



KV8 ECU Data Sheet



March 2015

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1.0 General

Power Supply

- Operating Voltage: 6.0 to 22.0 Volts DC (ECU shutdowns at 24.0V)
- Operating Current: 350mA at 14.0V (excluding sensor and load currents)
- Reverse Battery Protection via External Fuse
- “Smart” Battery Transient Protection

Operating Temperature

- ECU Internal Temperature
 - Max Operating Range: -30 to 110°C (-22 to 230°F)
 - Recommended Operating Range: -30 to 85°C (-22 to 185°F)

Physical

- 6061 grade aluminum CNC billet enclosure
- Enclosure Size 134 mm x 162 mm x 27 mm
- Weight: 730g
- Connector system: 120 way Super Seal waterproof connectors with gold plated contacts
 - 1 x 34 pin Key 1 Super Seal
 - 1 x 34 pin Key 2 Super Seal
 - 1 x 26 pin Key 1 Super Seal
 - 1 x 26 pin Key 2 Super Seal

Internal

- Dual 100MHz Processors
- 500Mb DDR RAM (0.5Gb)
- 32MB ECU logging Memory
 - Over 700 channels available
 - 1Hz to 500Hz logging rate
- 6 channel Oscilloscope function
 - Sampling at 500k samples/second
 - Includes Crank and Cam sensors inputs
 - Includes Digital Inputs 1-4
- On-Board Barometric Pressure Sensor.
 - Range 40 - 115.0 kPa
- 3-Axis Accelerometer
 - 16 Bit Resolution
 - $\pm 2g/\pm 4g/\pm 8g$ dynamically selectable full-scale
 - Output Data Rate 500Hz

2.0 Outputs

8x Injector Outputs—high or low ohm.

- 70V Clamping
- 8A Peak, 4A hold, 10A Limit Injector Control
- Outputs can be used for ground switching , 6A Continuous , 10A Limit.
- All Outputs are short circuit and over current protected
- Independent Saturated or Peak & Hold control per channel

8x Ignition Outputs.

- Adjustable TTL Ignition drive current (35mA or 70mA)
- Outputs can be used for ground switching , 1A Continuous, 3A Limit
- All Outputs are short circuit and over current protected

16 x Auxiliary Outputs

- Variable Valve Timing, Drive by Wire, Boost control, Stepper motor and many more.
- All Outputs have PWM Control, maximum frequency = 15 kHz
- All Outputs are short circuit and over current protected

Low Side Drivers

- Auxiliary 1-4: Low Side 4A continuous, 6A peak modulated, 8A Limit
- Auxiliary 5-8: Low Side 2.5A Continuous, 4A peak modulated , 5A Limit

High Side Drivers

- Auxiliary 1-8: High Side 4A Continuous, 9A Limit

Half Bridge Drivers

- Auxiliary 9-12: Half Bridge 5A Continuous and 8A limit. Can be used as Low Side, High side or together for DC motor control (Up to 2 channels of DBW)
- Auxiliary 13-16: Half Bridge 15A Continuous and 40A limit. Can be used as Low Side or High side.

2x Wide Band Lambda LSU4.9 Heater control (on board)

- Using Bosch Integrated circuit technology for sensor control, Nernst Cell temperature measurement and PID algorithm for precise heater control.

1x Dedicated EFI Main Relay Output

- Provides a relay ground. 100mA Limit

1x Analog Output

- Voltage range 0 - 5.0V, Output current 100mA

3.0 Inputs

16x Analog voltage/temperature Inputs

- Fully configurable including custom calibrations
- Switchable pull-up resistors on ANV 7-12
- Resolution is 1.22mV (12 Bit).

8x Digital/speed Inputs.

- Frequency range from 0.0Hz up the 30kHz.
- Wheel speed, VVT position and other frequency based signals.
- On/Off switched inputs; air-con request, table control switching
- Accepts a 0.0 - 20.0V analog input.
- Switchable pull-up resistors on all 8 channels.

6x Digital/Switched Inputs.

- On/Off switched inputs; air-con request, table control switching
- Accepts a 0.0 -20.0 V analog input.
- Switchable pull-up resistors on all 6 channels.

2x Knock Inputs with configurable Frequency and Gain.

- Using Bosch, Digital Knock Integrated Circuit Technology
- Selectable Frequency from 500Hz - 25kHz
- Selectable Bandwidth from 100Hz - 5kHz

2x Wide Band Lambda LSU4.9 Sensors (on board)

- Using Bosch Integrated circuit technology for sensor control, Lambda Range: 0.650 to open air.

1x Dedicated Ignition Switch Input

- 6.0 - 20.0V input used for EFI Relay Control.

