

On-Off switch, 3 pole + N, 20 A, 90 °, rear mounting, Basic switch



Part no. Article no. T0-2-8900/XZ 226093

Similar to illustration

			0.0%
Product range			On-Off switch
Part group reference			ТО
Number of poles			3 pole + N
Design			rear mounting Basic switch
Contact sequence			
Switching angle		٥	90
Front plate no.			FS 908
Motor rating AC-23A, 50 - 60 Hz			
400 V	Р	kW	5.5
Rated uninterrupted current	l <sub>u</sub>	А	20
Number of contact units		contact unit(s)	2

## Technical data General

General			
Standards			IEC/EN 60947, VDE 0660, IEC/EN 60204 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			111/3
Rated impulse withstand voltage	U <sub>imp</sub>	V AC	6000
Mechanical shock resistance		g	15
Mounting position			As required
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Contacts			
Mechanical variables			
Number of poles			3 pole + N
Electrical characteristics			
Rated operational voltage	U <sub>e</sub>	V AC	690
Rated uninterrupted current	l <sub>u</sub>	А	20
Note on rated uninterrupted current $!_{\rm u}$			Rated uninterrupted current lu is specified for max. cross-section.
Load rating with intermittent operation, class 12			
AB 25 % DF		x I <sub>e</sub>	2
AB 40 % DF		x I <sub>e</sub>	1.6
AB 60 % DF		x l <sub>e</sub>	1.3

