207141
T0-4-8440/I1

Overview
Specifications
Resources

Delivery program
Technical data
Design verification as per IEC/EN 61439
Technical data ETIM 7.0
Dimensions

DELIVERY PROGRAM

Product range
Control switches

Part group reference
T0

Basic function
Multi-speed switches

with black thumb grip and front plate

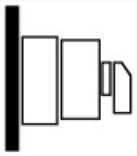
Contacts
8

Degree of Protection
IP65

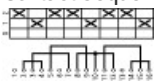
totally insulated

Design

surface mounting



Contact sequence



switching function
One tapped winding
2 speeds

Switching angle
60 °

Switching performance
maintained
With 0 (Off) position

Design number
8440

Front plate no.

FS 644

front plate
0-1-2

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
4 contact unit(s)

TECHNICAL DATA

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
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 I_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-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

Terminal capacity
Terminal screw
M3.5

Terminal capacity
Tightening torque
8.83 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.
+40 °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

UV resistance only in connection with protective shield.

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) / Off-load switch (EC001105)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Changeover switch (ecl@ss10.0.1-27-37-14-05 [AKF062013])

Model
Dahlander switch

Number of poles
3

With 0 (off) position
Yes

With retraction in 0-position
No

Rated permanent current Iu
20 A

Rated operation current Ie at AC-3, 400 V
11.5 A

Rated operation power at AC-3, 400 V
4 kW

Degree of protection (IP), front side
IP65

Degree of protection (NEMA), front side
Other

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

Suitable for ground mounting
Yes

Suitable for front mounting 4-hole
No

Suitable for distribution board installation
No

Suitable for intermediate mounting
No

Complete device in housing
Yes

Material housing
Plastic

Type of control element
Toggle

Type of electrical connection of main circuit
Screw connection

DIMENSIONS

Drilling dimensions base