

## **2018 – > S550 and S650 Ford Mustang GT and Darkhorse 1500HP Fuel Module**





## Important! Must Read First

Congratulations on the purchase of a KPM Fuel System for your [2018 - 2023 S550 and 24 - > S650 Mustang GT and Darkhorse](#)

To ensure your fuel system is fitted correctly and operates perfectly and reliably we advise that this kit is fitted by a KPM Fuel Systems Dealer workshop.

If you are unable to access a KPM Fuel Systems dealer, we **strongly** recommend a professional and experienced fully qualified technician to install your new fuel system. Ask your qualified installer to contact KPM Fuel Systems on any aspect not clear in the instructions provided.

Email: [support@kpmfuelsystems.com](mailto:support@kpmfuelsystems.com)

As a wide variety of skills, procedures, special tools, and workshop equipment is needed to install this kit:

- KPM will take NO responsibility or give NO guarantees on the operation of this product for fitment not carried out by a KPM Fuel Systems dealer or experienced qualified technician.
- KPM will take NO responsibility or give NO guarantees on the operation of this product due to not fitting this kit exactly as per the instructions provided.
- Ensure correct workshop safety procedures are carried out in fitment of this kit.
- Please read **ALL** instructions before commencing fitment.

## Guarantee

On satisfaction that ALL instructions have been followed as per this document KPM will warrant this KPM Fuel System against any defects or faults for 12 months from the date of purchase.



## Important

This fuel system is engineered to operate perfectly as a complete system, when used with all components as supplied only by KPM Fuel Systems.

Depending on the level of KPM Fuel System you have purchased, included in the kit will be the following;

- 1) KPM Fuel Module x 1 – Primary (for increased flow and capacity)
  - 2) KPM Plug and Play Wiring/relay kit (for correct and reliable current supply)
- KPM Fuel Systems will take NO responsibility for the operation of this fuel system if any of the components listed are not utilized with this package.
  - KPM Fuel Systems will take NO responsibility for the operation of this fuel system if any of the components listed are replaced with a non-KPM approved component.
  - KPM will take NO responsibility for the operation of this fuel system if used on a vehicle NOT fully retrofitted for E85 Ethanol or flex fuel.

**Note: E85 Ethanol is highly corrosive on many components.**

Please be aware that if your car is NOT built for E85 Ethanol from manufacturer, it may be possible that components NOT supplied by KPM Fuel Systems will also need to be replaced or suited for E85 Ethanol. Examples of some possible non-compatible components - are fuel injectors, fuel filters, fuel lines, rubber hoses, fittings etc.

**All KPM Fuel System components are 100% Ethanol and Gasoline compatible.**

## Calibration Notes

Now that the OE fuel pump driver module is no longer controlling the fuel pump the PCM will produce one or more DTC's that will need to be switched off in the engine calibration. The typical code will be P0627 Fuel pump A control circuit/open but depending on vehicle year model there may be others. This is completely normal operation of this system.



## **Before Dismantling**

- You will need to reduce residual fuel pressure in the fuel system to 0 kPa to enable disconnection of fuel lines.
- You can do this by removing the fuel pump fuse and running the engine until fuel pressure drops to 0 kPa.
- Disconnect the Battery.

## **Standard Fuel Module Removal**

- 1) Drain the fuel tank.
- 2) Mustang GT- the fuel module can be accessed by a rubber grommet cover under the LH rear seat. Carefully remove the fuel lines from the fuel module (a quick disconnect tool is recommended for disconnecting fuel lines, take extra care in not crimping/damaging the fuel line on removal).
- 3) Remove the electrical connector from the fuel module.
- 4) Unscrew the retaining ring holding the fuel module to the tank with the correct tool.
- 5) Lift the fuel module from the tank until you can access and remove the crossover pipe connector at the base of the canister.
- 6) Carefully lift the fuel module completely from the fuel tank.

