

AMM - P1 UNIVERSAL-PERFORMANCE



IGNITION-SYSTEM



CUSTOMER INFORMATION

CONGRATULATIONS!

Congrats for owning the AMM - P1, the world's finest and most versatile ignition-system powering 1- through 12-cylinder engines in cars, motorcycles, boats or stationary applications.

We have put all our experience into this most-advanced ignition system in order to give you full control over your engine. The AMM - P1 is able to deliver unrivalled engine performance, superior to any other ignition system.

This ignition system has been designed to deliver the maximum possible performance. For all distributed 3..12 cylinder engines, as well as 1, 2 and 4 cylinder distributorless engines.

Despite its many features, this ignition system is easy to install and operate with only few wires to connect.

HALL-EFFECT CAM-SENSOR INTERFACE

The AMM-P1 universal performance ignition system relies on Hall-effect Cam-Sensor interface as is found on most carbureted engines and early fuel-injection engines. It is compatible to many automotive sensors from the '80s and '90s making it a plug-and-play solution for these engines. In addition we supply our own Hall-Sensor assembly as well as trigger-rotors and mounting adapter in order to replace points and mechanical advance units on older engines or for adaption to brand-new engines that are being simplified and/or upgraded to carburetor including experimental engines.

256 ADVANCE CURVES - 32BIT PRECISION

At least now you know that you've purchased the world's most advanced ignition system. While advance-curves traditionally are stored as lookup-tables from the very first until today's electronic ignition modules and control units, the AMM-P1 takes a novel approach in order to bring performance to an entirely new level. Since lookup-tables are inherently limited in their resolution we decided to employ the latest generation of 32-bit processors in our AMM-P1 in order to create the actual advance-curve mathematically - in real-time - and with 32-bit precision! This way we have been able to integrate a whopping 256 ultra-precision advance curves into the tiny AMM-P1 unit.

We do not want to memorize 256 advance curves (you won't too), so we have sorted them out to be selected in parametric fashion: With only two 16-position rotary knobs - one for max. advance - and one for curve rise - finding and setting the optimum advance curve for your engine is as straightforward as it can possibly be. Max advance can be adjusted in 2° steps and rise in 200 rpm steps - on the fly - during engine operation!

Whether your engine is a 2- or 4-valve, has 1, 2,3,4, 5, 6, 7,8,9,10,11 or 12 cylinders, V or straight, sport- or stock-pipes, bored cylinders, hotter cams, aspirated, compressor or turbo-charger: the AMM - P1 is able to reveal its full potential, while maintaining rock solid reliability, ultrafast throttle response and smooth idle. A blue LED monitors power- and sensor-status.

EXTRA FEATURES

The AMM - P1 ignition features 2 sensor-inputs and 2 output-stages. In distributed engines (3,4,5,6,7,8,9,10,11 or 12 cylinders) both output stages are triggered simultaneously. We leave it up to you if you leave one output as a spare or connect both outputs in parallel for driving extra hot ignition coils in race applications. Dual outputs come handy for dual-plug heads as well as dual-distributor engines. The P1's set of two sensor-inputs allow for V2 engines (of arbitrary cyl. angle) running either dual- or single-fire mode as well as 4-cylinder distributorless engines. Dwell control is fully automatic and dependent on number of cylinders.

The AMM-P1's outputs are protected against overload including short-circuit and feature a soft rampdown in order to prevent timeout-spark in case of loss of sensor signal. The AMM-P1 is reverse-polarity and overvoltage-protected but it continues operations down to 3V supply voltage - and lower - making it eminently suitable for all 6Volt and 12Volt systems as well as for battery-less operation, manual- or kick-start.

SUPPORT

If you have any questions or need more information about our products don't hesitate to contact the next AMM-dealer AMM directly. Additional information is also available on our web-site: www.amm.haan.de



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ALTMANN MICRO MACHINES

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If you discover a defect, AMM will, at its option, repair, replace, or refund the purchase price of this product at no charge to you, provided you return it during the warranty period, with transportation charges prepaid, to AMM Germany. (You can obtain additional information by contacting AMM at the address printed on this certificate.)

