

# Max-Air

## TECHNOLOGY

*The Best Way To Automate Your Process*

*Standard Voltages*  
110/240/380/480V  
24VAC/24VDC  
*Modulating Capable*



*Extended Duty Cycle Models*  
*Fast Acting Models*

# AE SERIES ACTUATORS

2016 EDITION



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# AE SERIES ELECTRIC ACTUATORS

AE Series electric actuators provide a highly reliable solution for your electric actuation requirements. With torque ranges from 300 in-lbs to over 5200 in-lbs, including optional handwheel overrides, fast acting solutions, as well as extra limit switches, LED position indication, internal space heaters, and modulation capability, the AE Series is designed to exceed your expectations.



## On/Off Control

- Multiple voltages available
- Fast acting and extended duty models available
- Easy wiring and setup
- Manual override standard

## Proportional Control

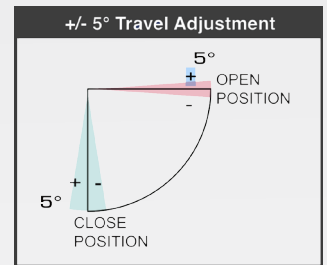
- Selectable input/output signal (4-20mA, 0-10V, 0-5V)
- Available in 120VAC or 220VAC
- Easy Travel and sensitivity adjustment
- Manual override standard

### Features:

- Compact design & direct ISO 5211 valve mounting
- Easy field wiring, setup and adjustment
- Multiple voltage options available (AC/DC)
- Open and close directions  $\pm 5^\circ$  travel adjustment
- Standard manual override, hand wheel on larger models
- Standard auxiliary limit switches for open/close feedback
- Standard Open/Close LEDs for easy visual indication
- Standard internal space heater & thermal overload protection
- Selectable input/output signal on modulating models
- Optional 180° rotation for on/off models only up to AE03

### Configurations:

- Standard On/Off Control (120VAC, 220VAC, + more AC options)
- Extended Duty On/Off Control\* (120VAC, 220VAC, 24VAC/DC Dual Voltage)
- Fast Acting On/Off Control (120VAC, 220VAC, 24VAC/DC Dual Voltage)
- Modulating Control (120VAC, 220VAC)

