




# Harmony™ control stations and enclosures

## XAL 22 mm control stations

Environmental Specifications		
Protective treatment standard version		"TH"
Ambient air temperature around the device	Storage	-40 to +158 °F (- 40 to +70 °C)
	Operation	-13 to +158 °F (- 25 to +70 °C) unless otherwise stated
Electric shock protection	Conforming to IEC 60536	Class II
Degree of protection	Conforming to IEC 60529	IP 65, unless otherwise stated IP 66, for booted push button heads
	Conforming to UL 50, CSA C22.2 No. 94	Type 1, 4X, 12, and 13, unless otherwise stated
Resistance to high pressure cleaner		1,015 psi (70 x 10 <sup>5</sup> Pa-70 bars); distance: 3.94 in (0.1 m) Temperature: 131 °F (55 °C)
Mechanical shock protection	Conforming to EN 50102	Non-illuminated heads: IK 03
		Illuminated heads: IK 05
Conforming to standards		IEC 60947-1, IEC/EN 60947-5-1, IEC 60947-5-4, EN 60947-1, JIS C 4520, UL 508, CSA C22.2 No. 14
Product certifications	UL Listed, CSA Certified  File E164353 CCN NKCR  File LR 44087 Class 3211 03	Standard single contacts with screw clamp terminals: A600; R300 Light blocks with screw clamp terminals
Terminal identification	Conforming to EN 50005 and EN 50013	
Material and colors		XALD: polycarbonate, light grey RAL 7035 and dark grey RAL 7016 XALK: polycarbonate, light grey RAL 7035 and yellow RAL 1012
Cable entries		Cable entries: 'knock-outs' for No. 13 (CM 12, PG 13.5) cable glands and tapped ISO 20
Cover Screws		Stainless steel, tightening torque 2 Nm (18 lb-in)

Contact Block Specifications – ZENL••			
Mechanical Specifications			
Contact operation	N/C or N/O	Slow break	
Positive operation	Conforming to IEC/EN 60947-5-1 Appendix K	All functions incorporating a N/C contact are positive opening operation	
Operating travel (to change electrical state)	Push button	Changing N/C state: 0.06 in (1.5 mm) Changing N/O state: 0.11 in (2.6 mm) Total travel: 0.17 in (4.3 mm)	
	Operating force	Push button	
Operating force	Push button	Changing N/C state: 0.79 lbf (3.5 N) Changing N/O state: 0.85 lbf (3.8 N)	
	Additional contact only	Single N/C contact: 0.45 lbf (2 N) Single N/O contact: 0.52 lbf (2.3 N)	
	Emergency stop with N/C + N/O	Standard push-pull: 10.12 lbf (45 N) Trigger action push-pull: 11.24 lbf (50 N)  Standard turn to release and key release: 8.99 lbf (40 N) Trigger action turn to release and key release: 9.89 lbf (44 N)	
Operating torque (to change electrical state)	Selector switches	N/O contact: 1.24 lb-in (0.14 N•m)	
	Additional contact only	N/O contact: 0.44 lb-in (0.05 N•m)	
Mechanical durability (in operating cycles)	Push button	Momentary	5 million
	Selector switches	Non-illuminated	3 million
		Illuminated	1 million
	Toggle switches		500,000
	Emergency stop push button		100,000
Vibration resistance	Conforming to IEC 60068-2-6	Frequency (2 to 500 Hz): 5 gn	
Shock resistance	Conforming to IEC 60068-2-27	All functions except mushroom head push buttons– Half sine wave acceleration 11 ms: 50 gn Half sine wave acceleration 18 ms: 30 gn	
		Mushroom head push buttons– Half sine wave acceleration 11 ms: 10 gn	

# Harmony™ control stations and enclosures

## XAL 22 mm control stations



XALD02

### Empty Enclosures – Polycarbonate (for use with XB5 plastic push buttons, pilot lights, selector switches, mushroom head operators, legend plates and accessories)

Description	Number of Holes	Reference
<b>For normal environments, CSA approved and UL Listed (with stainless steel lid mounting screws)</b>		
Light gray base RAL7035	1	XALD01
Dark gray lid RAL7016	2	XALD02
	3	XALD03
	4	XALD04
	5	XALD05
Light gray base RAL7035, Yellow lid RAL1012	1	XALK01