To each product returned for warranty service, please attach your name, address, telephone number, error description, and the original guarantee certificate bearing the appropriate AMM serial numbers as proof of original retail purchase.

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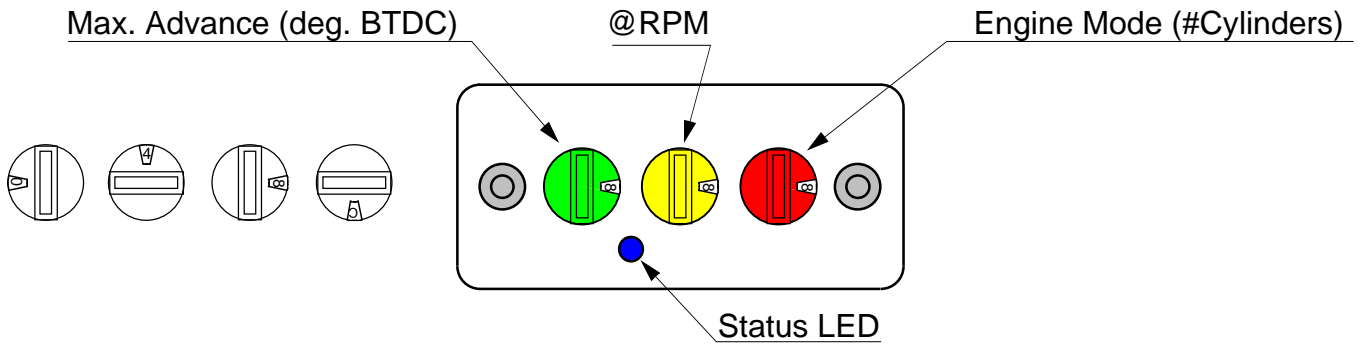
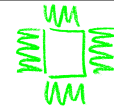
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Max. Advance: @ RPM (rise)

0 -> 14,0°	EXTREME AREA	0 -> 4800
1 -> 16,0°		1 -> 4600
2 -> 18,0°		2 -> 4400
3 -> 20,0°		3 -> 4200
4 -> 22,0°		4 -> 4000
5 -> 24,0°		5 -> 3800
6 -> 26,0°	STANDARD AREA	6 -> 3600
7 -> 28,0°		7 -> 3400
8 -> 30,0°		8 -> 3200
9 -> 32,0°		9 -> 3000
A -> 34,0°		A -> 2800
B -> 36,0°		B -> 2600
C -> 38,0°	EXTREME AREA	C -> 2400
D -> 40,0°		D -> 2200
E -> 42,0°		E -> 2000
F -> 44,0°		F -> 1800

Please avoid extreme advance / rise settings, unless you are a professional and know exactly what you are doing !

For most engines, settings within the standard area are applicable.

Engine Mode:

