

# Harmony® XK, XD controllers for hoisting applications

Catalog

February 2015



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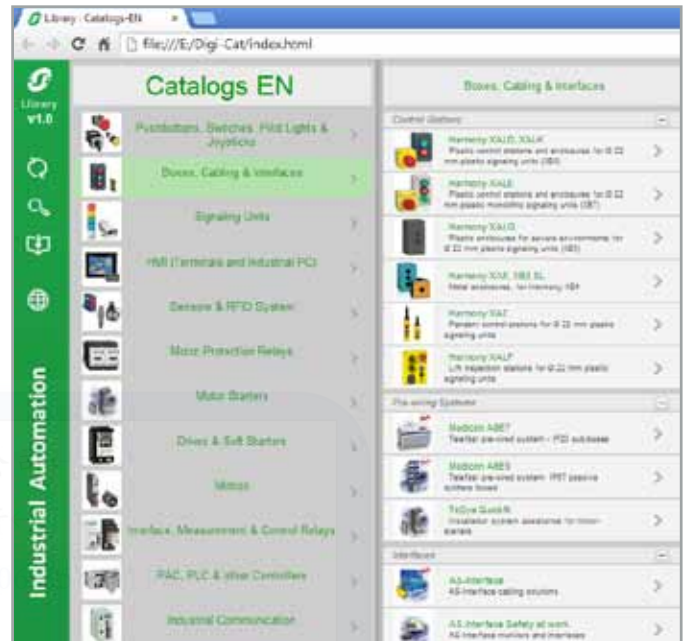
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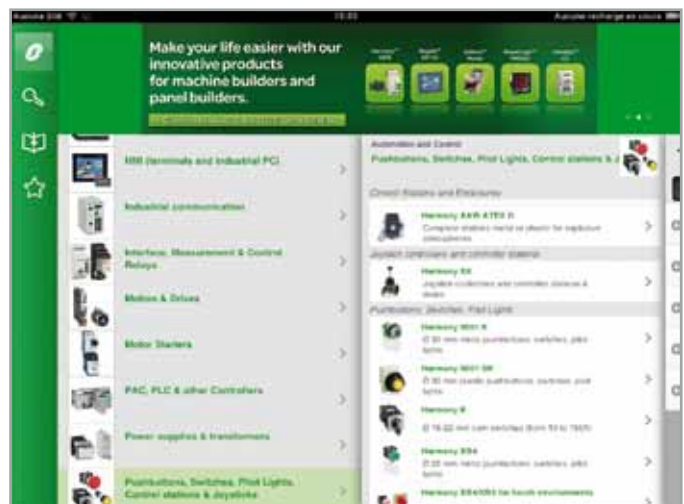
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Selection guide for hoisting applications, types XD and XK

**Selection guide** ..... 1/2

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Controllers
For hoisting applications, types XD and XK

Table with 2 columns: Applications, and specifications for 'Light hoisting' (Compact and light weight, For control of small materials handling equipment, elevating work platforms, fork-lift trucks, etc. Can be installed on control panels or enclosures types XAL, XAM and XAP; For control of materials handling equipment, public work cranes, etc. Can be installed on portable controller stations type XJP).



Table with 4 columns: Specifications (Mechanical durability, Number of directions, Number of movements, etc.) and three columns for controller types XD2, XD4, XD5, XKB, and XKBE.

(1) N/C slow break contacts with positive opening operation. Contacts closed in absence of cam lobe.
(2) Handles type b1 and b2 are designed in accordance with the French hoisting standard NF E 52070 (Dec. 1985): Electrical equipment of hoisting devices, paragraph 8231: all control devices must be designed, constructed and positioned in such a manner as to avoid any accidental operation.
(3) For information in XD4 range please refer to DIA5ED212121EN, Control and signaling units Ø 22, Harmony XB4 metal catalog, page 37
For information in XD5 range please refer to DIA5ED2121213EN, Control and signaling units Ø 22, Harmony XB5 Plastic catalog, page 39.

Table with 2 columns: Applications, and specifications for 'Medium hoisting' (Compact and fully configurable unit, For control of cranes, overhead travelling cranes, etc. Can be installed on fixed seated controller desks type XJC) and 'Heavy hoisting' (Extremely robust and fully configurable unit, For control of overhead travelling cranes (iron and steelworks, rolling mills) etc. Can be installed on seated controller desks type XJC).



Table with 4 columns: Specifications (Number of directions, Number of movements, etc.) and three columns for controller types XKDF, XKMA, XKMB, and XKMC.

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## Harmony XK

|                                                                                           |      |
|-------------------------------------------------------------------------------------------|------|
| ■ <b>Controllers for “light hoisting” applications, type XKB</b>                          |      |
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| ■ <b>Controllers for “medium hoisting” applications, type XKDF</b>                        |      |
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| ■ <b>Controllers for “heavy hoisting” applications, type XKM</b>                          |      |
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**Controller**

The controllers are units designed to control hoisting and materials handling equipment by grouping their electrical circuits. They comprise adaptable sub-assemblies that enable the construction of many different versions. Used in association with automation system equipment, they ensure the starting, acceleration and braking of the drive motors. They are designed for fitting into portable controller stations or controller desks. The mounting is dust and damp protected.

**Mechanical block**

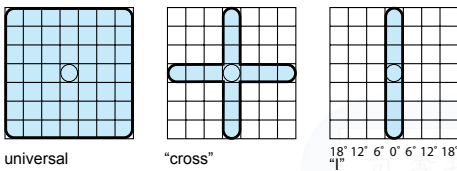
Articulated mechanical assembly that holds the control lever, lever gate, actuating mechanism, cam carriers, contacts and potentiometer adaptation device.

**Control lever**

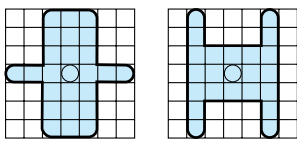
Operating device that enables separate or simultaneous control of the movements. Fitted to it are dust and damp protecting bellows, the handle and mechanical and electrical safety devices that are actuated when the controller lever is returned to its zero (centre) position.

**Lever gate**

Standard lever gates



Examples of special lever gates



2 types of lever gate:

■ Standard types:

- universal: allows the lever to move to its maximum travel in 1 or 2 directions simultaneously ("universal" or "8-direction" controller),
- "cross" or "I" gates: only allow the lever to move to its maximum travel in 1 direction at a time.

■ Special types: related to the application, they are used to control the required combination of movements.

**End stops**

Additional devices for limiting the lever travel to a number of positions in a given direction.

**Handles**

**a Simple handle:** fixed knob screwed onto the control lever.

**b1 Handle with zero (centre) position mechanical interlock.**

Operation:

The knob of the handle comprises a fixed part (upper section) and a moving part (lower section).

When the lever is in the zero (centre) position, it is mechanically locked by a sliding rod within the lever.

To disengage the lock, the lower part of the handle is pulled upwards thus freeing the rod.

**b2 Handle with zero (centre) position mechanical interlock + electrical contact.**

Mechanical operation identical to that described above.

When the lever is in the zero (centre) position, the rod actuates a contact block.

The disengagement of the lock causes the contact(s) in the block to change state.

**c1 "Dead man's" handle.**

Operation:

The knob of the handle comprises a fixed part (lower section) and a moving part (upper section).

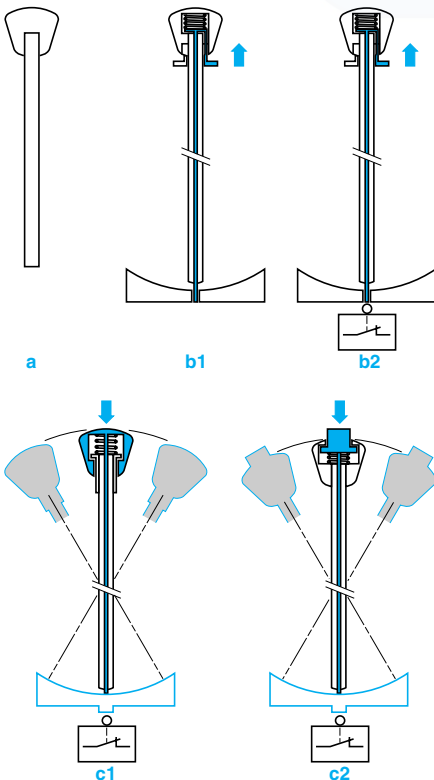
When the upper section of the knob is pushed downwards it pushes a sliding rod within the lever.

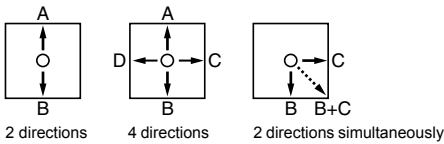
This rod actuates a moving bowl which, in turn, causes a contact block (located in the lower part of the mechanism) to change state and remain in this condition irrespective of the control lever position.

**c2 Handle with built-in flush or projecting pushbutton (audible alarm type).**

Mechanical operation identical to that described above.

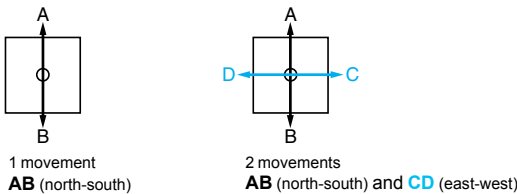
The handle is fixed and it is only the pushbutton that operates the sliding rod.



**Direction**

This is the direction of operation of the control lever away from its zero (centre) position towards one of 2 or 4 directions (either 2 directions directly in line or 4 directions at 90°).

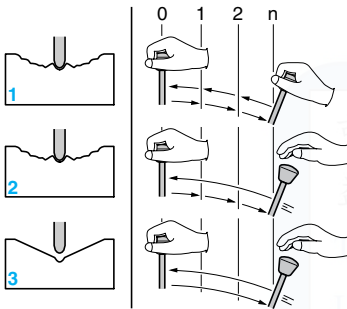
Diagonal movement is the operation of 2 directions simultaneously.

**Movement**

The movement is the combination of 2 directions either side of the zero position that are directly in line.

**Electrical position**

This is the change of state of a contact block obtained by angular displacement of the control lever.

**Types of lever movement**

Three different types of lever operation for each direction:

**1 Notched positions, with stayput operation.**

The control lever is moved notch by notch from its zero (centre) position to its maximum travel position in the required direction.

The lever maintains its position when the operator releases the handle.

**2 Notched positions, with spring return to zero operation.**

Notched operation identical to that described above but with an automatic device that returns the lever to its zero (centre) position when the operator releases the handle.

**3 Unnotched positions, with spring return to zero operation.**

The control lever of the controller is moved from its zero (centre) position to its maximum travel position in the required direction without notching.

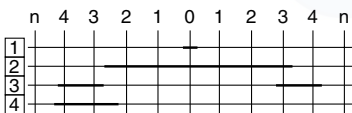
Irrespective of its position, the lever spring returns to the zero (centre) position when the operator releases the handle.

**Electrical contacts**

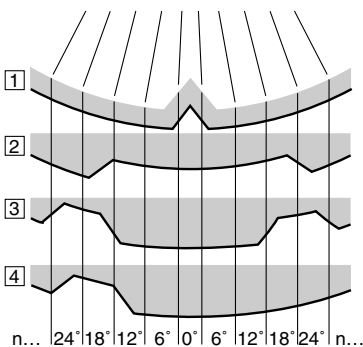
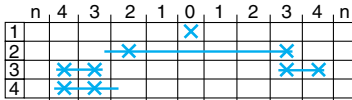
When designing the scheme take into account that all contacts are closed until actuated (opened) by an operating cam.

**Cam schemes**

Electrical scheme



Controller scheme



The contact blocks are actuated by a series of various length cams which are arranged to provide the required scheme.

These cams can either be:

- ☐ variable composition, i.e. comprising different sub-assemblies mounted on a cam carrier,
- ☐ predetermined, i.e. for a function that is widely used in conventional schemes.

Example: reversing cams for direction of operation.

**Cam carriers**

Mechanism designed for mounting cams on for controllers with variable composition cams.

**Cam actuation of contacts**

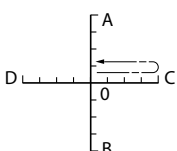
When actuated by the cam lobe, the contact opens thus ensuring positive opening operation. Therefore, the presence of a cam corresponds to the absence of a cross or line on the scheme.

**Example of graphic representation of a scheme**

The various methods for indicating the operating sequence of the contacts and the ordering grids for XK controllers are shown opposite.

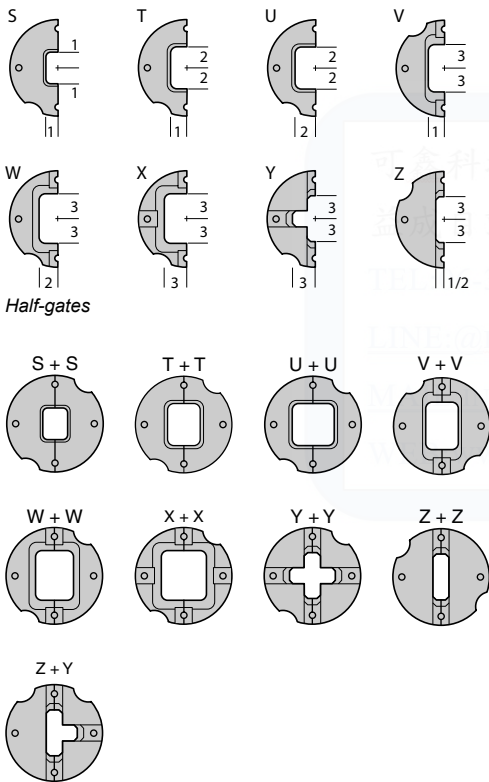
Take particular note of the way an assured electrical overlapping is represented as is shown for contacts 2 and 4 between positions 2 and 3 (see diagram to left).

An operating cycle applied from an initial common O position is the passing from this initial position to the extreme position in each direction and subsequent return to the initial O position.





XKB●



Half-gates

9 main combinations

Compact and lightweight units, designed to control “light hoisting” and materials handling equipment. Mainly for use in portable stations.

2 models:

- **XKBA**: controllers with predefined, non modifiable, scheme.
- **XKBE**: controllers with variable composition schemes.

## Control lever

Length: 130 mm/5.11 in.. Travel in each direction: 28° maximum.

## Lever gate

Universal and modifiable.

Specific, by adding half-gates to the universal lever gate (referenced by letter) 9 main combinations.

## End stops

The total lever travel can be limited to 20° or 12° by using removable end stops (**XKBZ972** for 20°, **XKBZ971** for 12°) when the lever gate comprises half-gates Y or Z.

## Handles

- Simple handle with zero (centre) position contact (closed at zero).
- Handle with zero (centre) position mechanical interlock + contact (closed at zero).
- “Dead man’s” handle with contact (open when handle released).
- Handle with built-in flush or projecting pushbutton and contact (open when pushbutton or handle released).

*Note: it is important to decide which type of handle is required when selecting the controller, since modification cannot be affected after installation.*

## Electrical positions

3 positions maximum in each direction.

## Types of lever movement

- **Notched positions, with stayput operation**: 3 notches maximum in each direction (12°, 20°, 28°).
- **Notched positions, with spring return to zero operation**: 3 notches maximum in each direction (12°, 20°, 28°). (XKBE: only 1 contact may be used at each notch.)
- **Unnotched positions, with spring return to zero operation**: 28° maximum travel in each direction. (XKBE: only 1 contact may be used for each spring return to zero position.)

## Contacts

The contact blocks used for establishing the scheme are located in a monobloc assembly. There are 2 types:

- ☐ Block with 4 contacts per movement.
  - ☐ Block with 4 contacts per movement + 1 zero (centre) position contact.
- For both types, an additional contact is available. Its function depends on the type of handle.

## Cam schemes

- **XKBA**: standard schemes can be established using predefined cams. These cams are moulded and cannot be modified.

2 versions:

- ☐ Using a block with 4 contacts per movement: 2 reversing cams and 2 function cams per movement.
- ☐ Using a block with 4 contacts per movement + 1 zero (centre) position contact: 2 reversing cams and 2 function cams per movement + 1 zero (centre) position cam.

- **XKBE**: special schemes can be established using snap-on cams (for each position) mounted on cam carriers. (overlapping contact operation is not possible).

2 versions:

- ☐ Using a block with 4 contacts per movement: 4 variable composition cams per movement.
- ☐ Using a block with 4 contacts per movement + 1 zero (centre) position contact: 4 variable composition cams per movement + 1 fixed composition zero (centre) position cam.

## Legend

One 100 x 100 mm anodised aluminium legend plate with matt satin finish.

Standard “hoist-long travel” and “traverse-slew” symbols or text (to be stated on Order form, see page 2/7).

## Potentiometer adaptation

- 2 potentiometers maximum per movement when using block with 4 contacts per movement.
- 1 potentiometer maximum per movement when using block with 4 contacts per movement + 1 zero (centre) position contact.

