



MOTOR AND CONTROL UNIT INSTALLATION MANUAL

Zap™ 800 and 8800 Series

QikFit™ Sectional Door
(Jack Shaft) Operators

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IMPORTANT INFORMATION

The *NEW* Models 825 and 8825 Operators

The installation of this new series of operators follows the same procedure as the original 800/8800 Super-Drive operators, the only difference being the way in which the drive belt is tensioned.

Some of the Operator pictures in this instruction booklet show the models 815 and 8815. The installation of the 825 and 8825 Manual Over-ride mechanism is the same.



Model No. 825



Model No. 8825



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Zap Controls Series II 800 and 8800 controllers



The installation of Series II controllers does not differ from the following instructions. You will note that when the door is operated there is a soft start in the open and close directions.

If with the manual override lever released with the door at the fully open position you are able to turn the jack allowing the door to move in the close direction under its own weight then you will be able to install operator without the need for buffer-springs.



Please note that there is also a voltage change-over switch. Please be sure that the switch is in the correct position for the local power supply before the final connections are made.



SUPER-DRIVE CONTROL SYSTEM FOR SECTIONAL DOORS

Models 800 and 8800 Control Units and associated *SUPER-DRIVE* operators

PRODUCT OVERVIEW

Three models of drive control systems are available as follows:



Zap 800 Controller



Zap 800-G Controller



Zap 8800 Controller

800

Integrated Control Unit with three case mounted OPEN, STOP and CLOSE push buttons. This Control Unit will power doors up to 16 square metres (170 square feet) in conjunction with the 800 series of *SUPER-DRIVE* operators.

800-G

Integrated Control Unit with a single case mounted push button providing cyclic control operation ie, press to open, press to stop, press to close and press to stop. This type of operation is normally used on residential garage doors. The 800-G Control Unit will power doors up to 14 square metres (130 square feet) in conjunction with the 800 series of *SUPER-DRIVE* operators.

The complete kit designed for residential applications is model 815-RGB.

8800

Integrated Control Unit with three case mounted OPEN, STOP and CLOSE push buttons. This Control Unit will power doors up to 33 square metres (350 square feet) in conjunction with the 8800 series of *SUPER-DRIVE* operators.

SERIES DESCRIPTION

805/8805

Model 800 or 8800 Control Unit complete with a jackshaft mounted **SUPER-DRIVE** v-belt driven integrated operator with a chain v-belt tensioning device, which is released by a door frame mounted over-centre lever to facilitate manual operation of the door.



Model 805 **SUPER-DRIVE™**



Model 8805 **SUPER-DRIVE™**

815/8815

Model 800 or 8800 Control Unit complete with a jackshaft mounted **SUPER-DRIVE** v-belt driven integrated operator with a Bowden cable v-belt tensioning device, which is released by a door frame mounted over-centre lever to facilitate manual operation of the door. The cable operated belt tensioning system eliminates strain on the jackshaft which is of particular benefit for applications using hollow shafts.



Model 815 **SUPER-DRIVE™**
Motor cover kit available



Model 8815 **SUPER-DRIVE™**
Motor cover kit available

816/8816

Model 800 or 8800 Control Unit complete with a jackshaft mounted **SUPER-DRIVE** v-belt driven integrated operator with a Bowden cable operated belt tensioning device, which is released by a door frame mounted over-centre lever which in turn releases the drive and engages an integrated CHAIN HOIST for manual operation of the door.



Model 816 **CHAIN-HOIST
SUPER-DRIVE™**
Motor cover kit available



Model 8816 **CHAIN-HOIST
SUPER-DRIVE™**
Motor cover kit available

MOTOR CONTROL UNIT INSTALLATION MANUAL

Zap™ 800 and 8800 QikFit™ Sectional Door (Jack Shaft) Operators

Patents Granted and Pending

PLEASE READ THESE INSTRUCTIONS CAREFULLY TO ENSURE A SUCCESSFUL INSTALLATION

The Zap Controls' range of Motor-Control Systems for Sectional Doors provides a new concept in safety control and the elimination of the inherent problems with a number of features with existing door operators.

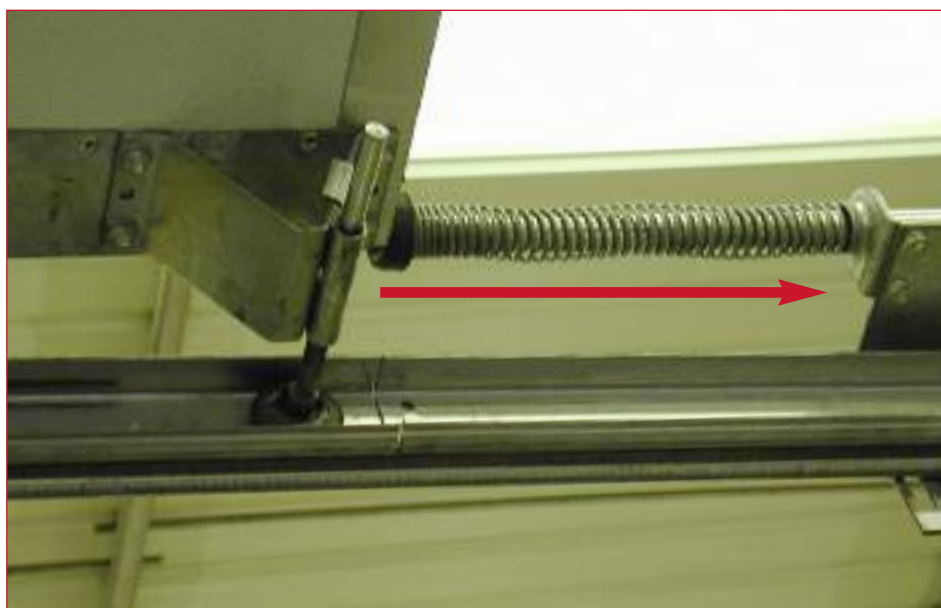
The Zap 800 and 8800 series of low voltage DC Motor-Controls operate without limit switches and without a safety edge.

The control unit monitors the motor load and

interprets a sudden increase in load as either an obstruction or the limit of door travel.

A significant advantage of the Zap drive system with its fast obstruction sensing, is that when an object obstructs the doors travel, the cables will probably never jump off the cable drums.

A set of buffer springs or leaf springs should be fitted at the fully open track position to provide a physical stop, which is sensed by the control unit. **(Pic 1)**



Pic 1

The models 805, 815 & 816 include the model 800 control unit, a smaller Super-Drive Operator and a Manual Over-Ride kit. Optional clip-on motor cover kits are also available. **(Pic 2)**



(Pic 2) Model 805

The models 8805, 8815 & 8816 include the model 8800 control unit, a larger Super-Drive Operator and Manual Over-Ride kit. **(Pic 3)**



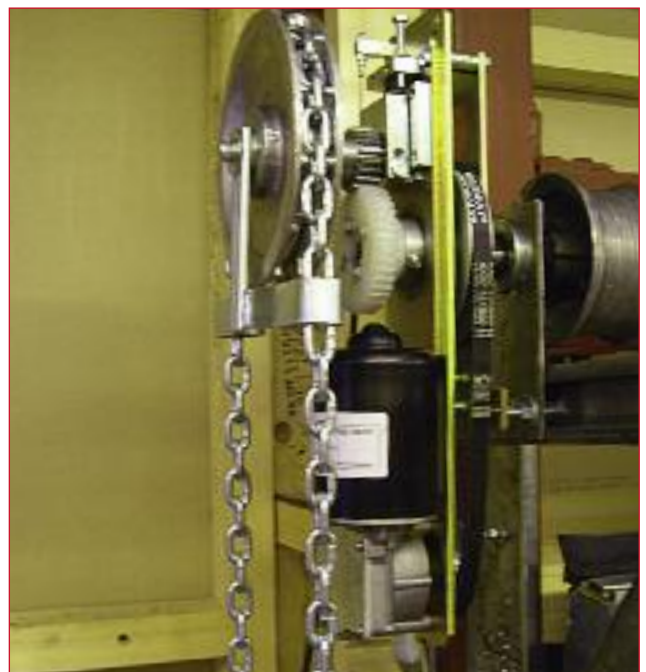
(Pic 3) Model 8805

One man can easily carry out the installation of a Zap Super-Drive in significantly less time than that involved in fitting a conventional wall-mounting operator.

Models 816 & 8816 incorporate a chain hoist which is automatically engaged when the motor-drive is released by the over-ride lever. The chain hoist provides an easier means of moving larger doors during a mains supply failure assuming a battery back-up unit is not fitted. **(Pic 4a & 4b)**



(Pic 4a) Model 816



(Pic 4b) Model 8816

ZAP SUPER-DRIVE APPLICATIONS

This application chart applies to 805/8805, 815/816 and 8815/8816 Series controllers

XX denotes 05, 15, 16 versions of the motor drive

MODEL	MAX DOOR SIZE (SQ MTRS)	MAX DOOR SIZE (SQ FT)	MAX DOOR WEIGHT (Kgm)	MAX DOOR WEIGHT (Lbs)	MIN DOOR HEIGHT	MAX DOOR HEIGHT	MAX CABLE DRUM DIA (Across the flange)	DRIVEN PULLEY DIA
8XX-A	16	170	352	775	2 Mtrs/6.5'	10 Mtrs/33'	115mm/4.5"	100mm/4"
8XX-B	16	170	352	775	2 Mtrs/6.5'	10 Mtrs/33'	150mm/6"	100mm/4"
8XX-C	16	170	352	775	2 Mtrs/6.5'	10 Mtrs/33'	222mm/8.75"	125mm/5"
8XX-D	16	170	352	775	2 Mtrs/6.5'	10 Mtrs/33'	254mm/10"	150mm/6"
88XX-A	33	350	726	1600	3 Mtrs/9.5'	12 Mtrs/40'	115mm/4.5"	76mm/3"
88XX-B	33	350	726	1600	3 Mtrs/9.5'	12 Mtrs/40'	150mm/6"	100mm/4"
88XX-C	33	350	726	1600	3 Mtrs/9.5'	12 Mtrs/40'	222mm/8.75"	125mm/5"
88XX-D	33	350	726	1600	3 Mtrs/9.5'	12 Mtrs/40'	330mm/13"	150mm/6"

Ensure that you have the correct size and type of Motor-Control system, which is dependent upon the size and weight of the door and the maximum flange diameter of the Cable Drums. A summary chart is shown above. Detailed charts are shown on the following two pages.

