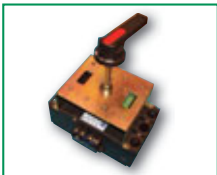




Molded case circuit breakers, KM 2



Hand operated mechanisms (drives) 4



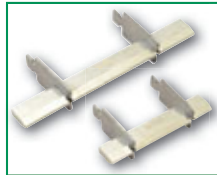
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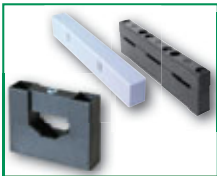
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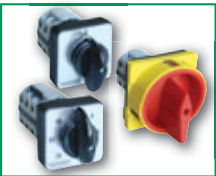
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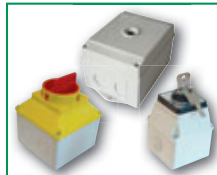
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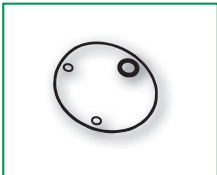
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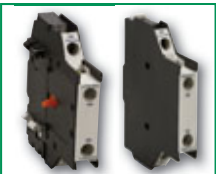
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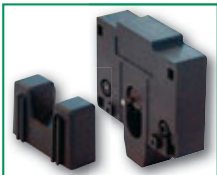
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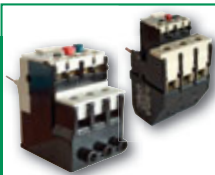
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Pictograms of the table head

U_m Nominal control voltage	U_e Rated operating voltage	I_{th} Rated thermal current(A)	 U_i Rated insulation voltage
I_e Nominal operational current	I_n Rated current (A)	I_{cu} Rated operating short circuit breaking capacity limit	I_s Current consumption
 I_m Adjustable current of thermal overload breaker (A)	P_e Switching capacity	P_m Self consumption	P_s Starting power
 P_{ON} Power consumption – pick	 P_{HOLD} Power consumption – up	 Flash distance (mm)	 Number of current transformers
 Mechanical life	 Electrical life	 Contacts	 Terminal peeling
 Auxiliary contacts	 for bottom and top cable entry	 for bottom cable entry	 for top cable entry
 Driving shaft cross-section	 Busbar distance	 Cross-section of rail	 Number of screws
 Suggested backup fuse	 Electric capacity	 Optical signal	 Adjusting time
 With enclosure IP65	 Dimensions (L × W × H)	 Terminal capacity	 Notes, additions
 Solid, strained, fine wire	 Weight		

Pictograms of the technical data

U_m 230 V AC Nominal control voltage	U_e 660 V Rated operating voltage	 U_i 690 V Rated insulation voltage	U_{imp} 6 kV Rated impulse withstand voltage
U_{test} 1min 1,8 kV Test voltage	I_{th} 1 A Rated thermal current(A)	I_e 2 A Nominal operational current	I_{cu} 120 kA _{eff} Rated operating short circuit breaking capacity limit
40/60 Hz Rated frequency	Class Ir 10A Breaking class of thermal breaker	 Type of breaker: under voltage	 Type of breaker: working current
P_m 5 VA Self consumption	 P_{ON} 30 VA Power consumption – pick	 P_{HOLD} 4,5 VA Power consumption – up	 Suggested backup fuse
 Magnetic drive	 Motor drive	AC 6b Application category	 Vibration resistance
 Auxiliary contacts	 IP10 Protection degree after mounting: open handle	 IP20 Protection degree after mounting: closed handle	IP 65 Protection degree
 Protection class: I.	 Switching frequency (C-O cycles/hour)	 Mechanical life	 Electrical life
 Length	 Connectable cable	 Can be install on mounting rail	 vertical, deviation max. ±30°
 Applications height above sea level	To -5...+40°C Operation temperature	T_a -25...+65°C Ambient temperature	 Relative humidity

Molded case circuit breakers, KM

230/400
V AC

50/60 Hz

 U_i
690 V

U_{imp}
6 kV

 3P

T_o
-5...+40 °C

T_a
-5...+55 °C



2000 m

 Pictograms

I/O



Data of thermal overload breaker

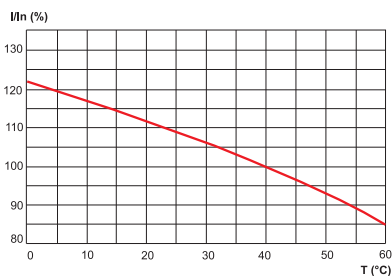
		$I_{th\ max.}$		I_e
KM1	1500	63 A	8500	32 A; 40 A; 50 A; 63 A
KM2	1500	100 A	8500	63 A; 80 A; 100 A
KM3	1000	160 A	7000	125 A; 140 A; 160 A
KM4	1000	225 A	7000	180 A; 200 A; 225 A
KM5	1000	350 A	7000	250 A; 315 A; 350 A
KM6	1000	630 A	4000	400 A; 500 A; 630 A
KM7	1000	800 A	4000	630 A; 700 A; 800 A

Data of magnetic short circuit breaker

	$I_{th\ max.}$	I_{cu}	
KM1	63 A	50 kA	0 mm
KM2	100 A	50 kA	0 (<50) mm
KM3	160 A	50 kA	0 (<50) mm
KM4	225 A	50 kA	<50 mm
KM5	350 A	50 kA	<50 mm
KM6	630 A	50 kA	100 mm
KM7	800 A	65 kA	100 mm

The effect of the ambient temperature on the breaking characteristic

By using the diagram, the correction factor for the constant load can be defined, in relation to the total operating temperature range. In case the local ambient temperature is over 40 °C, the maximum constant load for the various sizes should be determined by using the correction factors indicated below.



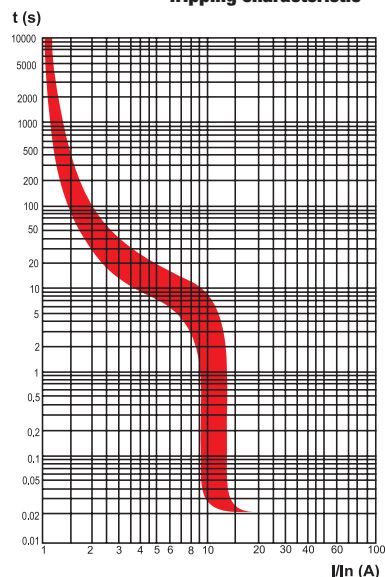
RELEVANT STANDARD
EN 60947-1

RELEVANT STANDARD
EN 60947-2

Correction factor

	T_a				
	40 - 45 °C	45 - 50 °C	50 - 55 °C	55 - 60 °C	60 - 65 °C
KM1	1,0	0,94	0,88	0,80	0,72
KM2	1,0	0,95	0,89	0,84	0,76
KM3	1,0	0,97	0,93	0,90	0,86
KM4	1,0	0,96	0,91	0,87	0,82
KM5	1,0	0,94	0,87	0,81	0,73
KM6	1,0	0,93	0,88	0,83	0,76
KM7	1,0	0,88	0,83	0,79	0,76

Tripping characteristic



Installed auxiliary circuit units

Under voltage breaker unit

U_m	P_m
230 V AC	2,3 – 3,8 VA

The voltage decrease breakers are active in breaking, when the voltage at the terminals decreases to 35 - 70% of the rated operating value. This breaker unit prevents switching on of the circuit breaker if the voltage on its terminals is lower than 35% of the rated value.

Working current (shunt) breaker unit

U_m
230 V AC, 400 V AC, 220 V, DC

The working current breaker unit is able to remotely switch off the circuit breaker as the breaking occurs when the voltage at the terminal is inside 70-110% of the rated operating value.

Auxiliary contacts

U_e	I_e AC-15	U_i	I_{th}
230 V AC	1,2 A	690 V	10 A gG 3 A
400 V AC	0,5 A		

Compact circuit breakers with 1 change-over auxiliary contact

TRACON	I_e		U_m
KM1-032/1A	32 A	SHT	230 V AC
KM1-032/1B	32 A	SHT	400 V AC
KM1-032/1C	32 A	SHT	220 V DC
KM1-032/2	32 A	UVR	230 V AC
KM1-040/1A	40 A	SHT	230 V AC
KM1-040/1B	40 A	SHT	400 V AC
KM1-040/1C	40 A	SHT	220 V DC
KM1-040/2	40 A	UVR	230 V AC
KM1-050/1A	50 A	SHT	230 V AC
KM1-050/1B	50 A	SHT	400 V AC
KM1-050/1C	50 A	SHT	220 V DC
KM1-050/2	50 A	UVR	230 V AC
KM1-063/1A	63 A	SHT	230 V AC
KM1-063/1B	63 A	SHT	400 V AC
KM1-063/1C	63 A	SHT	220 V DC
KM1-063/2	63 A	UVR	230 V AC
KM2-063/1A	63 A	SHT	230 V AC
KM2-063/1B	63 A	SHT	400 V AC
KM2-063/1C	63 A	SHT	220 V DC
KM2-063/2	63 A	UVR	230 V AC
KM2-080/1A	80 A	SHT	230 V AC
KM2-080/1B	80 A	SHT	400 V AC
KM2-080/1C	80 A	SHT	220 V DC
KM2-080/2	80 A	UVR	230 V AC
KM2-100/1A	100 A	SHT	230 V AC
KM2-100/1B	100 A	SHT	400 V AC

TRACON	I_e		U_m
KM2-100/1C	100 A	SHT	220 V DC
KM2-100/2	100 A	UVR	230 V AC
KM3-125/1A	125 A	SHT	230 V AC
KM3-125/1B	125 A	SHT	400 V AC
KM3-125/1C	125 A	SHT	220 V DC
KM3-125/2	125 A	UVR	230 V AC
KM3-140/1A	140 A	SHT	230 V AC
KM3-140/1B	140 A	SHT	400 V AC
KM3-140/1C	140 A	SHT	220 V DC
KM3-140/2	140 A	UVR	230 V AC
KM3-160/1A	160 A	SHT	230 V AC
KM3-160/1B	160 A	SHT	400 V AC
KM3-160/1C	160 A	SHT	220 V DC
KM3-160/2	160 A	UVR	230 V AC
KM4-180/1A	180 A	SHT	230 V AC
KM4-180/1B	180 A	SHT	400 V AC
KM4-180/1C	180 A	SHT	220 V DC
KM4-180/2	180 A	UVR	230 V AC
KM4-200/1A	200 A	SHT	230 V AC
KM4-200/1B	200 A	SHT	400 V AC
KM4-200/1C	200 A	SHT	220 V DC
KM4-200/2	200 A	UVR	230 V AC
KM4-225/1A	225 A	SHT	230 V AC
KM4-225/1B	225 A	SHT	400 V AC
KM4-225/1C	225 A	SHT	220 V DC
KM4-225/2	225 A	UVR	230 V AC

Compact circuit breakers with 2 change-over auxiliary contact

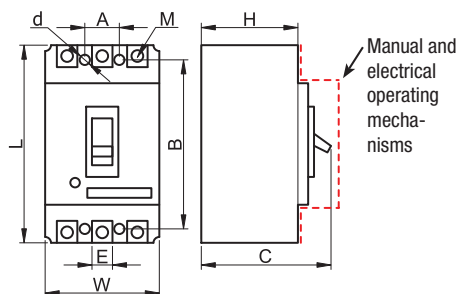
TRACON	I _e		U _m
KM5-250/1A	250 A	SHT	230 V AC
KM5-250/1B	250 A	SHT	400 V AC
KM5-250/1C	250 A	SHT	220 V DC
KM5-250/2	250 A	UVR	230 V AC
KM5-315/1A	315 A	SHT	230 V AC
KM5-315/1B	315 A	SHT	400 V AC
KM5-315/1C	315 A	SHT	220 V DC
KM5-315/2	315 A	UVR	230 V AC
KM5-350/1A	350 A	SHT	230 V AC
KM5-350/1B	350 A	SHT	400 V AC
KM5-350/1C	350 A	SHT	220 V DC
KM5-350/2	350 A	UVR	230 V AC
KM6-400/1A	400 A	SHT	230 V AC
KM6-400/1B	400 A	SHT	400 V AC
KM6-400/1C	400 A	SHT	220 V DC
KM6-400/2	400 A	UVR	230 V AC
KM6-500/1A	500 A	SHT	230 V AC
KM6-500/1B	500 A	SHT	400 V AC

TRACON	I _e		U _m
KM6-500/1C	500 A	SHT	220 V DC
KM6-500/2	500 A	UVR	230 V AC
KM6-630/1A	630 A	SHT	230 V AC
KM6-630/1B	630 A	SHT	400 V AC
KM6-630/1C	630 A	SHT	220 V DC
KM6-630/2	630 A	UVR	230 V AC
KM7-630/1A	630 A	SHT	230 V AC
KM7-630/1B	630 A	SHT	400 V AC
KM7-630/1C	630 A	SHT	220 V DC
KM7-630/2	630 A	UVR	230 V AC
KM7-700/1A	700 A	SHT	230 V AC
KM7-700/1B	700 A	SHT	400 V AC
KM7-700/1C	700 A	SHT	220 V DC
KM7-700/2	700 A	UVR	230 V AC
KM7-800/1A	800 A	SHT	230 V AC
KM7-800/1B	800 A	SHT	400 V AC
KM7-800/1C	800 A	SHT	220 V DC
KM7-800/2	800 A	UVR	230 V AC

SHT: Shunt release

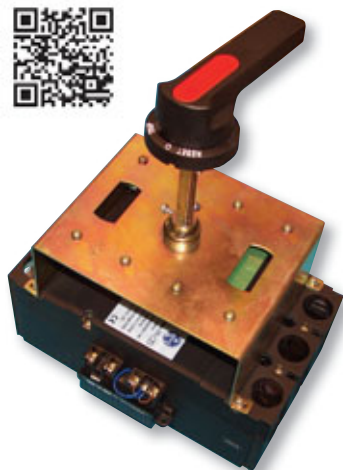
UVR: Undervoltage release

Dimensions



	W (mm)	L (mm)	H (mm)	C (mm)	A (mm)	B (mm)	E (mm)	M (mm)	d (mm)
KM1	78	136	74	98	25	117	13.5	M5	3.5
KM2	92	150	80	104	30	129	18	M8	4.5
KM3	107	165	98	127	35	126	23	M8	5
KM4	107	165	98	127	35	126	23	M8	5
KM5	150	257	98	155	44	194	32	M10	7
KM6	182	270	105	160	58	200	43	M12	7
KM7	210	280	98	142	70	243	43	M12	7

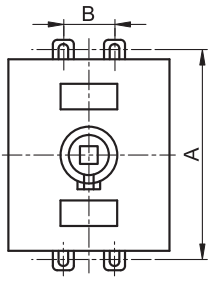
Hand operated mechanisms (drives)



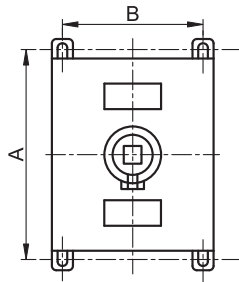
TRACON		A (mm)	B (mm)	H (mm)	 axa / L
KM1-HM	KM1	102	25	50	8 × 8 / 150 mm
KM2-HM	KM2	104	30	53	8 × 8 / 150 mm
KM4-HM	KM3-KM4	142	35	56	8 × 8 / 150 mm
KM5-HM	KM5	194	138	94	10 × 10 / 150 mm
KM6-HM	KM6	200	168	96	10 × 10 / 150 mm
KM7-HM	KM7	240	195	85	10 × 10 / 150 mm

The KM...-HM type hand operated mechanism is meant for operation of the breakers through a closed door. The hand driving unit is consisted of an operating part, installed on the breaker, a driving shaft and a handle installed on the outside of the door, also indicating the ON and OFF position of the breaker. This operating handle can be locked in the ON or in the OFF position of the breaker. In the ON position of the breaker, the handle is mechanically locked, so the door can not be opened.

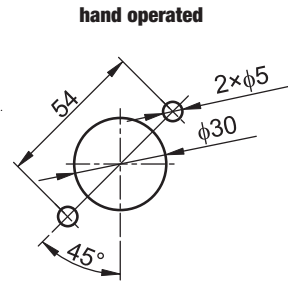
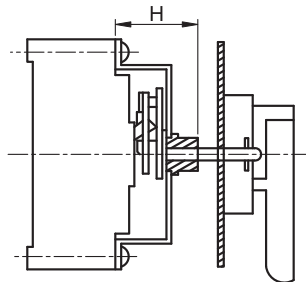
Fixing holes



KM5-KM7



KM1-KM4



Electrical operating mechanisms (drives)



TRACON			I_s	P_s	A (mm)	B (mm)	H (mm)
KM1-PM		KM1	< 5 A	1100 W	102	25	92
KM2-PM		KM2	< 7 A	1540 W	104	30	92
KM4-PM		KM3-KM4	< 8,5 A	1870 W	142	35	100
KM5-PM		KM5	< 5,7 A	1200 W	194	44	140
KM6-PM		KM6	< 5,7 A	1200 W	200	58	140
KM7-PM		KM7	< 7,5 A	2000 W	240	70	140

The KM...-PM electrical operating mechanism enables local or remote control electrical operation and ON / OFF switching controlled by pushbuttons. The electrical drive is consisted of an operating part installed on the breaker, completed with a manually operated handle. In case of the KM1...KM4 compact circuit breakers magnetic ON-OFF switching is used, while in case of the KM5...KM7 breakers a motor system drive is used.

