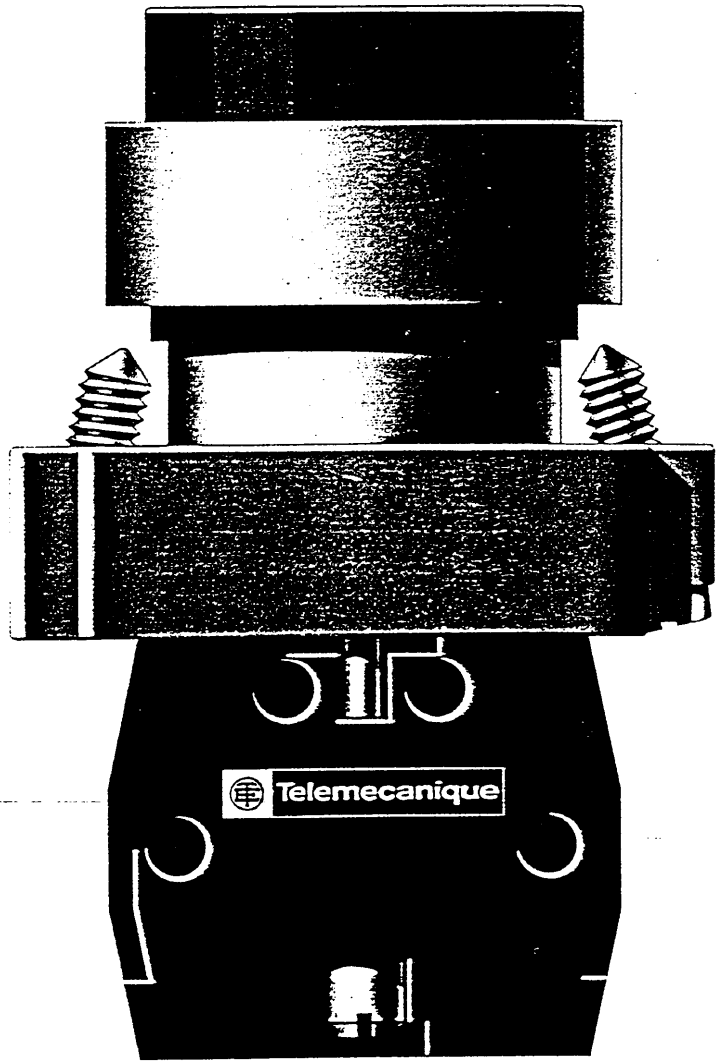
177-619

XB2-B
control and signalling units Ø22

April 1983

175 451 to 475
175-501 → 509



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Telemecanique

Our company's policy is one of continuous development and improvement and we reserve the right to supply products which may differ from those illustrated in this brochure.
All our products are sold subject to our Standard Conditions of Sale, available on request.

General characteristics of control and signalling units XB2-B

Ø22.2(fixing)

General

This range of Ø22.2 pushbuttons, selector switches, pilot lights, illuminated pushbuttons, illuminated selector switches and small joystick controllers is designed to meet the requirements of an international market.

Aesthetic

Shape and colours.
Metal bezel, nickel plated and chromed.
Alternatively, metal bezel, matt black anodised.

Ergonomic design

Circular operating surface area greater than that of a Ø30.5mm control unit.

Robust

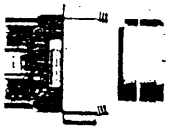
All the parts whose mechanical function is of prime importance are made of zinc alloy. Insulating parts are made of polyamide reinforced with glass fibre.

Safe

–Fixing method unaffected by excessive vibration, unit will not rotate.
–Positive contact opening.
–Very good flame resistance (class VO in accordance to UL94).
–Protection against electrical shock (unit earthed).

Speed and simplicity of fixing

A screwdriver is all that is required.



Operating heads

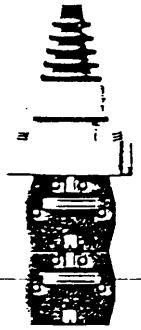
The operating heads are functionally interchangeable on the different types of body/contact assemblies.

Body/contact assemblies

For pushbuttons and selector switches:
1–6 contact blocks (N/O or N/C), except for push-pull mushroom heads which are 4 maximum.

For pilot lights, illuminated pushbuttons and illuminated selector switches:
Bodies for direct supply, direct supply through resistor or via integral transformer.
Supply voltage: 6–600V. according to body type.
Bulb: incandescent with type BA9s base.
1 or 2 contacts (N/O or N/C) for illuminated pushbuttons and illuminated selector switches.

The same contact blocks are used throughout the range.
They are slow break and self wiping. Contact tips are made of nickel-silver and the moving bridge of copper. Contact blocks are interchangeable and may be stacked on without additional mounting components. They are protected against the penetration of small objects during assembly and wiring.
Gold flashed contacts are also available.



Fixing

XB2-B manual pilot devices can be fixed in any position on panels of thickness 1 to 6mm.
The operating heads lock on to the base unit using a 1/8th turn bayonet fixing which makes for a simple and fast assembly.
Finally, the complete assembly is locked in to position on the mounting plate by two pointed screws Ø4mm, tightened from the rear. These screws also ensure the earthing of the unit.

Small joystick controllers

- Type XD2-P (compact, contacts non interchangeable).
  Fixing centres 30 x 85mm (2 position) or 85 x 85mm (4 position).
  2 or 4 position, with or without spring return to the zero position.
  1 N/O contact per position.

- Type XD2-G
  Fixing centres 90 x 90mm (2 and 4 position).
  2 or 4 position, with or without spring return.
  1 N/O contact per position.
  Additional features:
  –variable composition to 2, 3 or 4 position.
  –controlling 1, 2 or 4 contacts in each position.
  –1 or 2 notches per position, stay-put or spring return.
  Details on request.

Environment

Conformity to standards	IEC 337-1, IEC 337-2, NFC 63-140, ASE 0119, ASE 1003, BS 4794, VDE 0660 part 2, UL 506, UL 508, CSA C22-2 No. 14, CSA C22-2 No. 66.
Approvals	Demko, Semko, Nemko, Elektriska Inspectoratet, GL. Standard version: CSA 300V (AC) heavy duty, (DC) standard duty; Bureau Veritas; ASE; UL (listed) 300V (AC) heavy duty, (DC) standard duty.
Protective treatment	Standard version: "All climates."
Ambient temperature	Operating: −25 to +70°C. Storage: −40 to +70°C.
Altitude	<3000m
Operating position	All positions.
Resistance to vibration	Ø60mm mushroom head: 8g. Other pushbuttons: 15g. Small joystick controllers: 5g. (from 40 to 500Hz) in accordance with IEC 68-2-6.
Resistance to shock	Pushbuttons: 70g. Mushroom head pushbuttons: 15g. Double headed pushbuttons: 50g. Selector switches: 200g. In accordance with IEC 68-2-6.
Protection against electrical shock	Class 1, in accordance with IEC 536 and NF C20-030.
Degree of protection in accordance with IEC 529 and NF C20-010	IP40: basic double-headed pushbutton. IP65: flush and projecting, illuminated and non-illuminated pushbuttons (mounted). IP66: booted and mushroom head pushbuttons, selector switches, pilot lights, and small joystick controllers (mounted).
Mechanical life	Spring return pushbuttons, selector switches and small joystick controllers: 1 million operations. Latching mushroom head pushbuttons: 300,000 operations.

Contact block characteristics

Nominal thermal current	10A in accordance with IEC 337-1, NF C63-140, UL 508, CSA C22-2 No. 14, VDE 0660.
Nominal insulation voltage	500V in accordance with IEC 158-1, NF C20-040, VDE 0110. 300V in accordance with UL 508, CSA C22-2 No. 14.
Insulation category	Group C in accordance with NF C20-040 and VDE 0110.
Contact operation	Slow break N/O or N/C.
Contact resistance (between terminals)	<25mΩ: Standard <14mΩ: Gold flashed
Operating force	Flush and projecting pushbuttons – with 1N/O contact: 10N – with 1N/C contact: 8N. Additional contacts – N/O: +5N – N/C: +3N.
Terminal referencing	According to CENELEC EN 50013. Numbers indicating the function are marked on the contact block, either: 1–2 for a N/C contact or a 3–4 for a N/O contact. The contact order number is marked on the diecast base, i.e.: First row of contacts: 1 for left hand contact block, 2 for right hand contact block. Second row of contacts: 3 for left hand contact block, 4 for right hand contact block.
Short circuit protection	10A cartridge fuses, gl or N in accordance with IEC 337-1B.

Making and breaking capacities in accordance with IEC 337-1 and VDE 0660 part 2

	AC ~ 50-60Hz Power broken in kVA For 50 operations							DC ⎓ Power broken in W For 20 operations					
Voltage V	12	24	48	127	220	380	500	12	24	48	110	220	440
Pushbuttons XB2-B and Small joystick controllers XD2-GA	0.8	1.5	4.4	9.6	15.6	24	32	1000	600	870	240	190	130
Small joystick controllers XD2-PA	0.8	1.5	4	9	15	21	24	650	390	260	165	115	85

Rated power in accordance with IEC 337-1 Duty categories AC11 and DC11

For 1 million operations
Operating frequency: 3600 ops./hour
Load factor: 0.5

		AC ~ 50-60Hz Power broken in VA							DC ⎓ Power broken in W					
Voltage V		12	24	48	127	220	380	500	12	24	48	110	220	440
Pushbuttons XB2-B and Small joystick controllers XD2-GA	⎓	100	200	400	650	700	600	500	95	65	48	40	30	25
	⎓	120	240	480	1000	1200	1500	1500	120	240	300	170	110	70
Small joystick controllers XD2-PA	⎓	100	200	400	550	600	500	400	58	40	30	23	20	15
	⎓	120	240	475	850	1100	1200	1200	120	240	135	110	70	45

Cabling	Screw and captive cable clamp terminals. Capacity: minimum 1 x 0.5mm², maximum, with or without cable end. 2 x 1.5mm² or 1 x 2.5mm². Versions are also available for cable clip-connections (to NF C20-120).

