

# Cam Switches



## APPROVALS

UL - CUL - SEMKO



## SPECIFICATIONS

All switches are made according to standards CEI 23-11, CEI 17-11, CEE 24, IEC 408, VDE 0660T107.

## TECHNICAL SPECIFICATIONS

Release angle: 30° - 45° - 60° - 90°  
 Contact material: welded contacts AG/NI  
 Insulation material: polycarbonate  
 Screws: galvanized steel; on request stainless steel  
 Insulation voltage: 660 V  
 Mechanical life: 1.500.000 ops.  
 Allowable ambient temperature: -20 ÷ +60 °C  
 Climate stability: according to IEC 68-1  
 Protection degree: IP 40

## MAIN CHARACTERISTICS

- 1 - All contacts/terminals are touch-safe.
- 2 - No ground terminal needed. All moving parts are completely insulated.
- 3 - Easily adaptable to any electrical wiring diagram.
- 4 - Completely interchangeable with the most common brands on the market.

## TECHNICAL SPECIFICATIONS

Model	Thermic rated current Ith2 A	Insulation rated voltage Ui V	AC1	AC2	AC3	AC4
			3x380V KW	3x380V KW HP	3x380V KW HP	3x380V KW HP
<b>HD 12</b>	12	660	7,5	$\frac{4}{5,5}$	$\frac{3,5}{4,5}$	$\frac{2,5}{3,5}$
<b>HD 16</b>	16	660	10	$\frac{7,5}{10}$	$\frac{6,5}{8,5}$	$\frac{4,5}{6,5}$
<b>HD 20</b>	20	660	12,5	$\frac{9}{12}$	$\frac{7,5}{10}$	$\frac{5,5}{7,5}$
<b>HF 25</b>	25	660	17	$\frac{12}{16}$	$\frac{9,5}{13}$	$\frac{7}{9,5}$
<b>HF 32</b>	32	660	20	$\frac{17}{23}$	$\frac{14}{19}$	$\frac{10}{14}$
<b>HF 40</b>	40	660				
<b>HF 63</b>	63	660				

### Control motor and threephase load switches

#### MAIN SWITCH

According to DIN 57113/VDE 0113, each control panel must have a main switch to disconnect every electric input during cleaning, maintenance and repair works. The standard specifies the following features, fully satisfied by our HD-HF cam switch:

- the switch must be hand-operated from outside;
- the switch presents 2 fixed positions "OFF" and "ON", indicated as "O" and "1";
- to prevents accidents, power terminals are protected;
- safety device: in position "OFF"/"O" with maximum 4 padlocks.

#### AC2 CATEGORY

Corresponds to use where connection current is max 2,5 le while disconnected current is equal to le.  
 Ex.: star-delta motor starting, slipping motor starting, resistive load feeding.



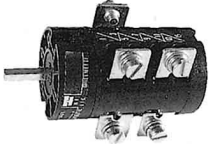

#### AC3 CATEGORY

Corresponds to use where connection current is equal to 6 le while disconnected current is equal to le.  
 Ex.: cage-motor starting, light circuits with incandescent lamps.

#### AC4 CATEGORY

Corresponds to use where connection current and disconnected current is equal to le.  
 Ex.: reverse current starting and braking, cage motor pulse transitions.

## TYPES

HD 12A, 16A, 20A	HF 25A, 32A	HF 40A, 63A	MECHANICAL INTERLOCK	
				


## PLATES

						
Ø 1.96" = R 811 Ø 2.36" = R 911	2.05" x 2.05" = F 111 2.99" x 2.99" = F 221	2.99 x 2.99" F341	2.99 x 2.99" F3A21	Ø 2.67 R641	Ø 2.67 R6A21	Base for mechanical interlock

