DATASHEET - TM-1-8178/EZ



ON-OFF button, Contacts: 2, 10 A, front plate: 0-I<START, 90 °, momentary, centre mounting



Part no. Catalog No.

EL-Nummer

(Norway)

TM-1-8178/EZ 016786

0001456171

Delivery program

bonnony program			
Product range			Control switches
Part group reference			тм
Basic function			ON-OFF button
			with black thumb grip and front plate
Contacts			2
Degree of Protection			Front IP65
Design			centre mounting
Contact sequence			
Switching angle		0	90
Switching performance			momentary With 0 (Off) position With spring-return from start to 1
Design number			8178
Front plate no.			0 - 0 F 119
front plate			0-I <start< th=""></start<>
Motor rating AC-23A, 50 - 60 Hz			
400 V	Р	kW	3
Rated uninterrupted current	lu	A	10
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

Standards IEC/EN 60947, VDE 0660, CSA, UL Control switch as per IEC/EN 60947-5-1 Auxiliary switch as per IEC/EN 60947-5-1 Climatic proofing Image: Constant of the constant of	General		
Ambient temperature Damp heat, cyclic, to IEC 60068-2-30	Standards		Control switch as per IEC/EN 60947-5-1
	Climatic proofing		
0 non	Ambient temperature		
	Open	°C	-25 - +50

