

CONTROLLERS / AMPLIFIERS

VLC Controllers

VLC (Very Low Cost) DC brushed/brushless motor controllers/drivers are designed and manufactured by SMAC. This enables SMAC to offer efficient, competitively-priced solutions with no loss in features or functionality. The product can be adjusted by SMAC to a specific design, or to market or customer needs.

	Part Number	Motor type	Stand-alone	Built-in	Output (Standard)	Digital input	Digital output	Analog input *	Analog output	STO (Safe Torque Off)	Communication interfaces
Single Axis	VLCI-R1	brushed/ brushless		●	3.5 A cont., 6.5 A peak	4 (opto- isolated)	4 (opto- isolated)	1 Diff	1	2 In, 1 Out	RS232
	VLC-M1		●		3.5 A cont., 6.5 A peak	2 (opto- isolated)	2 (opto- isolated)	1 S.E.	n/a	n/a	RS232
	VLCI-X1		●		3.5 A cont., 6.5 A peak	4 (opto- isolated)	4 (opto- isolated)	1 Diff.	1 S.E.	2 In, 1 Out	RS232
	VLC-ETC		●		3.5 A cont., 6.5 A peak	4 (opto- isolated)	4 (opto- isolated)	1 Diff.	1 S.E.	2 In, 1 Out	Serial (UART), EtherCAT (2-ports)
	VLC-1-07		●		6 A cont., 7.8 A peak	8 (opto- isolated)	8 (opto- isolated)	2 Diff., 3 S.E.	3 S.E.	2 In, 1 Out	Serial (UART)
	VLC-1-13		●		10 A cont., 13 A peak	8 (opto- isolated)	8 (opto- isolated)	2 Diff., 3 S.E.	3 S.E.	2 In, 1 Out	Serial (UART)
Dual Axis	VLC-25-07		●		6 A cont., 7.8 A peak	4 (opto- isolated)	4 (opto- isolated)	2 Diff., 3 S.E.	2 S.E.	2 In, 1 Out	RS232
	VLC-25-13		●		10 A cont., 13 A peak	4 (opto- isolated)	4 (opto- isolated)	2 Diff., 3 S.E.	2 S.E.	2 In, 1 Out	RS232

* Diff. = Differential and S.E. = Single-Ended



VLCI-R1



VLC-M1



VLCI-X1



VLC-ETC



VLC-1-07
/ VLC-1-13



VLC-25-07
/ VLC-25-13

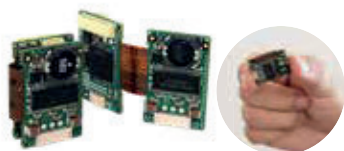
CONTROLLERS / AMPLIFIERS

Controllers and Amplifiers

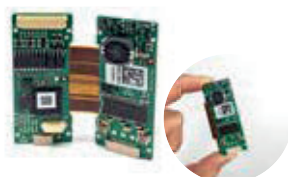
SMAC supplies a range of single and multi-axis controllers as well as stand-alone amplifiers. Complimentary standard programming software is available on the SMAC website, <http://www.smac-mca.com/products/controllers>. SMAC supports connectivity with ethernet fieldbuses like EtherCAT and Ethernet /IP on certain models. Please contact us for more information.

	Part Number	Motor type	Stand-alone	Built-in	Output (Standard)	Digital input	Digital output	Analog input*	Analog output*	STO (Safe Torque Off)	Communication interfaces
Single Axis	CBC	brushed/brushless		●	3 A cont., 6 A peak	2 (non-isolate)	2 (non-isolate)	1 S.E.	1 S.E.	n/a	RS232, CANopen
	CBC-I-3/6-C	brushed/brushless		●	3 A cont., 6 A peak	4 (opto-isolated)	4 (opto-isolated)	1 S.E.	1 S.E.	2 In, 1 Out	RS232, CANopen
	CBC-EIP	brushed/brushless	●		3 A cont., 6 A peak	4 (opto-isolated)	4 (opto-isolated)	1 S.E.	1 S.E.	2 In, 1 Out	RS232, EtherNet/IP (2-port)
	CBC-ECT	brushed/brushless	●		3 A cont., 6 A peak	4 (opto-isolated)	4 (opto-isolated)	1 S.E.	1 S.E.	2 In, 1 Out	RS232, EtherCAT (2-port)
	LCC-10 (LCC-11)	brushed/brushless	●		3 A cont., 6 A peak	2 (non-isolate)	2 (non-isolate)	1 S.E.	1 S.E.	n/a	RS232, CANopen
	LAC-1 / LAC-1C / LAC-1D	brushed	●		2 A cont., 4 A peak	8 (non-isolate)	8 (non-isolate)	4 S.E.	4 S.E.	n/a	RS232
Dual Axis	LAC-25	brushed	●		3 A cont., 6 A peak	4 (opto-isolated)	4 (opto-isolated)	3 S.E.	2 Diff.	n/a	RS232

