## **DATASHEET - TM-2-8177/EZ**



Spring-return switch, Contacts: 4, 10 A, front plate: START>1-0-2<START, 60 °, momentary/maintained, centre mounting



TM-2-8177/EZ Part no. 016838 Catalog No.

**EL-Nummer** (Norway)

0001456172

### **Delivery program**

Per group reference Basic function  Basic function  Basic function  Contracts  Degree of Protection  Design  Contract sequence	Delivery program			
Spring-return switch with black thumb grip and front plate 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Product range			Control switches
Degree of Protection  Design  Contacts  Degree of Protection  Design  Contact sequence  Contact sequence  Contact sequence  Switching angle  Switching performance  Switching performance  Switching performance  The sequence of Protection of the sequence o	Part group reference			TM
Degree of Protection  Design  Contract sequence  Contract sequence  Contract sequence  Contract sequence  Switching angle  Switching angle  Power of Protection  Start  F 1 21  START  F	Basic function			Spring-return switch
Pergree of Protection  Design  Contact sequence  Switching angle  Switching angle  Switching performance  With 9 loff position With 9 l				with black thumb grip and front plate
Contact sequence  Switching angle Switching performance  With 0 (Off) position with spring-return from both directions  Besign number Front plate no.  Front plate  Motor rating AC-23A, 50 - 60 Hz  400 V P KW  4	Contacts			4
Contact sequence  Switching angle  Switching performance  Switching performance  With 10(H) position with spring-return from both directions  B177  F 121  F 121  START START  F 121  START START  F 121  START-1-0-2 <start -="" 3="" 400="" 50="" 60="" ac-23a,="" current="" hz="" i<sub="" motor="" p="" rated="" rating="" uninterrupted="" v="" w="">u is specified for max. cross-section.  Number of contact units  START-1-0-2 START  Rated uninterrupted current I<sub>u</sub> is specified for max. cross-section.</start>	Degree of Protection			Front IP65
Switching angle  Switching performance  Switching performance  Switching performance  Switching performance  Switching performance  With 0 (Off) position with spring-return from both directions  8177  F 121  START  START  F 121  START START  F 12 1  START START  What is specified for max. cross-section.  Start ontact uniterrupted current I <sub>u</sub> is specified for max. cross-section.	Design			centre mounting
Switching angle  Switching performance  Switching performance  Switching performance  Switching performance  Switching performance  With 0 (Off) position with spring-return from both directions  8177  F 121  START  START  F 121  START START  F 12 1  START START  What is specified for max. cross-section.  Start ontact uniterrupted current I <sub>u</sub> is specified for max. cross-section.				
Switching performance momentary/maintained With 0 (Off) position with spring-return from both directions  B177  Front plate no.  F 121  START START  F 121  START>1-0-2 <start -="" 3="" 400="" 50="" 60="" ac-23a,="" contact="" cross-section.="" cross-section.<="" current="" for="" hz="" is="" kw="" lu="" max.="" motor="" number="" of="" p="" rated="" rating="" specified="" td="" uninterrupted="" units="" v=""><td>Contact sequence</td><td></td><td></td><td>START START START</td></start>	Contact sequence			START
With 0 (Offit position with spring-return from both directions  8177  Front plate no.  Front plate  Motor rating AC-23A, 50 - 60 Hz  400 V  Rated uninterrupted current I <sub>u</sub> Number of contact units  With 0 (Offit position with spring-return from both directions  8177  F 121  START START  START  START  START  START  A  0  Rated uninterrupted current I <sub>u</sub> is specified for max. cross-section.	Switching angle		0	60
Front plate no.  Front plate no.  F 121  START START  F 121  START>1-0-2 <start -="" 10="" 3="" 400="" 50="" 60="" a="" ac-23a,="" contact="" current="" hz="" i<sub="" kw="" motor="" number="" of="" p="" rated="" rating="" uninterrupted="" units="" v="">u is specified for max. cross-section.</start>	Switching performance			With 0 (Off) position
F 121  Front plate  Motor rating AC-23A, 50 - 60 Hz  400 V P kW 3  Rated uninterrupted current  Number of contact units  Very contact  Very co	Design number			8177
Motor rating AC-23A, 50 - 60 Hz  400 V  Rated uninterrupted current  Number of contact units  P  kW  3  Rated uninterrupted current I <sub>u</sub> is specified for max. cross-section.	Front plate no.			
400 V  Rated uninterrupted current  Iu  A  10  Rated uninterrupted current Iu is specified for max. cross-section.  Number of contact units  contact  2	front plate			START>1-0-2 <start< td=""></start<>
400 V  Rated uninterrupted current  Iu  A  10  Rated uninterrupted current Iu is specified for max. cross-section.  Number of contact units  contact  2	Motor rating AC-23A, 50 - 60 Hz			
Rated uninterrupted current  Iu A 10  Note on rated uninterrupted current !u  Number of contact units  Contact  A 10  Rated uninterrupted current Iu is specified for max. cross-section.		Р	kW	3
Note on rated uninterrupted current I <sub>u</sub> is specified for max. cross-section.  Number of contact units contact 2	Rated uninterrupted current			10
Number of contact units contact 2				
	Number of contact units		contact unit(s)	

