

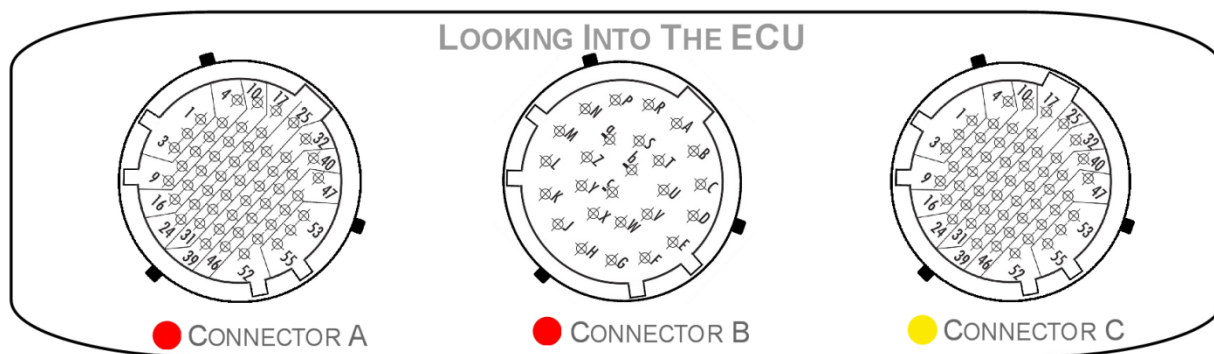
Emtron Motorsport KV16M Pinout

Pinout
Rev 1.0



KV16M





Mating Connectors Loom Side (Deutsch Autosport AS Series; S = Socket)

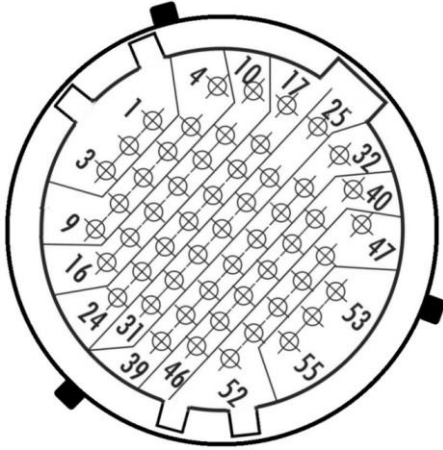
Mating connector A
AS616-35SN (Red)

Mating connector B
AS616-26SN (Red)

Mating connector C
AS616-35SA (Yellow)

Connector A: Injection/Ignition/Digital Inputs.

(5.0A continuous current. Shell size 16, 55 Pin. 22 AWG)

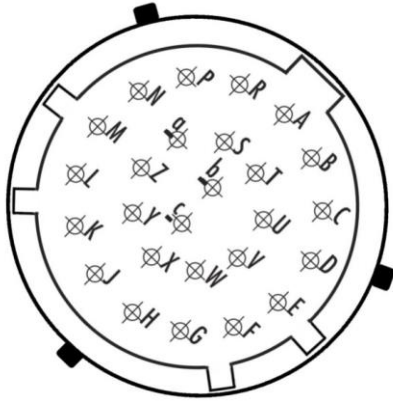


Looking into ECU Connector

Pin	Channel Name	Pin	Channel Name
1	Injection Channel 1	29	Lambda 2 Heater +
2	Injection Channel 2	30	Lambda 2 Heater -
3	Injection Channel 3	31	Digital Input Ground Out
4	Injection Channel 4	32	Ignition Channel 1
5	Injection Channel 5	33	Ignition Channel 2
6	Injection Channel 6	34	Ignition Channel 3
7	Injection Channel 7	35	Ignition Channel 4
8	Injection Channel 8	36	Ignition Channel 5
9	Injection Channel 9	37	Ignition Channel 6
10	Injection Channel 10	38	Ignition Channel 7
11	Injection Channel 11	39	Ignition Channel 8
12	Injection Channel 12	40	Ignition Channel 9
13	Injection Channel 13	41	Ignition Channel 10
14	Injection Channel 14	42	Ignition Channel 11
15	Injection Channel 15	43	Ignition Channel 12
16	Injection Channel 16	44	Digital Input 3
17	Lambda 1 Nernst Cell (Vs)	45	Digital Input 2
18	Lambda 1 Cal Resistor (CalR)	46	Digital Input 1
19	Lambda 1 Pump Cell (Ip)	47	Digital Input 9
20	Lambda 1 Virtual Ground (VGnd)	48	Digital Input 8
21	Lambda 1 Heater +	49	Digital Input 7
22	Lambda 1 Heater -	50	Digital Input 6
23	Digital Input 13	51	Digital Input 5
24	Digital Input 14	52	Digital Input 4
25	Lambda 2 Pump Cell (Ip)	53	Digital Input 10
26	Lambda 2 Virtual Ground (VGnd)	54	Digital Input 11
27	Lambda 2 Nernst Cell (Vs)	55	Digital Input 12
28	Lambda 2 Cal Resistor (CalR)		

Connector B: Power/Ground/Auxiliary Outputs

(7.5A continuous current, Shell size 16, 26 Pin, 20 AWG)

