

Pazon
IGNITIONS WITH THE 7½ YEAR WARRANTY

Smart-Fire™

DUCATI

750 TWIN

**HIGH-PERFORMANCE
IGNITION SYSTEM**

12 VOLT



SYSTEM TYPE: PDD750

Smart-Fire Applications

- DUCATI 750 TWINS & SIMILAR APPLICATIONS WITH 90° CRANK & 12-VOLT ELECTRICS
- CAMSHAFT/DISTRIBUTOR TRIGGERED, ANTI-CLOCKWISE/ CLOCKWISE ROTATION

FEATURES

- HIGH-POWER DIGITAL IGNITION MODULE (FULLY ENCAPSULATED)
- FULLY MAPPED IGNITION TIMING: IGNITION ADVANCE CURVE IS MAPPED FOR THE DUCATI 750 V-TWIN ENGINE
- PROGRAMMED COIL ENERGY CONTROL
- USER-PROGRAMMABLE REV.LIMITER BUTTON
- RELIABLE & RUGGED HALL-EFFECT SENSOR, INCLUDES ON-BOARD STATIC TIMING LIGHT, FOR EASIER SETTING OF IGNITION TIMING
- MINIATURE HIGH-ENERGY DUAL IGNITION COIL
- ELECTRONIC TACHO DRIVE OUTPUT
- WASTED SPARK SYSTEM FOR SIMPLICITY
- LESS MAINTENANCE
- IMPROVED ENGINE PERFORMANCE
- FOR RACING OR HIGHLY TUNED APPLICATIONS: SPECIAL ADVANCE CURVES & REV-LIMITERS AVAILABLE
- COVERED BY MANUFACTURER'S 7½ YEAR WARRANTY
- MODULE SIZE(mm):
90 LONG x 65 WIDE (95 INC. MOUNTING BRACKETS)
x 30 DEEP, WEIGHT: 400g (INC. WIRES)

IGNITION SYSTEM COMPRISES:

- IGNITION MODULE (ALUMINIUM HOUSING WITH MOUNTING BRACKETS) & WIRING
- 2-PART STEEL TIMING ROTOR, FIXING SCREW & WASHERS
- DIGITAL HALL-EFFECT TRIGGER UNIT
- DIGITAL IGNITION COIL (DUAL OUTPUT)
- H.T. LEADS (COPPER-CORED)
- PLUG CAPS (5K RESISTOR TYPE)
- FIXING SCREWS, WASHERS & NUTS
- CRIMP TERMINAL CONNECTORS & INSULATORS
- LARGE & SMALL CABLE TIE-STRAPS

Smart-Fire Fitting instructions

**Warning: this system produces very high voltages,
Always switch off before working on the system.**

Important notes:

Before fitting, please read these instructions carefully, including the notice on page 16.

This system is designed to work only with the special digital ignition coil provided with the system. 5K resistor plug caps as supplied with the system should be fitted to the h.t. leads. Alternatively, resistor spark plugs can be used. Resistor plugs & resistor caps can be used, although it is not necessary to use both. Attempting to run the system without resistor type caps or plugs will result in excessive radio frequency interference (r.f.i.), which may cause bad running, misfiring and loss of ignition. For reliability, copper or steel cored h.t. lead should be used, we do not recommend using carbon fibre leads. This ignition is a wasted spark system, therefore both plugs fire at the same time.

These instructions are a general guide for installing the system to various machines and therefore it may be necessary to modify the length or routing of some wires in order to complete the installation. All connections should be made using good quality crimped or soldered connections; twisted wires will not give satisfactory operation. Wiring should be trimmed to the correct length, excess wire should not be coiled up as this can affect the correct running of the ignition system. If electric welding is to be carried out, the ignition module should be disconnected and its connectors covered with insulation, to help prevent stray sparks from damaging the module. If in doubt, remove the unit from the machine.

1. For safety, disconnect the battery (preferably both terminals).
2. Remove the fuel tank to gain access to the existing ignition system & wiring.
3. Disconnect all wiring from the ignition coils & remove the coils, h.t. leads & caps. Remove the spark plugs.
4. Fit the new ignition module in a convenient place. The unit can be orientated in any position, but this should be onto a flat surface, if possible. Secure the unit by the mounting flanges using the two M5 bolts, washers & nuts. Alternatively, the mounting flanges can be

removed by slackening the bracket securing screws and sliding the brackets out of the dovetail slots. The module can then be mounted using large tie-straps, with a small sheet of rubber between the case & the frame.