4.0 Voltage Supplies

1x ECU Supply Input

- 6V - 22.0V Range
- Supplies ECU power
- Supplies Aux 1-8 High Side Drivers

1x Auxiliary 9-12 Supply Input

- Power Supply for Auxiliary Channels 9 -12. (See KV Series Power Distribution Wiring - A10.pdf for more information on how this should be wired)

1x Auxiliary 13-16 Supply Input

- Power Supply for Auxiliary Channels 13 -16. See KV Series Power Distribution Wiring - A10.pdf for more information on how this should be wired)

2x 5.0V Supply Outputs

- 5V Engine 250mA
- 5V Auxiliary 250mA

1x 8.0V CAS Output

- Output Current 400mA

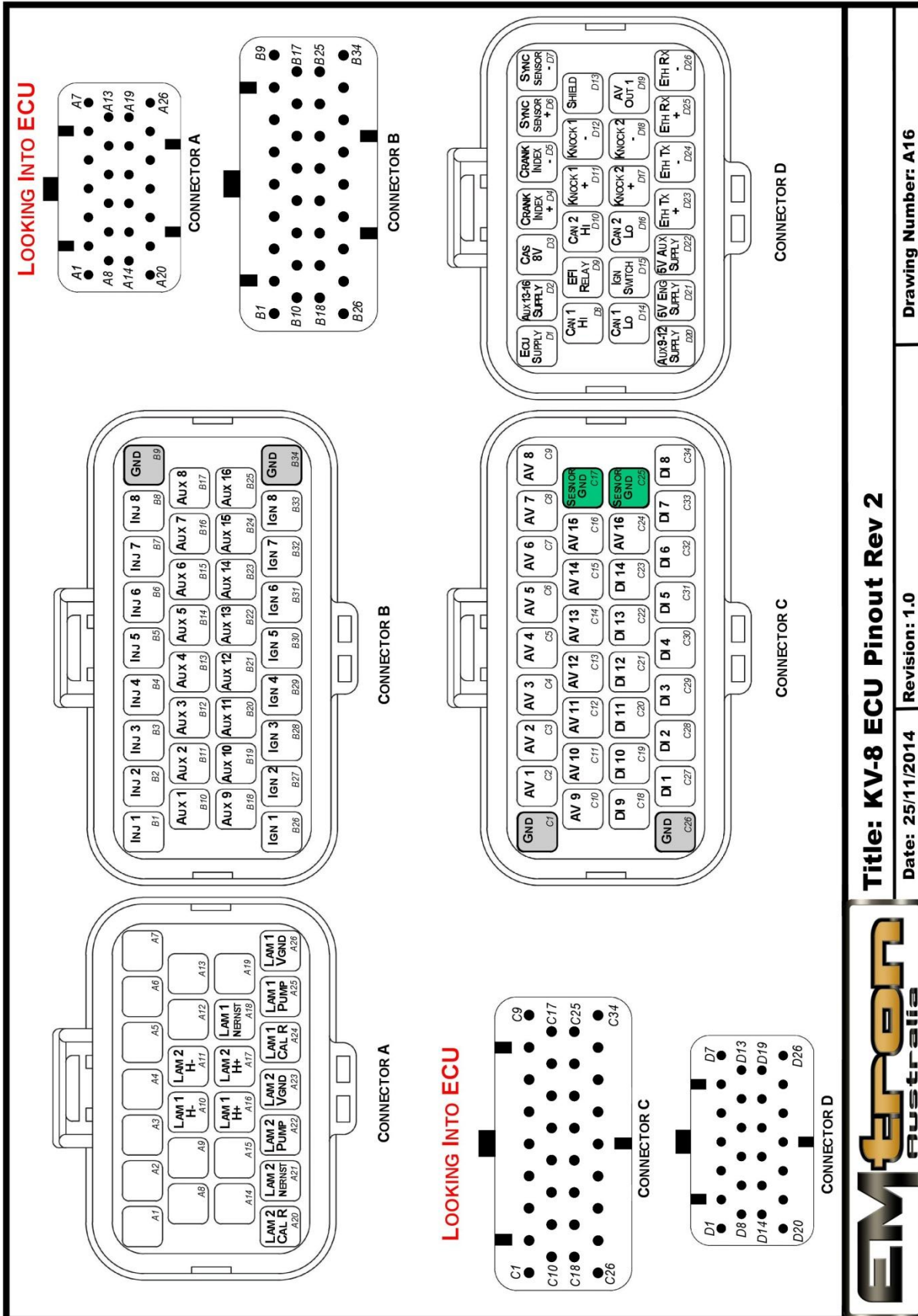
5.0 Communications

- 1x Ethernet 100Mbps
- 2x CAN 2.0B 1Mbps/ 6 Channels per node

6.0 Ordering Information

Product	Part Number
Emtron KV8 ECU	1122-082
Emtron Comms Cable, Superseal to Emtron Connector 200mm	533-02
Emtron Ethernet Cable, Emtron Connector to Ethernet 1.5m	553-15

7.0 ECU Pinout Drawing



Title: KV-8 ECU Pinout Rev 2

Date: 25/11/2014 | **Revision: 1.0**

Drawing Number: A16