

DECS TACHOMETER

Dynamic Electronics Control System

INSTRUCTION MANUAL



Thank you for purchasing the APEX Tacho Meter. Please read through this Instruction Manual to operate this product correctly and keep it near the product so that you may refer to it whenever necessary. If you transfer the product to another customer, be sure to attach this Instruction Manual and the warranty to the product.

Product name: DECS TACHO METER
Product code :403-A074(White panel)
403-A072(Black panel)
Applicable car models: General use
Application: Engine rpm and
temperature/pressure display



APEXi

APEX CO.,LTD.

APEX 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 APEX which means the highest in quality.

Contents

Contents

1	Safety Precautions	
	Signal words and their meanings	2
	Explanation of Indications	2
	 DANGER	2
	 CAUTION	3
2	Introduction	
	Features of this Product	4
3	Names and Functions of Parts	
	Parts list	5
	Explanation of the device	6
	Shift lamp	6
4	Installation	
	Connecting connectors	7
	Wiring	7
	How to use the electro-tap	7
	Fixing the meter body and the shift lamp	8
	Wiring work procedure	9
	Checking after installation	10
5	Initial Setup	
	Setting the number of cylinders	11
	EL brightness adjustment	12
	"Temperature sensor/pressure sensor" digital display function setting	13
6	Functions	
	Peak memory function	15
	Memory function (for about 30 seconds)	15
	2 Warning function	16
	Warning function (temperature/pressure digital display)	17
7	Reference	
	Action to be taken at occurrence of an error or failure	18
	Specifications of This Product	18
	Warranty	18
	Revision Record	19
	Where to contact:	19

Safety Precautions



• This product is meant for vehicles with a DC 12 V car

- When removing a coupler, be sure to hold the

power supply and body ground.

To prevent fire, do not use the product for DC 24 V vehicles including large trucks and diesel cars.

- When installing the product, remove the negative terminal of the battery beforehand.
A fire may be caused by short circuit or electric parts may be damaged or burnt out.



CAUTION

- If you have no confidence in your own ability to install this product, ask an experienced professional to install it. Installing the product requires technical knowledge and skill.
Be sure that the installer installs the product securely.

- Do not work, disassemble, or modify this product, otherwise it will cause an accident, fire, electric shock, or electric parts will be damaged or burnt out.

- Do not drop this product or expose it to strong shock. This may cause a malfunction, thereby giving damage to the product and the vehicle.

coupler.

If not, a fire may be caused by short circuit or electric parts may be damaged or burnt out.

















- Be sure to perform wiring in accordance with the contents described in the Instruction Manual.
Incorrect wiring will result in a fire or other accident.

- Do not install the product in a high-temperature place or a place exposed to direct water.
It will cause an electric shock or fire, or electric parts will be damaged. The malfunction may damage the vehicle.

- Do not install this product in a place exposed to direct sunlight.
A malfunction will be caused, thereby giving damage to the product and the vehicle.

3 Names and Functions of Parts

PARTS LIST

1	Meter body	2	Warranty	3	Instruction manual
					
1 unit		1 sheet		1 volume (this document)	
4	Terminal for grounding	5	Electro-tap	6	Sponge tape
					
1 unit		3 pieces		1 sheet	
7	Two-sided adhesive tape	8	Stay mount	9	Stay band
					
1 sheet (3 pieces)		1 unit		1 unit	
1 0	Washer	1 1	Spring washer	1 2	Stay collar
					
2 unit		2 unit		1 unit	
1 3	Stay nut	1 4	Stay bolt	1 5	Shift lamp
					
1 unit		1 unit		1 unit	
1 6	Main harness				
					
1 unit					

NOTE

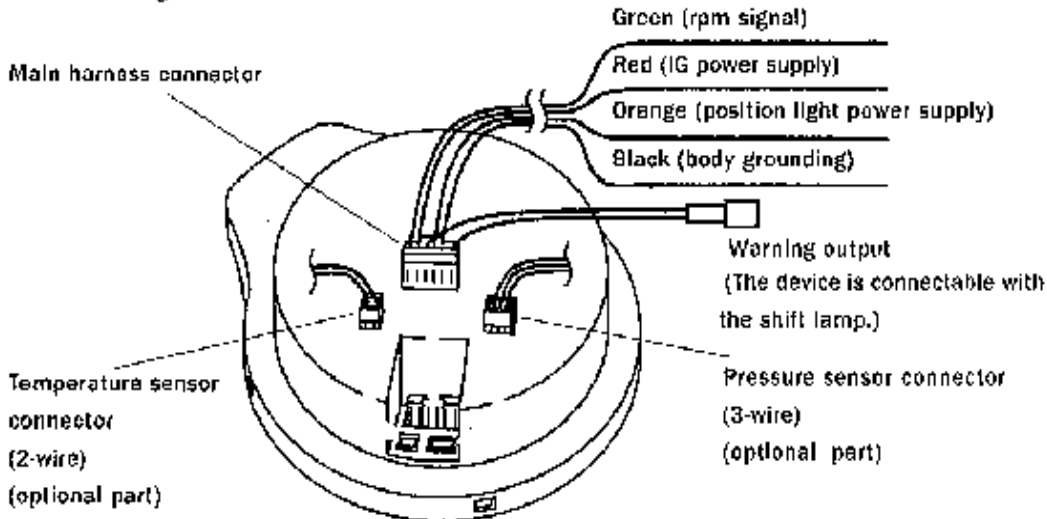
Before starting to install this product, be sure to check the parts list to confirm that there is not any foreign part or missing part. If any difference is found between the actual parts and the items on the parts list, contact the distributor of purchase. When placing an order for any missing part or this instruction manual, consult the distributor for information.