5. Fit the ignition coil in a convenient place, away from the ignition module. This can be in place of the old coil(s). Suspend the coil by the two mounting lugs, using the M5 bolts, washers & nuts. Alternatively, to avoid the need for drilling or a mounting bracket, the coil can be rubber mounted using two small pieces of rubber tubing (such as fuel pipe or heater hose) & two large tie-straps, see figs. 1 / 1a. The coil can then be secured by passing the tie-straps around the frame tube & fully tightening the tie-straps. Fit the new h.t. leads by pushing the brass connectors fully into the h.t. outlets of the coil, along with the rubber boots. Small tie-straps can be placed around the rubber boots & tightened to give extra security, if desired. The h.t. leads should now be cut to length, if necessary, & the plug caps screwed onto the ends of the h.t. leads. Since both h.t. leads fire together, it does not matter which h.t. lead goes to which plug.



6. If preferred, the complete points housing can be removed and taken to a workbench, before carrying out the following operations.
7. Remove the points cover.
8. Cut the two wires close to the condensers. Undo the two screws & remove the complete contact-breaker assembly.
9. Remove the auto-advance/cam assembly.
10. Slide the small rotor part over the shaft (drive dog/slotted end first), turn and push down until the slot locates onto the shaft. See fig. 2. Due to slight variations between distributors (drive dog width), the slot in the timing disc may need to be gently filed to allow it to fully seat.

11. Slide the larger rotor part over the shaft (tapered end down), so that it fits into the lower rotor part.
12. Fit the supplied M4 washer & fixing screw into the top of the shaft, but do not tighten at this stage. See fig. 2a.

FIG. 2



FIG. 2a



13. The points housing can now be refitted, if removed earlier.

Wiring

(Please see wiring schematic on pages 9)

1. Take the ignition trigger assembly & feed a small cable tie through the set of small holes in front of the connector terminal block (do not fasten yet). This will be used later to secure the sleeved trigger wiring to the trigger board. See fig. 3.
2. The ignition trigger wires (sleeved) are coloured White—Black, Violet—Red & White—Red. Allowing some slack in the cable, route these wires from the ignition module down to the points housing. If passing through holes in metalwork, use grommets and/or sleeving. Slide the supplied grommet over the end of the sleeved wiring, and push the grommet & wiring into the points housing cut-out. Allowing sufficient wiring to connect to the trigger assembly (fitted in step 4, below), cut the trigger cable & sleeving to length.
3. Lift out the wiring & grommet, and route the sleeved wires to the trigger green connector block, passing over the small cable tie inserted earlier. Carefully strip back a small amount of insulation (4-5mm) from the ends of the wires. Insert the wires into the connector block in order (from left to right): White—Black, Violet—Red & White—Red. See figs. 3 & 4. Tighten the terminal screws. Secure the sleeved wires to the trigger by fastening the cable tie; cut off the excess from the tie.

4. Fit the trigger assembly into the points housing (fits in the place of the removed contact-breaker), positioned approx. midway on its adjustment slots. The red static timing light will be positioned at approximately 7 o'clock. Secure the trigger assembly by fitting the two fixing screws/washers, and tighten with a 4mm hex key. **See fig. 6, page 8.**
5. Slide the grommet into the cut-out. **See fig. 5.** Ensure the sleeved wiring is routed around the outer edge of the housing, away from the rotor fins. **Fit two cable ties either side of the grommet, and pull tight. This will prevent the wiring from being pulled out or pushed into the housing, avoiding possible contact with the spinning rotor.**
6. Connect the violet wire from the ignition module to the negative (—) terminal of the ignition coil (left-hand spade connector), using a female crimp connector and insulating cover.
7. Connect the red wire from the ignition module to the positive (+) terminal of the ignition coil (right-hand spade connector), using a female piggyback crimp connector and insulating cover.

