

## GE ECM™ Motor

### Application

The EVO/ECM-4Spd allows 24 Vac controls to select one of four adjustable flow indexes for a General Electric ECM 2.3 Motor. These are fractional horsepower air moving motors featuring an internal microprocessor. The design provides exceptional efficiency, performance and motor life. The motor may be factory configured to provide constant mass airflow or constant torque.

The control has four taps to select the desired flow index. An adjustment associated with each tap sets the flow index to the desired value. The adjustment range is from Off to 100% of the programmed control range. A fifth adjustment sets the flow index when no tap is selected.

The EVO/ECM-4spd changes the flow index at a 2% per second rate. This ramping feature reduces occupant awareness of changes in diffuser airflow.

### Features

- \* Isolated Taps
- \* Gradual Speed Change
- \* Taps Off setting

### Specifications

Power 24Vac NEC Class II <sup>USA</sup>  
24 Vac ± 20% 50/60 Hz  
2 W, 4 VA + 1VA/Motor

TAPs 24 Vac ± 20% 50/60 Hz  
1k0 ohm load

24 Vac ± 20% 50/60 Hz

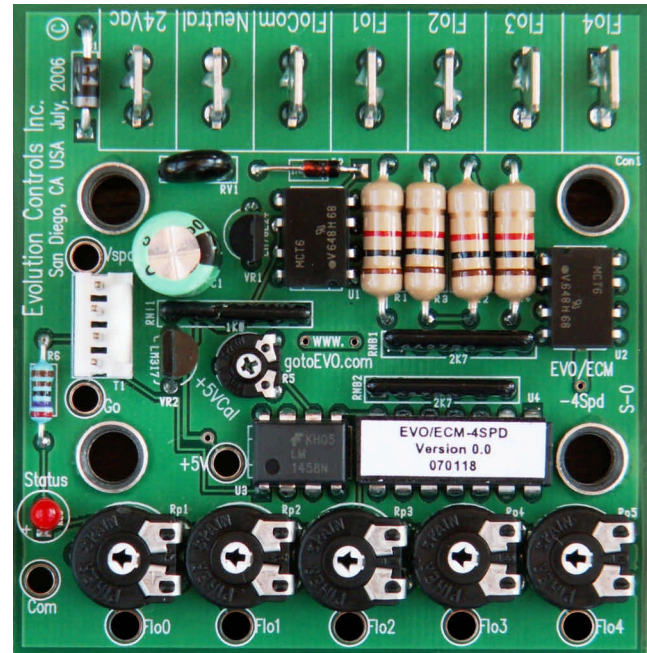
Outputs  
Go & VSpd +22 V @ 20 mA

*Vspd Supports ECM Autoswitch Function*

Thermal  
Stability >0.01%/°F

Operating Environment 0°F to 130 °F (-18°C to 55°C)  
10-80% rh

Connections ¼" Tabs or Terminal Strip



EVO/ECM-4Spd

### Ordering

EVO/ECM-4Spd	OEM version with Tab connections (shown).
EVO/ECM-4Spd-C	Contractor version with screw terminations.
EVO/ECM-CBL-??	Control cable. ?? = length in ft.
EVO/ECM-PBL-??	Power Cable. ?? = Length in ft.

### Adjustment

The EVO/ECM-4Spd +5V is factory calibrated. Check cal. by measuring between the Com test point and the +5V test point. R5 adjusts +5V.

Set each flow index by measuring the voltage between Com and the target flow point (Flo?). Set the target flow adjustment to the voltage associated with the desired flow index on the Voltage vs. Flow Index Chart.

When an adjustment is turned, ramping is temporarily disabled to allow dynamic adjustment of the flow index.