## Fitting kit revision 130525

If you have part #MUSXPIPEADAPT in your fitting kit “as pictured below” **USE THIS PART.**



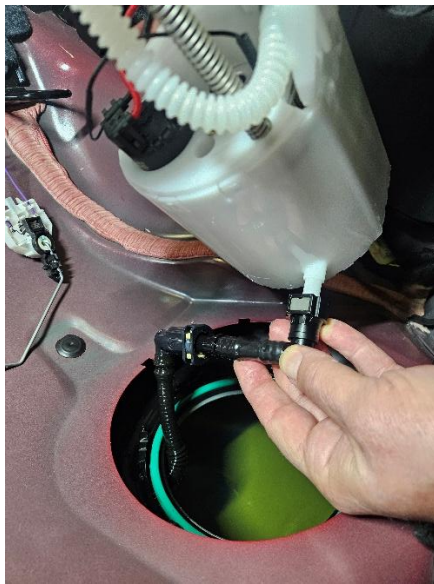
The right angle quick connect fitting “as pictured below” and ear clamp can be disregarded.



## KPM Primary Fuel Module Fitment 1500HP

You will need to remove the fuel sender unit from the standard fuel module for fitment to the upgraded KPM Fuel Module.

- 1) Attach the fuel tank crossover connector #MUSXPIPEADAPT to the fuel module canister.



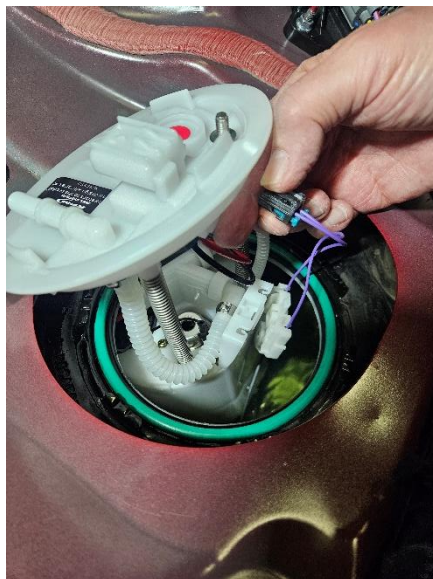
- 2) Carefully lower the fuel module into the fuel tank.



- 3) With the fuel pump module sitting in the tank, slide it toward the rear of the opening to allow access for the sender unit to be placed in.



- 4) Lower sender unit into available space alongside the bracket.



- 5) Plug the sender unit connector into the lid next to the fuel pump connector and then slide the sender unit base up the bracket and clip into position. Ensure wires are clipped into bracket.



- 6) Ensure tank O ring and sealing surfaces are clean of debris. Compress fuel pump module lid and attach retaining ring. Use suitable tool to lock retaining ring.
- 7) Re fit fuel line and electrical connector and positive and negative terminals to lid on MUS6 harness as shown below.



- 8) Continue on to Wiring fitment on next page.

## Wiring/Relay Fitment (Schematic Diagram Attached)

### IMPORTANT INFORMATION

Due to the two Bosch Racing fuel pumps fitted to the KPM1500 HP fuel module, the vehicles Fuel Pump Control Module (FPCM) is bypassed with this wiring kit. This is due to the fuel pumps drawing an increased amperage much higher than the (FPCM) is designed for. Should you want to retain the OE fuel pressures and control that the (FPCM) offers, you will need the additional KPM PWM Fuel Control Module kit. **Part # MUSPWWIRE1500-18-LHD**

- 1) Remove the RHF wheel.
- 2) Remove the RHF inner fender trim by removing the 5 hold down clips



- 3) Remove the RH front seat.

- 4) Remove the RH inner sill panel trimming.



- 5) Pull back the RH footwell carpet



- 6) Remove the rear seat base.
- 7) Remove the black Anderson connector surround from the #Mus11 wiring loom end.
- 8) From under the hood and using a tracer wire/tool, feed the #Mus11 wiring loom through the hole above the RH chassis rail area, below the battery and out the hole into the RH inner fender cavity area.



