

MULTICHANNEL DISCRIMINATION MODULE

Model MCDM-1



TWO LEVEL DISCRIMINATION ADJUSTABLE IN TIME AND AMPLITUDE FOR OPTIMAL YIELD

CONVENIENT MULTIPLEXED SIGNAL AND WINDOW DISPLAY ON SINGLE OSCILLOSCOPE TRACE

IDEALIZED FOR GANGING MODULES FOR MULTI-POINT DISCRIMINATION

Description:

The Model MCDM- 1 is a waveform discriminator which is based on the same operational characteristics as the BAK Model DIS-1. It utilizes a two level window which can be adjusted anywhere in time and amplitude about a spike waveform. This means that if two different spike waveforms have equal peak amplitudes but do possess a frequency component difference which can be seen, then they can be separated from each other. The main difference between the MCDM-1 and DIS-1 is that the MCDM-1 has no front panel controls. All of its functions are controlled by the Model DSC-1 Discrimination System Controller. The resulting simplicity of circuit design and module construction allows for considerable cost savings.

The Model MCDM-1 has only five BNC's on its front panel. A SIGNAL IN which can come from either anyone of 32 signal channels or be shared with several MCDM- 1 modules to separate more than one spike train from a single recording channel. A TRIG OUT which produces a brief TTL pulse when trigger threshold has been achieved is used to externally trigger an oscilloscope trace and thereby synchronize the discriminating window displayed on that scope trace. A MPX OUT which multiplexes the signal waveform and the window levels at one output so they can be viewed on one oscilloscope trace without any consideration of scope drift or Z-axis intensification. The ACC OUT provides a TTL acceptance output whenever a spike waveform cuts the window at any point. Finally a TRIG IN port is provided so that the acceptance output of a previous module can trigger an additional module when more than one window discrimination is desirable. This ganging process can be repeated for as many windows as may be needed to separate a difficult spike train. A LED is also provided which lights when a channel is selected so that the user knows physically which channel has been selected.

The unique synchronicity of the multichannel discrimination system design has additional benefits when more than one window discrimination is required. Not only can the acceptance output of one module be used to trigger a successive module, but the MPX OUT of the first module can be connected to the signal input of the next module. The successive modules MPX OUT will now clearly display both windows at its MPX OUT. This process can be repeated for as many windows as required.

The MCDM- 1 is of modular construction and is intended to be mounted and powered by the RP-DS power supply and module cage for up to 10 modules in use with the Model DSC-1. When more than 10 modules are required the MCDM-1 is mounted in a RP-DM which is still powered by the RP-DS.

Specifications:

Maximum Number Of Modules In A RP-DS	10
Maximum Number Of Modules In A RP-DM	14
Input Resistance	100 kilohms
Input Coupling	AC
Input Dynamic Range	6 volts peak-to-peak
Multiplexed Output Resistance	100 ohms
All Other Outputs	CMOS or TTL compatible
Signal Polarity	Same as input
Gain	Unity
Bandwidth	20 Hz to 20 kHz (3db down)
Window Width	30 microseconds internally adjustable
Window Delay	0.05 msec to 5 msec
Window Height	Continuously adjustable
Trigger Threshold Level	Continuous plus or minus along signal waveform
Output Acceptance Pulse	CMOS or TTL compatible 0.3 msec width internally adjustable
Power Requirements	+/-15 volts and +/-5 volts supplied by Model RP-DS
Size	1.2"w x 5.25"h x 7.25"d
Weight	0.5 lbs.

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