## Environment

|                                                          |                                 |       |                                                                                                   |
|----------------------------------------------------------|---------------------------------|-------|---------------------------------------------------------------------------------------------------|
| Conformity to standards                                  |                                 |       | EN/IEC 60947-5-1, UL 508, CSA C22-2 n° 14                                                         |
| Product certifications                                   |                                 |       | UL, CSAA300, Q300, CCC, RRS                                                                       |
| Protective treatment                                     |                                 |       | Standard version “TC”                                                                             |
| Ambient air temperature                                  | For storage                     | °C/°F | - 40...+ 70/-40...158                                                                             |
|                                                          | For operation                   | °C/°F | - 20...+ 70/-4...158                                                                              |
| Operating position                                       |                                 |       | All positions                                                                                     |
| Vibration resistance                                     | Conforming to IEC 60068-2-6     |       | 6 gn (1 to 70 Hz)                                                                                 |
| Shock resistance                                         | Conforming to IEC 60068-2-27    |       | 20 gn, duration 11 ms                                                                             |
| Electric shock protection                                | Conforming to IEC 61140         |       | Class I                                                                                           |
| Maximum operating lever force required in each direction |                                 | daN   | < 1.7                                                                                             |
| Degree of protection                                     | Conforming to IEC 60529         |       | IP 54 (unit with simple handle mounted in dust and damp proof enclosure)<br>IP 20 (contact block) |
| Mechanical durability                                    | In millions of operating cycles |       | 1 in each direction                                                                               |
| Weight                                                   |                                 | kg/lb | <b>XKBA</b> and <b>XKBE</b> : 0.850/1.874                                                         |

## Contact block characteristics

|                              |  |    |                                                                                                                                                                                                                                                                                          |
|------------------------------|--|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                         |  |    | Monobloc assembly comprising 9 double-break contacts (8 function contacts and 1 zero position contact mounted at lever base) or monobloc assembly comprising 11 double-break contacts (8 function contacts + 2 zero position contacts and 1 zero position contact mounted at lever base) |
| Conventional thermal current |  | A  | 10 conforming to EN/IEC 60947-5-1, UL 508, CSA C22-2 n° 14                                                                                                                                                                                                                               |
| Rated insulation voltage     |  | V  | ≈ 500 conforming to EN/IEC 60947-1, degree of pollution 3                                                                                                                                                                                                                                |
| Contact operation            |  |    | Slow break, double-break contacts with positive opening operation; N/O (green operator).<br>N/C contact (red operator): zero position contact mounted at lever base                                                                                                                      |
| Resistance across terminals  |  | mΩ | ≤ 25                                                                                                                                                                                                                                                                                     |
| Terminal referencing         |  |    | Conforming to EN 50013                                                                                                                                                                                                                                                                   |
| Short-circuit protection     |  |    | 10 A cartridge fuse type gG according to EN/IEC 60947-5-1                                                                                                                                                                                                                                |

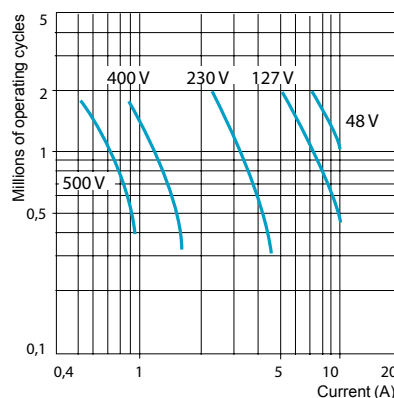
## Operational power

Conforming to EN/IEC 60947-5-1 Appendix C  
Utilisation categories AC-15 and DC-13  
Operating rate: 3600 operating cycles/hour  
Load factor: 0.5

## a.c. supply ~ 50-60 Hz

~ Inductive circuit

## d.c. supply —



Power broken in W for 1 million operating cycles

| Voltage V | 24 | 48 | 120 |
|-----------|----|----|-----|
| mm        | 90 | 90 | 75  |

## Connection

Captive screw clamp terminals

Clamping capacity:

- ☐ minimum 1 x 0.5 mm<sup>2</sup>,
- ☐ maximum, with or without cable end: 2 x 1.5 mm<sup>2</sup> or 1 x 2.5 mm<sup>2</sup>

Reference of controller type **XKB**

|                                                                                                      | Model                            | Contacts | Handle | Lever movement |          | Potentiometer adaptation |
|------------------------------------------------------------------------------------------------------|----------------------------------|----------|--------|----------------|----------|--------------------------|
|                                                                                                      |                                  |          |        | AB             | CD       |                          |
| <b>XKB</b>                                                                                           |                                  |          |        |                |          |                          |
| <b>Model</b>                                                                                         |                                  |          |        |                |          |                          |
| With predefined scheme                                                                               | <b>A</b>                         |          |        |                |          |                          |
| With variable composition scheme                                                                     | <b>E</b>                         |          |        |                |          |                          |
| <b>Contact blocks</b>                                                                                |                                  |          |        |                |          |                          |
| Block with 4 contacts per movement                                                                   | Screw clamp terminal connections | <b>1</b> |        |                |          |                          |
|                                                                                                      | 6.3 clip connections             | <b>2</b> |        |                |          |                          |
| Block with 4 contacts per movement                                                                   | Screw clamp terminal connections | <b>3</b> |        |                |          |                          |
| + 1 zero (centre) position contact                                                                   | 6.3 clip connections             | <b>4</b> |        |                |          |                          |
| <b>Handle</b>                                                                                        |                                  |          |        |                |          |                          |
| Simple + zero (centre) position electrical interlocking (contact closed in rest position)            |                                  | <b>1</b> |        |                |          |                          |
| With zero (centre) position mechanical and electrical interlocking (contact closed in rest position) |                                  | <b>2</b> |        |                |          |                          |
| “Dead man’s” type (contact open when released)                                                       |                                  | <b>4</b> |        |                |          |                          |
| With built-in flush pushbutton (contact open in rest position)                                       |                                  | <b>5</b> |        |                |          |                          |
| With built-in projecting pushbutton (contact open in rest position)                                  |                                  | <b>6</b> |        |                |          |                          |
| <b>Type of lever movement</b>                                                                        |                                  |          |        |                |          |                          |
| <b>On movement AB</b>                                                                                |                                  |          |        |                |          |                          |
| Movement not required (blocked)                                                                      |                                  |          |        | <b>0</b>       |          |                          |
| Notched positions, with stayput operation                                                            |                                  |          |        | <b>1</b>       |          |                          |
| Unnotched positions, with spring return to zero operation (1)                                        |                                  |          |        | <b>2</b>       |          |                          |
| Notched positions, with spring return to zero operation                                              |                                  |          |        | <b>3</b>       |          |                          |
| <b>On movement CD</b>                                                                                |                                  |          |        |                |          |                          |
| Movement not required (blocked)                                                                      |                                  |          |        |                | <b>0</b> |                          |
| Notched positions, with stayput operation                                                            |                                  |          |        |                | <b>1</b> |                          |
| Unnotched positions, with spring return to zero operation (1)                                        |                                  |          |        |                | <b>2</b> |                          |
| Notched positions, with spring return to zero operation                                              |                                  |          |        |                | <b>3</b> |                          |
| <b>Potentiometer adaptation</b>                                                                      |                                  |          |        |                |          |                          |
| Without adaptation nor potentiometer                                                                 |                                  |          |        |                |          | <b>0</b>                 |
| With adaptation only (without potentiometer)                                                         | On movement AB                   |          |        |                |          | <b>4</b>                 |
|                                                                                                      | On movement CD                   |          |        |                |          | <b>5</b>                 |
|                                                                                                      | On movements AB + CD             |          |        |                |          | <b>6</b>                 |
| Adaptation + potentiometer (2)                                                                       | On movement AB                   |          |        |                |          | <b>7</b>                 |
|                                                                                                      | On movement CD                   |          |        |                |          | <b>8</b>                 |
|                                                                                                      | On movements AB + CD             |          |        |                |          | <b>9</b>                 |

(1) Type of lever movement recommended when using a potentiometer.

(2) Potentiometer type and value to be stated when ordering. For standard application potentiometers see page 2/34.

## Requirement

A 2 movement controller:

"hoist-long travel".

"Universal" lever gate, limited to 2 "lower" positions.

**XKB****E****3****4****2****3****7**

## Model

With variable composition scheme (customised elect. scheme as shown below)

## Contact blocks

Block with 4 contacts + 1 zero (centre) position contact per movement (screw clamp terminals)

## Handle

"Dead man's" type

## Type of lever operation on movement AB

Unnotched positions, with spring return to zero operation

## Type of lever operation on movement CD

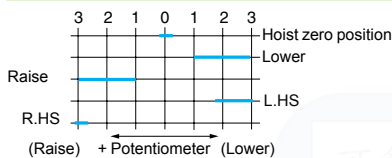
Notched positions, with spring return to zero operation

## Potentiometer adaptation

With adaptation device + potentiometer on movement AB, standard 4700  $\Omega$ , size 15, model

## Composition of the reference (see page 2/6)

## Electrical scheme for movement AB "hoist"

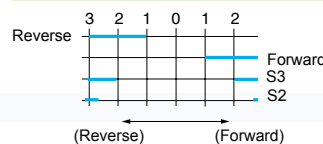


## Lever gate

In accordance with the half-gates available, sketch and crosshatch the lever's field of movement on the scheme grids below.

In the absence of this information, the controller will be supplied with a "universal" gate.

## Electrical scheme for movement CD "long travel"



## Potentiometer adaptation

Cross ☒ the required position on the schemes below.

On movement AB

Type/size: **XKZ A15047**Value: **4700  $\Omega$** 

On movement CD

Type/size:

Value:

## Legend

Without legend

With blank legend, **XKBY1**With "traverse-slew" symbols, **XKBY2**With "hoist-long travel" symbols, **XKBY3**With specific engraved text, **XKBY1001**  
(clearly state the text on the scheme below)

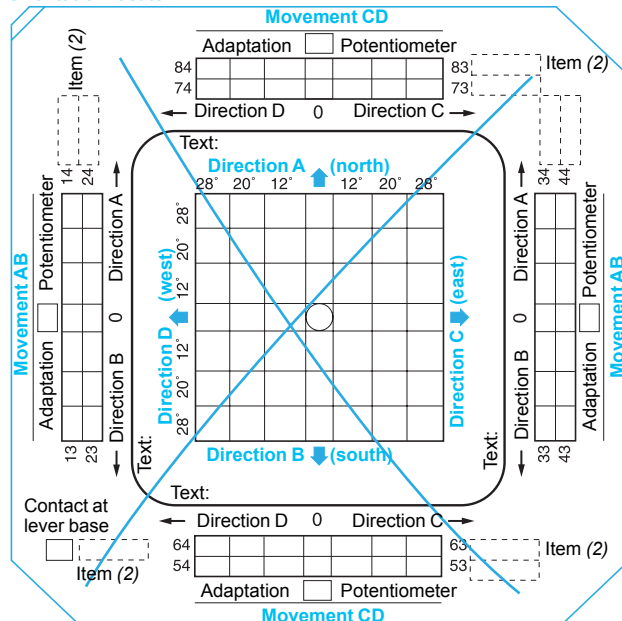
Left-hand operated unit

Right-hand operated unit

☒ If the scheme is not defined, all **XKBE** controllers will be supplied with the standard scheme as used for **XKBA**.

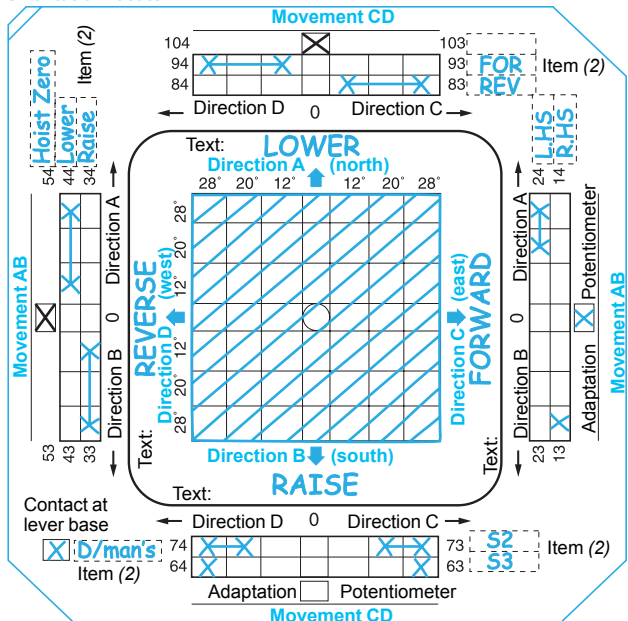
## Scheme 1: 4 contacts per movement (viewed from above)

## Orientation locator



## Scheme 2: 4 contacts + 1 zero (centre) pos. contact per movement (viewed from above)

## Orientation locator



(1) Additional help for completing the order form is available from your Regional Sales Office.

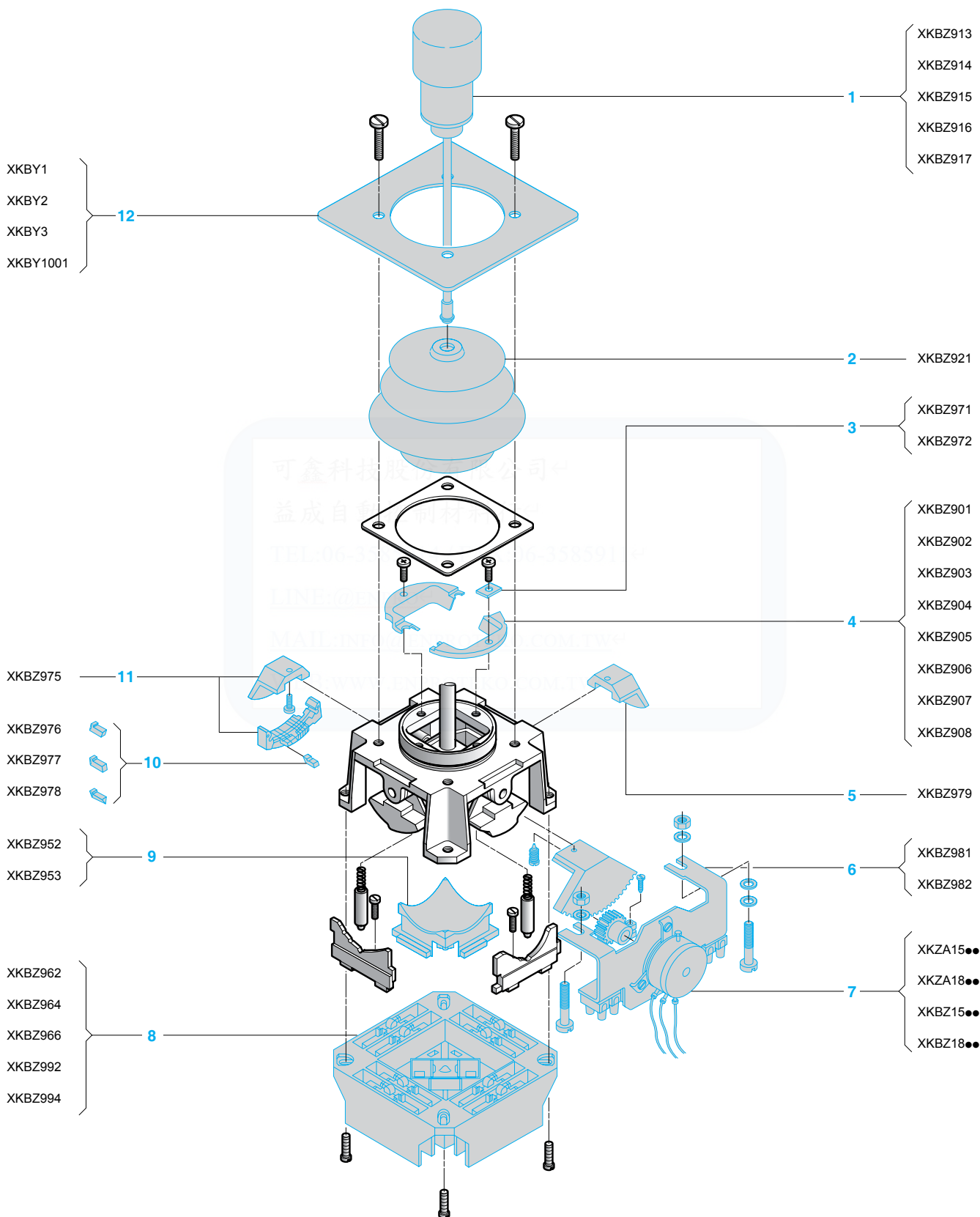
(2) Reserved for contact identification in the automation system scheme. It is not possible to mark it on the controller.

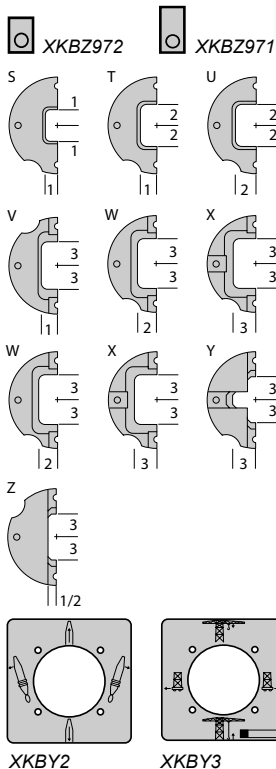
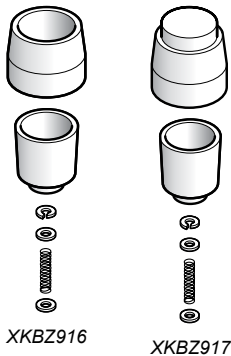
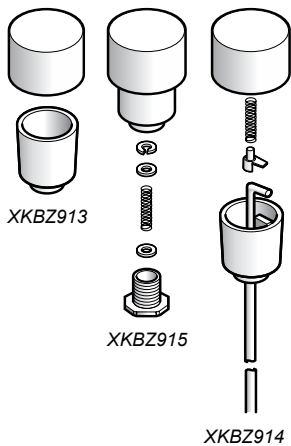
Spring return operation: only 1 contact can be used with spring return at each notch.