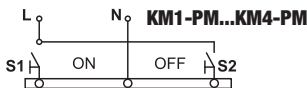


Magnetic drive

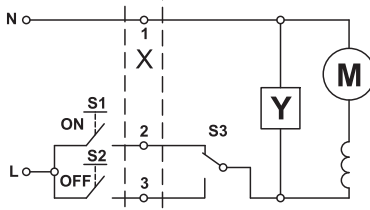


Motor drive

Wiring diagram and dimensions



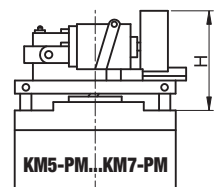
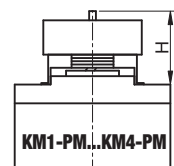
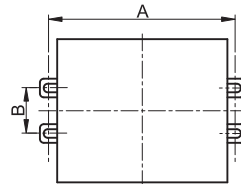
KM5-PM...KM7-PM



Legend

- M - motor
- Y - electric brake
- S3 - micro switch

- X - terminal
- S1, S2 - pushbutton



Molded case circuit breakers, MKM

230/400
V AC

50/60 Hz

 U_i
500 V

U_{imp}
6 kV

 3P

T_o
-5...+40°C

T_a
-25...+65°C



2000 m

 Pictograms

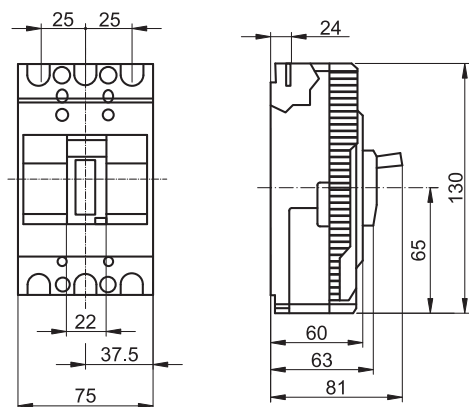
I/O



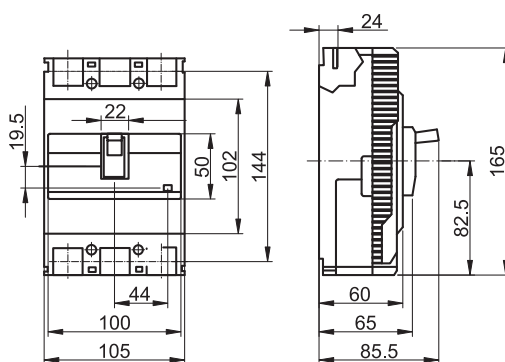
	MKM1	MKM2
I_e (A)	15, 20, 25, 30, 40, 50, 60, 75, 80, 100	125, 160, 225, 250
I_{cu} (kA _{eff}) AC	220/240 V: 50 380 V: 30 400 V: 20	85 18 15
I_{cs}/I_{cu} (%)	220/240 V: 25 % 380 V: 25 % 400 V: 25 %	50 % 50 % 50 %
ON-OFF-ON...  sc/h	× 10	× 5
 (×10 ⁵)	8.500	8.500
 (×10 ⁵)	4.000	4.000
	0,78 kg	1,3 kg

TRACON	I_e	TRACON	I_e	TRACON	I_e	TRACON	I_e
MKM1-15	15 A	MKM1-40	40 A	MKM1-80	80 A	MKM2-225	225 A
MKM1-20	20 A	MKM1-50	50 A	MKM1-100	100 A	MKM2-250	250 A
MKM1-25	25 A	MKM1-60	60 A	MKM2-125	125 A		
MKM1-30	30 A	MKM1-75	75 A	MKM2-160	160 A		

Dimensions (MKM1)



Dimensions (MKM2)



SCAN THE QR CODE!

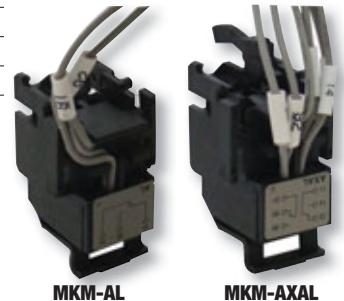
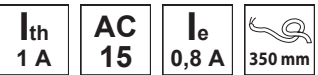
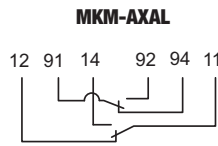
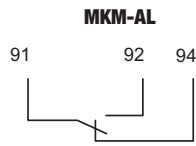
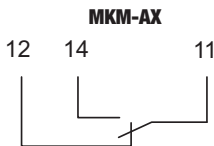
- Check our new products
- Be updated

Our range of products is continuously and quickly expanding. Our catalogue shows our products as of April 2019. Check our website to stay up-to-date.

Auxiliary contacts and failure signal units

Type	Function
Auxiliary contacts:	The user can get information from the position of the main contacts of the breaker.
Signal contacts:	These contacts give information about releasing the breaker by short circuit, overload or manual tripping.
Signal / auxiliary contacts:	These contacts are combinations of the two different contacts mentioned above; the user can fulfill more complex control tasks with the breaker.

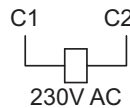
TRACON	Function		
MKM-AX100	Auxiliary contact	MKM1-..	0,25 mm ²
MKM-AX250	Auxiliary contact	MKM2-..	0,35 mm ²
MKM-AL100	Signal contact	MKM1-..	0,25 mm ²
MKM-AL250	Signal contact	MKM2-..	0,35 mm ²
MKM-AXAL100	Signal / auxiliary contact	MKM1-..	0,25 mm ²
MKM-AXAL250	Signal / auxiliary contact	MKM2-..	0,35 mm ²



Shunt trip units

TRACON		P ON OFF ON	
MKM-SHT1-230	MKM1-..	<30 VA	0,25 mm ²
MKM-SHT2-230	MKM2-..		0,35 mm ²

The shunt trip units enable the breaker to become remote control operated. The SHT1-230 unit can be placed on both sides of breaker; the SHT2-230 unit is suitable only to the right side. The unit switches off the breaker already at 70% of the operation voltage. The duration of the control voltage can be up to 1 second.

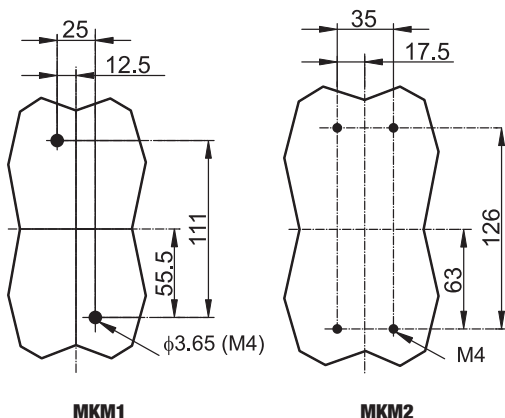


U_m
230 V AC

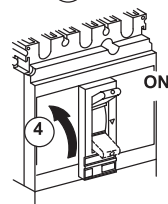
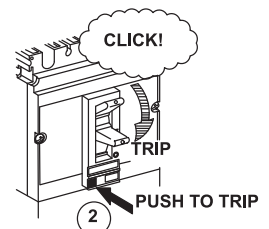
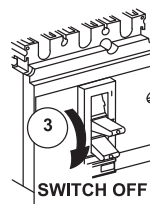
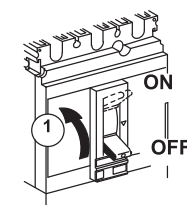
350 mm



Mounting holes



Positions of switchgear



NT Blade fuses

500
V AC

I_{cu}
120 kA_{eff}

IP
00

Ta
-5...+55 °C

2000 m

Pictograms

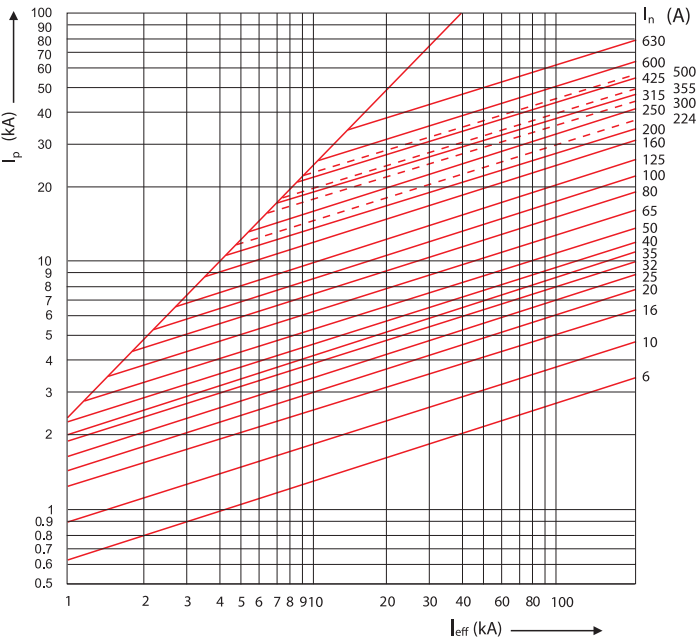
I/O



	I_n	P_v
00C	6-160 A	7,5 W
00	2-160 A	12 W
0	6-160 A	16 W
1	32-250 A	23 W
2	50-400 A	34 W
3	160-630 A	48 W
Material of housing:		steatite
Material of melting wire:		copper (with silver)

In case of overloading or short circuit, the blade fuse opens the circuit by melting away under the effect of heat, thus protecting the downstream wiring and devices. The use of blade fuses is cost saving even if the cartridge has to be changed after each breaking. The load-bearing capacity can easily be changed by replacement of the cartridge. Blade fuses do not require any maintenance.

Standard NT...fuses are marked "gG". This mark indicates that the fuse cartridges possess total range of breaking ability and are suitable for general usage. According to the earlier VDE standard, this mark was "gL". The fuses with partial range of breaking ability, used for the protection of motor circuits, are marked "aM".



RELEVANT STANDARD
EN 60269-1
HD 60269-2

Guaranteed current limiting effects of the NT...fuses are shown on the diagram above. The horizontal axis shows the value of the independent short circuit current (I_{eff}), and the vertical axis indicates the peak value of the current (I_p). E.g. in case of a 100 A fuse, if the value of the independent short circuit current is 20 kA, the maximum peak current value can be 11 kA.

Range of type

„00C” size fuses

TRACON		I _n
gG	aM	
NT00C-6	-	6 A
NT00C-10	-	10 A
NT00C-16	-	16 A
NT00C-20	-	20 A
NT00C-25	-	25 A
NT00C-32	-	32 A
NT00C-40	-	40 A
NT00C-50	-	50 A
NT00C-63	-	63 A
NT00C-80	-	80 A
NT00C-100	-	100 A
NT00C-125	-	125 A
NT00C-160	-	160 A

„00” size fuses

TRACON		I _n
gG	aM	
-	NTM00-2	2 A
NT00-4	NTM00-4	4 A
NT00-6	NTM00-6	6 A
NT00-10	NTM00-10	10 A
NT00-16	NTM00-16	16 A
NT00-20	NTM00-20	20 A
NT00-25	NTM00-25	25 A
NT00-32	NTM00-32	32 A
NT00-40	NTM00-40	40 A
NT00-50	NTM00-50	50 A
NT00-63	NTM00-63	63 A
NT00-80	NTM00-80	80 A
NT00-100	NTM00-100	100 A
NT00-125	NTM00-125	125 A
NT00-160	NTM00-160	160 A

„0” size fuses

TRACON		I _n
gG	aM	
NT0-6	NTM0-6	6 A
NT0-10	NTM0-10	10 A
NT0-16	NTM0-16	16 A
NT0-20	NTM0-20	20 A
NT0-25	NTM0-25	25 A
NT0-32	NTM0-32	32 A
NT0-40	NTM0-40	40 A
NT0-50	NTM0-50	50 A
NT0-63	NTM0-63	63 A
NT0-80	NTM0-80	80 A
NT0-100	NTM0-100	100 A
NT0-125	NTM0-125	125 A
NT0-160	NTM0-160	160 A

„1” size fuses

TRACON		I _n
gG	aM	
NT1-32	-	32 A
NT1-40	-	40 A
NT1-50	-	50 A
NT1-63	-	63 A
NT1-80	NTM1-80	80 A
NT1-100	NTM1-100	100 A
NT1-125	NTM1-125	125 A
NT1-160	NTM1-160	160 A
NT1-200	NTM1-200	200 A
NT1-224	-	224 A
NT1-250	NTM1-250	250 A

„2” size fuses

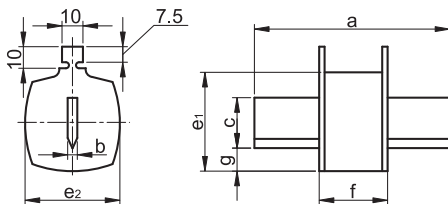
TRACON		I _n
gG	aM	
NT2-50	-	50 A
NT2-63	-	63 A
NT2-80	-	80 A
NT2-100	-	100 A
NT2-125	NTM2-125	125 A
NT2-160	NTM2-160	160 A
NT2-200	NTM2-200	200 A
NT2-224	NTM2-224	224 A
NT2-250	NTM2-250	250 A
-	NTM2-300	300 A
NT2-315	NTM2-315	315 A
NT2-355	NTM2-355	355 A
NT2-400	NTM2-400	400 A

„3” size fuses

TRACON		I _n
gG	aM	
NT3-160	-	160 A
NT3-200	-	200 A
NT3-315	NTM3-315	315 A
NT3-355	NTM3-355	355 A
NT3-400	NTM3-400	400 A
NT3-425	NTM3-425	425 A
NT3-500	NTM3-500	500 A
NT3-630	NTM3-630	630 A

RELEVANT STANDARD
EN 60269-1
HD 60269-2

Dimensions



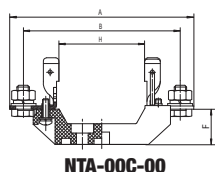
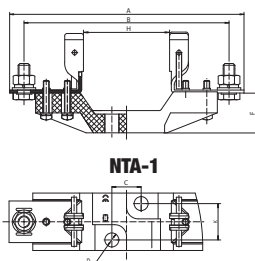
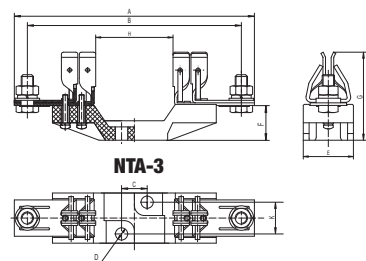
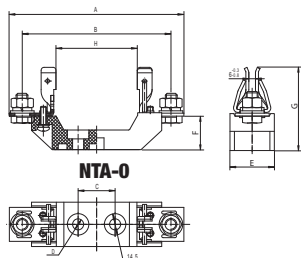
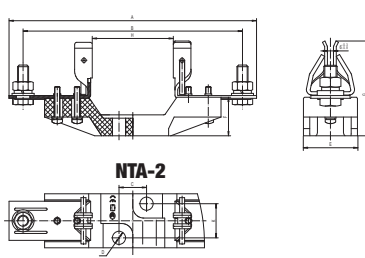
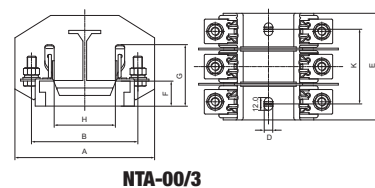
	a (mm)	f (mm)	g (mm)	c (mm)	e ₁ (mm)	e ₂ (mm)	b (mm)
00C	78±1.5	54-6	11.5	15	45	20	6
00	78±1.5	54-6	11.5	15	45	29	6
0	125±2.5	68-8	11.5	15	45	29	6
1	135±2.5	75-10	12	21	48	48	6
2	150±2.5	75-10	13	27	58	58	6
3	150±2.5	75-10	14	33	67	67	6



Fuse sockets

	TRACON		A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	K (mm)	M (mm)
	NTA-00C-00	00C, 00	120	100	25	8	30	25	60	56	—	8
	NTA-0	0	170	150	25	8	35	30	64	74	—	8
	NTA-1	1	200	175	25	12	49	32	85	80	30	10
	NTA-2	2	224	200	25	12	49	32	86	80	30	10
	NTA-3	3	235	210	25	12	49	32	88	80	30	12
	NTA-00/3	00C, 00	132	100	—	8	100	24	58	56,5	70	8

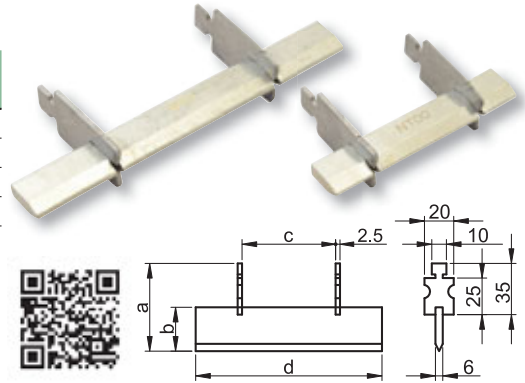
TRACON

**NTA-00C-00 ... NTA-3:**made of a self-extinguishing and high temperature resistant plastic base,
with terminals and contact installed**NTA-00/3:****NTA-00C-00, NTA-0****NTA-1, NTA-2****NTA-3****NTA-00/3****NTA-00C-00****NTA-1****NTA-3****NTA-0****NTA-2****NTA-00/3**

Short circuit blades

TRACON		a (mm)	b (mm)	c (mm)	d (mm)
NTR00	00C, 00	45	15	45±1.5	78±1.5
NTR0	0	46	15	62±3	125±2.5
NTR1	1	51	20	62±3	135±2.5
NTR2	2	56	25	62±3	150±2.5
NTR3	3	62	32	65±3	150±2.5

The short circuit blades can mainly be used to break the zero conductors.



Operating handle

TRACON		
NTK	1000 V	00C...3

The blade fuses – under unloaded state of the device– can easily be inserted into or extracted from the socket by using the operating handle. These handles can also be used as disconnectors, as they safely and visibly break the circuit.



Floodlights



E1/12-E1/21

Fuse disconnectors for cylindrical fuses

230/400
V ACIP
20

35×7.5

T_a
-25...+55°CU_i
690 VV0
UL94

50/60 Hz

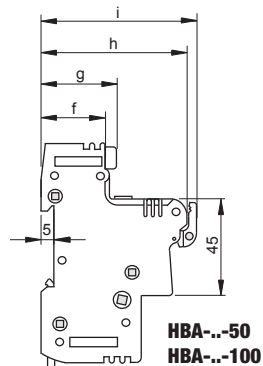
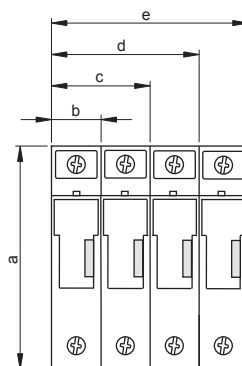
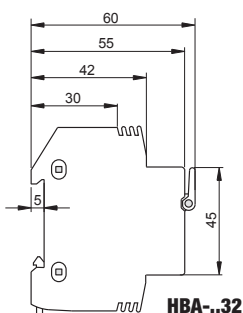
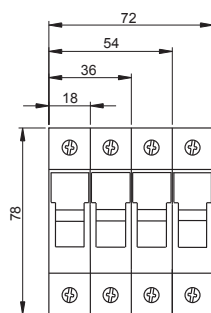
2000 m



- Double side power supply (up or down)
- For gG (normal) and aM (motor) type fuses
- Riveted house
- Multiply fuse versions
- Rated short-circuit breaking capacity: AC 500 V; 100 kA
AC 690 V; 50 kA
- Flame resistant plastic housing
- EN 60269 series

RELEVANT STANDARD
EN 60947-1RELEVANT STANDARD
EN 60947-3

TRACON	xP 	I _n (A)	mm ²		
HBA-1P-20	1P	20 A	1,5-6	8 × 32 mm	-
HBA-2P-20	2P	20 A	1,5-6	8 × 32 mm	
HBA-3P-20	3P	20 A	1,5-6	8 × 32 mm	
HBA-1P-32	1P	32 A	1,5-6	10 × 38 mm	
HBA-2P-32	2P	32 A	1,5-6	10 × 38 mm	
HBA-3P-32	3P	32 A	1,5-6	10 × 38 mm	
HBA-1P-50	1P	50 A	1,5-25	14 × 51 mm	
HBA-2P-50	2P	50 A	1,5-25	14 × 51 mm	
HBA-3P-50	3P	50 A	1,5-25	14 × 51 mm	
HBA-1P-100	1P	100 A	1,5-25	22 × 58 mm	
HBA-2P-100	2P	100 A	1,5-25	22 × 58 mm	
HBA-3P-100	3P	100 A	1,5-25	22 × 58 mm	



	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	g (mm)	h (mm)	i (mm)
HBA-...50	107	27	54	81	108	31	39	72.5	77.5
HBA-...100	113	35.5	71	106.5	142	31	39	72.5	77.5