* Diff. = Differential and S.E. = Single-Ended



CBC GUI



CBC-I-3/6-C GUI



CBC-EIP / CBC-ECT GUI



LCC-10 (LCC-11) GUI



LAC-1/LAC-1D/LAC-1D GUI



LAC-25 GUI

Amplifiers



LAD-1
Smart Driver for single-axis stepper input to servo output
24-48VDC
RS232



LAA-5
Single-axis PWM Amplifier
24-48VDC
3 Arms cont., 6 Arms peak
+/- 10 Volt command input
Single-axis PWM Amplifier



MIOE-8/8
Expansion I/O module for LAC-1, LAC-25 and LAC-45
24-48VDC
8 opto-isolated input/output

Why Use SMAC Cables?

SMAC actuators are used in numerous high speed, high cycle applications and are guaranteed for millions of cycles. For this reason, it is imperative that the cables used to connect with our actuators are capable of similar arduous duty cycles and life span. Only cables manufactured by SMAC can be guaranteed to meet the rigorous standards required during use. Many years of experience has taught us that cheaper third party cables simply are not up to the task required. They are, in fact, one of the most common causes of technical problems experienced by our customers.

Models	Single Axis Controller				Dual Axis Controller		Amplifier	Smart Driver	
Actuator	LAC-1	LCC-10 / LCC-11	CBC-EIP / CBC-ECT	VLC-M1 / VLCI-X1	VLC-25-07 / VLC-25-13	LAC-25	LAA-5	LAD-1	
CBL* / CTL*	CAH-4LOD26-03	CAH-6LOD26-03				CAH-LAD26-03		CAH-LSD26-03	
2x CBL* / CTL*						CAH-4LTD26-03	CAH-6LTD-03		
LBR	MAH-4RTD026-03								
LCA(S)* / LCB/ MLA / MSA	CAH-4LOD26-03	CAH-6LOD26-03				CAH-LAD26-03		CAH-LSD26-03	
LBL* / LCA (S)* (Multi-pole/brushless)	MAH-6LOD26-03								
2x LCA(S)* / LCB/ MLA / MSA						CAH-4LTD26-03	CAH-6LTD-03		
2x LBL* / LCA (S)* (Multi-pole/brushless)	MAH-4LTD026-03								
SLA10	CAH-4LOD26-03 (with LAH-PT12-26)	CAH-6LOD26-03 (with LAH-PT12-26)				CAH-LAD26-03 (with LAH-PT12-26)		CAH-LSD26-03 (with LAH-PT12-26)	
SLA25*	CAH-4LOD26-03	CAH-6LOD26-03				CAH-LAD26-03		CAH-LSD26-03	
LAL35/LAL95	LAH-4LOD26-03	LAH-6LOD26-03				LAH-LAD26-03		LAH-LSD26-03	
LAL55/LAL300/LAL500	LAH-4LOD-03	LAH-6LOD-03				LAH-LAD-03		LAH-LSD-03	
LAR35	LAH-4RED26-03 (with 2x LAC-1s)	LAH-6RED26-03 (with 2x controllers)				LAH-4RTD26-03	LAH-6RTD26-03	LAH-RAD26-03 LAH-RSD26-03	
LAR31-030	MAH-6RED226-03 (with 2x controllers)				MAH-4RTD226-03				
LAR31-050	MAH-6RED026-03 (with 2x controllers)				MAH-4RTD026-03				
LAR55/LAR95/LAR300	LAH-4RED-03 (with 2x LAC-1s)	LAH-6RED-03 (with 2x controllers)				LAH-4RTD-03	LAH-6RTD-03	LAH-RAD-03 LAH-RSD-03	
LCR13/LCR16/LCR20 Under 25mm stroke		MAH-6RED226-03 (with 2x controllers)				MAH-4RTD226-03			
LCR13/LCR16/LCR20 35mm stroke and above		MAH-6RED026-03 (with 2x controllers)				MAH-4RTD026-03			
2x LAL35/LAL95						LAH-4LTD26-03	LAH-6LTD26-03		
2x LAL55/LAL300/LAL500						LAH-4LTD-03	LAH-6LTD-03		
MGR	CAH-4RED26-03 (with 2x LAC-1)	CAH-6RED26-03 (with 2x controllers)				LAH-4RTD26-03	LAH-6RTD26-03		
GRP20/GRP35/GRP50***	LAH-4RED26-03	LAH-6RED26-03				LAH-4RTD26-03	LAH-6RTD26-03		
LXY15/LXY25						CAH-4RTDGRP26-03	LAH-6GRP-03		

