

Harmony[®] XK, XD controllers for hoisting applications

Catalog

February 2015



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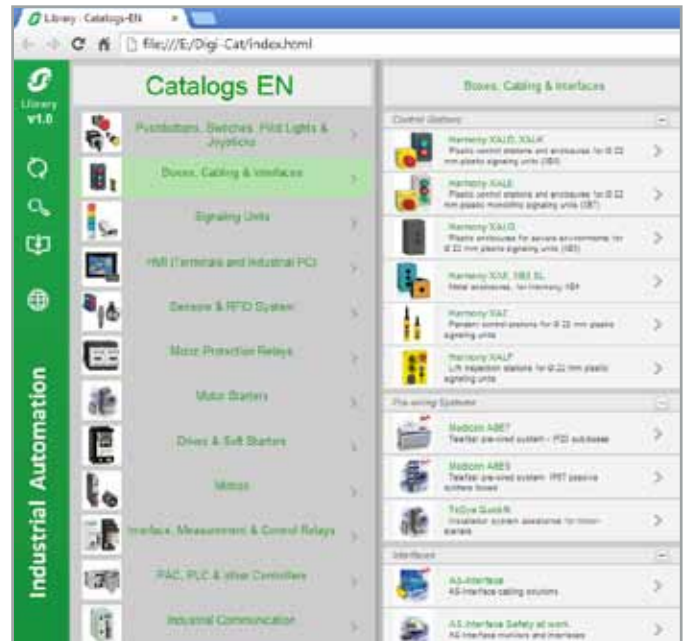
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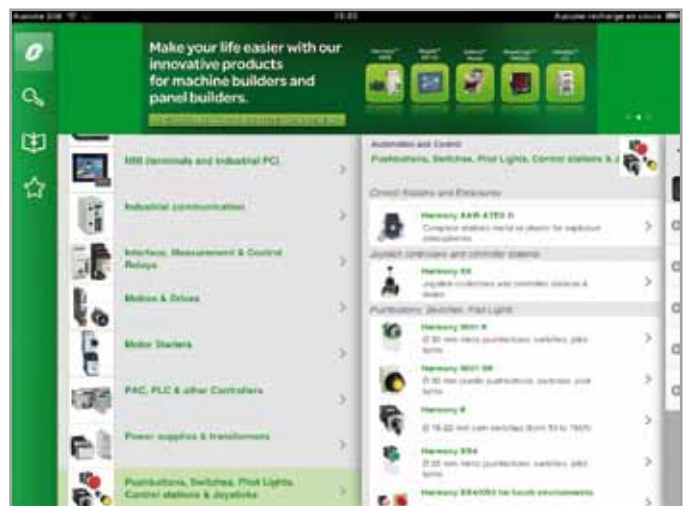
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Selection guide for hoisting applications, types XD and XK

Selection guide 1/2

Controllers

For hoisting applications, types **XD** and **XK**

Applications	“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



Mechanical durability (in millions of operating cycles)		1 in each direction	1 in each direction	1 in each direction
Number of directions	Basic	2 or 4 depending on model	4	4
	Variable composition	–	8	8
Number of movements		1 or 2	2	2
Maximum number of notches in each direction		XD2: 1 or 2 XD4, XD5: 1	3	3
Types of lever movement	Notched	with stayput operation	■	■
		with spring return to zero operation	■	■
	Unnotched	with spring return to zero operation	–	■
Operating schemes		Predefined cams	Predefined cams	Variable composition cams
Maximum number of contacts per movement		XD2: 4 (1 or 2 N/O contacts in each direction) XD4, XD5: 2 (1 N/O contact in each direction)	4 or 4 + 1 zero (centre) position contact	4 or 4 + 1 zero (centre) position contact
Contact (1)	Supply	~ and ---	~ and ---	~ and ---
	Nominal thermal current	10 A	10 A	10 A
Mechanical durability of contact blocks (in millions of operating cycles)		5	1	1
Control device		Vertical lever	Vertical lever	Vertical lever
Handles (2)	a simple	■	■	■
	b1 with zero (centre) position mechanical interlocking	–	■	■
	b2 with zero (centre) position mechanical and electrical interlocking	–	■	■
	c1 “Dead man’s” type	–	■	■
	c2 with built-in pushbutton	–	■	■
Lever gate		Fixed composition 30° in each direction	Variable composition	Variable composition
Maximum number of potentiometers per movement		–	1 or 2 depending on contact block arrangement	1 or 2 depending on contact blocks arrangement
Type references		XD2, XD4, XD5 (3)	XKBA	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.

“Medium hoisting” Compact and fully configurable unit	“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		



3 in each direction	4 in each direction	4 in each direction	4 in each direction
4	4	2	2
8	8	2	2
2	2	1	1
5	6	6	9
■	■	■	■
■	■	■	■
■	■	■	■
Variable composition cams	Variable composition cams	Variable composition cams	Variable composition cams
16	24	24	12
~ and ---	~ and ---	~ and ---	~ and ---
10 A	20 A	20 A	20 A
3	4	4	4
Vertical lever	Vertical lever	Vertical lever	Side lever
■	■	■	■
■	■	■	–
■	■	■	–
■	■	■	–
■	■	■	–
■	■	■	–
Predefined or customised	Predefined or customised	–	–
2	2	2	1
XKDF	XKMA	XKMB	XKMC

Harmony XK

■ Controllers for “light hoisting” applications, type XKB	
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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

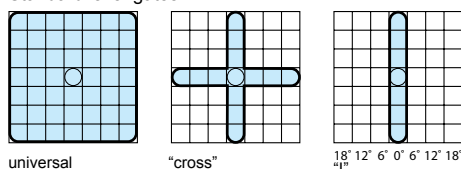
Articulated mechanical assembly that holds the control lever, lever gate, actuating mechanism, cam carriers, contacts and potentiometer adaptation device.

Control lever

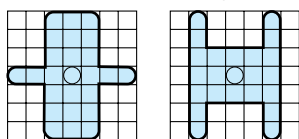
Operating device that enables separate or simultaneous control of the movements. Fitted to it are dust and damp protecting bellows, the handle and mechanical and electrical safety devices that are actuated when the controller lever is returned to its zero (centre) position.

Lever gate

Standard lever gates



Examples of special lever gates



2 types of lever gate:

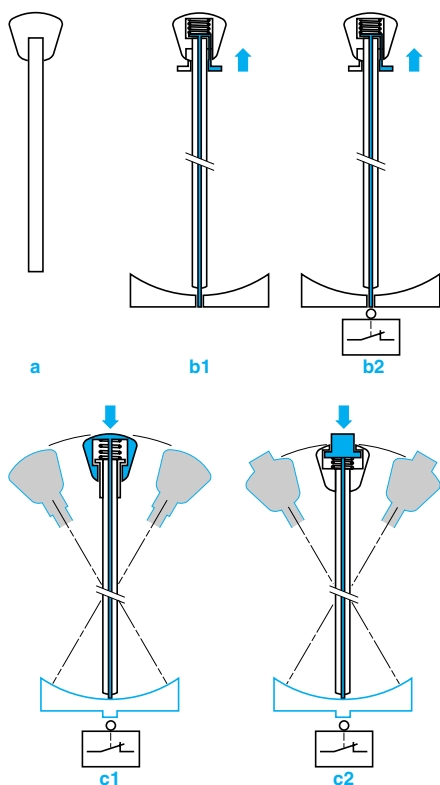
■ **Standard types:**

- 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.

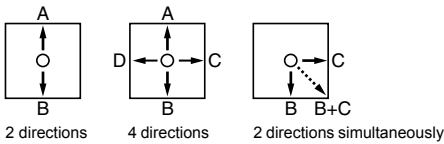
This rod actuates a moving bowl which, in turn, causes a contact block (located in the lower part of the mechanism) to change state and remain in this condition irrespective of the control lever position.

