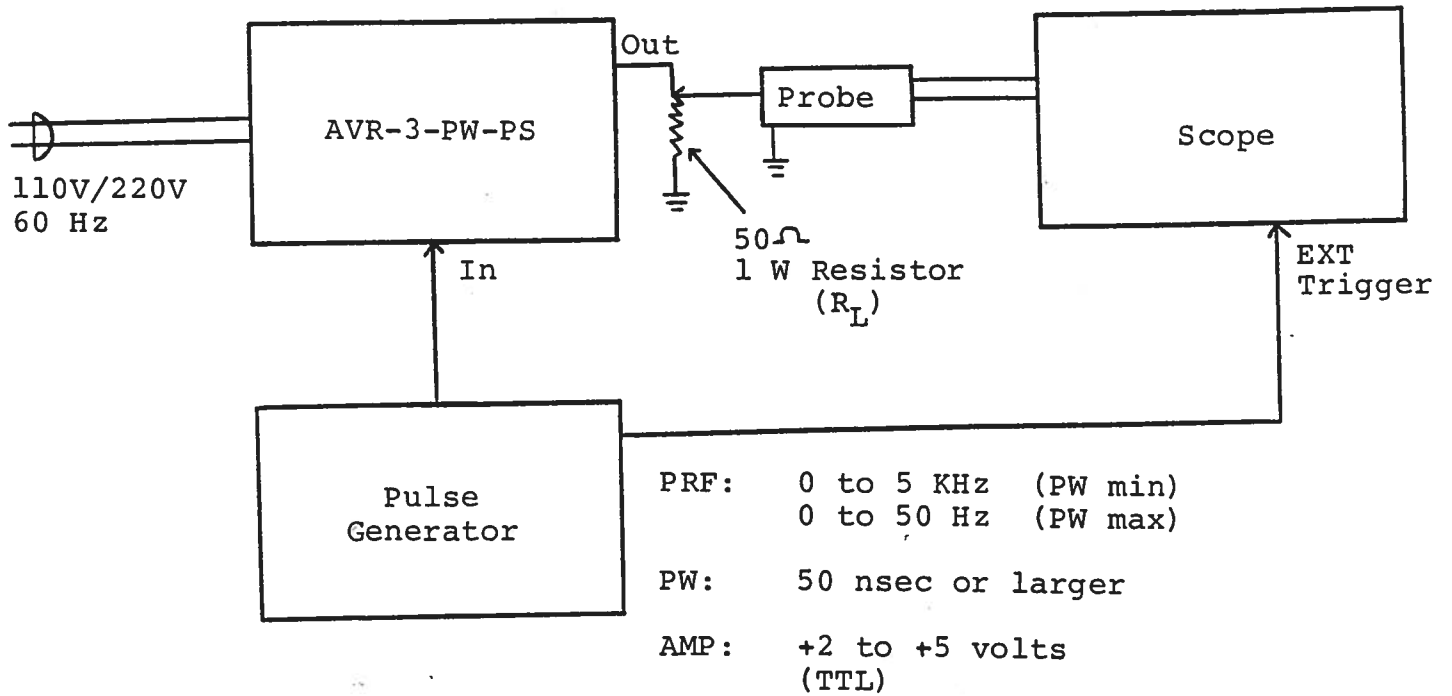INSTRUCTIONS

MODEL AVR-3-PW-PS PULSE GENERATOR

S.N.:

WARRANTY

Avtech Electrosystems Ltd. warrants products of its
manufacture to be free from defects in material and
workmanship under conditions of normal use. If, within one
year after delivery to the original owner, and after prepaid
return by the original owner, this Avtech product is found to
be defective, Avtech shall at its option repair or replace
said defective item. This warranty does not apply to units
which have been dissembled, modified or subjected to
conditions exceeding the applicable specifications or
ratings. This warranty is the extent of the obligation or
liability assumed by Avtech with respect to this product and
no other warranty or guarantee is either expressed or implied.

A.

PRF: 0 to 5 KHz   (PW min)
            0 to 50 Hz   (PW max)

PW: 50 nsec or larger

AMP: +2 to +5 volts
            (TTL)

GENERAL OPERATING INSTRUCTIONS

1) The equipment should be connected in the general fashion shown above. Since the AVR unit provides an output pulse rise time as low as 10 nsec a fast oscilloscope (at least 50 MHz and preferably 200 MHz) should be used to display the waveform. Also, if a load of other than 50 ohm is employed, the length of coaxial cable between the AVR unit and the load should not exceed about 5 feet or the output waveform may be degraded by the resulting reflections.