Installation requires technical knowledge. If you have no confidence in your own ability to install this product, we recommend you to ask an experienced professional to install it.

Connecting connectors

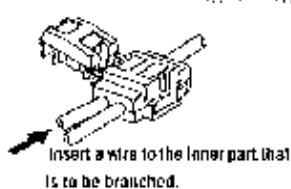
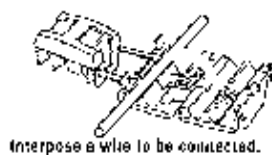
Connect the main harness connector to the meter body. If you purchased the temperature sensor and pressure sensor as options, connect their connectors by referring to the figure and checking the left and right sides.



Wiring

The wiring work requires a tester and crimping pliers. For the IG power supply, position light power supply, etc., it is convenient to use an audio coupler and a power lead-out harness available in the audio after market.

How to use the electro-tap



Install the electro-tap securely without any contact defect. If not, this product will not operate properly and it will cause a fire or electric parts will be damaged or burnt out.

Installation

Wiring work procedure

1 Look for the IG power supply.

Turn on the ignition switch and look for a wire that becomes 10 V to 14 V (battery voltage). Then, turn off the ignition switch and check that it becomes 0 V.



WARNING

When looking for a wire, take special care not to cause a short circuit.

It will cause a fire or electric parts will be damaged or burnt out.

2 Look for the parking light power supply.

Turn on the parking light switch and look for a wire that becomes 10 V to 14 V (battery voltage). Then, turn off the position light switch and check that it becomes 0 V.

3 Disconnect the negative (-) terminal of the battery.

4 Connect the IG power supply.

Connect the red wire of the harness to the IG power supply, which was located in 1, by using the electro-tap.



WARNING

Install the electro-tap securely without any contact defect.

If not, this product will not operate normally and it may cause a fire or electric parts will be damaged or burnt out.

5 Connect the parking light power supply.

Connect the orange wire of the harness to the parking light power supply, which was located in 2, by using the electro-tap.

6 Connect the ground.

Install the attached grounding spade terminal to the black wire of the harness by firmly fixing it, and connect it to a place that can be securely grounded. If there is any painted or rusted portion, it will cause a grounding defect. Remove the paint or rust and perform grounding securely.

7 Wire rpm signals.

Look for a wire for rpm signals by referring to the example, and connect the green wire.

Example)

Rpm signals and ignition signals such as ignition primary signal, ignition signal, ignition confirmation signal, and tachometer output signal are output from the engine ECU. Refer to the service manual where the ignition signal output terminal is shown.

8 Mount the meter with the attached stay.



CAUTION

Mount this product and its accessories securely. Do not install each of them in a place that may disturb driving operations or in an unstable place. It will interfere with driving, resulting in an accident.

9 Install the negative (-) terminal.

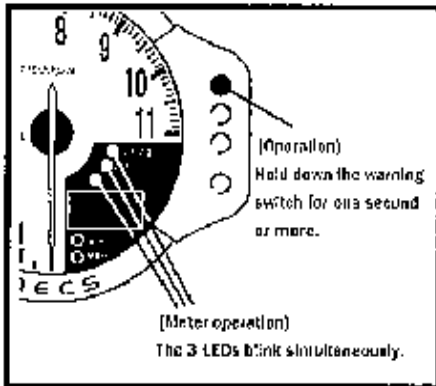
5 Initial Setup



Setting the number of cylinders



Going to the number-of-cylinders setting mode



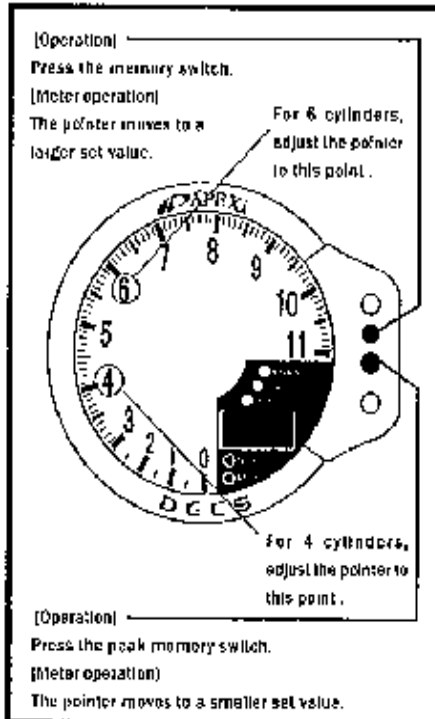
1. Set the number-of-cylinders setting mode.