Bate optimized without without without optimized metabolisesUpper descriptionVACAnnominal control optimizationBate optimizationsUpper descriptionUpper descriptionUpper descriptionUpper descriptionBate optimizationsUpper descriptionUpper descriptionUpper descriptionUpper descriptionBate optimizationsUpper descriptionUpper descriptionUpper descriptionUpper descriptionState-state optimization optimizationUpper descriptionUpper descriptionUpper descriptionState-state optimization optimizationUpper descriptionUpper descriptionUpper descriptionState-state optimizationUpper descriptionUpper descriptionUpper description </th <th>Overvoltage category/pollution degree</th> <th></th> <th></th> <th>111/3</th>	Overvoltage category/pollution degree			111/3
NetworkNetworkCharacterizationUIResonanceUNResonanceUNResonanceUNResonanceUNResonanceUNResonanceUNResonanceUNResonanceUNResonanceUNResonanceNNResonanc		U _{imn}	V AC	
ControlNote or set functions Rend operational wingsNote or set functions and operational wingsNote or set functions a set of the set		p		As required
Index operational valuesIq.VAC94Reace operational valuesIq.AIReace operational valuesIq.Iq.Iq.Reace operational valuesIq.Iq.Iq.Reace operational valuesIq.Iq.Iq.Reace operational valuesIq.Iq.Iq.Stretchick operational valuesIq.Iq.Iq.Concerto head values operational valuesIq.Iq.Iq.Concerto head valuesIq.Iq.Iq.Iq.AdvancementsIq.Iq.Iq.Iq.Iq.AdvancementsIq.Iq.Iq.Iq.Iq.AdvancementsIq.Iq.Iq.Iq.Iq.AdvancementsIq.Iq.Iq.Iq.Iq.AdvancementsIq.Iq.Iq.Iq.Iq.AdvancementsIq.Iq.Iq.Iq.Iq.AdvancementsIq.Iq.Iq.Iq.Iq.AdvancementsIq.Iq.Iq.Iq.Iq.AdvancementsIq.Iq.Iq.Iq.Iq.AdvancementsIq.Iq.Iq.Iq.Iq.AdvancementsIq.				
Instal uninterrupted current I, Note on rated uninterrupted current I, is specified for max. cross-section. Note criterial uniterrupted current I, is specified for max. cross-section. Note criterial uniterrupted current I, is specified for max. cross-section. Source contrast uninterrupted current I, is specified for max. cross-section. Note contrast transment I, is specified for max. cross-section. Source contrast uninterrupted current I, is specified for max. cross-section. Note contrast transment I, is specified for max. cross-section. Source contrast uninterrupted current I, is specified for max. cross-section. Note contrast transment I, is specified for max. cross-section. Source contrast uninterrupted current I, is specified for max. cross-section. Note Contrast transment I, is specified for max. cross-section. Source contrast uninterrupted current I, is specified for max. cross-section. Note Contrast transment I, is specified for max. cross-section. Source contrast uninterrupted current I, is specified for max. cross-section. Note Contrast transment I, is specified for max. cross-section. Max. Note Contrast transment I, is specified for max. cross-section. Note Contrast transment I, is specified for max. cross-section. Read uninterrupted current L, is specified for max. cross-section. Note Contrast transment I, is specified for max. cross-section. Read uninterrupted current L, is specified for max. cross-section. Note Contreat tr	Electrical characteristics			
Note in all diminifungued current l ₄ is pecified for max. cross-section.Shore contrainingAll all diminifungued current l ₄ is specified for max. cross-section.Faire document diminifungued current l ₄ is specified for max. cross-section.All all all all all all all all all all	Rated operational voltage	Ue	V AC	500
SubscreeningAnd A	Rated uninterrupted current	l _u	А	10
SubscreeningAnd A	Note on rated uninterrupted current !u			Rated uninterrupted current I _u is specified for max. cross-section.
FieldAlebitAlebitStrictureNote				
SwitesideNoteNoteSwitesideNoteNoteNoteCurrent has less per swilling circuit at ly (AC-15920 V)NoteNoteCircuit has less per swilling circuit at ly (AC-15920 V)NoteNoteMaximum extraining frequencyOperationsNoteAcNoteNoteNot			A gG/gL	10
Current hard loss par audiary circuit at 1, 462-1592801NNNNCorrent hard loss par audiary circuit at 1, 462-159280101010Maximum querchand, Gaussen0000ActAct 2AMotor and AC23A,50-00 HCPN0000Aut 15 VControl circuit ar diability 32 42 VDC, 10 mAPN0Bottar diability 32 42 VDC, 10 mAPN0	Switching capacity			
Current heat heat near auxilary or out at ty AC-19/2004RealRealRealRealLispan, machanicalOperationsNotRealRealRealAct_2APNotPNotActor rating AC-238, So-60 HoPNotPNotActor rating AC-238, So-60 HoPNotPNotControd corter density of Adv DD, 10 MAPNotPNotCorter docurs density of Adv DD, 10 MAPNotNotNotFebrile docurs docurs density of Adv DD, 10 MAPNotNotFebrile docurs docurs density of Adv DD, 10 MANotNotNotFebrile docurs docurs density of Adv DD, 10 MANotNotNotFebrile docurs docu	Safe isolation to EN 61140			
IdeauPartial	Current heat loss per contact at I _e		W	0.15
Maxmum operating frequency Operation Image: Constraint of	Current heat loss per auxiliary circuit at I_e (AC-15/230 V)		C0	0.15
Maximum operating frequencyOperating Ac2 and the second of th	Lifespan, mechanical	Operations	x 10 ⁶	>1
AC-3A P W Ac-3A P P Acada P P </td <td>Maximum operating frequency</td> <td>Operations/h</td> <td></td> <td>1200</td>	Maximum operating frequency	Operations/h		1200
AC-23A AC-23A, 50 - 60 Hr P KV Motor rating AC-23A, 50 - 60 Hr P KV Image: Control direction of the second		, , , , , , , , , , , , , , , , , , , ,		
Motor rating AC-23A, 50 - 60 Hz P KW A00 V 415 V P KW 3 Contol circuit reliability at 24 V DC, 10 mA Fee booksility He 0 ¹ / ₂ · 1 fault in 100000 operations Terminal capacities U ¹ / ₂ · 1 fault in 100000 operations Solid or stranded I · 1.5 2:1.5 Rexible with ferrules to DIN 46228 I · 1.0 2:1.5 Terminal screw Mm 1:1.5 Terminal screw Me W2.5 Table operational voltage Me VAC Rating data for approved types Main Main conducting paths General Use VAC Solid or strained Man conducting paths VAC Solid or strained Single-phase VAC Solid or strained Main conducting paths VAC Solid or strained Single-phase VAC Solid or strained Single-phase VAC Solid or strained Table ADV AC VAC Solid or strained Single-phase VAC Solid or strained				
A00 V45 Y P NV 3 Control circuit reliability at 24 V0C, 10 mA Fuel bability H° 10 ³ <1 fault in 10000 operations		Р	kW	
