

AMM - P2 V2 HIGH-PERFORMANCE IGNITION-SYSTEM



CUSTOMER INFORMATION

CONGRATULATIONS!

Congrats for owning the AMM - P2, the world's finest and most versatile ignition-system for all V2 engines.

We have put all our experience into this most-advanced ignition system in order to give you full control over your engine. The AMM - P2 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. 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-P2 high performance ignition system relies on Hall-effect Cam-Sensor interface that is standard or can be retrofitted to about any V2 engine. Standard applications include Harley-Davidson® Flathead, Knucklehead, Panhead, Shovelhead, Evolution, Sportster® '03 and Buell '07 engines. Special applications include HD® Twincam and Milwaukee-Eight® engines if an EVO-style cam-cover is mounted, as well as V-ROD®, X-Wedge, Indian, Ducati and Moto-Guzzi, etc. engines (if a custom cam-sensor can be installed).

256 ADVANCE CURVES - 32BIT PRECISION

Traditionally electronic ignition modules store advance-curves as lookup-tables. Since lookup-tables are inherently limited in their resolution we decided to employ the latest generation of 32-bit processors in your AMM-P2 in order to create the actual advance-curve mathematically - in real-time - and with 32-bit precision, boosting performance to an entirely new level! This way we have been able to integrate 256 ultra-precision advance curves into the AMM-P2 unit.

We do not want you to memorize 256 advance curves, 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.

A third rotary knob is used to set the desired rev-limit between 5000 and 8000 rpm in 200rpm steps.

Whether your V2 engine has 2- or 4-valve cylinder-heads, sport- or stock-pipes, bored cylinders, hotter cams, aspirated, compressor or turbo-charger: the AMM - P2 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.

DUAL-FIRE & SINGLE-FIRE

The AMM - P2 ignition features 2 sensor-inputs and 2 output-stages in order to facilitate dual-fire as well as single-fire operation. Just connect a dual-fire or single-fire sensor plate and coils, and the AMM-P2 will select the appropriate operations-mode fully automatic. For dual-fire mode the stock HD® Sensor-Plate can be used, for single-fire mode we offer the AMM-P2 single-fire sensor-plate.

EXTRA EXTRA FEATURES

The AMM-P2'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-P2 is reverse-polarity and overvoltage-protected and it continues operations down to 3V supply voltage - and lower - making it eminently suitable for 12Volt as well as 6Volt systems. Battery-less operation is supported for kick-start.

SUPPORT

If you have any questions or need more information about our products don't hesitate to contact the next AMM-dealer or 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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ALTMANN MICRO MACHINES („AMM“) warrants to you as an end-user purchaser AMM Hardware Products against defects in material and workmanship for a period of FIVE (5) YEARS from the date of original manufacturing, as indicated on the guarantee certificate.

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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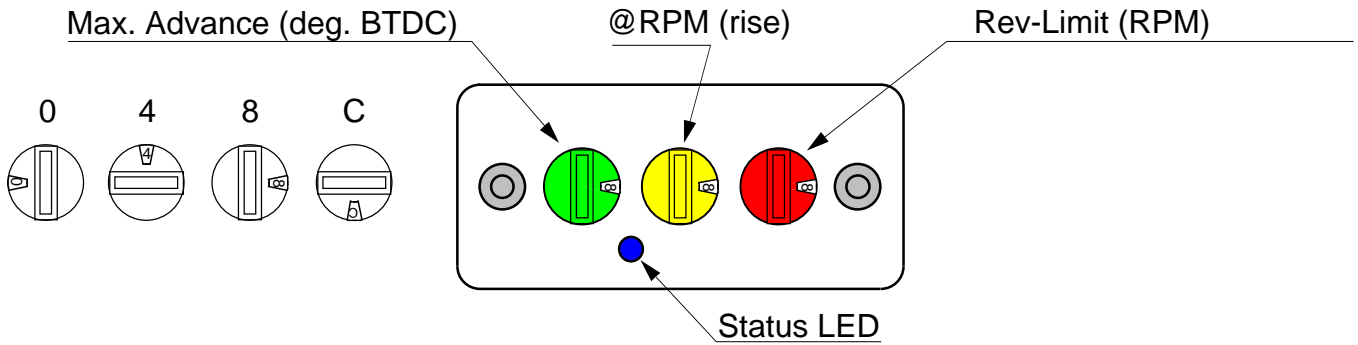
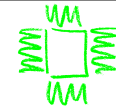
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Max. Advance:

