EL System Meter Series

Instruction Manual

Thank you for purchasing this product. Please read this manual to ensure proper usage of this product. Also , be sure to keep this manual in a safe place for future reference. Be sure to include this instruction manual when transferring ownership of this product.

A'PEXi®

A'PEX Chasing Our Dreams - A complete line of customized car and automotive parts developed with state of the art technology and new ideas. Our company is A'PEX which means the highest in quality.

To Begin

■ This instruction manual is intended for the following products.
■ This product CANNOT be used by itself. A separately sold Meter Control Box must be used.

■ Instruction Manual Application Sheet

●Meter Control Unit

Part Name	Product Code	Function
Meter Control Unit	403-A053	Control Meter Operation

●Meter Series

Part Name	Product Code
Boost Meter (Black)	403-A954
Boost Meter (White)	403-A955
Oil Temp Meter (Black)	403-A956
Oil Temp Meter (White)	403-A957
Water Temp Meter (Black)	403-A958
Water Temp Meter (White)	403-A959

Part Name	Product Code
Exhaust Temp Meter (Black)	403-A960
Exhaust Temp Meter (White)	403-A961
Oil Pressure Meter (Black)	403-A962
Oil Pressure Meter (White)	403-A963
Fuel Pressure Meter (Black)	403-A964
Fuel Pressure Meter (White)	403-A965

How to Use this Manual

This manual covers instructions for the entire EL Meter Series. Please refer to the page that corresponds to the unit purchased.

Please use the tabs on the right to find the appropriate section in this manual.

Table of Contents

Safety Precautions

For safe use of this product, be sure to read the Safety Precautions. Keep the manual in a safe place after use for future reference. We have included these warnings to protect the user and dealer from unnecessary harm. These points have been marked throughout this manual by SIGNAL WORDS. Please refer to the table on the left for a glossary of terms meanings.

■ Glossary

Display	Meanings
⚠ WARNING	Failure to do so may result in death or severe injury to the user and others.
⚠ CAUTION	Failure to do so may result in light injury to the user and others. It may also cause product and engine damage.

⚠ WARNING

●Discontinue use of this product immediately if any unusual odor or smoke comes from the unit.

Failure to do so may result in electrical shorts and potential engine fire. Kindly repack ALL the components of this unit in its original packaging and return to your dealer of purchase with the original receipt.

●Always remove the negative terminal of the battery before attempting installation.

Failure to do so may result in electrical fires and engine fire.Never use this product on a vehicle that is NOT listed in the manual.We cannot and will not guarantee proper operation of the unit and vehicle. Also, this may lead to severe accidents and should be avoided.

●Always wire the unit up according to the instruction manual.

Failure to do so may result in electrical fire, improper unit / vehicle operation.

●Never operate this unit while driving.

This may lead to accidents.

●Do not use this product for any other purpose than the one listed in this manual.

We are not responsible for any damages or injuries incurred from improper usage of this product.

⚠ CAUTION

●This product should ONLY be installed by a trained professional installer.

Installation requires past experience to prevent damage to the unit and vehicle. We will not honor any claims arising from improper installation of this unit.

●Never disassemble or tamper with this unit.

Failure to do so may lead to electrical shorts and product damage.

●Do not expose the unit to excessive shock.

Failure to do so may result in product and engine damage.

●Do not use the unit in excessively hot or cold vehicle interiors.

Failure to do so may lead to product and vehicle damage.

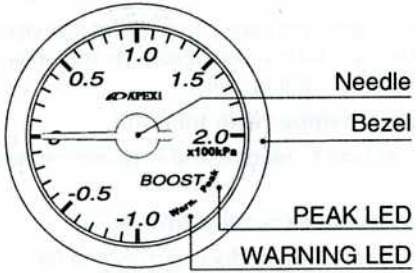
●Keep this unit away from direct water and sunlight.

Failure to do so may result in electrical shorts causing product and vehicle damage.

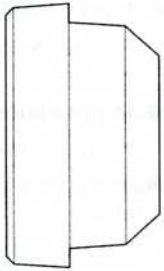
Part Names

■ Meter

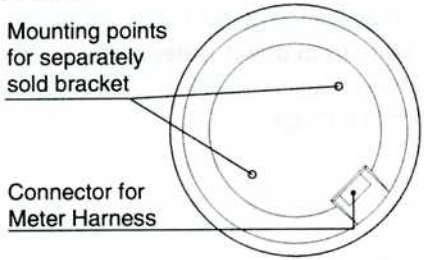
●Front View



●Side View

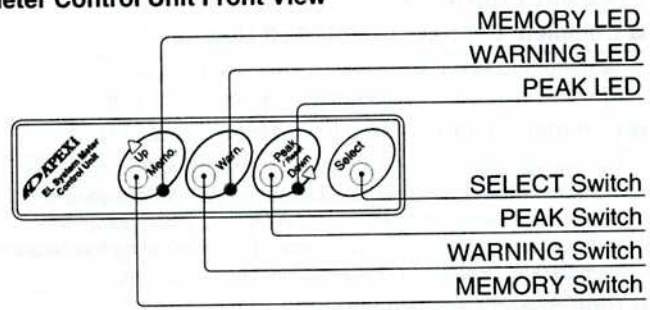


●Back View

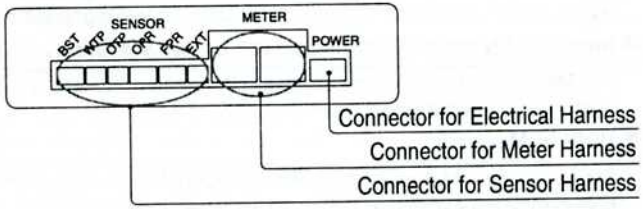


*The diagram above is of the BOOST Meter.

●Meter Control Unit Front View



●Meter Control Unit Back View



●Sensor Harness Connector Glossary

BST-----Boost Sensor
WTP----Water Temp Sensor
OTP---- Oil Temp Sensor
OPR----Oil Pressure Sensor
FPR---- Fuel Pressure Sensor
EXT----Exhaust Temp Sensor

Product Features

■ Complete Central Control of all Meters.

