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**PRO-14d**  
**4 CHANNEL**  
(MOTEC® IGNITION EXPANDER)  
**CAPACITOR DISCHARGE**  
**IGNITION**

PLEASE REPORT ANY ERRORS  
[SALES@MWIGNITIONS.COM](mailto:SALES@MWIGNITIONS.COM)

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# **CAUTION**

**THIS WIRING DIAGRAM IS  
APPLICABLE ONLY TO IGNITION  
SYSTEMS WITH THE SERIAL  
NUMBER PREFIX STARTING**

**53xxxx**

**USE OF INCORRECT DIAGRAM  
WILL VOID WARRANTY AND  
MAY DAMAGE UNIT**

# INSTALLATION NOTES

(APPLICABLE TO MOTEC<sup>®</sup> IEX INSTALLATIONS ONLY)

## MOUNTING

Do not mount the unit where it will be exposed to water or other liquids and ensure the bottom drain slots are unobstructed. Select a location away from excessive heat and provide a cooling air supply if required. Use soft rubber (approx 40 duro) mounts on all four corners to isolate from strong vibration.

## IGNITION LEADS & SPARK PLUGS

Straight metal wire ignition leads radiate electrical interference which may cause erratic operation of nearby electronic devices including the CDI. Carbon suppressed ignition leads are not capable of conducting the CDI energy without damage.

For best performance use spiral wound inductively suppressed metal core ignition leads such as those produced by Magnecor<sup>®</sup>. Where possible use non resistor spark plugs to reduce energy loss.

## POWER SUPPLY

**FAILURE TO INSTALL THE RECOMMENDED SIZE FUSE WILL VOID WARRANTY**

Voltage boosters may limit CDI operation and ignition performance will not increase when operated above 13.8V

## WIRING

Connect the CDI directly to the battery with the recommended gauge wire. All coil negative wires must be joined at or in the connector.

Use twisted pair wire for all power and coil connections. To comply with Australian EMC 'C Tick' standards and for ultimate noise suppression use shielded twisted pair wire.

Always use shielded cable for IEX trigger input from ECU.

## MODE SELECTION

When using M&W IEX cdi's with Motec® M4/M48 ecu's join the Mode and Signal ground terminals on the main connector. See applicable diagram for specific terminal numbers.

## LED INDICATOR

After initially applying power to the CDI the LED will illuminate for approximately 1 second then extinguish to indicate normal operation. The LED will then flash briefly with each consecutive trigger event received.

A repeated double flash of the LED indicates a possible faulty ignition coil, faulty wiring, low supply voltage or damage to the CDI.

## TESTING

Due to the complexity of the Motec® Ignition Expander signal a self test mode has been built into the software. By grounding Self test terminal before powering the unit it will sequentially fire all the outputs and flash the LED in sync. To exit the test mode disconnect power from the unit and remove connection to terminal #3. Do not conduct this test without a grounded spark plugs installed and don't touch any of the coil wires.

## CAUTION

TO PREVENT IGNITION COIL DAMAGE DO NOT  
FIRE THE CDI WITHOUT GROUNDED SPARK  
PLUGS INSTALLED AND DO NOT MAKE THE  
SPARK JUMP AN EXCESSIVE GAP

# IGNITION COILS

## COP COILS

COP (coil on plug) coils with built in drivers are not suitable for use with CDI ignitions. Small COP ignition coils may overheat when used in direct fire cdi applications. Inductive COP coils must be wired reverse polarity.

## COIL SELECTION

Most inductive ignition coils will work with CDI systems. For best performance they should have very low primary resistance and inductance and a turns ration between 75 and 100 to 1.

For ultimate CDI ignition power use a CDI specific ignition coil such as our CDI COP pencil coils or Ferrite CDI coils.

## FERRITE CDI COILS

Be aware when buying ferrite CDI coils from other suppliers who do not have the knowledge or experience to correctly prepare them for automotive use. Due to their fragile nature and poor quality control during manufacture it is easy to experience premature ignition coil failure and engine misfiring unless correctly assembled. All coils prepared by M&W are individually tested before sale.

**Note!** Ferrite CDI coils are for direct fire ignition only. For high performance distributor applications use either the Crane<sup>®</sup> PS92 or MSD<sup>®</sup> HVC2 coils.

## COIL POLARITY

For correct operation inductive ignition coils should be wired with their polarity reversed.

