



Position Limit switches

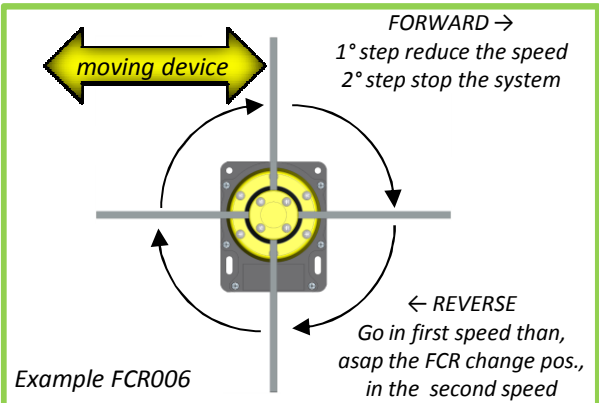
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The position (rotary-angular) limit switch is used to control several handling system:

- sophisticated crane system:  
the unit controls power operating system (ex. PLC) and allows the crane to slow-down and/or to stop running.
  - hoist:  
the unit is used to stop the hoist running whenever it reaches a “limit” position
- Different combinations available for all standard system.
  - Customization available on request.

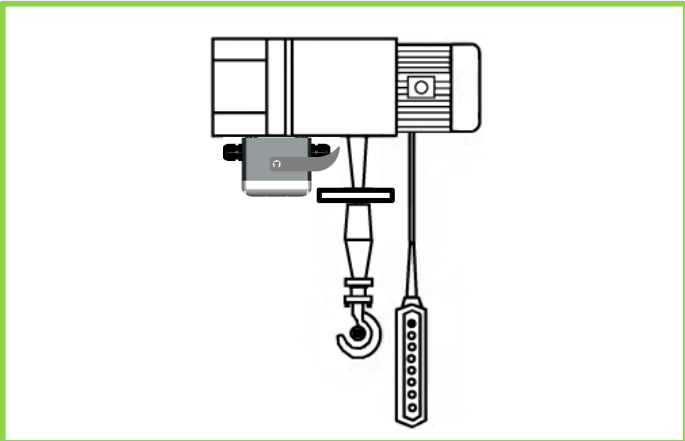
How it works?

As an example, an *FCR006* is typically used on a sophisticated crane system. Its function is to control the crane as it approaches operational limits in the following sequence:  
With the crane moving forward the end position, the *FCR006* controls the crane’s speed reducing the speed (first step) then stopping the crane (second step) .  
In this position the forward command is no longer enabled.  
Only the reversing command is enabled for operation, in the first speed than in the second speed.



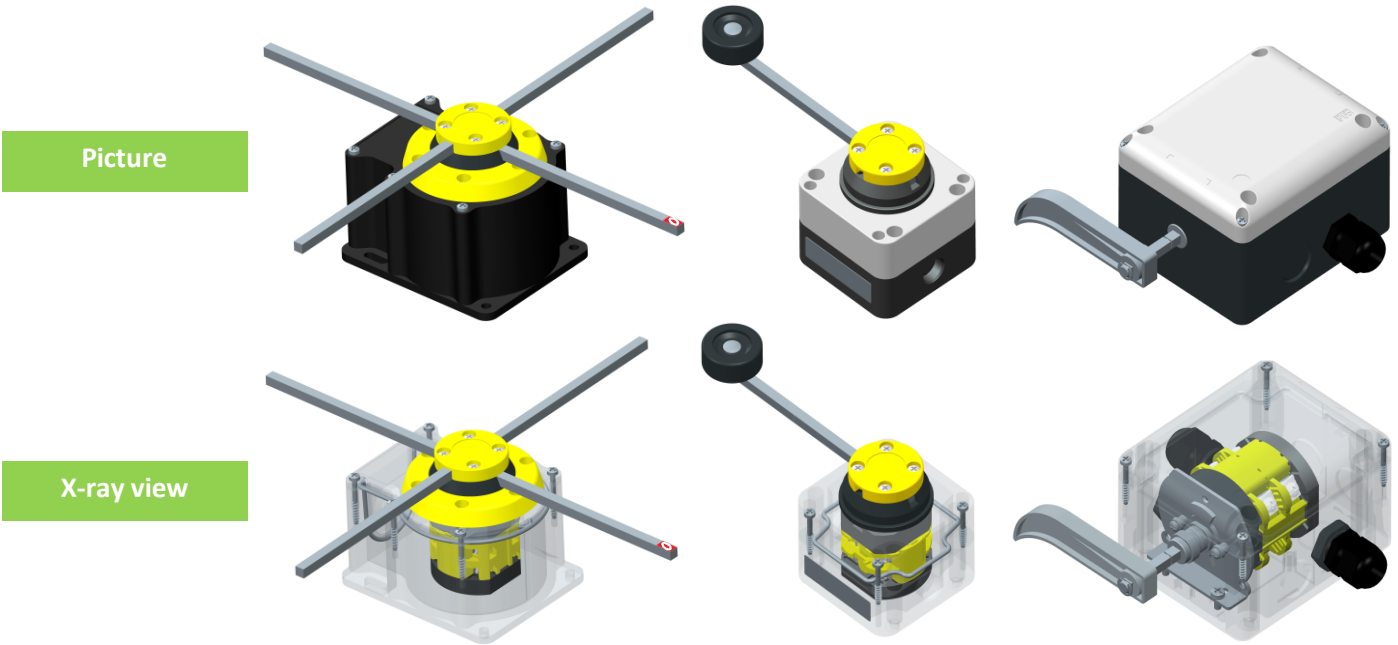
Picture shows a FCR working on a crane system

