



Black Tip 108™ Proportional Plow Control

Product Summary	<ul style="list-style-type: none"> • One, 2 axis joystick used by the operator for proportional function control of hydraulic powered devices (i.e. Hoist, Plow, or Hook lift); • Utilizes Mako Trim™ to program the speed of each direction of motion individually without additional wiring or hydraulic modifications;
Product Application	<ul style="list-style-type: none"> • Multiple vehicle types; • "One ton" plow trucks;
Device Capacity	<ul style="list-style-type: none"> • Up to 2 independent hydraulically powered devices; • Control motion in 8 directions; • Programmable safety features for operation;
Proportional Signal Capacity	<ul style="list-style-type: none"> • Maximum 8 independent accessible PWM channels; • Frequency Settable from 40-450 Hz;
Axis and Range of Joystick Motion	<ul style="list-style-type: none"> • Two axes of joystick motion: X & Y; • 27 degrees of motion available in each axis;
Joystick Signal	<ul style="list-style-type: none"> • True "Hall Effect" (magnetic) joystick with no mechanical contacts;
Joystick Self Test and Diagnostics	<ul style="list-style-type: none"> • Black Tip™ completes a self test of the joystick during each power up cycle; • SafeStik™ automatically disables the joystick if an axis fails during use; • Joystick diagnostics for each axis is visible to technician on LED's at valve; • Channel Safe™ detects and protects against open or short circuits in hydraulic drive channels.
Configuration Software	<ul style="list-style-type: none"> • Mako Trim™ works on any Windows® 2000 compatible computer;
Mode Display Type	<ul style="list-style-type: none"> • LED for hoist and plow diagnostics;
Spreader Combination Options	<ul style="list-style-type: none"> • Compatible with all Cirus Spreaders (EZ, Spread DR, Dual Spread, SpreadSmart);
System Mounting	<ul style="list-style-type: none"> • Stand alone (with integral PEM nuts for pedestal mounting); • Padded console for bench seat;
Accessory Switches	<ul style="list-style-type: none"> • 3 Sprague® switches for accessory control (on/off or momentary function);
Warning Indicators	<ul style="list-style-type: none"> • Up to 2 labeled and colored indicators integrated;
Operating Temperature Range	<ul style="list-style-type: none"> • Minimum: -20 degrees Centigrade • Maximum: 70 degrees Centigrade
Power Requirements	<ul style="list-style-type: none"> • Minimum: 11 Volts DC • Maximum: 15 Volts DC • Maximum: 10 Amps • Internal fuses rated at 10 Amps