- 1) Turn on the ignition switch and turn on the power supply to this product.
- 2) Hold down the warning switch (for one second or more).

[Number-of-cylinders setting mode status]

Make sure that the peak memory LED, warning LED, and memory LED blink.

Setting the number of cylinders



2. Set the number of cylinders.

[Setting the number of cylinders] 1 to 10 cylinders

The numeric value indicated by the pointer is the set number of cylinders.

For example, when the pointer indicates 1000 rpm, the number of cylinders is 1.

When the pointer indicates 4000 rpm, the number of cylinders is 4.

When the pointer indicates 10000 rpm, the number of cylinders is 10.

The pointer is moved to a larger set value by pressing the memory switch. It is moved to a smaller set value by pressing the peak memory switch.

Set the pointer to the set number of cylinders.

However, for vehicles with a rotary engine, set "number of rotors" x 2.

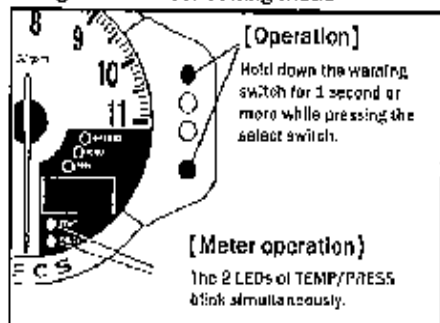
For Toyota VB, set the number of cylinders to 4. For Nissan Fair Lady Z (Z33), Skyline (V35), set it to 1. For Mazda Atenza (GG#S/P, GY#W), set it to 2.

Initial Setup



"Temperature sensor/pressure sensor" digital display function setting

Going to the sensor setting mode



1. Set the sensor setting mode.

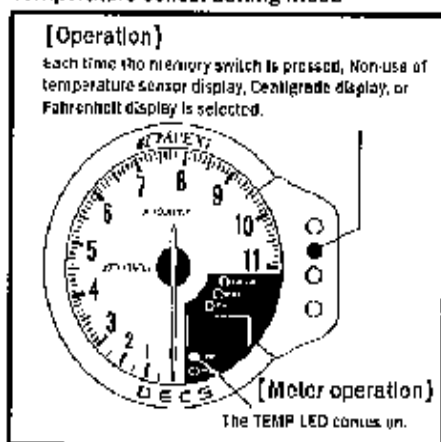
- ① Turn on the ignition switch and turn on the power supply to this product.
- ② Hold down the warning switch (for 1 second or more) while pressing the select switch.

[Sensor setting mode status]

The digital display LED is "SET".

Make sure that the temperature/pressure LED blinks.

Temperature sensor setting mode



2. Set the temperature sensor setting mode.

- ① Press the select switch. At this time, the temperature LED blinks and the pressure LED goes out.
- ② Each time the memory switch is pressed, Non-use of temperature sensor display, Centigrade display, or Fahrenheit display is selected.

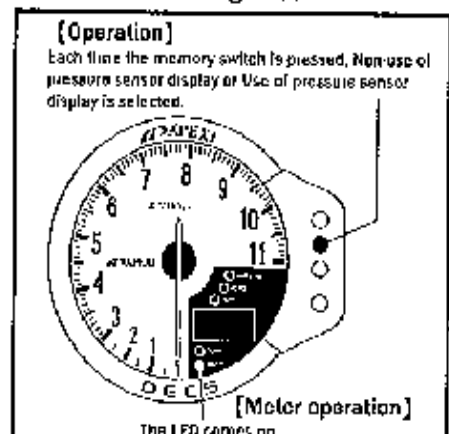
[Temperature sensor setting mode status]

Non-use of temperature sensor: The digital display LED is "--".

Use of temperature sensor Centigrade unit display: the digital display LED is "CCCC".

Use of temperature sensor Fahrenheit unit display: The digital display LED is "FFFF".

Pressure sensor setting mode



3. Set the pressure sensor setting mode.

- ① Press the select switch. At this time, the temperature LED goes out and the pressure LED blinks.
- ② Each time the memory switch is pressed, Use or Non use of pressure sensor display is selected.

[Pressure sensor setting mode status]

Non-use of pressure sensor: The digital display LED is "--".

Use of pressure sensor: The digital display LED is "PPPP".

After that, each time the select switch is pressed, temperature sensor setting or pressure sensor setting

is selected.

