DATASHEET - T0-2-8241/E



Step switches, T0, 20 A, flush mounting, 2 contact unit(s), Contacts: 3, 45 °, maintained, With 0 (Off) position, 0-3, design no. 8241



Powering Business Worldwide[™]



Part no. Catalog No. T0-2-8241/E 050716

EL-Nummer (Norway)

0001456316

Similar to illustration

Delivery program			
Product range			Control switches
Part group reference			TO
Basic function			Step switches
			with black thumb grip and front plate
Contacts			3
Number of steps			3 steps, 45°
Degree of Protection			Front IP65
Design			flush mounting
Contact sequence			10 200 400 600 600 600 600 600 600 600 600 6
Switching angle		0	45
Switching performance			maintained With 0 (Off) position
Design number			8241
Front plate no.			FS 420
front plate			0-3
Motor rating AC-23A, 50 - 60 Hz			
400 V	P	kW	5.5
Rated uninterrupted current	I _u	Α	20
Note on rated uninterrupted current !u			Rated uninterrupted current I _u is specified for max. cross-section.
Number of contact units		contact unit(s)	

Technical data General

deliciti	
Standards	IEC/EN 60947, VDE 0660, IEC/EN 60204, CSA, UL Switch-disconnector according to IEC/EN 60947-3
Climatic proofing	Damp heat, constant, to IEC 60068-2-78

			Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open		°C	-25 - +50
Enclosed		°C	-25 - +40
Overvoltage category/pollution degree			III/3
Rated impulse withstand voltage	U _{imp}	V AC	6000
Mechanical shock resistance		g	15
Mounting position			As required
Contacts			
Electrical characteristics			
Rated operational voltage	U _e	V AC	690
Rated uninterrupted current	I _u	Α	20
Note on rated uninterrupted current $!_{u}$			Rated uninterrupted current $\boldsymbol{I}_{\boldsymbol{u}}$ is specified for max. cross-section.
Load rating with intermittent operation, class 12			
AB 25 % DF		x I _e	2
AB 40 % DF		x I _e	1.6
AB 60 % DF		x I _e	1.3
Short-circuit rating			
Fuse		A gG/gL	20
Rated short-time withstand current (1 s current)	I _{cw}	A _{rms}	320
Note on rated short-time withstand current lcw			Current for a time of 1 second
Rated conditional short-circuit current	Iq	kA	6
Switching capacity			
$\cos \phi$ rated making capacity as per IEC 60947-3		Α	130
Rated breaking capacity cos φ to IEC 60947-3		Α	
230 V		Α	100
400/415 V		Α	110
500 V		Α	80
690 V		Α	60
Safe isolation to EN 61140			
between the contacts		V AC	440
Current heat loss per contact at I _e		W	0.6
Current heat loss per auxiliary circuit at I _e (AC-15/230 V)		CO	0.6
Lifespan, mechanical	Operations	x 10 ⁶	> 0.4
Maximum operating frequency	Operations/h		1200
AC			
AC-3			
Rating, motor load switch	P	kW	
220 V 230 V	Р	kW	3
230 V Star-delta	Р	kW	5.5
400 V 415 V	Р	kW	5.5
400 V Star-delta	P	kW	7.5
500 V	P	kW	5.5
500 V Star-delta	P	kW	7.5
690 V	P	kW	4
690 V Star-delta	Р	kW	5.5
Rated operational current motor load switch		^	115
230 V	l _e	A	11.5
230 V star-delta	l _e	A	20
400V 415 V	l _e	Α	11.5
400 V star-delta	I _e	Α	20
500 V	le	Α	9
500 V star-delta	l _e	Α	15.6