@ RPM (rise)

Rev-Limit (RPM)

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

0 -> 5000
1 -> 5200
2 -> 5400
3 -> 5600
4 -> 5800
5 -> 6000
6 -> 6200
7 -> 6400
8 -> 6600
9 -> 6800
A -> 7000
B -> 7200
C -> 7400
D -> 7600
E -> 7800
F -> 8000

Green dial selects maximum advance in crank deg. BTDC (before Top Dead Center). Smaller values in the dial's window configure a lower advance setting, larger values a higher setting.

Yellow dial selects the rise of the curve by selecting the rpm where the curve tops out at max. advance. Smaller values in the dial's window configure a flatter curve. Larger values a steeper, more aggressive curve.

Red dial selects the rev-limit where ignition is shut off.

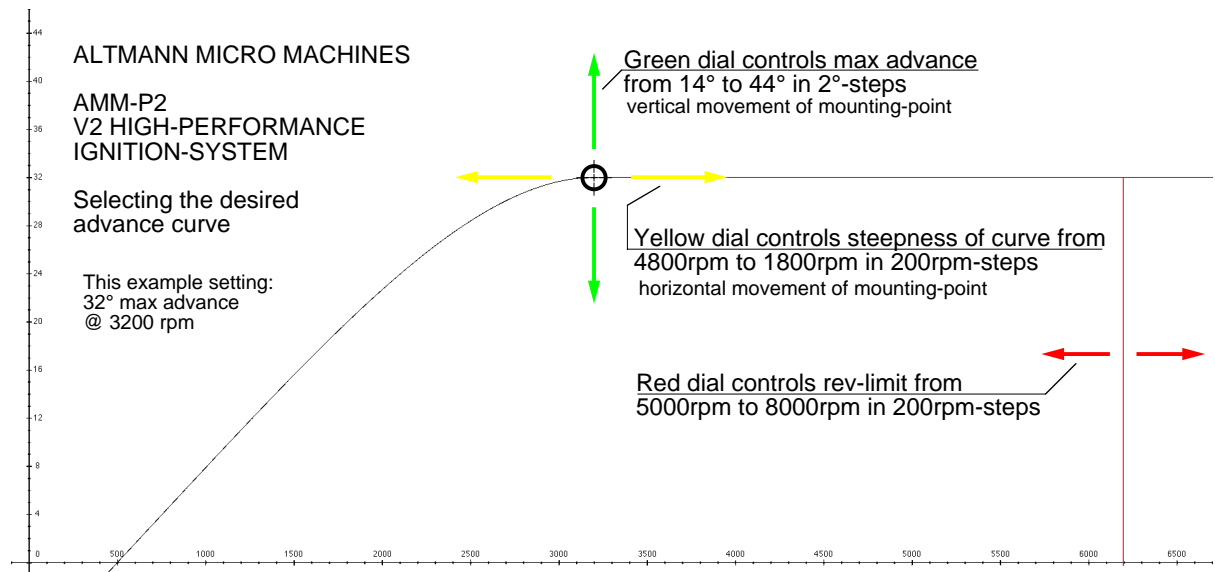
Caution: When selecting advance curves, please stay within the standard area, unless you are a Pro working on a special engine and know exactly what you are doing! Selecting extreme settings that do not match with the application, can cause bad engine behaviour and in severe cases damage to the engine can occur!

AMM - P2 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 rev-limit.



Finding the right curve on a dyno:

With full throttle, adjust green knob for max. power. Stay within the standard area (26° .. 36°) !