* No cable required for flying lead option. ** M12 connectors optional for EtherNet/IP. *** Old type of GRP50 requires LAH-GRP26-03 cable.

Options & Modifications (Consult factory for availability)

- Cable length ----- 3m standard, optional 10m length is available. Consult factory for other length.
- Superflex ----- Suitable for robotic applications.
- Non-SMAC controller connector ----- Consult factory for details.

GRAPHICAL USER INTERFACE

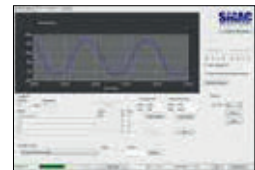
Graphical User Interface (GUI)

SMAC Graphical User Interface provides a simple and straightforward way to quickly configure motion parameters of a variety of SMAC single/dual axis actuators and controllers. Pre-installed, user configurable application-based GUIs are also available.

- Little to no programming experience required
- Menu-driven, Windows based, easy setup
- Pre-programmed with application-specific features
- Real time analysis
- Data and graphical feedback tools
- Built-in tutorial and help features

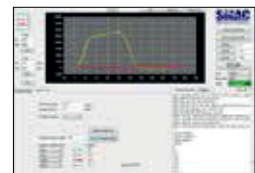
LCC Control Center

Achieve high level programming with no programming experience, monitoring and logging of parameters, fine-tuning of control parameters for LCC and CBC controller.



LAC-X Editor

Easy setup and tuning of control parameters for LAC-1 and LAC-25.



Thread Check Center: TCC

User configurable Thread-Checking applications. Fully automated 100% inspection of internal & external threads. Verification of counter bore height, thread pitch, oversized/undersized threads, cross thread and shallow thread, etc.



Capping Control Center: CCC

User configurable threaded bottle/container capping applications. Detect and report no/obstructed cap. Adjust force and torque, show the different quality check capabilities such as cap height, torque limit, force required to press-in, and even check the clicks on child proof caps.



Gauging Control Center: GCC

User configurable gauging applications. Provide real time plot of measured values in relation to limits. The user may save a .csv or image file of the measured values or graph area respectively for data logging.



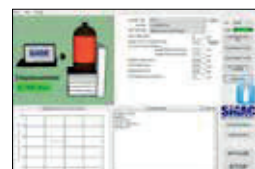
Ejection Control Center: ECC

User configurable Ejection applications. Select and program between 4 types of ejection sequence including soft eject, rapid eject etc. Control velocity for ejection based on customer cycle time requirements. Adjust force to eject based on the weight/mass of the object to eject. Manipulate position to park the actuator based on the program sequence.



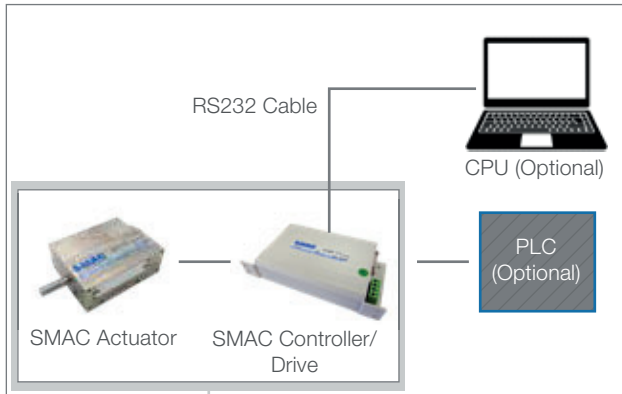
Leak Test Center: LTC

User configurable Leak testing applications: Select and program between two types of leak testing procedure(Velocity and Force). Unique capability of SMAC actuator to soft land on the object and applying force can be programmed using this GUI. Precise monitoring of displacement of the bottle/container/ or any testing sample during leak testing. Adjust the force to be applied on the test object using this software.

