



WWW.MWIGNITIONS.COM

**PRO-16d**  
**6 CHANNEL**  
(MOTEC<sup>®</sup> IGNITION EXPANDER)  
**CAPACITOR DISCHARGE**  
**IGNITION**

PLEASE REPORT ANY ERRORS  
SALES@MWIGNITIONS.COM

CONTENTS:

1. Installation notes
2. Ignition coil information
3. Mounting dimensions
4. Connections and specifications
5. Wiring diagram
6. EMC compliance

# **CAUTION**

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

**54xxxx**

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

# INSTALLATION NOTES

(APPLICABLE TO MOTEC® 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®. 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.

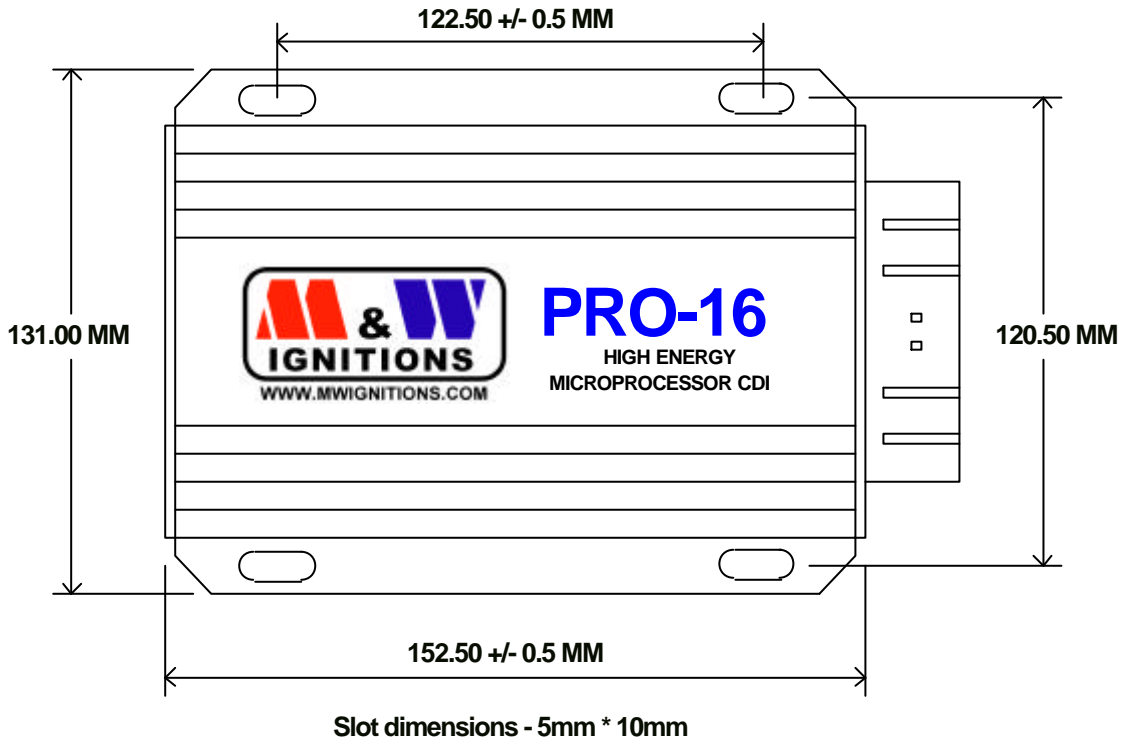
**CAUTION!**

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

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



DISCONNECT POWER BEFORE  
WORKING ON UNIT



Title				<b>MOUNTING DIMENSIONS</b>			
Size	Number			Revision			
A4	<b>PRO-16D S3</b>			1.0			
Date:	30-Dec-2008			Sheet 1 of	1		
File:	E:\M&W\Pro-16d_S3 Mounting dimensions			Drawn By:	M&W		

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



DISCONNECT POWER BEFORE  
WORKING ON UNIT

# M & W IGNITIONS

(C)1996 - 2009 M&W IGNITIONS

VIEWED FROM BACK OF CONNECTOR



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

1	+12V (Battery)	13	Ground (Battery)	25	
2	+12V (Battery)	14	Ground (Battery)	26	Ignition switch
3		15		27	
4		16	IEX input	28	
5	Mode	17	Signal ground	29	Self test
6	Tacho	18	Shield	30	
7		19		31	
8		20		32	
9		21		33	
10	Coil 5** +	22	Coil 5 & 6 -	34	Coil 6** +
11	Coil 3** +	23	Coil 3 & 4 -	35	Coil 4** +
12	Coil 1** +	24	Coil 1 & 2 -	36	Coil 2** +

\*\* FIRING SEQUENCE NOT CYLINDER NUMBER

**SPECIFICATIONS**

Supply voltage = 13.8V DC negative ground  
 Operating voltage = +5.5V to +15V  
 Maximum supply current = 7.0A  
 Power off current < 700uA  
 Maximum ignition frequency = 1000 Hz  
 Coil primary voltage = 480V  
 Spark energy = 115 millijoules @ 700Hz  
 Trigger = Motec IEX input  
 Tacho = 12V symmetric square wave  
 Maximum allowable case temperature = 105°C  
 Dimensions = 152L \* 110W \* 40H  
 Weight = 740gm

