

## AM EQUIPMENT

CATALOG

2022



page 01

### **AM Equipment Value Statement**

AM Equipment's mission is to combine innovation and expertise to provide motion control and windshield wiper system solutions of quality, value, and safety to drive a better world.



For CAD files, engineering prints, or other detailed information, please call our Sales Engineering Department: (541) 327-1546

## **Catalog Contents**

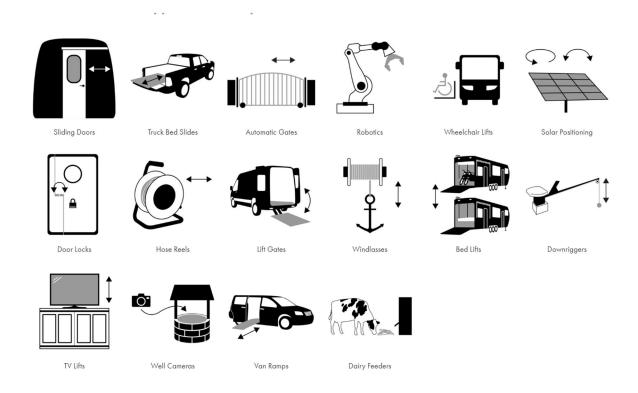
Applications and Industries Served	03
Our Clients	04
Motor Series	06
The Power Move	09
Standard Duty Arms	10
Commercial Duty Arms	11
Commercial Heavy Duty Arms	12
Windshield Wiper Blades	13
Commercial Duty Applications	14
212 Series Wiper Motor	15
Gear Boxes	19
Washer Systems & Parts	20
Switches	22
Wire Harnesses	23



### **Applications and Industries Served**

AM Equipment designs and manufactures motion control solutions and windshield wiper systems for various industries, including EVs, RV's, Work trucks, Marine, Military, Buses, Robotics, Agriculture, Cab manufacturers, Rail, Solar, Emergency Trucks, and more.

