



High Country Tek, Inc.

# Three Channel e-Fan Controller: **emc-3L**

Used to drive smart fans with sinking input requirement

Electronic Control Solutions for the Global Fluid Power Industry

## Application Information:

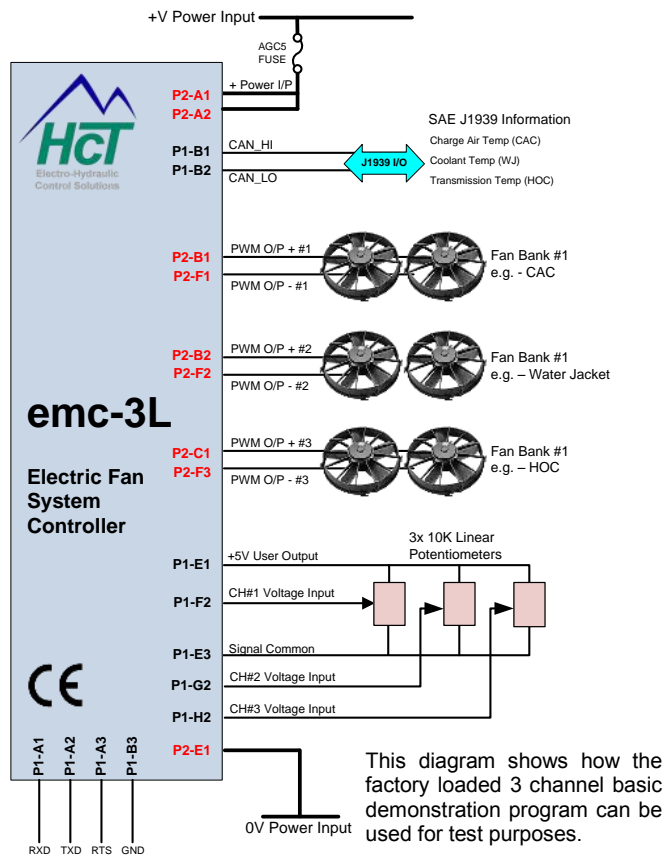
- **Three (3) Independent Channel e-Fan Controller**
- 12VDC or 24VDC mobile or static system usage
- PWM type signal outputs, fully configurable for user needs
- Can drive multiple fans within separate 'banks' for power saving profiles

## Product Feature Overview:

- **Compatible with 'Smart' Fan manufacturers products**
- Can be programmed using the HCT Intella® Suite
- SAE J1939 compliance for Temperature data
- Module fully encapsulated and sealed
- Diagnostic LED indicators with alarm outputs
- Digital inputs for fan diagnostic information interface
- Can be factory pre-set for serial production needs



## Electrical Connection Diagram:



## Controller Specification Overview:

- Supply Voltage: 9VDC to 32VDC  $V_{in}$
- Supply Protection: Designed to be SAE J1455 compliant
- Module protection - External fuse for HCT warranty compliance
- Communications: SAE J1939 protocols compliant  
1x RS232 serial port
- User Voltage: 1x / +5VDC  $\pm 5\%$  @ 250mA
- Analog Inputs: 3x / Voltage only / 100K input impedance
- Analog I/P range: 0 to +5VDC max only
- Universal I/P Type: 3x / Voltage, Current, Pulse, Digital or PWM
- Universal I/P range: 0 to +5VDC, 0 to +10VDC, 0 to 20mA, 0 to 24Khz
- Digital Inputs / Type: 8x Lo to Hi or Hi to Lo selectable
- Digital Output (s): 3x @ Upto 3 amps each max
- PWM O/P Type: 3x with I/O optimized resolution
- PWM O/P range: 0 to 100 mAmps max
- Diagnostic Ind.: 4x - MS (Module status), NS (Node status),  
Default Error status, O/P PWM %
- NEMA / IP rating: NEMA 6P / IP 68
- Connector type: 1 x Cinch 30 way male & 1 x Cinch 18 way male.
- Operating Temp. Range: -40 to +85 Centigrade ( -40F to +185F )
- Storage Temp. Range: -40 to +100 Centigrade ( -40F to +212F )



# Three Channel e-Fan Controller: emc-3L

## Controller Connection Details:

## Dimensional Data:

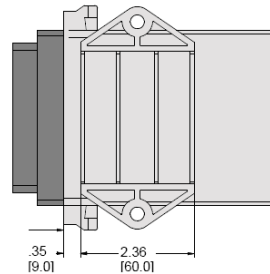
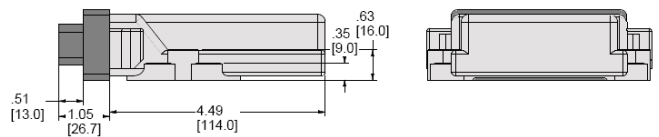
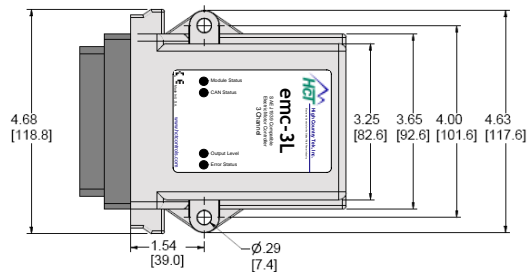
emc-3L Connector Designation Tables