In the example below the door is 4 metres wide by 5 metres high, which is 13 feet by 16.4 feet giving a total area of 20 square metres or 213 square feet. This is above the maximum door size for the 800 series, which is 16 square metres or 170 square feet. Therefore the larger 8800 series will be required. **(Pic 5)**



Pic 5

The height of this door is 5 metres or 13 feet, which is above the minimum door height of 3 metres or 9.8 feet and below the maximum height of 12 metres or 40 feet for the model 8805.

Ensure that you have the correct size of Super-Drive for the flange diameter of the cable drums. **(Pic 6)**



Pic 6

In our example the cable drums are 6 inches that is 150mm across the flange.

The correct size of Super-Drive is therefore size B

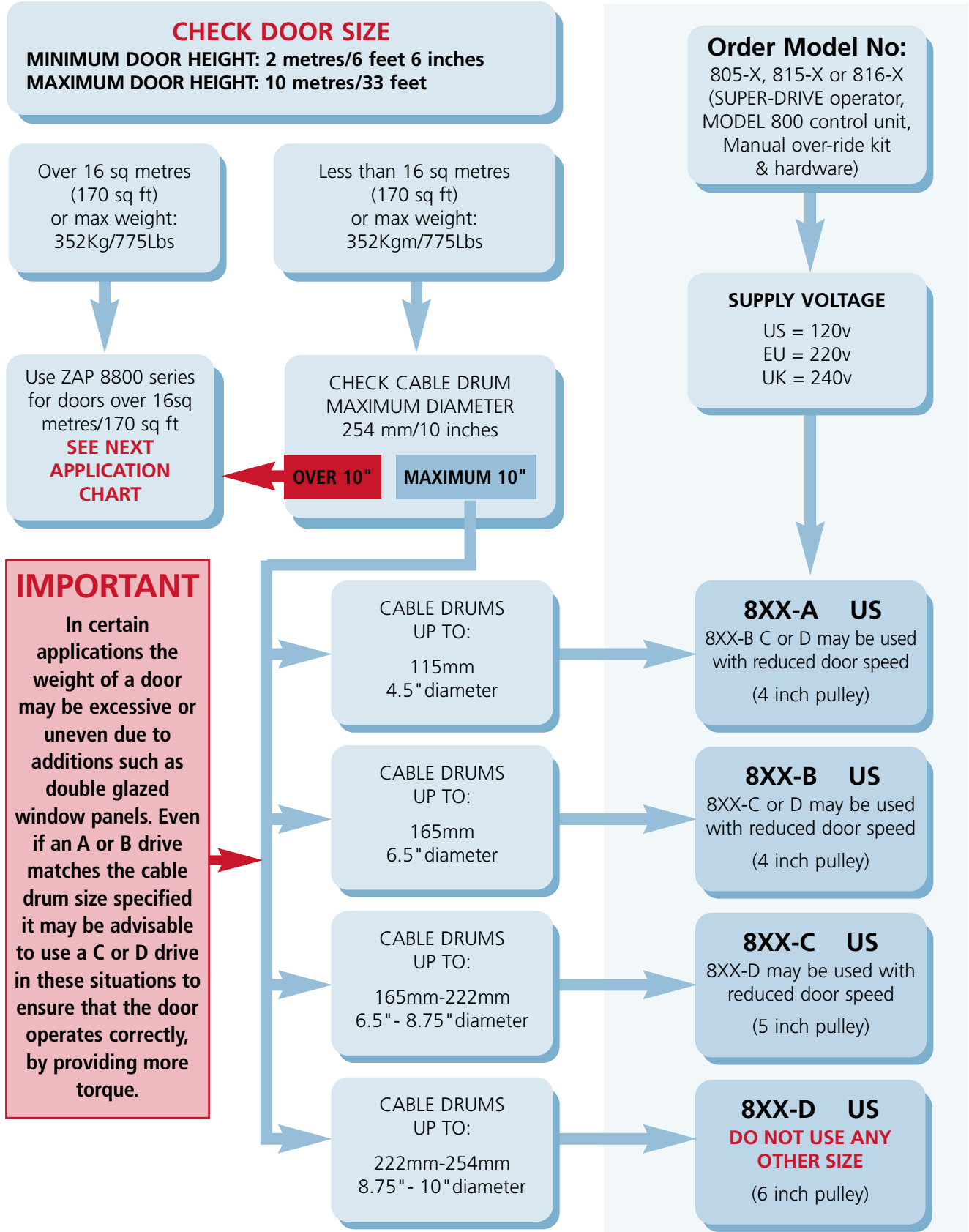


800 SERIES SUPER-DRIVES

(This chart applies to the 805, 815 and 816 Series)

Application Chart for sectional overhead doors up to 16 sq metres (170 sq feet)

XX denotes 05, 15, 16 versions of the motor drive





8800 SERIES SUPER-DRIVE

(This chart applies to the 8805, 8815 and 8816 Series)

Application Chart for sectional overhead doors up to 33 sq metres (350 sq feet)

XX denotes 05, 15, 16 versions of the motor drive

CHECK DOOR SIZE

MINIMUM DOOR HEIGHT: 3 metres/9 feet 6 inches
MAXIMUM DOOR HEIGHT: 12 metres/40 feet

Less than 16 sq metres
(170 sq ft)
or max weight:
352Kg/775Lbs

Normally over 16 sq metres
(170 sq ft)
maximum 33 sq metres
350 sq ft
weight: 726Kg/1600Lbs

Use ZAP 800 series for
doors less than 16sq
metres/170 sq ft
**SEE 800
APPLICATION CHART**

CHECK CABLE DRUM
MAXIMUM DIAMETER

Order Model No:

8805-X, 8815-X or 8816-X
(SUPER-DRIVE operator,
MODEL 8800 control unit,
Manual over-ride kit
& hardware)

SUPPLY VOLTAGE

US = 120v
EU = 220v
UK = 240v

IMPORTANT

In certain applications the weight of a door may be excessive or uneven due to additions such as double glazed window panels. Even if an A or B drive matches the cable drum size specified it may be advisable to use a C or D drive in these situations to ensure that the door operates correctly, by providing more torque.

CABLE DRUMS
UP TO:
115mm
4.5" diameter

88XX-A US

88XX-B C or D may be used
with reduced door speed
(3 inch pulley)

CABLE DRUMS
UP TO:
165mm
6.5" diameter

88XX-B US

88XX-C or D may be used
with reduced door speed
(4 inch pulley)

CABLE DRUMS
UP TO:
165mm-222mm
6.5" - 8.75" diameter

88XX-C US

88XX-D may be used
with reduced door speed
(5 inch pulley)

CABLE DRUMS
LARGER THAN:
222mm/
8.75" diameter

88XX-D US

**DO NOT USE ANY
OTHER SIZE**
(6 inch pulley)

Ensure that the door is free to move by hand pressure. Check that it is balanced preferably with the spring tension biased slightly open. **(Pic 7)**



Pic 7

Counterbalance springs will weaken over time and the balance will become biased closed. The Zap obstruction sensing system automatically adjusts to changes in door balance over a period of time. However springs should be checked and adjusted on a service visit, at least every 2500 motor operations or 1250 door cycles, or every six months whichever is sooner.

A service-due reminder is provided in the control unit, which can be enabled to prompt the customer to call the installer after 2500 door operations. (see page 20)

If the door movement is stiff at any point, the roller wheels should be adjusted to allow the door to be moved by hand pressure without any significant force. Any misalignment of track sections should be corrected to ensure the door runs smoothly.

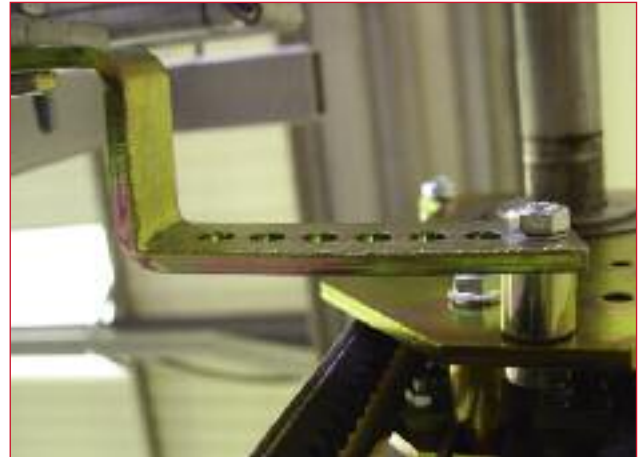
IMPORTANT

FITTING THE SUPER-DRIVE

The Super-Drive kit includes an anti-torque arm, which is bolted to the Super-Drive back-plate and linked to a spare or drilled hole on the jackshaft bearing plate or onto the door frame.

One torque arm is supplied with a spacer if required, if the torque arm offset is insufficient to clear any track support metalwork then the spacer provided can be used in conjunction with the longer screw to increase the offset. **(Pic 7a)**

Screw the torque arm to the bearing plate hole or door frame securing point before mounting the Super-Drive. **(Pic 8)**



Pic 7a



Pic 8

When mounting the 805 and 8805 type super drives please ensure that the motor assembly is mounted vertically. This gives optimum belt tension when engaging the manual over-ride lever. **(8a & 8b)**



Pic 8a



Pic 8b

Now slide the Super-Drive assembly onto the door shaft and bolt the torque arm to the Super-Drive back plate. **(Pic 9)** overleaf.



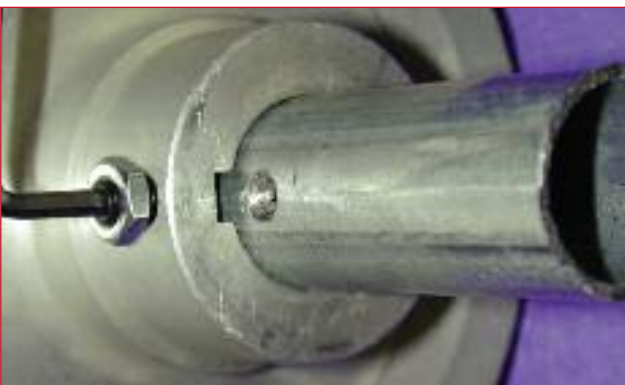
Pic 9

Align the Super-Drive keyway with the door shaft keyway and fit the key supplied with the package. Ensure that the allen screw is firmly tight and then tighten the lock nut. **(Pic 10)**.



