# **DATASHEET - T5B-3-8222/E**



Changeoverswitches, Contacts: 6, 63 A, front plate: 1-2, 90 °, maintained, flush mounting





Part no. Catalog No.

EL-Nummer (Norway) 0001456956

092378

T5B-3-8222/E

Similar to illustration

Delivery program			
Product range			Control switches
Part group reference			T5B
Basic function			Changeoverswitches
			with black thumb grip and front plate
Contacts			6
Degree of Protection			Front IP65
Design			flush mounting
Contact sequence			- × × × × ×
Switching angle		0	90
Switching performance			maintained Without 0 (Off) position
Design number			8222
Front plate no.			1 v <sup>2</sup> FS 943
front plate			1-2
Motor rating AC-23A, 50 - 60 Hz			
400 V	P	kW	30
Rated uninterrupted current	I <sub>u</sub>	Α	63
Note on rated uninterrupted current !u			Rated uninterrupted current I <sub>u</sub> is specified for max. cross-section.
Number of contact units		contact unit(s)	3

#### **Technical data**

General

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	63
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			
Fuse		A gG/gL	80
Rated short-time withstand current (1 s current)	I <sub>cw</sub>	A <sub>rms</sub>	1300
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	2
cos φ rated making capacity as per IEC 60947-3		Α	800
Rated breaking capacity cos φ to IEC 60947-3		A	
230 V		A	520
400/415 V		A	600
500 V		A	480
690 V		A	340
Safe isolation to EN 61140		,,	
between the contacts		V AC	440
Current heat loss per contact at I <sub>e</sub>		W	4.5
Current heat loss per auxiliary circuit at I <sub>e</sub> (AC-15/230 V)		CO	4.5
	0		
Lifespan, mechanical	Operations	x 10 <sup>6</sup>	> 0.5
Maximum operating frequency	Operations/h		1200
AC			
AC-3			
Rating, motor load switch	Р	kW	
220 V 230 V	Р	kW	15
230 V Star-delta	Р	kW	18.5
400 V 415 V	Р	kW	22
400 V Star-delta	Р	kW	30
500 V	Р	kW	22
500 V Star-delta	P	kW	37
690 V	P	kW	15
690 V Star-delta	P	kW	22
Rated operational current motor load switch			
230 V	l <sub>e</sub>	Α	51
230 V star-delta	l <sub>e</sub>	Α	63
400V 415 V	l <sub>e</sub>	Α	41
400 V star-delta	I <sub>e</sub>	Α	63
500 V	l <sub>e</sub>	Α	33
500 V star-delta	I <sub>e</sub>	Α	57.2
690 V	I <sub>e</sub>	Α	17
690 V star-delta	I <sub>e</sub>	A	29.4
AC-21A	Ü		
Rated operational current switch			
440 V	I <sub>e</sub>	Α	63
AC-23A	е		
7.0 EU			

