Pictograms of the table head

- Um — Nominal control voltage
- Ue — Rated operating voltage
- Ith — Rated thermal current(A)
- Ui — Rated insulation voltage
- Ie — Nominal operational current
- In — Rated current (A)
- Icu — Rated operating short circuit breaking capacity limit
- Is — Current consumption
- Im — Adjustable current of thermal overload breaker (A)
- Pe — Switching capacity
- Pm — Self consumption
- Ps — Starting power
- PON (ON) — Power consumption – pick
- PHOLD (HOLD) — Power consumption – up
- Flash distance (mm)
- n — Number of current transformers
- Mechanical life
- Electrical life
- NC / NO — Contacts
- Terminal peeling
- AUX — Auxiliary contacts
- For bottom and top cable entry
- For bottom cable entry
- For top cable entry
- A mm² — Driving shaft cross-section
- H — Busbar distance
- b / a — Cross-section of rail
- X — Number of screws
- Suggested backup fuse
- Electric capacity
- Optical signal
- on / toff — Adjusting time
- IP65 — With enclosure IP65
- H / L / W — Dimensions (L × W × H)
- mm² — Terminal capacity
- Notes, additions
- Solid, strained, fine wire
- m — Weight
- NT — Fuse size

Pictograms of the technical data

- Um 230 V AC — Nominal control voltage
- Ue 660 V — Rated operating voltage
- Ui 690 V — Rated insulation voltage
- Uimp 6 kV — Rated impulse withstand voltage
- Utest 1min 1,8 kV — Test voltage
- Ith 1 A — Rated thermal current(A)
- Ie 2 A — Nominal operational current
- Icu 120 kAeff — Rated operating short circuit breaking capacity limit
- 50/60 Hz — Rated frequency
- Class Ir 10A — Breaking class of thermal breaker
- UVR — Type of breaker: under voltage
- SHT — Type of breaker: working current
- Pm 5 VA — Self consumption
- PON 30 VA — Power consumption – pick
- PHOLD 4,5 VA — Power consumption – up
- 10 A gG — Suggested backup fuse
- Magnetic drive
- M — Motor drive
- AC 6b — Application category
- Vibration resistance
- AUX 2×CO — Auxiliary contacts
- IP10 — Protection degree after mounting: open handle
- IP20 — Protection degree after mounting: closed handle
- IP 65 — Protection degree
- Protection class: I.
- ON-OFF-ON... sc/h ×4.800 — Switching frequency (C-O cycles/hour)
- ×10⁷ — Mechanical life
- 6×10⁵ — Electrical life
- 350 mm — Length
- [mm²] 2×1-2×6 — Connectable cable
- 35×7.5 — Can be install on mounting rail
- max. ±30° — Vertical, deviation max. ±30°
- 2000 m — Applications height above sea level
- To -5..+40°C — Operation temperature
- Ta -25..+65°C — Ambient temperature
- % rH max. 90 — Relativ humidity


Compact circuit breaker (type AKM), with adjustable TM trigger 2


Hand drives 4


Motor drives 5


Molded case circuit breakers, KM 6


Hand operated mechanisms (drives) 7


MKM compact circuit breaker 8


NT Blade fuses 10


Fuse sockets 12


Short circuit blades 13


Fuse disconnectors for cylindrical fuses 14

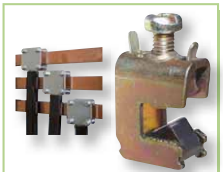

Horizontal type fuse switches for mounting plate installation 16


Horizontal type switch fuses for busbar mount for 60 and 100 mm systems 17


Vertical type switch fuses for busbar mount for 185 mm systems 18


60 mm COSMO busbar system 20

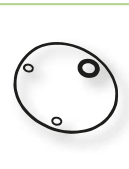

Busbar holders and covers (for 60 mm system) 20


Busbar clamps 20


Prism- terminal 21


TK type, industrial manual switches 22


Accessories 23


Seal sets 23


Disconnector switch 31


Lockable security disconnector switch 32


Mini contactors 35


TR1D type contactors for general purpose 36


TEMS Motor starter combination in protective housing 38


High power contactors 40


Front side auxiliary contacts 42


Side auxiliary contact units 43


Timing units 43


Mechanical interlock 43


Thermal overload relays 44


Hand-operated motor protection switches 48


Front auxiliary contacts 50


Working current breakers 51


Enclosures 51

Compact circuit breaker (type AKM), with adjustable TM trigger

230/400 V AC | 50/60 Hz | Ui 1000 V | Uimp 8 kV | To -5..+40°C | Ta -25..+65°C | 2000 m

Pictograms I/O

Ir	AKM1,-2,-3,-4	0,8-1 (×In)
Ii	AKM1,-2,-3,-4	5-10 (×In)
I_{cu} (kA_{eff}) AC 400 V	AKM1, AKM2	36
	AKM3, AKM4	50
I_{cs} (kA_{eff}) AC 400 V	AKM1, AKM2	25
	AKM3, AKM4	35
ON-OFF-ON... sc/h I_{max}	AKM1,-2	120
	AKM3,-4	60
	AKM1,-2	7000
	AKM3,-4	4000
I_{max}	AKM1,-2	1000
	AKM3,-4	1000
(kg)	AKM1	1,50
	AKM2	1,92
	AKM3	5,00
	AKM4	5,25

TRACON	Ie	Ir	TRACON	Ie	Ir	TRACON	Ie	Ir	TRACON	Ie	Ir
AKM1-20	20	(16-20)	**AKM1-63**	63	(50,4-63)	**AKM1-160**	160	(128-160)	**AKM3-400**	400	(320-400)
AKM1-32	32	(25,6-32)	**AKM1-80**	80	(64-80)	**AKM2-180**	180	(144-180)	**AKM4-630**	630	(504-630)
AKM1-40	40	(32-40)	**AKM1-125**	125	(100-125)	**AKM2-250**	250	(200-250)			

Clamp covering

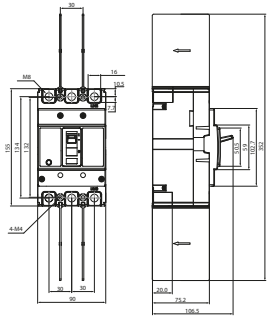
AKM1C

AKM2C

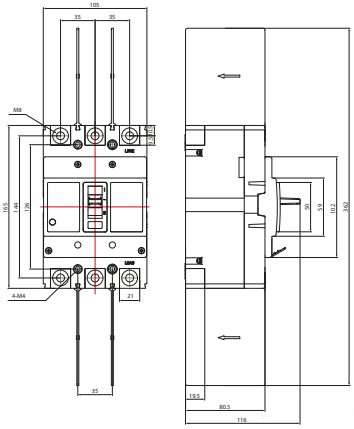
AKM34C

TRACON		H (mm)	W (mm)	D (mm)	IP..
AKM1C	**AKM1**	82	90	46	IP 20
AKM2C	**AKM2**	88	105	52	IP 20
AKM34C	**AKM34**	104	145	63	IP 20

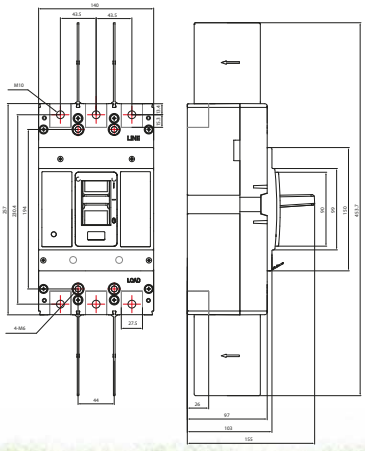
Dimensions (AKM1)



Dimensions (AKM2)



Dimensions (AKM3,-4)



Auxiliary and signal contacts

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.

I_{th} 1 A | AC 15 | I_e 0,8 A | 350 mm

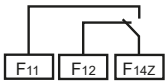
TRACON	Function		
AKM1AX1	Auxiliary contact	**AKM1-..**	0,25 mm²
AKM1AX2	Auxiliary contact	**AKM1-..**	0,35 mm²
AKM2AX1	Auxiliary contact	**AKM2-..**	0,25 mm²
AKM2AX2	Auxiliary contact	**AKM2-..**	0,35 mm²
AKM34AX1	Auxiliary contact	**AKM3,-4-..**	0,25 mm²
AKM34AX2	Auxiliary contact	**AKM3,-4-..**	0,35 mm²
AKM1AL	Signal contact	**AKM1-..**	
AKM2AL	Signal contact	**AKM2-..**	
AKM34AL	Signal contact	**AKM3,-4-..**	
AKM1AXAL	Signal / auxiliary contact	**AKM1-..**	
AKM2AXAL	Signal / auxiliary contact	**AKM2-..**	
AKM34AXAL	Signal / auxiliary contact	**AKM3,-4-..**	

AKM..AX.

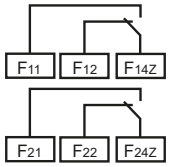
AKM..AL

AKM..AXAL

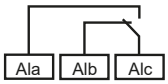
AKM..AX1



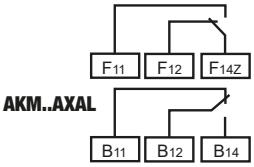
AKM..AX2



AKM..AL



AKM..AXAL



Triggers (shunt release, undervoltage release)

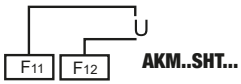
TRACON	Funkció		
AKM1SHT230	Shunt release	**AKM1-..**	0,25 mm²
AKM1SHT400	Shunt release	**AKM1-..**	0,25 mm²
AKM1SHT24DC	Shunt release	**AKM1-..**	0,25 mm²
AKM2SHT230	Shunt release	**AKM2-..**	0,35 mm²
AKM2SHT400	Shunt release	**AKM2-..**	0,35 mm²
AKM2SHT24DC	Shunt release	**AKM2-..**	0,35 mm²
AKM34SHT230	Shunt release	**AKM3,-4-..**	0,35 mm²
AKM34SHT400	Shunt release	**AKM3,-4-..**	0,35 mm²
AKM34SHT24DC	Shunt release	**AKM3,-4-..**	0,35 mm²
AKM1UVR	Undervoltage release	**AKM1-..**	0,25 mm²
AKM2UVR	Undervoltage release	**AKM2-..**	0,35 mm²
AKM34UVR	Undervoltage release	**AKM3,-4-..**	0,35 mm²

U_m 230 V AC | 350 mm

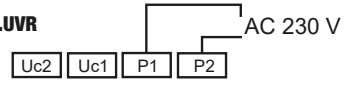
AKM.SHT...

AKM.UVR

AKM..SHT...



AKM..UVR



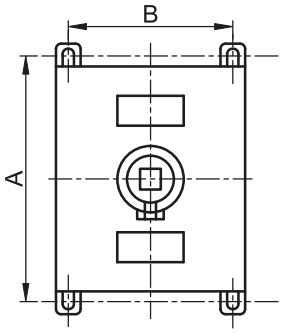
The shunt release allows the compact circuit breaker to be switched off remotely. The unit will turn off the circuit breaker from 0.7 times the operating voltage. The duration of the operating voltage is max. 1s. The undervoltage release triggers the circuit breaker when the voltage at its terminals drops between 35 and 70% of the rated voltage of the actuator.
The release prevents the circuit breaker from switching on if the voltage across the terminals does not reach 35% of the rated operating voltage.

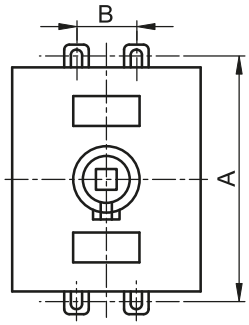
Hand drives

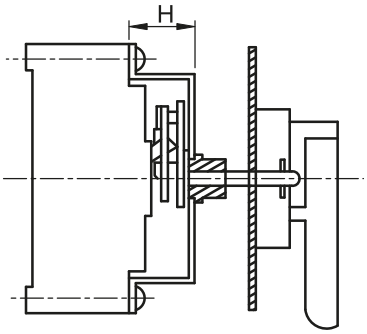
TRACON		A (mm)	B (mm)	H (mm)	axa / L
AKM1HD	AKM1	135	30	47	7,6 × 7,6 / 152 mm
AKM2HD	AKM2	125	35	50	7,6 × 7,6 / 152 mm
AKM34HD	AKM3-AKM4	193	129	77	9,8 × 9,8 / 150 mm

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.

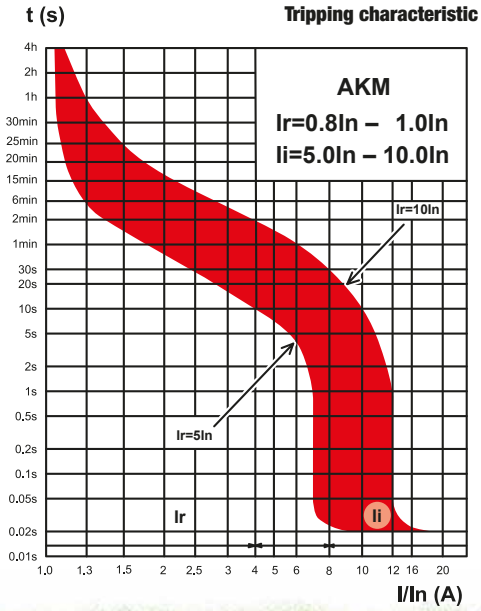
The operating lever can also be locked both in the OFF and ON positions of the circuit breaker.

