

Table of Contents

Included Parts	Page 2
Important Notes	Page 3
Suggested Tools	Page 3
Assembling the X2 Module	Page 4
Fuel Tank Modifications	Page 11
Installing the X2 Module	Page 13
DW X2 Module Wiring	Page 14

Included Parts:

- Billet Aluminum X2 Module (Hanger, Bucket, and Tophat)
- DW420 420 LPH Fuel Pumps (x2) *"421" PN# Only*
- DW420 Pump Electrical Connectors (x2)
- Convoluted Tube 8" x 5/16" (x2)
- Convoluted Tube 4" x 5/16"
- Convoluted Tube 8" x 3/8"
- Convoluted Tube 6" x 1/4"
- Convoluted Tube 40" x 5/16"
- Rubber One Way Check Valves (x3)
- DW420 Pump Pre-Filters (x3)
- 13mm Pinch Hose Clamp (x5)
- 11mm Pinch Hose Clamp (x6)
- 8mm Pinch Hose Clamp (x3)
- 12-10awg #10 Ring Terminals (x3)
- 16-14awg #10 Ring Terminals (x4)
- 22-18awg #10 Ring Terminals (x4)
- Fuel Level Sensor (x2)
- Zip Tie (x4)

PLEASE READ: This guide is intended to aid in the installation of our products. It is recommended that factory manuals or instructions are followed to remove the fuel pump assembly from the vehicle. Instructions in this guide are generic and are intended to aid in the installation of the X2 DW420 pump module. The factory manual should supersede any contradiction.

Important Notes: The DeatschWerks BMW 3-Series X2 module adds a surge bucket feature, this helps fight fuel slosh issues. The X2 module also adds a modern style pump mounted venturi siphon system to replace the old return fed style BMW used on the E36 and E46 chassis. This upgrade requires slight modifications to the OEM fuel tank.

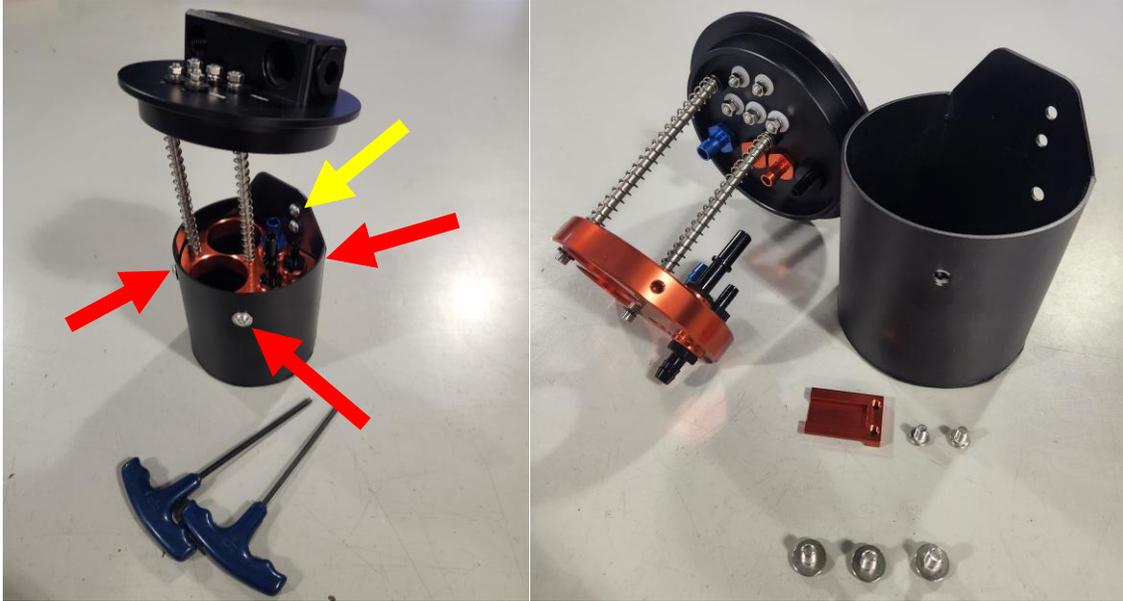
Note: This module is designed to fit the E36 and E46 BMW 3-Series applications, due to crossover model years, M-Series and import/export models the year ranges listed are for US applications, please research your exact application first.

Below are some of the suggested tools that will make the installation process easier.



Assembly of the X2 Module

1 – Using a 3mm and 4mm Allen tool remove the fuel level sensor bracket and the three M6 bolts that hold the bucket to the rest of the X-series module.

