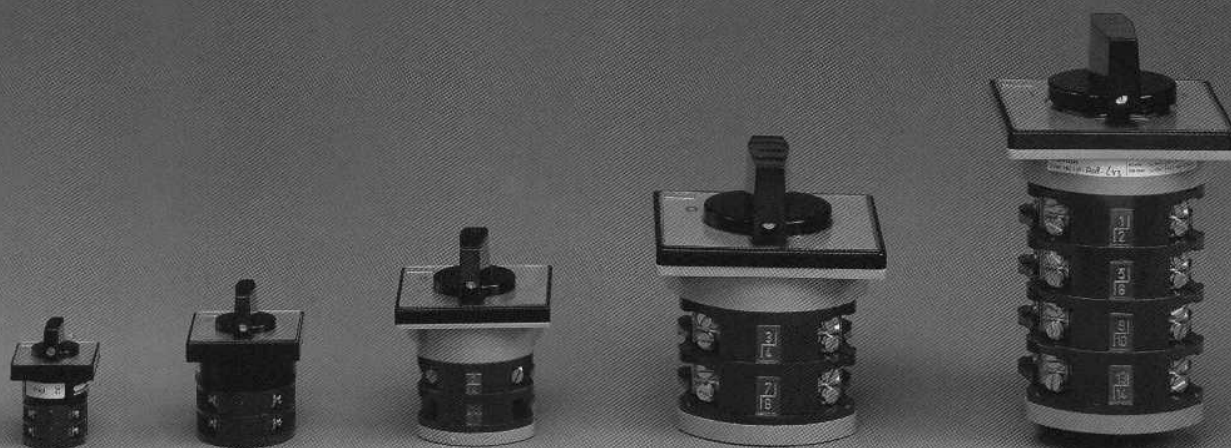
• If not otherwise requested switches will be delivered with escutcheon plate and knob.

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P.S. For general information, principles, properties and specials, please contact us: [AERCO Ltd](http://www.aerco.co.uk) Tel: +44 (0) 1403 260206

www.aerco.co.uk



Principle

Our cam switches, just as our packet switches, are designed to high quality standards. The switch cells comprise a top quality thermohardened melamine with excellent resistance to creepage current and arcing. The double break contacts are coated with a silver alloy and the other components are selected with equal care. The sturdy design forms the basis for a range of well dimensioned, almost everlasting switches.

The fundamental difference between cam switches and packet switches is shown on the picture below.

Standards

The switches are built in accordance with the standards laid down in IEC947, IEC204, CEE24, VDE0630, VDE0660, VDE113, BS5419 and many others and a few types have also been approved at KEMA.

Applications

They are suitable not only for use as control switches of multiple circuits, or as meter selecting switches, but also for use in main circuits as on load switches, such as motor switches, for operating machines, heating equipment, welding equipment, ovens, lighting equipment, etc.

Switching of equipment

There are a number of applications for which cam switches are not the first choice. Here packet switches are preferable on account of a number of specific properties they possess. For example, their high switching speed, their resistance to shock and vibration and the self-cleaning action of their contacts. Packet switches are therefore suitable for use in direct current systems, installations for higher frequencies, installations on board ships, mobile installations, in dusty envi-

ronments or where switching is very infrequent.

We will gladly provide further information on our packet switches.

Range

Santon cam switches are available in the range from 20 A. to 2000 A. The larger switches are built up of 315 A cells connected in parallel and since the number of cells per switch is limited to 12, switches of 400 A and above are limited in the number of their poles.

However, multi-barrel switches with ganging mechanisms can be provided.

