AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
ENGINEERING · MANUFACTURING

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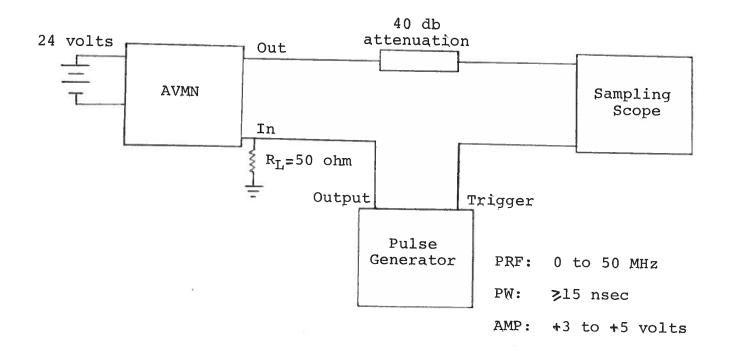NEW YORK
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INSTRUCTIONS

MODEL AVMN PULSE GENERATOR

S.N.:

MODEL AVMN PULSE GENERATOR TEST ARRANGEMENT

24 volts

AVMN

Out

40 db
attenuation

Sampling
Scope

In

$R_L = 50$ ohm

Output

Trigger

Pulse
Generator

PRF: 0 to 50 MHz

PW: ≥15 nsec

AMP: +3 to +5 volts

Notes:

1) The bandwidth capability of components and instruments
    used to display the pulse generator output signal
    (attenuators, cables, connectors, etc.) should exceed
    ten gigahertz.

2) The use of 40 db attenuator will insure a peak input
    signal to the sampling scope of less than one volt.

3) In general, the source pulse generator trigger delay
    control should be set in the 0.1 to 1.0 usec range.*

4) When testing using a general purpose 50 ohm laboratory
    pulse generator as the input trigger signal source, the
    input signal should be applied via a 50 ohm feed-through
    load or alternatively, the input to the AVMN unit should
    be shunted with a 50 ohm resistor. This will prevent
    reflection (and degradation of the input pulse waveform)
    caused by the high impedance at the IN port. However,
    when triggering from a TTL source, no 50 ohm
    feed-through load or resistor is necessary but lead
    length should be as short as possible. High-speed TTL
    Schottky logic is recommended for the driving circuitry.

5) The input trigger pulse width should be greater than 15
    nsec and less than one half of the pulse repetition
    frequency period. The unit triggers on the leading edge
    of the input trigger signal.

6) The output pulse width is controlled by means of the
    one-turn potentiometer (PW). The pot should initially
    be set maximum clockwise and the pulse width adjusted
    using an oscilloscope.

7) The output pulse amplitude is controlled by means of the
    one-turn potentiometer (AMP). The pulse width may
    change by several nanoseconds as the output amplitude is
    reduced from maximum to minimum. Therefore it is
    convenient to first set the desired amplitude and then
    set the desired pulse width. Rotation of the PW pot
    causes the position of the falling edge of the pulse to
    change.

8) Some properties of the output pulse may change as a
    function of the amplitude pot setting. For some
    demanding applications, it may be desirable to use a
    combination of external attenuators and the amplitude
    pot to achieve the desired output amplitude.

9) The AVMN output pulse position or delay can be varied
    for up to 5 nsec by means of the delay (DELAY) control.
    Rotating the delay control clockwise increases the
    delay. If the full 5 nsec delay cannot be achieved then

the input pulse width should be increased by a few nanoseconds. (option).

* The stability of the display on some sampling scopes is very sensitive to this delay, particularly at high PRF (eg. 10 to 50 MHz). If necessary, consult your sample scope instructions manual for the proper triggering method.

10) WARNING: Model AVMN may fail if triggered at a PRF greater than 50.0 MHz.

11) The Model AVMN pulse generator can withstand an infinite VSWR on the output port.

12) The AVMN unit requires a maximum prime input power of about 12 watts. It is therefore strongly recommended that the unit be heatsunk in order to maintain a moderate chassis temperature.

13) To DC offset the output pulse connect a DC power supply set to the required DC offset value to the terminals marked O.S. The maximum attainable DC offset voltage is 50 volts.

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