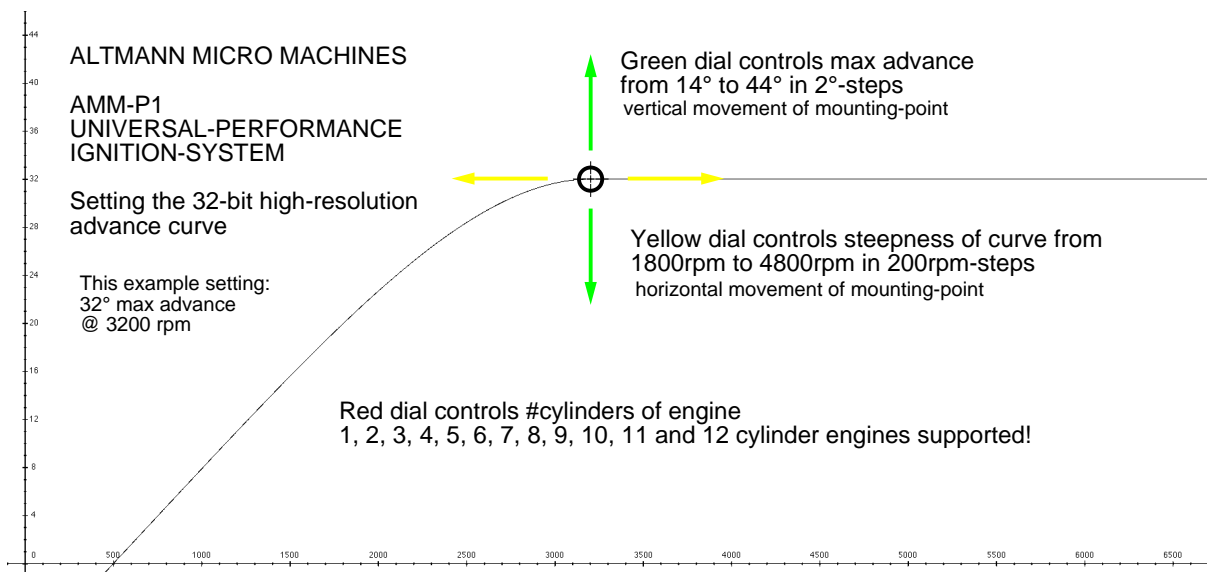
- 0 -> V2-engine dual-fire or single-fire (2 Sensors), HD legacy mode
- 1 -> 1-cylinder & 2-cylinder distributorless engines (2 Sensors)
- 2 -> 2-cylinder & 4-cylinder distributorless engines (2 Sensors)
- 3 -> 3-cyl. engines with distributor
- 4 -> 4-cyl. engines with distributor
- 5 -> 5 cyl. engines with distributor
- 6 -> 6 cyl. engines with distributor
- 7 -> 7 cyl. engines with distributor
- 8 -> 8 cyl. engines with distributor
- 9 -> 9 cyl. engines with distributor
- A -> 10 cyl. engines with distributor
- B -> 11 cyl. engines with distributor
- C -> 12 cyl. engines with distributor
- D -> reserved setting
- E -> reserved setting
- F -> reserved setting

AMM - P1 HIGH-PERFORMANCE IGNITION SYSTEM

SYSTEM OPERATION INSTRUCTIONS

After installation, you can adjust the advance-curve as desired.

The green knob sets the max. advance
The yellow knob adjusts the rise/steepness of the curve
The red knob specifies the engine mode.



The right curve:

It is advised to start with a curve matching the manufacturer's recommendation. If engine setting includes static advance, the static advance angle is to be added to the ignition advance in order to obtain the max. advance.

In simple terms:

Green dial adjusts max. power at speed (high-rpm).
 Yellow dial adjusts acceleration (lo to mid rpm).

Turning green/yellow dial clockwise, makes the setting more aggressive.
 Turning green/yellow dial counter-clockwise, makes the setting less aggressive, more laid back.

Don't go into extreme settings unless you are a pro and know exactly what you are doing!

Rules of Thumb:

The louder the exhaust, the lower the max. advance should be. If exhaust is silent, you can have more advance.
 The higher the compression, the lower the max. advance must be.

If you can't get it running, we will assist you. Just drop us a line: amm.1@haan.de

What you should not do to your AMM - P1:

Do not open your AMM - P1. If you open the case, you will lose the warranty.
 When cleaning your vehicle, do not aim with a high pressure water-stream at your AMM - P1.
 Each adjusting knob of your P1 has 16 switch-positions that are indicated by a number in the small knob-window. Do not leave any one of the 3 knobs between two positions, since you may weaken the locking spring inside the switch mechanism.

