VLC Series

Controllers/Servo Drives

The VLC Series are integrated controller/servo drives used to operate DC brushed/brushless rotary motors and linear actuators. The VLC Product Line is designed and manufactured by SMAC, which enables us to offer efficient, competitively-priced solutions with no loss in features or functionality. Each model can be adjusted to a specific design, or to market or customer needs.

VLC-ETC

VLCI-X1

VLC-1-07 / VLC-1-13

VLC-M1

VLC-25-07 / VLC-25-13

VLCI-R1

FEATURES:

- Competitive price
- In-house capability to design and manufacture
- Single and dual axis, stand-alone or built-in type
- Simple programming through generic serial terminal.
- STO, Safe Torque Off
- Brushed & brushless
- 3.5/6/10 Amps Continuous, 6.5/7.8/13 Amps Peak
- EtherCAT connectivity

Moving Coil Actuators

www.smac-mca.com

SPECIFICATIONS

	VLCI-R1	VLC-ETC	VLCI-X1	VLC-1-07 / VLC-1-13	VLC-M1	VLC-25-07 / VLC-25-13
	Singe Axis					Dual Axis
	Built-in	Stand-alone				
Operating Modes	Position, Velocity, Torque					
Filter Algorithm	PID					
Max. servo Loop Rate	100µs					
Trajectory Generator	Trapezoidal					Trapezoidal, Electronic Gearing
Servo Position Feed-back	Incremental Encoder with Index					
Supply Voltage	+8 to +48 VDC	+24 to +48 VDC	+8 to +48 VDC			
Output (Standard) PWM (Space-Vector-Modulated),	3.5 Amps Continuous / 6.5 Amps Peak			VLC-1-07 (Standard): 6 A Cont., 7.8 A Peak VLC-1-13 (Optional): 10 A Cont., 13 Amp Peak.	3.5 Amps Continuous / 6.5 Amps Peak	VLC-25-07 (Standard): 6 A Cont., 7.8 A Peak VLC-25-13 (Optional): 10 A Cont., 13 A Peak
Motor Type	3-Phase DC Brushless, DC Brushed, Single or 3-Phase DC Linear Actuator					
PWM Frequency	20.0 KHz					
Current Resolution	5.66 mA Custom current resolution can be made by request.			VLC-1-07: 2.93 mA. VLC-1-13: 6.35 mA. Custom current resolution can be made by request.	5.66 mA Custom current resolution can be made by request.	VLC-25-07: 2.93 mA. VLC-25-13: 6.35 mA. Custom current resolution can be made by request.
Encoder and Index Input	Differential					
Encoder Supply Voltage	5 VDC					
Encoder Input Voltage	5.5 VDC Maximum., -0.1VDC Minimum.					
Encoder Count Rate	40 Million Encoder Transitions Per Second					
Position Range	31 Bits					
Velocity Range	31 Bits					
Acceleration Range	31 Bits					
Digital I/O	4x Optoisolated Digital Inputs w/Common: • 5 to 24 V Level Input 4x Solid-state Relay Outputs w/Common: • 200 mA Current • Tolerant to 60 V			8x Optoisolated Digital Inputs w/Common: • 5 to 24 V Level Input 8x Solid-state Relay Outputs w/Common: • 200 mA Current • Tolerant to 60 V	2x Optoisolated Digital Inputs w/Common: • 5 to 24 V Level Input 2x Solid-state Relay Outputs w/Common: • 200 mA Current • Tolerant to 60 V	4x Optoisolated Digital Inputs w/Common: • 5 to 24 V Level Input 4x Solid-state Relay Outputs w/Common: • 200 mA Current • Tolerant to 60 V
Dedicated Digital I/O	N/A			1x Optoisolated Coarse Home Input	N/A	2x Optoisolated Coarse Home Inputs
Analog Inputs	1 Channel (differential): 0 to +/- 10 V With 12-bit Resolution.			2 Channels (differential): 0 to +/- 10 V With 12-bit Resolution. 3 Channels (single-ended): 0 to +10 V With 12-Bit Resolution.	1 Channel (single-ended): 0 to +10 V With 12-Bit Resolution	2 Channels (differential): 0 to +/- 10 V With 12-bit Resolution. 3 Channels (single-ended): 0 to +10 V With 12-Bit Resolution.
Analog Outputs	1 Channel, 0 to +10 V with 12-Bit Resolution. (0 V to 5V Optional)	2 Channels, 0 to +10 V With 12-Bit Resolution. (0 V to 5V Optional)	1 Channel, 0 to +10 V with 12-Bit Resolution. (0 V to 5V Optional)	2 Channels, 0 to +10V With 12-Bit Resolution. (0 V to 5V Optional)	N/A	2 Channels, 0 to +10 V With 12-Bit Resolution. (0 V to 5V Optional)
LEDs	Power, Fault, GPO5 Connections For External Fault, GPO5 LEDs	2 x 2 LEDs: EtherCAT LED: Run (green), Error (red) Servo Drive LED: Power ON (green), Fault (red)	Power, Fault	Power, Status, Fault and USB Activity	Power, Fault	Power, Status, 2x Fault
Communication Inter-face	RS-232 Non-Isolated, 9600 Baud Default, Selectable Between 2400-460800	1x Serial/UART (micro USB port): 9600 Baud Default, Selectable Between 2400 – 460800 2x EtherCAT RJ-45 ports	RS-232 Non-Isolated, 9600 Baud Default, Selectable Between 2400-460800			
Protections	• Driver over-temperature at 125 degrees C • Overcurrent / Overload • Reverse polarity • I 2T • (Excessive) servo position error			• Driver over-temperature at 70 degrees C • Overcurrent / Overload • Reverse polarity • I 2T • (Excessive) servo position error	• Driver over-temperature at 125 degrees C • Overcurrent / Overload • Reverse polarity • I 2T • (Excessive) servo position error	• Driver over-temperature at 70 degrees C • Overcurrent / Overload • Reverse polarity • I 2T • (Excessive) servo position error
Program Space	• Macro storage: 53728 bytes • Max. number of macros: 512 • Max. number of program registers: 2048					
STO (Safe Torque Off)	2x STO Optoisolated STO Inputs: • 5 to 24V Level Input 1x STO Optoisolated STO Feedback Output: • 200mA current • Tolerant to 60V				N/A	2x STO Optoisolated STO Inputs: • 5 to 24V Level Input 1x STO Optoisolated STO Feedback Output: • 200mA current • Tolerant to 60V

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