## **DATASHEET - T0-2-15452/EZ**



Changeoverswitches, T0, 20 A, centre mounting, 2 contact unit(s), Contacts: 4, 90  $^{\circ}$ , maintained, Without 0 (Off) position, HAND-AUTO, design no. 15452





Similar to illustration

Part no. T0-2-15452/EZ Catalog No. 093435

Similar to illustration			
Delivery program			
Product range			Control switches
Part group reference			ТО
Basic function			Changeoverswitches
			with black thumb grip and front plate
Contacts			4
Degree of Protection			Front IP65
Design			centre mounting
Contact sequence			AUTO HAND X X
Switching angle		o	90
Switching performance			maintained Without 0 (Off) position
Design number			15452
Front plate no.			FS 19334
front plate			HAND-AUTO
Motor rating AC-23A, 50 - 60 Hz			
400 V	P	kW	5.5
Rated uninterrupted current	l <sub>u</sub>	А	20
Note on rated uninterrupted current !u			Rated uninterrupted current $I_{\rm u}$ is specified for max. cross-section.
Number of contact units		contact unit(s)	2

# Technical data

delleral		
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	r	g	15
Mounting position			As required
Contacts			
Electrical characteristics			
Rated operational voltage	U <sub>e</sub>	V AC	690
Rated uninterrupted current	I <sub>u</sub>	Α	20
Note on rated uninterrupted current !u			Rated uninterrupted current $I_u$ is specified for max. cross-section.
Load rating with intermittent operation, class 12			
AB 25 % DF		x l <sub>e</sub>	2
AB 40 % DF		x l <sub>e</sub>	1.6
AB 60 % DF		x I <sub>e</sub>	1.3
Short-circuit rating		e	
Fuse		A gG/gL	20
Rated short-time withstand current (1 s current)	I <sub>cw</sub>	A <sub>rms</sub>	320
Note on rated short-time withstand current lcw	'cw	rms	Current for a time of 1 second
Rated conditional short-circuit current		ĿΛ	
Switching capacity	Iq	kA	6
cos φ rated making capacity as per IEC 60947-3		Α	130
Rated breaking capacity cos φ to IEC 60947-3		A	
230 V		A	100
400/415 V		A	110
500 V		A	80
690 V		A	60
Safe isolation to EN 61140		,,	
between the contacts		V AC	440
Current heat loss per contact at l <sub>e</sub>		W	0.6
Current heat loss per auxiliary circuit at I <sub>e</sub> (AC-15/230 V)		CO	0.6
	0		
Lifespan, mechanical	Operations	x 10 <sup>6</sup>	> 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	P	kW	5.5
400 V 415 V	P	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	P	kW	5.5
Rated operational current motor load switch			
230 V	l <sub>e</sub>	Α	11.5
230 V star-delta	l <sub>e</sub>	Α	20
400V 415 V	le	Α	11.5
400 V star-delta	l <sub>e</sub>	Α	20
500 V	I <sub>e</sub>	Α	9
500 V star-delta	I <sub>e</sub>	Α	15.6
690 V	I <sub>e</sub>	Α	4.9
690 V star-delta	I <sub>e</sub>	Α	8.5
AC-23A	Ü		
Motor rating AC-23A, 50 - 60 Hz	Р	kW	
230 V	P	kW	3
400 V 415 V	P	kW	5.5