Image: statusImage:	Short-circuit rating			
Rest with a statusNoN			A gG/gL	20
Name and with the second sec	Rated short-time withstand current (1 s current)	Icw		
interdencional matrix particity and its constraint and particity asseries or and matrix partix particity asseries or and matrix particity asseries or				Current for a time of 1 second
NumberNumberSet relationship space (set (Set 600))AAa constant shape space (set (Set 600))AAa constant shape space (set (Set 600))ABa constant space (set (Set (Set (Set (Set (Set (Set (Set (S		la	kA	
constraining capachy and rife GBM3KKKKSayKKKK <td></td> <td>1</td> <td></td> <td></td>		1		
21 400/15/ 400/15/ 600/16/	$\cos\phi$ rated making capacity as per IEC 60947-3		А	130
400 NoNoNoNo000 No<	Rated breaking capacity $\cos \phi$ to IEC 60947-3		A	
SYABBYABByABByVABCommendent second at (A-1522 M)VABCommendent second at (A-1522 M)VASCommendent second at (A-152 M)VAS <td>230 V</td> <td></td> <td>A</td> <td>100</td>	230 V		A	100
NoteNoteNoteNoteSevention StatusNoteNoteNoteConstructorsNoteNoteNoteConstructorsNote </td <td>400/415 V</td> <td></td> <td>A</td> <td>110</td>	400/415 V		A	110
Addition to FN 140ModelM	500 V		A	80
between the contactsNACVACRefCurrent teak lay ar contact 1/4 CA 15223 VIOrano00Uname, teak lay ar contact 1/4 CA 15223 VIParatase3Uname, teak lay ar contact 1/4 CA 15223 VIParatase3Uname, teak lay ar contact 1/4 CA 15223 VIParatase3Contact 1/4 CA 15223 VIParatase10Contact 1/4 CA 15223 VIParatase102013 VISAr oldsParatase102013 VISAr oldsParatase102014 VISAr oldsPar	690 V		А	60
Current hall has per candiany decisiting (ACD SQNM)V0Current hall has per candiany decisiting (ACD SQNM)Operation0Current half has per candiany decisiting (ACD SQNM)Operation0Marcent per candiany decisiting (ACD SQNM)Operation0ACDACDACDACDACDACDACDACDACDPACDACDACDPACDACDACD Son-officPACDACDACD Son-officACDACDACDACD Son-officACDACDAC	Safe isolation to EN 61140			
Current heat has been available in the current of	between the contacts		V AC	440
Kitesopen independenceOpenationA is a set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independenceAcional set of progenese independenceNacional set of progenese independenceNacional set of progenese independence </td <td>Current heat loss per contact at I<sub>e</sub></td> <td></td> <td>W</td> <td>0.6</td>	Current heat loss per contact at I <sub>e</sub>		W	0.6
Main Age Age Age AgeParton Age Age AgeParton Age Age Age AgeParton Age Age Age AgeParton Age Age AgeParton Age Ag	Current heat loss per auxiliary circuit at $\rm I_e$ (AC-15/230 V)		CO	0.6
Main A <br< td=""><td>Lifespan, mechanical</td><td>Operations</td><td>x 10<sup>6</sup></td><td>&gt; 0.4</td></br<>	Lifespan, mechanical	Operations	x 10 <sup>6</sup>	> 0.4
ACImage: set of the set of t		Operations/h	X IU	1200
AC-3PIIBring, motor load switchPIRW201 V20 VPIRW5201 V20 VPIRW5400 V15VPIRW5400 V5ar-detaPIRW7500 VPIRW7600 V5ar-detaPIRW7600 V5ar-detaPIRW7 </td <td>AC</td> <td></td> <td></td> <td></td>	AC			
Rating, meter load switchPNU220 V200 Var-delaPNU32400 Var-delaPNU54400 Var-delaPNU55600 VPNU55600 Var-delaPNU55600 Var-delaPNU56800 Var-delaPNU56800 Var-delaPNU56800 Var-delaPNU56800 Var-delaPNU52000 Var-delaNU572000 Var-delaNU572000 Var-delaNU872000 Var-delaNU87 </td <td></td> <td></td> <td></td> <td></td>				
PNMS220 V3DvPNMS220 V3DvPNWS400 V41SVPNWS400 V41SVPNWS500 V3m-detaPNWS600 V3m-detaPNWS600 V3m-detaPNWS600 V3m-detaPNWS600 V3m-detaPNWS600 V3m-detaPNWS600 V3m-detaPNWS600 V3m-detaPNWS720 V3m-detaNNS720 V3m-detaNNS720 V3m-detaNNS600 V3m V4mNNS600 V3m detaNNS600 V3m detaNNS600 V3m detaNNS600 V3m detaNNS720 V3m detaNNN720 V3m detaNNN720 V3m deta		Р	kW	
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qγKWS400 V Star-deltaPKW5500 V Star-deltaPKW5600 V Star-deltaPKW4600 V Star-deltaPKW4600 V Star-deltaPKW5720 V Star-deltaPKW5720 V Star-deltaR77720 V Star-deltaR77 </td <td></td> <td></td> <td></td> <td></td>				
IIIVI600 VSur-detaPIVI500 VSur-detaPIVI600 VSur-detaPIVI600 VSur-detaPIVI720 VSur-detaIII720 VSur-deta		Р		
PNVS90V Star-detaPNVS90V Star-detaPNVS90V Star-detaPNVS720VNNS920V Star-detaNNS920V Star-detaNNN920V Star-detaNNN920V Star-detaNNN920V Star-detaPNN920V Star-detaPNN920V Star-detaNNN920V Star-deta<		Р		
PPFF600 Visr-deltaPKW4600 Visr-deltaPKW5Rated operational content motor load switchPFF200 Visr-deltaIFFF200 Visr-deltaIFFF400 Visr-deltaIFFF600 Visr-deltaIFFF600 Visr-deltaIFFF600 Visr-deltaIFFF600 Visr-deltaIFFF600 Visr-deltaIFFF600 Visr-deltaIFFF600 Visr-deltaIFFF600 Visr-deltaIFFF720 Visr-deltaIFFF720 Visr-deltaPKWFF720 Visr VisrPKWFF720 Visr VisrPKWFF720 Visr VisrIFFF720 Visr VisrIIFF720 VisrIIII720 VisrIIII720 VisrIIII720 VisrIIII720 VisrIIII720 VisrIIII720 VisrIIII720 VisrIIII720 Visr				
eightpickkW4680 Y Star-detaFKW5Rated operational current motor load switchKW520 VIaA1520 V Star-detaIaA16400 V Star-detaIaA3400 V Star-detaIaA3400 V Star-detaIaA3500 VIaA3500 VIaA3500 VIaA3600 V Star-detaIaA3600 V Star-detaIaA3600 V Star-detaIaA3600 V Star-detaIaA4600 V Star-detaIaA4600 V Star-detaIaA5600 V Star-detaIaA5600 V Star-detaIaA5600 V Star-detaIaA5700 V Star-detaIaA5700 V Star-detaIaA5700 V Star-detaIaA5700 V Star-detaIaIa5700 V Star-detaIaIa5700 V Star-detaIaIa5700 V Star-detaIaIa6700 V Star-detaIaIa1a700 V Star-detaIaIa1a700 V Star-detaIaIa1a700 V Star-detaIaIaIa700 V Star-detaIaIaIa<		Р		