All meter functions including Replay,Peak Hold, and Warning can be controlled by using the separately sold Meter Control Unit.

■ Complete Data Transfer from Meter Control Unit.

The harness connecting the Meter Control Unit to the Meters is made of 3 wires (Power, Ground, and Data) that transfer encoded vital sensor information. Installation of the Meters only requires the harness to be plugged into the Control Unit eliminating the necessity for individual Power and Ground connections per meter.

■ High Speed CPU Processor.

Both the Meter Control Unit and Meters all incorporate a high precision, high speed CPU processor making the EL Meters a true digital system.

■ Improved Needle Illumination for Better Visibility.

The Meter Needle is incorporated into the center hub and is vividly illuminated for maximum visibility.

■ Built in Memory.

The EL System Meters incorporate an internal memory system. This eliminates excessive battery drain when the ignition key is turned OFF. Disconnecting the vehicle battery will not erase the EL System Meter memory settings.

■ Two Modes of Fuel Pressure display when Boost and Fuel Pressure Meters are connected simultaneously to the Meter Control Unit.

User can choose between Fuel Pressure at the Fuel Rail (Actual) and Fuel Pressure at the Injector Nozzle (relative to Boost Pressure) ***This feature can also be deactivated.**

■ 30 Second Memory Playback.

By pressing the MEMORY switch, the Meter will record up to 30 seconds of needle movement. This data can be replayed on the meter at a later time.

■ Peak Hold Function.

By pressing the PEAK HOLD switch, the Meter will display the Peak Hold (highest point of needle movement) value. The Peak Hold Warning LED will also illuminate.

■ Warning Function to Alert the Driver of any Potential Engine Problems.

By setting the WARNING function, the Warning LED will illuminate any time the needle goes beyond the specified setting alerting the driver.

■ EL (Electro Luminescence) Illumination for Excellent Night-time Visibility.

Once again, the EL System Meters incorporate the trademark EL technology in the larger, easy-to-read meter faces. The crystal clear illumination also emits lower heat.

■ Ultra Thin, Ultra Light Meter Design.

The main body construction of the Meter has been changed from steel to highly durable plastic for weight conservation. The ultra thin casing is made possible by maximizing circuit board efficiency inside of the Meter. The meter face has also been enlarged for more surface area and the font has been upgraded for easy visibility.

Parts List

This manual contains the parts list of each individual product within the Meter Series. Be sure to check the contents of the appropriate product BEFORE attempting installation. If any parts are missing or damaged, please kindly repack the unit and all of the contents and return to the dealer of purchase. Be sure to include proof of purchase when returning.

●Meter Control Unit

Product Code 403-A053

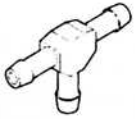
1. Meter Control Unit	2. Electrical Harness	3. Splice	4. Double Sided Tape
			
1pc.	1pc.	3pcs.	1pc.

5. Warranty Card	6. Instruction Manual		
			
1pc.	1pc.		

●Boost Meter

Product Code 403-A954,A955

1. Meter	2. Boost Sensor	3. Sensor Harness	4. Meter Harness
			
1pc.	1pc.	1pc.	1pc.

5. 4mm Hose	6. Three-way Connector	7. Zip tie	8. Mounting Bracket
			
50cm	1pc.	5pcs.	1pc.

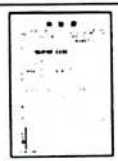
9. Double Sided Tape	10. Warranty Card	11. Instruction Manual	
			
1set.	1pc.	1pc.	

●Oil Temp Meter

Product Code 403-A956,A957

1. Meter	2. Oil Pressure Sensor	3. Sensor Harness	4. Meter Harness
			
1pc.	1pc.	1pc.	1pc.

5. Copper Washer	6. Zip tie	7. Mounting Bracket	8. Double Sided Tape
			
1pc.	5pcs.	1pc.	1set.

9. Warranty Card	10. Instruction Manual		
			
1pc.	1pc.		

●Water Temp Meter

Product Code 403-A958,A959

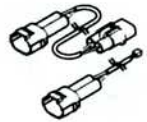
1. Meter	2. Water Temp Sensor	3. Sensor Harness	4. Meter Harness
			
1pc.	1pc.	1pc.	1pc.

5. Copper Washer	6. Zip Tie	7. Mounting Bracket	8. Double Sided Tape
			
1pc.	5pcs.	1pc.	1set.

9.Warranty Card	10. Instruction Manual		
			
1pc.	1pc.		

●Exhaust Temp Meter

Product Code 403-A960,A961

1. Meter	2. Exhaust Temp Sensor	Sensor Harness	4. Meter Harness
			
1pc.	1pc.	1pc.	1pc.

5. Fitting Union	6. Fitting Nut	7. Crush Fitting	8. Zip Tie
			
1pc.	1pc.	1pc.	5pcs.

9. Mounting Bracket	10. Double Sided Tape	11. Warranty Card	12. Instruction Manual
			
1pc.	1set.	1pc.	1pc.

●Oil Pressure Meter

Product Code 403-A962,A963

1. Meter	2. Oil Pressure Sensor	3. Sensor Harness	4. Meter Harness
			
1pc.	1pc.	1pc.	1pc.

5. Zip Tie	6. Mounting Bracket	7. Double Sided Tape	8. Warranty Card
			
5pcs.	1pc.	1set.	1pc.

9. Instruction Manual			
			
1pc.			

●Fuel Pressure Meter

Product Code 403-A964,A965

1. Meter	2. Fuel Pressure Sensor	3. Sensor Harness	4. Meter Harness
			
1pc.	1pc.	1pc.	1pc.

5. Zip Tie	6. Mounting Bracket	7. Double Sided Tape	8. Warranty Card
			
5pcs.	1pc.	1pc.	1pc.

9. Instruction Manual			
			
1pc.			

Installation

Installation of this product requires technical knowledge and skills. This product must be installed by a qualified automotive technician.

Installation Procedures

Parts necessary for installation for 1. and 2. are included in the Meter Control Unit. Parts for 3. ~6. are included in the Meter box.

■ Electrical Harness Wiring Diagram.