2) The output PRF is equal to the input trigger pulse PRF.

3) When the MODE A-B switch is in the A position, the output pulse width is controlled by the one turn PW control and the 3 position range switch as follows. The max allowable PRF for each range is also shown:

	PW	PRF
RANGE 1	0.1 usec to 1.0 usec	5 KHz
RANGE 2	1.0 usec to 10 usec	5 KHz to 500 Hz
RANGE 3	10 usec to 100 usec	500 Hz to 50 Hz

4) To voltage control the output pulse width within each range, set the rear panel switch in the EXT position and apply 0 to +10 Volts between terminal A and ground ($R_{IN} \geqslant$ 10K). (option).

5) When the MODE A-B switch is in the B position, the output pulse width equals the input trigger pulse width.

6) The output pulse amplitude is controlled by means of the front panel one turn AMP control. To voltage control the output amplitude, set the rear panel switch in the EXT position and apply 0 to +10 Volts between terminal A and ground ($R_{IN} \geqslant$ 10K). (option).

7) CAUTION: The maximum PRF, PW or duty cycle conditions must not be exceeded. Under simultaneous conditions of wide pulse width, high PRF and high load current, the bias voltage applied to the output power stage decreases and as a result the attainable output peak voltage decreases to less than 200 volts. Under conditions of severe loading the output stage may be damaged. The output switching elements can be replaced following the procedure given in the following section.

8) OVERLOAD INDICATOR. AVR-3-PW-C units with a serial number higher than 5600 are protected by an automatic overload protective circuit which controls the front

panel overload light. If the unit is overloaded (by operating at an exceedingly high duty cycle or by operating into a short circuit), the protective circuit will turn the output of the instrument OFF and turn the indicator light ON. The light will stay ON (i.e. output OFF) for about 5 seconds after which the instrument will attempt to turn ON (i.e. light OFF) for about 1 second. If the overload condition persists, the instrument will turn OFF again (i.e. light ON) for another 5 seconds. If the overload condition has been removed, the instrument will turn on and resume normal operation. Overload conditions may be removed by:
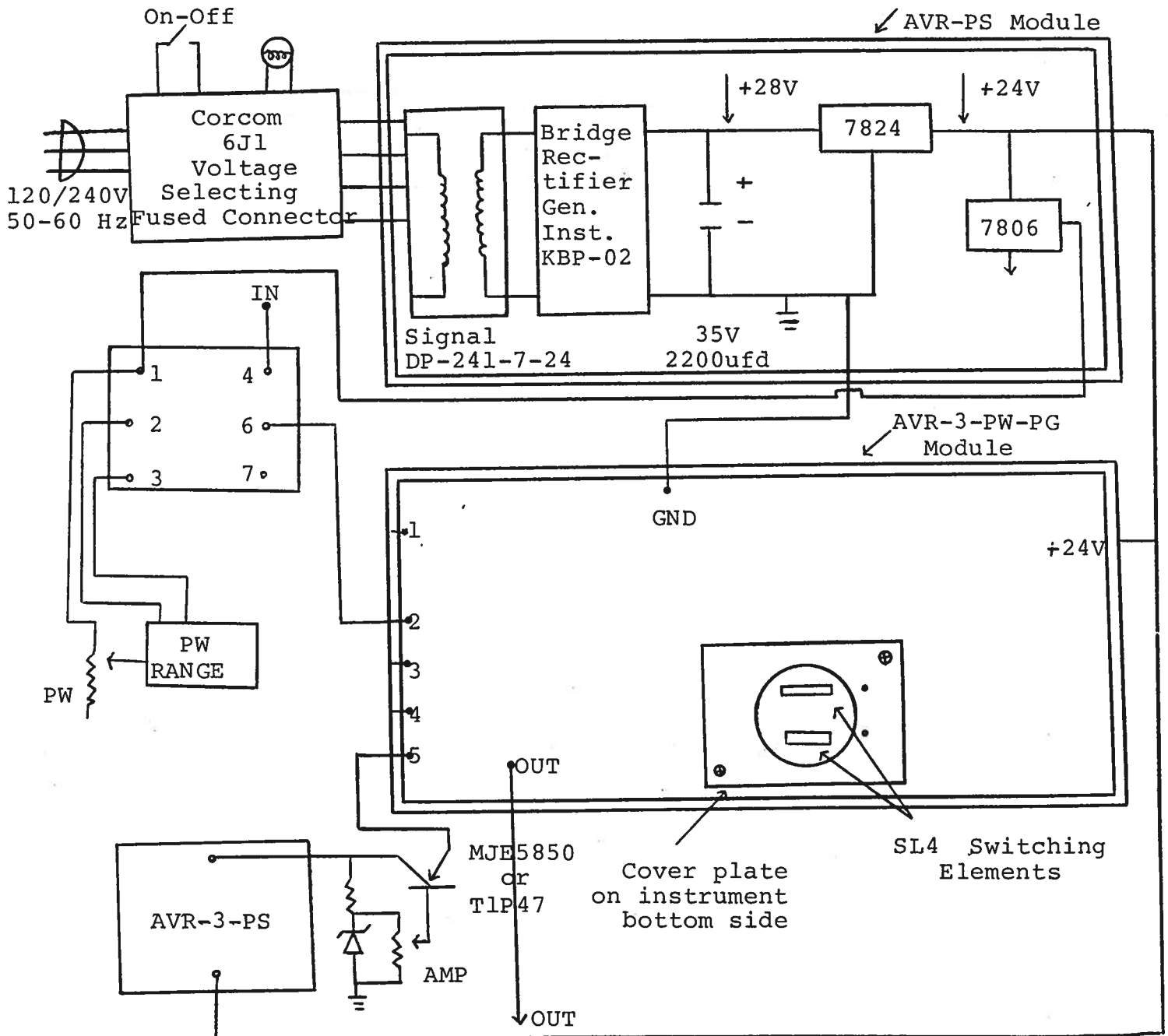
1) Reducing PRF (i.e. switch to a lower range)
2) Reducing pulse width (i.e. switch to a lower range)
3) Removing output load short circuit (if any)