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.

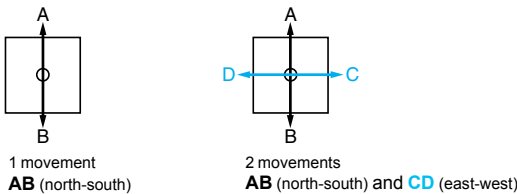
Direction



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

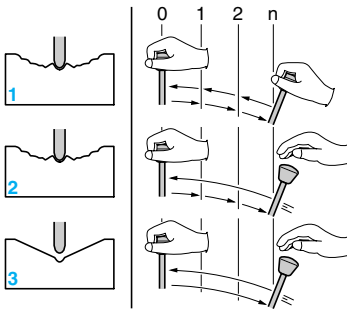


The movement is the combination of 2 directions either side of the zero position that are directly in line.

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.

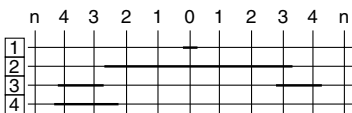
Irrespective of its position, the lever spring returns to the zero (centre) position when the operator releases the handle.

Electrical contacts

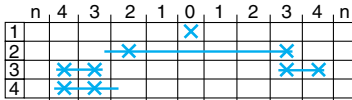
When designing the scheme take into account that all contacts are closed until actuated (opened) by an operating cam.

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

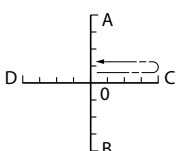
When actuated by the cam lobe, the contact opens thus ensuring positive opening operation. Therefore, the presence of a cam corresponds to the absence of a cross or line on the scheme.

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).

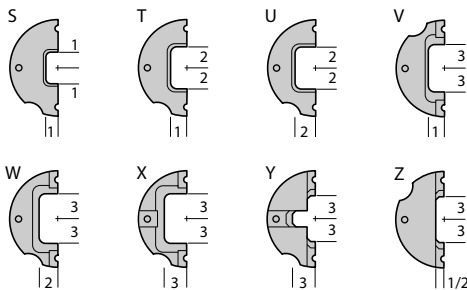
Operating cycle



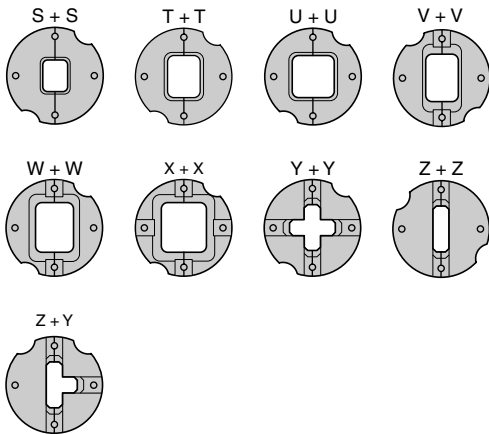
An operating cycle applied from an initial common O position is the passing from this initial position to the extreme position in each direction and subsequent return to the initial O position.



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.

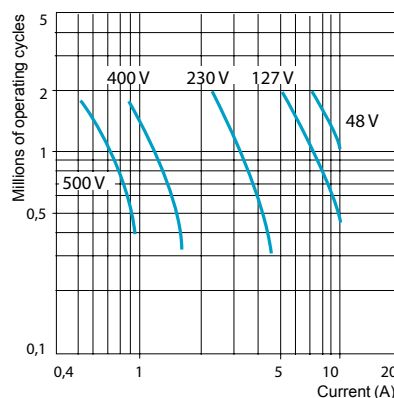
Environment			
Conformity to standards			EN/IEC 60947-5-1, UL 508, CSA C22-2 n° 14
Product certifications			UL, CSAA300, Q300, CCC, RRS
Protective treatment			Standard version “TC”
Ambient air temperature	For storage	°C/°F	- 40...+ 70/-40...158
	For operation	°C/°F	- 20...+ 70/-4...158
Operating position			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) IP 20 (contact block)
Mechanical durability	In millions of operating cycles		1 in each direction
Weight		kg/lb	XKBA and XKBE : 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). 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 ² , □ maximum, with or without cable end: 2 x 1.5 mm ² or 1 x 2.5 mm ²
------------	-------------------------------	---

Reference of controller type **XKB**

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

(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

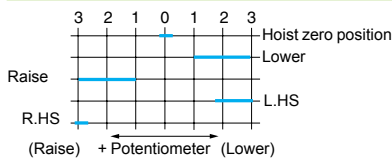
Notched positions, with spring return to zero operation

Potentiometer adaptation

With adaptation device + potentiometer on movement AB, standard 4700 Ω , size 15, model

Composition of the reference (see page 2/6)

Electrical scheme for movement AB "hoist"

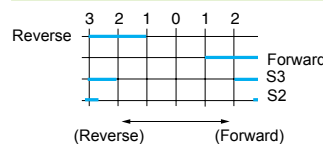


Lever gate

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 Ω**

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)

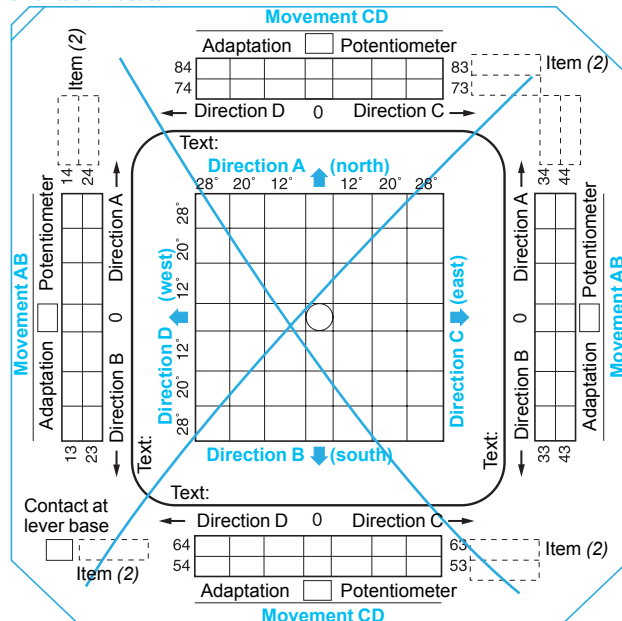
Left-hand operated unit

Right-hand operated unit

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

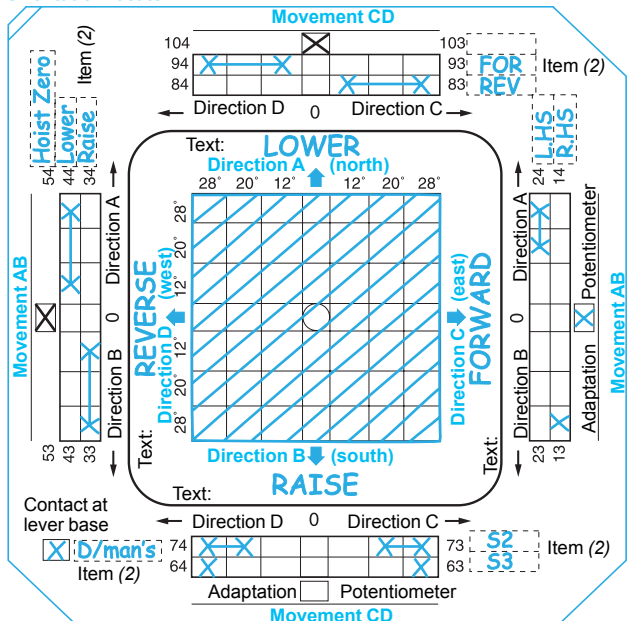
Scheme 1: 4 contacts per movement (viewed from above)

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.

