026991
T0-1-15431/IVS

Overview
Specifications
Resources

DELIVERY PROGRAM

Product range
Control switches

Part group reference
T0

Basic function
Changeoverswitches

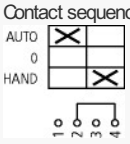
with black thumb grip and front plate

Contacts
2

Degree of Protection
Front IP30

Design
service distribution board mounting

Contact sequence

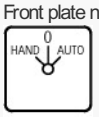


Switching angle
45 °

Switching performance
maintained
With 0 (Off) position

Design number
15431

Front plate no.



FS 1401

front plate
HAND-0-AUTO

Motor rating AC-23A, 50 - 60 Hz [P]

400 V [P]
5.5 kW

Rated uninterrupted current [I_u]
20 A

Note on rated uninterrupted current I_u
Rated uninterrupted current I_u is specified for max. cross-section.

Number of contact units
1 contact unit(s)

TECHNICAL DATA

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
-25 - +50 °C

Ambient temperature
Enclosed
-25 - +40 °C

Overvoltage category/pollution degree
III/3

Rated impulse withstand voltage [U_{imp}]
6000 V AC

Mechanical shock resistance
15 g

Mounting position
As required

Contacts

Electrical characteristics
Rated operational voltage [U_e]
690 V AC

Electrical characteristics
Rated uninterrupted current [I_u]
20 A

Electrical characteristics
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
2 x I_e

Load rating with intermittent operation, class 12
AB 40 % DF
1.6 x I_e

Load rating with intermittent operation, class 12
AB 60 % DF
1.3 x I_e

Short-circuit rating
Fuse
20 A gG/gL

Rated short-time withstand current (1 s current) [I_{cw}]
320 A_{rms}

Note on rated short-time withstand current Icw
Current for a time of 1 second

Rated conditional short-circuit current [I_q]
6 kA

Switching capacity

cos ϕ rated making capacity as per IEC 60947-3
130 A

Rated breaking capacity cos ϕ to IEC 60947-3
230 V

100 A

Rated breaking capacity cos ϕ to IEC 60947-3
400/415 V
110 A

Rated breaking capacity cos ϕ to IEC 60947-3
500 V
80 A

Rated breaking capacity cos ϕ to IEC 60947-3
690 V
60 A

Safe isolation to EN 61140
between the contacts
440 V AC

Safe isolation to EN 61140
Current heat loss per contact at I_e
0.6 W

Safe isolation to EN 61140
Current heat loss per auxiliary circuit at I_e (AC-15/230 V)
0.6 CO

Lifespan, mechanical [Operations]
> 0.4 x 10^6

Maximum operating frequency [Operations/h]
1200

AC
AC-3
Rating, motor load switch [P]
220 V 230 V [P]
3 kW

AC
AC-3
Rating, motor load switch [P]
230 V Star-delta [P]
5.5 kW

AC
AC-3
Rating, motor load switch [P]
400 V 415 V [P]
5.5 kW

AC
AC-3
Rating, motor load switch [P]
400 V Star-delta [P]
7.5 kW

AC
AC-3
Rating, motor load switch [P]
500 V [P]
5.5 kW

AC
AC-3
Rating, motor load switch [P]
500 V Star-delta [P]
7.5 kW

AC
AC-3
Rating, motor load switch [P]
690 V [P]
4 kW

AC
AC-3
Rating, motor load switch [P]
690 V Star-delta [P]
5.5 kW

AC
AC-3
Rated operational current motor load switch
230 V [I_e]
11.5 A

AC
AC-3
Rated operational current motor load switch
230 V star-delta [I_e]
20 A

AC
AC-3
Rated operational current motor load switch
400V 415 V [I_e]
11.5 A

AC
AC-3
Rated operational current motor load switch
400 V star-delta [I_e]
20 A

AC
AC-3
Rated operational current motor load switch
500 V [I_e]
9 A

AC
AC-3
Rated operational current motor load switch
500 V star-delta [I_e]
15.6 A

AC
AC-3
Rated operational current motor load switch
690 V [I_e]
4.9 A

AC
AC-3
Rated operational current motor load switch
690 V star-delta [I_e]
8.5 A

AC
AC-21A
Rated operational current switch
440 V [I_e]
20 A

AC
AC-23A
Motor rating AC-23A, 50 - 60 Hz [P]
230 V [P]
3 kW

AC
AC-23A
Motor rating AC-23A, 50 - 60 Hz [P]
400 V 415 V [P]
5.5 kW

AC
AC-23A
Motor rating AC-23A, 50 - 60 Hz [P]
500 V [P]
7.5 kW

AC
AC-23A
Motor rating AC-23A, 50 - 60 Hz [P]
690 V [P]
5.5 kW

AC
AC-23A
Rated operational current motor load switch
230 V [I_e]
13.3 A

AC
AC-23A
Rated operational current motor load switch
400 V 415 V [I_e]
13.3 A

AC
AC-23A
Rated operational current motor load switch
500 V [I_e]
13.3 A

AC
AC-23A
Rated operational current motor load switch
690 V [I_e]
7.6 A

DC
DC-1, Load-break switches L/R = 1 ms
Rated operational current [I_e]
10 A

DC
DC-1, Load-break switches L/R = 1 ms
Voltage per contact pair in series
60 V

DC
DC-21A [I_e]
Rated operational current [I_e]
1 A

DC
DC-21A [I_e]
Contacts
1 Quantity

DC
DC-23A, motor load switch L/R = 15 ms
24 V
Rated operational current [I_e]
10 A