Motion range AC 2A, 9a (18 lat 9				
Material System	Motor rating AC-23A, 50 - 60 Hz	Р	kW	
SSO Y	230 V	Р	kW	18.5
BBIL   Part	400 V 415 V	P	kW	30
Pasted operational current motor tead avoids	500 V	P	kW	22
228	690 V	P	kW	22
Mathematical Control of Control	Rated operational current motor load switch			
SOUN	230 V	l <sub>e</sub>	Α	63
CC	400 V 415 V	l <sub>e</sub>	Α	63
CC	500 V	ام	A	33
DC-1, Lond-break awtiches L/H - 1 ms				
DC-1, Land-break avoithers L/R - 1 ms		'e	^	20.0
Rated operational current   I				
Voltage per centact pair in series         V         60-224, notar load switch L/R = 15 ms           24 V         Rated operational current         In         A         9           Contracts         Quantity         1           48 V         Contracts         Quantity         2           Rated operational current         In         A         9           Contacts         Quantity         2           60 V         Contacts         Quantity         3           Rated operational current         In         A         9           Part of Contacts         In         A         2           Quantity         Contacts         In         A         2           Part of Sectors deviations at series         In         A         2           Contacts         In         In         In         In         In				
DC-ZBA, motor load switch L/R = 15 ms   24 V		I <sub>e</sub>		
Rated operational current			V	60
Rated operational current				
Contacts	24 V			
Rated operational current   Iu	Rated operational current	l <sub>e</sub>	Α	50
Rated operational current   Part	Contacts		Quantity	1
Contacts	48 V			
Rated operational current	Rated operational current	le	Α	50
Rated operational current   Pe   A   Contacts   Contacts   Contacts   Pe   A   Contacts   Contacts   Pe   A   Contacts   Pe	Contacts		Quantity	2
Contacts	60 V			
Contacts	Rated operational current	l <sub>e</sub>	Α	50
120 V   Rated operational current		-	Quantity	3
Rated operational current			Luamary	
Contacts		1	Δ	25
240 V         Rated operational current         Incompany to the part of		'e		
Rated operational current lough loug			uuantity	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 Fault probability  Fault 1 × (2.5 - 3.5) 2 × (2.5 - 1.6)  Mm² 1 × (2.5 - 3.5) 2 × (2.5 - 1.6)  M6  Fault probability  Fault in 100000 operations  M6  Fault in 10000 operations  M6  Fault in 100000 operations  M6  M6  Fault in 10-5, 15-10, 10-5, 10-		l <sub>e</sub>		
Rated operational current Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault probability  Ferminal capacities  Solid or stranded  Solid or stranded  Fiexible with ferrules to DIN 46228  Fiexible with ferrules to DIN 46228  Fiexible with ferrules to DIN 4628  Fiexible with ferrule			Quantity	6
Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault probability P	DC-13, Control switches L/R = 50 ms			
Control circuit reliability at 24 V DC, 10 mA  Fault probability  Feurinal capacities  Solid or stranded  Solid or stranded  Solid or stranded  Feurinal screw  Flexible with ferrules to DIN 46228  Flexible with ferrules to Terminal screw  Terminal screw  Terminal screw  Nm  M6  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  Switching capacity  Maximum motor rating  Single-phase  120 V AC  120 V AC  14	Rated operational current	l <sub>e</sub>	Α	25
Terminal capacities  Solid or stranded	Voltage per contact pair in series		V	24
Terminal capacities   Solid or stranded	Control circuit reliability at 24 V DC, 10 mA		HF	< 10 <sup>-5</sup> , < 1 fault in 100000 operations
Solid or strandedmm²1x (2,5 - 35) 2x (2,5 - 16)Flexible with ferrules to DIN 46228mm²1x (1 - 25) 2x (1.5 - 10)Terminal screwM6Tightening torque for terminal screwNm4Technical safety parameters:Notes100 yalues as per EN ISO 13849-1, table C1Rating data for approved typesContactsVAC600Rated operational voltageVAC600Rated uninterrupted current max.A63Main conducting pathsA63Switching capacityA63Maximum motor ratingSingle-phaseHP3120 V ACHP3200 V ACHP7.5	Terminal canacities	probability		
Flexible with ferrules to DIN 46228			mm <sup>2</sup>	1 x (2,5 - 35)
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  Switching capacity  Maximum motor rating  Single-phase  120 V AC  120 V AC  HP  3  2 x (1.5 - 10)  M6  M6  6  M6  6  6  A  6  SWi1.5 - 10)  M6  A  6  A  6  B 10 <sub>d</sub> values as per EN ISO 13849-1, table C1  A  6  B 0  A  6  B 10  A  6  B 10  A  B 3  B 10  B 1			111111	2 x (2,5 - 16)
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 Switching capacity Maximum motor rating Single-phase 120 V AC 120 V AC 120 V AC 140 M6  M6  M6  M6  M6  M6  B10 <sub>d</sub> values as per EN ISO 13849-1, table C1  B00  B10 <sub>d</sub> values as per EN ISO 13849-1, table C1  B10 <sub>d</sub> values as per EN ISO 13849-1, table C1  B10 <sub>d</sub> values as per EN ISO 13849-1, table C1  B10 <sub>d</sub> values as per EN ISO 13849-1, table C1  B10 <sub>d</sub> values as per EN ISO 13849-1, table C1  B10 <sub>d</sub> values as per EN ISO 13849-1, table C1  B10 <sub>d</sub> values as per EN ISO 13849-1, table C1	Flexible with ferrules to DIN 46228		$\text{mm}^2$	
Tightening torque for terminal screw Technical safety parameters:  Notes  B10 <sub>d</sub> 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 63  Switching capacity  Maximum motor rating  Single-phase  120 V AC  HP 3  200 V AC	Terminal screw			
Technical safety parameters:  Notes  Rating data for approved types  Contacts  Rated operational voltage  Rated uninterrupted current max.  Main conducting paths  General use  Switching capacity  Maximum motor rating  Single-phase  120 V AC  120 V AC  HP 3  200 V AC  B10d values as per EN ISO 13849-1, table C1  B10d values as per EN I			Nm	
Notes       B10d values as per EN ISO 13849-1, table C1         Rating data for approved types       Contacts         Rated operational voltage       Ue       V AC       600         Rated uninterrupted current max.       Main conducting paths       A       63         General use       A       63         Switching capacity       A       63         Maximum motor rating       B120 V AC       HP       3         120 V AC       HP       7.5			IVIII	7
Rating data for approved types  Contacts  Rated operational voltage  Ue VAC 600  Rated uninterrupted current max.  Main conducting paths  General use A 63  Switching capacity  Maximum motor rating  Single-phase  120 V AC HP 3 200 V AC HP 7.5				B10 <sub>d</sub> values as per EN ISO 13849-1. table C1
Contacts Rated operational voltage  Rated uninterrupted current max.  Main conducting paths General use  Switching capacity  Maximum motor rating Single-phase  120 V AC HP 3 200 V AC HP 7.5				,,
Rated operational voltage  Rated uninterrupted current max.  Main conducting paths  General use  A 63  Switching capacity  Maximum motor rating  Single-phase  120 V AC  HP 3  200 V AC  HP 7.5				
Rated uninterrupted current max.  Main conducting paths  General use  A 63  Switching capacity  Maximum motor rating  Single-phase  120 V AC  HP 3  200 V AC  HP 7.5		U <sub>e</sub>	V AC	600
Main conducting paths  General use  A 63  Switching capacity  Maximum motor rating  Single-phase  120 V AC  HP 3  200 V AC  HP 7.5				
General use       A       63         Switching capacity       B       C         Maximum motor rating       C       C         Single-phase       C       HP       3         120 V AC       HP       7.5				
Switching capacity  Maximum motor rating  Single-phase  120 V AC  HP 3  200 V AC  HP 7.5			Δ	63
Maximum motor rating         Single-phase           120 V AC         HP         3           200 V AC         HP         7.5				
Single-phase       HP       3         120 V AC       HP       7.5				
120 V AC				
200 V AC HP 7.5			LLD	
240 V AC HP 10				
	240 V AC		HP	10