# Controllers

For “light hoisting” applications, type **XKB**  
Separate components

2





| Description                                                                                                                        | Item | Characteristics                                                               | Unit reference                                                     | Weight<br>kg/lb |
|------------------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------|
| <b>Bellows</b>                                                                                                                     | 2    | –                                                                             | <b>XKBZ921</b>                                                     | 0.060/0.132     |
| <b>Handles</b><br>△ Not interchangeable between different models                                                                   | 1    | Simple                                                                        | <b>XKBZ913</b>                                                     | 0.030/0.066     |
|                                                                                                                                    |      | With zero (centre) position interlocking                                      | <b>XKBZ914</b>                                                     | 0.040/0.088     |
|                                                                                                                                    |      | “Dead man’s” type                                                             | <b>XKBZ915</b>                                                     | 0.045/0.099     |
|                                                                                                                                    |      | With built-in flush pushbutton                                                | <b>XKBZ916</b>                                                     | 0.030/0.066     |
|                                                                                                                                    |      | With built-in projecting pushbutton                                           | <b>XKBZ917</b>                                                     | 0.030/0.066     |
| <b>Lever gate</b><br>Universal and modifiable<br>Specific, by adding half-gates to the universal lever gate (referenced by letter) | 4    | S                                                                             | <b>XKBZ901</b>                                                     | 0.005/0.011     |
|                                                                                                                                    |      | T                                                                             | <b>XKBZ902</b>                                                     | 0.005/0.011     |
|                                                                                                                                    |      | U                                                                             | <b>XKBZ903</b>                                                     | 0.005/0.011     |
|                                                                                                                                    |      | V                                                                             | <b>XKBZ904</b>                                                     | 0.005/0.011     |
|                                                                                                                                    |      | W                                                                             | <b>XKBZ905</b>                                                     | 0.005/0.011     |
|                                                                                                                                    |      | X                                                                             | <b>XKBZ906</b>                                                     | 0.005/0.011     |
|                                                                                                                                    |      | Y                                                                             | <b>XKBZ907</b>                                                     | 0.005/0.011     |
|                                                                                                                                    |      | Z                                                                             | <b>XKBZ908</b>                                                     | 0.005/0.011     |
| <b>Removable end stops</b><br>Sold in lots of 10                                                                                   | 3    | Stop limiting to 1 notch of movement                                          | <b>XKBZ971</b>                                                     | 0.025/0.055     |
|                                                                                                                                    |      | Stop limiting to 2 notches of movement                                        | <b>XKBZ972</b>                                                     | 0.020/0.044     |
| <b>Contacts: block with 4 contacts per movement</b><br>Screw clamp terminal connections                                            | 8    | For use with simple handle or handle with zero (centre) position interlocking | <b>XKBZ962</b>                                                     | 0.185/0.408     |
|                                                                                                                                    |      | For use with “Dead man’s” handle or handle with built-in pushbutton           | <b>XKBZ966</b>                                                     | 0.185/0.408     |
| <b>Contacts: block with 4 contacts per movement + 1 zero (centre) position contact</b><br>Screw clamp terminal connections         | 8    | For use with simple handle or handle with zero (centre) position interlocking | <b>XKBZ992</b>                                                     | 0.215/0.474     |
|                                                                                                                                    |      | For use with “Dead man’s” handle or handle with built-in pushbutton           | <b>XKBZ994</b>                                                     | 0.215/0.474     |
| <b>Cam carriers for variable composition cams (XKBE only)</b><br>Sold in lots of 20                                                | 11   | –                                                                             | <b>XKBZ975</b>                                                     | 0.105/0.231     |
| <b>Cams (XKBE only)</b><br>Sold in lots of 50                                                                                      | 10   | Right-hand position (color: Green)                                            | <b>XKBZ976</b>                                                     | 0.010/0.022     |
|                                                                                                                                    |      | Left-hand position (color: Red)                                               | <b>XKBZ977</b>                                                     | 0.010/0.022     |
|                                                                                                                                    |      | Pass cam (color: Black)                                                       | <b>XKBZ978</b>                                                     | 0.010/0.022     |
| <b>Zero (centre) position cam with fixing screw</b>                                                                                | 5    | –                                                                             | <b>XKBZ979</b>                                                     | 0.010/0.022     |
| <b>Lever base adaptations</b>                                                                                                      | 9    | Interlocking bowl                                                             | <b>XKBZ952</b>                                                     | 0.010/0.022     |
|                                                                                                                                    |      | Bowl for “Dead man’s” handle or handle with built-in pushbutton               | <b>XKBZ953</b>                                                     | 0.010/0.022     |
| <b>Legends</b>                                                                                                                     | 12   | Blank                                                                         | <b>XKBY1</b>                                                       | 0.025/0.055     |
|                                                                                                                                    |      | “Traverse - slew”                                                             | <b>XKBY2</b>                                                       | 0.025/0.055     |
|                                                                                                                                    |      | “Hoist - long travel”                                                         | <b>XKBY3</b>                                                       | 0.025/0.055     |
|                                                                                                                                    |      | With specific engraved text                                                   | <b>XKBY1001</b>                                                    | 0.025/0.055     |
| <b>Potentiometer adaptation kits (1)</b>                                                                                           | 6    | Size 15                                                                       | <b>XKBZ981</b>                                                     | 0.090/0.198     |
|                                                                                                                                    |      | Size 18 (2)                                                                   | <b>XKBZ982</b>                                                     | 0.090/0.198     |
| <b>Potentiometers for controllers XKB</b>                                                                                          | 7    | –                                                                             | <b>XKZA15●●, A18●●, XKBZ15●●, Z18●●</b><br>See pages 2/34 and 2/35 | –               |

(1) Including 13 tooth pinion.

□ The maximum lever travel of 28° per direction corresponds to a potentiometer shaft rotation of 161°.

□ Levers with friction drive facility are available under certain conditions: please consult your Regional Sales Office.

(2) The size 18 potentiometer adaptation on an XKB controller prevents it from being mounted in an XJP controller station.



XKDF

Compact and fully configurable units designed to control “medium hoisting” equipment.

Mainly for use on fixed control stations or seated controller desks type **XJC**.

1 model:

- **XKDF**: controller with variable composition schemes.

#### Control lever

Length: 200 mm/7.87 in.. Travel in each direction: 36° maximum.

#### Lever gate

Integral, non removable, part of the mechanical block. Must be specified on the Order form.

#### Handles

- Simple handle.
- Handle with zero (centre) position mechanical interlock.
- Handle with zero (centre) position mechanical interlock + 1 C/O snap action contact.
- “Dead man's” handle + slow break contact(s).
- Handle with built-in flush or projecting pushbutton + slow break contact(s).

#### Angular electrical positions

- 6 positions maximum in each direction.

#### Types of lever movement

##### ■ Notched positions, with stayput operation

2 versions:

□ 5 notches maximum in each direction, at 12°, 18°, 24°, 30° and 36° (6° per notch), only when used with variable composition cam carriers comprising 4 or 8-contact blocks (1<sup>st</sup> notch at 6°).

□ 3 notches maximum in each direction, at 12°, 24° and 36° (12° per notch), only when used with variable composition cam carriers comprising 2-contact blocks.

*Note: It is possible to use, on the same movement, a “5 notch max.” cam carrier combined with a “3 notch max.” cam carrier. The lever operation is “5 notch” type.*

##### ■ Notched positions, with spring return to zero operation

3 or 5 notches maximum in each direction depending on the versions stated above.

△ 4 simultaneous contacts max. with spring return can be used at the 1<sup>st</sup> (12°) notch.

##### ■ Unnotched positions, with spring return to zero operation

36° maximum travel in each direction.

△ 2 simultaneous contacts maximum with spring return can be used at 6° and then 4 contacts maximum at each subsequent 6° position.

#### Contacts

16 contacts maximum per movement.

The contact blocks are mounted in pairs on a fixing plate.

#### Cam schemes

2 versions:

##### ■ Variable composition cams, 6° per position; 4 or 8-contact cam carriers.

□ From 1 to 5 mechanical positions.

□ Overlapping contact operation possible (see graphic representation on page 2/3) except between the 4<sup>th</sup> and last position.

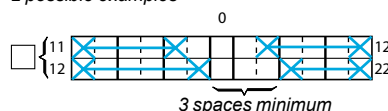
##### ■ Variable composition cams, 12° per position; 2-contact cam carriers.

□ From 1 to 3 mechanical positions.

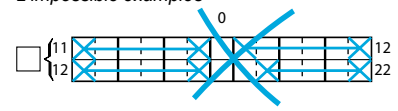
□ The contacts can be actuated 6° by 6° approx., except under the following conditions:

*For technical reasons, it is essential to have at least 3 spaces on the electrical scheme for the same contact.*

2 possible examples



2 impossible examples



The 2-contact cam carriers are compact and do not increase the size of the mechanical block base.

#### Legend

One 120 x 120 mm anodised aluminium legend plate with matt satin finish.

Text to be stated on Order form.

#### Potentiometer adaptation

2 potentiometers maximum per movement:

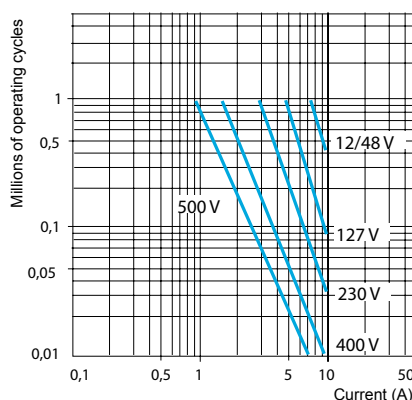
- mounted directly on the mechanical block when used with 2-contact variable composition cams,
- mounted at the extremity of the contact supports when used with 4 and 8-contact variable composition cams.

| Environment                                              |                                 |       |                                                                          |
|----------------------------------------------------------|---------------------------------|-------|--------------------------------------------------------------------------|
| Conformity to standards                                  |                                 |       | EN/IEC 60947-5-1, CSA C22-2 n° 14                                        |
| Product certifications                                   |                                 |       | CSAA600, Q 600, CCC, RMRS                                                |
| Protective treatment                                     |                                 |       | Standard version “TC”                                                    |
| Ambient air temperature                                  | For storage                     | °C/°F | - 40...+ 70/-40...158                                                    |
|                                                          | For operation                   | °C/°F | - 20...+ 70/-4...158                                                     |
| Operating position                                       |                                 |       | All positions                                                            |
| Vibration resistance                                     | Conforming to IEC 60068-2-6     |       | 2 gn (10 to 500 Hz)                                                      |
| Shock resistance                                         | Conforming to IEC 60068-2-27    |       | 15 gn, duration 11 ms                                                    |
| Electric shock protection                                | Conforming to IEC 61140         |       | Class I                                                                  |
| Maximum operating lever force required in each direction |                                 | daN   | Notched positions, with stayput operation: < 1.5                         |
| Degree of protection                                     |                                 |       | IP 54 (unit with simple handle mounted in dust and damp proof enclosure) |
| Mechanical durability                                    | In millions of operating cycles |       | <b>XKDF</b> : 3 in each direction                                        |
| Weight                                                   | <b>XKDF</b>                     | kg/lb | Mechanical block: 0.950/2.094                                            |
|                                                          |                                 |       | 4-contact assembly: 0.350/0.771                                          |
|                                                          |                                 |       | 8-contact assembly: 0.560/1.234                                          |
|                                                          |                                 |       |                                                                          |

| Contact block characteristics |  |    |                                                                   |
|-------------------------------|--|----|-------------------------------------------------------------------|
| Type                          |  |    | N/C contact ( <b>ZB2BE102</b> )                                   |
| Conventional thermal current  |  | A  | 10 conforming to EN/IEC 60947-5-1, CSA C 22-2 n° 14               |
| Rated insulation voltage      |  | V  | ~ 500 conforming to EN/IEC 60947-1, degree of pollution 3         |
| Contact operation             |  |    | Slow break, double-break contacts with positive opening operation |
| Resistance across terminals   |  | mΩ | ≤ 25                                                              |
| Terminal referencing          |  |    | Conforming to EN 50013                                            |
| Short-circuit protection      |  |    | 10 A cartridge fuse type gG conforming to EN/IEC 60947-5-1        |

**Operational power**  
 Conforming to EN/IEC 60947-5-1 Appendix C  
 Utilisation categories AC-11 and DC-11  
 Operating rate: 3600 operating cycles/hour  
 Load factor: 0.5

**a.c. supply** ~ 50-60 Hz  
 ~ Inductive circuit



**d.c. supply** ---

Power broken in W for 1 million operating cycles

| Voltage V | 24 | 48 | 120 |
|-----------|----|----|-----|
| mm        | 65 | 48 | 40  |

|            |  |                                                                                                                                                                                                                                      |
|------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection |  | Captive screw clamp terminals<br>Clamping capacity:<br><input type="checkbox"/> minimum 1 x 0.5 mm <sup>2</sup> ,<br><input type="checkbox"/> maximum, with or without cable end: 2 x 1.5 mm <sup>2</sup> or 1 x 2.5 mm <sup>2</sup> |
|------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Reference of controller type XKD

|                                                                                  | Lever    | Handle | Movement AB   |                |                          | Movement CD   |                |                          |
|----------------------------------------------------------------------------------|----------|--------|---------------|----------------|--------------------------|---------------|----------------|--------------------------|
|                                                                                  |          |        | No. of blocks | Lever movement | Potentiometer adaptation | No. of blocks | Lever movement | Potentiometer adaptation |
| <b>XKDF</b>                                                                      | <b>1</b> |        |               |                |                          |               |                |                          |
| <b>Control lever</b>                                                             |          |        |               |                |                          |               |                |                          |
| Standard model, length 200 mm                                                    | 1        |        |               |                |                          |               |                |                          |
| <b>Handle</b>                                                                    |          |        |               |                |                          |               |                |                          |
| Simple (standard model)                                                          |          | 1      |               |                |                          |               |                |                          |
| With zero (centre) position mechanical interlocking                              |          | 2      |               |                |                          |               |                |                          |
| With zero (centre) position mechanical & electrical interlocking (1 C/O contact) |          | 3      |               |                |                          |               |                |                          |
| “Dead man’s” type                                                                |          | 4      |               |                |                          |               |                |                          |
| With N/C + N/O contact                                                           |          | 5      |               |                |                          |               |                |                          |
| With N/O + N/O contact                                                           |          | 6      |               |                |                          |               |                |                          |
| With built-in flush pushbutton                                                   |          | 7      |               |                |                          |               |                |                          |
| With N/C + N/O contact                                                           |          | 8      |               |                |                          |               |                |                          |
| With N/O + N/O contact                                                           |          | 9      |               |                |                          |               |                |                          |
| <b>Movement AB</b>                                                               |          |        |               |                |                          |               |                |                          |
| <b>Number of 2-contact blocks</b>                                                |          |        |               |                |                          |               |                |                          |
| 0 blocks                                                                         |          |        | 0             |                |                          |               |                |                          |
| 1 block                                                                          |          |        | 1             |                |                          |               |                |                          |
| 2 blocks                                                                         |          |        | 2             |                |                          |               |                |                          |
| 3 blocks                                                                         |          |        | 3             |                |                          |               |                |                          |
| 4 blocks                                                                         |          |        | 4             |                |                          |               |                |                          |
| 5 blocks                                                                         |          |        | 5             |                |                          |               |                |                          |
| 6 blocks                                                                         |          |        | 6             |                |                          |               |                |                          |
| 8 blocks                                                                         |          |        | 8             |                |                          |               |                |                          |
| <b>Type of lever movement</b>                                                    |          |        |               |                |                          |               |                |                          |
| Movement not required (blocked)                                                  |          |        |               | 0              |                          |               |                |                          |
| Notched positions, with stayput operation                                        |          |        | 3 notches (1) | 1              |                          |               |                |                          |
| 5 notches (starting from 12°) or 6 notches (starting from 6°) (2) (3)            |          |        |               | 2              |                          |               |                |                          |
| Notched positions, with spring return to zero operation                          |          |        | 3 notches (1) | 3              |                          |               |                |                          |
| 5 notches (starting from 12°) or 6 notches (starting from 6°) (2) (3)            |          |        |               | 4              |                          |               |                |                          |
| Unnotched positions, with spring return to zero operation (4)                    |          |        |               | 5              |                          |               |                |                          |
| <b>Potentiometer adaptation</b>                                                  |          |        |               |                |                          |               |                |                          |
| Without adaptation nor potentiometer                                             |          |        |               |                | 0                        |               |                |                          |
| With adaptation only (without potentiometer)                                     |          |        |               |                | 1                        |               |                |                          |
| With adaptation + potentiometer (5)                                              |          |        |               |                | 2                        |               |                |                          |
| <b>Movement CD</b>                                                               |          |        |               |                |                          |               |                |                          |
| <b>Number of 2-contact blocks</b>                                                |          |        |               |                |                          |               |                |                          |
| 0 blocks                                                                         |          |        |               |                |                          | 0             |                |                          |
| 1 block                                                                          |          |        |               |                |                          | 1             |                |                          |
| 2 blocks                                                                         |          |        |               |                |                          | 2             |                |                          |
| 3 blocks                                                                         |          |        |               |                |                          | 3             |                |                          |
| 4 blocks                                                                         |          |        |               |                |                          | 4             |                |                          |
| 5 blocks                                                                         |          |        |               |                |                          | 5             |                |                          |
| 6 blocks                                                                         |          |        |               |                |                          | 6             |                |                          |
| 8 blocks                                                                         |          |        |               |                |                          | 8             |                |                          |
| <b>Type of lever movement</b>                                                    |          |        |               |                |                          |               |                |                          |
| Movement not required (blocked)                                                  |          |        |               |                |                          | 0             |                |                          |
| Notched positions, with stayput operation                                        |          |        | 3 notches (1) |                |                          | 1             |                |                          |
| 5 notches (starting from 12°) or 6 notches (starting from 6°) (2) (3)            |          |        |               |                |                          | 2             |                |                          |
| Notched positions, with spring return to zero operation                          |          |        | 3 notches (1) |                |                          | 3             |                |                          |
| 5 notches (starting from 12°) or 6 notches (starting from 6°) (2) (3)            |          |        |               |                |                          | 4             |                |                          |
| Unnotched positions, with spring return to zero operation (4)                    |          |        |               |                |                          | 5             |                |                          |
| <b>Potentiometer adaptation</b>                                                  |          |        |               |                |                          |               |                |                          |
| Without adaptation nor potentiometer                                             |          |        |               |                |                          |               |                | 0                        |
| With adaptation only (6) (without potentiometer)                                 |          |        |               |                |                          |               |                | 1                        |
| With adaptation (6) + potentiometer (5)                                          |          |        |               |                |                          |               |                | 2                        |

(1) 3 notches: restricted to 2-contact variable composition cams only.

(2) 5 notches: by using 1 or 2 variable composition 4 or 8-contact cams. 1<sup>st</sup> mechanical notch at 12° (6 electrical positions in each direction).(3) It is possible to obtain 6 mechanical notches, 1<sup>st</sup> mechanical notch at 6° (6 electrical positions in each direction). Please consult your Regional Sales Office.

(4) Type of lever movement recommended when using a potentiometer.

(5) Potentiometer type and value to be stated on the order form, see page 2/34.

(6) It is possible to obtain 6 mechanical notches, 1<sup>st</sup> mechanical notch at 6° (6 electrical positions in each direction). Please consult your Regional Sales Office.

| Customer |                      | Schneider Electric Industries  |        |                   |          |
|----------|----------------------|--------------------------------|--------|-------------------|----------|
| Company  | Customer's reference | Sales office - Subsid. - Plant | Editor | Geographical zone | Order N° |
|          |                      |                                |        |                   |          |

## Reference (use the grid for composing the reference of a controller on page 2/12)

|  | Lever | Handle | Movement AB   |                |                          | Movement CD   |                |                          |
|--|-------|--------|---------------|----------------|--------------------------|---------------|----------------|--------------------------|
|  |       |        | No. of blocks | Lever movement | Potentiometer adaptation | No. of blocks | Lever movement | Potentiometer adaptation |

Number of identical units

1

XKDF

1

2

4

4

0

2

3

0

## For Schneider Electric Industries use only

| Order N° | Item N° | MOD | LEV | POI | GLV | CT1 | CT3 | MAB | P13 | CT2 | CT4 | MCD | P24 |
|----------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|          |         | XKD |     |     |     |     |     |     |     |     |     |     |     |

## Scheme: viewed from above

**Lever gate**

Sketch and crosshatch the lever's field of movement on the grid

**Movement CD**

Adaptation ☐ Potentiometer ☐

Drum n°2

Choice of cam carriers (1)

Choice of cam carriers (2)

**Potentiometer adaptation**

Cross ☒ the position on the scheme

**On movement AB**

Type/Size:

Value:

**On movement CD**

Type/Size:

Value:

**Drum n°3**

Adaptation ☐ Potentiometer ☐

Choice of cam carriers (1)

Choice of cam carriers (2)

**LOWER**

Direction A (north) Ex: 5 notches

Direction B (south) Ex: 3 notches

Direction C (east) Ex: 3 notches

Direction D (west) Ex: 6 notches

Choice of cam carriers (1)

Choice of cam carriers (2)

**Drum n°1**

Adaptation ☐ Potentiometer ☐

Choice of cam carriers (1)

Choice of cam carriers (2)

**Choice of cam carriers**

(1) Cross ☒ the type of cam carrier required:

(a): 3 notch cam carrier, 2 contacts max.,

(b): 5 notch cam carrier, 4 contacts max.,

(c): 5 notch cam carrier, 8 contacts max.

