



## EPAS PRO RACE USER GUIDE

<b>Data Sheet</b>	<b>2</b>
Modes of Operation	2
Basic Dimensions	3
<b>Installation Guide</b>	<b>4</b>
Mechanical Installation: Pro Column	4
Mechanical Installation: Pro MGU	5
Mechanical Installation Pro Race ECU	6
Electrical Installation Pro Race Wiring Harness	6
Calibration of Torque Sensor Before Use	7

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## EPAS PRO RACE DATA SHEET

The EPAS Pro Race steering system is designed to be an entry level electric power assisted steering system for competition/off highway use only.



EPAS100  
MGU



EPAS104  
Pro Race ECU

The system comprises the following components:

- EPAS100 Pro MGU or EPAS102 Pro Column
- EPAS104 Pro Race ECU
- EPAS106 Pro Race Wiring Harness

The same MGU and column from the Pro Street range is used allowing you to upgrade to a race spec if required.

### MODE OF OPERATION

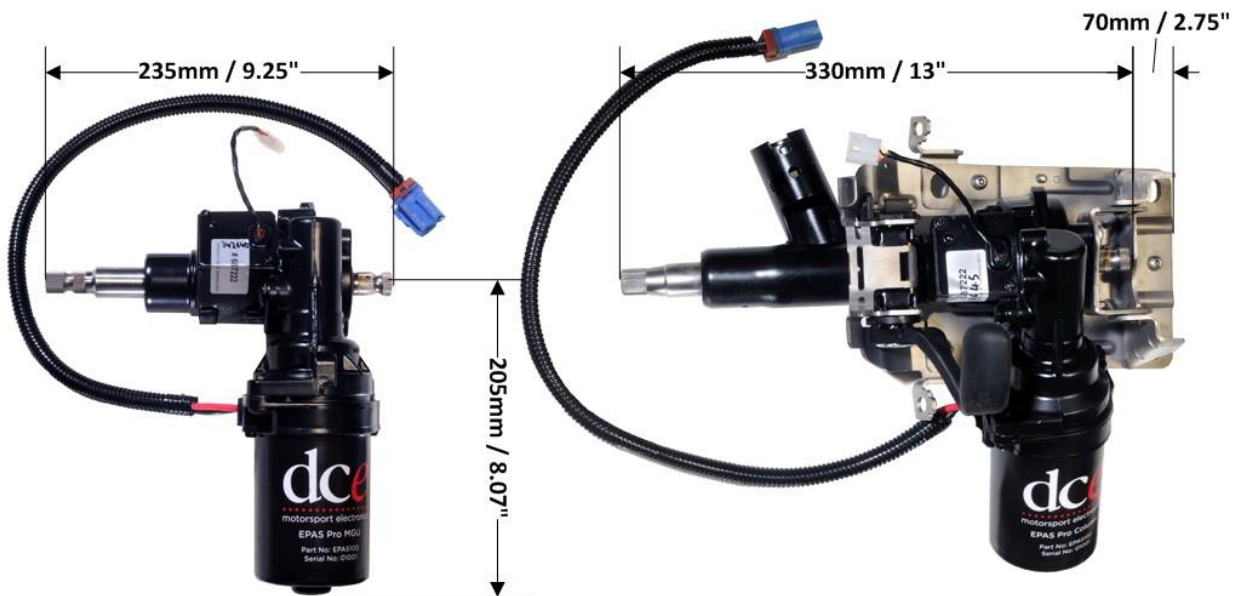
The MGU is installed inline between the steering wheel and the steering rack. The internal torque sensor detects the amount of driver steering input and then engages the electric motor to assist.

The wiring harness comes complete with a 6-position rotary control (off and 5 levels of assistance) fixed by factory set maps.

PRO RACE SYSTEM TECHNICAL SPECIFICATION	
Operating Voltage:	Nominal 13.8V DC
Maximum current draw:	70 Amps
Average current draw:	Circuit dependent
System Weight: MGU & ECU	5.7kg / 12.56 lbs.
System Weight: Column & ECU	7.9Kg / 17.41 lbs.
Maximum Torque Output:	90NM / 66lb ft.
No Load Rotation Speed:	900 degrees per second

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## BASIC DIMENSIONS



### EPAS100 Pro MGU

Shortened motor/gearbox to go in line with the existing steering column

### EPAS102 Pro Column

Complete height adjustable steering column

Both motor units are made using re-manufactured parts to produce a high quality, OE Standard Aftermarket Product. The Pro Race ECU and wiring harness are produced from new materials.

## INSTALLATION GUIDE

# PLEASE READ BEFORE ATTEMPTING INSTALLATION

The steering system of a vehicle is a safety critical component and modification of this system should only be carried out by a competent professional after having fully read this guide first.

- The system should be installed within the vehicle cabin away from heat and moisture.
- Ensure the unit is adequately mounted – a torsional force of up to 120NM/90 lb. ft. can easily be generated by the steering system and driver!
- **DO NOT** weld upon any part of the Pro Street Column or MGU – delicate electronics are contained within the unit that will be damaged by this process!

### MECHANICAL INSTALLATION – PRO COLUMN

The Pro column is height adjustable and is designed to be a complete replacement steering column and comes complete with a universal mounting bracket.

The Pro column is not suitable as a replacement for vehicles that require any controls to pass along the inside of the steering column.



4 x elongated M12 mounting holes are provided in the universal mounting bracket and should be used to secure the steering column to the chassis.

A suitable steering wheel boss such as Momo 12115117218 should be used to secure the steering wheel to the column and the output spline is 16.5mm x 36 – various spline adaptors and the steering wheel boss are available from DCE at an additional cost.

