

AC contactor

3TF48, 3TF49, 3TK48

DIN VDE 0660, IEC 60947

Instructions

Order No.: 3ZX1012-0TF04-1AA3

English

**Operating instructions for AC operation;
for DC operation (DC-economy connection) see operating instructions
3ZX1012-0TF36-1AA1.**

	WARNING:
	HAZARDOUS VOLTAGE CAN CAUSE ELECTRICAL SHOCK AND BURNS. DISCONNECT POWER BEFORE PROCEEDING WITH ANY WORK ON THIS EQUIPMENT.

Installation

For dimension drawings see **Fig. I** (dimensions in mm).

Fig. Ia with screw terminals; **Fig. Ib** with tab connectors

¹⁾ Minimum clearances from earthed parts.

Fix on a plain surface with two M5 screws - max. tightening torque 6.2 Nm.
Always use plain washers and spring washers.

For permissible mounting positions see **Fig. II**.

Connection

Tighten all terminal screws even if not used.

Permissible conductor cross-sections for main terminals:

With box terminal

in accordance with DIN EN 50 027

- see **Fig. IIIa**

Finely stranded [mm ²], with end sleeve ¹⁾	6 to 35	2.5 to 35	6 to 25	2.5 to 25
Finely stranded [mm ²], without end sleeve ¹⁾	10 to 35	2.5 to 35	10 to 25	2.5 to 25
Solid [mm ²]	6 to 16	2.5 to 16	6 to 16	2.5 to 16
Stranded [mm ²]	16 to 50	16 to 50	16 to 35	16 to 35
AWG wires, stranded	3 to 1/0	18 to 1/0	1/0	1/0
Stripped length	18 to 20 mm/¾ in			
Tightening torque	4 to 6 Nm/36 to 52 lb.in			

After alignment or bending back of connected leads, check the tightening torques of the clamping screws.

¹⁾ The ends of non-stranded cables must be twisted or 18 mm long ferrules to DIN 46228 Part 1 must be used.
Crimping tools PZ16 and PZ35 from Weidmüller are recommended for the end sleeves.

Before mounting the box terminals (see **Fig. IIIb**), the arc chute must be removed (see **Fig. VII/1, 2, 3**).

Without box terminal

- see **Fig. IIIc**

1 or 2 conductors can be connected	3TF48/3TF49	3TK48
Finely stranded [mm ²], with cable lug ²⁾	10 to 35	25 to 50
Stranded [mm ²], with cable lug ²⁾	10 to 50	25 to 70
Terminal bars	12 × 3	15 × 3
AWG wires, solid and stranded	7 to 1/0	3 to 2/0
Terminal screws	M6 × 20	M8 × 25
Tightening torque	4 to 6 Nm/36 to 52 lb.in	10 to 14 Nm/89 to 124 lb.in

²⁾ With the maximum conductor cross-section, the terminal cover 3TX7466-0A is required for adhering to the phase clearance.

Permissible conductor cross-sections for auxiliary terminals:

Solid	2 × 0.5 to 1; 2 × 1 to 2.5; 1 × 4 mm ²
Finely stranded, with end sleeve	2 × 0.5 to 1; 2 × 0.75 to 2.5 mm ²
Terminal pin (in accordance with DIN 46231)	2 × 1 to 1.5 mm ²
Push-on receptacle B2.8	2 × 0.3 to 1.5 mm ²
AWG wires, solid and stranded	2 × 18 to 12
Stripped length	10 mm/0.4 in
Tightening torque	0.8 to 1.4 Nm/7 to 12 lb.in

For installation of auxiliary conductor terminal 3TX7500-0A (accessory) see **Fig. IIIa**.

For circuit diagram and position of connection terminals see **Fig. IV**.

Fig. IVa 2NO + 2NC; **Fig. IVb** 4NO + 4NC

For circuit diagram (NEMA) see **Fig. A**.

Use 75° C copper wire only.

Operation

Observe operating voltage (see rating plate of magnet coil).

The operating state of the contactor is shown at the position indicator; see **Fig. V**.

After a short circuit the main contacts and the arc chute must be checked.

Maintenance

The following components can be replaced: Main contacts, arc chute, magnet coil, auxiliary contact blocks. - For Order Nos. see Catalog NSK.
Only use of original spare parts ensures the operational safety of the contactors.

Cleaning

Remove dust by suction.

Auxiliary contact block

For replacement see **Fig. VI/1, 2, 3**; for extension see **Fig. VI/4, 5, 6**.