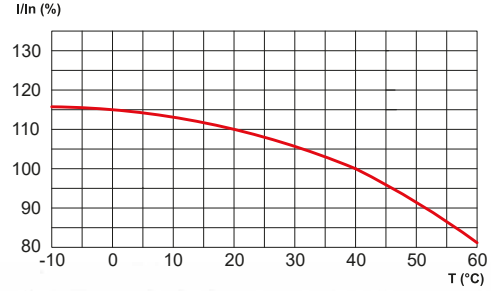






Tripping characteristic





Motor drives

230 V AC | 50/60 Hz | Utest 1min 1,8 kV | To -5..+40°C | Ta -5..+55 °C | % rH max. 90 | 2000 m

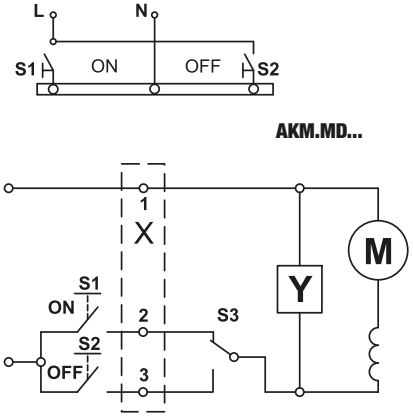
Pictograms I/O

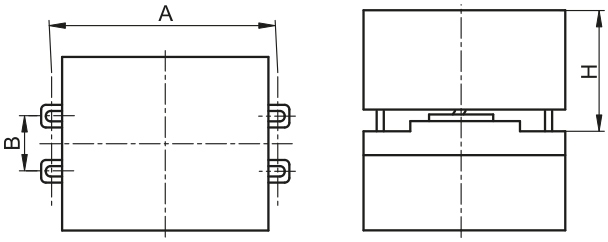
TRACON		Is	Ps	A (mm)	B (mm)	H (mm)
AKM1MD230	AKM1-..	< 0,5 A	14 W	127,5	29	97
AKM1MD400	AKM1-..	< 0,5 A	14 W	127,5	29	97
AKM2MD230	AKM2-..	< 0,5 A	14 W	128	35	102
AKM2MD400	AKM2-..	< 0,5 A	14 W	128	35	102
AKM34MD230	AKM3,-4-..	< 2 A	35 W	193	45	152
AKM34MD400	AKM3,-4-..	< 2 A	35 W	193	45	152

With the help of the AKM ..- MD ... motor drive, on-site or remote electrically operated, push-button ON-OFF switching is possible. The motor drive consists of an actuator mounted on the circuit-breaker, supplemented by a manually operated hand lever.


Motor drive

Wiring diagram and dimensions





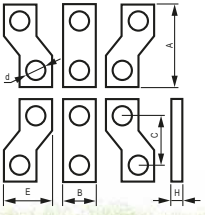
Legend

M	- motor	X	- terminal
Y	- electric brake	S1, S2	- pushbutton
S3	- micro switch		

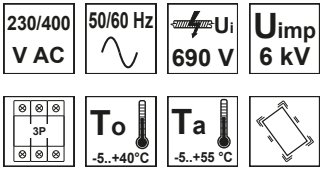
Copper connectors

Cu

TRACON		A (mm)	B (mm)	H (mm)	C (mm)	E (mm)	d (mm)
AKM1TM	**AKM1-..**	40	15	4	24 ± 0,15	23,5	8,5
AKM2TM	**AKM2-..**	60	20	5	42 ± 0,15	27	9
AKM3TM	**AKM3-..**	70	28	6	43 ± 0,15	41	14,3
AKM4TM	**AKM4-..**	70	28	8	43 ± 0,15	41	14,3



Molded case circuit breakers, KM



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

Compact circuit breakers with 1 change-over auxiliary contact

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

TRACON	I_e		U_m
KM3-125/2	125 A	**UVR**	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
KM3-160/2	160 A	**UVR**	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
KM4-200/1C	200 A	**SHT**	220 V DC
KM4-200/2	200 A	**UVR**	230 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 contacts

TRACON	I_e		U_m
KM5-350/1C	350 A	**SHT**	220 V DC
KM5-350/2	350 A	**UVR**	230 V AC
KM6-500/1B	500 A	**SHT**	400 V AC
KM6-500/1C	500 A	**SHT**	220 V DC
KM6-630/1C	630 A	**SHT**	220 V DC
KM6-630/2	630 A	**UVR**	230 V AC

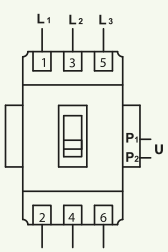
TRACON	I_e		U_m
KM7-630/1B	630 A	**SHT**	400 V AC
KM7-630/1C	630 A	**SHT**	220 V DC
KM7-630/2	630 A	**UVR**	230 V AC
KM7-700/1A	700 A	**SHT**	230 V AC
KM7-700/1B	700 A	**SHT**	400 V AC
KM7-700/2	700 A	**UVR**	230 V AC
KM7-800/2	800 A	**UVR**	230 V AC

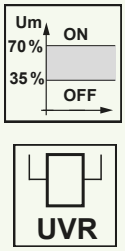
SHT: Shunt release
UVR: Undervoltage release

Installed auxiliary circuit units

Under voltage breaker unit

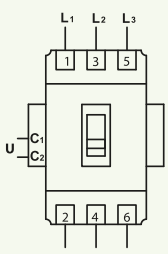
U_m	P_m
230 V AC	2,3 – 3,8 VA

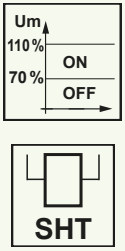




Working current (shunt) breaker unit

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

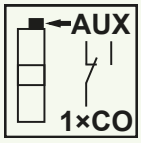




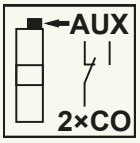
Auxiliary contacts

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			

KM1-..
KM2-..
KM3-..
KM4-..



KM5-..
KM6-..
KM7-..

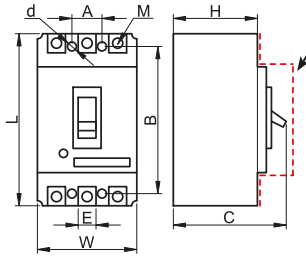


Hand operated mechanisms (drives)

TRACON		A (mm)	B (mm)	H (mm)	a×a / L
KM1-HM	KM1	102	25	50	8 × 8 / 150 mm
KM2-HM	KM2	104	30	53	8 × 8 / 150 mm

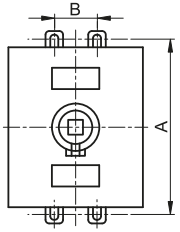
The KM...-HM type hand operated mechanism is meant for operation of the breakers through a closed door. The hand driving unit is consisted of an operating part, installed on the breaker, a driving shaft and a handle installed on the outside of the door, also indicating the ON and OFF position of the 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.

Dimensions

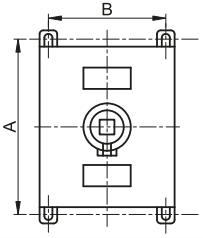


	W (mm)	L (mm)	H (mm)	C (mm)	A (mm)	B (mm)	E (mm)	M (mm)	d (mm)
KM1	78	136	74	98	25	117	13.5	M5	3.5
KM2	92	150	80	104	30	129	18	M8	4.5
KM3	107	165	98	127	35	126	23	M8	5
KM4	107	165	98	127	35	126	23	M8	5
KM5	150	257	98	155	44	194	32	M10	7
KM6	182	270	105	160	58	200	43	M12	7
KM7	210	280	98	142	70	243	43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

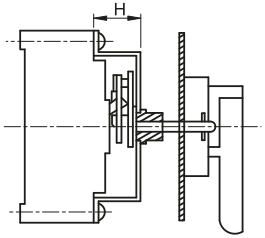
Fixing holes



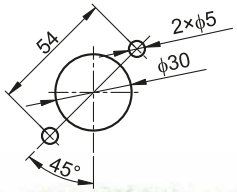
KM5-KM7



KM1-KM4



hand operated



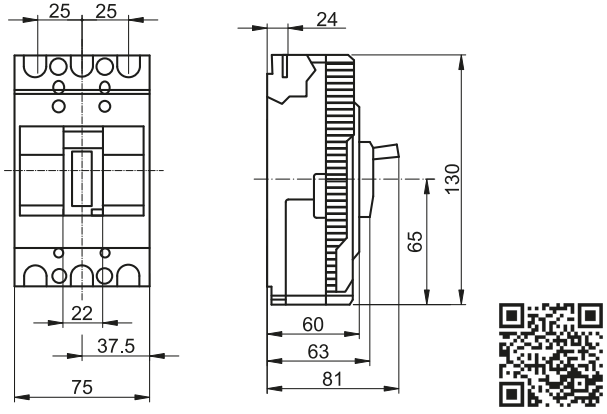
Molded case circuit breakers, MKM

230/400 V AC | 50/60 Hz | Ui 500 V | Uimp 6 kV | 3P | To -5..+40°C | Ta -25..+65°C | 2000 m | Pictograms I/O

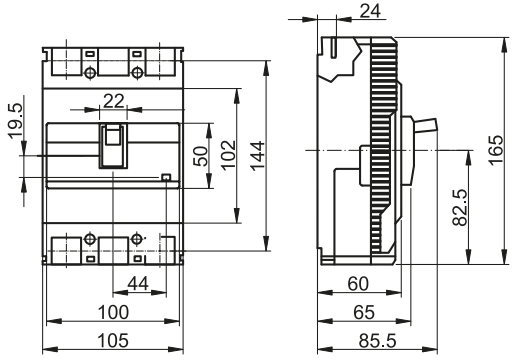
		MKM1	MKM2
I_e (A)		15, 20, 25, 30, 40, 50, 60, 75, 80, 100	125, 160, 225, 250
I_{cu} (kA_{eff}) AC	220/240 V	50	85
	380 V	30	18
	400 V	20	15
I_{cs}/I_{cu} (%)	220/240 V	25 %	50 %
	380 V	25 %	50 %
	400 V	25 %	50 %
ON-OFF-ON... sc/h		× 10	× 5
(×10⁵)		8.500	8.500
(×10⁵)		4.000	4.000
m		0,78 kg	1,3 kg

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)



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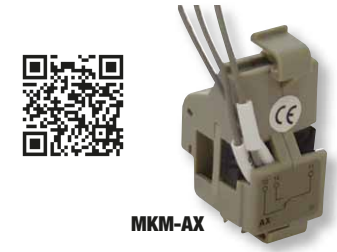
Auxiliary contacts and failure signal units

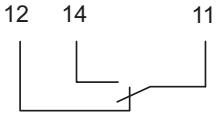
Type	Function
Auxiliary contacts:	The user can get information from the position of the main contacts of the breaker.
Signal contacts:	These contacts give information about releasing the breaker by short circuit, overload or manual tripping.
Signal / auxiliary contacts:	These contacts are combinations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

I_{th} 1 A | AC 15 | I_e 0,8 A | 350 mm

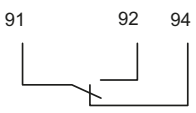
TRACON	Function		
MKM-AX100	Auxiliary contact	**MKM1-..**	0,25 mm²
MKM-AX250	Auxiliary contact	**MKM2-..**	0,35 mm²
MKM-AL100	Signal contact	**MKM1-..**	0,25 mm²
MKM-AL250	Signal contact	**MKM2-..**	0,35 mm²
MKM-AXAL100	Signal / auxiliary contact	**MKM1-..**	0,25 mm²
MKM-AXAL250	Signal / auxiliary contact	**MKM2-..**	0,35 mm²



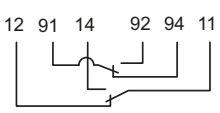
MKM-AX



MKM-AL



MKM-AXAL

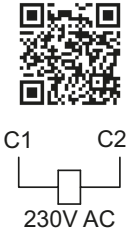


Shunt trip units

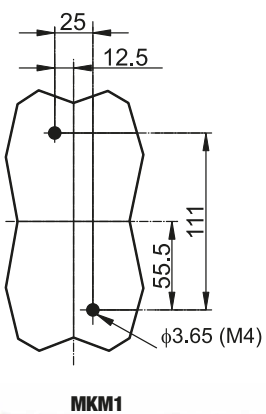
TRACON		P_{ON}	
MKM-SHT1-230	**MKM1-..**	<30 VA	0,25 mm²
MKM-SHT2-230	**MKM2-..**		0,35 mm²

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.