#### **Controlled Motion Application Examples:**





### **Our Clients**

#### We're proud to serve:































































## **Motor Series**

Motor	Voltage	Stall Torque	Special Features	Interface	No-Load Oscillations or RPM	Weight	Housing	Industrial or Wiper	Rotation Type
210	12 V	10 Nm	Same bolt pattern as 214 motor; resists backdrive; integrated KET SWP connnector housing	10 mm diameter x 7.5 mm double flat output shaft	85 min	1.4 lb	LH or RH	Industrial	CW or CCW from both LH & RH motors
212	12 V or 24 V	12 Nm	25 mm (1"), 50 mm (2"), or 75 mm (3") pivot shaft lengths; can park clockwise or counter-clockwise	1/2" knurled drum	35 oscillations	2.4 lb	N/A	Industrial or wiper	Oscillating to 65°, 85°, 100°, or 110° sweep angles
214	12 V reversible	14 Nm	resists backdrive; same bolt pattern as 210 motor; integrated KET SWP connector housing	10 mm diameter x 7.5 mm double flat output shaft	70 rpm	1.6 lb	RH	Industrial	CW/CCW full rotation
218	12 V or 24 V reversible	18 Nm	Same housing as 230 motor; special steel gear can backdrive; two start worm drive	Various 11 mm output shafts available	95-116 rpm	2.6 lb	LH or RH	Industrial	CW/CCW full rotation
226	12 V or 24 V reversible	26 Nm	Same housing as 235 and 238 motors; special steel gear resists backdrive; single start worm drive	Various 11 mm output shafts available	78-95 rpm	2.7 lbs	LH	Industrial	CW/CCW full rotation
230	12 V or 24 V	30 Nm	Same housing as 218 motor; low speed, high speed, and park position; coast-to-park or dynamic park	11 mm with M8 DIN 3:1 splined taper; includes output shaft nut	Low speed 42 rpm; high speed 65 rpm	2.5 lb	LH or RH	Industrial or wiper	CCW full rotation for LH housing; CW full rotation for RH housing
235	12 V or 24 V	35 Nm	Same housing as 226 and 238 motors; low speed, high speed, and park position; dynamic park	11 mm with M8 DIN 3:1 splined taper; includes output shaft nut	Low speed 34 rpm; high speed 57 rpm	2.6 lb	LH	Industrial or wiper	CCW full rotation
238	12 V or 24 V	38 Nm	Same housing as 226 and 235 motors; low speed, high speed, and park position; dynamic park	11 mm with M8 DIN 3:1 splined taper; includes output shaft nut	Low speed 41 rpm; high speed 69 rpm	2.6 lb	LH	Industrial or wiper	CCW full rotation
240 Wiper	12 V, 24 V, or 36 V	40 Nm - varies depending on armature winding	Low speed, high speed, and park position; coast-to-park or dynamic park; housing can fit on any AM Equipment wiper system platform	12 mm with M8 DIN 3:1 splined taper; includes output shaft nut	20-100 rpm depending on armature winding configuration	2.6 lb	LH	Wiper	CCW full rotation
240 Standard Industrial	12 V, 24 V, or 36 V	40 Nm - varies depending on armature winding	Backdrives easily; sealed molded housing for 6 pin Tyco Electric (TE) harness connector	Various output shafts available, including 11 mm diameter with 40 mm flat, 12 mm diameter with 4 mm wide keyway and snap ring groove, 11 mm diameter blank, and 12 mm diameter blank	20-100 rpm depending on armature winding configuration	2.6 lb	LH	Industrial or wiper	CW/CCW full rotation
240 Super Sealed Industrial	12 V, 24 V, or 36 V	40 Nm - varies depending on armature winding	Backdrives easily; sealed molded housing for 6 pin Tyco Electric (TE) harness connector; submersion-proof sealing with the exception of the output shaft	Various output shafts available, including 11 mm diameter with 40 mm flat, 12 mm diameter with 4 mm wide keyway and snap ring groove, 11 mm diameter blank, and 12 mm diameter blank	20-100 rpm depending on armature winding configuration	3.2 lb	LH	Industrial or wiper	CW/CCW full rotation
HD40 Industrial Servo- motor	12 V, 24 V, or 36 V	40 Nm - varies depending on armature winding	Integrated incremental 2-channel encoder utilizing a 5-28 Volt signal to report speed, direction, and incremental position; encoder resolution is 520 pulses per output shaft revolution; separate "home" encoder channel provides one pulse per output shaft revolution; sealed molded housing for 6 pin Tyco Electric (TE) harness connector; available standard or super sealed	Various output shafts available, including 11 mm diameter with 40 mm flat, 12 mm diameter with 4 mm wide keyway and snap ring groove, 11 mm diameter blank, and 12 mm diameter blank	20-100 rpm depending on armature winding configuration	2.6 or 3.2 lb	LH	Industrial or wiper (wiper with use of controller)	CW/CCW full rotation
Awning Motor	12 V	14 Nm	Replaces LCI / Solera® Awning motors 266149 and 373566	12-tooth pinion	42 RPM	N/A	LH	Industrial	CW/CCW full rotation

## Motor Series (continued)

Designed and manufactured for applications like windshield wiper systems, openers, lifts, slides, and automated stair steps

Motor Voltage Stall Torque Special Features Interface No-Load Oscillations or RPM Weight Housing Wiper Rota	otation Type
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210	12 V	10 Nm	motor; resists backdrive;	10 mm diameter x 7.5 mm double flat output shaft	85 min	1.4 lb	LH or RH	Industrial	CW or CCW from both LH & RH motors
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212	12 V or 24 V	12 Nm	25 mm (1"), 50 mm (2"), or 75 mm (3") pivot shaft lengths; can park clockwise or counter- clockwise	1/2" knurled drum	35 oscillations	2.4 lb	N/A	Industrial or wiper	Oscillating to 65°, 85°, 100°, or 110° sweep angles
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214	12 V reversi ble	14 Nm	resists backdrive; same bolt pattern as 210 motor; integrated KET SWP connector housing	10 mm diameter x 7.5 mm double flat output shaft	70 rpm	1.6 lb	RH	Industrial	CW/CCW full rotation	
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218	12 V or 24 V reversi ble	Same housing as 230 motor; special steel gear can backdrive; two start worm drive	Various 11 mm output shafts available	95-116 rpm	2.6 lb	LH or RH	Industrial	CW/CCW full rotation
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226	12 V or 24 V reversi ble	, , ,	Various 11 mm output shafts available	78-95 rpm	2.7 lbs	LH	Industrial	CW/CCW full rotation	
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## Motor Series (continued)