Motor rating ACZIA\ 50 - 60 Hz				
Manter rating AC 24A, sile of the 19	690 V star-delta	I _e	Α	8.5
P	AC-23A			
March P	Motor rating AC-23A, 50 - 60 Hz	P	kW	
Sol V	230 V	P	kW	3
Bible Part	400 V 415 V	P	kW	5.5
Patent operational current metor load sevolth 20	500 V	P	kW	7.5
230 \ 1	690 V	P	kW	5.5
230 \ 1	Rated operational current motor load switch			
460 V 415 V 1		l _a	Α	13.3
100 1				
Content				
DC Lead browk stytiches UP = 1 ms DC Rated spendsonal current V			Α	
DC-1, Load broads switches L/R - 1 ms Rate dispersional current Ig. A 10 Voltage per contact pair in series Ig. A 2 DC-2/IA. Ig. A 3 Band operational current Ig. A 3 Contactes Country DC-2/2A. Monto robe a winch L/R = 15 ms Ig. A 30 2A V Bated operational current Ig. A 30 Connects Usanthy Bated operational current Ig. A 30 Connects Usanthy Gov Usanthy Bated operational current Ig. A 30 Connects Usanthy Gov Usanthy Table operational current Ig. A 30 Connects Usanthy	690 V	l _e	Α	7.6
Rated operational current I	DC			
Voltage per contact pair in series	DC-1, Load-break switches L/R = 1 ms			
DC-21A	Rated operational current	I _e	Α	10
DC-21A	Voltage per contact pair in series		V	60
Rated operational current		I _e	Α	
Contacts	Rated operational current		A	1
DC-23A, motor load switch L/R = 15 ms 24 V Rated operational current I _R		6		
All Contacts			Quantity	'
Rated operational current Part				
Contacts				
Rated operational current		l _e		
Rated operational current Part			Quantity	1
Contacts				
Rated operational current	Rated operational current	l _e	Α	10
Rated operational current I	Contacts		Quantity	2
Contacts	60 V			
120	Rated operational current	I _e	Α	10
120	Contacts		Quantity	3
Rated operational current	120 V			
Contacts		l _o	A	5
240 V Rated operational current Rated operational voltage Rated operat		6		
Rated operational current Ie A 5 Contacts Current Summary Current Curr			quantity	
Contacts DC-13, Control switches L/R = 50 ms Rated operational current Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability Fault pr			^	_
DC-13, Control switches L/R = 50 ms Rated operational current Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability Probabilit		le		
Rated operational current Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability Fault (-2.5) 2 x (1.7.5.2.5) 2 x (0.75-2.5) 2 x (0.75-2.5) 2 x (0.75-2.5) 2 x (0.75-2.5) And 5 And 5 And 6			Quantity	5
Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability PF **10** 5, 1 failure in 100,000 switching operations Terminal capacities Solid or stranded **mm²** 1 × (1 - 2,5) / 2 × (1 - 2,5) / 2 × (1 - 2,5) / 2 × (1 - 2,5) / 2 × (1 - 2,5) / 2 × (1 - 2,5) / 2 × (1 - 2,5) / 2 × (0.75 - 2.5) **Terminal screw Terminal screw Tightening torque for terminal screw Tightening torque for terminal screw Tightening torque for terminal screw Technical safety parameters: Notes Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use A 16				
Control circuit reliability at 24 V DC, 10 mA Fault probability Fault 1-2,5) 2 x (1 - 2,5) 3 x (1 - 2,5) 4 x (1 - 2,5) 5 x (1	Rated operational current	l _e	Α	10