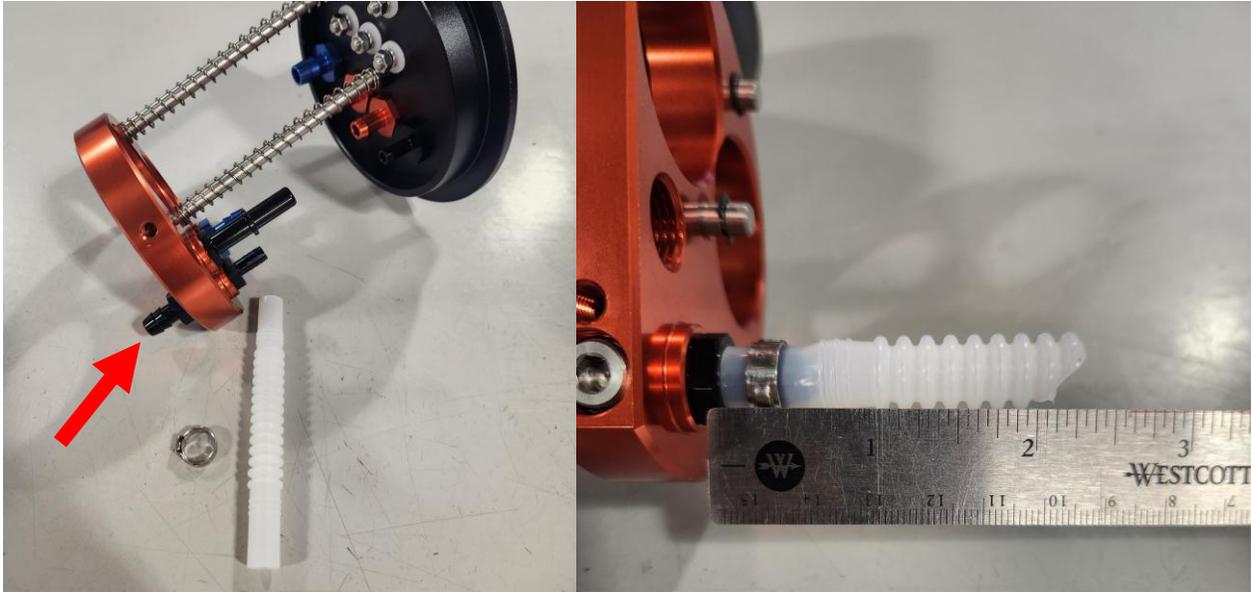


2 – Locate the three rubber one way check valves and install them into the X-series surge bucket. They install from the inside, the nub on the valve goes through the center hole in the pattern cut on the bucket.

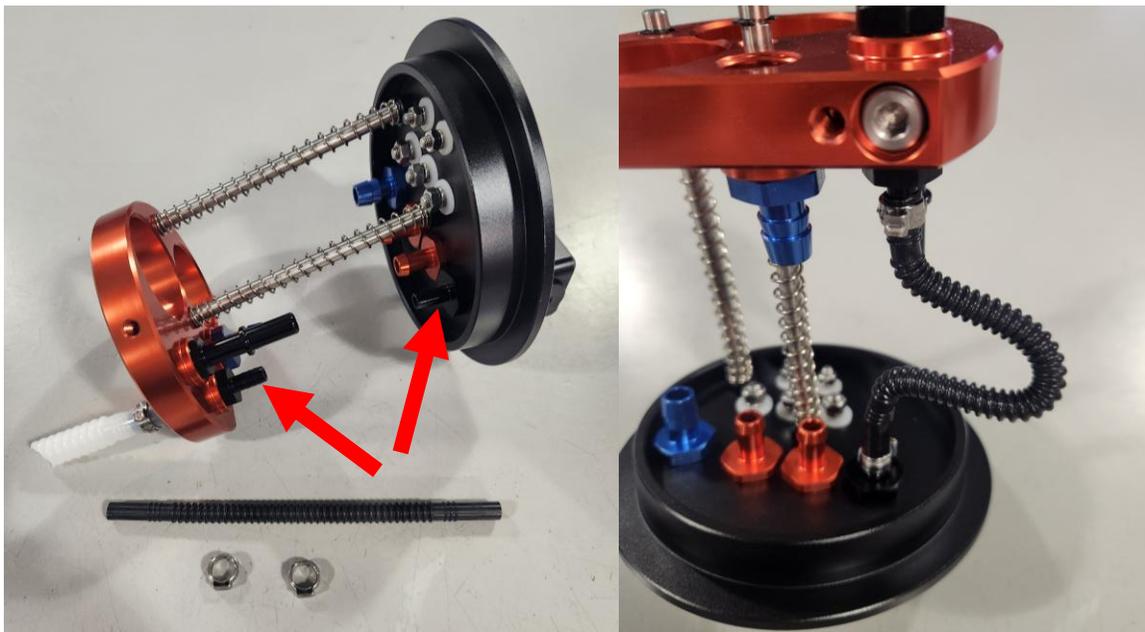


1992-2006 BMW 3-Series X2 Module Installation Guide

3 – Locate the 4" (100mm) x 5/16" (8mm) convoluted tubing and one of the 11mm hose clamps. Install onto the black hose barb on the bottom side of the orange pump holder and secure it with the clamp. This tube needs to be a specific length for the venturi siphon system. Cut the hose at 2.25" long (57mm).



4 – Next find the included 6" (150mm) x 1/4" (6mm) convoluted tube and two of the 8mm hose clamps. Install the hose on the two black 1/4" (6mm) hose bars on the top of the orange pump holder and bottom of the X-series module tophat, this feeds the venturi siphon system.