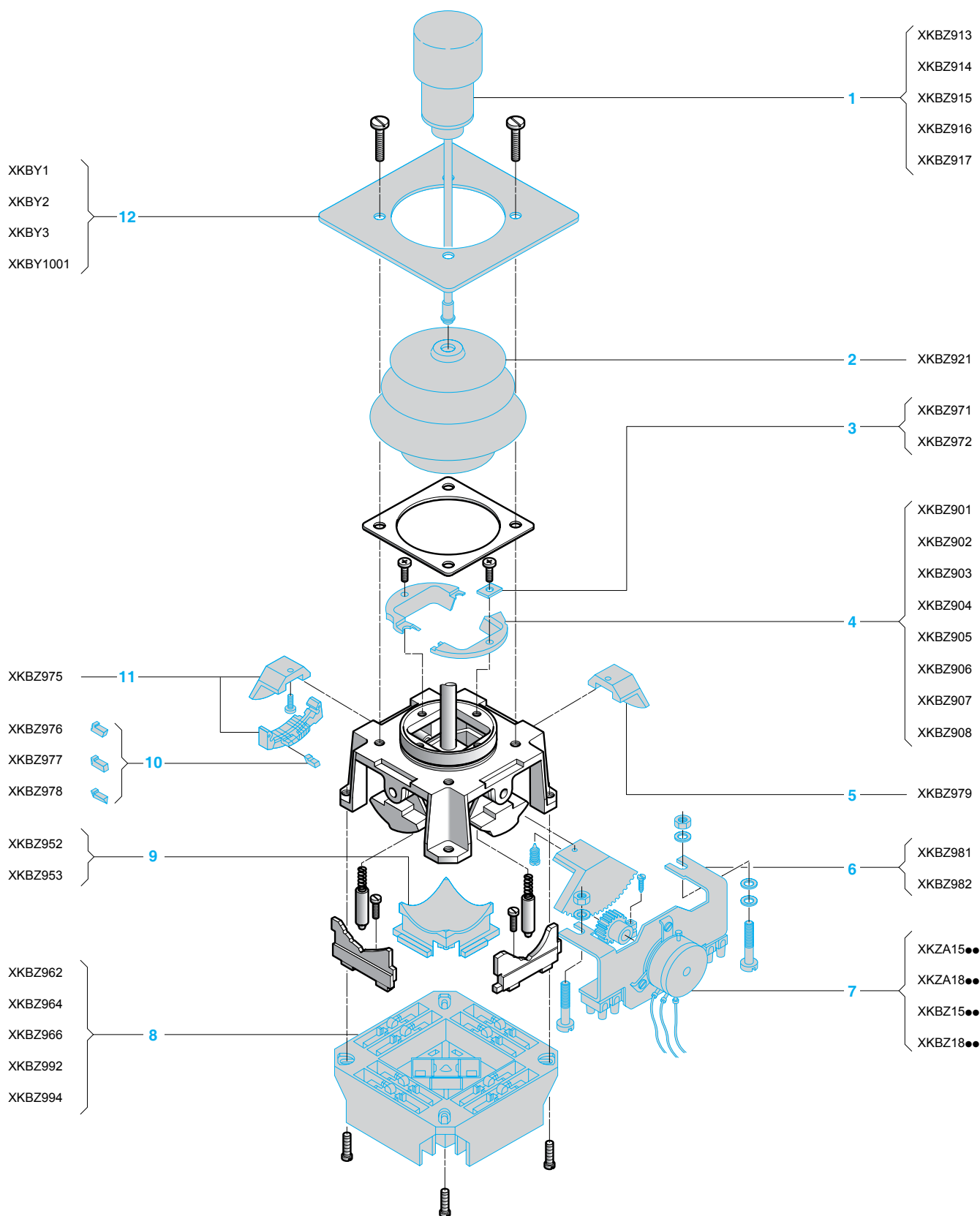
(2) Reserved for contact identification in the automation system scheme. It is not possible to mark it on the controller.

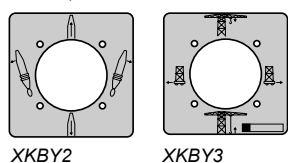
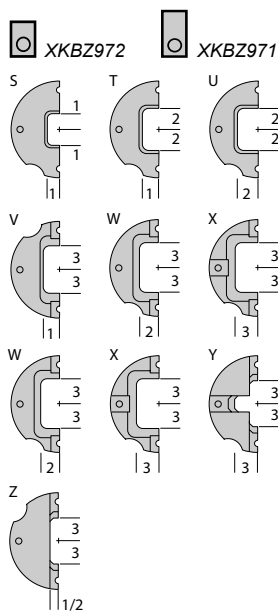
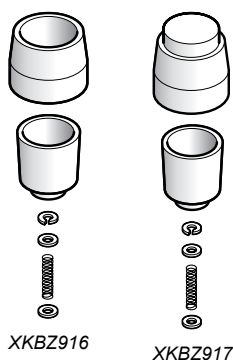
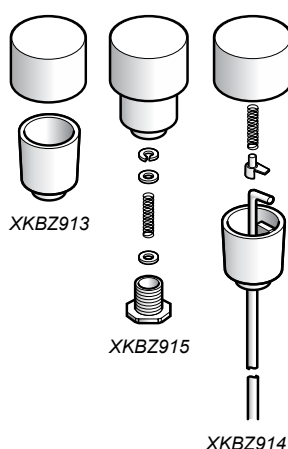
Spring return operation: only 1 contact can be used with spring return at each notch.

Controllers

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

2





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

109230-34.M



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 (1st 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 1st (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 4th and last position.

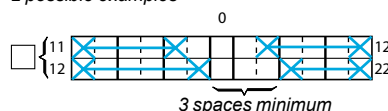
■ Variable composition cams, 12° per position; 2-contact cam carriers.

□ From 1 to 3 mechanical positions.

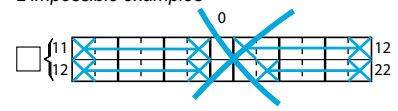
□ The contacts can be actuated 6° by 6° approx., except under the following conditions:

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:

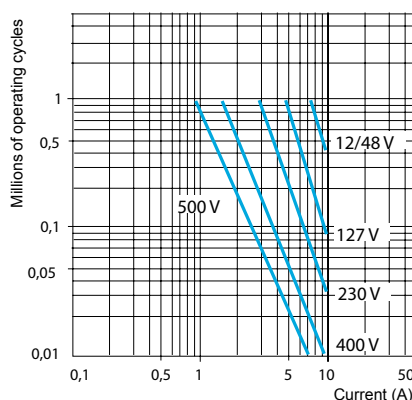
- mounted directly on the mechanical block when used with 2-contact variable composition cams,
- mounted at the extremity of the contact supports when used with 4 and 8-contact variable composition cams.

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: Notched or unnotched positions, with spring return to zero operation: < 3.5
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		XKDF : 3 in each direction
Weight	XKDF	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 (ZB2BE102)
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 Clamping capacity: ☐ minimum 1 x 0.5 mm ² , ☐ maximum, with or without cable end: 2 x 1.5 mm ² or 1 x 2.5 mm ²
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Reference of controller type XKDF

	Lever	Handle	Movement AB			Movement CD		
			No. of blocks	Lever movement	Potentiometer adaptation	No. of blocks	Lever movement	Potentiometer adaptation
XKDF	1							
Control lever								
Standard model, length 200 mm	1							
Handle								
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						
Movement AB								
Number of 2-contact blocks								
0 blocks			0					
1 block			1					
2 blocks			2					
3 blocks			3					
4 blocks			4					
5 blocks			5					
6 blocks			6					
8 blocks			8					
Type of lever movement								
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				
Potentiometer adaptation								
Without adaptation nor potentiometer					0			
With adaptation only (without potentiometer)					1			
With adaptation + potentiometer (5)					2			
Movement CD								
Number of 2-contact blocks								
0 blocks						0		
1 block						1		
2 blocks						2		
3 blocks						3		
4 blocks						4		
5 blocks						5		
6 blocks						6		
8 blocks						8		
Type of lever movement								
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		
Potentiometer adaptation								
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. 1st mechanical notch at 12° (6 electrical positions in each direction).(3) It is possible to obtain 6 mechanical notches, 1st 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, 1st 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 5th and 6th notches.

