

Pendant push-button controllers



Company presentation

A recognised vocation: dedicated process control components

Since its formation in 1947, MAFELEC has been a designer and manufacturer of **custom-built process control components** in medium or large-scale production runs for use in difficult stress or environmental conditions.

This reputation enables MAFELEC to take part in the development of many programmes in industry, rail transport and defence.

MAFELEC has constantly been able **to anticipate the needs** of its customers through active participation in product and equipment development at a very early stage to build in operational stresses, quality levels and cost optimisation specifications.



CL. GEC ALSTHOM / SNCF-CAV

An international name: matching customer requirements

MAFELEC outfits ships, trains and many other types of industrial equipment throughout the world.

MAFELEC acquired its name from its customers through its ability to apply technologies as varied and complementary as electrotechnics, mechanical engineering, electronics and IT.

The company's experience allows it to claim a place among the **leaders** in the field of dedicated components.



PHOTO DCN

Innovation and personalised service: integration of new technologies

Thanks to its technical and engineering design team, MAFELEC researches and finalises many new products each year to match its customers' **specific requirements**.

Each product undergoes technical developments, computation, simulation, approval testing, production using large-scale CAD systems and laboratory tests to ensure that the specifications contained in the customer's schedule of conditions are observed.

A concept of integrated quality: overall project management

Aware that its products are used in environments where safety is paramount, MAFELEC integrates quality at every stage, from the schedule of conditions through technical development to the product manufacturing stage.

MAFELEC has ISO 9002, RAQ2 and AQFM2 certification and integrates the specific requirements of each of its customers in order to maintain its reputation for reliability and observance of international standards.



PHOTO EDF / MARC MORCEAU

Pendant push-button controllers

Safety and control

Description	Literature	Page
Plastic range - Double insulation		
General characteristics		
■ General - Environment - Technical data	GBD2	4
BPI - 2 moving functions		
■ Standard arrangements 1 speed and 2 speeds	GBD2	5
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Pendant push-button controllers

■ Plastic range for auxiliary circuits

Assembled pendant controllers

2 moving functions	4 moving functions	6 moving functions	8 /12 moving functions
 BPI 5020 1 speed 2 speeds Page 5	 BPI 6041 1 speed 2 speeds Page 7	 BPI 6061 1 speed 2 speeds Page 8	 BPI 6101 1 speed 2 speeds Page 9
 BPI 6038 1 speed 2 speeds Page 7	 BPI 6048 1 speed 2 speeds Page 7	 BPI 6068 1 speed 2 speeds Page 8	 BPI 6172 1 speed 2 speeds Page 9
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To be composed

Kit arrangements yellow housings	Kit arrangements
 YSI 1003 Page 11	Labels PAI. Pages 6 and 12
 YSI 1004 Page 11	Contact block Page 6 and 11
 YSI 1005 Page 11	Auxiliary units for M & N holes
	Actuators YSI 1009. Page 13 YSI 1039 Page 13
	Bodies L22 8101 V Page 14

Pendant push-button controllers

■ Metal range for auxiliary circuits						
Assembled pendant controllers				To be composed		
Special kit boxes				Kit arrangements yellow housings	Kit arrangements	
	2 moving functions	4 moving functions	6 moving functions		Labels	
Housings for infrared or radio						
	CPV 5020 1 speed 2 speeds Page 19	22 BPJ 6040 1 speed Page 19	22 BPJ 6060 1 speed Page 19	22 BPJ 1.2 Page 20	POK. Page 20	
Dead man function						
	22 BPJ 5020 1 speed Page 19	22 BPJ 6047 1 speed Page 19	22 BPJ 6067 1 speed Page 19	22 BPJ 1.4 Page 20	L22 TCE. Page 21	
YSI 1099 Page 16	22 BPJ 5027 1 speed Page 19			22 BPJ 1.7 Page 20	YSK 578. Page 21	
1 - 18 holes Please consult us					L 22 CLD 455. Page 21	
					Bodies	
					L22 B. Page 21	

Pendant push-button controllers

Plastic range characteristics

■ General

- Large range of watertight plastic pendant controllers for auxiliary circuits, fitted with our Ø 22 mm control and signalling units.
- Standard plastic boxes with double insulation and intuitive operating from 1 to 14 buttons.
- Box kits, empty with cut-out or fitted with switches to customer requirements.
- Applications.
 - Industry / Railways / Marine and Defence
 - All handling and lifting applications.

■ Environment characteristics for auxiliary circuits

Conforming to	● IEC 947-5.1 ; NFC 63140 / 63141
Approvals	● BV - LROS - RINA - ASE - DEMKO - CSA - VDE - SEMKO - (UL)
Housings	● yellow polypropylene ● Double insulation (except auxiliaries for M and N holes)
Protection treatment	● Tropicalisation (up to + 40°C at 95% humidity)
Ambiant temperature	● Storage: - 40°C + 70°C ● Operation: - 25°C + 70°C
Electric shocks protection	● Class 2
Functioning position	● All positions
Degree of protection	● IP669 as per NFC 20 010 - 6: Totally protected against dust - 6: Protected against strong jets of water, eg for use on shipdecks - limited ingress permitted - 7: Impact 6.00 joules
Wire entrance	● Rubber terminal Dimensions for 2 buttons pendant controllers : Ø from 7 to 13 mm Dimensions for 1 to 14 buttons pendant controllers : Ø from 10 to 24 mm

■ Technical data (according to IEC 947-5.1)

Nominal thermal current	● 10 A as per IEC 947-5.1
Nominal insulation voltage	● 500 V as per NFC 20 040
Short time rating	● 250 A for 100 ms
Insulation standard	● C as per NFC 20040
Mechanical endurance	● Push-buttons : 1 x 10 ⁶ operations ● Switches : 0,5 x 10 ⁶ operations
Connection	● Screw and clamping plate : mini 1 x 0,5 SQ mm / max. : 2,5 SQ mm
Contact operation mode	● 1 speed and 2 speeds contact blocks with dependent action; positive working openature






Voltage (V)	AC11			DC11		
	220	380	500	24	48	110
Current max. (A)	10	4,5	4	5	3	2

LC22 type self cleaning contacts

Pendant push-button controllers

BPI - 2 moving functions 1speed

■ Standard arrangements

Function	Contact	Diagram	Part no.	Weight kg
● 2 buttons with mechanical interlock 	2 x 1NO		BPI 5020 A	0.280
	2 x 1NO + 1NC		BPI 5021 A	0.285
	2 x 2NO		BPI 2580 A	0.305
	2 x 2NO + 1NC (one pressure with early break)		BPI 2527 A	0.305






BPI 5020 A

BPI 5022 D

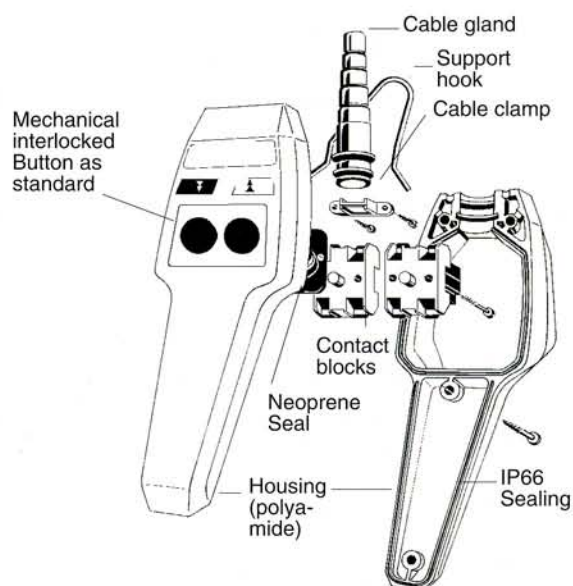
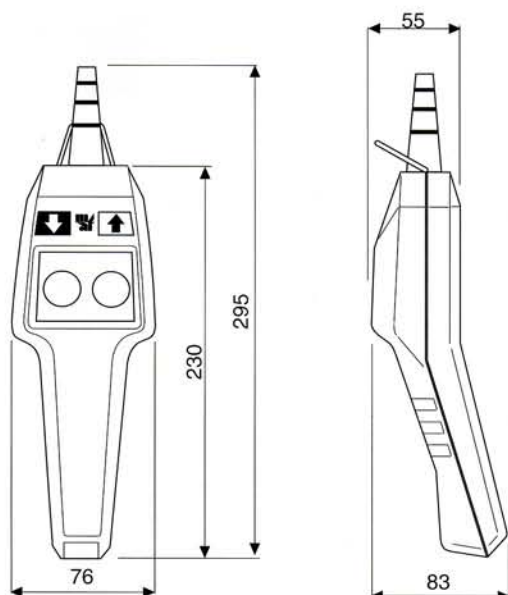
BPI - 2 moving functions 2 speeds