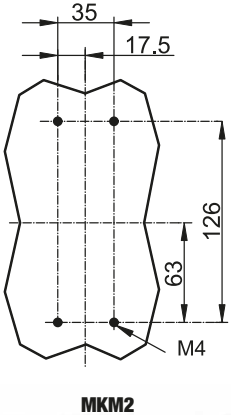
U_m 230 V AC | 350 mm



Mounting holes

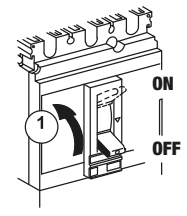


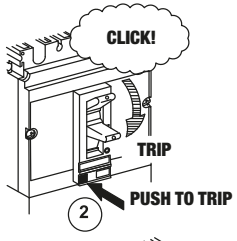
MKM1

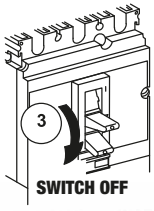


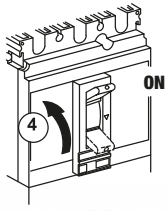
MKM2

Positions of switchgear





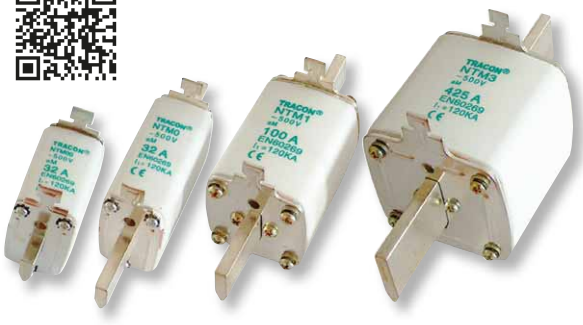




NT Blade fuses

500 V AC	I_{cu} 120 kA_{eff}	IP 00	Ta -5..+55 °C	2000 m

Pictograms I/O

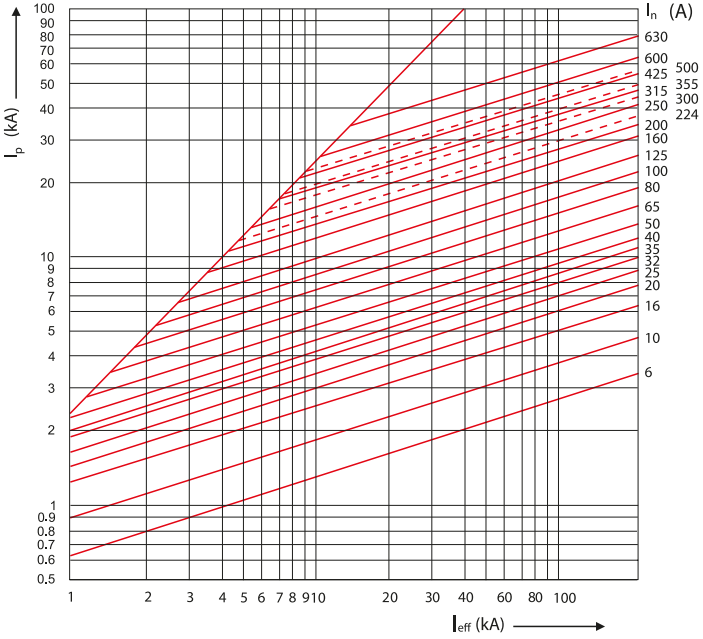


•NT	I_n	P_v
00C	6-160 A	7,5 W
00	2-160 A	12 W
0	6-160 A	16 W
1	32-250 A	23 W
2	50-400 A	34 W
3	160-630 A	48 W

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	gG *	aM	
–	NK00C-4	–	4 A
NT00C-6	NK00C-6	–	6 A
NT00C-10	NK00C-10	–	10 A
NT00C-16	NK00C-16	–	16 A
NT00C-20	–	–	20 A
NT00C-25	NK00C-25	–	25 A
NT00C-32	NK00C-32	–	32 A
–	NK00C-35	–	35 A
NT00C-40	NK00C-40	–	40 A
NT00C-50	NK00C-50	–	50 A
NT00C-63	NK00C-63	–	63 A
NT00C-80	NK00C-80	–	80 A
NT00C-100	NK00C-100	–	100 A
NT00C-125	–	–	125 A
NT00C-160	–	–	160 A

* knockout type

„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

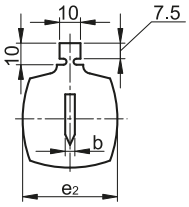
TRACON		I_n
gG	aM	
NT2-50	–	50 A
NT2-63	–	63 A
NT2-80	–	80 A
NT2-100	–	100 A
NT2-125	NTM2-125	125 A
NT2-160	NTM2-160	160 A
NT2-200	NTM2-200	200 A
NT2-224	NTM2-224	224 A
NT2-250	NTM2-250	250 A
–	NTM2-300	300 A
NT2-315	NTM2-315	315 A
NT2-355	NTM2-355	355 A
NT2-400	NTM2-400	400 A

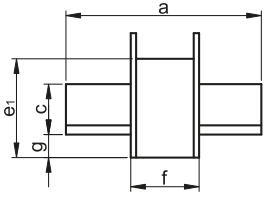
„3" size fuses

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





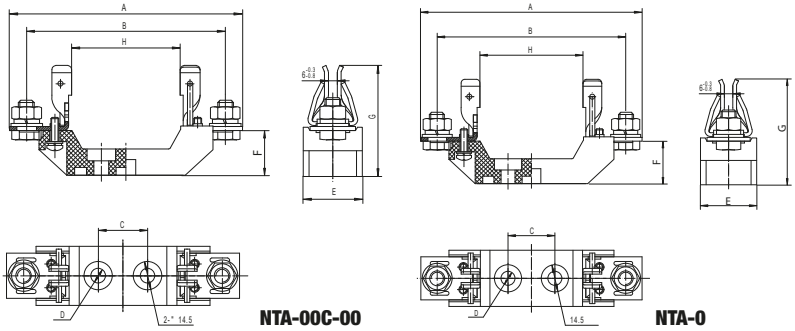
•NT	a (mm)	f (mm)	g (mm)	c (mm)	e_1 (mm)	e_2 (mm)	b (mm)
00C	78±1.5	54-6	11.5	15	45	20	6
00	78±1.5	54-6	11.5	15	45	29	6
0	125±2.5	68-8	11.5	15	45	29	6
1	135±2.5	75-10	12	21	48	48	6
2	150±2.5	75-10	13	27	58	58	6
3	150±2.5	75-10	14	33	67	67	6

Fuse sockets

	TRACON	NT	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	K (mm)	M (mm)
1P	**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

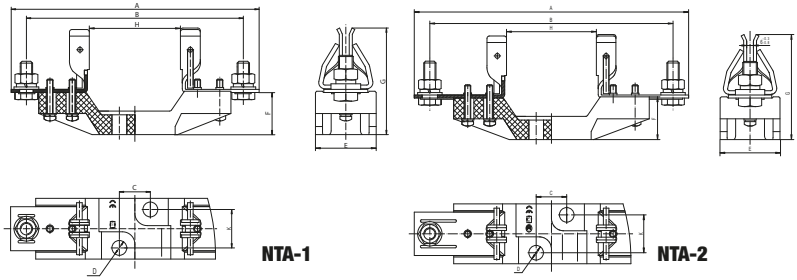
made of a self-extinguishing and high temperature resistant plastic base, with terminals and contact installed

NTA-00C-00, NTA-0



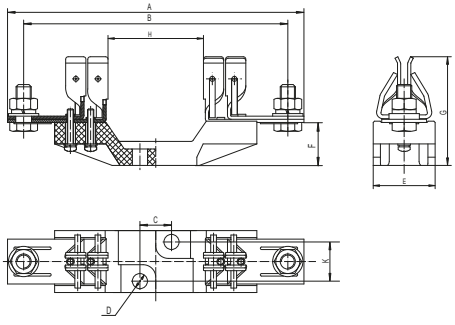
NTA-00C-00 **NTA-0**

NTA-1, NTA-2



NTA-1 **NTA-2**

NTA-3

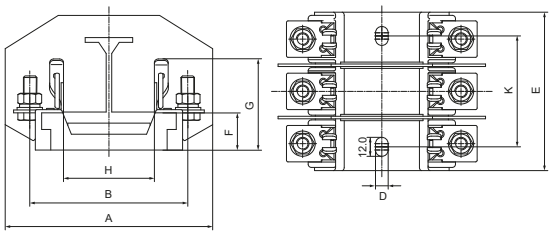


NTA-3

Fuse sockets

	TRACON	•NT	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	K (mm)	M (mm)
3P	**NTA-00/3**	00C, 00	132	100	–	8	100	24	58	56,5	70	8

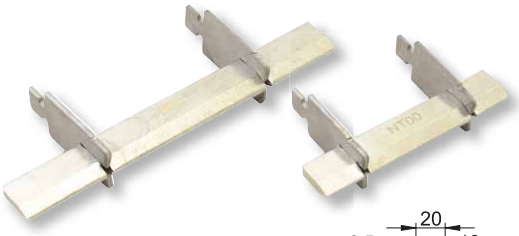
made of a self-extinguishing and high temperature resistant plastic base, with terminals and contact installed

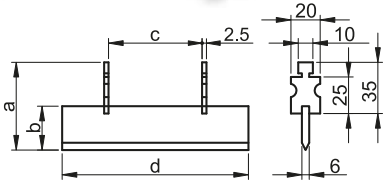


NTA-00/3

Short circuit blades

TRACON	•NT	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



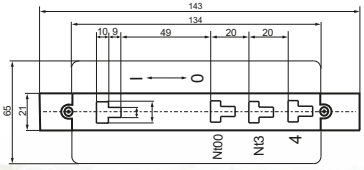


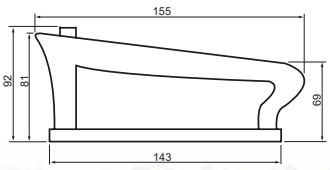
The short circuit blades can mainly be used to break the zero conductors.

Operating handle

TRACON	Ui	•NT
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.





Fuse disconnectors for cylindrical fuses

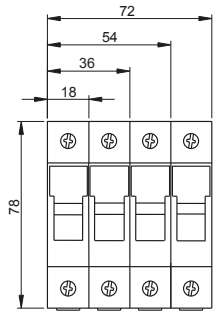
230/400 V AC | 35×7.5 | Ta -25..+55°C | Ui 690 V | 50/60 Hz | 2000 m | IP 20

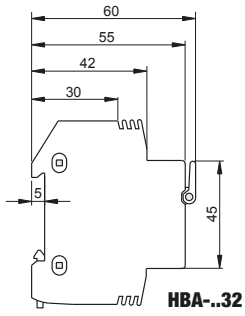
- Double side power supply (up or down)
- For gG (normal) and aM (motor) type fuses
- Riveted house
- Multiply fuse versions
- Rated short-circuit breaking capacity: AC 500 V; 100 kA
  AC 690 V; 50 kA
- Flame resistant plastic housing
- EN 60269 series
- All sizes can be masked

RELEVANT STANDARD EN60269-1

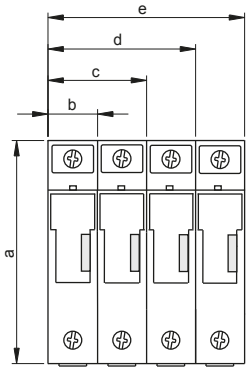
RELEVANT STANDARD HD60269-2

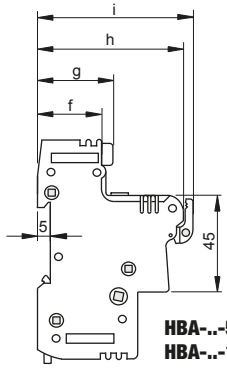
TRACON	xP	I_n (A)	mm²		
HBA-1P-20	1P	20 A	1,5-6	8 × 32 mm	–
HBA-2P-20	2P	20 A	1,5-6	8 × 32 mm	
HBA-3P-20	3P	20 A	1,5-6	8 × 32 mm	
HBA-1P-32	1P	32 A	1,5-6	10 × 38 mm	
HBA-2P-32	2P	32 A	1,5-6	10 × 38 mm	
HBA-3P-32	3P	32 A	1,5-6	10 × 38 mm	
HBA-1P-50	1P	50 A	1,5-25	14 × 51 mm	
HBA-2P-50	2P	50 A	1,5-25	14 × 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	





HBA-..32





HBA-..-50
HBA-..-100

	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

8×32 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

10×38 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

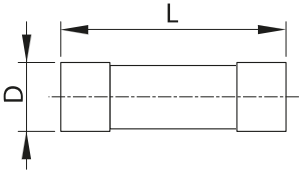
14×51 mm

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

22×58 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

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



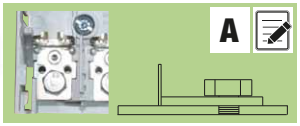
RELEVANT STANDARD
EN 60269-1

RELEVANT STANDARD
HD 60269-2

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		In			mm²	L (mm)	W (mm)	H (mm)	Ui	Ue
KETO-00-1/F	1P	160	00		max. 95, M10	204	50	84	800 VAC	690 VAC, 440 VDC
KETO-00-1/R95					1,5-95	204	50	84	800 VAC	690 VAC, 440 VDC
KETO-1-1/F		250	1		max. 150, M10	306	69	117	800 VAC	690 VAC, 440 VDC
KETO-3-1/F		400/630 A	2-3		max. 300, M10	306	91	143	800 VAC	690 VAC, 440 VDC
KETO-00-3/F	3P	160 A	00		max. 95, 1×M8/2×M5	204	106	84	800 VAC	690 VAC, 440 VDC
KETO-00-3/R95					1,5-95	204	106	84	800 VAC	690 VAC, 440 VDC
KETO-1-3/F		250 A	1		max. 150, M10	306	184	117	800 VAC	690 VAC, 440 VDC
KETO-1-3/R150					35-150	306	184	117	800 VAC	690 VAC, 440 VDC
KETO-2-3/F		400 A	2		max. 240, M10	306	210	117	800 VAC	690 VAC, 440 VDC
KETO-2-3/R300					95-300	306	210	117	800 VAC	690 VAC, 440 VDC
KETO-3-3/F		630 A	3		max. 300, M10	306	250	117	800 VAC	690 VAC, 440 VDC
KETO-3-3/R300					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.