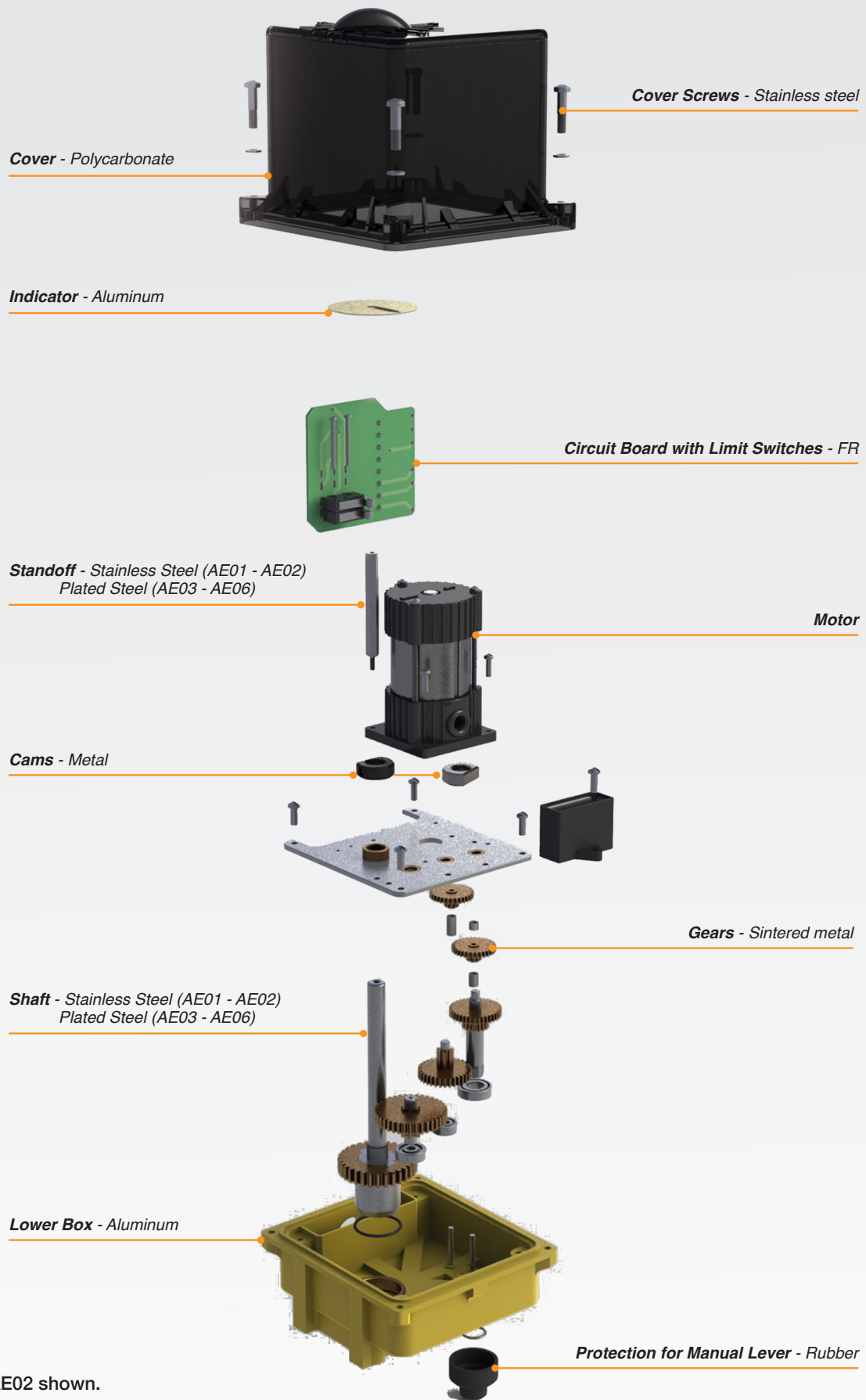


## SPECIFICATIONS

Rotation	90 Degrees $\pm 5^\circ$ Adjustment
Housing	Aluminum Alloy Base, Polycarbonate Cover
Gears	Heavy duty sintered metal
Back-Drive Resistance Method	High gearing ratio + back-drive resistant motor
Ambient Temp. Range	14°F to 140°F
Relative Humidity Range	30% to 95%
Enclosure Protection Rating	IP67 (Water and dust proof)
Switches	SPDT Mechanical Switches (2 Auxiliary)
Power Supply Voltage (AC/DC)	120VAC, 220VAC, 24VAC/DC dual voltage
3-Phase AC Power Supply Voltage	220VAC, 380VAC, 480VAC
Modulating Input Signal (Selectable)	4-20mA, 0-10V, 0-5V
Modulating Output Signal (Selectable)	4-20mA, 0-10V, 0-5V
Torque Range	75 to 5,290 in-lbs
Valve Mounting	ISO 5211
Manual Override	Included (hand wheel on larger sizes)

\*100% Duty Cycle according to IEC60034-S4 duty type.

# AE SERIES EXPLODED VIEW



\* NOTE: AE01/AE02 shown.

# PART NUMBER BUILDER

1  
Model

2  
Voltage

## 1 Select desired model

### Standard On/Off Models

Torques shown in inch-lbs.

Model No.	Torque	Duty	Cycle	Description
AE01-XXXVAC-YY	301	25%	10s	Standard On/Off Electric Quarter-Turn Actuator, Manual Override
AE02-XXXVAC-YY	434	25%	10s	Standard On/Off Electric Quarter-Turn Actuator, Manual Override
AE03-XXXVAC-YY	1478	50%	8s	Standard On/Off Electric Quarter-Turn Actuator, Manual Override
AE03H-XXXVAC-YY	1797	50%	10s	Standard On/Off Electric Quarter-Turn Actuator, with HW Override
AE04H-XXXVAC-YY	3292	50%	30s	Standard On/Off Electric Quarter-Turn Actuator, with HW Override
AE05H-XXXVAC-YY	4355	50%	30s	Standard On/Off Electric Quarter-Turn Actuator, with HW Override
AE06H-XXXVAC-YY	5293	50%	30s	Standard On/Off Electric Quarter-Turn Actuator, with HW Override

Note - The definition of DUTY CYCLE is in accordance with IEC60034-S4 duty type. Torques shown in inch-lbs.

### 100% Duty Cycle On/Off Models - 120VAC/240VAC

Model No.	Torque	Duty*	Cycle	Description
AE01A-XXXVAC	283	100%	16s	100% Duty Cycle On/Off Electric Quarter-Turn Actuator, Manual Override
AE02A-XXXVAC	443	100%	36s	100% Duty Cycle On/Off Electric Quarter-Turn Actuator, Manual Override
AE03HA-XXXVAC	867	100%	65s	100% Duty Cycle On/Off Electric Quarter-Turn Actuator, Manual Override

### 100% Duty Cycle Models - DUAL VOLTAGE 24VAC/24VDC

Model No.	Torque	Duty*	Cycle**	Description
AE01A-24VAC/24VDC	310	100%	11s	100% Duty Cycle On/Off Electric Quarter-Turn Actuator, Manual Override
AE02A-24VAC/24VDC	443	100%	12s	100% Duty Cycle On/Off Electric Quarter-Turn Actuator, Manual Override
AE03A-24VAC/24VDC	1239	100%	8s	100% Duty Cycle On/Off Electric Quarter-Turn Actuator, Manual Override
AE03HA-24VAC/24VDC	1381	100%	10s	100% Duty Cycle On/Off Electric Quarter-Turn Actuator, with HW Override
AE04HA-24VAC/24VDC	2434	100%	27s	100% Duty Cycle On/Off Electric Quarter-Turn Actuator, with HW Override

### Fast Acting On/Off Models - 120VAC/240VAC

Model No.	Torque	Duty*	Cycle	Description
AE01FA-M1-XXXVAC	78	100%	1s	Fast Acting On/Off Electric Quarter-Turn Actuator, Manual Override
AE01FA-M2-XXXVAC	221	100%	3s	Fast Acting On/Off Electric Quarter-Turn Actuator, Manual Override
AE03FA-M2-XXXVAC	885	100%	5s	Fast Acting On/Off Electric Quarter-Turn Actuator, Manual Override

### Fast Acting On/Off Models - 24VAC/24VDC

Model No.	Torque	Duty*	Cycle**	Description
AE01FA-M1-24VAC/24VDC	89	100%	1s	Fast Acting On/Off Electric Quarter-Turn Actuator, Manual Override
AE01FA-M2-24VAC/24VDC	221	100%	3s	Fast Acting On/Off Electric Quarter-Turn Actuator, Manual Override
AE03FA-24VAC/24VDC	443	100%	3s	Fast Acting On/Off Electric Quarter-Turn Actuator, Manual Override