# **Technical data**

General		
Standards		IEC/EN 60947, VDE 0660, CSA, UL Control switch as per IEC/EN 60947-5-1 Auxiliary switch as per IEC/EN 60947-5-1
Climatic proofing		Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature		
Open	°C	-25 - +50

Overvoltage category/pollution degree			III/3
Rated impulse withstand voltage	U <sub>imp</sub>	V AC	4000
Mounting position	- ппр		As required
Contacts			Astequieu
Electrical characteristics			
Rated operational voltage	U <sub>e</sub>	V AC	500
Rated uninterrupted current		A	10
	I <sub>u</sub>	A	
Note on rated uninterrupted current !u			Rated uninterrupted current $\mathbf{I}_{\mathbf{u}}$ is specified for max. cross-section.
Short-circuit rating			
Fuse		A gG/gL	10
Switching capacity Safe isolation to EN 61140			
		W	0.15
Current heat loss per contact at I <sub>e</sub>			
Current heat loss per auxiliary circuit at I <sub>e</sub> (AC-15/230 V)		CO	0.15
Lifespan, mechanical	Operations	x 10 <sup>6</sup>	>1
Maximum operating frequency	Operations/h		1200
AC			
AC-23A			
Motor rating AC-23A, 50 - 60 Hz	P	kW	
400 V 415 V	P	kW	3
Control circuit reliability at 24 V DC, 10 mA	Fault	H <sub>F</sub>	< 10 <sup>-5</sup> , < 1 fault in 100000 operations
	probability		(10°, C) Tudiciii 100000 oportuono
Terminal capacities			
Solid or stranded		mm <sup>2</sup>	1 x 1,5 2 x 1,5
Flexible with ferrules to DIN 46228		mm <sup>2</sup>	1 x 1.0 2 x 1.0
Flexible		mm <sup>2</sup>	1x1.5
			2 x 1.5
Terminal screw			M2.5
Tightening torque for terminal screw		Nm	0.4
Rating data for approved types			
Contacts			
Rated operational voltage	U <sub>e</sub>	V AC	300
Rated uninterrupted current max.			
Main conducting paths			
General use		Α	10
Auxiliary contacts			
General Use	lu	Α	10
Pilot Duty			A 300
Switching capacity			
Maximum motor rating			
Single-phase			
120 V AC		HP	0.33
240 V AC		HP	0.75
277 V AC		HP	0.75
Three-phase			
120 V AC		HP	0.75
240 V AC		НР	1
Terminal capacity			
Solid or flexible conductor with ferrule		AWG	14
Terminal screw			M2.5
Tightening torque		lb-in	3.5
gcoming conque		70 III	

