

GMS-952 DUAL JOYSTICK CONTROLLER

PRELIMINARY OPERATION MANUAL

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INTRODUCTION

The GMS-952 Dual Joystick Controller contains two X-Y joysticks and gate signal generators in a 2MU panel. Each controller axis has a signal input to apply an external signal that can be modified by the joystick position, input gain control and DC offset controls. When an input signal is not connected, the input receives a normalized reference voltage which allows the joystick axis to produce a variable voltage output.

BASIC FUNCTIONS

- Generate unipolar or bipolar control voltage outputs on four axis
- Scale and modulate up to four external control voltages
- Generate gate control voltage pulses to trigger external modules

SCALE CONTROLS

Each axis has an associated scale or span adjustment. When the control is fully clockwise, the maximum value of the internal voltage reference source or the maximum value of the voltage present at the associated input connector will be applied to the joystick axis.



Each scale control has a switch that determines what the range of voltages the joystick axis will have. When the scale control is pushed in, the range of voltages applied to the joystick axis extremes will be ± 5 VDC if no input is connected to the associated control voltage input connector. If a voltage is being applied to that control voltage input connector for that axis, the voltage will be scaled by the scale control and a positive value of the input voltage will appear as the right hand or upper full scale position of the joystick or a negative value of the input voltage will appear as the left hand or lower full scale position of the controller. When the scale control is pulled out, the range of voltages applied to the joystick axis extremes will be 0 VDC - 10 VDC if no input is connected to the associated control voltage input connector. If a voltage is being applied to that control voltage input connector for that axis, the voltage will be scaled by the scale control and a positive value of the input voltage will appear as the right hand or upper full scale position of the joystick or a 0 V value will appear as the left hand or lower full scale position of the controller.

This allows an external control voltage to be modulated or phase reversed by the position of the joystick control. The frequency response of the controller circuitry is sufficient to allow low to midrange audio frequencies to be used as the control voltage input.

OFFSET CONTROLS

The offset controls apply a bias to the output voltage values. When the control is in the 12 o'clock position, the offset is zero. Clockwise motion applies a positive voltage offset, counterclockwise applies a negative voltage offset. The full range is $\pm 5V$.

GATE PUSHBUTTONS

Each controller has an associated pair of pushbuttons which, when pressed, produce a +5 Volt gate signal on the Gate output connector. The signal will be constantly high as long as the button is held in. The signal from the pushbutton is passed through a Schmidt trigger to assure a fast rise and fall time for reliably triggering devices such as ADSR envelope generators.

CONTROLLERS

This diagram shows the direction and polarities of the controller axis.



TECHNICAL SPECIFICATIONS - GMS-952

Each Controller	
Input Range	+10 Volts, +5 Volts, external input (+-10 Volts max.)
Input Impedance	100K Ohms
Module Power	+15 Volts 25 mA., -15 Volts 25 mA., +5 Volts 10 mA.
Module Size	Panel height - 8.75 inches (222 mm); Panel width - 4.250 inches (108 mm); Depth (behind panel) 2.5 inches (96 mm)