AMM-P1 UNIVERSAL -PERFORMANCE IGNITION-SYSTEM

GENERAL INSTALLATION INSTRUCTIONS

Checklist:

- If you have a heart-disease, let someone else do the job!
- The AMM-P1 is not a toy. If you don't want to be electrocuted, turn ignition switch OFF and disconnect the ignition coils (coil minus). It is also good practice to disconnect the battery.
- We have designed the AMM-P1 as a powerful tool for the experienced rider/driver/operator. It will give you flawless engine performance, but it is not checked to comply with any law or regulation in any state or country. If you use it, you do it on your own risk and responsibility. If in doubt, check out your local police station.
- The AMM-P1 allows for a very precise as well as very wide adjustment of advance curves. It comes preset (green 8 - yellow 8) which means 30°max. advance @ 3200 rpm. This setting is within the standard-range and an excellent starting point for most engines. Please do not select extreme settings unless you know exactly what you are doing. Extreme advance settings can lead to bad engine-behaviour and performance.

General Information:

AMM-P1 operates using 1 or 2 hall effect sensors and a trigger disc (or cup) with 1..12 slots (depending on engine mode). Trigger rotor is normally driven by cam, however on 1 & 2-cylinder engines can alternatively be driven by crank too.

AMM-P1 only fires inside slot.

Trigger rotors are designed that slot size compares to about 50° crank angle. That means rotors meant for cam-install will have 25° slots and rotors for crank-install shall have 50° slots. It will not be a problem if slots are of slightly different dimension, as AMM-P1 will compensate for that, however a slot size that amounts to 50° crank is the optimum value assuring maximum firing precision.

Power-On:

Directly after Power-On AMM-P1's blue LED will communicate engine-mode (set with the red dial) through a blink-sequence. After the blink sequence is complete, blue LED will go off for one second and then come on again permanently, until a sensor input is detected. After first sensor-input, blue LED communicates sensor-status: ON -> sensor sees slot (air), OFF -> sensor sees metal.

Adjustments of engine-mode (red-dial) will only take effect on next Power-On, while adjustment of curve dials (green, yellow) will have immediate effect.

Starting:

When engine is cranked with ignition ON, blue LED will blink according to sensor-input and fire the coil(s). During starting coil will be switched on as soon as sensor sees air (gap) and coil will be switched off as soon as sensor sees metal (end of slot causing a spark at TDC/static advance).

Installation:

1) Bring first cylinder to TDC (top dead center) in compression stroke. Compression stroke is reached when air is blown out of the spark-plug hole. Either set engine to straight TDC or to static advance (normally between 3..10° crank) according to manufacturer's recommendation.

Important: Do not try to identify the compression stroke by looking at the valves. Instead, put a finger into the spark plug hole and rotate the engine in running direction until you feel the compression.

2) Be aware of direction of rotation. Adjust sensor-plate /distributor so that sensor sees end of slot, while distributor finger (if present) is on correct location as shown in the installation drawings.

Connect power, ground and sensor(s) to AMM-P1. Turn ignition on.

Fine adjust sensor/rotor position so that AMM-P1's blue LED just turns off (end of gap).

