

# PRODUCT OVERVIEW

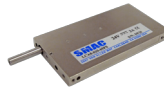
**LINEAR & LINEAR ROTARY ACTUATORS** Stroke [mm] 10 - 250 | Peak Force [N]: 2.6 - 500



**CBR100**  
Stroke [mm]: 50,100,150  
Force [N]: 85



**LCA6**  
Stroke [mm]: 10  
Force [N]: 3.5



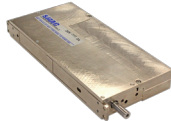
**LCA8**  
Stroke [mm]: 10, 25, 50  
Force [N]: 2.6 - 4



**LCA13 / LCR13**  
Stroke [mm]: 25, 35, 50  
Force [N]: 7 - 14



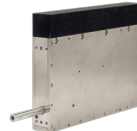
**LCA16 / LCR16**  
Stroke [mm]: 10 - 50  
Force [N]: 7 - 14



**LCA20 / LCR20**  
Stroke [mm]: 25  
Force [N]: 25



**LCA25**  
Stroke [mm]: 10 - 200  
Force [N]: 7.4 - 22



**LBL25**  
Stroke [mm]: 25 - 200  
Force [N]: 60



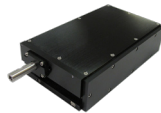
**LCB25**  
Stroke [mm]: 10 - 25  
Force [N]: 40 - 80



**LCA32**  
Stroke [mm]: 12  
Force [N]: 76



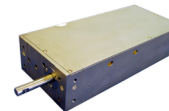
**LCA50**  
Stroke [mm]: 25 - 250  
Force [N]: 45 - 130



**LAR31**  
Stroke [mm]: 30, 50  
Force [N]: 11, 20



**LAL35 / LAR35**  
Stroke [mm]: 25, 50, 100  
Force [N]: 6 - 31.5



**LAL55 / LAR55**  
Stroke [mm]: 50, 100, 150  
Force [N]: 13 - 40



**LAL95 / LAR95**  
Stroke [mm]: 15, 25, 50  
Force [N]: 65 - 195



**LAL300 / LAR300**  
Stroke [mm]: 30, 50, 100  
Force [N]: 80 - 250



**LAL500**  
Stroke [mm]: 25, 50  
Force [N]: 500



**LBL40 / LBR40**  
Stroke [mm]: 50  
Force [N]: 500

## SMAC Actuators' Unique Features



### Soft-Land™

A patented capability to apply controlled light force without damaging parts/materials being handled.



### Feedback

Built-in sensing that can report if the desired work was accomplished or not. It can be used for Data Acquisition.



### Linear Rotary Motion

The precision Z-theta motion within one small compact actuator, providing convenient pick, orient, and place movements.



### IP Protection

Optional IP65 and IP67, dustproof and waterproof features.



### Graphical User Interface (GUI)

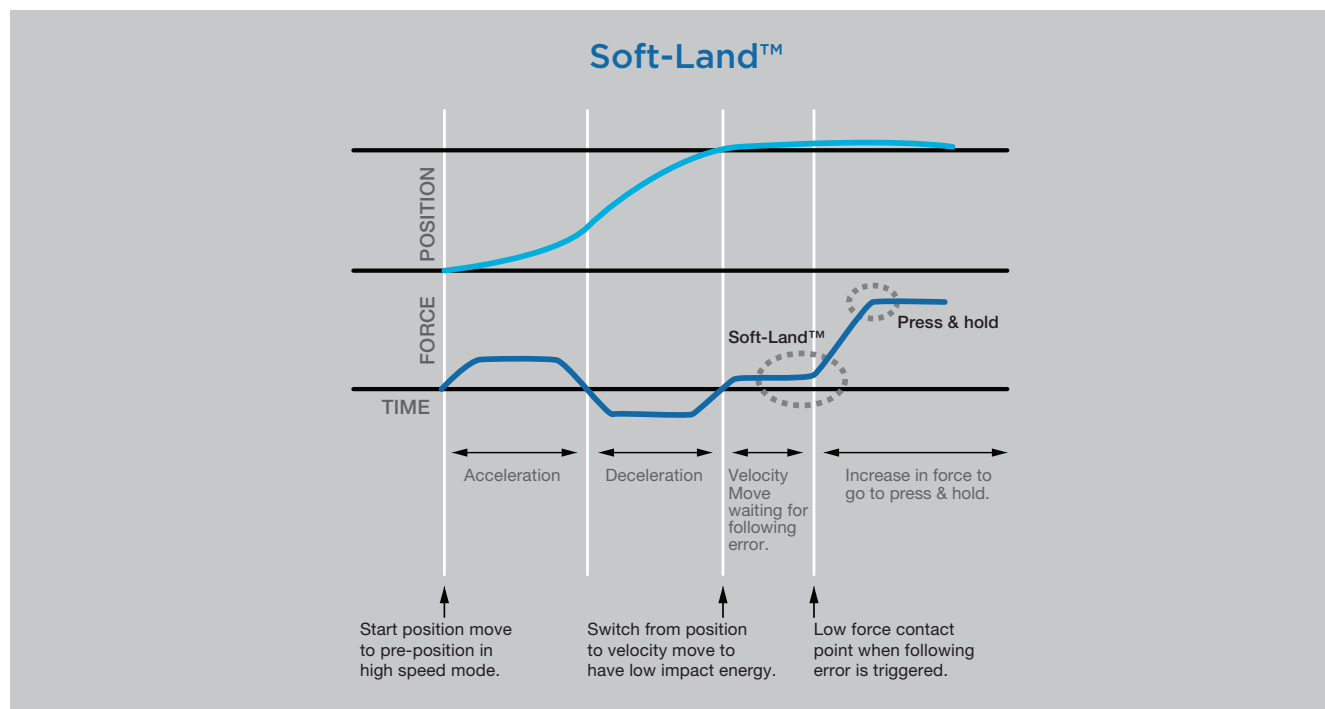
SMAC GUI provides a simple and straightforward way to quickly configure motion parameters of a variety of SMAC actuators and controllers. Application-based GUIs are also available.