Terminal capacities Solid or stranded mm² 1x (1 - 2,5) 2x (1 - 2,5) 2x (1 - 2,5) 2x (0.75 - 2,5) Terminal screw Terminal screw Tightening torque for terminal screw Technical safety parameters: Notes Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use Main conducting paths General use Main conducting paths Solid or stranded mm² 1x (1 - 2,5) 2x (0.75 - 2.5) 2x	Voltage per contact pair in series		V	32
Terminal capacities Solid or stranded mm² 1x (1 - 2,5) 2x (1 - 2,5) 1x (0.75 - 2,5) 2x (0.75 - 2,5) Terminal screw Tightening torque for terminal screw Tightening torque for terminal screw Technical safety parameters: Notes Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use A 16	Control circuit reliability at 24 V DC, 10 mA		H _F	< 10 ⁻⁵ ,< 1 failure in 100,000 switching operations
Solid or stranded mm² 1x (1 - 2,5) 2x (1 - 2,5) Flexible with ferrules to DIN 46228 mm² 1x (0.75 - 2.5) 2x (0.75 - 2.5) Terminal screw M3.5 Tightening torque for terminal screw M3.5 Technical safety parameters: Notes B10 _d values as per EN ISO 13849-1, table C1 Rating data for approved types Contacts Alace operational voltage Ve Rated uninterrupted current max. Main conducting paths General use A B6 A B6	Terminal canacities	probability		
Flexible with ferrules to DIN 46228 Flexible with ferrules to DIN 46228 Terminal screw M3.5 Tightening torque for terminal screw Manual Safety parameters: Notes Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use Manual Sx (1 - 2,5) Ax (0.75 - 2.5) A			2	1 x (1 - 2 5)
Terminal screw M3.5 Tightening torque for terminal screw Nm 1 Technical safety parameters: Notes Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use M3.5 M3.5 M3.5 M3.5 M3.5 M3.5 M3.5 M3.6 M3.6 M3.9 L	Solid of Stratitled		mm ⁻	2 x (1 - 2,5)
Terminal screw M3.5 Tightening torque for terminal screw Nm 1 Technical safety parameters: Notes B10 _d values as per EN ISO 13849-1, table C1 Rating data for approved types Contacts Rated operational voltage Ue VAC 600 Rated uninterrupted current max. Main conducting paths General use A 16	Flexible with ferrules to DIN 46228		mm ²	1 x (0.75 - 2.5)
Tightening torque for terminal screw Technical safety parameters: Notes B10 _d values as per EN ISO 13849-1, table C1 Rating data for approved types Contacts Rated operational voltage Ue V AC Main conducting paths General use Nm 1 A 16				2 x (0.75 - 2.5)
Notes B10 _d values as per EN ISO 13849-1, table C1 Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use A 16	Terminal screw			M3.5
Notes Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use B10 _d values as per EN ISO 13849-1, table C1 B00 600 A 16	Tightening torque for terminal screw		Nm	1
Rating data for approved types Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use A 16	Technical safety parameters:			
Contacts Rated operational voltage Rated uninterrupted current max. Main conducting paths General use A 16				B10 _d values as per EN ISO 13849-1, table C1
Rated operational voltage Ue VAC 600 Rated uninterrupted current max. Main conducting paths General use A 16				
Rated uninterrupted current max. Main conducting paths General use A 16				
Main conducting paths General use A 16		U _e	V AC	600
General use A 16	Rated uninterrupted current max.			
	Main conducting paths			
Auxiliary contacts	General use		Α	16
	Auxiliary contacts			

