1. IMPORTANT

This manual contains important information regarding safety. Before you start installing the components, it is important that you read all the information contained herein. For future use, store this manual in a safe place. Due to the dangers which may arise during the installation and use of the Nice Hansa SPEEDO Gate Operator ("SPEEDO") and in order to ensure maximum safety, installation must be carried out with full respect for the laws, provisions and rules currently in force. This section provides details regarding general warnings. Other, more specific warnings are detailed in "Preliminary Checks" and "Testing".

According to the most recent South African legislation, the automation of gates is governed by the provisions listed in the SANS standards.

The use of this manual has been specifically written for qualified fitters.

- Any use or operation of the SPEEDO which has not explicitly been provided for in these instructions is not permitted. Improper use may cause damage and personal injury.
- A risk analysis must be carried out before starting the installation.
- Check whether additional devices are needed to complete the automation using the SPEEDO based on the specific application requirements and the dangers present. In addition to other general dangers, the following risks must be considered: impact, crushing, dragging, etc.
- Do not modify any components unless such action is specified in this manual. Operations of this type are likely to lead to malfunctions. Nice Hansa SA (Pty) Ltd disclaims any liability for damage resulting from modified products.
- During installation and use, ensure that solid objects or liquids do not penetrate the control unit or other open devices. The use of a SPEEDO in these conditions can be dangerous.
- The automation system must not be used until it has been commissioned as described in "Testing".
- If a fault occurs that cannot be solved using the information provided in this manual, contact Nice Hansa for more information.
- All electrical connections are to be carried out by a qualified and certified electrician as stipulated by local legislation.
- In the event of an earth leakage and automatic switches are tripped or fuses have blown, you must contact a qualified electrician.
- Disconnect all the power supply circuits before accessing the terminals inside the SPEEDO cover.

2. PRODUCT DESCRIPTION AND APPLICATIONS

The SPEEDO is an irreversible electromechanical gear motor for the automation of sliding gates. It is equipped with an electronic control unit and connector for the radio receiver. Electrical connections to external devices have been provided. In the event of a power failure, the SPEEDO will operate on the battery back-up system. The amount of operations possible on the battery back-up is dependent on various factors including condition of the batteries, gate weight, quality of installation and ambient temperature. In the event of a prolonged power failure the SPEEDO can be released using the manual release lever in order to move the gate manually.

