Rechargeable Battery & Solar Motorised Blinds System

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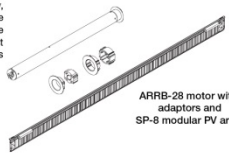
Futex ARRB-28

High performance DC motor with internal Li-ion rechargeable battery

ELECTRONIC LIMIT DC TUBULAR MOTOR DESIGNED FOR PV POWERED APPLICATIONS

The ARRB-28 is a high performance Ø28mm diameter DC tubular motor with integrated rechargeable battery and advanced power management technologies. It is specially designed for PV or low power trickle charge applications and incorporates many innovations to ensure robust operation for the life of the product. The ability to be connected directly to a PV (solar) power source enables the ARRB-28 to be an ideal solution for retrofit scenarios and other applications where hardwiring is either infeasible or undesirable.

Combined with the SP-8 modular PV array, systems built with the ARRB-28 motor are highly adaptable to site requirements. The SP-8 can be cut to any desired length to best optimise energy harvesting performance as well as aesthetics.



ARRB-28 motor with adaptors and SP-8 modular PV array

Specificatioins.

Rated power	~10W
Input voltage	5-9V DC
Charging current	≤180mA
Max running time	2 minutes
Max blind load	5.0Kg
Nominal speed	25RPM
Operating temperature	0-40°C
Operating humidity	≤80% RH

Key features

- No electrician needed
- Designed for PV applications
- Electronic limits
- 3 intermediate stop positions
- Simplified programming
- Low noise operation
- Adaptable to 3rd party systems
- Integrated RF receiver
- Dry contact control integration
- Smart TUG™ chain operation
- Advanced energy management
- Memory loss prevention
- Ultra-durable internal battery
- Over-discharge protection
- 3 year warranty

Futex ARCM-26

High performance DC curtain motor with internal Li-ion rechargeable battery

THE FIRST AND ONLY CURTAIN MOTOR DESIGNED FOR PV POWERED APPLICATIONS

The ARCM-26 is a DC curtain motor with integrated rechargeable battery and advanced power and charge management technologies. The first and only curtain motor of its kind on the market, the ARCM-26 is specially designed for PV or low power trickle charge applications. The ability to be connected directly to a PV (solar) power source enables the ARCM-26 to be an ideal solution for retrofit scenarios and other applications where hardwiring is either infeasible or undesirable.

The ARCM-26 motor is designed to work with the FCT200 series track and system hardware from Futex, working together to offer a powerful platform with unparalleled capabilities for the most demanding jobs.

TS20 curtain motor with FCT200 series system hardware

Specifications:

Rated power	~20W
Input voltage	5-9V DC
Charging current	≤180mA
Max running time	2 minutes
Load capacity	30kg
Nominal speed	25cm/s
Operating temperature	0-40°C
Operating humidity	≤80% RH

Key features

- No electrician needed
- Designed for PV applications
- Automatic limits
- Obstruction detection
- Simplified programming
- Low noise operational
- Integrated RF receiver
- Dry contact control integration
- Ultra-responsive touch control
- Advanced energy management
- Memory loss prevention
- Ultra-durable internal battery
- Over-discharge protection
- 3 years warranty

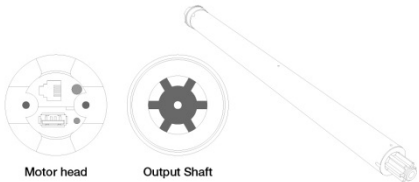
Futex ARRB-45 Tubular motor

Specifications:

Input voltage	**5 – 9V DC**
Input voltage via QCP	**3.85V CC/CV**
Operating current	**≤1000mA**
Charging current	**≤180mA**
Charging current via QCP	**≤2000mA, fused**
Quiescent current	**~300µA**
Battery capacity	**5500mAH**
Max running time	**2 minutes**
Rated torque	**2.5Nm**
Output speed (nominal)	**25RPM**
Control options	**RF, dry contact**
RF frequency	**433.92MHz**
RF modulation	**On/Off keying**
RF memory limit	**4 transmitters**
Dimensions	**Ø45 x 671mm**
Net weight	**2.20Kg**
Operating temperature	**0 – 40°C**
Operating humidity	**≤80% RH**
Protection index	**IP44**

ARRB-45 Ø45mm Electronic limit DC tubular motor designed for PV powered applications

The ARRB-45 is a high performance Ø45mm diameter DC tubular motor with integrated rechargeable battery and advanced power management technologies. It is specially designed for PV or low power trickle charge applications. The motor also includes a RF receiver and dry contact control interface for control versatility.