*Re-check the connections to the ignition coil:
reverse polarity may damage the coil.*

8. Connect the black wire from the ignition module to a good grounding point on the frame or directly to the battery negative (—), using a ring terminal.
9. Connect the spare terminal on the piggyback connector (on the positive side of the ignition coil), to a switched positive supply (+12 volts). An in-line fuse can be included (8-10 amp recommended). It is important that the switch is in good condition; corroded or dirty contacts will cause misfiring/cutting out.
10. The **ORANGE** wire is an *ignition inhibit* input. This can be connected to a grounding kill switch or a hidden security switch. If not required, place insulating tape over the end of the wire to prevent shorting out.
11. The **GREY** wire is a tacho output signal for driving an electronic tachometer, if fitted. This is a 12 volt output and provides 1 pulse per two engine revolutions (0.5 pulses/rev). This is compatible with the Ducati Veglia tacho. If your tacho requires a different pulse rate, contact Pazon Ignitions. Connect to the tacho signal input terminal/wire. If you have a mechanical tacho, an inductive pickup tacho (e.g. Scitsu), Krober or no tacho, then leave unconnected;

- cut short the wire & and insulate the wire end.
12. Any remaining wires which may be present on the ignition module are for factory use and should remain unconnected and insulated, as supplied.



FIG. 3



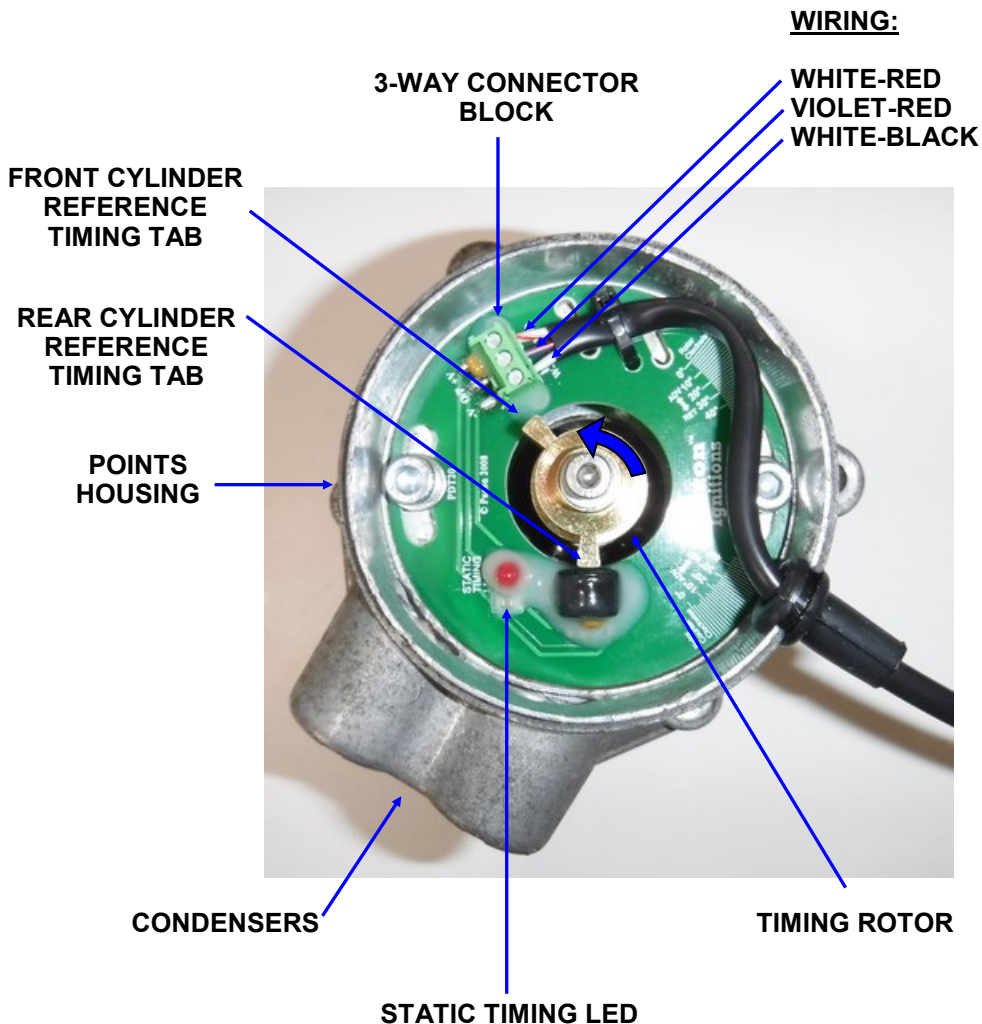