Record one dyno run from 1000 to 4000 rpm for every setting of the yellow knob within the standard area (2600 .. 3600 rpm) !
 Check the torque values between 1000..4000 rpm. Adjust the yellow knob for best torque curve.

Finding the right curve just by riding the bike:

With stock or sport (supertrapp, vance&hines, etc) exhaust, set curve to 34° @3000 rpm
 With open pipes or higher compression set curve to 30° @3400 rpm.

Try out and concentrate on the difference between these two settings, in order to get a feel for it. Then you may play with different settings.

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@haan.de

What you should not do to your AMM - P2:

Do not open your AMM - P2. If you open the case, you will lose the warranty.
 When cleaning your motorcycle, do not aim with a high pressure water-stream at your AMM - P2.
 Each adjusting knob of your P2 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-P2 HIGH-PERFORMANCE IGNITION-SYSTEM

dual-fire & single-fire

INSTALLATION INSTRUCTIONS FOR HD

Checklist:

- If you have a heart-disease, let someone else do the job!
- The AMM-P2 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-P2 as a powerful tool for the experienced rider. 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-P2 allows for a very precise as well as very wide adjustment of advance curves. It comes preset (green 8 - yellow 8 - red 0) which means 30°max. advance @ 3200 rpm and rev-limit 5000 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.

Installation:

1) Remove the nose cone cover. On models with mechanical ignition, remove point plate and advance unit. Install Late Trigger Rotor (OEM 32402-83). On models with stock electronic ignition please remove OEM sensor-plate and check, that the late trigger rotor is installed (check for OEM 32402-83).

For dual-fire mode you can use stock HD-sensor-plate. For single-fire mode AMM-P2 Single-Fire Sensor-Plate is needed. Install sensor-plate and sensor-plate screws, do not tighten screws by now. Route the gray sensor-plate cable through the hole at the bottom of the nosecone.

2) Choose a nice place for the AMM-P2 module (under the seat). Supplied in the AMM-P2 accessories bag are the blue P2-connector, a short black wire and ring-terminal for frame-ground connection as well as six red and one blue wire-end-ferrules. The blue wire-end ferrule is a larger size, as it needs to connect two wires: the frame-ground as well as the sensor-ground to the P2-module.

At the end of this owners manual you will find connection diagrams for dual-fire and single-fire operation. Make all connection according to the diagram but do not connect the ignition coil(s) by now.

3) Take out & clean the spark plugs. Check electrode gap for app. 1 mm. Open the timing inspection hole on the left side of the crank-case. Adjust front piston to Top Dead Center in the COMPRESSION STROKE. The compression stroke is reached, when air is blown out of the spark plug hole of the front cylinder. Find TDC mark on flywheel by looking into the inspection hole (On late Shovels and Evos the TDC marking is a line). Be sure, that front piston is in Top Dead Center position.

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

Tip: An easy way is sitting on the bike with 4th or 5th gear engaged, slowly rolling forward with one finger in the front spark hole, until you feel compression :) Let someone else look into the inspection hole to tell you when the TDC marking shows up while you roll forward slowly. Put bike on sidestand with the TDC mark in the middle of the inspection hole.

4) Switch on ignition, the blue LED of the AMM-P2 lights up.

5) Rotate the sensor plate completely from left to right (clockwise) until blue LED goes off; then to the left until blue LED goes on. Now rotate sensor plate very slowly to the right to the very position, where the blue LED goes off. Fix the sensor plate in this exact position.

Tip: If the blue LED does not react while rotating the sensor plate, check if sensor plate is connected correctly. If so, the front piston is not in the compression stroke. You've been warned -> go back to step 3.

Turn ignition switch OFF. Install nose-cone cover.

6) Install the spark plugs and ignition cables. Close the timing inspection hole. Connect the ignition coil to the AMM-P2.

7) Start engine and enjoy your test-ride. Please ride carefully!