Motor	Voltage	Stall Torque	Special Features	Interface	No-Load Oscillations or RPM	Weight	Housing	Industrial or Wiper	Rotation Type
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230	12 V or 24 V	30 Nm	speed, and park	taper; includes	Low speed 42 rpm; high speed 65 rpm	2.5 lb	LH or RH	Industrial or wiper	CCW full rotation for LH housing; CW full rotation for RH housing
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235	12 V or 24 V	35 Nm	Same housing as 226 and 238 motors; low speed, high speed, and park position; dynamic park	11 mm with M8 DIN 3:1 splined taper; includes output shaft nut	Low speed 34 rpm; high speed 57 rpm	2.6 lb	LH	Industrial or wiper	CCW full rotation	
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238	12 V or 24 V	38 Nm	Same housing as 226 and 235 motors; low speed, high speed, and park position; dynamic park	taper; includes	Low speed 41 rpm; high speed 69 rpm	2.6 lb	LH	Industrial or wiper	CCW full rotation	
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240 Wiper	12 V, 24 V,	40 Nm - varies dependi ng on armatur e winding	to-park or dynamic park; housing can fit on any	12 mm with M8 DIN 3:1 splined taper; includes output shaft nut	20-100 rpm depending on armature winding configuratio n	2.6 lb	LH	Wiper	CCW full rotation	
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## Motor Series (continued)



HD40 Industrial Servo- motor	12 V, 24 V, or 36 V	40 Nm - varies dependin g on armature winding	Integrated incremental 2-channel encoder utilizing a 5-28 Volt signal to report speed, direction, and incremental position; encoder resolution is 520 pulses per output shaft revolution; separate "home" encoder channel provides one pulse per output shaft revolution; sealed molded housing for 6 pin Tyco Electric (TE) harness connector; available standard or super sealed	Various output shafts available, including 11 mm diameter with 40 mm flat, 12 mm diameter with 4 mm wide keyway and snap ring groove, 11 mm diameter blank, and 12 mm diameter blank	20-100 rpm depending on armature winding configuratio n	2.6 or 3.2 lb	LH	Industrial or wiper (wiper with use of controller)	CW/CCW full rotation
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	12 V	14 Nm	3	12-tooth pinion	42 RPM	N/A	LH	Undustrial	CW/CCW Full Rotation
Motor			and 373566						



## The Power Move™ Rotary Actuator



### Motorize your manually operated bulkhead doors

AM Equipment engineered the Power Move™ Rotary Actuator as the solution for SECURE, SAFE, and SWIFT operation of bulkhead doors on Last Mile Delivery vehicles. Power Move™ eliminates the driver's need to manually open and close the bulkhead door 200+ times per day, thus significantly reducing exposure to injuries and enabling faster delivery stops, resulting in more deliveries every day. Once the driver exits the vehicle, a simple push of a button closes the door to provide a mechanical lock, keeping the remaining cargo safe and secure.

#### Applications include:

- Work truck doors & shelves
- Public transportation driver protection doors
- Delivery/autonomous vehicle hatches & platforms
- Pickup truck bed cargo management slides
- Step van sliding doors
- Step extenders for RVs & other large passenger vehicles



## **Standard Duty Arms**



- Meets or exceeds FMVSS and SAE standards
- Channel is made of UV stabilized composite; extension is powder coated stainless steel; mounting head is cast aluminum; matte black finish; tension spring is stainless steel
- Compatible with tapered knurl, 1/2" drum with lever, 1/2" drum with set screw, M6 DIN, and M8 DIN pivot shafts
- 9x4 mm hookslot (standard) or 14 mm saddle-type blade attachment
- Optional wet kit features internal through-channel hose routing, choice of spray nozzle (channel-mounted one-jet, three-jet, or six-jet), and optional check valve

### **Commercial Duty Arms**



- Meets or exceeds FMVSS and SAE standards
- Channel and extension are powder coated stainless steel; mounting head is cast aluminum; matte black finish; tension spring is stainless steel
- Compatible with tapered knurl, M8 DIN, and M10 DIN pivot shafts
- 9x4 mm hookslot (standard) or 14 mm saddle-type blade attachment
- Optional wet kit features internal through-channel hose routing, choice of spray nozzle (three-jet or six-jet), and optional check valve

### **Commercial Heavy Duty Arms**

### Commercial Duty Radial Arms











- Meets or exceeds FMVSS and SAE standards
- Channel is powder coated stainless steel; extension is galvanized steel with vinyl cover (stainless steel optional); mounting head is cast aluminum; matte black finish; tension spring is stainless steel
- Compatible with straight knurl pivot shaft
- Hookslot or saddle blade attachment
- Optional wet kit features internal hose routing, integrated sixjet spray nozzle, and check valve

