

## EPAS500 User Guide

This guide will help you install and operate the DC Electronics EPAS500 electric power steering system.



Products shown:

- 1x EPAS500M MGU
- 1x EPAS500E ECU
- 1x EPAS500H Wiring Harness

### Electrical Connection

The EPAS500H wiring harness is supplied with a built in protection fuse (40 amps) and also a fault warning LED. Upon power up, the LED will illuminate and then switch off when the system is ready for use. Should a fault be present then the LED will pulse a repeating pattern. Should this occur, contact your supplier for assistance.

Three electrical connections are required:

Red wire – Battery +12v

Black wire – Battery negative

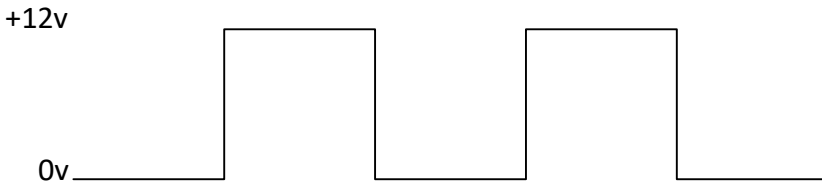
White wire – ignition switched +12v

The white 3 pin connector on the harness is used to connect a speed input or one of our tuning accessories such as the rotary switch module or tuning box. The connector is wired as follows:

1. +12v – White
2. Speed Signal – Blue
3. Ground – Black

Pins 1 and 3 are outputs to power the device such as the rotary switch module.

If you wish to simply connect a speed input from another device then a 0 to 225Hz square wave signal should be connected where 0 Mph = 0 Hz and 60Mph = 225Hz. The signal mark to space ratio should be 50:50 with an amplitude of +12v – see example below:

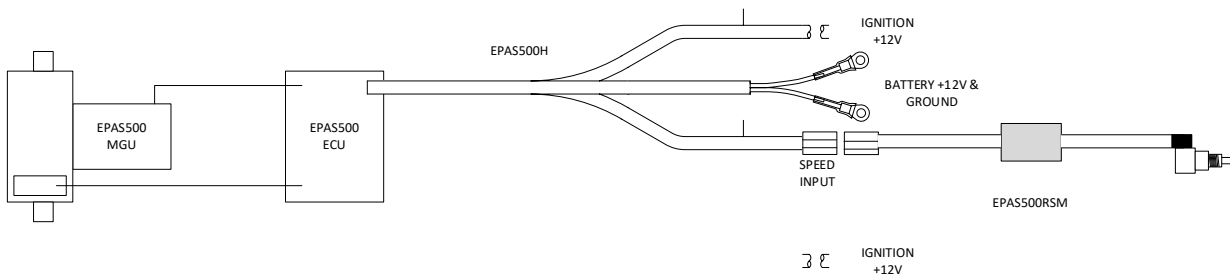


If no devices are connected to the speed input connector the unit will operate at maximum assistance at all times.

## Tuning Accessories.

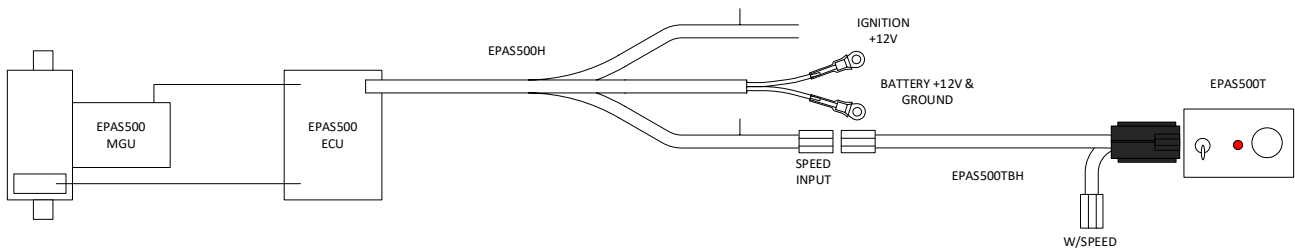
### Manual Adjust

If you wish to adjust the level of steering assistance then the EPAS500RSM rotary switch module can be added. This device simply plugs into the 3 pin white speed input connector on the EPAS500 wiring harness. Turning the knob fully to the left will place the steering at its heaviest setting. Turning the knob to the right will gradually increase the level of assistance until maximum assist is reached when the knob is fully turned to the right.



### Speed Sensitive With Manual Override

If you wish to make the system speed sensitive with the option of a manual override then the EPAS500T tuning box with EPAS500TBH wiring harness should be added. The EPAS500TBH harness includes another speed input connector where a hall effect NPN type wheelspeed sensor can be plugged in or a speed signal from another device can be added. The connector is wired in the same way as the speed input connector on the EPAS500H harness and the signal type should also be as described earlier in the guide.



