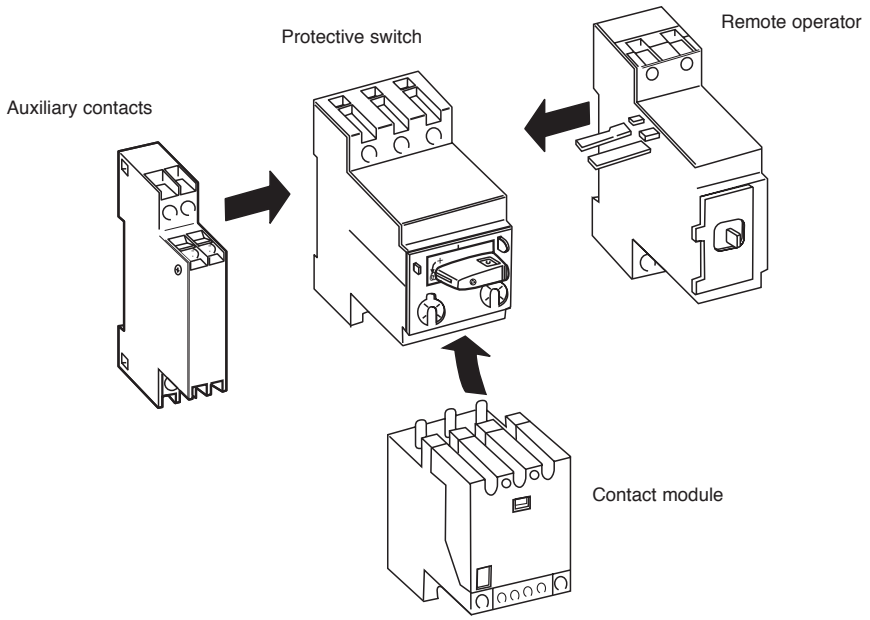
Instruction Leaflet

# Motor & System Protection PKZ2

RS **stock no.** 324-261

Figure 1




## General

A three pole modular system for motor and system protection up to 40A rated current. The basic unit (RS stock number 324-261) may be matched with a selection of trip blocks, having adjustable overload and short circuit releases, to provide the protective switch. There are two types of trip block, one for motor protection with single phase sensitivity, and the other for system protection. A contact module is available for combination starter applications. The remote operator gives the option of manual or remote operation of the system.

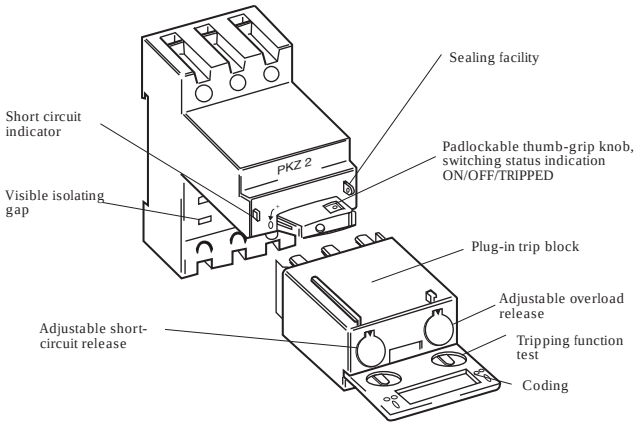
## Protective switch

### Features

- Inherently short circuit proof range <16A/415V~
- Switching capacity outside this range 30kA/415V~
- 7 trip blocks for motor protection
  5 trip blocks for system protection
  allowing optimum adaptation to the requirements of the individual system.
- Plug in trip block for easy adaption.
- Motor protection circuit-breaker with single phase sensitivity.
- Current limiting characteristics limit dynamic load on system.

The appropriate trip block may be selected from table 1 and plugged directly into the basic unit (see figure 2) to give the correct combination protective switch for a particular application.

Figure 2




The protective switch gives indication of a trip condition by the position of the operating handle. There is a short circuit indicator to provide differential indication between an overload or a short-circuit trip.

Removal of the trip block provides a visible isolating gap and the trip block may only be removed in the off position. The trip block may be coded using small pins in the flap, to only fit a particular base unit within a panel. The unit may also be sealed so that the trip block may not be removed.