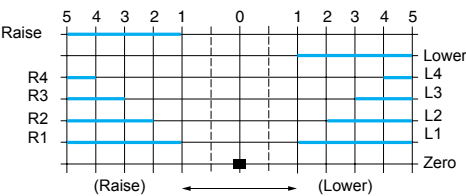
■ Spring return operation: 2 simultaneous contacts maximum with spring return can be used at 6° and then 4 contacts at each subsequent 6° position.

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

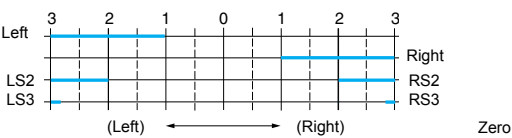
Requirement

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.

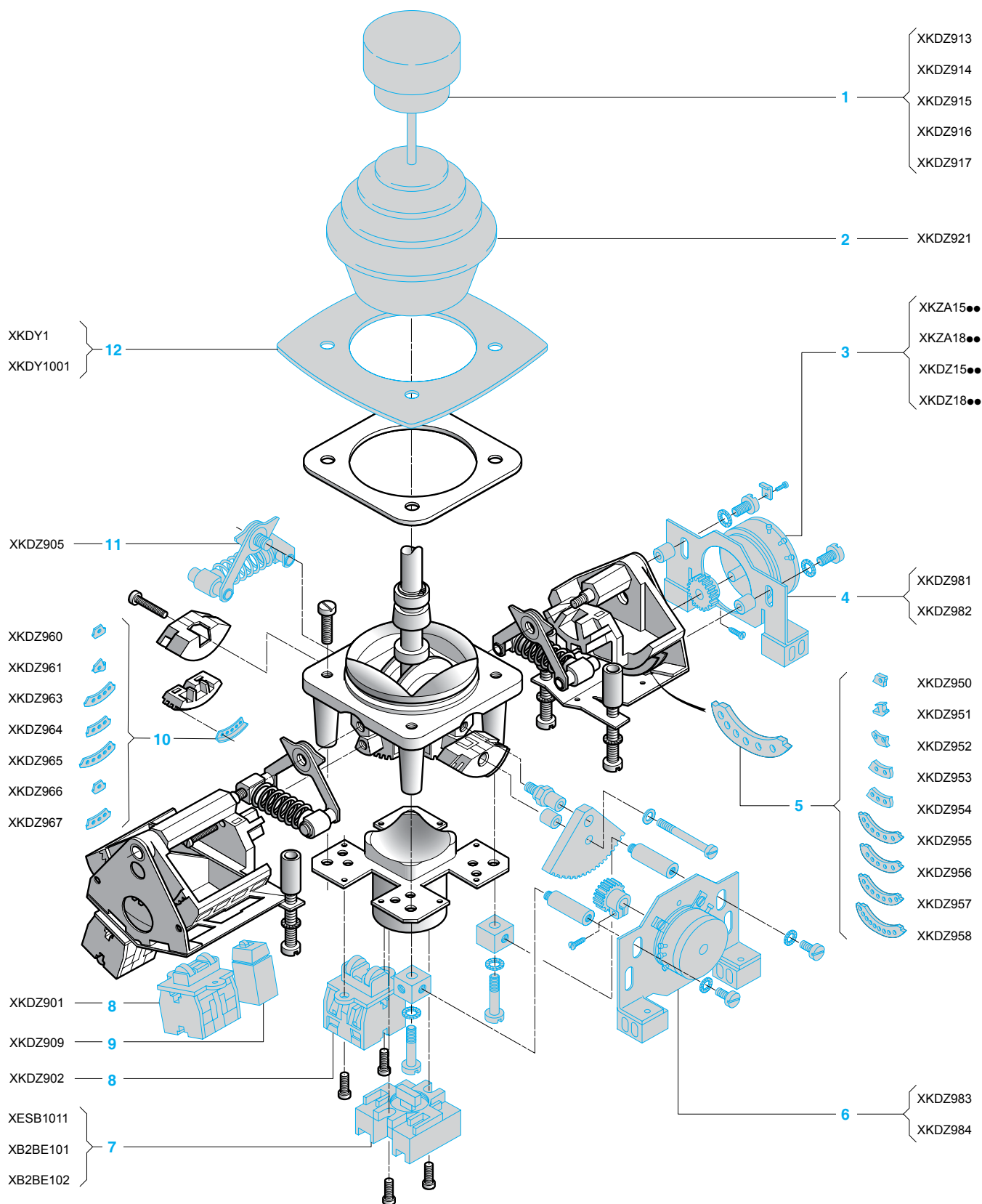
Composition of the reference (see page 2/12)

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

Controllers

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

2

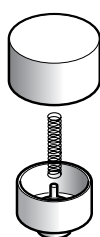


Controllers

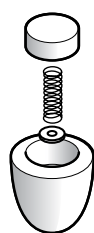
For “medium hoisting” applications, type **XKDF**
Separate components



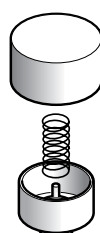
XKDZ913



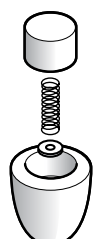
XKDZ914



XKDZ915



XKDZ916



XKDZ917

Description	Item	Characteristics	Unit reference	Weight kg/lb
Bellows	2	Bellows + 1 flat seal	XKDZ921	0.075/0.165
Handles	1	Simple	XKDZ913	0.060/0.132
△ Not interchangeable between different models		With zero (centre) position interlocking	XKDZ914	0.035/0.077
		“Dead man’s” type	XKDZ915	0.040/0.088
		With built-in flush pushbutton	XKDZ916	0.050/0.110
		With built-in projecting pushbutton	XKDZ917	0.050/0.110
Spring return operation mechanism Sold in lots of 2	11	Spring return to zero mechanism	XKDZ905	0.100/0.220
Notched operation mechanism	9	Position notching mechanism for variable composition cams	XKDZ909	0.010/0.022
Variable composition cams for support with 4 or 8 contacts Sold in lots of 50	5	Pass cam	XKDZ950	0.005/0.011
		Complementary, 1 position	XKDZ951	0.005/0.011
		Complementary, 1.5 position	XKDZ952	0.010/0.022
		Complementary, 2 positions	XKDZ953	0.010/0.022
		Complementary, 3 positions	XKDZ954	0.020/0.044
		Complementary, 6 positions	XKDZ955	0.035/0.077
		5 positions	XKDZ956	0.030/0.066
		7 positions	XKDZ957	0.040/0.088
		9 positions	XKDZ958	0.050/0.110
Variable composition cams for support with 2 contacts Sold in lots of 20	10	Complementary, half-position	XKDZ960	0.005/0.011
		Complementary, 1 position	XKDZ961	0.005/0.011
		Reversing, for notches 1+ 2 + 3	XKDZ963	0.020/0.044
		Acceleration, for notches 2 + 3	XKDZ964	0.005/0.011
		Acceleration, for notch 3	XKDZ965	0.010/0.022
		Pass cam	XKDZ966	0.010/0.022
		Cam for zero position contact	XKDZ967	0.010/0.022
Scheme contacts	8	2 x ZB2BE102 contacts mounted on baseplate	Without marker	XKDZ901 0.050/0.110
			With marker	XKDZ902 0.050/0.110
Zero (centre) position electrical interlocking C/O contact	7	Snap action	XESB1011	0.030/0.066
Contacts for “Dead man’s” handle or handle with built-in pushbutton	7	Slow break	N/C, positive opening	ZB2BE102 0.015/0.033
			N/O	ZB2BE101 0.015/0.033
Legends	12	Blank		XKDY1 0.035/0.077
			With specific engraved text	XKDY1001 0.035/0.077
	4	On end of contact supports	Size 15	XKDZ981 0.120/0.265
			Size 18	XKDZ982 0.130/0.287
Potentiometer adaptation kits (1)	6	Directly on mechanical block	Size 15	XKDZ983 0.120/0.265
			Size 18	XKDZ984 0.130/0.287
Potentiometers for controllers XKD	3	–	XKZA15●●, A18●●, XKDZ15●●, Z18●● 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 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 st notch) < 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	XKMA : mechanical block: 4.6. 4-contact assembly: 0.7/1.543 XKMB : mechanical block: 3. 4-contact assembly: 0.7/1.543 XKMC : mechanical block: 3.7. 4-contact assembly: 0.7/1.543