40/60 Hz | IP10 | IP20 | Ta -25..+55°C

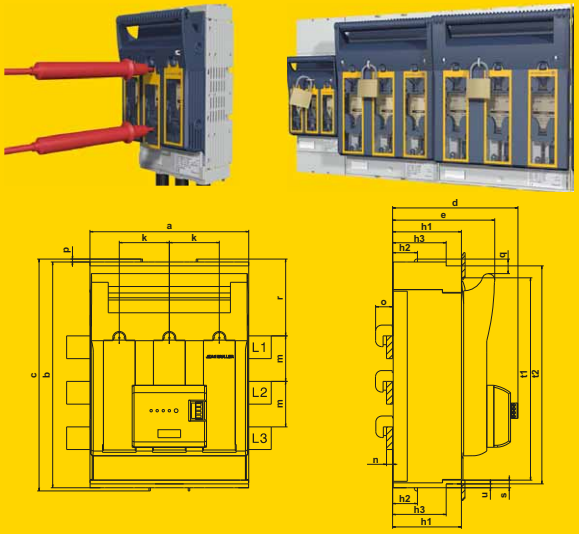
- 3 pole types for cable lug and busbar terminations
- For busbars with 60 and 100 mm sizes
- 5-10 mm busbar thickness
- For 00, 1, 2 and 3 type NH fuses


A


B

TRACON	H	In		a×b		mm²	L (mm)	W (mm)	H (mm)
KET0-00-3/60/A0U/F	60 mm	160 A	00	20-30 × 5-10		max. 95, 1×M8/2×M5	204	106	109
KET0-00-3/60/A0U/R95	60 mm	160 A	00	20-30 × 5-10		1,5-95	204	106	109
KET0-00-3/60/A0U/R95T*	60 mm	160 A	00	20-30 × 5-10		1,5-95	204	106	109
KET0-1-3/60/A0U/F	60 mm	250 A	1	20-30 × 5-10		max. 150, M10	306	184	117
KET0-1-3/60/A0U/R150	60 mm	250 A	1	20-30 × 5-10		35-150	306	184	117
KET0-2-3/60/A0U/F	60 mm	400 A	2	20-30 × 5-10		max. 240, M10	306	210	135
KET0-2-3/60/A0U/R300	60 mm	400 A	2	20-30 × 5-10		95-300	306	210	135
KET0-3-3/60/A0U/F	60 mm	630 A	3	20-30 × 5-10		max. 300, M10	306	250	143
KET0-3-3/60/A0U/R300	60 mm	630 A	3	20-30 × 5-10		95-300	306	250	143
KET0-1-3/100/A0U/F	100 mm	250 A	1	20-50 × 5-10		max. 150, M10	306	184	146
KET0-2-3/100/A0U/F	100 mm	400 A	2	20-50 × 5-10		max. 240, M10	306	210	144
KET0-3-3/100/A0U/F	100 mm	630 A	3	20-50 × 5-10		max. 300, M10	306	250	152

3P



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 AC | 220/400 V DC | 40/60 Hz | Ui 1 kV | IP10 | IP20 | Ta -25..+55°C

Pictograms 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	In		mm²	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	U-
SL1-3X/3A	250 A	1	25 – 150	762	99	194	
SL1-3X/9/KM2G-F	250 A	1	25 – 240	762	99	194	V-
SL2-3X/3A	400 A	2	25 – 240	762	99	194	
SL2-3X/9/KM2G-F	400 A	2	25 – 240	762	99	194	V-
SL3-3X/3A	630 A	3	25 – 300	762	99	194	
SL3-3X/9/KM2G-F	630 A	3	25 – 240	762	99	194	V-

Types to be switched in all three poles

TRACON	In		mm²	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	U-
SL1-3X3/3A	250 A	1	25 – 150	762	99	202	
SL1-3X3/9/KM2G-F	250 A	1	25 – 240	762	99	202	V-
SL2-3X3/3A	400 A	2	25 – 240	762	99	202	
SL2-3X3/9/KM2G-F	400 A	2	25 – 240	762	99	202	V-
SL3-3X3/3A	630 A	3	25 – 300	762	99	202	
SL3-3X3/9/KM2G-F	630 A	3	25 – 240	762	99	202	V-

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 trough 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 with a 100mm-185mm medium distance between each other. By applying them, you can build an optimal collective rails system, even for vertical sectionning 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 × 442 × 25 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 × 572 × 36 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 × 662 × 2 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 × 442 × 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 × 450 × 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 buit-up by using these elements.

Main specifications:

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

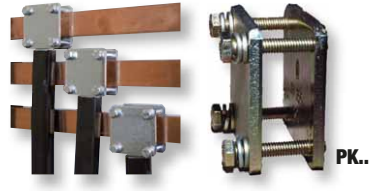
Busbar holders and covers (for 60 mm system)

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

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)

AM-..



PK..

TRACON	Type, connection (width x thickness)
AM-60/250/3	up to 250A, 1,5 mm2 - 70 mm2
AM-60/250/3/120-5	up to 250A, 16mm2-120mm2, for 5 mm thick busbars
AM-60/250/3/120-10	up to 250A, 16mm2-120mm2, for 10 mm thick busbars
AM-60/630/3	up to 630A, 70mm2-300mm2, 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

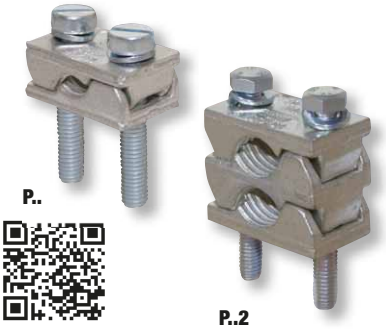
TRACON		
5 mm	10 mm	mm²
LAK5/1,5-16	**LAK10/1,5-16**	1,5-16 mm²
LAK5/1,5-35	**LAK10/1,5-35**	1,5-35 mm²
LAK5/1,5-50	**LAK10/1,5-50**	1,5-50 mm²
LAK5/16-70	**LAK10/16-70**	16-70 mm²
LAK5/16-120	**LAK10/16-120**	16-120 mm²
LAK5/16-185	**LAK10/16-185**	16-185 mm²

Clip- terminals

TRACON	mm² Cu	a×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	mm² 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**



V-terminal

TRACON	mm² Cu/Al	a×b		
KM2G-F	25-240 mm² Cu/Al	–	1, 2, 3	**L/SL..**
KM2G	25-300 mm² Cu/Al	–	1, 2, 3	**L/SL..**
KM2G-F/A30-40	25-240 mm² Cu/Al	30-40 mm	1, 2, 3	**L/SL..**
KM2G/A30-40	25-300 mm² Cu/Al	30-40 mm	1, 2, 3	**L/SL..**

U-terminal

TRACON	mm² Cu/Al	a×b		
KU00/1/2X/A30-40*	2×10-95 mm² Cu/Al	30-40 mm	00	**L/SL..**
KU00	10-95 mm² Cu/Al	–	00	**L/SL..**
KU00/2	1×95/2×50 mm² Cu/AL	–	00	**L/SL..**

* Version with connecting ear, to be installed on rail

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

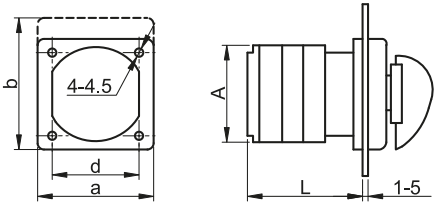
U_i 690 V | 50/60 Hz | U_{imp} 6 kV | Ta -5..+55 °C

Pictograms I/O

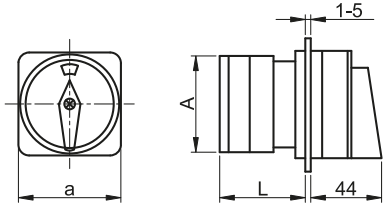
			TK-20	TK-25	TK-32	TK-63	TK-125	TK-160
I_{th} (A)			20	25	32	63	125	160
P_e (kW)	400 V~	AC-23A	7,5	11	15	30	45	75
		AC-2	7,5	11	15	30	45	55
		AC-3	**5,5**	**7,5**	**11**	**18,5**	**30**	**37**
		AC-4	1,5	3	5,5	7,5	12	15
I_e (A)	400 V~	AC-21A	20	25	32	63	100	150
		AC-22A	20	25	32	63	100	150
		AC-23A	15	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	-	-	-
(×10⁵)			5	5	3	1,5	1.5	1.5
(×10⁵)			3	3	1,2	1	1	1
ON-OFF-ON... sc/h			200	150	100	60	30	30
mm²			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...

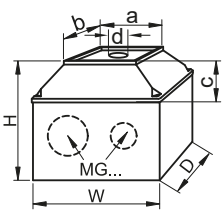


Dimensions see on the table! (I/22-I/27.)

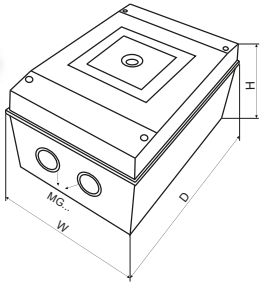

LIVE WITH IT!
CO-DETECTOR
CO218A

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



TK/../



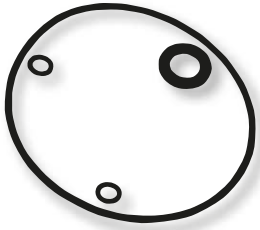
TKTS-..

RELEVANT STANDARD
EN 60947-3

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



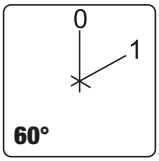
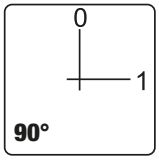
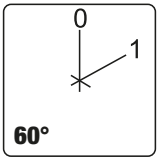
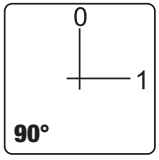
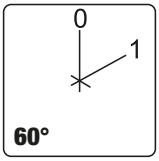
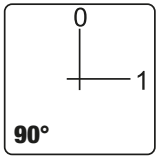
Adaptor

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

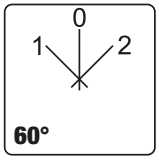
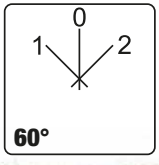
35×7.5

RELEVANT STANDARD
EN 60947-3

General ON-OFF switches

TRACON IP 42	TRACON + IP44	TRACON + IP65			
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	–	

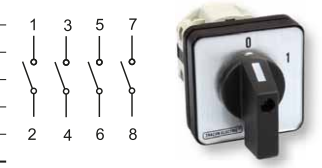
	0°	60°	L (mm)	A (mm)	a (mm)	b (mm)	d (mm)
1-2		×					
3-4		×					
			28	43,5	48	48	36
			28	43,5	48	48	36

	0°	90°					
1-2		×					
3-4		×					
			33	45,3	48	48	36
			33	45,3	48	48	36

	0°	60°					
1-2		×	41,2	43	48	48	36
3-4		×	48,6	45,2	48	48	36
5-6		×	54,8	58	64	64	48
			72,2	66	64	64	48
			84	84	88	88	68
			97	88	88	88	68

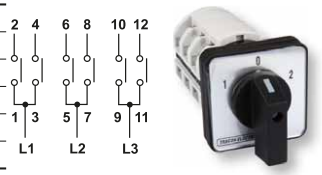
	0°	90°					
1-2		×	41,2	43	48	48	36
3-4		×	48,6	45,2	48	48	36
5-6		×	54,8	58	64	64	48
			72,2	66	64	64	48
			84	84	88	88	68
			97	88	88	88	68

	0°	60°					
1-2		×	41,2	43	48	48	36
3-4		×	48,6	45,2	48	48	36
5-6		×	54,8	58	64	64	48
7-8		×	72,2	66	64	64	48
			84	84	88	88	68
			97	88	88	88	68



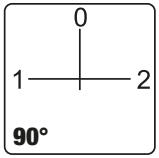
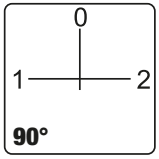
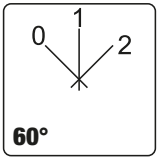
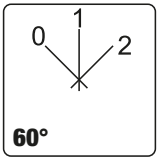
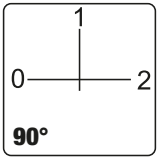
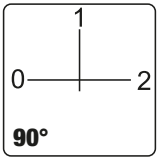
	0°	90°					
1-2		×	41,2	43	48	48	36
3-4		×	48,6	45,2	48	48	36
5-6		×	54,8	58	64	64	48
7-8		×	72,2	66	64	64	48
			84	84	88	88	68
			97	88	88	88	68

	-60°	0°	60°					
1-2	×						50,8	43	48	48	36
3-4			×				61,4	45,2	48	48	36
5-6	×						67,6	58	64	64	48
7-8			×				93,7	66	64	64	48
9-10	×						110	84	88	88	68
11-12			×				130	88	88	88	68

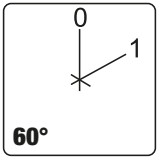
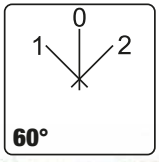


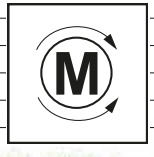
	-60°	0°	60°		-60°	0°	60°					
1-2	×			9-10	×			60,4	43	48	48	36
3-4			×	11-12			×	74,2	45,2	48	48	36
5-6	×			13-14	×			80,4	58	64	64	48
7-8			×	15-16			×	115,2	66	64	64	48
								136	84	88	88	68
								163	88	88	88	68

Select switches

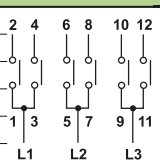
TRACON IP 42	TRACON + IP44	TRACON + IP65			
TKV-209/3	**TKV-209/3T**	**TKV-209/3T65**	20 A / 2×3P	**TK/T2+F1/**	
TKV-259/3	**–**	**TKV-259/3T65**	25 A / 2×3P	**TKTS-02**	
TKV-329/3	**TKV-329/3T**	**TKV-329/3T65**	32 A / 2×3P	**TK/T3+F3/**	
TKV-639/3	**–**	**TKV-639/3T65**	63 A / 2×3P	**TKTS-03**	
TKV-129/3	**–**	**–**	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

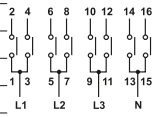
TKM-20/Q	**TKM-20/QT**	**TKM-20/QT65**	5,5 kW	**TK/T1+F1/**	
TKM-25/Q	**TKM-25/QT**	**TKM-25/QT65**	7,5 kW	**TK/T2+F1/**	
TKM-32/Q	**TKM-32/QT**	**TKM-32/QT65**	11 kW	**TK/T3+F3/**	
TKM-63/Q	**TKM-63/QT**	**TKM-63/QT65**	18,5 kW	**TK/T3+F3/**	
TKM-12/Q	**–**	**TKM-12/QT65**	30 kW	**TKTS-03**	
TKM-16/Q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