Motor head Output Shaft

Main features:

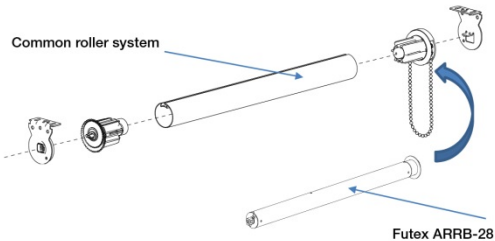
- Electronic limits
- Simplified setup and programming
- Low-noise operation
- Integrated RF receiver
- Dry contact control
- Advanced battery management
- Six month over-discharge protection
- Memory loss prevention
- Ultra durable internal battery
- PTC fused Quick Charge Port (QCP)
- Charge indicating LED

Retrofit to Existing Common Systems

ARRB-28 to suit common roller blind systems

- For general roller blind automation
- Drive capacity: up to 3 meters
- Control options: Smart TUG; Radio control
- No need for hard wiring
- Modular solar panel strip to suit various window widths

There are various roller blind systems offered in the market. They are similar in many ways due to most roller blinds are made with components supplies through a few common designs. These common roller blinds with manual chain drivers can be replaced with Futex ARRB-28 solar motor.

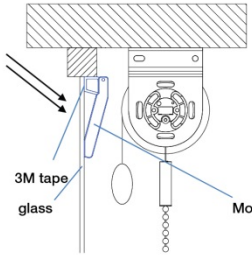


Since there will be no electric wiring required, to convert a manual roller system to a motorised one, the add-on costs will be no more than the costs of the motor and the PV panel.

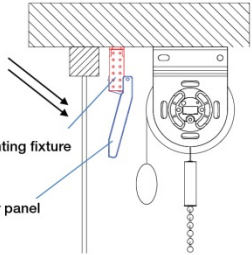
How to install a retrofit solar roller blind

To decide the solar panel size. In general, the solar panel size should be determined by the amount of sunlight getting to the window according to above description of the standard sizes of modular solar panels. The other factors that affect the selection of solar panel size are the width of the glass pane of the window.

The way of mounting the panel. The modular solar panel is designed to be mounted on to the glass directly with the 3M tapes which come with the panel assembly. However, the solar panel can also be mounted to the top with additional top mounting fixtures.

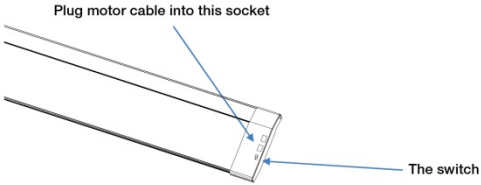


Fix the solar panel to the glass with 3M tape



Using top mounting fixture to fix the solar panel to the

Connection between the motor and the panel. After the solar panel and the roller system installed in place, the motor cable needs to be plugged to the panel at the socket next to the switch. Then the switch needs to be switched on (towards the socket). There are extension leads that can be used in case the motor cable cannot reach the panel.

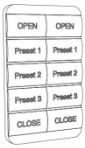


Wireless control

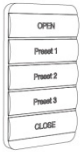
JNRF transmitters for Futex AR Series products

SPECIALLY DEVELOPED RADIO FREQUENCY TRANSMITTERS FOR DYNAVEIL SYSTEMS

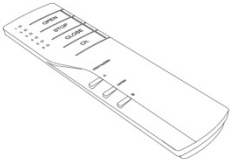
Wireless controllers enable the convenience of motorised blinds to be operated from anywhere within a home or office environment. Operating on radio frequency, the signals are omnidirectional so there is no need to aim whilst also being able to traverse multiple rooms.



JNR1002



JNR1001



JNR1006

The JNR1002 remote handset can control up to 6 systems or groups of systems. Also useful for calibrating blinds, the JNR1002 features dedicated keys for advanced intemediate stop functionality available on select Futex AR Series systems. Wall mounting bracket is included.

The JNR1001/1002 wall switches are ideal companions for any Futex AR Series system. Understated yet stylish, the ultra-low profile switches can be mounted unobtrusively on most surfaces. Comes with holder and special adhesive that does not leave any markings on walls.

Specifications:

Frequency	**433.92MHz**
Modulation	**ASK**
Range	**20 meters**
Battery life	**~2 years**
Battery type	**CR2430**
Transmit power	**≤10mW**
Operatng temperature	**0-40°C**
Operating humidity	**≤80% RH**

Key features

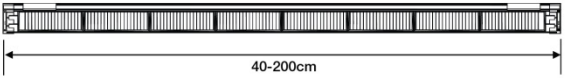
- Works with all Futex AR Series systems
- Simple to setup and use
- Stylish design
- Reliable control up to 20m
- Does not need line of sight

JNR1006 remote handset
- Six channels
- Dedicated keys for preset stops
- Bracket for wall mounting

JNR1001/1002 wall switch
- Designed for Australian market
- Ultra-low profile for wall fixing
- No screws or holes on wall
- Easily accessible battery
- Five stop positions
- Single or dual channel version

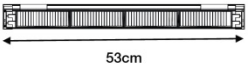
The Modular Panel

The modular panel is to be supplied by made to size according to specification in the order.