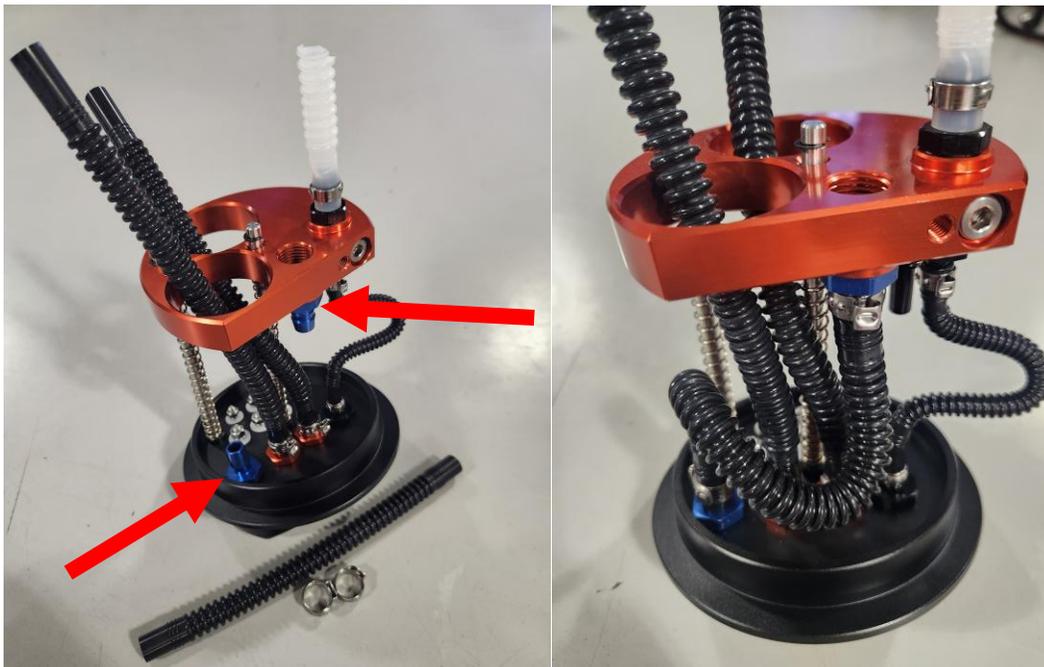


1992-2006 BMW 3-Series X2 Module Installation Guide

5 – Locate the two 8" (200mm) x 5/16" (8mm) convoluted tubes and two of the 13mm pinch clamps. Install the hoses on the two orange barb fittings on the bottom side of the module tophat. Secure them with the clamps.

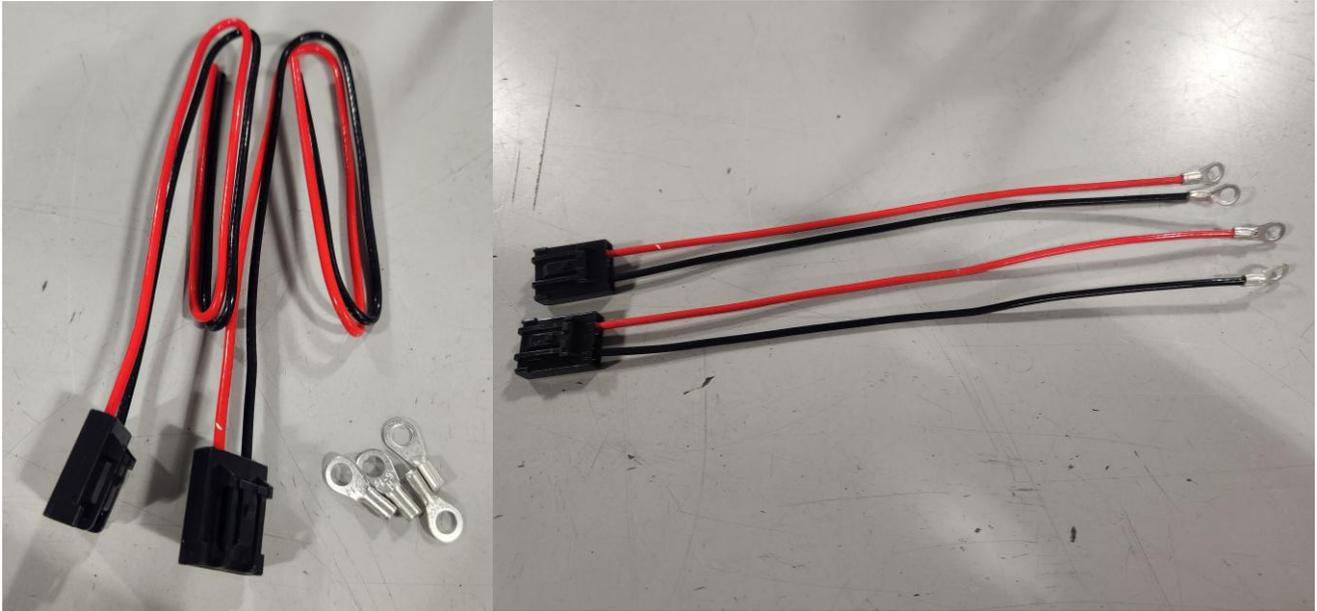


6 – Locate the larger 8" (200mm) x 3/8" (10mm) convoluted tube and two of the 13mm pinch clamps. Install the hose on the two blue barb fittings on the bottom side of the module tophat and top of the orange pump holder. Secure them with the clamps.



