Step switches, T0, 20 A, centre mounting, 2 contact unit(s), Contacts: 4, 60 °, maintained, Without 0 (Off) position, 1-4, Design number 8231



Part no. T0-2-8231/EZ

015123

EL Number

1456153

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Pontrace	General specifications	
A	Product name	Eaton Moeller® series T0 Step switch
Product Length/Depth Product religit Product r	Part no.	T0-2-8231/EZ
Product height Product width Product width Product width Certifications Certifica	EAN	4015080151234
Product visith Product visith Product visith Product visith Certifications  Cardications  Product Tradename  To  To  To  To  To  To  To  To  To  T	Product Length/Depth	106 millimetre
Product veight  Cerifications  Circle 1997-19	Product height	48 millimetre
Certifications         INCENTIONS           CSAC-222 No. 94         INCENTION 08987 - ONE ONE OF CAME OF CA	Product width	48 millimetre
CSA C2-2.2 No. 94 IECEN 10937 CF ILL Cattagory Carter Mor. NLEPU CSA CSA-C2-2.2 No. 94 IECEN 10937 CF ILL Cattagory Carter Mor. NLEPU CSA-C2-2.2 No. 61847-4-1-14 U.L File Nor. 158323 CSA-C2-2.2 No. 61847-4-1-14 U.L File Nor. 158323 CSA-C2-2 No. 61847-4-14 U.L File Nor. 158323 CSA-C2-2 No. 61847-4 CSA-C2-2 Nor. 15842-4 CSA-C2-2 Nor. 15842-4 CSA-C2-2 Nor. 15842-4 CSA-C2-2 Nor. 1	Product weight	0.124 kilogram
Product Type Product Sub Type Catalog Notes Catalog Notes Fitted visits Fitted visits Rated Short-time Withstand Current (Icw) for a time of 1 second Fitted visits Fitted visits Rated Short-time Withstand Current (Icw) for a time of 1 second Fitted visits Rated Short-time Withstand Current (Icw) for a time of 1 second Fitted visits Rated Short-time Withstand Current (Icw) for a time of 1 second Fitted visits Rated Short-time Withstand Current (Icw) for a time of 1 second Fitted visits Rated Short-time Withstand Current (Icw) for a time of 1 second Fitted visits Rated Short-time Withstand Current (Icw) for a time of 1 second Rated		CSA CSA-C22.2 No. 94 IEC/EN 60947 CE UL UL Category Control No.: NLRV CSA-C22.2 No. 60947-4-1-14 UL File No.: E36332 CSA Class No.: 3211-05 IEC/EN 60204 CSA File No.: 012528 VDE 0660 UL 60947-4-1
Product Sub Type Catalog Notes Rated Short-time Withstand Current (Icw) for a time of 1 second Fitted with: Inscription Fitted with: Inscription Number of poles Seneral information  Degree of protection Pegree of protection (Iront side) Mounting position Mounting position Number of contact units Operating frequency Deparating frequency Deverotage category Product category Product category Rated impulse withstand voltage (Uimp) Safe isolation Safe isolation Safe isolation Suitable for Suitable for Switching angle Type Vitted in the suitable of the suitable is motor disconnect, (UL/CSA) From Counting angle Fronce conviction in the contact of the suitable is motor disconnect, (UL/CSA) Fronce conviction in the conviction angle Fronce conviction in the contact of the conviction in the c	Product Tradename	TO
Catalog Notes  Setures & Functions  Fitted with: Inscription Inscr	Product Type	Step switch
Fitted with: Inscription Number of poles Degree of protection (front side)	Product Sub Type	None
Fitted with: Inscription  Number of poles  Seneral information  Degree of protection  Degree of protection (front side)  Lifespan, mechanical  Mounting method  Mounting position  Number of contact units  Operating frequency  Operating frequency  Overvoltage category  Product category  Rated impulse withstand voltage (Uimp)  Safe isolation  Safe isolation  Safe y parameter (EN ISO 13849-1)  Shock resistance  Suitable for  Switching angle  Type  Step switch  Step switch  Step switch  Type  Step switch  Step s	Catalog Notes	Rated Short-time Withstand Current (Icw) for a time of 1 second
Inscription Number of poles Seneral information  Degree of protection Degree of protection Degree of protection Degree of protection (front side) Degree of protection (front si	eatures & Functions	
Number of poles  Segree of protection  Degree of protection  Degree of protection  Degree of protection  Degree of protection (front side)  Degree of protection  Number of poles  As required  As required  As required  As required  Degree of protection  Degree of protection (block)  Degree of protection (bl	Fitted with:	Black thumb grip and front plate
Degree of protection (front side) Degree of protection (fr	Inscription	1-4
Degree of protection  Degree of protection (front side)  Degree of protection (front s	Number of poles	Single-pole
Degree of protection (front side)  Degree of protec	General information	
Lifespan, mechanical 400,000 Operations  Mounting method Center mounting  Mounting position As required  Number of contact units 2 Operating frequency 1200 Operations/h  Overvoltage category III  Pollution degree 3 Product category Control switches Rated impulse withstand voltage (Uimp) 6000 V AC  Safe isolation 440 V AC, Between the contacts, According to EN 61140  Safety parameter (EN ISO 13849-1) B10d values as per EN ISO 13849-1, table C.1 Shock resistance 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms  Suitable for Branch circuits, suitable as motor disconnect, (UI/CSA) Front mounting  Switching angle 60 °  Type Step switch	Degree of protection	NEMA 12