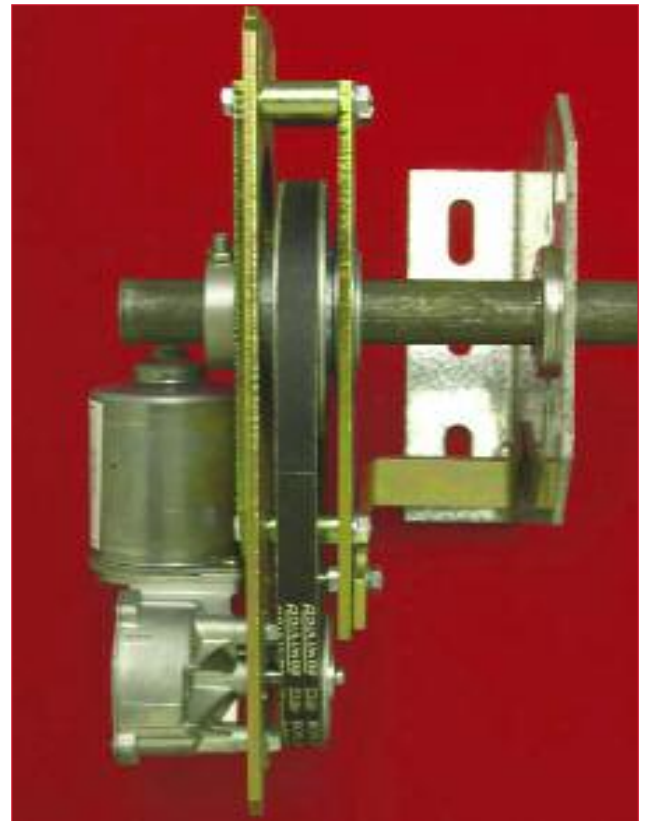
Pic 10

The wall of a hollow door shaft should be drilled with a 6mm, or 1/4 inch drill bit. This must be done without breaking right through the shaft and will provide a seat into which the allen screw can be seated to lock the pulley to the shaft. The lock nut should then be tightened to lock the allen screw into position **(Pic 11)** Later models have a second allen screw set at 90 degrees which should also be tightened and secured with the locknut.



Pic 11

Now tighten the torque arm screws then secure the 805 or 8805 Manual Over-Ride chain to the motor plate with a D shackle. **(Pic 12 & 13)**



Pic 12



Pic 13

IMPORTANT

FITTING THE MANUAL OVER-RIDE LEVER MECHANISM

The position of the cable post which is supplied with the 815, 8815, 816, 8816, 825, 8825 and 8826 should be assessed next. The Cable Post, which secures the Bowden cable outer sheath, is fixed to the door track or frame using the M5 screws and nuts provided. Drill two M5 or 3/8th inch holes in

the door track or frame in a position **AT LEAST 50MM OR TWO INCHES HIGHER THAN THE FULLY EXTENDED POSITION OF THE OUTER CABLE**. This allows optimum tensioning and the efficient engaging and disengaging of chain hoist operators as the manual over-ride is operated. (Pic 14)



Pic 14

When fitting the models 805 or 8805 the position of the over-ride lever is not critical. However models with lever operated Bowden cables – it is preferable to position the lever relative to the position of the end of the inner cable with the lever in the horizontal position.

IMPORTANT (805 and 8805) when fitting the manual over-ride to the door track be sure that the base of the Super-Drive assembly is not pulled towards the door track when the over-ride is engaged, this can cause wear to both the v-belt and the Super-Drive bearings. It may be necessary to use a bracket on the door track or mount the manual over-ride lever on the wall adjacent to the door to ensure that the Super-Drive slider plate is tensioned from directly underneath the assembly and not at an angle.

Mark the hole positions for the Manual Over-Ride lever on the door track or frame approximately shoulder height from the floor. Drill two M5 or 7/32nd of an inch size holes. Countersink the holes on the inside of the track to allow the screw heads to clear the roller wheels. (Pic 15).

Fit the M5 countersunk screws provided with the screw head on the inside of the track or door frame. Fit the shake-proof washers and M5 thin nuts.



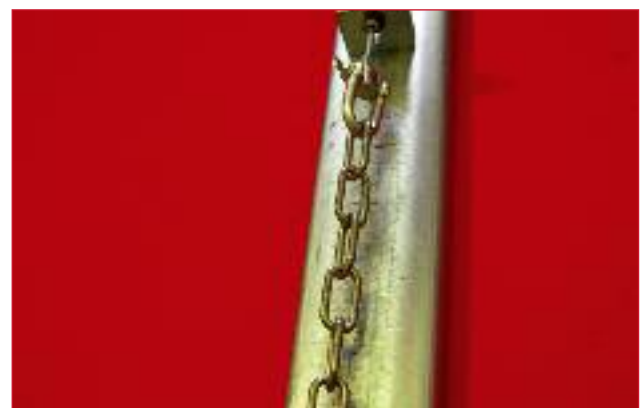
Pic 15

Secure the hook in a convenient link of the chain or cable D-shackle if the 815, 816, 8815 or 8816 are installed. (Pic 16)



Pic 16

If the 816 or 8816 series over-ride cable is not long enough for the height of the door then the cable can be extended using the accessory length of chain supplied (Part No. ZA0072) (Pic 17)

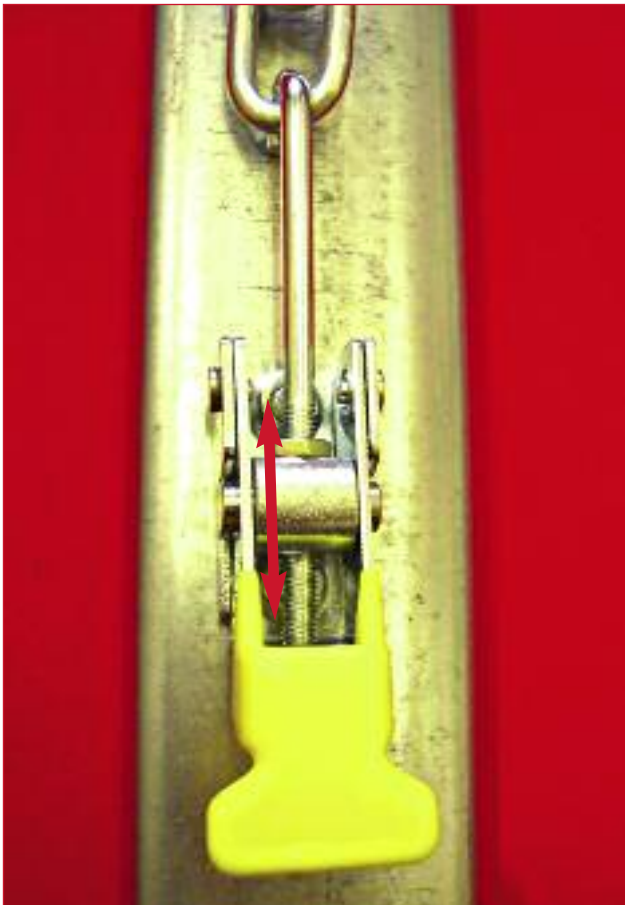


Pic 17

When fitting Bowden Cable models ensure the lever is horizontal when the tension is taken up. The lever should be slightly lower than horizontal with models 805 and 8805 (**Pic 18**).



Pic 18



Pic 19

It is important that sufficient tension is achieved to ensure that the drive belt does not slip on the motor pulley. The lever should require reasonable hand pressure to lock it into place. The lever hook position is adjustable to allow the Super-Drive V-Belt to be correctly tensioned. Adjust the hook position to increase, or decrease tension by screwing it in or out of its bush. (**Pic 18 & 19**)

When the lever tension is correct push the lever completely down to correctly tension the V-Belt drive. (**Pic 20**)



Pic 20

Note that the 816 & 8816 manual over-ride lever will simultaneously engage and disengage the chain hoist as the v-belt drive is disengaged and engaged by operation of the lever.

If the 816 or 8816 hoist chain is not long enough for operation of a tall door then it can be extended with Part No. 601420 Hoist Chain Kit.

FITTING THE CONTROL UNIT

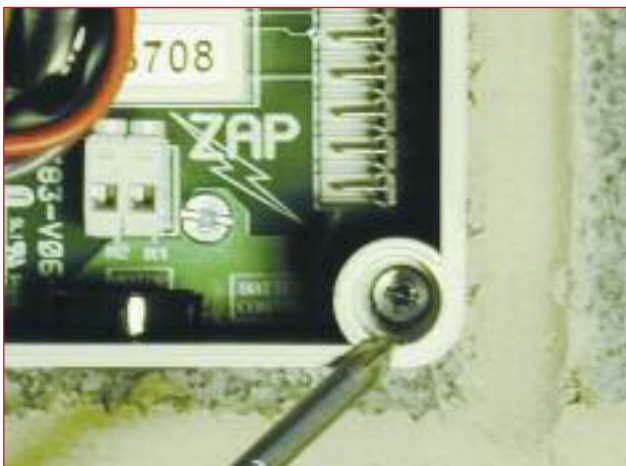
Check that the control unit voltage, which is shown on the label on the side of the control unit case, is correct for the available single phase supply voltage.

The control unit model number has a suffix, which relates to the supply voltage.

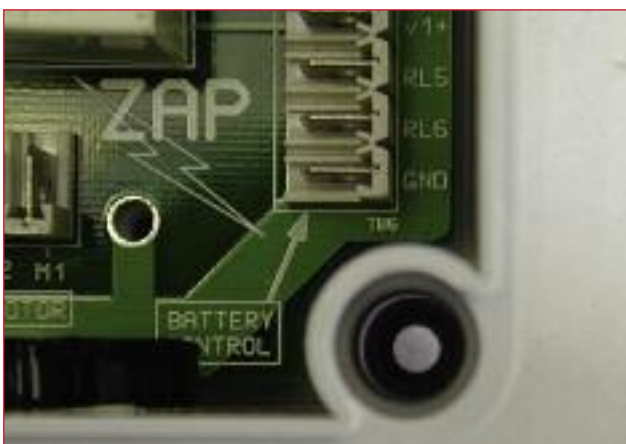
- US is 120 volts**
- EU is 220 volts**
- UK is 240 volts**

The control unit will operate on 50 or 60 cycle single-phase supplies.

The control unit is mounted in a convenient position with screws passed through the mounting holes in the corner pillars, which are outside of the waterproof gasket. **(Pic 21 & 22)**



Pic 21



Pic 22

Do not drill holes in the back of the case, as this is liable to allow water ingress and cause damage to the back of the printed circuit board.

Site the control unit so that any conduits are routed to the BOTTOM of the case. DO NOT drill the top or sides of the case as condensation within the conduit will run down onto the panel and cause operating problems and probable damage. We recommend the use of 20mm or 0.8 inch glands as these will match the pre-drilled holes in the bottom of the case.

