step switch for heating, T0, 20 A, service distribution board mounting, 2 contact unit(s), Contacts: 4, 60 °, maintained, With 0 (Off) position, 0-3, Design number 95



Part no. T0-2-95/IVS

012237

EL Number 1456754

(Norway)

Porduct trane Part no. 10 - 5-55 VIS EAN Product Length Vilepth Product with high Product with 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	(Norway)	
Part no. T0 2-48/VS EAM 405888122271 Product length/Depth 50 millimetre Product kelgld 50 millimetre Product width 10 12 klogram Curificacions VEC 688093 LICCH MISS? LICCH MISS? LICCH MISS? Sepswitch Product Tadge	General specifications	
Froduct targetyDepth Product twelpth Product veright Product Tradename Product Tra	Product name	Eaton Moeller® series TO Step switch
Product Length Villegith Product Length Villegith Product Length Villegith Product winght October weight Octobe	Part no.	T0-2-95/IVS
Product height Product width Product width Product width Ol 12 kilorgam Ol 12 kil	EAN	4015080122371
Product width Product weight Cardifications Cardifi	Product Length/Depth	92 millimetre
Product weight Certifications Certif	Product height	55 millimetre
Cardications Fitted with: Inscription Inscription Degree of protection front side) Degree of protection front side of the side of t	Product width	54 millimetre
EICEN 800473 EICE	Product weight	0.12 kilogram
Product Type Product Sub Type Catalog Notes Rated Short-time Withstand Current (Icw) for a time of 1 second Features & Functions Fitted with: Black thumb grip and front plate O(off) position O-3 Number of poles General information Degree of protection Degree of protection (Front side) Product cut units Operating requency Operating requency Operating requency Overvoltage category Product category Product category Product category Rated impulse withstand voltage (Uimp) Safe is solation Safe you category State parameter (EN ISO 13849-1) Shock resistance Suitable for Single-pole State you category State of protection State you category State parameter (EN ISO 13849-1) Shock resistance Suitable for Stribution board installation Brain and suitable so motor disconnect, (UL/CSA) Sint bling angle Sixthing angle	Certifications	IEC/EN 60204 IEC/EN 60947 IEC/EN 60947-3 UL 60947-4-1 UL UL Category Control No.: NLRV CSA-C22.2 No. 60947-4-1-14 CE CSA CSA CSA CSA CSA UL 60947-4-1-14 CE UL UL UL Category Control No.: NLRV CSA-C22.2 No. 60947-4-1-14 CE UL
Product Sub Type Catalog Notes Rated Short-time Withstand Current (Icw) for a time of 1 second Fitted with: Black thumb grip and front plate Offit position O-3 Number of poles Seneral information Degree of protection (Iront side) Degree of protection (Iront side) Lifespan, mechanical Mounting method Mounting method Mounting position Number of contact units Operating frequency Operating frequency Degree atagory Product category Product category Rated impulse withstand voltage (Uimp) Safe isolation Safety parameter (En ISO 13849-1) Shock resistance Suitable for Switching angle Mounting angle Find Shock resistance Suitable for Switching angle Mounting angle Find Shock resistance Suitable for Rated Short-time Withstand voltage (Uiro) (Iron 1 sine of 1 second Installation Branch Circuits, suitable as motor disconnect, (UL/CSA) Signature (Ilon 2 second Installation Branch Circuits, suitable as motor disconnect, (UL/CSA)	Product Tradename	TO
Catalog Notes Features & Functions Fitted with: Inscription Number of poles Seneral information Degree of protection (front side) Lifespan, mechanical Mounting method Mounting method Mounting position Number of contact units Operating frequency Overvoltage category Product category Product category Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a time of 1 second Rated Short-time Withstand Current (lcw) for a second carrent (lcw) for a second carrent (lcw) for a secon	Product Type	Step switch
Fitted with: Fi	Product Sub Type	None
Fitted with: Inscription Number of poles Seneral information Degree of protection (front side) Lifespan, mechanical Mounting method Mounting method Mounting position Number of contact units Operating frequency Overvoltage category Product category Rated impulse withstand voltage (Uimp) Safe isolation Safe isolation Safe isolation Safe isolation Sutitable for Sutitable for Sutitable for Sutitable for Black thumb grip and front plate 0 (loff) position 0-3 Single-pole 1P20 PP20 NEMA 2 IP20 NEMA 2 400,000 Operations As required 400,000 Operations Service distribution board mounting As required As required 1200 Operations/h 1200 Operation	Catalog Notes	Rated Short-time Withstand Current (Icw) for a time of 1 second
Fitted with: Inscription Number of poles Seneral information Degree of protection (front side) Lifespan, mechanical Mounting method Mounting method Mounting position Number of contact units Operating frequency Overvoltage category Product category Rated impulse withstand voltage (Uimp) Safe isolation Safe isolation Safe isolation Safe isolation Sutitable for Sutitable for Sutitable for Sutitable for Black thumb grip and front plate 0 (loff) position 0-3 Single-pole 1P20 PP20 NEMA 2 IP20 NEMA 2 400,000 Operations As required 400,000 Operations Service distribution board mounting As required As required 1200 Operations/h 1200 Operation	eatures & Functions	
Number of poles Seneral information Degree of protection Degree of protection (Front side) Degree of protection (Front side) Lifespan, mechanical Mounting method Mounting position As required Number of contact units Operating frequency Overvoltage category III Pollution degree Product category Rated impulse withstand voltage (Uimp) Safets parameter (EN ISO 13849-1) Shock resistance Suitable for Single-pole IP30 IP30 NEMA 2 400,000 Operations Service distribution board mounting As required 2 2 1200 Operations/h III 6000 V AC Control switches 6000 V AC Safety parameter (EN ISO 13849-1) Billod values as per EN ISO 13849-1, table C.1 Shock resistance Suitable for Switching angle Switching angle	Fitted with:	
Degree of protection Degree of protection (front side) Degree of protection (front side) Lifespan, mechanical Mounting method Mounting position Mounting position Mounting position Mounting position Mounting position Mounting position As required Number of contact units Qerating frequency 1200 Operations/h Unrould geree 3 Product category III Pollution degree 3 Rated impulse withstand voltage (Uimp) Safe isolation Asfe isolation Mounting position Mounting position As required Control switches 6000 V AC Safe isolation Mounting position board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle	Inscription	0-3
