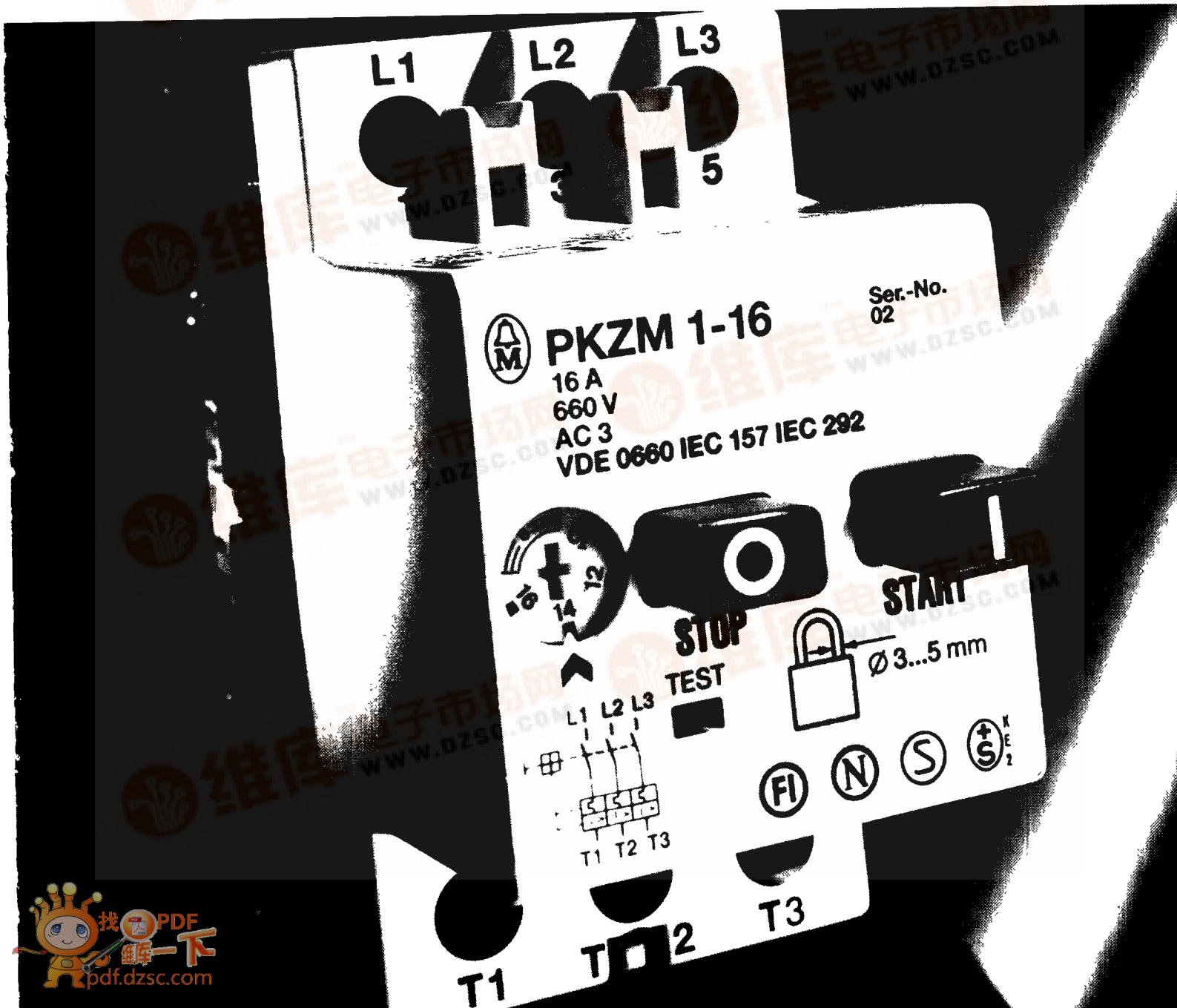
Klockner MOELLER

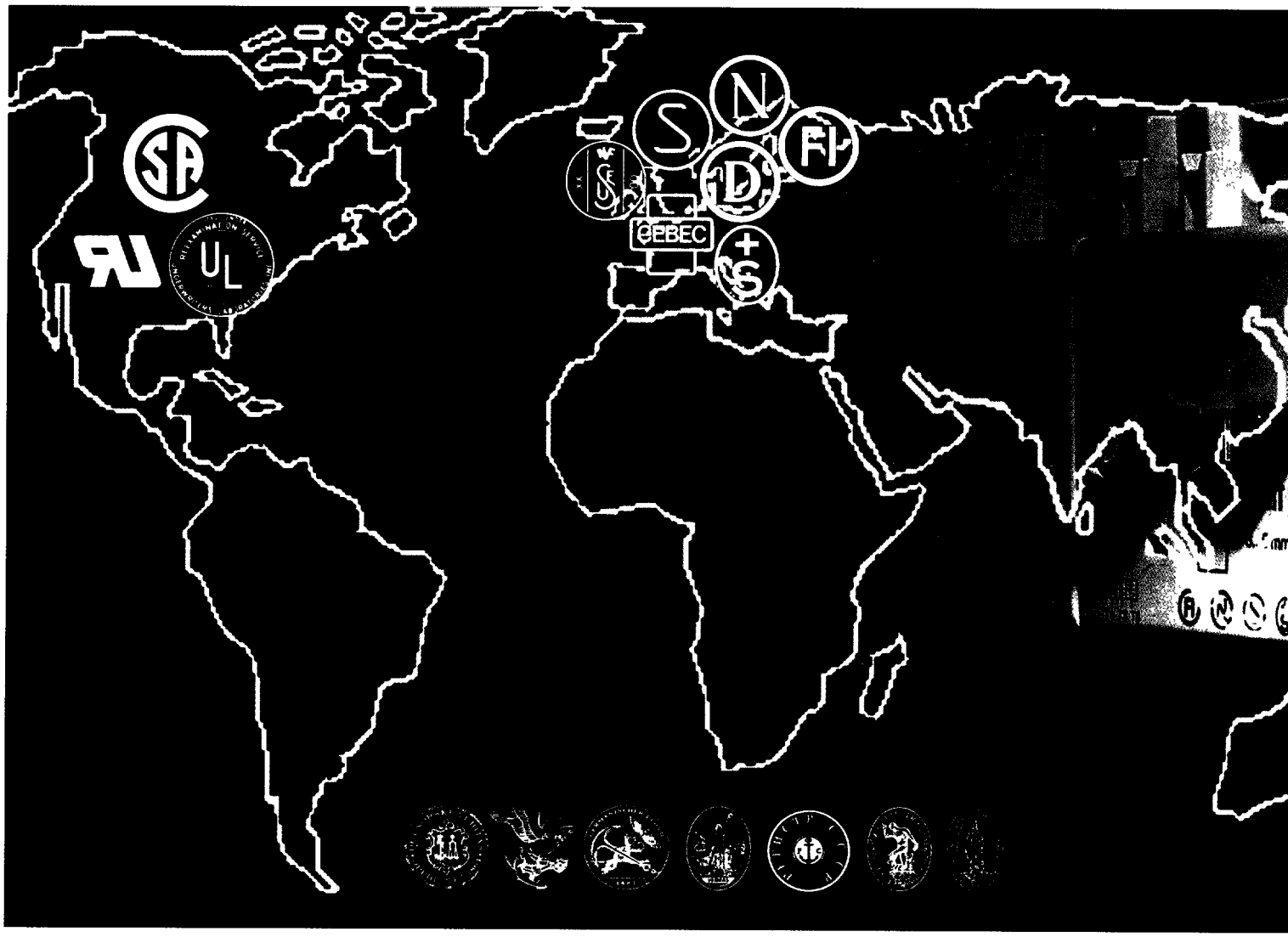
175-341 To 175-352
176-593, 176-594
178-695, 178-699