**FAILURE TO INSTALL FUSE  
WILL VOID WARRANTY**

Title			PRO-16 SIX CHANNEL CDI IGNITION
Size	Number	Revision	
A4	Pro-16d S3	1.0	
Date:	30-Dec-2008	Sheet 1 of	1
File:	E:\M&W\Pro16d_S3_1.sch	Drawn By:	M&W

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



DISCONNECT POWER BEFORE  
WORKING ON UNIT

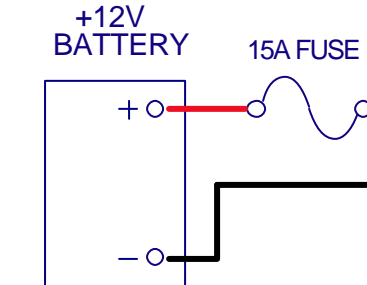
# M & W IGNITIONS

(C)1996 - 2009 M&W IGNITIONS

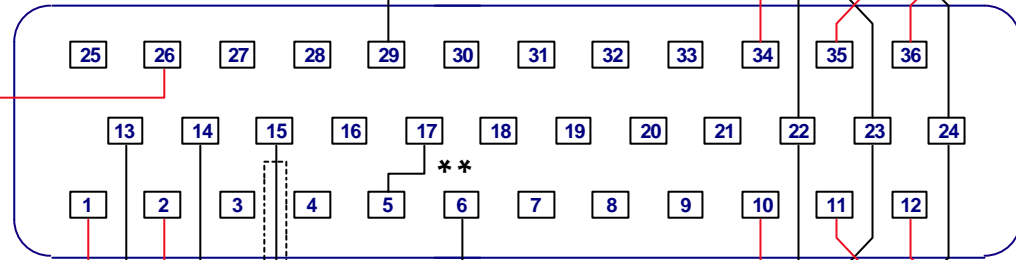
Note!  
Use 20 gauge wire  
Twist wires 1 turn in 20mm  
Maximum wire length 2M

FAILURE TO INSTALL FUSE  
WILL VOID WARRANTY

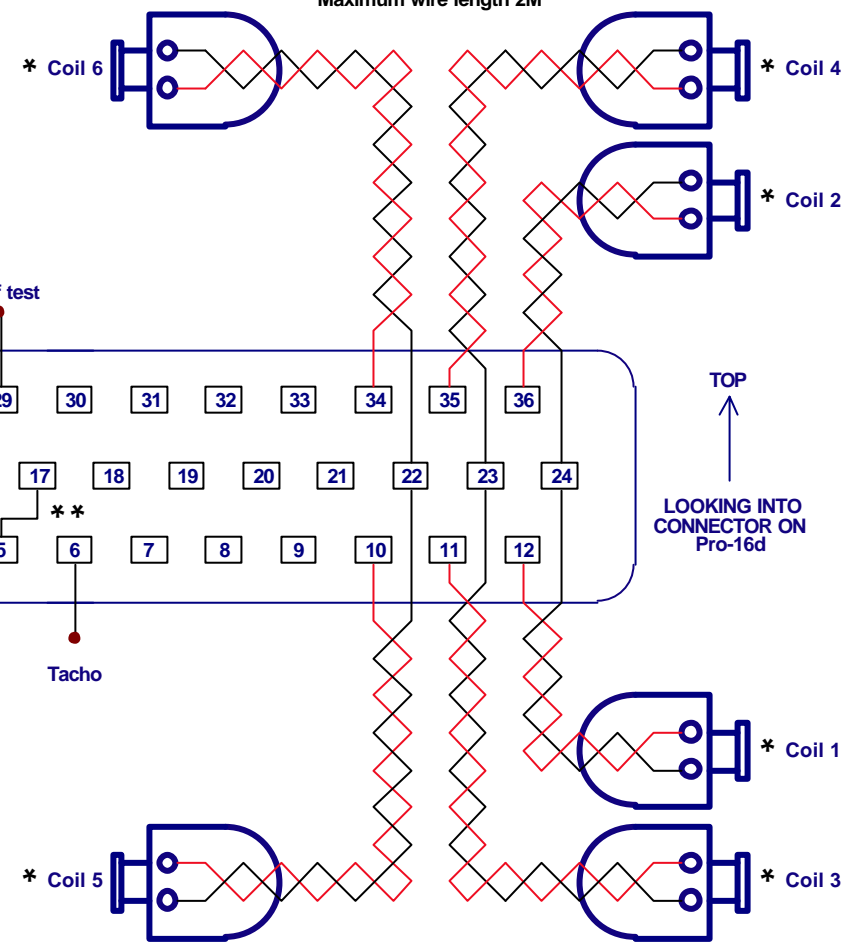
Note!  
Use 20 gauge wire with junction < 100mm  
from connector joined to 14 gauge for run  
to battery  
Twist wires 1 turn in 20mm  
Maximum length 2.5M