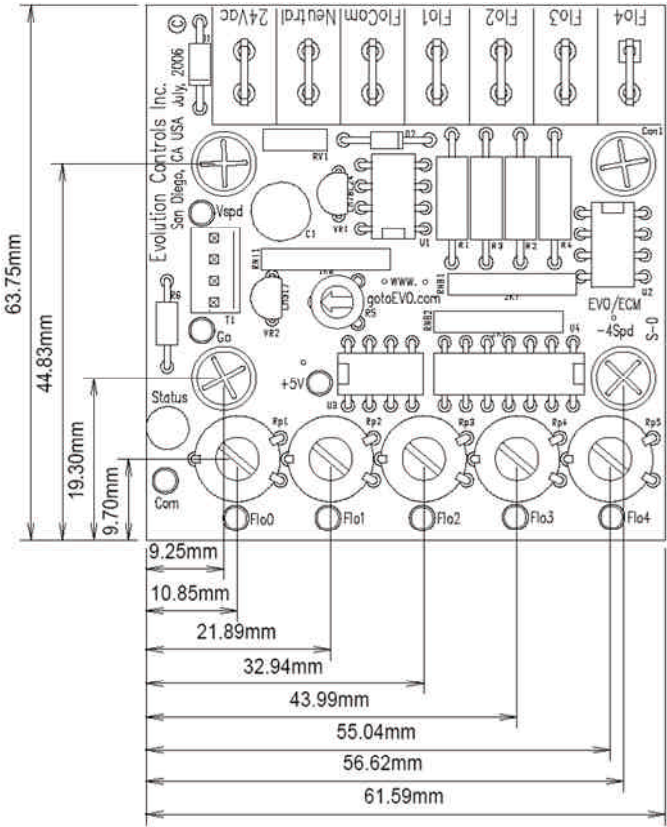
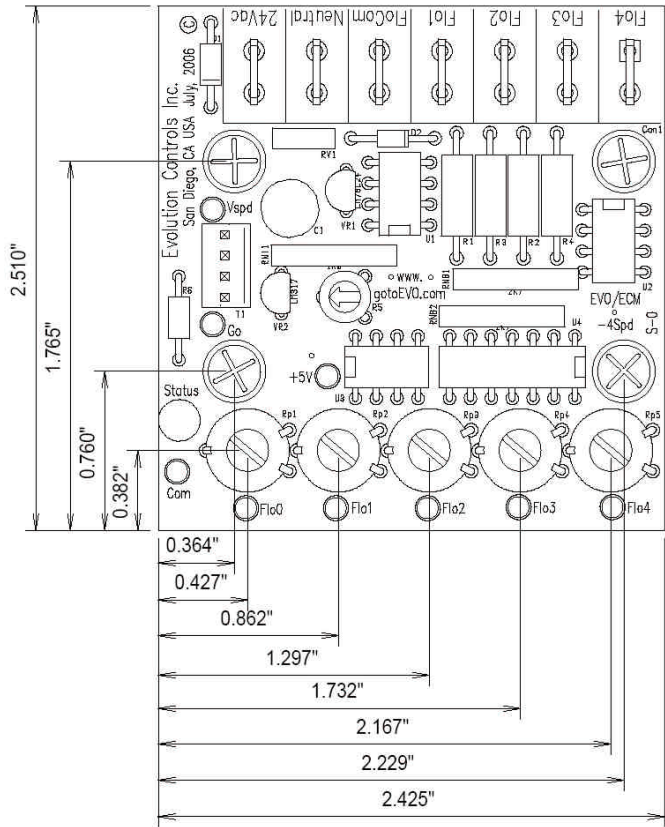
Voltage vs. Flow Index Chart

0%	0.098	Flow	+V	Flow	+V	Flow	+V	Flow	+V	Flow	+V	Flow	+V	Flow	+V	Flow	+V	Flow	+V
1%	0.15	11%	0.64	21%	1.13	31%	1.62	41%	2.11	51%	2.60	61%	3.09	71%	3.58	81%	4.07	91%	4.56
2%	0.20	12%	0.69	22%	1.18	32%	1.67	42%	2.16	52%	2.65	62%	3.14	72%	3.63	82%	4.12	92%	4.61
3%	0.25	13%	0.74	23%	1.23	33%	1.72	43%	2.21	53%	2.70	63%	3.19	73%	3.68	83%	4.17	93%	4.66
4%	0.29	14%	0.78	24%	1.27	34%	1.76	44%	2.25	54%	2.75	64%	3.24	74%	3.73	84%	4.22	94%	4.71
5%	0.34	15%	0.83	25%	1.32	35%	1.81	45%	2.30	55%	2.79	65%	3.28	75%	3.77	85%	4.26	95%	4.75
6%	0.39	16%	0.88	26%	1.37	36%	1.86	46%	2.35	56%	2.84	66%	3.33	76%	3.82	86%	4.31	96%	4.80
7%	0.44	17%	0.93	27%	1.42	37%	1.91	47%	2.40	57%	2.89	67%	3.38	77%	3.87	87%	4.36	97%	4.85
8%	0.49	18%	0.98	28%	1.47	38%	1.96	48%	2.45	58%	2.94	68%	3.43	78%	3.92	88%	4.41	98%	4.90
9%	0.54	19%	1.03	29%	1.52	39%	2.01	49%	2.50	59%	2.99	69%	3.48	79%	3.97	89%	4.46	99%	4.95
10%	0.59	20%	1.08	30%	1.57	40%	2.06	50%	2.55	60%	3.04	70%	3.53	80%	4.02	90%	4.51	100%	5.00

Mounting

Mount the control inside a metal control cabinet or enclosure. Fasten the control mounting posts to an earthed metal surface. Mounting posts are 3/32"/2.38mm ID. Adjustment shafts are 0.20"/5mm dia.