Picture shows a FCP working on a hoist





Line	FCR	FFH	FCP
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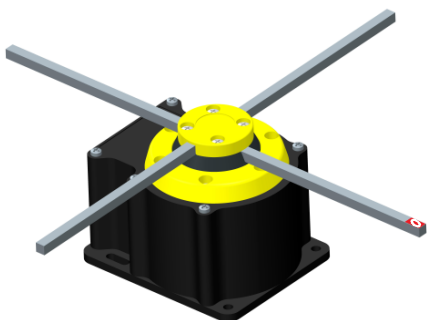


Characteristics				
Standards		IEC/EN 60947/3		IEC/EN 60947/3, EN81-1
Case		self extinguishing housing V0 UL94		self extinguishing housing V0 UL94
Protection class IEC/EN 60529		IP65		IP65
Cam switch	enclosed thermal current [Ithe]	16A		40A
	rated insulation voltage [Ui]	690V		690V
	product ID	P016 Giovenzana line		CX40 Giovenzana line
	contacts	double gap positive opening		double gap positive opening
	markings			
Cable entry		N° 1 dia. 22.5mm		M20 (max 8)
Versions		- single or double speed motor configuration - 3,4 or 4 with mechanical stop positions		single speed motor configuration (other configuration on request)
Notes		fully adjustable aluminium rods □ 6x300mm with "0" indicator - reinforced mechanical stop		two pole on-off switch (other configuration on request)
		- fully adjustable metallic rods □ 6x120mm - reinforced mechanical stop - rubber covering wheel		- reinforced mechanical stop

