



**DimensionEngineering**

# SyRen 50 Quick Start Guide

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Congratulations on your purchase of a SyRen 50 regenerative motor driver. SyRen 50 is one of the most flexible and configurable motor drivers on the market. As a result, it must be set to the correct operating mode before use. Below is a generalized hookup diagram of a SyRen 50. On the reverse side is a chart of some of the most commonly used operating modes.

<p>These DIP switches are used to set the operating mode of the driver.</p>		<p><b>SyRen 50</b></p> <p>Input voltage: 6V-24V</p> <p>Output current: 50A</p> <p>Peak Output current: 100A</p> <p>Operating modes: Analog, R/C, Serial</p>
<p>0V is internally connected to B-. It provides a circuit ground (GND) for your control circuitry.</p> <p>5V is a regulated 5V supply provided by the driver. Drawing more than 10mA can reduce performance of the driver</p> <p>S1 is the primary signal input. It must always be connected to something e.g. a R/C receiver signal or analog voltage.</p> <p>S2 is the secondary signal input. It only gets used in certain operating modes.</p>	<p>M2 connects to one wire of your DC brushed motor</p> <p>B+ connects to the positive terminal of your battery. The max recommended battery voltage is 24V.</p> <p>B- connects to the negative terminal of your battery. It is internally connected to 0V and can be used as a circuit ground</p> <p>M1 connects to the other wire of your DC brushed motor</p>	
<p><b>Don't get B+ and B- connected backwards!</b> Make sure you have the DIP switches configured correctly for the mode you are using!</p>		

For full product documentation and manual, please visit <http://www.dimensionengineering.com/SyRen50.htm>



Operating mode reference chart. All options are set via the DIP switches

	<p><b>Analog bi-direction:</b> a 0V to 5V analog input is connected to terminal S1. 0V is full reverse, 5V is full forward and 2.5V is stop</p>
	<p><b>Analog single-direction:</b> a 0V to 5V analog input is connected to terminal S1. 0V is stop and 5V is full forward.</p>
	<p><b>R/C standard:</b> An R/C servo signal is connected to terminal S1. A 1000us pulse is full reverse and a 2000us pulse is full forward. 1500us is stop.</p>
	<p><b>R/C auto-calibrate:</b> An R/C servo signal is connected to terminal S1. The SyRen will automatically detect the center and endpoints of the signal.</p>
	<p><b>Simplified Serial, 38400 Baud:</b> A TTL level 8N1 serial data stream is connected to terminal S1. Control is by single byte commands: 0 is full reverse, 128 is stop and 255 is full forward.</p>
	<p><b>Packetized Serial, address 128:</b> A TTL level 8N1 serial data stream is connected to terminal S1. Control is via a multi-byte packet.</p>
	<p><b>Lithium cutoff option:</b> When switch 3 is in the down position (in any operating mode) the SyRen will shut down at 3.0V per cell. This protects lithium batteries from damage.</p>

SyRen 50 features an additional 20+ operating modes and options not shown here. For the full manual, please visit <http://www.dimensionengineering.com/SyRen50.htm>