PKZM 1
Manual Motor Starters

Devices for world markets



PKZM 1 Approvals – the Passport to Int



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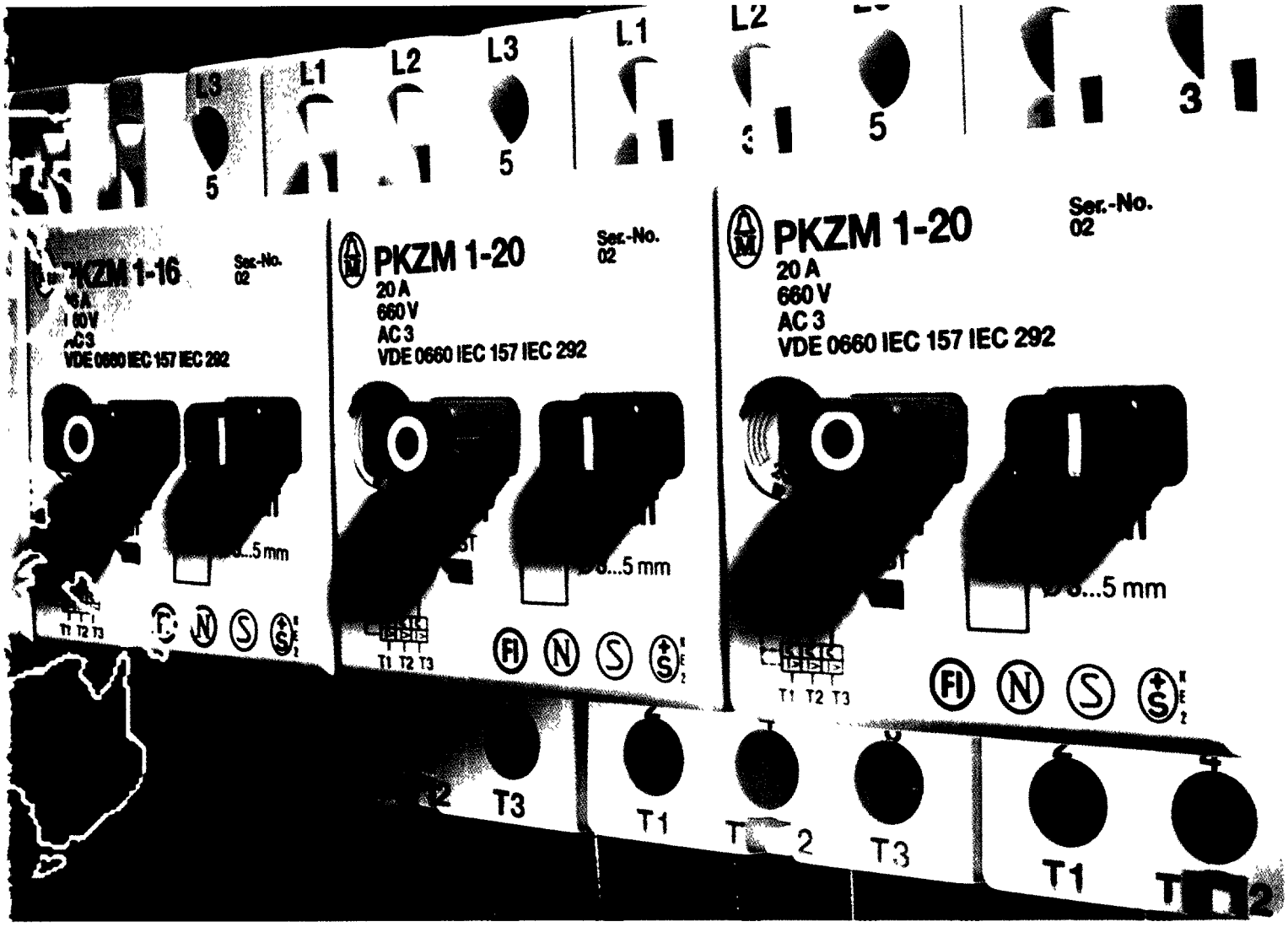


Devices for world markets

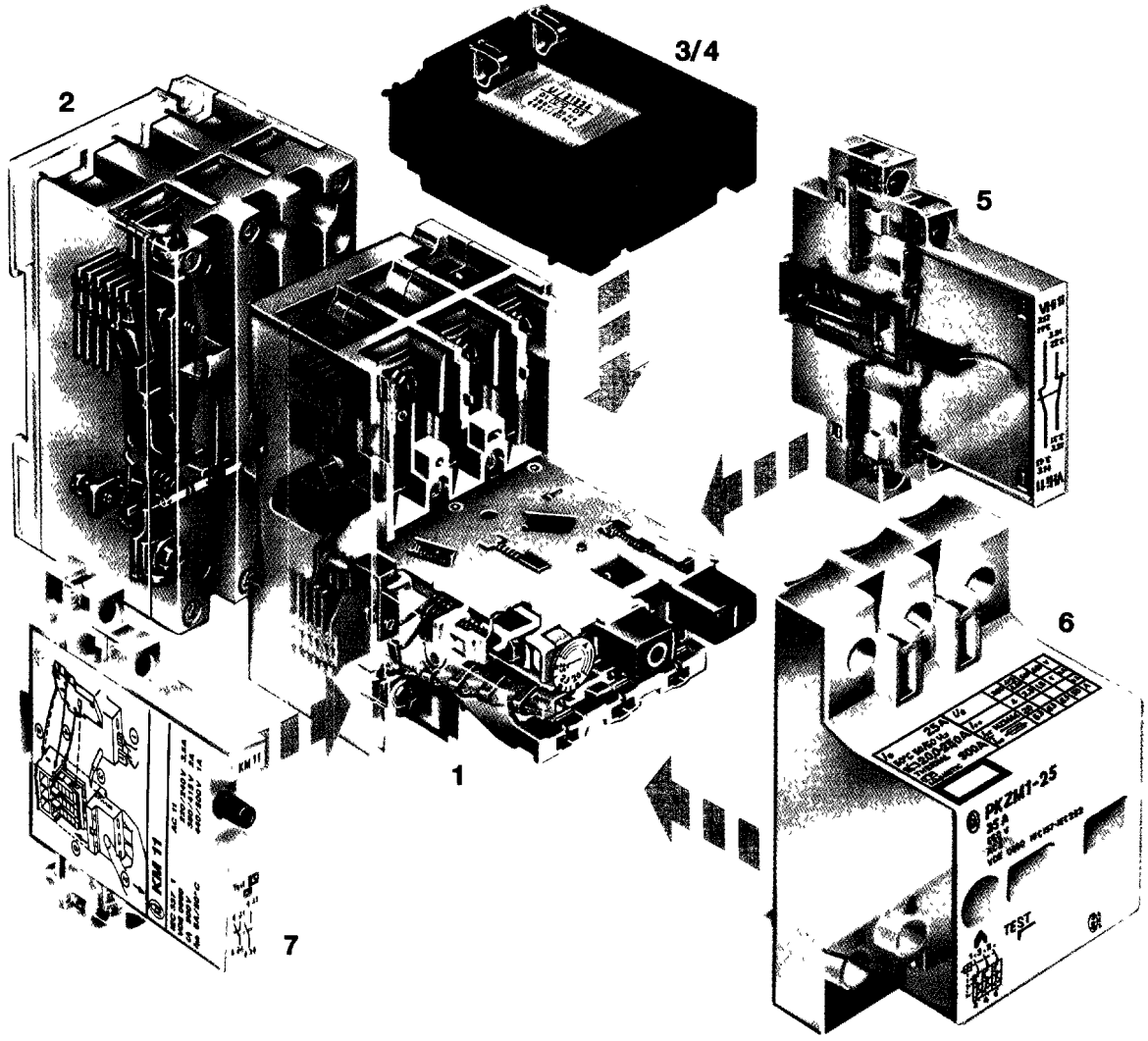
such as Klockner-Moeller's PKZM 1 manual motor starters can be used all over the world. They have approvals covering all countries and are given approval marks during manufacture.

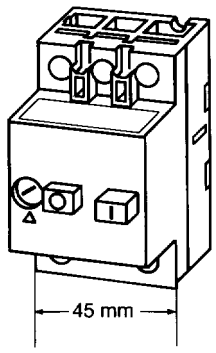
Flexible design and reliability – into the future.

For national and international companies – the PKZM 1 manual motor starter provides an excellent basis for operational reliability.

approval

PKZM 1 – The System for Optimum So





PKZM 1 dimensions
to EN 4380
a = 2½ times the
width of a miniature
circuit-breaker (17.5 mm)

1
Protective module
PKZM 1 manual motor starter
With single-phasing sensitivity
to IEC 292

2
CL-PKZM 1 current limiter
To increase switching capacity up
to 50 kA at 380 V

3
Voltage release
As a) undervoltage release
or b) shunt release

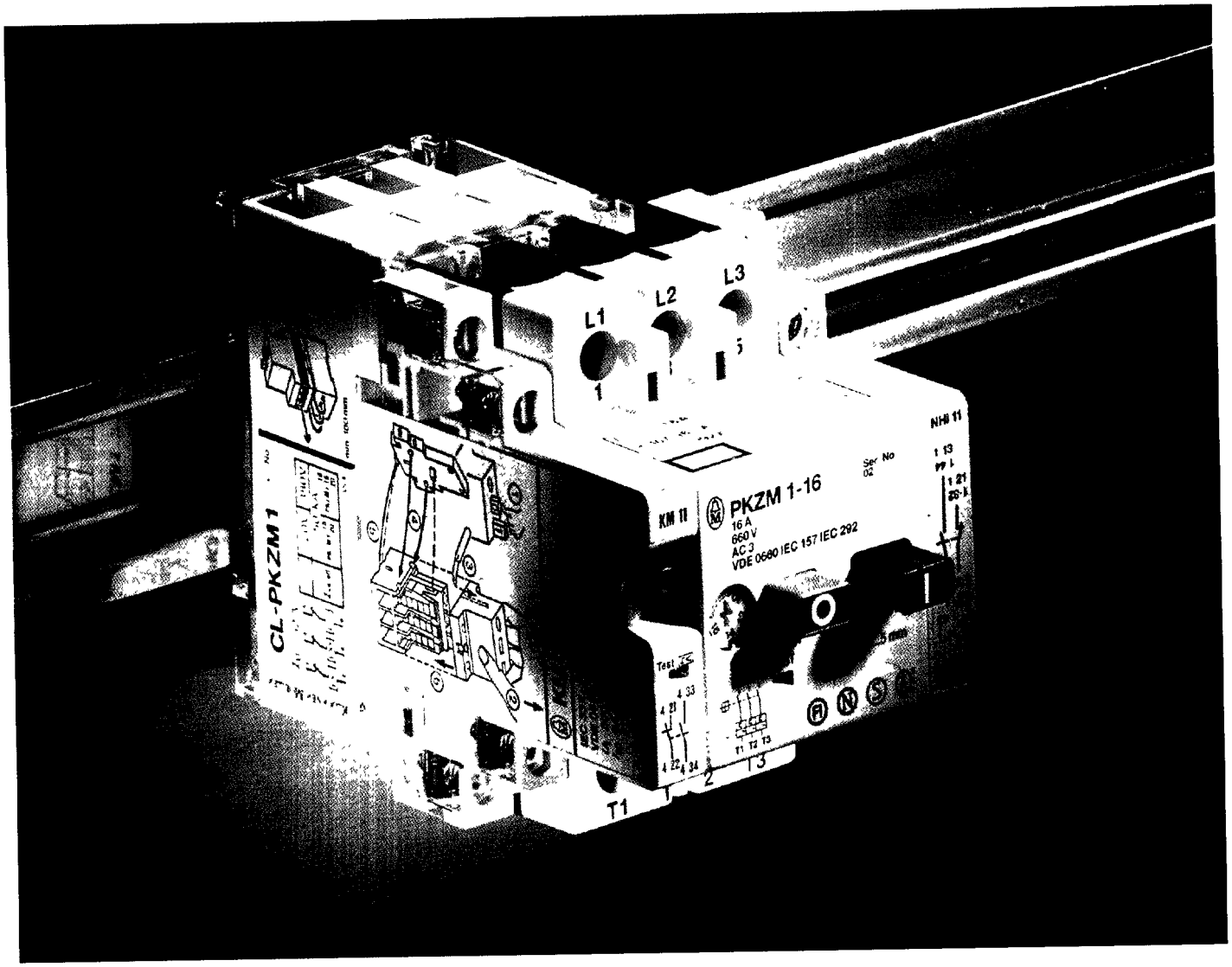
4
Trip-indicating auxiliary contacts
For trip indication

5
Auxiliary contacts
For indication of operational states and
for visual or audible signals; can be
fitted on both sides of the PKZM 1

6
Shroud
With rating labels for application
worldwide (including Canada and USA)

7
Short-circuit indicator
For clear fault indication

utions



Over 50 years of experience have gone into this protective switch

The PKZM 1 system provides effective motor protection.