### Modulating Models - 120VAC/240VAC

Model No.	Torque	Duty*	Board	Description
AEM01A-XXXVAC	221	100%	AMD	Modulating Electric Quarter-Turn Actuator, Manual Override, 0-10V/4-20mA
AEM02A-M1-XXXVAC	319	100%	AMD	Modulating Electric Quarter-Turn Actuator, Manual Override, 0-10V/4-20mA
AEM02A-M2-XXXVAC	443	100%	AMD	Modulating Electric Quarter-Turn Actuator, Manual Override, 0-10V/4-20mA
AEM03HA-M1-XXXVAC	1478	100%	BMD	Modulating Electric Quarter-Turn Actuator, w/ HW Override, 0-10V/4-20mA
AEM03HA-M2-XXXVAC	1797	100%	BMD	Modulating Electric Quarter-Turn Actuator, w/ HW Override, 0-10V/4-20mA
AEM04HA-XXXVAC	2673	100%	BMD	Modulating Electric Quarter-Turn Actuator, w/ HW Override, 0-10V/4-20mA
AEM05HA-XXXVAC	4355	100%	BMD	Modulating Electric Quarter-Turn Actuator, w/ HW Override, 0-10V/4-20mA
AEM06HA-XXXVAC	5293	100%	BMD	Modulating Electric Quarter-Turn Actuator, w/ HW Override, 0-10V/4-20mA

\*\*Note - No load cycle time.

\*Note - The definition of DUTY CYCLE is in accordance with IEC60034-S4 duty type.  
Fast Acting models rated 100% duty in 30 min.

Torques shown in inch-lbs.

## 2 Select desired voltage

120 VAC	240 VAC	240-3PH VAC	380-3PH VAC	480-3PH VAC
√	√	-	-	-
√	√	-	-	-
√	√	√	√	√
√	√	√	√	√
√	√	√	√	√
√	√	√	√	√
√	√	√	√	√

120 VAC	240 VAC
√	√
√	√
√	√

24VAC/24VDC
√
√
√
√
√

120 VAC	240 VAC
√	√
√	√
√	√

24VAC/24VDC
√
√
√

120 VAC	240 VAC
√	√
√	√
√	√
√	√
√	√
√	√
√	√
√	√

\*12 VDC available as special order only.

Standard On/Off Models - For "XXXVAC-YY", choose either 120, 240, 240-3PH, 380-3PH, or 480-3PH for required voltage. Only use "-YY" for 3 Phase Voltage Option.

Extended Duty Cycle On/Off Models - 120VAC/240VAC - For "XXX", choose either 120 or 240 for required voltage.

Modulating Models - 120VAC/240VAC - For "XXX", choose either 120 or 240 for required voltage. M1 motors are synchronous type motors providing relatively high electrical efficiency, M2 motors are inductive type motors and provide higher torque and speed in the same motor size.

Fast Acting On/Off Models - 120VAC/240VAC - For "XXX", choose either 120 or 240 for required voltage. M1 motors are synchronous type motors providing relatively high electrical efficiency, M2 motors are inductive type motors and provide higher torque and speed in the same motor size.

# TECHNICAL DATA

## Standard On/Off Control Series, 120VAC/240VAC & 240VAC/380VAC/480VAC-3PHASE

Model No.	Torque (in-lbs)	Torque (NM)	Weight (lbs)	Weight (Kg)	Duty	Power <sup>1</sup>	90 Degree Cycle Time	Amps 120VAC @ 60Hz <sup>2</sup>	Amps 240VAC @ 60Hz <sup>2</sup>
AE01-XXXVAC-YY	301	34	3.7	1.7	25%	10W	10s	0.7A	0.38A
AE02-XXXVAC-YY	434	49	4.0	1.8	25%	15W	10s	0.9A	0.5A
AE03-XXXVAC-YY	1478	167	9.7	4.4	50%	25W	8s	1.2A	0.72A
AE03H-XXXVAC-YY	1797	203	17.4	7.9	50%	25W	10s	1.2A	0.72A
AE04H-XXXVAC-YY	3292	372	19.0	8.6	50%	25W	30s	1.2A	0.72A
AE05H-XXXVAC-YY	4355	492	19.4	8.8	50%	40W	30s	2.0A	0.75A
AE06H-XXXVAC-YY	5293	598	20.1	9.1	50%	60W	30s	2.4A	0.8A

Note - "H" in the part number indicates hand-wheel manual override. The definition of DUTY CYCLE is in accordance with IEC60034-S4 duty type. For "XXXVAC-YY", choose either 120, 240, 240-3PH, 380-3PH, or 480-3PH for required voltage. Only use "-YY" for 3 Phase Voltage Option.

## 100% Duty Cycle On/Off Control Series, 120VAC/240VAC

Model No.	Torque (in-lbs)	Torque (NM)	Weight (lbs)	Weight (Kg)	Duty	Power <sup>1</sup>	90 Degree Cycle Time	Amps 120VAC @ 60Hz <sup>2</sup>	Amps 240VAC @ 60Hz <sup>2</sup>
AE01A-XXXVAC	283	32	3.7	1.7	100%	25W	16s	0.3A	0.15A
AE02A-XXXVAC	443	50	4.0	1.8	100%	25W	36s	0.2A	0.10A
AE03HA-XXXVAC	867	98	19.4	8.8	100%	25W	65s	0.2A	0.10A

Note - "H" in the part number indicates hand-wheel manual override. The definition of DUTY CYCLE is in accordance with IEC60034-S4 duty type. For "XXX", choose either 120 or 240 for required voltage.

## 100% Duty Cycle On/Off Control Series, DUAL VOLTAGE 24VAC/24VDC

Model No.	Torque (in-lbs)	Torque (NM)	Weight (lbs)	Weight (Kg)	Duty	Power <sup>1</sup>	90 Degree Cycle Time	24VAC @ 60 Hz <sup>2</sup>	24VDC Direct <sup>2</sup>
AE01A-24VAC/24VDC	310	35	4.4	2	100%	7W	11s	1.5A	1.5A
AE02A-24VAC/24VDC	443	50	4.9	2.2	100%	7W	12s	1.5A	1.5A
AE03A-24VAC/24VDC	1239	140	9.7	4.4	100%	25W	8s	3.0A	3.0A
AE03HA-24VAC/24VDC	1381	156	17.4	7.9	100%	25W	10s	3.0A	3.0A
AE04HA-24VAC/24VDC	2434	275	19.0	8.6	100%	25W	27s	3.0A	3.0A

Note - "H" in the part number indicates hand-wheel manual override. The definition of DUTY CYCLE is in accordance with IEC60034-S4 duty type.