Degree of protection Degree of protection (front side) Lifespan, mechanical Mounting method Mounting position Number of contact units Operating frequency Overvoltage category Product category Rated impulse withstand voltage (Uimp) Safety parameter (EN ISO 13849-1) Shock resistance Suitable for Switching angle IP30 IP30 NEMA 2 IP30 NEMA 2 400,000 Operations Service distribution board mounting As required 400,000 Operations Service distribution board mounting As required 2 2 1200 Operations/h III 11 12 12 12 12 12 12 12 1	Number of poles	Single-pole
Degree of protection (front side) Lifespan, mechanical Mounting method Mounting position Mounting position Mounting position Number of contact units Operating frequency Operating frequency Overvoltage category III Pollution degree Product category Rated impulse withstand voltage (Uimp) Safe isolation Safe y parameter (EN ISO 13849-1) Shock resistance Suitable for Switching angle IP30 NEMA 2 400,000 Operations As required 400,000 Operations Service distribution board mounting 2 2 1200 Operations/h III Control switches 43 Control switches 6000 V AC 440 V AC, Between the contacts, According to EN 61140 B 10d values as per EN ISO 13849-1, table C.1 Squared installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle	General information	
Lifespan, mechanical Mounting method Mounting position Mounting position Number of contact units Operating frequency Overvoltage category Product category Rated impulse withstand voltage (Uimp) Safe isolation Safe isolation Safety parameter (EN ISO 13849-1) Shock resistance Suitable for Switching angle NEMA 2 400,000 Operations 400,000 Operations As required As required 2 Control switches 1200 Operations/h 1200 Operations 2 1200 Operations 1200 Operations 2 1200 Operations 1200 Operations 1200 Operations 1200 Operations 1200 Operations 1200 Operations 1200 Operations 1200 Operations 1200	Degree of protection	IP30
Mounting method Mounting position As required As required Number of contact units 2 Operating frequency Overvoltage category III Pollution degree 3 Product category Rated impulse withstand voltage (Uimp) Safe isolation Safety parameter (EN ISO 13849-1) Shock resistance Suitable for Switching angle Service distribution board mounting As required As required As required Control switches 1200 Operations/h Control switches 6000 V AC 400 V AC, Between the contacts, According to EN 61140 B10d values as per EN ISO 13849-1, table C.1 Shock resistance Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle	Degree of protection (front side)	
Mounting position Number of contact units Operating frequency Overvoltage category Product category Product category Rated impulse withstand voltage (Uimp) Safe isolation Safe y parameter (EN ISO 13849-1) Shock resistance Suitable for Switching angle As required 2 Control switches 110 Control switches 6000 V AC 440 V AC, Between the contacts, According to EN 61140 B10d values as per EN ISO 13849-1, table C.1 Shock resistance Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle	Lifespan, mechanical	400,000 Operations
Number of contact units Operating frequency Overvoltage category III Pollution degree Product category Control switches Rated impulse withstand voltage (Uimp) Safe isolation Safety parameter (EN ISO 13849-1) Shock resistance Suitable for Switching angle 2 1200 Operations/h III Control switches Control switches 6000 V AC 440 V AC, Between the contacts, According to EN 61140 B10d values as per EN ISO 13849-1, table C.1 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle	Mounting method	Service distribution board mounting
Operating frequency Overvoltage category III Pollution degree 3 Product category Control switches Rated impulse withstand voltage (Uimp) Safety parameter (EN ISO 13849-1) Shock resistance Suitable for Switching angle 1200 Operations/h III 2 3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Mounting position	As required
Overvoltage category Product category Rated impulse withstand voltage (Uimp) Safe isolation Safety parameter (EN ISO 13849-1) Shock resistance Suitable for Switching angle III Control switches Control switches 6000 V AC 440 V AC, Between the contacts, According to EN 61140 440 V AC, Between the contacts, According to EN 61140 55g (Bound mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle	Number of contact units	2
Pollution degree 3 Product category Control switches Rated impulse withstand voltage (Uimp) 6000 V AC Safe isolation 440 V AC, Between the contacts, According to EN 61140 Safety parameter (EN ISO 13849-1) B10d values as per EN ISO 13849-1, table C.1 Shock resistance 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms Suitable for Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle 60 °	Operating frequency	1200 Operations/h
Product category Rated impulse withstand voltage (Uimp) 6000 V AC Safe isolation Safety parameter (EN ISO 13849-1) Shock resistance Suitable for Suitable for Switching angle Control switches 6000 V AC 440 V AC, Between the contacts, According to EN 61140 440 V AC, Between the contacts, According to EN 61140 510 Values as per EN ISO 13849-1, table C.1 510 Values as per EN ISO 13849-1, table C.1 511 Shock resistance Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle	Overvoltage category	III
Rated impulse withstand voltage (Uimp) Safe isolation 440 V AC, Between the contacts, According to EN 61140 Safety parameter (EN ISO 13849-1) Shock resistance 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms Suitable for Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle 60 °	Pollution degree	3
Safe isolation 440 V AC, Between the contacts, According to EN 61140 Safety parameter (EN ISO 13849-1) Shock resistance 5 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle 60°	Product category	Control switches
Safety parameter (EN ISO 13849-1) Shock resistance 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms Suitable for Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle 60 °	Rated impulse withstand voltage (Uimp)	6000 V AC
Shock resistance 15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms Suitable for Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle 60 °	Safe isolation	440 V AC, Between the contacts, According to EN 61140
Suitable for Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle 60 °	Safety parameter (EN ISO 13849-1)	B10d values as per EN ISO 13849-1, table C.1
Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Switching angle 60 °	Shock resistance	15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms
	Suitable for	Distribution board installation
Type Step switch for heating	Switching angle	60°
	Туре	Step switch for heating