- In the event of an overload
Reliable protection of motors, cables, etc. by means of thermally delayed overload releases.
Disconnection in all poles.

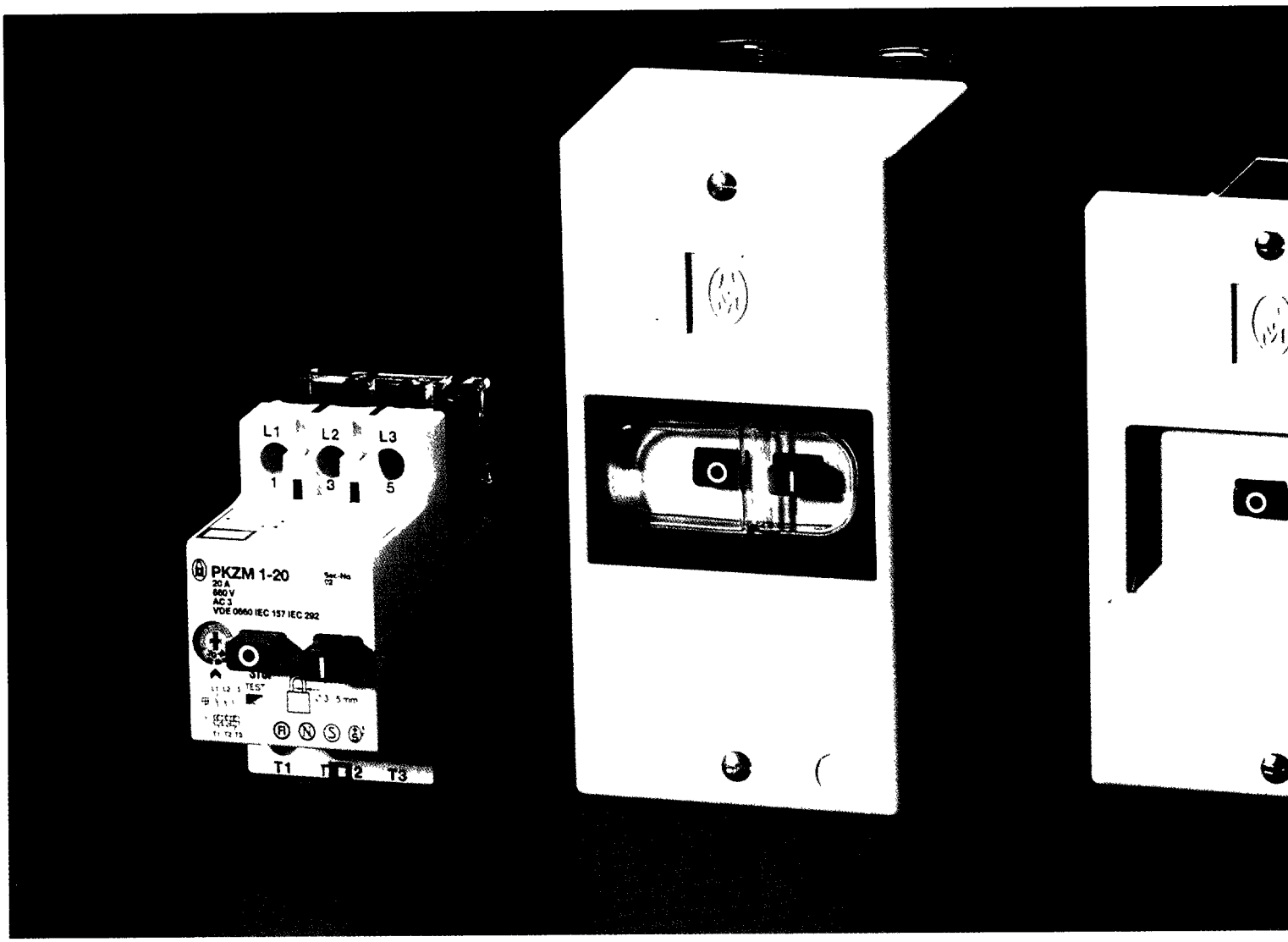
- In the event of short-circuits
Effective protection by means of current-limiting contact system with instantaneous short-circuit releases.
Disconnection in all poles.

The cap dimensions and compact construction of the PKZM 1 make for straightforward mounting (e.g. alongside miniature circuit-breakers).

All versions of the PKZM 1 can, of course, be fitted in individual enclosures, or in control panels and distribution boards.

A large number of accessories permits cost-effective realization of standard and more specialized applications.

PKZM 1 Basic Device – More than Just



The PKZM 1 basic module:

- The operational state is clearly indicated by the dual push-button system (even with mechanically blocked contacts)
- Single-phasing sensitivity (to IEC 292-1)
  – Important for EExe explosion-proofed motors
- Temperature compensated overload releases from –5°C to +40°C (IEC 292-1) guarantee high tripping accuracy
- Test facility (checks switching operation and trip-indicating auxiliary contacts)
- Can be fitted into distribution boards and control panels with no need for any further protection against direct contact
- High mechanical shock resistance
  – Many possible applications
- Excellent connection facilities
  – Open terminals
  – Wire entry guide
  – Screwdriver guide
  – Self-clamping terminals on voltage releases and trip-indicating auxiliary contacts
- Snap-on fit on top-hat rail (35 mm), or optional screw fitting
- IP 20 degree of protection (includes protection against direct contact to VDE 0106 Part 100)
- Standardized cap dimensions and compact design permit mounting in