FIG. 4



FIG. 5

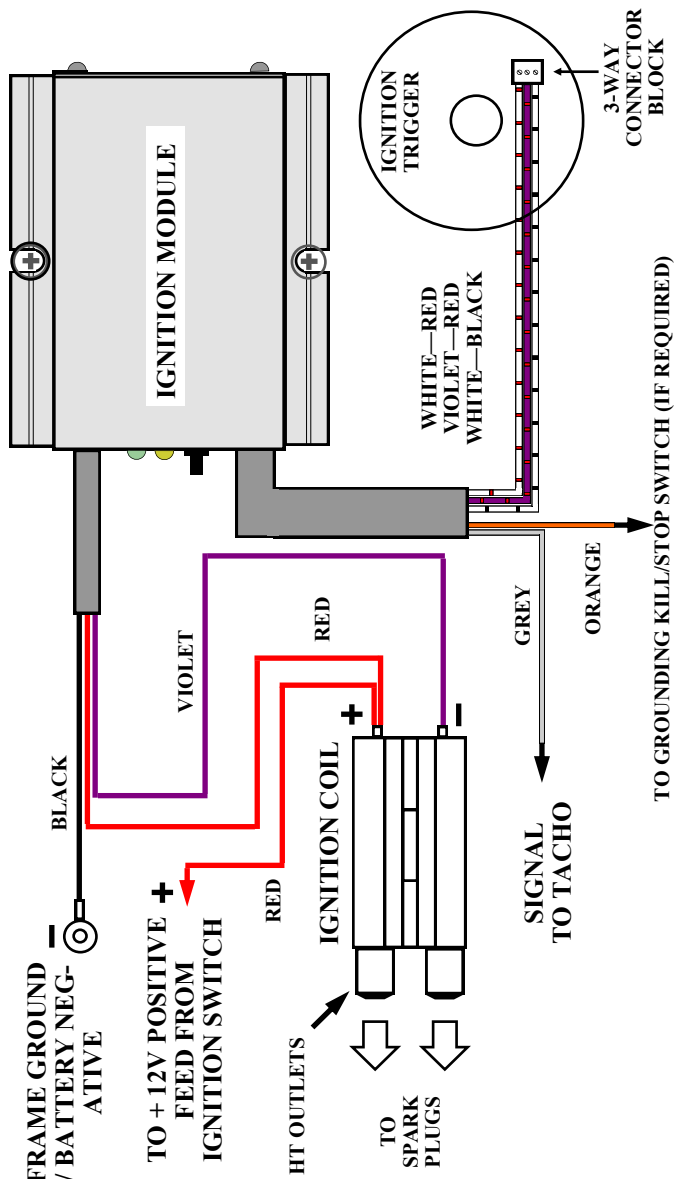
Timing Rotor Static Position
Relative to trigger fixings,
Rear Piston at Static Timing (IDLE) Mark
(ANTI-CLOCKWISE rotation)

FIG. 6



**WARNING: TURN OFF/DISCONNECT THE BATTERY
BEFORE WORKING ON THE SYSTEM
HIGH VOLTAGES CAN KILL**

NEGATIVE GROUND



Timing (SEE PAGES 12 & 13, FIGS. 7-10)

1. Switch off ignition or disconnect the battery.
2. Set the vertical (rear) piston to the required static (idle) timing mark (typically 8° - 10° BTDC) on the compression stroke, using a known accurate timing mark or make one using a timing disc & pointer or depth gauge down the bore. This will be easier if the spark plugs are removed first. The graph shown on page 15 is based on a static timing figure of 8° BTDC. If using the standard 10° setting, all figures on the graph will be shifted up 2° , so full advance timing will then be 38° BTDC. Note: if using a timing disc on the distributor shaft, the angular movement will be half the required crankshaft full advance figure, e.g. for 8° full advance, set rear piston to TDC, zero pointer & wind engine back 4° of distributor shaft movement.
3. Ensure that the top part of the timing rotor can be rotated by hand (if necessary, loosen the fixing screw slightly). Looking at the points housing with the two fixing holes at 3 o'clock & 9 o'clock (the condensers will be at approx. 7 o'clock), position the timing rotor with the two tabs at approximately 10 o'clock & 6 o'clock positions.
See fig. 7, page 13.