Ambient operating temperature - min	-25 °C
Ambient operating temperature - max	50 °C
Ambient operating temperature (enclosed) - min	-25 °C
Ambient operating temperature (enclosed) - max	40 °C
Climatic proofing	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
Ferminal capacities	
Terminal capacity (flexible with ferrule)	1 x (0.75 - 2.5) mm², ferrules to DIN 46228 2 x (0.75 - 2.5) mm², ferrules to DIN 46228
Terminal capacity (solid/flexible with ferrule AWG)	18 - 14
Terminal capacity (solid/stranded)	2 x (1 - 2.5) mm ² 1 x (1 - 2.5) mm ²
Screw size	M3.5, Terminal screw
Tightening torque	1 Nm, Screw terminals 8.8 lb-in, Screw terminals
Electrical rating	
Rated breaking capacity at 220/230 V (cos phi to IEC 60947-3)	100 A
Rated breaking capacity at 400/415 V (cos phi to IEC 60947-3)	110 A
Rated breaking capacity at 500 V (cos phi to IEC 60947-3)	80 A
Rated breaking capacity at 660/690 V (cos phi to IEC 60947-3)	60 A
Rated operating voltage (Ue) at AC - max	690 V
Rated operational current (Ie) at AC-3, 220 V, 230 V, 240 V	11.5 A
Rated operational current (Ie) at AC-3, 380 V, 400 V, 415 V	11.5 A
Rated operational current (Ie) at AC-3, 500 V	9 A
Rated operational current (Ie) at AC-3, 660 V, 690 V	4.9 A
Rated operational current (Ie) at AC-21, 440 V	20 A
Rated operational current (Ie) at AC-23A, 230 V	13.3 A
Rated operational current (Ie) at AC-23A, 400 V, 415 V	13.3 A
Rated operational current (Ie) at AC-23A, 500 V	13.3 A
Rated operational current (Ie) at AC-23A, 690 V	7.6 A
Rated operational current (Ie) at DC-1, load-break switches I/r = 1 ms	10 A
Rated operational current (Ie) at DC-13, control switches L/R = 50 ms	10 A
Rated operational current (Ie) at DC-21, 240 V	1A
Rated operational current (le) at DC-23A, 24 V	10 A
Rated operational current (Ie) at DC-23A, 48 V	10 A
Rated operational current (Ie) at DC-23A, 60 V	10 A
Rated operational current (Ie) at DC-23A, 120 V	5 A
Rated operational current (Ie) at DC-23A, 240 V	5 A
Rated operational current (Ie) star-delta at AC-3, 230 V	20 A
Rated operational current (le) star-delta at AC-3, 400 V	20 A
Rated operational current (le) star-delta at AC-3, 500 V	15.6 A
Rated operational current (le) star-delta at AC-3, 500 V	8.5 A
Rated operational power at AC-3, 415 V, 50 Hz	5.5 kW
Rated operational power at AC-3, 500 V, 50 Hz	5.5 kW
Rated operational power at AC-3, 500 V, 50 Hz	4 kW
Rated operational power at AC-23A, 220/230 V, 50 Hz	3 kW
Rated operational power at AC-23A, 420 V, 50 Hz	5.5 kW
Rated operational power at AC-23A, 400 V, 50 Hz	7.5 kW
Rated operational power at AC-23A, 500 V, 50 Hz	5.5 kW
Rated operational power star-delta at 220/230 V, 50 Hz	5.5 kW
Rated operational power star-delta at 380/400 V, 50 Hz	7.5 kW
Rated operational power star-delta at 500 V, 50 Hz	7.5 kW
Rated operational power star-delta at 690 V, 50 Hz	5.5 kW
Rated uninterrupted current (Iu)	20 A
Uninterrupted current	Rated uninterrupted current lu is specified for max. cross-section.