Versions

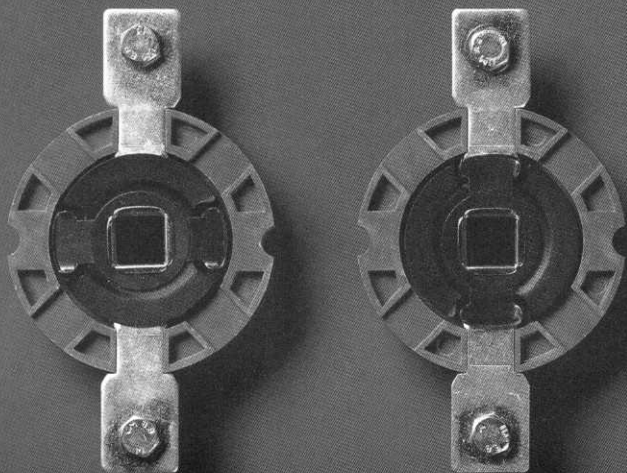
Santon switches can be supplied with a number of switching angles, viz. 30°, 60° and 90°.

The 3 smallest types can, in addition, also be supplied with a switching angle of 45°.

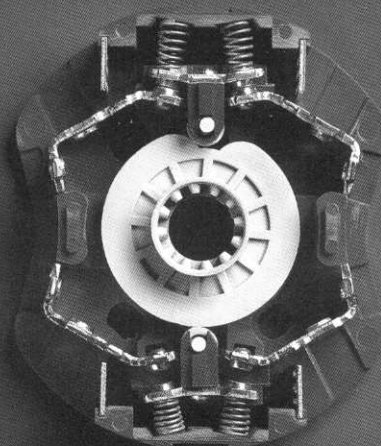
The maximum number of positions will, of course, depend on the switching angle employed, i.e. 12 for 30°, 6 for 60°, 8 for 45° and 4 for 90°.

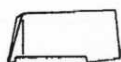
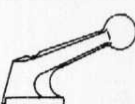

The number of positions can be restricted by blocking out wherever appropriate.

paketschakelaar • packet switch • Paketschalter
commutateur à paquet • interruttori a pacco



nockenschakelaar • cam switch • Nockenschalter
commutateur à cames • interruttori a camme



Type Typ Tipo	F1	H1	H2	H3	H4	H6	H12	G3	G6	G9	G12	G16	G20
Thermische duurstroom <small>lth (A)</small> Rated thermal current <small>lth (A)</small> Thermische Leistung <small>lth (A)</small> Courant thermique <small>lth (A)</small> Corrente nominale termica <small>lth (A)</small>	20A	20A	25A	32A	40A	63A	125A	315A	630A	900A	1200A	1600A	2000A
Max. aantal kontakten Max. number of contacts Max. Schaltkontakte Max. nombre de contacts Max. numero di contatti	24	24	24	24	24	24	24	24	12	8	6	4	3
Schakelhoek 30° Switch angle 30° Schaltwinkel 30° Angle de commutation 30° Angolo di manovra 30°	○	○	○	○	○	○	○	○	○	○	○	○	○
Schakelhoek 45° Switch angle 45° Schaltwinkel 45° Angle de commutation 45° Angolo di manovra 45°	○	○	○	○	○	○							
Schakelhoek 60° Switch angle 60° Schaltwinkel 60° Angle de commutation 60° Angolo di manovra 60°	○	○	○	○	○	○	○	○	○	○	○	○	○
Schakelhoek 90° Switch angle 90° Schaltwinkel 90° Angle de commutation 90° Angolo di manovra 90°	○	○	○	○	○	○	○	○	○	○	○	○	○
Knop Knob  Knebel Poignée Manovra	○	○	○	○	○	○	○	○	●	●			
Handel handle  Griff Bouton de commande Manopola				●	●	●	●	●	●	●	●	●	●
Greep Grip  Griff Bouton de commande Manopola								●	○	○	○	○	○

Standaard
Standard
○ Standard
Standard
Standard

Mogelijkheid
Possibility
● Möglichkeit
Possibilité
Possibilità

Opmerking : type F1 is vingerveilig
Remarks : type F1 is touch-safe
Bemerkung : Type F1 ist berührungssicher
Remarque : type F1 protégé "attouchem
Nota : il tipo F1 è sicuro al tatto

TYPE NUMMER - TYPE NUMBER - TYPE BEZEICHNIS - TYPE DE COMMUTATEUR - TIPO DI COMMUTATORE

Het typenummer van een Santon nokkenshakelaar begint met de serie, bijvoorbeeld H1. Hierachter komt een letter voor de montagevorm, bijvoorbeeld B voor bodem- of een P voor paneelmontage. Voor schakelaars voorzien van AMP aansluiting wordt dit AB of AP en voor schakelaars waar de as 90° tegen de klok in gedraaid moet worden, wordt dit XB of XP.