■ Standard arrangements

● 2 buttons with mechanical interlock 	2 x 1NO + 1NO (double pressure contact)		BPI 5022 D	0.295
	2 x 1NO + 1NO + 1NC (double pressure with early break)		BPI 5023 D	0.295

Dimensions

■ BPI 2



Pendant push-button controllers

BPI - 2 moving functions

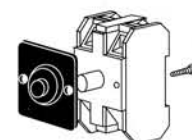
■ Kit arrangements

Description	Label	Function	Part no.	Weight kg
● Empty housings - Include : . Base . Cover + seal + screws . Cable gland Ø 7 to 13 mm . Cable clamp . Support hook . Label		1 - 2	YSI 1012 A	0.240
		1 - 2	YSI 1012 B	0.240
		1 - 2	YSI 1012 C	0.240
		1 - 2	YSI 1012 D	0.240
		1 - 2	YSI 1012 E	0.240
		1 - 2	YSI 1012 F	0.240

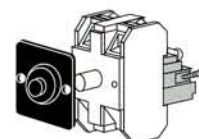


YSI 1012 A

Description	Contact	Part no.	Weight kg
● Contact block - Include : . Contact block . Neoprene seal . Two screws	1 speed		
	1NO	YSI 1023	0.020
	1NC	YSI 1024	0.020
	1NO + 1NC	YSI 1025	0.026
	1NO + 1NO	YSI 1026	0.026
	1NC + 1NC	YSI 1027	0.026
	1NO + 1NO + 1NC (one pressure with early break)	YSI 1046	0.033
	2 speeds		
	1NO + 1NO (double pressure contact)	YSI 1028	0.031
	1NO + 1NO + 1NC (double pressure with early break)	YSI 1029	0.033



YSI 1023



YSI 1028

● Cable gland - Ø 7 to 13 mm	MAI 660 A0	0.015
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MAI 660 A0

Labels	Adhesive labels	Part no.	Weight kg
	Normal 1 speed Lifting raise / Lifting lower	PXI 618 A1	0.001
	Normal 1 speed Lifting lower / Lifting raise	PXI 1088 A1	0.001
	Switching ON / OFF	PXI 1090A1	0.001
	Normal Traverse left / Traverse right	PXI 1091 A1	0.001
	2 speeds Lifting lower / Lifting raise	PXI 1092A1	0.001
	1 speed / 2 speeds Lifting lower / Lifting raise	PXI 1098 A1	0.001
	2 speeds / 1 speed Lifting lower / Lifting raise	PXI 1099 A1	0.001

Pendant push-button controllers

BPI - 2 moving functions 1 speed + auxiliary

■ Standard arrangements

Function	Contact	Diagram	Part no.	Weight kg
● With 1NC Ø 30 red latching mushroom stop (N)	2 x 1NO		BPI 6037	0.545
	2 x 1NO +1NC		BPI 6038	0.545
● I -With 1NO green flush start button (M) and, 1NC Ø 30 red latching mushroom stop (N)	2 x 2NO +1NC (one pressure with early break)		BPI 6738	0.570



BPI 6038



BPI 6738

BPI - 2 moving functions 2 speeds + auxiliary

■ Standard arrangements

● With 1NC Ø 30 red latching mushroom stop (N)	2 x 1NO +1NO +1NC (double pressure with early break)		BPI 6732	0.620
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BPI 6041



BPI 6048

BPI - 4 moving functions 1 speed

■ Standard arrangements

		4 x 1NO		BPI 6040	0.490
		4 x 1NO +1NC		BPI 6041	0.490
● With 1 NC Ø 30 red latching mushroom stop (N)		4 x 1NO		BPI 6047	0.595
		4 x 1NO +1NC		BPI 6048	0.595
● I -With 1NO green flush start button (M) - O -With 1NC red flush stop button (N)		4 x 1NO		BPI 5040	0.690
		4 x 1NO +1NC		BPI 5041	0.690
● I -With 1NO green flush start button (M) and, 1NC Ø 30 red latching mushroom stop (N)		4 x 1NO		BPI 5740	0.690
		4 x 1NO +1NC		BPI 5741	0.690



BPI 5041



BPI 5741

BPI - 4 moving functions 2 speeds

■ Standard arrangements

		4 x 1NO +1NO +1NC (double pressure with early break)		BPI 6042	0.555
		2 x 1NO +1NO +1NC (double pressure with early break)		BPI 6043	0.525
		2 x 1NO +1NC			
● With 1NC Ø 30 red latching mushroom stop (N)		4 x 1NO +1NO +1NC (double pressure with early break)		BPI 6742	0.885
● With 1NC Ø 30 red latching mushroom stop (N)		2 x 1NO +1NO +1NC (double pressure with early break)		BPI 6743	0.780
		2 x 1NO +1NC			
● I -With 1NO green flush start button (M) and, 1NC Ø 30 red latching mushroom stop (N)		4 x 1NO +1NO +1NC (double pressure with early break)		BPI 5742	0.885



BPI 6042



BPI 6043



BPI 6742



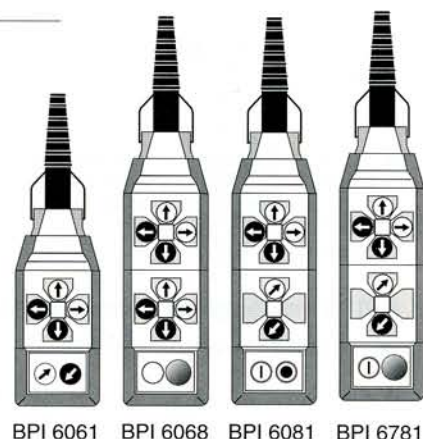
BPI 5742

Pendant push-button controllers

BPI - 6 moving functions 1 speed

■ Standard arrangements

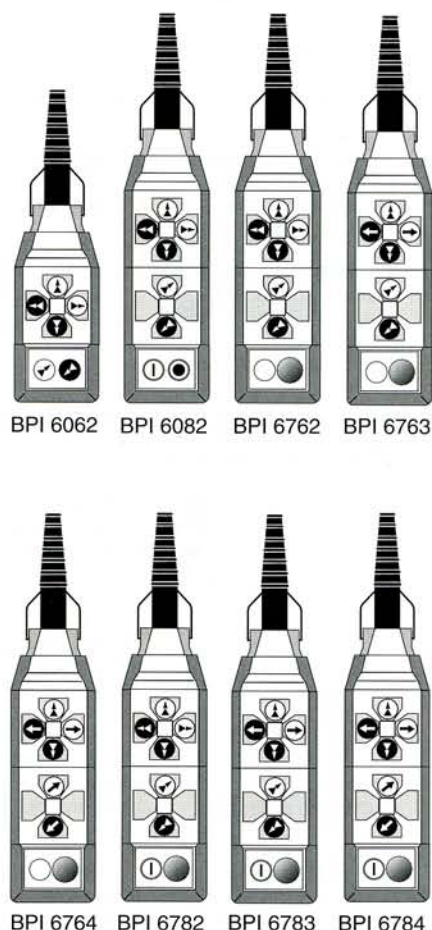
Function	Contact	Diagram	Part no.	Weight kg
	6 x 1NO		BPI 6060	0.680
	6 x 1NO +1NC		BPI 6061	0.680
<ul style="list-style-type: none"> ● With 1 NC Ø 30 red latching mushroom stop (N) 	6 x 1NO		BPI 6067	0.780
	6 x 1NO +1NC		BPI 6068	0.780
<ul style="list-style-type: none"> ● I -With 1NO green flush start button (M) - O -With 1NC red flush stop button (N) 	6 x 1NO		BPI 6080	0.875
	6 x 1NO +1NC		BPI 6081	0.875
<ul style="list-style-type: none"> ● I -With 1NO green flush start button (M) and, 1NC Ø 30 red latching mushroom stop (N) 	6 x 1NO		BPI 6780	0.875
	6 x 1NO +1NC		BPI 6781	0.875