Control units Ø22.2 (fixing)

circular head, chromium plated metal bezel

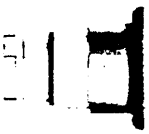
Bodies : see page 8
Legends : see pages 13 to 15
Dimensions: see page 17

Operating heads for pushbuttons

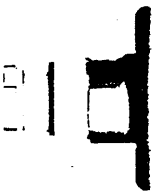
ZB2-BA•

ZB2-BL•

ZB2-BP•

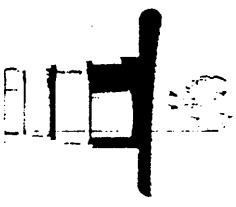


ZB2-BC•



ZB2-BX•

ZB2-BS54



ZB2-BS24

Description		Colour	Reference	For ISO legends	Weight kg
Flush		White	ZB2-BA1	–	0.030
		Black	ZB2-BA2	–	0.030
		Green	ZB2-BA3	ZB2-BA38	0.030
		Red	ZB2-BA4	ZB2-BA48	0.030
		Yellow	ZB2-BA5	ZB2-BA58	0.030
		Blue	ZB2-BA6	ZB2-BA68	0.030
		Clear	ZB2-BA7	ZB2-BA78	0.030
Projecting		White	ZB2-BL1	–	0.030
		Black	ZB2-BL2	–	0.030
		Green	ZB2-BL3	ZB2-BW13	0.030
		Red	ZB2-BL4	ZB2-BW14	0.030
		Yellow	ZB2-BL5	ZB2-BW15	0.030
		Blue	ZB2-BL6	ZB2-BW16	0.030
		Clear	–	ZB2-BW17	0.030
Projecting Push and push to release		Black	ZB2-BH2	–	0.032
		Green	–	ZB2-BH3	0.032
		Red	–	ZB2-BH4	0.032
		Yellow	–	ZB2-BH5	0.032
		Blue	–	ZB2-BH6	0.032
		Clear	–	ZB2-BH7	0.032
Booted		Black	ZB2-BP2	–	0.030
		Green	ZB2-BP3	ZB2-BP38	0.030
		Red	ZB2-BP4	ZB2-BP48	0.030
		Yellow	ZB2-BP5	ZB2-BP58	0.030
		Blue	ZB2-BP6	ZB2-BP68	0.030
		Clear	–	ZB2-BP78	0.030

Mushroom operating heads

Spring return	Ø40mm	Black	ZB2-BC2	0.045
		Green	ZB2-BC3	0.045
		Red	ZB2-BC4	0.045
		Yellow	ZB2-BC5	0.045
		Blue	ZB2-BC6	0.045
	Ø60mm	Black	ZB2-BR2	0.055
		Green	ZB2-BR3	0.055
		Red	ZB2-BR4	0.055
		Yellow	ZB2-BR5	0.055
Push-pull stay put	Ø40mm	Black	ZB2-BT2	0.075
		Red	ZB2-BT4	0.075
	Ø60mm	Black	ZB2-BX2	0.080
		Red	ZB2-BX4	0.080
Latching turn to release	Ø30mm	Red	ZB2-BS44	0.045
	Ø40mm	Black	ZB2-BS52	0.055
		Red	ZB2-BS54	0.055
		Yellow	ZB2-BS55	0.055
	Ø60mm	Red	ZB2-BS64	0.065
Latching key release (Ronis key No. 455)	Ø30mm	Red	ZB2-BS74	0.080
	Ø40mm	Red	ZB2-BS14	0.090
	Ø60mm	Red	ZB2-BS24	0.120

+ Other versions

For colours other than those mentioned above...
For other key numbers...
Details on request.

When ordering

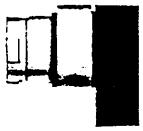
an operating head.
Please state the exact reference.
Example: ZB2-BA2

circular head, chromium plated metal bezel

Bodies : see page 8
Legends : see page 13
Dimensions: see page 17

Operating heads for selector switches

ZB2-BD•



ZB2-BJ•

Description			Reference	Weight kg
Standard handle (1)	2 position	stay put	ZB2-BD2	0.040
		spring return from right to left	ZB2-BD4	0.040
	3 position	stay put	ZB2-BD3	0.040
		spring return to centre	ZB2-BD5	0.040
		stay put on left, spring return from right to centre	ZB2-BD8	0.040
		stay put on right spring return from left to centre	ZB2-BD7	0.040
Long handle (1)	2 position	stay put	ZB2-BJ2	0.040
		spring return from right to left	ZB2-BJ4	0.040
	3 position	stay put	ZB2-BJ3	0.040
		spring return to centre	ZB2-BJ5	0.040
		stay put on left spring return from right to centre	ZB2-BJ8	0.040
		stay put on right spring return from left to centre	ZB2-BJ7	0.040

(1) Standard handle black
For white handle add 01 to reference. Example: ZB2-BD201
For red handle add 04 to reference. Example: ZB2-BD204

Operating heads for key switches (Ronis key No. 455)

ZB2-BG•

Description		Key withdrawal	Reference	Weight
2 position	stay put	left hand position	ZB2-BG2	0.070
		left and right hand positions	ZB2-BG4	0.070
	spring return from right to left	left hand position	ZB2-BG6	0.070
3 position	stay put	all positions	ZB2-BG0	0.070
		centre position	ZB2-BG3	0.070
		left and right hand positions	ZB2-BG5	0.070
		left hand position	ZB2-BG9	0.070
		right hand position	ZB2-BG09	0.070
	spring return to centre	centre position	ZB2-BG7	0.070
	stay put on right, spring return from left to centre	right hand position	ZB2-BG1	0.070

+ Other versions Operating heads are available with mechanical functions other than those shown above.
Other key numbers. Details on request.

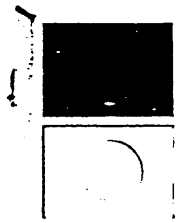
When ordering **an operating head.**
Please state the exact reference.
Example: ZB2-BD2

Control units Ø22.2 (fixing)

Double-headed, rectangular pushbutton operators with chromium plated metal bezel

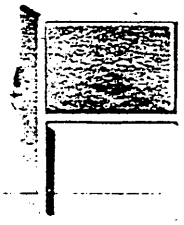
Bodies : see page 8
Dimensions: see page 18

Double-headed pushbutton operators **IP40**



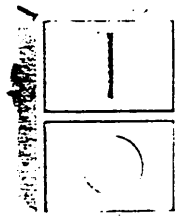
ZB2-BA8224

Description	Colour of operators	Marking	Reference	Weight kg
2 Flush	Black Red	Unmarked	ZB2-BA8124	0.048
		Marked "I" "O"	ZB2-BA8224	0.048
	Green Red	Unmarked	ZB2-BA8134	0.048
		Marked "I" "O"	ZB2-BA8234	0.048
1 Flush 1 Projecting	Black Red	Unmarked	ZB2-BL8324	0.048
		Marked "I" "O"	ZB2-BL8424	0.048
	Green Red	Unmarked	ZB2-BL8334	0.048
		Marked "I" "O"	ZB2-BL8434	0.048



ZB2-BL8334

Double-headed pushbutton operators **IP65**



ZB2-BA9234

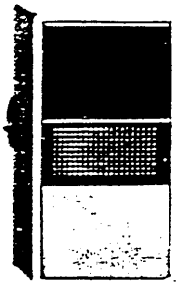
Description	Colour of operators	Marking	Reference	Weight kg
2 Flush	Black Red	Unmarked	ZB2-BA9124	0.048
		Marked "I" "O"	ZB2-BA9224	0.048
	Green Red	Unmarked	ZB2-BA9134	0.048
		Marked "I" "O"	ZB2-BA9234	0.048
1 Flush 1 Projecting	Black Red	Unmarked	ZB2-BL9324	0.048
		Marked "I" "O"	ZB2-BL9424	0.048
	Green Red	Unmarked	ZB2-BL9334	0.048
		Marked "I" "O"	ZB2-BL9434	0.048

ZB2-BL9324

When ordering a double-headed pushbutton operator.
Please state the exact reference.
Example: ZB2-BA8124

Double-headed, rectangular pushbutton operators with chromium plated metal bezel

Bodies : see page 11
Dimensions: see page 18



ZB2-BW81254

Operating heads for pushbuttons, with pilot light incorporating yellow lens

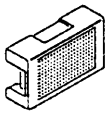
Description	Colour of operators	Marking	Reference	Weight kg
2 Flush 1 Pilot light IP40*	Black	Unmarked	ZB2-BW81254	0.043
	Red	Marked "I" "O"	ZB2-BW82254	0.043
	Green	Unmarked	ZB2-BW81354	0.043
	Red	Marked "I" "O"	ZB2-BW82354	0.043
1 Flush 1 Projecting 1 Pilot light IP40*	Black	Unmarked	ZB2-BW83254	0.043
	Red	Marked "I" "O"	ZB2-BW84254	0.043
	Green	Unmarked	ZB2-BW83354	0.043
	Red	marked "I" "O"	ZB2-BW84354	0.043

ZB2-BW84204

Operating heads for pushbuttons, with pilot light without lens

Description	Colour of operators	Marking	Reference	Weight kg
2 Flush 1 Pilot light IP40*	Black	Unmarked	ZB2-BW81204	0.042
	Red	Marked "I" "O"	ZB2-BW82204	0.042
	Green	Unmarked	ZB2-BW81304	0.042
	Red	Marked "I" "O"	ZB2-BW82304	0.042
1 Flush 1 Projecting 1 Pilot light IP40*	Black	Unmarked	ZB2-BW83204	0.042
	Red	Marked "I" "O"	ZB2-BW84204	0.042
	Green	Unmarked	ZB2-BW83304	0.042
		Marked "I" "O"	ZB2-BW84304	0.042

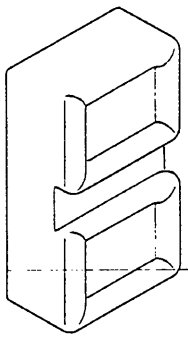
Lenses for pilot lights



ZB2-BW90•

Sold in lots of 10

Colour	Reference	Weight kg
Green	ZB2-BW903	0.001
Red	ZB2-BW904	0.001
Yellow	ZB2-BW905	0.001
Blue	ZB2-BW906	0.001
Clear	ZB2-BW907	0.001



ZB2-BW008

Sealing boot

Silicone clear	ZB2-BW008	0.004

*Increased to IP66 by addition of boot ZB2-BW008.