The complete type number of a Santon cam switch starts with the range, viz. H1. Followed by a letter for the form of mounting, viz. B for base mounting and P for panel mounting. For switches with AMP terminals this is AB or AP and for switches where the spindle must be turned 90° anti-clockwise this is XB or XP.

Die Typennummer eines Santon Nockenschalters fängt an mit der Serie, z.B. H1. Dahinter folgt eine Buchstabe für die Befestigungsform, z.B. B für Bodenbefestigung und P für Frontbefestigung. Für Schalter mit AMP Anschlußklemmen wird das AB oder AP und für Schalter wo die Achse 90° gegen die Uhr eingedreht wird, wird das XB oder XP.

Le numéro de type d'un commutateur à came Santon commence avec la série, par exemple H1. Derrière vient une lettre pour la forme de montage, B pour le montage de base et P pour le montage sur panneau. Pour les commutateurs avec AMP bornes est ce AB ou AP et pour les commutateurs avec l'axe tourné 90° anti cloche est ce XB ou XP.

Il numero di tipo di un interruttore a camma Santon comincia con la serie, ad esempio H1. Dopo c'è una lettera per la forma del montaggio, ad esempio B per retro quadro e una P per montaggio della cassetta. Per gli interruttori provvisti di un collegamento AMP diventa AB o AP e per gli interruttori in cui l'assale deve essere girato di 90° in senso antiorario diventa XB o XP.

Met onze nokkenshakelaar kan een haast onbeperkt aantal schema's verwezenlijkt worden. In deze catalogus is slechts een beperkt aantal veel voorkomende schakelschema's opgenomen. In het typenummer worden zij aangegeven met 1 letter en 2 cijfers.

With our cam switch there is an almost unlimited number of switching arrangements available. This catalogue only includes a limited number of the more common switching arrangements. They are specified in the type number by 1 letter and 2 digits.

Mit unserem Nockenschalter ist nahezu eine unbegrenzte Anzahl von Schaltprogrammen möglich. Dieser Katalog stellt daher nur einen Teil der üblicherweise verlangten Programme dar. In der Bestellbezeichnung wird das Schaltprogramm mit 1 Buchstabe und 2 Ziffern angedeutet.

Nos commutateurs à came permettent de pourvoir un nombre presque illimité d'adaptations de commutations. Ce catalogue inclut seulement un nombre limité d'adaptations de commutations les plus communes. Elles sont spécifiées dans le numéro de type par 1 lettre et 2 chiffres.

Con i nostri interruttori a camma può essere attuato un numero quasi illimitato di schemi. In questo catalogo sono riportati solamente alcuni degli schemi di collegamento più frequenti. Nel numero di tipo vengono indicati con 1 lettera e 2 cifre.

Er staat een groot aantal uitvoeringsvormen en accessoires ter beschikking. U vindt de belangrijkste vanaf pagina 27. Ook de uitvoeringsvorm wordt in het typenummer opgenomen met 1 letter en 2 cijfers.

There are a great number of versions and accessories available. The main ones are shown from page 27. The specific version is also indicated in the type number by 1 letter and 2 digits.

Von der grossen Anzahl möglicher Ausführungsformen und Zubehörteile sind ab Seite 27 die wichtigsten aufgeführt worden. Auch für die Ausführungsform finden Sie in der Bestellnummer 1 Buchstabe und 2 Ziffern.