(Pic 23)

If the printed circuit board has to be removed from its case, ensure that it is handled with care and not placed on its back on any hard surfaces as this may damage the ceramic surface mount components on the rear of the printed circuit board



Pic 23

The control unit lid can be temporarily secured to the case side screw positions to prevent it hanging by the cables during the setting up process. **(Pic 24)**



Pic 24

LOW VOLTAGE DC MOTOR WIRING

The Motor Cable supplied should be fitted next, either using standard two core cable, which should be a minimum of 0.75 Sq mm or 18 AWG and rated at 15 amps or a Zap pre-terminated cable harness, these are supplied with all motor kits.

We do not recommend the use of cable with a solid core

Model ZA0077 Cable harness is 4 metres (13 feet) long and is supplied with the 800 series (for doors up to 16 square metres - 170 square feet). **(Pic 25a)**



Pic 25a

Model ZA0078 Cable harness is 6 metres (19.5 feet) long and is supplied with the 8800 series (for doors up to 33 square metres - 350 square feet). **(Pic 25b)**



Pic 25b

If it is preferable not to cut off any excess cable length, it may be coiled and secured with a cable tie at the motor end.

If the motor is mounted on the LEFT hand side of the door shaft (looking from the inside outwards) then make the following motor cable connections to the

Motor terminal block on the control panel:

Connect the Blue wire to the M1 terminal.
Connect the Brown wire to the M2 terminal.

If the motor is mounted on the right hand side of the door shaft (looking from the inside outwards) then make the following motor cable connections to the Motor terminal block on the control panel:

Connect the Blue wire to the M2 terminal.
Connect the Brown wire to the M1 terminal.

A mistake in the wiring polarity of the motor cable will result in the door moving in the opposite direction to that initiated by pressing the OPEN or CLOSE push button and indicated by the LED motor run indicators, which are located at the top of the panel. In which case – reverse the connections of the Blue and Brown wires.

The motor terminal block is located at the bottom right hand side of the panel. **(Pic 26)**



Pic 26

NOTE THAT ALL TERMINALS ARE PLUG-IN FOR EASE OF WIRING and that all terminal functions are labeled on the panel.

FITTING THE MOTOR COVER KIT

Two types of motor cover kits are available:

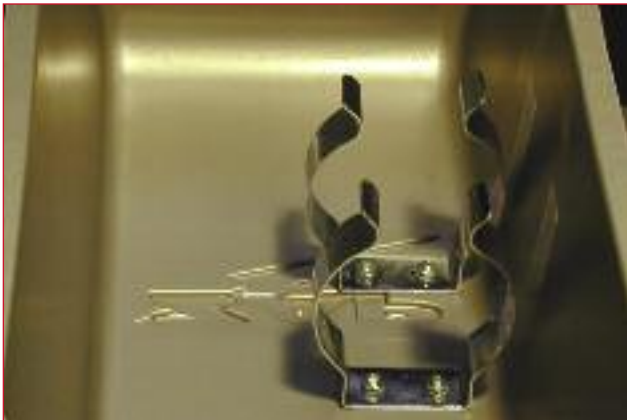
- **The model 8042 fits the range of 805 and 815 Super Drives.**
- **The model 8052 fits the range of 8805 and 8815 Super Drives.**

The fitting sequence is the same for models 8042

and 8052. Separate Instructions for the Carwash kit are included with the kit.

The kit includes two motor clips with a set of screws and nuts.

The clips are fitted to the inside of the main cover. Pass the screws through the cover holes from the outside. Secure the assembly in position with the shake proof washers and nuts provided. **(Pic 27 & 28)**



Pic 27



Pic 28



Pic 29



Pic 30

The cover is then clipped onto the Super-Drive motor. **(Pic 29 & 30)**



Pic 31

The back plate is then fitted to the cover flange using the U clips supplied. **(Pic 31)**

FITTING THE MAINS SUPPLY CABLE

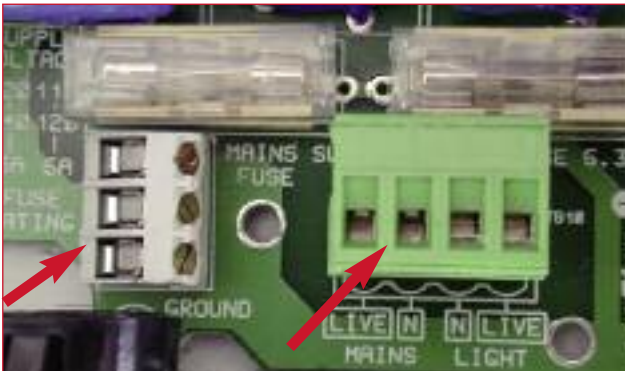
A Mains supply cable should be fitted next. The three-core cable should be rated at 10 Amps continuous.

The Live and Neutral wires are connected to the two left-hand terminals of the GREEN Mains supply connector on the panel.

The Earth or Ground wire is connected to one of the terminals of the GROUND terminal block.

(Pic 32)

We do not recommend the use of cable with a solid core.

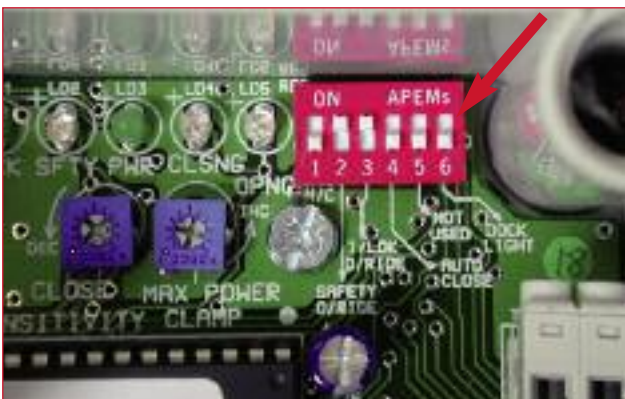


Pic 32

If the Lighting output is to be used to operate a Dock Light or a Flood light then the lighting wires should be routed to the two right hand terminals of the GREEN supply connector. The lighting circuit wiring should be rated at 10 Amps.

If the Lighting output is to be used, then the lighting MODE switch No. 6 should be set as required. The 6 way DIP switch is located at the top right hand side of the printed circuit board panel.

(Pic 33)



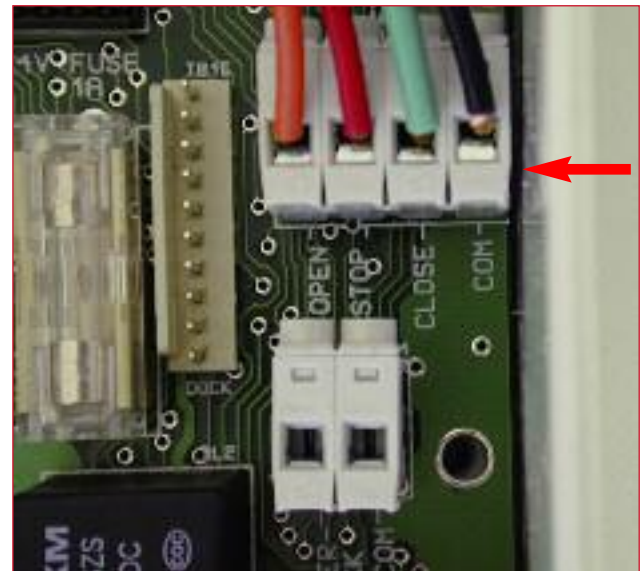
Pic 33

DIP switch No.6 should be set to the OFF position if the light is required to switch on when the door is operated and turn off three minutes from the last operation.

Switch No. 6 should be switched ON if the light is required to switch ON when the door is opened, the light will switch OFF when the door is closed.

This mode of operation is normally used for a Loading Bay Dock light.

If a Remote Push Button station is to be fitted then both the OPEN and CLOSE push buttons may be wired in Parallel with the case mounted buttons and terminated in the push button connector on the printed circuit board. (Pic 34)

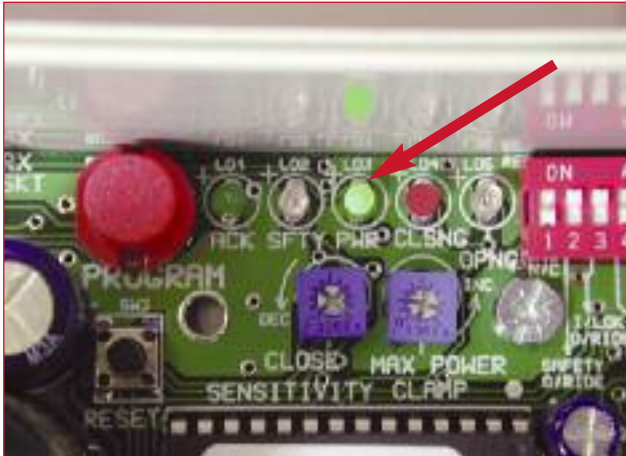


Pic 34

The remote STOP push button should be wired to the interlock terminals and the interlock over-ride switch No. 3 should be set to the off position. A model 871 plug-in Radio Receiver Interface module may be used to terminate a remote button station for easier wiring.

TESTING THE DOOR OPERATION

When the basic wiring is complete the door operation may be tested. Switch on the mains power and note that the power indicator LD3 is illuminated. (Pic 35)



Pic 35

Note the factory set positions of each of the DIP switches at the top right hand side of the panel will be: (Pic 36)

SW1	SAFETY MODE:	OFF/N/C
SW2	SAFETY OVER-RIDE:	ON
SW3	INTERLOCK O/RIDE	ON
SW4	AUTO-CLOSE:	OFF
SW5	NOT USED.	
SW6	LIGHTING MODE:	OFF



Pic 36

Release the Manual Over-Ride lever and move the door to a part open position, then re-engage the lever.

Now press the control unit OPEN push button then press the stop button after a short run.

If the door moves in the open direction then the motor wiring polarity is correct.

If the door moves in the close direction, isolate the mains supply and reverse the two motor wires in the control unit terminal block.

Release the Manual Over-Ride lever and move the door back to the fully closed position, then re-engage the lever.

DOOR SPEED CHANGE POINT CALIBRATION

After closing the door the microprocessor reference for the door start position should be reset either by pressing the black reset button or by isolating the mains supply for at least 10 seconds. (Pic 37)



Pic 37

Now press the control unit OPEN push button. Note that the opening LED is illuminated whilst the door is opening. (pic 38) overleaf.



Pic 38

The door will run in fast speed for a few seconds then change to slow speed and stop when it compresses the buffer springs or leaf springs.

The microprocessor now knows the door opening height and will calibrate the speed change points after the next few runs, until it is set a few seconds from each limit of door travel

Now press the CLOSE push button.