The Meter Control Unit requires the connection of an Ignition Power, Illumination Power, and a Ground.

●Ignition Power.

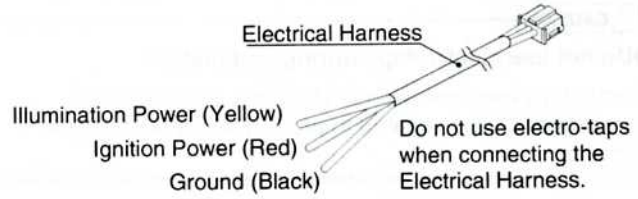
This is a wire that receives power when the Ignition key is turned ON.

●Illumination Power.

This is a wires that receives power when the parking lights are turned ON.

Splicing of these wires can be done using the included splices or by using professional soldering equipment. Be sure that each wire has a secure connection.

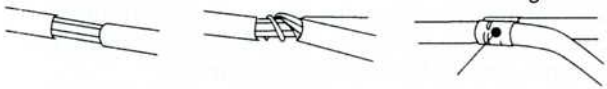
●Electrical Harness.



*Use the car audio Ignition Power and Illumination Power signal wires.
*Always remove paint and oil from any Grounding location to prevent faulty connections.
*When connecting the Electrical harness, be sure to allow ample length for desired Meter Control Unit mounting.

●How to Splice

1. Peel back 5mm from the wire
2. Wrap the connection wire around the first wire
3. Use the Splice to secure the two wires together



*Be sure to cover the connection with electrical tape to prevent electrical shorts.

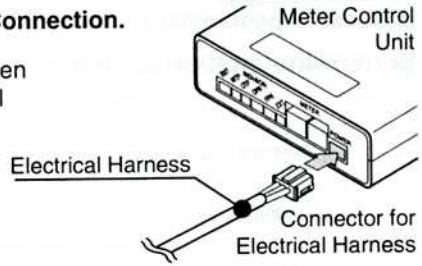
⚠CAUTION

●Do not use electro-taps during installation.

Electro-taps may come loose after time causing faulty connections. This may lead to product failure and vehicle damage.

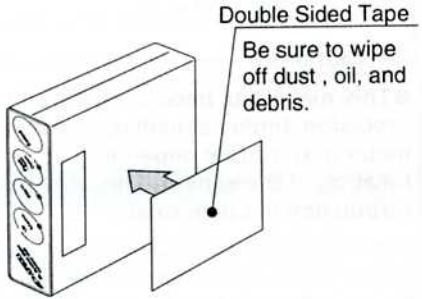
■ Electrical Harness Connection.

Refer to the diagram when connecting the Electrical Harness to the Meter Control Unit.



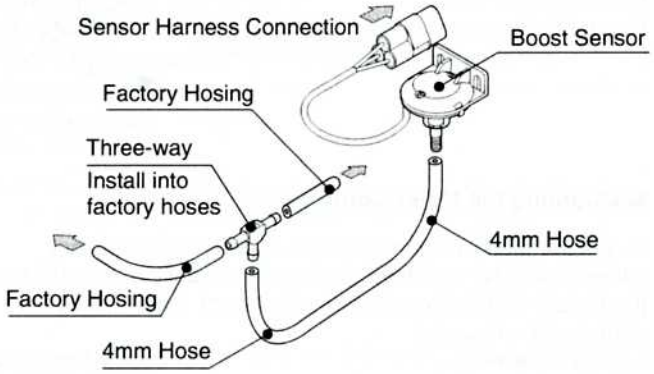
■ Mounting the Meter Control Unit.

Mount the Meter Control Unit in a location that does not interfere with normal driving and can be easily adjusted. Use the Double Sided Tape to securely mount. When using the double sided tape, be sure to wipe the mounting surface clean of any dust, oil, and debris.



■ Boost Sensor Installation

Sensor Installation Diagram



⚠CAUTION

●This meter has been engineered to be a high precision, highly sensitive instrument. The needle of the meter may vibrate depending upon the mounting location of the sensor. This may be caused by intake air turbulence but is normal.

In this case, reinstall the sensor where there is no turbulence or use a standard orifice.

⚠CAUTION

●Improper mounting location of Sensor may cause engine damage.

When installing the sensor inline with the factory pressure sensor, be sure to check that the meter sensor does not adversely affect the normal operation of the factory sensor.

1 Locate a point where intake pressure can be measured.

The boost sensor will work with 4mm hose.

Intake pressure can be measured from the following areas. However, there may be exceptions depending upon vehicle types.

- ●From the surge tank (intake manifold) to the pressure regulator
- ●From the surge tank (intake manifold) to the factory pressure sensor
- ●Directly from the surge tank

■ If the Installation Point for Intake Pressure does not use a 4mm Hose.

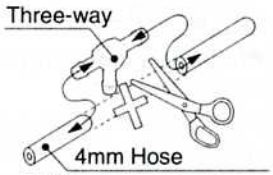
Please use a Three-war connector or nipple to convert the hose to a 4mm application.

●Three-Way

Product Name	Product Code	Note
Three-way 8mm-4mm-8mm	9932-0081	Plastic
Three-way 10mm-4mm-10mm	9932-0111	Metal
Three-way 16mm-4mm-16mm	9932-0171	Metal

2 Install the Three-way.

Insert the three-way fitting into the factory hose measuring intake pressure. When tapping intake pressure directly off of the intake manifold, the Three-way will not be used.

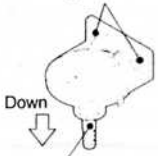


Cut the 4mm hose measuring intake pressure and insert fitting.

3 Install the Boost Sensor.

Use bolts and the included zip ties to securely mount the sensor. Be sure to keep the vacuum hose from the sensor as short as possible when connecting to the three-way.

Mount using bolts and zip ties.



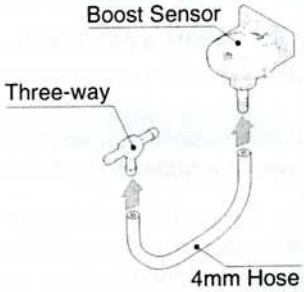
*Keep away from water

⚠CAUTION

●Be sure to keep the sensor away from extreme heat, vibration, and water.
●Be sure to point the hose fitting DOWN.