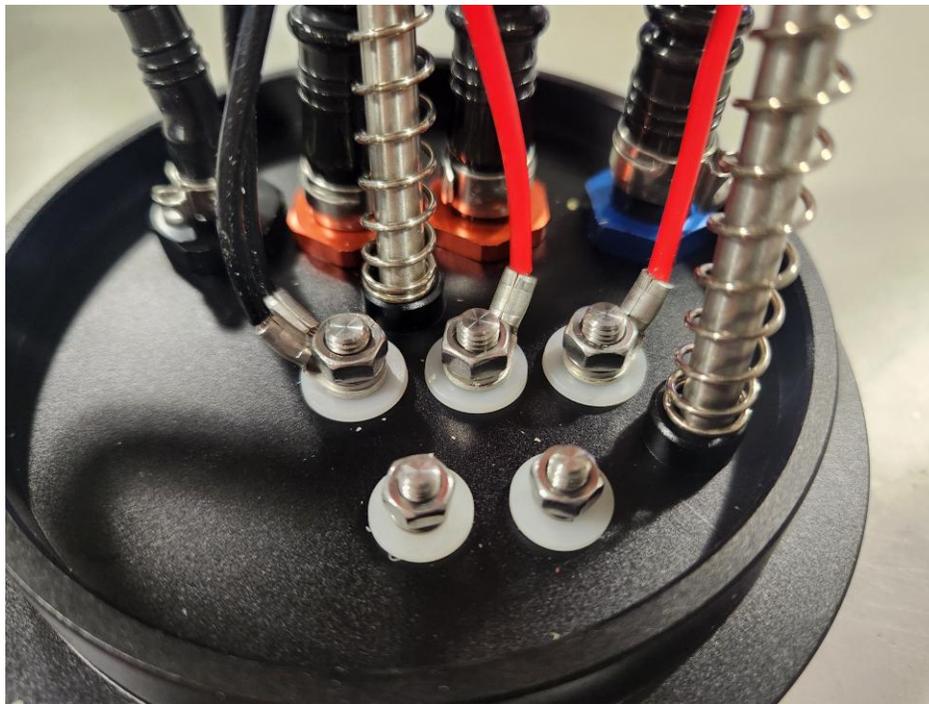
1992-2006 BMW 3-Series X2 Module Installation Guide

7 – Using the two included pump wiring pigtails and the four 16-14awg ring terminals, strip and crimp the ring terminals onto the pigtails. The wiring leads may be shortened to help with installation and aesthetics.



8 – Attach each red wire to the two “Pump +” terminals and both black wires to the single “Pump –” terminal.

Note: Tighten terminal nuts no more than 5ft/lbs. (60 in/lbs.).

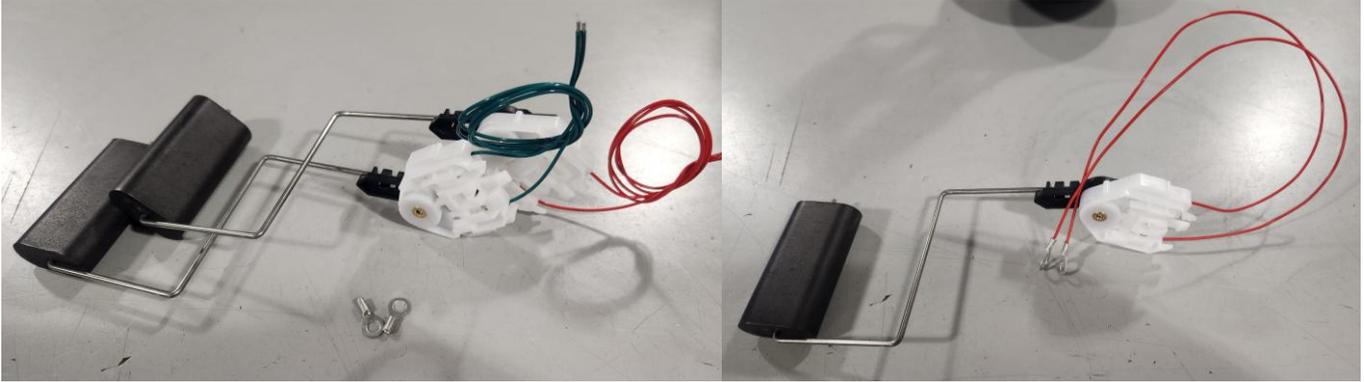


1992-2006 BMW 3-Series X2 Module Installation Guide

9 – Locate the included fuel level sensors and two of the 22-18awg ring terminals. If you are installing this into an E36 chassis you will use the level sensor with the **Red** wiring, and the **Green** wiring if you have an E46. Leave the wiring long on the level sensor, this will help with installation into the tank.