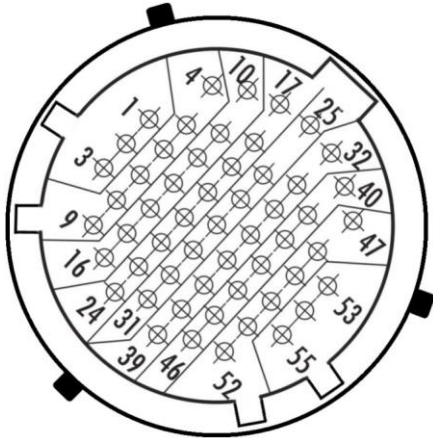


Looking into ECU Connector

Pin	Channel Name
A	ECU 14V Supply
B	ECU 14V Supply
C	ECU 14V Supply
D	ECU Ground
E	ECU Ground
F	Auxiliary Output 16
G	Auxiliary Output 15
H	Auxiliary Output 14
J	Auxiliary Output 12
K	Auxiliary Output 10
L	Auxiliary Output 8
M	Auxiliary Output 7
N	Auxiliary Output 5
P	Auxiliary Output 3
R	Auxiliary Output 1
S	Auxiliary Output 2
T	ECU 14V Supply
U	ECU Ground
V	ECU Ground
W	Auxiliary Output 13
X	Auxiliary Output 11
Y	Auxiliary Output 9
Z	Auxiliary Output 6
a	Auxiliary Output 4
b	ECU Ground
c	ECU Ground

Connector: C Signal.

(5.0A continuous current. Shell size 16, 55 Pin. 22 AWG)



Looking into ECU Connector

Pin	Channel Name	Pin	Channel Name
1	Analog Input Channel 1	29	Analog Sensor 0V Reference
2	Analog Input Channel 2	30	Analog Sensor 0V Reference
3	Analog Input Channel 3	31	Analog Sensor 0V Reference
4	Analog Input Channel 4	32	Knock 2 +
5	Analog Input Channel 5	33	Analog Out
6	Analog Input Channel 6	34	CAN 2L
7	Analog Input Channel 7	35	CAN 2H
8	Analog Input Channel 8	36	CAN 1L
9	Analog Input Channel 9	37	CAN 1H
10	Analog Input Channel 10	38	Sensor Supply Vref2: 5.0V
11	Analog Input Channel 11	39	Sensor Supply Vref2: 5.0V
12	Analog Input Channel 12	40	Knock 1 -
13	Analog Input Channel 13	41	Sync Sensor -
14	Analog Input Channel 14	42	Sync Sensor +
15	Analog Input Channel 15	43	Crank Index Sensor -
16	Analog Input Channel 16	44	Crank Index Sensor +
17	Analog Input Channel 17	45	Sensor Supply Vref1: 5.0V
18	Analog Input Channel 18	46	Sensor Supply Vref1: 5.0V
19	Analog Input Channel 19	47	Knock 1 +
20	Analog Input Channel 20	48	Ethernet Tx +
21	Analog Input Channel 21	49	Ethernet Tx -
22	Analog Input Channel 22	50	Ethernet Rx +
23	Analog Input Channel 23	51	Ethernet Rx -
24	Analog Input Channel 24	52	Sensor Supply 8V
25	Knock 2 -	53	Constant 14V Supply(Backup)
26	SHIELD (Crank/Cam/ Knock)	54	Sensor Supply Vref3: 5.0V
27	SHIELD (Crank/Cam/ Knock)	55	Sensor Supply Vref3: 5.0V
28	Analog Sensor 0V Reference		

Important Notes

Auxiliary Output Channels 13-16

These are high current Half bridge drivers which switch either to ground or 14V i.e. they do not have a high impedance or OFF state. When the ECU is powered OFF these Auxiliary Channels by default will be switching to ground. This means:

- 1) Solenoids or relays connected to these outputs should not use a constant or hot battery feed.
- 2) During the ECU powerup sequence, any solenoid or relay connected to these outputs should have a managed power feed to avoid momentary switching during powerup.

Constant 14V Supply/Backup (Pin C53)

This pin has two features:

1) Flywheeling for Auxiliary Channels 1-8. Any Inductive energy will be sent to the "Constant 14V Supply" pin. To minimise any EMI and allow solenoid current recirculation to operate correctly this pin should be connected to a constant power supply. If this pin is left unconnected the back EMF will be clamped at 45V.

2) Internal ECU EFI Relay function. When power is removed from pins " ECU 14V Supply" the ECU automatically switches to the "Constant 14V Supply" to keep the ECU powered. This will allow the ECU to complete critical tasks before shutting itself down (for example, DBW Self calibration and ECU Logging data storage).

To enable this function, set the EFI Relay Control Channel to "Internal EFI Relay Ctrl"

NOTE: With a Constant 14V supply wired, the ECU draws no additional current when OFF.

Analog Sensor 0V Reference (Pin C28, C29, C30, C31)

As the name indicates these should be connected directly to the 0V (Ground) pin on any low current analog sensor, for example Pressure or Temperature.

- **DO NOT** connect these pins directly to the Engine Block or ECU Ground. These are dedicated and specialised ground outputs for all analog channels and should be connected directly to the sensor.
- **DO NOT** connect frequency-based sensors to this ground; for example, an Ethanol content sensor. Use either the Digital Input Ground Out pin (A31) or the main ECU ground.