## FINISHING DEVICES

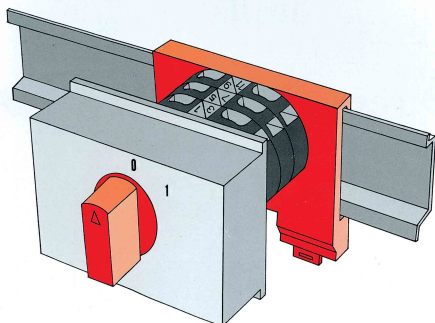
MOUNTING	1st number PLATE		2nd number HANDLE	3rd number FINISHING
F Panel mounting or flush mounting	0 Without plate	7 Black protected plastic ring Ø 2.67	0 Without handle	0 Without finishing
R Flush mounting	1 Black plate 2.05x2.05	7 <sup>a</sup> Black plastic ring for 4 padlocks Ø 2.67	1 Handle Ø 1.02	1 Red handle/button
T Flush mounting with mechanical interlock	1 <sup>a</sup> Grey plate 2.05x2.05	8 Alum. or plastic plate Ø 1.96	2 Handle Ø 1.33	2 Black handle/button
	2 Black plate 2.99x2.99	9 Alum. or plastic plate Ø 2.36	3 Turning button	3 Grey handle/button
	2 <sup>a</sup> Grey plate 2.99x2.99	10 Grey plate for 4 padlocks 2.99x2.99	4 Handle for 4 padlocks	
	3 Yellow plate for 4 padlocks 2.99x2.99	11 Grey protected plate 2.99x2.99	5 Protected handle	
	3 <sup>a</sup> Yellow protected plate 2.99x2.99	12 Grey plastic ring for 4 padlocks Ø 2.67		
	4 Black plate for 4 padlocks 2.99x2.99	13 Grey protected plastic ring Ø 2.67		
	5 Black protected plate 2.99x2.99			
	6 Yellow plastic ring for 4 padlocks Ø 2.67			
	6 <sup>a</sup> Yellow protected plastic ring Ø 2.67			

## DESCRIPTION

	HD 12		HD 16		HD 20		HF 25		HF 32		HF 40		HF 63	
	12A/660V ~		16A/660V ~		20A/660V ~		25A/660V ~		32A/660V ~		40A/660V ~		63A/660V ~	
	order number	elem. no	order number	elem. no	order number	elem. no	order number	elem. no	order number	elem. no	order number	elem. no	order number	elem. no
<b>SWITCHES</b>														
1/pole	HD 1201	1	HD 1601	1	HD 2001	1	HF 2501	1	HF 3201	1	HF 4001	2	HF 6301	2
2/pole	HD 1202	1	HD 1602	1	HD 2002	1	HF 2502	1	HF 3202	1	HF 4002	2	HF 6302	2
3/pole	HD 1203	2	HD 1603	2	HD 2003	2	HF 2503	2	HF 3203	2	HF 4003	4	HF 6303	4
4/pole	HD 1204	2	HD 1604	2	HD 2004	2	HF 2504	2	HF 3204	2	HF 4004	4	HF 6304	4
<b>CHANGE-OVER SWITCHES</b> (conn. entry)														
1/pole	HD 1205	1	HD 1605	1	HD 2005	1	HF 2505	1	HF 3205	1	HF 4005	2	HF 6305	2
2/pole	HD 1206	2	HD 1606	2	HD 2006	2	HF 2506	2	HF 3206	2	HF 4006	4	HF 6306	4
3/pole	HD 1207	3	HD 1607	3	HD 2007	3	HF 2507	3	HF 3207	3	HF 4007	6	HF 6307	6
4/pole	HD 1240	4	HD 1640	4	HD 2040	4	HF 2540	4	HF 3240	4	HF 4040	8	HF 6340	8
<b>CHANGE-OVER SWITCHES</b> (sep. entry)														
1/pole	HD 1241	1	HD 1641	1	HD 2041	1	HF 2541	1	HF 3241	1				
2/pole	HD 1242	2	HD 1642	2	HD 2042	2	HF 2542	2	HF 3242	2				
3/pole	HD 1243	2	HD 1643	3	HD 2043	3	HF 2543	3	HF 3243	3				
4/pole	HD 1244	4	HD 1644	4	HD 2044	4	HF 2544	4	HF 3244	4				
<b>3 P. REVERSING</b>	HD 1208	3	HD 1608	3	HD 2008	3	HF 2508	3	HF 3208	3				
<b>POLES COMMUT.</b>	HD 1209	4	HD 1609	4	HD 2009	4	HF 2509	4	HF 3209	4				
<b>COMMUT. <math>\Delta</math></b>	HD 1210	4	HD 1610	4	HD 2010	4	HF 2510	4	HF 3210	4				
<b>POLES COMMUT. REVERSING</b>	HD 1211	6	HD 1611	6	HD 2011	6	HF 2511	6	HF 3211	6				
<b>STAR-DELTA REVERSING <math>\Delta</math></b>	HD 1212	5	HD 1612	5	HD 2012	5	HF 2512	5	HF 3212	5				
<b>VOLTMETER</b>														
phase-neutral	HD 1215	2												
phase-phase	HD 1216	2												
ph-ph + ph-neutr.	HD 1218	3												
<b>AMMETER</b>														
1p. for 3 C.T.	HD 1222	3												
2p. for 3 C.T.	HD 1225	5												