When ordering

a double-headed pushbutton operator.
Please state the exact reference. Example: ZB2-BW81354
a lens and/or a sealing boot.
Please state the exact reference. Example: ZB2-BW905

Control units Ø22.2 (fixing)

Body/contact assemblies
For use with operating heads shown on pages 4, 5 and 6

Dimensions: see page 17

Complete bodies; screw and captive cable clamp connections

ZB2-BZ10•

Description	Application	Scheme	Reference	Weight kg
With one contact block	Pushbuttons and 2 position selector switches	N/O	ZB2-BZ101	0.040
		N/C	ZB2-BZ102	0.040
With two contact blocks	2-way rectangular pushbuttons, pushbuttons and 2 or 3 position selector switches	N/O+N/O	ZB2-BZ103	0.055
		N/C+N/C	ZB2-BZ104	0.055
		N/O+N/C	ZB2-BZ105	0.055
		N/O+N/C Make before break	ZB2-BZ106	0.055
		N/O+N/O 2 step	ZB2-BZ107	0.055

Supplementary contact blocks

ZB2-BE10•

Connections	Application	Type		Reference	Weight kg
Screw and captive cable clamp	For converting body/contact assemblies to 3, 4, 5 or 6 contacts maximum or replacing 1st or 2nd contact blocks	N/O	Standard	ZB2-BE101	0.015
			Early make	ZB2-BE201	0.015
		N/C	Standard	ZB2-BE102	0.015
			Late break	ZB2-BE202	0.015
	For low power switching (<20V, <50mA) gold flashed contacts	N/O		ZB2-BE1016	0.015
		N/C		ZB2-BE1026	0.015

+ Other versions — Body/contact assemblies fitted with "faston" connectors (6.3) (conforming to NF C20-120).
Details on request.

When ordering

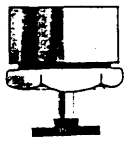
a complete body/contact assembly.
Please state the exact reference. Example: ZB2-BZ101
a supplementary contact block.
Please state the exact reference. Example: ZB2-BE101

Mechanical overload resets Ø22.2 (fixing)

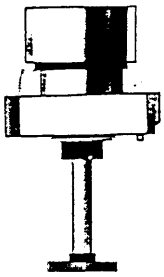
circular head, chromium plated metal bezel

Complete units

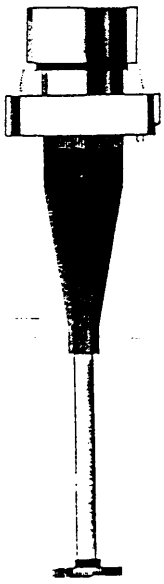
Legends: see page 13



XB2-BA8••



XB2-BA9••
30 to 82mm



XB2-BA9••
80 to 257mm

Description	Adjustable length	Colour	Reference	Weight kg
Flush pushbutton 10mm travel For mounting on plate 1 to 3mm thickness Fixing: secured by nut from rear	6 to 16mm	Black	XB2-BA821	0.030
		Red	XB2-BA841	0.030
		Blue	XB2-BA861	0.030
	16 to 26mm	Black	XB2-BA822	0.035
		Red	XB2-BA842	0.035
		Blue	XB2-BA862	0.035
Flush pushbutton 14mm travel For mounting on plate 1 to 6mm thickness Fixing: secured by pointed screws from rear	30 to 57mm	Black	XB2-BA921	0.077
		Red	XB2-BA941	0.077
		Blue	XB2-BA961	0.077
	55 to 82mm	Black	XB2-BA922	0.080
		Red	XB2-BA942	0.080
		Blue	XB2-BA962	0.080
	80 to 107mm	Black	XB2-BA923	0.085
		Red	XB2-BA943	0.085
		Blue	XB2-BA963	0.085
	105 to 132mm	Black	XB2-BA924	0.090
		Red	XB2-BA944	0.090
		Blue	XB2-BA964	0.090
	130 to 157mm	Black	XB2-BA925	0.095
		Red	XB2-BA945	0.095
		Blue	XB2-BA965	0.095
	155 to 182mm	Black	XB2-BA926	0.100
		Red	XB2-BA946	0.100
		Blue	XB2-BA966	0.100
	180 to 207mm	Black	XB2-BA927	0.105
		Red	XB2-BA947	0.105
		Blue	XB2-BA967	0.105
	205 to 232mm	Black	XB2-BA928	0.110
		Red	XB2-BA948	0.110
		Blue	XB2-BA968	0.110
	230 to 257mm	Black	XB2-BA929	0.115
		Red	XB2-BA949	0.115
		Blue	XB2-BA969	0.115

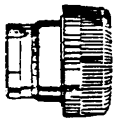
When ordering **a complete unit.**
Please state the exact reference.
Example: XB2-BA822

Signalling units Ø22.2 (fixing)

Bodies and lenses for pilot lights

Legends : see pages 13 to 15
Dimensions: see page 17

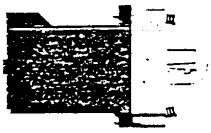
ZB2-BV0•



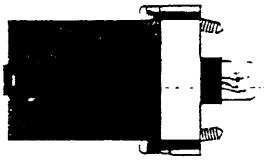
ZB2-BV0•3

ZB2-BV6

ZB2-BV7



ZB2-BV••



ZB2-BV1••

Heads (lens + bezel)

	Colour	Reference	Weight kg
Standard lenses suitable for use with ISO legends	Green	ZB2-BV03	0.025
	Red	ZB2-BV04	0.025
	Yellow	ZB2-BV05	0.025
	Blue	ZB2-BV06	0.025
	Clear	ZB2-BV07	0.025
High contrast lenses	Green	ZB2-BV033	0.025
	Red	ZB2-BV043	0.025
	Yellow	ZB2-BV053	0.025
	Blue	ZB2-BV063	0.025
	Clear	ZB2-BV073	0.025

Complete body with screw and captive cable clamp connections

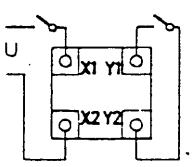
Supply	Typical scheme	Maximum supply voltage	Reference	Weight kg
Direct bulb not supplied to order: see page 13		≤ 130V	ZB2-BV6	0.045
Direct through resistor bulb supplied type BA9s, 130V		220/240V	ZB2-BV7	0.055
Via integral transformer 1.2VA bulb supplied type BA9s, 6V		24V:50Hz	ZB2-BV1	0.110
		48V:50Hz	ZB2-BV2	0.110
		110V:50Hz	ZB2-BV3	0.110
		220/240V:50Hz	ZB2-BV4	0.110
		380V:50Hz	ZB2-BV5	0.110
		415V:50Hz	ZB2-BV93	0.110
		440/480:60Hz	ZB2-BV95	0.110
		500V:50Hz	ZB2-BV8	0.110
		500/600:60Hz	ZB2-BV98	0.110

Flashing pilot light body with screw and captive cable clamp connections

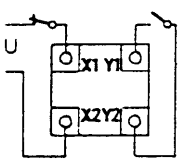
Description		Supply voltage	Reference	Weight kg
4 terminal output 3 states, off, flashing light and steady light	Bulb supplied type BA9s, 24V	24V:AC	ZB2-BV181	0.070
		24V:DC	ZB2-BV191	0.070
	Bulb supplied type BA9s, 48V	48V:AC	ZB2-BV183	0.070
		48V:DC	ZB2-BV193	0.070
	Bulb supplied type BA9s, 130V	110/127:AC	ZB2-BV184	0.070
		220/240:AC	ZB2-BV185	0.070

Schemes

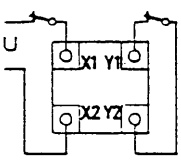
Off



Flashing-light



Steady-light



DC: U → − X1 + X2

By the addition of up to 2 ZB2-BE10• contact blocks, these bodies may be used for flashing illuminated pushbutton and illuminated selector switch applications.

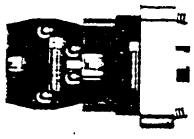
When ordering a head, a complete body or a flashing pilot light body.
Please state the exact reference.
Examples: ZB2-BV03, ZB2-BV6, ZB2-BV181.