OPTIONAL ACCESSORIES	
Part No.	Description
EPAS114	Output Universal Joint
EPAS116	Input Universal Joint (EPAS100 only)
EPAS118	Input Straight Coupler (EPAS100 only)
EPAS122	Steering Wheel Boss (EPAS102 only)
EPAS124	Steering Wheel Nut (EPAS102 only)

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## MECHANICAL INSTALLATION – PRO MGU



The MGU is designed to be fitted in line with the existing steering column by removing a section of column and inserting the MGU in its place.

The MGU is not suitable for vehicles that require any controls to pass along the inside of the steering column.

The MGU can be mounted via the front or rear 2 x M8 mounting holes. A suitable bracket should be fabricated to mount the MGU with the motor orientation that best suits your application.

Both mounting holes are not “blind” and over length bolts will **foul the internal gear and cause damage.**

The input Spline is 5/8-36 and the output is 16.5mm-36. Various spline adaptors are available from DCE at an additional cost to join the MGU to your existing steering column.

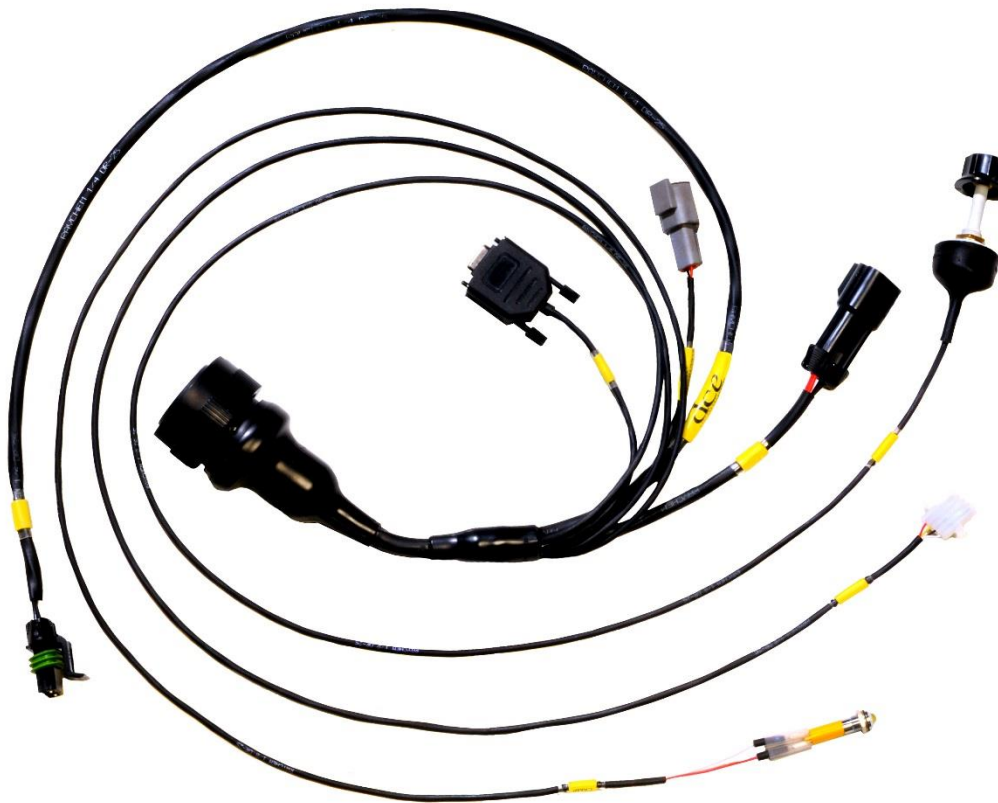
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## MECHANICAL INSTALLATION – Pro Race ECU

The Pro Race ECU is splash proof but should be mounted in an area where exposure to water is minimal and no external heat sources such as the engine or exhaust system can affect the ECU.

Whenever possible a custom-made cradle with anti-vibration mounts would be the best mounting solution.

## ELECTRICAL INSTALLATION – Pro Race Wiring Harness



EPAS106 Pro Race Wiring Harness

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1. Connect 4 pin connector marked "TORQUE" to the motor assembly.
  2. Connect 2 pin connector marked "MOTOR" to the motor assembly.
  3. Connect 2 pin connector marked "HIGH POWER" to vehicles power supply pin A to +12v, pin B to chassis ground – use a minimum cable size of 8Awg and protect with a 70amp fuse or circuit breaker.
  4. Connect 2 pin connector marked "ELECTRONICS +12V" to an ignition switched +12v supply. Pin 1 to +12v and pin 2 to chassis ground (current draw will be less than 1 amp)
  5. Find suitable location for rotary switch and mount.
  6. Fit LED to loom (Red cable to Gold pin, White cable to Silver pin).

FAILURE TO COMPLY WITH THE ABOVE INSTRUCTIONS **WILL** DAMAGE THE CONTROL UNIT AND WILL VOID ANY WARRANTY.

### **TORQUE SENSOR CALIBRATION**

Before using the system, the torque sensor will need to be calibrated. Do not attempt to hold the steering wheel whilst doing this, or the settings will become corrupted and the steering will not function correctly.

- Set rotary switch fully counter clockwise.
- Switch on "ELECTRONICS +12V" until the yellow LED lights up. Immediately switch off and then back on until LED lights again.
- Continue to do this 3 more times until on the 4<sup>th</sup> time the LED lights and then flashes rapidly, this is the calibration phase.
- The LED will extinguish at the end of calibration. At this point the system is ready for use.

Calibration only needs to be carried out once at installation as the settings will be retained even when power is removed.

With the rotary switch fully counter-clockwise the steering assistance is switched off. Turning 1 click to the right will give you 20% assistance. Continue clicking through the remaining settings until the fully right position gives you 100% assistance.