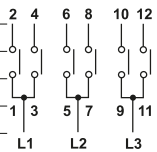
	-90°	0°	90°		-90°	0°	90°	L (mm)	A (mm)	a (mm)	b (mm)	d (mm)
1-2	×							50,8	43	48	48	36
3-4			×					61,4	45,2	48	48	36
5-6	×							67,6	58	64	64	48
7-8			×					93,7	66	64	64	48
9-10	×							110	84	88	88	68
11-12			×					130	88	88	88	68



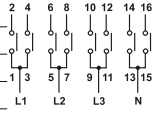
	-90°	0°	90°		-90°	0°	90°					
1-2	×			9-10	×			60,4	43	48	48	36
3-4			×	11-12			×	74,2	45,2	48	48	36
5-6	×			13-14	×			80,4	58	64	64	48
7-8			×	15-16			×	115,2	66	64	64	48
								136	84	88	88	68
								163	88	88	88	68



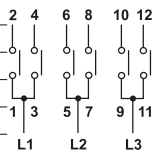
	-60°	0°	60°		-60°	0°	60°					
1-2		×						50,8	43	48	48	36
3-4			×					61,4	45,2	48	48	36
5-6		×						67,6	58	64	64	48
7-8			×					93,7	66	64	64	48
9-10		×						110	84	88	88	68
11-12			×					130	88	88	88	68



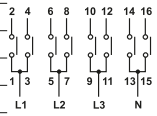
	-60°	0°	60°		-60°	0°	60°					
1-2		×		9-10		×		60,4	43	48	48	36
3-4			×	11-12			×	74,2	45,2	48	48	36
5-6		×		13-14		×		80,4	58	64	64	48
7-8			×	15-16			×	115,2	66	64	64	48
								136	84	88	88	68
								163	88	88	88	68



	-90°	0°	90°
1-2		×	
3-4			×
5-6		×	
7-8			×
9-10		×	
11-12			×



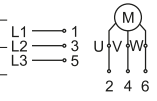
	-90°	0°	90°		-90°	0°	90°					
1-2		×		9-10		×		60,4	43	48	48	36
3-4			×	11-12			×	74,2	45,2	48	48	36
5-6		×		13-14		×		80,4	58	64	64	48
7-8			×	15-16			×	115,2	66	64	64	48
								136	84	88	88	68
								163	88	88	88	68



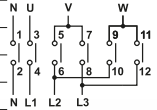
	0	60°
1-2		×
3-4		×
5-6		×

	-60°	0°	60°
1-2	×		×
3-4	×		×
5-6	×		
7-8			×
9-10			×
11-12	×		

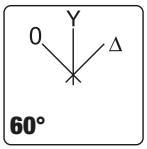
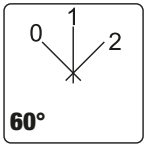
L (mm)	A (mm)	a (mm)	b (mm)	d (mm)
41,2	43	48	48	36
48,6	45,2	48	48	36
54,8	58	64	64	48
72,2	66	64	64	48
84	84	88	88	68
97	88	88	88	68



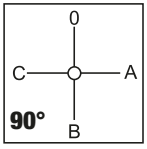
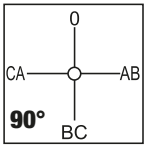
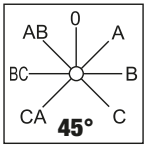
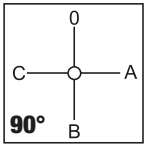
L (mm)	A (mm)	a (mm)	b (mm)	d (mm)
50,8	43	48	48	36
61,4	45,2	48	48	36
67,6	58	64	64	48
93,7	66	64	64	48
111	84	88	88	68
130	88	88	88	68



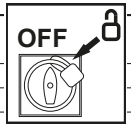
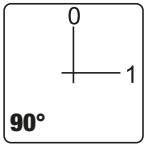
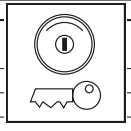
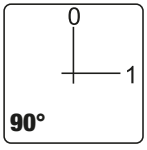
Motor switches

TRACON IP 42	+ IP44	+ IP65			
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-63/C-S*	–	–	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	–	

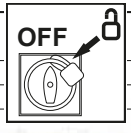
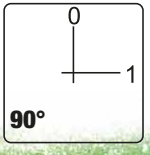
Measure switches

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	–	

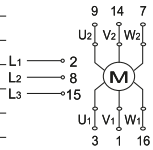
Main switches

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	–	–		25 A / 4P	–
TKFK-32 **	–	–		32 A / 4P	–
TKFK-63 **	–	–		63 A / 4P	–
					

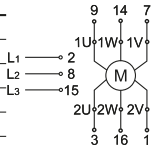
*** The switch consists of two elements: a lever switch at the top + a key lock at the bottom.**

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/**
					

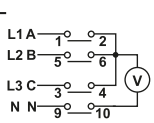
	-60°	0°	60°		-60°	0°	60°	L (mm)	A (mm)	a (mm)	b (mm)	d (mm)
1-2		×	×	9-10		×		57	44	48	48	36
3-4		×	×	11-12		×		70	46	48	48	36
5-6			×	13-14			×	78	58	64	64	48
7-8			×	15-16		×	×	112	66	64	64	48
				17-18*	×			157	66	64	64	48
				19-20*		×	×	138	84	88	88	68
								163	88	88	88	68



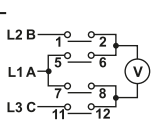
	-60°	0°	60°		-60°	0°	60°					
1-2			×	9-10			×	57	44	48	48	36
3-4			×	11-12			×	70	46	48	48	36
5-6		×		13-14		×		78	58	64	64	48
7-8		×		15-16			×	112	66	64	64	48
								138	84	88	88	68
								163	88	88	88	68



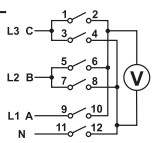
	0	A	B	C								
1-2		×										
3-4				×								
5-6			×					50,8	43	48	48	36
9-10		×	×	×								



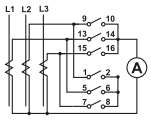
	0	AB	BC	CA								
1-2		×	×									
5-6				×								
7-8		×						50,8	43	48	48	36
11-12			×	×								



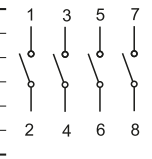
	CA	BC	AB	0	A	B	C					
1-2		×					×					
3-4	×											
5-6						×						
7-8		×	×					50,8	43	48	48	36
9-10	×		×		×							
11-12					×	×	×					



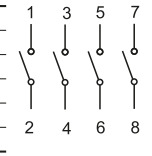
	0	A	B	C								
1-2	×	×		×								
5-6	×		×	×								
7-8	×	×	×					60,4	43	48	48	36
9-10			×									
13-14		×										
15-16				×								



	0°	90°					
1-2		×					
3-4		×	41,2	43	64	64	48
5-6		×	48,6	45,2	64	64	48
7-8		×	54,8	58	64	64	48
			72,2	66	64	64	48



	0°	90°					
1-2		×					
3-4		×	41,2	43	48	48	36
5-6		×	48,6	45,2	48	48	36
7-8		×	75	58/105	64	64/112	48/96
			93	66/105	64	64/122	48/96



	0°	90°					
1-2		×					
3-4		×	44,2	43	64	64	48
5-6		×	52,1	45,2	64	64	48
7-8		×	54,8	58	64	64	48
			72,2	66	64	64	48

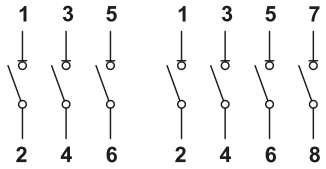
TS disconnector switch

Ui 690 V | 50/60 Hz | Uimp 6 kV | Ta -5..+55 °C

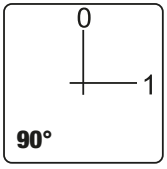
Pictograms I/O

		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**
(×10⁵)		5	5	3	1,5	1.5	1.5
(×10⁵)		3	3	1,2	1	1	1
ON-OFF-ON... sc/h		200	150	100	60	30	30
mm²		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



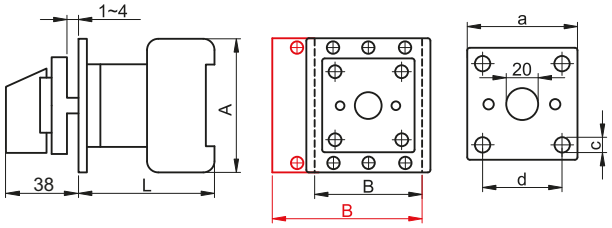
Main features

- 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

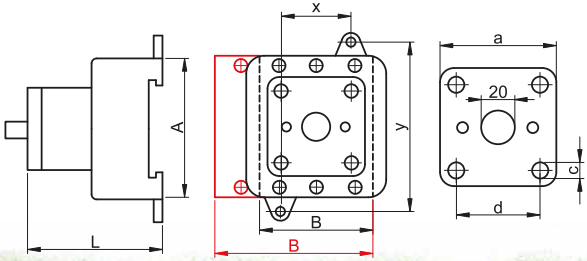
Disconnector switch

TRACON IP 42	+ IP44	+ IP65			L (mm)	A (mm)	B (mm)	a (mm)	d (mm)	c (mm)
TS-20/3	**TS-20/3T**	**TS-20/3T65**	20 A / 3P		61	54	42	64	48	4.2
TS-32/3	**TS-32/3T**	**TS-32/3T65**	32 A / 3P	**TK/T3+F3/**	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		61	54	55.5	64	48	4.2
TS-32/4	**TS-32/4T**	**TS-32/4T65**	32 A / 4P	**TK/T3+F3/**	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



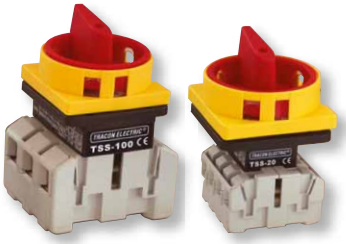
The door coupling makes security interlock at the door of the distribution box; the door can be opened, when the switch is on „0", as „OFF" position!

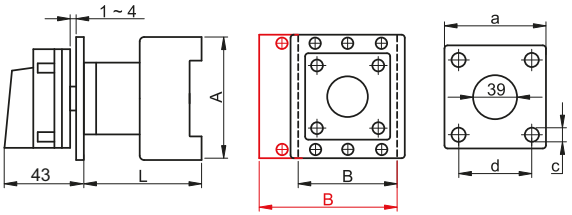
The length of the door coupling: 150 mm

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

Lockable security disconnector switch

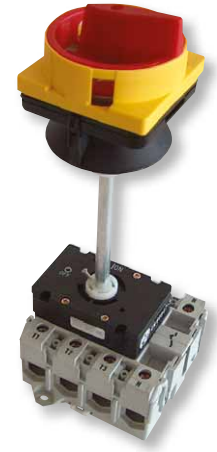
TRACON					L (mm)	A (mm)	B (mm)	a (mm)	d (mm)	c (mm)
IP 42	IP44	IP65								
TSS-20/3	TSS-20/3T	TSS-20/3T65S	20 A / 3P	TK/T3+F3/	61	54	42	64	48	4.2
TSS-32/3	TSS-32/3T	TSS-32/3T65S	32 A / 3P		61	54	42	64	48	4.2
TSS-40/3	TSS-40/3T	TSS-40/3T65S	40 A / 3P	TK/T3+F3S/	67	64	50	64	48	4.2
TSS-63/3	TSS-63/3T	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 disconnector is lockable on “OFF” position.

Lockable security disconnector switch with door coupling

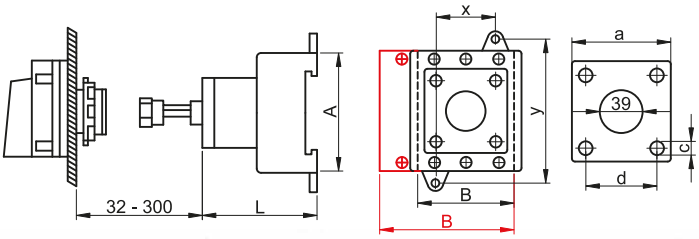


TRACON		L (mm)	A (mm)	B (mm)	a (mm)	d (mm)	c (mm)	x (mm)	y (mm)
TSS-20/3K	20 A / 3P	50	54	42	64	48	4.2	22	62
TSS-32/3K	32 A / 3P	50	54	42	64	48	4.2	22	62
TSS-40/3K	40 A / 3P	61	64	50	64	48	4.2	25	70
TSS-63/3K	63 A / 3P	61	64	50	64	48	4.2	25	70
TSS-80/3K	80 A / 3P	68	80	70	64	48	4.2	25	90
TSS-10/3K	100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

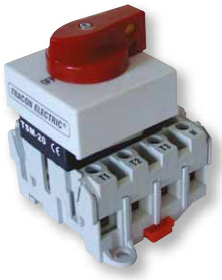
The length of the door coupling: 300 mm

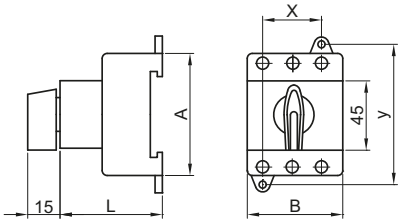
Mountable on 35/7,5 mm size mounting rail (according to EN 50022 standard).



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 mountable from their back with two screws or can be clipped on mounting rail according to EN 50022.

