



## 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-moa.com/products/controllers>. SMAC supports connectivity with ethernet fieldbuses like EtherCAT and Ethernet /IP on certain models. Please contact us for more information.



GUI

#### CBC

Single-axis miniature controller with a built-in amplifier. Single-phase/brushed and 3-phase/brushless motors/actuators.

**Mode:** Position/Velocity/Force

8-48VDC  
3 Arms cont., 6 Arms peak  
2 PLC level (24V) non-isolated digital inputs  
2 Open drain digital outputs\*  
1 single-ended analog input, 0-5VDC, 10-bit  
1 ms position loop sampling rate  
Built-in configurable I<sup>2</sup>T function to prevent overheating  
RS232, CANopen



GUI

#### LCC-10 (LCC-11)

Single-axis controller with a built-in amplifier. Single-phase/brushed and 3-phase/brushless motors/actuators.

**Mode:** Position/Velocity/Force

24-48VDC  
2 Arms cont., 4 Arms peak  
4 TTL compatible non-isolated digital inputs/outputs\*  
1 single-ended analog input, 0-5VDC, 12-bit  
1 differential analog input, +/-10VDC, 12-bit  
1 analog output.  
LCC-10: 0-5VDC, 10-bit.  
LCC-11: 0-10VDC, 16-bit.  
1 ms position loop sampling rate  
Built-in configurable I<sup>2</sup>T function to prevent overheating  
Can be run as Amplifier only, velocity drive and Step & Direction Emulator  
RS232, CANopen



GUI

#### LAC-1/LAC-1C/LAC-1D

Single-axis controller with a built-in amplifier. Single-phase/brushed motors/actuators.

**Mode:** Position/Velocity/Force

12-48VDC  
3 Arms cont., 6 Arms peak  
8 TTL compatible non-isolated digital inputs/outputs\*  
3 analog inputs. LAC-1/LAC1-C: 0-5VDC and 10-bit. LAC-1D: programmable voltage range and 16-bit.  
Max. position loop sampling rate. LAC-1: 0.2ms. LAC-1C/LAC1-D: 0.1ms.  
RS232



GUI

#### LAC-25/LAC-26

2-axis controller with built-in amplifiers. Independent or coordinated 2-axis motion. Single-phase/brushed motors/actuators (axis 1 and 2, LAC-25/LAC-26). 3-phase/brushless motors/actuators (axis 2, LAC-26).

**Mode:** Position/Velocity/Force/Gearing

12-48VDC  
3 Arms cont./axis, 6 Arms peak/axis  
4x optical-isolated digital inputs/outputs  
8x TTL compatible non-isolated digital outputs  
LAC-25: 3x analog inputs +/-10V, 10 bit ; 2x analog outputs, +/-10V, 12-bit  
LAC-26: 3x analog inputs +/-10V, 10 bit ; 1x analog inputs, 0-10V, 10-bit.  
Max. position loop sampling rate of 0.1ms per axis  
RS232



#### MC-2

CANopen-based master controller enabling multi-axis (up to 127) motion coordination of SMAC's LCC/CBC controllers. Additionally, the master controller can act as a gateway to a PLC through Ethernet/IP.



#### LAD-1

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

\* Consult factory for opto-isolated I/O options.



#### 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

Moving Coil Actuators



## 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.

