




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 ⁵ 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	

Contact Block Specifications – ZENL•• (continued)

Electrical Specifications

Cabling capacity	Conforming to IEC 60947-1	Screw and captive clamp terminals Min: 1 x 24 AWG (0.22 mm ²) without cable end 1 x 22 AWG (0.34 mm ²) for linking Max: 2 x 16 AWG (1.5 mm ²) with cable end Cross headed screw (Pozidrive type 1) slotted for flat 4 and 5.5 mm screwdriver Typical torque: 0.8 N•m (8.55 lb-in) Maximum torque: 1.2 N•m (10.7 lb-in)		
Contact material		Silver alloy (Ag/Ni)		
Short-circuit protection	Conforming to IEC/EN 60947-5-1	Standard blocks with screw clamp terminals: 10 A (gG cartridge fuse conforming to IEC 60269-1)		
Rated insulation voltage	Conforming to IEC 60947-1	Standard blocks with screw clamp terminals: Ui = 600 V, degree of pollution 3		
Rated impulse withstand voltage	Conforming to IEC 60947-1	Standard block with screw clamp terminals: Uimp = 6 kV		
Rated operational specifications Conforming to IEC/EN 60947-5-1	AC supply: Utilization category AC-15	A600: Ue = 600 Vac and Ie = 1.2 A or Ue = 240 Vac and Ie = 3 A or Ue = 120 Vac and Ie = 6 A		
	DC supply: Utilization category DC-13	R300: Ue = 250 Vdc and Ie = 0.1 A or Ue = 125 Vdc and Ie = 0.22 A		
Electrical durability Conforming to IEC/EN 60947-5-1 Appendix C Operating rate 3600 operating cycles/ hour. Load factor: 0.5	AC supply for 1 million operating cycles, utilization category AC-15	24 Vac	120 Vac	230 Vac
		4 A	3 A	2 A
	DC supply for 1 million operating cycles, utilization category DC-13	24 Vdc	110 Vdc	
		0.4 A	0.15 A	
Electrical reliability	Failure rate Conforming to IEC 947-5-4	Standard blocks: - at 17 V and 5 mA, $\lambda < 10^{-8}$ - at 5 V and 1 mA, $\lambda < 10^{-6}$		

Light Module Specifications– ZALV••

Mechanical Specifications

Vibration resistance	Conforming to IEC 60068-2-6	Frequency (2 to 500 Hz): 15 gn
Shock resistance	Conforming to IEC 60068-2-27	Half sine wave acceleration 11 ms: 50 gn
		Half sine wave acceleration 18 ms: 30 gn

Electrical Specifications

Cabling capacity	Conforming to IEC 60947-1	Screw and captive clamp terminals Min: 1 x 24 AWG (0.22 mm ²) without cable end 1 x 22 AWG (0.34 mm ²) for linking Max: 2 x 16 AWG (1.5 mm ²) with cable end Cross headed screw (Pozidrive type 1) slotted for flat 4 and 5.5 mm screwdriver Typical torque: 0.8 N•m (8.55 lb-in) Maximum torque: 1.2 N•m (10.7 lb-in)		
Rated insulation voltage	Conforming to IEC 60947-1	Pilot light blocks with protected LED: Ui = 250 V, degree of pollution 3		
Rated impulse withstand voltage	Conforming to IEC 60947-1	Pilot light blocks with protected LED: Uimp = 4 kV		
Voltage limits	Nominal voltage	24 V: 21.6 to 24.6 Vac; 19.2 to 30 Vdc 120V: 102 to 132 Vac 240V: 195 to 264 Vac		
Current consumption	Applicable to all colors	24 Vac/Vdc supply blocks: 18 mA 120 Vac supply blocks: 14 mA 240 Vac supply blocks: 14 mA		
Service life	At nominal voltage and at an ambient temperature of 77 °F (25 °C)	100,000 hours		
Surge withstand	Conforming to IEC 61000-4-5	2/1 kV		
Resistance to fast transients	Conforming to IEC 61000-4-4	2 kV		
Resistance to electromagnetic fields	Conforming to IEC 61000-4-3	10 V/m		
Resistance to electrostatic discharges	Conforming to IEC 61000-4-2	8/6 kV		
Electromagnetic emission	Conforming to EN 55011	Class B		

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XALD101

Start or Stop Function Polycarbonate; Light gray base, RAL7035; Dark gray lid, RAL7016

Description	Type of Push	Type of Contact N.O.	N.C.	Marking	Reference
Marking on Legend Holder					
1 momentary push button	Flush black	1	—	Start	XALD101
	Flush red	—	1	Stop	XALD111
Marking on Legend Holder					
1 mushroom head push button 40 mm, momentary	Red	—	1	Emergency stop on red legend	XALD164



XALK174

Emergency Stop or Emergency Off Function Polycarbonate; Light gray base, RAL7035; Yellow lid, RAL1012

Description	Type	Type of Contact N.O.	N.C.	Reference
1 mushroom head push button 40 mm, red	Standard (1)	—	1	XALK174
Turn-to-release	Trigger action (2)	—	1	XALK178
1 mushroom head push button 40 mm, red	Standard (1)	—	1	XALK184
Key release (Key No. 455)	Trigger action (2)	—	1	XALK188
1 mushroom head push button 40 mm, red	Standard (1)	—	1	XALK194
Push-pull				

(1) Emergency Off (IEC 60364-5-53)
(2) Emergency Stop (EN / IEC 13850)



XALD211

Start-Stop Function Polycarbonate; Light gray base, RAL7035; Dark gray lid, RAL7016

Description	Type of Push	Type of Contact N.O.	N.C.	Text	Reference
2 momentary push buttons	1 flush black	1	—	Start	XALD211
	1 flush red	—	1	Stop	
	1 flush black	1	—	Forward	XALD221
	1 flush black	1	—	Reverse	



XALD321

Three Function Polycarbonate; Light gray base, RAL7035; Dark gray lid, RAL7016

Description	Type of Push	Type of Contact N.O.	N.C.	Text	Reference
3 momentary push buttons (no markings)	1 flush black	1	—	Open	XALD341
	1 flush red	—	1	Stop	
	1 flush black	1	—	Close	
		1	—	Forward	XALD311
		—	1	Stop	
		1	—	Reverse	
		1	—	Up	XALD321
		—	1	Stop	
		1	—	Down	