**CAUTION!**

**DAMAGE TO IGNITION COILS MAY OCCUR IF OPERATED WITH AN EXCESSIVE SPARK GAP.**

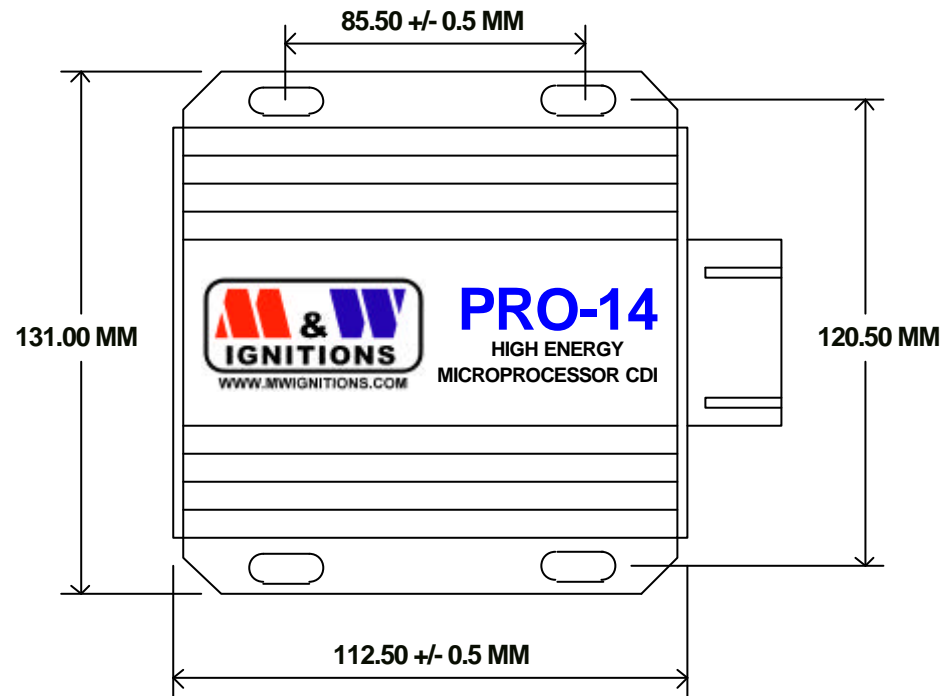
# M & W IGNITIONS

(C)1996 - 2009 M&W IGNITIONS

**CAUTION!**  
**HIGH VOLTAGE**



**DISCONNECT POWER BEFORE  
WORKING ON UNIT**



Slot dimensions - 5mm \* 10mm

|       |                                      |                     |     |
|-------|--------------------------------------|---------------------|-----|
| Title |                                      | MOUNTING DIMENSIONS |     |
| Size  | Number                               | Revision            |     |
| A4    | PRO-14d S3                           | 1.0                 |     |
| Date: | 29-Dec-2008                          | Sheet 1 of          | 1   |
| File: | E:\M&W\Pro14d_S3_Mounting dimensions | Drawn By:           | M&W |

**CAUTION!  
HIGH VOLTAGE**



DISCONNECT POWER BEFORE  
WORKING ON UNIT

# M & W IGNITIONS

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VIEWED FROM BACK OF CONNECTOR



**FAILURE TO INSTALL FUSE  
WILL VOID WARRANTY**

## MODE SELECTION

For M8 / M800 / M880 IEX input leave pin #9 disconnected.

For M4 / M48 IEX input connect pin #9 to pin #10.

## POWER LEVEL SELECTION

To select high power output ground input #15

For optimal performance, reliability and spark plug life use either a mapped ecu output or 'Hobbs' style pressure switch to activate the high power option only when required.

## SPECIFICATIONS

Supply voltage = 13.8V DC negative ground  
 Operating voltage = +5.5V to +15V (conditional)  
 Maximum supply current = 7.0A  
 Power off current < 700uA  
 Maximum ignition frequency = 1200Hz  
 Coil primary voltage = 480 / 550V  
 Spark energy = 115 / 151 millijoules  
 Trigger = Motec ignition expander  
 Tacho = 12V square wave  
 Maximum allowable case temperature = 105°C  
 Dimensions = 112L \* 110W \* 40H  
 Weight = 570gm