### What is a Soft-Land™?

The Soft-Land™ is a patented unique software routine which allows an SMAC actuator to approach a surface at an unknown distance and land on it with a programmed force that can be as low as 0.1N. It gives extremely accurate sensing of product location or dimensions. This is particularly useful for handling delicate or high value components, such as surface mount chips, but other uses are emerging all the time. The routine takes advantage of the SMAC actuator's unique ability to control applied force while monitoring position in real time and is available for use with all SMAC actuators.

*Soft-Land™ is a patented unique capability that allows actuators to approach a surface at an unknown distance and land on it with a programmed force.*

The routine consists of a controlled low force approach in velocity mode, while the position error is constantly monitored. Once contact is made the position error builds up until a pre-programmed figure is reached - resulting in the rod maintaining position on the surface of the component.



### A typical Soft-Land™ routine might be as follows:

1. High speed approach in Position mode to a "safe" distance from the part.
2. Switch to Velocity mode, setting a low force and velocity.
3. Slowly approach the part, monitoring position error.
4. If position error goes outside of a programmed window, the actuator has met an obstruction (i.e. landed on the part) and the Soft-Land™ routine is completed.
5. It is also possible to set a position window where the component should be located, if it is not located within a certain position, the actuator will retract.

Developed as next generation servo motor based on moving coil technology. Snap-Together design controls tight tolerance stack-up to assure high product quality at a competitive price.



- ✓ Cost effective
- ✓ Built-in lubrication for long operation life
- ✓ High cycle and acceleration
- ✓ IP protection optional