BPI - 6 moving functions 2 speeds

■ Standard arrangements

	6 x 1NO +1NO +1NC (double pressure with early break)		BPI 6062	0.845
	6 x 1NO +1NO +1NC (double pressure with early break)		BPI 6082	0.935
<ul style="list-style-type: none"> ● With 1 NC Ø 30 red latching mushroom stop (N) 	6 x 1NO +1NO +1NC (double pressure with early break)		BPI 6762	0.845
<ul style="list-style-type: none"> ● With 1 NC Ø 30 red latching mushroom stop (N) 	4 x 1NO +1NO +1NC (double pressure with early break) 2 x 1NO +1NC		BPI 6763	0.780
<ul style="list-style-type: none"> ● With 1 NC Ø 30 red latching mushroom stop (N) 	2 x 1NO +1NO +1NC (double pressure with early break) 4 x 1NO +1NC		BPI 6764	0.780
<ul style="list-style-type: none"> ● I -With 1NO green flush start button (M) and, 1NC Ø 30 red latching mushroom stop (N) 	6 x 1NO + 1NO +1NC (double pressure with early break)		BPI 6782	0.935
<ul style="list-style-type: none"> ● I -With 1NO green flush start button (M) and, 1NC Ø 30 red latching mushroom stop (N) 	4 x 1NO +1NO +1NC (double pressure with early break) 2 x 1NO +1NC		BPI 6783	0.935
<ul style="list-style-type: none"> ● I -With 1NO green flush start button (M) and, 1NC Ø 30 red latching mushroom stop (N) 	2 x 1NO +1NO +1NC (double pressure with early break) 4 x 1NO +1NC		BPI 6784	0.935

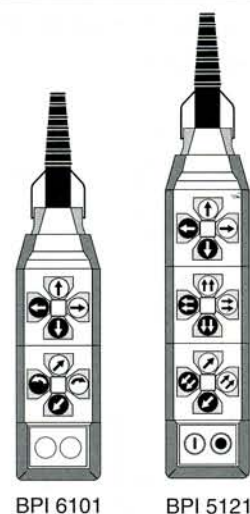


Pendant push-button controllers

BPI - 8 - 12 moving functions 1 speed

■ Standard arrangements

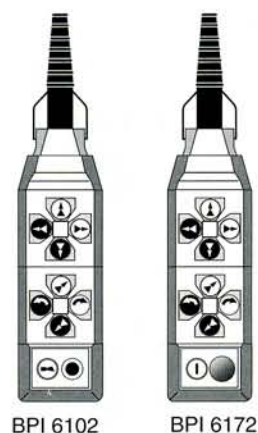
Function	Contact	Diagram	Part no.	Weight kg
	8 x 1NO		BPI 6100	0.720
	8 x 1NO +1NC		BPI 6101	0.720
	8 x 1NO		BPI 6107	0.820
	8 x 1NO +1NC		BPI 6108	0.820
	8 x 1NO		BPI 6177	0.915
	8 x 1NO +1NC		BPI 6178	0.915
	12 x 1NO		BPI 5120	1.110
	12 x 1NO +1NC		BPI 5121	1.110



BPI - 8 - 12 moving functions 2 speeds

■ Standard arrangements

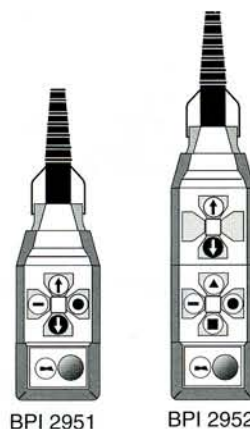
	8 x 1NO +1NO +1NC (double pressure with early break)		BPI 6102	0.995
	8 x 1NO +1NO +1NC (double pressure with early break)		BPI 6172	0.995



BPI - Nordic Countries 1 speed

■ Standard arrangements

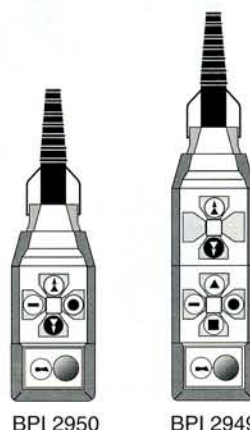
	4 x 1NO +1NC		BPI 2951	0.690
	6 x 1NO + 1NC		BPI 2952	0.875



BPI - Nordic Countries 2 speeds

■ Standard arrangements

	4 x 1NO +1NO +1NC (double pressure with early break)		BPI 2950	0.885
	6 x 1NO +1NO +1NC (double pressure with early break)		BPI 2949	0.935