### Windshield Wiper Blades

#### Standard Duty Wiper Blades



- Available in lengths from 250 mm (10") to 800 mm (32")
- Fits 9x4 mm or 9x3 mm hookslot wiper arms (with included adapters) and 14 mm saddle-type wiper arms
- Steel frame with stainless steel flexors
- Corrosion-resistant matte black finish

#### Heavy Duty Wiper Blades



- Available in lengths from 900 mm (36") to 1300 mm (52")
- Compatible only with 20 mm saddle-type wiper arm
- Steel frame with stainless steel flexors
- Corrosion-resistant matte black finish

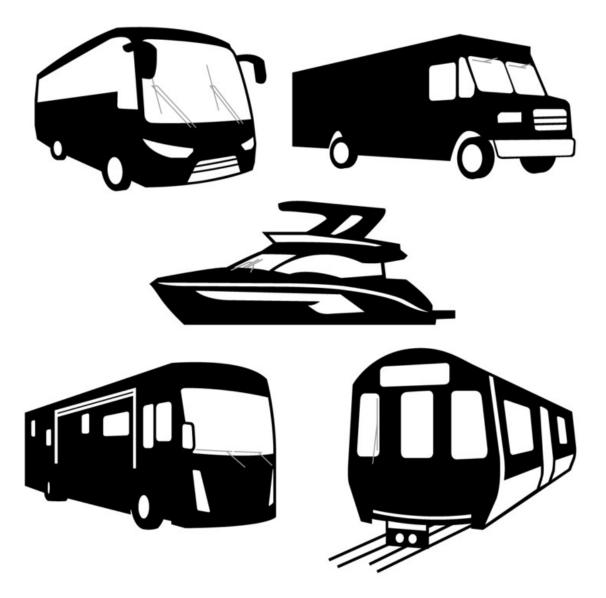
#### Frameless Wiper Blades



- Available in lengths from 300 mm (12") to 800 mm (32")
- Fits 9x4 mm or 9x3 mm hookslot wiper arms (with included adapters) and 14 mm saddle-type wiper arms
- Stainless steel flexors with matte black plastic cover



### **Commercial Duty Applications**



Arm Length: Up to 84 cm (33")

#### Sample Applications:

 Transit buses, school buses, delivery vans, recreational vehicles, recreational boats, light rail / streetcars, forestry equipment, food trucks, defense vehicles, snow removal equipment, electric vehicles, cranes, Amtrak F40 locomotives, Fecon forestry mulchers, Progress Rail maintenance of way equipment

### 212 Series Wiper Motor



### **Technology:**

The 212 Series motor offers oscillating motion with two park positions, making it ideal for diverse wiper or industrial applications. This 12 Nm motor fits the bill when you need open/close or wiper actuation.

#### **Features:**

- 12 Nm stall torque
- Standard RFI suppression and circuit breaker
- Clockwise or counterclockwise park available
- 65°, 85°, 100°, or 110° sweep angles
- 25 mm (1"), 50 mm (2"), or 75 mm (3") pivot shaft lengths
- Brass housing with stainless steel shaft standard
- Corrosion and water resistant
- Motor cover with or without switch available
- RoHS compliant
- Engineered in the USA and manufactured in Korea

#### **Application Examples:**

- Opening and closing doors
- Deploying and retracting mobility devices
- Robotics
- Tank agitation
- Remote feeding stations
- Windshield wipers
- Diverters
- Opening and closing globe valves
- Oscillation motion applications

### Wiper Assemblies

### 230 Unitized



# Up to 71 cm (28") wiper arms / Up to 71 cm (28") wiper blades

- Two-speed, 30 Nm stall torque motor
- 12 V or 24 V
- Radial or pantograph sweep pattern
- Standard RFI suppression and circuit breaker
- Clockwise or counterclockwise park available
- LH or RH housing
- May be mounted up, down, sideways, or diagonally
- Sweep angles available from 36° to 115°

### Tapered Knurl



- Various pivot shaft lengths from 16 to 76 mm with tapered knurl mounting
- Compact size
- SAE standard durability tested
- FMVSS compliant
- Performs well in marine environments
- Sealed connector available
- Stainless steel shaft hardware

### Wiper Assemblies (continued)

### 1 Pivot, 2 Pivot, and 3 Pivot Radial Plug & Play Assembly

### 2 Pivot and 4 Pivot Pantograph Plug & Play Assembly



Easiest installation in the business eliminates frustrating component assembly and adjusting!