Note that the CLOSING LED, LD4, is illuminated whilst the door is closing. (**Pic 39**)



Pic 39

After the door has stopped, press the OPEN push button again.

Note that after the second open and close door cycle the microprocessor continually updates and stores the door position in the controllers memory and the speed change point will be maintained within a few seconds from each limit of door travel.

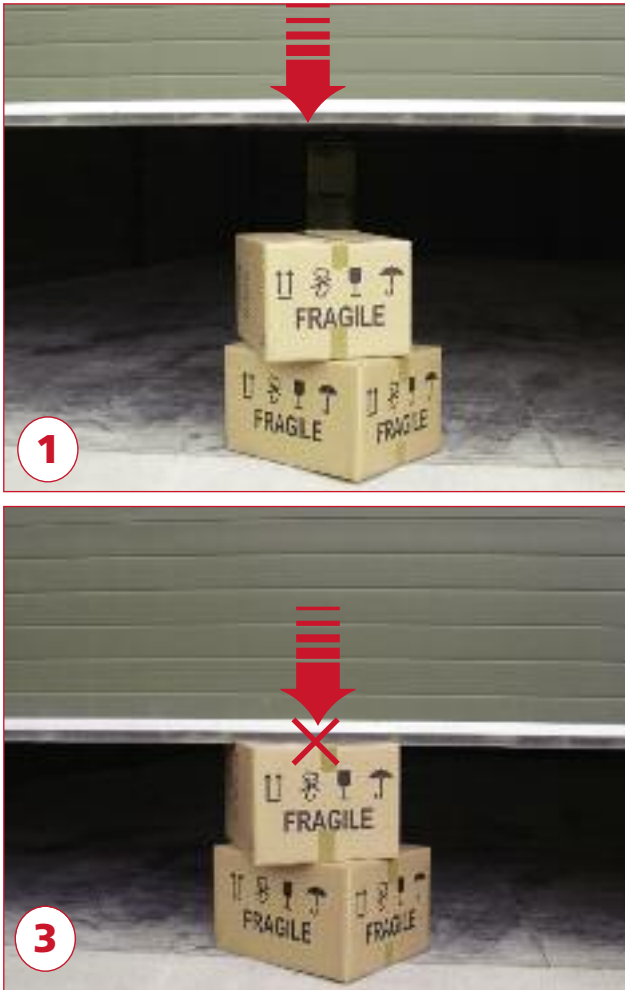
If the roller wheels are too tight or if there is some damage to the door track then the door may stop before it reaches the limit position. If track damage or stiffness is minimal then the motor power may be increased to overcome the restriction by adjusting the MAXIMUM POWER CLAMP preset control slightly counter-clockwise. (**Pic 40**)



Pic 40

The adjustment direction relates to the analogy of the operation of a water tap. A tap is generally turned counter-clockwise to increase the water flow. Likewise if the control is turned counter-clockwise it will allow an increase in current to flow to the motor and consequently provide extra power to move the door.

The sensitivity of the door detecting an obstruction in fast speed in the CLOSE direction may be adjusted with the CLOSE SENSITIVITY preset.

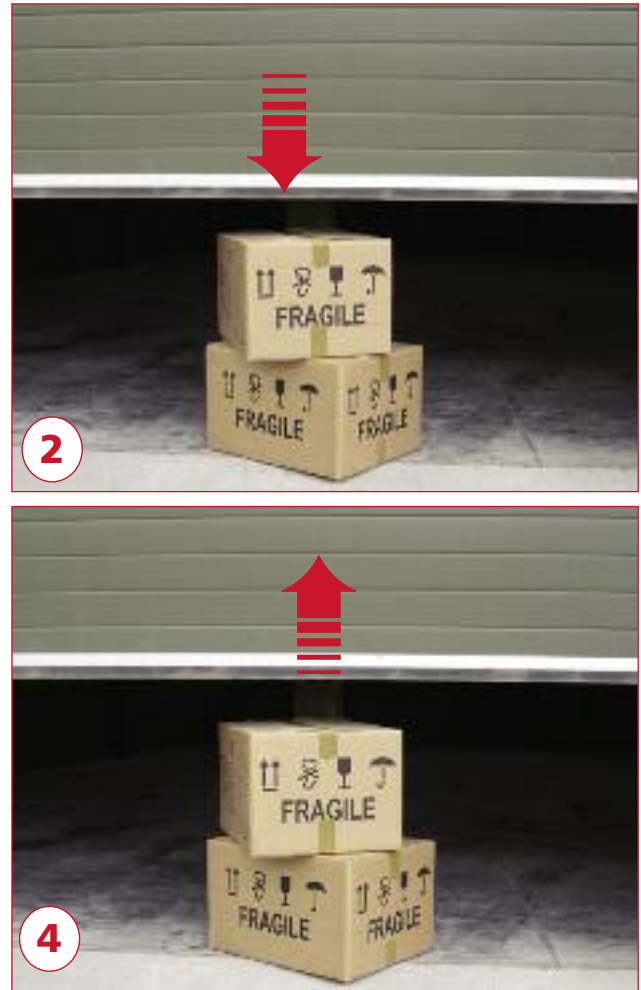


Pic 41

In Europe it is necessary that installers establish that the obstruction sensitivity of both the door and safety control system meets the requirements of relevant European Safety Standards, which include the control of the maximum pressure required on the bottom edge of the door, which causes the door to stop and re-open. The maximum pressure required to meet Standard: EN 60335-2-95:2001 is 600 Newtons, which equates to a pressure of 62 Kgm (136 pounds) force. This should be measured with specialist equipment, which includes a Load Cell and Test Meter.

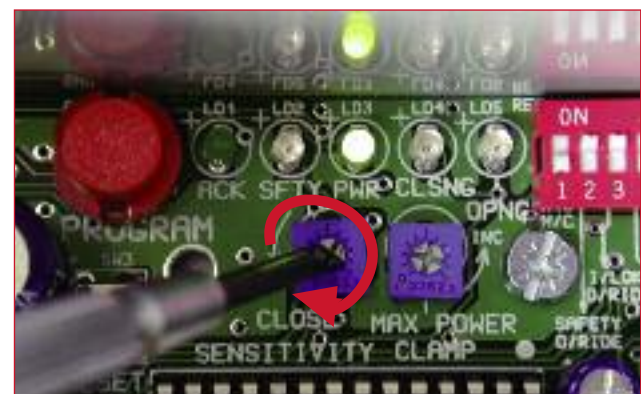
A reasonable assessment can be made by the installer by testing the force required to cause the door to stop and re-open by obstructing the closing door in fast speed by sharply pushing a hand or shoulder against the bottom edge of the closing door, and relating the force to an object which weighs 61 Kgm or 136 pounds. **(PIC 41)**

On very large heavy doors, where the maximum force may exceed 600 Newtons (61 Kgm/136



pounds) then it may be preferable to fit a sensitive safety edge device, which may be wired to the Safety terminals on the Controller. See pages 19 & 20.

If it is required to increase the obstruction sensitivity, thus reducing the door edge pressure required to activate the control unit obstruction sensing circuit, which causes the door to stop and re-open during the close fast speed cycle, then the CLOSE SENSITIVITY adjuster should be turned further clockwise. **(PIC 42)**



Pic 42

Please note that this will also increase the possibility of the controller reacting to slight abnormalities or minor damage to the track or misalignment of track sections. This may cause fluctuations in the motor current and may be significant enough to result in the door stopping and re-opening. It is therefore important that the smooth movement of the door is tested by releasing the manual over-ride lever and moving the door by hand in both directions.

Both preset controls are factory set to the one o'clock position. Providing the door runs smoothly by hand in both directions it is unlikely that you will need to adjust these presets.

During a build up of snow and ice for example, the door speed change point will automatically recalibrate to account for the new ground position.

If the door strikes an abnormal obstruction twice in the same position then the speed change point will recalibrate to account for the change. For example where a pallet has been left in a position obstructing the closing door. **(Pic 43)**



Pic 43

This feature also takes care of recalibration of the door position if it has been moved by hand during a power supply failure. The speed change points will automatically recalibrate with reference to the new limit of door travel positions following manual repositioning of the door.

A significant advantage of the Zap drive system with its fast obstruction sensing, is that when an object obstructs the doors travel, the cables will probably never jump off the cable drums.

SAFETY CIRCUIT WIRING

If the door is to be operated without any safety devices then the SAFETY OVER-RIDE SWITCH, DIP switch No. 2 should be set to the ON position.

However if it is required to operate the door close function in DEAD MAN or PUSH TO RUN mode then the safety over-ride switch should be set to the OFF position.

The door will then stop if the CLOSE button is released while the door is closing.

If a safety device such as a Photo-Beam (Photo-Eye) or Safety Edge is to be fitted then the SAFETY OVER-RIDE switch, DIP Switch No. 2 should be set to the OFF position. This provides a Safety STOP and RE-OPEN control of the door if the safety circuit becomes active whilst the door is closing.

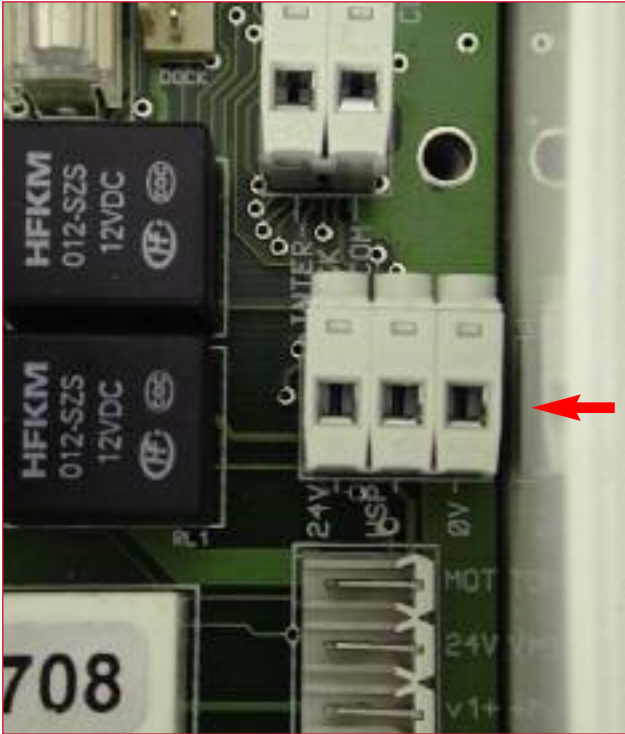


Pic 44

If a Photo-Beam with a Normally Closed relay circuit is fitted then the relay contact wires are connected to the SAFETY terminals at the top right hand side of the panel. **(Pic 44)**

If two or more Photo-Beams, or any other safety devices are fitted then each switching circuit should be wired in series.