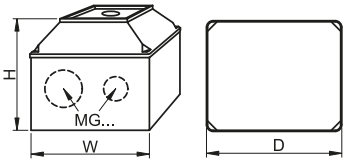
EVOMS modular lockable disconnection switches

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 | Ta -25..+55°C | max. ±30° | AC 1 | AC 3 | AC 4 | AC 15 | AC 6b

Pictograms I/O

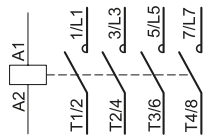
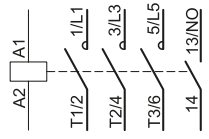
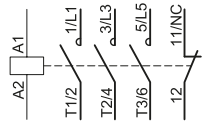
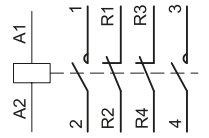
	TRACON		
	TR1K..	**TR1D..**	**TR1E..**
	AC-1, AC-3, AC-15	AC-1, AC-3, AC-4	AC-1, AC-3, AC-4
U_m	24 V AC, 48 V AC, 110 V AC, 230 V AC, 400 V AC	24 V AC, 48 V AC, 110 V AC, 230 V AC, 400 V AC	24 V AC, 48 V AC, 230 V AC, 400 V AC
I_e	6...12 A/AC-3	9…95 A/AC-3	115…620 A/AC-3
			

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.

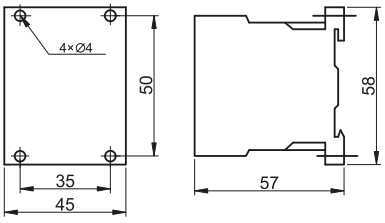
Mini contactors

230/400 V AC	Ui 690 V	Ue 415 V	Ith 20 A	ON-OFF-ON... sc/h ×4.800	3×10⁶	×10⁶	[mm²] 1-4	PON 30 VA	PHOLD 4,5 VA	35×7.5	Ta -25..+55°C	max. ±30°	IP 20

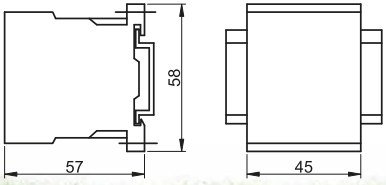
	Um	TRACON 6A/AC-3	TRACON 9A/AC-3	TRACON 12A/AC-3
	24 V~	–	**TR1K0904B7**	**TR1K1204B7**
	48 V~	–	**TR1K0904E7**	**TR1K1204E7**
	110 V~	–	**TR1K0904F7**	**TR1K1204F7**
	230 V~	–	**TR1K0904**	**TR1K1204**
	400 V~	–	**TR1K0904V7**	**TR1K1204V7**
	24 V =	–	–	**TR1K1210B4**
	24 V~	**TR1K0610B7**	**TR1K0910B7**	**TR1K1210B7**
	48 V~	**TR1K0610E7**	**TR1K0910E7**	**TR1K1210E7**
	110 V~	**TR1K0610F7**	**TR1K0910F7**	**TR1K1210F7**
	230 V~	**TR1K0610**	**TR1K0910**	**TR1K1210**
	400 V~	**TR1K0610V7**	**TR1K0910V7**	**TR1K1210V7**
	24 V =	–	–	**TR1K1201B4**
	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**	–

Ie (A)	AC-1		20	20	20
	AC-3		**6**	**9**	**12**
	AC15		2	3	4
Pe (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

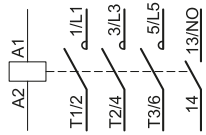
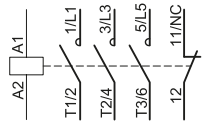


Fixed on mounting rail (35×7,5 mm)

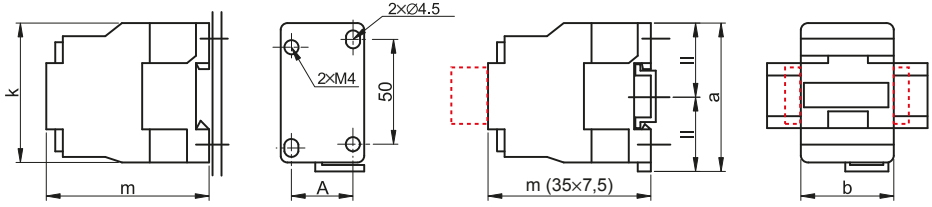
RELEVANT STANDARD	RELEVANT STANDARD
EN 60947-4-1	**EN 60947-1**

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

230/400 V AC	Ui 690 V	Ue 415 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

		Um	TRACON 9A/AC-3	12A/AC-3	18A/AC-3	25A/AC-3	32A/AC-3
		24 V=	–	TR1D1210B4	–	–	TR1D3210B4
		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=	–	TR1D1201B4	–	–	TR1D3201B4
		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
Ie (A)	AC-1		25	25	32	40	50
	AC-3		**9**	**12**	**18**	**25**	**32**
	AC-4		3,5	5	7,7	8,5	12
Pe (kW)	220/230 V	AC-3	2,2	3	4	5,5	7,5
	380/400 V	**AC-3**	**4**	**5,5**	**7,5**	**11**	**15**
	380/400 V	AC-4	4	2,5	3	3,7	4,5
	415 V	AC-3	4	5,5	9	11	15
	500 V, 660/690 V	AC-3	5,5	7,5	10	15	18,5
laux (A)			5	5	5	5	5
			10 A aM	16 A aM	20 A aM	32 A aM	40 A aM
mm²			4	4	6	10	10
PON			60 VA	60 VA	60 VA	90 VA	90 VA
PHOLD			7 VA	7 VA	7 VA	7,5 VA	7,5 VA

Dimensions

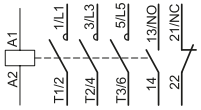


Fixed on mounting plate **Fixed on mounting rail (35×7,5 mm)**

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 (35×7,5)	82	82	87	95	100

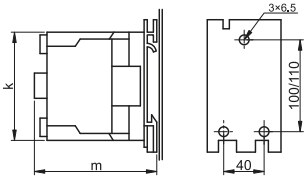
TR1D type contactors for general purpose (40 A … 95 A)

230/400 V AC	Ui 690 V	Ue 415 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

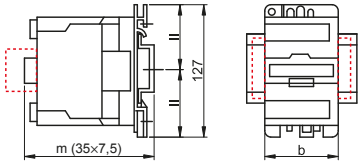


		Um	TRACON 40A/AC-3	50A/AC-3	65A/AC-3	80A/AC-3	95A/AC-3
		24 V~	**TR1D4011B7**	**TR1D5011B7**	**TR1D6511B7**	**TR1D8011B7**	**TR1D9511B7**
		48 V~	**TR1D4011E7**	**TR1D5011E7**	**TR1D6511E7**	**TR1D8011E7**	**TR1D9511E7**
		110 V~	**TR1D4011F7**	**TR1D5011F7**	**TR1D6511F7**	**TR1D8011F7**	**TR1D9511F7**
		230 V~	**TR1D4011**	**TR1D5011**	**TR1D6511**	**TR1D8011**	**TR1D9511**
		400 V~	**TR1D4011V7**	**TR1D5011V7**	**TR1D6511V7**	**TR1D8011V7**	**TR1D9511V7**
Ie (A)	AC-1		60	80	80	125	125
	AC-3		**40**	**50**	**65**	**80**	**95**
	AC-4		18,5	24	28	37	44
Pe (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
Iaux (A)			5	5	5	5	5
			50 A aM	50 A aM	63 A aM	80 A aM	100 A aM
	mm²		25	25	25	50	50
PON ON			200 VA	200 VA	200 VA	200 VA	200 VA
PHOLD HOLD			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


I/42


I/43


I/43


I/43


I/45

TEMS Motor starter combination in protective housing

TRACON	Um	TRACON	Um	Pe (kW), AC-3*	Ie (A), AC-3*			
TEMS1-091	400 V~	**TEMS1-091-P7**	230 V~	**1,5**	**3,5**	9 A / AC-3	2,5 – 4 A	6 A aM
TEMS1-092	400 V~	**TEMS1-092-P7**	230 V~	**2,2**	**5**	9 A / AC-3	4 – 6 A	10 A aM
TEMS1-093	400 V~	**TEMS1-093-P7**	230 V~	**3**	**6,3**	9 A / AC-3	5,5 – 8 A	10 A aM
TEMS1-094	400 V~	**TEMS1-094-P7**	230 V~	**4**	**8,5**	9 A / AC-3	7 – 10 A	16 A aM
TEMS1-121	400 V~	**TEMS1-121-P7**	230 V~	**5**	**11,5**	12 A / AC-3	9 – 13 A	16 A aM
TEMS1-181	400 V~	**TEMS1-181-P7**	230 V~	**7,5**	**15,5**	18 A / AC-3	12 – 18 A	20 A aM
TEMS2-251	400 V~	**TEMS2-251-P7**	230 V~	**11**	**22**	25 A / AC-3	17 – 25 A	25 A aM
TEMS2-321	400 V~	**TEMS2-321-P7**	230 V~	**15**	**30**	32 A / AC-3	23 – 32 A	40 A aM
TEMS3-401	400 V~	**TEMS3-401-P7**	230 V~	**18,5**	**37**	40 A / AC-3	30 – 40 A	40 A aM
TEMS3-501	400 V~	**TEMS3-501-P7**	230 V~	**22**	**44**	50 A / AC-3	37 – 50 A	63 A aM
TEMS3-651	400 V~	**TEMS3-651-P7**	230 V~	**25**	**57**	65 A / AC-3	48 – 65 A	80 A aM
TEMS3-801	400 V~	**TEMS3-801-P7**	230 V~	**37**	**72,5**	80 A / AC-3	55 – 70 A	80 A aM
TEMS3-802	400 V~	**TEMS3-802-P7**	230 V~	**37**	**72,5**	80 A / AC-3	63 – 80 A	80 A aM
TEMS3-951	400 V~	**TEMS3-951-P7**	230 V~	**45**	**85**	95 A / AC-3	80 – 93 A	100 A aM

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

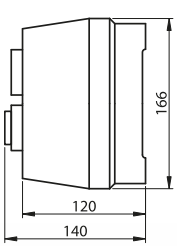
The device includes a contactor, a thermal overload relay, a green ON, a red OFF pushbuttons and a plastic or steel plate housing made of two parts. The admitted power of the deserved motor depends on the technical parameters of the contactor. The current protection level according to technical parameters 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.

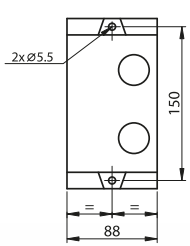
The device is delivered with a prewired actuating circle; the contactor and the thermal relay are assembled together. Thus, after connection of the terminal cables, the device is ready to operate. The device must be protected by outer short circuit protection!

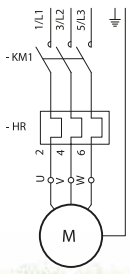
Technical data and type range of TEMS1 motor starter

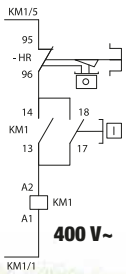
400 V AC | Ui 660 V | 3×10⁶ | ×10⁶ | Ta 0..+55 °C | IP 55 | Pictograms I/O

TRACON		TEMS1-091	TEMS1-092	TEMS1-093	TEMS1-094	TEMS1-121	TEMS1-181
Ie (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
Ith (A)	400 V	25	25	25	25	25	32
Pe (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 Ith (A)		6	6	6	6	6	6
Pm (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 trough 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 | Ui 660 V | 3×10⁶ | 8×10⁵ | Ta 0..+55 °C | IP 55

Pictograms I/0

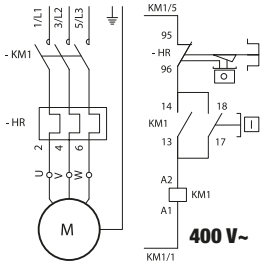
TRACON			TEMS2-251	TEMS2-321
Ie (A), AC-3	**400 V**		**22**	**30**
	660 V		18	21,3
Ith (A)	400 V		40	50
Pe (kW), AC-3	**400 V**		**11**	**15**
	660 V		15	18,5
AUX Ith (A)			6	6
Pm (VA)	AC-15		300	300
	DC-13		30	30

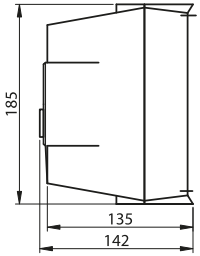
RELEVANT STANDARD EN 60529

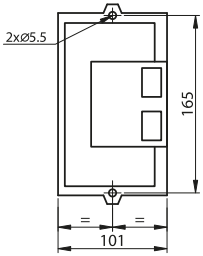
RELEVANT STANDARD EN 60695-2-1

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.







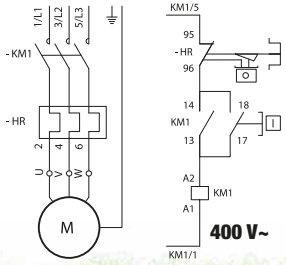
Technical data and type range of TEMS3 motor starter

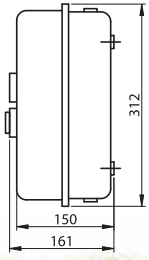
400 V AC | Ui 660 V | 3×10⁶ | 6×10⁵ | Ta 0..+55 °C | IP 55

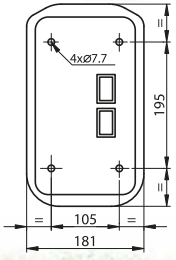
Pictograms I/0

TRACON			TEMS3-401	TEMS3-501	TEMS3-651	TEMS3-801	TEMS3-802	TEMS3-951
Ie (A), AC-3	**400 V**		**37**	**44**	**60**	**72,5**	**72,5**	**85**
	660 V		34,6	39	42	49	49	49
Ith (A)	400 V		60	80	80	125	125	125
Pe (kW), AC-3	**400 V**		**18,5**	**22**	**30**	**37**	**37**	**45**
	660 V		30	33	37	45	45	55
AUX Ith (A)			6	6	6	6	6	6
Pm (VA)	AC-15		300	300	300	300	300	300
	DC-13		30	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.