(2) Reserved for contact identification in the automation system scheme. It is not possible to mark it on the controller.

Contact at lever base

N/C 51-52

N/O K1-K2

Item (2)

**Drum n°4**

Adaptation ☐ Potentiometer ☐

Choice of cam carriers (1)

Choice of cam carriers (2)

**Legend**

Without legend ☐

With blank legend, **XKDY1** ☐

Legend with specific engraving, **XKDY1001** (clearly state text on this scheme)

Left-hand operated unit ☒

Right-hand operated unit ☐

■ Electrical overlapping of contacts is not possible between the 5<sup>th</sup> and 6<sup>th</sup> notches.

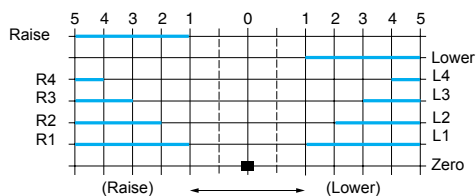
■ Spring return operation: 2 simultaneous contacts maximum with spring return can be used at 6° and then 4 contacts at each subsequent 6° position.

(1) Additional help for completing the order form is available from your Regional Sales Office.

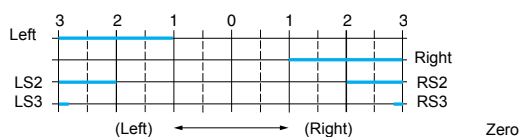
### Requirement

A 2 movement controller: “hoist-traverse”.  
“Cross” type lever gate.  
No potentiometer adaptation on movements AB or CD.

#### Scheme for movement AB “hoist”



#### Scheme for movement CD “traverse”



### Notes:

#### Movement AB

The scheme for movement AB requires 7 contacts, therefore, select 4 blocks of 2 contacts.  
The only alternative is the selection of either drum n° 3 or n° 1, depending on the available space.

#### Movement CD

The space between each notch indicated on the 3 position scheme cannot be adhered to.  
Effectively, to obtain 4 contacts, a 2-contact block can be selected (drum n° 2), which does not increase the size of the base, together with 1 x 2-contact block (drum n° 4).  
The lever gate will limit the lever travel to 3 notches.

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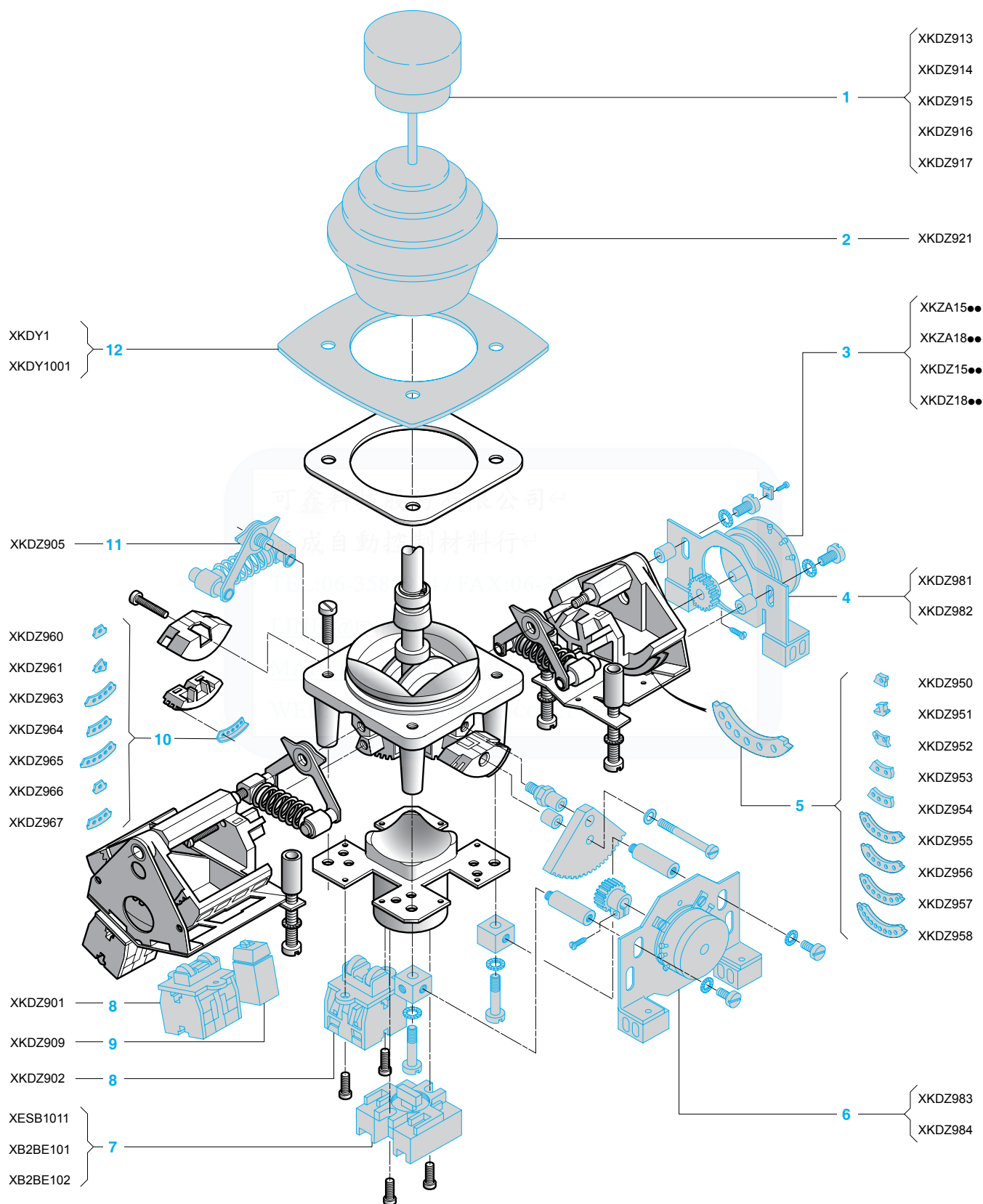
## Composition of the reference (see page 2/12)

| XKDF                                                                                       | 1 | 2 | 4 | 4 | 0 | 2 | 3 | 0 |
|--------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|
| <b>Control lever</b><br>Standard, length 200 mm                                            | 1 |   |   |   |   |   |   |   |
| <b>Handle</b><br>With zero (centre) position mechanical interlocking                       |   | 2 |   |   |   |   |   |   |
| <b>Movement AB “hoist”</b>                                                                 |   |   |   |   |   |   |   |   |
| <b>Number of 2-contact blocks</b><br>4 blocks                                              |   |   | 4 |   |   |   |   |   |
| <b>Type of lever movement</b><br>5 notched positions, with spring return to zero operation |   |   |   | 4 |   |   |   |   |
| <b>Potentiometer adaptation</b><br>Without adaptation nor potentiometer                    |   |   |   |   | 0 |   |   |   |
| <b>Movement CD “traverse”</b>                                                              |   |   |   |   |   |   |   |   |
| <b>Number of 2-contact blocks</b><br>2 blocks                                              |   |   |   |   |   | 2 |   |   |
| <b>Type of lever movement</b><br>3 notched positions, with spring return to zero operation |   |   |   |   |   |   | 3 |   |
| <b>Potentiometer adaptation</b><br>Without adaptation nor potentiometer                    |   |   |   |   |   |   |   | 0 |

# Controllers

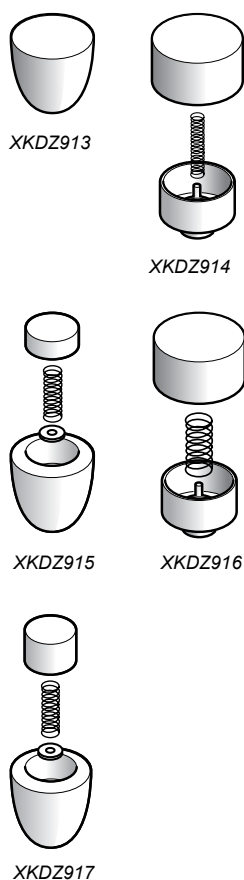
For “medium hoisting” applications, type **XKDF**  
Separate components

2



# Controllers

For “medium hoisting” applications, type **XKDF**  
Separate components



| Description                                                                             | Item | Characteristics                                           | Unit reference                                                     | Weight<br>kg/lb             |
|-----------------------------------------------------------------------------------------|------|-----------------------------------------------------------|--------------------------------------------------------------------|-----------------------------|
| <b>Bellows</b>                                                                          | 2    | Bellows + 1 flat seal                                     | <b>XKDZ921</b>                                                     | 0.075/0.165                 |
| <b>Handles</b>                                                                          | 1    | Simple                                                    | <b>XKDZ913</b>                                                     | 0.060/0.132                 |
| △ Not interchangeable between different models                                          |      | With zero (centre) position interlocking                  | <b>XKDZ914</b>                                                     | 0.035/0.077                 |
|                                                                                         |      | “Dead man’s” type                                         | <b>XKDZ915</b>                                                     | 0.040/0.088                 |
|                                                                                         |      | With built-in flush pushbutton                            | <b>XKDZ916</b>                                                     | 0.050/0.110                 |
|                                                                                         |      | With built-in projecting pushbutton                       | <b>XKDZ917</b>                                                     | 0.050/0.110                 |
|                                                                                         |      |                                                           |                                                                    |                             |
| <b>Spring return operation mechanism</b><br>Sold in lots of 2                           | 11   | Spring return to zero mechanism                           | <b>XKDZ905</b>                                                     | 0.100/0.220                 |
| <b>Notched operation mechanism</b>                                                      | 9    | Position notching mechanism for variable composition cams | <b>XKDZ909</b>                                                     | 0.010/0.022                 |
| <b>Variable composition cams for support with 4 or 8 contacts</b><br>Sold in lots of 50 | 5    | Pass cam                                                  | <b>XKDZ950</b>                                                     | 0.005/0.011                 |
|                                                                                         |      | Complementary, 1 position                                 | <b>XKDZ951</b>                                                     | 0.005/0.011                 |
|                                                                                         |      | Complementary, 1.5 position                               | <b>XKDZ952</b>                                                     | 0.010/0.022                 |
|                                                                                         |      | Complementary, 2 positions                                | <b>XKDZ953</b>                                                     | 0.010/0.022                 |
|                                                                                         |      | Complementary, 3 positions                                | <b>XKDZ954</b>                                                     | 0.020/0.044                 |
|                                                                                         |      | Complementary, 6 positions                                | <b>XKDZ955</b>                                                     | 0.035/0.077                 |
|                                                                                         |      | 5 positions                                               | <b>XKDZ956</b>                                                     | 0.030/0.066                 |
|                                                                                         |      | 7 positions                                               | <b>XKDZ957</b>                                                     | 0.040/0.088                 |
|                                                                                         |      | 9 positions                                               | <b>XKDZ958</b>                                                     | 0.050/0.110                 |
|                                                                                         |      |                                                           |                                                                    |                             |
| <b>Variable composition cams for support with 2 contacts</b><br>Sold in lots of 20      | 10   | Complementary, half-position                              | <b>XKDZ960</b>                                                     | 0.005/0.011                 |
|                                                                                         |      | Complementary, 1 position                                 | <b>XKDZ961</b>                                                     | 0.005/0.011                 |
|                                                                                         |      | Reversing, for notches 1+ 2 + 3                           | <b>XKDZ963</b>                                                     | 0.020/0.044                 |
|                                                                                         |      | Acceleration, for notches 2 + 3                           | <b>XKDZ964</b>                                                     | 0.005/0.011                 |
|                                                                                         |      | Acceleration, for notch 3                                 | <b>XKDZ965</b>                                                     | 0.010/0.022                 |
|                                                                                         |      | Pass cam                                                  | <b>XKDZ966</b>                                                     | 0.010/0.022                 |
|                                                                                         |      | Cam for zero position contact                             | <b>XKDZ967</b>                                                     | 0.010/0.022                 |
|                                                                                         |      |                                                           |                                                                    |                             |
| <b>Scheme contacts</b>                                                                  | 8    | 2 x ZB2BE102 contacts mounted on baseplate                | Without marker                                                     | <b>XKDZ901</b> 0.050/0.110  |
|                                                                                         |      |                                                           | With marker                                                        | <b>XKDZ902</b> 0.050/0.110  |
| <b>Zero (centre) position electrical interlocking C/O contact</b>                       | 7    | Snap action                                               | <b>XESB1011</b>                                                    | 0.030/0.066                 |
| <b>Contacts for “Dead man’s” handle or handle with built-in pushbutton</b>              | 7    | Slow break                                                | N/C, positive opening                                              | <b>ZB2BE102</b> 0.015/0.033 |
|                                                                                         |      |                                                           | N/O                                                                | <b>ZB2BE101</b> 0.015/0.033 |
|                                                                                         |      |                                                           |                                                                    |                             |
| <b>Legends</b>                                                                          | 12   | Blank                                                     | <b>XKDY1</b>                                                       | 0.035/0.077                 |
|                                                                                         |      | With specific engraved text                               | <b>XKDY1001</b>                                                    | 0.035/0.077                 |
| <b>Potentiometer adaptation kits</b><br>(1)                                             | 4    | On end of contact supports                                | Size 15                                                            | <b>XKDZ981</b> 0.120/0.265  |
|                                                                                         |      |                                                           | Size 18                                                            | <b>XKDZ982</b> 0.130/0.287  |
|                                                                                         | 6    | Directly on mechanical block                              | Size 15                                                            | <b>XKDZ983</b> 0.120/0.265  |
|                                                                                         |      |                                                           | Size 18                                                            | <b>XKDZ984</b> 0.130/0.287  |
| <b>Potentiometers for controllers XKD</b>                                               | 3    | –                                                         | <b>XKZA15●●, A18●●, XKDZ15●●, Z18●●</b><br>See pages 2/34 and 2/35 | –                           |

(1) Including 15 tooth pinion.

- The maximum lever travel of 36° per direction corresponds to a potentiometer shaft rotation of 168°.
- Levers with friction drive facility are available under certain conditions. Please consult your Regional Sales Office.



XKMA



XKMB



XKMC

Extremely robust and fully configurable units designed to control “heavy hoisting” equipment.

Mainly for use on fixed control stations or seated controller desks type **XJC**.

3 different controller models:

- **XKMA**: with variable composition schemes, multidirectional control of 2 movements by central lever.
- **XKMB**: with variable composition schemes, control of 1 movement by central lever.
- **XKMC**: with variable composition schemes, control of 1 movement by side lever.

#### Control lever

**XKMA** and **XKMB**: length: 200 or 250 mm/7.87 or 9.84 in.. Travel in each direction: 36° max.

**XKMC**: side lever, length 240 mm/9.45 in.. Travel in each direction: 54° max.

#### Lever gate

**XKMA**: universal or specific (must be specified on Order form).

**XKMB** and **XKMC**: no lever gate.

#### End stops

Removable, attached to mechanical block to limit lever travel in 6° steps.

#### Handle

**XKMA** and **XKMB**; 5 versions:

- Simple handle.
  - Handle with zero (centre) position mechanical interlock.
  - Handle with zero (centre) position mechanical interlock + 1 C/O snap action contact.
  - “Dead man's” handle with 1 C/O snap action contact.
  - Handle with built-in flush or projecting pushbutton + 1 C/O snap action contact.
- XKMC**: simple handle.

#### Electrical positions

**XKMA** and **XKMB**: 6 positions maximum in each direction.

**XKMC**: 9 positions maximum in each direction.

#### Type of lever movement

##### ■ Notched positions, with stayput operation.

**XKMA** and **XKMB**; 2 versions:

- 6 notch sector in each direction: 6°, 12°, 18°, 24°, 30°, 36°.
- 5 notch sector in each direction: 12°, 18°, 24°, 30°, 36°.

**Note**: two different notching forces: Normal: operating lever force: 2 daN. Increased: operating lever force: 4 daN (for 4 simultaneously operated contacts).

**XKMC**, 2 versions:

- 9 notch sector maximum in each direction: 6°, 12°, 18°, 24°, 30°, 36°, 42°, 48°, 54°.
- 8 notch sector maximum in each direction: 12°, 18°, 24°, 30°, 36°, 42°, 48°, 54°.

##### ■ Notched positions, with spring return to zero operation.

**XKMA, B and C**, 2 versions:

- 6 notches maximum in each direction: 6°, 12°, 18°, 24°, 30°, 36°.
- 5 notches maximum in each direction: 12°, 18°, 24°, 30°, 36°.
- △ 2 simultaneous contacts maximum with spring return can be used at 6° and then 4 contacts maximum at each subsequent notch.

##### ■ Unnotched positions, with spring return to zero operation:

**XKMA, B and C**: 36° maximum travel in each direction.

△ 2 simultaneous contacts maximum with spring return can be used at 6° and then 4 contacts maximum at each subsequent 6° position.

#### Contacts

24 contacts maximum per movement (2 x 3 blocks of 4 contacts).

2 versions:

- Standard, double-break contacts.
- Double-break contacts with magnetic blow-out.

#### Cam schemes

24 cams maximum per movement (12 contacts on each side), mounted in groups of 4.

**Warning**: for technical reasons relating to mounting, the first cam (for contact 13-14) must be a reversing or zero position cam.

#### Legends

1 for each direction, interchangeable without dismantling the unit.

Material: anodised aluminium, anodic oxidation marking.

Standard markings: FORWARD, REVERSE, RAISE, LOWER, LEFT, RIGHT.

Other markings: to be stated on Order form.

#### Potentiometer adaptation

2 potentiometers maximum per movement.

