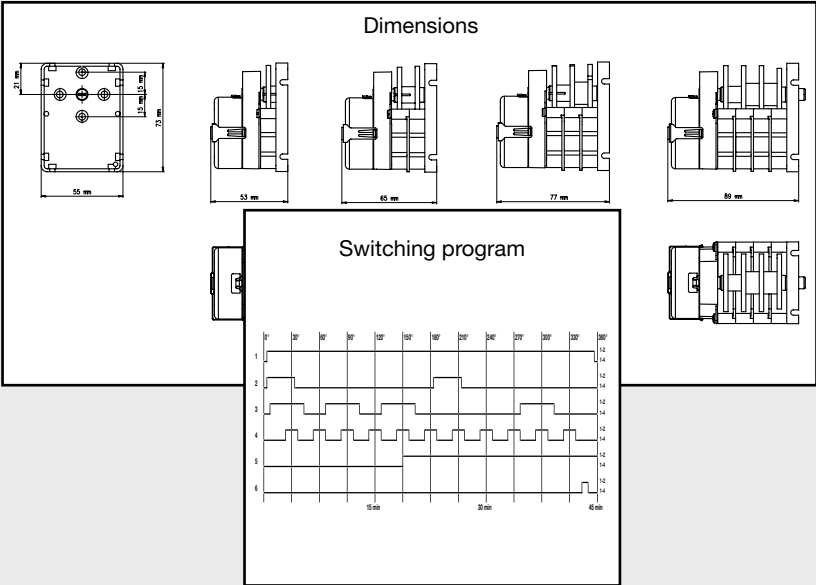
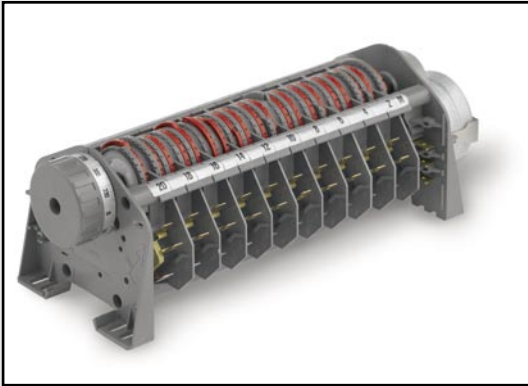


Table of typical applications & Cam Programmer Series

In addition to the products shown in the Product Catalog pages, the Product Mapping table below shows a wide range of cam programmer types for a selection of applications. Also, cam programmers may be customized to fulfill your specific requirements, please feel free to contact us.

Application Cam Programmer		KKP	KKC	KKD0	KKD2-01	KKD02-02	KKD1	KKD7	KKD2	KKD3	KKD6	KKD4	KKH --- 00	KKH --- 88	KKH ---
Healthcare & Medical Equipment		●	●	●	●	●	●	●	●	●	●		●	●	●
Personal Care	toilet cabins			●	●	●									
	hand dryers	●													
	hair dryers	●											●	●	
	solariums												●	●	
	saunas	●	●										●	●	●
	whirepool												●	●	●
	swiming pool	●	●	●	●	●	●	●	●	●	●		●	●	●
	fountain variables	●	●	●	●	●	●	●	●	●	●		●	●	●
Building Automation & Security	fog horn	●	●	●	●	●	●	●	●	●	●		●	●	●
	bell towers	●	●	●	●	●	●	●	●	●	●		●	●	●
White Goods	defrosing	●	●	●	●	●	●	●							
	Ice cube machine	●													
Home Appliances	coffee machine	●											●		●
Heating Ventilation & Air Conditioning	heating ventilation	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	sanibroyeurs	●		●											
	pottery ovens												●	●	
Industrial equipment & automation	automation	●	●	●	●	●	●	●	●	●	●		●	●	●
	galvano	●	●	●	●	●	●	●	●	●	●		●	●	●
	test equipment	●	●	●	●	●	●	●	●	●	●		●	●	●
	food specialities	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	bottling	●	●	●	●	●	●	●	●	●	●		●	●	●
	newspaper	●	●	●	●	●	●	●	●	●	●		●	●	●
	milk truck cleanning	●	●	●	●	●	●	●			●		●	●	●
	carwash			●	●	●	●	●			●		●	●	●
	battery loader												●	●	
	milking equipment	●	●	●	●	●	●	●			●		●	●	●
	drying	●	●									●	●		
Business Machines	bookbinding	●	●	●	●	●	●	●			●	●	●	●	●
	Vending machines	●	●	●	●	●	●	●	●	●	●		●	●	●
	feeding systems	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Page	186	188	190	192	193	194	196	198	200	202	204	208	210	212	

Cam Programers



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innovating motion

KKP

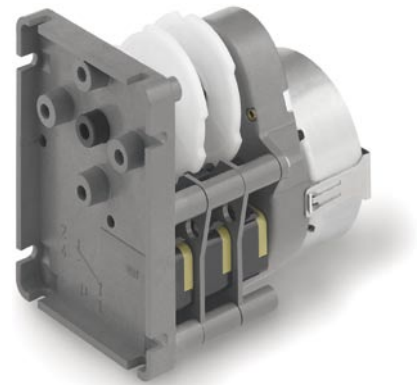
Synchronous programmer, 1 to 4 channels

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

hand dryers, hair dryers, saunas, swimming pool, fountain variables, fog horn, bell towers, defrosting, Ice cube machine, coffee machine, heating ventilation, sanibroyeurs, automation, galvano, test equipment, food specialities, botteling, newspaper, milk truck cleaning, milking equipment, drying, bookbinding, Vending machines, feeding systems



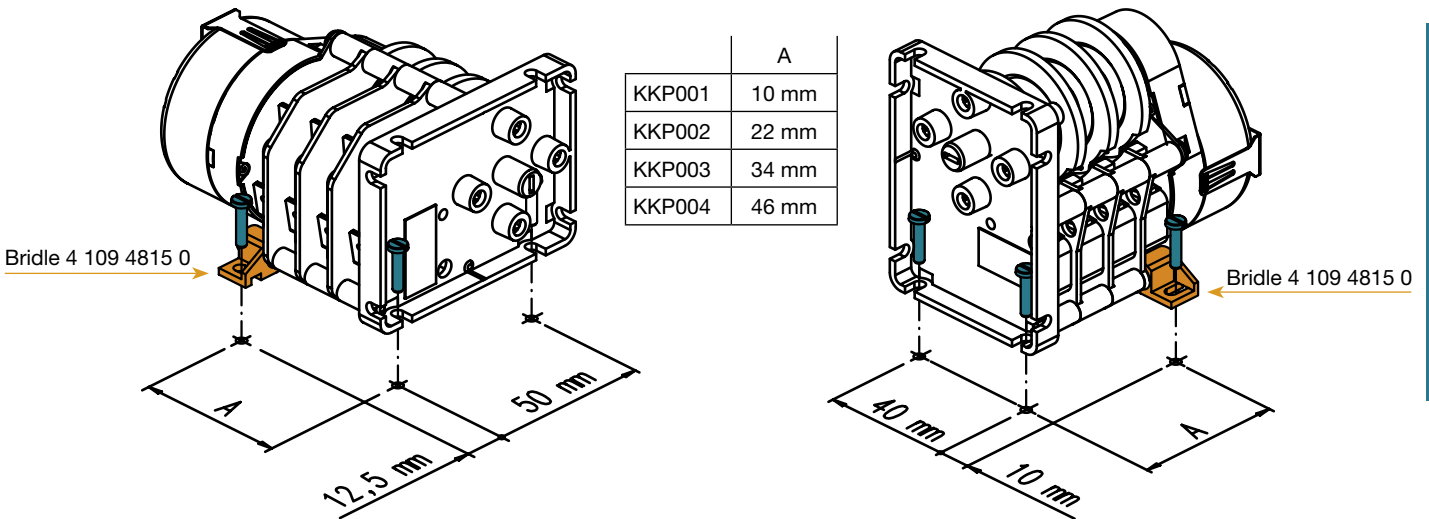
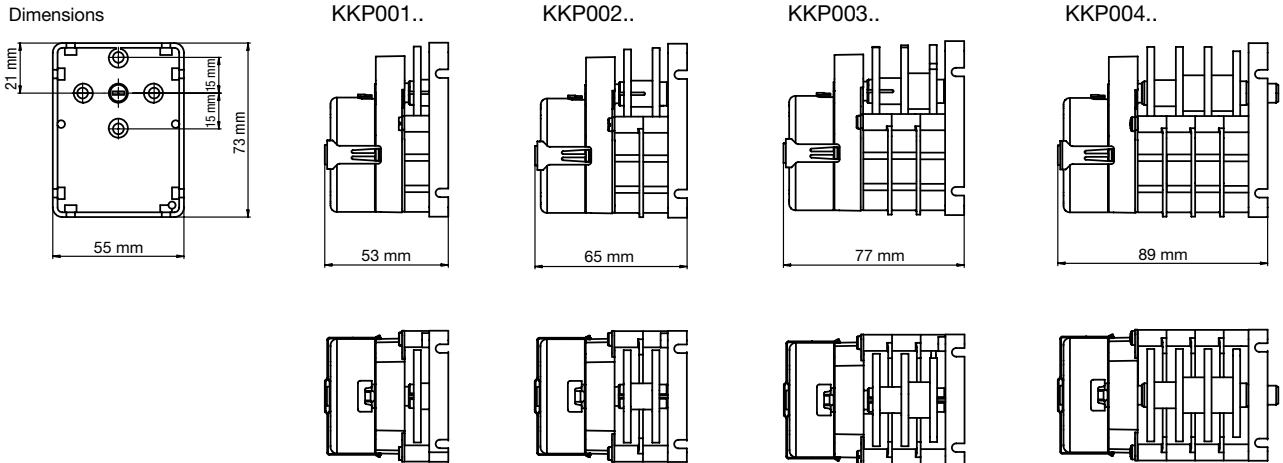
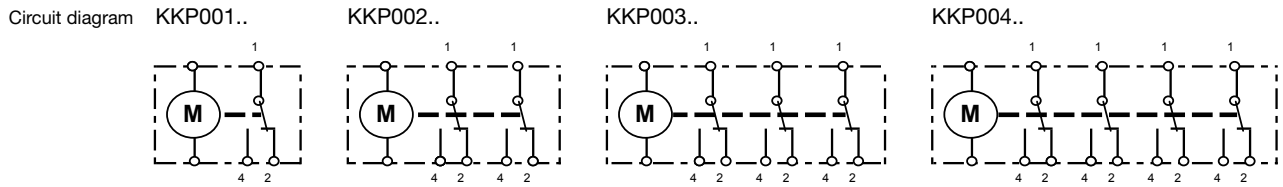
Characteristics

	standard	optional	on request
Program	milled cams, according customers diagram	with adjustable segment «S» cams or jumper «R» cams	
Nbre channels	1,2, 3 or 4 program channels		
Prog. duration	from 1 sec to 120 h		
Driving	unidirectional synchronous motor		
Voltage	230 V, 50 Hz or 110 V, 60 Hz .		other voltages on request
Switching power	12 (6) A; UL 10 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

Type	Cam Programmer						KKP 00	3	01	B3	E1	N	00
Number of channels	1, 2, 3 or 4 channels												
Type of cams diagrams	01	with S cams											
	02	with R cams											
	03 to 99	customer specific diagram number											
Programm duration	B1 1 s	B2 10 s	D3 1.25 min	R3 6 min	K4 36 min								
	E1 1.5 s	C2 12 s	E3 1.5 min	S3 7.5 min	B5 1 h								
	J1 3 s	E2 15 s	F3 2 min	B4 10 min	E5 1.5 h	S5 7.5 h							
	M1 4 s	F2 20 s	J3 3 min	E4 15 min	F5 2 h	B6 10 h							
	Q1 5 s	J2 30 s	M3 4 min	W4 18 min	J5 3 h	C6 12 h							
	R1 6 s	B3 1 min	Q3 5 min	J4 30 min	R5 6 h	G6 24 h							
Supply voltage	B4 24 V 50 Hz	E1 230 V 50 Hz	J1 110 V 60 Hz										
Approval	N standard EC		U with UL-CSA approval										
Execution	00 standard												
	01 to 99 specific customer execution												
On request	other program duration			other voltage		other switching power							
Accessories	fixing bridle (for 3-point fixing)			4 109 4815 0									

KKP



Cam Programmers

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KKC

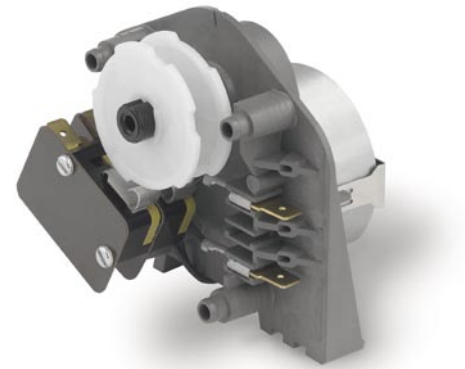
Synchronous programmer, 1 or 2 channels

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

saunas, swimming pool, fountain variables, fog horn, bell towers, defrozing, heating ventilation, automation, galvano, test equipment, food specialities, botteling, newspaper, milk truck cleaning, milking equipment, drying, bookbinding, Vending machines, feeding systems