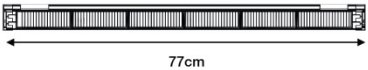


There are 4 standard sizes of modular solar panels. They are SP-4, SP-6, SP-8 and SP-10. We normally stock the standard solar panels. Therefore supplying of these panels takes less time. You may refer to the information below for selection of the standard solar panels.

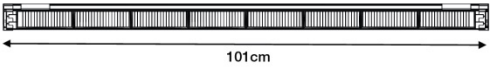
SP-4 ----- direct exposure to sun light for more than 4 hours during day time.



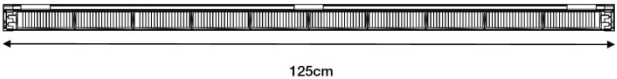
SP-6 ----- some direct sunlight exposure but less than 4 hours, e.g. east/west facing.



SP-8 ----- no direct sunlight, e.g. south facing.



SP-10 ----- no direct sunlight and dark area, e.g. trees in front.



Key benefits:

The ability to be connected directly to a PV (solar) power source enables the R4521 to be an ideal solution for retrofit scenarios and other applications where hardwiring is either infeasible or undesirable. Designed from the ground up for this purpose, the R4521 incorporates many innovations to ensure reliable operation for the life of the product.

Unique advantages:

Shades are expected to last ten years or more without any maintenance. Unfortunately, such expectations do not correlate with the performance of most rechargeable battery systems. Rechargeable batteries all degrade over time, even if they are not being used. Life expectancy of rechargeable batteries is determined by many factors, the primary ones being: temperature, level of charge, rate of charge/discharge and number of charge cycles that have been put on the battery. DC motors for shading applications usually operate at 12V or more, which requires multiple battery cells to be placed in series in order to achieve the higher voltage. Doing so, however, further complicates the management of each individual cell as they become increasingly unbalanced thus leading to additional points of failure. To further exacerbate the challenges, shading systems typically operate in environments with elevated temperatures due to being pocketed in an area that is exposed to sunlight for much of the day. Under such conditions, a typical Lithium-ion battery pack will permanently lose more than 20% of its original capacity after one year of use. This directly impacts upon its feasibility for longterm deployment in shading applications.

The R4521 is designed to overcome all the challenges related to the life expectancy of the internal rechargeable battery. By utilizing state of the art battery technology in conjunction with the purpose-built advanced power management architecture (APMA), the R4521 ensures that the battery will remain in a healthy state for the life of the product. The APMA also enables trickle charging no minimum threshold current, thereby allowing the battery to be charged throughout the day regardless of lighting condition. Furthermore, the APMA shuts down all functionality once the battery has been discharged to a curtain level. This protects the battery from overdischarge for a minimum of six months, during which period it should be recharged to avoid any risk of permanent damage.

Another special consideration includes the power plug which doubles as a switch for the motor. When not plugged in, the motor is in its OFF state which draws a negligible amount of current from the battery. This allows for long term storage without any need for periodic recharging. It also revents inadvertent operation while being transported, therefore eliminating the probability of doing damage to itself or other equipment or supplies. A special charge indicator LED acts as a diagnostics tool to confirm whether or not the internal battery is receiving charge. Simply pressing the corresponding button will turn on the LED if there is a charge coming through – this is a useful tool for checking the connection between PV source and motor.

The fused QCP allows for rapid recharging of the internal battery should it become depleted. Whereas the standard battery management circuitry limits the charging current to a level suitable for PV applications (~180mA), the QCP is a direct connection to the battery which bypasses this circuitry. Using a dedicated 2A-rated charger, the internal battery can be fully charged in less than 4 hours. A PTC resettable fuse is in place to prevent accidental short circuiting through the QCP and any resultant danger risks.

Summary

The R4521 motor is an ideal solution for cost effective deployment of PV powered shading systems. It is a robust product built on stateof-the-art energy storage and electronics technologies focused specifically for the motorizd shade market. Return on Investment is factored by the elimination of costs for hardwiring a site as well as the loss of income associated with the longer downtime required in doing so. By harnessing renewable energy sources, businesses and institutions may also be eligible for government support in the form of rebates or other activities.

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