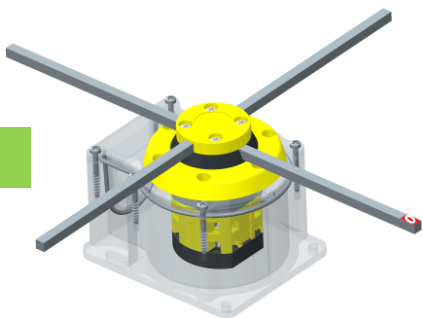
LIMIT SWITCHES



Picture



X-ray view












☐ contact open  
☒ contact close

Versions

FCR001	single speed	<div></div> <div>3 positions with mechanical interlock (●)</div>	<table><tr><td>3-4</td><td></td><td></td><td></td></tr><tr><td>1-2</td><td></td><td></td><td></td></tr><tr><td>Cont. Pos.</td><td>-90°</td><td>0</td><td>+90°</td></tr></table>	3-4				1-2				Cont. Pos.	-90°	0	+90°																		
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Cont. Pos.	-90°	0	+90°																														
FCR002	single speed	<div></div> <div>3 positions with mechanical interlock (●)</div>	<table><tr><td>7-8</td><td></td><td></td><td></td></tr><tr><td>5-6</td><td></td><td></td><td></td></tr><tr><td>3-4</td><td></td><td></td><td></td></tr><tr><td>1-2</td><td></td><td></td><td></td></tr><tr><td>Cont. Pos.</td><td>-90°</td><td>0</td><td>+90°</td></tr></table>	7-8				5-6				3-4				1-2				Cont. Pos.	-90°	0	+90°										
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FCR003	single speed	<div></div> <div>4 positions NO mechanical interlock</div>	<table><tr><td>3-4</td><td></td><td></td><td></td><td></td></tr><tr><td>1-2</td><td></td><td></td><td></td><td></td></tr><tr><td>Cont. Pos.</td><td>0</td><td>90°</td><td>180°</td><td>270°</td></tr></table>	3-4					1-2					Cont. Pos.	0	90°	180°	270°															