Il y a un grand nombre de versions et d'accessoires utilisables. Les principaux sont montrés depuis page 27. La version spécifique est aussi indiquée dans le numéro de type par 1 lettre et 2 chiffres.

Sono disponibili molte forme di esecuzione ed accessori. Troverete i più importanti a partire da pagina 27. Anche la forma dell'esecuzione viene indicata nel numero di tipo con 1 lettera e 2 cifre.

H1AP-A82-L27

serie
serial
Reihe
série
serie

H1
Im = 20A.

aansluitklemmen
connecting terminals
Anschlußklemmen
bornes
morsetti

A
AMP.

montage
mounting
Befestigung
montage
montaggio

P
paneelmontage
panel mounting
Frontbefestigung
montage encastré
montaggio retro quadro

schema
diagram
Schaltbild
code
schema

A82
2-polige omschakeling zonder nulstand
2-pole changeover without off
2-poliger Umschalter ohne Nullstellung
commutateur à 2 pôles interchangeable
sans position off
deviatore a 2 poli senza posizione di zero

uitvoering
version
Ausführung
version
esecuzione

L27
hangslotvergrendeling in knop - rood/geel
padlocking in knob - red/yellow
Vorhängeschloßverriegelung - rot/gelb
verrouillage cadenasé - rouge/jaune
lucchetto sulla manopola - rosso/giallo

technische gegevens / Technical data / Technische Angaben / Fiche technique / Dati tecnici

