

# EM 189-258

## SmartMotion DC chain actuators



**Made in Germany**

Functional Fenestration Inc (FFI) is an expert and leader in the American motorized actuator market, with a broad range of motors for windows, vents, and skylights. FFI has been providing motorized operators for natural ventilation since 1987, for institutional, commercial and residential applications.

### Benefits of motorized actuators

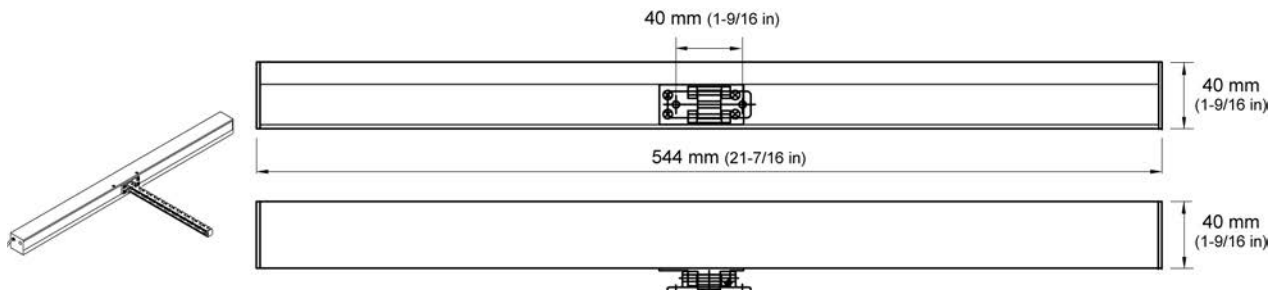
- Automated operation of multiple awning windows, hopper windows, casement windows, curtain wall vents, and skylights.
- Ideal for smart buildings; integrate with building and home automation systems.
- EM actuators are certified for Smoke and Heat Extraction (SHE).
- Natural ventilation enables lower energy consumption, lets in fresh air and daylight, enables LEED credit.
- Low voltage DC motors are energy efficient.

### Features

- EM series has a slim casing and low-noise operation.
- Push/Pull Force up to 300 N (68 lb).
- Opening distance ranges from 189 mm to 258 mm approx., according to version.
- Multiple actuators may be linked for simultaneous operation of multiple windows.
- Actuator has stainless steel chain for rigidity and durability.
- Tight vent closure using electronic power cut-off.
- UL Recognized.
- Can be concealed in frame or curtain wall.
- Sash connector/hinge bracket and all mounting brackets for EM are available in EM Bracket kits (sold separately) rather than included with the actuator; see EM Brackets & Accessories DataSheet.
- Actuators are available in standard grey, white, or black color.
- UL cable 1 meter included, black color.
- Tested to 10,000 cycles.
- 2-year manufacturer's warranty; requires use according to Installation Guide recommendations.



sash connector/  
hinge bracket



**EM**  
**189-258**



**Applications**

**On Wall or Frame**



**Awning**



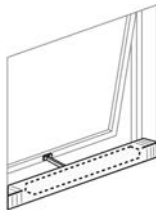
**Hopper**



**Skylight**



**Concealed in frame or curtain wall**



**Specifications**

Supply voltage:	24 V DC (-20 % / +25 %)
Normal current amp draw:	approx. 0.8 amp* at 300N full load
Limit stop:	(Open): built-in limit switch (Closed): integrated electronic power cut-off
Chain stroke length (approx):	189 mm (7-7/16 inch) 258 mm (10-1/8 inch)
Chain installation adjustment:	automatic adjustment
Push force (max):	300 N (68 lbf +/- 3%)
Pull force (max):	300 N (68 lbf +/- 3%)
Nominal clamping force (max):	3000 N (675 lbf +/- 3%) force needed to rip chain out of actuator case
Min. sash height at stroke length:	(dependent on profile cross-section and thickness) 189 mm stroke: 255 mm (10 in) sash height 258 mm stroke: 355 mm (14 in) sash height
Chain speed:	approx. 9 mm/sec (0.354 in/sec)
Actuator Dimensions (l x h x d):	544 x 40 x 40 mm (21-7/16 x 1-9/16 x 1-9/16 in)
Power cable:	UL cable 1 meter included, black color
Run/Rest cycle:	For every 60 seconds running (ON), must then rest (OFF) for 120 seconds.
Ambient operating temperature:	-10 °C to +60 °C (14 °F to 140 °F)
Safety marks:	ANSI / UL Recognized : E 306715 , manufacturer STG Beikirch
Protection class:	IP 20
Case:	aluminum profile
Colors (standard):	powder-coated: silver grey (RAL 9006), white (RAL 9016), or black (RAL 9005)
Special colors:	other RAL colors on request, see accessory data sheet
Opening mechanism:	stainless steel chain, chain is centered in case

\* Calculate power supplies and control boxes needed based on peak draw of 2 times normal amp draw.