Three-phase		
200 V AC	HP	15
240 V AC	HP	15
480 V AC	HP	40
600 V AC	HP	40
Short Circuit Current Rating	SCCR	
High fault rating	kA	10
max. Fuse	Α	100, Class J
Terminal capacity		
Solid or flexible conductor with ferrule	AWG	12 - 4
Terminal screw		M6
Tightening torque	lb-in	35.4

# Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	63
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	4.5
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) / Off-load switch (EC001105)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Changeover switch (ecl@ss10.0.1-27-37-14-05 [AKF062013])

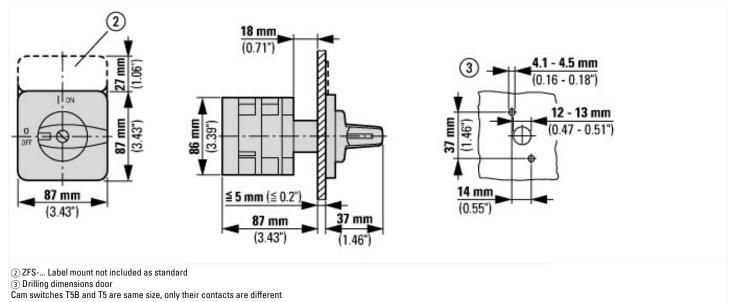
Model		Reverser
-------	--	----------

Number of poles		3
With 0 (off) position		No
With retraction in 0-position		No
·		
Rated permanent current lu	Α	63
Rated operation current le at AC-3, 400 V	Α	41
Rated operation power at AC-3, 400 V	kW	22
Degree of protection (IP), front side		IP65
Degree of protection (NEMA), front side		12
Number of auxiliary contacts as normally closed contact		0
Number of auxiliary contacts as normally open contact		0
Number of auxiliary contacts as change-over contact		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
Material housing		Plastic
Type of control element		Toggle
Type of electrical connection of main circuit		Screw connection

#### **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**



## **Assets (links)**

**Declaration of CE Conformity** 

00003073

**Instruction Leaflets** 

IL03801009Z2018\_05