Potentiometers mounted at the extremity of the contact supports or directly onto the faces of the mechanical block.

| Environment                                              |                                 |       |                                                                                                                                                                                                              |
|----------------------------------------------------------|---------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conformity to standards                                  |                                 |       | EN/IEC 60947-5-1, CSA C22-2 n° 14                                                                                                                                                                            |
| Product certifications                                   |                                 |       | CSAA600, RRS                                                                                                                                                                                                 |
| Protective treatment                                     |                                 |       | Standard version “TC”                                                                                                                                                                                        |
| Ambient air temperature                                  | For storage                     | °C/°F | - 40...+ 70/-40...158                                                                                                                                                                                        |
|                                                          | For operation                   | °C/°F | - 10...+ 55/14...131                                                                                                                                                                                         |
| Operating position                                       |                                 |       | All positions                                                                                                                                                                                                |
| Vibration resistance                                     | Conforming to IEC 60068-2-6     |       | 2 gn (10 to 500 Hz)                                                                                                                                                                                          |
| Shock resistance                                         | Conforming to IEC 60068-2-27    |       | Direction of shocks on vertical axis: 15 gn<br>Direction of shocks on horizontal and transversal axes: 100 gn                                                                                                |
| Electric shock protection                                | Conforming to IEC 61140         |       | Class I                                                                                                                                                                                                      |
| Maximum operating lever force required in each direction |                                 | daN   | < 4 for 4 simultaneously actuated contacts (to 1 <sup>st</sup> notch)<br>< 4.5 for 4 simultaneously actuated contacts for spring return to zero version (maintained against end stop)                        |
| Degree of protection                                     | Conforming to IEC 60529         |       | IP 54 (unit with simple handle mounted in dust and damp proof enclosure)                                                                                                                                     |
| Mechanical durability                                    | In millions of operating cycles |       | 4 in each direction (mechanical control device)                                                                                                                                                              |
| Weight                                                   |                                 | kg/lb | <b>XKMA</b> : mechanical block: 4.6. 4-contact assembly: 0.7/1.543<br><b>XKMB</b> : mechanical block: 3. 4-contact assembly: 0.7/1.543<br><b>XKMC</b> : mechanical block: 3.7. 4-contact assembly: 0.7/1.543 |

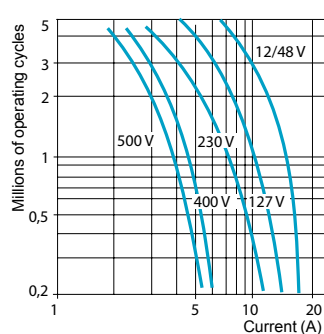
| Contact block characteristics |    |  |                                                                                                                     |
|-------------------------------|----|--|---------------------------------------------------------------------------------------------------------------------|
| Type                          |    |  | Block of 4 double-break contacts                                                                                    |
| Conventional thermal current  | A  |  | 16 conforming to EN/IEC 60947-5-1                                                                                   |
| Rated insulation voltage      | V  |  | ≈ 500 conforming to EN/IEC 60947-1 degree of pollution 3<br>≈ 600 conforming to CSA C22-2 n° 14                     |
| Contact operation             |    |  | Slow break, double-break contacts with positive opening operation<br>2 versions: standard or with magnetic blow-out |
| Resistance across terminals   | mΩ |  | ≤ 25                                                                                                                |
| Terminal referencing          |    |  | Conforming to EN 50013                                                                                              |
| Short-circuit protection      |    |  | 20 A cartridge fuse type gG conforming to EN/IEC 60947-5-1                                                          |

**Operational power**  
Conforming to EN/IEC 60947-5-1 Appendix C  
Utilisation categories AC-15 and DC-13  
Operating rate: 3600 operating cycles/hour  
Load factor: 0.5

## Standard double-break contact block

a.c. supply ~ 50-60 Hz

~ Inductive circuit



d.c. supply ~

Power broken in W for 3 million operating cycles

| Voltage V | 24 | 48 | 120 |
|-----------|----|----|-----|
| mm        | 70 | 75 | 75  |

## Double-break contact block with magnetic blow-out.

d.c. supply ~

Power broken in W for 3 million operating cycles

| Voltage V | 24 | 48  | 120 |
|-----------|----|-----|-----|
| mm        | 90 | 100 | 100 |

|            |                                                                                                                                              |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Connection | Captive screw clamp terminals<br>Clamping capacity:<br>□ minimum: 1.5 mm <sup>2</sup> ,<br>□ maximum: 2 x 2.5 mm <sup>2</sup> with cable end |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------|

For “heavy hoisting” applications, type **XKM**  
Grid for composing the reference of a controller XKMA or XKMB

## Reference of a controller type XKMA or XKMB

|                                                                                  | Model              | Lever                 | Handle   | Contacts | Movement AB   |                |                          | Movement CD<br>(XKMA only) |                |                          |
|----------------------------------------------------------------------------------|--------------------|-----------------------|----------|----------|---------------|----------------|--------------------------|----------------------------|----------------|--------------------------|
|                                                                                  |                    |                       |          |          | No. of blocks | Lever movement | Potentiometer adaptation | No. of blocks              | Lever movement | Potentiometer adaptation |
| <b>XKM</b>                                                                       |                    |                       |          |          |               |                |                          |                            |                |                          |
| <b>Model</b>                                                                     |                    |                       |          |          |               |                |                          |                            |                |                          |
| 2 movement controller (AB + CD)                                                  | <b>A</b>           |                       |          |          |               |                |                          |                            |                |                          |
| 1 movement controller (AB)                                                       | <b>B</b>           |                       |          |          |               |                |                          |                            |                |                          |
| <b>Control lever</b>                                                             |                    |                       |          |          |               |                |                          |                            |                |                          |
| Short: length 200 mm/7.87 in. (standard)                                         |                    | <b>1</b>              |          |          |               |                |                          |                            |                |                          |
| Long: length 250 mm/9.842 in.                                                    |                    | <b>2</b>              |          |          |               |                |                          |                            |                |                          |
| <b>Handle</b>                                                                    |                    |                       |          |          |               |                |                          |                            |                |                          |
| Simple (standard model)                                                          |                    |                       | <b>1</b> |          |               |                |                          |                            |                |                          |
| With zero (centre) position mechanical interlocking                              |                    |                       | <b>2</b> |          |               |                |                          |                            |                |                          |
| With zero (centre) position mechanical & electrical interlocking (1 C/O contact) |                    |                       | <b>3</b> |          |               |                |                          |                            |                |                          |
| “Dead man’s” type (1 C/O contact)                                                |                    |                       | <b>4</b> |          |               |                |                          |                            |                |                          |
| With built-in flush pushbutton (1 C/O contact)                                   |                    |                       | <b>5</b> |          |               |                |                          |                            |                |                          |
| With built-in projecting pushbutton (1 C/O contact)                              |                    |                       | <b>6</b> |          |               |                |                          |                            |                |                          |
| <b>Type of contacts</b>                                                          |                    |                       |          |          |               |                |                          |                            |                |                          |
| Block of 4 double-break contacts (standard model)                                |                    |                       |          | <b>1</b> |               |                |                          |                            |                |                          |
| Block of 4 double-break contacts with magnetic blow-out                          |                    |                       |          | <b>2</b> |               |                |                          |                            |                |                          |
| <b>Movement AB</b>                                                               |                    |                       |          |          |               |                |                          |                            |                |                          |
| <b>Number of 4-contact blocks</b>                                                |                    |                       |          |          |               |                |                          |                            |                |                          |
| 0 blocks                                                                         |                    |                       |          |          | <b>0</b>      |                |                          |                            |                |                          |
| 1 block                                                                          |                    |                       |          |          | <b>1</b>      |                |                          |                            |                |                          |
| 2 blocks                                                                         |                    |                       |          |          | <b>2</b>      |                |                          |                            |                |                          |
| 3 blocks                                                                         |                    |                       |          |          | <b>3</b>      |                |                          |                            |                |                          |
| 4 blocks                                                                         |                    |                       |          |          | <b>4</b>      |                |                          |                            |                |                          |
| 5 blocks                                                                         |                    |                       |          |          | <b>5</b>      |                |                          |                            |                |                          |
| 6 blocks                                                                         |                    |                       |          |          | <b>6</b>      |                |                          |                            |                |                          |
| <b>Type of lever movement</b>                                                    |                    |                       |          |          |               |                |                          |                            |                |                          |
| Movement not required (blocked)                                                  |                    |                       |          |          |               | <b>0</b>       |                          |                            |                |                          |
| Notched positions, with stayput operation                                        | 5 notches (1)      | Normal lever force    |          |          |               | <b>1</b>       |                          |                            |                |                          |
|                                                                                  |                    | Increased lever force |          |          |               | <b>2</b>       |                          |                            |                |                          |
| 6 notches (2)                                                                    | Normal lever force |                       |          |          |               | <b>3</b>       |                          |                            |                |                          |
|                                                                                  |                    | Increased lever force |          |          |               | <b>4</b>       |                          |                            |                |                          |
| Notched positions, with spring return to zero operation                          | 5 notches (1)      |                       |          |          |               | <b>5</b>       |                          |                            |                |                          |
|                                                                                  | 6 notches (2)      |                       |          |          |               | <b>6</b>       |                          |                            |                |                          |
| Unnotched positions, with spring return to zero operation (3)                    |                    |                       |          |          |               | <b>7</b>       |                          |                            |                |                          |
| <b>Potentiometer adaptation</b>                                                  |                    |                       |          |          |               |                |                          |                            |                |                          |
| Without potentiometer support plate, or potentiometer                            |                    |                       |          |          |               |                | <b>0</b>                 |                            |                |                          |
| With potentiometer support plate only (4) (potentiometer not included)           |                    |                       |          |          |               |                | <b>1</b>                 |                            |                |                          |
| With potentiometer support plate + potentiometer (5)                             |                    |                       |          |          |               |                | <b>2</b>                 |                            |                |                          |
| <b>Movement CD (for type XKMA only)</b>                                          |                    |                       |          |          |               |                |                          |                            |                |                          |
| <b>Number of 4-contact blocks</b>                                                |                    |                       |          |          |               |                |                          |                            |                |                          |
| 0 blocks                                                                         |                    |                       |          |          |               |                |                          | <b>0</b>                   |                |                          |
| 1 block                                                                          |                    |                       |          |          |               |                |                          | <b>1</b>                   |                |                          |
| 2 blocks                                                                         |                    |                       |          |          |               |                |                          | <b>2</b>                   |                |                          |
| 3 blocks                                                                         |                    |                       |          |          |               |                |                          | <b>3</b>                   |                |                          |
| 4 blocks                                                                         |                    |                       |          |          |               |                |                          | <b>4</b>                   |                |                          |
| 5 blocks                                                                         |                    |                       |          |          |               |                |                          | <b>5</b>                   |                |                          |
| 6 blocks                                                                         |                    |                       |          |          |               |                |                          | <b>6</b>                   |                |                          |
| <b>Type of lever movement</b>                                                    |                    |                       |          |          |               |                |                          |                            |                |                          |
| Movement not required (blocked)                                                  |                    |                       |          |          |               |                |                          | <b>0</b>                   |                |                          |
| Notched positions, with stayput operation                                        | 5 notches (1)      | Normal lever force    |          |          |               |                |                          | <b>1</b>                   |                |                          |
|                                                                                  |                    | Increased lever force |          |          |               |                |                          | <b>2</b>                   |                |                          |
| 6 notches (2)                                                                    | Normal lever force |                       |          |          |               |                |                          | <b>3</b>                   |                |                          |
|                                                                                  |                    | Increased lever force |          |          |               |                |                          | <b>4</b>                   |                |                          |
| Notched positions, with spring return to zero operation                          | 5 notches (1)      |                       |          |          |               |                |                          | <b>5</b>                   |                |                          |
|                                                                                  | 6 notches (2)      |                       |          |          |               |                |                          | <b>6</b>                   |                |                          |
| Unnotched positions, with spring return to zero operation (3)                    |                    |                       |          |          |               |                |                          | <b>7</b>                   |                |                          |
| <b>Potentiometer adaptation</b>                                                  |                    |                       |          |          |               |                |                          |                            |                |                          |
| Without adaptation nor potentiometer                                             |                    |                       |          |          |               |                |                          |                            | <b>0</b>       |                          |
| With adaptation only (without potentiometer)                                     |                    |                       |          |          |               |                |                          |                            | <b>1</b>       |                          |
| With adaptation + potentiometer (5)                                              |                    |                       |          |          |               |                |                          |                            | <b>2</b>       |                          |

(1) 5 mechanical notches (1<sup>st</sup> notch at 12°) (6 electrical positions in each direction). (2) 6 mechanical notches (1<sup>st</sup> notch at 6°) (6 electrical positions in each direction).  
(3) Type of lever movement recommended when using a potentiometer. (4) Adaptation including 15 tooth pinion.  
(5) Potentiometer type and value to be stated on the order form, see pages 2/34 and 2/35.

### Requirement

A 2 movement controller: “hoist-long travel”.

Universal 200 mm/7.87 in. lever gate, limited to 4 notches on the “raise” and “lower” directions (1<sup>st</sup> notch at 12°).

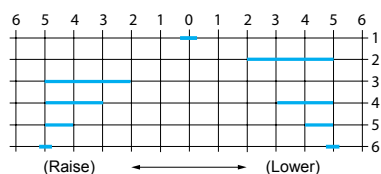
Potentiometer adaptation on movement CD. Potentiometer selected: 4700 Ω, size 15, standard model.

“Dead man’s” handle with 1 C/O contact.

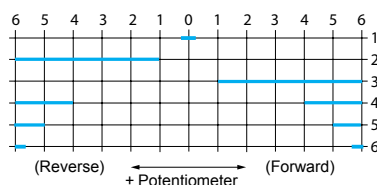
Movement AB: type of lever movement: notched positions, with spring return to zero operation and 5 notches (starting from 12°).

Movement CD: type of lever movement: unnotched positions, with spring return to zero operation.

### Scheme for movement AB “hoist”



### Scheme for movement CD “long travel”



### Notes:

#### Movement AB

Two installation alternatives depending on the required size:

- 2 blocks of 4 contacts, both on the same side of the mechanical block (example on next page),
- 1 block of 4 contacts on either side of the mechanical block.

#### Movement CD

Same installation alternatives as for movement AB.

Two alternatives for potentiometer installation:

- On end of cam carriers and contact supports (example on next page),
- Directly on the mechanical block.

### Composition of the reference (see page 2/20)

|                                                                                                 | XKM | A | 1 | 4 | 1 | 2 | 5 | 0 | 2 | 7 | 2 |
|-------------------------------------------------------------------------------------------------|-----|---|---|---|---|---|---|---|---|---|---|
| <b>Model</b>                                                                                    |     | A |   |   |   |   |   |   |   |   |   |
| 2 movements (AB + CD)                                                                           |     |   |   |   |   |   |   |   |   |   |   |
| <b>Control lever</b>                                                                            |     |   | 1 |   |   |   |   |   |   |   |   |
| Short: length 200 mm (standard)                                                                 |     |   |   |   |   |   |   |   |   |   |   |
| <b>Handle</b>                                                                                   |     |   |   | 4 |   |   |   |   |   |   |   |
| “Dead man’s” type with 1 C/O contact                                                            |     |   |   |   |   |   |   |   |   |   |   |
| <b>Type of contacts</b>                                                                         |     |   |   |   | 1 |   |   |   |   |   |   |
| Standard double-break                                                                           |     |   |   |   |   |   |   |   |   |   |   |
| <b>Movement AB</b>                                                                              |     |   |   |   |   |   |   |   |   |   |   |
| <b>Number of 4-contact blocks</b>                                                               |     |   |   |   | 2 |   |   |   |   |   |   |
| 2 blocks (i.e. 8 contacts when 6 contacts required)                                             |     |   |   |   |   |   |   |   |   |   |   |
| <b>Type of lever movement</b>                                                                   |     |   |   |   |   | 5 |   |   |   |   |   |
| Notched positions, with spring return to zero operation and 5 notch sectors (starting from 12°) |     |   |   |   |   |   |   |   |   |   |   |
| <b>Potentiometer</b>                                                                            |     |   |   |   |   |   |   | 0 |   |   |   |
| Without adaptation device nor potentiometer                                                     |     |   |   |   |   |   |   |   |   |   |   |
| <b>Movement CD</b>                                                                              |     |   |   |   |   |   |   |   |   |   |   |
| <b>Number of 4-contact blocks</b>                                                               |     |   |   |   |   |   |   |   | 2 |   |   |
| 2 blocks (i.e. 8 contacts when 6 contacts required)                                             |     |   |   |   |   |   |   |   |   |   |   |
| <b>Type of lever movement</b>                                                                   |     |   |   |   |   |   |   |   |   | 7 |   |
| Unnotched positions, with spring return to zero operation                                       |     |   |   |   |   |   |   |   |   |   |   |
| <b>Potentiometer</b>                                                                            |     |   |   |   |   |   |   |   |   |   | 2 |
| With potentiometer adaptation device + size 15, 4700 Ω potentiometer                            |     |   |   |   |   |   |   |   |   |   |   |

(Information given by customers is indicated in blue)

**Reference** (use the grid for composing the reference of a controller on page 2/20)

Number of identical units

**1** **XKM** **A** **1** **4** **1** **2** **5** **0** **2** **7** **2**

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[illegible]

### Lever gate

Sketch and crosshatch the lever's field of movement on the grid

**Drum**  
n°2

### Potentiometer adaptation

Cross ☒ the position on the scheme

**On movement AB**

Type/Size:

Value:

On movement CD

Type/Size:

Type/Size: \_\_\_\_\_

Value: 4700  $\Omega$ 

**Drum**

**Adaptation** ☐ **Potentiometer**

**Item (2)**

**n°3**

| Time (°) | Adaptation |
|----------|------------|
| 36°      | 1          |
| 30°      | 1          |
| 24°      | 2          |
| 18°      | 3          |
| 12°      | 4          |
| 6°       | 3          |
| 0°       | 3          |
| 6°       | 4          |
| 12°      | 3          |
| 18°      | 4          |
| 24°      | 3          |
| 30°      | 4          |
| 36°      | 3          |

Text: **REVERSE (XKM Y1106)** Ex: 6 notches

Direction D (west) ↑ 6° 12° 18° 24° 30° 36°

Direction A (north) ↑ 6° 12° 18° 24° 30° 36° Ex: 6 notches

Direction B (south) ↓ 12° 18° 24° 30° 36°

Direction C (east) → 12° 18° 24° 30° 36° Ex: 5 notches

Text: **FORWARD (XKM Y1105)** Ex: 5 notches

Text: **RAISE (XKM Y1107)** Ex: 5 notches

| Item (2) |    | Drum | n°1 |
|----------|----|------|-----|
| 13       | 14 |      |     |
| 23       | 24 |      |     |
| 3 1      | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          | 24 |      |     |
|          | 34 |      |     |
|          | 44 |      |     |
|          |    |      |     |
|          | 14 |      |     |
|          |    |      |     |

### Choice of cam carriers

- (1) The 1<sup>st</sup> cam must either be a zero position cam or a reversing cam.
- (2) Reserved for contact identification in the automation system scheme.  
It is not possible to mark it on the controller.