The protective switch is padlockable in the 'OFF' position.

Table 1 - Trip block selection

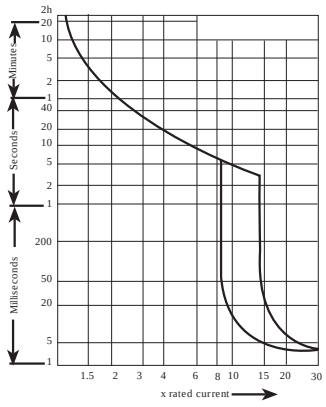
a) Motor protective circuit breakers

| Stock No. | Uninterrupted Current (A) | Overload release Setting Range (A) | Short Circuit Release Setting Range (A) | Switch & Contact Module Combination AC3 Rating (kW) |
|---|---|---|---|---|
| 324-277 | 1.6 | 1 - 1.6 | 14 - 22 | 0.55 |
| 324-283 | 2.4 | 1.6 - 2.4 | 20 - 35 | 0.8 |
| 324-299 | 4 | 2.4 - 4 | 35 - 55 | 1.5 |
| 324-306 | 6 | 4 - 6 | 50 - 80 | 2.5 |
| 324-312 | 10 | 6 - 10 | 80 - 140 | 4 |
| 324-328 | 16 | 10 - 16 | 130 - 220 | 7.5 |
| 324-334 | 25 | 16 - 25 | 200 - 350 | 12.5 |

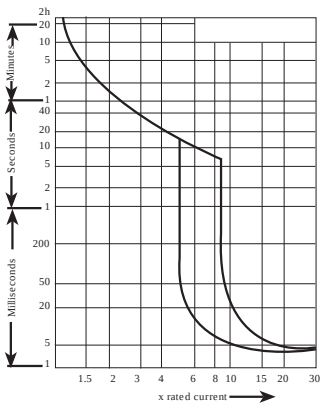
b) Cable & wiring system protective circuit-breakers

| Stock No. | Uninterrupted Current (A) | Overload release Setting Range (A) | Short Circuit Release Setting Range (A) |
|---|---|---|---|
| 324-340 | 10 | 6 - 10 | 50 - 80 |
| 324-356 | 16 | 10 - 16 | 80 - 140 |
| 324-362 | 25 | 16 - 25 | 130 - 210 |
| 324-378 | 32 | 24 - 32 | 160 - 280 |
| 324-384 | 40 | 32 - 40 | 200 - 350 |

Figure 3. Protective switch tripping characteristics




Motor protective circuit breaker




System protective circuit breaker

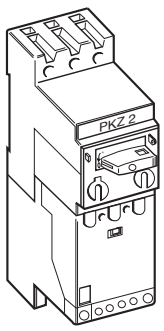
## Contact Module

### Features

- Contact module fitted for operational switching with integral auxiliary contacts (1N/O + 1N/C)
- Three operating voltage options available (24V, 110V & 240V ~, 50Hz)
- Switching capacity of the protective switch increased to 100kA up to 500V.

The contact module extends the function of the protective switch to give a starter combination with a 20kW maximum rating at 415V. The lifespan of the contact module is one million operations, whereas that of the protective switch is 50,000 operations. The module is fitted directly to the protective switch by plugging into the base. It is secured by captive screws.

Figure 4

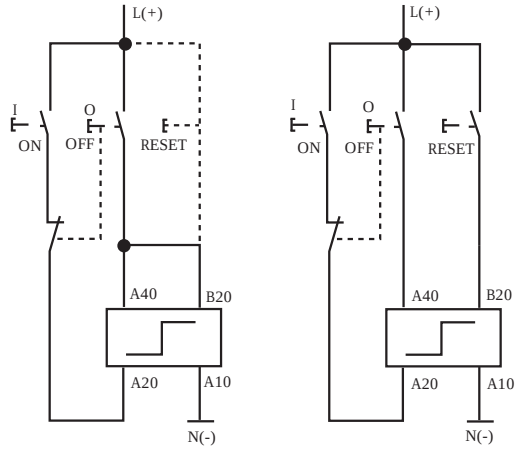



## Remote Operator

### Features

- Remote switching of protective switch ON/OFF and trip reset to OFF.
- For side fitting to PKZ2 protective switch.
- Short ON/OFF switching times.
- Remote operator can be switched off locally and locked by thumb grip knob, giving optimum safety for maintenance and repair.