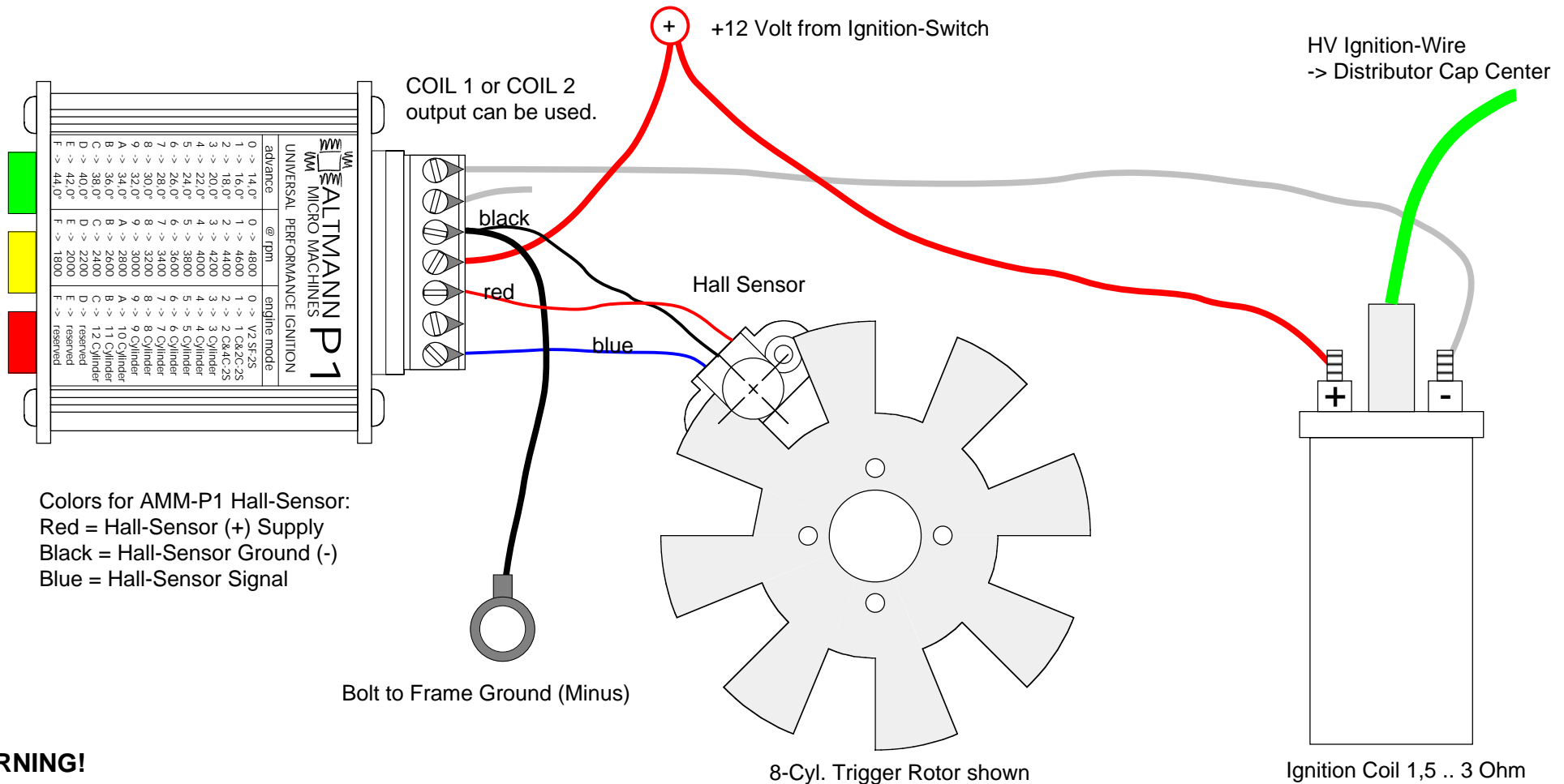
3) Connect ignition coil(s) to AMM-P1. Ignition coil primary resistance should be between 1.5 and 3 Ohm.

4) Complete installation and go for a test ride. Please ride/drive responsibly.

PS: If you have any questions concerning installation, please refer to our website: www.amm.haan.de for further informations.

AMM - P1 IGNITION SYSTEM OVERVIEW

Connection Diagram for 3..12 Cylinder Distributor Engines -> Engine Mode 3..12



WARNING!

Persons with heart diseases must not install or maintenance this ignition system!

Do not overtighten terminal screws. Please take care, that there are no short circuits between the cables.