9) The AVR unit can be converted from 110 to 220V 50-60 Hz operation by adjusting the voltage selector card in the rear panel fused voltage selector-cable connector assembly.

10) For additional assistance:

Tel: 1-800-265-6681
Fax: 613-226-2802

C.

SYSTEM BLOCK DIAGRAM AND REPAIR PROCEDURE

(NON EA & EW UNITS)

On-Off

AVR-PS Module

120/240V
50-60 Hz

Corcom
6J1
Voltage
Selecting
Fused Connector

Signal
DP-241-7-24

Bridge
Rectifier
Gen.
Inst.
KBP-02

+28V

+24V

7824

+

−

7806

35V
2200ufd

IN

1   4

2   6

3   7

GND

AVR-3-PW-PG
Module

PW
RANGE

PW

1

2

3

4

5

+24V

OUT

SL4 Switching
Elements

AVR-3-PS

MJE5850
or
TIP47

AMP

Cover plate
on instrument
bottom side

OUT

1)   The AVR unit consists of five basic components or
     modules:

     a) Metal chassis
     b) AC to DC power supply board
     c) AVR-3-PG pulse generator module
     d) AVR-3-PS power supply module (no EA, EW units only)
     e) AVR-3-PW pulse width control module (no EA, EW units
         only)
     f) AVR-3-EA-EW-PS control module (EA, EW units only)

     The modules are interconnected as shown above.

2)   If the unit malfunctions, disconnect from the 60 Hz
     supply and the trigger source and remove the four
     Phillips screws on the back panel of the unit. With the
     screws removed, the top cover may be slid off.

3)   Reconnect to the 60 Hz source and check the voltage on
     the line connecting the AVR-PS output to the +24 V pin
     of the AVR-PG module. A voltage of +24 volts should be
     recorded. If the voltage is substantially less than +24
     volts, disconnect the 60 Hz source and disconnect the
     line from the +24 volt pin. Connect a 50 ohm 8 watt
     resistance to the output of the AVR-PS module.
     Reconnect to the 60 Hz source and measure the voltage
     across this resistor. A voltage of +24 volts should be
     indicated. If the voltage is substantially less than 24
     volts the AVR-PS module is defective and should be
     either repaired or replaced. If the measured voltage is
     equal to +24 volts then the SL4 switching elements in
     the AVR-PG module have probably failed. The SL4
     switching elements are easily replaced by removing the
     cover plate on the instrument bottom side and extracting
     the SL4 switching elements from their sockets using a
     pair of needle nose pliers. Before attempting this
     first insure that the prime power is off and also
     briefly ground the metal tabs on the SL4 elements to the
     chassis as the bypass capacitors may be charged to 225
     volts. Replacement SL4 units must be ordered directly
     from Avtech. When reinstalling the SL4 units in their
     sockets, insure that the shortest of the three terminals
     is adjacent to the black dot on the AVR-PG chassis.

Schroff   12.04.92   Edition B

- EW
- EA