**KEEP ALL INPUTS WELL SEPARATED FROM COIL OUTPUTS**

|                  |                    |                    |
|------------------|--------------------|--------------------|
| 1 +12V (Battery) | 7 Ground (Battery) | 13 IEX input       |
| 2 +12V (Battery) | 8 Ground (Battery) | 14                 |
| 3 Self test      | 9 Mode             | 15 Power level     |
| 4 Tacho          | 10 Signal ground   | 16 Ignition switch |
| 5 Coil 3 +       | 11 Coil 2 +        | 17 Coil 3 & 4 -    |
| 6 Coil 1 +       | 12 Coil 4 +        | 18 Coil 1 & 2 -    |

|   |                             |                 |
|---|-----------------------------|-----------------|
| Title<br><b>FOUR CHANNEL CDI IGNITION</b> |                             |                 |
| Size<br>A4                                | Number<br><b>PRO-14d S3</b> | Revision<br>1.0 |
| Date:<br>30-Dec-2008                      | Sheet 1 of 1                | 1               |
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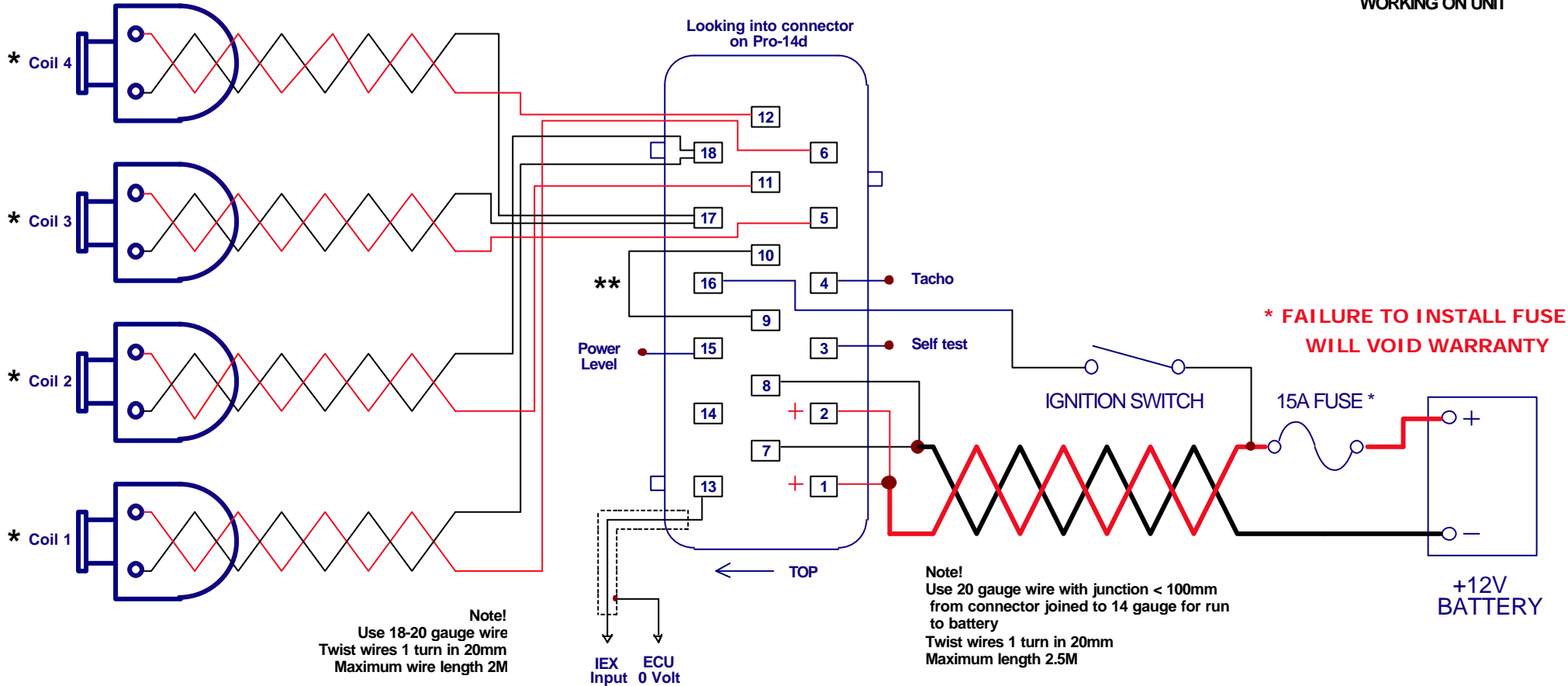
# M & W IGNITIONS

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**CAUTION!**  
**HIGH VOLTAGE**



DISCONNECT POWER BEFORE  
WORKING ON UNIT



Use shielded cable!