**WARNING: RISK OF ELECTRIC SHOCK, KEEP HANDS
& BODY AWAY FROM COIL, HT LEADS, CAPS & PLUGS**

4. The following operations may produce a spark from the plugs, therefore it is recommended that the spark plugs be removed and grounded onto the cylinder head (with the plug caps & h.t. leads connected to them). Alternatively, the violet wire can be temporarily disconnected from the negative terminal of the ignition coil, place insulating tape over the end of the connector to prevent shorting to ground. This will prevent any undesired sparks whilst timing.
5. Reconnect the battery.
 - Switch the ignition on, the small green light on the ignition module turns on, indicating power is on.
 - The red static timing light on the trigger should be OFF.
 - Rotate the rotor slowly anti-clockwise until the red timing light turns ON. Stop rotating. **See fig. 8 on page 13.**
 - Rotate the rotor slowly clockwise until the red timing light turns OFF. Stop rotating. **See fig. 9 on page 13.**

- Finally, rotate the rotor slowly anti-clockwise until the red timing light turns ON. Stop rotating. **See fig. 10 on page 13.** This is the static timing point for starting/idle.
 - Keeping the rotor in position, tighten the fixing screw with a 3mm hex key.
 - If you make a mistake, switch the ignition off and restart from step 3.
 - The final position of the rotor may be slightly different to that shown in fig. 10 due to variations in the initial positions of the trigger and rotor parts.
6. Switch off the ignition.
 7. Refit the spark plugs, if removed earlier. Reconnect the violet wire to the ignition coil, if disconnected in step 4.
 8. Push the plug caps firmly onto the plugs, they should click into place.
 9. Refit the fuel tank, if removed earlier. The engine should now start and after warming up should tick over well, provided everything else is correctly adjusted. The ignition will advance as per the pre-programmed curve (see advance graph on page 15).
 10. The timing can now be checked & adjusted (if necessary) using a strobe timing light. Proceed as follows:
 - Run engine for 4-5 minutes to warm up
 - Using a white light (xenon) strobe, time the engine to the required full advance timing mark (typically 36-38° BTDC), with the engine running above 3400 rpm.
 - To advance the timing, slightly loosen the trigger fixing screws and rotate the trigger assembly clockwise
 - To retard the timing, slightly loosen the trigger fixing screws and rotate the trigger assembly anti-clockwise
 - Make very small adjustments, 1° of trigger movement equals 2° of crankshaft movement
 - For safety, switch ignition off between adjustments
 - After making any adjustments, make sure the trigger fixings are tightened with a 4mm hex key
 11. Refit the points cover.

INSTALLATION IS NOW COMPLETE.

*** See accompanying text
on pages 10-11 for a full
description of the static
timing light operation**

STATIC IGNITION TIMING ANTI-CLOCKWISE SHAFT ROTATION

FIG. 7



START POSITION

**SWITCH IGNITION ON,
RED TIMING LIGHT IS OFF**

FIG. 8



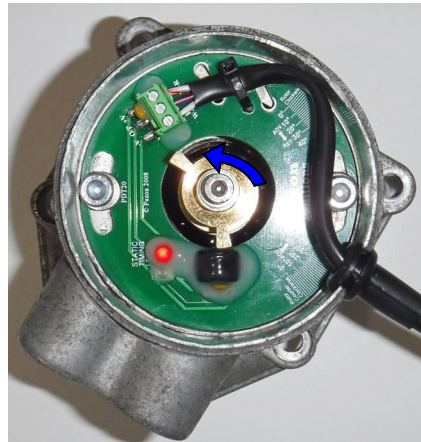
**ROTATE ROTOR SLOWLY
ANTI-CLOCKWISE,
UNTIL THE RED TIMING LIGHT
TURNS ON *,
STOP TURNING**

FIG. 9



**ROTATE ROTOR SLOWLY
CLOCKWISE,
UNTIL THE RED TIMING LIGHT
TURNS OFF *,
STOP TURNING**

FIG. 10



**ROTATE ROTOR SLOWLY
ANTI-CLOCKWISE,
UNTIL THE RED TIMING LIGHT
TURNS ON *,
STOP TURNING**

TIGHTEN ROTOR FIXING

REV-LIMITER

USE OF THIS FUNCTION IS AT YOUR OWN RISK, SINCE IT IS POSSIBLE TO SET THE REV-LIMITER TO BEYOND THE DESIGNED UPPER RPM LIMIT FOR YOUR ENGINE.