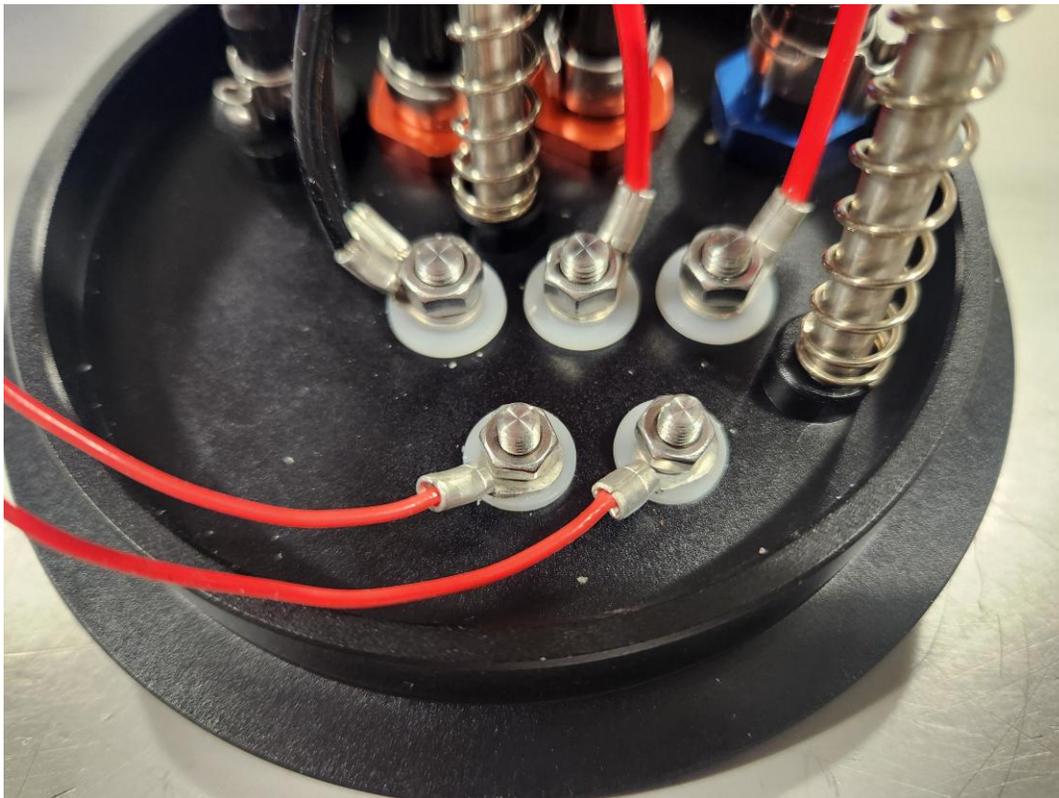
Note: E36 sensor values are approximately 10–260 Ω E/F.

The E46 sensor is approximately 70-395 Ω E/F.



10 – Attach the level sensor wiring to the “Level” positive (+) and negative (–) terminals. Orientation does not matter for the level sensor.

Note: Tighten terminal nuts no more than 4ft/lbs. (50in/lbs.)

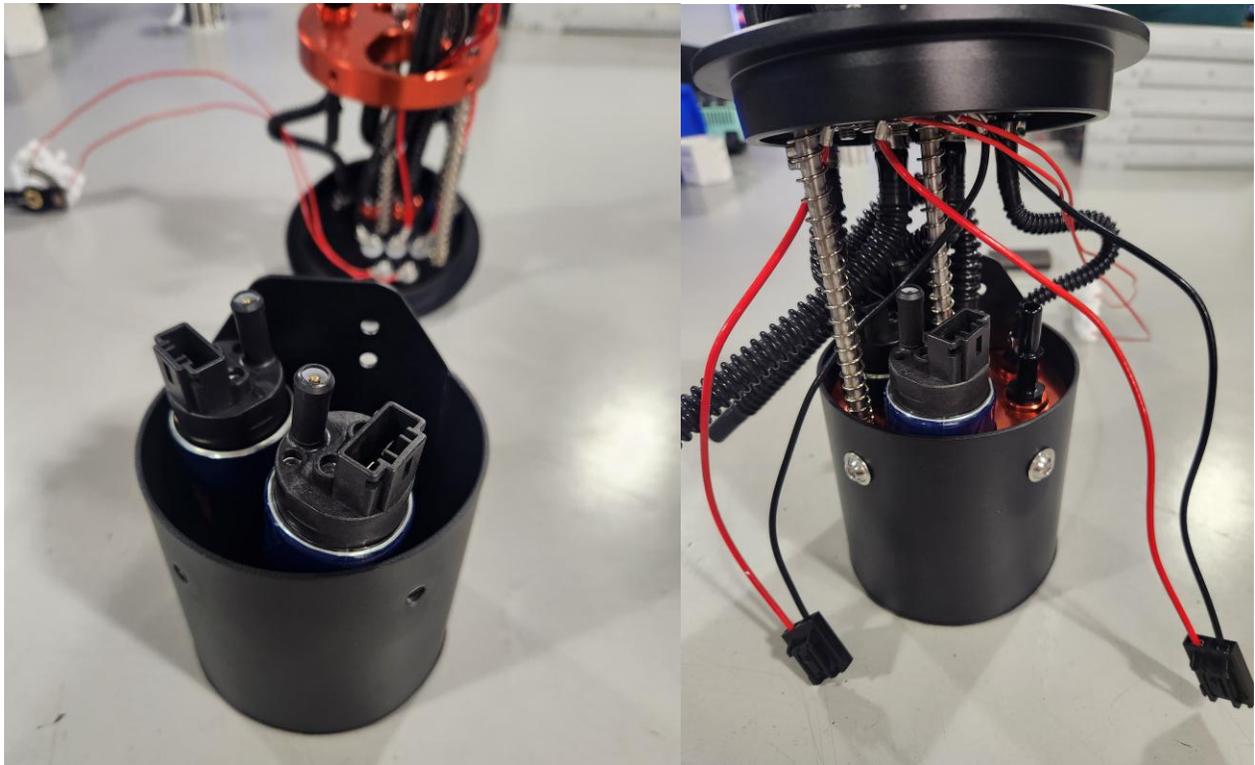


1992-2006 BMW 3-Series X2 Module Installation Guide

11 – Find the included DW420 pumps and filter socks. Attach the filter socks to the pump by aligning the inlet and retention stud into the filter sock and pressing it into place gently.