## MODULATING Control Series, 120VAC/240VAC

Model No.	Torque (in-lbs)	Torque (NM)	Weight (lbs)	Weight (Kg)	Duty	Power <sup>1</sup>	90 Deg. Cycle Time	Amps 120VAC @ 60Hz <sup>2</sup>	Amps 240VAC @ 60Hz <sup>2</sup>
AEM01A-XXXVAC-AMD	221	25	4.9	2.2	100%	25W	16s	0.2A	0.10A
AEM02A-M1-XXXVAC-AMD	319	36	5.5	2.5	100%	25W	16s	0.3A	0.15A
AEM02A-M2-XXXVAC-AMD	443	50	5.5	2.5	100%	25W	35s	0.2A	0.10A
AEM03A-M1-XXXVAC-AMD	885	100	7.1	3.2	100%	25W	36s	0.3A	0.15A
AEM03HA-M1-XXXVAC-BMD	1478	167	10.6	4.8	100%	25W	8s	1.2A	0.72A
AEM03HA-M2-XXXVAC-BMD	1797	203	18.3	8.3	100%	25W	10s	1.2A	0.72A
AEM04HA-XXXVAC-BMD	2673	302	19.8	9	100%	25W	30s	1.2A	0.72A
AEM05HA-XXXVAC-BMD	4355	492	20.3	9.2	100%	40W	30s	2.0A	0.75A
AEM06HA-XXXVAC-BMD	5293	598	20.9	9.5	100%	60W	30s	2.4A	0.80A

Note - "H" in the part number indicates hand-wheel manual override. The definition of DUTY CYCLE is in accordance with IEC60034-S4 duty type. For "XXX", choose either 120 or 240 for required voltage. M1 motors are synchronous type motors providing relatively high electrical efficiency, M2 motors are inductive type motors and provide higher torque and speed in the same motor size.

## FAST ACTING On/Off Control Series, 120VAC/240VAC

Model No.	Torque (in-lbs)	Torque (NM)	Weight (lbs)	Weight (Kg)	Duty	Power <sup>1</sup>	90 Degree Cycle Time	Amps 120VAC @ 60Hz <sup>2</sup>	Amps 240VAC @ 60Hz <sup>2</sup>
AE01FA-M1-XXXVAC	78	8.8	3.7	1.7	100%	15W	1s	0.7A	0.38A
AE01FA-M2-XXXVAC	221	25	3.7	1.7	100%	15W	3s	0.8A	0.60A
AE03FA-M2-XXXVAC	885	100	9.7	4.4	100%	25W	5s	1.2A	0.72A

Note - 100% duty in 30 min. Torques shown in inch-lbs. For "XXX", choose either 120 or 240 for required voltage.

M1 motors are synchronous type motors providing relatively high electrical efficiency,

M2 motors are inductive type motors and provide higher torque and speed in the same motor size.

## FAST ACTING On/Off Control Series, DUAL VOLTAGE 24VAC/24VDC

Model No. - Voltage	Torque (in-lbs)	Torque (NM)	Weight (lbs)	Weight (Kg)	Duty	Power <sup>1</sup>	Cycle Time	24VAC @ 60 Hz <sup>2</sup>	24VDC Direct <sup>2</sup>
AE01FA-M1-24VAC/24VDC	89	10	3.7	1.7	100%	7W	1s	2.0A	2.0A
AE01FA-M2-24VAC/24VDC	221	25	3.7	1.7	100%	7W	3s	1.6A	1.6A
AE03FA-24VAC/24VDC	443	50	9.7	4.4	100%	25W	3s	3.5A	3.5A

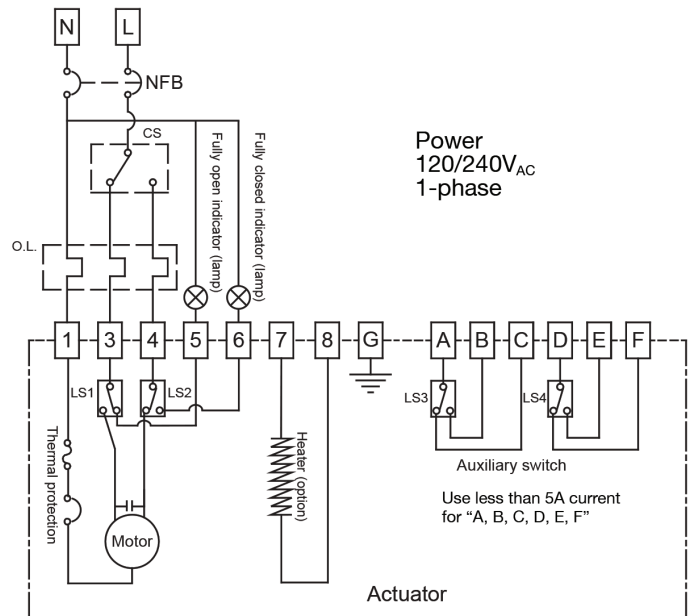
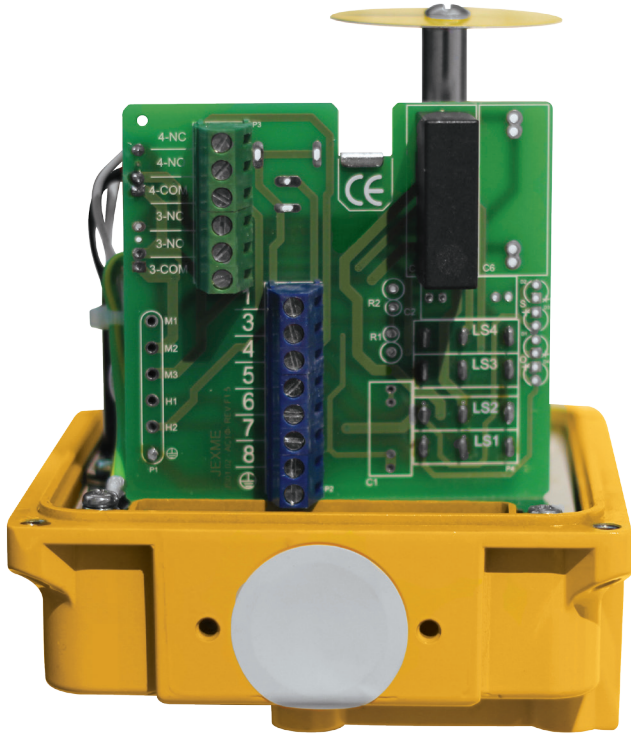
Note - 100% duty in 30 min. 1) Power is consumption at "no load". 2) Amps are based on "full load" at rated torque.