Signalling units Ø22.2 (fixing)

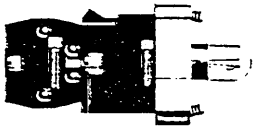
circular head, chromium plated metal bezel

Body/contact assemblies. For use with operator heads shown on pages 4 (ZB2-BH3 to 7 only), 7 and 12

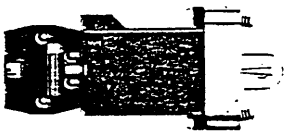
Bulb information: see page 13
Dimensions : see page 17



ZB2-BW06•

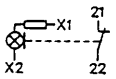
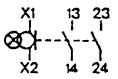
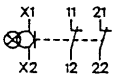
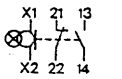


ZB2-BW07•



ZB2-BW0•••

Complete bodies; screw and captive cable clamp connections

Supply	Typical scheme	Maximum supply voltage	Contact arrangement	Reference	Weight kg
Direct		≤130V	N/O	ZB2-BW061	0.060
			N/C	ZB2-BW062	0.060
			N/O+N/O	ZB2-BW063	0.070
			N/C+N/C	ZB2-BW064	0.070
			N/O+N/C	ZB2-BW065	0.070
Direct through resistor bulb supplied type BA9s, 130V		220/240	N/O	ZB2-BW071	0.065
			N/C	ZB2-BW072	0.065
			N/O+N/O	ZB2-BW073	0.080
			N/C+N/C	ZB2-BW074	0.080
			N/O+N/C	ZB2-BW075	0.080
Via integral transformer 1.2VA bulb supplied type BA9s, 6V		24V:50Hz	N/O	ZB2-BW011	0.120
			N/C	ZB2-BW012	0.120
			N/O+N/O	ZB2-BW013	0.135
			N/C+N/C	ZB2-BW014	0.135
			N/O+N/C	ZB2-BW015	0.135
		48V:50Hz	N/O	ZB2-BW021	0.120
			N/C	ZB2-BW022	0.120
			N/O+N/O	ZB2-BW023	0.135
			N/C+N/C	ZB2-BW024	0.135
			N/O+N/C	ZB2-BW025	0.135
		110V:50Hz	N/O	ZB2-BW031	0.120
			N/C	ZB2-BW032	0.120
			N/O+N/O	ZB2-BW033	0.135
			N/C+N/C	ZB2-BW034	0.135
			N/O+N/C	ZB2-BW035	0.135
		220/240V:50Hz	N/O	ZB2-BW041	0.120
			N/C	ZB2-BW042	0.120
			N/O+N/O	ZB2-BW043	0.135
			N/C+N/C	ZB2-BW044	0.135
			N/O+N/C	ZB2-BW045	0.135
		380V:50Hz	N/O	ZB2-BW051	0.120
			N/C	ZB2-BW052	0.120
			N/O+N/O	ZB2-BW053	0.135
			N/C+N/C	ZB2-BW054	0.135
			N/O+N/C	ZB2-BW055	0.135
		415V:50Hz	N/O	ZB2-BW0931	0.120
			N/C	ZB2-BW0932	0.120
			N/O+N/O	ZB2-BW0933	0.135
			N/C+N/C	ZB2-BW0934	0.135
			N/O+N/C	ZB2-BW0935	0.135
		440/480V:50Hz	N/O	ZB2-BW0951	0.120
			N/C	ZB2-BW0952	0.120
			N/O+N/O	ZB2-BW0953	0.135
			N/C+N/C	ZB2-BW0954	0.135
			N/O+N/C	ZB2-BW0955	0.135
		500V:50Hz	N/O	ZB2-BW081	0.120
			N/C	ZB2-BW082	0.120
			N/O+N/O	ZB2-BW083	0.135
			N/C+N/C	ZB2-BW084	0.135
			N/O+N/C	ZB2-BW085	0.135
		500/600V:60Hz	N/O	ZB2-BW0981	0.120
			N/C	ZB2-BW0982	0.120
			N/O+N/O	ZB2-BW0983	0.135
			N/C+N/C	ZB2-BW0984	0.135
			N/O+N/C	ZB2-BW0985	0.135

Assemble units of your choice by using our wide range of adaptable sub-assemblies.
• Bodies and lenses for pilot lights (see previous page).

When ordering **a complete body.**
Please state the exact reference. Example: ZB2-BW061
Add the reference of the head, bulb and legend (if required).

Signalling units Ø22.2 (fixing)

circular head, chromium plated metal bezel

ZB2-BW3•

Operating heads (bezel + lens), suitable for use with ISO legends or separate legend plates

Type of operator		Colour	Reference	Weight kg
Flush		Green	ZB2-BW33	0.025
		Red	ZB2-BW34	0.025
		Yellow	ZB2-BW35	0.025
		Blue	ZB2-BW36	0.025
		Clear	ZB2-BW37	0.025
Projecting		Green	ZB2-BW13	0.030
		Red	ZB2-BW14	0.030
		Yellow	ZB2-BW15	0.030
		Blue	ZB2-BW16	0.030
		Clear	ZB2-BW17	0.030

ZB2-BW1•

Flush booted		Green	ZB2-BW53	0.030
		Red	ZB2-BW54	0.030
Mushroom head **Spring return**	Ø40mm	Green	ZB2-BW43	0.030
		Red	ZB2-BW44	0.030
Mushroom head **Push-pull** stay put	Ø40mm	Green	ZB2-BW63	0.030
		Red	ZB2-BW64	0.030

Operating heads for illuminated selector switches

Description		Colour	Reference	Weight kg
Standard handle **2 position**	stay put	Green	ZB2-BK123	0.035
		Red	ZB2-BK124	0.035
		Yellow	ZB2-BK125	0.035
		Blue	ZB2-BK126	0.035
		Clear	ZB2-BK127	0.035
	spring return right to left	Green	ZB2-BK143	0.035
		Red	ZB2-BK144	0.035
		Yellow	ZB2-BK145	0.035
		Blue	ZB2-BK146	0.035
		Clear	ZB2-BK147	0.035
Standard handle **3 position**	stay put	Green	ZB2-BK133	0.035
		Red	ZB2-BK134	0.035
		Yellow	ZB2-BK135	0.035
		Blue	ZB2-BK136	0.035
		Clear	ZB2-BK137	0.035
	spring return to centre	Green	ZB2-BK153	0.035
		Red	ZB2-BK154	0.035
		Yellow	ZB2-BK155	0.035
		Blue	ZB2-BK156	0.035
		Clear	ZB2-BK157	0.035
	stay put on left, spring return from right to centre	Green	ZB2-BK183	0.035
		Red	ZB2-BK184	0.035
		Yellow	ZB2-BK185	0.035
		Blue	ZB2-BK186	0.035
		Clear	ZB2-BK187	0.035
	stay put on right, spring return from left to centre	Green	ZB2-BK173	0.035
		Red	ZB2-BK174	0.035
		Yellow	ZB2-BK175	0.035
		Blue	ZB2-BK176	0.035
		Clear	ZB2-BK177	0.035

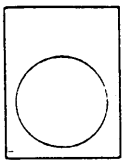
ZB2-BK•••

Operating heads for "push to test" pilot lights

ZB2-BV0••

Green	ZB2-BV031	0.030
Red	ZB2-BV041	0.030
Yellow	ZB2-BV051	0.030
Blue	ZB2-BV061	0.030
Clear	ZB2-BV071	0.030

When ordering **an operating head.**
Please state the exact reference. Example: ZB2-BW63.
Add the reference of the body, bulb and the legend (if required),
see pages 11 and 13.

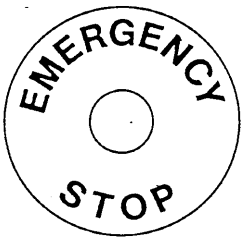


ZB2-BY•••

Legend plates 30 x 40mm: Not suitable for use with double-headed pushbuttons

"Start" functions: white characters on black. "Stop" functions: white characters on red.

Text	Reference	Weight kg	Text	Reference	Weight kg
Without text					
Red or black background	ZB2-BY2101	0.001	White or yellow background	ZB2-BY4101	0.001
Standard texts					
For pushbuttons					
Start	ZB2-BY2303	0.001	Stop	ZB2-BY2304	0.001
Forward	ZB2-BY2305	0.001	Reverse	ZB2-BY2306	0.001
Up	ZB2-BY2307	0.001	Down	ZB2-BY2308	0.001
Right	ZB2-BY2309	0.001	Left	ZB2-BY2310	0.001
On	ZB2-BY2311	0.001	Off	ZB2-BY2312	0.001
Open	ZB2-BY2313	0.001	Close	ZB2-BY2314	0.001
Auto	ZB2-BY2115	0.001	Hand	ZB2-BY2116	0.001
Reset	ZB2-BY2323	0.001	Emergency stop	ZB2-BY2330	0.001
Power	ZB2-BY2326	0.001	Inch	ZB2-BY2321	0.001
Slow	ZB2-BY2337	0.001	Fast	ZB2-BY2328	0.001
For selector switches					
Auto-Hand	ZB2-BY2364	0.001	Auto-O-Hand	ZB2-BY2385	0.001



ZB2-BY•330

Universal symbols					
For pushbuttons			For selector switches		
O	ZB2-BY2146	0.001	O-I	ZB2-BY2178	0.001
I	ZB2-BY2147	0.001	I-II	ZB2-BY2179	0.001
II	ZB2-BY2148	0.001	I-O-II	ZB2-BY2186	0.001
III	ZB2-BY2149	0.001			

Special texts. Please state the exact wording required when ordering (2 lines max. 11 charas./line).

Black with white charas.	ZB2-BY2002	0.001	Yellow with black charas.	ZB2-BY4005	0.001
Red with white charas.	ZB2-BY2004	0.001	For a number of legends with the same text,		
White with black charas.	ZB2-BY4001	0.001	please consult your regional sales office.		

DL1-C••••

Large legend plates for use with mushroom heads		
Round, Ø60mm. Text:– "Emergency stop", yellow with black charas.	ZB2-BY9330	0.006
Round, Ø90mm. Text:– "Emergency stop", yellow with black charas.	ZB2-BY8330	0.008
Rectangular, 45 x 67.5. Without text, red background.	ZB2-BY5101	0.006

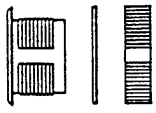
Bulbs

For use in direct supply units: BA9s base fitting. Incandescent bulbs; V ≤130V, maximum power 2.6W. Ø11mm maximum, length 28mm maximum.

Sold in lots of 10.