Control circuit reliability at 24 VDC, 10 mA Feature of the subbility Peature of the subbility Peature of the subbility Peature of the subbility Solid or stranded I I I I I I I I I I I I I I I I I I I	-			3
Torminal cancel Torminal cancel Solid or stranded Image: Solid		Fault		
Solid or stranded ind ind ind ind Fiexible with ferules to DIN 46228 ind ind ind Fiexible ind ind ind Fiexible ind ind ind Tarminal scrow ind ind ind Main conducting paths ind ind ind General Use ind ind ind Main conducting paths ind ind ind Solid circle indexing ind ind ind Main cond				
Field with ferrules to DIN 46228 Imm 2 × 1.5 Fiexble with ferrules to DIN 46228 Imm 2 × 1.0 Fiexble Imm 2 × 1.5 Fiexble with ferrules to DIN 46228 Imm 2 × 1.5 Fiexble with ferrules to DIN 46228 Imm 2 × 1.5 Fiexble with ferrules to DIN 46228 Imm 2 × 1.5 Terminal screw Main Main Terminal screw Main Main Rated operational voltage Vot Vot Vot Rated operational voltage Vot Vot Vot Rated operational voltage Vot Vot Vot Abstition routicity paths Vot Vot Vot General Use Vot Aux 10 Auxiliary contacts Vot Aux Imm Switching capacity Vot Aux Imm Main motor rating Vot Aux Imm Switching capacity Imm Imm Imm Main motor rating Imm Imm Imm Yot AC Imm Imm Imm Imm				
Field Internation of the serve of the se	Solid or stranded		mm ²	
Terminal screw 2x15 Terminal screw M25 Tightenja torque for terminal screw Nm 0.4 Rating data for approved types Nm 0.4 Contexts Nm 0.4 Rated operational voltage VAC 00 Rated operational voltage VAC 0.4 Main conducting paths VAC 0.4 General use VAC 0.4 Auxiliary contacts VAC 0.4 General Use VAC 0.4 Maximum motor rating VAC A00 Switching capacity VAC A00 Sidi on Accounter the scale VAC A00 Suitching capacity VAC A00 Svitching capacity VAC A00 Sidi on Accounter the scale VAC A00 Suitching capacity VAC A00 Suitching capacity VAC A00 Suitching capacity PH A00 Suitching cap	Flexible with ferrules to DIN 46228		mm ²	
Tightening torque for terminal screw Nm 0.4 Rating data for approved types Contacts V.e. 300 Rated operational voltage V.e. 300 Rated operational voltage V.e. 4 Main conducting paths Image: Contacts Image: Contacts General use V.e. A Acxiliary contacts Image: Contacts Image: Contacts General Use Image: Contacts Image: Contacts Pilot Duty A 1mage: Contacts Switching capacity Image: Contacts Image: Contacts Single-phase Image: Contacts Image: Contacts 120 V AC HP 0.3 120 V AC HP 0.5 120 V AC HP	Flexible		mm ²	
Ratic data for approved types Image: second sec	Terminal screw			M2.5
Contacts ue VAC Rated operational voltage Ue VAC Main conducting paths Ue VAC General use N N Auxiliary contacts N N General Use N N Pito Duty N N Switching capacity N N Maximum motor rating N N Suigle-phase N N 120 VAC P N Three-phase N N 120 VAC P N Suid (Textube Conductor with ferrule) N N	Tightening torque for terminal screw		Nm	0.4
Rated operational voltageVeVAC300Rated uninterrupted current max.Image: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMain conducting pathsImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsGeneral useImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMaximum contratingImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMaximum motor ratingImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMaximum contratingImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMaximum contratingImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMaximum contratingImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMaximum contratingImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMaximum contratingImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMaximum contratingImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMaximum contratingImage: Second conducting pathsImage: Second conducting pathsImage: Second conducting pathsMaximum cond conducting pathsImage: Second conducting pathsImage: Second conducting pa				
Rated uninterrupted current max. Image: Section of Sectin of Section of Section of Section of Sectin of Section o				
Main conducting paths Image: Contract set set set set set set set set set se	Rated operational voltage	U _e	V AC	300
General use A P P Auxiliary contacts I A I General Use I A I Pilot Duty I A300 Switching capacity I I Maximum motor rating I I Single-phase I I 120 V AC I I 240 V AC I I 120 V AC I I				
Auxiliary contactsIIGeneral UseUA10Pilot DuryAA300Switching capacityMaximum notor ratingSingle-phase240 V AC-HP03240 V ACThree-phase120 V AC120 V AC50id or flexible conductor with ferruleSolid or flexible conductor with ferrule-AVG120 V AC120 V AC<				
General UseIuAAPilot DutyAA30Switching capacityAAMaximu motor ratingFFSingle-phaseFF120 V ACFD240 V ACFD7Three-phaseFD120 V ACFD120 V			Α	10
Pilot Duty A 300 Switching capacity Image: Section of the section of t				
Switching capacity Image: Switching capacity Image: Switching capacity Image: Switching capacity Maximum motor rating Image: Switching capacity Image: Switching capacity Maximum motor rating Image: Switching capacity Image: Switching capacity Solid or flexible conductor with ferrule Image: Switching capacity Image: Switching capacity		lu	A	
Maximum notor ratingImage: selection of the selec				A 300
Single-phase Image: marked state sta				
120 V ACHP0.33240 V ACHP0.75277 V ACHP0.75Three-phaseHP0.75120 V ACHP0.75240 V ACHP0.75240 V ACHP0.75Terminal capacityHP1Solid or flexible conductor with ferruleAWGAWG	-			
240 V ACHP.75277 V ACHP.75Three-phaseHP.75120 V ACHP.75240 V ACHP.75Terminal capacityHP.75Solid or flexible conductor with ferruleMBAWG120 V ACAWG14				
277 V AC HP 0.75 Three-phase HP 0.75 120 V AC HP 0.75 240 V AC HP 0.75 240 V AC HP 0.75 Terminal capacity HP 0.75 Solid or flexible conductor with ferrule AWG 14	120 V AC			
Three-phase Image: Phase of the phase 120 V AC HP 0.75 240 V AC HP 1 Terminal capacity Image: Phase of the phase	240 V AC		HP	
120 V AC HP 0.75 240 V AC HP 1 Terminal capacity HP 1 Solid or flexible conductor with ferrule AWG 14			HP	0.75
240 V AC HP Terminal capacity HP Solid or flexible conductor with ferrule AWG				
Terminal capacity AWG Solid or flexible conductor with ferrule AWG				0.75
Solid or flexible conductor with ferrule AWG 14			HP	1
Terminal screw M2.5			AWG	
	Terminal screw			M2.5
Tightening torque Ib-in 3.5	Tightening torque		lb-in	3.5