Mounting method  Mounting position  Number of contact units  Operating frequency  Overvoltage category  Product category  Rated impulse withstand voltage (Uimp)  Safe isolation  Safe y parameter (EN ISO 13849-1)  Shock resistance  Suitable for  Switching angle  Type  Step switch	Degree of protection (front side)	
Mounting position  Number of contact units  Operating frequency  Operating frequency  Overvoltage category  III  Pollution degree  Product category  Rated impulse withstand voltage (Uimp)  Safe isolation  Safe y parameter (EN ISO 13849-1)  Shock resistance  Suitable for  Switching angle  Switching angle  Type  Step switch  As required  As re	Lifespan, mechanical	400,000 Operations
Number of contact units  Operating frequency  1200 Operations/h  1200 Operations/h  III  Pollution degree  3  Product category  Rated impulse withstand voltage (Uimp)  Safe isolation  Safety parameter (EN ISO 13849-1)  Shock resistance  Suitable for  Switching angle  Switching angle  Type  1200 Operations/h  1100  1200 Operations/h  110  1200 Operations/h  110  1200 Operations/h  110  1200 Operations/h  111  1200 Operations/h	Mounting method	Center mounting
Operating frequency Overvoltage category III  Pollution degree 3  Product category Control switches  Rated impulse withstand voltage (Uimp) Safe isolation Safety parameter (EN ISO 13849-1) Shock resistance Suitable for Switching angle Type Stimatic environmental conditions  1200 Operations/h III  1200 Operations/h III  1200 Operations/h  110  1200 Operations/h  111  1200 Operations/h	Mounting position	As required
Overvoltage category Pollution degree 3 Product category Control switches Rated impulse withstand voltage (Uimp) 6000 V AC Safe isolation Safety parameter (EN ISO 13849-1) Shock resistance Suitable for Suitable for Switching angle Type Step switch Step switc	Number of contact units	2
Pollution degree 3 Product category Control switches  Rated impulse withstand voltage (Uimp) 6000 V AC  Safe isolation 440 V AC, Between the contacts, According to EN 61140  Safety parameter (EN ISO 13849-1) B10d values as per EN ISO 13849-1, table C.1  Shock resistance 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms  Suitable for Branch circuits, suitable as motor disconnect, (UL/CSA) Front mounting  Switching angle 60 °  Type Step switch	Operating frequency	1200 Operations/h
Product category  Rated impulse withstand voltage (Uimp)  Safe isolation  Safety parameter (EN ISO 13849-1)  Shock resistance  Suitable for  Switching angle  Type  Control switches  Control sw	Overvoltage category	III
Rated impulse withstand voltage (Uimp)  Safe isolation  Safety parameter (EN ISO 13849-1)  Shock resistance  Suitable for  Switching angle  Type  Step switch  Step switch  Safety parametal conditions  6000 V AC  440 V AC, Between the contacts, According to EN 61140  B10d values as per EN ISO 13849-1, table C.1  B10d values as per EN ISO 13849-1, table C.1  Shock resistance  B15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms  Branch circuits, suitable as motor disconnect, (UL/CSA)  Front mounting  Step switch	Pollution degree	3
Safe isolation  440 V AC, Between the contacts, According to EN 61140  Safety parameter (EN ISO 13849-1)  Shock resistance  Suitable for  Switching angle  Type  440 V AC, Between the contacts, According to EN 61140  B10d values as per EN ISO 13849-1, table C.1  15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms  Branch circuits, suitable as motor disconnect, (UL/CSA) Front mounting  60 °  Step switch  Step switch	Product category	Control switches
Safety parameter (EN ISO 13849-1) Shock resistance Suitable for Switching angle Type Step switch Step switch Suitable c.1  B10d values as per EN ISO 13849-1, table C.1  15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms  Branch circuits, suitable as motor disconnect, (UL/CSA) Front mounting  60 °  Step switch Step switch	Rated impulse withstand voltage (Uimp)	6000 V AC
Shock resistance  Suitable for  Switching angle  Type  Step switch  Shock resistance  15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms  Branch circuits, suitable as motor disconnect, (UL/CSA) Front mounting  60 °  Step switch  Step switch	Safe isolation	440 V AC, Between the contacts, According to EN 61140
Suitable for Branch circuits, suitable as motor disconnect, (UL/CSA) Front mounting  Switching angle 60 °  Type Step switch  Climatic environmental conditions	Safety parameter (EN ISO 13849-1)	B10d values as per EN ISO 13849-1, table C.1
Switching angle 60 ° Type Step switch Climatic environmental conditions Front mounting 60 ° Step switch	Shock resistance	15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms
Type Step switch  Climatic environmental conditions	Suitable for	
Climatic environmental conditions	Switching angle	60°
	Туре	Step switch
	Climatic environmental conditions	JE of