Incandescent bulbs

Voltage	Power	Unit Reference	Weight kg
6V	1.5W	DL1-CB006	0.002
12V	2.6W	DL1-CE012	0.002
24V	2.6W	DL1-CE024	0.002
48V	2.6W	DL1-CE048	0.002
130V	2.6W	DL1-CE130	0.002



ZB2-SZ3

Blanking plug for Ø22.2mm hole (sold singly)

Black insulating material	ZB2-SZ3	0.005
Grey insulating material	ZB2-SZ4	0.005

Tools (sold singly)

Bulb extractor for use with types BA9s	XBF-X13	0.025
Lens tool for ISO legend operators	ZB2-BZ8	0.006
Padlockable guard for flush pushbutton operators	ZB2-BZ6	0.090

+ Other versions Legend plates with texts in other languages. Please consult your regional sales office.

When ordering

a standard legend plate.
Please state the exact reference. Example: ZB2-BY2304
a special legend plate.
Please state the exact reference of the legend plate and the text required.
Example: ZB2-BY4C01 "Pump 1".

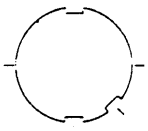
ZB2-B ISO legends

For mounting within the operating heads

- flush pushbuttons
- projecting pushbuttons
- booted pushbuttons
- illuminated pushbuttons
- push to test pilot lights

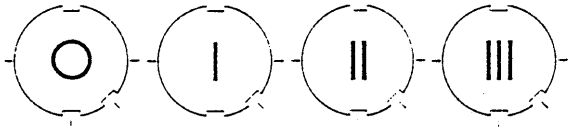
and pilot lights

Without text



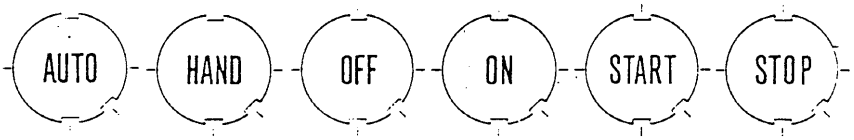
ZB2-BY1101

Universal symbols



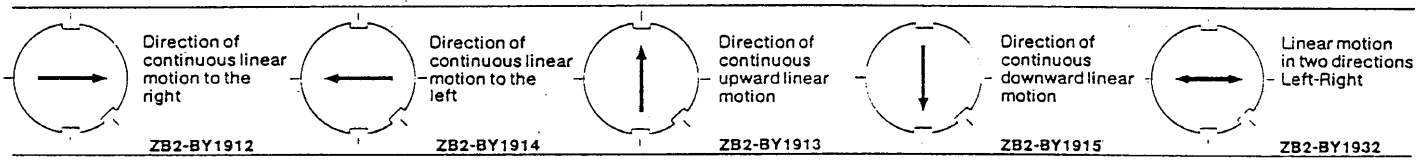
ZB2-BY1146 ZB2-BY1147 ZB2-BY1148 ZB2-BY1149

English texts



ZB2-BY1115 ZB2-BY1316 ZB2-BY1312 ZB2-BY1311 ZB2-BY1303 ZB2-BY1304

Symbols for motions and speeds



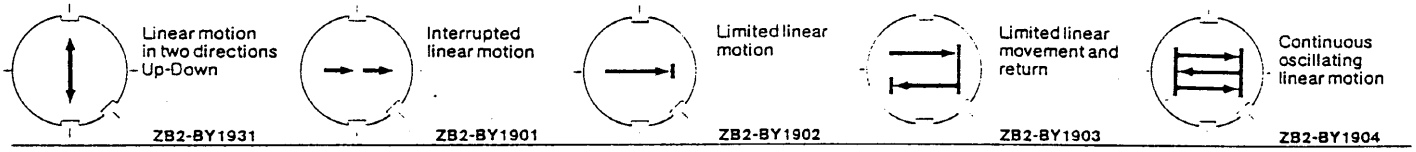
Direction of continuous linear motion to the right — ZB2-BY1912

Direction of continuous linear motion to the left — ZB2-BY1914

Direction of continuous upward linear motion — ZB2-BY1913

Direction of continuous downward linear motion — ZB2-BY1915

Linear motion in two directions Left-Right — ZB2-BY1932



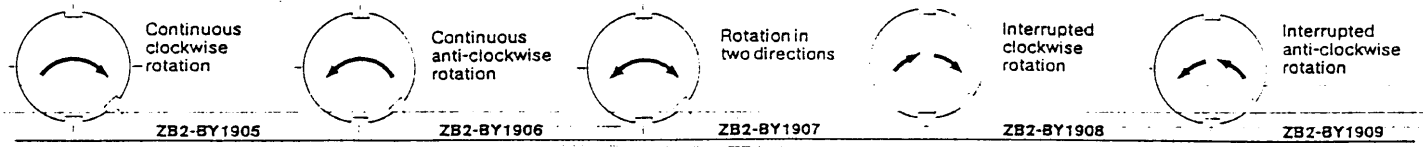
Linear motion in two directions Up-Down — ZB2-BY1931

Interrupted linear motion — ZB2-BY1901

Limited linear motion — ZB2-BY1902

Limited linear movement and return — ZB2-BY1903

Continuous oscillating linear motion — ZB2-BY1904



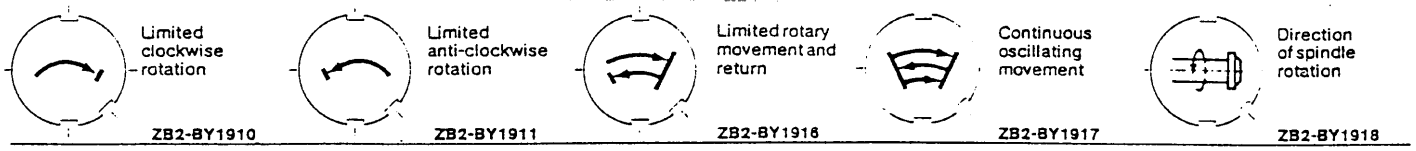
Continuous clockwise rotation — ZB2-BY1905

Continuous anti-clockwise rotation — ZB2-BY1906

Rotation in two directions — ZB2-BY1907

Interrupted clockwise rotation — ZB2-BY1908

Interrupted anti-clockwise rotation — ZB2-BY1909



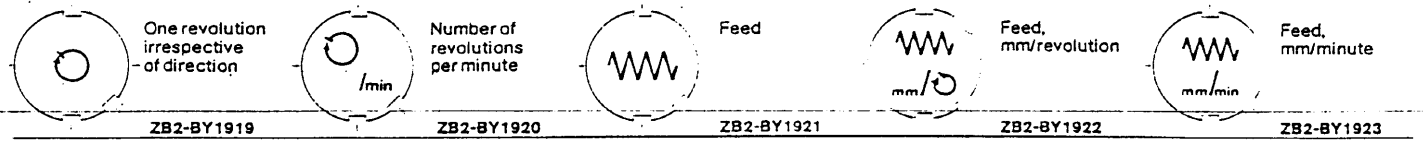
Limited clockwise rotation — ZB2-BY1910

Limited anti-clockwise rotation — ZB2-BY1911

Limited rotary movement and return — ZB2-BY1916

Continuous oscillating movement — ZB2-BY1917

Direction of spindle rotation — ZB2-BY1918



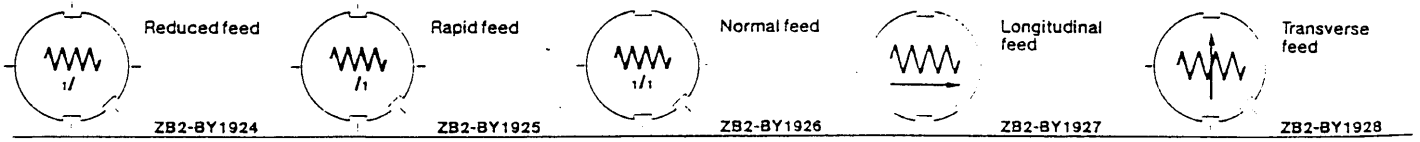
One revolution irrespective of direction — ZB2-BY1919

Number of revolutions per minute — ZB2-BY1920

Feed — ZB2-BY1921

Feed, mm/revolution — ZB2-BY1922

Feed, mm/minute — ZB2-BY1923



Reduced feed — ZB2-BY1924

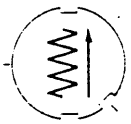
Rapid feed — ZB2-BY1925

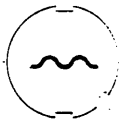
Normal feed — ZB2-BY1926

Longitudinal feed — ZB2-BY1927

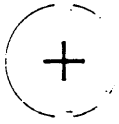
Transverse feed — ZB2-BY1928

Symbols for motions and speeds (continued)