**FFI EM UL 189-258 Actuators**

Stroke (and push/pull Force)	Part Numbers		
	Silver Grey	White	Black
<b>189 mm (300 N)</b> 7-7/16 in (68 lbf +/- 3%)	2406029	2405914	13324560293
<b>258 mm (300 N)</b> 10-1/8 in (68 lbf +/- 3%)	2406060	2405906	13324560603

**EM Accessory Parts**



EM Status Signal open close (added at factory)	part # 50000939
EM brackets	see EM Brackets & Accessories DataSheet

Recommendations for FFI Actuators & Controls: FFI only recommends UL compliant systems. FFI is a UL registered firm. Read FFI data sheets & installation guides before specifying project details. Project-specific needs vary depending on the number of actuators, electrical layouts, building management systems, distance between power supplies & actuators, and other details. Project specifications to comply with electric & building codes—for wire gauge, wire connections and run distance, conduits, junction boxes—must be arranged by the project electrical contractors. Distribute this guide to all project parties, including electrical contractors, architects, and building management personnel.

# EM 327-810

## SmartMotion DC chain actuators



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### Benefits of motorized actuators

- Automated operation of multiple awning windows, hopper windows, casement windows, curtain wall vents, and skylights.
- Ideal for smart buildings; integrate with building and home automation systems.
- EM actuators are certified for Smoke and Heat Extraction (SHE).
- Natural ventilation enables lower energy consumption, lets in fresh air and daylight, enables LEED credit.
- Low voltage DC motors are energy efficient.

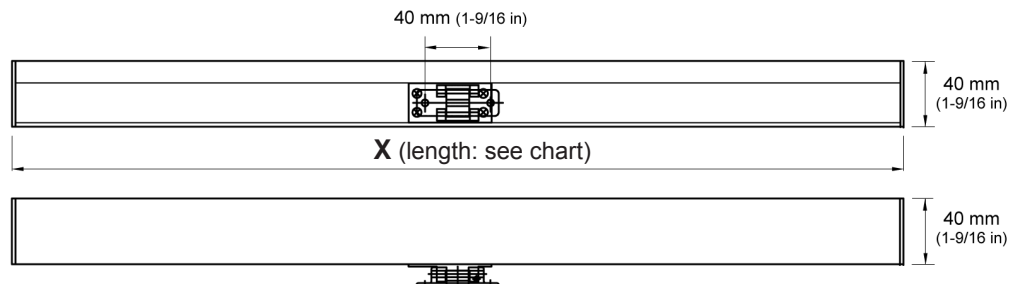
### Features

- EM series has a slim casing and low-noise operation.
- Push/Pull Force up to 300 N (68 lb), to operate 327mm - 603mm chain versions.
- Opening distance ranges from 327 mm to 810 mm approx., according to version.
- Multiple actuators may be linked for simultaneous operation of multiple windows.
- Actuator has stainless steel chain for rigidity and durability.
- Tight vent closure using electronic power cut-off.
- UL Recognized.
- Can be concealed in frame or curtain wall.
- Sash connector/hinge bracket and all mounting brackets for EM are available in EM Bracket kits (sold separately) rather than included with the actuator; see EM Brackets & Accessories DataSheet.
- Actuators are available in standard grey, white, or black color.
- UL cable 1 meter included, black color.
- Tested to 10,000 cycles.
- 2-year manufacturer's warranty; requires use according to Installation Guide recommendations.



sash connector/  
hinge bracket

X = length (tolerance +/- 1mm)	
at stroke	length
at 327 mm stroke	544 mm (21-7/16 in)
at 419 mm stroke	636 mm (25 in)
at 511 - 603 mm stroke	820 mm (32-1/4 in)
at 810 mm stroke	1011 mm (39-13/16 in)