4 Connect the Boost Sensor.

Connect the 4mm hose from the three-way to the bottom fitting of the Boost Sensor.



⚠CAUTION

●Be sure to check for any air leak.

Air leaks may cause erratic idle and may lead to engine damage.

■ Oil Temp Sensor Installation

1 **Locate a point where Oil Temp can be measured.**
The Oil Temp Sensor uses a M12-P1.25 pitch.

If the mounting point does not use an M12-P1.25, please use an adapter to install fitting.

Oil Temp can be measured from the following places.
●Replace the factory Oil Drain Plug
●An after market oil filter relocation kit.

*Most NISSAN and TOYOTA vehicles use an M12 P1.25 size oil drain bolt.

⚠CAUTION

●Oil temp sensor adapters and drain bolts may differ according to the year of a car. Be sure to confirm the drain bolt size before completing installation.

■ If the drain bolt is not an M12-P1.25 size.

A'pex offers several Oil Temp Sensor Adapters.

●Oil Temp Sensor Adapter

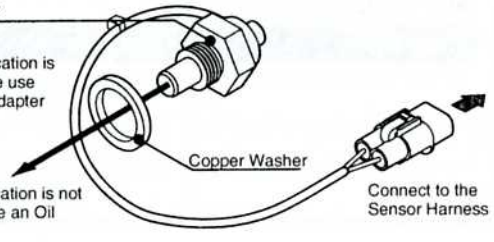
Product Name	Product Code	Note
Oil Temp Sensor Adapter M14xP1.5	403-X001	Honda,Mazda, Mitsubishi,Daihatsu
Oil Temp Sensor Adapter M20xP1.5	403-X002	Subaru, Isuzu
Oil Temp Sensor Adapter M16xP1.5	403-X003	Omori Meter made Oil Temp Sensor M16xP1.5

2 **Remove the Engine Oil.**
Remove the oil drain bolt and drain the engine oil.

When using an after market kit, please refer to that corresponding manual.

3 Install the Oil Temp Sensor.

Install the Oil Temp Sensor into the oil drain bolt position using the copper washer.



⚠CAUTION

●Be sure to use the Copper Washer when installing.
●Be sure to route the Sensor Harness away from moving parts to prevent electrical shorts.

4 Fill engine with engine oil.

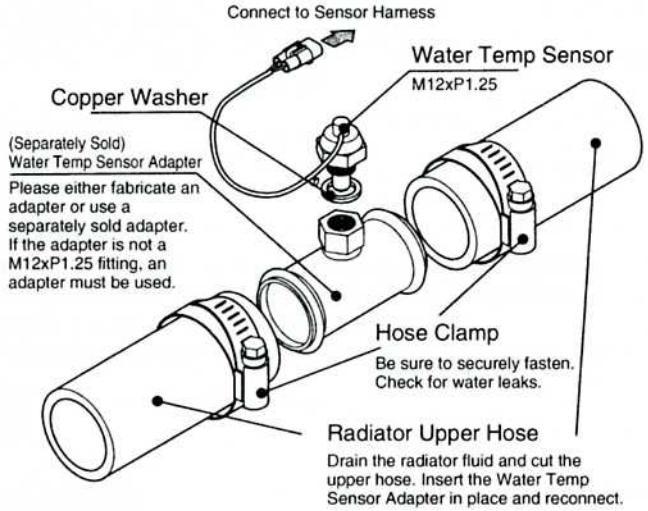
⚠CAUTION

●Be sure to check for any oil leaks.

Oil leaks may lead to severe engine damage.

■ Water Temp Sensor Installation

Sensor Installation Diagram



1 **Locate a point where Water Temp can be measured.**

The sensor is a M12xP1.25 size.

If the Sensor mounting location is not M12xP1.25, an adapter must be used.

Water Temp can be measured at the following points.
●Upper Radiator Hose.

●Water Temp Sensor Adapter

Product Name	Product Code
Water Temp Sensor Adapter 32mm	590-A001
Water Temp Sensor Adapter 34mm	590-A002
Water Temp Sensor Adapter 38mm	590-A003
Sensor Adapter M16xP1.5	403-X003

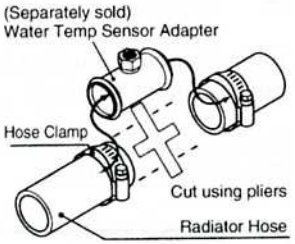
2 **Drain the Radiator Fluid.**

Please drain the radiator fluid according to the vehicle manufacturer guidelines.

3 Insert the separately sold Water Temp Adapter piece.

Mount the Water Temp Sensor into the Upper Radiator Hose. Be sure to securely tighten the separately sold Water Temp Sensor Adapter with hose clamps.

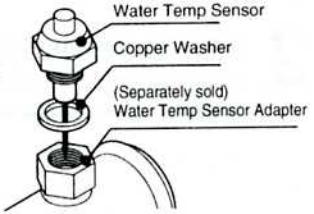
A'pex offers these Sensor adapters. Please refer to the previous page.



⚠CAUTION

●Be sure to securely tighten the adapter using hose clamps to prevent water leaks.

4 Install the Water temp Sensor. Use the included copper washer and mount the sensor.



●If using a Water Temp Sensor Adapter from another company

If the sensor fitting on the adapter is not M12xP1.25, a fitting adapter will be required.

⚠CAUTION

●Always use the included copper washer when installing the sensor

●Be sure to route the sensor harness away from any moving parts to prevent electrical shorts.

5 Fill radiator fluid.

Fill the radiator with the appropriate coolant and bleed the system.

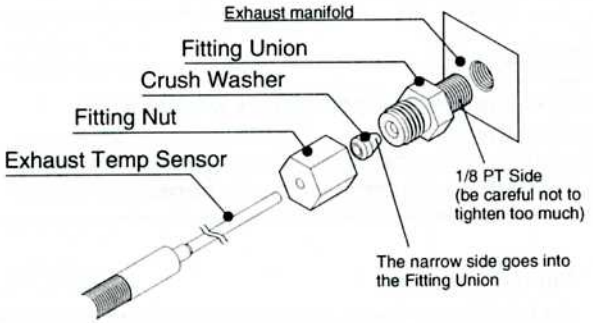
⚠CAUTION

●Be sure to check for water leaks after installation.