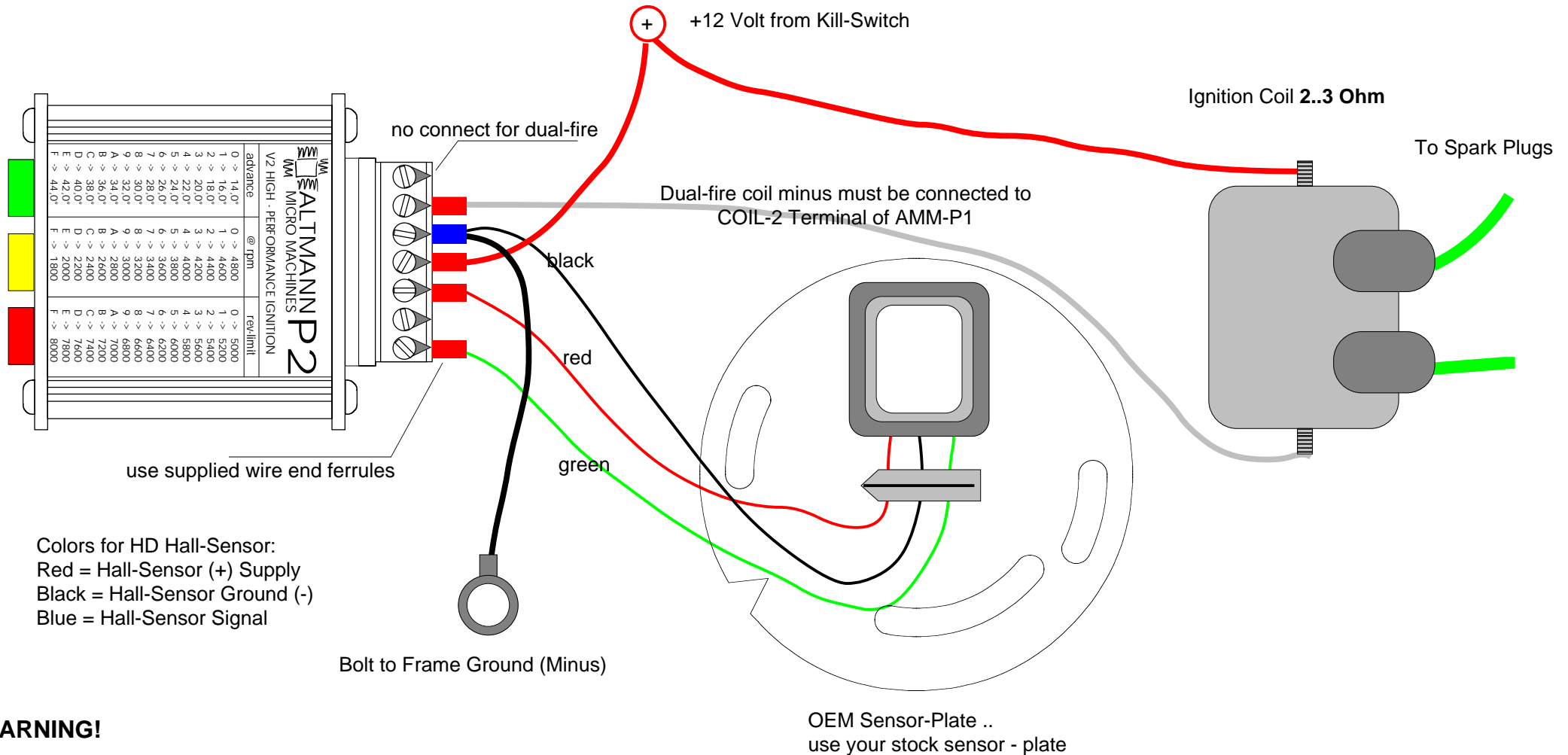
PS: If you have any questions concerning installation, please refer to our website: www.amm.haan.de

AMM - P2 OVERVIEW DUAL-FIRE MODE

Using stock HD Sensor-Plate OEM#32400-80A, #32448-95A, #32404-95



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WARNING!