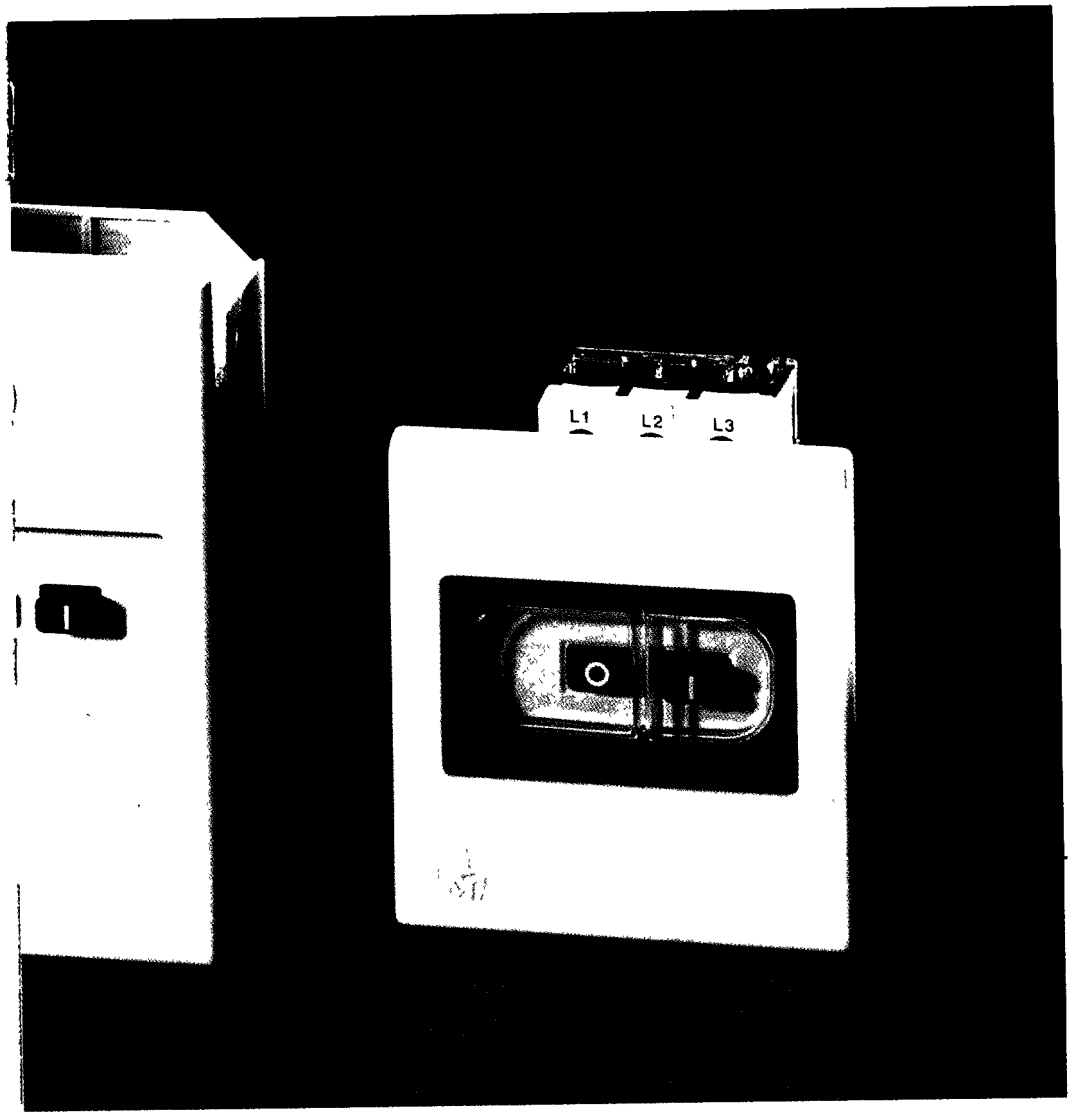
1
PKZM 1 basic unit

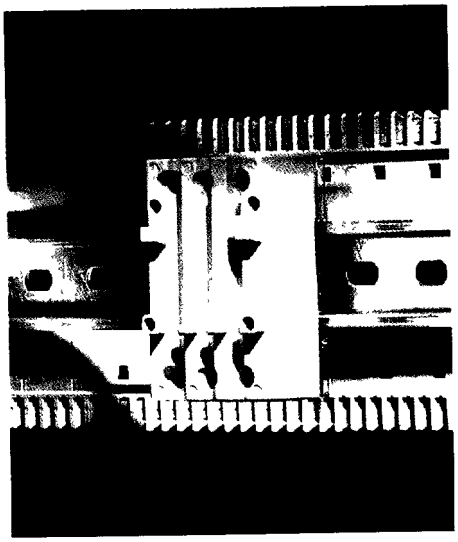
2
Surface-mounting enclosure
For mounting on walls, machines, etc.

3
Flush-mounting enclosure
For fitting in cavities

4
Rear-mounting enclosure
For fitting in control panels, for example

One Step Ahead





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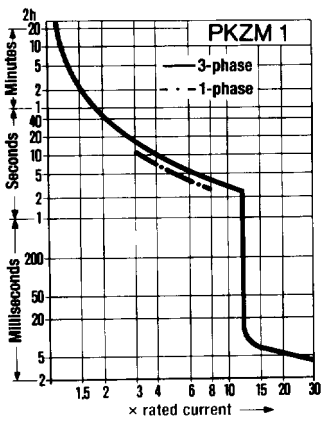


The characteristic curve shows the tripping time of the starter in relation to the operating current. Mean values of tolerance bands at 20°C ambient temperature from a cold start
At operational temperature, the

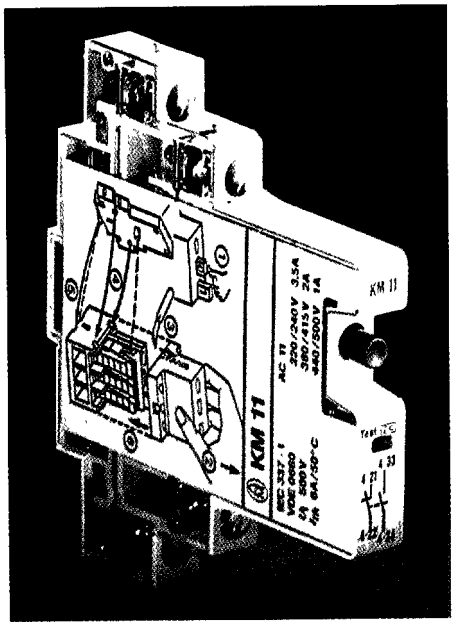
CL-PKZM 1 current limiter

5

The CL-PKZM 1 current limiter, with its three independently operating repulsion contacts, is connected in series with the main contacts of the PKZM 1. In the event of a short-circuit, both contact systems open, with the PKZM 1 providing maintained isolation. The contacts of the current limiter close again.

- High switching capacity PKZM 1 + CL: up to 50 kA at 380 V (results from the rapid current-limiting action in the CL module and the reduction in arcing time caused by the additional isolating clearance during the arcing phase).
- Used in three-phase systems, when the rated making capacity I_{cn} of the PKZM 1 is lower than the prospective short-circuit current I_{cc}
- Three-phase commoning links for grouping of incoming supplies
- Can be clipped onto a top-hat rail or screwed directly onto a mounting plate by means of the integral screw fixing
- Simple wiring and snap-fitting of the PKZM 1
- Finger-proof terminals; the wiring from the CL to the PKZM 1 is led through channels, which helps to save space (Figure 6)

PKZM 1 – Clearly More Information



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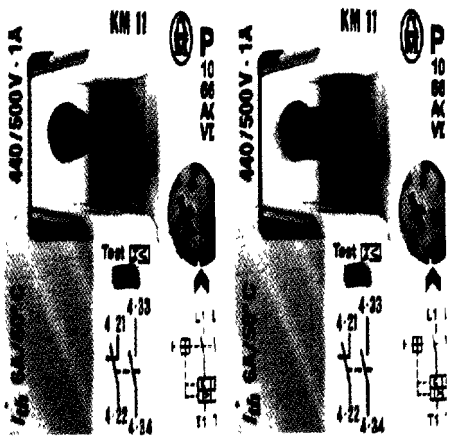

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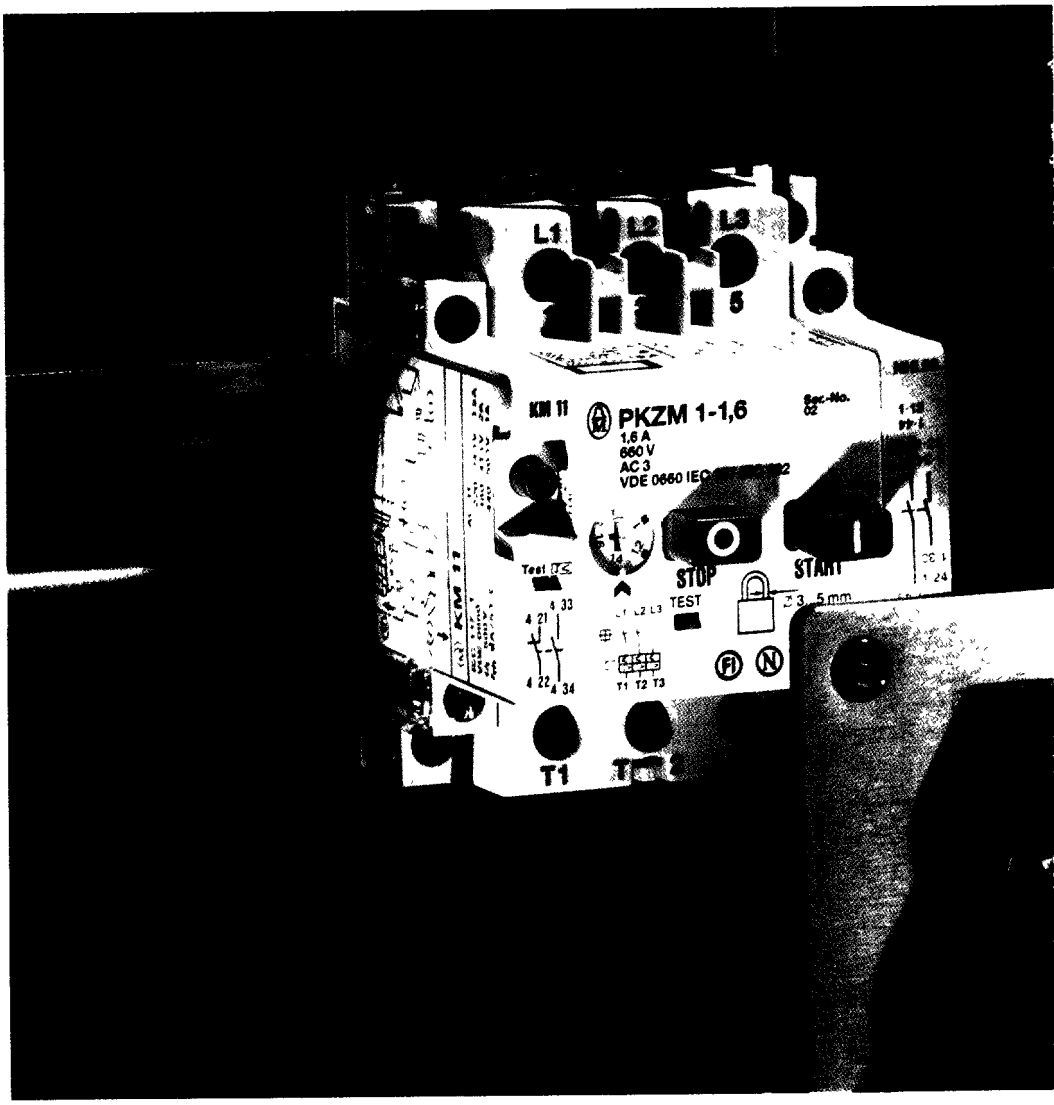


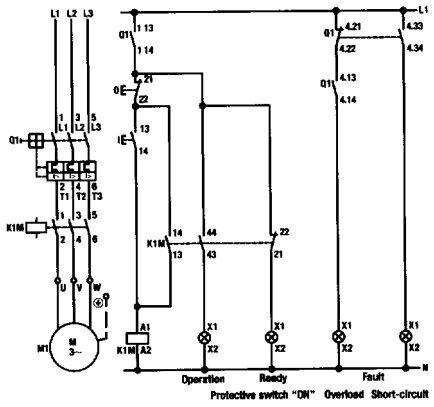
Convenience through clear indication

1

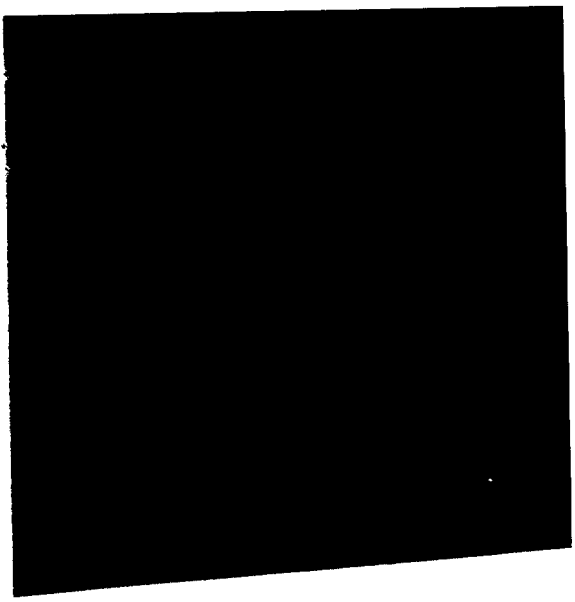
The PKZM 1 shows the operational state, indicates the tripped condition and quickly provides information on the cause for tripping.
Short-circuit indications can now be given locally as well as remotely.