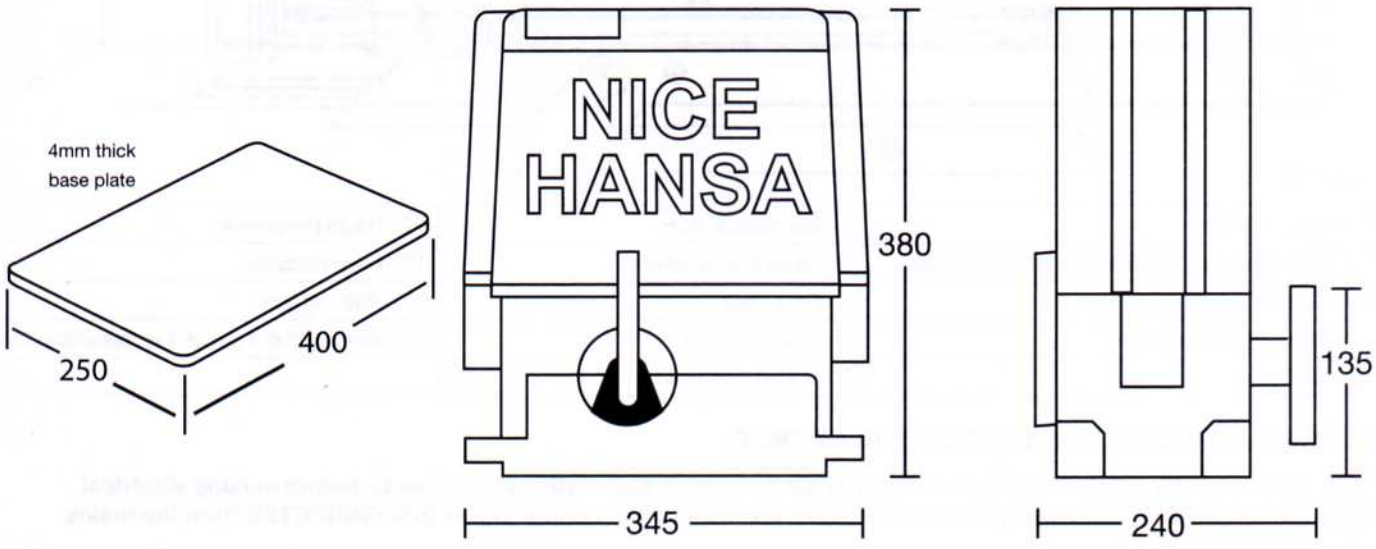


Figure 1

2.1 OPERATING LIMITS

Table 1: Comparison of the SPEEDO gearmotor's main characteristics

SPEEDO TECHNICAL SPECIFICATIONS			
Code	**STANDARD SPEEDO**	**HEAVY DUTY SPEEDO**	**HEAVY DUTY SPEEDO AND POWERPACK**
Gate Weight in kg	up to 800	up to 1200	up to 1200
Electrical data			
Electrical Power (Vac 50Hz)	230	230	230
Motor Power (Vdc)	24	24	24
Absorption at nominal load (A)	11	14	16
Power (W)	260	340	380
Performance data			
Speed at 0 load (m/min)	19	21	21
Pull force at nominal load (N)	300	400	400
Duty cycle (cycles/day)	175	200	700
Dimensions and general data			
Degree of protection (IP)	44	44	44
Operating temperature (°C Min/Max)	-20 +50	-20 +50	-20 +50
Dimensions Motor (mm)	345x240x380	345x240x380	345x240x380
Weight Motor (kg)	16	16	18.5
Dimensions Base Plate (mm)	400x250x4	400x250x4	400x250x4
Weight Base Plate (kg)	3.2	3.2	3.2