Part Number	Voltage [DC]	Size: LxWxH [mm]	Stroke [mm]	Peak Force [N]	Continuous Force [N]	Force Constant [N/A]	Maximum Current [Amp]	Moving Mass [kg]	Weight [kg]
LCA6-010-55-3	24	135x60x6	10	3.5	(*)	2.9	1.2	0.037	0.21
LCA8-010-55-2	24	95x50x8	10	4	(*)	3.2	1.7	0.025	0.16
LCA8-025-15-3	24	110x50x8	25	2.6	(*)	2.2	1.3	0.027	0.18
LCA8-050-15-3	24	135x50x8	50	2.6	(*)	2.2	1.3	0.03	0.22
LCA13-025-55-2	24	155x75x13	25	7	2.8	2.5	3	0.08	0.4
LCA13-035-15-6	24	180x75x13	35	14	5.6	9.4	1.5	0.12	0.52
LCA13-050-15-6	24	210x75x13	50	14	5.6	9.4	1.5	0.125	0.6
LCA16-010-55-2	24	110x60x16	10	6	2.5	4.3	1.5	0.045	0.435
LCA16-010-75-2	48	110x60x16	10	13	5	6.5	1.5	0.045	0.435
LCA16-025-55-2	24	155x75x16	25	7	2.8	2.5	3	0.08	0.47
LCA16-035-15-6	24	180x75x16	35	14	5.6	9.4	1.5	0.12	0.62
LCA16-050-15-6	24	210x75x16	50	14	5.6	9.4	1.5	0.125	0.73
LCA20-025-55-2	24	155x75x20	25	9	3.6	3	3	0.08	0.71
LCA20-025-75-2	48	155x75x20	25	25	10	7	3.6	0.08	0.71
LCA25-010-55-1	24	70x55x25	10	8	3	6	1.5	0.04	0.27
LCA25-010-55-2	24	130x60x25	10	16	6	5.5	3	0.085	0.45
LCA25-010-75-1	48	70x55x25	10	12	5	8	1.5	0.04	0.27
LCA25-010-75-2	48	130x60x25	10	22	9	8	3	0.085	0.45
LCA25-025-15-6	24	130x60x25	25	15	6	13	1.6	0.076	0.55
LCA25-025-35-6	48	130x60x25	25	20.5	8.2	14.5	1.6	0.076	0.55
LCA25-025-55-2	24	130x60x25	25	7.4	2.9	2.5	3	0.076	0.55
LCA25-025-75-2	48	130x60x25	25	9.2	3.6	3	3	0.076	0.55
LCA25-050-15-6	24	155x60x25	50	15	6	13	1.6	0.082	*
LCA25-050-35-6	48	155x60x25	50	20.5	8.2	14.5	1.6	0.082	*
LCA25-100-15-6	24	205x60x25	100	15	6	13	1.6	0.1	*
LCA25-100-35-6	48	205x60x25	100	20.5	8.2	14.5	1.6	0.1	*
LCA25-150-15-6	24	258x60x25	150	15	6	13	1.6	0.12	*
LCA25-150-35-6	48	258x60x25	150	20.5	8.2	14.5	1.6	0.12	*
LCA25-200-15-6	24	310x60x25	200	15	6	13	1.6	0.14	1.3
LCA25-200-35-6	48	310x60x25	200	20.5	8.2	14.5	1.6	0.14	1.3

# LINEAR ACTUATORS | LCA SERIES CONT.

Part Number	Voltage [DC]	Size: LxWxH [mm]	Stroke [mm]	Peak Force [N]	Continuous Force [N]	Force Constant [N/A]	Maximum Current [Amp]	Moving Mass [kg]	Weight [kg]
LCA32-012-75-3	48	100x57x31	12	76	30	13	6	0.076	0.75
LCA50-010-75-2	48	125x50x100	10	130	50	46	2.8	0.43	2.6
LCA50-025-75-1	48	125x100x50	25	50	20	40	1.5	0.335	2.16
LCA50-050-35-6	48	250x115x50	50	90	36	67	1.7	0.665	*
LCA50-050-75-1	48	125x100x50	50	45	18	30	1.6	0.335	2.58
LCA50-050-75-2	48	215x100x50	50	85	34	30	3	0.465	4.34
LCA50-100-35-6	48	300x115x50	100	90	36	67	1.7	0.66	5.7
LCA50-150-35-6	48	350x115x50	150	90	36	67	1.7	0.825	8
LCA50-250-35-6	48	450x115x50	250	90	36	67	1.7	1	14

NOTE: For any SMAC Moving Coil Actuators, the maximum recommended continuous duty current is 600mA supplied to the actuator over a 1 second period. For anything beyond this in terms of current draw or time please consult the factory. We manufacture actuators to suit our customers' requirements. Please call us if you do not find the right actuator in this list. Linear actuators are also available as linear slides (see page 20). (\*)Consult factory



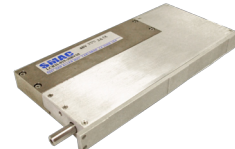
LCA6



LCA8



LCA13



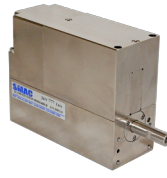
LCA16/LCA20



LCA25



LCA32



LCA50



# LINEAR ACTUATORS | LBL/LCBSERIES

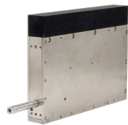
The LBL and LCB are price competitive solutions for some higher force applications, previously dominated by pneumatic actuators.



- ✓ High force and acceleration
- ✓ Cost effective

Part Number	Voltage [DC]	Size: LxWxH [mm]	Stroke [mm]	Peak Force [N]	Continuous Force [N]	Force Constant [N/A]	Maximum Current [Amp]	Moving Mass [kg]	Weight [kg]
LBL25-025-35-3	48	175x127x25	25	70	28	31.2	2.5	0.19	-
LBL25-050-35-3	48	200x127x25	50	70	28	31.2	2.5	0.19	-
LBL25-100-35-3	48	280x127x25	100	70	28	31.2	2.5	0.19	2
LBL25-150-35-3	48	310x127x25	150	70	28	31.2	2.5	0.19	3.8
LBL25-200-35-3	48	360x127x25	200	70	28	31.2	2.5	0.21	4.56
LBL40-050-35-3	48	335x160x40	50	100	40	40	2.5	0.9	7.2
LCB25-010-75-3	48	155x81.6x29.8	10	80	30	22	3.6	0.14	1.17
LCB25-015-55-2	24	100x81.6x30	15	47	18	12.7	3.7	0.12	1.01
LCB25-025-75-2	48	155x81.6x25	25	40	16	30	1.3	0.12	1

NOTE: For any SMAC Moving Coil Actuators, the maximum recommended continuous duty current is 600mA supplied to the actuator over a 1 second period. For anything beyond this in terms of current draw or time please consult the factory. We manufacture actuators to suit our customers' requirements. Please call us if you do not find the right actuator in this list.