Contact at lever base

☒ D/man's

Item (2)

← Direction D      0      Direction C →

(1)  
13  
2 | 1  
33  
43  
43  
23  
2 | 2  
33  
43  
13  
23  
2 | 1  
33  
43

14  
24  
34  
44  
44  
24  
34  
44  
44  
14  
24  
34  
44

Adaptation      Potentiometer

**Movement CD**

**Drum n°4**

Item (2)

**Legend** (1 for each direction)

Without legend

With blank legend **XKMY1**

Legend with specific engraving

Legend with specific engraving  
(clearly state text on this scheme)

Left-hand operated unit

Right-hand operated unit

Legend with standard text

Legend with standard text  
(see page 2/29)

Left hand operated unit

Right-hand operated unit

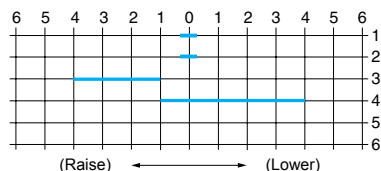
⚠ 2 simultaneous contacts maximum with spring return can be used at 6° and then 4 contacts at each subsequent 6° position.

(1) Additional help for completing the order form is available from your Regional Sales Office.

### Requirement

A single movement controller: “hoist”.

### Scheme for movement AB “hoist”



### Note:

#### Movement AB

Two installation alternatives depending on the required size (space in the enclosure or non symmetrical installation):

- 1 to 3 blocks of 4 contacts on each side of the mechanical block,
- 1 to 3 blocks on one side only.

### Composition of the reference (see page 2/20)

|                                                           | XKM | B | 1 | 1 | 1 | 1 | 6 | 0 |  |  |  |
|-----------------------------------------------------------|-----|---|---|---|---|---|---|---|--|--|--|
| <b>Model</b>                                              |     | B |   |   |   |   |   |   |  |  |  |
| 1 movement controller (AB)                                |     |   |   |   |   |   |   |   |  |  |  |
| <b>Control lever</b>                                      |     |   | 1 |   |   |   |   |   |  |  |  |
| Short: length 200 mm (standard)                           |     |   |   |   |   |   |   |   |  |  |  |
| <b>Handle</b>                                             |     |   |   | 1 |   |   |   |   |  |  |  |
| Simple (standard model)                                   |     |   |   |   |   |   |   |   |  |  |  |
| <b>Type of contacts</b>                                   |     |   |   |   | 1 |   |   |   |  |  |  |
| Block of 4 double-break contacts (standard model)         |     |   |   |   |   |   |   |   |  |  |  |
| <b>Movement AB</b>                                        |     |   |   |   |   |   |   |   |  |  |  |
| <b>Number of 4-contact blocks</b>                         |     |   |   |   |   | 1 |   |   |  |  |  |
| 1 block (i.e. 4 contacts)                                 |     |   |   |   |   |   |   |   |  |  |  |
| <b>Type of lever movement</b>                             |     |   |   |   |   |   | 6 |   |  |  |  |
| 6 notched positions, with spring return to zero operation |     |   |   |   |   |   |   |   |  |  |  |
| <b>Potentiometer</b>                                      |     |   |   |   |   |   |   | 0 |  |  |  |
| Without potentiometer support plate, or potentiometer     |     |   |   |   |   |   |   |   |  |  |  |

| Customer |                      | Schneider Electric Industries  |        |                   |          |
|----------|----------------------|--------------------------------|--------|-------------------|----------|
| Company  | Customer's reference | Sales office - Subsid. - Plant | Editor | Geographical zone | Order N° |
|          |                      |                                |        |                   |          |

## Reference (use the grid for composing the reference of a controller on page 2/20)

|  | Model | Lever | Handle | Type of contact | Movement AB   |                |                          | Movement CD   |                |                          |
|--|-------|-------|--------|-----------------|---------------|----------------|--------------------------|---------------|----------------|--------------------------|
|  |       |       |        |                 | No. of blocks | Lever movement | Potentiometer adaptation | No. of blocks | Lever movement | Potentiometer adaptation |

Number of identical units

1

XKM

B

1

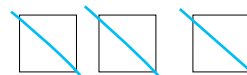
1

1

1

6

0



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| Order N° | Item N° | MOD | LEV | POI | GLV | CT1 | CT3 | MAB | P13 | CT2 | CT4 | MCD | P24 |
|----------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|          |         | XKM |     |     |     |     |     |     |     |     |     |     |     |

## Scheme: viewed from above

**Lever gate**  
Sketch and crosshatch the lever's field of movement on the grid

**Movement CD**  
Adaptation ☐ Potentiometer ☐

Drum n°2

Item (2)

36° 30° 24° 18° 12° 6° 0° 6° 12° 18° 24° 30° 36°

Direction D ← Direction C →

**Potentiometer adaptation**  
Cross ☒ the position on the scheme

**On movement AB**  
Type/Size:

Value:

**On movement CD**  
Type/Size:

Value: 4700 Ω

Drum n°3

Item (2)

Movement AB

Adaptation ☐ Potentiometer ☐

36° 30° 24° 18° 12° 6° 0° 6° 12° 18° 24° 30° 36°

Text: LOWER (XKM Y1108)

Direction A (north) ↑ 6° 12° 18° 24° 30° 36°

Direction B (south) ↓ 12° 18° 24° 30° 36°

Direction D (west) ← 6° 12° 18° 24° 30° 36°

Direction C (east) → 12° 18° 24° 30° 36°

Text: RAISE (XKM Y1107)

Drum n°1

Item (2)

Adaptation ☐ Potentiometer ☐

Movement AB

## Choice of cam carriers

- (1) The 1<sup>st</sup> cam must either be a zero position cam or a reversing cam.
- (2) Reserved for contact identification in the automation system scheme. It is not possible to mark it on the controller.

Contact at lever base

☐ ☐

Item (2)

Drum n°4

Item (2)

Adaptation ☐ Potentiometer ☐

Movement CD

**Legend (1 for each direction)**

Without legend ☐

With blank legend, XKMY1 ☐

Legend with specific engraving (clearly state text on this scheme)

Left-hand operated unit ☐

Right-hand operated unit ☐

Legend with standard text (see page 2/29)

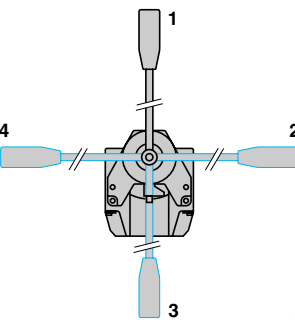
Left hand operated unit ☒

Right-hand operated unit ☐

△ 2 simultaneous contacts maximum with spring return can be used at 6° and then 4 contacts at each subsequent 6° position.

(1) Additional help for completing the order form is available from your Regional Sales Office.

## Reference of controller type XKMC

|                                                                                   |               |                       | Lever | Contacts | Movement AB   |                | Potentiometer adaptation |
|-----------------------------------------------------------------------------------|---------------|-----------------------|-------|----------|---------------|----------------|--------------------------|
|                                                                                   |               |                       |       |          | No. of blocks | Lever movement |                          |
| XKMC                                                                              |               |                       |       |          |               |                |                          |
| Control lever                                                                     |               |                       |       |          |               |                |                          |
| Side lever, position according to diagram below                                   |               |                       | 1     |          |               |                |                          |
| Position 1                                                                        |               |                       | 2     |          |               |                |                          |
| Position 2                                                                        |               |                       | 3     |          |               |                |                          |
| Position 3                                                                        |               |                       | 4     |          |               |                |                          |
| Position 4                                                                        |               |                       |       |          |               |                |                          |
|  |               |                       |       |          |               |                |                          |
| Type of contacts                                                                  |               |                       |       |          |               |                |                          |
| Block of 4 double-break contacts (standard model)                                 |               |                       |       | 1        |               |                |                          |
| Block of 4 double-break contacts with magnetic blow-out                           |               |                       |       | 2        |               |                |                          |
| Movement AB                                                                       |               |                       |       |          |               |                |                          |
| Number of 4-contact blocks                                                        |               |                       |       |          |               |                |                          |
| 1 block                                                                           |               |                       |       |          | 1             |                |                          |
| 2 blocks                                                                          |               |                       |       |          | 2             |                |                          |
| 3 blocks                                                                          |               |                       |       |          | 3             |                |                          |
| Type of lever movement                                                            |               |                       |       |          |               |                |                          |
| Notched positions, with stayput operation                                         | 5 notches (1) | Normal lever force    |       |          |               | 1              |                          |
|                                                                                   |               | Increased lever force |       |          |               | 2              |                          |
|                                                                                   | 6 notches (2) | Normal lever force    |       |          |               | 3              |                          |
|                                                                                   |               | Increased lever force |       |          |               | 4              |                          |
|                                                                                   | 8 notches (1) |                       |       |          |               | 5              |                          |
|                                                                                   | 9 notches (2) |                       |       |          |               | 6              |                          |
| Notched positions, with spring return to zero operation                           | 5 notches (1) |                       |       |          |               | 7              |                          |
|                                                                                   | 6 notches (2) |                       |       |          |               | 8              |                          |
| Unnotched positions, with spring return to zero operation (3)                     |               |                       |       |          |               | 9              |                          |
| Potentiometer adaptation                                                          |               |                       |       |          |               |                |                          |
| Without adaptation nor potentiometer                                              |               |                       |       |          |               |                | 0                        |
| With adaptation (4) only (without potentiometer)                                  |               |                       |       |          |               |                | 1                        |
| With adaptation (4) + potentiometer (5)                                           |               |                       |       |          |               |                | 2                        |

(1) 1<sup>st</sup> mechanical notch at 12°.(2) 1<sup>st</sup> mechanical notch at 6°.

(3) Type of lever movement recommended when using a potentiometer.

(4) Adaptation including 15 tooth pinion.

(5) Potentiometer type and value to be stated on the order form, see page 2/34.

### Requirement

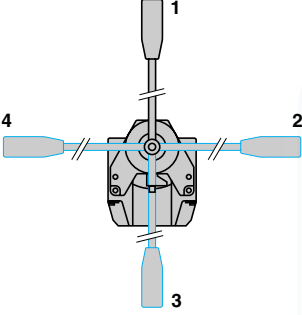
A 1 movement (AB), 2 direction controller, fitted with a vertical (upward pointing) lever.

### Movement AB:

Installation of 2 blocks of 4 standard double-break contacts.

Lever movement with 6 notches at 6° intervals (1<sup>st</sup> mechanical notch at 6°), with notched cams and stayput angular positions.  
No potentiometer.

### Composition of the reference (see page 2/25)

|                                                                                    | Lever         | Contacts              | Movement AB   |                |                          |
|------------------------------------------------------------------------------------|---------------|-----------------------|---------------|----------------|--------------------------|
|                                                                                    |               |                       | No. of blocks | Lever movement | Potentiometer adaptation |
| <b>XKMC</b>                                                                        | <b>1</b>      | <b>1</b>              | <b>2</b>      | <b>3</b>       | <b>0</b>                 |
| <b>Control lever</b>                                                               |               |                       |               |                |                          |
| Side lever, position according to diagram below                                    |               |                       |               |                |                          |
|  |               |                       |               |                |                          |
| Position 1                                                                         | 1             |                       |               |                |                          |
| Position 2                                                                         | 2             |                       |               |                |                          |
| Position 3                                                                         | 3             |                       |               |                |                          |
| Position 4                                                                         | 4             |                       |               |                |                          |
| <b>Type of contacts</b>                                                            |               |                       |               |                |                          |
| Block of 4 double-break contacts (standard model)                                  |               |                       |               |                |                          |
|                                                                                    |               | 1                     |               |                |                          |
| Block of 4 double-break contacts with magnetic blow-out                            |               |                       |               |                |                          |
|                                                                                    |               | 2                     |               |                |                          |
| <b>Movement AB</b>                                                                 |               |                       |               |                |                          |
| <b>Number of 4-contact blocks</b>                                                  |               |                       |               |                |                          |
| 1 block                                                                            |               |                       |               |                |                          |
|                                                                                    |               |                       | 1             |                |                          |
| 2 blocks                                                                           |               |                       |               |                |                          |
|                                                                                    |               |                       | 2             |                |                          |
| 3 blocks                                                                           |               |                       |               |                |                          |
|                                                                                    |               |                       | 3             |                |                          |
| <b>Type of lever movement</b>                                                      |               |                       |               |                |                          |
| Notched positions, with stayput operation                                          | 5 notches (1) | Normal lever force    |               | 1              |                          |
|                                                                                    |               | Increased lever force |               | 2              |                          |
|                                                                                    | 6 notches (2) | Normal lever force    |               | 3              |                          |
|                                                                                    |               | Increased lever force |               | 4              |                          |
| 8 notches (1)                                                                      | 9 notches (2) |                       |               | 5              |                          |
|                                                                                    |               |                       |               | 6              |                          |
|                                                                                    |               |                       |               | 7              |                          |
| Notched positions, with spring return to zero operation                            | 5 notches (1) |                       |               | 8              |                          |
|                                                                                    | 6 notches (2) |                       |               | 9              |                          |
| Unnotched positions, with spring return to zero operation (3)                      |               |                       |               |                |                          |
| <b>Potentiometer adaptation</b>                                                    |               |                       |               |                |                          |
| Without adaptation nor potentiometer                                               |               |                       |               |                |                          |
|                                                                                    |               |                       |               |                | 0                        |
| With adaptation (4) only (without potentiometer)                                   |               |                       |               |                |                          |
|                                                                                    |               |                       |               |                | 1                        |
| With adaptation (4) + potentiometer (5)                                            |               |                       |               |                |                          |
|                                                                                    |               |                       |               |                | 2                        |

(1) 1<sup>st</sup> mechanical notch at 12°.

(2) 1<sup>st</sup> mechanical notch at 6°.

(3) Type of lever movement recommended when using a potentiometer.

(4) Adaptation including 15 tooth pinion.

(5) Potentiometer type and value to be stated on the order form, see page 2/34.

| Customer |                      | Schneider Electric Industries  |        |                   |          |
|----------|----------------------|--------------------------------|--------|-------------------|----------|
| Company  | Customer's reference | Sales office - Subsid. - Plant | Editor | Geographical zone | Order N° |
|          |                      |                                |        |                   |          |

## Reference (use the grid for composing the reference of a controller on page 2/25)

|                           |   |       |       | Movement AB |               |                |                          |   |
|---------------------------|---|-------|-------|-------------|---------------|----------------|--------------------------|---|
|                           |   | Model | Lever | Contacts    | No. of blocks | Lever movement | Potentiometer adaptation |   |
| Number of identical units | 1 | XKM   | C     | 1           | 1             | 2              | 3                        | 0 |

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| Order N° | Item N° | MOD        | LEV | POI | GLV | CTS | MAN | POT |
|----------|---------|------------|-----|-----|-----|-----|-----|-----|
|          |         | <b>XKM</b> |     |     |     |     |     |     |

## Potentiometer adaptation

Cross ☒ the required position on the scheme below.

## On movement AB

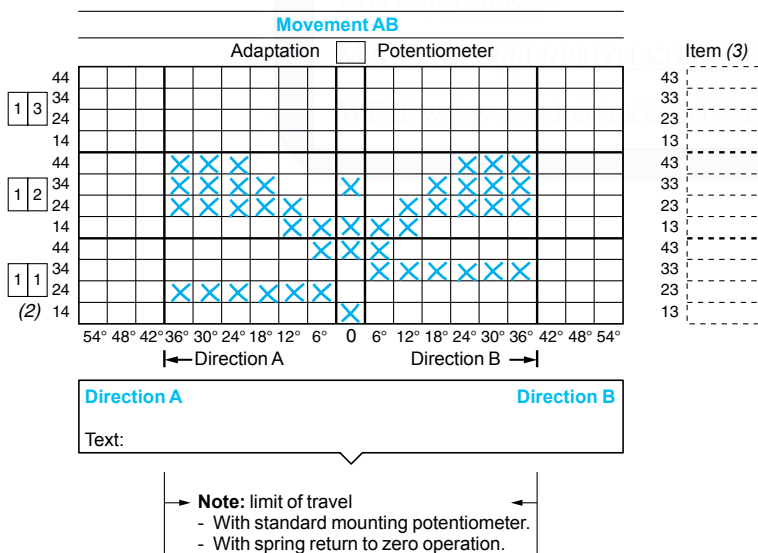
Type/size:

Value:

## Legend

Without legend ☐Blank legend, **XKMCY1** ☒Legend with specific engraving, **XKMY1001**  
(clearly state the text on the scheme below)Left-hand operated unit ☐Right-hand operated unit ☐

## Scheme (viewed from above)

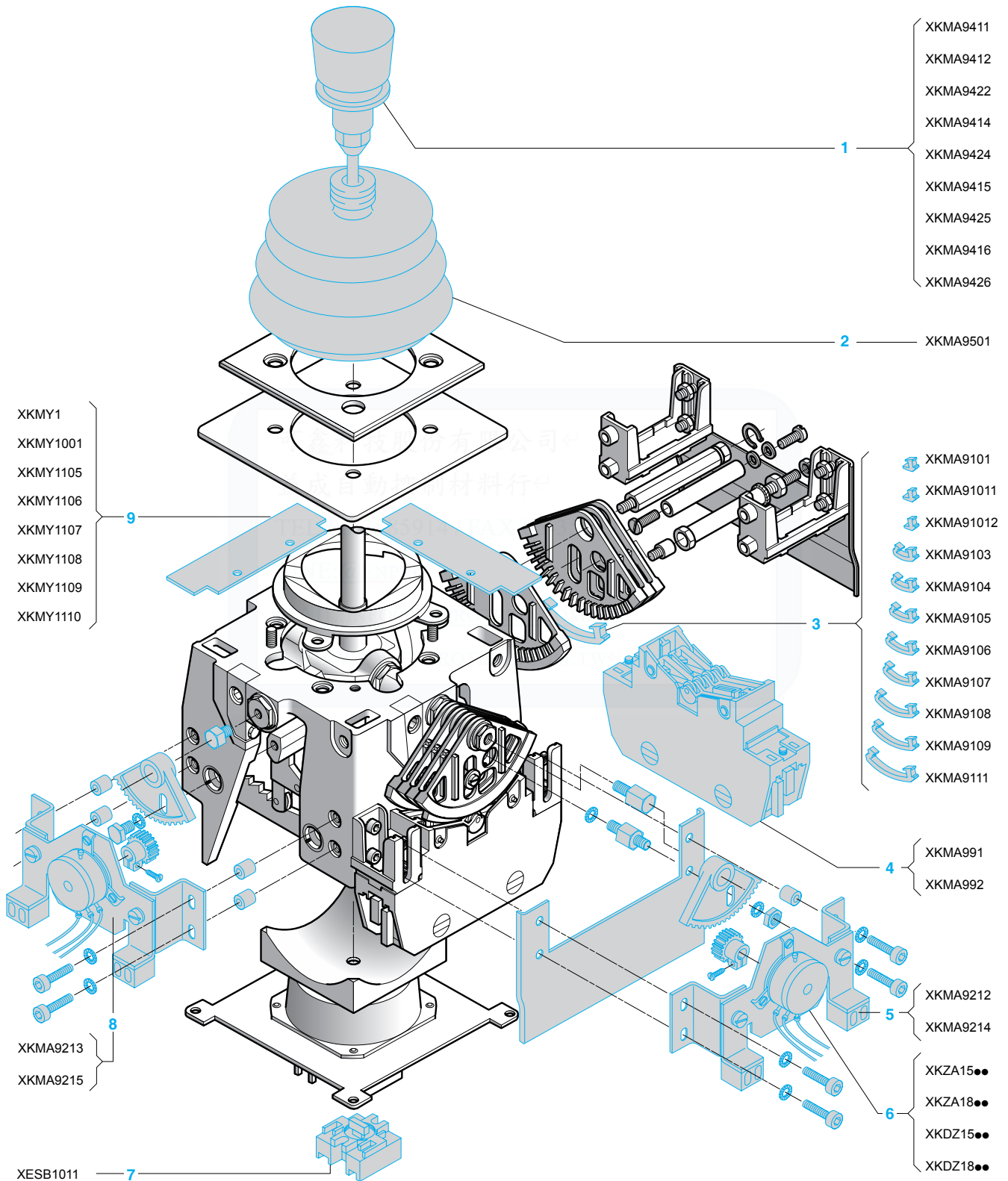


⚠ 2 simultaneous contacts maximum with spring return can be used at 6° and then 4 contacts at each subsequent 6° position.