Mount the control with clearance for the 24Vac power wires and control cable connector. Mount the control so the status lamp is visible. Make sure there is access to the test points and the flow adjustments. The control's motor cable connector is small so it may be carefully pulled through an empty 3/4"/19mm conduit.



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### Wiring

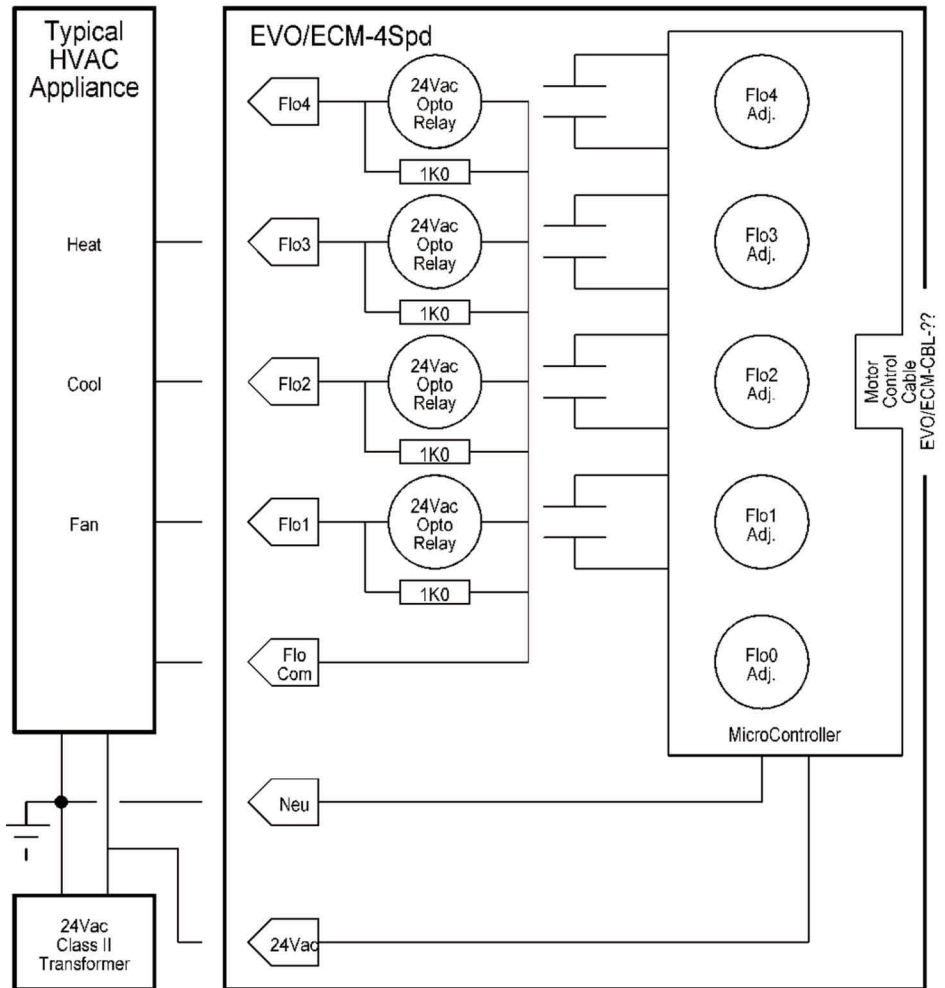
Power the EVO/ECM-4SPD controller with a 24Vac NEC Class II <sup>USA</sup> power source. Observe all code requirements and follow all safety practices regarding low voltage power supplies and circuits to insure a safe, reliable installation.

Earth one side of the power source. Connect the neutral connection to the earthed side of the 24 Vac Class II power source.

Some applications may require an isolated power supply or alternative earthing scheme. Follow code requirements and observe all safety practices concerning unearthed low voltage circuits.

Connect the 24Vac connection to the hot side of the 24 Vac Class II power source. You may interrupt this connection as a means to stop the ECM Motor™. This is especially useful if you plan to set a flow with no TAPs active (Flo0). Many automation controllers will power the control directly from an on/off output.

TAP isolation allows the TAPs to be powered from a device using a different 24Vac power source than the 24Vac used to power the EVO/ECM-4Spd.



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