LBL25



LBL40



LCB25

SMAC's original series of linear actuators with stroke up to 150mm and a peak force of up to 500N. As with all SMAC actuators, the LAL has independent control of position, speed, and force.



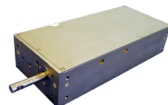
- ✓ Soft-Land™ capability and precise force control
- ✓ High cycle
- ✓ Data feedback

Part Number	Voltage [DC]	Size: LxWxH [mm]	Stroke [mm]	Peak Force [N]	Continuous Force [N]	Force Constant [N/A]	Maximum Current [Amp]	Moving Mass [kg]	Weight [kg]
LAL35-025-55-2	24	135x90x35	25	31.5	12.6	15.5	2.9	0.19	1.06
LAL35-025-75-1	48	135x90x35	25	18	7	10	1.3	0.12	0.95
LAL35-050-55-1	24	135x90x35	50	10	4	7	1.6	0.13	1.1
LAL35-050-75-1	48	135x90x35	50	12.5	5	10	1.3	0.13	1.1
LAL35-100-55-1	24	135x90x35	100	6	2.4	3.5	1.6	0.1	1.7
LAL55-050-55-1	24	250x110x55	50	25	10	19	1.3	0.3	3
LAL55-050-75-1	48	250x110x55	50	40	16	24.5	1.8	0.3	3
LAL55-100-55-1	24	250x110x55	100	16	6.4	13	1.3	0.3	3.8
LAL55-100-75-1	48	250x110x55	100	25	10	17	1.8	0.3	3.8
LAL55-150-55-1	24	250x110x55	150	13	5	10	1.3	0.4	4.5
LAL55-150-75-1	48	250x110x55	150	19.5	8	12.5	1.8	0.4	4.5
LAL95-015-75-1	48	90x70x95	15	84	33	53	1.7	0.25	2.2
LAL95-015-75-2	48	147x70x95	15	185	74	58	3.2	0.5	3
LAL95-025-75-2	48	180x70x95	25	162	65	52	3.1	0.58	3.75
LAL95-050-75-1	48	147x70x95	50	65	26	41	1.7	0.25	3
LAL300-030-75-1	48	120x85x120	30	115	46	76	1.6	0.45	4.8
LAL300-030-75-2	48	210x85x120	30	250	100	87.3	3	0.8	7.8
LAL300-050-75-2	48	210x85x120	50	202	80	86	3	0.8	8.8
LAL300-100-75-1	48	210x85x120	100	80	32	43	2	0.7	7.9
LAL500-025-75-2	48	300x140x200	25	500	200	166	3	1.6	26.5
LAL500-050-75-2	48	300x140x200	50	500	200	100	4	1.6	26.5

NOTE: For any SMAC Moving Coil Actuators, the maximum recommended continuous duty current is 600mA supplied to the actuator over a 1 second period. For anything beyond this in terms of current draw or time please consult the factory. We manufacture actuators to suit our customers' requirements. Please call us if you do not find the right actuator in this list. Linear actuators are also available as linear slides (see page 21)



LAL35



LAL55



LAL95



LAL300



LAL500

# LINEAR ROTARY ACTUATORS | CBR/LBR/LCR SERIES

The CBR offers independent linear and rotary motion within one conventional cylinder shape.

The LBR and LCR are slim, stackable Z-theta actuators.