13

6 Functions

Peak memory function

This function records the maximum RPM. Unless the peak memory value is reset, the indicated value is memorized even with the key OFF (IG power supply OFF).

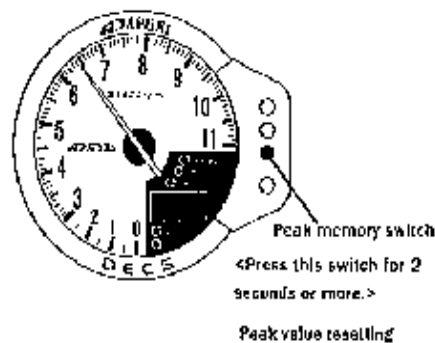
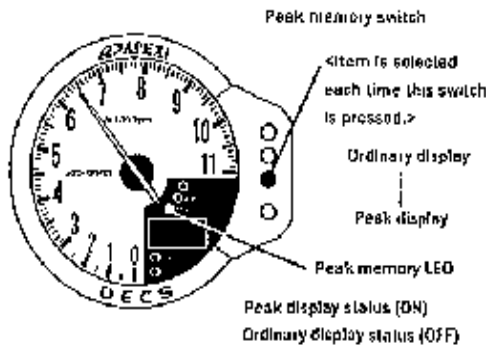
Maximum RPM can be confirmed by looking at this peak value.

Operating method

1) Ordinary display ↔ Peak memory value display. Each time the peak memory switch is pressed, either ordinary display or peak display is selected.

2) Peak memory value resetting

The peak memory value is reset by holding down the peak memory switch for 2 seconds or more.



Memory function (for about 30 seconds)

This function records and replays the needle movement for 30 seconds maximum.

Checking the needle movement while driving can be dangerous. With this function, you can confirm the needle movement safely after stopping the vehicle.

Operating method

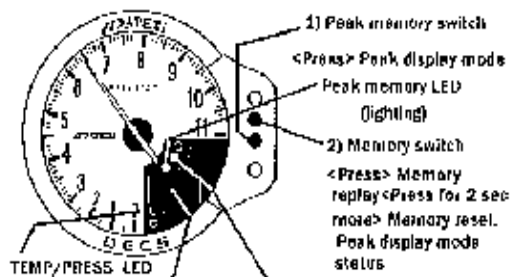
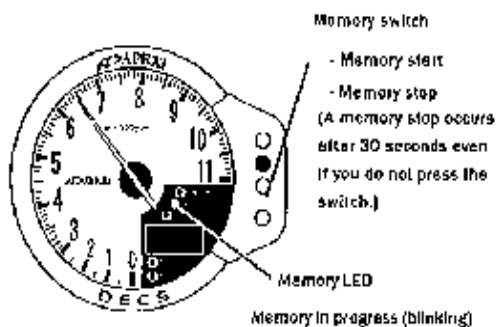
1) Memory start/stop

When the memory switch is pressed, memory recording begins. After 30 seconds or when the memory switch is pressed again, the memory recording ends.

2) Memory replay/reset

For replay, press the peak memory switch to set the peak display mode. The indicated value saved in the memory is reproduced by pressing the memory switch.

If you press the memory switch again at completion of a replay or during a memory replay, the peak display mode is set again.



Functions



Warning function (temperature/pressure digital display)

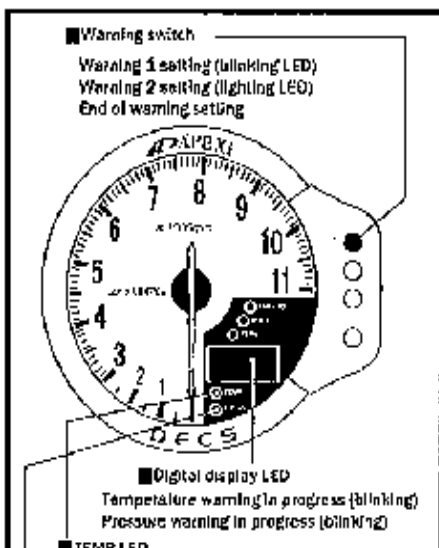
This function gives a warning by blinking digital display temperature LED or pressure LED when the indicated value exceeds the optionally set value.

When the temperature goes over the set value or the pressure goes below the set value, a warning can be given to the driver even if the driver does not look at the meter.

- When the set value of temperature warning is exceeded: At the temperature display, the digital display LED blinks or the temperature LED blinks.
- When the set value of pressure warning is exceeded: At the pressure display, the digital display LED blinks or the pressure LED blinks.
- ※ When the pressure sensor goes below the set value of warning during a temperature display, the temperature display is automatically changed over to the pressure display.
- ※ When the temperature sensor goes below the set value of warning during a pressure display, the pressure display is automatically changed over to the temperature display.
- ※ When both exceed the set values of the warning, each display is selected every second.
- ※ When the warning display has been changed over to the other display, reset the display sensor after the sensor goes down below the set value of warning.