Figure 5 Wiring diagrams

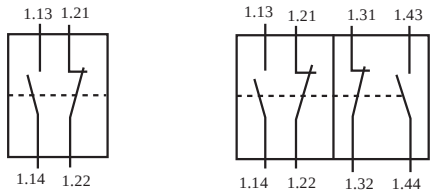



## Auxiliary contacts

### Features

- Can be fitted to protective switch or starter combination.
- Operate with the main contacts of the auxiliary switch.
- Two auxiliary blocks available either 1N/O + 1N/C or 2N/O + 2N/C.

Figure 6

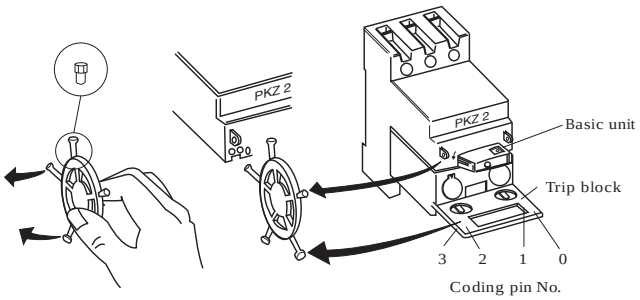



3 2 4 - 4 5 7 3 2 4 - 4 6 3

## Trip block coding

Coding pins may be fitted to either the protective switch or the trip block to prevent the fitting of an incorrect block.

Figure 7




Coding table

| Unit No. | Coding pin no. 3 | 2 | 1 | 0 |
|---|---|---|---|---|
| 1 | O | O | O | X |
| 2 | O | O | X | O |
| 3 | O | O | X | X |
| 4 | O | X | O | O |
| 5 | O | X | O | X |
| 6 | O | X | O | X |

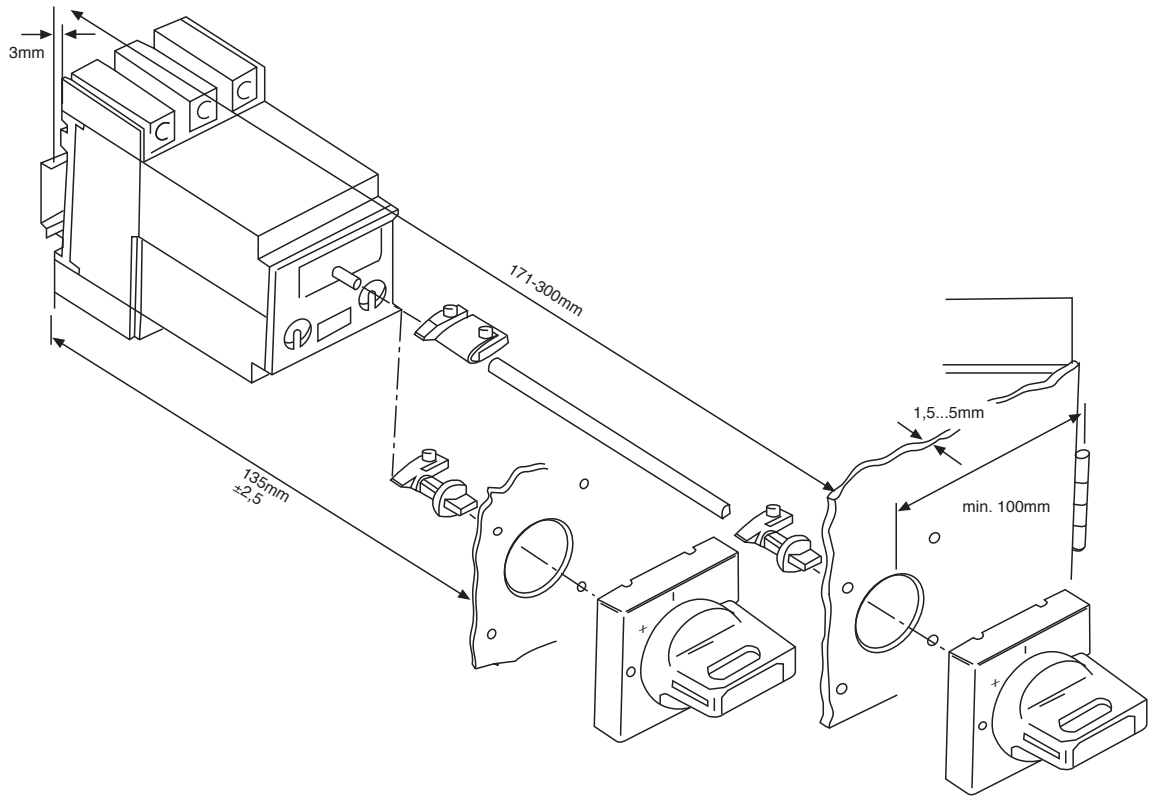
O = pin in trip block
X = pin in basic unit