2.2 TYPICAL SYSTEM

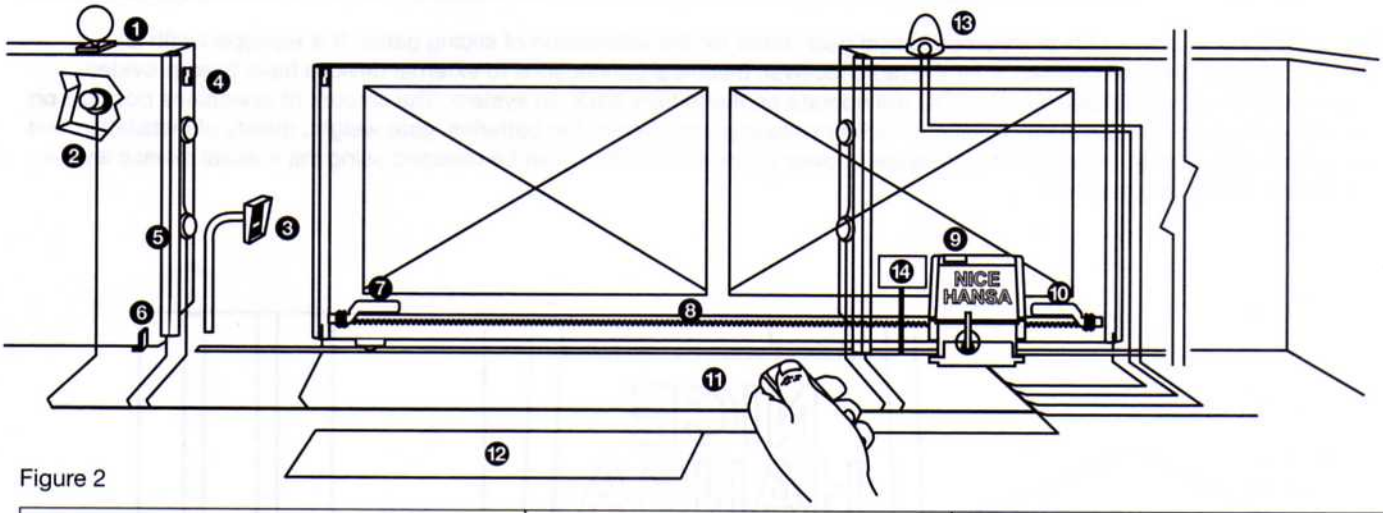


Figure 2

1 - Courtesy light	6 - Mechanical stop	11 - Radio transmitter
2 - Keyswitch / Digital switch or proximity reader	7 - Close limit bracket	12 - Loop detector
3 - Gate Station	8 - Gate track	13 - Flashing light
4 - Magnetic/Electric lock	9 - Speedo motor	14 - Mains Isolator switch/Disconnecting Device
5 - IR Beams	10 - Open limit bracket	

2.2 CABLE REQUIREMENTS FOR THE SPEEDO

! To ensure the safety of the installer and avoid damage to automation components, before making electrical connections or connecting the radio receiver, ensure that the control unit is DISCONNECTED from the mains and batteries.

The control unit must be powered with a 3 x 2.5mm square cable (live, neutral and earth); if the power cable is longer than 20m, a cable with a larger section is required and safety earthing is necessary in the vicinity of the automation.
Use a SWA, Norsk or Twin and Earth as power cable.

Table 2: List of cables

Connection	Cable type	Maximum length allowed
Power line	3 x 2.5mm^2	20m
I.R. Beam	3 x 0.5mm^2	30m
Intercom	2 x 0.5mm^2	50m
Key Operated switch	2 x 0.5mm^2	50m

3. INSTALLATION

The installation of the SPEEDO must be carried out by qualified personnel in compliance with current legislation, standards and regulations, and the directions provided in this manual.

3.1 PRELIMINARY CHECKS

Before proceeding with the installation of the SPEEDO you must:

- Check that all the materials are in excellent condition, suitable for use and that they conform to the standards currently in force.
- Make sure that the structure of the gate is suitable for automation.
- Make sure that the weight and dimensions of the gate fall within the specified operating limits provided in Section 2.1, "Operating Limits".
- Ensure that there are no areas of excessive friction along the opening or closing travel of the gate.
- Ensure that there is no danger of the gate derailing.
- Ensure that the mechanical stops are sturdy enough and that there is no risk of deformation even when the gate hits the mechanical stop violently.
- Ensure that the gate is well balanced: it must not move by itself when placed in any position.
- Ensure that the area where the SPEEDO is fixed is not subjected to flooding. If necessary, mount the SPEEDO so it is raised from the ground.
- Ensure that the installation area enables the release of the SPEEDO and that it is safe and easy to release it.
- Ensure that the mounting positions of the various devices are protected from impact and that the mounting surfaces are sufficiently sturdy.
- Components must never be immersed in water or other liquids.
- Keep the SPEEDO away from heat sources, open flames, acid, saline or potentially explosive atmospheres.
- If there is an access door in the gate, or within the range of movement of the gate, ensure that it does not obstruct normal travel.
- Only connect the control unit to a power supply line equipped with a safety grounding system.
- The power supply line must be protected by circuit breakers.
- A disconnection device must be inserted in the power supply line from the electrical mains mounted near the automation and must have a locking system preventing unintentional unauthorised connection.

