# Phillips Scientific

# 300 MHz Amplifier Discriminator

# MODEL 6908

## FEATURES

* *Guaranteed 300 MHz Operation*
* *Deadtimeless Updating Outputs*
* *Variable Threshold from –1mV to –100mV*
* *Fast Veto Inhibiting*
* *High Fan-Out Capability*

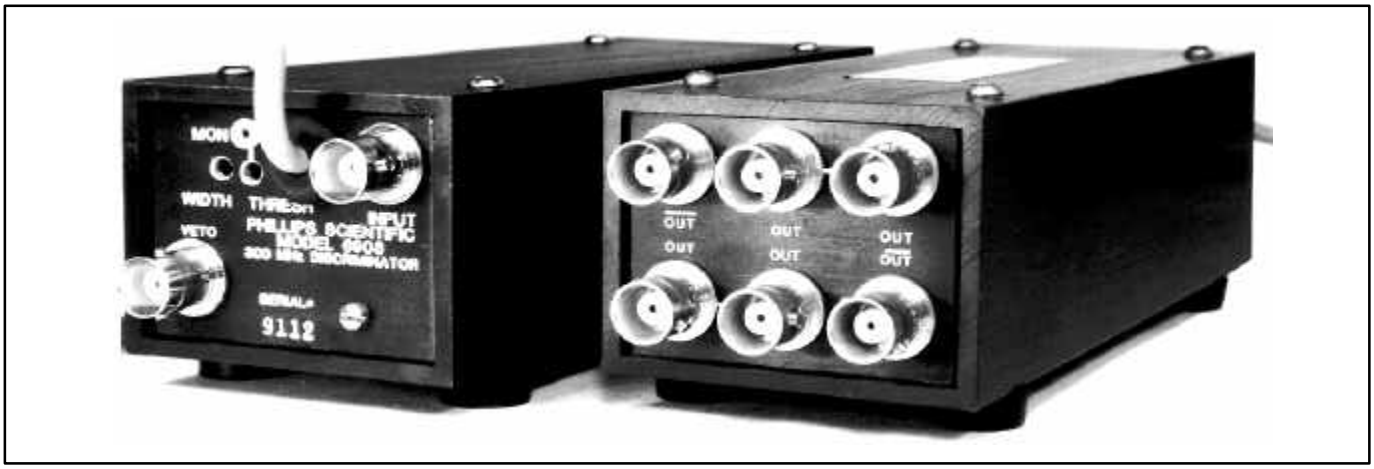
## DESCRIPTION

*Utilizing the most advanced technology, the Model 6908 Discriminator boasts a 300 MHz continuous repetition rate capability. The updating feature ensures deadtimeless operation for coincidence applications, while the double-pulse resolution is a remarkable 3.3nSec for counting applications. A fifteen-turn potentiometer provides continuous output width adjustment from 2nSec to over 50nSec.*

*The threshold is variable from –1 mV to –100 mVolt with a fifteen-turn potentiometer. The threshold setting is easily determined from a test point that provides a DC voltage equal to ten times the actual threshold setting.*

*Inhibiting of the discriminator is accomplished by a Veto input which accepts a NIM level pulse for fast vetoing. The fast veto is capable of inhibiting a single pulse from a 300 MHz input pulse train.*

*The outputs are the current source type with two pairs of negative bridged outputs and two complements. When only one output of a bridged pair is used, a double-amplitude NIM pulse (-32mA) is generated for driving long cables with narrow pulse widths. The outputs have transition times of less than 1.5nSec, and their shapes are virtually unaffected by loading the outputs in any combination.*

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## INPUT CHARACTERISTICS

***General :***
*One input connector; 50 ohm ±2%, AC coupled; less than ±5% input reflection for 2.0nSec input risetime; Input protection clamps at ±.7 V and can withstand ±2KV for the duration of 1mSec with no damage to the input.*

***Threshold :***
*Continuously variable from –1 mV to –100 mV, 15-turn screwdriver adjustment, better than 0.20%/ °C stability. A front panel test point provides a DC voltage equal to ten times the actual threshold setting.*

***Fast Veto :***
*One input connector accepts normal NIM level pulse (-500mV), 50 ohms direct coupled; must precede the negative edge of input pulse by 3nSec; capable of gating a single pulse from a 300 MHz continuous pulse train.*

## OUTPUT CHARACTERISTICS

***General :***
*Six (6) output connectors; two pairs of negative bridged outputs and two complements. The bridged outputs are quiescently 0mA and -32mA during output (–1.6 V into 50 ohm or –.8 V into 25 ohms). The complementary outputs are quiescently -16mA going to 0mA during output. Output risetimes and falltimes are typically 1.0nSec from 10% to 90% levels. The output shapes are optimized when the bridged outputs are 50 ohm terminated.*

***Width Control :***
*One control; 15-turn screwdriver adjustment; outputs continuously variable from 2nSec to 50nSec. Width stability is better than 0.1%/ °C of setting.*

***Updating Operation :***
*The output pulse will be extended if a new input pulse occurs while the output is active. A 100% duty cycle can be achieved.*

## GENERAL PERFORMANCE

***Continuous Rate :***
*Greater than 300 MHz, 3db bandwidth and a throughput counting rate of 300 MHz with output width set at minimum.*

***Pulse-Pair Resolution :***
*Better than 3.3nSec, with output width set at minimum.*

***Input to Output Delay :***
*Less than 8.5nSec.*

***Multiple Pulsing :***
*No multiple pulsing, one and only one output pulse regardless of input pulse amplitude or duration.*

***Power Supply Requirements :***
*+8 Volts to +16 Volts @ 165mA*
*–8 Volts to –16 Volts @ 250mA*

***Note:*** *Since the power supplies are internally regulated, they may be unbalanced.*

***Operating Temperature :***
*0°C to 70°C ambient.*

***Packaging :***
*Black anodized aluminum enclosure: 2.25" x 6.0" x 1.75" (5.72 cm x 15.25 x 4.45 cm).*

***Connector Type :***
*BNC Female, LEMO and SMA female are also available, specify when ordering.*

***Quality Control :***
*Standard 36-hour cycled burn-in with switched power cycles.*

***Options :***
*Call Phillips Scientific to find out about available options.*

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