## Door coupling handle & extension shaft

### Features

- 90°C switching angle.
- Trip indication.
- Environmental protection to IP65.
- Door interlock option available via removal of rear tag.
- Door interlock can be defeated using a tool.
- Padlockable in either ON or OFF position with up to 3

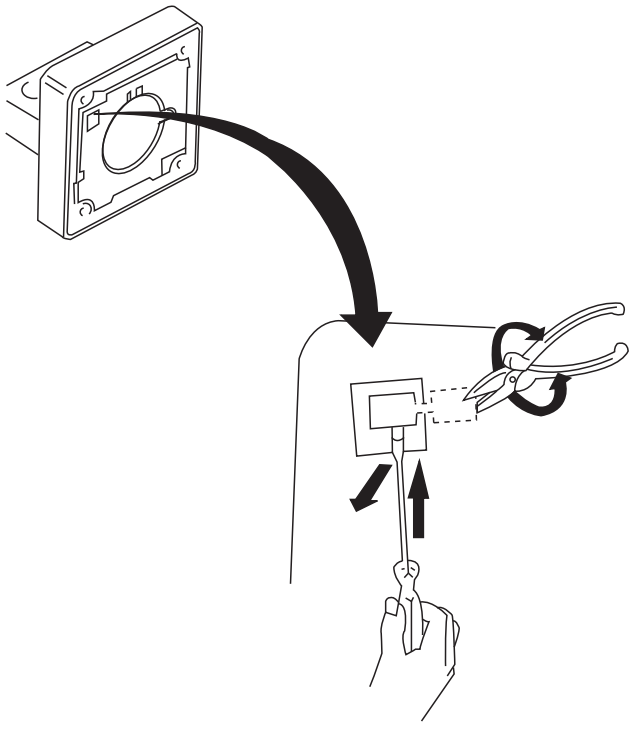
Figure 8




The protective switch handle may be removed in the 'trip' position by pulling back the padlock shroud as far as possible. The handle will then slip off easily. The extension shaft coupler then fits on the exposed shaft.

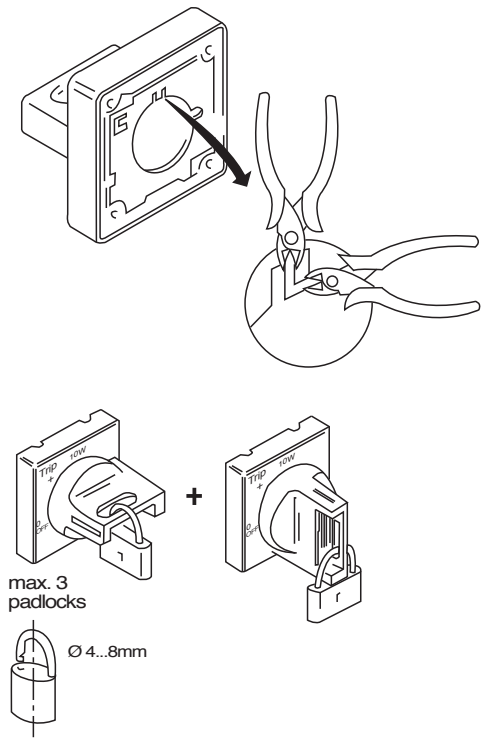
The handle is supplied non-interlocked. To give door interlocking the tag on the rear of the switch should be removed as shown in figure 9. The tag should be levered out with a screwdriver and removed using cutters or pliers.