Characteristics

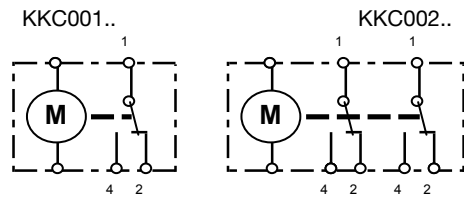
	standard	optional	on request
Program	milled cams, according customers diagram	with adjustable segment «S» cams or jumper «R» cams	
Nbre channels	1 or 2 program channels		
Prog. duration	from 10 sec to 120 h		
Driving	unidirectional synchronous motor		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	12 (6) A; UL 10 A		other switching power on request
Approvals	standard EC		

Order Reference

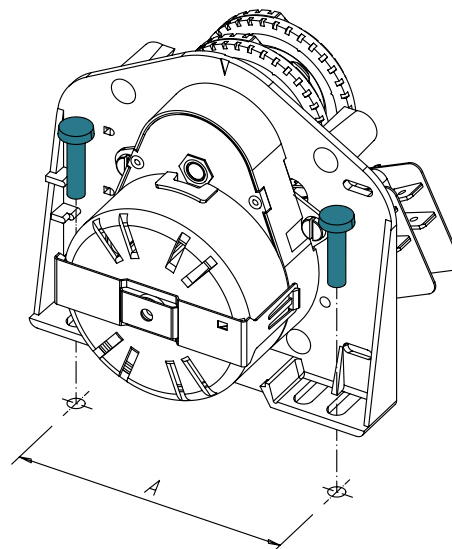
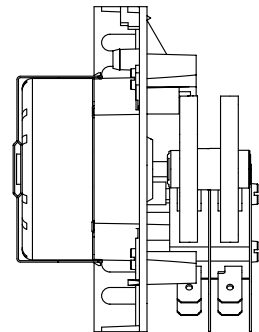
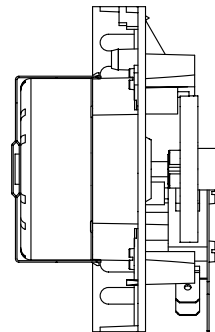
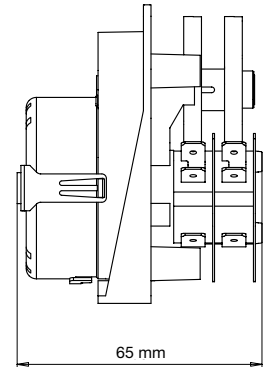
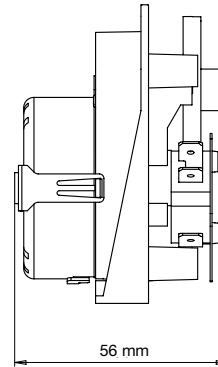
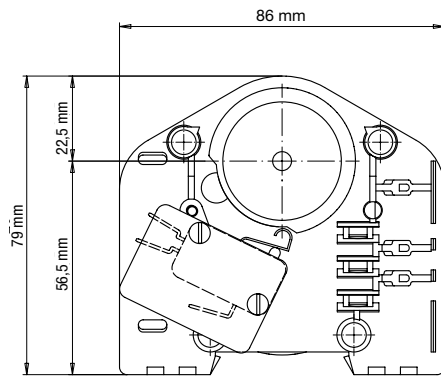
Type	Cam Programmer						KKC 00	2	01	B2	E1	N	00
Number of channels	1 or 2 channels												
Type of cams diagrams	01	with S cams											
	02	with R cams											
	03 to 99	customer specific diagram number											
Programm duration	B1 1 s	B2 10 s	D3 1.25 min	R3 6 min	K4 36 min								
	E1 1.5 s	C2 12 s	E3 1.5 min	S3 7.5 min	B5 1 h								
	J1 3 s	E2 15 s	F3 2 min	B4 10 min	E5 1.5 h	S5 7.5 h							
	M1 4 s	F2 20 s	J3 3 min	E4 15 min	F5 2 h	B6 10 h							
	Q1 5 s	J2 30 s	M3 4 min	W4 18 min	J5 3 h	C6 12 h							
	R1 6 s	B3 1 min	Q3 5 min	J4 30 min	R5 6 h	G6 24 h							
Supply voltage	B4 24 V 50 Hz	E1 230 V 50 Hz	J1 110 V 60 Hz										
Approval	N	standard EC											
Execution	00	standard											
	01 to 99	specific customer execution											
On request	other program duration			other voltage			other switching power						
Accessories													

KKC

Circuit diagram



Dimensions



Cam Programmers

KKD0

Synchronous programmers

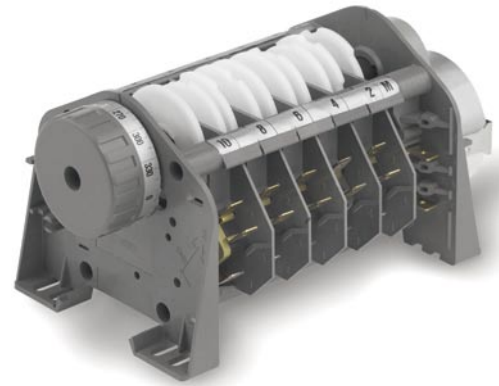
Unlimited choice of program durations, with adjustable or defined programs.

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

toilet cabins, swimming pool, fountain variables, fog horn, bell towers, defrozing, heating ventilation, sanibroyeurs, automation, galvano, test equipment, food specialities, bottling, newspaper, milk truck cleaning, carwash, milking equipment, bookbinding, Vending machines, feeding systems



Characteristics

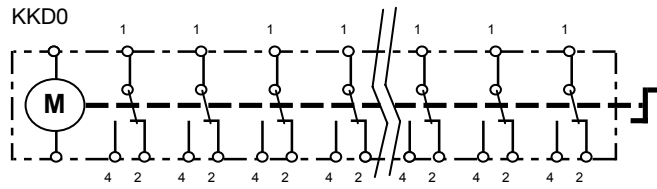
	standard	optional	on request
Program	milled cams, according customers diagram	with adjustable segment «S» cams or jumper «R» cams	
Nbre channels	max. 30 Typ 4, 6, 8, 12, 20 program channels		
Prog. duration	from 10 sec to 120 h		
Driving	unidirectional synchronous motor		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	12 (6) A; UL 10 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

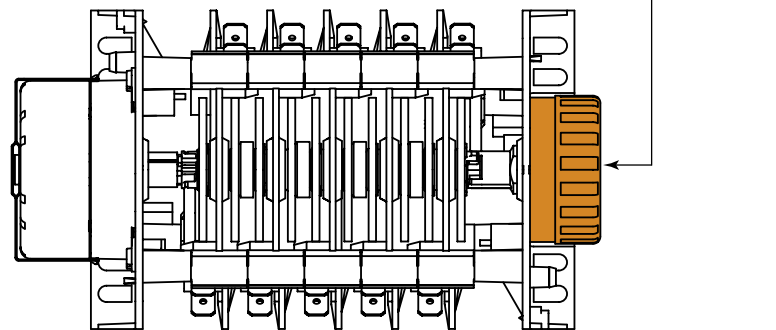
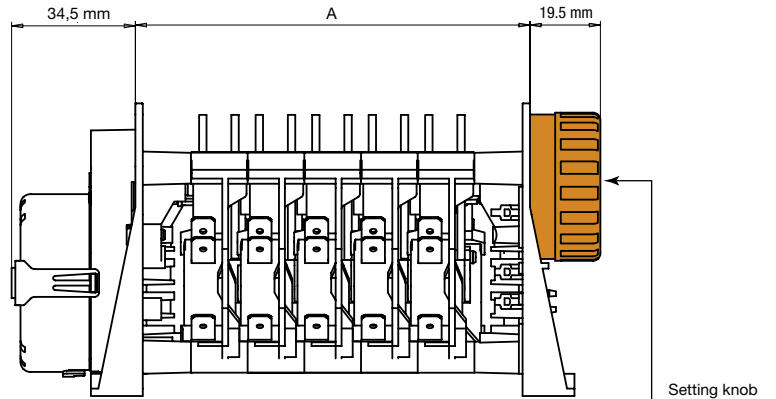
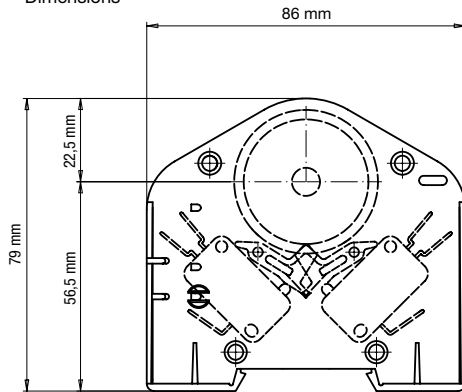
Type	Cam Programmer with unirotational synchronous motor											KKD0	2	A	01	J4	E1	N	00	
Setting knob	0 without knob 2 with external knob																			
Number of channels	1	2	3	4	5	6	7	8	9	10	11	12								
	1	2	3	4	5	6	7	8	9	A	B	C								
	13	14	15	16	18	20	22	24	25	26	28	30								
	D	E	F	G	J	M	P	R	S	T	V	W								
Type of cams diagrams	01 with S cams 02 with R cams 03 to 99 customer specific diagram number																			
Programm duration	B1 1 s	B2 10 s	D3 1.25 min	R3 6 min	K4 36 min															
	E1 1.5 s	C2 12 s	E3 1.5 min	S3 7.5 min	B5 1 h															
	J1 3 s	E2 15 s	F3 2 min	B4 10 min	E5 1.5 h	S5 7.5 h														
	M1 4 s	F2 20 s	J3 3 min	E4 15 min	F5 2 h	B6 10 h														
	Q1 5 s	J2 30 s	M3 4 min	W4 18 min	J5 3 h	C6 12 h														
	R1 6 s	B3 1 min	Q3 5 min	J4 30 min	R5 6 h	G6 24 h														
Supply voltage	B4 24 V 50 Hz		E1 230 V 50 Hz		J1 110 V 60 Hz															
Approval	N standard EC		U with UL-CSA approval																	
Execution	00 standard 01 to 99 specific customer execution																			
On request	other program duration			other voltage			motor cw instead of ccw			higher electrical rating of microswitches										
Accessories	additional 6° snap-on riders for R-cams			4 264 4802 0			additional 12° snap-on riders for R-cams			4 264 4801 0										

KKDO

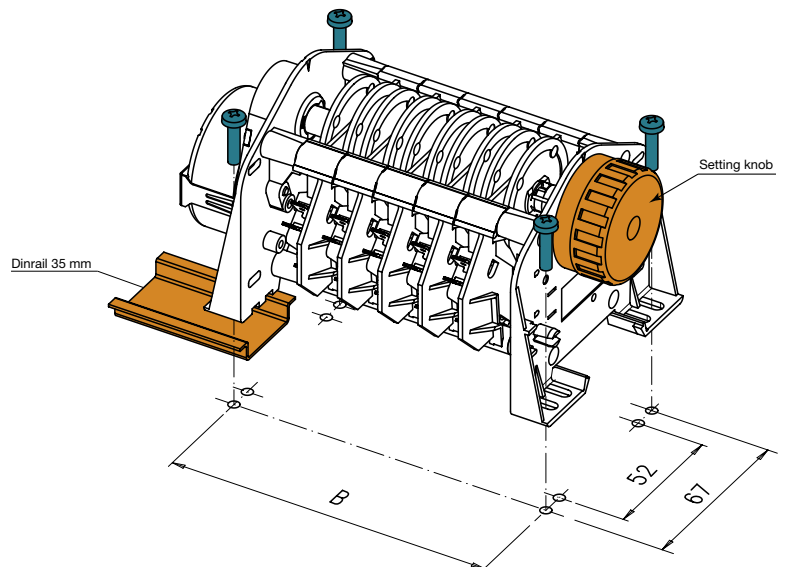
Circuit diagram



Dimensions



Number of program channels	Dimensions (mm)	
	A	B
1-2	45.3	57.3
3-4	60.6	72.6
5-6	76	88
7-8	91	103
9-10	106.5	118.5
11-12	122	134
13-14	137	149
15-16	152	164
17-18	168	180
19-20	183	195
21-22	198	210
23-24	214	226
25-26	229	241
27-28	244	256
29-30	260	272



KKD02-01

Synchronous cam programmer, with adjustable segment cams

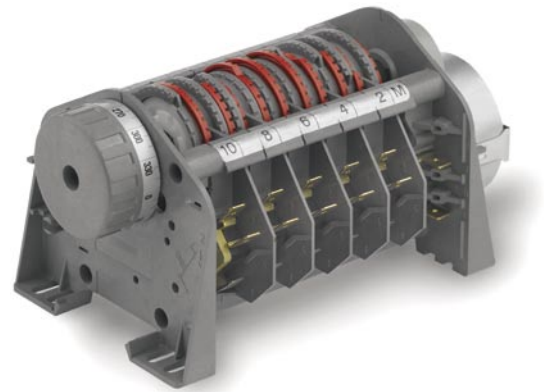
With key and setting knob.