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FCR004	single speed	<div></div> <div>4 positions NO mechanical interlock</div>	<table><tr><td>-</td><td colspan="4">empty</td></tr><tr><td>5-6</td><td></td><td></td><td></td><td></td></tr><tr><td>-</td><td colspan="4">empty</td></tr><tr><td>1-2</td><td></td><td></td><td></td><td></td></tr><tr><td>Cont. Pos.</td><td>0</td><td>90°</td><td>180°</td><td>270°</td></tr></table>	-	empty				5-6					-	empty				1-2					Cont. Pos.	0	90°	180°	270°					
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FCR005	single speed	<div></div> <div>4 positions NO mechanical interlock</div>	<table><tr><td>-</td><td colspan="4">empty</td></tr><tr><td>5-6</td><td></td><td></td><td></td><td></td></tr><tr><td>-</td><td colspan="4">empty</td></tr><tr><td>1-2</td><td></td><td></td><td></td><td></td></tr><tr><td>Cont. Pos.</td><td>0</td><td>90°</td><td>180°</td><td>270°</td></tr></table>	-	empty				5-6					-	empty				1-2					Cont. Pos.	0	90°	180°	270°					
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FCR006	two speeds	<div></div> <div>4 positions with mechanical interlock (●)</div>	<table><tr><td>7-8</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>5-6</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>3-4</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1-2</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Cont. Pos.</td><td>-180°</td><td>-90°</td><td>0</td><td>+90°</td><td>+180°</td></tr></table>	7-8						5-6						3-4						1-2						Cont. Pos.	-180°	-90°	0	+90°	+180°
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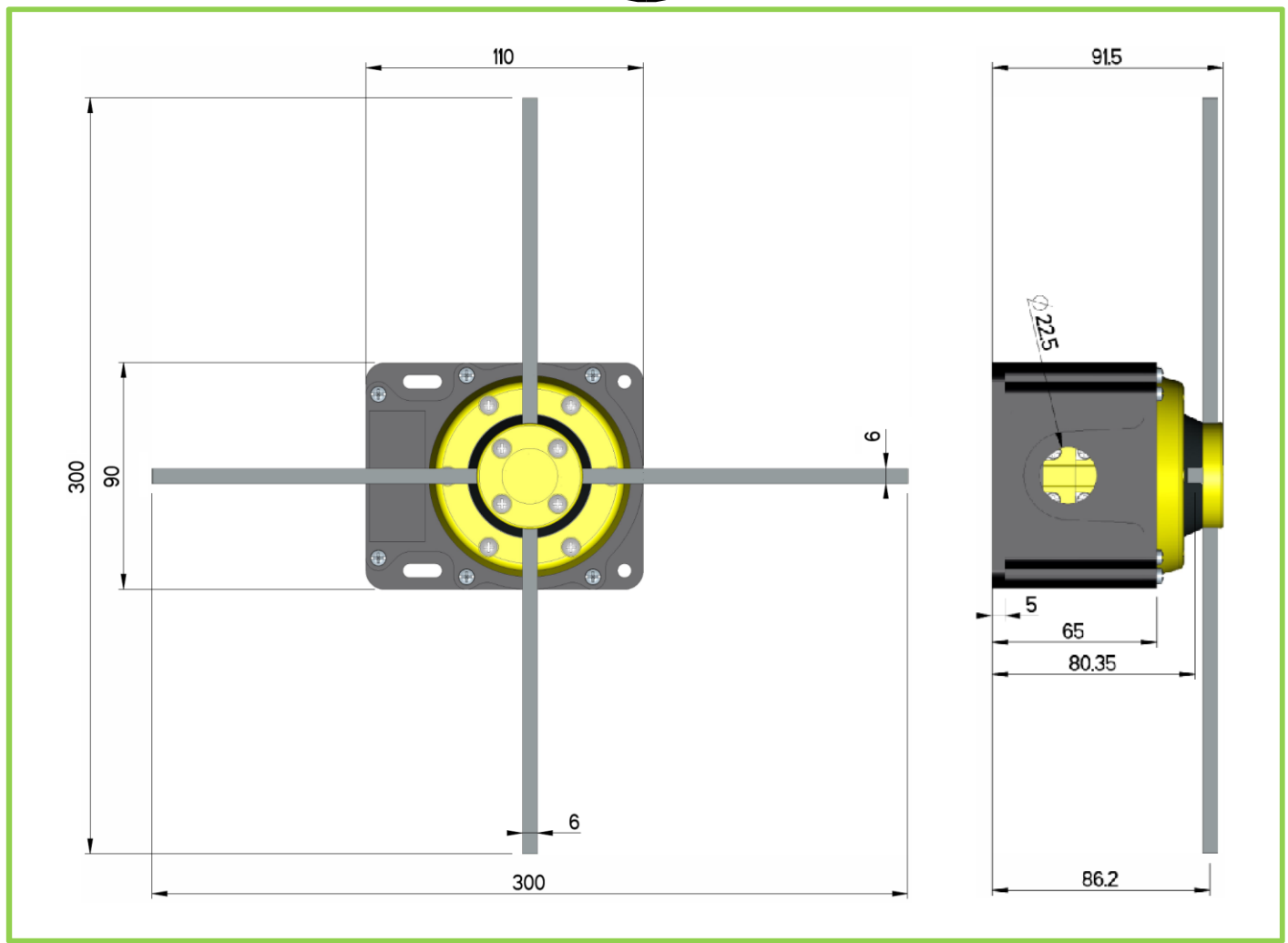
Characteristics