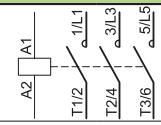




High power contactors

400 V AC | Ui 660 V | Ue 660 V | AUX [mm²] 1-4 | Ta -25..+55°C | max. ±30° | IP 20

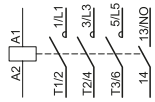
Pictograms I/0

		Um	TRACON		
			115A/AC-3	150A/AC-3	170A/AC-3
		24 V~	**TR1E115B7**	–	**TR1E170B7**
		48 V~	**TR1E115E7**	**TR1E150E7**	**TR1E170E7**
		230 V~	**TR1E115**	**TR1E150**	**TR1E170**
		400 V~	**TR1E115V7**	**TR1E150V7**	**TR1E170V7**
Ie (A)	AC-1		250	250	250
	AC-3		**115**	**150**	**170**
	AC-4		40	50	60
Pe (kW)	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
mm²			95	120	150
ON-OFF-ON... sc/h			× 1800	× 1800	× 1800
/	(× 10⁵)		30 / 6	30 / 6	30 / 6
PON / PHOLD	(VA)		550 / 45	550 / 45	805 / 55

I/42

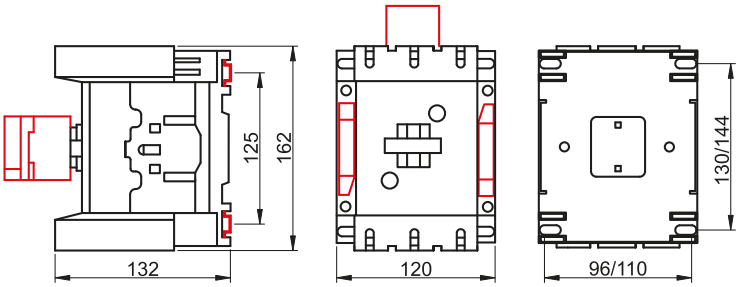

I/43


I/43

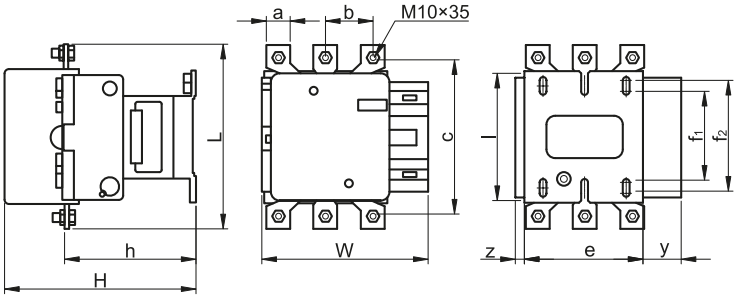
		Um	TRACON					
			205A/AC-3	245A/AC-3	300A/AC-3	410A/AC-3	475A/AC-3	620A/AC-3
		24 V~	–	**TR1E245B7**	–	**TR1E410B7**	**TR1E475B7**	**TR1E620B7**
		48 V~	**TR1E205E7**	**TR1E245E7**	**TR1E300E7**	**TR1E410E7**	**TR1E475E7**	**TR1E620E7**
		230 V~	**TR1E205**	**TR1E245**	**TR1E300**	**TR1E410**	**TR1E475**	**TR1E620**
		400 V~	**TR1E205V7**	**TR1E245V7**	**TR1E300V7**	**TR1E410V7**	**TR1E475V7**	**TR1E620V7**
Ie (A)	AC-1		275	315	400	500	700	1000
	AC-3		**205**	**245**	**300**	**410**	**475**	**620**
	AC-4		70	80	100	140	160	210
Pe (kW)	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
mm²			185	240	240	2×150	2×240	2×60×5 mm
ON-OFF-ON... sc/h			× 1800	× 1800	× 1800	× 900	× 900	× 900
/	(× 10⁵)		30 / 5	30 / 5	30 / 5	10 / 3	10 / 3	10 / 2
PON / PHOLD	(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!

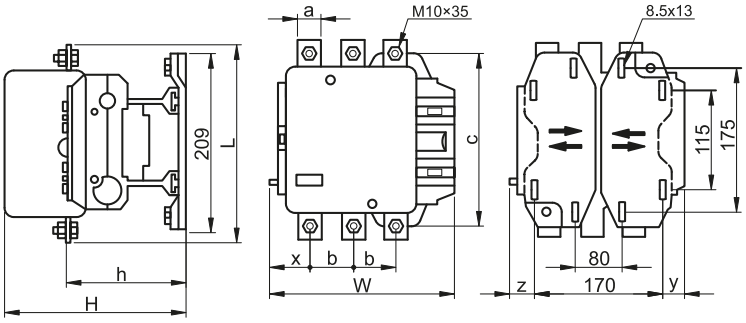
Dimensions



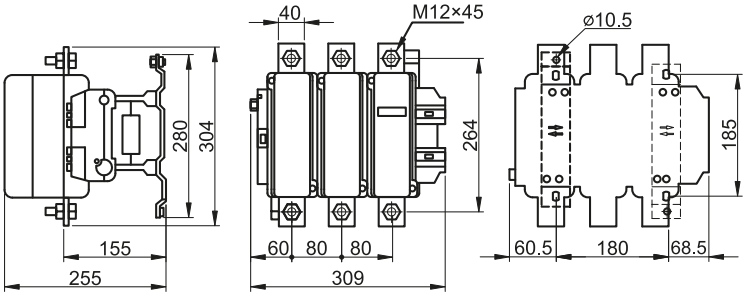
TR1E115 ... TR1E170



TR1E205 ... TR1E300



TR1E410, TR1E475

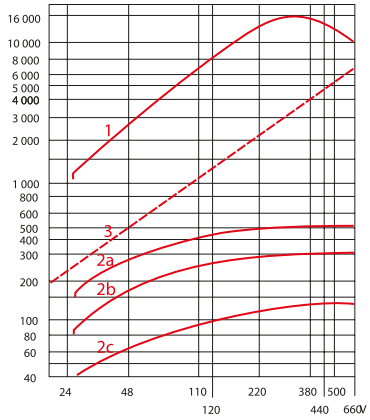


TR1E620

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

U_i	U_e	I_{th}	I_e			AC				IP
690 V	660 V	10 A	2 A	×10⁷	ON-OFF-ON... sc/h ×3.600	15	[mm²] 1×1-2×2,5	10 A gG	-25..+50°C	20



Electrical life according to switching capacity (AC15)

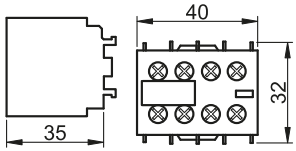
	U_e						
	24 V	48 V	110 V 127 V	220 V 230 V	380 V 400 V	440 V	600 V
10^6	150 VA	300 VA	400 VA	480 VA	500 VA	500 VA	500 VA
$3×10^6$	80 VA	170 VA	250 VA	290 VA	320 VA	320 VA	320 VA
10^7	30 VA	65 VA	90 VA	120 VA	130 VA	130 VA	130 VA

Legend

1:	breaking capacity limit
2a:	10^6 switching cycle
2b:	$3×10^6$ switching cycle
2c:	10^7 switching cycle
3:	heating limit

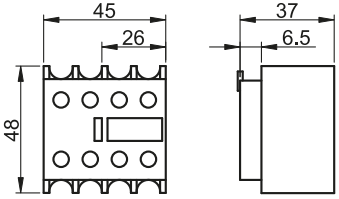
Front side auxiliary contacts

For TR1K mini contactors



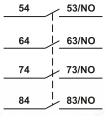
TRACON	NC NO	
TR5KN02	2 × NC	
TR5KN04	4 × NC	
TR5KN11	1 × NO + 1 × NC	
TR5KN13	1 × NO + 3 × NC	
TR5KN20	2 × NO	
TR5KN22	2 × NO + 2 × NC	
TR5KN31	3 × NO + 1 × NC	
TR5KN40	4 × NO	

For TR1D and TR1E contactors

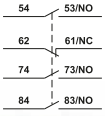


TRACON	NC NO	
TR6DN02	2 × NC	
TR6DN04	4 × NC	
TR6DN11	1 × NO + 1 × NC	
TR6DN13	1 × NO + 3 × NC	
TR6DN20	2 × NO	
TR6DN22	2 × NO + 2 × NC	
TR6DN31	3 × NO + 1 × NC	
TR6DN40	4 × NO	

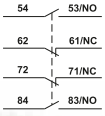
TR6-DN40 TR5-KN40



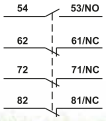
TR6-DN31 TR5-KN31



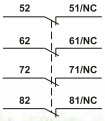
TR6-DN22 TR5-KN22



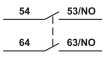
TR6-DN13 TR5-KN13



TR6-DN04 TR5-KN04



TR6-DN20 TR5-KN20

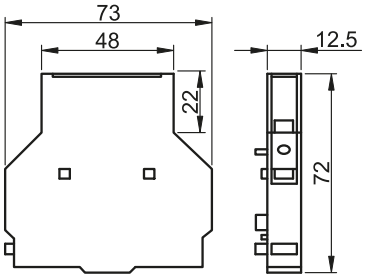


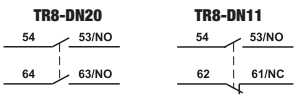
TR6-DN11 TR5-KN11

TR6-DN02 TR5-KN02

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

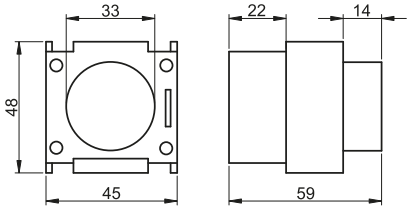
TRACON	NC / NO
TR8-DN20	2 × NO
TR8-DN11	1 × NC + 1 × NO

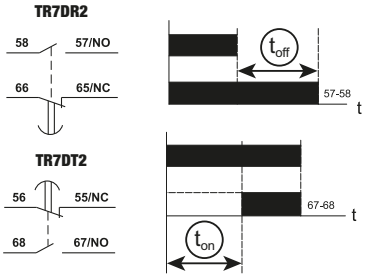




Timing units for TR1D/E contactors

TRACON	NC / NO	on / t_{off}
TR7DT2	1 × NC + 1 × NO	0.1-30 s
TR7DR2	1 × NC + 1 × NO	0.1-30 s

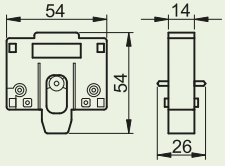




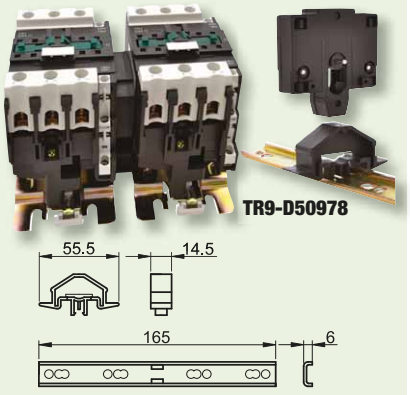
Mechanical interlock

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.



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.



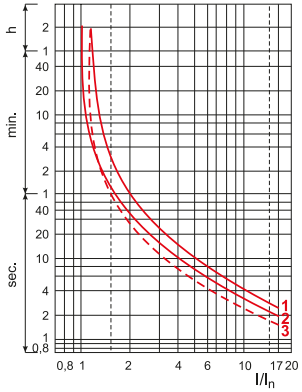
For currents between 40 and 95 A: reliable connection by distance holder clipped on the auxiliary rail. The rail can be fixed by screws onto the mounting plate at the bottom of the contactor.

Thermal overload relays

The electrical data of the relay contacts

U_i	U_{imp}	50/60 Hz	I_{th}	I_e	AC	[mm²]
690 V	6 kV		6 A	2 A	15	1-2,5

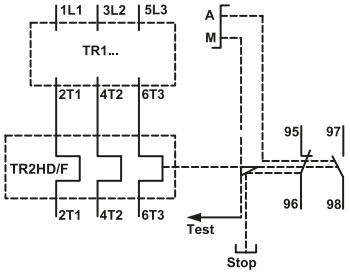
Pictograms I/O



	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.

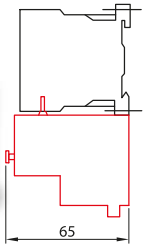


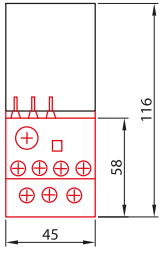
A: Automatic return
M: Manual return

For TR1K contactors

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

Pictograms I/O





TRACON	I_{th}	mm²
TR2HK0301	0.1 – 0.16 A	1.5 – 4
TR2HK0303	0.25 – 0.4 A	
TR2HK0306	1 – 1.6 A	
TR2HK0310	4 – 6 A	

For TR1D contactors

TRACON	Ith	mm²
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	
TR2HF2353	23 – 32 A	4 – 35
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	

Ui 690 V

Uimp 6 kV

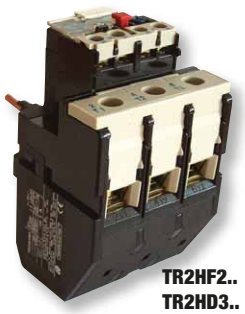
0-400 Hz

Ta -30..+55°C

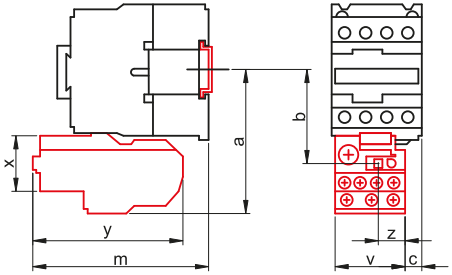
IP 20

Class Ir 10A

TR2HD1..



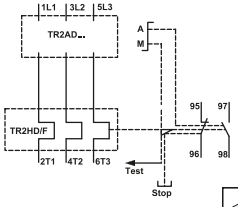
TR2HF2..
TR2HD3..