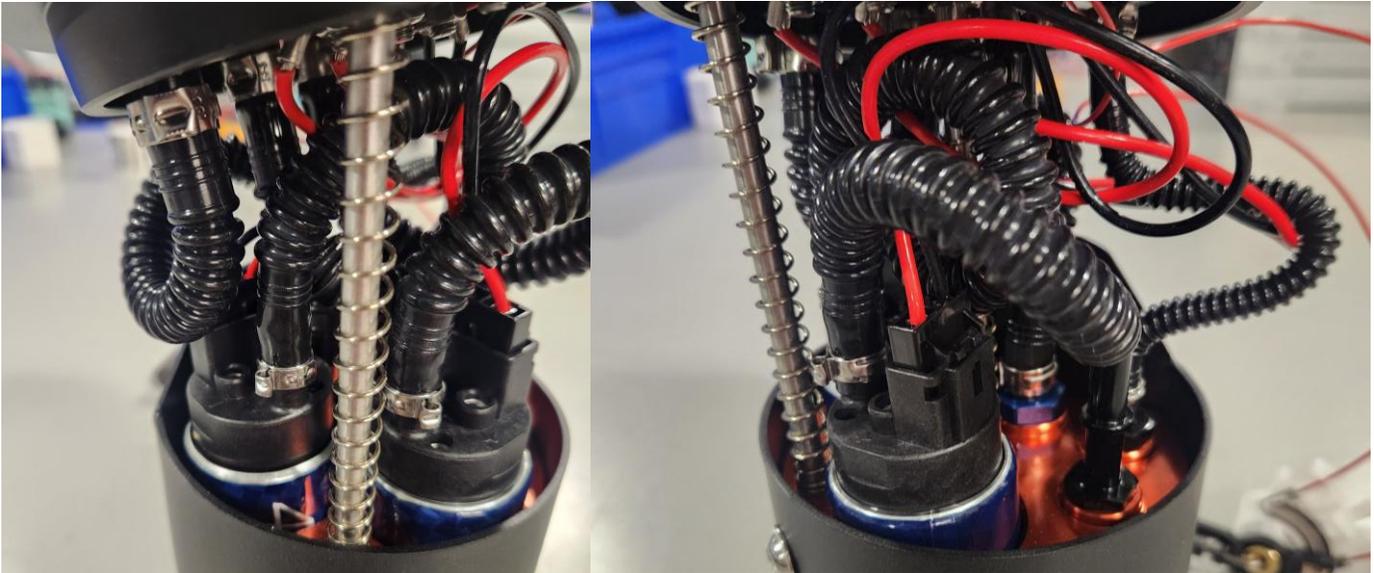


12 – Slide the pumps into the bucket assembly, double check that the filter socks did not knock the rubber check valves from Step 2 out of position. Slide the X-series module tophat and pump holder assembly over the pumps and down into the bucket, secure it in place with the three M6 bolts.

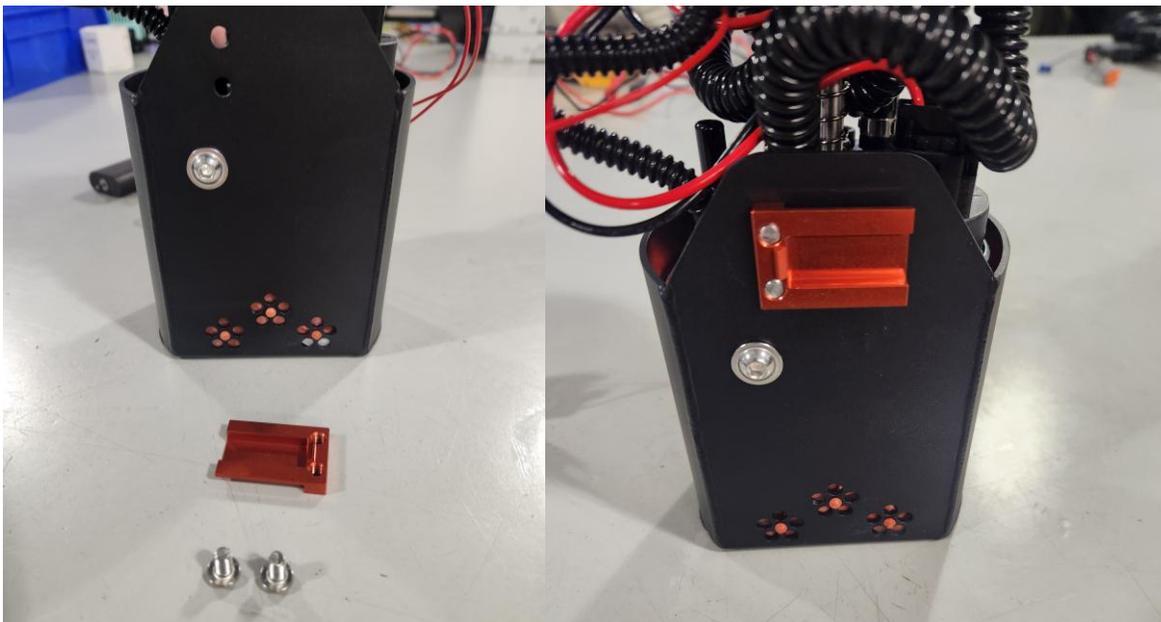


1992-2006 BMW 3-Series X2 Module Installation Guide

13 – Connect the two 5/16" (8mm) hoses to the pumps and secure them with two of the included 11mm hose clamps. Connect the pump connectors to the pumps. Due to the limited size of the BMW fuel pump module, routing of the hoses and wiring may be slightly involved.