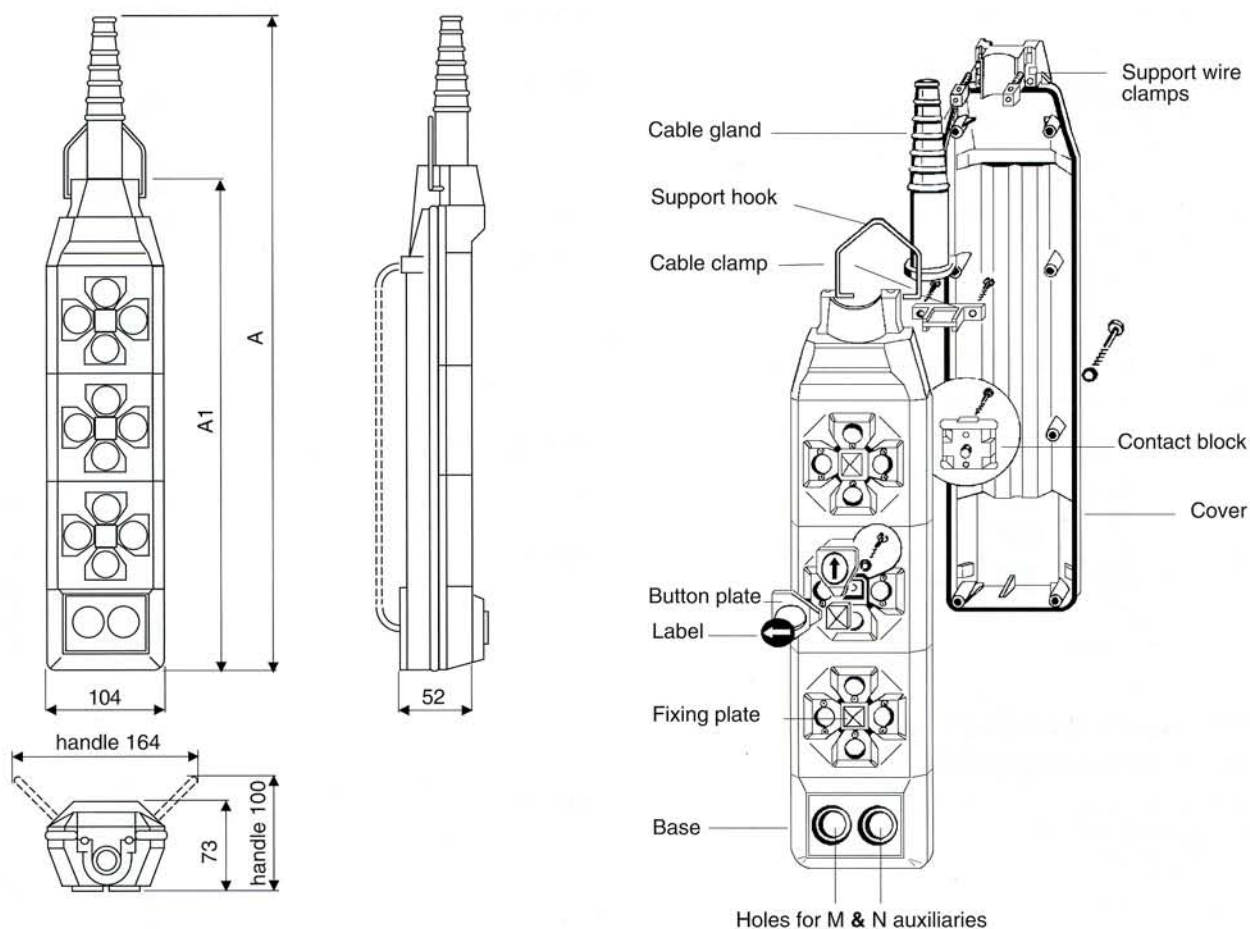


Pendant push-button controllers

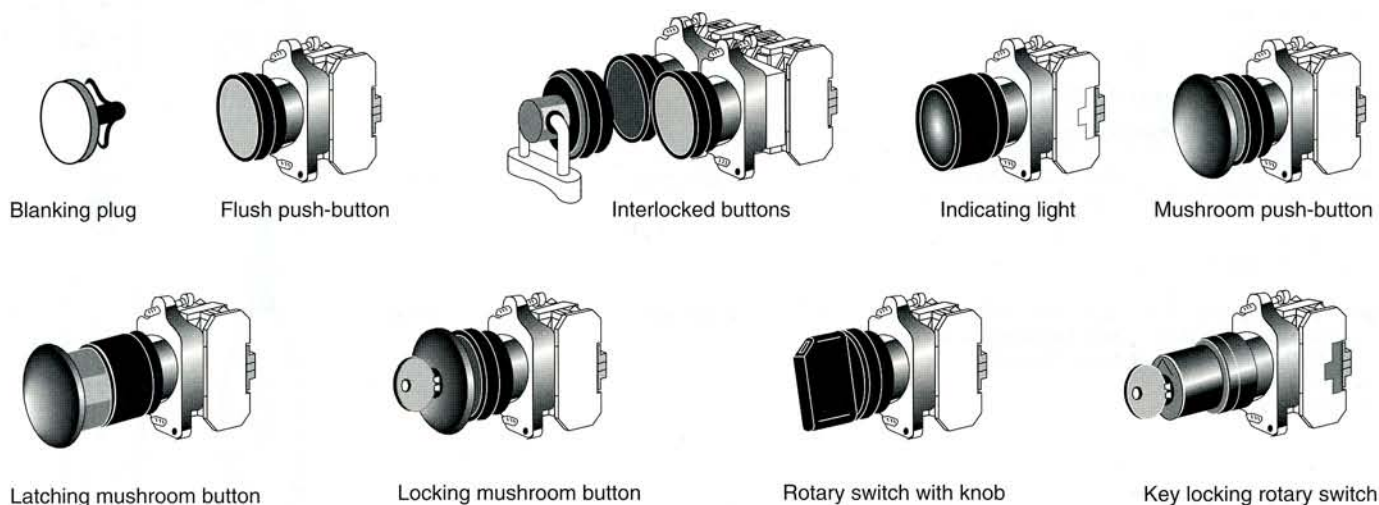
BPI - 2 - 12 moving functions

■ Dimensions

BPI - N° of ways	1- 6	1-10	1-14
A	350	442	534
A1	230	322	414



■ Auxiliary push-buttons for M and N holes

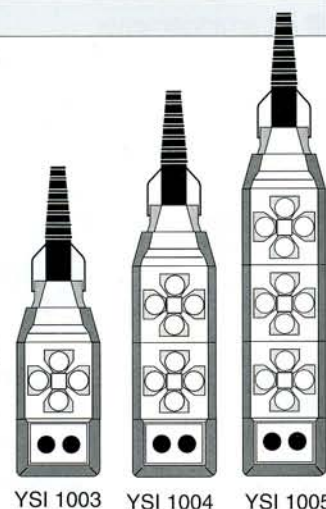










Pendant push-button controllers

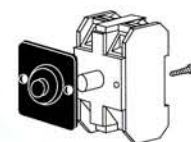
BPI - 2 - 12 moving functions

■ Kit arrangements

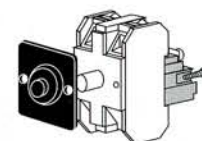
Description	Function	Part no.	Weight kg
● Empty housings - Include : . Base . Cover + seal + screws . Cable gland Ø 10 to 22 mm . Cable clamp . Support hook . Button plate fitted without label . Support wire clamps	1 - 6	YSI 1003	0.400
	1 - 10	YSI 1004	0.515
	1 - 14	YSI 1005	0.630



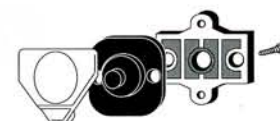
Description	Contact	Part no.	Weight kg	
● Contact block - Include : . Contact block . Neoprene seal . Two screws	1 speed 1NO 1NC 1NO +1NC 1NO +1NO 1NC + 1NC 1NO +1NO +1NC (one pressure with early break)	     	YSI 1023 YSI 1024 YSI 1025 YSI 1026 YSI 1027 YSI 1046	0.020 0.020 0.026 0.026 0.026 0.033
	2 speeds 1NO +1NO (double pressure contact) 1NO +1NO +1NC (double pressure with early break)	 	YSI 1028 YSI 1029	0.031 0.033
● Neutral key - Include : . Neoprene seal . Neutral block plate . Two screws	Block all ABC ... KL functions when not used	YSI 1007	0.010	
● Blanking plug - Include : . Plug . Neoprene seal . Washer	For M and N cut-outs	YSI 1008	0.005	
● Cable gland - Ø 10 to 24 mm		JMI 002 B1	0.045	



YSI 1023



YSI 1028



YSI 1007



YSI 1008



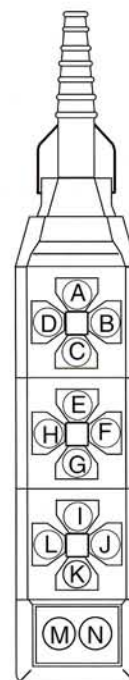
JMI 002 B1

Pendant push-button controllers

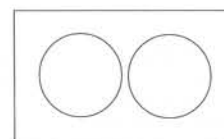
BPI - 2 - 12 moving functions

Kit arrangements

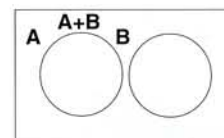
Description	Symbol	Part no.	Symbol	Part no.	Symbol	Part no.
● Labels	Normal		Fast speed		Normal and fast speed	
- Adhesive labels	Lifting raise					
		PAI250 A00190- 1		PAI250 A00390- 2		PAI250 A00590- 3
- Standard symbols for buttons from "A" to "L"	Lifting lower					
		PAI250 A00109- 4		PAI250 A00309- 5		PAI250 A00509- 6
- Standard colours Symbol : black - white Background : black - white	Traverse right					
		PAI250 A00190- 7		PAI250 A00390- 8		PAI250 A00590- 9
	Traverse left					
		PAI250 A00109- 10		PAI250 A00309- 11		PAI250 A00509- 12
	Travel forward					
		PAI250 A00190- 13		PAI250 A00390- 14		PAI250 A00590- 15
	Travel reverse					
		PAI250 A00109- 16		PAI250 A00309- 17		PAI250 A00509- 18
	Rotation right					
		PAI250 A00290- 19		PAI250 A00490- 20		PAI250 A00690- 21
	Rotation left					
		PAI250 A00209- 22		PAI250 A00409- 23		PAI250 A00909- 24
	Switching ON		Switching OFF		Horn	
		PAI250 A00759		PAI250 A00829		PAI250 A00909
	Background : green Symbol : white		Background : red Symbol : white		Background : black Symbol : white	