Reted operational current motor load switch In In   230 V clar.delta In In   4000 V fls V In In   4000 V fls V In In   4000 V flar.delta In In   500 V In In   500 V In In   600 V flar.delta In In   700 V In In </td <td></td> <td>Р</td> <td>kW</td> <td></td>		Р	kW	
Reted operational current motor load switch I   280 V I   280 V star-delta I   4000 V 15 V I   4000 V 15 V I   600 V 51 C-dolta I   500 V I   500 V I   600 V 51 C-dolta I   700 V		Р		
280 VIII280 V star-deltaIII400V 415 VIII400V 415 VIII600V 411 - VIII500 VIII500 VIII600 V star-deltaIII600 V star-deltaIII700 V star-deltaI <td>Rated operational current motor load switch</td> <td></td> <td></td> <td></td>	Rated operational current motor load switch			
200 Star-detaIAAA400V 415 VIIII400 Star-detaIAII500 VIAII500 V star-detaIAII690 V star-detaIAII690 V star-detaIAII690 V star-detaIAIIAC-21 AIIIIRated operational current switchIIIAdv VIIIIAdv VIIII30 VIIII30 VIIII30 VIIII600 VIIII300 VIIII		le	A	11.5
400/415V i i i   400/5tar-delta i i i   500 V star-delta i i i   600 V star-delta i i i   700 V i i i   700 V i i i   600 V star-delta i i i   600 V i i i   600 V i i i   600 V i i i   700 V i i i   700 V i i i   700 V star delta i i	230 V star-delta		A	20
400 V star-delta Io A B   500 V 6 A B   500 V star-delta Io A B   690 V star-delta Io A B   690 V star-delta Io A B   690 V star-delta Io A B   600 V star-delta Io A B   700 V star-delta Io A B   600 V star-delta Io S B   600 V star-delta Io				
SOD V     Son V     I     A     A       SOD V star-delta     I     SOD V star-delta     I     SOD V star-delta     I				
500 V star-delta     Ie     A     56       680 V     Ie     A     49       690 V star-delta     Ie     A     50       AC-21A     Ie     A     50       Rated operational current switch     Ie     A     50       AC-23A     Ie     A     50       Motor rating AC-23A, 50 - 60 Hz     P     KU     50       200 V     P     KU     50       300 V     P     Ret     53       300 V     P </td <td></td> <td></td> <td></td> <td></td>				
image: section of the sectio				
690 v star-delta     Ie     A       690 v star-delta     Ie     A       AC-21A     Ie     Ie       Rated operational current switch     Ie     Ie       440 V     Ie     Ie     Ie       440 V     Ie     Ie     Ie     Ie       Ac-23A     Ie     Notor rating AC-23A, 50 - 60 Hz     P     KW     Ie       230 V     P     KW     Ie				
AC-21A     AC-23A     AC-23A<				
Rated operational current switch     Method     Metho		le	A	8.5
440 VIeA AA AAC-23AMotor rating AC-23A, 50 - 60 HzPKV-230 VPKV3400 V 415 VPKV5500 VPKV5690 VPKV5720 VPKV5230 VPKV5230 VPKV5230 VPKV3400 V 415 VPA33600 VPA33600 VPA33600 VPA50600 VPA50600 VPA50600 VPA50600 VPA50600 VPA507PPA600 VPPP7PPP7PPP7PPP7PPP7PPP7PPP7PPP7PPP7PPP7PPP7PPP7PPP7PPP7PPP7PPP7PPP7P <td></td> <td></td> <td></td> <td></td>				
AC-23A     P     Motor rating AC-23A, 50 - 60 Hz     P     KW       230 V     P     KW     3       400 V 415 V     P     KW     5       500 V     P     KW     5       690 V     P     KW     5       230 V     P     KW     5       690 V     P     KW     5       690 V     P     KW     5       230 V     P     KW     5       690 V     P     KW     5       230 V     P     KW     5       230 V     I     A     3       400 V 415 V     I     I     3       600 V     I     I     3       600 V     I     I     3       690 V     I     I     I       690 V     I     I     I				
Motor rating AC-23A, 50 - 60 HzPkW230 VPKW3400 V 415 VPKW5500 VPKW5690 VPKW5Rated operational current motor load switch230 VII3400 V 415 VI3690 VIA13600 VIA13600 VIA13690 VIA13690 VIII690 VIII690 VIII690 VIII690 VIII690 VIII690 VIII690 VIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIIIAIII </td <td></td> <td>le</td> <td>A</td> <td>20</td>		le	A	20
230 V P KW 3   400 V 415 V P KW 5   500 V P KW 5   600 V P KW 5   600 V P KW 5   200 V P A 3   200 V P P A				
400 V 415 V P KW 5.5 500 V P KW 7.5 600 V P KW 5.5 Rated operational current motor load switch P P F F F F F F F F F F F F F F F F F				
500 V P kW 7.5   600 V P kW 5.5   Rated operational current motor load switch P A 3.3   230 V Ie A 3.3   400 V 415 V Ie A 3.3   500 V Ie A 3.3   690 V Ie A 3.3				
690 V P kW 5.5   Rated operational current motor load switch Ie A 13.3   230 V Ie A 13.3   400 V 415 V Ie A 13.3   500 V Ie A 13.3   690 V Ie A 13.4   690 V Ie A 13.4				
Rated operational current motor load switch Image: Participant state sta				
230 V Alborno Ie A I33 A00 V A15 V Ie A I33 500 V A15 V Ie A I33 690 V Ie A I33 COULT IN A IE A ISA ISA ISA ISA ISA ISA ISA ISA ISA I		Р	kW	5.5
400 V 415 V Ie A 13.3   500 V Ie A 3.3   690 V Ie A 7.6				
500 V Ie A 13.3   690 V Ie A 7.6	230 V	le	A	
690 V Ie A 7.6	400 V 415 V	le	A	13.3
	500 V	le	А	13.3
	690 V	Ι <sub>e</sub>	А	7.6
DC-1 Load-broak switches L/R = 1 ms	DC			
UC-1, LUBU-UFERK SWILLIES L/II - 1 1115	DC-1, Load-break switches L/R = 1 ms			