The Tuning Box has been specifically designed to allow you to swap between manual or wheel speed modes whilst on the move. Please note that switching from wheel speed to manual mode at high speed could result in very light steering depending upon the position of the potentiometer.

**TAKE CARE WHILST SWITCHING MODES ON THE MOVE!**

## OPERATION: MANUAL MODE

A small mode selection toggle switch is fitted to the Tuning Box. Middle position is wheel speed mode, the momentary position against the keyway to the top of the box is calibration mode and the latched position opposite the keyway is manual mode.

Move the mode switch to the downward position. The system is now ready for testing. Ensure the vehicle is on the ground with the wheels fitted and the potentiometer turned fully to the left. Turn on the ignition, the red LED in the EPAS500H wiring harness near the ECU and also the status LED on the tuning box will flash once. Turn the steering wheel and you should have minimal power assistance and the LED on the tuning box will be unlit.. Turning the potentiometer to the right will increase the level of assistance available and the status LED on the Tuning Box will become brighter as assistance increases.

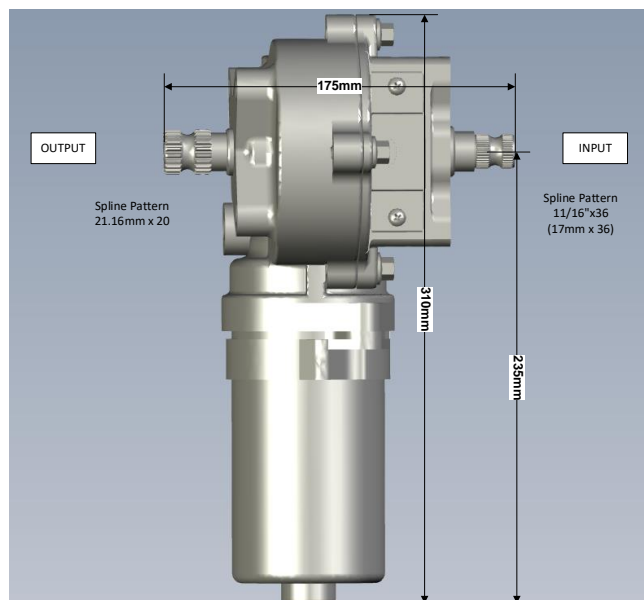
## OPERATION: WHEEL SPEED MODE

Ensure a wheel speed signal or sensor is connected to the wheel speed connector and the ignition is off.

- Hold the mode switch in the calibration position(upward).
- Start the engine.
- Release the calibration switch. The red status LED on the Tuning Box will now flash (at this point steering assistance is at its minimum setting).
- Drive the vehicle until you feel the weight of steering is comfortable. Briefly flick the mode switch back up to the calibration position and release. This sets the Calibration Speed.
- Above the Calibration Speed, assistance is minimal and the status LED is unlit.
- Below the Calibration Speed, assistance will gradually increase from minimum at the Calibration Speed to maximum when the vehicle is stationary – the status LED will get brighter as the level of assistance increases.
- If you feel you need more assistance at a lower speed, simply repeat the above procedure and move the calibration point to a higher speed.
- The Calibration procedure only needs doing once and the program will be retained when the power is switched off.

## Mechanical Installation

The MGU is designed to be fitted anywhere between the steering wheel and the steering rack/box by cutting out a section of the steering column and inserting the MGU inline with the use of splined adapters (available separately) four x tapped mounting holes are provided on the input face and three on the output face to allow the connection of your own fabricated mounting bracket that best suits your installation. It is very important that the face with the four mounting holes points towards the driver or the unit will not function!



When installing the MGU, the motor itself can be pointed in any direction to best avoid any existing components such as heater hoses etc.

The EPAS500E should be mounted in a position close enough for the two cables from the MGU to easily plug in and it should be placed in an area away from any direct sources of heat (such as exhaust headers if mounted in an engine compartment).

There are two connections to the MGU and two connections to the EPAS500H wiring harness. Each connector is different so they can not be connected in the wrong positions. When making the connections firmly push each connector home until a click is heard as each connectors lock engages

Please contact your system supplier if you wish to purchase spare parts or additional items such as splines adapters and wheelspeed sensors.

### Optional Accessories

EPAS200SC (For Input Spline)	Microsteer Straight Coupler
EPAS200UJ (For Input Spline)	Microsteer Universal Joint
EPAS500SC (For Output Spline)	Output Straight Coupler
EPAS500UJ (For Output Spline)	Output Universal Joint
EPAS500RSM	Rotary Switch Module
EPAS500TBH	Tuning Box Harness
EPAS500T	Tuning Box
EPAS200W	Microsteer Speed Sensor



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