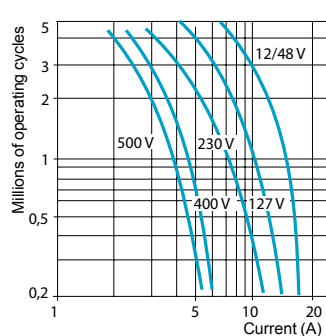
Contact block characteristics			
Type			Block of 4 double-break contacts
Conventional thermal current		A	16 conforming to EN/IEC 60947-5-1
Rated insulation voltage		V	≈ 500 conforming to EN/IEC 60947-1 degree of pollution 3 ≈ 600 conforming to CSA C22-2 n° 14
Contact operation			Slow break, double-break contacts with positive opening operation 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 Clamping capacity: ☐ minimum: 1.5 mm ² , ☐ maximum: 2 x 2.5 mm ² with cable end
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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 (XKMA only)		
					No. of blocks	Lever movement	Potentiometer adaptation	No. of blocks	Lever movement	Potentiometer adaptation
XKM										
Model										
2 movement controller (AB + CD)	A									
1 movement controller (AB)	B									
Control lever										
Short: length 200 mm/7.87 in. (standard)		1								
Long: length 250 mm/9.842 in.		2								
Handle										
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 (1 C/O contact)			4							
With built-in flush pushbutton (1 C/O contact)			5							
With built-in projecting pushbutton (1 C/O contact)			6							
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										
0 blocks					0					
1 block					1					
2 blocks					2					
3 blocks					3					
4 blocks					4					
5 blocks					5					
6 blocks					6					
Type of lever movement										
Movement not required (blocked)						0				
Notched positions, with stayput operation										
5 notches (1)						1				
						2				
6 notches (2)						3				
						4				
Notched positions, with spring return to zero operation						5				
6 notches (2)						6				
Unnotched positions, with spring return to zero operation (3)						7				
Potentiometer adaptation										
Without potentiometer support plate, or potentiometer							0			
With potentiometer support plate only (4) (potentiometer not included)							1			
With potentiometer support plate + potentiometer (5)							2			
Movement CD (for type XKMA only)										
Number of 4-contact blocks										
0 blocks								0		
1 block								1		
2 blocks								2		
3 blocks								3		
4 blocks								4		
5 blocks								5		
6 blocks								6		
Type of lever movement										
Movement not required (blocked)								0		
Notched positions, with stayput operation										
5 notches (1)								1		
								2		
6 notches (2)								3		
								4		
Notched positions, with spring return to zero operation								5		
6 notches (2)								6		
Unnotched positions, with spring return to zero operation (3)								7		
Potentiometer adaptation										
Without adaptation nor potentiometer									0	
With adaptation only (without potentiometer)									1	
With adaptation + potentiometer (5)									2	

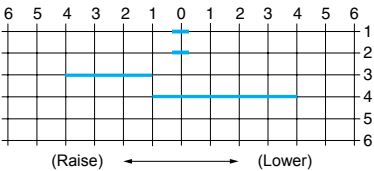
(1) 5 mechanical notches (1st notch at 12°) (6 electrical positions in each direction). (2) 6 mechanical notches (1st notch at 6°) (6 electrical positions in each direction).
(3) Type of lever movement recommended when using a potentiometer. (4) Adaptation including 15 tooth pinion.
(5) Potentiometer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

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.

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

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

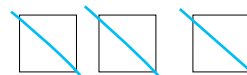
1

1

1

6

0



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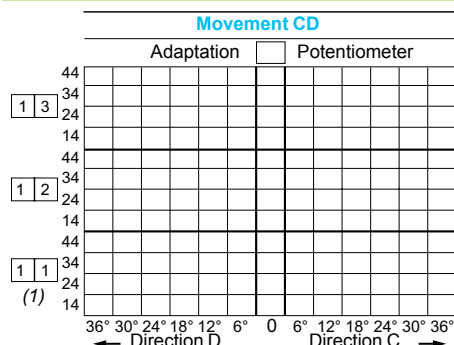
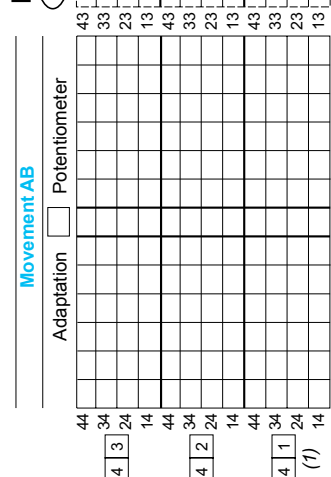
Order N°	Item N°	MOD	LEV	POI	GLV	CT1	CT3	MAB	P13	CT2	CT4	MCD	P24
		XKM											

Scheme: viewed from above

Lever gate

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

Drum n°3



Drum n°2

Potentiometer adaptation

Cross ☒ the position on the scheme

On movement AB

Type/Size:

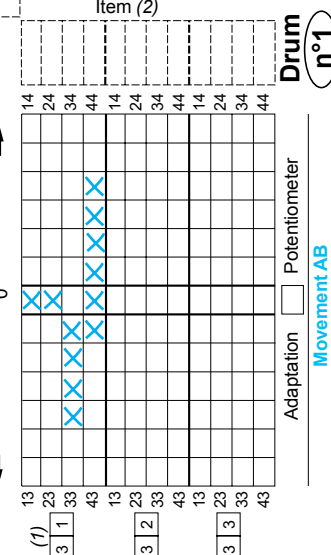
Value:

On movement CD

Type/Size:

Value: 4700 Ω

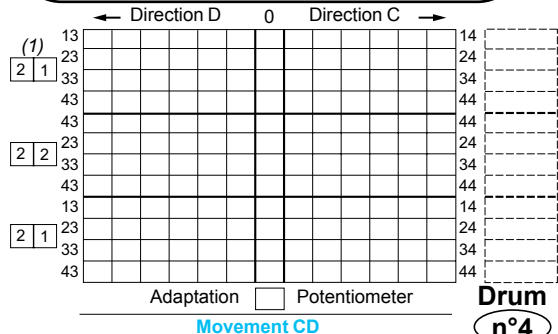
Drum n°1



Choice of cam carriers

- (1) The 1st 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

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)

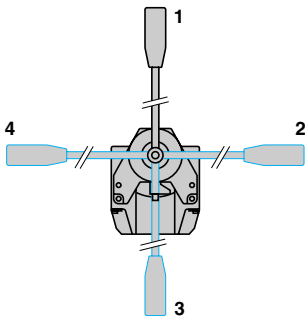
Left hand operated unit

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		
					No. of blocks	Lever movement	Potentiometer adaptation
XKMC							
Control lever							
Side lever, position according to diagram below							
							
Position 1			1				
Position 2			2				
Position 3			3				
Position 4			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)						1	
Increased lever force						2	
6 notches (2)						3	
Normal lever force						4	
Increased lever force						5	
8 notches (1)						6	
9 notches (2)						7	
Notched positions, with spring return to zero operation						8	
5 notches (1)						9	
6 notches (2)							
Unnotched positions, with spring return to zero operation (3)							
Potentiometer adaptation							
Without adaptation nor potentiometer							0
With adaptation (4) only (without potentiometer)							1
With adaptation (4) + potentiometer (5)							2
(1) 1 st mechanical notch at 12°.							
(2) 1 st 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.