Water leaks will cause the engine to overheat causing severe engine damage.

■ Exhaust Temp Sensor Installation

Sensor Installation Diagram



1 **Locate a point where Exhaust Temp can be measured.**

The Exhaust Temp Sensor is compatible with 1/8 PT.

Exhaust Temp can be measured at the following points.
●Exhaust Manifold

2 **Remove the Exhaust Manifold.**

Please refer to the vehicle manufacturer service manual to properly remove the manifold.

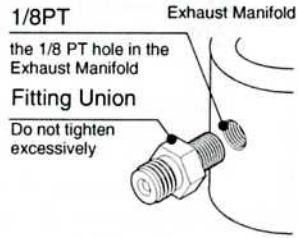
3 **Decide on the exact location for the sensor.**

Locate and finalize an installation point for the sensor and prepare to drill a hole.

The area on the sensor denoted by the arrow may be bent according to necessity. In these cases, make sure that the radius is larger than 10 and that the sensor is not bent in a shape.

4 **Drill a 8.4~8.5mm hole in the sensor mounting location and tap the hole using a 1/8PT bit.**

5 **Connect the Fitting Union to the 1/8 PT tapped hole.**

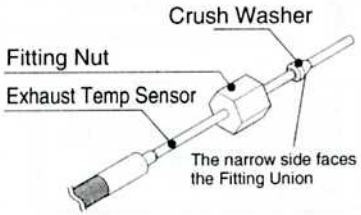


⚠CAUTION

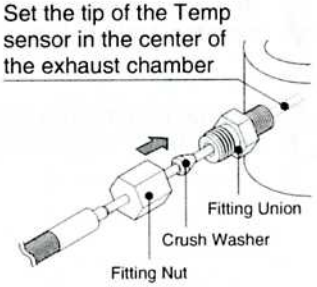
●Do not excessively tighten the Fitting Union.

The Fitting Union is a tapered piece. Over tightening will destroy the tapped opening.

6 **Insert the Fitting Nut and Crush Washer over the Exhaust Temp Sensor.**



7 **Once the tip of the Exhaust Temp Sensor reaches the center of the Exhaust chamber, tighten the Fitting Nut.**



8 **Install the Exhaust Manifold.**

Refer to the vehicle manufacturer service manual and re-install the exhaust manifold.

■ Oil Pressure Sensor Installation

1 **Locate a point where Oil Pressure can be measured.**

The Oil Pressure Sensor uses a 1/8PT screw.

Oil Pressure can be measured from the following points.
- Factory Oil Pressure Switch
- After market Oil Filter Relocation Block

*If the Oil Pressure Measuring Point is not 1/8PT, please use an adapter to convert the pitch to 1/8 PT.

⚠ CAUTION

●Removing the factory Oil Pressure Switch/Sensor will prevent operation of the factory Oil pressure lamp or gauge.
●Some vehicles use the factory Oil Pressure Switch/Sensor for fuel management. Be sure to check with the vehicle manufacturer before removing such items.
●In these cases, it may be necessary to use a 2 way joint adapter to use the factory and A'pex sensors together.

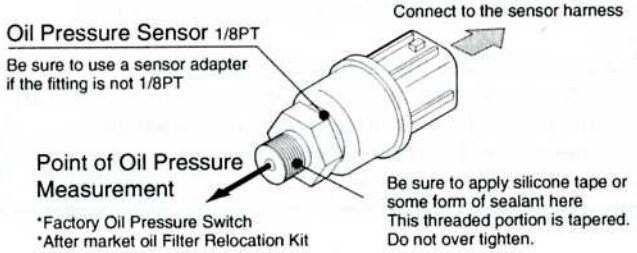
●Optional Parts

Product Name	Product Code
Pressure Sensor Adapter 8mm-1/8PT-8mm	590-A010
Pressure Sensor Adapter AN6-1/8PT-AN6	590-A011

2 Remove the Engine Oil.

Remove the Oil Drain Bolt and drain the engine oil.

3 Install the Oil Pressure Sensor. Be sure to wrap silicone tape or some type of sealant to the 1/8 PT thread.



*When using a copper adapter hose, be sure to wind the pipe in a spiral fashion so that the pipe can absorb the vibration from the engine.

⚠CAUTION

●Be sure to apply sealant on the threaded portion of the Sensor

●Do not over tighten the Oil Pressure Sensor.

The threaded portion of the sensor is tapered and may damage the sensor mounting location if over tightened.

4 Refill engine oil.

⚠CAUTION

●Be sure to check for oil leaks before starting engine.

Oil leaks can lead to severe engine damage.

■ Fuel Pressure Sensor Installation

1 Locate a point where Fuel Pressure can be measured.

The Fuel Pressure Sensor uses a 1/8PT screw.

Fuel Pressure can be measured form the following points.
●Fuel Rail (Fuel Delivery Pipe)
●Fuel Line (Delivery Side)

*If the Fuel Pressure Measuring Point is not 1/8PT, please use an adapter to convert the pitch to 1/8 PT.

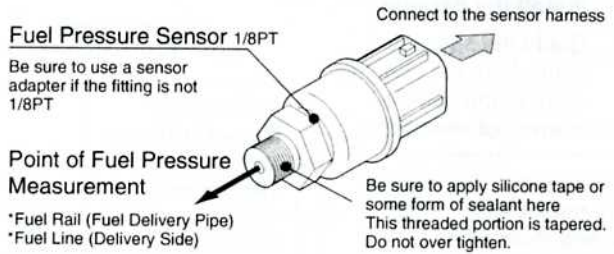
●Optional Parts

Product Name	Product Code
Pressure Sensor Adapter 8mm-1/8PT-8mm	590-A010
Pressure Sensor Adapter AN6-1/8PT-AN6	590-A011

2 Prevent Fuel from spilling from Fuel Lines

Refer to the vehicle manufacturer service manual and take necessary steps to prevent excessive fuel from spilling out while working on the fuel line.