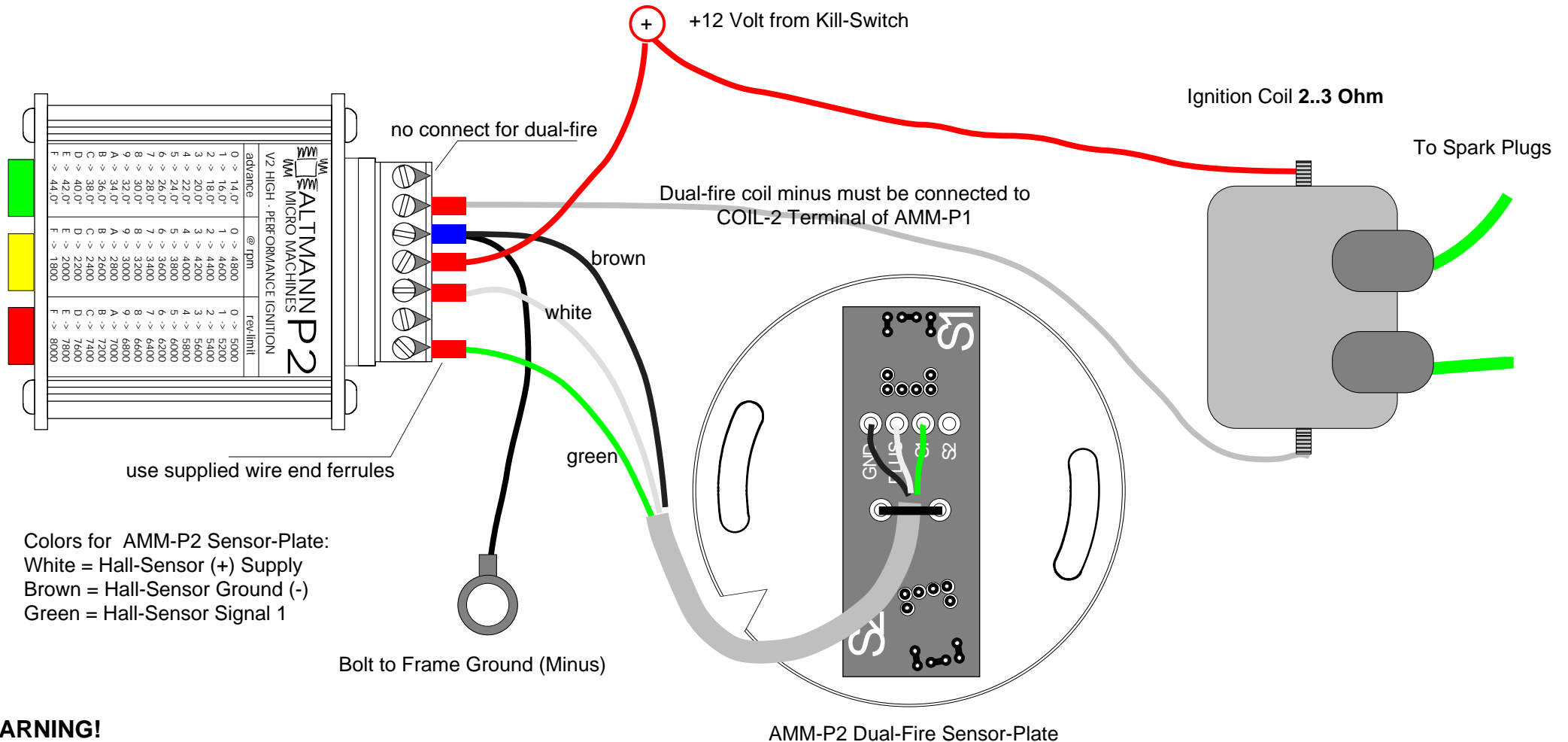
Persons with heart diseases must not install or maintenance this ignition system!

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 - P2 OVERVIEW DUAL-FIRE MODE

Using AMM-P2 Dual-Fire Sensor-Plate



WARNING!