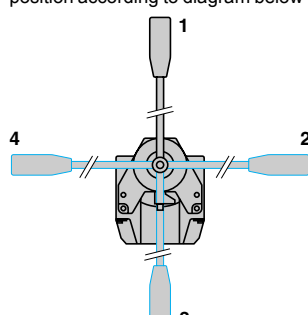
Movement AB:

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

Lever movement with 6 notches at 6° intervals (1st 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
XKMC	1	1	2	3	0
Control lever					
Side lever, position according to diagram below					
					
Position 1	1				
Position 2	2				
Position 3	3				
Position 4	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) 1st mechanical notch at 12°.

(2) 1st 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

For Schneider Electric Industries use only									
Order N°	Item N°		MOD	LEV	POI	GLV	CTS	MAN	POT
		XKM							

Potentiometer adaptation

Cross ☒ the required position on the scheme below.

On movement AB

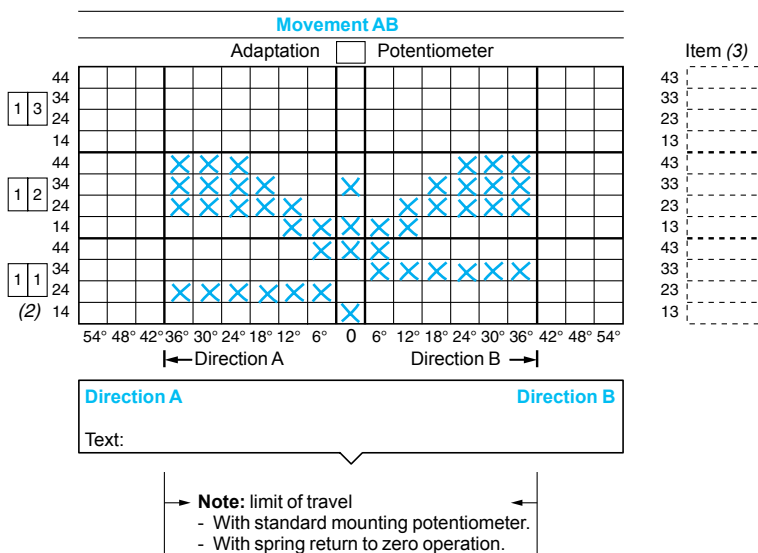
Type/size:

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.

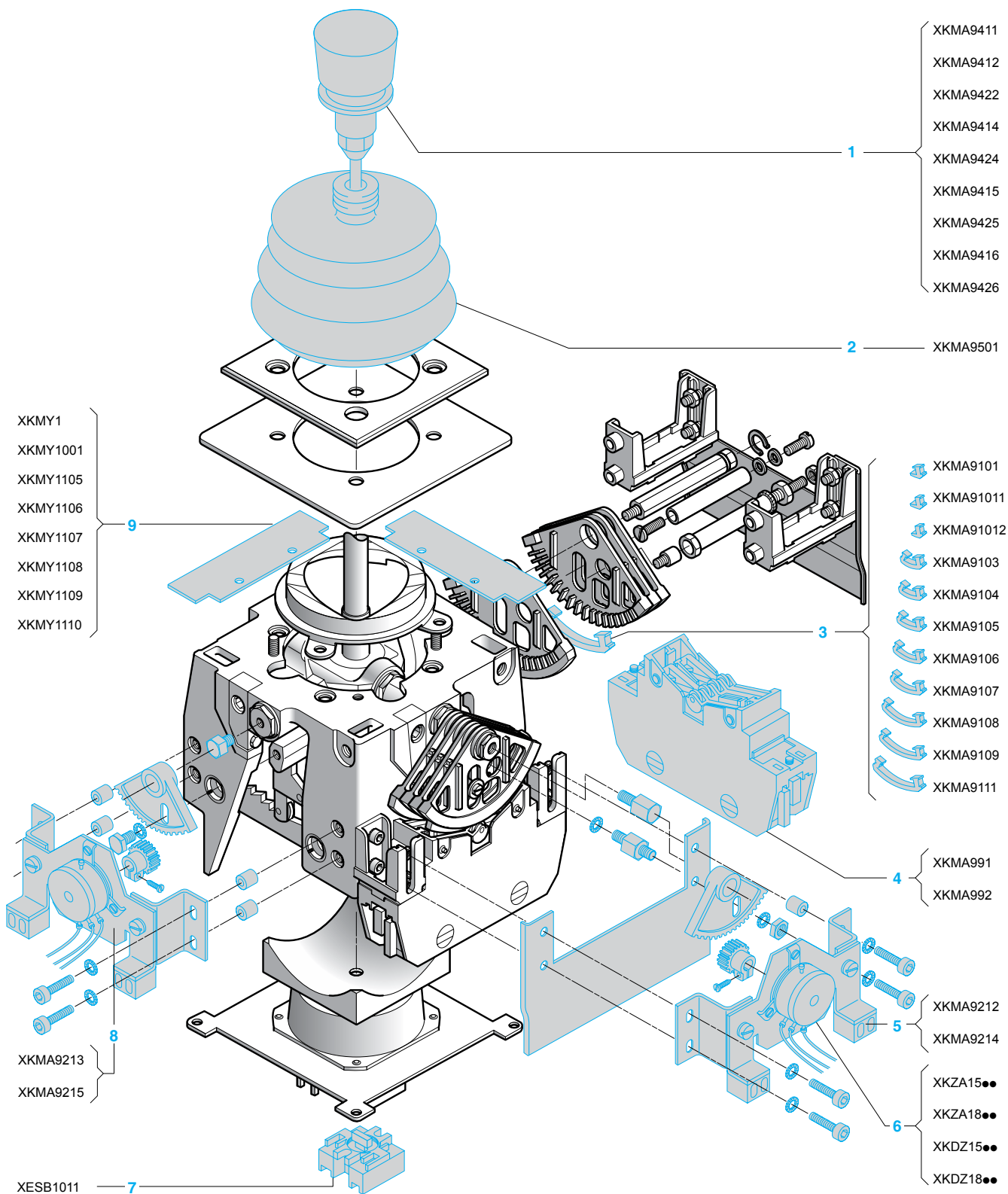
(2) The 1st cam must either be a zero position cam or a reversing cam.