## Up to 81 cm (32") wiper arms / Up to 81 cm (32") wiper blades

- Two-speed, high efficiency 38 Nm stall torque dynamic park motor
- 12 V or 24 V
- Radial sweep pattern
- Single, double, or triple pivots
- Single switch synchronizes both arms
- For use with single-piece panoramic glass or split glass
- Standard RFI suppression and circuit breaker
- Clockwise or counterclockwise park available
- Sweep angles available in 90° or 106°
- Compatible with standard or heavy duty wiper arms
- Extra long pivot levers for improved wiper arm control
- 17 mm steel pivot shafts improve torsional rigidity
- Needle bearings in the pivot housings
- Integrated tapered knurl or DIN shaft mounting
- Linkage joints use greased bronze spherical bushings
- FMVSS compliant
- Motor and mounting bracket can be positioned above or below glass

## Up to 81 cm (32") wiper arms / Up to 81 cm (32") wiper blades

- Two or four powered pivot shafts
- Two-speed, high efficiency 38 Nm stall torque dynamic park motor
- 12 V or 24 V
- Pantograph sweep pattern
- Single switch synchronizes both arms
- For use with single-piece panoramic glass or split glass
- In tandem motion, the same pivot points can work for panoramic or split glass with just a change in the motor drive arm
- Standard RFI suppression and circuit breaker
- Clockwise or counterclockwise park available
- Sweep angles available in 80° or 85° (2 pivot); sweep angles available in 72° or 76° (4 pivot)
- Compatible with standard or heavy duty wiper arms
- Extra long pivot levers for improved wiper arm control
- 17 mm steel pivot shafts improve torsional riaidity
- Needle bearings in the pivot housings
- Integrated tapered knurl or DIN shaft mounting
- Linkage joints use greased bronze spherical bushings
- FMVSS compliant
- Motor and mounting bracket can be positioned above or below glass
- Patented stacking Delrin® link ends reduce installation envelope

### Wiper Assemblies (continued)

### 2 Driver Pantograph Plug & Play Assembly



Easiest installation in the business eliminates frustrating component assembly and adjusting!

#### Up to 81 cm (32") wiper arms / Up to 81 cm (32") wiper blades

- Two powered pivot shafts
- 35 Nm stall torque dynamic park motor
- 12 V or 24 V
- Pantograph sweep pattern
- Standard RFI suppression and circuit breaker
- Clockwise or counterclockwise park available

- Sweep angles available from 45° to 80°
- 17 mm steel pivot shafts improve torsional rigidity
- Needle bearings in the pivot housings
- 35 mm or 75 mm shaft length
- Fully enclosed linkage does not require additional safety cover

#### 1 Driver Radial Plug & Play Assembly



Easiest installation in the business eliminates frustrating component assembly and adjusting!

#### Up to 76 cm (30") wiper arms / Up to 81 cm (32") wiper blades

- 35 Nm stall torque dynamic park motor
- 12 V or 24 V
- Radial sweep pattern
- Standard RFI suppression and circuit breaker
- Clockwise or counterclockwise park available

- Sweep angles available from 50° to 140°
- 17 mm steel pivot shaft improves torsional rigidity
- Needle bearings in the pivot housings
- 35 mm or 75 mm shaft length
- Fully enclosed linkage does not require additional safety cover

### **Gear Boxes**

#### 5:1 Gearbox With Motor Features:



This robust motor and gear package features an output shaft supported with dual ball bearings to increase strength and durability. The linkage rotates from one cast-in-housing stop to another.

- Original equipment replacements for LCI / Kwikee®
- Economical motor/gear package
- 5:1 gear ratio
- 70 Nm output shaft stall torque at gear box
- 13 no-load oscillations per minute
- 110 mm (4.25") x 210 mm (8.25") mounting plate
- Supplied with an AM Equipment 214-1001 14 Nm 12 V DC gear motor
- 17 mm diameter double flat power take-off shaft
- 5 A no-load current
- 13 rpm speed range at gear box
- Durability tested to 50,000+ actuation cycles with linkage
- Three linkage in our online shop; custom linkages available for larger projects
- 4.25" x 8.25" mounting plate standard; custom mounting plates available
- 6.55 lb with linkage
- Engineered and assembled in the USA

#### Gearbox Applications



Deploying/Retracting Powered Steps



Lifting/Lowering Bay Doors

### Washer Systems & Parts

#### 1.5 Liter Washer Bottle



- Available with 12 V or 24 V integrated washer pump
- Metal spade bracket mount on back side of bottle
- Snap-on lid
- Uses 4 mm (3/16") ID hose
- 6.35 mm (.25") male spade terminals in "T" connector