M1 motors are synchronous type motors providing relatively high electrical efficiency,

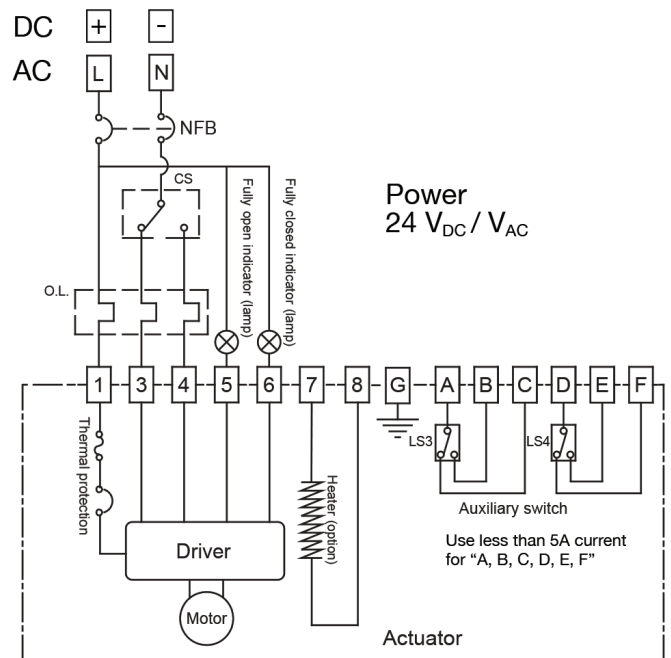
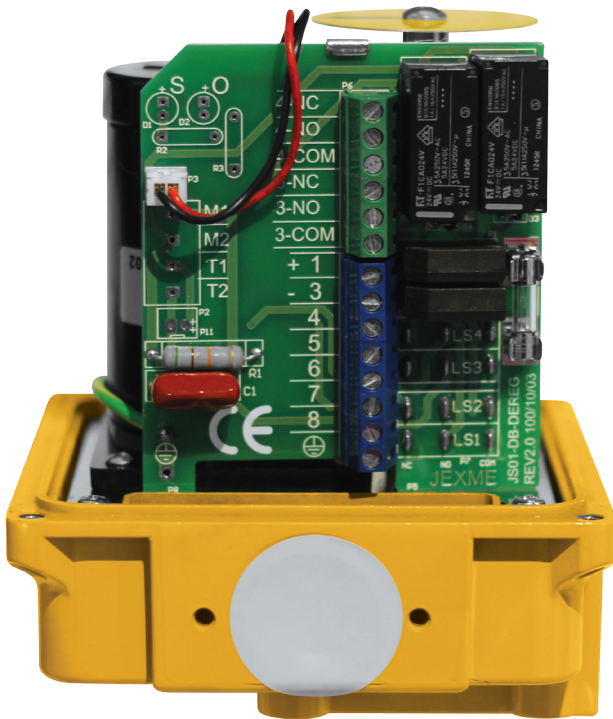
M2 motors are inductive type motors and provide higher torque and speed in the same motor size.

