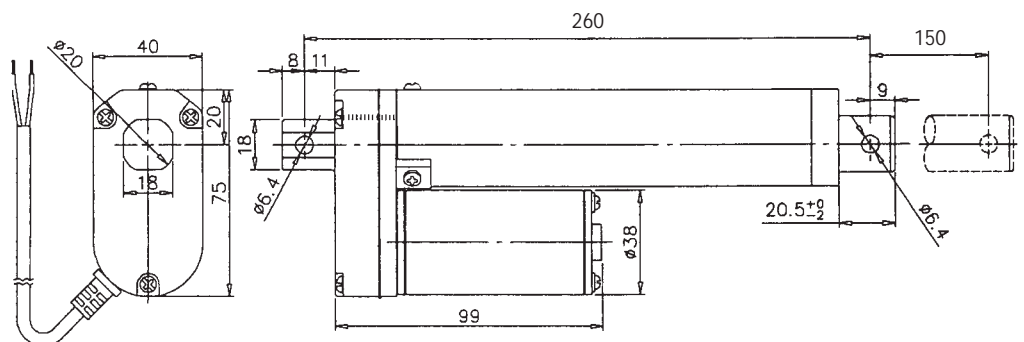


Arens Mini Electric Actuator (Part number 07/165)

- Designed for use with louvres and torque arm systems
- Compact size
- Safe, low voltage operator, 12V
- The Screwjack can be activated by rain sensor, smoke sensor, through a Building Management System or virtually any other type of sensor
- Multiple mini actuators can be switched from one switch or through a Building Management System



Arens Mini Actuators Specification

Input Voltage	12VDC
Load Capacity	240N
Current Under Load	3 Amp Max.
Stroke Length	150mm
Retracted Length	260mm
Speed at Full Load	22mm/sec
Duty Cycle	25%
Operating Temperature Range	-26°C ~ 65°C
Limit Switch	Built in - factory preset
IP Grade	IP53

WIRING INSTALLATION

ARENS MINI ACTUATORS 12VDC

Please read wiring specifications for low voltage power and switching wire descriptions.

SCOPE OF WORKS

Power source	Install a GPO for each actuator- GPO to be within 10 metres of the window where the winder is to be mounted (or other distance as set out in the Arens specification). A plug-in transformer with AC power out is to be installed to each window.
Power wire	Run a fig 8 automotive cable from the GPO position to the actuator position on the window, allowing a “tag” of about 500mm at each end of the cable.
Switch wire	Run a 4 core switch cable (multi core telephone or cat 5 cable- we use only 3 cores) from the actuator position on the window to the wall mounted switch position. Again, allow a “tag” of about 500mm at each end of the cable.
Multiple winders	If more than one actuator is to be switched together you will need to follow the power wire instructions above with separate power for each winder. But you can switch actuators together by linking the switch wire from actuator to actuator, leaving a “tag” at each winder, and then to the wall switch position. (There is no need to take switching wires independently to the wall switch). Up to 30 actuators can be switched on the one circuit to all operate at the one time. Distance from winders to switch can be up to 100 metres.
Switching circuits	Actuators are too small to for circuits within them. A boxed switching circuit is therefore placed between each transformer and actuator by the installer. The circuit includes opening and closing relays which allow separation of power and switching, and “dry contact” connection to switches or other switching mechanisms.
Mangt. Systems	<p>If the system is to be switched by Building Management System then the same instructions apply, but the wall switch is replaced by the BMS.</p> <p>Special note: When connecting over ten actuators in one circuit a current build-up may occur in the switching circuit which, though small, may effect some Building Management Systems. Should this occur then an Arens Isolation Board may need to be installed between winders and BMS.</p> <p>A pulse signal of 20 seconds is required to open or close windows (Not a constant OPEN or CLOSE).</p>

WIRING SPECIFICATION AND CONNECTIONS

MINI ACTUATOR 12VDC

Mini actuator

Operating voltage	12VDC
Current under load	3 Amps Max.
Stroke length	150mm
Retracted length	260mm
Speed at full load	22mm/sec
Duty cycle	25%
Force	240N
Operating temperature range	-26 to +65 deg C
Limit switch	Built-in- factory pre-set
IP grade	IP53

Transformer

Voltage	240V - 12VAC
Watts	50W
Hz	50/60
V Sec	11.4
A Sec	4
Short circuit current	21A

Switch

Arens approved wall mounted 3 position spring return switch with plate, radio frequency receiver and transmitter, or connection to Building Management System. Use of non approved switches may void warranty.

