DATASHEET - T0-2-8021/E



Ammeter selector switches, Contacts: 4, 20 A, 2 converters, front plate: 3-0-1-2, 90 $^{\circ}$, maintained, flush mounting





Part no. Catalog No. T0-2-8021/E 011608

EL-Nummer (Norway) 0001456304

Similar to illustration

Delivery program			
Product range			Control switches
Part group reference			ТО
Basic function			Ammeter selector switches
			with black thumb grip and front plate
Contacts			4
Degree of Protection			Front IP65
Design			flush mounting
Contact sequence			
switching function			2 converters
Switching angle		0	90
Switching performance			maintained With 0 (Off) position
Design number			8021
Front plate no.			0 3—1 2 FS 911
front plate			3-0-1-2
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

Genera

General			
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	٥	С	-25 - +50

Enclosed		°C	-25 - +40
Overvoltage category/pollution degree		U	111/3
Rated impulse withstand voltage	U _{imp}	V AC	6000
Mechanical shock resistance	O _{IMp}		15
Mounting position		g	As required
Contacts			As required
Electrical characteristics			
Rated operational voltage	U _e	V AC	690
Rated uninterrupted current	Iu	A	20
Note on rated uninterrupted current !u	u		Rated uninterrupted current $I_{\rm u}$ is specified for max. cross-section.
Load rating with intermittent operation, class 12			The special control of
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		A =: C/=:I	
Fuse		A gG/gL	
Rated short-time withstand current (1 s current)	I _{cw}	A _{rms}	320
Note on rated short-time withstand current lcw		I. A	Current for a time of 1 second
Rated conditional short-circuit current 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	150
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 I _e		W	0.6
Current heat loss per auxiliary circuit at I _e (AC-15/230 V)		CO	0.6
Lifespan, mechanical	Operations		> 0.4
		x 10 ⁶	
Maximum operating frequency	Operations/h		1200
AC			
AC-3	_		
Rating, motor load switch	P	kW	
220 V 230 V	P	kW	3
230 V Star-delta	Р	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	Р	kW	5.5
Rated operational current motor load switch		^	115
230 V	l _e	A	11.5
230 V star-delta	l _e	Α	20
400V 415 V	I _e	Α	11.5
400 V star-delta	l _e	Α	20
500 V	I _e	Α	9
500 V star-delta	l _e	Α	15.6
690 V	I _e	Α	4.9
690 V star-delta	I _e	Α	8.5
10 014			
AC-21A			