- ✓ Independent linear and rotary motions in one unit
- ✓ Absolute control over force/torque, position, acceleration and velocity
- ✓ Direct drive brushless servo motor
- ✓ Vacuum through shaft prevents dust accumulation

Part Number	Voltage [DC]	Size: LxWxH [mm]	Stroke [mm]	Peak Force [N]	Continuous Force [N]	Force Constant [N/A]	Maximum Current [Amp]	Moving Mass [kg]	Weight [kg]	Peak Torque* [Nm]	Rotary type	Rotary Encoder Resolution	Velocity* [rpm]
CBR100-050-35-15	48	101.5x360	50	85	34	22	4	1.6	7.2	3.9	7.67:1	2K	300
CBR100-100-35-12	48	101.5x400	100	85	34	22	4	1.7	8.5	3.9	7.67:1	2K	300
CBR100-150-35-12	48	101.5x450	150	85	34	22	4	1.8	9	3.9	7.67:1	2K	300
LBR40-050-35-3	48	335x160x40	50	100	40	40	2.5	0.9	7.2	0.45	direct	2K	2100
LCR13-025-55-2	24	155x75x13	25	7	2.8	2.5	3	0.11	0.43	0.047	direct	24K	1K
LCR13-035-15-6	24	180x75x13	35	14	5.6	9.4	1.5	0.15	0.55	0.047	direct	24K	1K
LCR13-050-15-6	24	210x75x13	50	14	5.6	9.4	1.5	0.155	0.62	0.047	direct	24K	1K
LCR16-025-55-2	24	155x75x16	25	7	2.5	2.5	3	0.11	0.5	0.047	direct	24K	1K
LCR16-035-15-6	24	180x75x16	35	14	5.6	9.4	1.5	0.15	0.65	0.047	direct	24K	1K
LCR16-050-15-6	24	210x75x16	50	14	5.6	9.4	1.5	0.155	0.75	0.047	direct	24K	1K
LCR20-025-75-2	48	155x75x20	25	25	10	7	3.6	0.095	0.65	0.047	direct	24K	1K

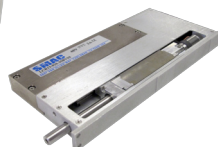
NOTE: For any SMAC Moving Coil Actuators, the maximum recommended continuous duty current is 600mA supplied to the actuator over a 1 second period. For anything beyond this in terms of current draw or time please consult the factory. We manufacture actuators to suit our customers' requirements. Please call us if you do not find the right actuator in this list.



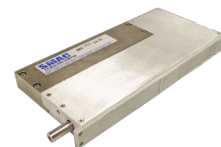
CBR100



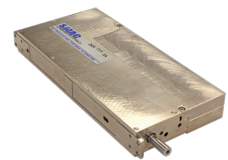
LBR40



LCR13



LCR16



LCR20



# LINEAR ROTARY ACTUATORS | LAR SERIES

The precision Z-theta motion within one small actuator, providing a convenient pick, orient and place.



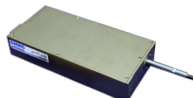
- ✓ Soft-Land™ function and precise force/torque control
- ✓ Precision positioning
- ✓ Vacuum built-in through the shaft

Part Number	Voltage [DC]	Size: LxWxH [mm]	Stroke [mm]	Peak Force [N]	Continuous Force [N]	Force Constant [N/A]	Maximum Current [Amp]	Moving Mass [kg]	Weight [kg]	Peak Torque* [Nm]	Rotary Type	Rotary Encoder Resolution	Velocity* [rpm]
LAR31-030-55-1	24	140x80x34.7	30	11	4.4	7	1.5	0.19	0.84	0.06		40960	2000
LAR31-050-15-6	24	78.8x175x36.4	50	20	8	8.5	3.5	0.25	1	0.06		40960	2000
LAR35-025-55-1	24	190x90x35	25	12	4.8	7.5	1.6	0.32	1.55	0.085	direct	20K	75 - 5000
LAR35-050-55-1	24	190x90x35	50	10	4	7	1.6	0.29	1.4	0.085		20K	500 - 5000
LAR51-058-35-6	48	180x95.6x54	58	41	16.4	11.5	6	0.35	2.1	0.14		40960	2000
LAR55-050-55-1	24	250x110x55	50	25	10	19	1.6	0.5	3.1	0.2 - 2.5		2K - 28K	500 - 5000
LAR55-050-75-1	48	250x110x55	50	40	16	27	1.8	0.31	2.8	0.2 - 2.5		2K - 28K	500 - 5000
LAR55-100-55-1	24	250x110x55	100	16	6.4	13	1.6	0.5	3.85	0.2 - 2.5		2K - 28K	500 - 5000
LAR55-100-75-1	48	250x110x55	100	25	10	13	2	0.5	3.85	0.2 - 2.5	direct or gear box	2K - 28K	500 - 5000
LAR95-015-75-1	48	304x115x90	15	84	33	53	1.7	0.9	3.5	0.2 - 4.5		2K - 132K	75 - 5000
LAR95-050-75-1	48	304x115x90	50	65	26	41	1.7	0.93	4.2	0.2 - 4.5		2K	75 - 5000
LAR300-050-75-2	48	284x160x85	50	202	80	86	3	1	9.5	0.2 - 4.5		2K - 132K	75 - 5000
LAR300-100-75-1	48	291x160x85	100	80	32	43	4	1.69	10.7	0.2 - 4.5		2K - 132K	75 - 5000

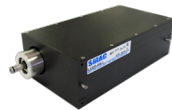
NOTE: For any SMAC Moving Coil Actuators, the maximum recommended continuous duty current is 600mA supplied to the actuator over a 1 second period. For anything beyond this in terms of current draw or time please consult the factory. We manufacture actuators to suit our customers' requirements. Please call us if you do not find the right actuator in this list.