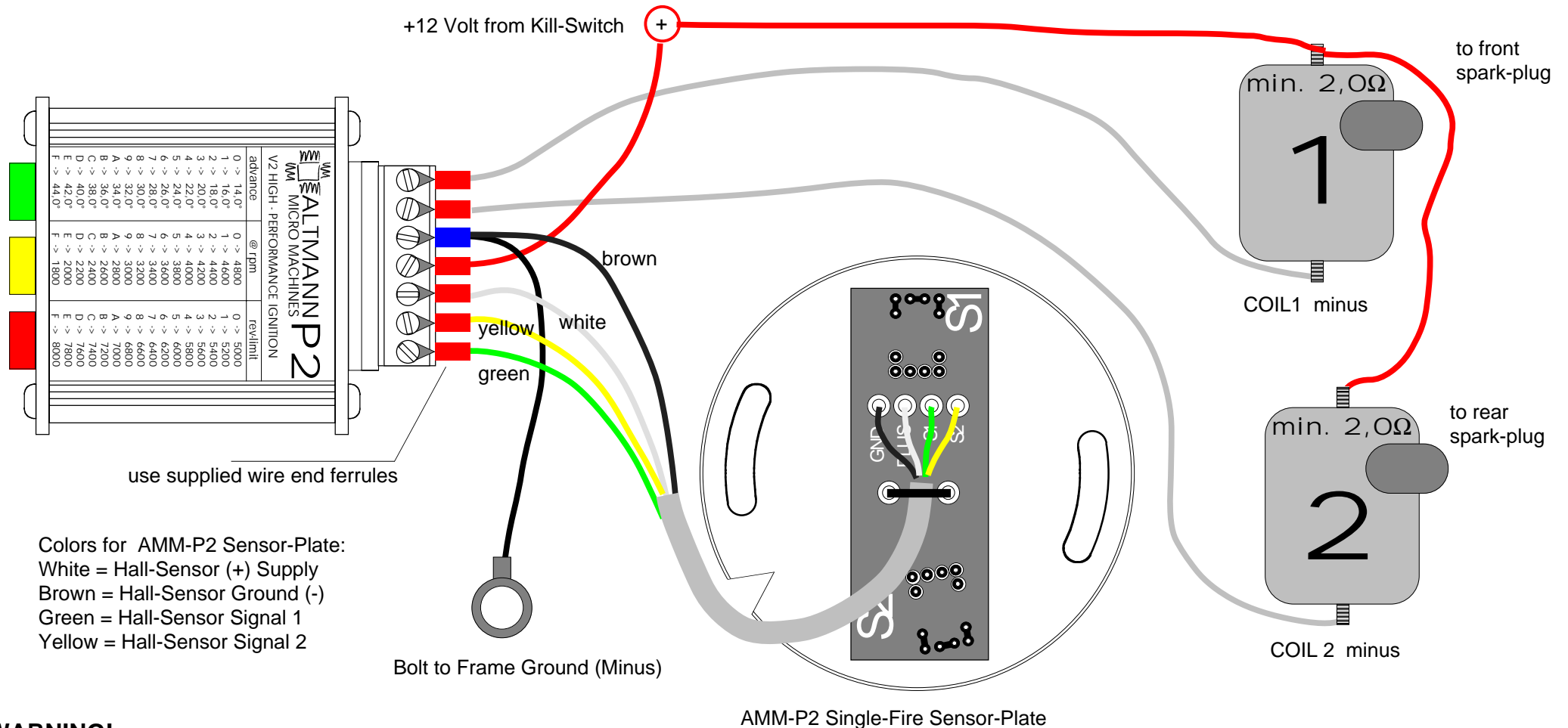
Persons with heart diseases must not install or maintenance this ignition system!

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 - P2 OVERVIEW SINGLE-FIRE MODE

Using AMM-P2 Single-Fire Sensor-Plate



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.

recommended ignition coils:
between 2,0Ω..3,0Ω primary resistance