Part				
Part   Special content neutro load soutch	500 V	P	kW	7.5
200	690 V	P	kW	5.5
400 V15 V	Rated operational current motor load switch			
S00 V	230 V	I <sub>e</sub>	Α	13.3
100	400 V 415 V	l <sub>e</sub>	Α	13.3
DC-1, Load-barraks workches L/N = 1 ms         I.v.         A         10           Marked operational current         I.v.         A         10           DC-1A         I.v.         A         10           DC-1A         I.v.         A         1           Rated operational current         I.v.         A         1           DC-1A, more land switch L/R = 5 ms         2         V         1           24 V         Bated operational current         I.v.         A         10           Contacts         Guantity         1         1           AUV         Contacts         Quantity         1           Bated operational current         I.v.         A         10           Contacts         Quantity         2           Bated operational current         I.v.         A         10           Contacts         Quantity         2           Bated operational current         I.v.         A         5           Contacts         Quantity         3         1           Part operational current         I.v.         A         5           Contacts         Quantity         2         1           Contacts         Quantity         3 <td>500 V</td> <td>le</td> <td>Α</td> <td>13.3</td>	500 V	le	Α	13.3
	690 V	I <sub>e</sub>	Α	7.6
DC-1, Load-break switchis LR = 1 ms	DC			
Rated operational current				
Voltage par contact pair in series		ام	Α	10
DC-21A		Ü	V	
Rated aperational current		l <sub>o</sub>		
Contacts				1
DC-272A, mater land exelect LR = 15 ms   24 V		'e		
Antition   Part   Par			quantity	1
Rated operational current				
Contracts			۸	10
ABade operational current		le		
Rated operational current			Quantity	
Contacts				10
Rated operational current   I		le		
Rated operational current			Quantity	2
Contacts				
120	Rated operational current	l <sub>e</sub>	Α	10
Rated operational current	Contacts		Quantity	3
Contacts  Rated operational current Contacts  Contacts  Contacts  DC-12, Control switches L/R = 50 ms  Rated operational current Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Paul probability  Feath probability  Terminal capacities  Solid or stranded  Fiexible with ferrules to DIN 46228  Fiexible with ferrules to DIN 46228  Fiexible with ferrules to PIN 46228  Fiexible with ferr	120 V			
A Rated operational current Contacts Rated operational current Rated operational current Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability  Fault pro	Rated operational current	I <sub>e</sub>	Α	5
Rated operational current 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 Paul probability  Faul probabi	Contacts		Quantity	3
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  Pault Ferminal capacities  Flexible with ferrules to DIN 46228  Flexible with ferrules for terminal screw  Technical safety  Notes  Rated operational voltage	240 V			
BC-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  Ferminal Capacities  Flexible with ferrules to DIN 46228  Flexible w	Rated operational current	I <sub>e</sub>	Α	5
Rated operational current Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability Fault probabi	Contacts		Quantity	5
Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault probability  Fault 2.5)  2 x (1 - 2.5)  2 x (1 - 2.5)  2 x (0.75 - 2.5)  2 x (0.75 - 2.5)  2 x (0.75 - 2.5)  A.5  Fault Quefor terminal screw  Fault parameters:  Fault alse for approved types  Contacts  Fauted operational voltage  Fauted uninterrupted current max.  Main conducting paths  General use  Auxiliary contacts  General use  Fauted uninterrupted current max.  I general use  Fauted uninterrupted current max.  Auxiliary contacts  General Use  Filet Duty	DC-13, Control switches L/R = 50 ms			
Fount of circuit reliability at 24 V DC, 10 mA  Feurinal capacities  Flexible with ferrules to DIN 46228  Flexible with ferrules to DIN 46228  Flexible with ferrules to reminal screw  Terminal screw  Notes  Rated parameters:  Rated operational voltage  Rated operational voltage  Main conducting paths  General use  Auxiliary contacts  General Use  Pilot Duty  Switching capacity  Fault (1-2,5)  2 x (1-2,5)  3 1x (0.75 - 2.5)  2 x (0.75 - 2.5)  3 1x (0.75	Rated operational current	I <sub>e</sub>	Α	10
Terminal capacities  Solid or stranded	Voltage per contact pair in series		٧	32
Solid or stranded mm² 2 x (1 - 2,5) 2x (1 -	Control circuit reliability at 24 V DC, 10 mA		H <sub>F</sub>	< 10 <sup>-5</sup> ,< 1 failure in 100,000 switching operations
	Terminal capacities			
Flexible with ferrules to DIN 46228  Flexible with ferrules to DIN 46228  Freminal screw  Frem	Solid or stranded		mm <sup>2</sup>	1 x (1 - 2,5) 2 x (1 - 2,5)
Terminal screw	Flexible with ferrules to DIN 46228		2	
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  Auxiliary contacts  General Use  Pilot Duty  Switching capacity  Nm  1  Auxiliary capacity  Nm  1  B10d values as per EN ISO 13849-1, table C1  B10d values as per EN I	TOTAL STATE OF THE		mm-	
Notes B10 <sub>d</sub> values as per EN ISO 13849-1, table C1  Rating data for approved types  Contacts V Contacts  Rated operational voltage V <sub>e</sub> V AC 600  Rated uninterrupted current max.  Main conducting paths  General use Auxiliary contacts  General Use I <sub>U</sub> A 10  Pilot Duty A 600  Switching capacity	Terminal screw			M3.5
Notes B10d 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 Auxiliary contacts General Use Pilot Duty  Switching capacity  B10d values as per EN ISO 13849-1, table C1  B00d  A00  A00  A00  A00  A00  A00  A0	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 Auxiliary contacts  General Use Pilot Duty  Switching capacity  Ue V AC 600  10  10  AC 600	Technical safety parameters:			
Contacts Rated operational voltage Rated uninterrupted current max.  Main conducting paths  General use Auxiliary contacts  General Use Pilot Duty  Switching capacity  A 600 P 300  A 600 P 300	Notes			B10 <sub>d</sub> values as per EN ISO 13849-1, table C1
Rated operational voltage  Rated uninterrupted current max.  Main conducting paths  General use Auxiliary contacts  General Use Pilot Duty  Switching capacity  AC 600  10  A 600  P 300  A 600  P 300				
Rated uninterrupted current max.  Main conducting paths  General use Auxiliary contacts  General Use Pilot Duty  Switching capacity  A 600 P 300  A 600 P 300  A 600 P 300			V 4.0	
Main conducting paths General use Auxiliary contacts General Use Pilot Duty  Switching capacity  A 16  10  A 10  A600 P 300 P 300		U <sub>e</sub>	v AC	bUU .
General use Auxiliary contacts  General Use Pilot Duty  Switching capacity  A  16  A  10  A  600  P 300  B  Contact of the con				
Auxiliary contacts General Use Pilot Duty A 600 P 300 Switching capacity A 600 P 300				
General Use Pilot Duty A 10 A 600 P 300 Switching capacity			Α	16
Pilot Duty A 600 P 300  Switching capacity				
Switching capacity P 300		lu	Α	10
	Pilot Duty			
Maximum motor rating	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	А	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

ooign vormoution to por 120, 211 or 100			
echnical data for design verification			
Rated operational current for specified heat dissipation	In	Α	20
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0.6
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
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.
10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility			Is the panel builder's responsibility.  The panel builder is responsible for the temperature rise calculation. Eat provide heat dissipation data for the devices.  Is the panel builder's responsibility. The specifications for the switchgea observed.  Is the panel builder's responsibility. The specifications for the switchgea observed.  The device meets the requirements, provided the information in the instru

#### **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])

Type of switch		Reverser
Number of poles		2
Max. rated operation voltage Ue AC	V	690
Rated permanent current lu	Α	20
Number of switch positions		2
With 0 (off) position		No
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
Degree of protection (NEMA), front side		12

## **Approvals**

- Physical Control of the Control of	
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**