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

toilet cabins, swimming pool, fountain variables, fog horn, bell towers, defrozing, heating ventilation, automation, galvano, test equipment, food specialities, botteling, newspaper, milk truck cleanning, carwash, milking equipment, bookbinding, Vending machines, feeding systems



Characteristics

	standard	optional	on request
Program	segment cams		
Nbre channels	adjustable by customer		
Prog. duration	max. 30 Typ 4, 6, 8, 12, 20 program channels		
Driving	from 10 sec to 120 h		
Voltage	unidirectional synchronous motor		
Switching power	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Approvals	12 (6) A; UL 10 A		other switching power on request
	standard EC	UL approval	

Order Reference

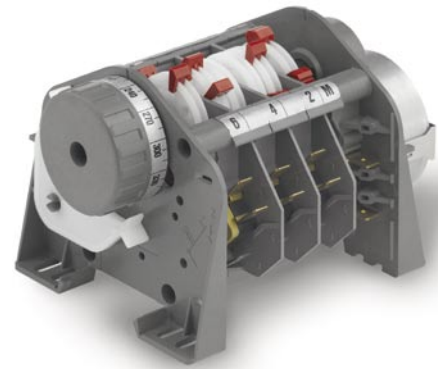
Type	Cam Programmer with unirotational synchronous motor with S (segment) cams and external knob											KKD02	C	01	J4	E1	N	00	
Number of channels	1	2	3	4	5	6	7	8	9	10	11	12							
	1	2	3	4	5	6	7	8	9	A	B	C							
	13	14	15	16	18	20	22	24	25	26	28	30							
	D	E	F	G	J	M	P	R	S	T	V	W							
Programm duration	B1 1 s	B2 10 s	D3 1.25 min	R3 6 min	K4 36 min														
	E1 1.5 s	C2 12 s	E3 1.5 min	S3 7.5 min	B5 1 h														
	J1 3 s	E2 15 s	F3 2 min	B4 10 min	E5 1.5 h	S5 7.5 h													
	M1 4 s	F2 20 s	J3 3 min	E4 15 min	F5 2 h	B6 10 h													
	Q1 5 s	J2 30 s	M3 4 min	W4 18 min	J5 3 h	C6 12 h													
	R1 6 s	B3 1 min	Q3 5 min	J4 30 min	R5 6 h	G6 24 h													
Supply voltage	B4 24 V 50 Hz	E1 230 V 50 Hz	J1 110 V 60 Hz																
Approval	N standard EC	U with UL-CSA approval																	
Execution	00 standard	specific customer execution																	
On request	other program duration				other voltage				motor cw instead of ccw				higher electrical rating of microswitches						
Accessories																			

Circuit diagram and dimensions: see page 191

KK02-02

Synchronous cam programmer, with adjustable cam riders

With key and setting knob.



Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

toilet cabins, swimming pool, fountain variables, fog horn, bell towers, defrosting, heating ventilation, automation, galvano, test equipment, food specialities, bottling, newspaper, milk truck cleaning, carwash, milking equipment, bookbinding, Vending machines, feeding systems

Characteristics

	standard	optional	on request
Program	*snap-on rider cams adjustable by customer		
Nbre channels	max. 30 Typ 4, 6, 8, 12, 20 program channels		
Prog. duration	from 10 sec to 120 h		
Driving	unidirectional synchronous motor		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	12 (6) A; UL 10 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

Type	Cam Programmer with unidirectional synchronous motor with S (segment) cams and external knob											KKD02	8	02	F3	E1	N	00
Number of channels	1	2	3	4	5	6	7	8	9	10	11	12						
	1	2	3	4	5	6	7	8	9	A	B	C						
	13	14	15	16	18	20	22	24	25	26	28	30						
	D	E	F	G	J	M	P	R	S	T	V	W						
Programm duration	B1 1 s	B2 10 s	D3 1.25 min	R3 6 min	K4 36 min													
	E1 1.5 s	C2 12 s	E3 1.5 min	S3 7.5 min	B5 1 h													
	J1 3 s	E2 15 s	F3 2 min	B4 10 min	E5 1.5 h	S5 7.5 h												
	M1 4 s	F2 20 s	J3 3 min	E4 15 min	F5 2 h	B6 10 h												
	Q1 5 s	J2 30 s	M3 4 min	W4 18 min	J5 3 h	C6 12 h												
	R1 6 s	B3 1 min	Q3 5 min	J4 30 min	R5 6 h	G6 24 h												
Supply voltage	B4 24 V 50 Hz	E1 230 V 50 Hz	J1 110 V 60 Hz															
Approval	N standard EC	U with UL-CSA approval																
Execution	00 standard	01 to 99 specific customer execution																
On request	other program duration			other voltage			motor cw instead of ccw			higher electrical rating of microswitches								
Accessories	additional 6° snap-on riders for R-cams					4 264 4802 0												
	additional 12° snap-on riders for R-cams					4 264 4801 0												

Circuit diagram and dimensions: see page 191

Cam Programmers

KKD1

Synchronous cam programmer, with 2-speed rotation.

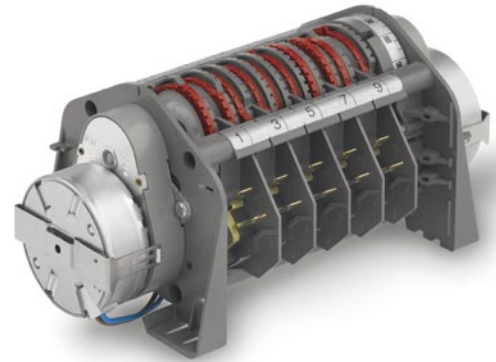
The fast motor allows a very accuracy sequence inserted within a long process.

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

swimming pool, fountain variables, fog horn, bell towers, defrozing, heating ventilation, automation, galvano, test equipment, food specialities, bottling, newspaper, milk truck cleaning, carwash, milking equipment, bookbinding, Vending machines, feeding systems



Characteristics

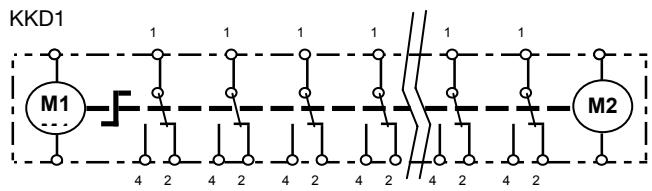
	standard	optional	on request
Program	two motors two speed	with adjustable segment «S» cams or jumper «R» cams	
Nbre channels	max. 30		
Prog. duration	from 10 sec to 120 h		
Driving	2 unidirectional synchronous motors		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	12 (6) A; UL 10 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

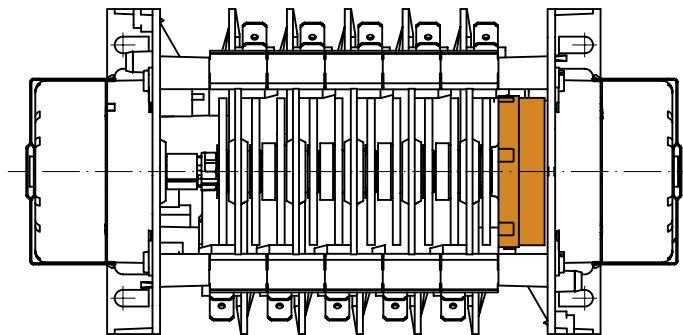
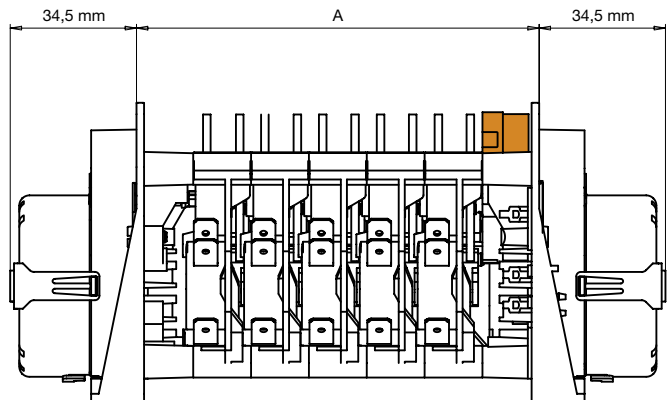
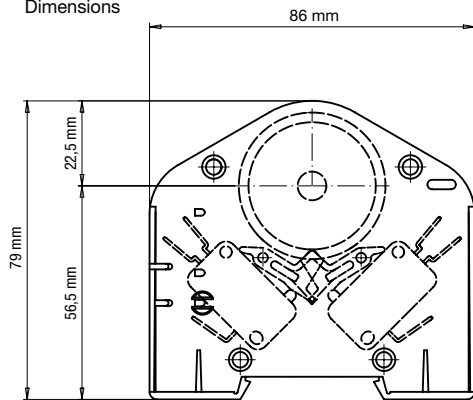
Type	Cam Programmer with unirotational synchronous motor											KKD1	1	C	01	B5	E1	N	B2			
Setting knob	0 without knob 1 with internal knob																					
Number of channels	1	2	3	4	5	6	7	8	9	10	11	12										
	1	2	3	4	5	6	7	8	9	A	B	C										
	13	14	15	16	18	20	22	24	25	26	28	30										
	D	E	F	G	J	M	P	R	S	T	V	W										
Type of cams diagrams	01 with S cams 02 with R cams 03 to 99 customer specific diagram number																					
Programm duration	B1 1 s	B2 10 s	D3 1.25 min	R3 6 min	K4 36 min																	
	E1 1.5 s	C2 12 s	E3 1.5 min	S3 7.5 min	B5 1 h																	
	J1 3 s	E2 15 s	F3 2 min	B4 10 min	E5 1.5 h	S5 7.5 h																
	M1 4 s	F2 20 s	J3 3 min	E4 15 min	F5 2 h	B6 10 h																
	Q1 5 s	J2 30 s	M3 4 min	W4 18 min	J5 3 h	C6 12 h																
	R1 6 s	B3 1 min	Q3 5 min	J4 30 min	R5 6 h	G6 24 h																
Supply voltage	B4 24 V 50 Hz		E1 230 V 50 Hz		J1 110 V 60 Hz																	
Approval	N standard EC		U with UL-CSA approval																			
Second motor or execution	B1 to G6 (see motor program duration)																					
	01 to 99 specific customer execution																					
On request	other voltage							higher electrical rating of microswitches														
Accessories	additional 6° snap-on riders for R-cams				4 264 4802 0																	
	additional 12° snap-on riders for R-cams				4 264 4801 0																	

KKD1

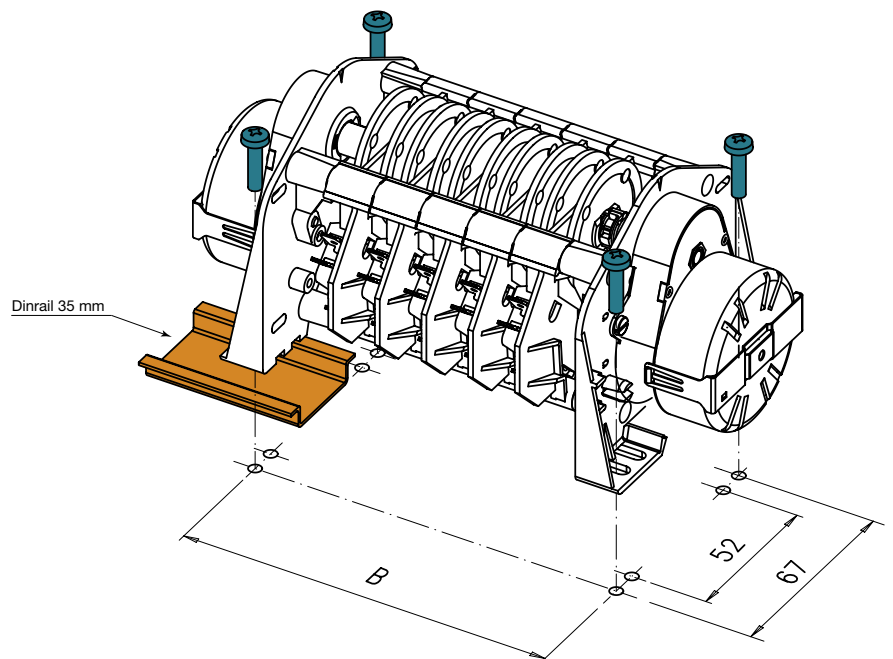
Circuit diagram



Dimensions



Number of program channels	Dimensions (mm)	
	A	B
1-2	45.3	57.3
3-4	60.6	72.6
5-6	76	88
7-8	91	103
9-10	106.5	118.5
11-12	122	134
13-14	137	149
15-16	152	164
17-18	168	180
19-20	183	195
21-22	198	210
23-24	214	226
25-26	229	241
27-28	244	256
29-30	260	272



Cam Programmers

KKD7

Cam programmer comprising 2 independent, synchronous programs.