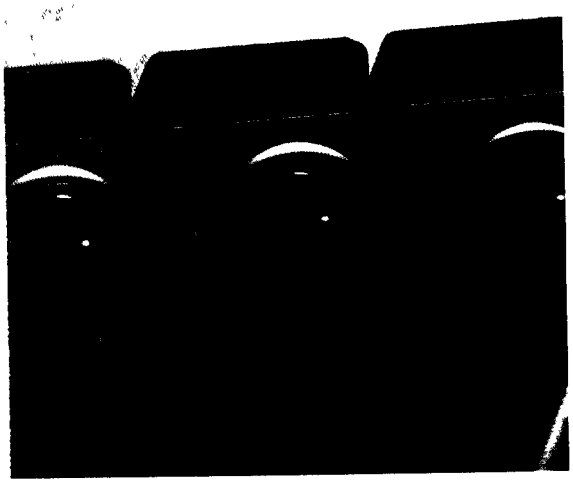
2

- The operational state is clearly indicated by the dual push-button system (with test facility)
- Auxiliary contact modules, indicator lights and trip-indicating auxiliary contacts show the operational state or the tripped condition both locally and centrally by means of visual signals
- The cause is indicated in the central control room
- Quick local identification of the cause is also available now: the KM11 PKZM 1 short-circuit indicator indicates the short-circuit on the protective switch (with test facilities and manual reset)

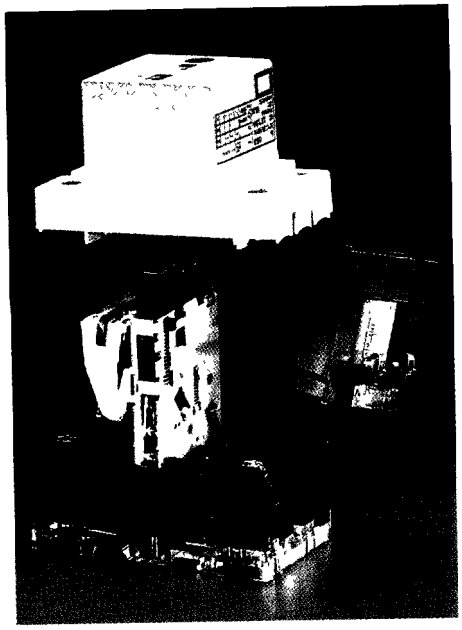


PKZM 1 with undervoltage release supplied via VHi early-make auxiliary contact, and with visual indication of operational and tripped states.





Push- and latch-feature.
The simple system
for the PKZM 1
and all components.



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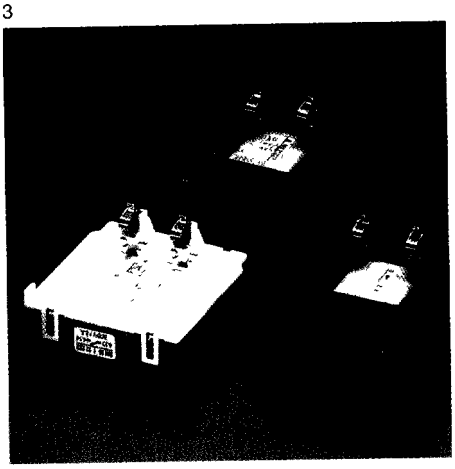

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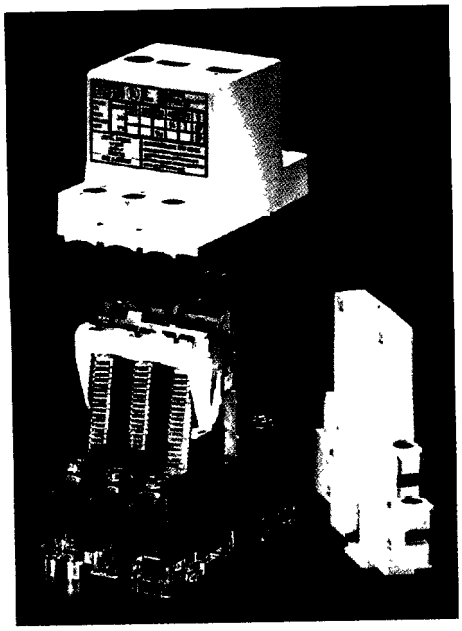

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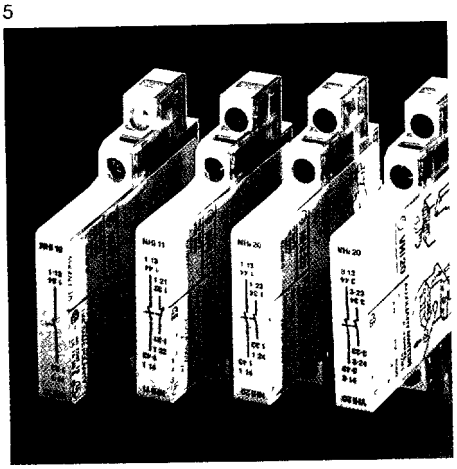


6

3

Releases/indicators

- Remove shroud
- Slide module onto guide-rail at the bottom
- Latch module into position at the top
- Replace shroud

4

Releases/indicators
For fitting under the shroud of the PKZM 1 basic device

U-PKZM 1 undervoltage release
Designed for 100% DF

A-PKZM 1 shunt release
Designed for 100% DF

RHi 10/RHi 01 trip-indicating auxiliary contacts

5

Auxiliary contact units

- Remove shroud
- Push lugs of the auxiliary contact unit into openings at the sides of the PKZM 1
- Latch in auxiliary contact
- Replace shroud

A maximum of two auxiliary contact units (six contacts) can be fitted in the PKZM 1; these can be fitted on either side.

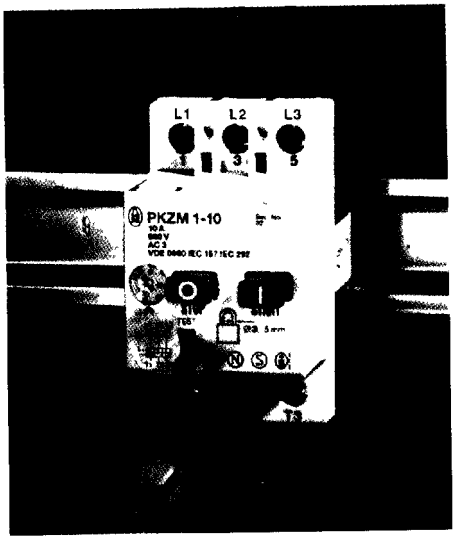
6

Auxiliary contacts
For fitting on either side of the PKZM 1 enclosure

NHi
For indication of operational states

VHi
For indication of visual and audible

PKZM 1 – For Safety's Sake



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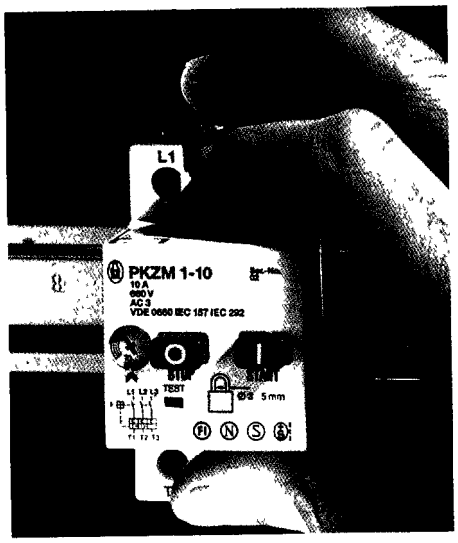

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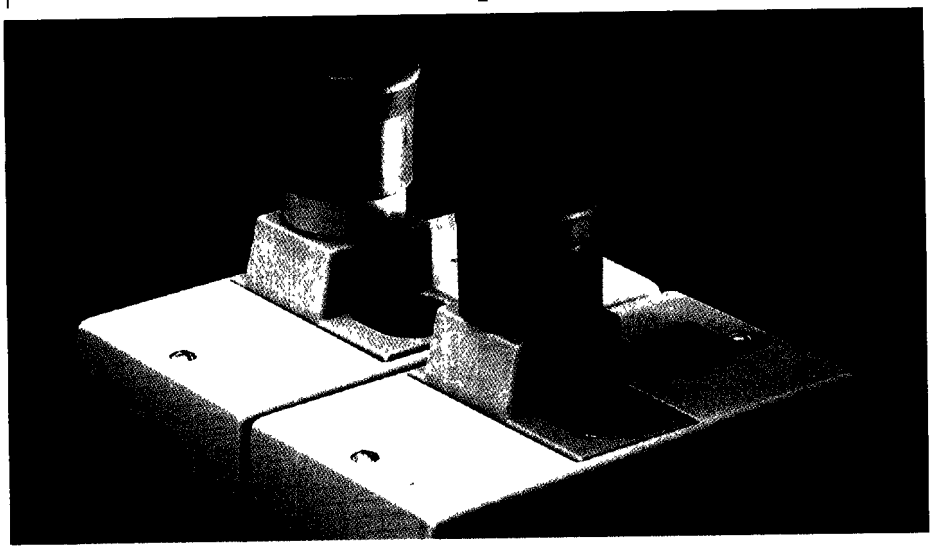
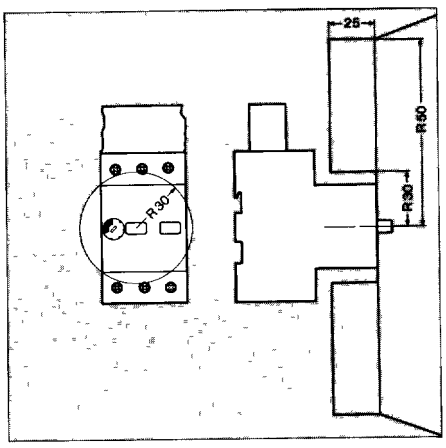