## ON/OFF TYPE FOR 120/240 VAC

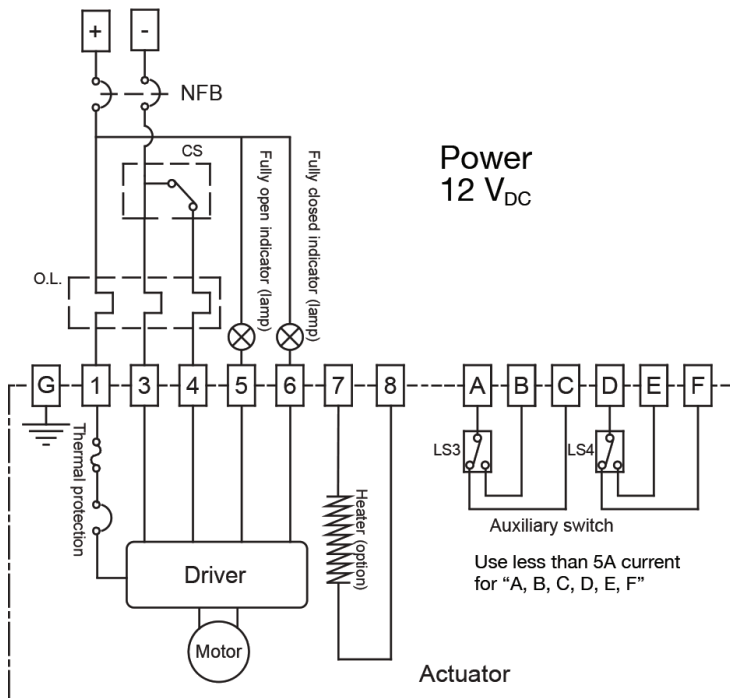
### Single Phase



## ON/OFF TYPE FOR 24VDC/VAC

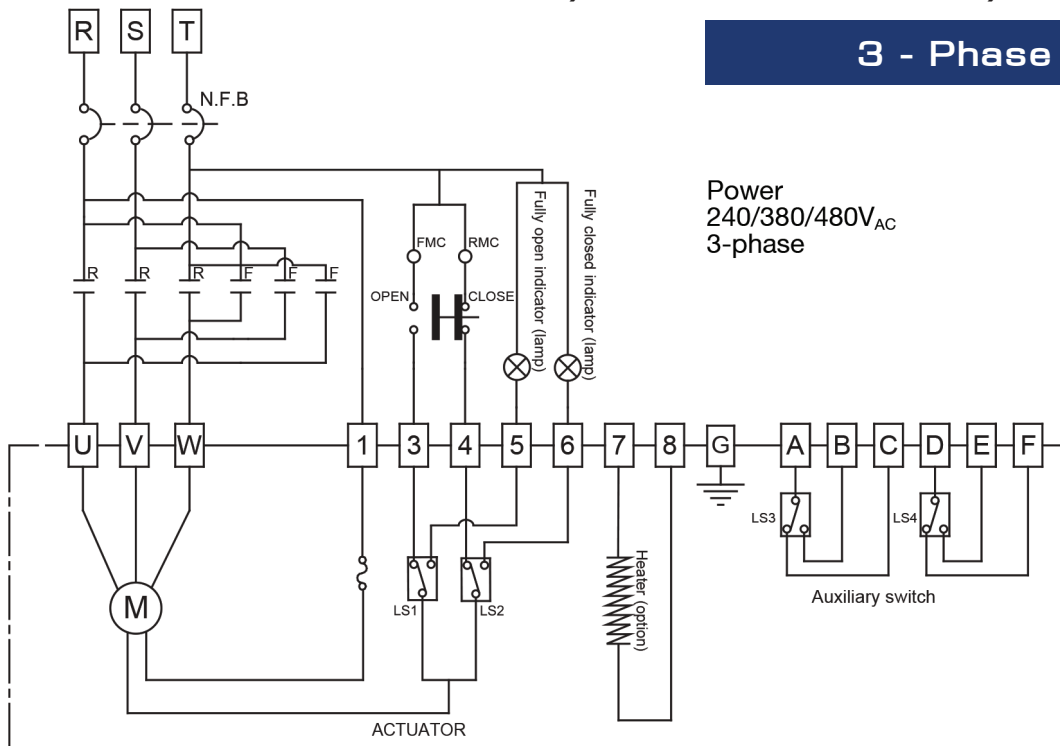


## ON/OFF TYPE FOR 12/24VDC

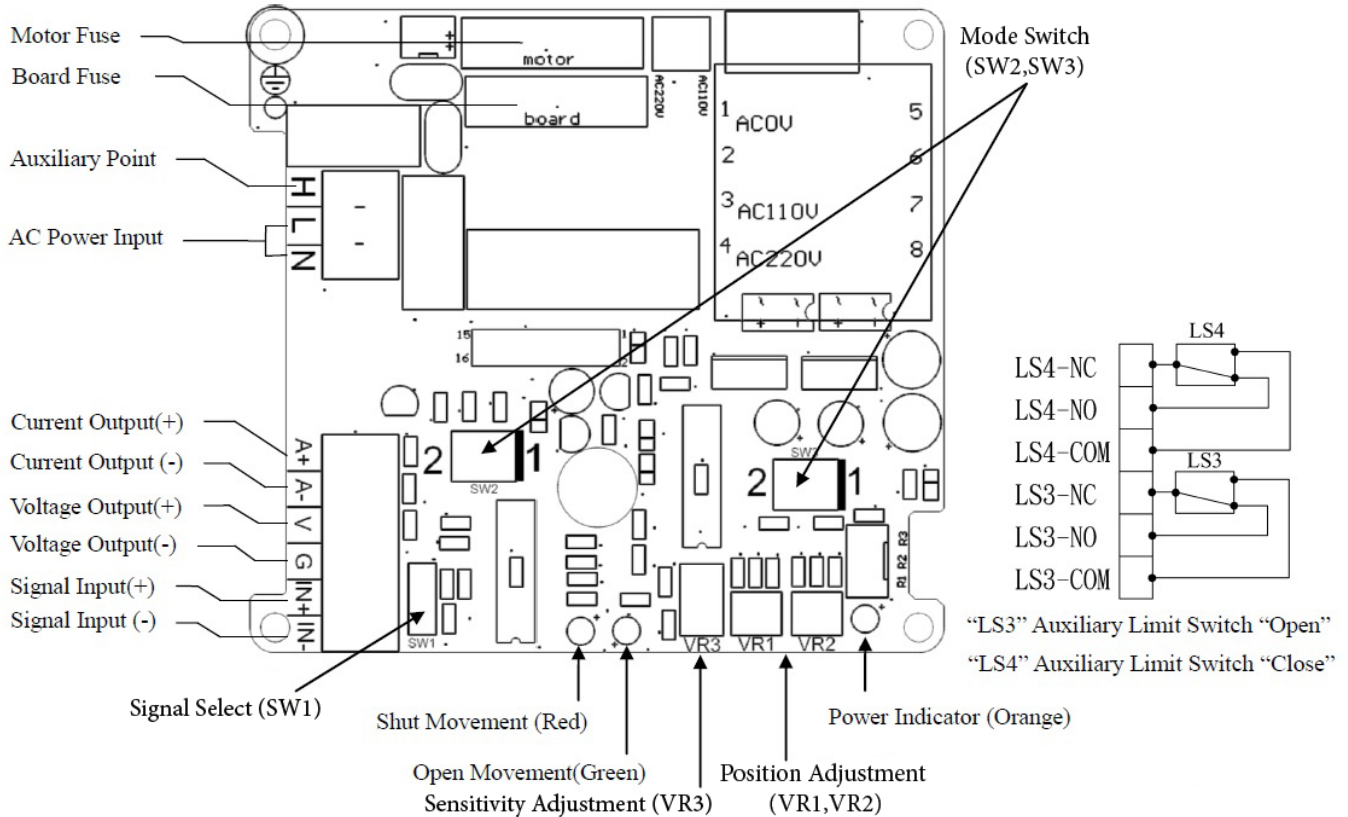