# Superior 4.25 Liter Washer Bottle



- Slightly larger capacity to accommodate an entire bottle of washer fluid without spillage
- Available with a single pump or two independently controlled pumps for multiple spray outlets
- Fully sealed high-output, high-pressure pumps available in 12 V or 24 V
- Available with or without fluid level sensor
- Pump recesses on front of bottle protect washer pumps from damage and provide easy service access
- Grooved bottle design for improved stability and sturdiness
- Extra large offset neck opening for easy fluid filling
- Threaded bottle cap with rubber gasket is tethered to bottle and embossed with washer fluid icon
- Uses 4 mm (3/16") ID hose
- Conforms to SAE J1944 for thermal performance and durability
- Washer pumps passed independent dust and moisture intrusion tests and are IP 65 rated

### Washer Systems & Parts (continued)

#### 10 Liter Washer Bottle



- Available with 1, 2, or 3 12 V or 24 V integrated washer pumps
- Standard (30 psi) or high-performance (60 psi) washer pump(s) available
- Available with or without fluid level sensor
- Multiple point surface mounting holes
- · Threaded lid
- Can be used with remote filler
- Uses 4 mm (3/16") ID hose

# Bulkhead Fittings & Windshield Washer Hose



- Straight bulkhead fittings available in 20 mm (3/4") and 60 mm (2-1/3") mounting thread length
- 90° bulkhead fitting with 20 mm (3/4") thread length
- All bulkhead fittings work with 3.18 mm (1/8") ID hose on the wiper arm side and 4 mm (3/16") ID hose on the washer bottle side
- All bulkhead fittings include mounting nut and washer
- Black EPDM rubber windshield washer hose available in a variety of lengths and in 3.18 mm (1/8") or 4 mm (3/16") ID

### **Switches**

#### Delay Switch for Two-Speed Wiper Motors



- Switch for one motor or for paired motors available
- Two fixed speeds plus variable intermittent delay
- Push-to-wash with automatic three cycle wipe feature
- Die-cast switch housing
- Coast to park or dynamic park available
- Short-circuit-proof
- Microprocessor controlled

- Solid state relay
- Current limit circuit sensor
- Reverse polarity protected
- Conforms to SAE J1455 testing
- For use with 12 V or 24 V systems

#### Twist Knob Switch for Two-Speed Wiper Motors



- Switch for one motor or for paired motors available
- Two fixed speeds plus variable intermittent delay
- Push-to-wash with automatic three cycle wipe feature
- Die-cast switch housing
- Coast to park or dynamic park available
- Short-circuit-proof
- Microprocessor controlled

#### Rocker Switch for Two-Speed Wiper Motors



- Switch for one two-speed wiper motor
- DPDT 3 position switch (ON-ON-ON)
- Internally sealed
- Independent illumination with SAE wiper symbol imprinted on lens
- For use with 12 V or 24 V systems

#### Rocker Switch for Washer Pump



- Operates one washer pump
- OFF-Momentary ON
- · Internally sealed
- Independent illumination with SAE washer symbol imprinted on lens
- For use with 12 V or 24 V systems

#### Rocker Switch for Single-Speed Wiper Motors



- Switch for one single-speed wiper motor
- Configurable for clockwise or counterclockwise motor parking
- Includes wire harness with power supply and motor plugs
- Visible portion of switch in black finish
- For use with 12 V or 24 V systems

### **Wire Harnesses**

#### Wire Harness for Coast to Park Motors



- Available in short 30 cm (12") or long 213 cm (7') lengths
- Compatible with 230 Series DC Gear Motors

#### Wire Harness for Dynamic Park Motors



- Available in short 15 cm (6") or long 305 cm (10') lengths
- Compatible with 230 Series and 238 Series DC Gear Motors Wire Harness for Dynamic Park Motors

### Wire Harness for Single-Speed Motors



#### Two versions:

- 13 cm (5") harness compatible with 210 Series and 214 Series DC Gear Motors
- 15 cm (6") harness compatible with 212 Series DC Gear Motors





#### amequipment.com

info@amequipment.com

402 E Hazel St Jefferson, OR 97352

Tel: (541) 327-1546

FAX: (541) 327-3480

For CAD files, engineering prints, or other detailed information, please call our Sales Engineering Department: (541) 327-1546