The **Smart-Fire** ignition module features a function button that enables the user to set/reset the ignition rev-limiter. Unless specified when purchasing the system, the rev-limiter is not preset, allowing your engine to rev to its maximum (unrestricted).

To set the rev-limiter

To accurately set the rev-limiter you will need a rev. Counter/tachometer to monitor the engine rpm. Rev the engine to one-half the desired rev-limit rpm, press & hold the function button for a minimum of 3 seconds. The ignition module will take a snapshot of the engine rpm at the instant the button is pressed, therefore it is not essential to maintain a precise rpm whilst the button is pressed. The yellow indicator led on the module will flash 5 times Release the button. The rev-limiter is now set. When your engine reaches the preset rpm the ignition will turn off the ignition coil, cutting all sparks. Thus, the engine rpm will fall and, once below the rev-limit setting, ignition will resume.

The minimum rev-limiter setting is 3000 rpm (i.e. set with the engine running at 1500 rpm).

To reset the rev-limiter

To reset (disable) the ignition rev-limiter, press & hold the function button for a minimum of 3 seconds, with the engine below 1500 rpm (or stationary). The yellow indicator led on the module will flash 5 times. Release the button. The rev-limiter is now reset.

The rev-limiter setting is retained in the ignition module memory & will be recalled when the ignition is turned on.



Terms & Conditions and Warranty

- Use of this product indicates your acceptance of this notice.
- The product design, firmware & literature is Copyright © PAZON IGNITIONS LTD. 2005-2025, and is protected under international copyright, trademark & treaty provisions.
- To provide the best ignition systems possible, Pazon Ignitions Ltd. reserves the right to alter and improve the specifications of its products without prior notice.

Ignition Systems

- Pazon Ignitions warrants to the original purchaser that the Pazon Ignition System be free from defects in workmanship & parts under normal use for a period of 7½ years from date of purchase.

Ignition Spares

- Spares are defined as item(s) not purchased as part of a complete ignition system. Pazon Ignitions warrants to the original purchaser that these item(s) be free from defects in workmanship & parts under normal use for a period of one year from date of purchase.
- Ignition coils will only be covered by the warranty if it can be proved that the fault is due to a manufacturing fault within the coil.

Limitation of Liability

- In no event shall Pazon Ignitions' liability related to the product exceed the purchase price actually paid for the product.
- Neither PAZON nor its suppliers shall in any event be liable for any damages whatsoever arising out of or related to the use or inability to use the product, including but not limited to the direct, indirect, special, incidental or consequential damages, or other pecuniary loss.
- This warranty will be void if the product or parts have been altered, damaged, abused or installed incorrectly.
- This warranty will be void if parts supplied by Pazon Ignitions are used with other makes of ignition. Your statutory rights are not affected.

Warranty Claims

- To make a claim under warranty, the product must be returned to Pazon Ignitions or its authorized representative, with a copy of your receipt (or evidence of date and place of purchase), within the warranty period.
- Include a detailed description of the problem and why you believe there is a fault within the ignition system.
- The system must be returned postage paid. Proof of posting is not proof of receipt, therefore we recommend using a recorded mail service.
- Upon receipt we will thoroughly test the returned items and repair or replace any items found to be faulty and covered by the warranty.
- Please allow seven working days from receipt of the returned parts before contacting us, to allow sufficient time for a thorough test and evaluation.
- PLEASE CONTACT PAZON IGNITIONS FOR RETURN INSTRUCTIONS.

✉ **Pazon Ignitions Ltd, 274 Hot Springs Road, RD 2,
Katikati 3178, Bay of Plenty, New Zealand**

☎ **TELEPHONE: +64 (0) 7549 5878** 📠 **FAX: +64 (0) 7549 5879**
EMAIL: ignition@pazon.com WEB: www.pazon.com