Ambient operating temperature (enclosed) - min	-25 °C
Ambient operating temperature (enclosed) - max	40 °C
Climatic proofing	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
erminal capacities	Danip heat, constant, to IEC 00000-2-70
Terminal capacity (flexible with ferrule)	2 x (0.75 - 2.5) mm <sup>2</sup> , ferrules to DIN 46228 1 x (0.75 - 2.5) mm <sup>2</sup> , ferrules to DIN 46228
Terminal capacity (solid/flexible with ferrule AWG)	18 - 14
Terminal capacity (solid/stranded)	1 x (1 - 2.5) mm <sup>2</sup> 2 x (1 - 2.5) mm <sup>2</sup>
Screw size	M3.5, Terminal screw
Tightening torque	1 Nm, Screw terminals 8.8 lb-in, Screw terminals
lectrical rating	
Rated breaking capacity at 220/230 V (cos phi to IEC 60947-3)	100 A
Rated breaking capacity at 400/415 V (cos phi to IEC 60947-3)	110 A
Rated breaking capacity at 500 V (cos phi to IEC 60947-3)	80 A
Rated breaking capacity at 660/690 V (cos phi to IEC 60947-3)	60 A
Rated operating voltage (Ue) at AC - max	690 V
Rated operational current (Ie) at AC-3, 220 V, 230 V, 240 V	11.5 A
Rated operational current (Ie) at AC-3, 380 V, 400 V, 415 V	11.5 A
Rated operational current (Ie) at AC-3, 500 V	9 A
Rated operational current (Ie) at AC-3, 660 V, 690 V	4.9 A
Rated operational current (Ie) at AC-21, 440 V	20 A
Rated operational current (Ie) at AC-23A, 230 V	13.3 A
Rated operational current (Ie) at AC-23A, 400 V, 415 V	13.3 A
Rated operational current (Ie) at AC-23A, 500 V	13.3 A
Rated operational current (le) at AC-23A, 690 V	7.6 A
Rated operational current (le) at DC-1, load-break switches I/r = 1 ms	10 A
Rated operational current (le) at DC-13, control switches L/R = 50 ms	10 A
Rated operational current (Ie) at DC-21, 240 V	1 A
Rated operational current (le) at DC-23A, 24 V	10 A
Rated operational current (le) at DC-23A, 48 V	10 A
Rated operational current (le) at DC-23A, 60 V	10 A
Rated operational current (le) at DC-23A, 120 V	5 A
Rated operational current (Ie) at DC-23A, 240 V	5 A
Rated operational current (le) star-delta at AC-3, 230 V	20 A
Rated operational current (Ie) star-delta at AC-3, 400 V	20 A
Rated operational current (le) star-delta at AC-3, 500 V	15.6 A
Rated operational current (le) star-delta at AC-3, 690 V	8.5 A
Rated operational power at AC-3, 415 V, 50 Hz	5.5 kW
Rated operational power at AC-3, 500 V, 50 Hz	5.5 kW
Rated operational power at AC-3, 690 V, 50 Hz	4 kW
Rated operational power at AC-23A, 220/230 V, 50 Hz	3 kW
Rated operational power at AC-23A, 400 V, 50 Hz	5.5 kW
Rated operational power at AC-23A, 500 V, 50 Hz	7.5 kW
Rated operational power at AC-23A, 690 V, 50 Hz	5.5 kW
Rated operational power star-delta at 220/230 V, 50 Hz	5.5 kW
Rated operational power star-delta at 380/400 V, 50 Hz	7.5 kW
Rated operational power star-delta at 500 V, 50 Hz	7.5 kW
Rated operational power star-delta at 500 V, 50 Hz	5.5 kW
Rated uninterrupted current (Iu)	20 A
Uninterrupted current	Rated uninterrupted current lu is specified for max. cross-section.
hort-circuit rating	Tacos attended durions to to opposited for max. 61000 docum.