General Use	l _U	Α	10
Pilot Duty			A 600 P 300
Switching capacity			
Maximum motor rating			
Single-phase			
120 V AC		HP	0.5
200 V AC		HP	1
240 V AC		HP	1.5
Three-phase			
200 V AC		HP	3
240 V AC		HP	3
480 V AC		HP	7.5
600 V AC		HP	7.5
Short Circuit Current Rating		SCCR	
Basic Rating		kA	5
max. Fuse		Α	50
High fault rating		kA	10
max. Fuse		Α	20, Class J
Terminal capacity			
Solid or flexible conductor with ferrule		AWG	18 - 14
Terminal screw			M3.5
Tightening torque		lb-in	8.8

Design verification as per IEC/EN 61439

Design vernication as per 120/214 01433			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	20
Heat dissipation per pole, current-dependent	P _{vid}	W	0.6
Equipment heat dissipation, current-dependent	P _{vid}	W	0
Static heat dissipation, non-current-dependent	P _{vs}	W	0
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	50
EC/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 switchgear must be observed.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
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])

Number of poles Max. rated operation voltage Ue AC Nated permanent current lu A 20 Number of switch positions With 0 (off) position With position Pevice construction Device construction Suitable for ground mounting Suitable for front mounting 4-hole Suitable for front mounting 4-hole Suitable for intermediate mounting Suitable for intermediate mounting Complete device in housing Type of control element I a 1 a 690 40 20 A 20 No No No No No No No Toggle			
Max. rated operation voltage Ue AC Rated permanent current Iu A 20 Number of switch positions With 0 (off) position With position With retraction in 0-position No Device construction Device construction Width in number of modular spacings Width in number of modular spacings Width in number of modular spacings Width for ground mounting Suitable for ground mounting Suitable for front mounting 4-hole Suitable for intermediate mounting Suitable for intermediate mounting Complete device in housing Type of control element V 690 690 690 690 690 690 690 6	Type of switch		Level switch
Rated permanent current lu Number of switch positions With 0 (off) position With 0 (off) position With retraction in 0-position Device construction Width in number of modular spacings Width in number of modular spacings Width in number of modular spacings Suitable for ground mounting Suitable for front mounting 4-hole Suitable for intermediate mounting Suitable for intermediate mounting Complete device in housing Type of control element A 20 4 4 A 20 A A 20 A A 20 A A A 20 A A A 20 A A A A A A A A A A A A A	Number of poles		1
Number of switch positions With 0 (off) position With retraction in 0-position No Device construction Width in number of modular spacings Width in number of modular spacings Suitable for ground mounting Suitable for front mounting 4-hole Suitable for distribution board installation Suitable for intermediate mounting Suitable for intermediate mounting Complete device in housing Type of control element Wes Toggle	Max. rated operation voltage Ue AC	V	690
With 0 (off) position With 0 (off) position With retraction in 0-position Device construction Width in number of modular spacings No Suitable for ground mounting Wes No Suitable for front mounting 4-hole Yes Suitable for distribution board installation No Suitable for intermediate mounting No Complete device in housing Toggle	Rated permanent current lu	Α	20
With retraction in 0-position Device construction Width in number of modular spacings Width in number of modular spacings Suitable for ground mounting Suitable for front mounting 4-hole Suitable for distribution board installation Suitable for intermediate mounting Complete device in housing Type of control element No No No Toggle	Number of switch positions		4
Device construction Built-in device Width in number of modular spacings 0 Suitable for ground mounting Suitable for front mounting 4-hole Suitable for distribution board installation Suitable for intermediate mounting Complete device in housing Type of control element Built-in device No No Toggle	With 0 (off) position		Yes
Width in number of modular spacings Suitable for ground mounting No Suitable for front mounting 4-hole Suitable for distribution board installation Suitable for intermediate mounting Complete device in housing Type of control element O O O O Toggle	With retraction in 0-position		No
Suitable for ground mounting Suitable for front mounting 4-hole Suitable for distribution board installation Suitable for intermediate mounting Complete device in housing Type of control element No Toggle	Device construction		Built-in device
Suitable for front mounting 4-hole Suitable for distribution board installation Suitable for intermediate mounting No Complete device in housing Type of control element Yes No Toggle	Width in number of modular spacings		0
Suitable for distribution board installation Suitable for intermediate mounting Complete device in housing Type of control element No Toggle	Suitable for ground mounting		No
Suitable for intermediate mounting Complete device in housing No Type of control element No Toggle	Suitable for front mounting 4-hole		Yes
Complete device in housing No Type of control element Toggle	Suitable for distribution board installation		No
Type of control element Toggle	Suitable for intermediate mounting		No
	Complete device in housing		No
	Type of control element		Toggle
Front shield size 48x48 mm	Front shield size		48x48 mm
Degree of protection (IP), front side	Degree of protection (IP), front side		IP65
Degree of protection (NEMA), front side 12	Degree of protection (NEMA), front side		12

Approvals

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Product Standards	UL 60947-4-1;CSA - C22.2 No. 60947-4-1-14; CSA-C22.2 No. 94; IEC/EN 60947-3; CE marking
UL File No.	E36332
UL Category Control No.	NLRV
CSA File No.	12528
CSA Class No.	3211-05
North America Certification	UL listed, CSA certified
Suitable for	Branch circuits, suitable as motor disconnect
Degree of Protection	IEC: IP65; UL/CSA Type 1, 12

Dimensions