Rated conditional short-circuit current (Iq)	6 kA
Rated short-time withstand current (Icw)	320 A, Contacts, 1 second
Short-circuit current rating (basic rating)	5 kA, SCCR (UL/CSA) 50A, max. Fuse, SCCR (UL/CSA)
Short-circuit current rating (high fault)	20 A, Class J, max. Fuse, SCCR (UL/CSA) 10 kA, SCCR (UL/CSA)
Short-circuit protection rating	20 A gG/gL, Fuse, Contacts
Switching capacity	
Load rating	2 x I# (with intermittent operation class 12, 25 % duty factor) 1.6 x I# (with intermittent operation class 12, 40 % duty factor) 1.3 x I# (with intermittent operation class 12, 60 % duty factor)
Number of contacts in series at DC-21A, 240 V	1
Number of contacts in series at DC-23A, 24 V	1
Number of contacts in series at DC-23A, 48 V	2
Number of contacts in series at DC-23A, 60 V	3
Number of contacts in series at DC-23A, 120 V	3
Number of contacts in series at DC-23A, 240 V	5
Switching capacity (main contacts, general use)	16 A, Rated uninterrupted current max. (UL/CSA)
Switching capacity (auxiliary contacts, general use)	10A, IU, (UL/CSA)
Switching capacity (auxiliary contacts, pilot duty)	A600 (UL/CSA) P300 (UL/CSA)
Rated making capacity up to 690 V (cos phi to IEC/EN 60947-3)	130 A
Voltage per contact pair in series	60 V
Motor rating	
Assigned motor power at 115/120 V, 60 Hz, 1-phase	0.5 HP
Assigned motor power at 200/208 V, 60 Hz, 1-phase	1 HP
Assigned motor power at 200/208 V, 60 Hz, 3-phase	3 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase	1.5 HP
Assigned motor power at 230/240 V, 60 Hz, 3-phase	3 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase	7.5 HP
Assigned motor power at 575/600 V, 60 Hz, 3-phase	7.5 HP
Contacts	
Control circuit reliability	1 failure per 100,000 switching operations statistically determined, at 24 V DC, 10 mA)
Number of contacts	4
Actuator	
Actuator function	With 0 (Off) position Maintained
Actuator type	Toggle
Number of switch positions	4
Design verification	
Equipment heat dissipation, current-dependent Pvid	0 W
Heat dissipation capacity Pdiss	0 W
Heat dissipation per pole, current-dependent Pvid	0.6 W
Rated operational current for specified heat dissipation (In)	20 A
Static heat dissipation, non-current-dependent Pvs	0 W
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 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects	Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation	Meets the product standard's requirements.
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.
10.9.2 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 9.0

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@ss13-27-37-14-14 [ACN998016])

Type of switch		Level switch
Number of poles		1
Max. rated operation voltage Ue AC	V	690
Rated permanent current lu	А	20
Number of switch positions		4
With zero (off) position		Yes
With retraction in 0-position		No
Device construction		Built-in device
Width in number of modular spacings		4
Suitable for floor mounting		Yes
Suitable for front mounting		No
Suitable for distribution board installation		Yes
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		IP30
Degree of protection (NEMA), front side		2