## ON/OFF TYPE FOR 120/240 VAC

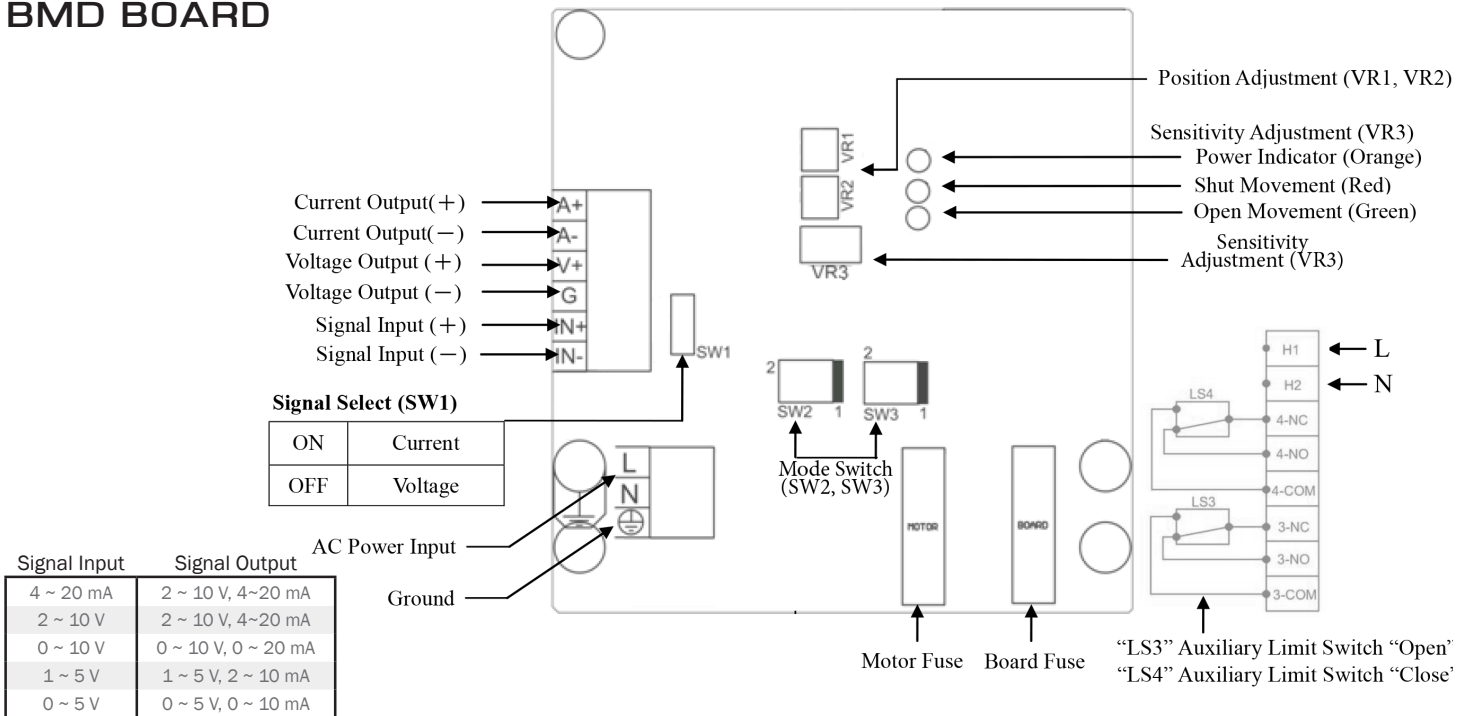
3 - Phase



## AMD BOARD



## BMD BOARD



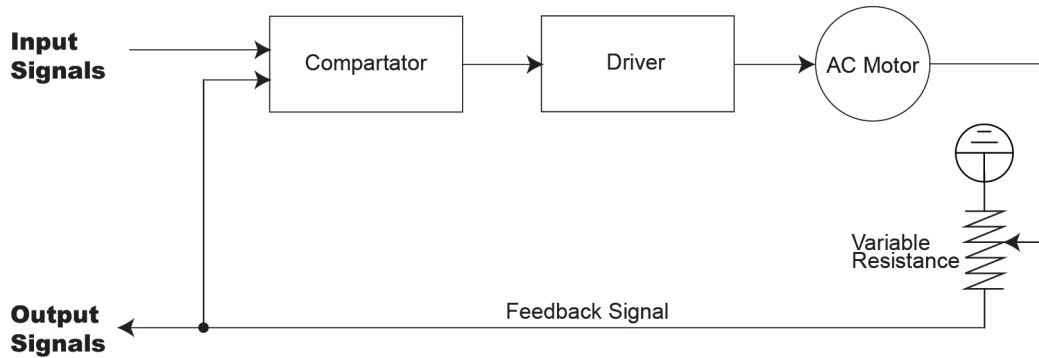
Note - When using current signal, external resistant is under 500 Ω.