For "M" and "N" buttons
Label : white
Symbol : black



PAI251 A00000



PAI251 A00090



Inscription	Colour text / back.	Inscription	Colour text / back.
- OFF	PAI250A50129 white red	- IN	PAI250A51390 black white
- STOP	PAI250A50229 white red	- LEFT	PAI250A51490 black white
- ON	PAI250A50359 white green	- FAST	PAI250A51590 black white
- START	PAI250A50459 white green	- OUT	PAI250A51690 black white
- UP	PAI250A50590 black white	- RIGHT	PAI250A51790 black white
- DOWN	PAI250A50690 black white	- SLOW	PAI250A51890 black white
- NORTH	PAI250A50790 black white	- INCH	PAI250A51990 black white
- SOUTH	PAI250A50890 black white	- TRAVEL	PAI250A52090 black white
- EAST	PAI250A50990 black white	- TRAVERSE	PAI250A52190 black white
- WEST	PAI250A51090 black white	- SUPPLY ON	PAI250A52290 black white
- FORWARD	PAI250A51190 black white	- HOIST	PAI250A52390 black white
- REVERSE	PAI250A51290 black white	- HORN	PAI250A52490 black white

Special hand written labels

Red	Yellow	Green	Blue	Grey	Black	White
PAI250 A00022	PAI250 A00044	PAI250 A00055	PAI250 A00066	PAI250 A00088	PAI250 A00099	PAI250 A00000

Nordic Countries labels

Background : white
Symbol : black

PAI250 A01290	PAI250 A01390	PAI250 A01590	PAI250 A01490

Pendant push-button controllers

BPI - 2 - 12 moving functions

■ Auxiliary pushbuttons for M and N holes

Description	Contact	Colour	Part no.	Weight kg
● Bodies	1NC		L22 B 10 V TJ	0.064
- With seal + metal insert	2NC		L22 B 20 V TJ	0.070
IP55 part n° TJ	1NO		L22 B 1F V TJ	0.064
	2NO		L22 B 2F V TJ	0.070
	1NC +1NO		L22 B 1O1F V TJ	0.070
Over lapping contacts (make with late break)	1NC		L22 B 10 RC V TJ	0.064
	2NC		L22 B 20 RC V TJ	0.070
	1NC +1NO		L22 B 1O1F RC V TJ	0.064
-Bodies anti rotative system	1NC		L22 B 10 AR V TJ	0.064
- With seal + metal insert	2NC		L22 B 20 AR V TJ	0.070
IP55 part n° TJ	1NO		L22 B 1F AR V TJ	0.064
	2NO		L22 B 2F AR V TJ	0.070
	1NC +1NO		L22 B 1O1F AR V TJ	0.070
● Actuators		Black	YSI 1009 0	0.025
- With flush black plastic bezel		Red	YSI 1010	0.025
		Yellow	YSI 1009 4	0.025
		Green	YSI 1009 5	0.025
		Blue	YSI 1009 7	0.025
		White	YSI 1009 9	0.025
-Actuators anti rotative system		Black	YSI 1009 0 AR	0.025
- With flush black plastic bezel				
- Ø 30 mushroom with black plastic bezel		Red	YSI 1038	0.029
- Ø 30 emergency stop mushroom with black metal bezel		Red	YSI 1039	0.086
● Locking mushroom button	1NC	Red	L22 BPSR 33 10 V TJ	0.113
- With key release n° 620	2NC	Red	L22 BPSR 33 20 V TJ	0.119
Ø 30 black metal bezel	1NC +1NO	Red	L22 BPSR 33 1O1F V TJ	0.119



TJ



L22 B..



YSI 1009 ..



YSI 1039



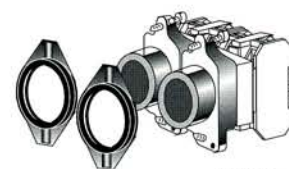
YSI 1038



L22 BPSR 33 ..

■ Mechanical interlocked buttons for M and N holes

Description	Contact	Colour	Part no.	Weight kg
● Bodies	1NC +1NO		L22 P 1O1F V TJ	0.144
- With seal + metal insert	2NC +2NO		L22 P 2O2F V TJ	0.156
IP55 part n° TJ				
● Actuators		Green	YSI 1035	0.029
- With flush black plastic bezel		Red	YSI 1034	0.029
- With flush pad lock black plastic bezel		Green	YSI 1037	0.031



L22 P ..



YSI 1035








YSI 1037

Pendant push-button controllers

BPI - 2 - 12 moving functions

■ Rotary switches for M and N holes

Description	Contact	Function	Colour	Part no.	Weight kg
● Bodies - With seal + metal insert IP55 part n° TJ	1NO			L22 8101 V TJ	0.079
	2NO			L22 8102 V TJ	0.085
	2 x 1NO			L22 8901 V TJ	0.085
	2 x 2NO			L22 8902 V TJ	0.111
- With automatic return on inquiry	2 x 1NO			L22 8951 V TJ	0.085
	2 x 2NO			L22 8952 V TJ	0.111
				L22 HC 98 V TJ	0.111






TJ L22 8101 V



YSI 1044



YSI 1051 .

● Actuators - Knob type S			Black centred	YSI 1069	0.034
			Black offset	YSI 1044	0.034
- Key N° 455	- 2 positions		Key withdrawal at 1	YSI 1051 1	0.098
	- 2 positions		Key withdrawal at 2	YSI 1051 2	0.098
	- 3 positions		key withdrawal at 1	YSI 1087 1	0.098

■ Indicating light for M and N holes (without bulbs)

Description	Colour	Part no.	Weight kg
● Bodies - With seal + metal insert IP 55 part n° TJ	For Ba9S bulb	YSI 1043 V TJ	0,075
● Actuators - Flush fitting	Red	YSI 1042 2	0.016
	Yellow	YSI 1042 4	0.016
	Green	YSI 1042 5	0.016
	Blue	YSI 1042 6	0.016
	Clear	YSI 1042 8	0.016
	White	YSI 1042 9	0.016
● Bulbs		Ba9S 12V	0.002
		Ba9S 24V	0.002
		Ba9S 48V	0.002
		Ba9S 220V	0.002



YSI 1043



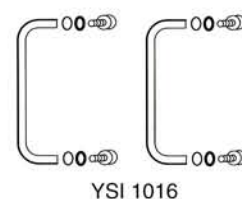
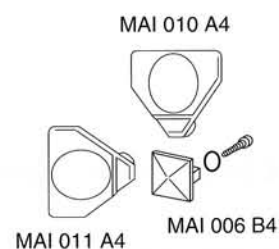
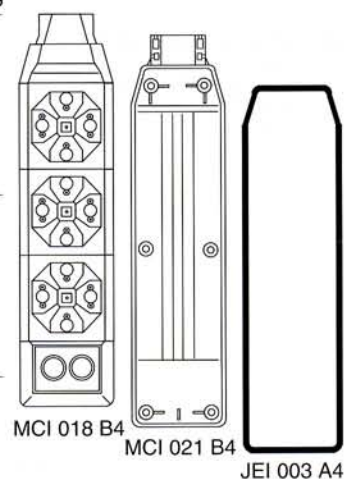
YSI 1042 .