14 – Reinstall the fuel level sensor bracket onto the X-series module bucket. There is adjustment room in the bolt holes, make sure the level sensor bracket is level when tightening. If misaligned, you may end up with slightly inaccurate fuel level readings after installation.



1992-2006 BMW 3-Series X2 Module Installation Guide

15 – Included in the X-series module kit is a 40" (1000mm) convoluted tube and a 90-degree plastic female quick connect fitting. Using one of the 11mm hose clamps insert and secure the quick connect fitting into one side of the tube and tighten the clamp.

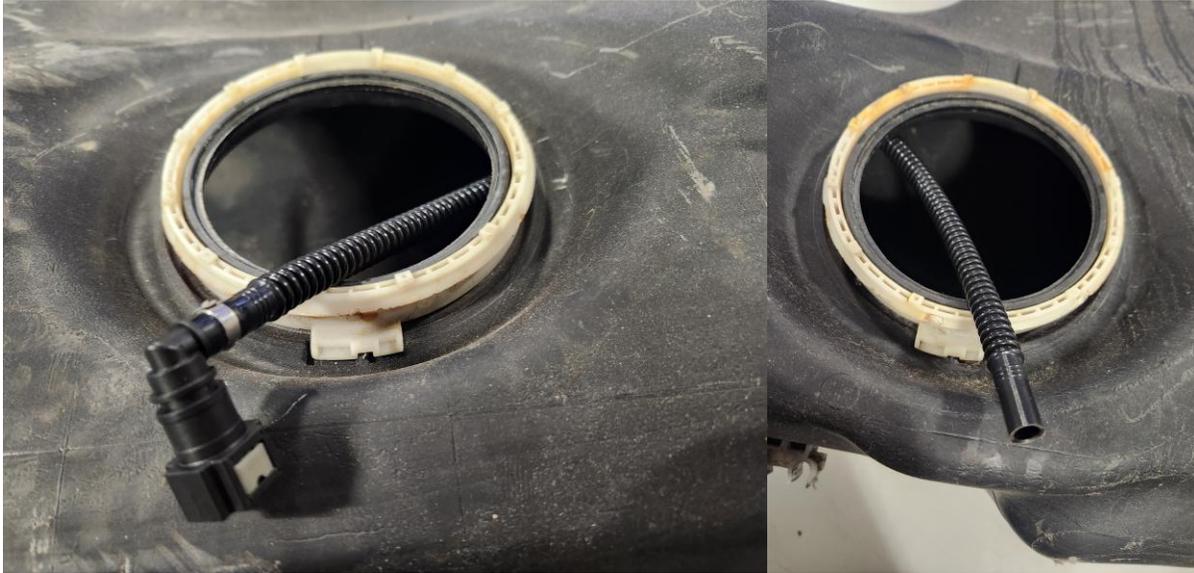
**Fuel Tank Modifications**

16 – The factory slosh protection is insufficient for OEM applications; performance applications exacerbate this issue even more. Inside the fuel tank is a plastic tray that helps keep fuel from sloshing, this tray needs to be removed for the DW X-Series module. OEM they are glued in place and should remove by hand with minimal effort.

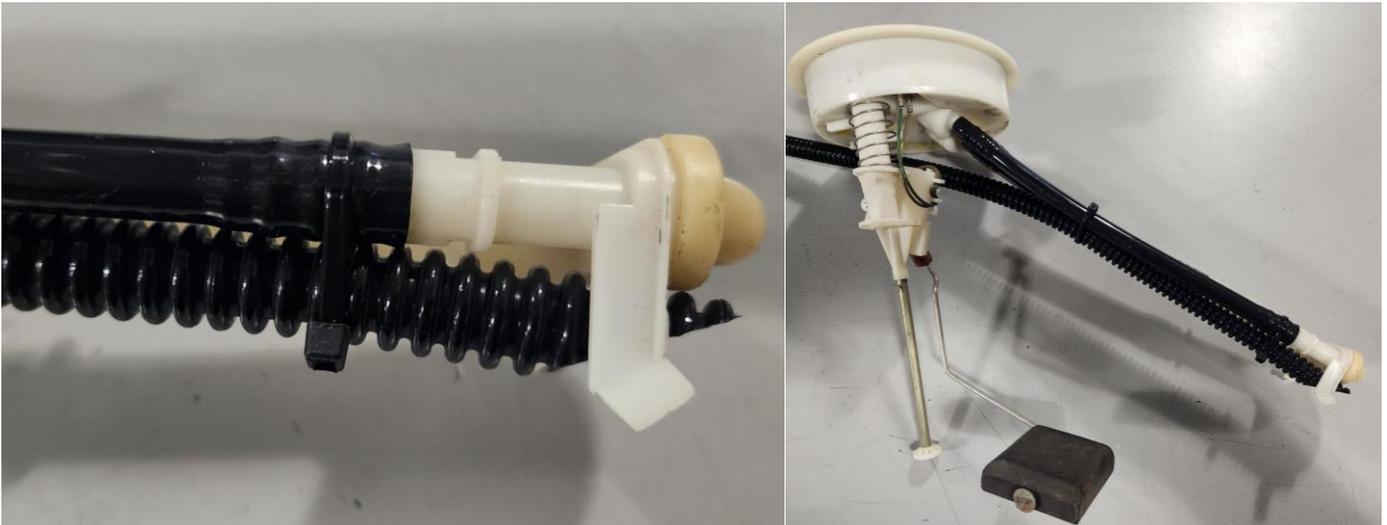


1992-2006 BMW 3-Series X2 Module Installation Guide

17 – Install the new venturi suction hose from Step 15 into the tank. There is a gap in the tank as it passes over the driveshaft, feed the hose over this and into the driver's side.