3

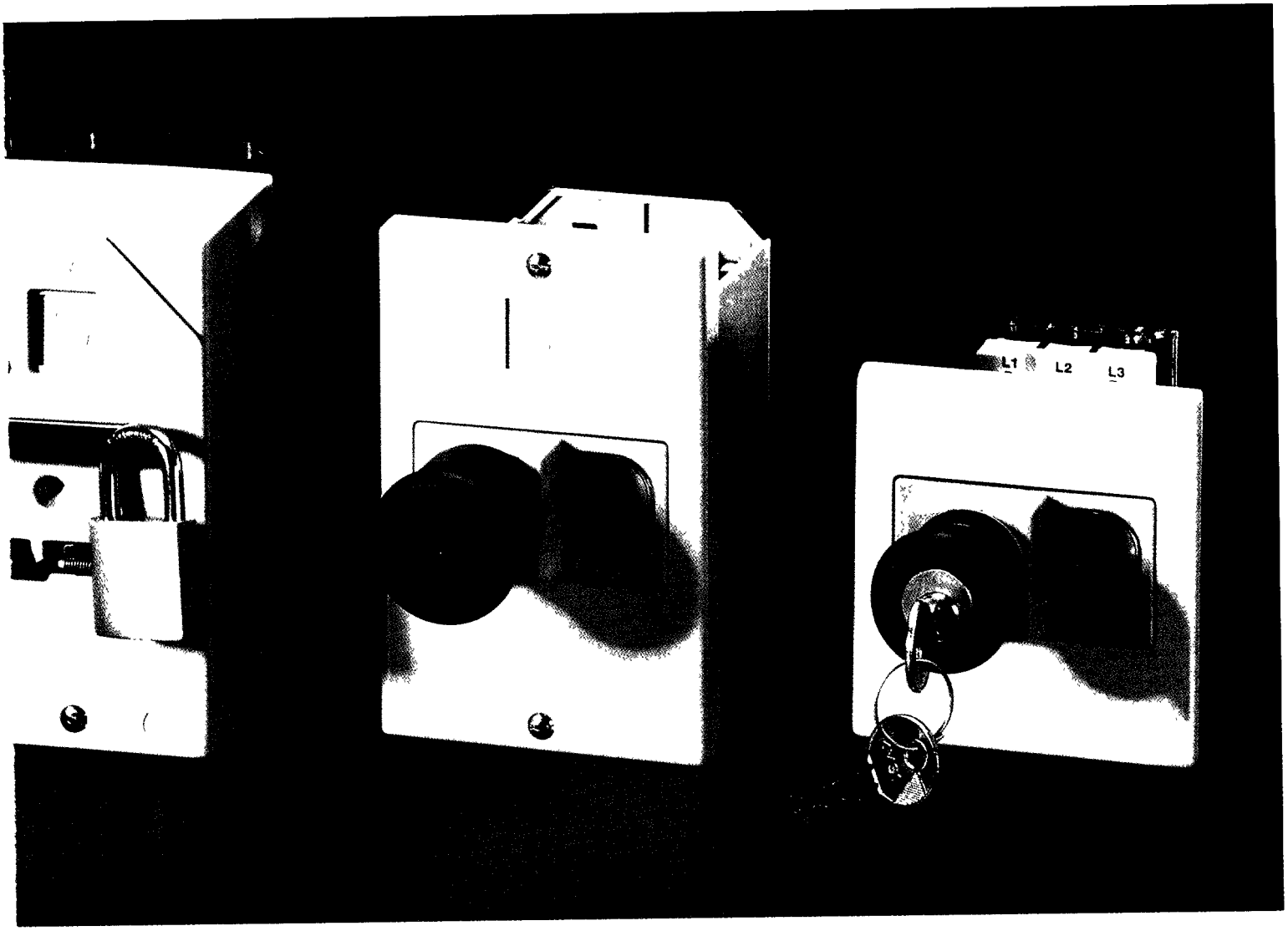
1
The switch mechanism can be tripped mechanically to test the operation of the trip-indicating auxiliary contact

2
Protection against direct contact to VBG 4
a) Finger-proof area
b) Back-of-hand-proof area

3
The latched mushroom button must be released intentionally before it can be reset (motor protection and emergency-stop)



VDE 0106 Part 100 specifies a finger-proof area of 30 mm radius around a push-button. The PKZM 1 provides more With IP 20 degree of protection, the PKZM 1 offers safety all-round to IEC test fingers. This means more safety for the user



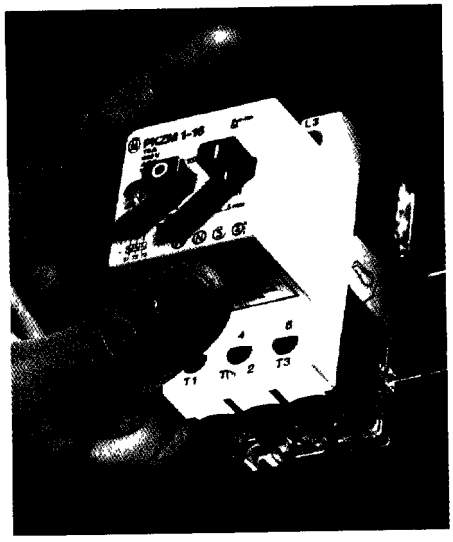
Safely locked up:

4
Securing the "Off position"
By fitting a padlock directly onto the button system.

5
Main switch
Conforming to IEC 204-1
Isolating characteristics to IEC 408. Off position can be locked by fitting a padlock (to enclosure).

6/7
Emergency-stop device
Conforming to IEC 204-1. Stopping by means of emergency-stop button in case of danger. The mushroom button latches in and can be released by pulling or by means of a key.

PKZM 1 – Every Option with Simple Ins



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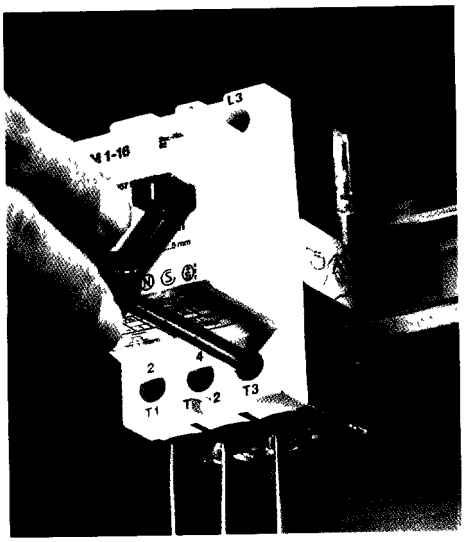

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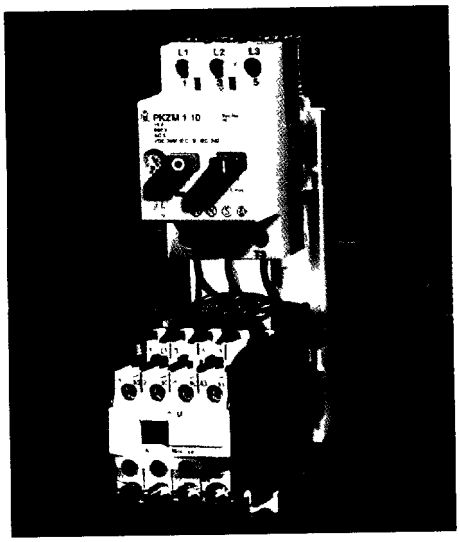

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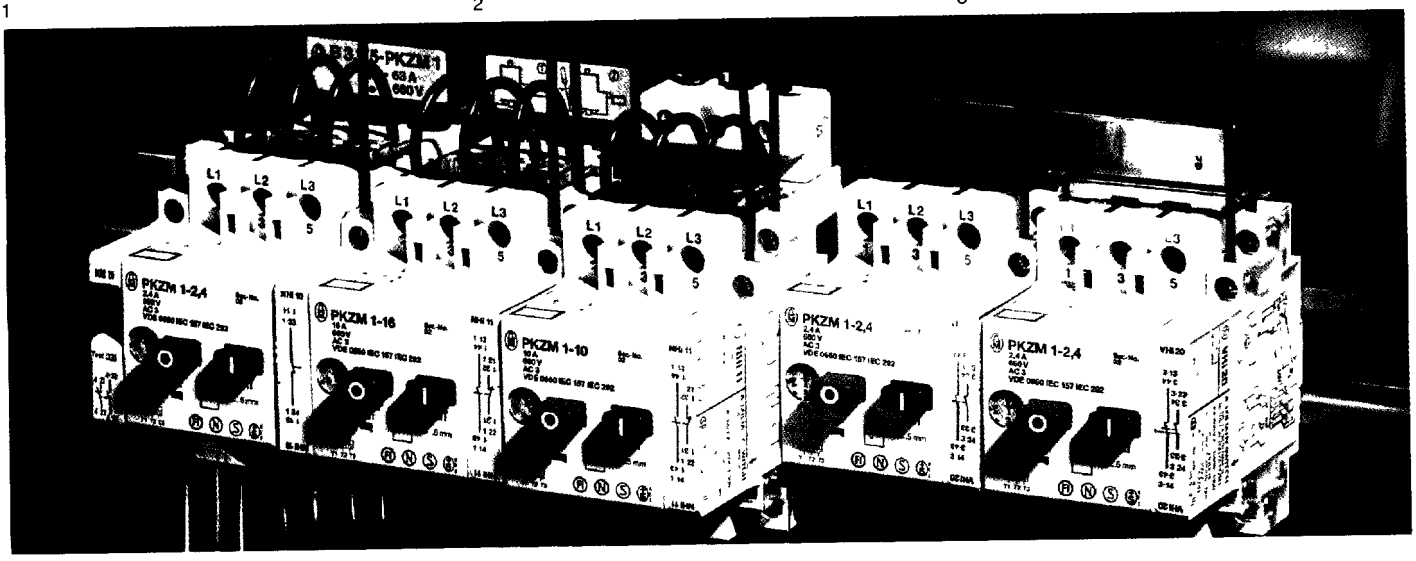