Pendant push-button controllers

BPI - 2 - 12 moving functions

■ Spare parts

Description	N° of ways	Part no.	Weight kg
● Empty base	1 - 6	MCI 016 B4	0.150
	1 - 10	MCI 017 B4	0.230
	1 - 14	MCI 018 B4	0.320
● Empty cover	1 - 6	MCI 019 B4	0.110
	1 - 10	MCI 020 B4	0.150
	1 - 14	MCI 021 B4	0.190
● Seal for cover	1 - 6	JEI 002 A2	0.025
	1 - 10	JEI 002 A3	0.030
	1 - 14	JEI 003 A4	0.035
● Vertical key button plate		MAI 010 A4	0.002
● Horizontal key button plate		MAI 011 A4	0.002
● key's support fixing plate		MAI 006 B4	0.002
● Neoprene seal for contact block		JMK 018 A0	0.002
● Cable clamp		MAJ 650 A1	0.002
● Support hook		EPI 058 B1	0.020
● Support wire clamps		YSI 1006	0.010
● Handle (optional, come in pairs)	1 - 6	YSI 1016	0.220
	1 - 10	YSI 1017	0.330
	1 - 14	YSI 1018	0.440
● Seal for auxiliary push-buttons		TJ	0.006
● Screws (base and front panel assembly)		KBL 40X22/9	

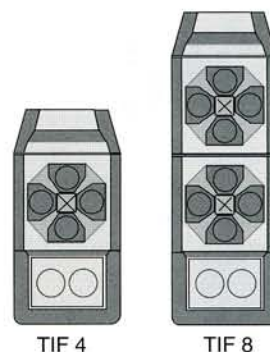
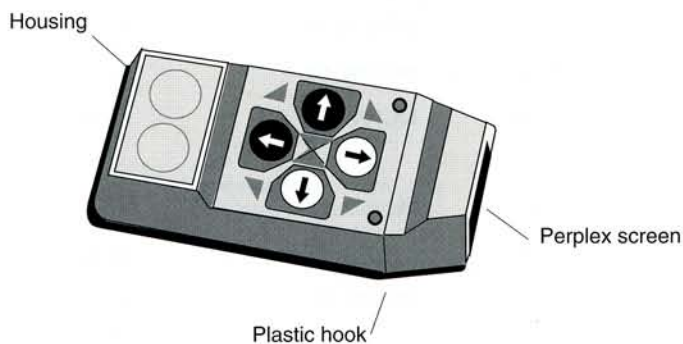


Pendant push-button controllers

BPI - 2 - 12 moving functions

■ Special boxes : housings for infrared or radio boxes

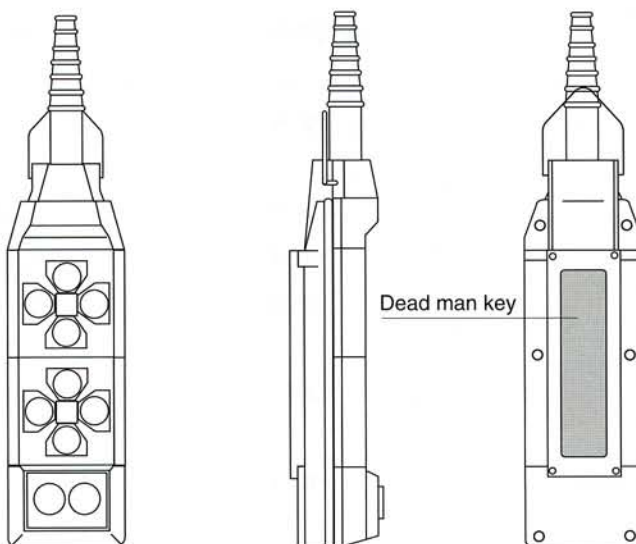
Description	Function	Part no.	Weight kg
● Empty standard boxes - Include : . Plastic housing +seal . Perplex screen . Plastic hook	4	TIF 4	0.450
	8	TIF 8	0.565



■ Special boxes : dead man function

Description	Function	Part no.	Weight kg
● Empty standard boxes - Include : . Base . Cover + seal + screws . Cable gland Ø 10 to 22 mm . Cable clamp . Support hook . Button plate fitted without label . Support wire clamps . Dead man key	4	YSI 1099 4	0.565
	8	YSI 1099 8	0.665

For specific requirement only



Pendant push-button controllers

38490 CHIMILIN
FRANCE
Tel. : (33) 4 76 32 07 33
Fax : (33) 4 76 32 54 11

ORDER FORM (to be photocopied, filled in and fax to MAFELEC)

Composed your product

Company	Ref. of the order	Date	Quantity

1- Choice your box type **plastic only** (pages 6 & 11)

Models



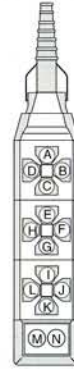
BPI 2



BPI 1/6



BPI 1/10



BPI 1/14

2- Choice your button plates from A to L (blocks and labels see pages 11 & 12)

Way	Contact block (page 11)	Label (page 12)	If not used cross here
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			
L			

3- Choice your Auxiliaries for M & N holes (pages 13 & 14)

3-1 Choice the type (tick in)

Hole	Blanking plug (YSI 1008)	Emergency stop	E-stop with over lapping contacts	Locking mushroom	Rotary switch	Indicator light	Push-button	Anti rotative push-button	Mechanical interlocked buttons
M									
N									

3-2 Choice the bodies and the actuators (pages 13 & 14)

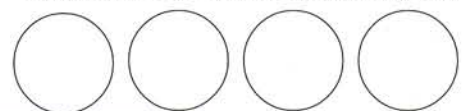
Hole	Body	Actuator
M		
N		

3-3 Labels if required (Page 12)

Standard round type for anti rotative flush push-buttons

or customized round type labels (please write)

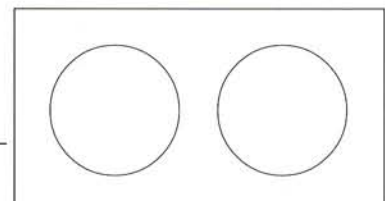
M	
N	



Standard double holes label

--

or customized double holes label (please write)



Pendant push-button controllers metal range

Metal range characteristics

■ General

- Large range of watertight metal pendant controllers for auxiliary circuits, fitted with our Ø 22 mm control and signalling units.
- Standard metal boxes from 2 to 7 buttons.
- Box kits, empty with cut-out or fitted with switches to customer requirements.
- Applications.
 - Industry / Railways / Marine and Defence
 - All handling and lifting applications.

■ Environment characteristics for auxiliary circuits

Conforming to	● IEC 947-5.1 ; NFC 63140 / 63141
Approvals	● BV - LROS - RINA - ASE - DEMKO - CSA - VDE - SEMKO - (UL)
Housings	● Yellow metal (painted aluminium)
Protection treatment	● Tropicalisation (up to + 40°C at 95% humidity)
Ambiant temperature	● Storage: - 40°C + 70°C ● Operation: - 25°C + 70°C
Electric shocks protection	● Class 2
Functioning position	● All positions
Degree of protection	● IP669 as per NFC 20 010 - 6: Totally protected against dust - 6: Protected against strong jets of water, eg for use on shipdecks - limited ingress permitted - 9: Impact 20.00 joules
Wire entrance	● Rubber terminal Dimensions for 2 buttons CPV pendant controllers : Ø from 7 to 13 mm Dimensions for 2 to 7 buttons pendant controllers : Ø from 10 to 22 mm

■ Technical data (according to IEC 957-5.1)

Nominal thermal current	● 10 A as per IEC 947-5.1
Nominal insulation voltage	● 500 V as per NFC 20 040
Short time rating	● 250 A for 100 ms
Insulation standard	● C as per NFC 20040
Mechanical endurance	● Push-buttons : 1 x 10 ⁶ operations ● Switches : 0,5 x 10 ⁶ operations
Connection	● Screw and clamping plate : mini 1 x 0,5 sq mm / max. : 2,5 sq mm
Contact operation mode	● 1 speed and 2 speeds contact blocks with dependent action; positive working aperture

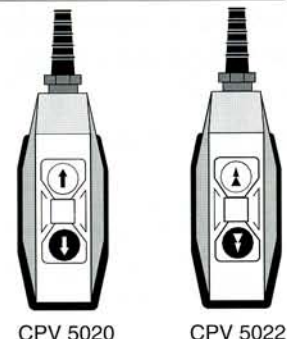
Voltage (V)	AC11			DC11		
	220	380	500	24	48	110
Current max. (A)	10	4,5	4	5	3	2