Rated operational current	I <sub>e</sub>	А	10
Voltage per contact pair in series		V	60
DC-21A	l <sub>e</sub>	А	
Rated operational current	I <sub>e</sub>	A	1
Contacts		Quantity	1
DC-23A, motor load switch L/R = 15 ms			
24 V			
Rated operational current	I <sub>e</sub>	А	10
Contacts		Quantity	1
48 V			
Rated operational current	I <sub>e</sub>	А	10
Contacts		Quantity	2
60 V			
Rated operational current	I <sub>e</sub>	А	10
Contacts		Quantity	3
120 V			
Rated operational current	I <sub>e</sub>	А	5
Contacts		Quantity	3
240 V			
Rated operational current	le	А	5
Contacts		Quantity	5
DC-13, Control switches L/R = 50 ms			
Rated operational current	l <sub>e</sub>	А	10
Voltage per contact pair in series		V	32
Control circuit reliability at 24 V DC, 10 mA	Fault probability	H <sub>F</sub>	< 10 <sup>-5</sup> , < 1 fault in 100000 operations
Terminal capacities			
Solid or stranded		mm <sup>2</sup>	1 x (1 - 2,5) 2 x (1 - 2,5)
Flexible with ferrules to DIN 46228		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Terminal screw			M3.5
Max. tightening torque		Nm	1
Technical safety parameters:			
Notes			B10 <sub>d</sub> values as per EN ISO 13849-1, table C1
Rating data for approved types Terminal capacity			
			M2 E
Terminal screw			M3.5

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Technical 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
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			Please enquire

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 6.0**

Low-voltage industrial components (EG000017) / Switch disconnector (EC000216)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Switch disconnector (ecl@ss8.1-27-37-14-03 [AKF060010]) Version as main switch

Version as maintenance-/service switch		No
Version as safety switch		No
Version as emergency stop installation		No
Version as reversing switch		No
Max. rated operation voltage Ue AC	V	690
Rated operating voltage	V	690 - 690
Rated permanent current lu	А	20
Rated permanent current at AC-21, 400 V	А	20
Rated operation power at AC-3, 400 V	kW	5.5
Rated short-time withstand current lcw	kA	0.32
Rated operation power at AC-23, 400 V	kW	5.5
Switching power at 400 V	kW	5.5
Conditioned rated short-circuit current Iq	kA	6
Number of poles		4
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
Motor drive optional		No
Motor drive integrated		No
Voltage release optional		No
Device construction		Built-in device fixed built-in technique
Suitable for ground mounting		Yes
Suitable for front mounting 4-hole		No
Suitable for front mounting center		No
Suitable for distribution board installation		No
Suitable for intermediate mounting		Yes
Colour control element		Black
Type of control element		Toggle
Interlockable		No
Type of electrical connection of main circuit		Screw connection

IP00