Cylindrical fuse

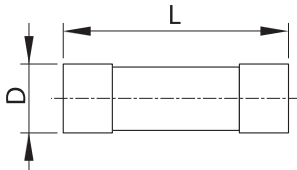
8x32 mm

TRACON		I _n
gG	aM	
HB-8x32-2	HBM-8x32-2	2 A
HB-8x32-4	HBM-8x32-4	4 A
HB-8x32-6	HBM-8x32-6	6 A
HB-8x32-8	HBM-8x32-8	8 A
HB-8x32-10	HBM-8x32-10	10 A
HB-8x32-16	HBM-8x32-16	16 A

14x51 mm

TRACON		I _n
gG	aM	
HB-14x51-2	HBM-14x51-2	2 A
HB-14x51-4	HBM-14x51-4	4 A
HB-14x51-6	HBM-14x51-6	6 A
HB-14x51-8	HBM-14x51-8	8 A
HB-14x51-10	HBM-14x51-10	10 A
HB-14x51-16	HBM-14x51-16	16 A
HB-14x51-20	HBM-14x51-20	20 A
HB-14x51-25	HBM-14x51-25	25 A
HB-14x51-32	HBM-14x51-32	32 A
HB-14x51-40	HBM-14x51-40	40 A
HB-14x51-50	HBM-14x51-50	50 A

	D (mm)	L (mm)
8x32	8,5	31,5
10x38	10,3	38
14x51	14,3	51
22x58	22,2	58



RELEVANT STANDARD
EN 60947-1

RELEVANT STANDARD
EN 60947-3

10x38 mm

TRACON		I _n
gG	aM	
HB-10x38-1	HBM-10x38-1	1 A
HB-10x38-2	HBM-10x38-2	2 A
HB-10x38-4	HBM-10x38-4	4 A
HB-10x38-6	HBM-10x38-6	6 A
HB-10x38-8	HBM-10x38-8	8 A
HB-10x38-10	HBM-10x38-10	10 A
HB-10x38-16	HBM-10x38-16	16 A
HB-10x38-20	HBM-10x38-20	20 A
HB-10x38-25	HBM-10x38-25	25 A
HB-10x38-32	HBM-10x38-32	32 A

22x58 mm

TRACON		I _n
gG	aM	
HB-22x58-10	HBM-22x58-10	10 A
HB-22x58-16	HBM-22x58-16	16 A
HB-22x58-20	HBM-22x58-20	20 A
HB-22x58-25	HBM-22x58-25	25 A
HB-22x58-32	HBM-22x58-32	32 A
HB-22x58-40	HBM-22x58-40	40 A
HB-22x58-50	HBM-22x58-50	50 A
HB-22x58-63	HBM-22x58-63	63 A
HB-22x58-80	HBM-22x58-80	80 A
HB-22x58-100	HBM-22x58-100	100 A



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- Check our new products
- Be updated

Our range of products is continuously and quickly expanding. Our catalogue shows our products as of April 2019.
Check our website to stay up-to-date.

Horizontal type fuse switches for mounting plate installation



The Jean Müller brand KETO switchable fuses and the COSMO® busbar systems with their accessories are available on Tracon catalogue and on TRACON webshop.

Please find detailed dimensions and technical data of Jean Muller products on www.traconelectric.com home page!

- Screw (A) or clamp (B) terminals
- 1-, 2-, 3-, 4-pole types
- 4 sizes for 00, 1, 2 and 3 size fuse terminals
- Universal optional connection methods



TRACON		I_n			mm ²	L (mm)	W (mm)	H (mm)	U_i	U_e
KETO-00-1/F	1P	160	00	A	max. 95, M10	204	50	84	800 VAC	690 VAC, 440 VDC
KETO-00-1/R95				B	1,5-95	204	50	84	800 VAC	690 VAC, 440 VDC
KETO-1-1/F	1P	250	1	A	max. 150, M10	306	69	117	800 VAC	690 VAC, 440 VDC
KETO-3-1/F		400/630 A	2-3	A	max. 300, M10	306	91	143	800 VAC	690 VAC, 440 VDC
KETO-00-3/F	3P	160 A	00	A	max. 95, 1×M8/2×M5	204	106	84	800 VAC	690 VAC, 440 VDC
KETO-00-3/R95				B	1,5-95	204	106	84	800 VAC	690 VAC, 440 VDC
KETO-1-3/F	3P	250 A	1	A	max. 150, M10	306	184	117	800 VAC	690 VAC, 440 VDC
KETO-1-3/R150				B	35-150	306	184	117	800 VAC	690 VAC, 440 VDC
KETO-2-3/F	3P	400 A	2	A	max. 240, M10	306	210	117	800 VAC	690 VAC, 440 VDC
KETO-2-3/R300				B	95-300	306	210	117	800 VAC	690 VAC, 440 VDC
KETO-3-3/F	3P	630 A	3	A	max. 300, M10	306	250	117	800 VAC	690 VAC, 440 VDC
KETO-3-3/R300				B	95-300	306	250	117	800 VAC	690 VAC, 440 VDC

CHECK OUR KETO CATALOGUE AT OUR CUSTOMER SERVICE OR ASK FOR A COPY FROM YOUR SALES REPRESENTATIVE



FULL PRODUCT RANGE!

- Connecting terminals
- Connecting rails, 00
- Protection covers
- DIN rail adaptors, 00-1
- Accessories for locking, 00-3
- Position signals
- Fuse monitoring units
- Power theft protection
- Technical data
- Dimension drawings



Horizontal type switch fuses for busbar mount for 60 and 100 mm systems

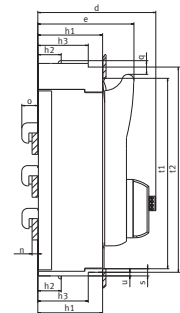
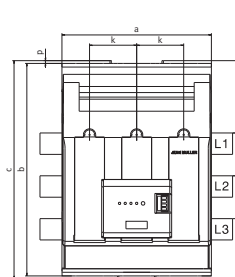
These devices can easily be mounted on three-pole 60 and 100 mm busbar systems. The fixing elements on the back of the switch are tightening the termination plate of devices on the busbar.

In this way, both the reliable fixation and the power supply are ensured.

- 3 pole types for cable lug and busbar terminations
- For busbars with 60 and 100 mm sizes
- 5-10 mm busbar thickness
- For 00, 1, 2 and 3 type NH fuses



TRACON		I_n		$a \times b$		 mm ²	L (mm)	W (mm)	H (mm)
KETO-00-3/60/AOU/F	60 mm	160 A	00	20-30 × 5-10	A	max. 95, 1×M8/2×M5	204	106	109
KETO-00-3/60/AOU/R95	60 mm	160 A	00	20-30 × 5-10	B	1,5-95	204	106	109
KETO-00-3/60/AOU/R95*	60 mm	160 A	00	20-30 × 5-10	B	1,5-95	204	106	109
KETO-1-3/60/AOU/F	60 mm	250 A	1	20-30 × 5-10	A	max. 150, M10	306	184	117
KETO-1-3/60/AOU/R150	60 mm	250 A	1	20-30 × 5-10	B	35-150	306	184	117
KETO-2-3/60/AOU/F	60 mm	400 A	2	20-30 × 5-10	A	max. 240, M10	306	210	135
KETO-2-3/60/AOU/R300	60 mm	400 A	2	20-30 × 5-10	B	95-300	306	210	135
KETO-3-3/60/AOU/F	60 mm	630 A	3	20-30 × 5-10	A	max. 300, M10	306	250	143
KETO-3-3/60/AOU/R300	60 mm	630 A	3	20-30 × 5-10	B	95-300	306	250	143
KETO-1-3/100/AOU/F	100 mm	250 A	1	20-50 × 5-10	A	max. 150, M10	306	184	146
KETO-2-3/100/AOU/F	100 mm	400 A	2	20-50 × 5-10	A	max. 240, M10	306	210	144
KETO-3-3/100/AOU/F	100 mm	630 A	3	20-50 × 5-10	A	max. 300, M10	306	250	152



The Jean Müller company is a major manufacturer on the market of switchgears since 1897. Their products are well known for their high quality and reliability all around the world. We offer our partner the chance to enjoy these products.

Vertical type switch fuses for busbar mount for 185 mm systems

500/690
V AC220/400
V DC40/60 Hz
 U_i
1 kVIP10
IP20
 T_a
-25...+55°C

I/O

Main specifications:

Connecting the cable up or down can be realized by rotating the device by 180°.

The devices have test holes on the front plate to control the operation features with portable meters.

Types with independent switchable poles

TRACON	I_n		mm ²	L (mm)	W (mm)	H (mm)	
SL00-3X/185/F	160 A	00	Max. 95	662	50	135,5	
SL00-3X/185/KU00	160 A	00	10 – 95	662	50	135,5	
SL1-3X/3A	250 A	1	25 – 150	762	99	194	
SL1-3X/9/KM2G-F	250 A	1	25 – 240	762	99	194	
SL2-3X/3A	400 A	2	25 – 240	762	99	194	
SL2-3X/9/KM2G-F	400 A	2	25 – 240	762	99	194	
SL3-3X/3A	630 A	3	25 – 300	762	99	194	
SL3-3X/9/KM2G-F	630 A	3	25 – 240	762	99	194	

Types to be switched in all three poles

TRACON	I_n		mm ²	L (mm)	W (mm)	H (mm)	
SL00-3X3/185/F	160 A	00	Max. 95	662	50	150	
SL00-3X3/185/KU00	160 A	00	10 – 95	662	50	150	
SL1-3X3/3A	250 A	1	25 – 150	762	99	202	
SL1-3X3/9/KM2G-F	250 A	1	25 – 240	762	99	202	
SL2-3X3/3A	400 A	2	25 – 240	762	99	202	
SL2-3X3/9/KM2G-F	400 A	2	25 – 240	762	99	202	
SL3-3X3/3A	630 A	3	25 – 300	762	99	202	
SL3-3X3/9/KM2G-F	630 A	3	25 – 240	762	99	202	

Handle

- Long handle for fast and safe switching
- Any pole can be locked in both ON and OFF position

Measuring and control

- Safe operation tests through test holes directly from contacts

Installation

- Safe installation even in live state thank to protection cover against direct contact
- Universal cable entry depending on the position of the device base (top or bottom)



Accessories to be used for construction of rail systems with 100 mm and 185 mm medium distance between rails

SH100/185

Collective rail fixing element (for rail systems with 100 mm and 185 mm medium distance between rails)



This element is suitable for fixing collective rails with a 100mm-185mm medium distance between each other. By applying them, you can build an optimal collective rails system, even for vertical sectioning switch fuses. Railcovering elements can be ordered to completely protect the rail systems.

Technical data:

- Number of poles: 3;
- Fixing screw dimension: M12;
- Width of collective rail: 100 mm;
- Medium rail distance: 100mm / 185 mm;
- Overall size: $38 \times 442 \times 25$ mm;
(width × height × thickness)

H-SL123/662

Collective rail cover with screw (for rail systems with 185 mm medium distance between rails)



The vertical, front-side collective rail covers provide front-side (non-protected operator-side) isolation of the collective rails with 185 mm medium distance between rails.

Technical data:

- Number of poles: 3;
- Fixing: plastic, with fixation ears;
- Width of collective rail: 100 mm;
- Medium rail distance: 185 mm;
- Overall size: $100 \times 662 \times 2$ mm;
(width × height × thickness)

H-RF

Snap-on collective rail cover, (for rail systems with 100 mm and 185 mm medium distance between rails)



For the same use as the screw-on cover, with different way of installation. Just snap it on the collective rail, no tool is necessary.

Technical data:

- Number of poles: 3;
- Fixing: plastic, with fixation ears;
- Width of collective rail: 100 mm;
- Medium rail distance: 100mm / 185 mm;
- Overall size: $99 \times 572 \times 36$ mm;
(width × height × thickness)

HW-SH/185

Collective rail sidewise cover with screw (for rail systems with 185 mm medium distance between rails)



These covers provide sidewise isolation for the SH100/185 type collective rail fixing elements. Completed with the sidewise covers and the screw-on or snap-on front-side covers, the 185 mm wide collective rail systems equipped with SH100/185 type rail holders can be completely covered from the operator's side.

Technical data:

- Number of poles: 3;
- Fixing: plastic, with fixation ears;
- Width of collective rail: 185 mm;
- Medium rail distance: 100mm / 185 mm;
- Overall size: $25 \times 442 \times 38$

Accessories to sectioning switch fuses with 185 mm medium distance between rails



AL-SL00/42

Adaptor for lifting of 00, 00C size devices

Using this accessory, 00, 00C size devices can be lifted from the base plane to the same height as 1-2-3 size devices. This way a better aesthetic look of the distribution box is obtained and service is made easier.

Technical data:

- Number of poles: 3;
- Device size: 00, 00C;
- Fixation screw size: M12;
- Width of collective rail: 100 mm;
- Medium rail distance: 185 mm;
- Overall size: $99 \times 450 \times 42$ mm;
(width × height × thickness)



SK-L/SL00/15

Collective rail clamp for 00, 00C size devices

These clamps serve for fixation of the SL00 size devices onto the collective rails.

Technical data:

- Material: tinned copper;
- Device size: 00, 00C;
- Fixation screw size: M12
- Rail thickness: 5 – 10 mm



60 mm COSMO busbar system



Complete 60mm busbar systems can be built-up by using these elements.

Main specifications:

- Wide application range
- Short installation time
- Less cabling
- Easy mounting
- Generalized sizes



Busbar holders and covers (for 60 mm system)

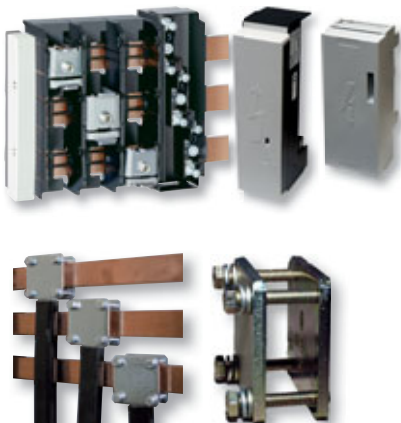


TRACON	Description
SST-60/1	Busbar holder, 1p
SST-60/3	Busbar holder, 3p
SST-60/4	Busbar holder, 4p
A-SST-60/3	Side cover for 3 pole busbars
A-SST-60/4	Side cover for 4 pole busbars
SAD60/3	Front cover for 3 pole busbars
SAD60/4	Front cover for 4 pole busbars

The busbar holders are two-part blocks made of insulation material with integrated spacer to built-in busbars with 5 and 10 mm thickness and, 20-30 mm width. The covers isolate all three phases and can easily snapped onto the busbar.

The covers can be overlapped so this way the covering width is easily variable without cutting the modules.

Connecting terminals (for 60 mm busbar system)



TRACON	Type, connection (width x thickness)
AM-60/250/3	up to 250A, 1,5 mm ² - 70 mm ²
AM-60/250/3/120-5	up to 250A, 16mm ² -120mm ² , for 5 mm thick busbars
AM-60/250/3/120-10	up to 250A, 16mm ² -120mm ² , for 10 mm thick busbars
AM-60/630/3	up to 630A, 70mm ² -300mm ² , for 5/10 mm thick busbars
PK30/34X10	on 30 mm wide busbar, for 34×10 mm branch rail
PK40/34X10	on 40 mm wide busbar, for 34×10 mm branch rail
PK50/34X10	on 50 mm wide busbar, for 34×10 mm branch rail
PK50/54X10	on 50 mm wide busbar, for 34×10 mm branch rail
PK60/34X10	on 60 mm wide busbar, for 34×10 mm branch rail
PK60/54X10	on 60 mm wide busbar, for 34×10 mm branch rail

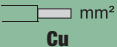
These terminals are suitable for busbar power supply and cable terminations as well. The AM... modules include the protection cover and are suitable to make branch cable terminations from busbars. The PK... modules having no cover; the joint between main and branch busbar is ensured by 4 screws.

Busbar clamps



TRACON		
		 mm ²
LAK5/1,5-16	LAK10/1,5-16	1,5-16 mm ²
LAK5/1,5-35	LAK10/1,5-35	1,5-35 mm ²
LAK5/1,5-50	LAK10/1,5-50	1,5-50 mm ²
LAK5/16-70	LAK10/16-70	16-70 mm ²
LAK5/16-120	LAK10/16-120	16-120 mm ²
LAK5/16-185	LAK10/16-185	16-185 mm ²

Clip- terminals

TRACON	 mm ² Cu	 a x b	X 	
S00	6-50	9×5 mm, Cu	2 × M5	00 KETO, SL..
S1	25-150	18×10 mm, Cu	2 × M6	1 KETO
S2	25-240	19×10 mm, Cu	2 × M8	2 KETO
S3	–	21×15 mm, Cu	2 × M8	3 KETO



Prism- terminal

TRACON	 mm ² Cu/Al	X 	
P0070	1×10 - 70	2 × M5	00 KETO, SL..
P0095	1×10 - 95	2 × M5	1 KETO, SL..
P1	1×70 - 150	2 × M6	1 KETO
P2	1×120 - 240	2 × M8	2 KETO
P3	1×120 - 300	2 × M8	3 KETO
P12	2×70 - 95	2 × M6	1 KETO
P22	2×120 - 150	2 × M8	2 KETO
P32	2×120 - 240	2 × M8	3 KETO



P..



P..2

V-terminal

TRACON	 mm ² Cu/Al	 a x b	
KM2G-F	25-240 mm ² Cu/Al	–	1, 2, 3 L/SL..
KM2G	25-300 mm ² Cu/Al	–	1, 2, 3 L/SL..
KM2G-F/A30-40	25-240 mm ² Cu/Al	30-40 mm	1, 2, 3 L/SL..
KM2G/A30-40	25-300 mm ² Cu/Al	30-40 mm	1, 2, 3 L/SL..



KM2G../A30-40



KM2G..

U-terminal

TRACON	 mm ² Cu/Al	 a x b	
KU00/1/2X/A30-40*	2×10-95 mm ² Cu/Al	30-40 mm	00 L/SL..
KU00	10-95 mm ² Cu/Al	–	00 L/SL..
KU00/2	1×95/2×50 mm ² Cu/Al	–	00 L/SL..

* Version with connecting ear, to be installed on rail



KU00/1/2X/A30-40



KU00

For reliable and safe operation of the electrical energy system, all Jean Müller type sectioning switches are equipped with knife contacts. The special form of the top of the contact ensures an optimal arc direction, for shortest discharge time, thus reducing erosion of the contact surface. The flat surface of the middle portion of the contactor ensures sufficient contact area to keep power loss as low as possible.

The base part of the contactor is shaped to protect the device against crusting in case of short-circuit.

This way, the nominal interrupting capacity of the device can be as high as 110 kA!