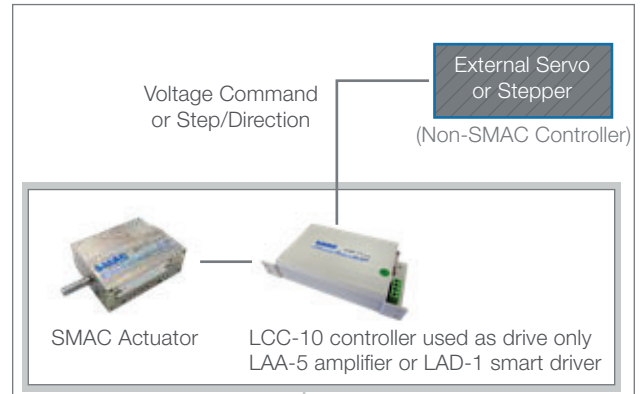


SYSTEM CONFIGURATION

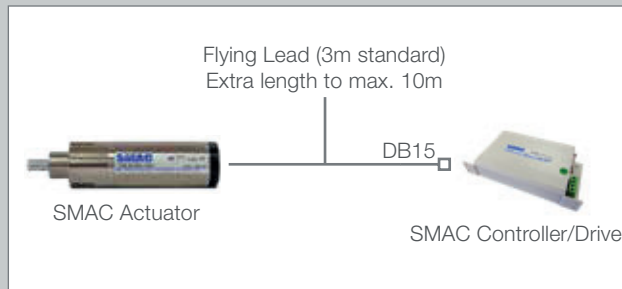
Configuration with SMAC Controllers



Configuration with Non-SMAC Controllers

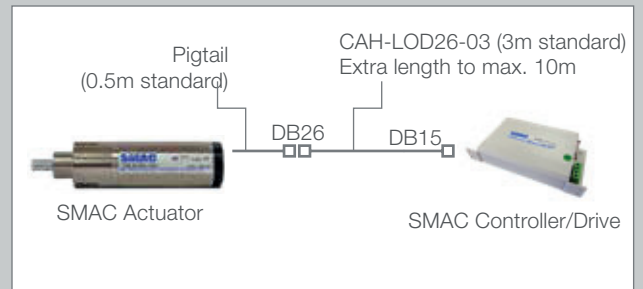


Configuration for Flying Lead Cable

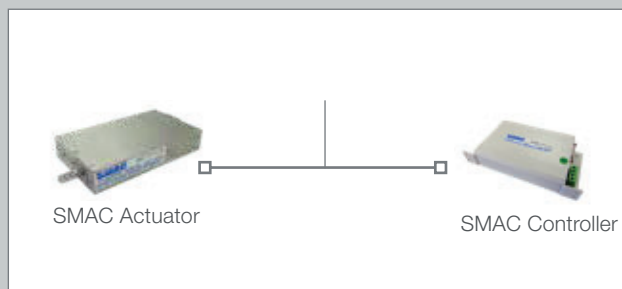


CAL, CBL, CTL, LCA, LCB, LBL, MGR and SLA series

Configuration for Pigtail Cable

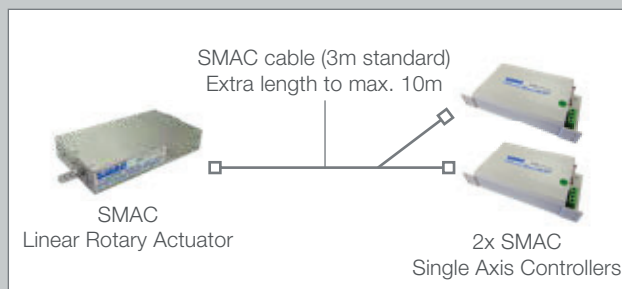


Configuration for SMAC Cable



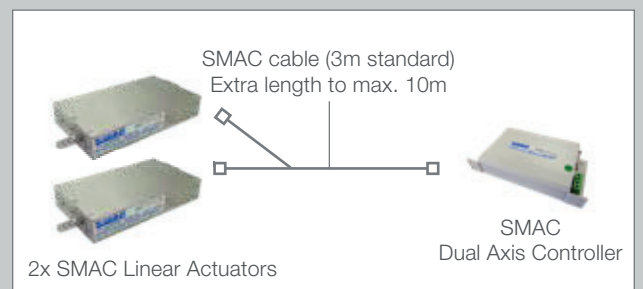
LAL(S), LAR, GRP and LXY series

Configuration with 2 Single Axis Controllers



LAR and LCR series

Configuration with 1 Dual Axis Controller



LAL(S) series