A 24-volt Photo-Beam or other accessory may be powered from the 24-volt DC accessory supply terminals at the lower right hand side of the panel. The 24-volt accessory supply may be used to power other accessories such as a Magnetic Loop Detector, Radar units or an accessory radio receiver (non Zap). **(Pic 45)** overleaf.



Pic 45

The range of Zap Photo-Beam units have been designed for universal supply operation. They can be powered from 12 to 240 volts DC or 24 to 240 volts A/C.

Wiring diagrams for various type of photo-beam units are shown on pages 24-and 25.

Each time the Safety circuit is activated LED LD2 will illuminate. This is useful when testing the operation of the photo-beam or other safety device without running the door. (**Pic 46**)



Pic 46

In Europe it is necessary to arrange for the safety circuit to be monitored for both an open circuit and a short circuit in which case the circuit must include an 8.2 K resistor at the furthest point in the external circuit.

DIP Switch No. 1 should be set to ON which is the position marked RES for resistive.

When the circuit is to be operated as Normally Closed then DIP switch No. 1 should be set to OFF. This position is marked N/C on the panel for Normally Closed.

If a contact strip Safety Edge with an 8K2 terminating resistor is fitted then DIP switch No. 1 should be set to OFF, which is marked RES for Resistive. If a Normally Closed Safety edge is fitted then DIP switch No. 1 should be set to OFF, which is marked N/C.

If a Photo-Beam (Photo-Eye) is to be fitted together with a Safety Edge then the two circuits should be wired in series (daisy chained).

If the safety circuit is interrupted whilst the door is operating with the Auto-Close timer DIP switch No. 4 set to ON then the timer will reset during each interruption of the safety circuit, whilst the door is open.

INTERLOCK CIRCUIT WIRING

A pair of terminals is provided to enable a pass door switch or a key switch to be interlocked to the control unit, to prevent the main door opening if the interlock terminals are open circuit.

An Inter-Lock Over-ride switch, DIP switch No. 3, is provided if the interlock circuit is not used.

A Slide Lock switch may be fitted and wired to the interlock terminals. However this is not essential as the Control unit will detect the obstruction and stop the door if the slide lock is left in the locked position.

AUTO-OPEN ACCESSORIES

Where it is required to automatically open the door by the operation of an accessory device such as a Magnetic Loop vehicle detector, a Radar unit, a Photo-Beam unit or other remote switch then the Normally Open switching circuit of the device should be connected in parallel with the OPEN push button wiring at the panel terminal block.

One wire should be connected to the OPEN terminal together with the OPEN push button wire

from the case lid button. The other wire should be connected to the COMMON terminal with the existing common wire.

Alternatively a Zap model 871 plug-in module can be fitted. This incorporates separate open, stop and close terminals for direct wiring of accessories such as a remote push button station, magnetic loop detector radar units and accessory radio receivers etc.

ACCESSORY RADIO RECEIVER WIRING

Wiring diagrams for various accessory radio receivers are shown on pages 22-and 23.

PROGRAMMING

The following functions can be programmed using the Program Button, which is located at the top of the panel. (Pic 47)



Pic 47

When the program button is pressed and held a sequence of flashes of the Acknowledge LED follows at 4-second intervals. If the Bleeper is fitted then the Bleeper sounds with the flashes of the LED.

The first flash or bleep indicates the remote control transmitter program mode.

The second flash or bleep indicates the Auto-Close timer program mode.

The third flash or bleep indicates the Close Delay program mode, which allows the optional Warning Speaker to sound before the door starts to close.

The fourth flash or bleep indicates the transmitter code memory erasure mode.

The fifth flash or bleep indicates the door part-open program mode

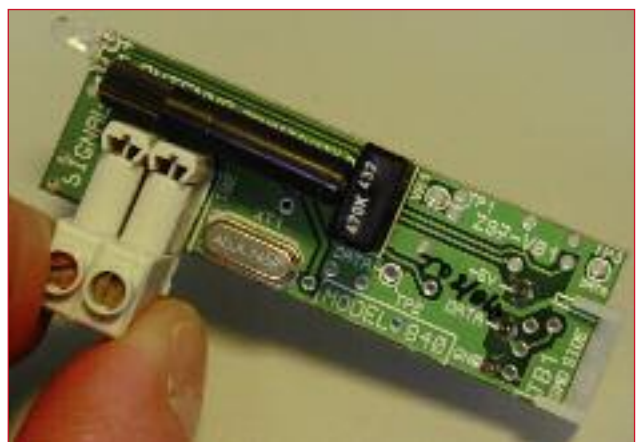
The program button should be released after the appropriate flash or bleep to enter the required program mode.

All of the programmed functions are stored in a non-volatile memory, which is retained during a power interruption.

A quick reference programming chart can be found on page 28 at the back of this booklet.

TRANSMITTER CODE PROGRAMMING

(Note: a Zap radio receiver model 840 should be fitted)



To program a Zap transmitter code into memory:

First press and hold the required transmitter button. Then press and hold the Program button.

Release the program button after the first LED flash or bleep.

Two flashes or bleeps confirm that the code has been stored into memory.

Now release the transmitter button.

Three flashes or bleeps indicate that no code data was present in which case repeat the programming sequence.



Up to 60 transmitter codes can be stored in memory. In which case repeat the programming sequence for each of the new transmitters. (Each transmitter has a different operating code)

To erase all transmitter codes: Press and hold the Program button and release it after the FOURTH flash or bleep.

Two flashes or bleeps acknowledge that all of the transmitter codes have been erased.

AUTO-CLOSE TIMER PROGRAMMING

The factory set Auto-Close timer delay is 15 seconds.

In order to confirm the operation of the Auto-Close timer first set DIP switch No. 4 to ON. Then press the OPEN push button. The door will open and re-close after the time delay.

To change the time delay first ensure that DIP switch No. 4 is set to the ON position and that the door is fully closed.

Now press and hold the program button. Release the button after the SECOND flash or bleep.

Next press the OPEN push button.

After the door has fully opened and after the required delay press the CLOSE push button. This new delay is now stored into the memory and will be retained during any power interruptions.

A sequence of 6 flashes and bleeps follow to prompt you to decide if you want the door to auto-close regardless of the door reopening after striking an obstruction.

It is preferable that the door should reopen and stay open following an obstruction strike. However it may be required for security reasons, when used as a car wash door for example, that the door should auto-close after reopening after hitting a large build-up of snow and ice in winter, in which case it will make two attempts to close onto the ice. On the third run it will then stop on the ice.

If you require the door to Auto-Close regardless of obstructions then press the close button a second time during the 6 flashes and bleeps.

If the CLOSE button is not pressed during the flashes and bleeps the controller will default to stay open after an obstruction reopen sequence.

If it is required to change the programmed delay then repeat the programming sequence.

PROGRAMMING USING THE CASE LID BUTTONS

The following functions cannot normally be accessed on model 800-G as it has only one case lid control button. If it is required to access these functions during a service interval on a model 800-G then a three-button lid should be temporarily connected.

A DOOR OPERATIONS COUNTER is incorporated. The number of door operations can be counted more easily by fitting the plug-in Bleeper module, which sounds in conjunction with flashes of the Acknowledge LED indicator.

The Door OPERATIONS counter may be used at any time by pressing and holding both the STOP push button and the OPEN push button and releasing them after a bleep is heard.

The bleeper will then indicate the total door operations since the door was installed by sounding long bleeps for 1000's of operations and short bleeps for 100's of operations.

Two long bleeps and three short bleeps for example indicate that the door has completed 2300 operations. If there is no response after releasing the buttons the door has completed less than 100 operations.

A SERVICE DUE REMINDER is incorporated in the control unit. This prompts the customer to call the installer when the door requires servicing. A bleeper model 850 should be installed.

The SERVICE DUE REMINDER operates after 2500 door operations, which equates to a six month service period for an average door operating ten times each day. (see page 21) After the door has completed 2500 operations the SERVICE DUE REMINDER becomes active and delays the door close cycle by ten seconds during which the bleeper will sound ten times.

The SERVICE DUE REMINDER is NOT enabled during manufacture. It may easily be enabled during the installation by pressing and holding the STOP push button. Then press and hold the OPEN button.

Release the buttons after the SECOND bleep. Two beeps confirm that the SERVICE DUE REMINDER is enabled.

The SERVICE DUE REMINDER can be reset during the service visit by repeating the enable sequence.

If it is required to disable the SERVICE DUE REMINDER then press and hold both the STOP and OPEN buttons. Release them after the third flash and bleep. Two flashes or beeps confirm the SERVICE DUE REMINDER is disabled.

AUTO-CLOSE STAY OPEN PROGRAMMING

If the Auto-Close DIP switch No. 4 is set to the ON position to provide Auto-Close operation of the door and it is required to disable the auto-close function for example when it is required to hold the door open on a warm summers day, then the Auto-Close can be temporarily disabled by opening the door and waiting for the door to stop in the open position. Then press and hold the STOP button, then press and hold the CLOSE button. Release the buttons after the bleep. (The analogy being - STOP CLOSING).

The Auto-Close function will operate normally after the door is next closed using the close push button.

PART OPEN PROGRAMMING

For high doors, there may be a requirement to only open the door to a pre-determined height.

N.B. Before programming the part open position, the installation and initial calibration of the door must be completed and the door should be cycled at least 5 times.

To program this height, start with the door fully closed.

Press and hold the program button for five flash (ACK LED) / bleep prompts.

Release the Program button and then press the open button; the door will now start opening.

At the required open position press Stop; two flash/bleep prompts will confirm successful programming.