TK type, industrial manual switches



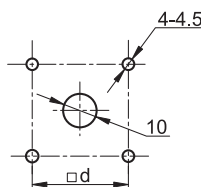
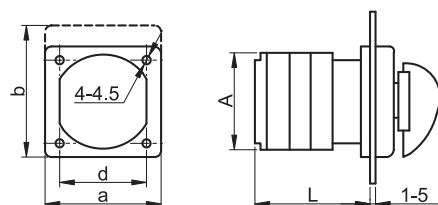
Pictograms

I/O

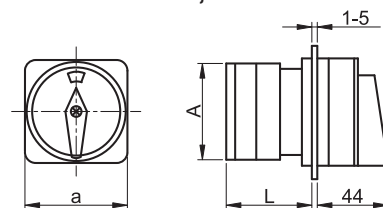

		TK-20	TK-25	TK-32	TK-63	TK-125	TK-160		
I_{th} (A)		20	25	32	63	125	160		
P_e (kW)	400 V~	AC-23A	7,5	11	15	30	45	75	
		AC-2	7,5	11	15	30	45	55	
		AC-3	5,5	7,5	11	18,5	30	37	
		AC-4	1,5	3	5,5	7,5	12	15	
I_e (A)	400 V~	AC-21A	20	25	32	63	100	150	
		AC-22A	20	25	32	63	100	150	
		AC-23A	15	22	30	37	90	135	
		AC-2	15	22	30	37	90	135	
		AC-3	11	15	22	36	75	95	
		AC-4	3,5	6,5	11	15	30	55	
		AC-15	4	5	6	-	-	-	
		240 V =	DC-13	1	1,5	4	-	-	-
		 (×10³)	5	5	3	1,5	1,5	1,5	
	 (×10³)	3	3	1,2	1	1	1		
		200	150	100	60	30	30		
 mm ²		1×2,5	1×4,0	1×6,0	1×25	1×50	1×70		
		2×1,5	2×1,5	2×4,0	2×10	2×25	2×35		
		1×2,5	1×4,0	1×4,0	1×16	1×35	1×50		
		2×1,5	2×1,5	2×2,5	2×6	2×10	2×16		
I_{cw} (1s, A)		200	250	400	600	600	800		
 (A)		20	25	32	63	125	160		

Dimensions and fixing holes

TK..., TKV..., TKB..., TKM..., TKU..., TKI-F



TKF..., TKFL...



Dimensions see on the table! (I/22-I/27.)

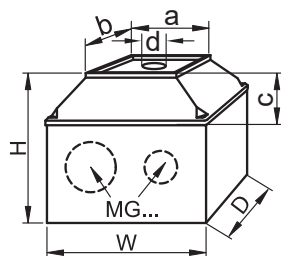

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- Check our new products
- Be updated

Our range of products is continuously and quickly expanding. Our catalogue shows our products as of April 2019. Check our website to stay up-to-date.

Accessories

TRACON				D (mm)	W (mm)	H (mm)	a×b (mm)	C (mm)	d (mm)		IP..
TK/T1+F1/		+		68	68	64	48 × 48	25	9,5	2 × MG-20	IP 44
TK/T2+F1/		+		68	68	72	48 × 48	25	9,5	2 × MG-20	IP 44
TK/T2+F2/		+		68	68	80	48 × 48	32	22	2 × MG-20	IP 44
TK/T3+F3/		+		112	112	108	64 × 64	35	11,5	2 × MG-25 2 × MG-32	IP 44
TK/T3+F3S/		+		112	112	108	64 × 64	35	11,5	2 × MG-25 2 × MG-32	IP 44
TKTS-01		+		110	83	69	48 × 48/ 64 × 64	22	9,5	2 × (2 × MG-20)	IP 65
TKTS-02		+		120	113	87	48 × 48/ 64 × 64	25	9,5	2 × (2 × MG-25)	IP 65
TKTS-03		+		200	140	109	64 × 64/ 88 × 88	30	11,5	2 × MG-25 2 × MG-32	IP 65

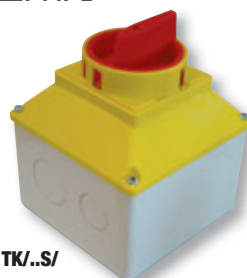


RELEVANT STANDARD
EN 60947-3

TKTS-..



TK../S/

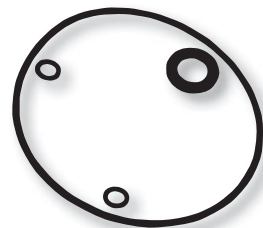


TK../



Seal sets

TRACON	
TKT-65	TK-20..., TK-25..., TKV-20..., TKV-25..., TKB-20..., TKB-25..., TKM-20..., TKM-25..., TKF-20..., TKF-25...
TKT-65/2	TK-32..., TK-63..., TKV-32..., TKV-63..., TKB-32..., TKB-63..., TKM-32..., TKM-63..., TKF-32..., TKF-63...
TKT-65/3	TKFL-..
TKT-65/4	TKFK-..

IP
65

Adaptor

TRACON	
TKA	TK-20..., TK-25..., TKV-20..., TKV-25..., TKB-20..., TKB-25..., TKM-20..., TKM-25..., TKF-20..., TKF-25...




35×7.5


RELEVANT STANDARD
EN 60947-3

TRACON

IP 42



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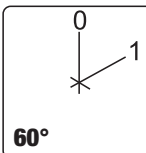


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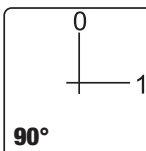


General ON-OFF switches

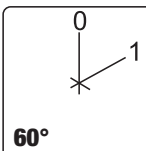
TK-206/2	TK-206/2T	TK-206/2T65	20 A / 2P	TK/T1+F1/
TK-256/2	TK-256/2T	TK-256/2T65	25 A / 2P	TK/T1+F1/



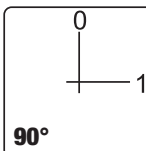
TK-209/2	TK-209/2T	TK-209/2T65	20 A / 2P	TK/T1+F1/
TK-259/2	TK-259/2T	TK-259/2T65	25 A / 2P	TK/T1+F1/



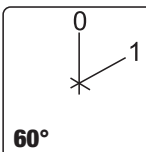
TK-206/3	TK-206/3T	TK-206/3T65	20 A / 3P	TK/T1+F1/
TK-256/3	TK-256/3T	TK-256/3T65	25 A / 3P	TK/T2+F1/
TK-326/3	TK-326/3T	TK-326/3T65	32 A / 3P	TK/T3+F3/
TK-636/3	TK-636/3T	TK-636/3T65	63 A / 3P	TK/T3+F3/
TK-126/3	-	TK-126/3T65	125 A / 3P	TKTS-03
TK-166/3	-	TK-166/3T65	160 A / 3P	TKTS-03



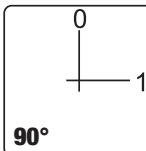
TK-209/3	TK-209/3T	TK-209/3T65	20 A / 3P	TK/T1+F1/
TK-259/3	TK-259/3T	TK-259/3T65	25 A / 3P	TK/T2+F1/
TK-329/3	TK-329/3T	TK-329/3T65	32 A / 3P	TK/T3+F3/
TK-639/3	TK-639/3T	TK-639/3T65	63 A / 3P	TK/T3+F3/
TK-129/3	-	TK-129/3T65	125 A / 3P	TKTS-03
TK-169/3	-	TK-169/3T65	160 A / 3P	TKTS-03



TK-206/4	TK-206/4T	TK-206/4T65	20 A / 4P	TK/T1+F1/
TK-256/4	TK-256/4T	TK-256/4T65	25 A / 4P	TK/T2+F1/
TK-326/4	TK-326/4T	TK-326/4T65	32 A / 4P	TK/T3+F3/
TK-636/4	TK-636/4T	TK-636/4T65	63 A / 4P	TK/T3+F3/
TK-126/4	-	TK-126/4T65	125 A / 4P	TKTS-03
TK-166/4	-	TK-166/4T65	160 A / 4P	TKTS-03

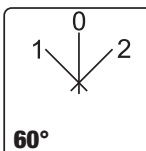


TK-209/4	TK-209/4T	TK-209/4T65	20 A / 4P	TK/T1+F1/
TK-259/4	TK-259/4T	TK-259/4T65	25 A / 4P	TK/T2+F1/
TK-329/4	TK-329/4T	TK-329/4T65	32 A / 4P	TK/T3+F3/
TK-639/4	TK-639/4T	TK-639/4T65	63 A / 4P	TK/T3+F3/
TK-129/4	-	TK-129/4T65	125 A / 4P	TKTS-03
TK-169/4	-	TK-169/4T65	160 A / 4P	TKTS-03

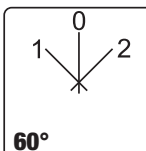


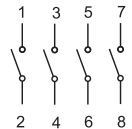
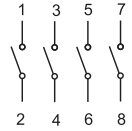
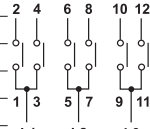
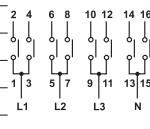
Select switches

TKV-206/3	TKV-206/3T	TKV-206/3T65	20 A / 2×3P	TK/T2+F1/
TKV-256/3	-	TKV-256/3T65	25 A / 2×3P	TKTS-02
TKV-326/3	TKV-326/3T	TKV-326/3T65	32 A / 2×3P	TK/T3+F3/
TKV-636/3	-	TKV-636/3T65	63 A / 2×3P	TKTS-03
TKV-126/3	-	-	125 A / 2×3P	-
TKV-166/3	-	-	160 A / 2×3P	-



TKV-206/4	-	TKV-206/4T65	20 A / 2×4P	TKTS-01
TKV-256/4	-	TKV-256/4T65	25 A / 2×4P	TKTS-02
TKV-326/4	TKV-326/4T	TKV-326/4T65	32 A / 2×4P	TK/T3+F3/
TKV-636/4	-	-	63 A / 2×4P	-
TKV-126/4	-	-	125 A / 2×4P	-
TKV-166/4	-	-	160 A / 2×4P	-



									
0° 60°			L (mm)	A (mm)	a (mm)	b (mm)	d (mm)		
1-2	x								
3-4	x								
			28	43,5	48	48	36		
			28	43,5	48	48	36		
0° 90°									
1-2	x								
3-4	x								
			33	45,3	48	48	36		
			33	45,3	48	48	36		
0° 60°									
1-2	x		41,2	43	48	48	36		
3-4	x		48,6	45,2	48	48	36		
5-6	x		54,8	58	64	64	48		
			72,2	66	64	64	48		
			84	84	88	88	68		
			97	88	88	88	68		
0° 90°									
1-2	x		41,2	43	48	48	36		
3-4	x		48,6	45,2	48	48	36		
5-6	x		54,8	58	64	64	48		
			72,2	66	64	64	48		
			84	84	88	88	68		
			97	88	88	88	68		
0° 60°									
1-2	x		41,2	43	48	48	36		
3-4	x		48,6	45,2	48	48	36		
5-6	x		54,8	58	64	64	48		
7-8	x		72,2	66	64	64	48		
			84	84	88	88	68		
			97	88	88	88	68		
0° 90°									
1-2	x		41,2	43	48	48	36		
3-4	x		48,6	45,2	48	48	36		
5-6	x		54,8	58	64	64	48		
7-8	x		72,2	66	64	64	48		
			84	84	88	88	68		
			97	88	88	88	68		
-60° 0° 60°									
1-2	x		50,8	43	48	48	36		
3-4		x	61,4	45,2	48	48	36		
5-6	x		67,6	58	64	64	48		
7-8		x	93,7	66	64	64	48		
9-10	x		110	84	88	88	68		
11-12		x	130	88	88	88	68		
-60° 0° 60°									
1-2	x		60,4	43	48	48	36		
3-4		x	74,2	45,2	48	48	36		
5-6	x		80,4	58	64	64	48		
7-8		x	115,2	66	64	64	48		
			136	84	88	88	68		
			163	88	88	88	68		

TRACON

IP 42



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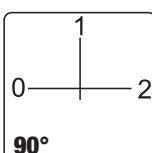
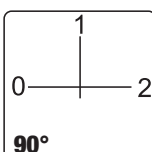
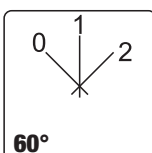
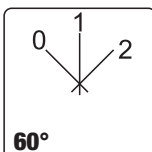
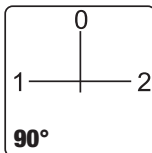
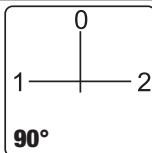


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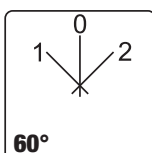
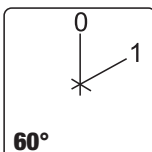
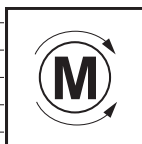
Select switches

TKV-209/3	TKV-209/3T	TKV-209/3T65	20 A / 2×3P	TK/T2+F1/
TKV-259/3	-	TKV-259/3T65	25 A / 2×3P	TKTS-02
TKV-329/3	TKV-329/3T	TKV-329/3T65	32 A / 2×3P	TK/T3+F3/
TKV-639/3	-	TKV-639/3T65	63 A / 2×3P	TKTS-03
TKV-129/3	-	-	125 A / 2×3P	-
TKV-169/3	-	-	160 A / 2×3P	-
TKV-209/4	-	TKV-209/4T65	20 A / 2×4P	TKTS-01
TKV-259/4	-	TKV-259/4T65	25 A / 2×4P	TKTS-02
TKV-329/4	TKV-329/4T	TKV-329/4T65	32 A / 2×4P	TK/T3+F3/
TKV-639/4	-	-	63 A / 2×4P	-
TKV-129/4	-	-	125 A / 2×4P	-
TKV-169/4	-	-	160 A / 2×4P	-
TKB-206/3	TKB-206/3T	TKB-206/3T65	20 A / 2×3P	TK/T2+F1/
TKB-256/3	-	TKB-256/3T65	25 A / 2×3P	TKTS-02
TKB-326/3	TKB-326/3T	TKB-326/3T65	32 A / 2×3P	TK/T3+F3/
TKB-636/3	-	TKB-636/3T65	63 A / 2×3P	TKTS-03
TKB-126/3	-	-	125 A / 2×3P	-
TKB-166/3	-	-	160 A / 2×3P	-
TKB-206/4	-	TKB-206/4T65	20 A / 2×4P	TKTS-01
TKB-256/4	-	TKB-256/4T65	25 A / 2×4P	TKTS-02
TKB-326/4	TKB-326/4T	TKB-326/4T65	32 A / 2×4P	TK/T3+F3/
TKB-636/4	-	-	63 A / 2×4P	-
TKB-126/4	-	-	125 A / 2×4P	-
TKB-166/4	-	-	160 A / 2×4P	-
TKB-209/3	TKB-209/3T	TKB-209/3T65	20 A / 2×3P	TK/T2+F1/
TKB-259/3	-	TKB-259/3T65	25 A / 2×3P	TKTS-02
TKB-329/3	TKB-329/3T	TKB-329/3T65	32 A / 2×3P	TK/T3+F3/
TKB-639/3	-	TKB-639/3T65	63 A / 2×3P	TKTS-03
TKB-129/3	-	-	125 A / 2×3P	-
TKB-169/3	-	-	160 A / 2×3P	-
TKB-209/4	-	TKB-209/4T65	20 A / 2×4P	TKTS-01
TKB-259/4	-	TKB-259/4T65	25 A / 2×4P	TKTS-02
TKB-329/4	TKB-329/4T	TKB-329/4T65	32 A / 2×4P	TK/T3+F3/
TKB-639/4	-	-	63 A / 2×4P	-
TKB-129/4	-	-	125 A / 2×4P	-
TKB-169/4	-	-	160 A / 2×4P	-



Motor switches

TKM-20/Q	TKM-20/QT	TKM-20/QT65	5,5 kW	TK/T1+F1/
TKM-25/Q	TKM-25/QT	TKM-25/QT65	7,5 kW	TK/T2+F1/
TKM-32/Q	TKM-32/QT	TKM-32/QT65	11 kW	TK/T3+F3/
TKM-63/Q	TKM-63/QT	TKM-63/QT65	18,5 kW	TK/T3+F3/
TKM-12/Q	-	TKM-12/QT65	30 kW	TKTS-03
TKM-16/Q	-	TKM-16/QT65	37 kW	TKTS-03
TKM-20/N	TKM-20/NT	TKM-20/NT65	5,5 kW	TK/T2+F1/
TKM-25/N	-	TKM-25/NT65	7,5 kW	TKTS-02
TKM-32/N	TKM-32/NT	TKM-32/NT65	11 kW	TK/T3+F3/
TKM-63/N	-	TKM-63/NT65	18,5 kW	TKTS-03
TKM-12/N	-	-	30 kW	-
TKM-16/N	-	-	37 kW	-



			L (mm)	A (mm)	a (mm)	b (mm)	d (mm)		
-90°	0°	90°							
1-2	x		50,8	43	48	48	36	2 4 6 8 10 12	
3-4		x	61,4	45,2	48	48	36	2 4 6 8 10 12	
5-6	x		67,6	58	64	64	48	2 4 6 8 10 12	
7-8		x	93,7	66	64	64	48	2 4 6 8 10 12	
9-10	x		110	84	88	88	68	2 4 6 8 10 12	
11-12		x	130	88	88	88	68	2 4 6 8 10 12	
-90°	0°	90°	-90°	0°	90°				
1-2	x		9-10	x		60,4	43	48	
3-4		x	11-12		x	74,2	45,2	48	
5-6	x		13-14	x		80,4	58	64	
7-8		x	15-16		x	115,2	66	64	
						136	84	88	
						163	88	88	
-60°	0°	60°	-60°	0°	60°				
1-2	x		9-10	x		60,4	43	48	
3-4		x	11-12		x	74,2	45,2	48	
5-6	x		13-14	x		80,4	58	64	
7-8		x	15-16		x	115,2	66	64	
						136	84	88	
						163	88	88	
-60°	0°	60°	-60°	0°	60°				
1-2	x		9-10	x		60,4	43	48	
3-4		x	11-12		x	74,2	45,2	48	
5-6	x		13-14	x		80,4	58	64	
7-8		x	15-16		x	115,2	66	64	
						136	84	88	
						163	88	88	
-90°	0°	90°	-90°	0°	90°				
1-2	x		9-10	x		60,4	43	48	
3-4		x	11-12		x	74,2	45,2	48	
5-6	x		13-14	x		80,4	58	64	
7-8		x	15-16		x	115,2	66	64	
						136	84	88	
						163	88	88	
-90°	0°	90°	-90°	0°	90°				
1-2	x		9-10	x		60,4	43	48	
3-4		x	11-12		x	74,2	45,2	48	
5-6	x		13-14	x		80,4	58	64	
7-8		x	15-16		x	115,2	66	64	
						136	84	88	
						163	88	88	
0	60°								
1-2	x					41,2	43	48	
3-4	x					48,6	45,2	48	
5-6	x					54,8	58	64	
						72,2	66	64	
						84	84	88	
						97	88	88	
-60°	0°	60°							
1-2	x	x				50,8	43	48	
3-4	x	x				61,4	45,2	48	
5-6	x					67,6	58	64	
7-8		x				93,7	66	64	
9-10		x				111	84	88	
11-12	x					130	88	88	



TRACON

IP 42



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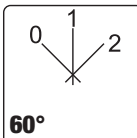
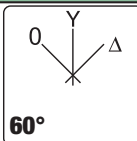