Allows a precise sub-program to be called several times in the course of the program.

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

swimming pool, fountain variables, fog horn, bell towers, defrozing, heating ventilation, automation, galvano, test equipment, food specialities, botteling, newspaper, milk truck cleaning, carwash, milking equipment, bookbinding, Vending machines, feeding systems



Characteristics

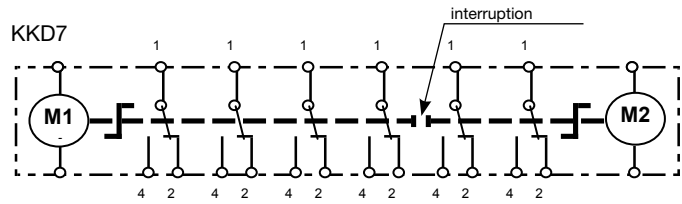
	standard	optional	on request
Program	two independant programs, driven by two motors	with adjusable segment «S» cams or jumper «R» cams	
Nbre channels	max. 30		
Prog. duration	from 10 sec to 120 h		
Driving	2 unidirectional synchronous motors		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	12 (6) A; UL 10 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

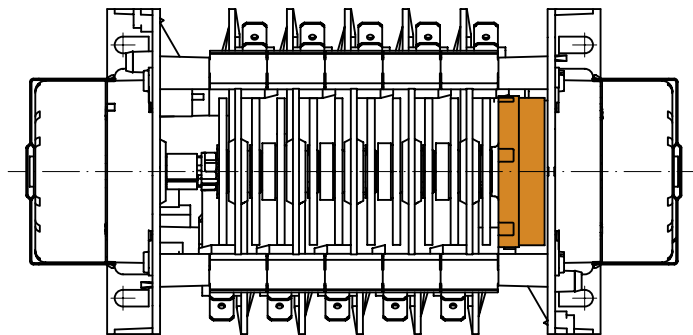
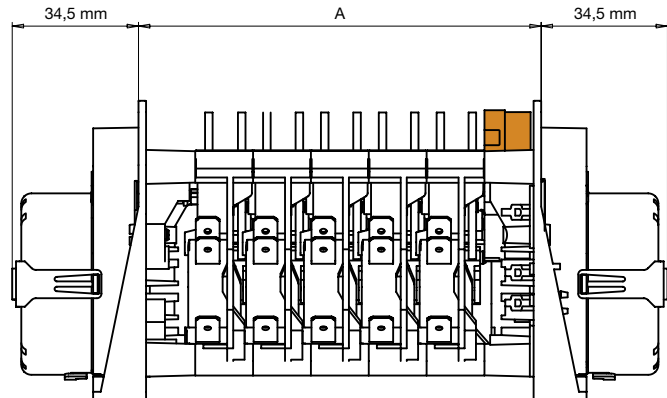
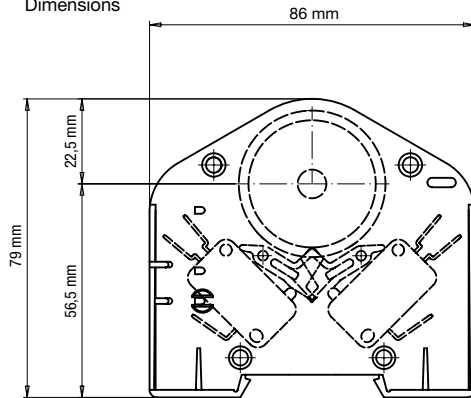
Type	Cam Programmer with unirotational synchronous motor											KKD7	1	C	01	B5	E1	N	B2
Setting knob	0 without knob 1 with 2 internal knob																		
Number of channels	1	2	3	4	5	6	7	8	9	10	11	12							
	1	2	3	4	5	6	7	8	9	A	B	C							
	13	14	15	16	18	20	22	24	25	26	28	30							
	D	E	F	G	J	M	P	R	S	T	V	W							
Type of cams diagrams	01 with S cams 02 with R cams 03 to 99 customer specific diagram number																		
Programm duration	B1 1 s	B2 10 s	D3 1.25 min	R3 6 min	K4 36 min														
	E1 1.5 s	C2 12 s	E3 1.5 min	S3 7.5 min	B5 1 h														
	J1 3 s	E2 15 s	F3 2 min	B4 10 min	E5 1.5 h	S5 7.5 h													
	M1 4 s	F2 20 s	J3 3 min	E4 15 min	F5 2 h	B6 10 h													
	Q1 5 s	J2 30 s	M3 4 min	W4 18 min	J5 3 h	C6 12 h													
	R1 6 s	B3 1 min	Q3 5 min	J4 30 min	R5 6 h	G6 24 h													
Supply voltage	B4 24 V 50 Hz		E1 230 V 50 Hz		J1 110 V 60 Hz														
Approval	N standard EC		U with UL-CSA approval																
Second motor or execution	B1 to G6 (see motor program duration) 01 to 99 specific customer execution																		
On request	other voltage							higher electrical rating of microswitches											
Accessories	additional 6° snap-on riders for R-cams				4 264 4802 0														
	additional 12° snap-on riders for R-cams				4 264 4801 0														

KKD7

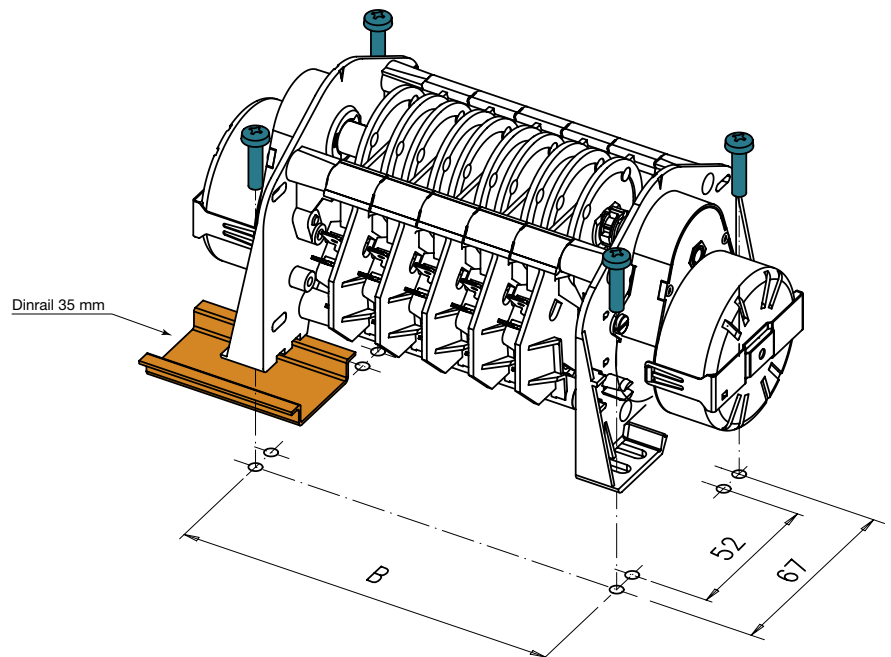
Circuit diagram



Dimensions



Number of program channels	Dimensions (mm)	
	A	B
1-2	45.3	57.3
3-4	60.6	72.6
5-6	76	88
7-8	91	103
9-10	106.5	118.5
11-12	122	134
13-14	137	149
15-16	152	164
17-18	168	180
19-20	183	195
21-22	198	210
23-24	214	226
25-26	229	241
27-28	244	256
29-30	260	272



Cam Programmers

KKD2

Bidirectional, synchronous programmer.

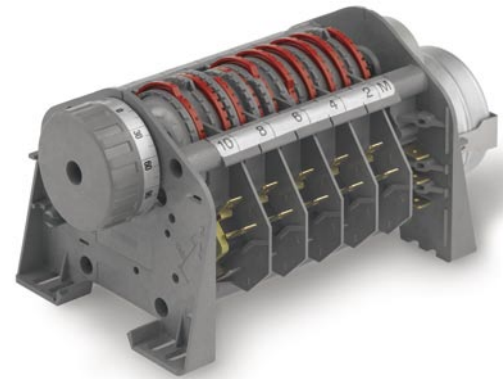
Allows the flow of a program to be inverted. For turning the program off in reverse order.

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

swimming pool, fountain variables, fog horn, bell towers, heating ventilation, automation, galvano, test equipment, food specialties, bottling, newspaper, Vending machines, feeding systems



Characteristics

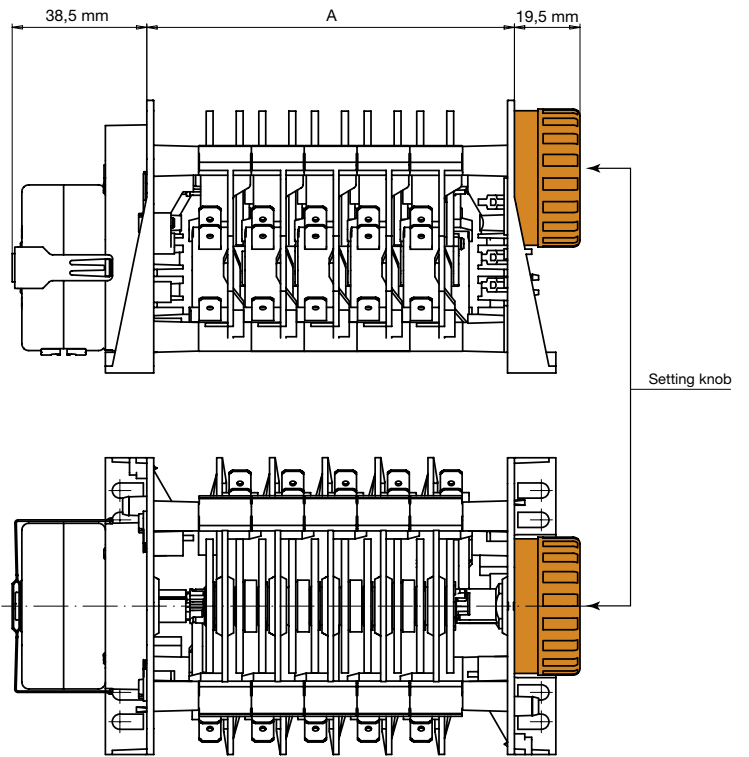
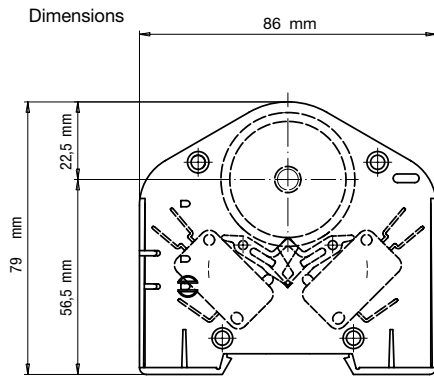
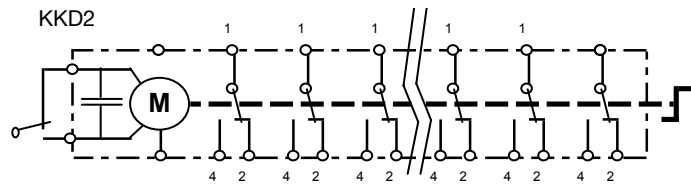
	standard	optional	on request
Program	bidirectional	with adjustable segment «S» cams or jumper «R» cams	
Nbre channels	max. 30		
Prog. duration	from 10 sec to 120 h		
Driving	bidirectional synchronous motor		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	12 (6) A; UL 10 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