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

Controllers

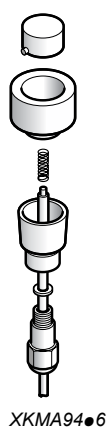
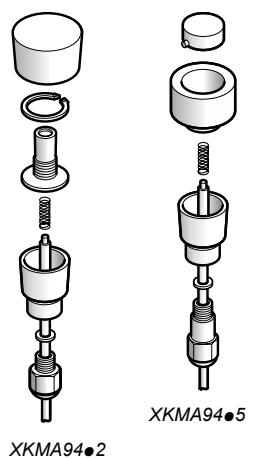
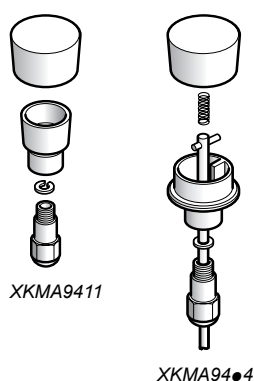
For “heavy hoisting” applications, type **XKM**
Separate components

2



Controllers

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

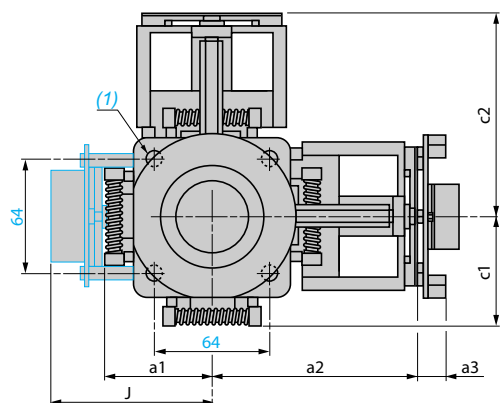
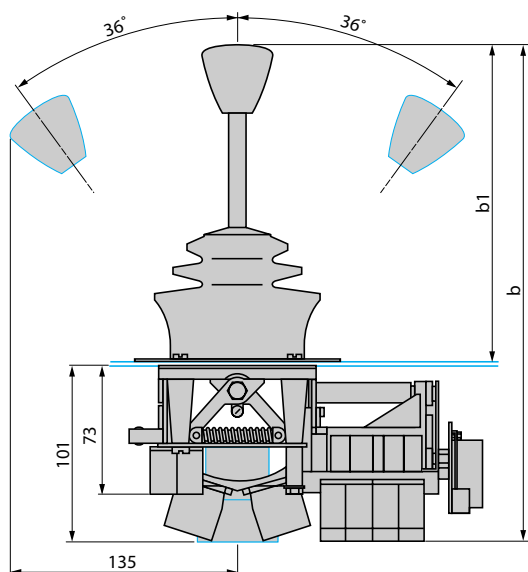


Description	Item	Characteristics	Unit reference	Weight kg/lb
Bellows	2	–	XKMA9501	0.120/0.265
Simple handle	1	–	For short or long lever XKMA9411	0.085/0.187
Handles + rods	1	With zero (centre) position interlocking	For short lever XKMA9414	0.145/0.320
			For long lever XKMA9424	0.155/0.342
		“Dead man’s”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

XKDF



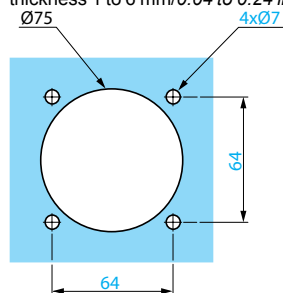
	b	b1
XKDF with short lever	288	181...186
XKDF with long lever	338	236...241

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

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

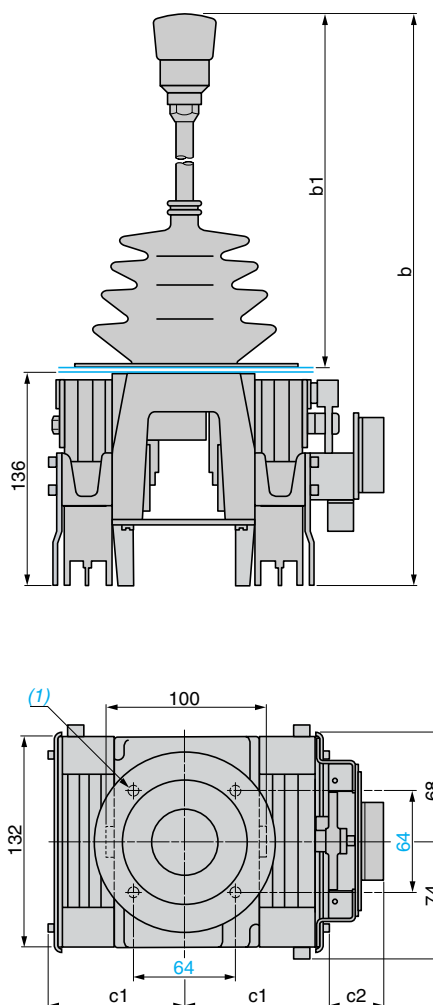
Panel cut-out

thickness 1 to 6 mm/0.04 to 0.24 in.



(1) Fixing by 4 M6 screws.

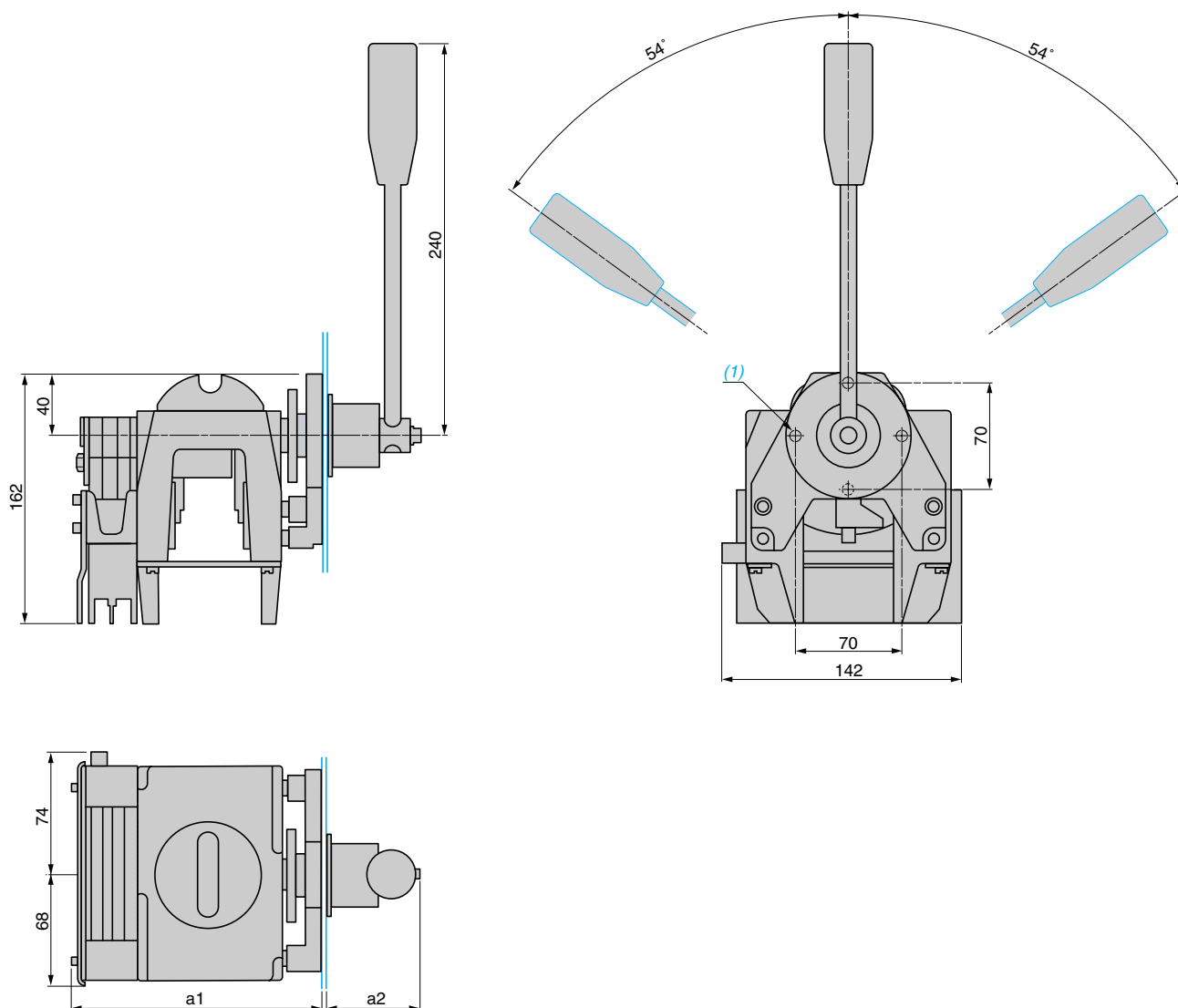
XKMB



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

(1) Fixing by 4 M6 screws.