Operating method

The digital display warning is selected between "Auto changeover setting" "No auto changeover setting".



① When digital display warning is set, the digital display LED is "SET".

② Each time you press the warning switch, either "SET1" and "Auto changeover" or "SET2" and "No auto changeover" are selected.

■	Pressure warning in progress (blinking)
■	PRESS LFD Warning in progress (blinking)

17

Reference

Revision Record

NO	Date of issue	Part No. of instruction manual	Edition	Change of description
1	May 20, 2003	7207-0280-00	First Edition	

Where to contact:

A'PEX CO., LTD. <http://www.apexl.com>

Contact

Apex Integration, Inc 330 W. Taft Orange, CA 92865

+1-714-685-5700 +1-714-685-5701

Apex Co., Ltd. 1-17-14 Tenashiota, Sagami-hara-city,

+81-42-778-3991 +81-42-778-4495

Kanagawa, 229-1124 Japan

1 Safety Precautions






Please read "Safety Precautions" carefully to operate the product with safety. Keep the Instruction Manual in custody so as to refer to it whenever you need it.

instruction manual in custody so as to refer to it whenever you need it.

Signal words and their meanings

The Instruction Manual describes the items that you must observe to operate the product without giving any injury to you and other peoples and damage to property. The meanings of pictorial indications (signal words) are as shown on right. Please understand their contents correctly before starting to read the text

Explanation of indications

	DANGER	This indicates the existence of imminent hazard that will result in death or serious injury of the operator or a third person if the product is wrongly operated in disregard of this indication.
	WARNING	This indicates the existence of potential hazard that will result in death or serious injury of the operator or a third person if the product is wrongly operated in disregard of this indication.
	CAUTION	This indicates the existence of potential hazard that will result in slight injury or medium damage to the operator or a third person, and that will result in only physical damage if the product is wrongly operated in disregard of this indication.

WARNING

- If this product gives out any abnormal noise or offensive smell, stop operating the product immediately.

Using the product in this status will result in an electric shock, fire, or damage of electric parts. Consult the distributor or your nearest business office for information.

- The driver must not operate this product during driving, otherwise it will interfere with driving operations, resulting in an accident.

- Do not use this product and its accessories in any way other than specified by A'PEX.

In this case, we shall disclaim all responsibility for any damage or loss of the customer and a third person

- Mount this product securely. Do not install it in a place that may disturb driving or an unstable place, otherwise it will interfere with driving, resulting in an accident.

2 Introduction

Thank you very much for purchasing this product. Please read through this Instruction Manual to operate this product exactly.

instruction manual to operate this product correctly.

Features of this Product

■ Provided with a high-performance 16-bit microcomputer

This is a digital control meter provided with a high-performance 16-bit microcomputer.

■ Using EL (Electro-luminescence) with a brightness adjusting function for panel lighting

Using EL (Electro-luminescence) provides uniform lighting without heat generation that could not be realized by conventional lighting methods. Using a brightness adjusting function allows you to set brightness according to the user's needs.

■ Provided with a playback function

When the memory switch is pressed, the meter motion for about 30 seconds can be recorded and replayed on the meter.

■ Provided with a peak memory function

When the peak memory switch is pressed, the maximum RPM, temperature, and pressure are displayed. This device allows the user to select either maximum temperature value or maximum pressure value with the select switch, and is also provided with an automatic changeover function.

■ Provided with a 2-warning function

This function can give two-step warning by causing the LED to blink and illuminate constant. For example, if a constant warning is set to a lower RPM than a warning by blinking, a constant warning can be performed after a blinking warning so that reliable warning notification may be attained. An external output terminal is also available.

■ Provided with a shift lamp

Uses a high-brightness LED to transmit a warning to the driver securely night and day.

■ Provided with a temperature/pressure digital display function

When the separately available sensor is mounted, an optional sensor display of temperature and pressure can be made by using a select switch.

Separately available sensor

Temperature sensor:

(As of May 2003)