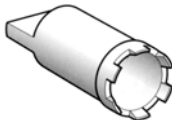
ZENL1111



ZALV\*\*



ZB5SZ3



ZB5AZ905

### Electrical Block and Accessories (for mounting on metal plate at back of enclosure)

Description	Type	Color	Reference
<b>Electrical blocks with screw clamp terminal connections</b>			
Metal-plate-mounting contact blocks	N.O. contact	—	ZENL1111
	N.C. contact	—	ZENL1121
Light blocks with	24 Vac/Vdc	White	ZALVB1
		Green	ZALVB3
		Red	ZALVB4
		Yellow	ZALVB5
		Blue	ZALVB6
	120 Vac	White	ZALVG1
		Green	ZALVG3
		Red	ZALVG4
		Yellow	ZALVG5
		Blue	ZALVG6
	230 Vac	White	ZALVM1
		Green	ZALVM3
		Red	ZALVM4
		Yellow	ZALVM5
		Blue	ZALVM6

Protected  
LED

### Accessories

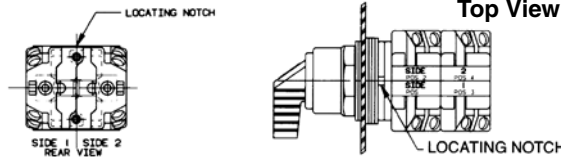
Description	Application	Reference
Plastic blanking plug, round-shape (must order mounting nut ZB5AZ901)	XALD●● enclosures	ZB5SZ3
Plastic blanking plug, square-shape (must order mounting nut ZB5AZ901)	XALD●● enclosures	ZB5SZ5
Mounting nut	ZB5SZ● blanking plug	ZB5AZ901
Grounding terminal	XALD●● enclosures	XALZ09
Tightening tool	Tightening head mounting nut ZB5AZ901	ZB5AZ905

# Push Buttons and Operator Interface - Type K and SK, 30 mm "H" Numbers

The design of the Class 9001 Type KA contact blocks allows them to be mounted side by side and/or in tandem.

The system illustrated below has been set up to enable an operator and a particular arrangement of contact blocks to be specified by a single type number. Operators and contact blocks will be shipped completely assembled.

**EXAMPLE:** A Type KR1B push button with 2 Type KA1 contact blocks would be Class 9001 Type KR1BH2.



For Types K and SK

Suffix No. (Add to Operator Type No.)	Positions					
	1	2	3	4	5	6
H1	KA1					
H2	KA1	KA1				
H3	KA1	KA1	KA1			
H4	KA1	KA1	KA1	KA1		
H5	KA2					
H6	KA3					
H7	KA2	KA2				
H8	KA3	KA3				
H9	KA4	KA1				
H10	KA4	KA5				
H11	KA1	KA1		KA1		
H12	KA2	KA3	KA2	KA3		
H13		KA1				
H14		KA3				
H15	KA2	KA3	KA2			
H16	KA2	KA3		KA3		
H17	KA1	KA1	KA2		KA3	
H18	KA3	KA1	KA3		KA1	
H19	KA1	KA1	KA1	KA1	KA1	
H21	KA2	KA3				
H23	KA1	KA1	KA1	KA1	KA1	KA1
H24	KA1	KA2				
H25	KA5	KA3				
H26	KA1	KA1	KA4			
H27	KA3	KA3	KA3			
H28	KA1	KA3				
H29	KA1	KA4	KA1	KA5	KA1	KA3
H31	KA2	KA2	KA1			
H32		KA1		KA1		
H33	KA1	KA3	KA3			
H34	KA5	KA1				
H36		KA2				
H37	KA3	KA2		KA2		
H38	KA3	KA2	KA3	KA3		
H39	KA5	KA1		KA4		
H40	KA1	KA1		KA2		
H41	KA3	KA2		KA2		
H42	KA1	KA1	KA2	KA2		
H43	KA2	KA2	KA2			
H44	KA3	KA2		KA3		
H45	KA1	KA2	KA3	KA2		
H46	KA2	KA2		KA2		
H47	KA5	KA3	KA3	KA5	KA3	KA3
H48	KA1	KA1	KA4	KA4		
H50	KA5	KA3	KA3	KA3		
H51	KA5	KA3		KA4		
H52	KA3	KA1	KA3			
H53	KA4	KA2				
H54	KA4	KA5	KA2			
H55	KA1	KA2	KA2		KA1	
H56	KA2	KA2	KA2	KA2		
H57	KA5	KA4				
H58		KA5				
H59	KA1	KA2	KA1			
H60	KA1	KA2	KA1		KA3	
H61	KA2	KA2	KA5	KA5		
H62	KA1	KA2	KA3			
H63	KA1		KA3			
H64	KA3	KA2	KA2			
H66	KA3	KA1	KA3	KA1		
H71	KA3	KA3	KA3	KA3		
H72	KA3	KA5				
H73	KA1	KA1	KA3			
H74	KA1	KA2	KA5	KA5		
H75	KA1	KA3	KA3	KA3	KA3	
H76	KA1	KA2	KA2	KA2	KA2	
H77	KA1		KA1			