MOTOR SWITCHES ALSO AVAILABLE: Single Phase + Aux. Phase, Single Phase with capacitor, etc.

## CAM SWITCHES ON DIN RAIL - TECHNICAL SPECIFICATIONS



Control motor and threephase load switches

Model	Thermic rated current $I_{th2}$	Insulation rated voltage $U_i$	AC 1	AC 2	AC 3
			AC 21B	AC 22B	AC 23B
			3x380V	3x380V	3x380V
	A	V	KW	$\frac{KW}{HP}$	$\frac{KW}{HP}$
<b>HD 12</b>	12	660	7,5	$\frac{4}{5,5}$	$\frac{3,5}{4,5}$
<b>HD 16</b>	16	660	10	$\frac{7,5}{10}$	$\frac{5}{6,7}$

## DEVICE CONTACTOR

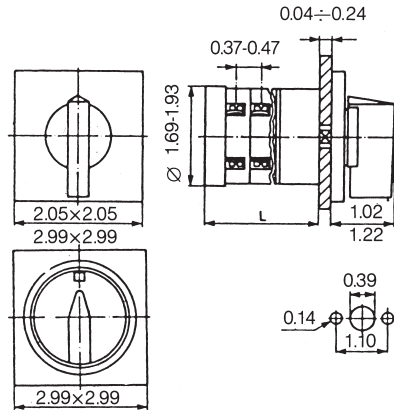
DEVICE WITH CONTACTOR



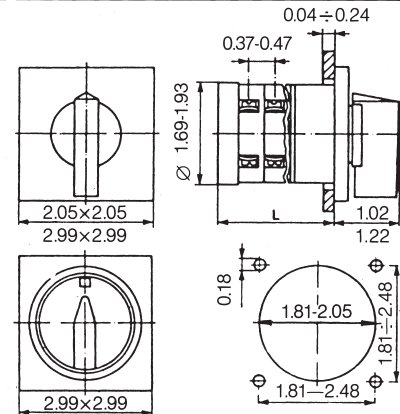
Dimensions: on request

## OVERALL DIMENSIONS AND DRILLING TEMPLATES

VERSION "F"  
Flush mounting

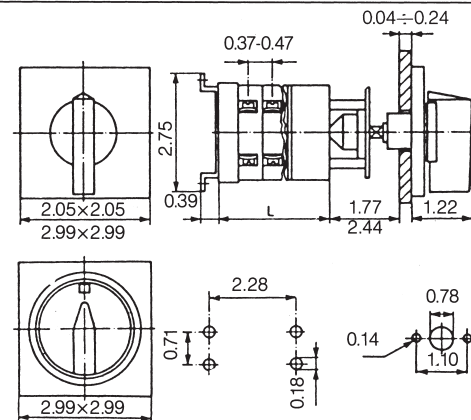


VERSION "F"  
Panel mounting



TYPE	ELEMENTS	CONTACTS	SIZE L
HD	1	1-2	1.51
HD 25/32	1		1.69
HD 40/63	2		2.16
HD	2	3-4	1.88
HD 25/32	2		2.16
HD 40/63	4		3.11
HD	3	5-6	2.26
HD 25/32	3		2.63
HD 40/63	6		4.05
HD	4	7-8	2.63
HF 25/32	4		3.11
HF 40/63	8		5.00

VERSION "T"  
Flush mounting with  
mechanical interlock



## ACCESSORIES



Contact protections HD and HF



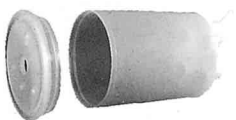
Little handle



Contact protection HF 40/63



Big handle



Rigid plastic protection



Handle for 4 padlocks



Flexible plastic protection



Rubber strip for protection degree IP 54  
(dimensions on request)