**EM**  
**327-810**



**Applications**  
On Wall or Frame



**Awning**



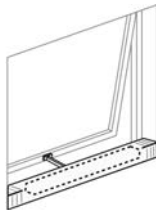
**Hopper**



**Skylight**



**Concealed in frame or curtain wall**



**Specifications**

Supply voltage: 24 V DC (-20 % / +25 %)  
 Normal current amp draw: approx. 0.8 amp\* at 300N full load  
 Limit stop: (Open): built-in limit switch  
 (Closed): integrated electronic power cut-off  
 Chain stroke length (approx): 327 mm (12-7/8 inch)  
 419 mm (16-1/2 inch)  
 511 mm (20-1/8 inch)  
 603 mm (23-3/4 inch)  
 810 mm (31-7/8 inch)  
 Chain installation adjustment: automatic adjustment  
 Push force (max): 300 N (68 lbf +/- 3%) for 327mm – 603mm chain  
 100 N (22 lbf +/- 3%) for 810S chain  
 Pull force (max): 300 N (68 lbf +/- 3%) for 327mm – 603mm chain  
 250 N (55 lbf +/- 3%) for 810S chain  
 Nominal clamping force (max): 3000 N (675 lbf +/- 3%) force needed to rip chain out of actuator case  
 (dependent on profile cross-section and thickness)  
 Min. sash height at stroke length: 327 mm stroke: 445 mm (17-1/2 in) sash height  
 419 mm stroke: 590 mm (23-1/4 in) sash height  
 511 mm stroke: 725 mm (28-9/16 in) sash height  
 603 mm stroke: 855 mm (33-11/16 in) sash height  
 810 mm stroke: 1100 mm (43-5/16 in) sash height  
 Chain speed: (for 327mm – 603mm chain): approx. 9 mm/sec (0.354 in/sec)  
 (for 810(S)\*\* mm chain): approx. 14 mm/sec (0.551 in/sec)  
 \*\* S indicates extra speed for this model.  
 Actuator Dimensions (l x h x d): 327 mm chain = 544 x 40 x 40 mm (21-7/16 x 1-9/16 x 1-9/16 in)  
 419 mm chain = 636 x 40 x 40 mm (25 x 1-9/16 x 1-9/16 in)  
 511-603 mm chain = 820 x 40 x 40 mm (32-1/4 x 1-9/16 x 1-9/16 in)  
 810(S) mm chain = 1011 x 40 x 40 mm (39-13/16 x 1-9/16 x 1-9/16 in)  
 Power cable: UL cable 1 meter included, black color  
 Run/Rest cycle: For every 60 seconds running (ON), must then rest (OFF) for 120 seconds.  
 Ambient operating temperature: -10 °C to +60 °C (14 °F to 140 °F)  
 Safety marks: ANSI / UL Recognized : E 306715 , manufacturer STG Beikirch  
 Protection class: IP 20  
 Case: aluminum profile  
 Colors (standard): powder-coated: silver grey (RAL 9006), white (RAL 9016), or black (RAL 9005)  
 Special colors: other RAL colors on request, see accessory data sheet  
 Opening mechanism: stainless steel chain, chain is centered in case

\* Calculate power supplies and control boxes needed based on peak draw of 2 times normal amp draw.

**FFI EM UL 327-810 Actuators**

Stroke (and push/pull Force)		Part Numbers		
		Silver Grey	White	Black
<b>327 mm (300 N)</b>	12-7/8 in (68 lbf +/- 3%)	2406102	2405930	13324561023
<b>419 mm (300 N)</b>	16-1/2 in (68 lbf +/- 3%)	2406144	2405922	13324561443
<b>511 mm (300 N)</b>	20-1/8 in (68 lbf +/- 3%)	2406185	2405948	13324561853
<b>603 mm (300 N)</b>	23-3/4 in (68 lbf +/- 3%)	2406227	2405955	13324562273
<b>810S mm (100 N)</b>	31-7/8 in (22 lbf +/- 3%)	2406001	2406002	13324560013

**EM Accessory Parts**

	EM Status Signal open close (added at factory)	part # 50000939
	EM brackets	see EM Brackets & Accessories DataSheet

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