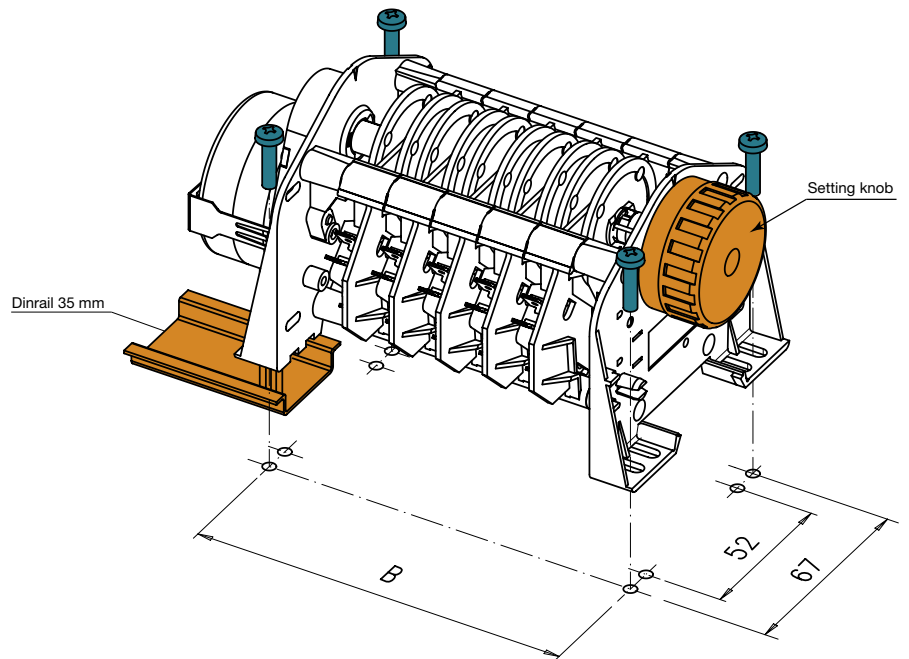
Type	Cam Programmer with birotational synchronous motor											KKD2	2	M	01	E4	E1	N	00
Setting knob	0 without knob																		
	2 with external knob																		
Number of channels	1	2	3	4	5	6	7	8	9	10	11	12							
	1	2	3	4	5	6	7	8	9	A	B	C							
	13	14	15	16	18	20	22	24	25	26	28	30							
	D	E	F	G	J	M	P	R	S	T	V	W							
Type of cams diagrams	01 with S cams																		
	02 with R cams																		
	03 to 99 customer specific diagram number																		
Programm duration	B1	1 s	B2	10 s	D3	1.25 min	R3	6 min	K4	36 min									
	E1	1.5 s	C2	12 s	E3	1.5 min	S3	7.5 min	B5	1 h									
	J1	3 s	E2	15 s	F3	2 min	B4	10 min	E5	1.5 h	S5	7.5 h							
	M1	4 s	F2	20 s	J3	3 min	E4	15 min	F5	2 h	B6	10 h							
	Q1	5 s	J2	30 s	M3	4 min	W4	18 min	J5	3 h	C6	12 h							
	R1	6 s	B3	1 min	Q3	5 min	J4	30 min	R5	6 h	G6	24 h							
Supply voltage	B4	24 V 50 Hz	E1	230 V 50 Hz	J1	110 V 60 Hz													
Approval	N	standard EC	U	with UL-CSA approval															
Execution	00 standard																		
	01 to 99 specific customer execution																		
On request	other program duration			other voltage			higher electrical rating of microswitches												
Accessories	additional 6° snap-on riders for R-cams			4 264 4802 0															
	additional 12° snap-on riders for R-cams			4 264 4801 0															

KKD2

Circuit diagram



Number of program channels	Dimensions (mm)	
	A	B
1-2	45.3	57.3
3-4	60.6	72.6
5-6	76	88
7-8	91	103
9-10	106.5	118.5
11-12	122	134
13-14	137	149
15-16	152	164
17-18	168	180
19-20	183	195
21-22	198	210
23-24	214	226
25-26	229	241
27-28	244	256
29-30	260	272



Cam Programmers

KKD3

Bidirectional, synchronous programmer equipped with a 1 kOhm potentiometer.

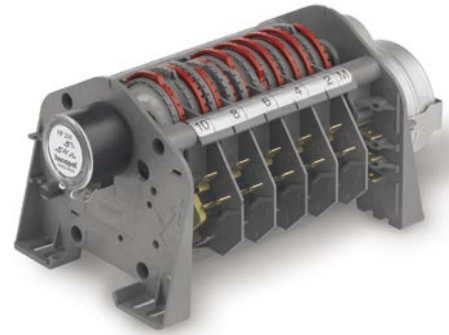
Allows the angular position of the axis to be read remotely.

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

swimming pool, fountain variables, fog horn, bell towers, heating ventilation, automation, galvano, test equipment, food specialities, bottling, newspaper, Vending machines, feeding systems



Characteristics

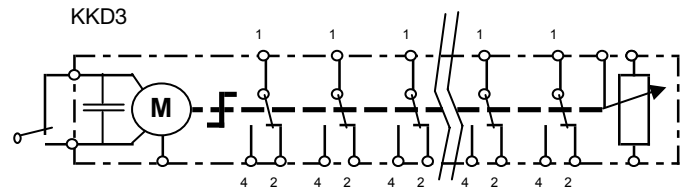
	standard	optional	on request
Program	bidirectional with potentiometer 1 k ohm	with adjustable segment «S» cams or jumper «R» cams	other potentiometer value
Nbre channels	max. 30		
Prog. duration	from 10 sec to 120 h		
Driving	bidirectional synchronous motor		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	12 (6) A; UL 10 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

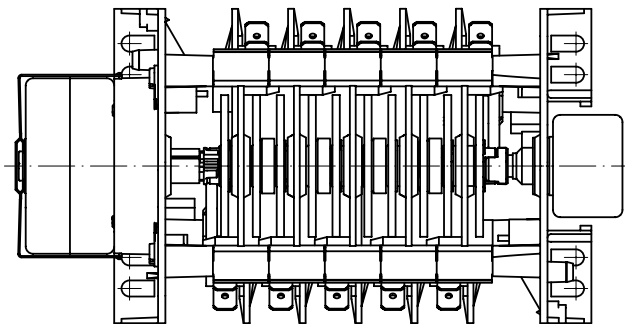
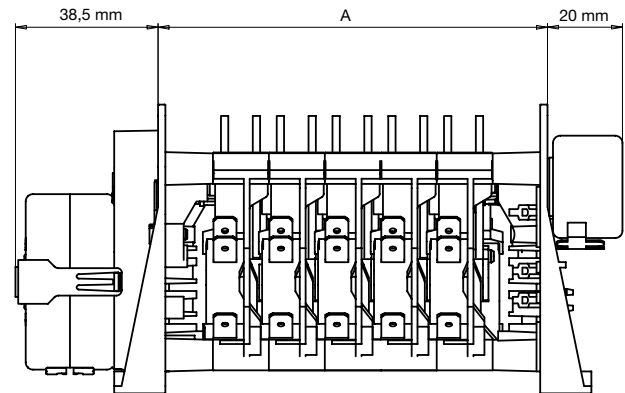
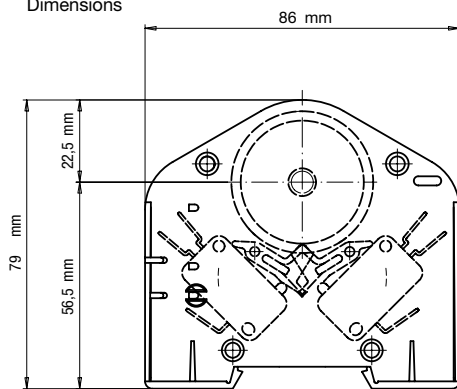
Type	Cam Programmer with birotational synchronous motor with potentiometer 1 kOhm											KKD3	1	6	02	B4	E1	N	00		
Setting knob	0 without knob 1 with internal knob																				
Number of channels	1	2	3	4	5	6	7	8	9	10	11	12									
	1	2	3	4	5	6	7	8	9	A	B	C									
	13	14	15	16	18	20	22	24	25	26	28	30									
	D	E	F	G	J	M	P	R	S	T	V	W									
Type of cams diagrams	01 with S cams 02 with R cams 03 to 99 customer specific diagram number																				
Programm duration	B1	1 s	B2	10 s	D3	1.25 min	R3	6 min	K4	36 min											
	E1	1.5 s	C2	12 s	E3	1.5 min	S3	7.5 min	B5	1 h											
	J1	3 s	E2	15 s	F3	2 min	B4	10 min	E5	1.5 h	S5	7.5 h									
	M1	4 s	F2	20 s	J3	3 min	E4	15 min	F5	2 h	B6	10 h									
	Q1	5 s	J2	30 s	M3	4 min	W4	18 min	J5	3 h	C6	12 h									
	R1	6 s	B3	1 min	Q3	5 min	J4	30 min	R5	6 h	G6	24 h									
Supply voltage	B4	24 V 50Hz	E1	230 V 50Hz	J1	110 V 60 Hz															
Approval	N	standard EC	U	with UL-CSA approval																	
Execution	00	standard	01 to 99	specific customer execution																	
On request	other program duration			other voltage			higher electrical rating of microswitches			other potentiometer value on KKD3 (50 Ohm to 10kOhm)											
Accessories	additional 6° snap-on riders for R-cams			4 264 4802 0			additional 12° snap-on riders for R-cams			4 264 4801 0											

KKD3

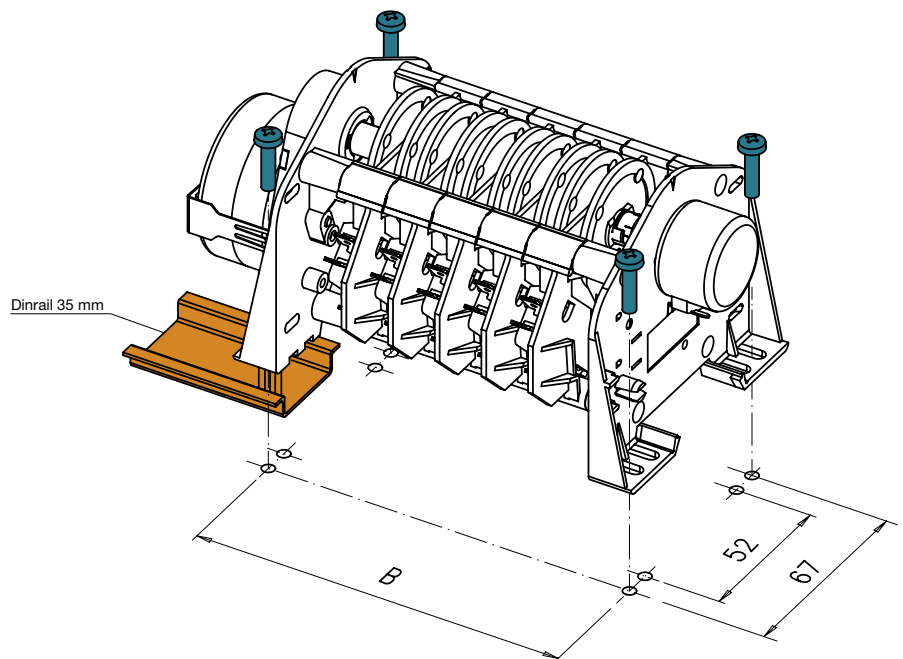
Circuit diagram



Dimensions



Number of program channels	Dimensions (mm)	
	A	B
1-2	45.3	57.3
3-4	60.6	72.6
5-6	76	88
7-8	91	103
9-10	106.5	118.5
11-12	122	134
13-14	137	149
15-16	152	164
17-18	168	180
19-20	183	195
21-22	198	210
23-24	214	226
25-26	229	241
27-28	244	256
29-30	260	272



Cam Programmers

KKD6

Stepper-motor driven cam programmer.

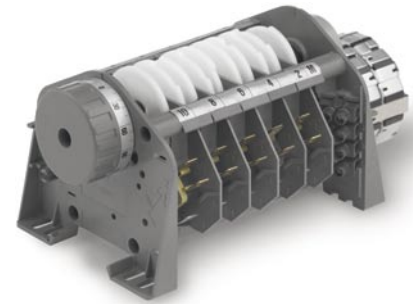
Allows free program flow in both directions, rotating at different speeds, incorporating stops, accelerations, returns, etc.