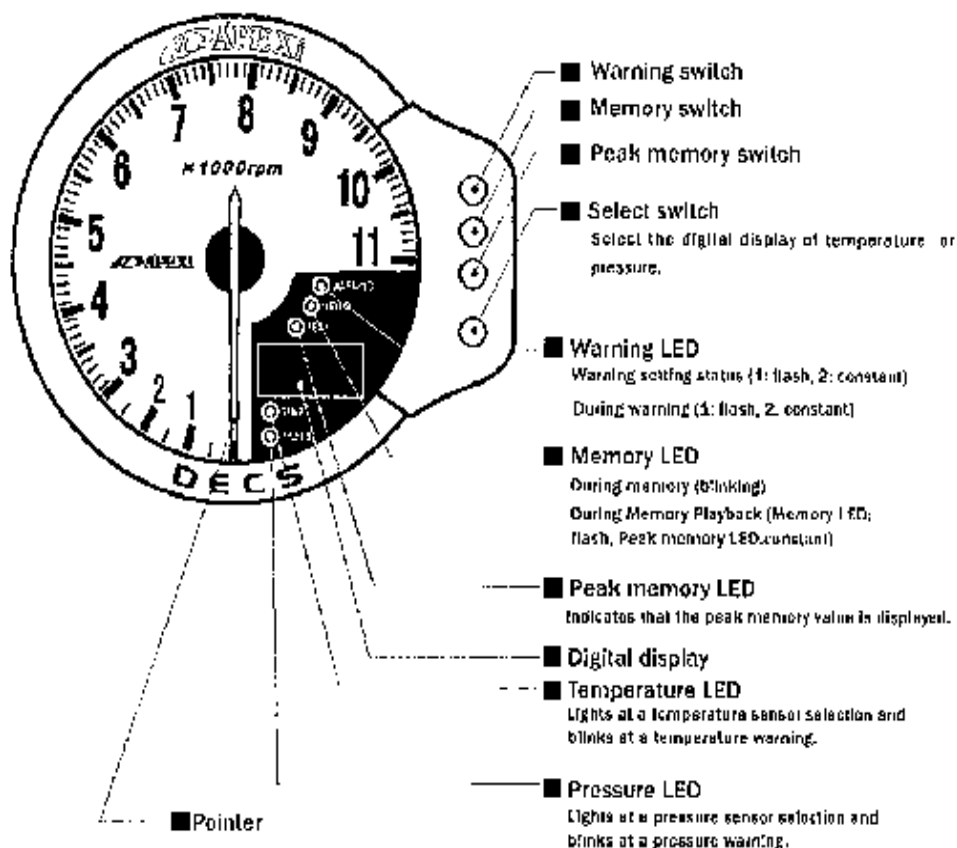
Pressure sensor:

■ Provided with a temperature and pressure warning function

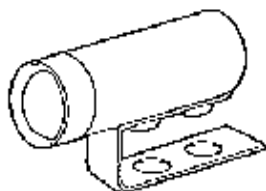
If a sensor that is separately available is installed, the device gives a warning by using the digital display and blinking Temperature/Pressure LED when the temperature or pressure goes over the set value.

Names and Functions of Parts

Explanation of the device



Shift lamp



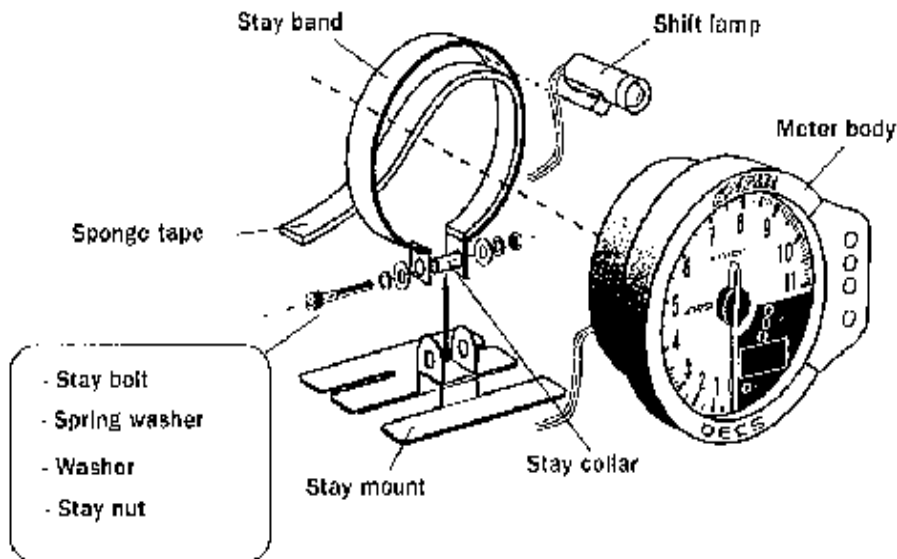
This shift lamp is operated by using the external output terminal of this product. This operation is the same as that of the warning LED of the main body.

Using a high-brightness LED in a compact case allows secure transmission of a warning to the driver night and day.

Installation

Mounting the meter body and the shift lamp

First, peel the two-sided adhesive tape portion of the attached sponge tape and paste it on the inside of the stay band. Next, apply the bracket of the shift lamp to an optional position inside the sponge tape and install the shift lamp by using the stay mount, stay collar, stay bolt, spring washer, washer, and stay nut as shown in the figure on right.



NOTE

A high intensity red LED is used for the shift light. Do not install or mount the shift light in a position that may cause glare or in the direct line of sight of the driver.

Installation



Checking after Installation



After completing the installation work, check the following items once again.

- Check if the IG power supply and parking light power supply are normally connected?
- Check if each harness is not routed unnaturally.
- Check if this product is securely mounted.
- Check if the negative (-) terminal of the battery is securely connected.