LC22 type self cleaning contacts

Pendant push-button controllers metal range

CPV - 2 moving functions 1 speed

■ Standard arrangements				
Function	Contact	Diagram	Part no.	Weight kg
	↕ 2 x 1NO		CPV 5020	0.500
	↕ 2 x 1NO + 1NC		CPV 5021	0.500



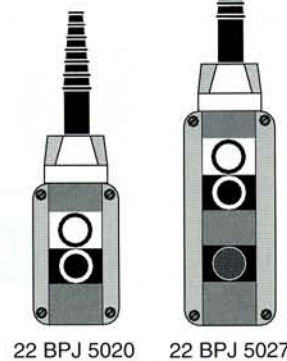
CPV - 2 moving functions 2 speeds

■ Standard arrangements				
	↕↕ 2 x 1NO + 1NO (double pressure contact)		CPV 5022	0.515



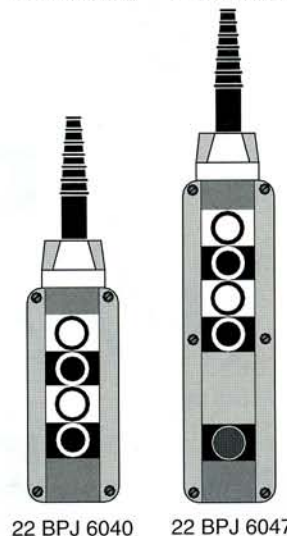
BP - 2 moving functions 1 speed

■ Standard arrangements				
	↕↕ 2 x 1NO		22 BPJ 5020	1.000
	↕↕ 2 x 1NO + 1NC		22 BPJ 5021	1.000
● With 1NC Ø 30 red latching mushroom stop	↕↕ 2 x 1NO		22 BPJ 5027	1.190
	● 2 x 1NO + 1NC		22 BPJ 5028	1.190



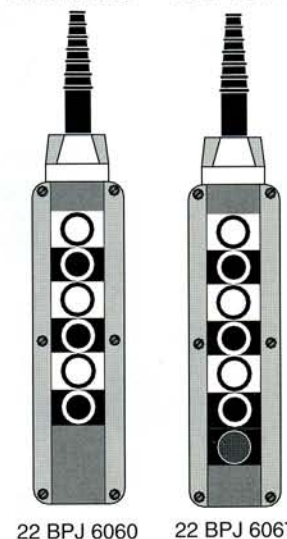
BP - 4 moving functions 1 speed

■ Standard arrangements				
	↕↕↕↕ 4 x 1NO		22 BPJ 6040	1.260
	↕↕↕↕ 4 x 1NO + 1NC		22 BPJ 6041	1.260
● With 1NC Ø 30 red latching mushroom stop	↕↕↕↕ 4 x 1NO		22 BPJ 6047	1.575
	↕↕↕↕ 4 x 1NO + 1NC		22 BPJ 6048	1.575
	●			



BP - 6 moving functions 1 speed

■ Standard arrangements				
	↕↕↕↕↕↕ 6 x 1NO		22 BPJ 6060	1.585
	↕↕↕↕↕↕ 6 x 1NO + 1NC		22 BPJ 6061	1.585
● With 1NC Ø 30 red latching mushroom stop	↕↕↕↕↕↕ 6 x 1NO		22 BPJ 6067	1.735
	↕↕↕↕↕↕ 6 x 1NO + 1NC		22 BPJ 6068	1.735
	●			



Pendant push-button controllers metal range

BPJ - 2 - 7 moving functions

Kit arrangements

Description	N° of holes	Part no.	Weight kg
● Empty housings	1 Ø 22	22 BPJ 1.1	0.540
- Include :	2 Ø 22	22 BPJ 1.2	0.520
. Base			
. Cover + seal + screws	3 Ø 22	22 BPJ 1.3	0.720
with Ø 22 holes, for control and signalling auxiliaries + seal	4 Ø 22	22 BPJ 1.4	0.700
. Cable gland Ø 10 to 22 mm	5 Ø 22	22 BPJ 1.5	0.925
. Support wire clamps	6 Ø 22	22 BPJ 1.6	0.905
	7 Ø 22	22 BPJ 1.7	0.885

Description	Function	Part no.	Function	Part no.	Function	Part no.
	Normal		Fast speed		Normal and fast speed	

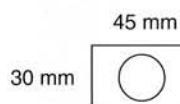
● Labels

- Selection of P24 labels natural aluminium

- Standard colours

Symbol : black - grey -

Background : black - grey



Lifting raise		POK 198A8		POK 206A8		POK 214A8
---------------	--	------------------	--	------------------	--	------------------

Lifting lower		POK 199A0		POK 207A0		POK 215A0
---------------	--	------------------	--	------------------	--	------------------

Traverse right		POK 200A8		POK 208A8		POK 216A8
----------------	--	------------------	--	------------------	--	------------------

Traverse left		POK 201A0		POK 209A0		POK 217A0
---------------	--	------------------	--	------------------	--	------------------

Travel forward		POK 202A8		POK 210A8		POK 218A8
----------------	--	------------------	--	------------------	--	------------------

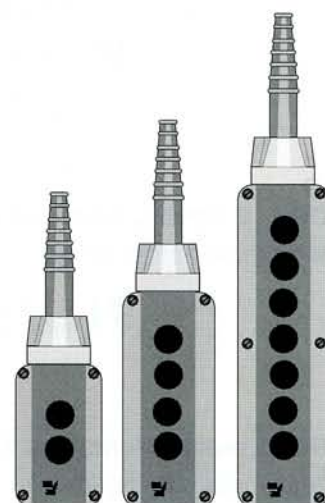
Travel reverse		POK 203A0		POK 211A0		POK 219A0
----------------	--	------------------	--	------------------	--	------------------

Rotation right		POK 204A8		POK 212A8		POK 220A8
----------------	--	------------------	--	------------------	--	------------------

Rotation left		POK 205A0		POK 213A0		POK 221A0
---------------	--	------------------	--	------------------	--	------------------

Switching ON		POK 222A5	Switching OFF		POK 223A2	Horn		POK 224A8
--------------	--	------------------	---------------	--	------------------	------	--	------------------

Slow		POK 225A8	Fast		POK 226A8	Slow		POK 227A8
------	--	------------------	------	--	------------------	------	--	------------------



BPJ 1.2 BPJ 1.4 BPJ 1.7

Pendant push-button controllers metal range

BPJ - 2 - 7 moving functions

■ Push-buttons, sub-assembly possibilities

Description	Contact	Colour	Part no.	Weight kg
● Bodies				
- With seal + metal insert	1NC		L22 B 10 TJ	0.064
IP55 part n° TJ	2NC		L22 B 20 TJ	0.070
	1NO		L22 B 1F TJ	0.064
	2NO		L22 B 2F TJ	0.070
	1NC +1NO		L22 B 101F TJ	0.070
● Actuators				
- Flush waterproof with black metal bezel		Black	L22 TCENN	0.026
		Red	L22 TCERN	0.026
		Yellow	L22 TCEJN	0.026
		Green	L22 TCEVN	0.026
		Blue	L22 TCEBN	0.026
		White	L22 TCEON	0.026
- Waterproof mushroom Ø 40 with covering seal		Black	YSK 578 D0	0.030
		Red	YSK 578 D2	0.030
		Yellow	YSK 578 D4	0.030
		Green	YSK 578 D5	0.030
		Light blue	YSK 578 D6	0.030
		Dark blue	YSK 578 D7	0.030
- Plastic ring protection for Ø 40 mushroom		Grey	MAK 636 A81	0.002
- Latching mushroom with black metal bezel		Ø 30 mm Red	YSI 1039	0.086
		Ø 40 mm Red	L22 PPMRN	0.086
● Locking mushroom button				
- With key release n° 620	1NC	Ø 30 mm Red	L22 BPSR 33 10 TJ	0.113
	2NC		L22 BPSR 33 20 TJ	0.119
	1NC +1NO		L22 BPSR 33 101F TJ	0.119
	1NC	Ø 40 mm Red	L22 BPSR 10 TJ	0.113
	2NC		L22 BPSR 20 TJ	0.119
	1NC +1NO		L22 BPSR 101F TJ	0.119



TJ



L22 B..