Typnummer	Typnumber	Typebezeichnung	Numéro de type	Numero di tipo				
Isolatiespanning	Rated insulation voltage	Nennisolationsspannung	Tension assignée d'isolement	Tensione nominale d'isolamento	Ui	IEC/VDE/BS UL/CSA	V V	
Impulsspanning	Impulse withstand voltage	Impulsspannung	Tension de tenue aux chocs	Tensione d'impuls	Uimp	IEC/VDE	kV	
Hoofdschakelaar	Main switch	Hauptschalter	Interrupteur principal	Interruttore principale	Ui Uimp	IEC/VDE IEC/VDE	V kV	
Thermische duurstroom	Rated thermal current	Thermischer Nennstrom	Courant thermique conventionnel à l'air libre	Corrente nominale termica	Ith	IEC/VDE/BS UL/CSA	A A	
Korteduurstroom	Rated short-time withstand current	Nennkurzzeitstrom	Courant courte durée admissible	Corrente nominale di breve durata ammissibile	Icw		1 sec 3 sec 10 sec 30 sec 60 sec	A A A A A
Max. zekering t.b.v. kortsluitbevestiging	Max. fuse size for short circuit protection	Kurzschlussfestigkeit max. Vorsicherung	Valeur maxi. fusible coupe-circuit	Max. corrente fusibili per protezione contro corto circuito	gl		10 kA 25 kA 50 kA 63 kA	A A A A
Nominaalstroom	Rated operational current	Nennbetriebsstrom	Courant assigné d'emploi	Corrente nominale di servizio	Ie	AC21A/AC21B AC1	690 V 690 V	A A
IEC/VDE/BS	IEC/VDE/BS	IEC/VDE/BS	IEC/VDE/BS	IEC/VDE/BS		AC15	110 V 230 V 400 V 690 V	A A A A
Motorschakelaar in gebruikskategorie	Motor switch in utilisation category	Motorschalter in Gebrauchskategorie	Moto-commutateur dans catégorie d'utilisation	Interruttore per motori in categoria d'impiego	AC3	IEC/VDE/BS	230 V 400 V 690 V	kW kW kW
3 fasen	3 phase	3 phasig	3 phase	3 fasi			110 V	kW
1 fase, 2 polen	1 phase, 2 pole	1 phasig, 2 polig	1 phase, 2 polaire	1 fasi, 2 poli			230 V 400 V	kW kW
3 fasen	3 phase	3 phasig	3 phase	3 fasi		AC23A/AC23B ¹⁾	IEC/VDE/BS 230V 400 V 690 V	kW kW kW
1 fase, 2 polen	1 phase, 2 pole	1 phasig, 2 polig	1 phase, 2 polaire	1 fasi, 2 poli			110V	kW
3 fasen	3 phase	3 phasig	3 phase	3 fasi		DOL	UL/CSA 120V 240 V 480 V 600 V	hp hp hp hp
Nominaalstroom per kontakt	Rated operational current for one contact	Nennbetriebsstrom pro Kontakt	Courant assigné d'emploi un contact	Corrente nominale di servizio 1 contatto	Ie	DC1, DC21	24 V 48 V 60 V 110 V 220 V 440 V 600 V	A A A A A A A
					T=1ms/T=50ms			
Aantal kontakten in serie	Number of contacts in series	Anzahl der Kontakte in Serie	Nombre de contacts série	Numero contatti da collegare in serie	Ie (DC1)=Ith		48 V 60 V	No. No.
Ie(DC1)=Ith	Ie(DC1)=Ith	Ie(DC1)=Ith	Ie(DC1)=Ith	Ie(DC1)=Ith		T=1ms/T=50ms	110 V 220 V 440 V	No. No. No.
Mech. levensduur	Mechanical endurance	Mechanische Lebensdauer	Durée de vie mécanique	Durata meccanica		n mech		
Aansluitingen: schroef kabelafmeting:	Terminals: screw cable cross-section:	Anschluss: Schraube Kabelquerschnitt:	Bornes: boulon coupe de câble:	Connessioni: caviglia sezione del cavo:			h/f	M mm2
max.	max.	max.	max.	max.			2x	AWG
min.	min.	min.	min.	min.		(l<Ith)	h/f	mm2 AWG
h = harde kabel	h = rigid cable	h = hartes Kabel	h = le câble ferme	h = cavo rigido				
f = flexibele kabel	f = flexible cable	f = flexibles Kabel	f = le câble flexible	f = cavo flessibile				
* = een kabel	* = one cable	* = ein Kabel	* = un câble	* = uno cavo				
R = Raalkoper	R = copper busbar	R = Kupfer Schienen	R = barre de cuivre	R = barra di rame				
- = op aanvraag of nog ter beproeving	- = on request or to be tested	- = Auf Anfrage oder noch zu Prüfen	- = sur demande ou encore d'éprouver	- = a richiesta o ancora da provare				
¹⁾ = typen G	¹⁾ = types G	¹⁾ = Typen G	¹⁾ = type G	¹⁾ = tipo G				