(1) Additional help for completing the order form is available from your Regional Sales Office.

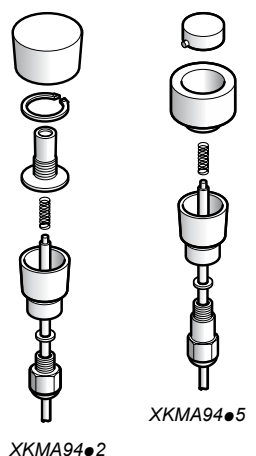
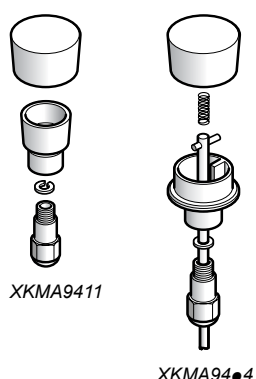
(2) The 1<sup>st</sup> cam must either be a zero position cam or a reversing cam.

(3) Reserved for contact identification in the automation system scheme. It is not possible to mark it on the controller.



# Controllers

For “heavy hoisting” applications, type **XKM**  
Separate components



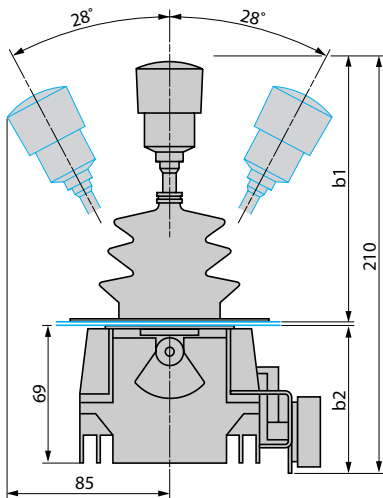
| Description                                                      | Item | Characteristics                                      | Unit reference                                                     | Weight<br>kg/lb             |
|------------------------------------------------------------------|------|------------------------------------------------------|--------------------------------------------------------------------|-----------------------------|
| <b>Bellows</b>                                                   | 2    | —                                                    | <b>XKMA9501</b>                                                    | 0.120/0.265                 |
| <b>Simple handle</b>                                             | 1    | —                                                    | <b>XKMA9411</b>                                                    | 0.085/0.187                 |
| <b>Handles + rods</b>                                            | 1    | With zero (centre) position interlocking             | For short or long lever                                            |                             |
|                                                                  |      |                                                      | For short lever                                                    | <b>XKMA9414</b> 0.145/0.320 |
|                                                                  |      |                                                      | For long lever                                                     | <b>XKMA9424</b> 0.155/0.342 |
|                                                                  |      | “Dead man’s” type                                    | For short lever                                                    | <b>XKMA9412</b> 0.150/0.331 |
|                                                                  |      |                                                      | For long lever                                                     | <b>XKMA9422</b> 0.160/0.353 |
|                                                                  |      | With built-in flush pushbutton                       | For short lever                                                    | <b>XKMA9415</b> 0.140/0.309 |
|                                                                  |      |                                                      | For long lever                                                     | <b>XKMA9425</b> 0.150/0.331 |
|                                                                  |      | With built-in projecting pushbutton                  | For short lever                                                    | <b>XKMA9416</b> 0.140/0.309 |
|                                                                  |      |                                                      | For long lever                                                     | <b>XKMA9426</b> 0.150/0.331 |
| <b>Variable composition cams</b><br>Sold in lots of 50           | 3    | Pass cam                                             | <b>XKMA9101</b>                                                    | 0.115/0.253                 |
|                                                                  |      | Complementary                                        | <b>XKMA91011</b>                                                   | 0.120/0.265                 |
|                                                                  |      | Overlapping                                          | <b>XKMA91012</b>                                                   | 0.105/0.231                 |
|                                                                  |      | 3 positions                                          | <b>XKMA9103</b>                                                    | 0.205/0.452                 |
|                                                                  |      | 4 positions                                          | <b>XKMA9104</b>                                                    | 0.245/0.540                 |
|                                                                  |      | 5 positions                                          | <b>XKMA9105</b>                                                    | 0.370/0.816                 |
|                                                                  |      | 6 positions                                          | <b>XKMA9106</b>                                                    | 0.400/0.882                 |
|                                                                  |      | 7 positions                                          | <b>XKMA9107</b>                                                    | 0.430/0.948                 |
|                                                                  |      | 8 positions                                          | <b>XKMA9108</b>                                                    | 0.460/1.014                 |
|                                                                  |      | 9 positions                                          | <b>XKMA9109</b>                                                    | 0.505/1.113                 |
|                                                                  |      | 11 positions                                         | <b>XKMA9111</b>                                                    | 0.560/1.235                 |
| <b>Blocks of 4 contacts</b>                                      | 4    | Double-break                                         | <b>XKMA991</b>                                                     | 0.310/0.683                 |
|                                                                  |      | Double-break with magnetic blow-out                  | <b>XKMA992</b>                                                     | 0.335/0.739                 |
| <b>Contact at lever base</b>                                     | 7    | 1 C/O snap action                                    | <b>XESB1011</b>                                                    | 0.030/0.066                 |
| <b>Legends</b>                                                   | 9    | Blank                                                | <b>XKMY1</b>                                                       | 0.010/0.022                 |
|                                                                  |      | With specific engraving (specify text when ordering) | <b>XKMY1001</b>                                                    | 0.010/0.022                 |
|                                                                  |      | With standard text                                   | Forward                                                            | <b>XKMY1105</b> 0.010/0.022 |
|                                                                  |      |                                                      | Reverse                                                            | <b>XKMY1106</b> 0.010/0.022 |
|                                                                  |      |                                                      | Raise                                                              | <b>XKMY1107</b> 0.010/0.022 |
|                                                                  |      |                                                      | Lower                                                              | <b>XKMY1108</b> 0.010/0.022 |
|                                                                  |      |                                                      | Left                                                               | <b>XKMY1109</b> 0.010/0.022 |
|                                                                  |      |                                                      | Right                                                              | <b>XKMY1110</b> 0.010/0.022 |
| <b>Potentiometer adaptation kits</b><br>(1)                      | 5    | On end of contact supports                           | Size 15                                                            | <b>XKMA9214</b> 0.120/0.265 |
|                                                                  |      |                                                      | Size 18                                                            | <b>XKMA9212</b> 0.130/0.287 |
|                                                                  | 8    | Directly on mechanical block                         | Size 15                                                            | <b>XKMA9215</b> 0.120/0.265 |
|                                                                  |      |                                                      | Size 18                                                            | <b>XKMA9213</b> 0.130/0.287 |
| <b>Potentiometers for controllers</b><br><b>XKMA, XKMB, XKMC</b> | 6    | —                                                    | <b>XKZA15●●, A18●●, XKDZ15●●, Z18●●</b><br>See pages 2/34 and 2/35 | —                           |

(1) Including 15 tooth pinion.

□ The maximum lever travel of 36° per direction corresponds to a potentiometer shaft rotation of 168°.

□ Levers with friction drive facility are available under certain conditions. Please consult your Regional Sales Office.

## XKBA, XKBE

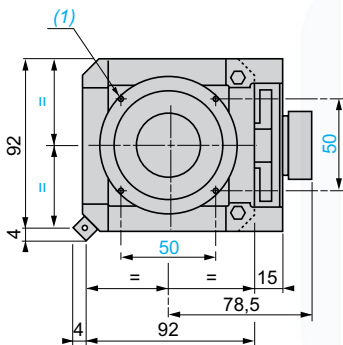


|       |                                  | b1        | b2 |
|-------|----------------------------------|-----------|----|
| XKBA, | with size 15 (3 W) potentiometer | 129...134 | 75 |
| XKBE  | with size 18 (4 W) potentiometer | 129...134 | 80 |

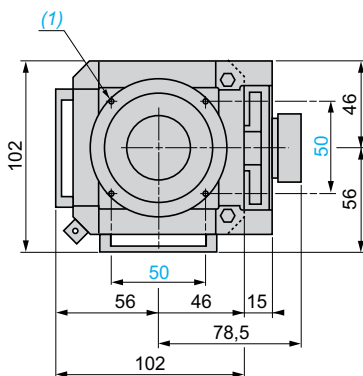
(1) Fixing by 4 M5 screws.

**Note:** the size 18 potentiometer adaptation on an XKB controller prevents it from being mounted in an XJP controller station.

## 4-contact block

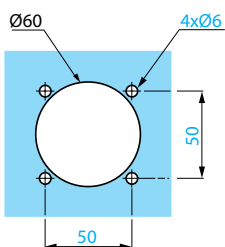


## 4-contact block + 1 zero position contact

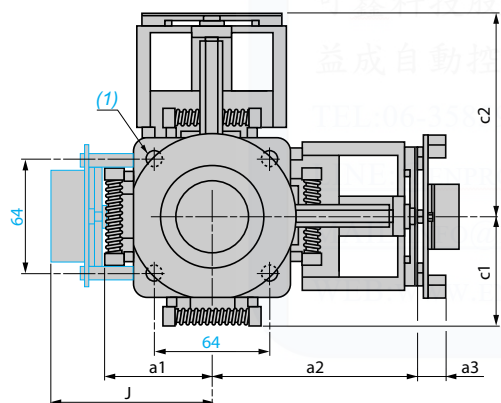
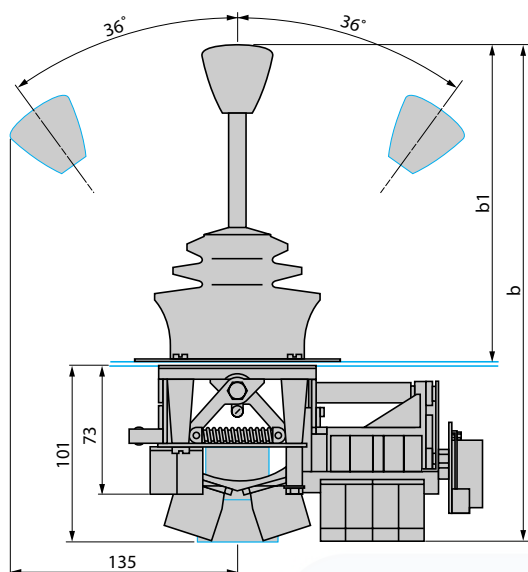


## Panel cut-out

thickness 1 to 6 mm/0.04 to 0.24 in.



## XKDF



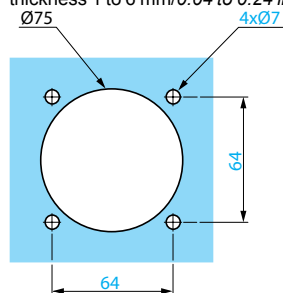
|      |                  | b   | b1        |
|------|------------------|-----|-----------|
| XKDF | with short lever | 288 | 181...186 |
|      | with long lever  | 338 | 236...241 |

|      |                                         | a1 | a2  | c1 | c2  |
|------|-----------------------------------------|----|-----|----|-----|
| XKDF | with 2 contacts                         | 52 | –   | 52 | –   |
|      | with 2 contacts + spring return to zero | 65 | –   | 65 | –   |
|      | with 4 contacts                         | –  | 90  | –  | 90  |
|      | with 8 contacts                         | –  | 120 | –  | 120 |

|                              |               | J    | a3   |
|------------------------------|---------------|------|------|
| Adaptation for potentiometer | size 15 (3 W) | 83.5 | 24.5 |
|                              | size 18 (4 W) | 85.5 | 26.5 |

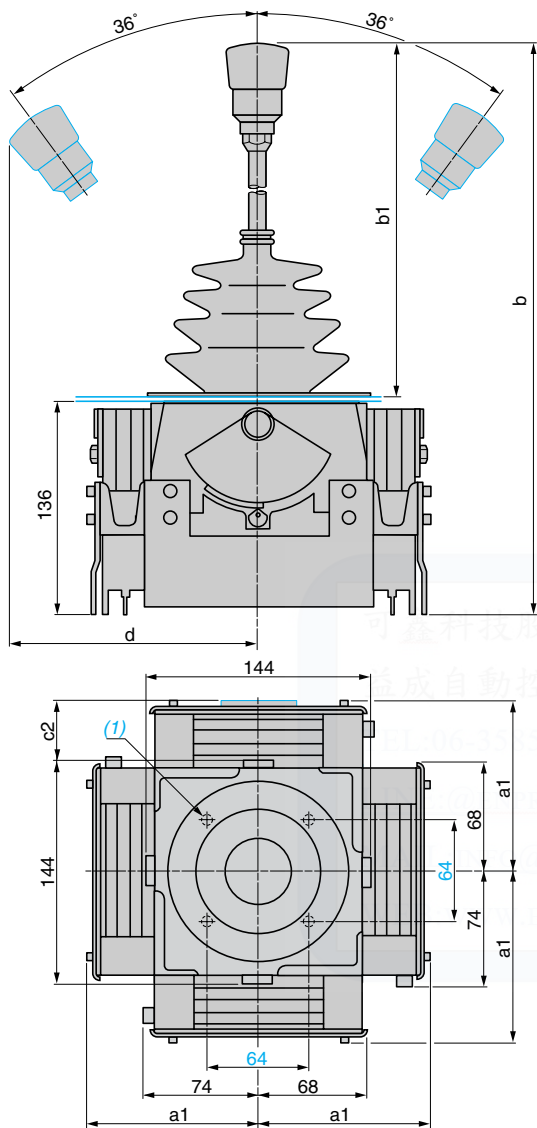
## Panel cut-out

thickness 1 to 6 mm/0.04 to 0.24 in.

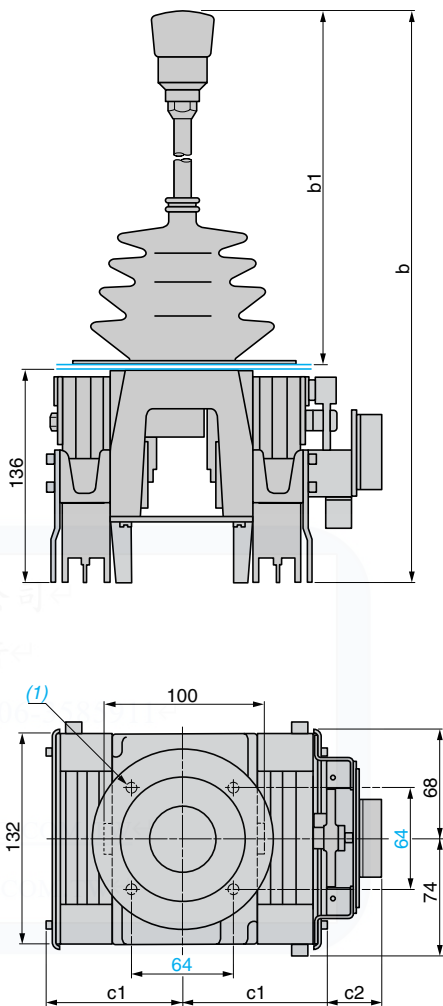


(1) Fixing by 4 M6 screws.