\* Firing order not cylinder number  
\*\* Join terminals 5 & 17 for M4 / M48 mode



↑ TOP  
LOOKING INTO  
CONNECTOR ON  
Pro-16d



Title			MOTEC IEX INPUT CDI IGNITION		
Size	Number	Revision		1.0	
A4	Pro-16d S3				
Date:	30-Dec-2008	Sheet 1 of	1		
File:	E:\M&W\Pro16d_S3_2.sch	Drawn By:	M&W		

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

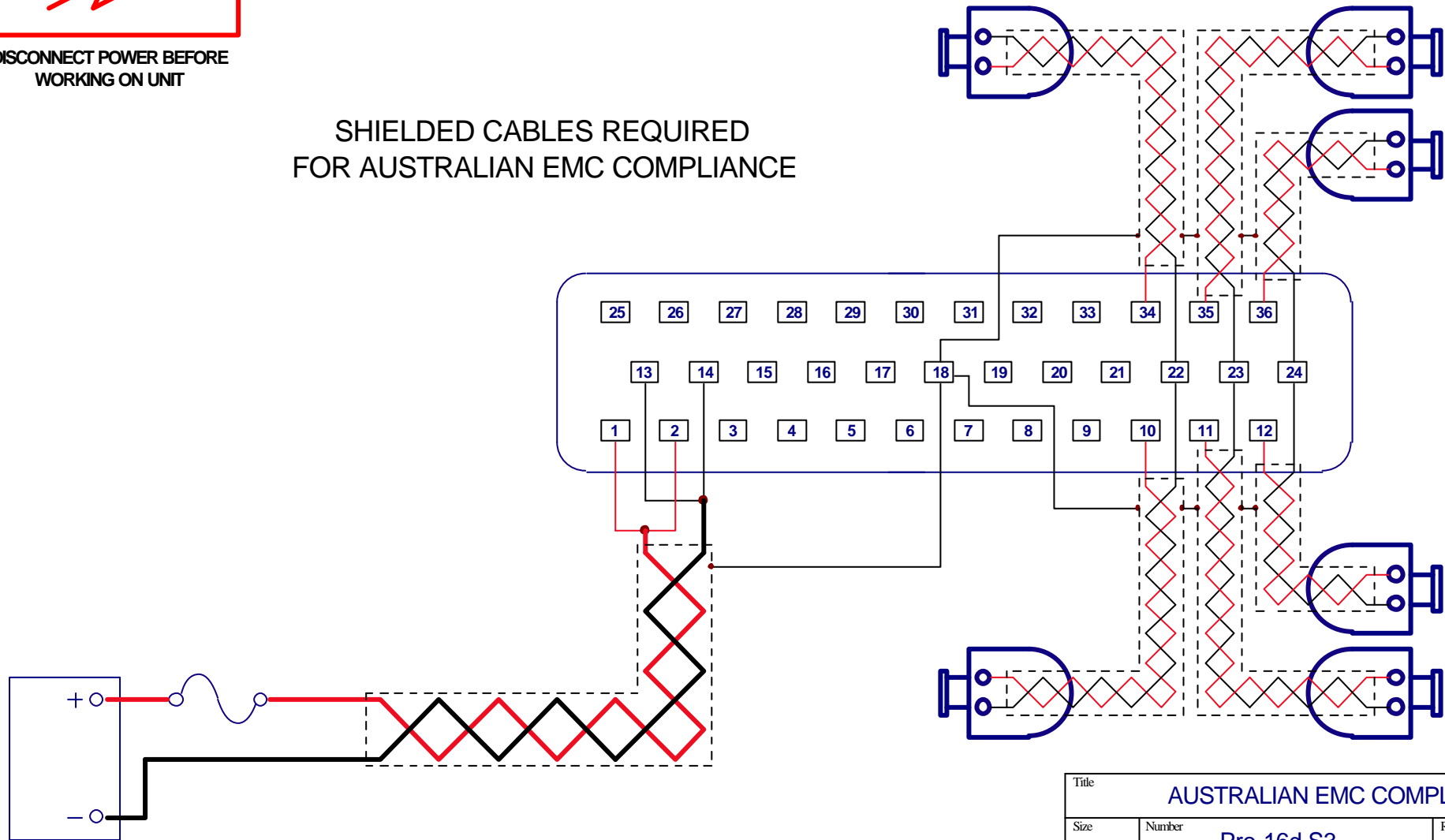


DISCONNECT POWER BEFORE  
WORKING ON UNIT

# M & W IGNITIONS

(C)1996 - 2009 M&W IGNITIONS

SHIELDED CABLES REQUIRED  
FOR AUSTRALIAN EMC COMPLIANCE



Title			AUSTRALIAN EMC COMPLIANCE		
Size	Number	Revision			
A4	Pro-16d S3	1.0			
Date:	30-Dec-2008	Sheet 1 of	1		
File:	E:\M&W\Pro16d_S3_emc.sch	Drawn By:	M&W		