Standards		IEC/EN 60947/3
Case		self extinguishing housing V0 UL94
Protection class IEC/EN 60529		IP65 (double insulation  )
Cam switch	enclosed thermal current [Ithe]	16A
	rated insulation voltage [Ui]	690V
	product ID	P016 Giovannina line
	contacts	double gap positive opening 
	markings	     
Cable entry		N° 1 dia. 22.5mm
Versions		- single or double speed motor configuration - 3,4 or 4 with mechanical stop positions
Notes		fully adjustable aluminium rods  6x300mm with "0" indicator - reinforced mechanical stop

Other versions available on request →

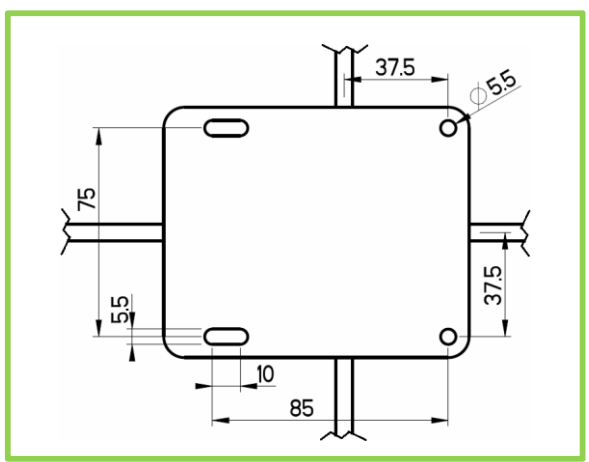


Dimensions

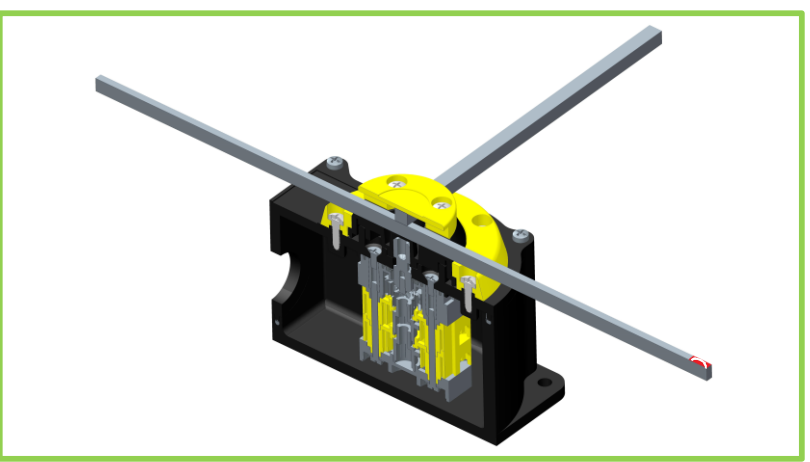


LIMIT SWITCHES

Fixing holes

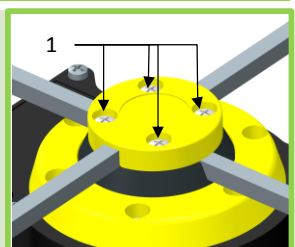


Section view

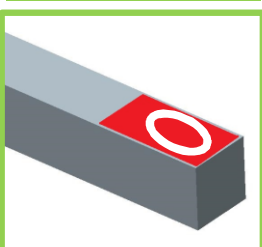


Rods adjusting guide

- I. Loosen the four screws (1)
- II. Adjust the rods
- III. Tighten the four screws (1)

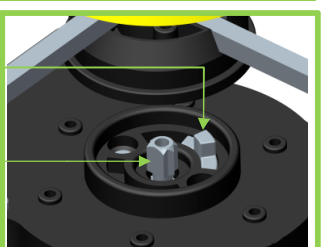


"ZERO" indicator



Reinforced mechanical stop insert

- metallic stop insert
- metallic cam's control shaft





LIMIT SWITCHES

General characteristics		FCR	FFH	FCP
Markings		CE EAC	CE	CE
Standards		IEC/EN 60947/3	IEC/EN 60947/3	IEC/EN 60947/3
Case		self extinguishing housing V0 UL94	self extinguishing housing V0 UL94	self extinguishing housing V0 UL94
Protection class IEC/EN 60529		IP65 (double insulation □ )	IP65 (double insulation □ )	IP65 (double insulation □ )
Climate temperature	Operating	-25°C + 55°C		
	Storage	-30°C + 70°C		
Cable entry		N° 1 dia. 22.5mm	1xM20 + 1xM16	M20 (max 8)
Versions		- single or double speed motor configuration - 3,4 or 4 with mechanical stop positions	single speed motor configuration (other configuration on request)	two pole on-off switch (other configuration on request)
Notes		fully adjustable aluminium rods □ 6x300mm with “0” indicator - reinforced mechanical stop	- fully adjustable metallic rods □ 6x120mm - reinforced mechanical stop - rubber covering wheel	- reinforced mechanical stop
Weight KG (approx)		0.5	0.35	0.55
Electrical characteristics		FCR	FFH	FCP
Cam switch product ID		P016 Giovenzana line	PX20 Giovenzana line	CX40 Giovenzana line
Standards		IEC/EN 60947/3 – UL508	IEC/EN 60947/3 – UL508	IEC/EN 60947/3 – UL508
Markings		CE cUL US EAC CCC	CE cUL US EAC CCC	CE cUL US EAC CCC
Enclosed thermal current [Ithe]		16A	20A	40A
Rated insulation voltage [Ui]		690V	690V	690V
Frequency		50/60 Hz	50/60 Hz	50/60 Hz
Rated operating current	AC21A-AC22A	16A - 690Vac	20A - 690Vac	40A - 690Vac
	AC23A 3ph 230V	13A - 4kW	16A - 5kW	35A - 11kW
	AC23A 3ph 400V	13A - 7.5kW	16A - 9kW	32A – 18.5kW
Rated short circuit withstand current (gG 20A - 690V)		5kA	5kA	10kA
Contacts		double gap positive opening ➡	double gap positive opening ➡	double gap positive opening ➡
Connections	caliber	A3 (EN60947-1)	A3 (EN60947-1)	A5 (EN60947-1)
	screw size	M3.5	M3.5	M4
	max torque	0.8 Nm (EN60947-1) 7.5 lb.in. (UL508)	0.8 Nm (EN60947-1) 7.5 lb.in. (UL508)	1.2 Nm (EN60947-1) 10.6 lb.in. (UL508)
Connectable section	flexible or solid min/MAX	1x0.75/4 – 2x0.75/2.5	1x0.75/4 – 2x0.75/2.5	2x2.5/10
	flexible or solid AWG	16-12	16-12	14-6