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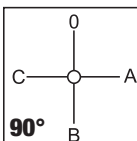
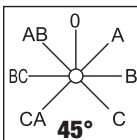
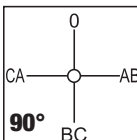
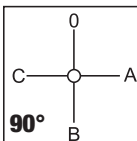
Motor switches

TKM-20/C	-	TKM-20/CT65	Y-Δ 5,5 kW	TKTS-01
TKM-25/C	-	TKM-25/CT65	Y-Δ 7,5 kW	TKTS-02
TKM-32/C	TKM-32/CT	TKM-32/CT65	Y-Δ 11 kW	TK/T3+F3/
TKM-63/C	-	-	Y-Δ 18,5 kW	-
TKM-12/C	-	-	Y-Δ 30 kW	-
TKM-16/C	-	-	Y-Δ 37 kW	-
TKM-20/D	-	TKM-20/DT65	Dahlander 5,5 kW	TKTS-01
TKM-25/D	-	TKM-25/DT65	Dahlander 7,5 kW	TKTS-02
TKM-32/D	TKM-32/DT	TKM-32/DT65	Dahlander 11 kW	TK/T3+F3/
TKM-63/D	-	-	Dahlander 18,5 kW	-
TKM-12/D	-	-	Dahlander 30 kW	-
TKM-16/D	-	-	Dahlander 37 kW	-



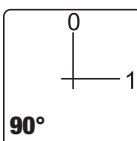
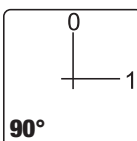
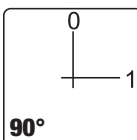
Measure switches

TKU-F	-	-	Voltage measure switch for phase voltage	-
TKU-V	-	-	Voltage measure switch for line voltage	-
TKU-K	-	-	Voltage measure switch for line and phase voltage	-
TKI-F	-	-	Current measure switch for phase current	-



Main switches

TKF-20	TKF-20T	TKF-20T65		20 A / 4P	TK/T3+F3/
TKF-25	TKF-25T	TKF-25T65		25 A / 4P	TK/T3+F3/
TKF-32	TKF-32T	TKF-32T65		32 A / 4P	TK/T3+F3/
TKF-63	TKF-63T	TKF-63T65		63 A / 4P	TK/T3+F3/
TKFK-20	TKFK-20T	TKFK-20T65		20 A / 4P	TK/T2+F2/
TKFK-25	TKFK-25T	TKFK-25T65		25 A / 4P	TK/T2+F2/
TKFK-32	-	-		32 A / 4P	-
TKFK-63	-	-		63 A / 4P	-
TKFL-20	TKFL-20TS	TKFL-20T65S		20 A / 4P	TK/T3+F3S/
TKFL-25	TKFL-25TS	TKFL-25T65S		25 A / 4P	TK/T3+F3S/
TKFL-32	TKFL-32TS	TKFL-32T65S		32 A / 4P	TK/T3+F3S/
TKFL-63	TKFL-63TS	TKFL-63T65S		63 A / 4P	TK/T3+F3S/



102 1x x 2x x 3x x						L	A	a	b	d	1 3 5 7 2 4 6 8		
-60°	0°	60°	-60°	0°	60°	(mm)	(mm)	(mm)	(mm)	(mm)			
1-2	x	x	9-10	x		57	44	48	48	36	9 14 7 U₂ V₂ W₂ L₁ 2 L₂ 8 L₃ 15 U₁ V₁ W₁ 3 1 16		
3-4	x	x	11-12	x		70	46	48	48	36			
5-6	x		13-14		x	78	58	64	64	48			
7-8	x		15-16	x	x	112	66	64	64	48			
						138	84	88	88	68			
						163	88	88	88	68	9 14 7 1U 1W 1V L₁ 2 L₂ 8 L₃ 15 2U 2W 2V 3 16 1		
-60°	0°	60°	-60°	0°	60°	57	44	48	48	36			
1-2	x	x	9-10	x		70	46	48	48	36			
3-4	x		11-12	x		78	58	64	64	48			
5-6	x		13-14	x		112	66	64	64	48			
7-8	x		15-16	x	x	138	84	88	88	68			
						163	88	88	88	68	L1 A 1 2 L2 B 5 6 L3 C 3 4 N N 9 10		
0	A	B	C			50,8	43	48	48	36			
1-2	x												
3-4			x										
5-6		x											
9-10	x	x	x										
											L2 B 1 2 L1 A 5 6 L3 C 7 8 11 12		
0	AB	BC	CA			50,8	43	48	48	36			
1-2	x	x											
5-6			x										
7-8	x												
11-12		x	x										
											L3 C 1 2 L2 B 5 6 L1 A 7 8 9 10 11 12		
CA	BC	AB	0	A	B	C							
1-2	x					x							
3-4	x												
5-6					x								
7-8	x	x											
9-10	x		x		x								
11-12				x	x	x							
											L1 L2 L3 9 10 13 14 15 16 1 2 3 4 5 6		
0	A	B	C										
1-2	x	x		x									
5-6	x		x	x									
7-8	x	x	x										
9-10		x											
13-14	x												
15-16			x										
0°	90°										1 3 5 7 2 4 6 8		
1-2	x					41,2	43	64	64	48			
3-4	x					48,6	45,2	64	64	48			
5-6	x					54,8	58	64	64	48			
7-8	x					72,2	66	64	64	48			
											1 3 5 7 2 4 6 8		
0°	90°					41,2	43	48	48	36			
1-2	x					48,6	45,2	48	48	36			
3-4	x					75	58/105	64	64/112	48/96			
5-6	x					93	66/105	64	64/122	48/96			
7-8	x												
											1 3 5 7 2 4 6 8		
0°	90°					44,2	43	64	64	48			
1-2	x					52,1	45,2	64	64	48			
3-4	x					54,8	58	64	64	48			
5-6	x					72,2	66	64	64	48			
7-8	x												



TS disconnecter switch

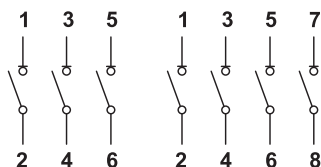


Pictograms

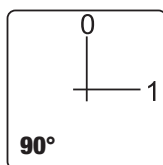
I/O

		TS-20	TS-32	TS-40	TS-63	TS-80	TS-100
I_{th} (A)		20	32	40	63	80	100
P_e (kW), 400 V~	AC-23A	7,5	11	15	22	30	37
	AC-3	5,5	7,5	11	18,5	22	30
(×10³)		5	5	3	1,5	1,5	1,5
(×10³)		3	3	1,2	1	1	1
ON-OFF-ON... sc/h		200	150	100	60	30	30
mm ²		1×2,5	1×4,0	1×6,0	1×25	1×50	1×70
		2×1,5	2×1,5	2×4,0	2×10	2×25	2×35
		1×2,5	1×4,0	1×4,0	1×16	1×35	1×50
		2×1,5	2×1,5	2×2,5	2×6	2×10	2×16
I_{cw} (1s, A)		180	264	360	516	684	840
		20 A gG	35 A gG	50 A gG	63 A gG	80 A gG	100 A gG

Wiring diagram



Front plate



Main features

- applicable for on/off switching under load and for disconnection
- applicable as motor switch, main switch, disconnector, security switch
- high electric and mechanic durability
- two way breaking connections
- the switching speed independent from mechanical operation
- the live parts are protected from accidental touch
- the body was made from self-extinguishing (UL94-V0), high mechanical strength insulation

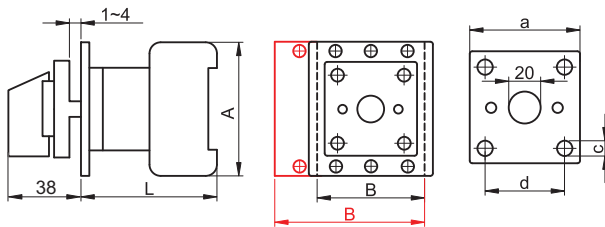


RELEVANT STANDARD
EN 60947-3



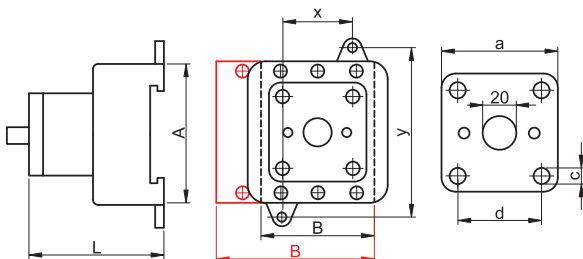
Disconnector switch

TRACON								L	A	B	a	d	c
IP 42		 + 	 + 			(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		
TS-20/3		TS-20/3T	TS-20/3T65	20 A / 3P	TK/T3+F3/	61	54	42	64	48	4.2		
TS-32/3		TS-32/3T	TS-32/3T65	32 A / 3P		61	54	42	64	48	4.2		
TS-40/3		TS-40/3T	TS-40/3T65	40 A / 3P		67	64	50	64	48	4.2		
TS-63/3		TS-63/3T	TS-63/3T65	63 A / 3P		67	64	50	64	48	4.2		
TS-80/3	-		TS-80/3T65	80 A / 3P	TKTS-03	82	80	70	64	48	4.2		
TS-10/3	-		TS-10/3T65	100 A / 3P	TKTS-03	82	80	70	88	68	5.2		
TS-20/4		TS-20/4T	TS-20/4T65	20 A / 4P	TK/T3+F3/	61	54	55.5	64	48	4.2		
TS-32/4		TS-32/4T	TS-32/4T65	32 A / 4P		61	54	55.5	64	48	4.2		
TS-40/4		TS-40/4T	TS-40/4T65	40 A / 4P		67	64	66	64	48	4.2		
TS-63/4		TS-63/4T	TS-63/4T65	63 A / 4P		67	64	66	64	48	4.2		
TS-80/4	-		-	80 A / 4P	-	82	80	92.5	64	48	4.2		
TS-10/4	-		-	100 A / 4P	-	82	80	92.5	88	68	5.2		



Disconnector switch with door coupling

TRACON		L (mm)	A (mm)	B (mm)	a (mm)	d (mm)	c (mm)	x (mm)	y (mm)
TS-20/3K	20 A / 3P	50	54	42	64	48	4.2	22	62
TS-32/3K	32 A / 3P	50	54	42	64	48	4.2	22	62
TS-40/3K	40 A / 3P	61	64	50	64	48	4.2	25	70
TS-63/3K	63 A / 3P	61	64	50	64	48	4.2	25	70
TS-80/3K	80 A / 3P	68	80	70	64	48	4.2	25	90
TS-10/3K	100 A / 3P	68	80	70	88	68	5.2	25	90
TS-20/4K	20 A / 4P	50	54	55.5	64	48	4.2	22	62
TS-32/4K	32 A / 4P	50	54	55.5	64	48	4.2	22	62
TS-40/4K	40 A / 4P	61	64	66	64	48	4.2	25	70
TS-63/4K	63 A / 4P	61	64	66	64	48	4.2	25	70
TS-80/4K	80 A / 4P	68	80	92.5	64	48	4.2	25	90
TS-10/4K	100 A / 4P	68	80	92.5	88	68	5.2	25	90



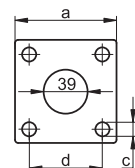
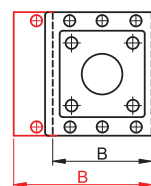
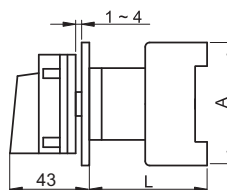
The door coupling makes security interlock at the door of the distribution box; the door can be opened, when the switch is on „0“, as „OFF“ position!

The length of the door coupling: 150 mm

Mountable on 35/7,5 mm size mounting rail (according to EN 50022 standard).

Lockable security disconnecter switch

TRACON					L (mm)	A (mm)	B (mm)	a (mm)	d (mm)	c (mm)
IP 42	IP 44	IP 65								
TSS-20/3	TSS-20/3T	TSS-20/3T65S	20 A / 3P	TK/T3+F3/	61	54	42	64	48	4.2
TSS-32/3	TSS-32/3T	TSS-32/3T65S	32 A / 3P		61	54	42	64	48	4.2
TSS-40/3	TSS-40/3T	TSS-40/3T65S	40 A / 3P	TK/T3+F3S/	67	64	50	64	48	4.2
TSS-63/3	TSS-63/3T	TSS-63/3T65S	63 A / 3P		67	64	50	64	48	4.2
TSS-80/3	-	TSS-80/3T65	80 A / 3P	TKTS-03	82	80	70	64	48	4.2
TSS-10/3	-	TSS-10/3T65	100 A / 3P	TKTS-03	82	80	70	88	68	5.2
TSS-20/4	TSS-20/4T	TSS-20/4T65S	20 A / 4P		61	54	55.5	64	48	4.2
TSS-32/4	TSS-32/4T	TSS-32/4T65S	32 A / 4P	TK/T3+F3S/	61	54	55.5	64	48	4.2
TSS-40/4	TSS-40/4T	TSS-40/4T65S	40 A / 4P		67	64	66	64	48	4.2
TSS-63/4	TSS-63/4T	TSS-63/4T65S	63 A / 4P	TK/T3+F3/	67	64	66	64	48	4.2
TSS-80/4	-	-	80 A / 4P	-	82	80	92.5	64	48	4.2
TSS-10/4	-	-	100 A / 4P	-	82	80	92.5	88	68	5.2



The switch disconnecter is lockable on "OFF" position.

Lockable security disconnecter switch with door coupling

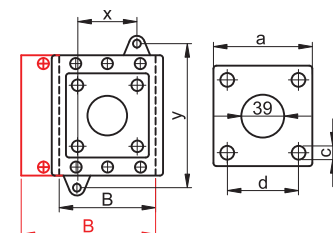
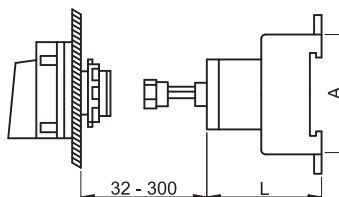


TRACON		L (mm)	A (mm)	B (mm)	a (mm)	d (mm)	c (mm)	x (mm)	y (mm)
TSS-20/3K	20 A / 3P	50	54	42	64	48	4.2	22	62
TSS-32/3K	32 A / 3P	50	54	42	64	48	4.2	22	62
TSS-40/3K	40 A / 3P	61	64	50	64	48	4.2	25	70
TSS-63/3K	63 A / 3P	61	64	50	64	48	4.2	25	70
TSS-80/3K	80 A / 3P	68	80	70	64	48	4.2	25	90
TSS-10/3K	100 A / 3P	68	80	70	88	68	5.2	25	90
TSS-20/4K	20 A / 4P	50	54	55.5	64	48	4.2	22	62
TSS-32/4K	32 A / 4P	50	54	55.5	64	48	4.2	22	62
TSS-40/4K	40 A / 4P	61	64	66	64	48	4.2	25	70
TSS-63/4K	63 A / 4P	61	64	66	64	48	4.2	25	70
TSS-80/4K	80 A / 4P	68	80	92.5	64	48	4.2	25	90
TSS-10/4K	100 A / 4P	68	80	92.5	88	68	5.2	25	90

The door coupling makes security interlock at the door of the distribution box; the door can be opened, when the switch is on „0“, as „OFF“ position!

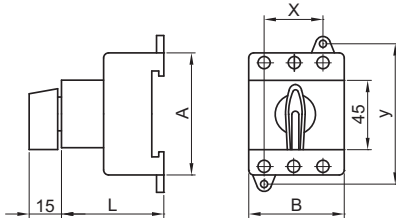
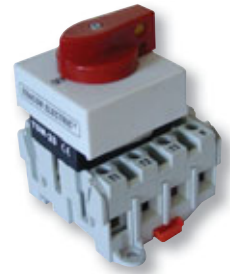
The length of the door coupling: 150 mm

Mountable on 35/7,5 mm size mounting rail (according to EN 50022 standard).



Moulded lockable disconnector switch

TRACON		L (mm)	A (mm)	B (mm)	x (mm)	y (mm)
TSM-20/3	20 A / 3P	50	54	42	22	62
TSM-32/3	32 A / 3P	50	54	42	22	62
TSM-20/4	20 A / 4P	50	54	55.5	22	62
TSM-32/4	32 A / 4P	50	54	55.5	22	62



RELEVANT STANDARD
EN 60947-3

Passing through 45mm standard front panel cut-out, these switches are moutable from their back with two screws or can be clipped on mounting rail according to EN 50022.

EVOMS modular lockable disconnection switches

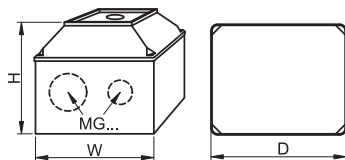
TRACON	Ith (40 °C)
EVOMS16/3	16 A/3P
EVOMS20/3	20 A/3P
EVOMS25/3	25 A/3P
EVOMS40/3	40 A/3P
EVOMS80/3	80 A/3P
EVOMS100/3	100 A/3P
EVOMS125/3	125 A/3P



F/21

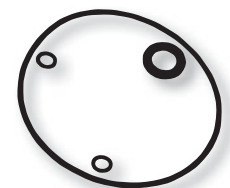
Enclosures

TRACON		W (mm)	H (mm)	D (mm)		IP..
TK/T3+F3/	 + 	112	108	112	2 × MG-25 2 × MG-32	IP 44
TK/T3+F3S/	 + 	112	108	112	2 × MG-25 2 × MG-32	IP 44
TKTS-03	 + 	140	109	200	2 × MG-25 2 × MG-32	IP 44



Sealing sets

TRACON	
TKT-65/2	TS-20/3, TS-32/3, TS-40/3, TS-63/3, TS-20/4, TS-32/4, TS-40/4, TS-63/4
TKT-65/3	TSS-20/3, TSS-32/3, TSS-40/3, TSS-63/3, TSS-20/4, TSS-32/4, TSS-40/4, TSS-63/4



Contactors

230/400
V AC

T_a
-25...+55°C

max.
±30°

AC
1

AC
3

AC
4

AC
15

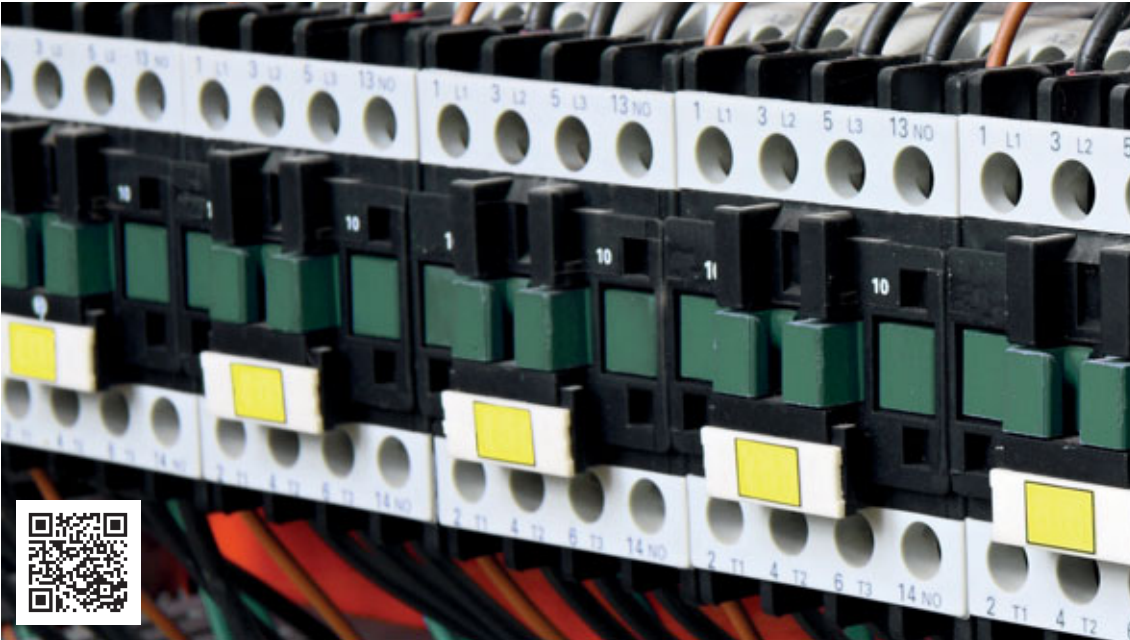
AC
6b

 Pictograms **I/O**

TRACON			
	TR1K..	TR1D..	TR1E..
	AC-1, AC-3, AC-15	AC-1, AC-3, AC-4	AC-1, AC-3, AC-4
U _m	24 V AC, 48 V AC, 110 V AC, 230 V AC, 400 V AC	24 V AC, 48 V AC, 110 V AC, 230 V AC, 400 V AC	24 V AC, 48 V AC, 230 V AC, 400 V AC
I _e	6...12 A/AC-3	9...95 A/AC-3	115...620 A/AC-3
			

Supplied alone or with protection (e.g. thermal relay), the contactor acts as a switch or a remote control element of an electric motor or other low voltage electrical equipment. The device can be suitable for many automation tasks with the help of different sensitive auxiliary contacts. Auxiliary contacts can be mounted both on the front and side of the device and timing element is also applicable on the front side. With their help, signalling or interlocking tasks in secondary circuits can be fulfilled. These contactors are made only with alternate current operating coils with 5 different rated voltages. The contactors must be selected according to the purpose and category of application (see APPENDIX).