L22 TCE..



YSK 578..



L22 PPMRN



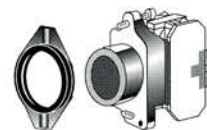
MAK 636 A81



L22 BPSR..

■ Rotary switches, sub-assembly possibilities

Description	Contact	Function	Colour	Part no.	Weight kg
● Bodies					
- With seal + metal insert	1NO			L22 8101 TJ	0.079
IP55 part n° TJ	2NO			L22 8102 TJ	0.085
	2 x 1NO			L22 8901 TJ	0.085
	2 x 2NO			L22 8902 TJ	0.111
	2 x 1NO			L22 8951 TJ	0.085
	2 x 2NO			L22 8952 TJ	0.111
● Actuators					
- Knob type S			Black centred	LSNN	0.034
			Black offset	LSDNN	0.034
- Knob type C			Black centred	LCNN	0.036
			Black offset	LCDNN	0.036
- Knob N° 455	- 2 positions		Key withdrawal at 1	LCLD 455 1	0.098
- With automatic return on inquiry	- 2 positions		key withdrawal at 2	LCLD 455 2	0.098
	- 3 positions		Key withdrawal at 1	LCL 455 1	0.098



L22 8101 V



L22 SNN



L22 CNN



L22 CLD 455.

■ Woble operator, sub-assembly possibilities

Description	Contact	Part no.	Weight kg
● Bodies			
- Multi-directional functioning	1NC	L22 RTN 10	0.195
"emergency stop"	2NC	L22 RTN 20	0.199
With black metal bezel	1NO	L22 RTN 1F	0.195
Length of actuator : 66 mm	2 NO	L22 RTN 2F	0.199
	1NC +1NC	L22 RTN 101F	0.199



L22 RTN.

■ Other possibilities

● Indicating lights

● Illuminated push-buttons

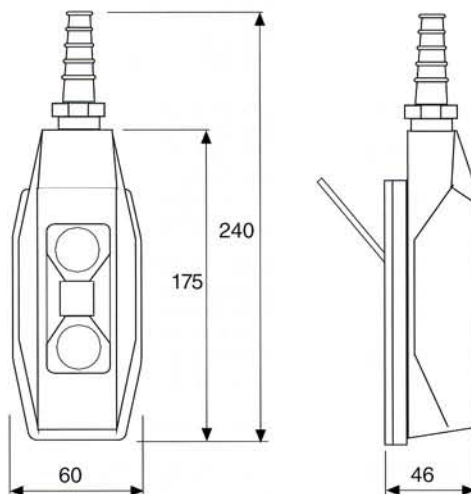
● "Push-push" buttons

Pendant push-button controllers metal range

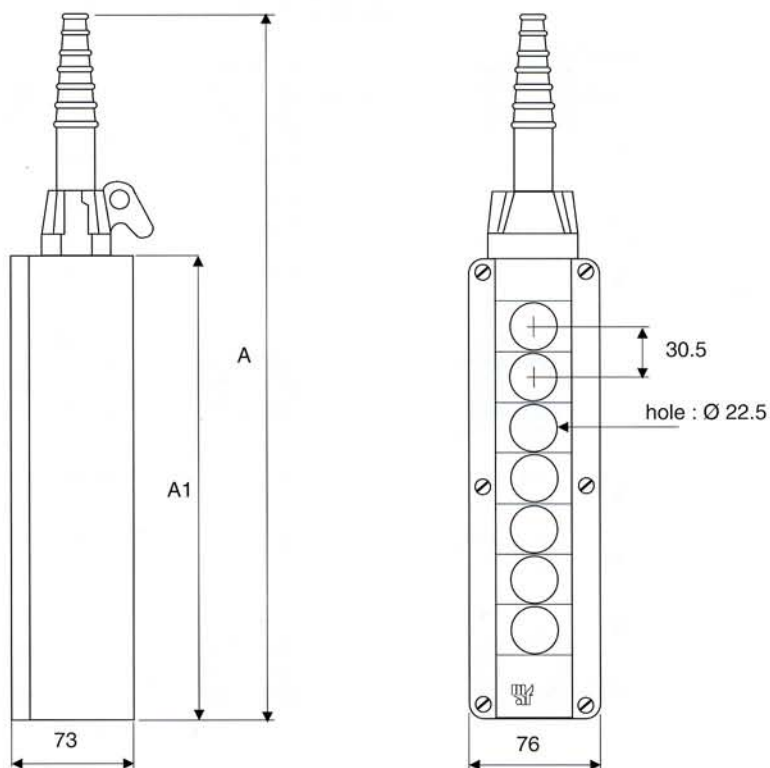
BPJ - 2 - 7 moving functions

■ Dimensions

CPV - 2 moving functions



BPJ - 2 - 7 moving functions



BPJ - N° of ways	1 - 2	3 - 4	7
A1	120	180	270
A	270	330	420



Pendant push-button controllers metal range

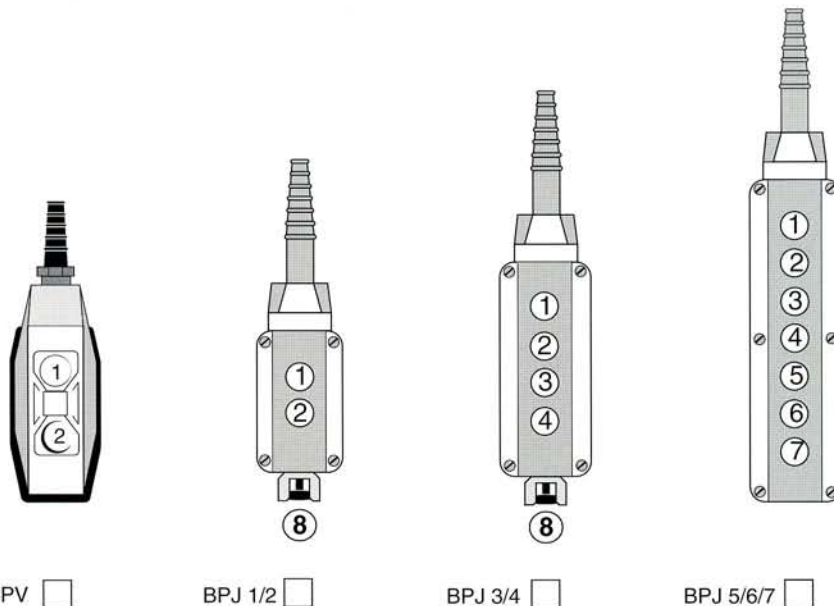
38490 CHIMILIN
FRANCE
Tel. : (33) 4 76 32 07 33
Fax : (33) 4 76 32 54 11

ORDER FORM (to be photocopied, filled in and fax to MAFELEC)

Composed your product

Company	Ref. of the order	Date	Quantity

Models



Ø 22 Control and signalling units

Key	Bodys Page 22	Actuators Page 22	Labels Page 21
1			
2			
3			
4			
5			
6			
7			

Key*	Locking mushroom button

Key*	Woble operator L22 RTN

Key	Fitting on the boxe's extremity
8	
8	MAK 636 A81 protection ring <input type="checkbox"/> please cross

* Please indicate the key number

Remarks

Pendant push-button controllers

■ Personal notes



KranCom 

Vagnmakaregatan14
415 07 GÖTEBORG
Telefon: 031-340 90 80
Telefax: 031-340 90 89

MAFELEC
38490 Chimilin - France
Tel: (33) 4 76 32 07 33
Fax: (33) 4 76 32 54 11

Groupe Daphnix

july 97