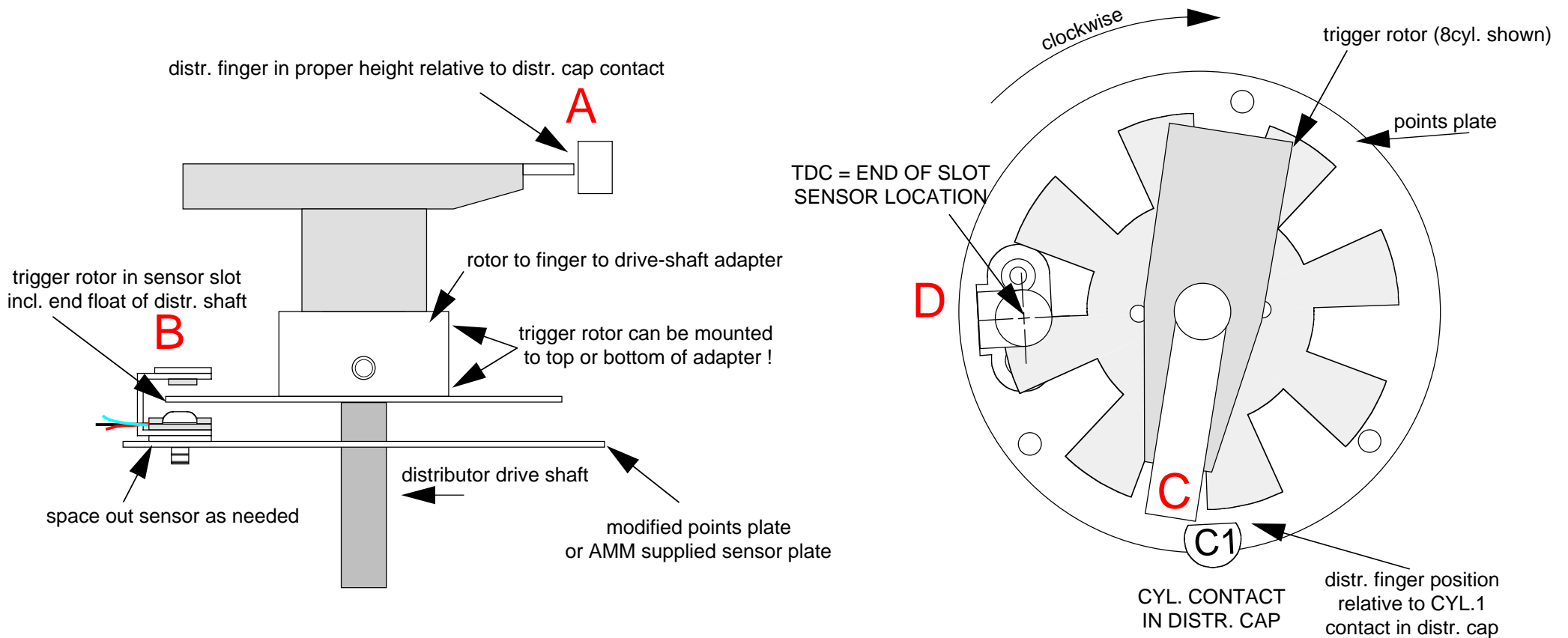
During installation keep the ignition coil disconnected from the P1 ignition in order to prevent dangerous voltages. Never use this ignition system without ignition cables and spark-plugs properly connected! This diagram is for 2..3 Ohm ignition coils. If you use a different ignition coil, please refer to the corresponding diagram.

AMM - P1 IGNITION SENSOR INSTALLATION



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!!! **Clockwise Rotation** !!! Check points **A, B, C, D** !