- \* Firing order not cylinder number
- \*\* Join terminals 9 & 10 for M4 / M48 mode

|       |                        |            |                              |     |  |
|-------|------------------------|------------|------------------------------|-----|--|
| Title |                        |            | MOTEC IEX INPUT CDI IGNITION |     |  |
| Size  | Number                 | Revision   |                              | 1.0 |  |
| A4    | PRO-14d S3             |            |                              |     |  |
| Date: | 30-Dec-2008            | Sheet 1 of | 1                            |     |  |
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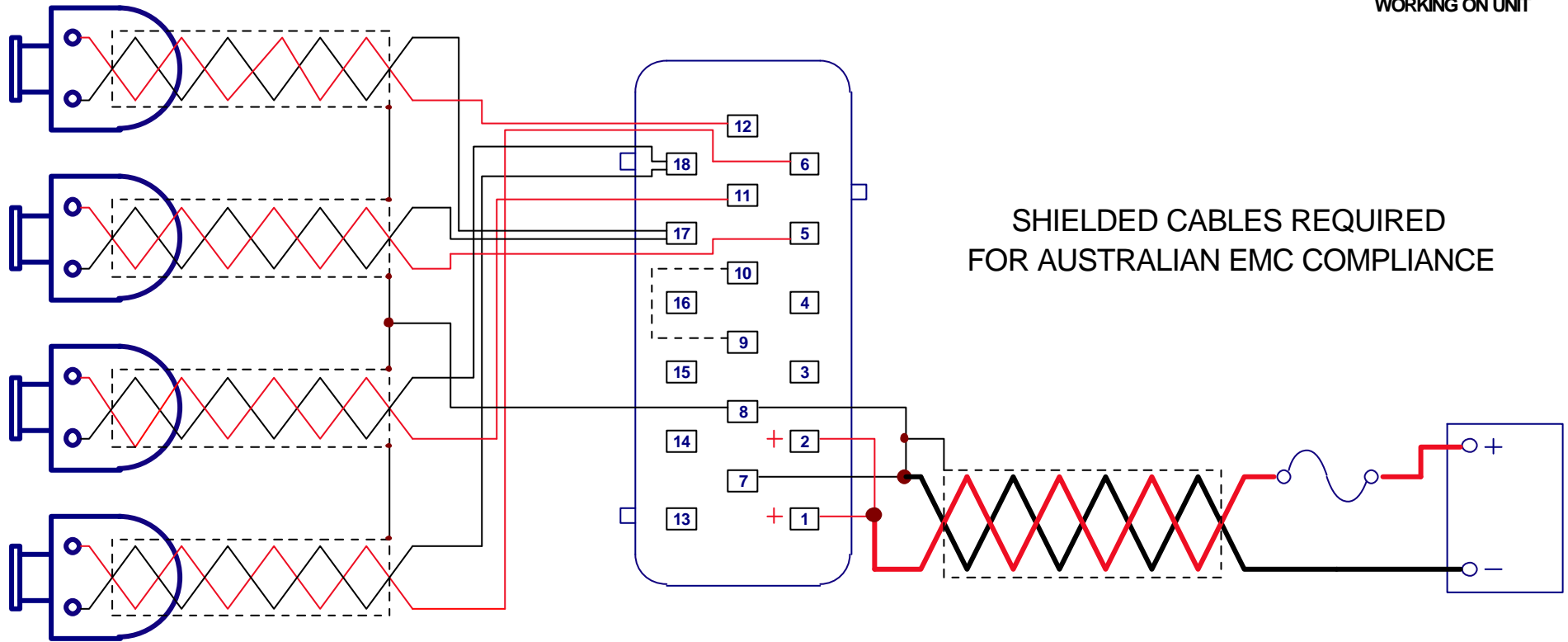
# M & W IGNITIONS

(C)1996 - 2009 M&W IGNITIONS

**CAUTION!**  
**HIGH VOLTAGE**



**DISCONNECT POWER BEFORE  
WORKING ON UNIT**



**SHIELDED CABLES REQUIRED  
FOR AUSTRALIAN EMC COMPLIANCE**

|       |                           |            |                           |  |
|-------|---------------------------|------------|---------------------------|--|
| Title |                           |            | AUSTRALIAN EMC COMPLIANCE |  |
| Size  | Number                    | Revision   |                           |  |
| A4    | PRO-14d S3                | 1.0        |                           |  |
| Date: | 30-Dec-2008               | Sheet 1 of | 1                         |  |
| File: | E:\M&W\1Pro14d_S3_emc.sch | Drawn By:  | M&W                       |  |