Rated short-time withstand current (Icw)	320 A, Contacts, 1 second
Short-circuit current rating (basic rating)	5 kA, SCCR (UL/CSA) 50A, max. Fuse, SCCR (UL/CSA)
Short-circuit current rating (high fault)	10 kA, SCCR (UL/CSA) 20 A, Class J, max. Fuse, SCCR (UL/CSA)
Short-circuit protection rating	20 A gG/gL, Fuse, Contacts
Switching capacity	
Load rating	2 x l# (with intermittent operation class 12, 25 % duty factor) 1.6 x l# (with intermittent operation class 12, 40 % duty factor) 1.3 x l# (with intermittent operation class 12, 60 % duty factor)
Number of contacts in series at DC-21A, 240 V	1
Number of contacts in series at DC-23A, 24 V	1
Number of contacts in series at DC-23A, 48 V	2
Number of contacts in series at DC-23A, 60 V	3
Number of contacts in series at DC-23A, 120 V	3
Number of contacts in series at DC-23A, 240 V	5
Switching capacity (main contacts, general use)	16 A, Rated uninterrupted current max. (UL/CSA)
Switching capacity (auxiliary contacts, general use)	10A, IU, (UL/CSA)
Switching capacity (auxiliary contacts, pilot duty)	A600 (UL/CSA) P300 (UL/CSA)
Rated making capacity up to 690 V (cos phi to IEC/EN 60947-3)	130 A
Voltage per contact pair in series	60 V
Motor rating	
Assigned motor power at 115/120 V, 60 Hz, 1-phase	0.5 HP
Assigned motor power at 200/208 V, 60 Hz, 1-phase	1 HP
Assigned motor power at 200/208 V, 60 Hz, 3-phase	3 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase	1.5 HP
Assigned motor power at 230/240 V, 60 Hz, 3-phase	3 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase	7.5 HP
Assigned motor power at 575/600 V, 60 Hz, 3-phase	7.5 HP
Contacts	
Control circuit reliability	1 failure per 100,000 switching operations statistically determined, at 24 V DC, 10 mA)
Number of contacts	4
Actuator	
Actuator function	Maintained Without 0 (Off) position
Actuator type	Toggle
Number of steps	4 (60°)
Number of switch positions	4
Design verification	
Equipment heat dissipation, current-dependent Pvid	0 W
Heat dissipation capacity Pdiss	0 W
Heat dissipation per pole, current-dependent Pvid	0.6 W
Rated operational current for specified heat dissipation (In)	20 A
Static heat dissipation, non-current-dependent Pvs	0 W
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 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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.
10.9.2 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 8.0**

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])

Type of switch		Level switch
Number of poles		1
Max. rated operation voltage Ue AC	V	690
Rated permanent current lu	Α	20
Number of switch positions		4
With zero (off) position		No
With retraction in 0-position		No
Device construction		Built-in device
Width in number of modular spacings		0
Suitable for floor mounting		No
Suitable for front mounting		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
Degree of protection (NEMA), front side		12