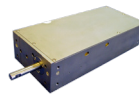
LAR31



LAR35



LAR51



LAR55



LAR95



LAR300

## 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

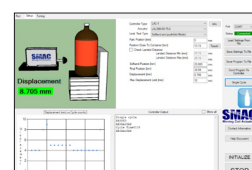
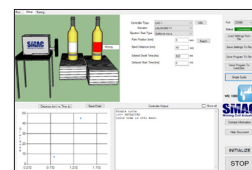
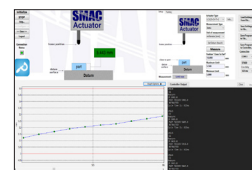
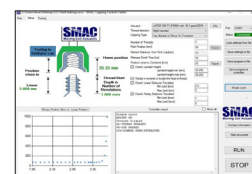
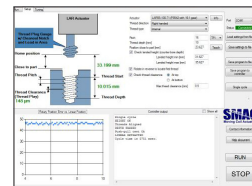
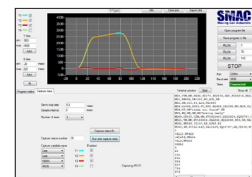
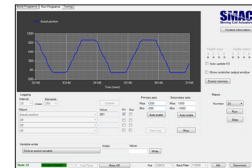
User configurable gauging applications. Provide real time plot of measured values in relation to limits. The user may save a .csv or image file of the measured values or graph area respectively for data logging.

### 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.



# CABLES

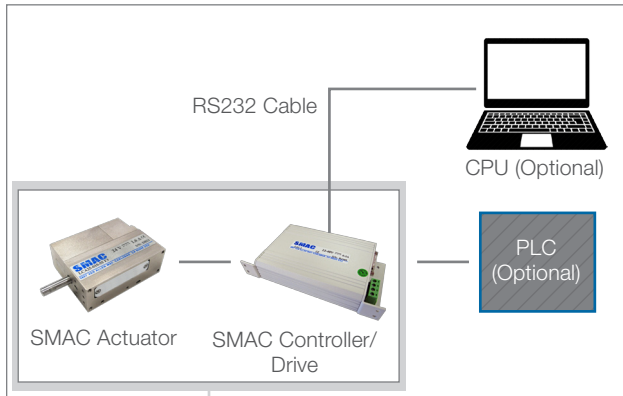
## Why Use SMAC Cables?

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 the most common causes of technical problems experienced by our customers.