- 9) Pull most of the #Mus11 wiring loom through the chassis hole onto the ground, while leaving enough length under the hood to comfortably connect the other end to the battery.
- 10) Mount the new relay and fuse section in the battery box area in an appropriate position to clear the battery.
- 11) Carry out connections for the relay and fuel pump module as per schematic diagram below.
- 12) Make a small incision into the rubber grommet located in the inner fender cavity and feed the #Mus11 wiring loom through the rubber grommet into the RH footwell and floor area.

- 13) You may need to lubricate the wiring loom with some silicone spray to ensure it slides through the grommet easily.



- 14) Continue to route the #Mus11 loom from the footwell along the RH sill panel channel finishing at the RH rear seat floor area.
- 15) Remove the grey Anderson connector surround from the #Mus6 fuel module loom section.
- 16) Make an incision to the rubber grommet at the LH rear seat floor and feed the fuel pump #Mus6 wiring loom connectors through the hole in the grommet.
- 17) Route the Anderson connector end of the #Mus6 wiring section across the rear seat floor towards the #Mus11 wiring section end at the RH rear floor.
- 18) Refit the grey Anderson connector surround to the #Mus6 cable end.
- 19) Refit the black Anderson connector surround to the #Mus11 cable end.
- 20) Connect the #Mus6 grey Anderson connector to the #Mus11 black Anderson connector.
- 21) Connect the #Mus11 and #Mus6 Deutsch single-pin connectors
- 22) At the fuel module connect the eyelet of the supplied wiring kit to the module earth terminal stud. Secure tightly.
- 23) Connect the female connector to the fuel module and the male connector to the factory wiring.



24) Neatly secure all the wiring as required with cable ties or similar.

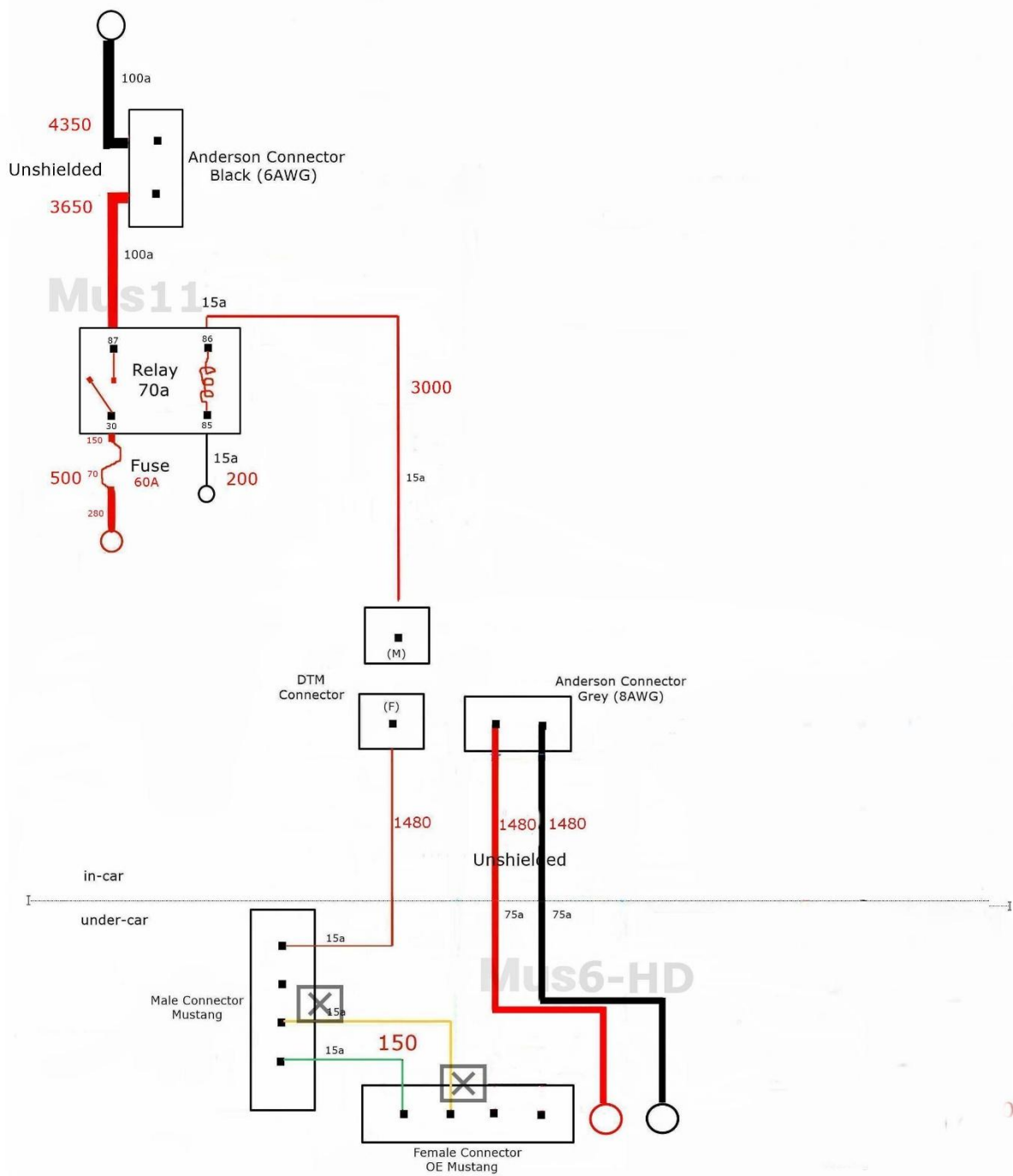
25) Refit your carpet, sill panel and footwell trimming.