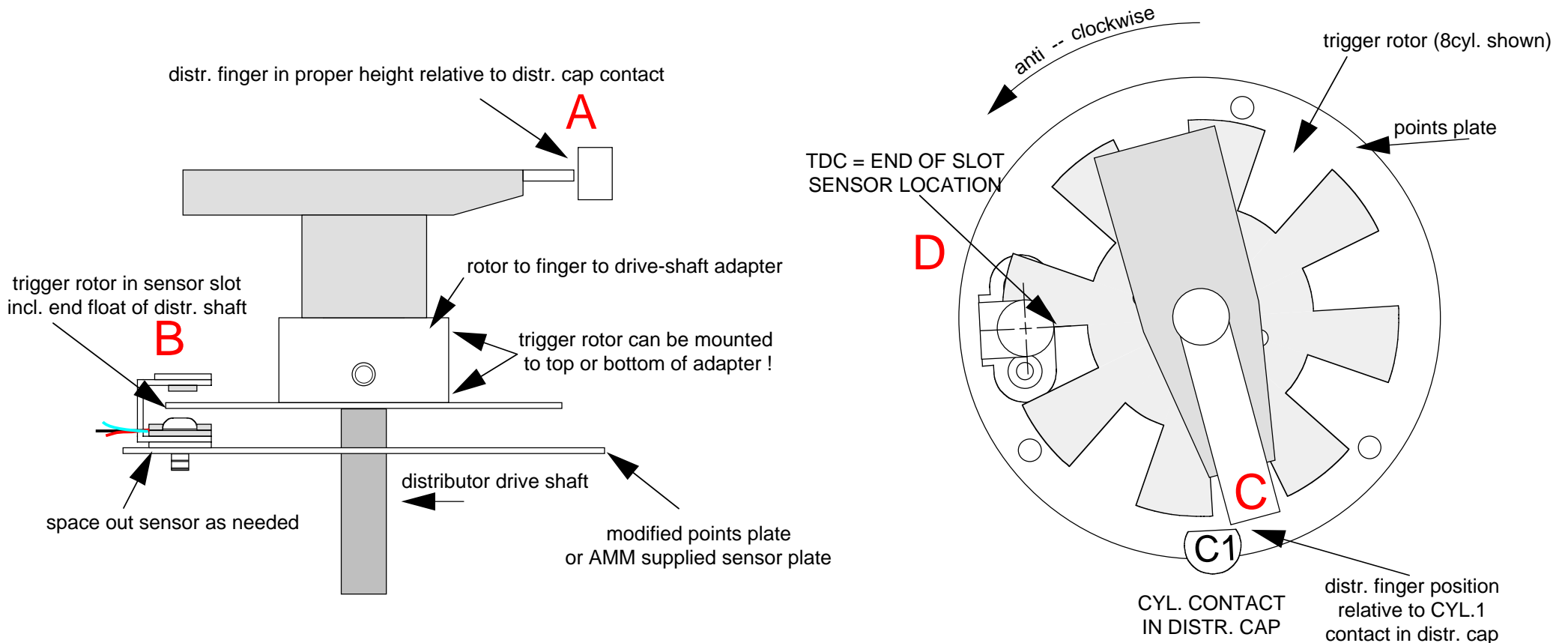
TIPS

First assure proper height of distributor-finger in distributor-cap using the supplied adapter. Then decide if trigger rotor should be mounted on top- or bottom-face of adapter (depending on the available space inside the distributor), so that proper sensor gap can be achieved. Spacers below the sensor may be necessary.

After finger-height and sensor-gap have been checked, position the finger pointing to the trailing edge of one of the contact points inside the distributor cap, as shown above. With distributor-finger in this position, correct sensor position is at end of (any) slot of trigger rotor. Mount Sensor here.

AMM - P1 IGNITION SENSOR INSTALLATION

!!! Anti-Clockwise Rotation !!! Check points **A, B, C, D** !



TIPS

First assure proper height of distributor-finger in distributor-cap using the supplied adapter. Then decide if trigger rotor should be mounted on top- or bottom-face of adapter (depending on the available space inside the distributor), so that proper sensor gap can be achieved. Spacers below the sensor may be necessary.

After finger-height and sensor-gap have been checked, position the finger pointing to the trailing edge of one of the contact points inside the distributor cap, as shown above. With distributor-finger in this position, correct sensor position is at end of (any) slot of trigger rotor. Mount Sensor here.