3 Install the Fuel Pressure Sensor.



*When using a copper adapter hose, be sure to wind the pipe in a spiral fashion so that the pipe can absorb the vibration from the engine.

⚠CAUTION

●Be sure to apply sealant on the threaded portion of the Sensor
●Do not over tighten the Fuel Pressure Sensor.
The threaded portion of the sensor is tapered and may damage the sensor mounting location if over tightened.
●Mount sensor in a position away from excessive vibration, heat ,and water.

■ Sensor Harness Connection (Sensor ◀ ▶ Meter Control Unit)

1 Install the harness.

Guide the harness either from the engine room to the vehicle interior, or vice versa.

*Be sure that the Sensor Connector stays in the engine room while the Meter Control Unit Connector is inside the vehicle cabin.
*Be sure to securely tighten the harness using zip ties.

⚠ CAUTION

●Do not pull the sensor harness by the wires. This may cause the wires to pull out.
●Route the harness away from any moving parts to prevent electrical shorts.

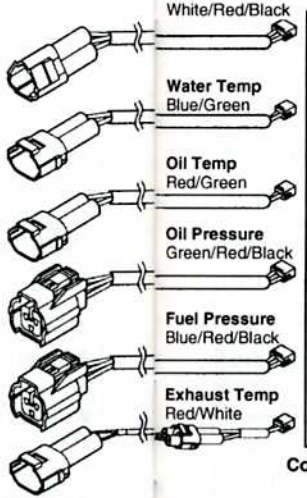
Engine Room
Sensor Side

Water Temp Meter/Oil Temp Meter/ Exhaust Temp Meter connectors are all the same

Oil Pressure/ Fuel Pressure connectors are all the same

Be sure not to confuse the connectors during installation

Confirm proper harness through color matching.



Sensor Connectors

Vehicle Interior
Meter Control Unit Side

Boost/Oil Pressure/Fuel Pressure connectors are all the same

Oil Temp/Water Temp/ Exhaust Temp connectors are all the same

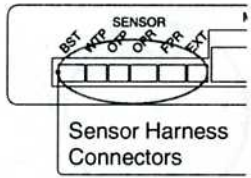
Be sure not to confuse the connectors during installation

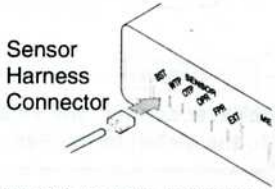
Confirm proper harness through color matching.

2 Connect the Sensor Harness.

Refer to the diagram and connect the harness to the Sensor and Meter Control Unit.

■ Meter Control Unit Rear Panel

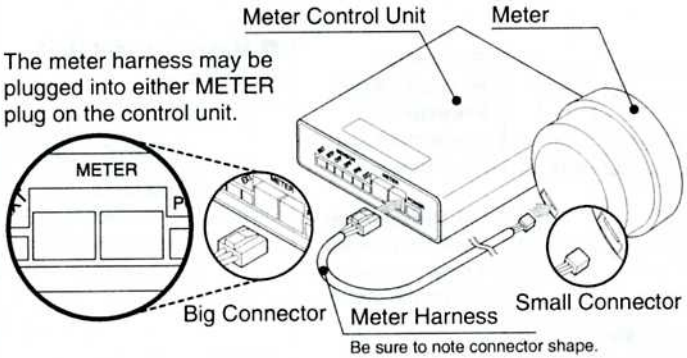




Be sure to note connector shape.
***The diagram depicts Boost Sensor Harness connection.**

■ Meter Harness Connection (Meter ◀ ▶ Meter Control Unit)

Refer to the diagram and connect the big connector to the Meter Control Unit plug labeled METER. Plug the small connector into the back of the meter.



⚠ CAUTION

●Never connect the smaller connector (the side connecting to the Meter) to the Sensor Harness Connector.

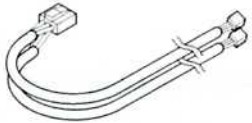
*The Meter Control Unit has 2 plugs reading METER. The Meter harness can be connected to either one. When connecting over 2 meters, use the other METER plug.

●Items needed when using more than 3 meters

The Meter Control Unit has two plugs labeled METER. The harness included with the meter allows the use of one meter per METER plug. A split harness must be used to add more meters to the Meter Control Unit.

■ Split Harness A (Product Code 49B-A007)

This Split Harness allows 2 meters to be connected to one Meter Harness. This is convenient when the two meters are mounted away from each other.



■ Split Harness B (Product Code 49B-A008)

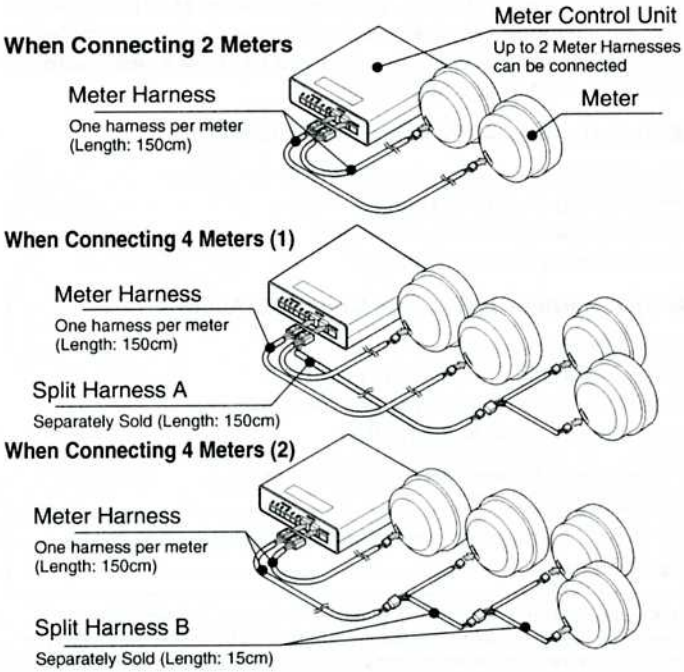
This Split Harness allows 2 meters to be connected to one Meter Harness. This is convenient when the two meters are mounted close to each other.