XKMA



XKMB

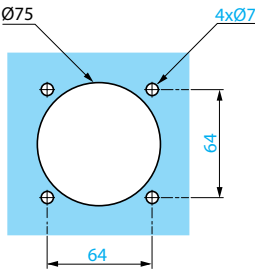


|            |                  | b   | b1         | d   |
|------------|------------------|-----|------------|-----|
| XKMA, XKMB | with short lever | 322 | 180 to 185 | 125 |
|            | with long lever  | 392 | 230 to 235 | 125 |

|            |                  | a1  | c1  |
|------------|------------------|-----|-----|
| XKMA, XKMB | with 4 contacts  | 110 | 88  |
|            | with 8 contacts  | 140 | 118 |
|            | with 12 contacts | 170 | 148 |

Panel cut-out

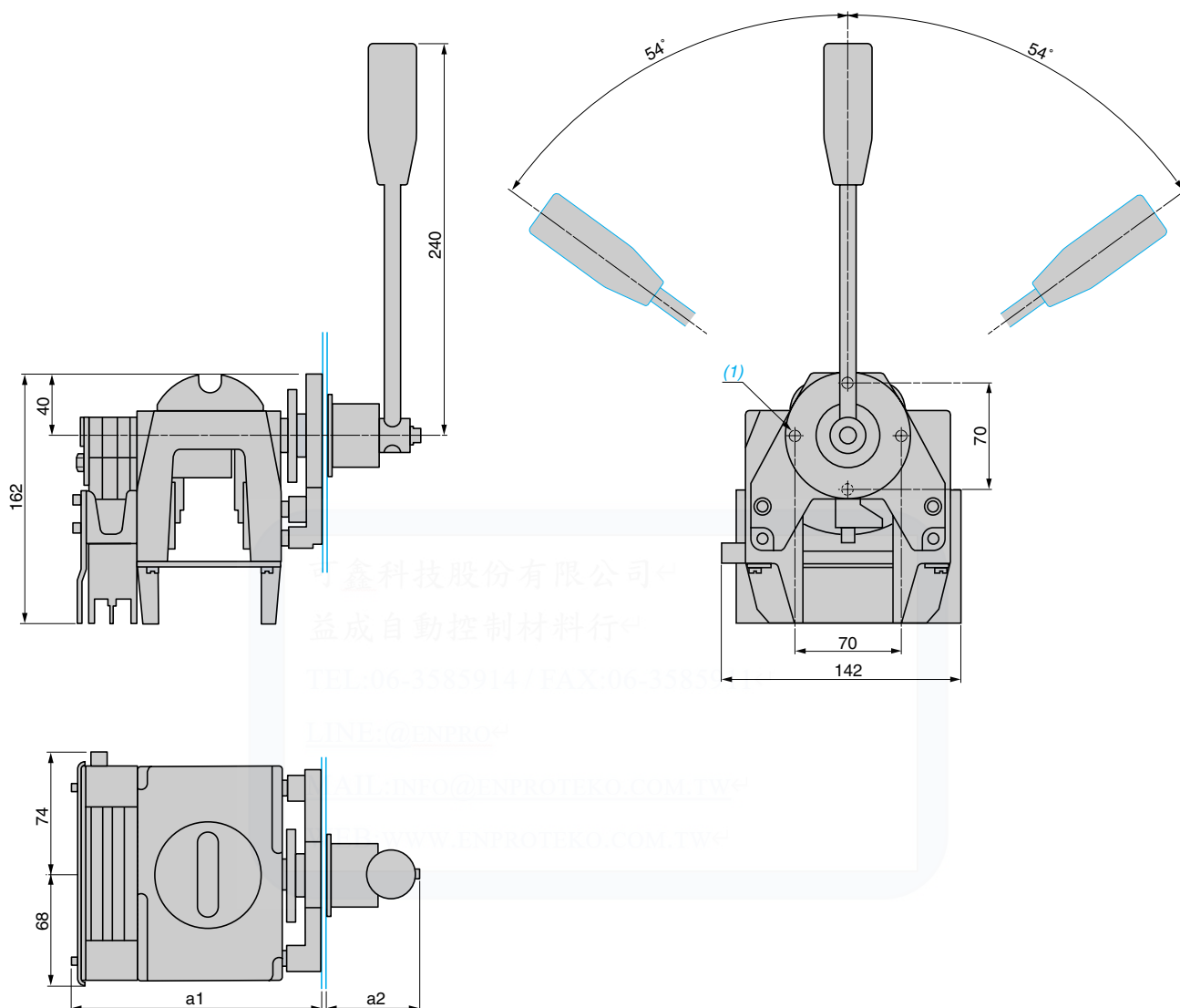
thickness 1 to 6 mm/0.04 to 0.24 in.



|                              |               | c2   |
|------------------------------|---------------|------|
| Adaptation for potentiometer | size 15 (3 W) | 37.5 |
|                              | size 18 (4 W) | 44.5 |

(1) Fixing by 4 M6 screws.

## XKMC

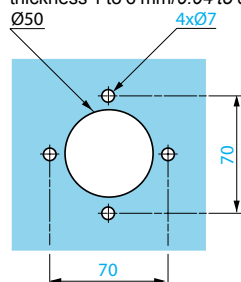


|      |                  | a1  | a2       |
|------|------------------|-----|----------|
| XKMC | with 4 contacts  | 157 | 36 to 41 |
|      | with 8 contacts  | 187 | 36 to 41 |
|      | with 12 contacts | 217 | 36 to 41 |

(1) Fixing by 4 M6 screws.

### Panel cut-out

thickness 1 to 6 mm/0.04 to 0.24 in.



## Controllers

Potentiometers for controllers  
For standard applications, type **XKZA**

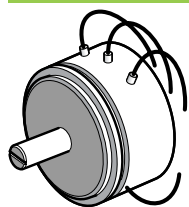
### Mechanical characteristics

| Potentiometer type                                         | XKZA15●●●                    | XKZA18●●● |
|------------------------------------------------------------|------------------------------|-----------|
| Size                                                       | 15                           | 18        |
| Mounting method                                            | By the body ("synchro" type) |           |
| Rotational operation                                       | Continuous                   |           |
| Function                                                   | Linear (1% resolution)       |           |
| Operating angle                                            | 360°                         |           |
| Mechanical durability<br>(in millions of operating cycles) | 3                            | 1         |

### Electrical characteristics

|                                                  |                                          |              |
|--------------------------------------------------|------------------------------------------|--------------|
| Centre tap                                       | Wired out to terminal                    |              |
| Dead zone around centre tap point (neutral zone) | 2° ± 1°                                  |              |
| Nominal power (Pn)                               | 3 W at 85 °C                             | 4 W at 85 °C |
| Connections                                      | Flying leads from soldered standard tags |              |

### References

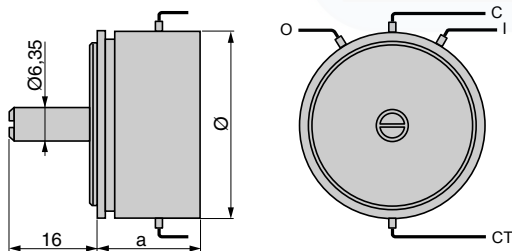


XKZA1●●●●

| Resistance value<br>Ω | Availability   | Size | Reference            | Weight<br>kg/lb |
|-----------------------|----------------|------|----------------------|-----------------|
| 4700 (2 x 2350)       | Stock item     | 15   | <b>XKZA15047</b>     | 0.060/0.132     |
|                       | Short delivery | 18   | <b>XKZA18047</b>     | 0.060/0.132     |
| 1000 (2 x 500)        | Short delivery | 15   | <b>XKZA15010</b>     | 0.060/0.132     |
|                       | On demand      | 18   | <b>XKZA18010</b>     | 0.060/0.132     |
| 2200 (2 x 1100)       | Short delivery | 15   | <b>XKZA15022</b>     | 0.060/0.132     |
|                       | On demand      | 18   | <b>XKZA18022</b>     | 0.060/0.132     |
| 10,000 (2 x 5000)     | Stock item     | 15   | <b>XKZA15100</b>     | 0.060/0.132     |
|                       | On demand      | 18   | <b>XKZA18100</b>     | 0.060/0.132     |
| Other values          | On demand      | 15   | <b>XKZA15000 (1)</b> | 0.060/0.132     |
|                       | On demand      | 18   | <b>XKZA18000 (1)</b> | 0.060/0.132     |

(1) When ordering an XKZA15000 or XKZA18000, the total resistance value must be stated. The other characteristics are the same.

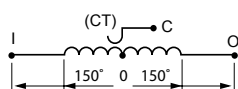
### Dimensions



The pinion included with the adaptation simply clamps onto the potentiometer operating shaft (diameter 6.35 mm, length 16 mm).

|                  | a  | Ø     |
|------------------|----|-------|
| <b>XKZA15●●●</b> | 20 | 36.5  |
| <b>XKZA18●●●</b> | 27 | 44.45 |

### Connection



I = yellow  
O = green  
C = red  
CT = black

## Controllers

Potentiometers for controllers

For applications requiring an extended  
“neutral zone”, types **XKBZ** and **XKDZ**

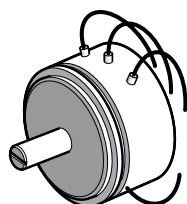
### Mechanical characteristics

| Potentiometer type                                         | XKBZ15●●, XKDZ15●●           | XKBZ18●●, XKDZ18●● |
|------------------------------------------------------------|------------------------------|--------------------|
| Size                                                       | 15                           | 18                 |
| Conformity to standards                                    | UTE 93265                    |                    |
| Mounting method                                            | By the body (“synchro” type) |                    |
| Rotational operation                                       | Continuous                   |                    |
| Function                                                   | Linear (1% resolution)       |                    |
| Operating angle                                            | 360°                         |                    |
| Mechanical durability<br>(in millions of operating cycles) | 3                            | 1                  |

### Electrical characteristics

|                                                  |                                                                                              |              |
|--------------------------------------------------|----------------------------------------------------------------------------------------------|--------------|
| Centre tap                                       | Wired out to terminal                                                                        |              |
| Dead zone around centre tap point (neutral zone) | 40°, mainly for use with controllers XKB<br>30°, mainly for use with controllers XKD and XKM |              |
| Nominal power (Pn)                               | 3 W at 85 °C                                                                                 | 4 W at 85 °C |
| Connections                                      | Flying leads from soldered standard tags                                                     |              |

### References



XKBZ1●●●, XKDZ1●●●

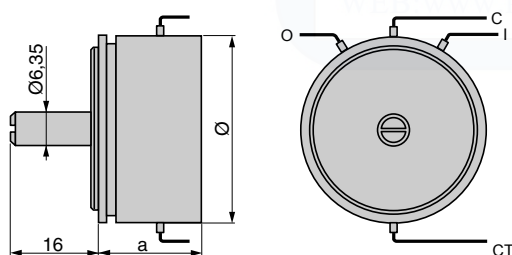
#### Potentiometers for controllers XKB

| Resistance value<br>Ω | Availability | Size | Reference       | Weight<br>kg/lb |
|-----------------------|--------------|------|-----------------|-----------------|
| 4700 (2 x 2350)       | On demand    | 15   | <b>XKBZ1547</b> | 0.055/0.121     |
|                       | On demand    | 18   | <b>XKBZ1847</b> | 0.065/0.143     |
| 800 (2 x 400)         | On demand    | 15   | <b>XKBZ1508</b> | 0.055/0.121     |
|                       | On demand    | 18   | <b>XKBZ1808</b> | 0.065/0.143     |

#### Potentiometers for controllers XKD and XKM

|                 |            |    |                 |             |
|-----------------|------------|----|-----------------|-------------|
| 4700 (2 x 2350) | Stock item | 15 | <b>XKDZ1547</b> | 0.055/0.121 |
|                 | On demand  | 18 | <b>XKDZ1847</b> | 0.065/0.143 |
| 800 (2 x 400)   | On demand  | 15 | <b>XKDZ1508</b> | 0.055/0.121 |
|                 | On demand  | 18 | <b>XKDZ1808</b> | 0.065/0.143 |

### Dimensions

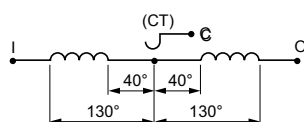


The pinion included with the adaptation simply clamps onto the potentiometer operating shaft (diameter 6.35 mm, length 16 mm).

|                           | a  | Ø     |
|---------------------------|----|-------|
| <b>XKBZ15●●, XKDZ15●●</b> | 20 | 36.5  |
| <b>XKBZ18●●, XKDZ18●●</b> | 27 | 44.45 |

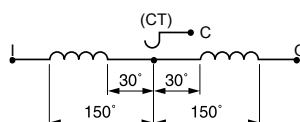
### Connections

#### XKBZ15●●, XKBZ18●●



I = yellow  
O = green  
C = red  
CT = black

#### XKDZ15●●, XKDZ18●●



I = yellow  
O = green  
C = red  
CT = black

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MAIL:INFO@ENPROTEKO.COM.TW  
WEB:WWW.ENPROTEKO.COM.TW

Harmony XD

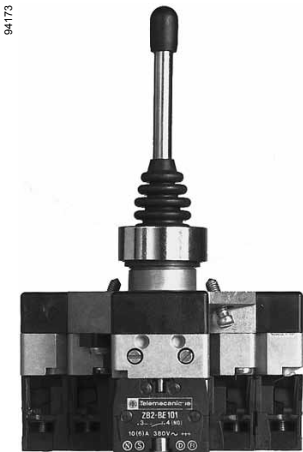
■ References

- Complete units type XD2G, with chromium plated metal bezel ..... 3/2
- Legend plates ..... 3/3
- Contact block ..... 3/3

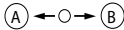
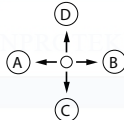




XD2GA8211



XD2GA8411

| Complete units type XD2G, with chromium plated metal bezel                                                                                                         |                                                                                                           |                                |              |                   |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------|--------------|-------------------|--------------|
| Interchangeable contacts                                                                                                                                           |                                                                                                           |                                |              |                   |              |
| Description                                                                                                                                                        | Operation                                                                                                 | Spring return to zero position | Bezel finish | Reference         | Weight kg/lb |
| <b>2 direction</b><br>Fixing centres<br>90 x 90 mm/<br>3.54 x 3.54 in..<br><br>   | 1 notch<br>1 N/O contact<br>per direction                                                                 | Without                        | Shiny        | <b>XD2GA8211</b>  | 0.300/0.661  |
|                                                                                                                                                                    |                                                                                                           |                                | Black        | <b>XD2GA82117</b> | 0.300/0.661  |
|                                                                                                                                                                    |                                                                                                           | With                           | Shiny        | <b>XD2GA8221</b>  | 0.300/0.661  |
|                                                                                                                                                                    |                                                                                                           |                                | Black        | <b>XD2GA82217</b> | 0.300/0.661  |
|                                                                                                                                                                    | 2 notches<br>2 N/O contacts<br>per direction                                                              | Without                        | Shiny        | <b>XD2GA8231</b>  | 0.500/1.102  |
|                                                                                                                                                                    |                                                                                                           |                                | Black        | <b>XD2GA82317</b> | 0.500/1.102  |
|                                                                                                                                                                    |                                                                                                           | With                           | Shiny        | <b>XD2GA8241</b>  | 0.500/1.102  |
|                                                                                                                                                                    |                                                                                                           |                                | Black        | <b>XD2GA82417</b> | 0.500/1.102  |
| <b>4 direction</b><br>Fixing centres<br>90 x 90 mm/<br>3.54 x 3.54 in..<br><br> | 1 notch<br>1 N/O contact<br>per direction                                                                 | Without                        | Shiny        | <b>XD2GA8411</b>  | 0.330/0.728  |
|                                                                                                                                                                    |                                                                                                           |                                | Black        | <b>XD2GA84117</b> | 0.330/0.728  |
|                                                                                                                                                                    |                                                                                                           | With                           | Shiny        | <b>XD2GA8421</b>  | 0.330/0.728  |
|                                                                                                                                                                    |                                                                                                           |                                | Black        | <b>XD2GA84217</b> | 0.330/0.728  |
|                                                                                                                                                                    | 2 notches<br>2 N/O contacts<br>per direction                                                              | Without                        | Shiny        | <b>XD2GA8431</b>  | 0.550/1.213  |
|                                                                                                                                                                    |                                                                                                           |                                | Black        | <b>XD2GA84317</b> | 0.550/1.213  |
|                                                                                                                                                                    |                                                                                                           | With                           | Shiny        | <b>XD2GA8441</b>  | 0.550/1.213  |
|                                                                                                                                                                    |                                                                                                           |                                | Black        | <b>XD2GA84417</b> | 0.550/1.213  |
|                                                                                                                                                                    | 1 <sup>st</sup> notch stay put<br>2 <sup>nd</sup> notch with<br>spring return<br>to 1 <sup>st</sup> notch | Without                        | Shiny        | <b>XD2GA8451</b>  | 0.550/1.213  |
|                                                                                                                                                                    |                                                                                                           |                                | Black        | <b>XD2GA84517</b> | 0.550/1.213  |

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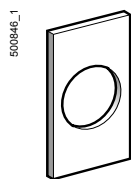
益成自動控制材料行

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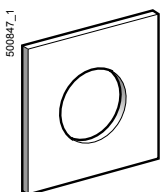
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ZD2GY5201



ZD2GY6201



ZB2BE101

## Legend plates

| Description                                          | Text                                | Color                            | Reference        | Weight<br>kg/lb |
|------------------------------------------------------|-------------------------------------|----------------------------------|------------------|-----------------|
| <b>2 direction</b><br>40 x 64 mm/<br>1.57 x 2.52 in. | Without                             | Black one side, red reverse      | <b>ZD2GY5201</b> | 0.002/0.004     |
|                                                      |                                     | White one side, yellow reverse   | <b>ZD2GY5401</b> | 0.002/0.004     |
|                                                      | With (1)<br>(specify when ordering) | Black background, white letters  | <b>ZD2GY5002</b> | 0.002/0.004     |
|                                                      |                                     | Red background, white letters    | <b>ZD2GY5004</b> | 0.002/0.004     |
|                                                      |                                     | White background, black letters  | <b>ZD2GY5001</b> | 0.002/0.004     |
| <b>4 direction</b><br>64 x 64 mm/<br>2.52 x 2.52 in. | Without                             | Black one side, red reverse      | <b>ZD2GY6201</b> | 0.003/0.007     |
|                                                      |                                     | White one side, yellow reverse   | <b>ZD2GY6401</b> | 0.003/0.007     |
|                                                      | With (1)<br>(specify when ordering) | Black background, white letters  | <b>ZD2GY6002</b> | 0.003/0.007     |
|                                                      |                                     | Red background, white letters    | <b>ZD2GY6004</b> | 0.003/0.007     |
|                                                      |                                     | White background, black letters  | <b>ZD2GY6001</b> | 0.003/0.007     |
|                                                      |                                     | Yellow background, black letters | <b>ZD2GY6005</b> | 0.003/0.007     |

## Contact block

| Description                                    | Contact | Reference       | Weight<br>kg/lb |
|------------------------------------------------|---------|-----------------|-----------------|
| <b>Slow break</b><br>Additional or replacement | N/O     | <b>ZB2BE101</b> | 0.015/0.033     |

(1) 2 lines of 11 characters maximum per direction.

## Other versions

XD2G joystick controllers with:

- variable composition; 2, 3, 4 or 8 direction,
- contact blocks with Faston connectors conforming to NF C 20-120,
- gold flashed contacts for low power switching.

Please consult our Customer Care Centre.

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