These devices are applicable to switch smaller loads. Their application is recommended in all places where the switchable load can be performed only by switching device of small dimensions.

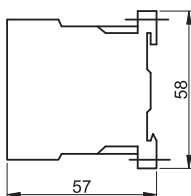
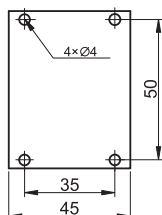


Mini contactors

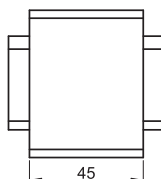
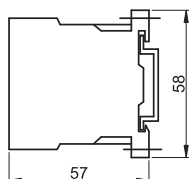
230/400 V AC	690 V	660 V	20 A	×4.800			1-4	30 VA	4,5 VA		25...+55°C		IP 20
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		U _m	TRACON		
			6A/AC-3	9A/AC-3	12A/AC-3
		24 V~	-	TR1K0904B7	TR1K1204B7
		48 V~	-	TR1K0904E7	TR1K1204E7
		110 V~	-	TR1K0904F7	TR1K1204F7
		230 V~	-	TR1K0904	TR1K1204
		400 V~	-	TR1K0904V7	TR1K1204V7
		24 V~	TR1K0610B7	TR1K0910B7	TR1K1210B7
		48 V~	TR1K0610E7	TR1K0910E7	TR1K1210E7
		110 V~	TR1K0610F7	TR1K0910F7	TR1K1210F7
		230 V~	TR1K0610	TR1K0910	TR1K1210
		400 V~	TR1K0610V7	TR1K0910V7	TR1K1210V7
		24 V~	TR1K0601B7	TR1K0901B7	TR1K1201B7
		48 V~	TR1K0601E7	TR1K0901E7	TR1K1201E7
		110 V~	TR1K0601F7	TR1K0901F7	TR1K1201F7
		230 V~	TR1K0601	TR1K0901	TR1K1201
		400 V~	TR1K0601V7	TR1K0901V7	TR1K1201V7
		24 V~	-	TR1K0908B7	-
		48 V~	-	TR1K0908E7	-
		110 V~	-	TR1K0908F7	-
		230 V~	-	TR1K0908	-
		400 V~	-	TR1K0908V7	-
I_e (A)	AC-1		20	20	20
	AC-3		6	9	12
	AC15		2	3	4
P_e (kW)	220/230 V	AC-3	1,5	2,2	3
	380/400 V	AC-3	2,2	4	5,5
	415 V	AC-3	2,2	4	5,5
	500 V, 660/690 V	AC-3	3	4	4
			10 A aM	10 A aM	16 A aM

Dimensions



Fixed on
mounting plate



Fixed on
mounting rail
(35×7,5 mm)



RELEVANT STANDARD
EN 60947-4-1

RELEVANT STANDARD
EN 60947-1

TR1D type contactors for general purpose (9 A ... 32 A)

230/400
V AC

 U_i
660 V


 U_e
660 V


 ON-OFF-ON
sc/h
x3.600


 3x10⁶

 x10⁶

 AUX (mm²)
1-4

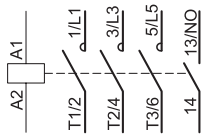
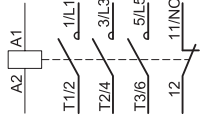

 T_a
-25...+55°C


 max.
£30°

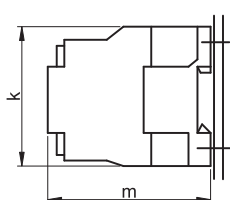

 IP
20


 Pictograms

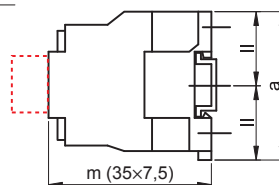
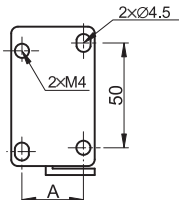
I/O

U _m		TRACON				
		9A/AC-3	12A/AC-3	18A/AC-3	25A/AC-3	32A/AC-3
	24 V~	TR1D0910B7	TR1D1210B7	TR1D1810B7	TR1D2510B7	TR1D3210B7
	48 V~	TR1D0910E7	TR1D1210E7	TR1D1810E7	TR1D2510E7	TR1D3210E7
	110 V~	TR1D0910F7	TR1D1210F7	TR1D1810F7	TR1D2510F7	TR1D3210F7
	230 V~	TR1D0910	TR1D1210	TR1D1810	TR1D2510	TR1D3210
	400 V~	TR1D0910V7	TR1D1210V7	TR1D1810V7	TR1D2510V7	TR1D3210V7
	24 V~	TR1D0901B7	TR1D1201B7	TR1D1801B7	TR1D2501B7	TR1D3201B7
	48 V~	TR1D0901E7	TR1D1201E7	TR1D1801E7	TR1D2501E7	TR1D3201E7
	110 V~	TR1D0901F7	TR1D1201F7	TR1D1801F7	TR1D2501F7	TR1D3201F7
	230 V~	TR1D0901	TR1D1201	TR1D1801	TR1D2501	TR1D3201
	400 V~	TR1D0901V7	TR1D1201V7	TR1D1801V7	TR1D2501V7	TR1D3201V7
I _e (A)	AC-1	25	25	32	40	50
	AC-3	9	12	18	25	32
P _e (kW)	AC-4	3,5	5	7,7	8,5	12
	220/230 V	AC-3	2,2	3	4	5,5
	380/400 V	AC-3	4	5,5	7,5	11
	380/400 V	AC-4	4	2,5	3	3,7
	415 V	AC-3	4	5,5	9	11
I _{aux} (A)	500 V, 660/690 V	AC-3	5,5	7,5	10	15
			5	5	5	5
		10 A aM	16 A aM	20 A aM	32 A aM	40 A aM
		4	4	6	10	10
		60 VA	60 VA	60 VA	90 VA	90 VA
		7 VA	7 VA	7 VA	7,5 VA	7,5 VA

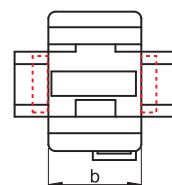
Dimensions



Fixed on mounting plate



Fixed on mounting rail (35x7,5 mm)



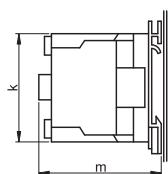
TRACON	TR1D09..	TR1D12..	TR1D18..	TR1D25..	TR1D32..
m (mm)	80	80	85	93	98
A (mm)	35	35	35	44	44
k (mm)	71	71	71	80	80
a (mm)	74	74	74	84	84
b (mm)	46	46	47	57	57
m (35x7,5)	82	82	87	95	100

TR1D type contactors for general purpose (40 A ... 95 A)

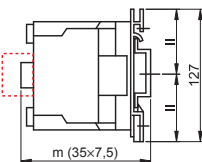
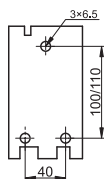
230/400 V AC	U_i 660 V	U_e 660 V	ON-OFF-ON sc/h ×3.600	3×10⁶	×10⁶	AUX (mm²) 1-4	Ta -25...+55°C	max. ±30°	IP 20	Pictograms	I/O
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		U _m	TRACON				
			40A/AC-3	50A/AC-3	65A/AC-3	80A/AC-3	95A/AC-3
	24 V~		TR1D4011B7	TR1D5011B7	TR1D6511B7	TR1D8011B7	TR1D9511B7
	48 V~		TR1D4011E7	TR1D5011E7	TR1D6511E7	TR1D8011E7	TR1D9511E7
	110 V~		TR1D4011F7	TR1D5011F7	TR1D6511F7	TR1D8011F7	TR1D9511F7
	230 V~		TR1D4011	TR1D5011	TR1D6511	TR1D8011	TR1D9511
	400 V~		TR1D4011V7	TR1D5011V7	TR1D6511V7	TR1D8011V7	TR1D9511V7
I_e (A)	AC-1		60	80	80	125	125
	AC-3		40	50	65	80	95
	AC-4		18,5	24	28	37	44
P_e (kW)	220/230 V	AC-3	11	15	18,5	22	25
	380/400 V	AC-3	18,5	22	30	37	45
	380/400 V	AC-4	5,5	7,5	9	10	15
	415 V	AC-3	22	25	37	45	45
	500 V	AC-3	22	30	37	55	55
	660/690 V	AC-3	30	33	37	45	45
	1000 V	AC-3	-	30	37	45	45
I _{aux} (A)			5	5	5	5	5
			50 A aM	50 A aM	63 A aM	80 A aM	100 A aM
			25	25	25	50	50
			200 VA	200 VA	200 VA	200 VA	200 VA
			20 VA	20 VA	20 VA	20 VA	20 VA

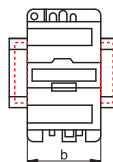
Dimensions



Fixed on mounting plate



Fixed on mounting rail (35×7,5 mm)



TRACON	TR1D40..	TR1D50..	TR1D65..	TR1D80..	TR1D95..
m (mm)	114	114	114	125	125
k (mm)	107	107	107	123	123
b (mm)	75	75	75	85	85
m (35×7,5)	116	116	116	127	127



TEMS Motor starter combination in protective housing

TRACON	P_e (kW), AC-3*	I_e (A), AC-3*	U_m			
TEMS1-091	1,5	3,5	400 V~	9 A / AC-3	2,5 – 4 A	6 A aM
TEMS1-092	2,2	5	400 V~	9 A / AC-3	4 – 6 A	10 A aM
TEMS1-093	3	6,3	400 V~	9 A / AC-3	5,5 – 8 A	10 A aM
TEMS1-094	4	8,5	400 V~	9 A / AC-3	7 – 10 A	16 A aM
TEMS1-121	5	11,5	400 V~	12 A / AC-3	9 – 13 A	16 A aM
TEMS1-181	7,5	15,5	400 V~	18 A / AC-3	12 – 18 A	20 A aM
TEMS2-251	11	22	400 V~	25 A / AC-3	17 – 25 A	25 A aM
TEMS2-321	15	30	400 V~	32 A / AC-3	23 – 32 A	40 A aM
TEMS3-401	18,5	37	400 V~	40 A / AC-3	30 – 40 A	40 A aM
TEMS3-501	22	44	400 V~	50 A / AC-3	37 – 50 A	63 A aM
TEMS3-651	25	57	400 V~	65 A / AC-3	48 – 65 A	80 A aM
TEMS3-801	37	72,5	400 V~	80 A / AC-3	55 – 70 A	80 A aM
TEMS3-802	37	72,5	400 V~	80 A / AC-3	63 – 80 A	80 A aM
TEMS3-951	45	85	400 V~	95 A / AC-3	80 – 93 A	100 A aM

* The data apply for three-phase squirrel-cage motors operated in delta circuit.

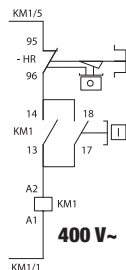
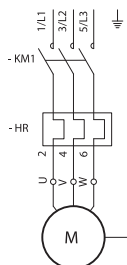
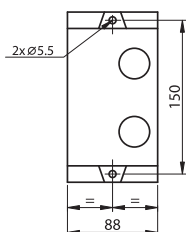
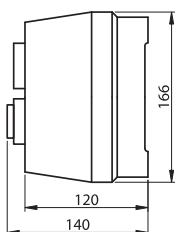
The device includes a contactor, a thermal overload relay, a green ON, a red OFF pushbuttons and a plastic or steel plate housing made of two parts. The admitted power of the deserved motor depends on the technical parameters of the contactor. The current protection level according to technical parameters of the motor to protect can exactly be adjusted on thermal overload relay. The ON/OFF pushbuttons are used to start and stop the motor. The housing secures the unit's mechanical protection and protection against accidental contact. The device can easily be fixed on a flat surface by holes made in the bottom part of the housing. Cable introduction is made through prepared holes on the sides and the bottom of the housing.

The device is delivered with an already wired actuating circle; the contactor and the thermal relay are assembled together. Thus, after connection of the terminal cables, the device is ready to operate. The device must be protected by outer short circuit protection!

Technical data and type range of TEMS1 motor starter



TRACON		TEMS1-091	TEMS1-092	TEMS1-093	TEMS1-094	TEMS1-121	TEMS1-181
I _e (A), AC-3	400 V	3,5	5	6,3	8,5	11,5	15,5
	660 V	2,7	3,8	4,8	6,6	8,9	12
I _{th} (A)	400 V	25	25	25	25	25	32
P _e (kW), AC-3	400 V	1,5	2,2	3	4	5,5	7,5
	660 V	5,5	5,5	5,5	5,5	7,5	10
AUX I_{th} (A)		6	6	6	6	6	6
P_m (VA)	AC-15	300	300	300	300	300	300
	DC-13	30	30	30	30	30	30



These types have plastic enclosures; their contactors have 1 pc NO auxiliary contact for signaling or actuating applications. Connection of cables is possible through cable glands to be installed into prepared holes on the top (2 pcs Pg13,5) and on the bottom (1 pc PG 16, 1 pc Pg 13,5) of the housing.

Technical data and type range of TEMS2 motor starter

400 V AC	 660 V	 3x10⁶	 8x10⁵	 0...+55 °C	IP 55
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TRACON		TEMS2-251	TEMS2-321	
I_e (A), AC-3	400 V	22	30	
	660 V	18	21,3	
I_{th} (A)	400 V	40	50	
P_e (kW), AC-3	400 V	11	15	
	660 V	15	18,5	
AUX I_{th} (A)		6	6	
	P_m (VA)	AC-15	300	300
		DC-13	30	30

RELEVANT STANDARD
EN 60529

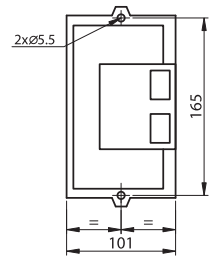
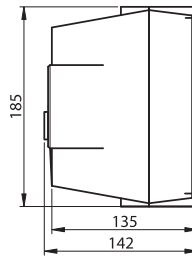
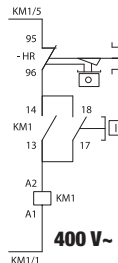
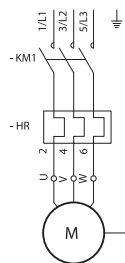
RELEVANT STANDARD
EN 60695-2-1

RELEVANT STANDARD
EN 60439



These types have plastic enclosures; their contactors have 1 pc NO auxiliary contact for signaling or actuating applications.

Connection of cables is possible trough cable glands installed into prepared holes on the top (2 pcs Pg 16), and on the bottom (1 pc PG 16, 1 pc Pg 13,5) of the housing's base.



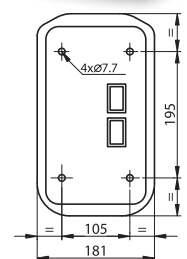
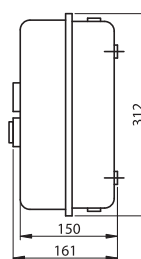
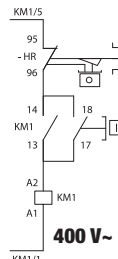
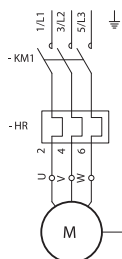
Technical data and type range of TEMS3 motor starter

400 V AC	 660 V	 3x10⁶	 6x10⁵	 0...+55 °C	IP 55
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TRACON		TEMS3-401	TEMS3-501	TEMS3-651	TEMS3-801	TEMS3-951	
I_e (A), AC-3	400 V	37	44	60	72,5	85	
	660 V	34,6	39	42	49	49	
I_{th} (A)	400 V	60	80	80	125	125	
P_e (kW), AC-3	400 V	18,5	22	30	37	45	
	660 V	30	33	37	45	55	
AUX I_{th} (A)		6	6	6	6	6	
	P_m (VA)	AC-15	300	300	300	300	300
		DC-13	30	30	30	30	30

These types have metallic enclosures; their contactors have 1 pc NO and 1 pc NC auxiliary contacts for signaling or actuating applications. The connection of cables is possible trough cable glands screwed in into prepared holes on the top (1 pc PG 29, 1 pc Pg 13,5), and on the bottom (2 pcs Pg 29, 1 pc Pg 13,5) of the housing.