Please refer to the next page for connection details.

The Split Harnesses can be further split by adding more Split Harness Bent.

***Although the Meter Series has 6 different variations, it is possible to control more than 6 meters per Control Unit. In these cases, the same type of meter will have the same movements. For example, it is possible to have two identical sets of meters installed on both the driver's and passenger side for tuning purposes.**

■ Meter Harness Connection Example

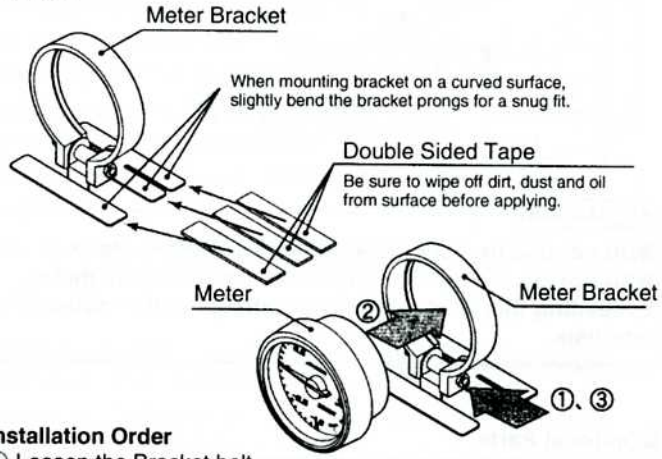


■ Mounting the Meters

Mount the Meters in a location that does not interfere with normal driving procedures. Use either the included or separately sold mounting bracket to install.

●Mounting Using the Included Mounting Bracket

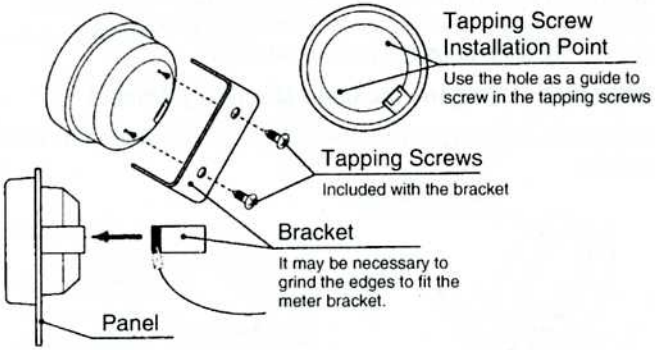
Be sure to wipe any excessive dirt, dust, and oil from mounting surface.



Installation Order

① Loosen the Bracket bolt
② Insert the Meter into the bracket
③ Tighten the bracket bolt

●Mounting Using the Separately Sold Bracket



⚠CAUTION

●Do not use the tapping screws in any other place
●Do not tap the screws more than 5mm into the meter. Exceeding this limit may cause damage to the meter internals.

●Optional Parts

Product Name	Product Code	Note
Bracket	49B-X002	Bracket, Tapping Screws

■ Checkpoints After Installation

Please check the following points after installation.

●Please confirm that all wiring is secure and correct.

Check for incorrect wiring and incorrect hose connections. Also, check for water, oil, and exhaust leaks.

●Check to make sure that the harness does not run near any moving parts.

Secure the harness using zip ties so that the wires to not get cut and cause electrical shorts.

●Make sure that the Meter and the Meter Control Unit have been securely mounted

Be sure that they do not interfere with normal driving procedures.

●Be sure to reconnect the negative terminal of the battery

■ Checking Operation

●Turn the ignition key ON and confirm that the needle swings a full 270 degrees.

Please check the connection in the back of the meter if the needle does not make a full swing.

●Please check for any unusual noise or odor coming from the unit.

Installation Procedures

Operational Procedures

This product will display all real time sensor information as soon as the ignition key is turned ON.
This product also has many convenient features in addition to real time display. Please use these features according to your liking.

⚠CAUTION

●These functions will not operate correctly when the vehicle battery voltage falls below 10V. There is also a chance that the memory settings will disappear.

■ Peak Hold Function

The Peak Hold Function records the highest point of needle movement. Unless reset, the Peak Hold value will stay in the memory even when the ignition key has been removed.

●Display Peak

During Peak Hold Display

Peak LED lights

Press Peak Switch

All the meters will display Peak Hold values.

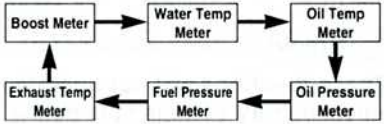
Peak LED lights

During Peak Hold Display

●To display Peak on only one meter

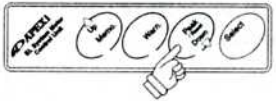
While all of the meters are displaying Peak Hold values,

Pressing the SELECT switch will select an individual meter for Peak display.



The meter with the lit Peak LED is the one displaying Peak Hold values.

●Cancel Peak Hold Display



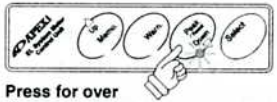
Peak LED off

Peak LED off

Press the Peak Switch again.

This will cancel the Peak Hold display and return the meter to real time display.

●Reset the Peak Hold Value



Press for over 2 seconds

Peak LED lights

Press the Peak Switch for over 2 seconds.

This will reset the Peak value.

●Resetting Peak values for ALL meters

Press the Peak Switch for over 2 seconds either when all meters are in Peak Hold display, or in real time display mode.

●Resetting Peak values for one meter

Set desired meter to Peak Hold mode. Press the Peak Switch for over 2 seconds.

■ Memory Replay Function

The Memory Replay Function records 30 seconds of needle movement and allows this data to be replayed.

●To Record

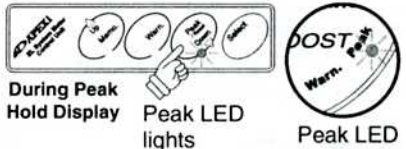
Press the Memory Switch

The Memory LED will flash allowing up to 30 seconds of data recording.

Wait for 30 seconds or press the Memory Switch again

The Memory LED will turn off and the recording will stop.