Figure 9 Door Interlocking



There is a second tag on the rear of the handle which, if removed, facilitates padlocking in either the ON or OFF position (see figure 10)

Figure 10



# Dimensions (all dimensions in mm)

Figure 11 Protective Switches

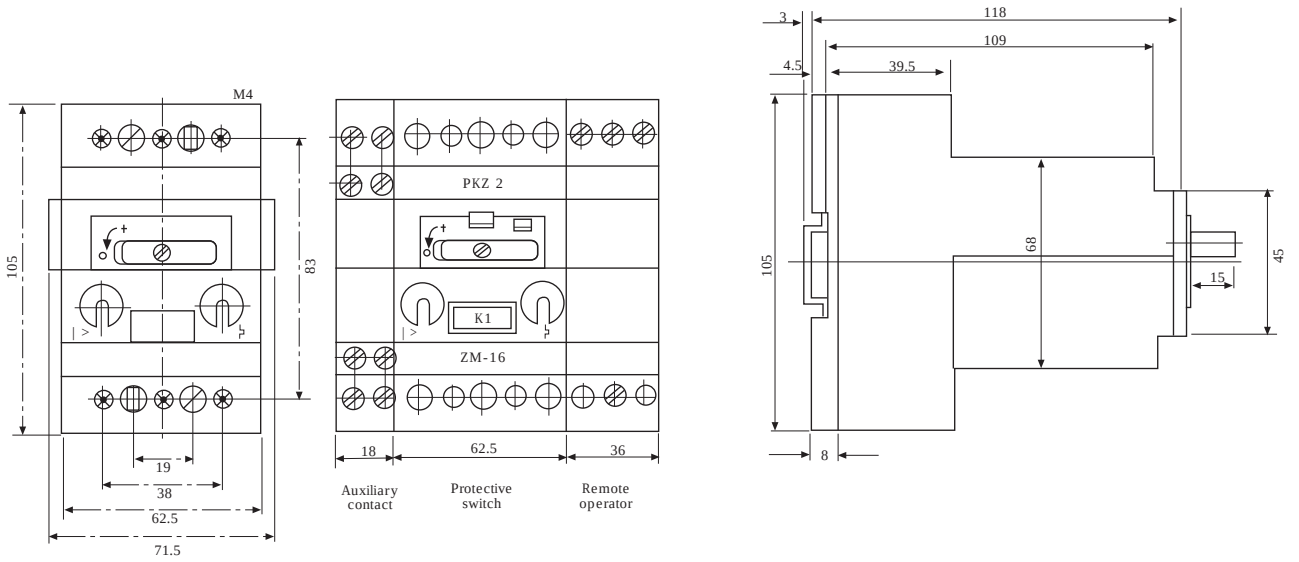



Figure 12 Auxiliary contacts

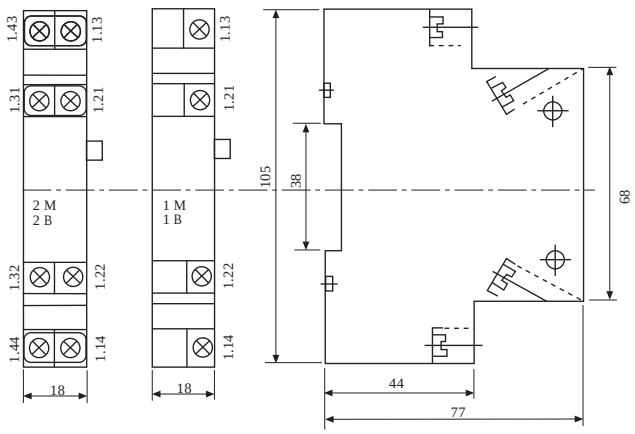



Figure 13 Remote operator

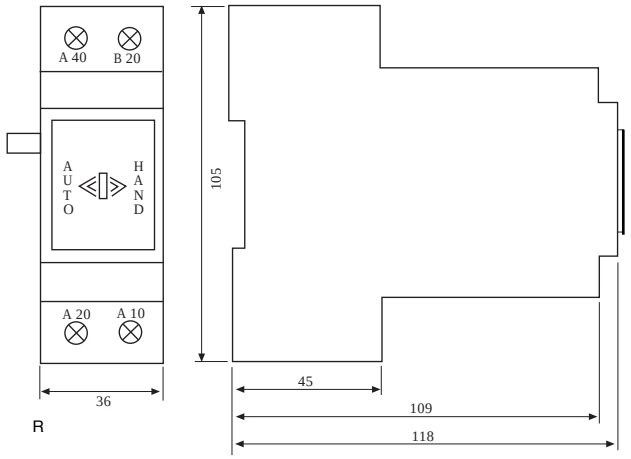



Figure 14 Contact module

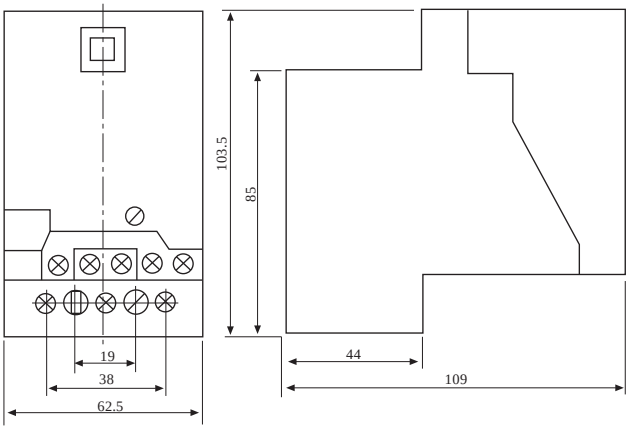
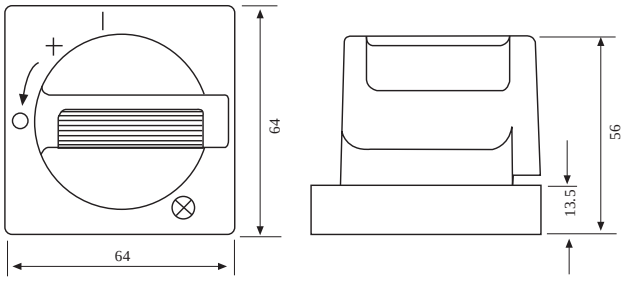



Figure 15 Door coupling handle



## Electrical specification

| | | |
|---|---|---|
| Ambient temperature (general) | Open | -25°C to + 60°C |
| | Enclosed | -25°C to + 40°C |
| Terminal capacities | 1 | 1.0 to 1.6 $mm^2$ |
| | 2 | 1.0 to 6$mm^2$ |

## Main contacts;

| | | |
|---|---|---|
| Rated insulation voltage | | 690V ~ |
| Uninterrupted current | | 40A |
| Frequency | | 50/60Hz |
| Mechanical life | Protective switch | 0.1 x$10^6$ ops |
| | Contact module | 5 x $10^6$ ops |
| Electrical life (AC3) | Protective switch | 0.05 x $10^6$ ops |
| | Contact module | 1 x $10^6$ ops |

## Trip blocks;

| | |
|---|---|
| Temperature compensation | -5°C to +60°C |
| Inherently short circuit proof | Up to 16A at 415V ~ |

## Auxiliary contacts;

| | |
|---|---|
| Rated insulation voltage | 690V ~ |
| Rated operational current $I_e$ | |
| ACII 220/240V ~ | 6A |
| 380/415V~ | 3A |
| Mechanical life | 0.1 x $10^6$ ops |
| Electrical life | 0.05 x $10^6$ ops |
| Terminal capacities | 0.5 to 2.5$mm^2$ |



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