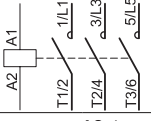
High power contactors

400 V AC	 U_i 660 V	U_e 660 V	 AUX (mm²) 1-4	 T_a -25...+55°C	 max. 130³	IP 20
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Pictograms

I/O

		U _m	TRACON		
			115A/AC-3	150A/AC-3	170A/AC-3
		24 V~	TR1E115B7	TR1E150B7	TR1E170B7
		48 V~	TR1E115E7	TR1E150E7	TR1E170E7
		230 V~	TR1E115	TR1E150	TR1E170
		400 V~	TR1E115V7	TR1E150V7	TR1E170V7
I_e (A)	AC-1		250	250	250
	AC-3		115	150	170
P_e (kW)	AC-4		40	50	60
	220/230 V		30	40	55
	380/400 V		55	75	90
	415 V		59	80	100
	500 V		75	90	110
	660/690 V		80	100	110
	1000 V		65	65	100
 mm ²			95	120	150
			× 1800	× 1800	× 1800
 /  (× 10 ⁵)			30 / 6	30 / 6	30 / 6
P_{ON} / P_{HOLD} (VA)			550 / 45	550 / 45	805 / 55



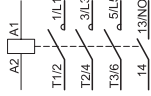
I/40



I/41

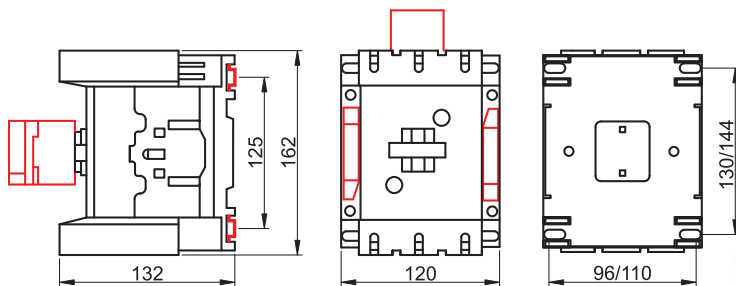


I/41

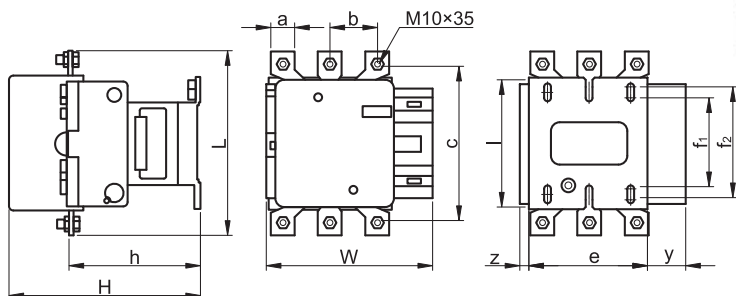
		U _m	TRACON					
			205A/AC-3	245A/AC-3	300A/AC-3	410A/AC-3	475A/AC-3	620A/AC-3
		24 V~	TR1E205B7	TR1E245B7	TR1E300B7	TR1E410B7	TR1E475B7	TR1E620B7
		48 V~	TR1E205E7	TR1E245E7	TR1E300E7	TR1E410E7	TR1E475E7	TR1E620E7
		230 V~	TR1E205	TR1E245	TR1E300	TR1E410	TR1E475	TR1E620
		400 V~	TR1E205V7	TR1E245V7	TR1E300V7	TR1E410V7	TR1E475V7	TR1E620V7
I_e (A)	AC-1		275	315	400	500	700	1000
	AC-3		205	245	300	410	475	620
P_e (kW)	AC-4		70	80	100	140	160	210
	220/230 V		63	75	100	110	147	200
	380/400 V		110	132	160	200	250	335
	415 V		110	132	180	220	280	375
	500 V		129	160	200	257	355	400
	660/690 V		129	160	220	280	335	450
	1000 V		100	147	160	185	335	450
 mm ²			185	240	240	2×150	2×240	 2×60×5 mm
			× 1800	× 1800	× 1800	× 900	× 900	× 900
 /  (× 10 ⁵)			30 / 5	30 / 5	30 / 5	10 / 3	10 / 3	10 / 2
P_{ON} / P_{HOLD} (VA)			805 / 55	700 / 8	700 / 8	1150 / 12	1150 / 16	1730 / 20

The overload protection of TR1E type contactors can be found on page I/45!

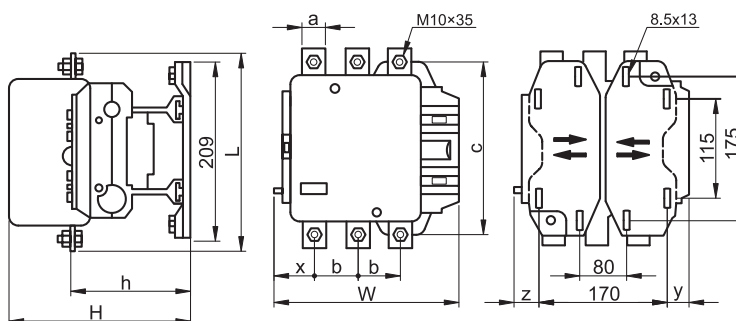
Dimensions



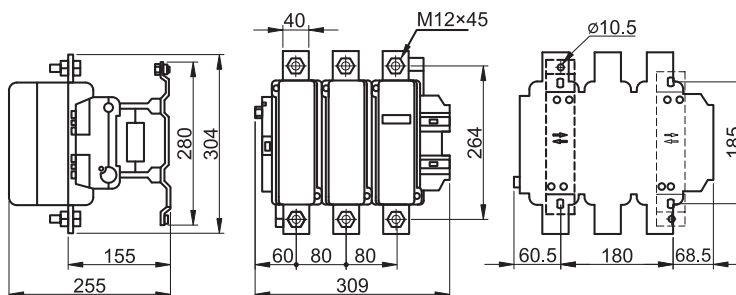
TR1E115 ... TR1E170



TR1E205 ... TR1E300



TR1E410, TR1E475

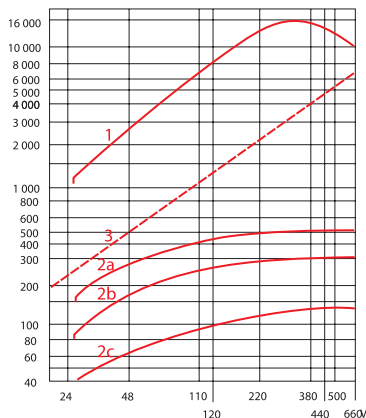
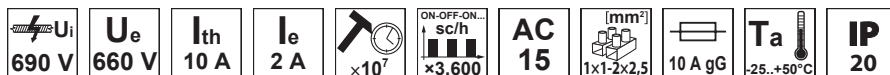


TR1E620



TRACON	W (mm)	H (mm)	L (mm)	a (mm)	b (mm)	c (mm)	l (mm)	e (mm)	x (mm)	f1 (mm)	f2 (mm)	h (mm)	y (mm)	z (mm)
TR1E205	170	181	175	20	40	156	137	80	-	106	120	114	44	15
TR1E245	170	182	196	25	48	172	137	80	-	106	120	113	44	15
TR1E300	215	217	205	25	48	180	145	96	-	110	122	145	38	20,5
TR1E410	215	222	205	25	48	180	-	-	45	-	-	148	23,5	15
TR1E475	235	225	235	30	55	210	-	-	43	-	-	140	44	15

Auxiliary contact units



Electrical life according to switching capacity (AC15)

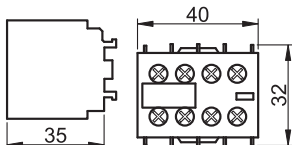
	U _e						
	24 V	48 V	110 V 127 V	220 V 230 V	380 V 400 V	440 V	600 V
10 ⁶	150 VA	300 VA	400 VA	480 VA	500 VA	500 VA	500 VA
3×10 ⁶	80 VA	170 VA	250 VA	290 VA	320 VA	320 VA	320 VA
10 ⁷	30 VA	65 VA	90 VA	120 VA	130 VA	130 VA	130 VA

Legend

- 1: breaking capacity limit
- 2a: 10⁶ switching cycle
- 2b: 3×10⁶ switching cycle
- 2c: 10⁷ switching cycle
- 3: heating limit

Front side auxiliary contacts

For TR1K mini contactors



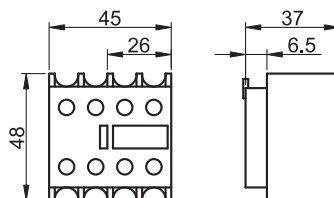
TRACON



TR5KN02	2 × NC
TR5KN04	4 × NC
TR5KN11	1 × NO + 1 × NC
TR5KN13	1 × NO + 3 × NC
TR5KN20	2 × NO
TR5KN22	2 × NO + 2 × NC
TR5KN31	3 × NO + 1 × NC
TR5KN40	4 × NO



For TR1D and TR1E contactors



TRACON



TR6DN02	2 × NC
TR6DN04	4 × NC
TR6DN11	1 × NO + 1 × NC
TR6DN13	1 × NO + 3 × NC
TR6DN20	2 × NO
TR6DN22	2 × NO + 2 × NC
TR6DN31	3 × NO + 1 × NC
TR6DN40	4 × NO



TR6-DN40
TR5-KN40

54	53/NO
64	63/NO
74	73/NO
84	83/NO

TR6-DN31
TR5-KN31

54	53/NO
62	61/NC
74	73/NO
84	83/NO

TR6-DN22
TR5-KN22

54	53/NO
62	61/NC
72	71/NC
84	83/NO

TR6-DN13
TR5-KN13

54	53/NO
62	61/NC
72	71/NC
82	81/NC

TR6-DN04
TR5-KN04

52	51/NC
62	61/NC
72	71/NC
82	81/NC

TR6-DN20
TR5-KN20

54	53/NO
64	63/NO

TR6-DN11
TR5-KN11

54	53/NO
62	61/NC

TR6-DN02
TR5-KN02

52	51/NC
62	61/NC

Side auxiliary contact units for TR1D09...TR1D65 contactors, TR1E115..170

TRACON

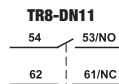
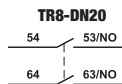
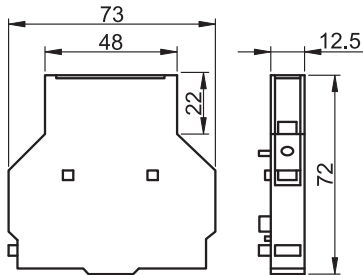


TR8-DN20

2 × NO

TR8-DN11

1 × NC + 1 × NO



TR8-DN20



TR8-DN11

Timing units for TR1D/E contactors

TRACON



TR7DT2

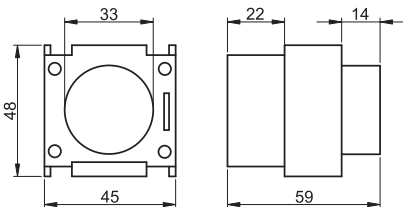
1 × NC + 1 × NO

0.1-30 s

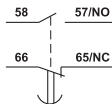
TR7DR2

1 × NC + 1 × NO

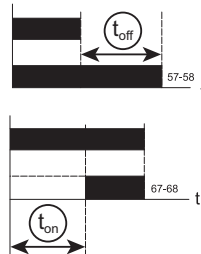
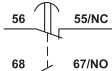
0.1-30 s



TR7DR2



TR7DT2



Mechanical interlock

TRACON



TR9-D09978

9-32 A

TR9-D50978

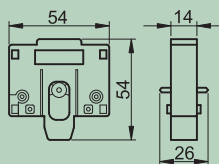
40-95 A

This interlock does not allow to pick-up both coils at the same time once installed between two contactors.

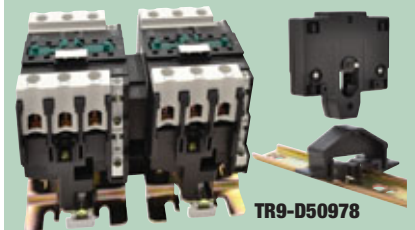
The device is applicable on direction changers without electric interlock, on security switching units with helping switch and in star-delta switches.



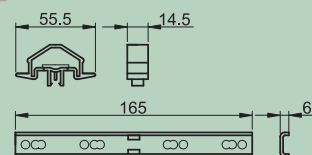
TR9-D09978



For currents between 9 and 32 A: stable contact between two contactors can be established with a distance holder, by sliding it into the side openings of the contactors.



TR9-D50978

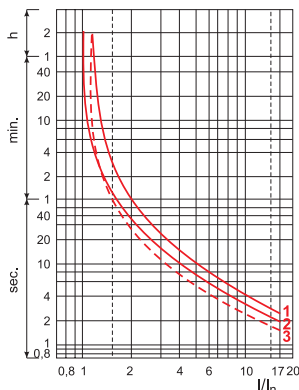


For currents between 40 and 95 A: reliable connection by distance holder clipped on the auxiliary rail. The rail can be fixed by screws onto the mounting plate at the bottom of the contactor.

Thermal overload relays

The electrical data of the relay contacts

 U_i 690 V	 U_{imp} 6 kV	 50/60 Hz	 I_{th} 6 A	 I_e 2 A	 AC 15	 [mm ²] 1-2,5
--	--	--	--	---	---	---



	U_e				
	24 V	48 V	110 V	230 V	400 V
P_e	100 VA	200 VA	400 VA	600 VA	600 VA

Legend

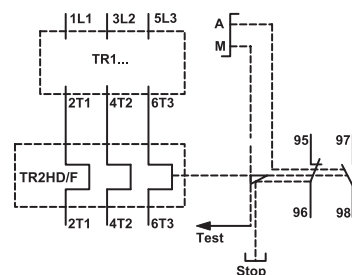
- 1:** 3 phase load, starting from cold state
- 2:** 2 phase load, starting from cold state
- 3:** 3 phase load, after long, continuous load (warm state)

The thermal overload relays (or heat relays) are used for protection of electrical motors of machines and equipments against damage due to their overloading. The operation of this protective relay is a so called inverse kind – the larger the current in the motor circuit, the shorter the time before switch-off.

The 1L1, 3L2 and 5L3 type contacts of these protective relays are round, copper males which should be connected to the 2T1, 4T2 and 6T3 type terminals of the contactor.

The adjustment of the heat relay can be executed by the adjusting the front side button below the transparent cover plate. The TEST button is used for checking the proper operation of the relay circuit and for selection between manual or automatic adjustment. The red STOP button outside of the cover switches the relay off.

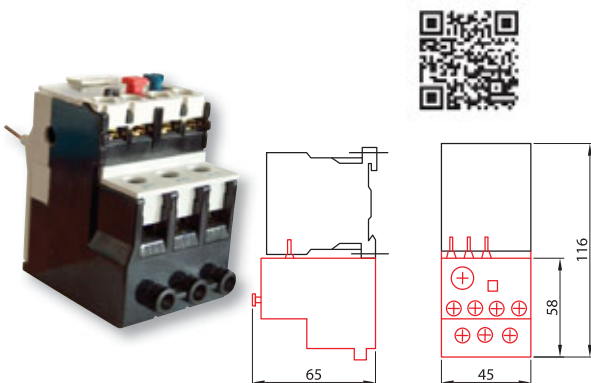
The thermal over-current relay is supplied with an opening (NC) and an electrically independent closing (NO) terminal as well as an optical position indicator to show the break status.



A: Automatic return
M: Manual return

For TR1K contactors

 U_i 690 V	 U_{imp} 6 kV	 0-400 Hz	 T_a -30...+55°C	 IP 20	 Class Ir 10A
--	--	--	---	---	--



TRACON	I_{th}		
TR2HK0301	0.1 – 0.16 A	1.5 – 4	
TR2HK0302	0.16 – 0.25 A		
TR2HK0303	0.25 – 0.4 A		
TR2HK0304	0.4 – 0.63 A		
TR2HK0305	0.63 – 1 A		
TR2HK0306	1 – 1.6 A		
TR2HK0307	1.6 – 2.5 A		
TR2HK0308	2.5 – 4 A		
TR2HK0310	4 – 6 A		
TR2HK0312	5.5 – 8 A		
TR2HK0314	7 – 10 A		
TR2HK0316	9 – 13 A		

For TR1D contactors

TRACON	I_{th}	mm^2	
TR2HD1304	0,4 – 0,63 A		2.5 – 10
TR2HD1305	0,63 – 1 A		
TR2HD1306	1 – 1,6 A		
TR2HD1307	1,6 – 2,5 A		
TR2HD1308	2,5 – 4 A		
TR2HD1310	4 – 6 A		
TR2HD1312	5,5 – 8 A		
TR2HD1314	7 – 10 A		
TR2HD1316	9 – 13 A		
TR2HD1321	12 – 18 A		
TR2HD1322	17 – 25 A		4 – 35
TR2HF2353	23 – 32 A		
TR2HF2355	28 – 36 A		
TR2HD3353	23 – 32 A		
TR2HD3355	30 – 40 A		
TR2HD3357	37 – 50 A		
TR2HD3359	48 – 65 A		
TR2HD3361	55 – 70 A		
TR2HD3363	63 – 80 A		
TR2HD3365	80 – 93 A		



U_i
690 V

U_{imp}
6 kV

0-400 Hz

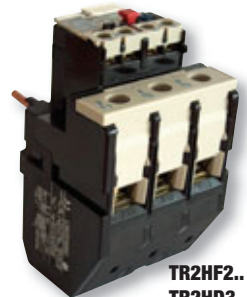
T_a
-30...+55°C

IP
20

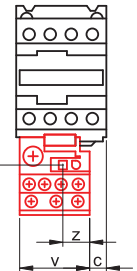
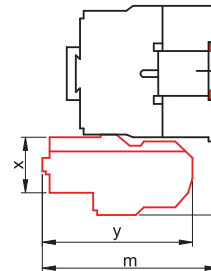
Class Ir
10A



TR2HD1..



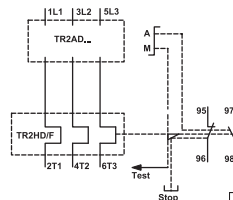
TR2HF2..
TR2HD3..



TRACON	a (mm)	b (mm)	c (mm)	m (mm)	x (mm)	y (mm)	v (mm)	z (mm)
TR1D09...D18	81	50	0	98	47	92	44	17
TR1D25	86	55	10.7	108	47	92	44	17
TR1D32	86	55	8.1	109	47	92	44	17
TR1D40...D65	111	72.4	4.5	119	54	109	70	30
TR1D80...D95	115.5	76.9	9.5	124	54	109	70	30

Adaptor for thermal relays

TRACON		
TR2AD1	TR2HD13..	46×78×86 mm
TR2AD3	TR2HF23.., TR2HD33..	73×103×120 mm



A: Automatic return
M: Manual return

35×7.5

RELEVANT STANDARD
EN 60947-1

RELEVANT STANDARD
EN 60947-4-1

EVOHK installation contactors



F/23

Compatibility tables for contactors and thermal relays

The tables below help to choose the right contactor and thermal relay for motors applied for three-phase motors in delta operation mode. The motor power- and current values in the tables apply for three-phase motors in delta operation mode. Application category: AC-3.