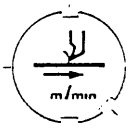

Vertical feed
ZB2-BY1929


Rapid traverse
ZB2-BY1930

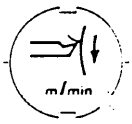
Threading
ZB2-BY1933


Increase of a value
ZB2-BY1934

Decrease of a value
ZB2-BY1935



Speed of planing cut
ZB2-BY1936

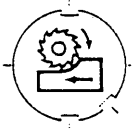


Speed of turning cut
ZB2-BY1937

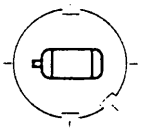
Speed of drilling cut
ZB2-BY1938

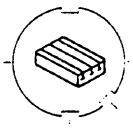
Speed of milling cut
ZB2-BY1939

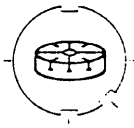
Conventional milling
ZB2-BY1940


Climb milling
ZB2-BY1941

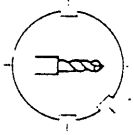
Element symbols

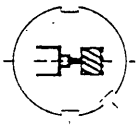

Electric motor
ZB2-BY1942

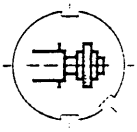

Rectangular work table or slide element
ZB2-BY1943

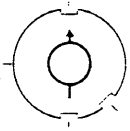

Round work table or rotating element
ZB2-BY1944

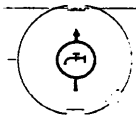
Turning spindle
ZB2-BY1945

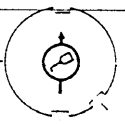

Drilling spindle
ZB2-BY1946

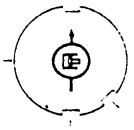

Milling spindle
ZB2-BY1947

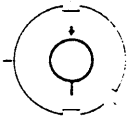

Grinding spindle
ZB2-BY1948


Pump (general symbol)
ZB2-BY1949


Coolant pump
ZB2-BY1950


Lubricant pump
ZB2-BY1951


Hydraulic pump
ZB2-BY1952

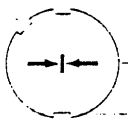

Hydraulic motor
ZB2-BY1953

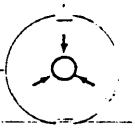
Tracer
ZB2-BY1954

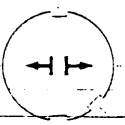
Operational symbols

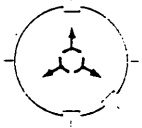
Continuous regulation
ZB2-BY1955

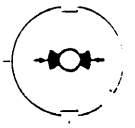
Adjustable
ZB2-BY1956

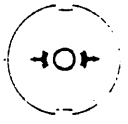

Lock or tighten
ZB2-BY1957

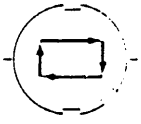

Lock or tighten
ZB2-BY1958

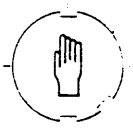

Unlock, unclamp
ZB2-BY1959

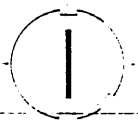

Unlock, unclamp
ZB2-BY1960


Brake on
ZB2-BY1961

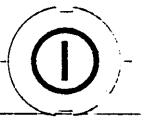

Brake off
ZB2-BY1962


Automatic (or semi-automatic) cycle
ZB2-BY1963

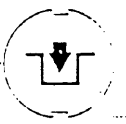

Hand control
ZB2-BY1964

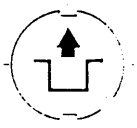

ON
ZB2-BY1965

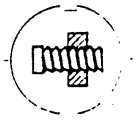
OFF
ZB2-BY1966

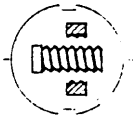

ON-OFF
ZB2-BY1967

ON, whilst pushbutton depressed
ZB2-BY1968


Engaging
ZB2-BY1969


Disengaging
ZB2-BY1970


Locknut closed
ZB2-BY1971


Locknut open
ZB2-BY1972

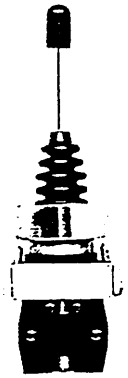
Small joystick controllers Ø 22.2 (fixing)

circular head, chromium plated metal bezel

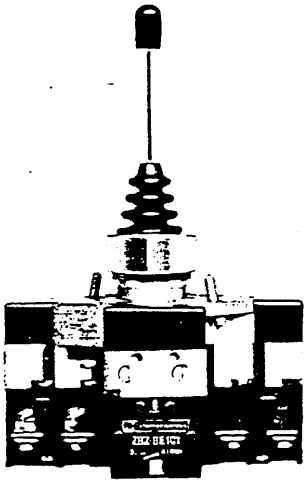
Screw and captive cable clamp connections

(positions A, B, C, D are as viewed from the front of the unit)

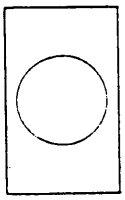
Dimensions: see page 19
Schemes : see page 19



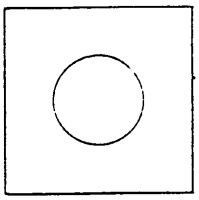
XD2-PA ••



XD2-GA ••••



ZD2-GY2201



ZD2-GY4201

Complete units, type XD2-P (compact, contact blocks are not interchangeable)

Description			Reference	Weight kg
2 direction Fixing centres 30x85mm	Ⓐ—o—Ⓑ	Without spring return to the zero position	XD2-PA12	0.115
		With spring return to the zero position	XD2-PA22	0.115
4 direction Fixing centres 85x85mm	Ⓓ Ⓐ—o—Ⓑ Ⓒ	Without spring return to the zero position	XD2-PA14	0.145
		With spring return to the zero position	XD2-PA24	0.145

Complete units, type XD2-G

2 direction Fixing centres 90x90mm	Ⓐ—o—Ⓑ	2 notches with spring return to the zero position	XD2-GA8241	0.500
		2 notches: 1st notch stayput 2nd notch spring return to 1st notch	XD2-GA8251	0.500
4 direction Fixing centres 90x90mm	Ⓓ Ⓐ—o—Ⓑ Ⓒ	2 notches with spring return to the zero position	XD2-GA8441	0.555
		2 notches: 1st notch stayput 2nd notch spring return to 1st notch	XD2-GA8451	0.555

Accessories and spare parts

2 direction legend plates For XD2-PA: 30x48mm For XD2-GA: 40x64mm	Without text, black one side – red other	30x48	ZD2-GY2201	0.002
		40x64	ZD2-GY5201	0.002
	With text* black background	30x48	ZD2-GY2002	0.002
		40x64	ZD2-GY5002	0.002
	With text* red background	30x48	ZD2-GY2004	0.002
		40x64	ZD2-GY5004	0.002
4 direction legend plates For XD2-PA: 48x48mm For XD2-GA: 64x64mm	Without text, black one side – red other	48x48	ZD2-GY4201	0.003
		64x64	ZD2-GY6201	0.003
	With text* black background	48x48	ZD2-GY4002	0.003
		64x64	ZD2-GY6002	0.003
	With text* red background	48x48	ZD2-GY4004	0.003
		64x64	ZD2-GY6004	0.003

*State exact text required when ordering: 2 lines of 11 characters per line max.

Spare N/O contact blocks	For controllers XD2-PA XD2-GA	Not interchangeable	ZB2-BE101	0.015

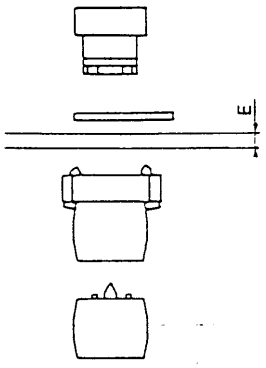
+ Other versions

Variable composition XD2-GA controllers (1 or 2 notches per direction; 1 or 2 contacts per direction).
Contacts for low power switching.
Please consult your local sales office.

When ordering

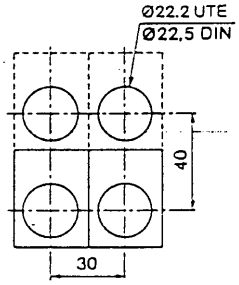
a small joystick controller
Please state the exact reference. Example: XD2-PA24.
Add the reference of the legend plate and the text required.

Dimensions
of control and signalling units Ø 22.2 (fixing)

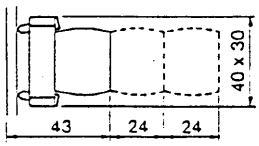


E = thickness of mounting panel
1 to 6mm

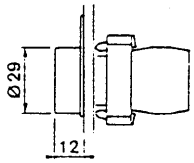
Panel drillings
for control and signalling units



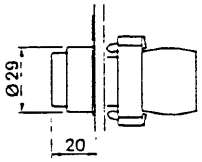
Control units
ZB2-BZ10•(2)



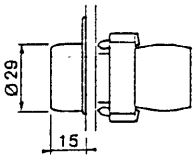
XB2-BA••
ZB2-BA•(1)



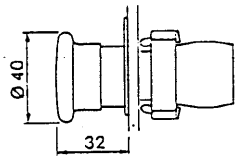
XB2-BL••
ZB2-BL•(1)



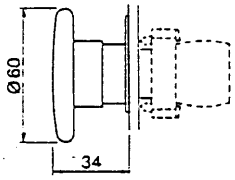
XB2-BP••
ZB2-BP•(1)



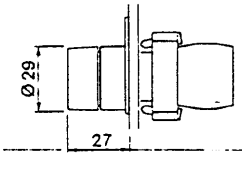
XB2-BC••
ZB2-BC• and BT•(1)



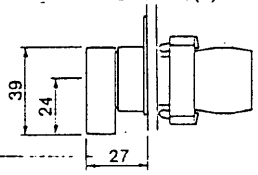
ZB2-BR• and BX•(1)



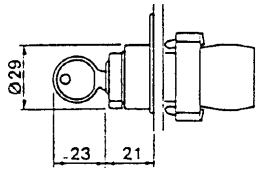
XB2-BD••
ZB2-BD•(1)



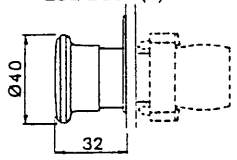
XB2-BJ••
ZB2-BJ•(1)



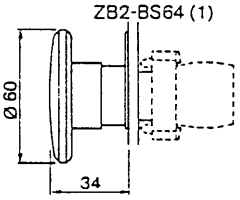
XB2-BG21
ZB2-BG•(1)

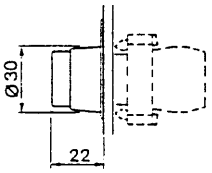


ZB2-BS54 (1)

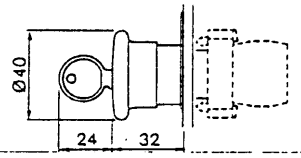


ZB2-BS64 (1)

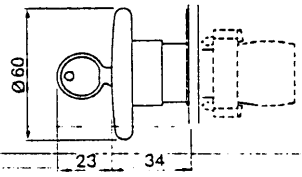




ZB2-BS14 (1)



ZB2-BS24 (1)

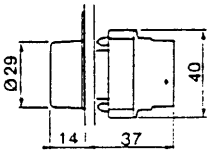


ZB2-BH•(1)

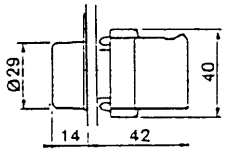
(1) Operating head
(2) Body/contact assembly

