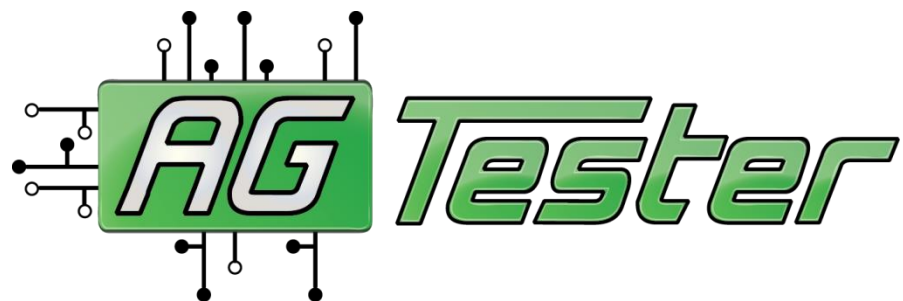


# PWM1000 Operating Manual

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100% of the product design, manufacturing and support is done in the USA, mostly at our base of operations in rural, Venedocia, Ohio. Please contact us at [agtester.com](http://agtester.com) for any support needs. Thanks!! John C. Dignan Founder and Senior Engineer Ag-Tester

# PWM1000 How it Works

The PWM 1000 is a “Long Use” PWM Drive Controller for any PWM Valve.



PWM Control Valves are used on all types of machines where the speed of a shaft is controlled by hydraulics. They provide very smooth adjustable control of shaft speed.

The PWM1000 can be used to control pwm hydraulic drive motors for testing and maintenance of sprayers, spreaders, planters and other agricultural machinery. Sprayers can be set to a specific pressure allowing tests of nozzles and other spray components while checking the maximum capacities of pumping systems. Planters can be run at low speeds to allow components to be checked and lubricated. NO NEED to set up the complex displays associated with

the application equipment.

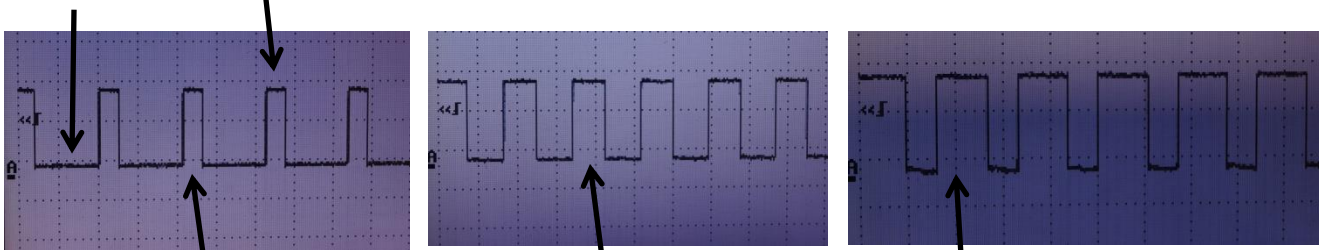
## PWM Valves- PWM means “pulse width modulated”.

Modulate means, to change. PWM valves are closed when there is no signal. The valve then begins to open as pulses are applied, so the valve is effectively opening and closing with each pulse. The control signal voltage is turning on and off at a rate of about 100 times per second or 100Hz. Applying a constant 12 volts to the PWM valve coil will run the valve at full speed.

An oscilloscope image shows the pulse width changing. The percentage of time ON is called the DUTY CYCLE.



ZERO VOLTS- 11 VOLTS- Drive Voltage changes from Zero to Eleven Volts, 100 times per second



ON about 25 percent of the time    ON about 50 percent of the time    ON about 70 percent of the time

PWM Valves are two wire valves and look a lot like solenoid valves. Many PWM valves reach full output at 55% drive.

It’s important to remember the hydraulic response can be instant. Always engage the PWM drive at a minimum pulse width. This allows the hydraulic system to smoothly respond.

# PWM1000 Operation



Connect the PWM1000 directly to the hydraulic drive motor and engage the hydraulic system. Turn the PWM1000 function switch from "OFF" to "Test/ SET". The green, "Valve Coil Detected" indicator comes on when the valve is connected.

The operator then depresses the "PUSH TO SET" switch and begins dialing up the "ADJUST DRIVE" control. When the PWM drive becomes active, the "PULSE CATCHER" begins to blink. This is the "minimum drive". Adjust the drive control

until the hydraulic motor is running at the desired speed.

Then, turn the function switch to "RUN". The hydraulic motor will continue to run at the speed set until switched off of "RUN". The internal battery is capable of running the PWM control valve for as long as 3 to 4 hours. Recharge after each use.

The PWM1000 can be charged while in use. Use only the charger supplied with the unit.

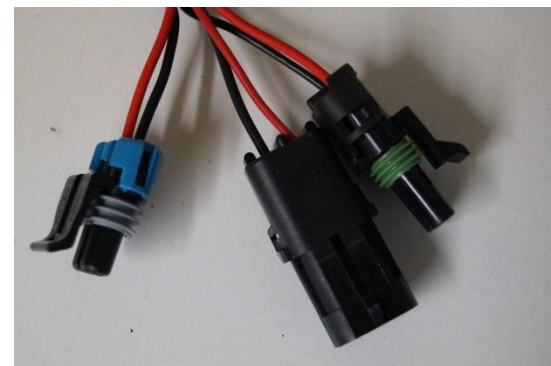
The PWM1000 ships complete in its' Pelican case with Battery, Charger, and 6 foot valve cable.



The connector is a 2 pin Deutsch DT.

This can be easily adapted to match any valve.

Adapters available at [agttester.com](http://agttester.com) or make your own.



# Warranty

The PWM1000 is fully warranted against any failures related to parts, components and labor for a period of one year from the time of purchase by the end user.

If you do experience a problem please contact us at [agtester.com](http://agtester.com) or give us a call at 419-667-4008. Our address for shipping is:

Ag-Tester

18629 Jones Road

Venedocia, Ohio 45887

If service is required under warranty the user is responsible for shipping the unit to us. We will repair at no charge and return by UPS ground at our expense.

We expect your total satisfaction.

Please visit [agtester.com](http://agtester.com) for accessories for the PWM1000 and take a minute to view our other testing products.

The HT101V is a Hand-Held Tester designed to interface with control valves.

The HT101S is a Hand-Held Tester which interfaces with sensors used on machines.

The CT1000 Cable Testing System allows cable harnesses to be tested while “in place” on the machine or implement.

Videos available at [Ag-Tester.com](http://Ag-Tester.com)

Thanks for your purchase!

*John Dignan      Founder and Senior Engineer      Ag-Tester*