With the ignition switch ON, check the following items

Immediately after turning on the ignition switch (without starting the engine), make sure that the needle can swing from 0 rpm to 11000 rpm.

Check to see that abnormal noise or offensive smell is not produced from this product.

Perform initial setup (Number-of-cylinders setting and brightness setting). (Refer to page 11.)

The RPM cannot be displayed correctly, unless the number of cylinders is set correctly.



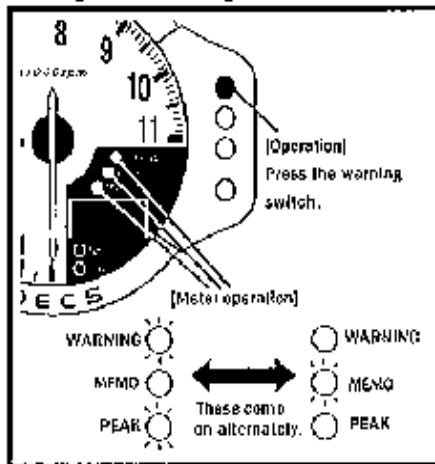
CAUTION

When the meter is in operation, slight oscillation noise may be heard from the meter body. This is normal.

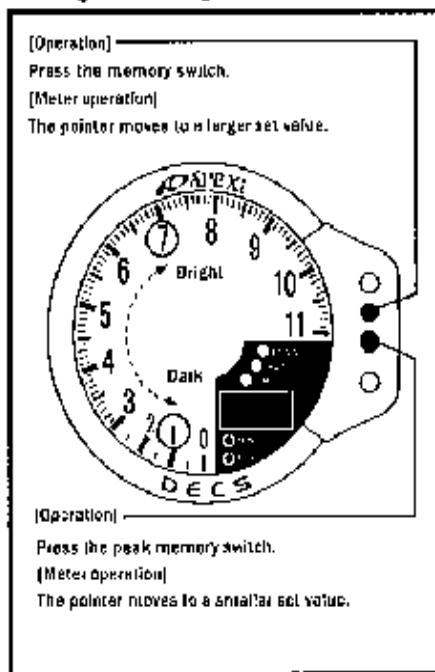
Initial Setup

EL brightness adjustment

EL brightness setting mode



Setting the EL brightness



3. Set the EL brightness adjustment mode.

After setting the number of cylinders, press the warning switch.

[EL brightness adjustment mode status]

Make sure that the warning LED, peak memory LED, and memory LED come on alternately.

4. Make brightness adjustments of the EL back light.

[EL brightness adjustment] 7-step adjustment

The numeric value indicated by the pointer is the set EL brightness. The brightness can be adjusted in the 7-step range of step 1 to step 7.



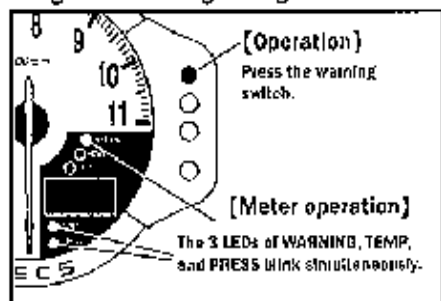
The pointer moves to a larger set value by pressing the memory switch.

It moves to a smaller set value by pressing the peak memory switch.

5. The EL brightness adjustment is finished by pressing the warning switch.

Initial Setup

Going to the warning setting mode



4. Set the warning setting mode.

- ① Press the warning switch.

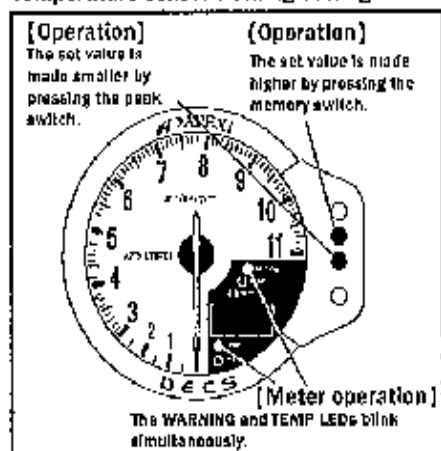
[Warning setting mode status]

The digital display LED is "SET".

Make sure that the temperature and pressure LEDs blink.

Make sure that the warning LED blinks.

Temperature sensor warning setting mode



5. Set the temperature sensor warning setting mode.

- ① Press the select switch.

At this time, the temperature LED blinks, the pressure LED goes out, and the warning LED blinks.

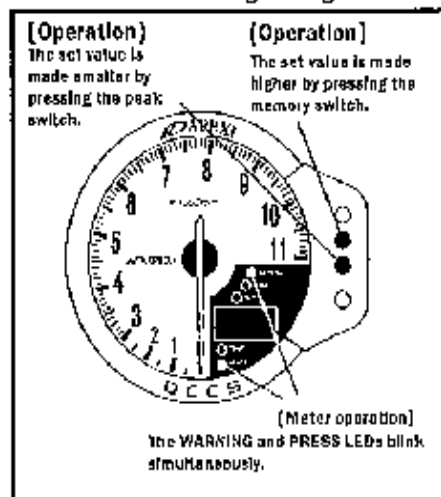
[Temperature sensor warning setting mode status]

The digital display LED is "92C" (initial value).