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

swimming pool, fountain variables, fog horn, bell towers, heating ventilation, automation, galvano, test equipment, food specialities, bottling, newspaper, milk truck cleaning, carwash, milking equipment, bookbinding, Vending machines, feeding systems



Characteristics

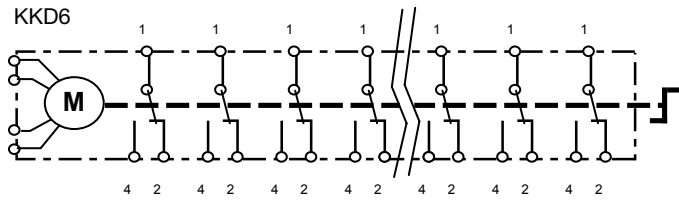
	standard	optional	on request
Program	with stepper motor	with adjustable segment «S» cams or jumper «R» cams	
Nbre channels	max. 30		
Prog. duration	from 10 sec to 120 h		
Driving	birotational stepper motor		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	12 (6) A; UL 10 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

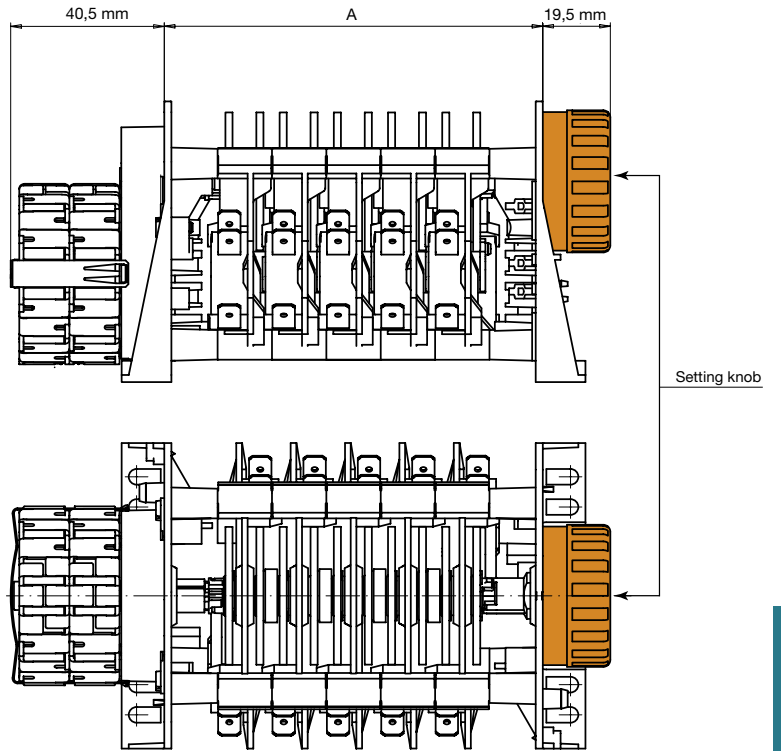
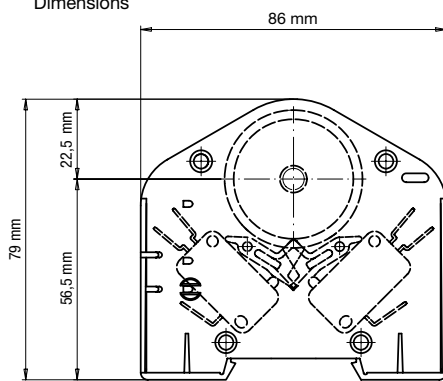
Type	Cam Programmer with birotational stepper motor											KKD6	2	C	02	B4	M1	N	00		
Setting knob	0 without knob												2 with external knob								
Number of channels	1	2	3	4	5	6	7	8	9	10	11	12									
	1	2	3	4	5	6	7	8	9	A	B	C									
	13	14	15	16	18	20	22	24	25	26	28	30									
	D	E	F	G	J	M	P	R	S	T	V	W									
Type of cams diagrams	01 with S cams																				
	02 with R cams																				
	03 to 99 customer specific diagram number																				
Programm duration (at typical frequency 200 Hz)	B1	1 s	B2	10 s	D3	1.25 min	R3	6 min	K4	36 min											
	E1	1.5 s	C2	12 s	E3	1.5 min	S3	7.5 min	B5	1 h											
	J1	3 s	E2	15 s	F3	2 min	B4	10 min	E5	1.5 h	S5	7.5 h									
	M1	4 s	F2	20 s	J3	3 min	E4	15 min	F5	2 h	B6	10 h									
	Q1	5 s	J2	30 s	M3	4 min	W4	18 min	J5	3 h	C6	12 h									
	R1	6 s	B3	1 min	Q3	5 min	J4	30 min	R5	6 h	G6	24 h									
Supply voltage	M1 12 VDC																				
Approval	N standard EC		U with UL-CSA approval																		
Execution	00 standard																				
	01 to 99 specific customer execution																				
On request	other program duration				other voltage				higher electrical rating of microswitches												
Accessories	additional 6° snap-on riders for R-cams				4 264 4802 0				Electronic driving board Samotronic 102												
	additional 12° snap-on riders for R-cams				4 264 4801 0				see page 183												

KKD6

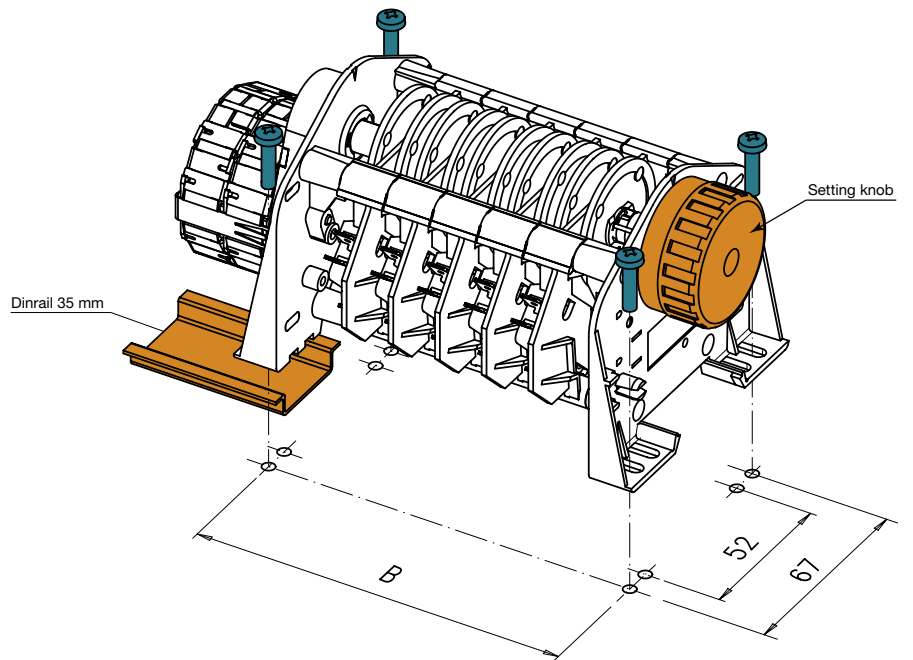
Circuit diagram



Dimensions



Number of program channels	Dimensions (mm)	
	A	B
1-2	45.3	57.3
3-4	60.6	72.6
5-6	76	88
7-8	91	103
9-10	106.5	118.5
11-12	122	134
13-14	137	149
15-16	152	164
17-18	168	180
19-20	183	195
21-22	198	210
23-24	214	226
25-26	229	241
27-28	244	256
29-30	260	272



Cam Programmers

KKD4

Cam programmer without motor.

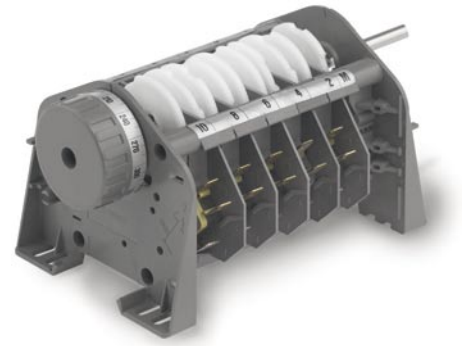
Rotation of the axis is initiated by an exterior drive.

Market

Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

heating ventilation, food specialities, bookbinding, feeding systems



Characteristics

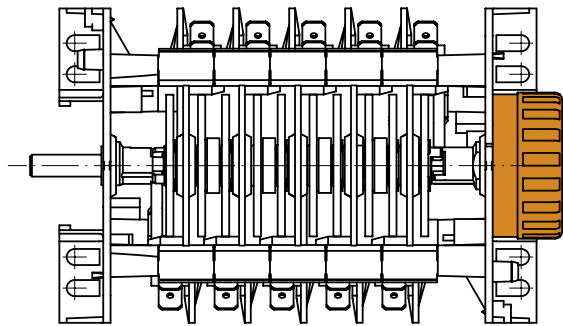
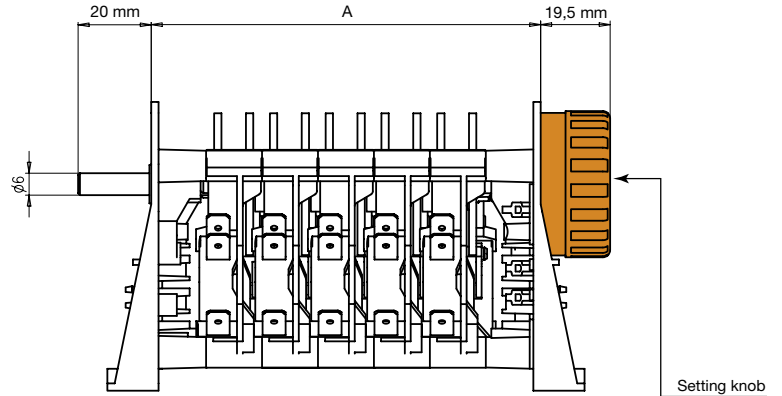
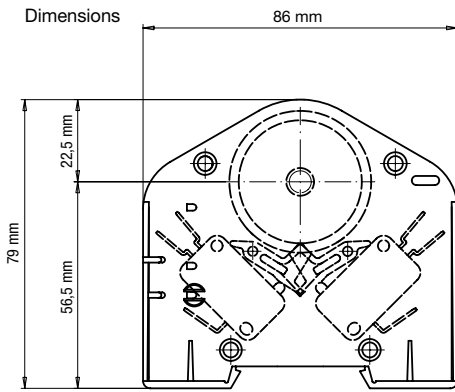
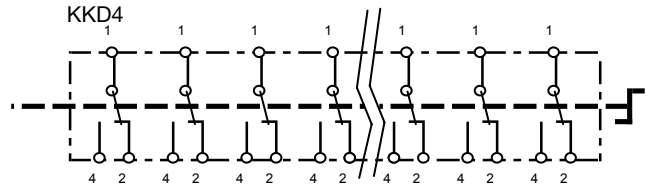
	standard	optional	on request
Program	no motor but shaft for external driving	with adjustable segment «S» cams or jumper «R» cams	
Nbre channels	max. 30		
Prog. duration	following customers driving		
Driving	no motor		
Switching power	12 (6) A; UL 10 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

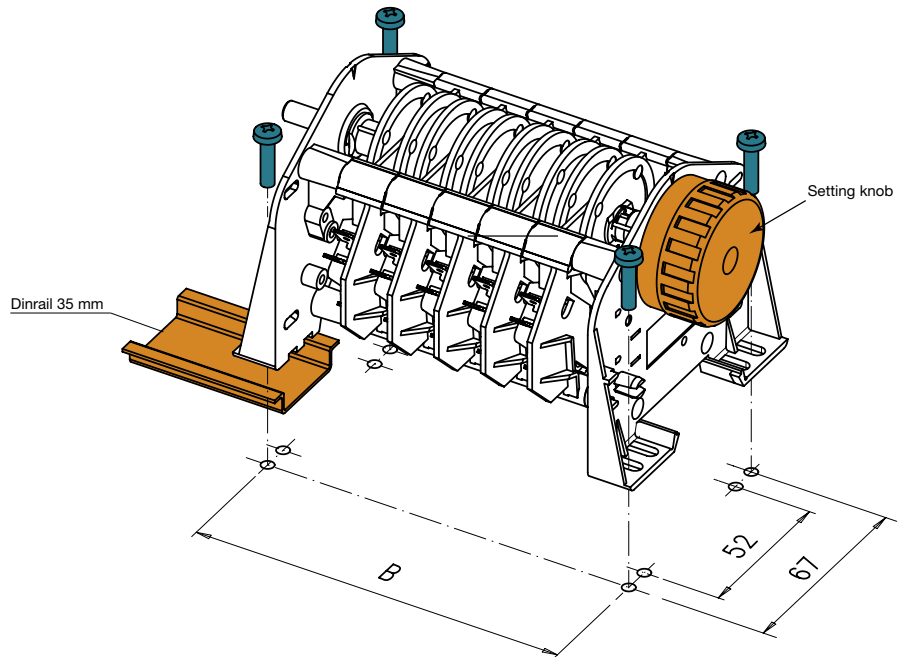
Type	Cam Programmer without motor and gearbox											KKD4	2	6	01	A0 X8	N	00
Setting knob	0 without knob		1 with internal knob		2 with external knob													
Number of channels	1	2	3	4	5	6	7	8	9	10	11	12						
	1	2	3	4	5	6	7	8	9	A	B	C						
	13	14	15	16	18	20	22	24	25	26	28	30						
	D	E	F	G	J	M	P	R	S	T	V	W						
Type of cams diagrams	01 with S cams		02 with R cams		03 to 99 customer specific diagram number													
Approval	N standard EC		U with UL-CSA approval															
Execution	00 standard		01 to 99 specific customer execution															
On request	higher electrical rating of microswitches								shaft with special length									
Accessories	additional 6° snap-on riders for R-cams				4 264 4802 0				additional 12° snap-on riders for R-cams				4 264 4801 0					