4

1
Clip-on or screw fixing – it's up to you

a) Clip-on technique for mounting onto top-hat rail

b) Integral screw fixing, for fixing to mounting plate

2
Sound connection guaranteed:

Wire entry guides and open screw terminals make for quick wiring

a) Entry guide = screwdriver guide
b) Open screw terminals; clamping washers have collars to prevent wires pulling out

3
Motor starter combinations

The main circuits are pre-wired. The combination is a snap-on fit on top-hat rails to EN 50022-35, but, using a busbar adapter, it can also be fitted directly onto busbars.

4
B3-PKZM 1 three-phase commoning link

The incoming supplies of several PKZM 1 manual motor starters can be connected as a group using this busbar link. Ready-cut links (for four PKZM 1 or five PKZM 1) reduce the wiring and fitting time for switchgear assemblies and control panels to a minimum.

- The incoming supply can be connected at any point and does not take up any additional space.
- The entire commoning link can be removed without being dismantled, as the end covers on the commoning link prevent the terminal lugs from being inserted too far.
- The commoning link and incoming terminal are reliably protected against direct contact.

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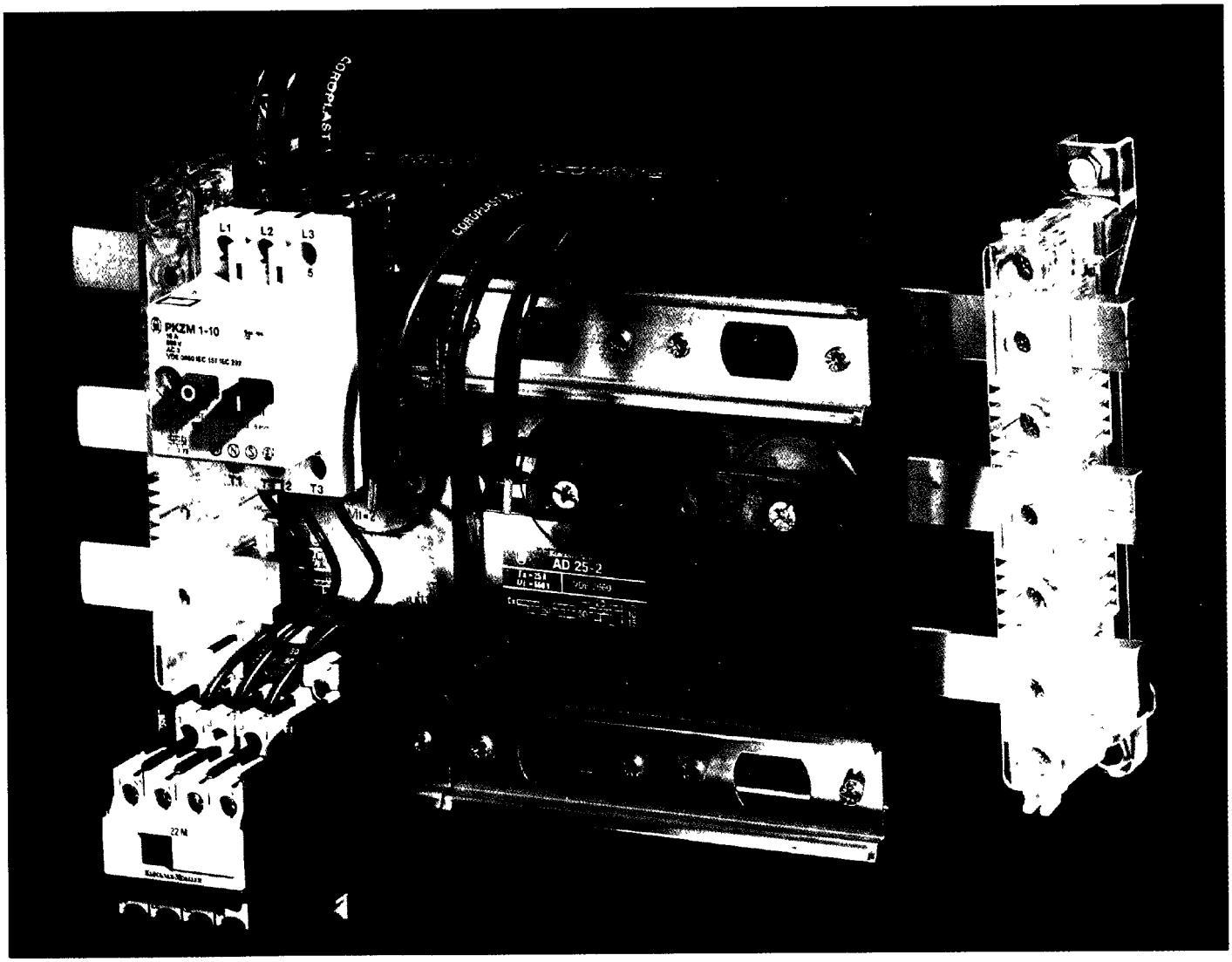


5

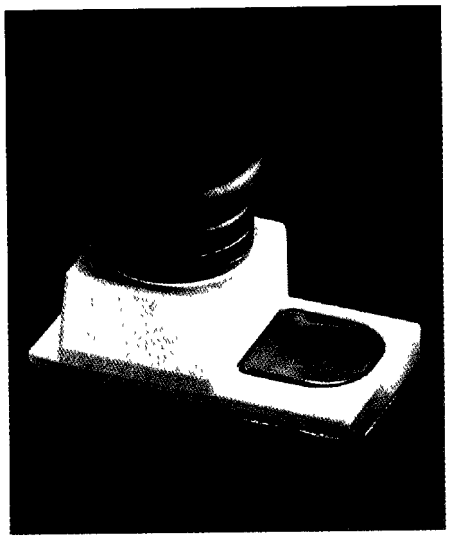
5

AD 25-1 (2) Busbar adapter

This adapter makes it possible for the PKZM 1 and the motor starter combination to be snap-fitted directly onto busbars with a cross-section of $20 \times 5\ mm^2$ (10, 15) at intervals of 50 mm.

- N(V)Hi auxiliary contacts can also be fitted.

With a Complete Range of Accessories



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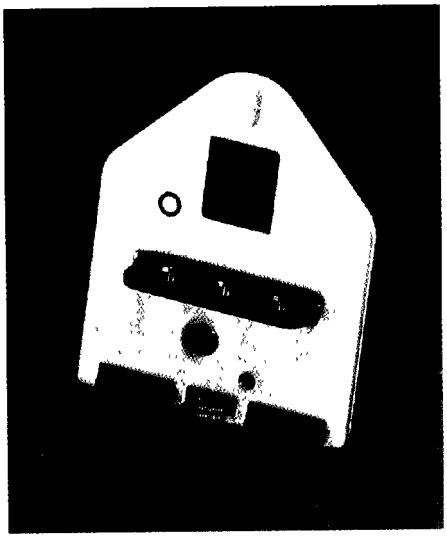

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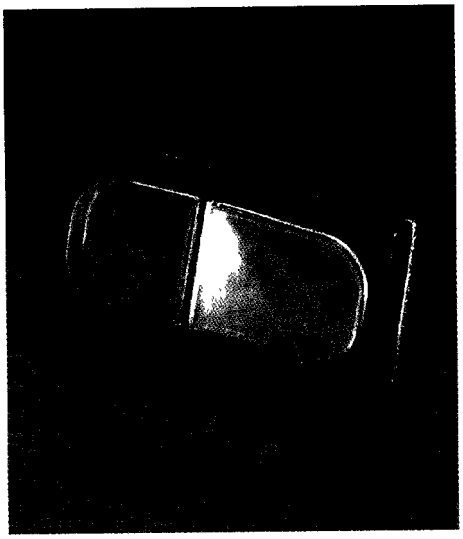

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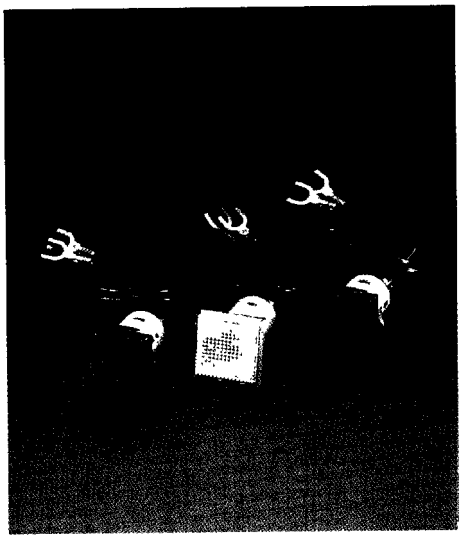