30 Pin Metri-Pak Connector ( Male, Plug )											
PIN	Name	Function	PIN	Name	Function	PIN	Name	Function	PIN	Name	Function
A1	RxD	Receive RS232 Data - Pin 'A'	D2	Uni-2	Universal Input #2	G3	GND	Ground / OV / Signal Common	H1	Dig3	Digital Input #3
A2	TxD	Transmit RS232 Data - Pin 'C'	D3	GND	Ground / OV / Signal Common	H4	Ana3	Analog Input #3	H2	GND	Ground / OV / Signal Common
A3	RTS	Request To Send - RS232 Pin 'D'	E1	Vref	+5V regulated user output	H3	GND	Ground / OV / Signal Common	H3	GND	Ground / OV / Signal Common
B1	CAN-H	CAN #1 High	E2	Uni-3	Universal Input #3	I1	Dig4	Digital Input #4	I2	Dig5	Digital Input #5
B2	CAN-L	CAN #1 Low	E3	GND	Ground / OV / Signal Common	I3	Dig6	Digital Input #6	K1	+Pwr	+V Supply Power Input
B3	COM	OV/COM RS232 Data - Pin 'B'	F1	DIG-1	Digital Input #1	K2	Dig7	Digital Input #7	K3	Dig8	Digital Input #8
C1	CAN-H	CAN #2 High	F2	ANA-1	Analog Input #1						
C2	Uni-1	Universal Input #1	F3	GND	Ground / OV / Signal Common						
C3	GND	Ground / OV / Signal Common	G1	DIG-2	Digital Input #2						
D1	CAN-L	CAN #2 Low	G2	ANA-2	Analog Input #2						

18 Pin Metri-Pak Connector ( Male, Plug )								
PIN	Name	Function	PIN	Name	Function	PIN	Name	Function
A1	+VPwr	+V Supply Power Input	C1	Not Used	Not Used -	E1	gnd for DVC	Ground / OV Common
A2	+VPwr	+V Supply Power Input	C2	HS-4	ON/OFF output	E2	Not Used	Not Used -
A3	Not Used	Not Used -	C3	PWM-2	PWM Output to Fan Bank #2	F1	gnd for DVC	Ground / OV Common
B1	Not Used	Not Used -	D1	HS-5	ON/OFF output	F2	gnd for DVC	Ground / OV Common
B2	Not Used	Not Used -	D2	HS-6	ON/OFF output	F3	gnd for DVC	Ground / OV Common
B3	PWM-1	PWM Output to Fan Bank #1	D3	PWM-3	PWM Output to Fan Bank #3			

**Notes:**  
emc-3L is designed to drive up to 3 separate banks of electric fans with low current requirement - PWM command signal type inputs  
emc-3L has the capability of monitoring up to 8 individual fans operation using the digital ON/OFF inputs DIG-1 thru DIG-8  
User system alarm, operational logic or safety inputs should use the analog inputs 1 thru 3  
**PWM-1, 2 & 3 Output connections have changed for the emc-3L compared to the emc-3 - ALL other connection and logic is the same**

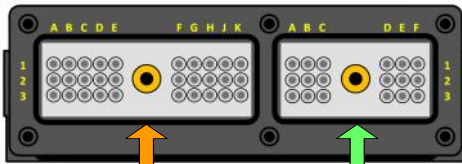


**IMPORTANT NOTE:**

Recommended tightening torques for the securing bolts are as follows:

For a 1/4-20 bolt, SAE Grade 5

**DRY Torque: 8 Ft-Lbs**  
**Lubricated Torque: 6.3 Ft-Lbs**



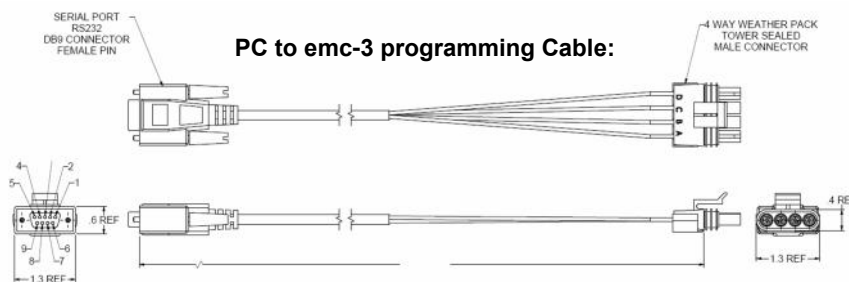
30 way Metri-Pak Connector

18 way Metri-Pak Connector

**NOTE:**

The emc-3L connectors shown here are viewed in the direction of arrows below.  
Contact HCT for harnesses and connectors for this product.

## emc-3L accessories - PC set-up cables:



**HCT Part Number:**  
**999-10075**

## Need More Information ?

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