Suffix No. (Add to Operator Type No.)	Positions					
	1	2	3	4	5	6
H78	KA1	KA2		KA5		
H79	KA3	KA3		KA5		
H80	KA4	KA4	KA5	KA5		
H81	KA1	KA1	KA2	KA3		
H82	KA12	KA12	KA13	KA13		
H83	KA35	KA33				
H86	KA3	KA2	KA3			
H87	KA3	KA2	KA3	KA2	KA3	
H89	KA3	KA1				
H90	KA1	KA1	KA3	KA3	KA3	
H91	KA1	KA2	KA1	KA2		
H92	KA1	KA2	KA3	KA2		
H93	KA3	KA2	KA3	KA5	KA3	KA3
H94	KA1	KA1	KA1	KA3		
H95	KA2	KA1				
H97	KA1	KA3		KA2		
H98	KA1	KA1		KA2		
H99	KA2	KA2	KA2	KA2	KA2	KA2
H100	KA1	KA3	KA1	KA2		
H101	KA2	KA2	KA2	KA2	KA2	KA2
H102	KA1	KA3		KA3		
H103	KA1	KA1	KA3	KA3		
H104	KA1	KA1	KA1	KA2	KA2	KA2
H105	KA31					
H106	KA31	KA31				
H107	KA3	KA2	KA5			
H109	KA3	KA3	KA2			
H110	KA3	KA3	KA3	KA3	KA3	KA3
H111	KA4	KA4	KA4	KA5		
H112	KA33	KA33				
H113	KA1	KA1	KA5			
H114	KA21					
H115	KA3	KA1	KA5	KA3		
H116	KA3	KA1	KA3	KA2		
H117	KA2	KA3	KA1	KA2	KA2	
H118	KA1	KA5				
H119	KA1	KA1	KA5	KA3		
H120	KA3	KA4	KA3			
H121	KA3	KA3	KA3	KA5		
H122	KA1	KA3	KA3	KA5		
H124		KA3		KA3		
H125	KA5	KA5	KA3			
H126	KA42					
H127	KA43					
H128	KA41		KA2			
H129	KA2	KA3		KA2		
H130	KA2					
H131	KA2		KA3		KA2	
H132	KA2	KA2		KA3		
H133	KA3			KA2		
H134	KA3	KA3		KA2		
H135	KA3	KA2		KA2		
H136	KA3			KA5		
H137	KA45	KA45		KA44		
H138	KA3	KA3		KA2		
H139	KA5	KA5				
H140	KA44					
H141	KA43	KA43				
H142	KA1	KA1	KA41			
H143	KA3	KA1	KA5			
H144		K85		KA4		
H145	KA51					
H146	KA53	KA52				
H147	KA53					
H148	KA51	KA51				
H149	KA71					
H150		KA71				
H151	KA71	KA71				
H152	KA1	KA2		KA2		
H153	KA53	KA52	KA53			
H154	KA4	KA5				
H155	KA42	KA43	KA2			
H156	KA1	KA1	KA1	KA1	KA2	KA2
H157	KA1		KA1			
H158	KA1	KA2	KA3	KA3	KA3	
H159	KA1	KA1	KA3	KA2		
H161	KA52					
H162	KA2		KA5			
H163	K85		KA4			
H164	K85	K85	KA4	KA4		
H165	KA55					
H166	KA22	KA22				
H167		KA23				
H168		KA22				
H170	KA54	KA51		KA51		
H171	KA53	KA51				
H172	KA23	KA23				
H173	KA54	KA51				
H174	KA1	KA3	KA1	KA3		
H175	KA6	KA2	KA5	KA5		
H176	KA4					
H177	KA3	KA4				
H178	K85		KA3			
H179	KA53	KA55				

"H" Numbers not shown in their sequence are no longer used.