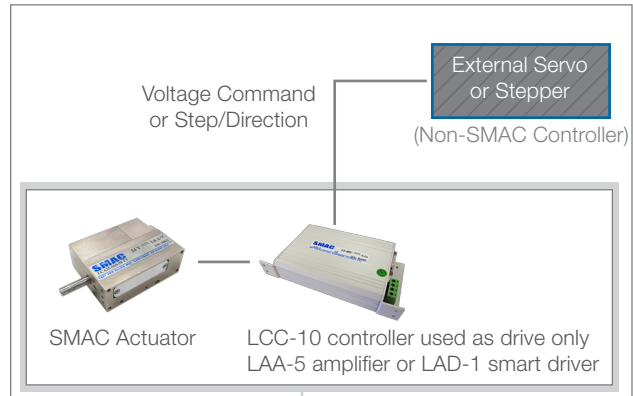
Models	Single Axis Controller		Dual Axis Controller		Amplifier	Smart Driver
Actuator	LAC-1 / VLC-M1	LCC-10(11)	VLC-25-07/13	LAC-25	LAA-5	LAD-1
CAL*	CAH-LOD26-03	CAH-LOD26-03			CAH-LAD26-03	CAH-LSD26-03
2x CAL*				CAH-LTD-03		
CBL*	CAH-LOD26-03	CAH-LOD26-03			CAH-LAD26-03	CAH-LSD26-03
2x CBL*				CAH-LTD-03		
CBR			MAH-RTD026-03			
CTL Single Phase	CAH-LOD26-03	CAH-LOD26-03			CAH-LAD26-03	CAH-LSD26-03
LBL Multi Phase		MAH-LOD26-03				
LCA(S) Single Phase	CAH-LOD26-03	CAH-LOD26-03			CAH-LAD26-03	CAH-LSD26-03
LCA (S)* Multi Phase		MAH-LOD26-03				
SLA10	CAH-LOD26-03 (with LAH-PT12-26)	CAH-LOD26-03 (with LAH-PT12-26)			CAH-LAD26-03 (with LAH-PT12-26)	CAH-LSD26-03 (with LAH-PT12-26)
SLA25*	CAH-LOD26-03	CAH-LOD26-03			CAH-LAD26-03	CAH-LSD26-03
LAL35/LAL95	LAH-LOD26-03	LAH-LOD26-03			LAH-LAD26-03	LAH-LSD26-03
LAL55/LAL300/LAL500	LAH-LOD-03	LAH-LOD-03			LAH-LAD-03	LAH-LSD-03
LAR35	LAH-RED26-03 (with 2x LAC-1s)	LAH-RED26-03 (with 2x LCC-10s)		LAH-RTD26-03	LAH-RAD26-03	LAH-RSD26-03
LAR31-030		MAH-RED226-03 (with 2x LCC-10s)	MAH-RTD226-03			
LAR31-050		MAH-RED026-03 (with 2x LCC-10s)				
LAR55/LAR95/LAR300	LAH-RED-03 (with 2x LAC-1s)	LAH-RED-03 (with 2x LCC-10s)		LAH-RTD-03	LAH-RAD-03	LAH-RSD-03
LBR			MAH-RTD026-03			
LCR13/LCR16/LCR20 Under 25mm stroke (Linear single pole, rotary multi pole)		MAH-RED226-03 (with 2x LCC-10s)	MAH-RTD226-03			
LCR13/LCR16/LCR20 35mm stroke and above (Both linear and rotary multi pole)		MAH-RED026-03 (with 2x LCC-10s)				
2x LAL35/LAL95				LAH-LTD26-03		
2x LAL55/LAL300/ LAL500				LAH-LTD-03		
MGR	CAH-RED26-03 (with 2x LAC-1)	CAH-RED26-03 (with 2x LCC-10)		LAH-RTD26-03		
GRP20/GRP35/ GRP50**	LAH-RED26-03	LAH-RED26-03		LAH-RTD26-03		
LXY15/LXY25				LAH-GRP-03		

\* No cable required for flying lead option. \*\* Old type of GRP50 requires LAH-GRP26-03 cable.