F1	H1	H2	H3	H4	H6	H12	G3	G6	G9	G12	G16	G20
690	690	690	690	690	690	690	690	690	690	690	690	690
300	300	600	600	600	600	600	600	600	600	600	600	600
8	8	8	8	8	8	8	8	8	8	8	8	8
690	690	690	690	690	690	690	690	-	-	-	-	-
6	6	6	6	6	6	6	6	-	-	-	-	-
20	20	25	32	40	63	125	315	630	900	1200	1600	2000
15	15	20	30	35	55	110	-	-	-	-	-	-
250	250	400	800	800	1700	3000	5200	8000	14500	18200	24500	33000
150	150	250	400	400	800	1500	3200	6500	9200	12000	16500	20000
80	80	150	250	250	400	800	1800	3600	5500	8000	8800	10500
50	50	100	160	160	250	500	1100	2100	3300	4500	5700	7000
40	40	80	125	125	160	300	800	1500	2400	3600	4000	5000
20	20	25	32	40	63	125	-	-	-	-	-	-
16	16	25	32	40	63	125	-	-	-	-	-	-
-	-	-	32	40	63	125	-	-	-	-	-	-
-	-	-	-	40	63	125	-	-	-	-	-	-
20	20	25	32	40	63	125	315	630	900	1200	1600	-
20	20	25	32	40	63	125	-	630	-	-	-	-
10	10	16	25	25	32	-	-	-	-	-	-	-
8	8	12	20	20	25	-	-	-	-	-	-	-
6	6	8	10	10	16	-	-	-	-	-	-	-
2	2	2	2	2	4	-	-	-	-	-	-	-
3	3	5,5	7,5	7,5	11	18,5	37	-	-	-	-	-
5,5	5,5	7,5	11	15	18,5	37	55	-	-	-	-	-
5,5	5,5	7,5	11	15	18,5	37	55	-	-	-	-	-
0,8	0,8	1,5	2,2	3	3,7	5	11	-	-	-	-	-
2,2	2,2	3	4	5,5	6,3	11	22	-	-	-	-	-
3	3	5,5	5,5	7,5	11,5	15	30	-	-	-	-	-
5	5	6,6	8	8	12,5	30	75	75	75	75	75	75
7,5	7,5	11	15	18,5	30	45	160	160	160	160	160	160
7,5	7,5	11	18,5	22	30	55	75	75	75	75	75	75
0,8	0,8	1,5	2,2	3	3,7	7,5	15	-	-	-	-	-
2,5	2,5	3,7	5	6,5	7,5	18,5	37	-	-	-	-	-
3,7	3,7	5,5	8	8	12,5	30	55	-	-	-	-	-
1,5	1,5	3	5	5	7,5	15	-	-	-	-	-	-
3	3	5	10	10	15	30	-	-	-	-	-	-
5	-	10	20	25	30	60	-	-	-	-	-	-
7,5	-	15	25	30	40	75	-	-	-	-	-	-
20/20	20/20	25/25	32/32	40/40	63/63	125/125	-	-	-	-	-	-
20/16	20/16	25/20	32/32	40/32	63/40	125/100	-	-	-	-	-	-
20/12	20/12	25/16	32/20	40/20	50/28	80/50	-	-	-	-	-	-
4/1	4/1	4/1,5	6/3	6/3	8/3,3	10/4	-	-	-	-	-	-
0,7/0,4	0,7/0,4	0,8/0,45	0,9/0,5	0,9/0,5	1/0,8	1,2/1	-	-	-	-	-	-
0,25/0,15	0,25/0,15	0,3/0,2	0,3/0,25	0,3/0,25	0,33/0,25	0,4/0,3	-	-	-	-	-	-
0,16/0,1	0,16/0,1	0,18/0,12	0,2/0,15	0,2/0,15	0,25/0,2	0,3/0,25	-	-	-	-	-	-
1/2	1/2	1/2	1/2	1/2	1/2	1/2	-	-	-	-	-	-
1/3	1/3	1/3	1/3	1/3	1/3	2/3	-	-	-	-	-	-
2/6	2/6	3/5	3/5	3/5	3/5	3/5	-	-	-	-	-	-
5/8	5/8	4/8	4/8	4/8	4/8	4/8	-	-	-	-	-	-
8/-	8/-	8/-	8/-	8/-	8/-	8/-	-	-	-	-	-	-
5 x 10E6	5 x 10E6	5 x 10E6	5 x 10E6	5 x 10E6	5 x 10E6	1 x 10E6	2 x 10E5	2 x 10E5	2 x 10E5	2 x 10E5	2 x 10E5	2 x 10E5
3	3	3,5	4	4	5	2x5	10	12	16	16	4x12	4x12
2,5/2,5	2,5/2,5	6/4	6/4	10/6	16/10	70*/50*	R 20x5	R 40x5	R 60x5	3xR 50x5	3xR 70x5	3xR100x5
14/14	14/14	10/12	10/12	8/10	6/8	2/0/1/0	000	-	-	-	-	-
0,5/0,5	0,5/0,5	0,5/0,5	1,5/1,5	1,5/1,5	2,5/2,5	2,5/2,5	-	-	-	-	-	-
20/20	20/20	20/20	16/16	16/16	14/14	14/14	-	-	-	-	-	-