18– Remove the OEM drivers side fuel level sensor hanger, the E36 and E46 hangers are slightly different. Slash cut the end of the new venturi suction hose at an angle, so it matches the OEM venturi pickup as shown. Using the supplied zip ties attach the new venturi suction hose to the OEM hanger so it is as close as possible to the bottom of the fuel tank, this will allow you to get the highest capacity from your fuel tank as possible.

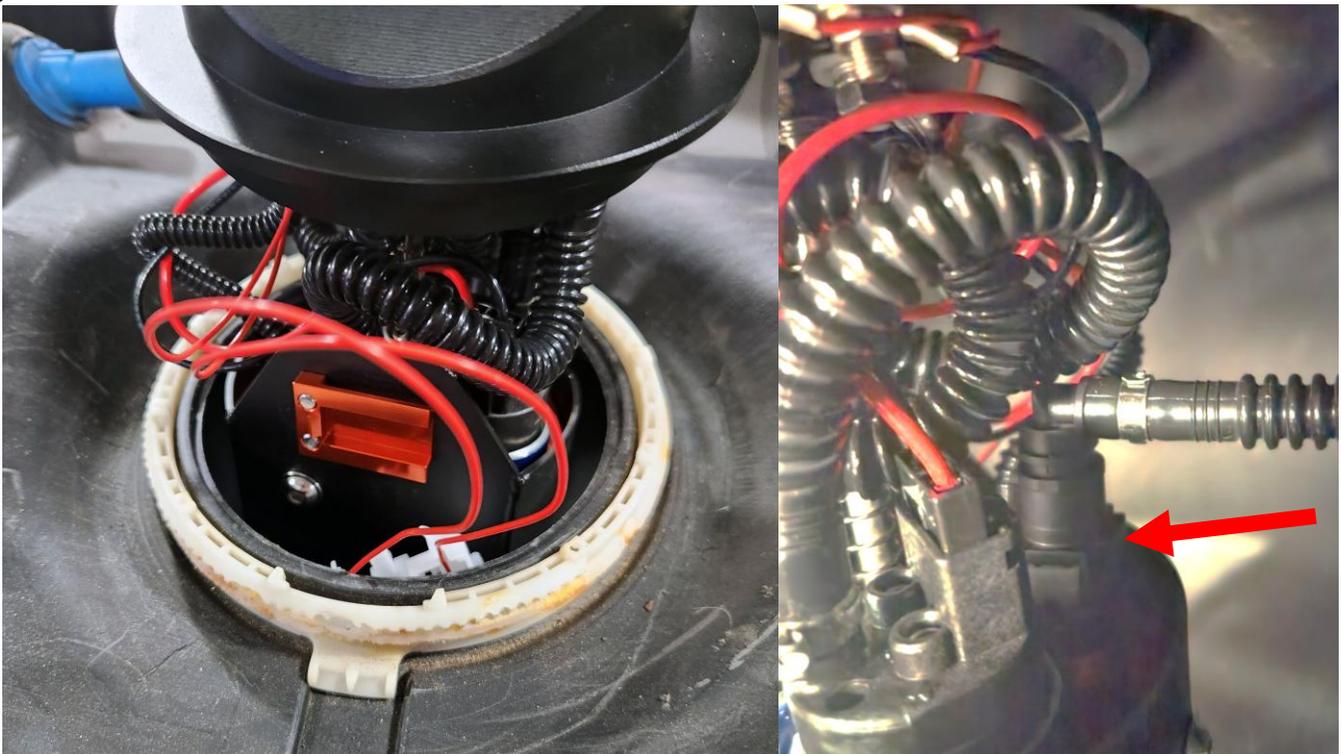
E36 Style Hanger

E46 style Hanger



Installing the X2 Module

19– Due to the limited opening size of the BMW fuel tank, the level sensor will have to be removed and installed into the tank separate of the bucket. Lower the bucket and level sensor into the tank, re-attach the level sensor to the bracket and attach the quick connect fitting from the new venturi suction hose to the black quick connect fitting on the X-series module. Then fully install the module into the tank and tighten the lock ring.



Wiring the X2 Module

1 – The DW X2 Series 3-Series module comes with supplied ring terminals; these are designed for up to 10awg wiring. The level sending unit wires should be connected to the factory level sending unit wires. Due to the increased amperage of aftermarket performance fuel pumps, the OEM pump wiring may be of insufficient size. This can be upgraded with a hardwire kit like the PN# **FPHWK-10-DP** (Fuel Pump Hardwire Kit 10AWG Dual Pump).

The factory fuel pump positive trigger wire is **Green/Purple** or **White/Blue**, this wire should be connected to the Blue wire to trigger the 1st fuel pump relay in the FPHWK.

The factory fuel level sending unit wires are:

<u>Level -</u>	Brown/Black
<u>Level +</u>	Brown/Yellow or Black/Red



For additional technical support please contact us at: TechSupport@Deatschwerks.com or 405.233.3991.