●To Record

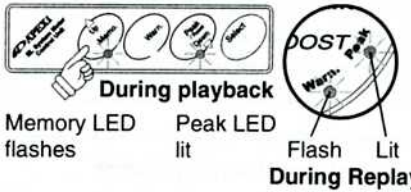


1 Press the Peak Switch

All of the meters will display Peak values

2 Begin Replay for all the meters.

Once Replay is finished, the meter will return to Peak Hold mode.



Pressing the Memory Switch during Replay will stop the playback and return to Peak mode.

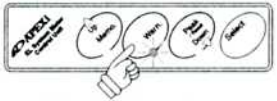
⚠CAUTION

●The Meter Control Unit will flash the Memory LED for 30 seconds even if data recording has been stopped earlier. This is completely normal. Meter playback time will still be exactly according to user settings.

■ Warning Function

The Warning function is designed to alert the driver when the needle exceeds a user preset value. The meter will light up the Warning LED.
For Fuel Pressure and Oil Pressure, Warning will activate when pressure drops BELOW user presets. All other meters will activate Warning when the needle goes ABOVE the user presets.

●Set Warning



Warning
LED lit

Press the Warning Switch

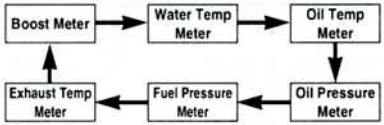
The Meter Control Unit Warning LED and all Warning capable meters will light up.

Warning
LED lit

Warning Setting capable

●When using multiple meters,

Pressing the SELECT Switch will alternate Warning settings between individual meters.



The meter with the lit Warning LED is active for setting.

Pressing the Memory Switch (UP) will raise the setting value.

Pressing the Peak Switch (DOWN) will lower the setting value.

●Finish Setting

Warning
LED off

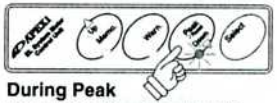
Warning
LED off

Once setting is complete, press the Warning Switch again.

The meter will return to real time display.

■ Changing Fuel Pressure Display Modes

If the Boost meter AND Fuel Pressure Meter are connected to the Meter Control Unit at the same time, the Fuel Pressure Meter will display Fuel Pressure at the injector nozzle.



During Peak Hold Display

Peak LED lights

Press Peak Switch

All meters will display Peak Hold values.

Press the Select Switch and switch through the meters until the Fuel Pressure Meter lights up.

The Peak LED of the active meter will light up. Confirm that the Fuel Pressure LED is the active light.

Press the Warning Switch
Then, press the Peak Switch

Once the Peak Hold has been released, the Fuel Pressure Meter will display pressure at the fuel rail (actual)

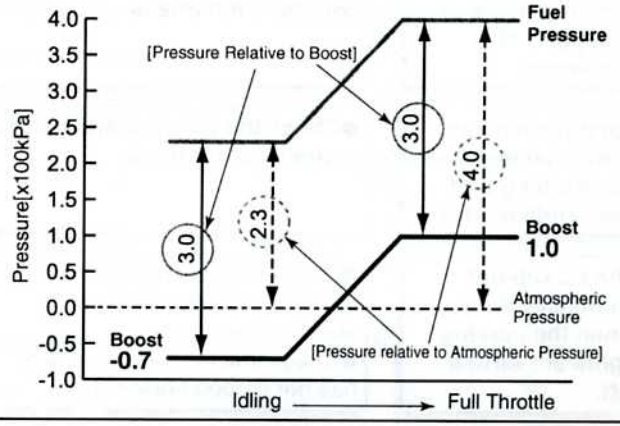
Repeating the procedure above will return to Fuel Pressure at the Injector Nozzle.

This setting is not recorded into the meter memory. Once the ignition key is removed, the Fuel Pressure Meter will display Fuel Pressure relative to Boost Pressure.

●About Fuel Pressure Readings

Most electronically fuel injected vehicles measure Fuel Pressure through a Fuel Pressure Regulator. The regulator ensures that the Fuel Pressure always corresponds to the Intake Manifold Pressure. In the diagram below, if the Fuel Pressure is set to 300kPa, a Fuel Pressure Meter that displays pressure relative to atmospheric pressure will read 400kPa at 100kPa of Boost. (This is Fuel Pressure at the Fuel Rail, or Actual Fuel Pressure)
Fuel Pressure Meters that display Fuel Pressure relative to Boost pressure will display 300kPa. (This is Fuel Pressure at the Injector Nozzle)

●Fuel Pressure and Boost Pressure Relationship Chart



Troubleshooting

The meter will not move even with the ignition key ON.	**●If the meter Control Unit panel does not illuminate.** Be sure to confirm if the electrical harness is plugged in and connected properly. **●The Meter Control Unit is lit Check the Meter Harness connections.**
The meter needle does not move or is pegged at maximum.	**●Check the sensors and sensor connection harness.**
Cannot select an individual meter in the Warning and Peak Hold modes.	**●Check the sensors and sensor connection harness.**
The EL will not illuminate even when the parking lights are turned ON.	●Check the parking light illumination wires from the electrical harness. ●Check that the battery voltage has not dropped below 10V.

Cautions

1. The contents of this manual may change at any time without any prior notice.
2. We have taken great steps to ensure that this manual is concise and free of errors. Please contact our office in the event that an error has been found.
3. It is strictly forbidden to reproduce or copy any portion of this manual. This manual may not be used for any other purposes than personal use without expressed written consent of A'pex.
4. We are not responsible for any losses resulting from data memory loss caused by faulty installation, accidents, or other factors.
5. A'pex reserves the right to improve and change optional parts, part numbers, prices and configurations without prior notice.

Product Specifications

●Operating Voltage DC10V~16V
●Operating Temperature +/-0~+60degrees C

About the Warranty

This product is warranted for the manufacturer set period. Please contact your local authorized dealer or A'pex sales office for more information.

Manual Info

No.	Print Date	Product Code	Ver.	Notes
1	4/5/2001	7207-0250-00	1	

●The addresses below are current as of 4/5/2002. Information is subject to change without prior notice.

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