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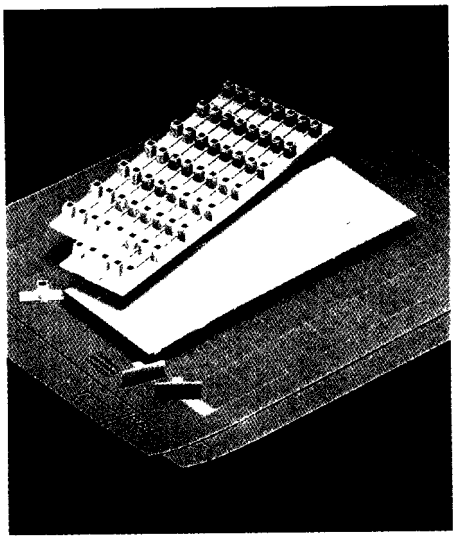

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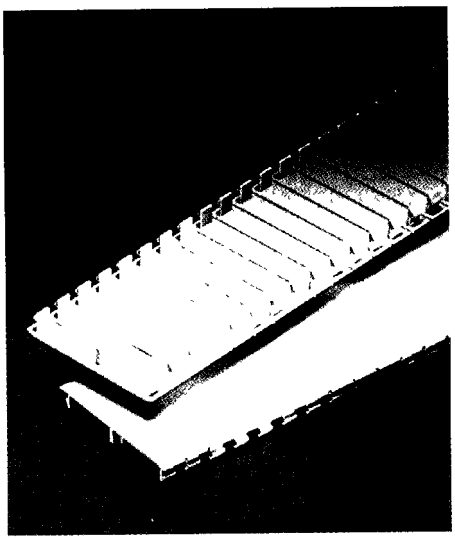


6

1

Emergency-stop mushroom button

With interlock and locking facility/IP 55 (used in conjunction with surface-mounting or flush-mounting versions)

2

Padlocking feature

(Used in conjunction with version "i", "e", "z"). Permits use as maintenance switch

3

Push-button diaphragm

(Used in conjunction with version "i", "e", "z") IP 55 degree of protection, for reliable operation in severe environmental conditions

4

Indicator lights

(Used in conjunction with version "i", "e") for additional indication of operational state

5

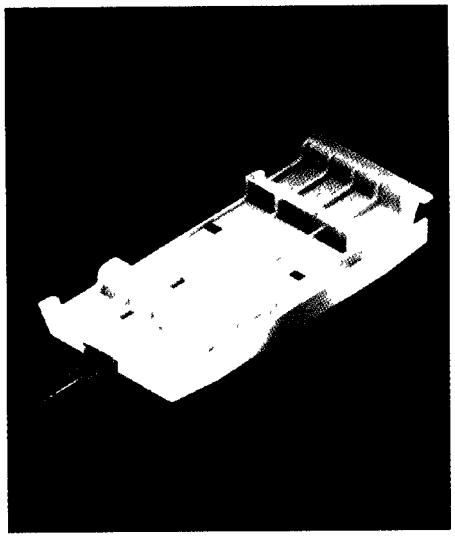
Component labelling system

For quick and easy identification

6

Blanking plates

Practical aids for the user



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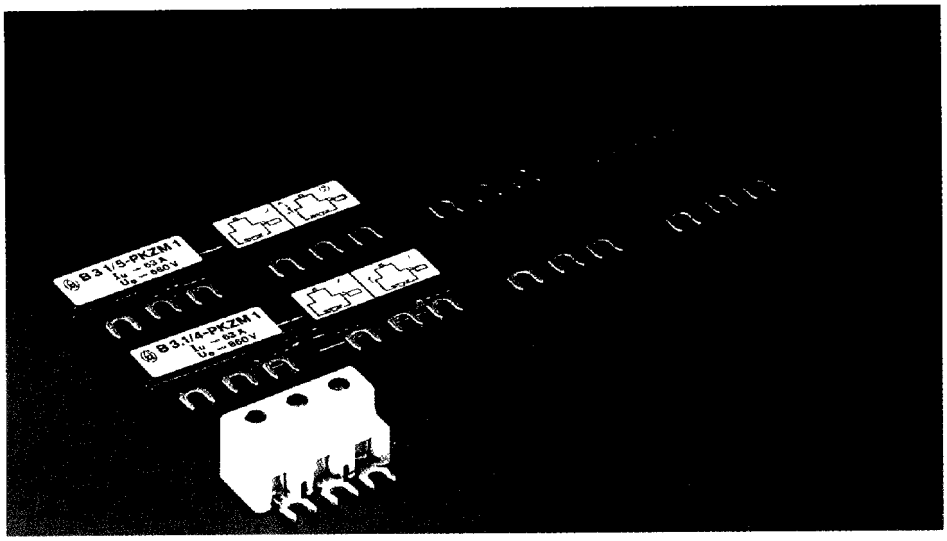

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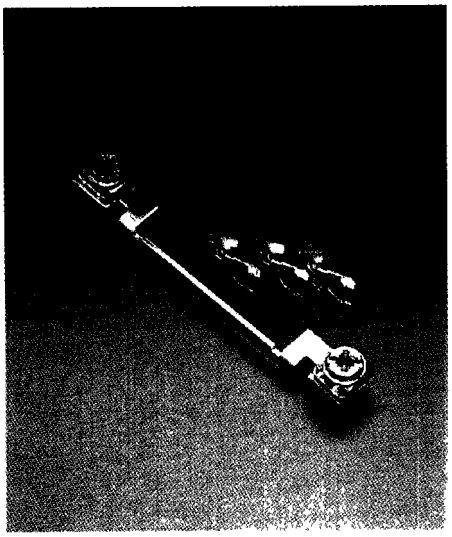

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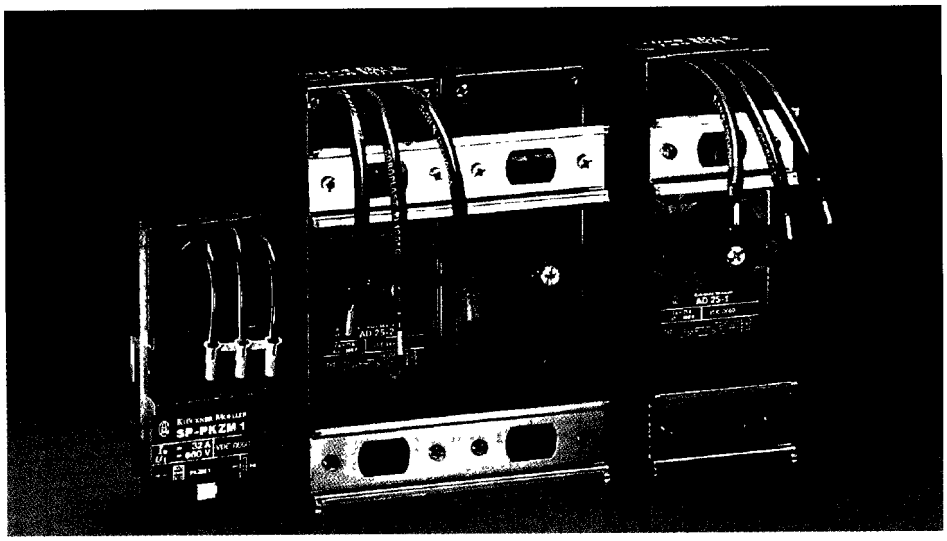

11

7

Adapter plate

For combining contactor and manual motor starter. Snap-on fit on top-hat rail to EN 50 022-35, or latch directly onto busbar using a busbar adapter

8

Fifth conductor

Simple fitting (in conjunction with version "i", "e"), does not impair performance with fitted auxiliary contacts

9

Fast-on connector for blade terminals

Permits the use of standardized, prefabricated cables

10

Three-phase commoning link

210 mm length for four PKZM 1 or 275 mm length for five PKZM 1; for speedy and economical connection of several PKZM 1 manual motor starters with space-saving 25 mm^2 extension terminal

11

Busbar adapters

For fitting on busbars in distribution boards and control panels

Technical Data

PKZM 1 manual motor starter

General

■ Specifications	IEC, BS, UL, CSA, VDE, SEV, UTE, ÖVE, AEI, NBN, DEMKO, NEMKO, SEMKO, Finland

Main contacts

■ Rated insulation voltage U_i Insulation group C/VDE 0110	660 V
■ Uninterrupted current I_u = rated operational current I_e	Setting of overload releases in A
Frequency	40–60 Hz
Contact lifespan to AC-3 at max. rated operational current I_e	0 1 × 10^6 operations
■ Current heat losses (3 contacts, uninterrupted current I_u)	6 W

Releases

■ Adjustable overload releases		Total range 0 1-25 A	
■ Short-circuit releases		~ 12 × I_e	I_e = rated operational current
■ Undervoltage releases	(pick-up 80% U_n drop-out 70 . 35% U_n)	3/2 (100% DF) VA/W	= upper value of overload release setting range
■ Shunt releases	(pick-up 70% U_n)	3/2 (100% DF) VA/W	
■ Temperature compensation		–5 to +40°C min./max. to IEC 292-1	
■ Single-phasing sensitivity		To IEC 292-1	
■ Protection for EExe motors		PTB certification	

CL-PKZM 1 current limiter with SEV approval Ⓢ

■ Rated breaking capacity of the combined unit P-1	See table below
■ Uninterrupted current I_u	32 A
■ Max let-through current	6 kA
■ Max. time of current flow t	3 5 ms

Allocation of current limiter to manual motor starter

Manual motor starter Setting range A	U_e → I_{cn} Type	$I_{cn\ eff}$ with CL current limiter 220/240 V kA	380 V kA
0 1- 0.16	PKZM 1- 0.16	No protective device required Inherently short-circuit-proof ranges	
4 0- 6.0	PKZM 1- 6		
6 0-10.0	PKZM 1-10		**50**
10 0-16 0	PKZM 1-16	**100**	**50**
16.0-20 0	PKZM 1-20	**100**	**50**
20.0-25.0	PKZM 1-25	**100**	**11**

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