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		H L W
TR2AD1	TR2HD13..	46×78×86 mm
TR2AD3	TR2HF23..,TR2HD33..	73×103×120 mm



A: Automatic return
M: Manual return

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EN 60947-1

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EN 60947-4-1

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 TR1D type contactor and TR2HK type thermal overheat relay

M				Ith		
Pe (kW)	**Ie (A)**				**aM**	**gG (gL)**
0,1	0,4	**TR1D09**	**TR2HD1304**	0,4-0,63	2	4
0,3	1,0	**TR1D09**	**TR2HD1305**	0,63-1	2	4
0,4	1,0	**TR1D09**	**TR2HD1306**	1-1,6	2	4
0,8	2,0	**TR1D09**	**TR2HD1307**	1,6-2,5	4	6
1,1	2,6	**TR1D09**	**TR2HD1308**	2,5-4,0	6	10
1,5	3,5	**TR1D09**	**TR2HD1308**	2,5-4,0	6	10
2,2	5,0	**TR1D09**	**TR2HD1310**	4,0-6,0	10	16
3,0	6,3	**TR1D09**	**TR2HD1312**	5,5-8	10	16
4,0	8,5	**TR1D09**	**TR2HD1314**	7,0-10,0	10	20
5,0	11,0	**TR1D12**	**TR2HD1316**	9-13,0	16	25
7,5	15,5	**TR1D18**	**TR2HD1321**	12,0-18,0	20	35
9,0	18,0	**TR1D18**	**TR2HD1321**	12,0-18,0	25	35
11,0	22,0	**TR1D25**	**TR2HD1322**	17,0-25,0	25	50
15,0	32,0	**TR1D32**	**TR2HF2353**	23,0-32,0	40	63
15,0	32,0	**TR1D32**	**TR2HF2355**	28,0-36	50	63
18,0	40,0	**TR1D40**	**TR2HD3353**	23,0-32,0	40	63
18,0	40,0	**TR1D40**	**TR2HD3355**	30-40,0	50	63
22,0	44,0	**TR1D50**	**TR2HD3357**	37,0-50,0	63	80
25,0	57,0	**TR1D65**	**TR2HD3359**	48-65,0	80	100
30,0	60,0	**TR1D65**	**TR2HD3361**	55,0-70,0	80	100
37,0	72,0	**TR1D80**	**TR2HD3363**	63,0-80,0	80	125
45,0	93,0	**TR1D95**	**TR2HD3365**	80-93,0	100	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, evel 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!

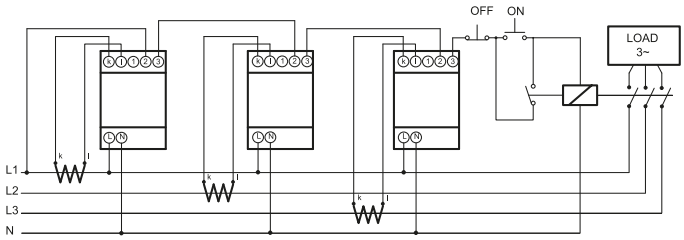
Marking of terminals	
L,N	Power supply
k;l	Terminals for CT
1	NO close contact
2	CO common contact
3	NC open contact

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, than 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.

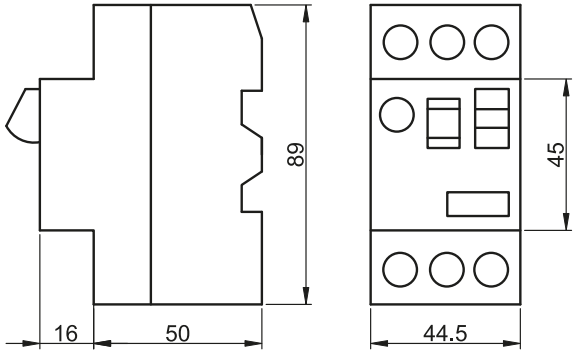


n		Ith min	Ith max	(A)					
				0,5	1	2	3	4	5
–	–	0,5 A	5 A	0,5 A	1 A	2 A	3 A	4 A	5 A
100/5A	**TR1E115**	10 A	100 A	10 A	20	40	60	80	100 A
120/5A	**TR1E115**	12 A	120 A	12 A	24	48	72	96	120 A
125/5A	**TR1E150**	12,5 A	125 A	12,5 A	25	50	75	100	125 A
150/5A	**TR1E170**	15 A	150 A	15 A	30	60	90	120	150 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 | Ui 690 V | Uimp 6 kV | 50/60 Hz | ×10^5 | ×10^5 | ON-OFF-ON... sc/h ×25 | AC 3 | IP 20 | Ta -25..+55°C | [mm²] 2×1-2×6 | Class Ir 10A | Pm 2,5 VA AC

TRACON	Ie	Pe	Im	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



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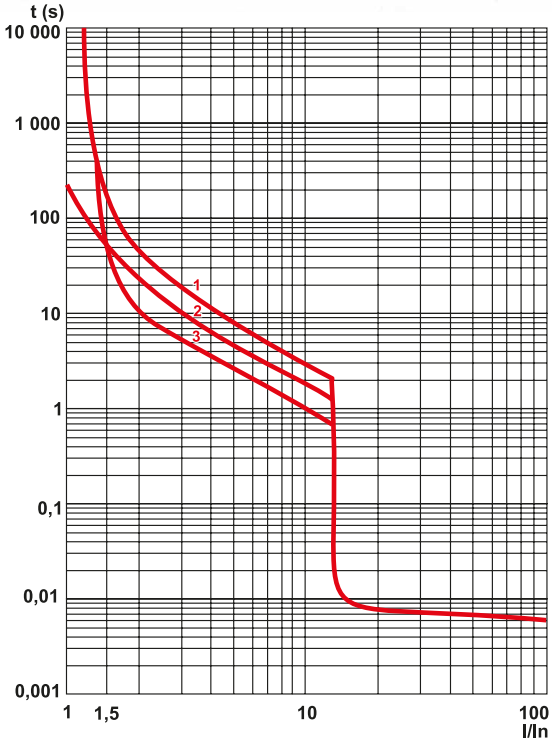
This equipment is meant for switching ON and OFF as well as for over-current protection of electric motors or other three-phase consumers. Breaking can be done by magnetic operation short circuit breaker or by thermal overload breaker.
The motor protective switch can be switched on and off by any hand-operated, 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 re-mote operation and use in different control systems.

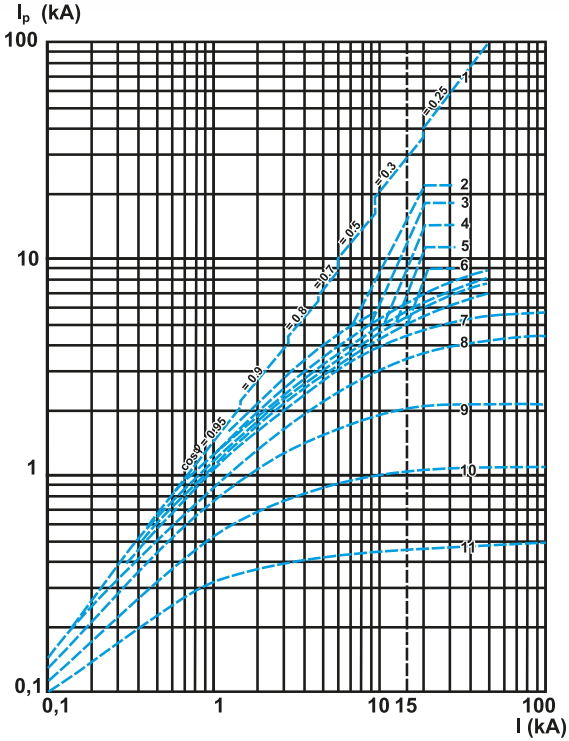
Tripping characteristic



Legend

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

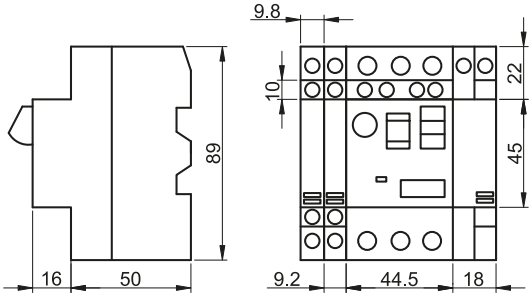
Current limit characteristic



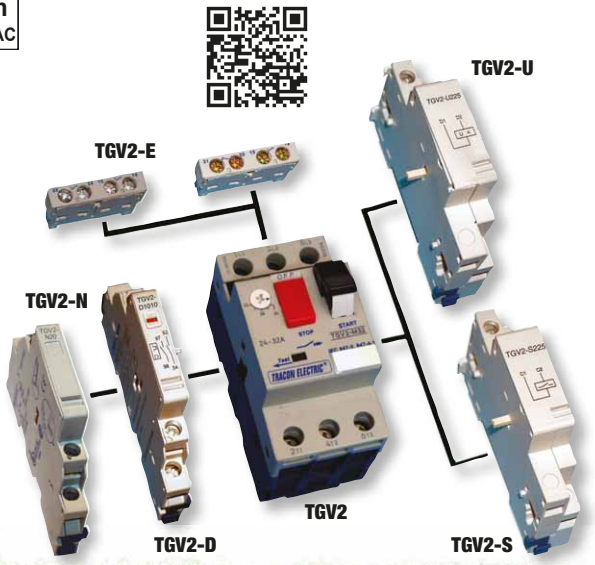
Legend

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



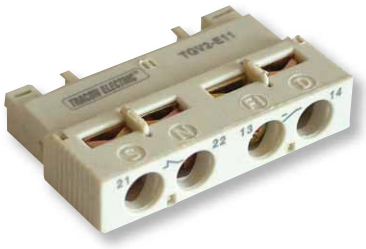
The motor protection switches with applicable accessories (breaking indicators, auxiliary contacts, breakers, enclosures, etc.) can be suitable for remote controlling and for installation in different controlling boxes. With using the enclosures the independent application of the switches is also possible,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

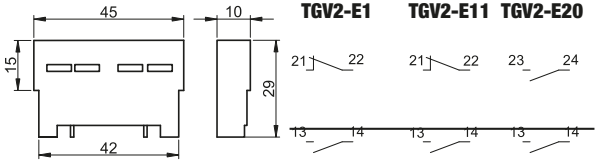


Front auxiliary contacts

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





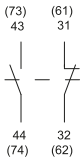
They inform about ON /OFF status of the motor protection switch. They help to handle actuating and signing tasks. The front auxiliary contact can be placed into its place after removing the front panel.

Side auxiliary contacts

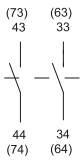
U_e (V)		24	48	110	230	400
I_e (A)	AC15	–	6	4,5	3	2
	DC13	6	5	1,3	0,5	–
I_{th} (A)		6 A				

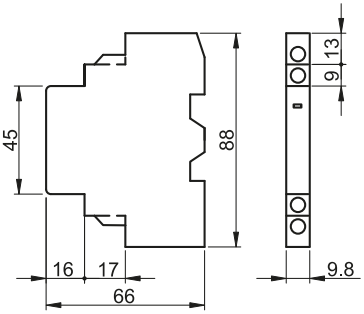
TRACON	NC / NO
TGV2-N11	1×NC +1×NO
TGV2-N20	2×NO

TGV2-N11



TGV2-N20





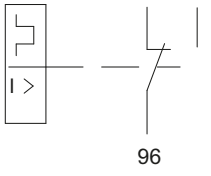
They inform about ON /OFF status of the motor protection switch. They help to handle actuating and signing tasks.

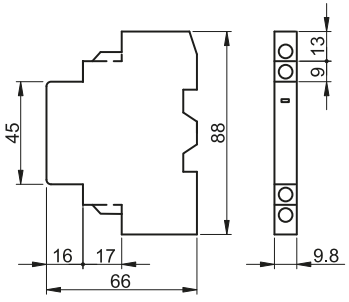
Short-circuit breaking indicator

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

TGV2-M11

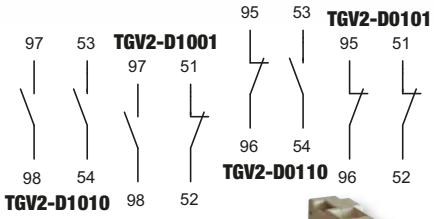




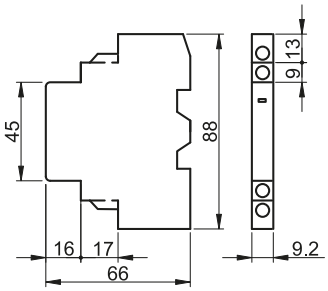
This indicator inform about any failure of the protected motor (short-circuit, overload).

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



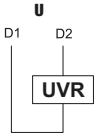
		AUX						
U_e (V)		24	48	60	24	48	230	400
I_e (A)	AC15	1.5	1	–	–	6	3	2
	DC13	1	0.3	0.15	6	5	0.5	–
I_{th} (A)		2,5 A			6 A			

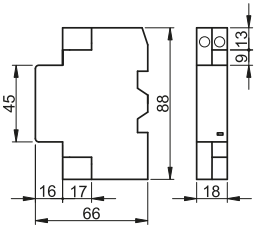


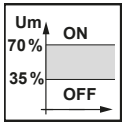
Voltage decrease breakers

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.



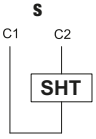


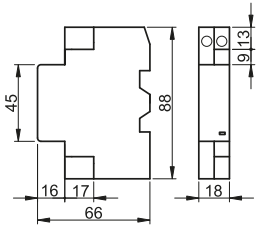


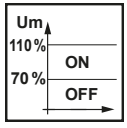
Working current breakers

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-T2	IP 55