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	10

Heat dissipation per pole, current-dependent	$P_{\text{vid}}$	W	0.15
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	0
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	50
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
$10.2.3.3\ Verification\ of\ resistance\ of\ insulating\ materials\ to\ abnormal\ heat\ and\ fire\ due\ to\ internal\ electric\ effects$			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			UV resistance only in connection with protective shield.
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			Meets the product standard's requirements.
10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
10.8 Connections for external conductors			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
10.10 Temperature rise			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			Is the panel builder's responsibility. The specifications for the switch gear must be observed. $\label{eq:constraint}$
10.12 Electromagnetic compatibility			Is the panel builder's responsibility. The specifications for the switch gear must be observed. $\label{eq:constraint}$
10.13 Mechanical function			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## **Technical data ETIM 7.0**

Low-voltage industrial components (EG000017) / Control switch (EC002611)

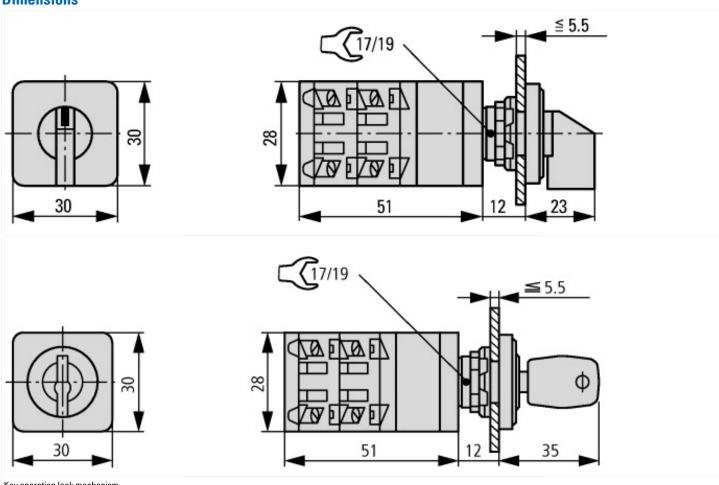
Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Control switch (ecl@ss10.0.1-27-37-14-14 [ACN998011])

[ACM330UT])		
Type of switch		On/Off switch
Number of poles		4
Max. rated operation voltage Ue AC	V	500
Rated permanent current lu	А	10
Number of switch positions		5
With 0 (off) position		Yes
With retraction in 0-position		No
Device construction		Built-in device
Width in number of modular spacings		0
Suitable for ground mounting		No
Suitable for front mounting 4-hole		Yes
Suitable for distribution board installation		No
Suitable for intermediate mounting		No
Complete device in housing		No
Type of control element		Toggle
Front shield size		48x48 mm
Degree of protection (IP), front side		IP65

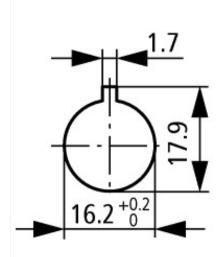
### **Approvals**

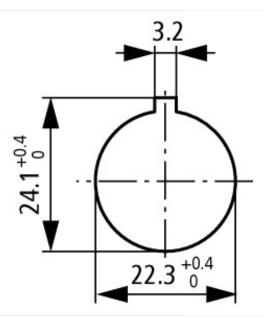
- Physical Control	
Product Standards	UL 508; CSA-C22.2 No. 14-05; CSA-C22.2 No. 94; IEC/EN 60947-3; CE marking
UL File No.	E36332
UL Category Control No.	NLRV
CSA File No.	UL report applies to both US and Canada
North America Certification	UL listed, certified by UL for use in Canada
Degree of Protection	IEC: IP65; UL/CSA Type: –

## **Dimensions**



Key operation lock mechanism





Door drilling dimensions Drilling dimensions: either 16.2 mm = without reduction  $\triangle$  RMQ16 or 22.3 mm = with reduction  $\triangle$  RMQ Titan

# Assets (links)

**Declaration of CE Conformity** 

00002932

**Instruction Leaflets** 

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