Arc chute and main contacts

Remove arc chute (**Fig. VII/1, 2, 3**). Check main contacts (**Fig. VII/4**). If necessary, separate slightly welded contacts with a screwdriver.

Dark or rough contacts can still function. Do not refinish or grease them. If the contact facings are so badly eroded that the carrier material is visible (**Fig. VII/4a**), all contacts must be replaced.

For replacement of contacts see **Fig. VII/5, 6, 7**.

It is not necessary to disconnect the main conductors. Check the arc chute and replace it if necessary.

**With the arc chute removed, the contactor is mechanically interlocked.
Coil excitation is not permitted under these conditions.**

Magnet coil

For coil replacement see **Fig. VIII**.

Ensure that the pole faces of the magnet coil are clean. Do not use grease solvents or sharp objects for cleaning.

Technical Data

Weight approx. 2.3 kg

Permissible ambient temperature

- Operation -25 to +55 °C

- Storage -50 to +80 °C

Degree of protection

IP 00 (IEC 60529)

Main circuit

Rated insulation voltage U_i AC 1000 V

Rated power			AC-3	AC-3	AC-1 (55 °C)
			3TF48	3TF49	3TK48
at	-230 V	kW	22	26	53
	-240 V	kW	24	28	58
	-400 V	kW	37	45	92
	-415 V	kW	42	49	100
	-500 V	kW	50	59	121
	-690 V	kW	67	67	160
	-1000 V	kW	39	39	86
Rated operational current			3TF48	3TF49	3TK48
-I _o /AC-1 (55 °C)	to 690 V	A	100	100	140
-I _o /AC-3	to 500 V	A	75	85	44
-I _o /AC-3	at 690 V	A	75	75	44

Horsepower Ratings (Ⓜ and Ⓢ ratings)

Rated insulation voltage U_i AC 600 V

Rated output of three-phase motors at 60 Hz

		3TF48 ...1 NEMA/EEMAC SIZE 3	3TF48	3TF49
Continuous current (open and enclosed)	A	90	100	105
- 200 V	hp	25	25	30
- 230 V	hp	30	30	40
- 460 V	hp	50	60	75
- 575V	hp	50	75	100

3TF48/49:

Suitable for use on a circuit capable of delivering not more than 10.000 rms symmetrical amperes, 600 V max.

Short-circuit protection to DIN VDE 0660 Part 102 A/IEC 60947-4**	Fuse links, gL (gG)		
	3TF48	3TF49	3TK48
- Assignment type 1	A	250	250
- Assignment type 2	A	160	160
- non-welding $I_k < 100 \times I_e$	A	100	-
- non-welding $I_k \geq 100 \times I_e$	A	125	-

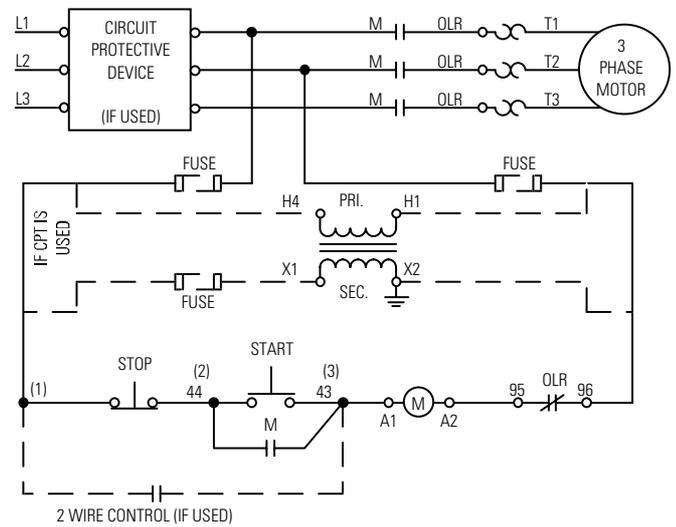
Auxiliary circuit

Rated operational current I_e /AC-11 5.6 A at AC 230 V

Short-circuit protection:

- NEOZED- and DIAZED fuse links gL (gG), 16 A
- Circuit breaker C (10 A); B (16 A)

Fig. A



For further data and accessories see Catalog NSK.

** Footnote:

According to IEC 60947-4/VDE 0660, the types of protection mean:

„Assignment type 1“: Short circuits can cause damage to the contactors making replacement of the equipment necessary.

„Assignment type 2“: Easily separable contact welding but no other damage.