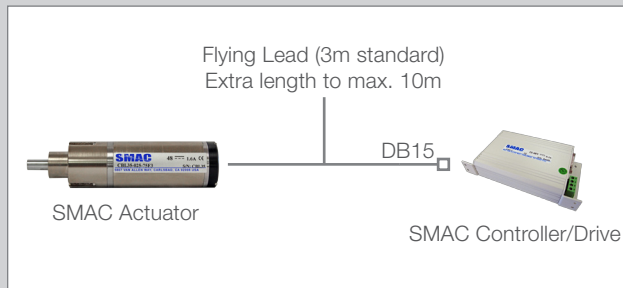
## Configuration with SMAC Controllers



## Configuration with Non-SMAC Controllers

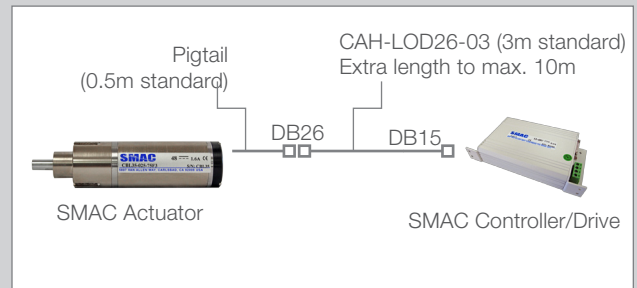


## Configuration for Flying Lead Cable

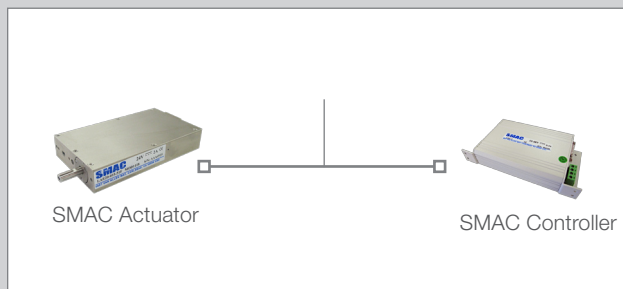


CAL, CBL, CTL, LCA, LCB, LBL, MGR and SLA series

## Configuration for Pigtail Cable

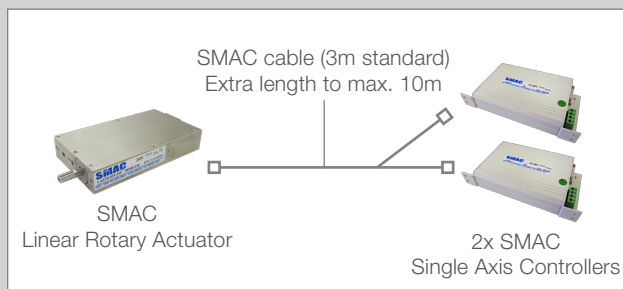


## Configuration for SMAC Cable



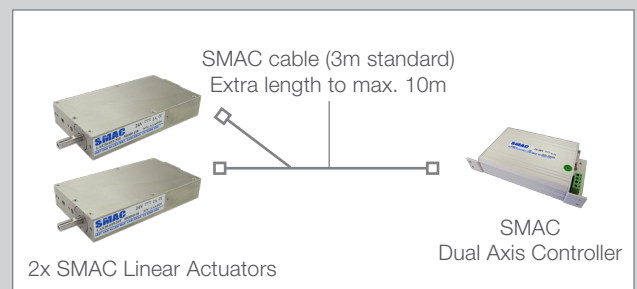
LAL(S), LAR, GRP and LXY series

## Configuration with 2 Single Axis Controllers



LAR and LCR series

## Configuration with 1 Dual Axis Controller



LAL(S) series

# INSTALLATION GUIDE / INDIVIDUAL MODIFICATIONS

## INSTALLATION GUIDE

### Duty Cycle

For any SMAC Moving Coil Actuator, the maximum recommended continuous duty current is 600mA supplied to the actuator over a 1 second period. For anything beyond this in terms of current draw or time please consult the factory.

NOTE: Failure to observe this duty cycle recommendation may result in the actuator sustaining damage through overloading. Overloading will overheat the coil and may cause deformation or an impact on the magnet housing.

### Continuous Force

Peak force applied for duration shorter than 0.4 sec. in one second interval. (force mode): 40% of peak force, continuous.

### Force Mode

The specified current may be applied continuously to generate the desired force. However, the recommended continuous force limit should be set in the control program.

In vertical operation, the actuator rod will drop when power is cut off. The rod in a lowered position may be damaged by other moving parts in the machine. A return spring (optional feature) will keep the rod raised. A safety lock-out should be installed in the machine program to confirm the rod location before another interfering component can be moved.

SMAC actuators are equipped with these safety features:

- Index line/home position: used to monitor absolute position
- Breakaway shaft (optional)

### Safety Considerations

Unintentional full force may be applied continuously under the following conditions:

- missed target position
- excessive friction
- equipment malfunction, i.e. jam

If left undetected, this can cause destruction of the coil in some units. A servo program should perform the following checks regularly:

- Re-home: to assure target position has not shifted beyond end of stroke
- Time-outs: to shut power down within 10 seconds of error detection
- Following Error Limits: software safety

### Mounting

If the actuator is mounted vertically, the shaft drops down when the actuator is powerless. It is possible that other moving parts of the machine may damage the actuator at this position. A return spring would hold the actuator in an upper position when it is powerless.

A safety function in your machine should check the actuator's current position before other components may move into the working area of the actuator.

## INDIVIDUAL MODIFICATION

Many of our standard actuators listed on previous pages are compatible with both add-on options and modifications. In addition to the standard vacuum and spring option SMAC can offer the following modifications subject to approval by the factory.

### Linear Guide Options

Increased rigidity and side load tolerance can be gained by using a higher specification "wide guide". Additionally, in force sensitive applications we can fit a low friction guide.

### Double Coil

Integrating an extra coil can enhance both force and acceleration.

### Custom Nose-Bushing

An extended nose bushing with increased side load tolerance are available on many models. We can also offer scraper and wiper seals around the shaft to protect the bearings from excessive wear in harsh environments.

### Custom Shafts

In addition to the standard male/female rod ends we can also offer options such as "breakaway" shafts and custom shaft diameters.

### 10µm T.I.R.

Total indicator run-out under 10µm is available on several linear/rotary models.

### Rotary

Increased torque/gear ratio can be gained by using alternative geared motors or direct drive motors.

Higher rotary encoder resolutions are optional. Please consult factory for availability.

If a longer life rotary is required, then we can fit a brushless rotary motor.

### Flying Lead

Instead of the standard chassis connector we can offer a flying lead option. The flying lead is standard for all the CA and LCA series actuators.

### Cable Options

Whenever an SMAC actuator is mounted to any 3rd party device such as a gantry or multi-axis robot, SMAC strongly recommends that a superflex cable is used. Cable lengths with a standard of 3 meters up to a maximum of 10 meters can be offered.