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	А	10

Heat dissipation per pole, current-dependent	P _{vid}	W	0.15
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
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 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) / 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])

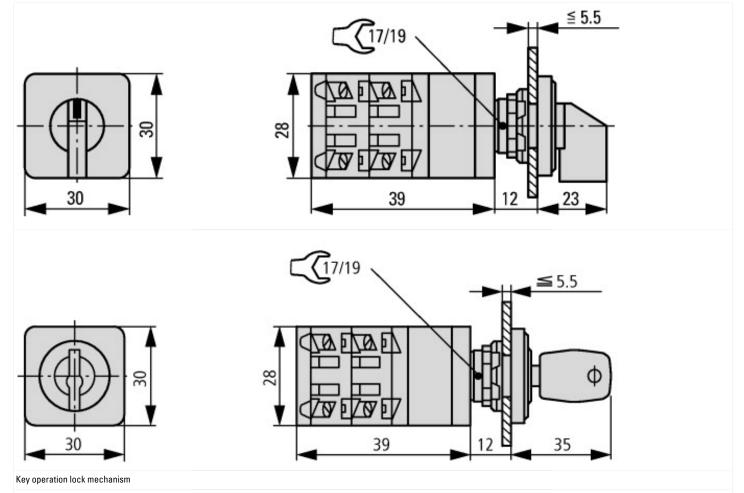
	On/Off switch
	2
V	500
А	10
	3
	Yes
	Yes
	Built-in device
	0
	No
	Yes
	No
	No
	No
	Toggle
	48x48 mm
	IP65

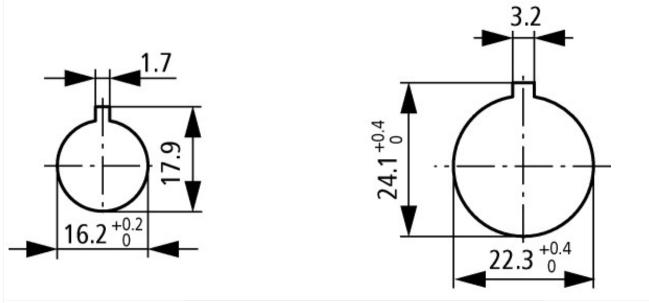
Degree of protection (NEMA), front side

Other

Approvals	
Product Standards	UL 508; CSA-C22.2 No. 14-05; CSA-C22.2 No. 94; IEC/EN 60947-3; CE marking
UL File No.	E36332
UL Category Control No.	NLRV
CSA File No.	UL report applies to both US and Canada
North America Certification	UL listed, certified by UL for use in Canada
Degree of Protection	IEC: IP65; UL/CSA Type:

Dimensions





Door drilling dimensions Drilling dimensions: either 16.2 mm = without reduction ≙ RMQ16 or 22.3 mm = with reduction ≙ RMQ Titan

Assets (links)

Declaration of CE Conformity 00002932 Instruction Leaflets IL03801027Z2018_04