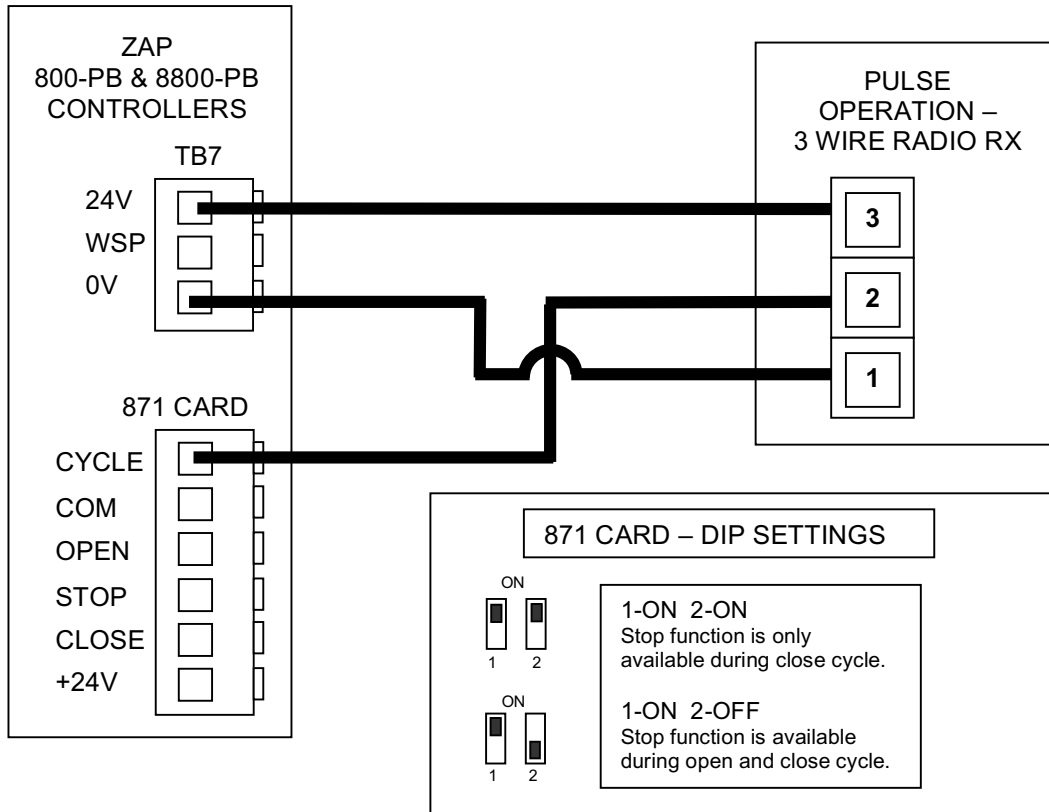
The door will now open to this programmed position.

If it is required to fully open the door, press the Open button with the door at the part open position and the door will open fully.

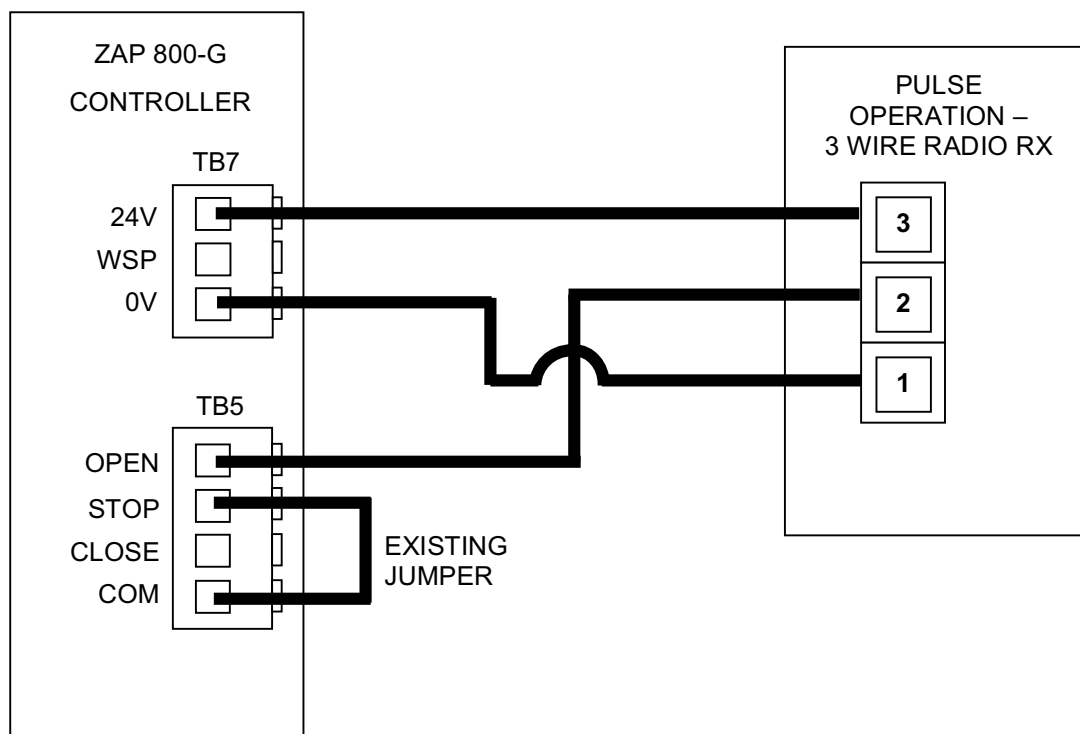
To erase the part open position, press and hold the Program button until six flash/bleep prompts are heard.

Release the Program button and two flash/bleep prompts will confirm erasure.