KKD4

Circuit diagram



Number of program channels	Dimensions (mm)	
	A	B
1-2	45.3	57.3
3-4	60.6	72.6
5-6	76	88
7-8	91	103
9-10	106.5	118.5
11-12	122	134
13-14	137	149
15-16	152	164
17-18	168	180
19-20	183	195
21-22	198	210
23-24	214	226
25-26	229	241
27-28	244	256
29-30	260	272



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C/ Francesc Teixidó, 22
E-08918 Badalona
(Spain)

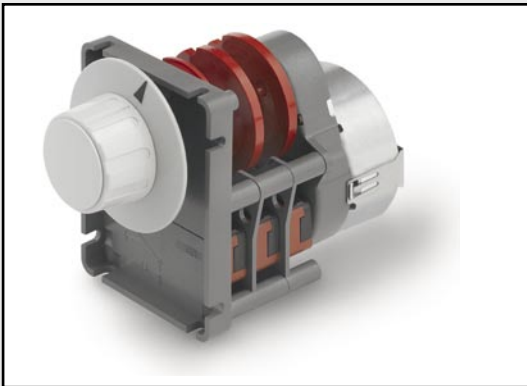
Tel.: (+34) 902 450 160
Fax: (+34) 902 433 088
info@ermec.com
www.ermec.com

ERMEC, S.L. MADRID
C/ Sagasta, 8, 1ª planta
E-28004 Madrid
(Spain)

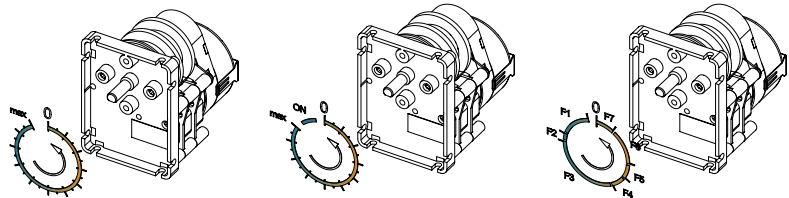
PORTUGAL
portugal@ermec.com
BILBAO
bilbao@ermec.com



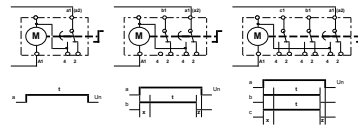
Hand settable timers



Dimensions



Switching program



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bilbao@ermec.com

Synchronous timers with manual control.

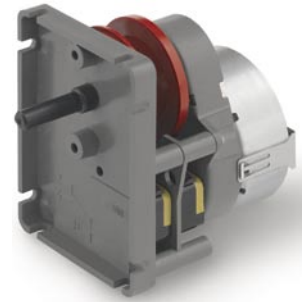
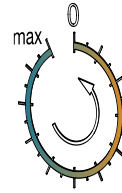
Large choice of time range.

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

hair dryers, solariums, saunas, whirepool, swimming pool, fountain variables, fog horn, bell towers, coffee machine, heating ventilation, pottery ovens, automation, galvano, test equipment, food specialities, bottling, newspaper, milk truck cleaning, carwash, battery loader, milking equipment, drying, bookbinding, Vending machines, feeding systems



Characteristics

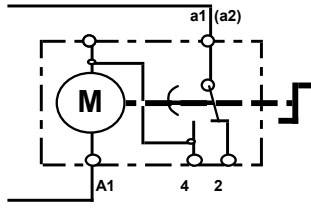
	standard	optional	on request
Program		with adjustable segment «S» cams or jumper «R» cams	
Nbre channels	1, 2 or 3		
Prog. duration	1 min to 24 h		
Driving	unidirectional synchronous motor		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	16 (6) A; UL 15 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

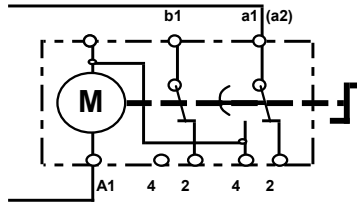
Type	Hand settable timer			KKH	3	0	200	E4	E1	N	00	
Shaft	3	shaft with flat (5mm)										
	1	round shaft										
Fixing	0	fixing by self tapping screws										
	3	fixing by M3 screws										
	4	fixing by M4 screws										
Number of channels	100	1 channel										
	200	2 channels										
	300	3 channels										
Programm duration	B2	10 s	B3	1 min	M3	4 min	E4	15 min	E5	1.5 h		
	C2	12 s	D3	1.25 min	Q3	5 min	W4	18 min	F5	2 h		
	E2	15 s	E3	1.5 min	R3	6 min	J4	30 min	J5	3 h	B6 10 h	
	F2	20 s	F3	2 min	S3	7.5 min	K4	36 min	R5	6 h	C6 12 h	
	J2	30 s	J3	3 min	B4	10 min	B5	1 h	S5	7.5 h	G6 24 h	
Supply voltage	B4	24 V 50 Hz	E1	230 V 50 Hz	J1	110 V 60 Hz						
Approval	N	standard EC		U	with UL-CSA approval							
Execution	00	standard		01 to 99	specific customer execution							
On request	shaft with flat (4.6mm) instead of 5mm fixing distance 28.5mm instead of 30mm				shaft with special length 20 or 25mm instead of 15mm other program duration				other voltage			
Accessories	Self tapping screw (to fix the KKH are 2 pcs needed)						4 184 4004 0					
	Setting knob with arrow (for output shaft without milling)						4 268 4887 0					
	Setting knob with arrow (for output shaft with 5mm flat)						4 268 5051 0					
	Scale (for fixing dist. 30mm)											
	5 min	4 328 4887 5	30 min	4 328 4875 5	6 h	4 328 4800 5						
	6 min	4 328 4858 5	60 min	4 328 4859 5	12 h	4 328 4860 5						
	15 min	4 328 4872 5	120 min	4 328 4873 5	24 h	4 328 4870 5						

KKH

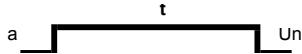
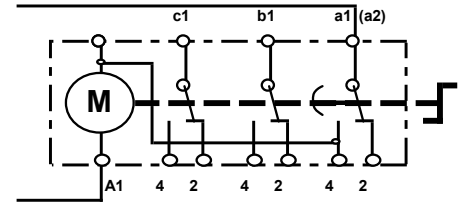
Circuit diagram KKH--100



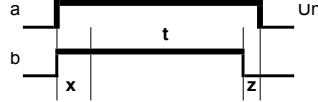
KKH--200



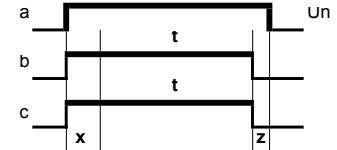
KKH--300



motor and load on same switch

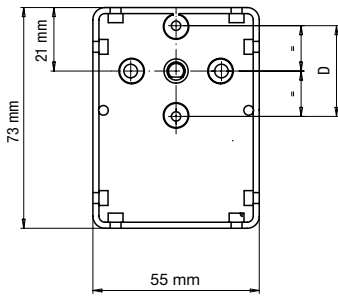


x = adjusting time

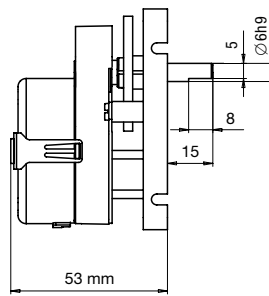


z = 1% of max. time

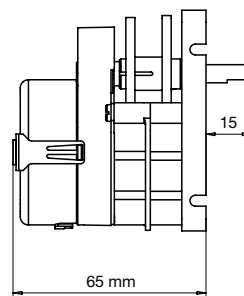
Dimensions



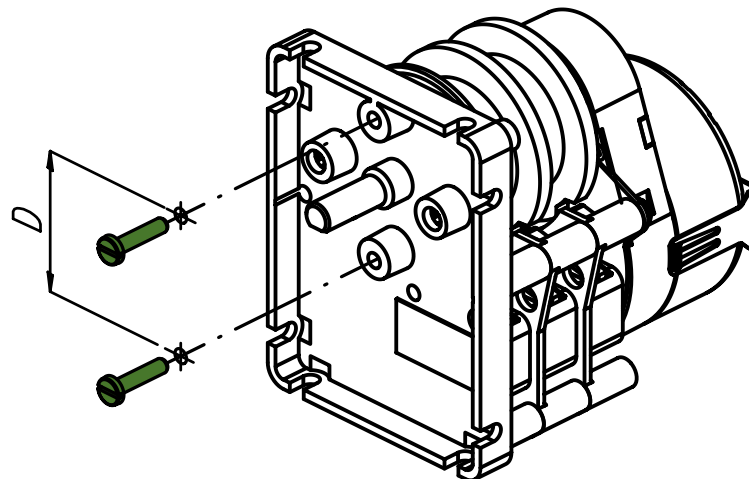
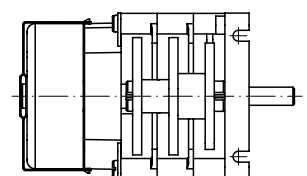
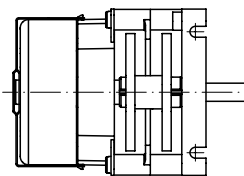
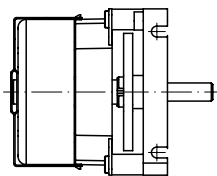
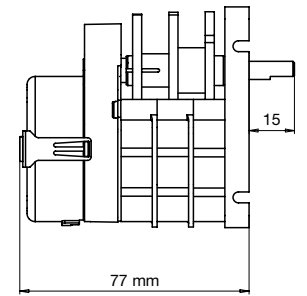
KKH--100



KKH--200



KKH--300



Hand settable timer

KKH - - 288/- - 388

Manual timer with «on» (without timing) position.

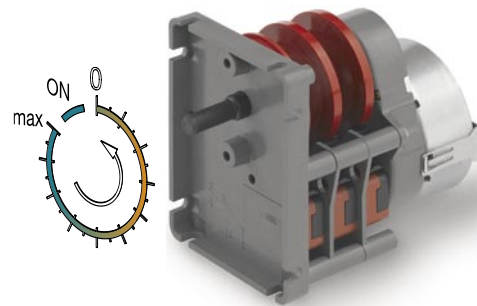
With galvanic separated load.

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

hair dryers, solariums, saunas, whirepool, swimming pool, fountain variables, fog horn, bell towers, heating ventilation, pottery ovens, automation, galvano, test equipment, food specialities, bottling, newspaper, milk truck cleanning, carwash, battery loader, milking equipment, drying, bookbinding, Vending machines, feeding systems



Characteristics

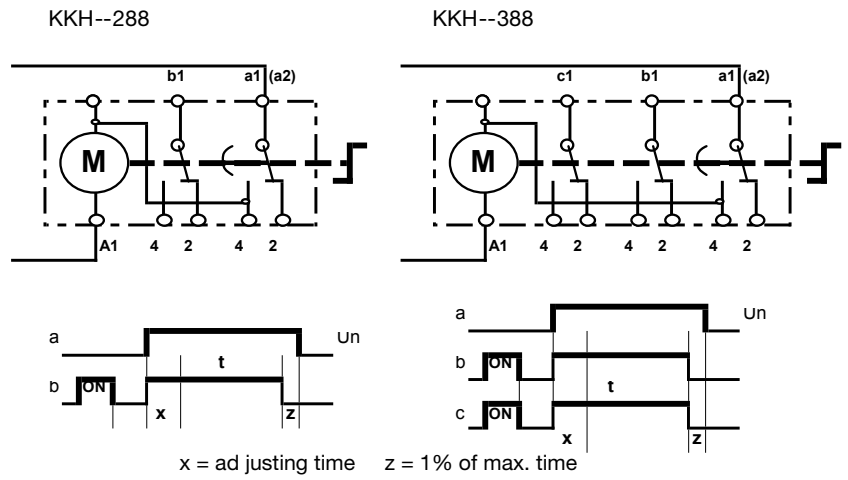
	standard	optional	on request
Programm	motor and load on separate switches	with adjusable segment «S» cams or jumper «R» cams	
Nbre channels	2 or 3		
Prog. duration	1 min to 24 h		
Driving	unidirectional synchronous motor		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	16 (6) A; UL 15 A		other switching power on request
Approvals	standard EC	UL approval	