DC
DC-23A, motor load switch L/R = 15 ms
24 V
Contacts
1 Quantity

DC
DC-23A, motor load switch L/R = 15 ms
48 V
Rated operational current [I_e]
10 A

DC
DC-23A, motor load switch L/R = 15 ms
48 V
Contacts
2 Quantity

DC
DC-23A, motor load switch L/R = 15 ms
60 V
Rated operational current [I_e]
10 A

DC
DC-23A, motor load switch L/R = 15 ms
60 V
Contacts
3 Quantity

DC
DC-23A, motor load switch L/R = 15 ms
120 V
Rated operational current [I_e]
5 A

DC
DC-23A, motor load switch L/R = 15 ms
120 V
Contacts
3 Quantity

DC
DC-23A, motor load switch L/R = 15 ms
240 V
Rated operational current [I_e]
5 A

DC
DC-23A, motor load switch L/R = 15 ms
240 V
Contacts
5 Quantity

DC
DC-13, Control switches L/R = 50 ms
Rated operational current [I_e]
10 A

DC
DC-13, Control switches L/R = 50 ms
Voltage per contact pair in series
32 V

Control circuit reliability at 24 V DC, 10 mA [Fault probability]
< 10^{-5},< 1 failure in 100,000 switching operations H=

Terminal capacities

Solid or stranded
1 x (1 - 2,5)
2 x (1 - 2,5) mm^2

Flexible with ferrules to DIN 46228
1 x (0.75 - 2.5)
2 x (0.75 - 2.5) mm^2

Terminal screw
M3.5

Tightening torque for terminal screw
1 Nm

Technical safety parameters:

Notes
$B10_d$ values as per EN ISO 13849-1, table C1

Rating data for approved types

Contacts
Rated operational voltage [U_e]
600 V AC

Contacts
Rated uninterrupted current max.
Main conducting paths
General use
16 A

Contacts
Rated uninterrupted current max.
Auxiliary contacts
General Use [I_u]
10 A

Contacts
Rated uninterrupted current max.
Auxiliary contacts
Pilot Duty
A 600
P 300

Switching capacity
Maximum motor rating
Single-phase
120 V AC
0.5 HP

Switching capacity
Maximum motor rating
Single-phase
200 V AC
1 HP

Switching capacity
Maximum motor rating
Single-phase
240 V AC
1.5 HP

Switching capacity
Maximum motor rating
Three-phase
200 V AC
3 HP

Switching capacity
Maximum motor rating
Three-phase
240 V AC
3 HP

Switching capacity
Maximum motor rating
Three-phase
480 V AC
7.5 HP

Switching capacity
Maximum motor rating
Three-phase
600 V AC
7.5 HP

Short Circuit Current Rating
Basic Rating
5 kA

Short Circuit Current Rating
max. Fuse
50 A

Short Circuit Current Rating
High fault rating
10 kA

Short Circuit Current Rating
max. Fuse
20, Class J A

Terminal capacity
Solid or flexible conductor with ferrule
18 - 14 AWG

Terminal capacity
Terminal screw
M3.5

Terminal capacity
Tightening torque
8.8 lb-in

DESIGN VERIFICATION AS PER IEC/EN 61439

Technical data for design verification

Rated operational current for specified heat dissipation [I_n]
20 A

Heat dissipation per pole, current-dependent [P_{vid}]
0.6 W

Equipment heat dissipation, current-dependent [P_{vid}]
0 W

Static heat dissipation, non-current-dependent [P_{vs}]
0 W

Heat dissipation capacity [P_{diss}]
0 W

Operating ambient temperature min.
-25 °C

Operating ambient temperature max.
+50 °C

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 Strength of materials and parts
10.2.3.1 Verification of thermal stability of enclosures
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.2 Verification of resistance of insulating materials to normal heat
Meets the product standard's requirements.

10.2 Strength of materials and parts

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 Strength of materials and parts
10.2.4 Resistance to ultra-violet (UV) radiation
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.5 Lifting
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts
10.2.6 Mechanical impact
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts
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 Insulation properties
10.9.3 Impulse withstand voltage
Is the panel builder's responsibility.

10.9 Insulation properties
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])

Type of switch
Reverser

Number of poles
1

Max. rated operation voltage Ue AC
690 V

Rated permanent current Iu
20 A

Number of switch positions
3

With 0 (off) position
Yes

With retraction in 0-position
No

Device construction
Built-in device

Width in number of modular spacings
4

Suitable for ground mounting
Yes

Suitable for front mounting 4-hole
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
Other

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

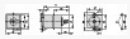
North America Certification
UL listed, CSA certified

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: IP30; UL/CSA Type: –

DIMENSIONS



- Mounting clearances a and b: 4 mm
- exposed conductive part (metal)