Examples for compatibility between TR1K type contactor and TR2HK type thermal overload relay

		 		 	
Pe (kW)	Ie (A)			aM	gG (gL)
–	0,1	TR1K06	TR2HK0301	0,1 – 0,16	2
0,06	0,16	TR1K06	TR2HK0302	0,16 – 0,25	2
0,08	0,25	TR1K06	TR2HK0303	0,25 – 0,4	2
0,1	0,4	TR1K06	TR2HK0304	0,4 – 0,63	4
0,3	1,0	TR1K06	TR2HK0305	0,63 – 1	4
0,4	1,0	TR1K06	TR2HK0306	1 – 1,6	4
0,8	2,0	TR1K06	TR2HK0307	1,6 – 2,5	6
1,1	2,6	TR1K06	TR2HK0308	2,5 – 4	10
1,5	3,5	TR1K06	TR2HK0308	2,5 – 4	10
2,2	5,0	TR1K06	TR2HK0310	4 – 6	16
3,0	6,3	TR1K06	TR2HK0312	5,5 – 8	16
4,0	8,5	TR1K09	TR2HK0314	7 – 10	20
5,0	11	TR1K12	TR2HK0316	9 – 13	25

Examples for compatibility between TR1D type contactor and TR2HK type thermal overload relay

		 		 	
Pe (kW)	Ie (A)			aM	gG (gL)
0,1	0,4	TR1D09	TR2HD1304	0,4-0,63	4
0,3	1,0	TR1D09	TR2HD1305	0,63-1	4
0,4	1,0	TR1D09	TR2HD1306	1-1,6	4
0,8	2,0	TR1D09	TR2HD1307	1,6-2,5	6
1,1	2,6	TR1D09	TR2HD1308	2,5-4,0	10
1,5	3,5	TR1D09	TR2HD1308	2,5-4,0	10
2,2	5,0	TR1D09	TR2HD1310	4,0-6,0	16
3,0	6,3	TR1D09	TR2HD1312	5,5-8	16
4,0	8,5	TR1D09	TR2HD1314	7,0-10,0	20
5,0	11,0	TR1D12	TR2HD1316	9-13,0	25
7,5	15,5	TR1D18	TR2HD1321	12,0-18,0	35
9,0	18,0	TR1D18	TR2HD1321	12,0-18,0	35
11,0	22,0	TR1D25	TR2HD1322	17,0-25,0	50
15,0	30,0	TR1D40	TR2HD3353	23,0-32,0	63
18,0	40,0	TR1D40	TR2HD3355	30-40,0	63
22,0	44,0	TR1D50	TR2HD3357	37,0-50,0	80
25,0	57,0	TR1D65	TR2HD3359	48-65,0	100
30,0	60,0	TR1D65	TR2HD3361	55,0-70,0	100
37,0	72,0	TR1D80	TR2HD3363	63,0-80,0	125
45,0	93,0	TR1D95	TR2HD3365	80-93,0	125

Motor starter combination

The TR1D contactors gives the possibility to form auxiliary contacts, timing and heat relay and some different combinations such as the star-triangle automatic motor switch or motor starter. The Y-Δ motor starter consists of 3 contactors, 2 auxiliary contacts, 1 timing unit and 1 heat relay. Design advices for the assembly, connection and wiring of the necessary elements are provided in Appendix

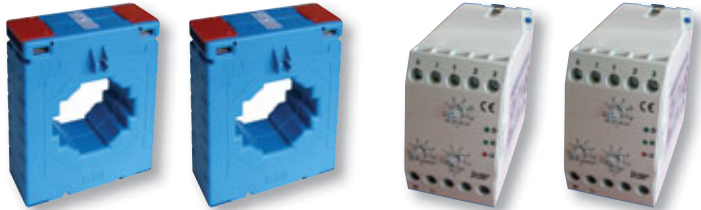
Overload protection for electric devices controlled by high power contactors

The overload protection for electrical devices controlled by high power contactors for industrial applications can be performed directly by overload protection combination. The detector-operator part of the unit is one protective relay per phase with adjustable protection current in 0-5 A range. The secondary coil of CT has to be connected onto the current detector input. If the eligible auxiliary contacts of overload relays on all phases are connected in series and any of phase current values exceeds the adjusted threshold level, even the protecting relay in the failed phase picks up and breaks the actuating contact of power contactor, so secures the protection of the electrical device.

Description: This solution does not follow the standardized motor protection characteristic!

Marking of terminals

L ₁ N	Power supply
k ₁ l	Terminals for CT
1	NO close contact
2	CO common contact
3	NC open contact

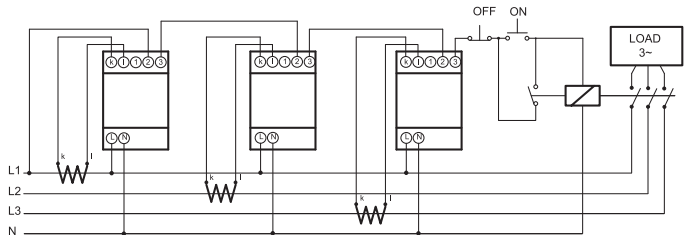


Elements of overload protection unit

TRACON	Description	Pieces	Side
TFKV-AKA05	Overload relay	3 pcs (1 pc/phase)	J/21
AVBS, AV...-SH	Current transformer with 5 A secondary current	3 pcs (1 pc/phase)	L/26

Description:

- The protection device does not allow the switch-on transient during the adjustable 0,5-8 s delay time range
- If the measured current value is different from the pre-adjusted value, then the relay's output will change state after the adjusted delay time
- If the secondary current of CT gets back to adjusted nominal value range during the adjusted 0,5-15 s delay time, then the relay's output will not change its state
- In the three-phase system the delay times must be synchronized in all phases to the same value.

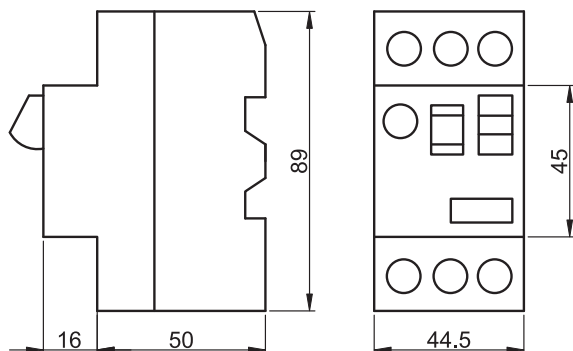


				 (A)					
		min	max	0,5	1	2	3	4	5
-	-	0,5 A	5 A	0,5 A	1 A	2 A	3 A	4 A	5 A
100/5A	TR1E115	10 A	100 A	10 A	20	40	60	80	100 A
120/5A	TR1E115	12 A	120 A	12 A	24	48	72	96	120 A
125/5A	TR1E150	12,5 A	125 A	12,5 A	25	50	75	100	125 A
150/5A	TR1E170	15 A	150 A	15 A	30	60	90	120	150 A
200/5A	TR1E205	20 A	200 A	20 A	40	80	120	160	200 A
250/5A	TR1E245	25 A	250 A	25 A	50	100	150	200	250 A
300/5A	TR1E300	30 A	300 A	30 A	60	120	180	240	300 A
400/5A	TR1E410	40 A	400 A	40 A	80	160	240	320	400 A
500/5A	TR1E475	50 A	500 A	50 A	100	200	300	400	500 A
600/5A	TR1E620	60 A	600 A	60 A	120	240	360	480	600 A
750/5A	-	75 A	750 A	75 A	150	300	450	600	750 A
800/5A	-	80 A	800 A	80 A	160	320	480	640	800 A
1000/5A	-	100 A	1000 A	100 A	200	400	600	800	1000 A
1500/5A	-	150 A	1500 A	150 A	300	600	900	1200	1500 A
2000/5A	-	200 A	2000 A	200 A	400	800	1200	1600	2000 A
2500/5A	-	250 A	2500 A	250 A	500	1000	1500	2000	2500 A
3000/5A	-	300 A	3000 A	300 A	600	1200	1800	2400	3000 A
4000/5A	-	400 A	4000 A	400 A	800	1600	2400	3200	4000 A
5000/5A	-	500 A	5000 A	500 A	1000	2000	3000	4000	5000 A

Hand-operated motor protection switches

400 V AC	 U_i 690 V	U_{imp} 6 kV	50/60 Hz 	 $\times 10^5$	 $\times 10^5$	ON-OFF-ON sc/h  $\times 25$	AC 3		IP 20	T_a -25...+55°C	 (mm ²) 2×1-2×6	Class Ir 10A	P_m 2,5 VA AC
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TRACON	I _e	P _e			
				aM (A)	gG (A)
TGV2-01	0,1 - 0,16 A	—	1,5 A	—	1
TGV2-02	0,16 - 0,25 A	0,06 kW	2,4 A	—	1
TGV2-03	0,25 - 0,4 A	0,09 kW	5 A	1	2
TGV2-04	0,4 - 0,63 A	0,18 kW	8 A	1	2
TGV2-05	0,63 - 1 A	0,37 kW	13 A	1	2
TGV2-06	1 - 1,6 A	0,55 kW	22,5 A	2	4
TGV2-07	1,6 - 2,5 A	0,75 kW	33,5 A	4	6
TGV2-08	2,5 - 4 A	1,5 kW	51 A	6	10
TGV2-10	4 - 6,3 A	2,2 kW	78 A	10	16
TGV2-14	6 - 10 A	4 kW	138 A	10	20
TGV2-16	9 - 14 A	5,5 kW	170 A	16	25
TGV2-20	13 - 18 A	7,5 kW	223 A	20	32
TGV2-21	17 - 23 A	11 kW	327 A	25	50
TGV2-22	20 - 25 A	11 kW	327 A	25	50
TGV2-32	24 - 32 A	15 kW	416 A	40	63



RELEVANT STANDARD
EN 60947-4-1

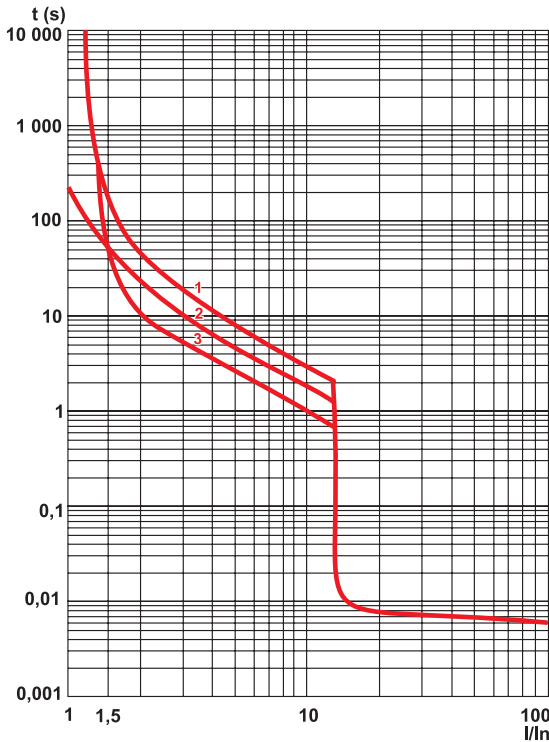
RELEVANT STANDARD
EN 60947-1



This equipment is meant for switching ON and OFF as well as for over-current protection of electric motors or other three-phase consumers. Breaking can be done by magnetic operation short circuit breaker or by thermal overload breaker.

The motor protective switch can be switched on and off by any hand-operated, mechanical unit. The rated operation current of the motor to be protected can be continuously adjusted within the range of the device by rotating the button placed on the front side of the equipment. The motor protection switches – completed with some other accessories – (break indicators, auxiliary contacts, breakers, covers, etc.) are suitable for remote operation and use in different control systems.

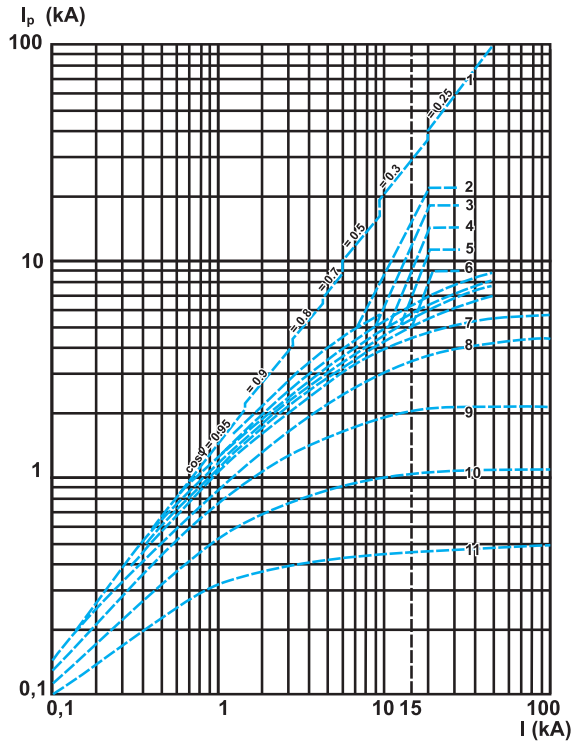
Tripping characteristic



Legend

- 1: 3 poles, starting from cold state
- 2: 2 poles, starting from cold state
- 3: 3 poles, starting from warm state

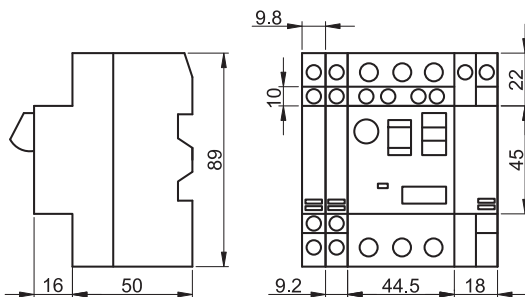
Current limit characteristic



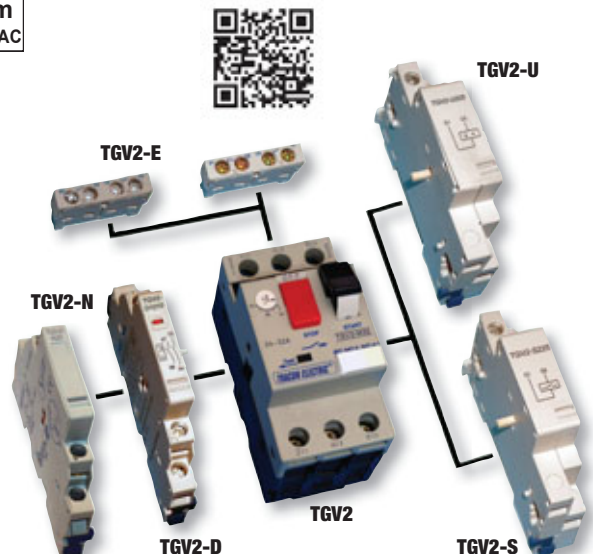
Legend

- | | | |
|---------------|------------|---------------|
| 1: I_{pmax} | 5: 13-18 A | 9: 2.5-4 A |
| 2: 24-32 A | 6: 9-14 A | 10: 1.6-2.5 A |
| 3: 20-25 A | 7: 6-10 A | 11: 1-1.6 A |
| 4: 17-23 A | 8: 4-6.3 A | |

Accessories



The motor protection switches with applicable accessories (breaking indicators, auxiliary contacts, breakers, enclosures, etc.) can be suitable for remote controlling and for installation in different controlling boxes. With using the enclosures the independent application of the switches is also possible, so the protection degree increases up to IP 41, or IP 55.

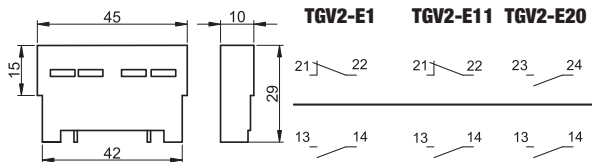


Front auxiliary contacts

U _e (V)		24	48	60	230
I _e (A)	AC15	2	1,25	–	0,5
	DC13	1	0,3	0,15	–
I _{th} (A)		2,5 A			

TRACON	 NC  NO
TGV2-E1	1×NC / NO*
TGV2-E11	1×NC + 1×NO
TGV2-E20	2×NO

* The open or close function is according to the placing of the unit.



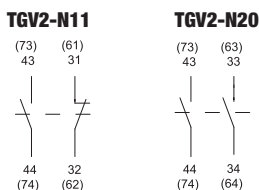
They inform about ON /OFF status of the motor protection switch. They help to handle actuating and signing tasks. The front auxiliary contact can be placed into its place after removing the front panel.

Side auxiliary contacts



U _e (V)		24	48	110	230	400
I _e (A)	AC15	–	6	4,5	3	2
	DC13	6	5	1,3	0,5	–
I _{th} (A)		6 A				

TRACON	 NC  NO
TGV2-N11	1×NC + 1×NO
TGV2-N20	2×NO



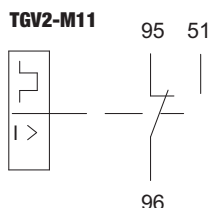
They inform about ON /OFF status of the motor protection switch. They help to handle actuating and signing tasks.

Short-circuit breaking indicator



U _e (V)		24	48	60
I _e (A)	AC15	1,5	1	–
	DC13	1	0,3	0,15
I _{th} (A)		2,5 A		

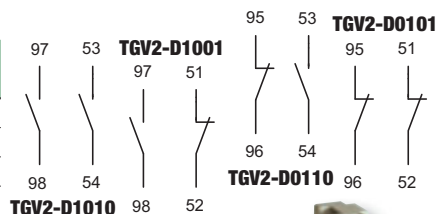
TRACON	 NC  NO  CO
TGV2-M11	1×CO



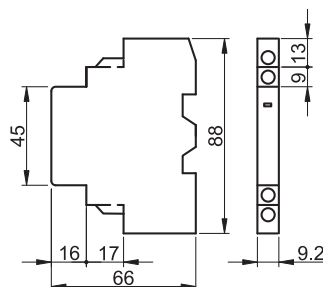
This indicator inform about any failure of the protected motor (short-circuit, overload).

Overload breaking indicators

TRACON	AUX	
TGV2-D1010	1×NO	1×NO
TGV2-D1001	1×NC	1×NO
TGV2-D0110	1×NO	1×NC
TGV2-D0101	1×NC	1×NC



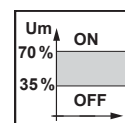
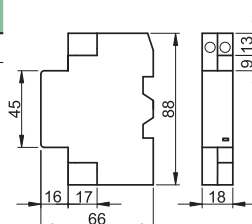
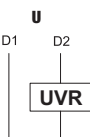
	AUX 						
U _e (V)	24	48	60	24	48	230	400
I _e (A)	AC15	1.5	1	—	—	6	3
	DC13	1	0.3	0.15	6	5	0.5
I _{th} (A)	2.5 A			6 A			



Voltage decrease breakers

TRACON	U _m	P _m
TGV2-U225	220-240 V AC	max. 5 VA
TGV2-U385	400-415 V AC	max. 5 VA

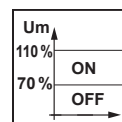
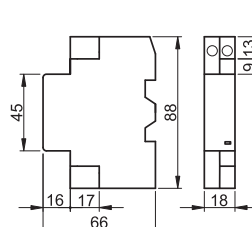
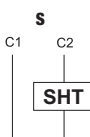
The voltage decrease breaker breaks the protective switch when the value of the operating voltage falls below 35-70% of the rated value.



Working current breakers

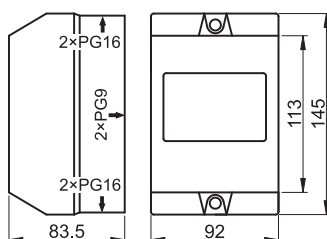
TRACON	U _m	P _m
TGV2-S225	220-240 V AC	max. 5 VA
TGV2-S385	400-415 V AC	max. 5 VA

The working current breaker breaks of the protective switch, when we switch on its coil 70-110% value of the operating voltage.



Enclosures

TRACON	IP..
TGV2-T1	IP 41
TGV2-T2	IP 55



TGV2-T1

TGV2-T2