

Renewal Parts

Overload Relays

Motor Full Load Amperes	Suffix Code	For use with Contactor Ampere Range	Overload Relay Catalog Number
Frame C			
0.1–0.16	P16	15–25A	XTOBP16CC1DP
0.16–0.24	P24	15–25A	XTOBP24CC1DP
0.24–0.4	P40	15–25A	XTOBP40CC1DP
0.4–0.6	P60	15–25A	XTOBP60CC1DP
0.6–1	001	15–25A	XTOB001CC1DP
1–1.6	1P6	15–25A	XTOB1P6CC1DP
1.6–2.4	2P4	15–25A	XTOB2P4CC1DP
2.4–4	004	15–25A	XTOB004CC1DP
4–6	006	15–25A	XTOB006CC1DP
6–10	010	15–25A	XTOB010CC1DP
10–16	016	15–25A	XTOB016CC1DP
16–24	024	15–25A	XTOB024CC1DP
24–32	032	15–25A	XTOB032CC1DP
Frame D			
6–10	010	30–45A	XTOB010DC1DP
10–16	016	30–45A	XTOB016DC1DP
16–24	024	30–45A	XTOB024DC1DP
24–40	040	30–45A	XTOB040DC1DP
40–57	057	30–45A	XTOB057DC1DP

Technical Data and Specifications

Terminal Wire Sizes

Line Side (Contactor) ①	Wire Range—Solid or Stranded	
	Power Terminals	Coil Terminals
Screw/pressure plate	8–14 AWG	12–16 AWG
Box lug: 15–45A	4–14 AWG	12–16 AWG

Power Terminals—Load—Cu Only (Stranded or Solid)

Terminal	Range	Torque Rating
15 and 25A	14–8 AWG	16 lb-in (14–8 AWG)
30, 40 and 45A	14–2 AWG	31 lb-in (14–2 AWG)

Control Terminals—Cu Only

12–16 AWG stranded, 12–14 AWG solid

Note

① Line side (contactor) torque ratings can be found on **Page V5-T4-14**.

Overload Relays

These tripping characteristics are the mean values of the spread at 20°C ambient temperature in a cold state.

Tripping time depends on response current. With devices at operating temperature, the tripping time of the overload relay reduces to approximately 25% of the read off value. Specific characteristics for each individual setting range can be found in MN03402001E.

Overload Relays

Description	XTOB ... CC1 Specification	XTOB ... DC1 Specification
General		
Climatic proofing	Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60 068-2-30	Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60 068-2-30
Ambient temperature range ①	–25° to 50°C [–13° to 122°F]	–25° to 50°C [–13° to 122°F]
Temperature compensation	Continuous	Continuous
Mechanical shock resistance (IEC/EN 60068-2-27)		
Half-sinusoidal shock 10 ms	10g	10g
Degree of protection	IP20	IP20
Protection against direct contact when actuated from front (IEC 536)	Finger and back of hand proof	Finger and back of hand proof
Insulation voltage (U _i) Vac	690	690
Overvoltage category/pollution degree	III/3	III/3
Impulse withstand voltage (U _{imp}) Vac	6000	6000
Operational voltage (U _e) Vac	690	690
Safe isolation to VDE 0106 Part 101 and Part 101/A1		
Between auxiliary contacts and main contacts (Vac)	440	440
Between main contacts (Vac)	440	440
Overload relay setting range	0.1–32A	6–75A
Temperature compensation residual error >20°C (%/K)	≤0.25	≤0.25
Current heat loss (3 conductors)		
Lower value of setting range, W	2.5	3
Upper value of setting range, W	6	7.5
Terminal capacity	2 x (1–6)	2 x (1–6)
Solid, mm ²	2 x (1–4)	1 x 25
Flexible with ferrule, mm ²	2 x (1–6) ②	2 x (1–10) ③
Solid or stranded, AWG	14-8	14-2
Terminal screw	M4	M6
Tightening torque Nm (lb-in)	1.8 (16)	3.5 (31)
Tools		
Pozidrive screwdriver	Size 2	Size 2
Standard screwdriver	1 x 6	1 x 6

Notes

- ① Ambient temperature operating range to IEC/EN 60947, PTB: –5° to 50°C [23° to 122°F].
- ② 6 mm² flexible with ferrules to DIN 46228.
- ③ Main contact terminal capacity, solid and stranded conductors with ferrules: When using two conductors use identical cross-section.

Overload Relays, continued

Description	XTOB ... CC1 Specification	XTOB ... DC1 Specification
Auxiliary and Control Circuit Connections		
Impulse withstand voltage (U_{imp}) Vac	6000	6000
Overtoltage category/pollution degree	III/3	III/3
Terminal capacity		
Solid, mm ²	2 x (0.75–4)	2 x (0.75–4)
Flexible with ferrule, mm ²	2 x (0.75–2.5)	2 x (0.75–2.5)
Solid or stranded, AWG	2 x (18–12)	2 x (18–12)
Terminal screw	M3.5	M3.5
Tightening torque Nm (lb-in)	0.8–1.3 (7–11.5)	0.8–1.3 (7–11.5)
Tools		
Pozidrive screwdriver	Size 2	Size 2
Standard screwdriver	1 x 6	1 x 6
Auxiliary circuit rated insulation voltage (U_j) Vac	500	500
Rated operational voltage (U_e) Vac	500	500
Safe isolation to VDE 0106 Part 101 and Part 101/A1 Between the auxiliary contacts (Vac)	240	240
Conventional thermal current, I_{th}	6	6
Rated operational current—AC-15		
NO contact		
120V	1.5	1.5
240V	1.5	1.5
415V	0.5	0.5
500V	0.5	0.5
NC contact		
120V	1.5	1.5
240V	1.5	1.5
415V	0.9	0.9
500V	0.8	0.8
Rated operational current—DC-13 L/R ≤15 ms ^①		
NO contact		
24V	0.9	0.9
60V	0.75	0.75
110V	0.4	0.4
220V	0.2	0.2
Short-circuit rating without welding maximum fuse, A gG/gL	6	6

Note

^① Rated operational current: Making and breaking conditions to DC-13, L/R constant as stated.

4.3

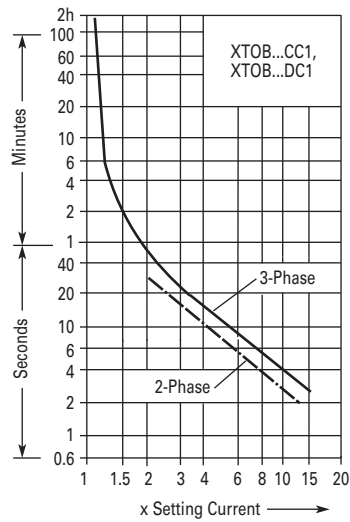
Definite Purpose Contactors and Starters

Starters

4

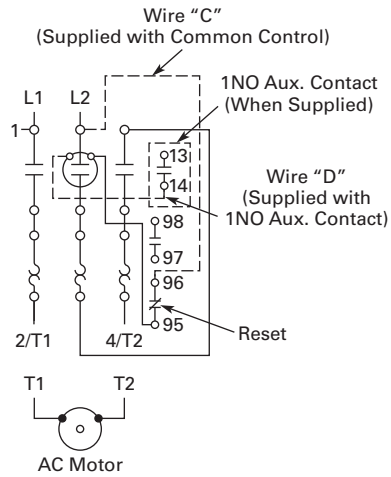
Trip Curve

Overload Relay



Wiring Diagrams

Single-Phase Connections



Three-Phase Connections