Connection of more than ten winders to a BMS connection may require the installation of an Arens Isolation Board to prevent accumulated current feedback from the winders if a similar provision is not already built into the Building Management System.



Power supply

One 240/12 volt x 4.0Amp transformer is normally to provide power to one Mini actuator. (In special circumstances two Mini actuators may be powered from one 4 amp transformer provided the effort required to open the windows is low (sashes or louvres are small and free moving).

Multiple Mini actuators can be powered off larger transformers but heavier power wire is required, and higher powered transformers are exponentially larger, heavier, and more expensive.

Due to voltage drop, the maximum distance from the transformer to the Actuator control using standard cable is 10m. If greater distance between the actuator and the transformer is necessary then heavier cable is required (see below) or contact your Arens agent who can design, supply and install a specific system to suit your requirements.

WIRE SPECIFICATIONS

A. Power wire

Up to 10 metres-	10- 20 metres	Over 20 metres
3mm 2 core fig 8 auto cable 2 x 14/0.3mm (9 amp) or equivalent	4mm 2 core fig 8 auto cable 2 x 26/0.3mm (18 amp) or equivalent	Refer to Arens

B. Switching wire

Standard telephone round or flat cable with 4 multi stranded cores, use only 3. Conductors : 7 strands/0.15mm copper or equivalent.

Distance from switch to electric chain winder/s should not normally exceed 30 metres. If greater distances are required refer to Arens or your local agent.

BUILDING MANAGEMENT SYSTEMS

CONTROL OF ARENS LOW VOLTAGE ELECTRIC ACTUATORS

A feature of the Arens products is the separation of power and switching functions. Power is constantly ON. Relays in the circuits provide “dry contact” switching, where the switching function simply opens and closes contacts to allow the flow of DC power to the motors, and allows multiple units to be linked to one switch. This allows connection to a wall mounted switch, radio frequency receiver and transmitter, or to a Building Management System.

Power supply Arens electric actuators are normally powered by 240/12VAC or 240/24VAC plug-in transformers. With both products power is routed through a circuit which provides DC current to drive the motors. Mains power is constantly ON. A GPO is required for each transformer. In smoke dispersal applications transformers are replaced by battery and trickle charger to provide a failsafe system.

Transformer capacities- 12VAC

One 4 amp transformer will drive one electric mini actuator.

Large capacity transformers serving multiple operators are not normally supplied due to size, weight, and cost.

Switching connections

Only three wires are required for switching, regardless of the switching method- common/open/closed. Where multiple units are to be switched from one point the circuits can be connected by linking the switching terminals on the circuit boards and then from a selected position in the switching line to the switch/control unit.

Multiple units can be connected directly to a BMS being used as a switching point. NOTE: Some automated switching systems can be sensitive to accumulated current from multiple winders. If more than ten units are to be connected it is recommended that an Arens isolation board be fitted (refer to Arens or your local agent).

Please note that when connected to a BMS the signal must have a pulse duration for opening or closing of 10 seconds- this is recommended as a back-up safety measure to avoid elevated power draw and circuit malfunction should windows ever become jammed and prevent internal winder/actuator limit switches from operating.

Rain/wind/temperature sensors

If sensors are to be included in the switching regime then they should be regarded as “switches” which interrupt the normal opening and closing functions. Some sensors may require separate power source/s, but the switching operation is compatible with the normal switching system and uses dry contacts with two or three wires- common/open/close. Even where multiple sensors are to be installed and an Arens Control Station must be included the power and switching functions are separated as outlined above.

Other controls

Where differential internal/external temperature sensors are to be used care must be taken to ensure that all switching points are compatible to prevent the windows opening and closing continually. Special DDC controls may be required to achieve a satisfactory outcome.

Where time clocks are also to be used as a control device (as in a night purge situation), or winter/summer modes are to be incorporated special attention needs to be directed to switching compatibility between the various switches and sensors/control devices. This specialised equipment is not part of the Arens range.

Local override switches

Sections of an installation can be isolated through local switching (as in individual rooms in a multiple room block). But it must be recognised that special switches will be required, and “by-pass” wiring of the switching circuit must be completed. This will isolate the room/ section from the overall installation and cut off all signals from centralised switching (BMS) and sensors/time clocks, etc.

Switching reminder

Arens low voltage equipment includes relays which separate the power and switching functions. Power is constantly ON. Switching is dry contact using 3 wires- common/open/closed. No other wiring connections are required.

**POWER & SWITCHING
CONNECTIONS**

**12 V ELECTRIC
SCREW JACKS
& MINI ACTUATORS**

**WITH ELECTRONIC
RAIN SENSOR**