DC-1, Load-break awitches L/II = 1 ms Rated operational current Ia Ia Ia Ia Ia Ia Ia I				
Mateur mating AC 20A, 59 - 60 161	440 V	I _e	Α	20
Part	AC-23A			
Manual M	Motor rating AC-23A, 50 - 60 Hz	P	kW	
	230 V	Р	kW	3
BRIOL Operational current motor load evotes	400 V 415 V	P	kW	5.5
Red Oy 19	500 V	Р	kW	7.5
Rated speciational current motor load eviction		P		
		'	NVV	
4,00 \ 415 \ V 1.0				10.0
SOU		I _e		
	400 V 415 V	l _e	Α	13.3
	500 V	I _e	Α	13.3
DC-1, Load foreats switches I, R = 1 ms Rated operational current I	690 V	I _e	Α	7.6
Rated operational current Ig A 10 DC-21A Ig A 1 Bated operational current Ig A 1 Contacts Ig Quantity 1 DC-23A, motar land evitch UR = 15 ms 24V Bated operational current Ig A 10 Contacts Ig A 10 Ig A 10 Contacts Ig A 10 Ig <td>DC</td> <td></td> <td></td> <td></td>	DC			
Rated operational current Ig A 10 DC-21A Ig A 1 Bated operational current Ig A 1 Contacts Ig Quantity 1 DC-23A, motar land evitch UR = 15 ms 24V Bated operational current Ig A 10 Contacts Ig A 10 Ig A 10 Contacts Ig A 10 Ig <td>DC-1, Load-break switches L/R = 1 ms</td> <td></td> <td></td> <td></td>	DC-1, Load-break switches L/R = 1 ms			
Voltage per contact pair in sories CD-C21A Ic		l _a	Α	10
DC-21A Image: part of the problem of the proble		•е		
Rated operational current I				00
Contacts				
DC-22A, motor load switch L/R = 15 ms 24 V	Rated operational current	I _e	Α	1
Antition Part	Contacts		Quantity	1
Rated operational current	DC-23A, motor load switch L/R = 15 ms			
Contacts	24 V			
Contacts	Rated operational current	I _e	Α	10
ABLED operational current Le				
Rated operational current Part			Quantity	
Contacts			Δ.	40
Rated operational current		I _e		
Rated operational current Incompany	Contacts		Quantity	2
Contacts 120 V	60 V			
Rated operational current In International current International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control circuit reliability at 24 V DC, 10 mA International Control	Rated operational current	I _e	Α	10
Rated operational current I _B A Quantity Quant	Contacts		Quantity	3
Contacts Contact survey Co	120 V			
Contacts Contact survey Co	Rated operational current	l _e	Α	5
240 V Rated operational current Rotated operational current			Quantity	3
Rated operational current Contacts Contacts DC-13, Control switches L/R = 50 ms Rated operational current Rated operational current Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability F			Quantity	
Contacts 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 Ferminal capacities Ferminal screw Fights in product to both 46228 Figh				-
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 Probability Fault probability F		le		
Rated operational current Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability Fault in 100000 operations			Quantity	5
Voltage per contact pair in series Control circuit reliability at 24 V DC, 10 mA Fault probability Fault in 100000 operations Fault in 10000	DC-13, Control switches L/R = 50 ms			
Fault probability HF	Rated operational current	I _e	Α	10
Ferminal capacities Solid or stranded mm² 1x (1 - 2.5) 2x (1 - 2.5) 2x (1 - 2.5) 2x (0.75 -	Voltage per contact pair in series		V	32
Ferminal capacities Solid or stranded mm² 1x (1 - 2.5) 2x (1 - 2.5) 2x (1 - 2.5) 2x (0.75 -	Control circuit reliability at 24 V DC, 10 mA		H _F	< 10 ⁻⁵ , < 1 fault in 100000 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 Tightening torque		probability		,
Flexible with ferrules to DIN 46228 Flexible with ferrules to DIN 46228 Freminal screw Fightening torque for terminal screw Flow for terminal				. (4. 27)
Flexible with ferrules to DIN 46228 mm² 1 x (0.75 - 2.5) 2 x (0.75 - 2.5) Terminal screw M3.5 Fightening torque for terminal screw Flexible with ferrules to DIN 46228 Nm 1 Flexible with ferrules to DIN 46228 Nm 1 Flexible with ferrules to DIN 46228 Na.5 Flexible with ferrules to DIN 46228 Na.5 Flexible with ferrules to DIN 46228 Na.5 Flexible with ferrules to DIN 46228 Ma.5 Flexible with ferrules to DIN 46228 Ma.5 Na.5 Flexible with ferrules to DIN 46228 Ma.5 Flexible with	Solid or stranded		mm ²	1 x (1 - 2,5) 2 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 A 16	Flexible with ferrules to DIN 46228		2	
Tightening torque for terminal screw Fechnical safety parameters: 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 Nm 1 B10 _d values as per EN ISO 13849-1, table C1 B10 _d values as per EN ISO 13849-1, table C1 B10 _d values as per EN ISO 13849-1, table C1 B10 _d values as per EN ISO 13849-1, table C1 B10 _d values as per EN ISO 13849-1, table C1 B10 _d values as per EN ISO 13849-1, table C1 A 16	Trexible with refficies to DIN 40220		mm ²	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 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	Tightening torque for terminal screw		Nm	1
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 B10 _d values as per EN ISO 13849-1, table C1 600 A 16				
Contacts Rated operational voltage Ue VAC 600 Rated uninterrupted current max. Main conducting paths General use A 16	Notes			B10 _d values as per EN ISO 13849-1, table C1
Contacts Rated operational voltage Ue VAC 600 Rated uninterrupted current max. Main conducting paths General use A 16	Rating data for approved types			
Rated uninterrupted current max. Main conducting paths General use A 16	Contacts			
Rated uninterrupted current max. Main conducting paths General use A 16	Rated operational voltage	U _e	V AC	600
Main conducting paths General use A 16		· ·		
General use A 16				
Auxiliary contacts			А	16
	Auxiliary contacts			

General Use	lu	Α	10
Pilot Duty			A 600 P 600
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
Terminal capacity Solid or flexible conductor with ferrule Terminal screw		AWG	18 - 14 M3.5

Design verification as per IEC/EN 61439

Design vernication as per IEG/EN 01439			
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
C/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.
$10.2.3.3\mbox{Verification}$ 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) / Amp meter switch (EC000912)

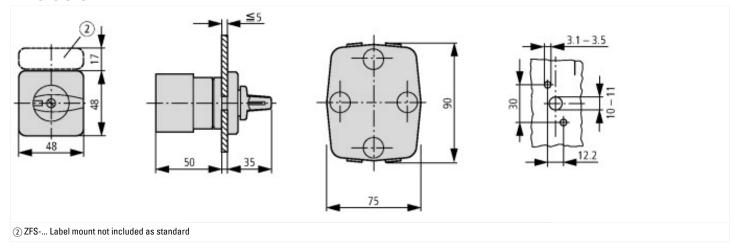
Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Ammeter switch (ecl@ss10.0.1-27-37-14-12 [AKF069013])

With 0 (off) position	Yes
Device construction	Front installation
Modular version	No
With control unit	Yes
Degree of protection (IP)	IP65
Degree of protection (NEMA)	12

Approvals

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
Specially designed for North America	Yes, with an alternative front plate and/or terminal markings to those of the IEC type in combination with "+NA" (105864)
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

00003075

Instruction Leaflets

IL03801020Z2018_05