When Non-use of temperature sensor is set, this LED is "—". When Fahrenheit display is set, the LED is "200F".

Each time the memory switch is pressed, the set value is made higher. Each time the peak memory switch is pressed, the set value is made

Pressure sensor warning setting mode



6. Set the pressure sensor warning setting mode.

- ① Press the select switch.

At this time, the temperature LED blinks, the pressure LED goes out, and the warning LED blinks.

[Pressure sensor warning setting mode status]

The digital display LED is "400P" (initial value).

(When Non-use of temperature sensor is set, this LED is "—".)

Each time the memory switch is pressed, the set value is made higher. Each time the peak memory switch is pressed, the set value is made lower.

- ② Press the select switch.

After that, each time the select switch is pressed, temperature sensor setting and pressure sensor setting can be selected.

7. The digital setting is ended by pressing the select switch for 1 second or more.

Functions

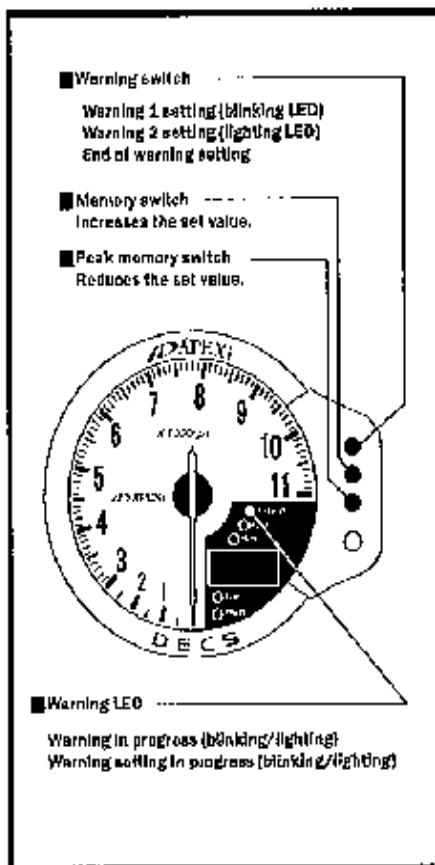
2 Warning function

This function gives a warning by blinking LED or lighting LED when the indicated value exceeds the optionally set value.

When the shift lamp is installed, both warning LED and shift lamp blink or come on simultaneously. When the indicated value exceeds the optionally set value, a warning can be given to the driver even if the driver does not look at the meter.

■ Operating method

For warning setting, perform warning 1 (blinking) setting and warning 2 (lighting) setting.



Warning 1 (blinking) setting

- ① During the ordinary display, when you press the warning switch, the warning 1 setting mode is set and the warning LED blinks.
- ② To increase the set value, press the memory switch. To reduce the set value, press the peak memory switch. After entering the set value, press the warning switch once again.

Warning 2 (lighting) setting

- ③ For warning 2 (lighting) setting, press the warning switch in the warning 1 setting mode, and the warning 2 setting mode will be set.
- ④ To increase the set value, press the memory switch. To reduce the set value, press the peak memory switch. After entering the set value, press the warning switch once again.
- ⑤ After entering the set value of warning 2 setting, press the warning switch one again. The ordinary display reappears and the warning setting is ended.

▲ CAUTION

When the RPM of warning 1 setting is set higher than the RPM of warning 2 setting, a warning is not given for warning 1 (blinking).

7 Reference



Action to be taken at occurrence of an error or failure



WARNING

If this product gives out any abnormal noise or offensive smell, stop operating the product immediately. Using the product in this status will result in an electric shock, fire, or damage of electric parts. Consult the distributor for more information.



CAUTION

When a failure occurs in this product, do not repair the product or modify it in any way. Failure to do so may result in an electric shock or fire or damage electric devices.

1. The contents of this document are subject to change without prior notice.
2. The contents of this document have been prepared with extreme care. However, if you find doubt, error, or other fault, please inform us of it.
3. A part or all of this document may not be reproduced in any form without prior written permission, and also may not be used without the prior written permission of APEX CO., LTD. under the copyright except for private use.
4. We shall disclaim all responsibility for any damage resulting from a loss of memory data due to a failure, repair, or any other reason.
5. The specifications, price, and appearance of this product are subject to change without prior notice.
6. This product is designed for domestic use only.

Specifications of This Product

Operating voltage	DC10V-DC16V
Operating temperature	0 ~+60

Warranty

**This product is warranted under the contents of the separate warranty.
Confirm the contents of the warranty and enter necessary items. Keep the warranty in your custody.**