### Differences between AMD and BMD:

BMD units should be used for higher torques and faster operating speeds. AMD units provide power usage efficiencies and should be used when power savings are a concern.



## SIGNAL FLOW OF MODULATION TYPE

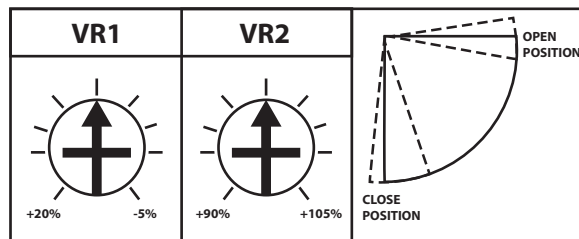


## SWITCH & ADJUSTMENT SETTINGS

### SW1 Input Signal Selection

	ON	OFF (1)
SW1	Current Input Signal	Voltage Input Signal
	4 ~ 20 mA	2~10 V 0~10 V 1~5 V 0~5 V

### VR1 & VR2 Position Adjustment



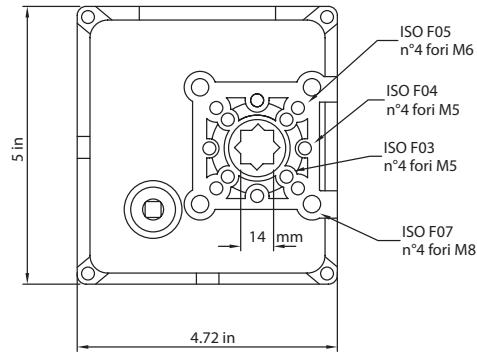
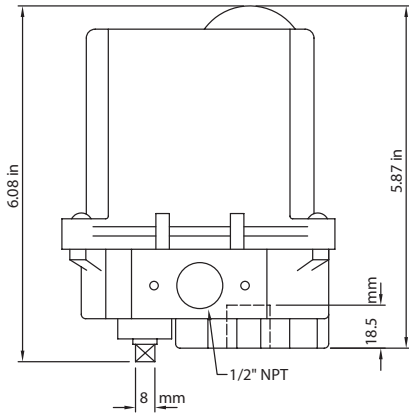
### SW2 & SW3 Operation Selection

		SW2	
		1	2
SW3	1	<b>MODE A</b> Valve is fully closed when the input signal is 4mA, 2V, 1V, or 0V	X
	2	X	<b>MODE B</b> Valve is fully opened when the input signal is 4mA, 2V, 1V, or 0V

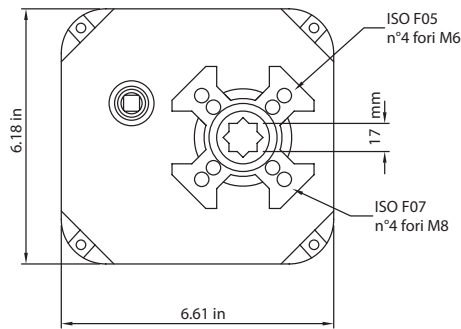
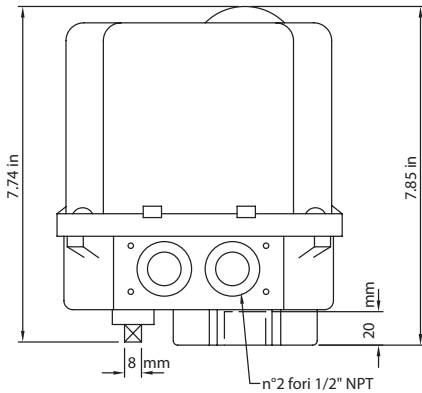
### VR3 Sensitivity Adjustment

Rotation	Result
Clockwise	 Increase sensitivity
Counter-clockwise	 Decrease sensitivity

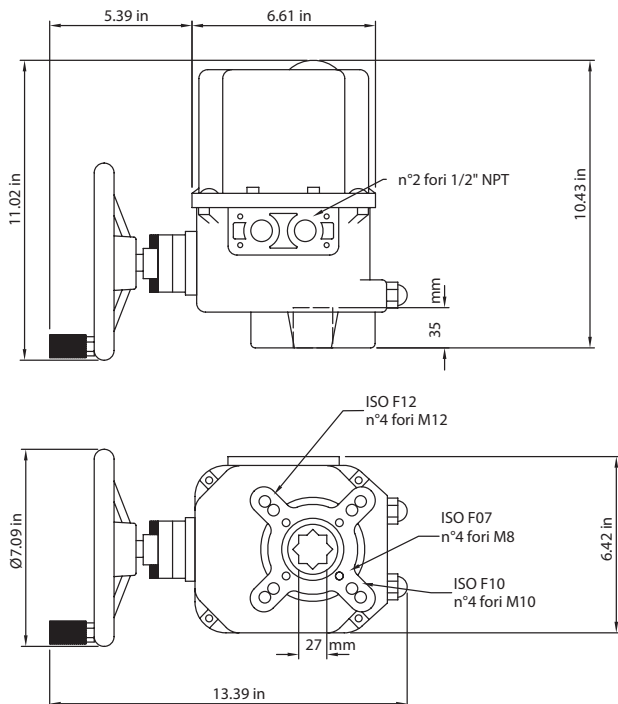
## AE01 - AE02



## AE03



## AE03H - AE06H





*The Best Way To Automate Your Process*

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