ZAP 800-PB/8800-PB CONTROLLER WIRING – PULSE OPERATION

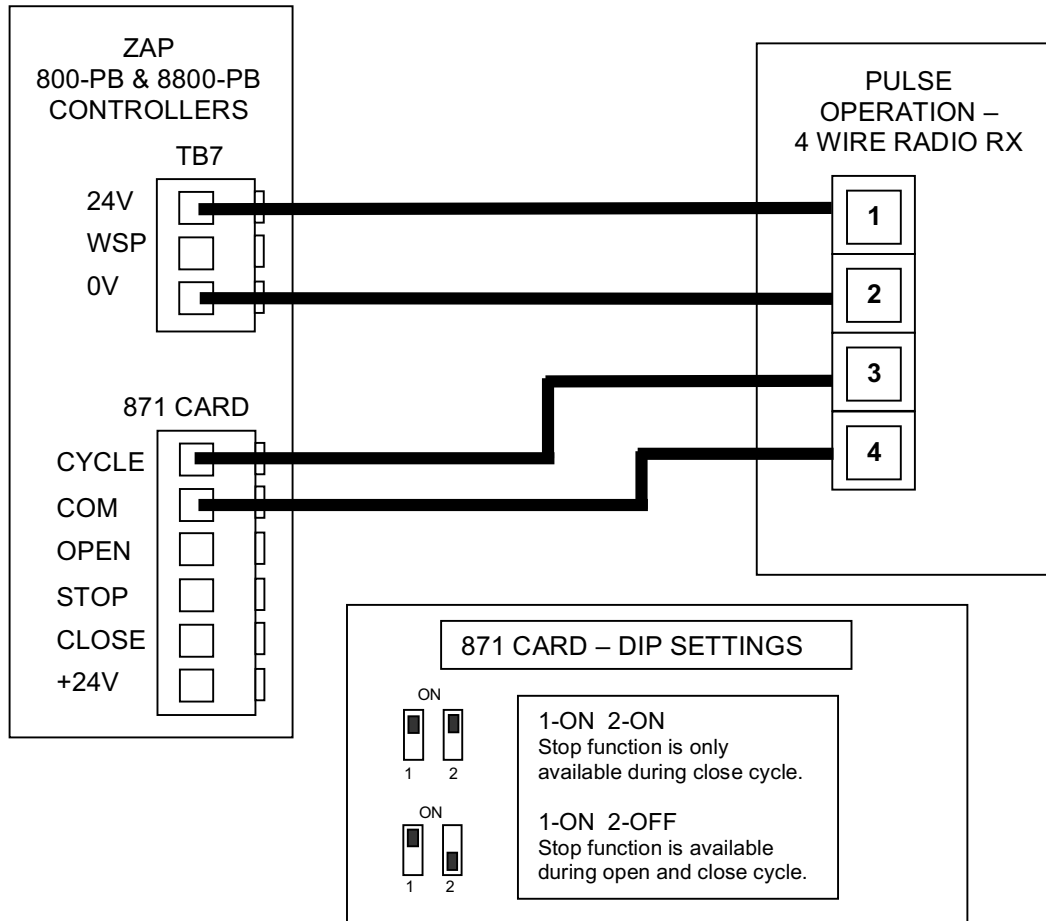


ZAP 800-G CONTROLLER WIRING – PULSE OPERATION



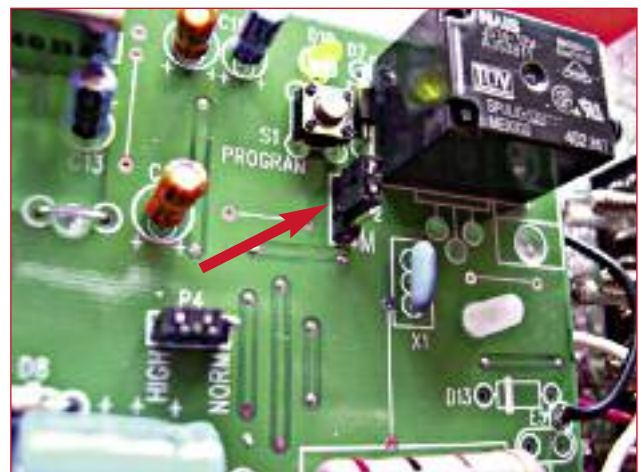


ZAP 800-PB/8800-PB CONTROLLER WIRING – PULSE OPERATION WITH LIFT MASTER 412 HM

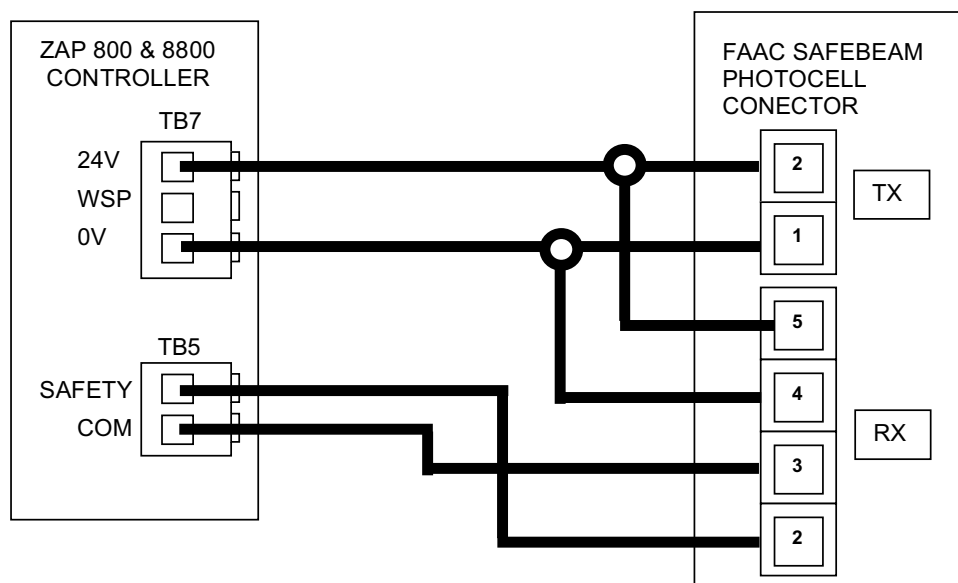
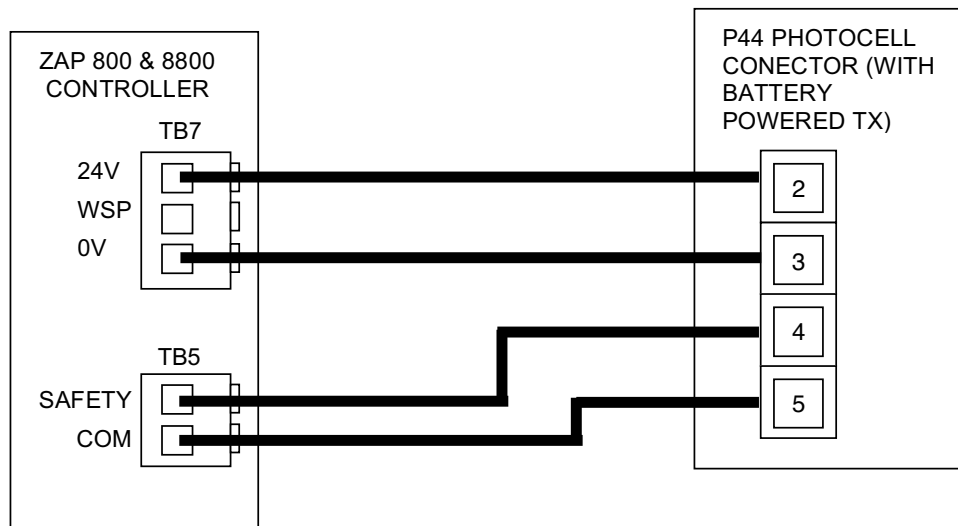
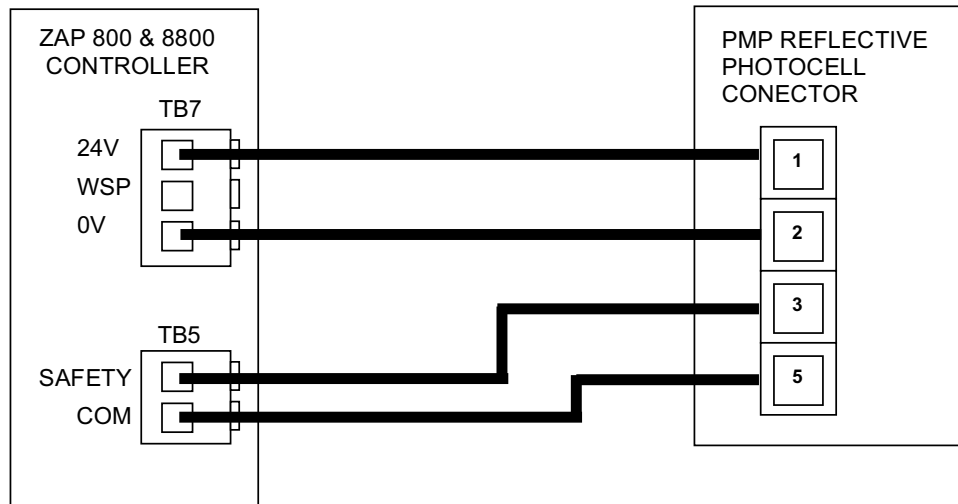


Note: To use the LIFTMASTER 412HM Gate Receiver with the ZAP 800-PB or 8800-PB Controller you must change the Receiver from Momentary operation to Constant operation. The jumper linking 2 of the 3 Output duration terminals should be transferred to the 2 terminals nearest the outer edge of the panel, which are marked "C" for CONSTANT operation.

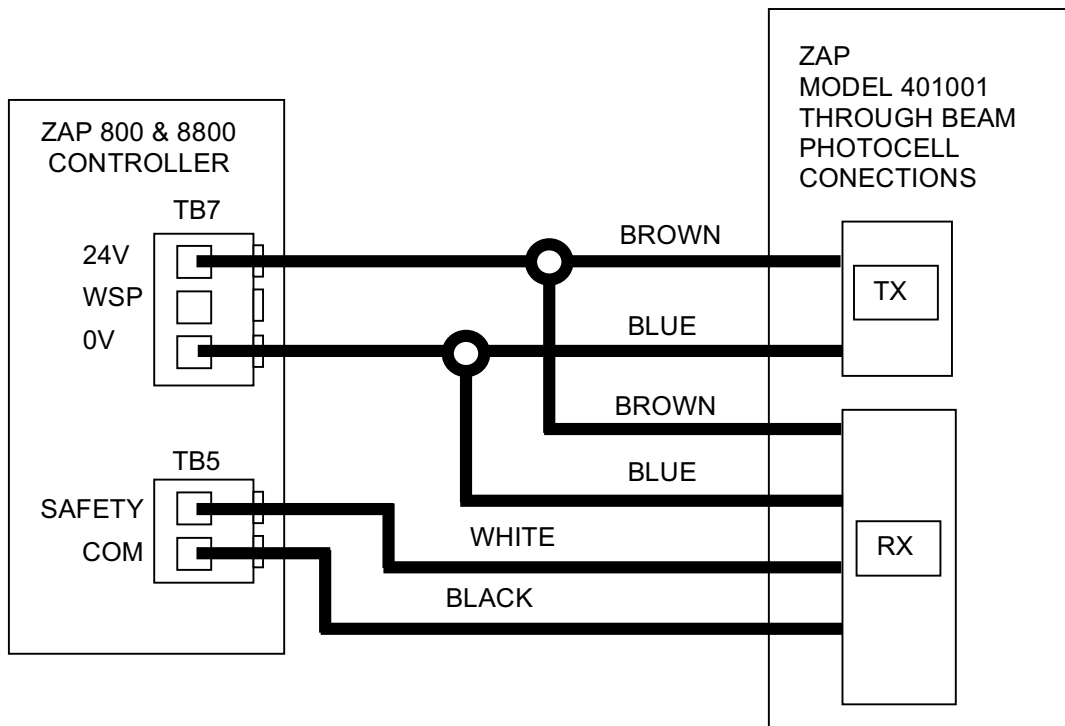
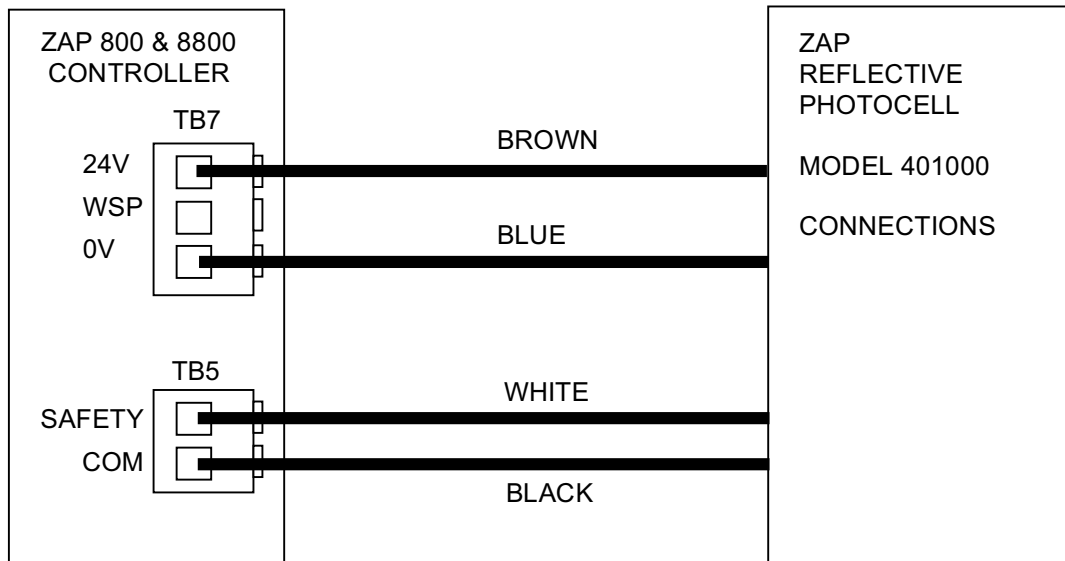
Note: if the Radio Receiver does not operate properly then switch the connections on terminal TB7 or refer to the receiver manual for further directions on connections to a DC power supply.



ZAP 800-PB/800-G/8800-PB SAFETY WIRING CONNECTIONS



ZAP 800-PB/800-G/8800-PB SAFETY WIRING CONNECTIONS



FAULT FINDING GUIDE

FAULT	REASON & REMEDY
1. The Opening or Closing LED remains Illuminated After the door has stopped.	<p>The V-Belt tension is too loose and the belt is slipping over the motor pulley.</p> <p>Increase the belt tension by releasing the Manual Over-Ride lever and screw the adjuster in a few turns.</p>
2. The door stops just after it has started in the open direction.	<p>A. The door movement is stiff due to the door running tight against the door frame in the fully closed position. In which case adjust the position of the roller wheel supports to ease the pressure of the door against the frame.</p> <p>B. The door is badly out of balance. In which case re-tension the counterbalance springs.</p> <p>C. The door is near the maximum weight for the operator and the Maximum Motor Current adjuster is set too low. In which case turn the adjuster a further 20 degrees counter-clockwise.</p>
3. The closing door stops and reopens before it contacts the ground.	<p>A. There is an abnormality in the track, which is causing the roller wheels to jump. This may be due to a misalignment of track sections or a deformity of a damaged section of track. In which case correct the track problem and ensure the door will run smoothly by hand movement with the over-ride lever disengaged.</p> <p>B. The Close Sensitivity adjuster is set too fine. In which case turn the adjuster counter-clockwise by a further 20 degrees.</p>
4. The door runs in slow speed for an extended period of time.	<p>A. The V-Belt is slipping. In which case adjust the belt tension described in 1. above. Then run the door fully open and closed a few times to enable the microprocessor to recalibrate the door speed change points.</p>

PROGRAMMING GUIDE – USING THE PROGRAM BUTTON

Press and hold the program button and release after the relative bleep or flash of the acknowledge L.E.D.

First Beep	Program new transmitter	See page 21
Second Beep	Program an auto-close delay time	See page 22
Third Beep	Program a close delay for warning device	Contact us
Fourth Beep	Erase all transmitter codes from memory	See page 22
Fifth Beep	Program a part-open door position	See page 23
Sixth Beep	Erase part-open door position	See page 23
To program using the case lid buttons		See page 22