Signalling units

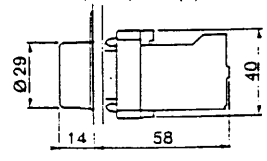
XB2-BV6•
ZB2-BV0•(1)
ZB2-BV6 (2)



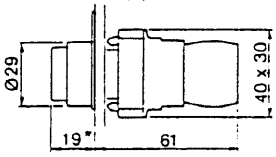
XB2-BV7•
ZB2-BV0•(1)
ZB2-BV7 (2)



XB2-BV3•BV4•
ZB2-BV0•(1)
ZB2-BV3, BV4, BV5 (2)

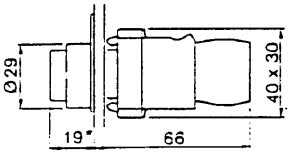


XB2-BW3•6•
ZB2-BW1•BW3•,ZB2-BK•••(1)
ZB2-BW06•(2)

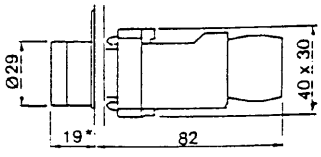


*27 for ZB2-BK•••

XB2-BW3•7•
ZB2-BW1•BW3•ZB2-BK•••(1)
ZB2-BW07•(2)



XB2-BW3 (with transformer)
ZB2-BW1•BW3•,ZB2-BK•••(1)
ZB2-BW03•BW04•BW093•(2)



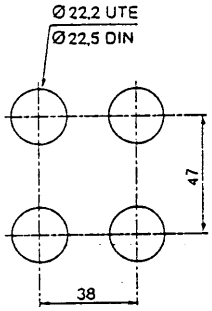
(1) Operating head
(2) Body/contact assembly

Dimensions

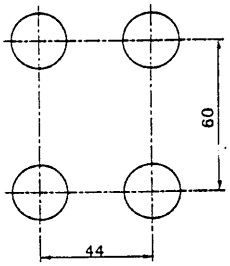
of double-headed pushbutton operators

References: see pages 6,7 and 11

Panel drillings
for double-headed pushbutton operators, without pilot light

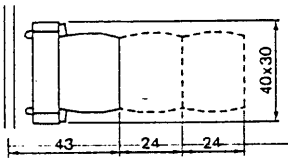


for double-headed pushbutton operators, with pilot light without boot

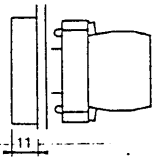


Double-headed pushbutton operators without pilot light

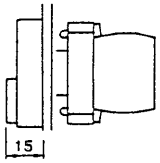
ZB2-BZ10• (2)

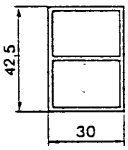


ZB2-BA• (1)



XB2-BL••
ZB2-BL• (1)

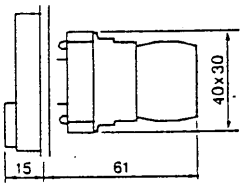




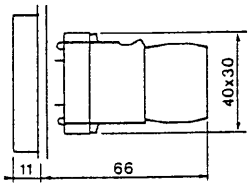
(1) Operating Head (2) Body/contact assembly

Double-headed pushbutton operators with pilot light

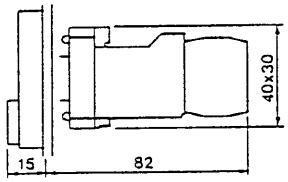
XB2-BW9••• (direct)
ZB2-BW8•••• (1)
ZB2-BW065 (2)

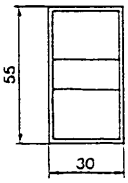


XB2-BW9••• (with resistor)
ZB2-BW8•••• (1)
ZB2-BW075 (2)



XB2-BW9••• (with transformer)
ZB2-BW8•••• (1)
ZB2-BW035, BW045, BW055 (2)

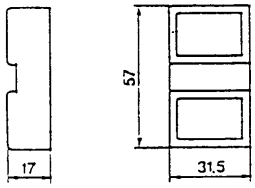




(1) Operating head (2) Body/contact assembly

Sealing boot

for double-headed pushbutton operators with pilot light (supplied fitted)
ZB2-BW008

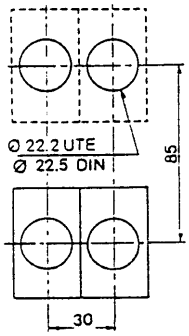


Dimensions and schemes
of small joystick controllers Ø22.2 (fixing)

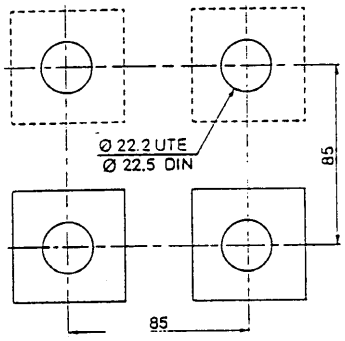
References: see page 16

Panel drillings for controllers

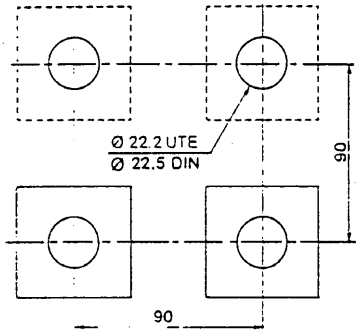
XD2-PA (2 direction)



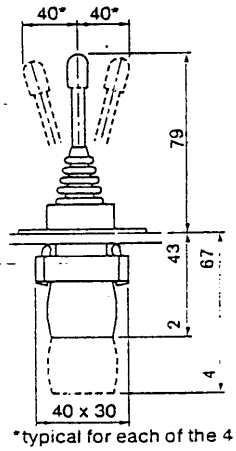
XD2-PA (4 direction)



XD2-GA (2 and 4 direction)

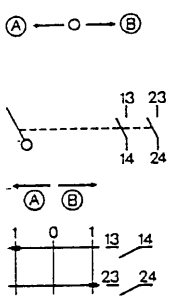


Controllers XD2-PA••

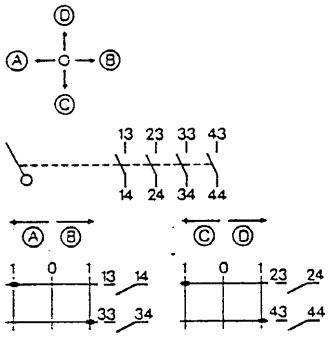


*typical for each of the 4 directions

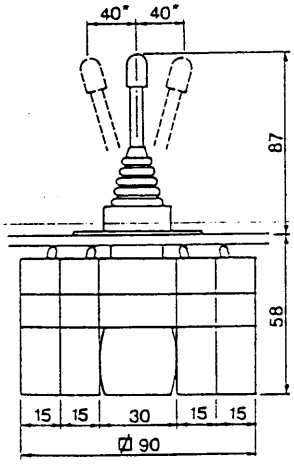
XD2-PA12
XD2-PA22



XD2-PA14
XD2-PA24

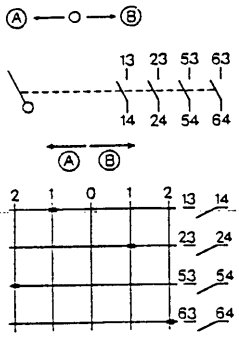


XD2-GA••

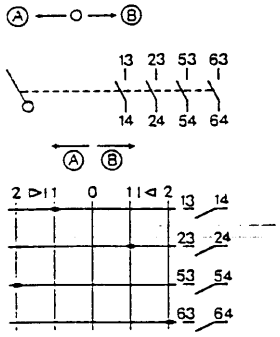


*typical for each of the 4 directions

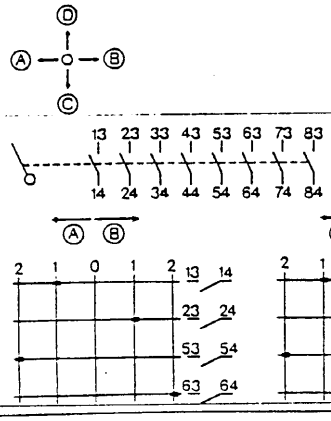
XD2-GA8241



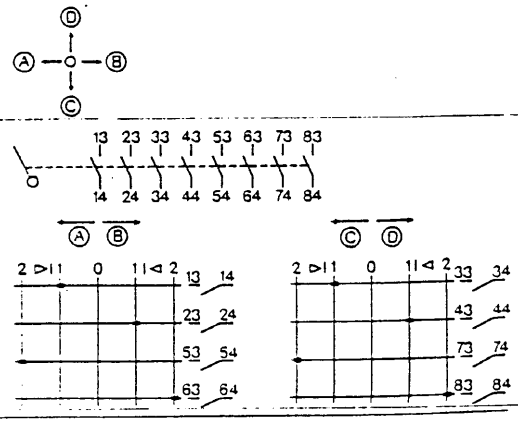
XD2-GA8251



XD2-GA8441



XD2-GA8451



Notes :

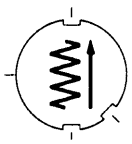
XB2 B L4 L2

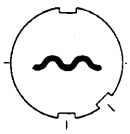
FAMILY — HEAD — CONTACT

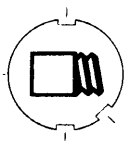
HEAD = ZB2-LB4

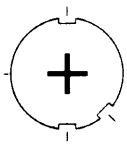
BODY + CONTACT = ZB2-BZ102

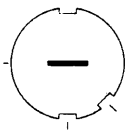
Symbols for motions and speeds (continued)