Order Reference

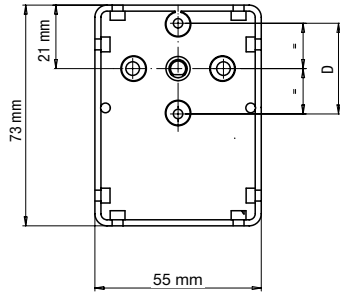
Type	Timer with «ON» position										KKH	3	0	288	R3	B4	N	00												
Shaft	3	shaft with flat (5mm)																												
	1	round shaft																												
Fixing	0	fixing by self tapping screws																												
	3	fixing by M3 screws (dist. 30 mm)																												
	4	fixing by M4 screws																												
Number of channels	288	2 channels																												
	388	3 channels																												
Programm duration	B2	10 s	B3	1 min	M3	4 min	E4	15 min	E5	1.5 h																				
	C2	12 s	D3	1.25 min	Q3	5 min	W4	18 min	F5	2 h																				
	E2	15 s	E3	1.5 min	R3	6 min	J4	30 min	J5	3 h	B6	10 h																		
	F2	20 s	F3	2 min	S3	7.5 min	K4	36 min	R5	6 h	C6	12 h																		
	J2	30 s	J3	3 min	B4	10 min	B5	1 h	S5	7.5 h	G6	24 h																		
Supply voltage	B4	24 V 50 Hz	E1	230 V 50 Hz	J1	110 V 60 Hz																								
Approval	N	standard EC										U	with UL-CSA approval																	
Execution	00	standard																												
	01 to 99	specific customer execution																												
On request	shaft with flat (4.6mm) instead of 5mm										shaft with special length 20 or 25mm instead of 15mm																			
	fixing distance 28.5mm instead of 30mm										other program duration										other voltage									
Accessories	Self tapping screw (to fix the KKH are 2 pcs needed)										4 184 4004 0																			
	Setting knob with arrow										(for output shaft without milling)										4 268 4887 0									
	Setting knob with arrow										(for output shaft with 5mm flat)										4 268 5051 0									

KKH -- 288/- - 388

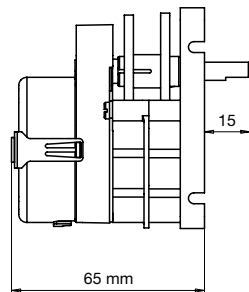
Circuit diagram



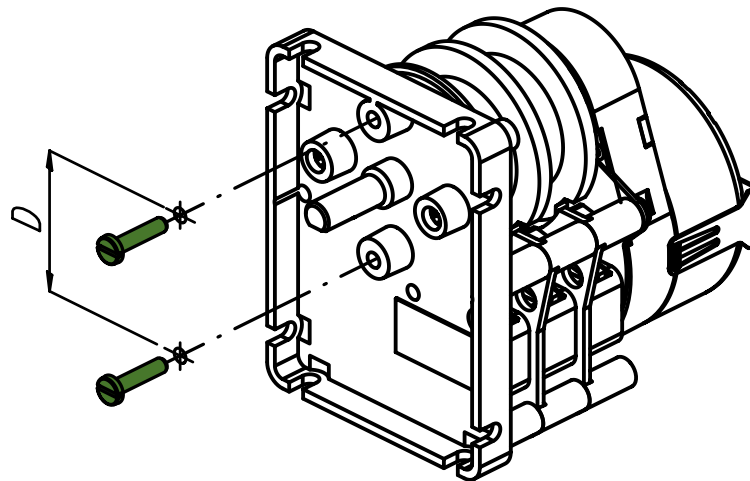
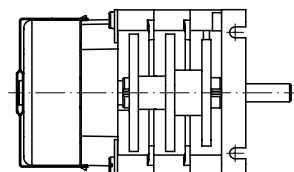
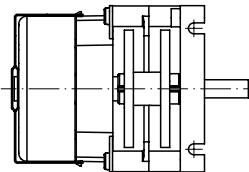
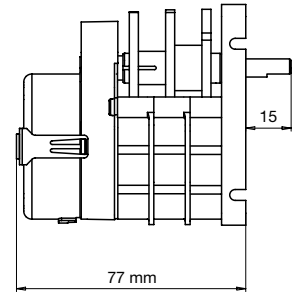
Dimensions



KKH--288



KKH--388



Hand settable timer

KKH - - - - -

Synchronous manual timer, 1, 2 or 3 channels

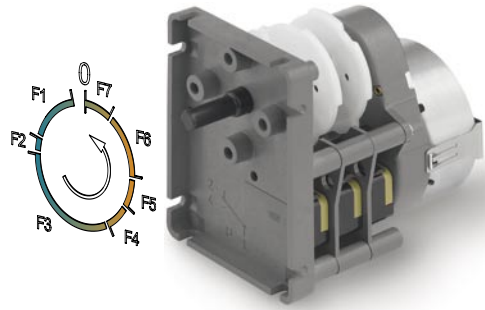
Programmed according customer's diagram.

Market

Healthcare & Medical Equipment, Personal Care, Building Automation & Security, White Goods, Home Appliances, Heating Ventilation & Air Conditioning, Industrial equipment & automation, Business Machines

Application

whirepool, swimming pool, fountain variables, fog horn, bell towers, coffee machine, heating ventilation, automation, galvano, test equipment, food specialties, bottling, newspaper, milk truck cleanning, carwash, milking equipment, bookbinding, Vending machines, feeding systems



Characteristics

	standard	optional	on request
Program	milled cams according customer requests	with adjustable segment «S» cams or jumper «R» cams	
Nbre channels	2		
Prog. duration	1 min to 24 h		
Driving	unidirectional synchronous motor		
Voltage	230 V, 50 Hz or 110 V, 60 Hz		other voltages on request
Switching power	16 (6) A; UL 15 A		other switching power on request
Approvals	standard EC	UL approval	

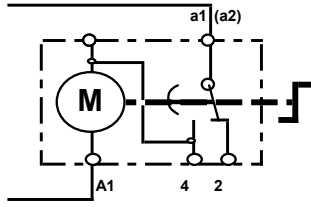
Order Reference

Type	Hand settable programmer											KKH	3	0	3	27	B5	J1	U	00		
Shaft	3	shaft with flat (5mm)																				
	1	round shaft																				
Fixing	0	fixing by self tapping screws																				
	3	fixing by M3 screws (dist. 30 mm)																				
	4	fixing by M4 screws																				
Number of channels	1, 2 or 3	channels																				
	03 to 77	customer specific diagram number																				
Programm duration	B2	10 s	B3	1 min	M3	4 min	E4	15 min	E5	1.5 h												
	C2	12 s	D3	1.25 min	Q3	5 min	W4	18 min	F5	2 h												
	E2	15 s	E3	1.5 min	R3	6 min	J4	30 min	J5	3 h	B6	10 h										
	F2	20 s	F3	2 min	S3	7.5 min	K4	36 min	R5	6 h	C6	12 h										
	J2	30 s	J3	3 min	B4	10 min	B5	1 h	S5	7.5 h	G6	24 h										
Supply voltage	B4	24 V 50Hz	E1	230V 50Hz	J1	110V 60Hz																
Approval	N	standard EC			U	with UL-CSA approval																
Execution	00	standard																				
	01 to 99	specific customer execution																				
On request		shaft with flat (4.6mm) instead of 5mm					shaft with special length 20 or 25mm instead of 15mm					other voltage										
		fixing distance 28.5mm instead of 30mm					other programm duration															
Accessories		Self tapping screw (to fix the KKH are 2 pcs needed)											4 184 4004 0									
		Setting knob with arrow (for output shaft without milling)											4 268 4887 0									
		Setting knob with arrow (for output shaft with 5mm flat)											4 268 5051 0									

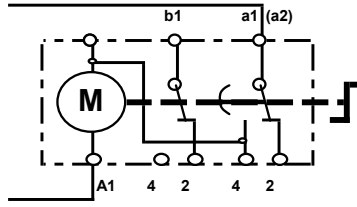
Hand settable timer

KKH - - - -

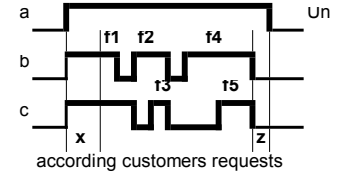
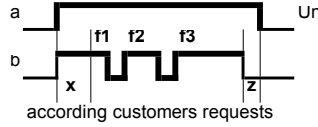
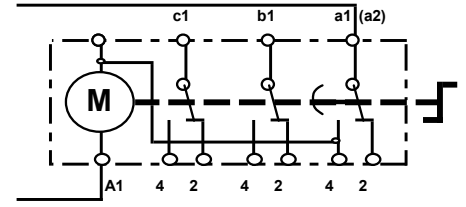
Circuit diagram KKH--1--



KKH--2--

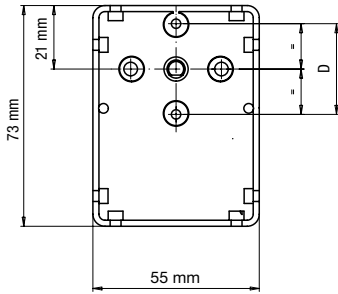


KKH--3--

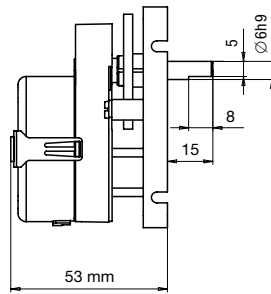


x = ad justing time z = 1% of max. time

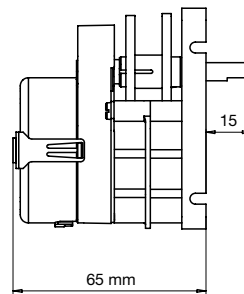
Dimensions



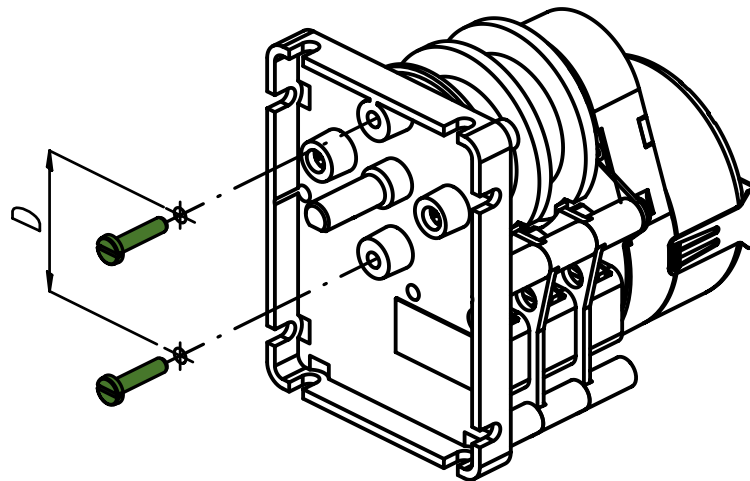
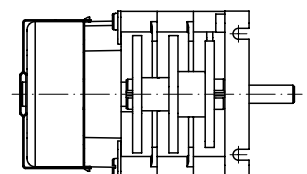
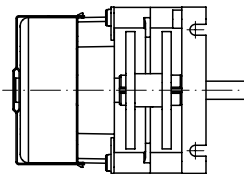
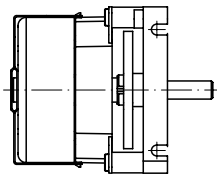
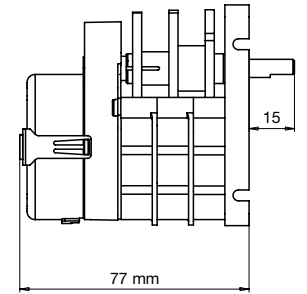
KKH--1--



KKH--2--



KKH--3--



Hand settable timer

Cam Programmer's accessories

dial for KKH	(screw dist 30mm)	5 min	4 328 4887 5
		6 min	4 328 4858 5
		15 min	4 328 4872 5
		30 min	4 328 4875 5
		60 min	4 328 4859 5
		120 min	4 328 4873 5
		6 h	4 328 4800 5
		12 h	4 328 4860 5
		24 h	4 328 4870 5
96 h	4 328 4876 5		



self-tap. screw		for KKH	4 184 4004 0
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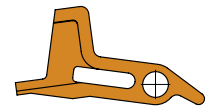
knob with arrow	for round shaft	for KKH	4 268 4887 0
knob with arrow	for shaft with flat		4 268 5051 0



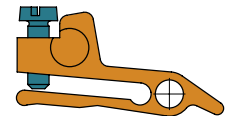
fixing bridle		for KKP	4 109 4815 0
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actuator			4 263 4929 0
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actuator J	(adjustable)		4 263 4930 0
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b-cam uncut			4 260 4843 0
-------------	--	--	--------------

setting key	for S-cam		4 109 4804 0
s-cam			4 260 4826 0



setting key	for R-cam		4 109 4805 0
r-cam			4 260 4827 0
rider	12°		4 264 4801 0
	6°		4 264 4802 0



AMP double plug	male-male	4 423 4868 0
AMP sleeve	female	4 423 4802 0