XKMC

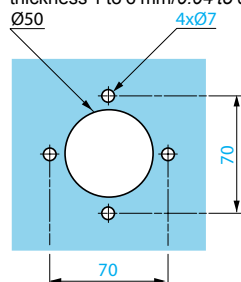


		a1	a2
XKMC	with 4 contacts	157	36 to 41
	with 8 contacts	187	36 to 41
	with 12 contacts	217	36 to 41

(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**

2

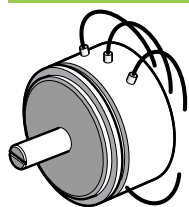
Mechanical characteristics

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 (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

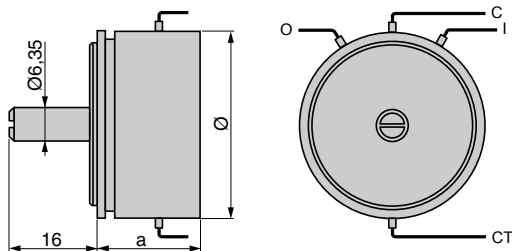


XKZA15●●●

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

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

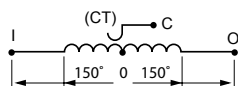
Dimensions



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

	a	Ø
XKZA15●●●	20	36.5
XKZA18●●●	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**

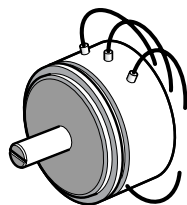
Mechanical characteristics

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 (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 30°, mainly for use with controllers XKD and XKM	
Nominal power (P _n)	3 W at 85 °C	4 W at 85 °C
Connections	Flying leads from soldered standard tags	

References



XKBZ1●●●, XKDZ1●●●

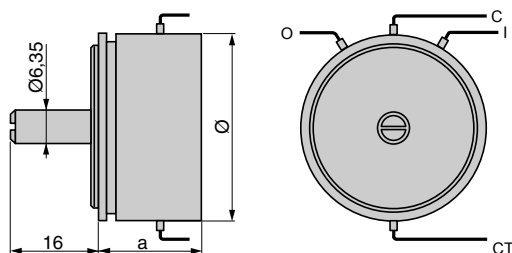
Potentiometers for controllers XKB

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

Potentiometers for controllers XKD and XKM

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

Dimensions

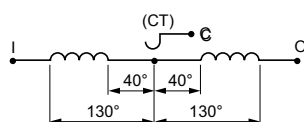


The pinion included with the adaptation simply clamps onto the potentiometer operating shaft (diameter 6.35 mm, length 16 mm).

	a	Ø
XKBZ15●●, XKDZ15●●	20	36.5
XKBZ18●●, XKDZ18●●	27	44.45

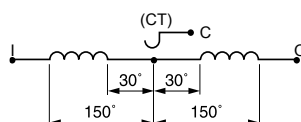
Connections

XKBZ15●●, XKBZ18●●



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

XKDZ15●●, XKDZ18●●



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

Harmony XD

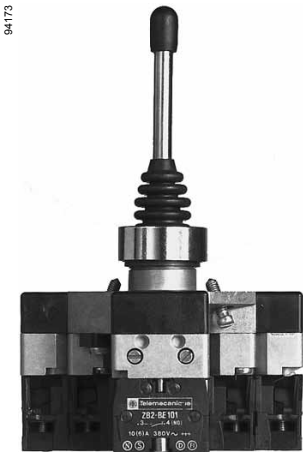
■ References

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

3

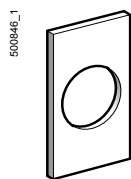


XD2GA8211

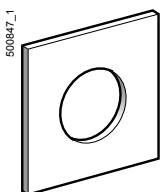


XD2GA8441

Complete units type XD2G, with chromium plated metal bezel					
Interchangeable contacts					
Description	Operation	Spring return to zero position	Bezel finish	Reference	Weight kg/lb
2 direction Fixing centres 90 x 90 mm/ 3.54 x 3.54 in.. 	1 notch 1 N/O contact per direction	Without	Shiny	XD2GA8211	0.300/0.661
			Black	XD2GA82117	0.300/0.661
		With	Shiny	XD2GA8221	0.300/0.661
			Black	XD2GA82217	0.300/0.661
	2 notches 2 N/O contacts per direction	Without	Shiny	XD2GA8231	0.500/1.102
			Black	XD2GA82317	0.500/1.102
		With	Shiny	XD2GA8241	0.500/1.102
			Black	XD2GA82417	0.500/1.102
	1 st notch stay put 2 nd notch with spring return to 1 st notch		Shiny	XD2GA8251	0.500/1.102
			Black	XD2GA82517	0.500/1.102
4 direction Fixing centres 90 x 90 mm/ 3.54 x 3.54 in.. 	1 notch 1 N/O contact per direction	Without	Shiny	XD2GA8411	0.330/0.728
			Black	XD2GA84117	0.330/0.728
		With	Shiny	XD2GA8421	0.330/0.728
			Black	XD2GA84217	0.330/0.728
	2 notches 2 N/O contacts per direction	Without	Shiny	XD2GA8431	0.550/1.213
			Black	XD2GA84317	0.550/1.213
		With	Shiny	XD2GA8441	0.550/1.213
			Black	XD2GA84417	0.550/1.213
	1 st notch stay put 2 nd notch with spring return to 1 st notch		Shiny	XD2GA8451	0.550/1.213
			Black	XD2GA84517	0.550/1.213



ZD2GY5201



ZD2GY6201



ZB2BE101

Legend plates

Description	Text	Color	Reference	Weight kg/lb
2 direction 40 x 64 mm/ 1.57 x 2.52 in.	Without	Black one side, red reverse	ZD2GY5201	0.002/0.004
		White one side, yellow reverse	ZD2GY5401	0.002/0.004
	With (1) (specify when ordering)	Black background, white letters	ZD2GY5002	0.002/0.004
		Red background, white letters	ZD2GY5004	0.002/0.004
		White background, black letters	ZD2GY5001	0.002/0.004
		Yellow background, black letters	ZD2GY5005	0.002/0.004
4 direction 64 x 64 mm/ 2.52 x 2.52 in.	Without	Black one side, red reverse	ZD2GY6201	0.003/0.007
		White one side, yellow reverse	ZD2GY6401	0.003/0.007
	With (1) (specify when ordering)	Black background, white letters	ZD2GY6002	0.003/0.007
		Red background, white letters	ZD2GY6004	0.003/0.007
		White background, black letters	ZD2GY6001	0.003/0.007
		Yellow background, black letters	ZD2GY6005	0.003/0.007

Contact block

Description	Contact	Reference	Weight kg/lb
Slow break Additional or replacement	N/O	ZB2BE101	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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XD2GA8241	3/2	XKBZ1808	2/35
XD2GA8251	3/2	XKBZ1847	2/35
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XD2GA8431	3/2	XKDZ901	2/17
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Harmony Innovation



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