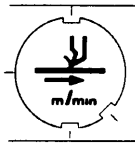

Vertical feed
ZB2-BY1929


Rapid traverse
ZB2-BY1930

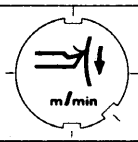

Threading
ZB2-BY1933


Increase of a value
ZB2-BY1934

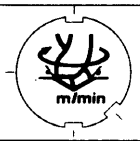

Decrease of a value
ZB2-BY1935



Speed of planing cut
ZB2-BY1936

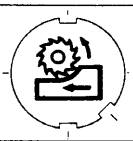


Speed of turning cut
ZB2-BY1937



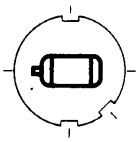
Speed of drilling cut
ZB2-BY1938

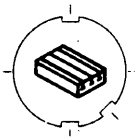
Speed of milling cut
ZB2-BY1939

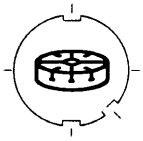

Conventional milling
ZB2-BY1940

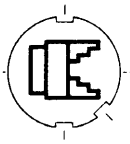
Climb milling
ZB2-BY1941

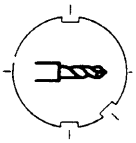
Element symbols

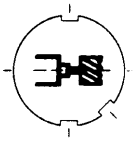

Electric motor
ZB2-BY1942

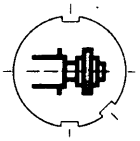

Rectangular work table or slide element
ZB2-BY1943

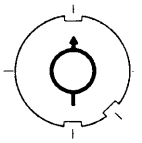

Round work table or rotating element
ZB2-BY1944

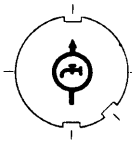

Turning spindle
ZB2-BY1945

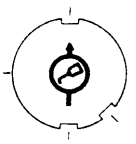

Drilling spindle
ZB2-BY1946

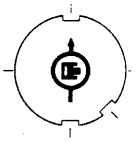

Milling spindle
ZB2-BY1947

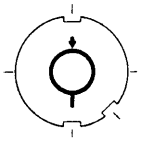

Grinding spindle
ZB2-BY1948


Pump (general symbol)
ZB2-BY1949


Coolant pump
ZB2-BY1950

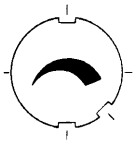

Lubricant pump
ZB2-BY1951

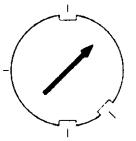

Hydraulic pump
ZB2-BY1952

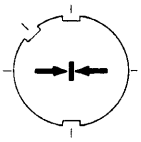

Hydraulic motor
ZB2-BY1953

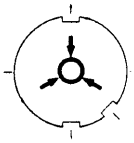
Tracer
ZB2-BY1954

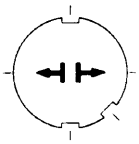
Operational symbols

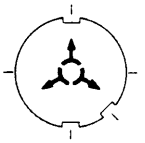

Continuous regulation
ZB2-BY1955

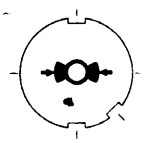

Adjustable
ZB2-BY1956

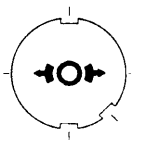

Lock or tighten
ZB2-BY1957

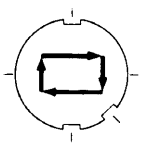

Lock or tighten
ZB2-BY1958

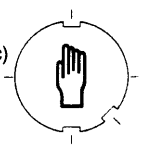

Unlock, unclamp
ZB2-BY1959

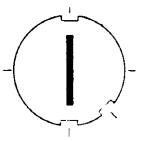

Unlock, unclamp
ZB2-BY1960

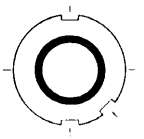

Brake on
ZB2-BY1961

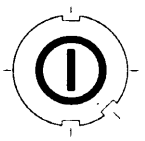

Brake off
ZB2-BY1962

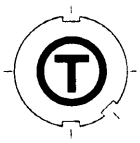

Automatic (or semi-automatic) cycle
ZB2-BY1963

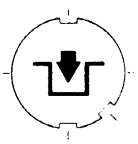

Hand control
ZB2-BY1964

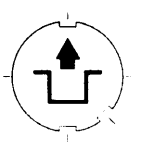

ON
ZB2-BY1965

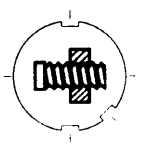

OFF
ZB2-BY1966

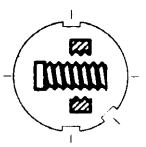

ON - OFF
ZB2-BY1967


ON, whilst pushbutton depressed
ZB2-BY1968


Engaging
ZB2-BY1969


Disengaging
ZB2-BY1970


Locknut closed
ZB2-BY1971


Locknut open
ZB2-BY1972

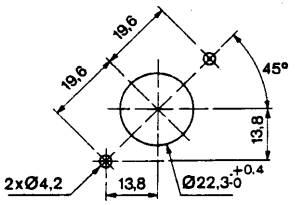
Analogue output joystick controllers Ø 22 mm (fixing)

with circular chromium plated metal bezel

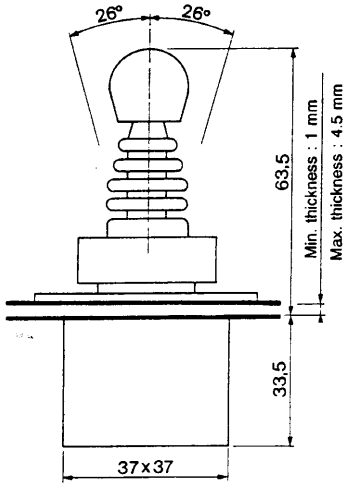
Characteristics : page 24
Output curves : page 24
References : page 25

Dimensions, mounting

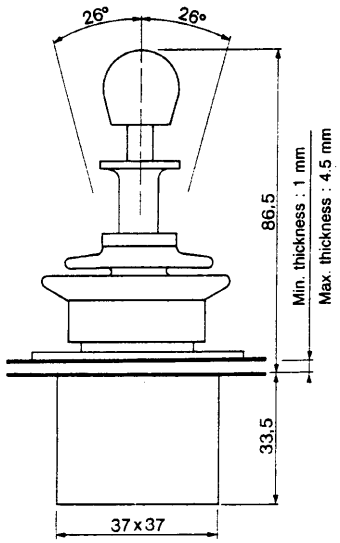
Panel cut-out (thickness 1 to 4.5 mm)
Viewed from top of panel



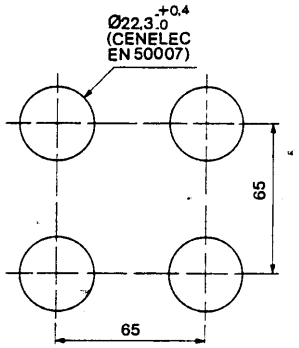
Dimensions
XDA-L11•••



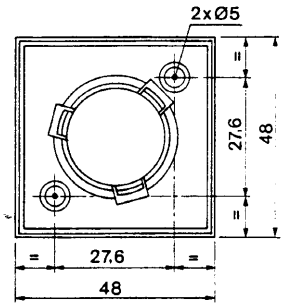
XDA-V11•••



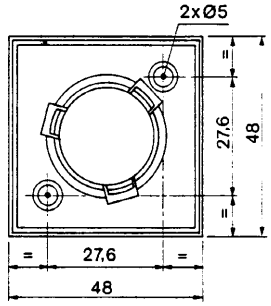
Minimum distance between 2 controllers



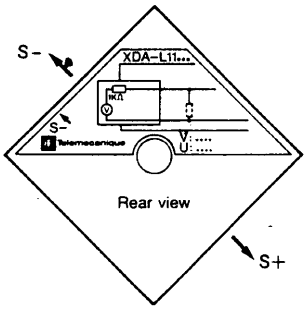
Front plate (48 × 48)



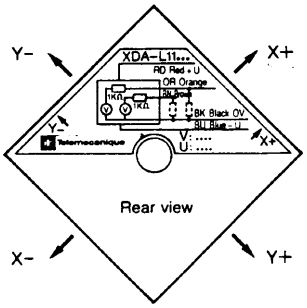
Front plate (48 × 48)



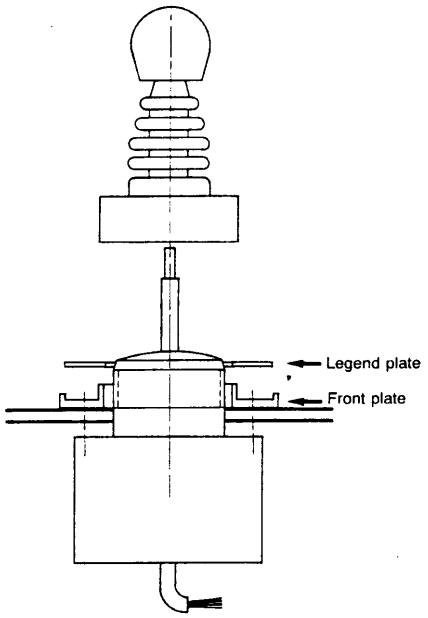
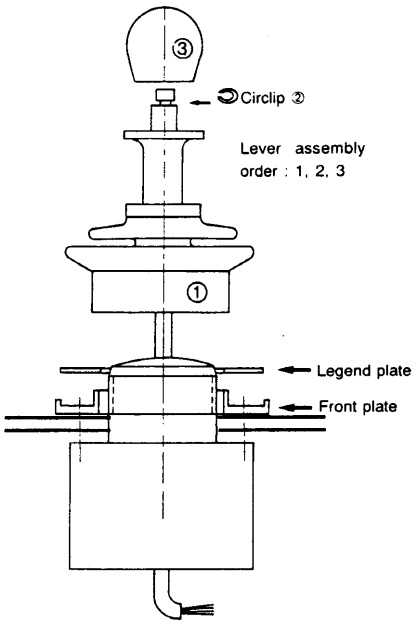
Displacement axes
One 2 direction axis



Two all direction axes



Mounting
XDA-L11•••



XDA-V11•••