26) Refit the RH front seat.

27) Refit the RHF inner fender panel and RHF wheel.

## #MUSWIRE1500 -LHD

Mustang GT 2015-2023  
Wiring Schematics





## Engine start up

- 1) Refit the fuel pump fuse.
- 2) Reconnect your battery.
- 3) Ensure you have at least ½ tank of correct clean/fresh fuel.
- 4) Connect a fuel pressure gauge to the supply line at the fuel rail or read your fuel pressure on you scan tool.
- 5) Prime fuel system and start engine.
- 6) Check all fittings at pump and fuel rail for NO leaks.
- 7) Check pressures are within specifications below.

**If not within the specifications below, you will need to check for correct fitment and take the normal course of diagnosis to rectify before proceeding.**

### **Fuel Pressure engine idling 81-84 PSI**

- 8) Stop engine and relieve fuel pressure.
- 9) Remove fuel pressure gauge and refit fuel line.
- 10) Re-start engine and check for NO leaks.
- 11) Refit large rubber grommet and rear seat base.

As we test every module before it is shipped, we have operating pressures recorded for each specific part number.

### **KPMMUS1500**

**Idle Pressure Max Pressure 81-84 PSI**

**Full Load Pressure (Min Pressure) 50 PSI**

## IMPORTANT INFORMATION

As these pressures are the base operating pressure in the testing station, they can be used directly into the vehicle's calibration.

However, as we have found minor variances from vehicle to vehicle, it is recommended to manually check pressures on vehicle when able to do so. Preferably at the fuel rail and use observed pressure, to populate tables in the calibration. Which should be the same or extremely close to testing pressure.

All KPM fuel modules listed have been manufactured and designed to run at the listed pressures at idle and light cruise. They have also been designed to **decrease** the fuel pressure while applying engine load for **increased** fuel demand. This is how the system is designed to perform and is absolutely what you will expect to see while logging fuel pressures on road or dyno.

All KPM Fuel Modules are designed to perfectly supply fuel down to a minimum pressure of 51 PSI at full demand for its power rating.

KPM Fuel Systems strongly recommends that you have your engine tune checked by a professional tuning workshop!

Depending on the previous fuel system your vehicle has been tuned to, your car may run differently with the new KPM Fuel System pressure and extra supply.

This can cause rich or lean fuel mixtures and possibly be detrimental to your engine!

It is your responsibility to have your vehicle checked and/or re-tuned by specialist methods to ensure correct fueling and engine safety and reliability.

It is your responsibility to have your vehicle checked and/or re-tuned by specialist methods to ensure any fault codes in the vehicles electronic management system/s are corrected.