3.2 INSTALLATION OF THE SPEEDO

The SPEEDO must be fastened directly to an already existing mounting surface using suitable means. Alternatively, in order to fasten the SPEEDO, the installer must:

1. Dig a foundation hole with suitable dimensions. *See figure 3*
2. Prepare one or more conduits for the electrical cables.
3. The base plate should be prepared by welding four or more 200mm - 300mm long 12mm thick steel rods to it. *See figure 4*
4. Pour the concrete. Before it starts to harden, set the base plate. Check that it is parallel to the gate and perfectly level. Wait for the concrete to harden completely. *See figure 5*
5. Weld the four mounting blocks on to the base plate and then place the SPEEDO onto them. Check that it is perfectly parallel to the gate, and then screw the four bolts and washers supplied. *See figure 6*

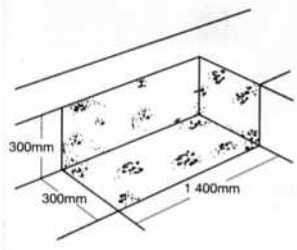


Figure 3

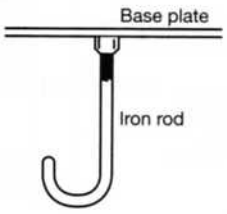


Figure 4

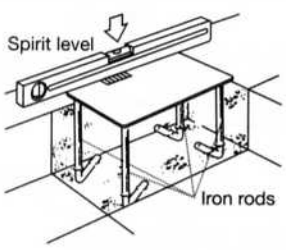


Figure 5

Figure 6

6. A typical SPEEDO installation and track installation. *See figure 7 and figure 8*

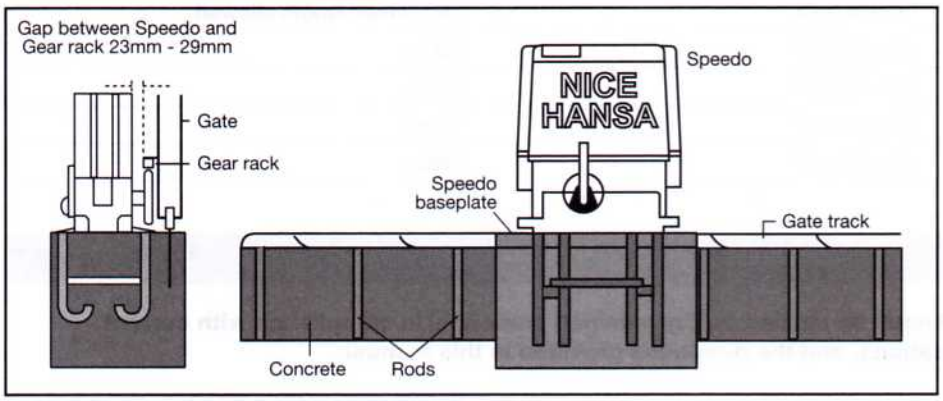


Figure 7

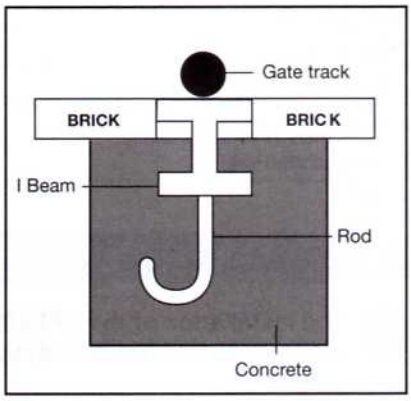


Figure 8

7. In order to fasten the rack the installer must release the SPEEDO by pushing the release handle down.
8. Open the gate up completely and place the first piece of the rack on the gate. Check that the beginning of the rack corresponds to the beginning of the gate. Leave 1-3mm spacing between the rack and the pinion, and then fasten the rack to the gate using suitable means.

The pinion is not designed or intended to carry the weight of the gate. In order to prevent the weight of the gate from affecting the gear motor, it is important that there is a spacing of 1mm - 3mm between the rack and the pinion

9. Slide the gate using the pinion as a reference point for the fastening of the other elements of the rack.
10. Cut away the excess part of the rack.
11. Open and close the gate several times and make sure the rack is aligned with the pinion. Check that the spacing of 1mm - 3mm has been respected along the entire length between the pinion and the rack. An example of a good measure for keeping the spacing at 1mm - 3mm is by using the diameter of a 3mm drill bit between rack and pinion. *See figure 9a and figure 9b*

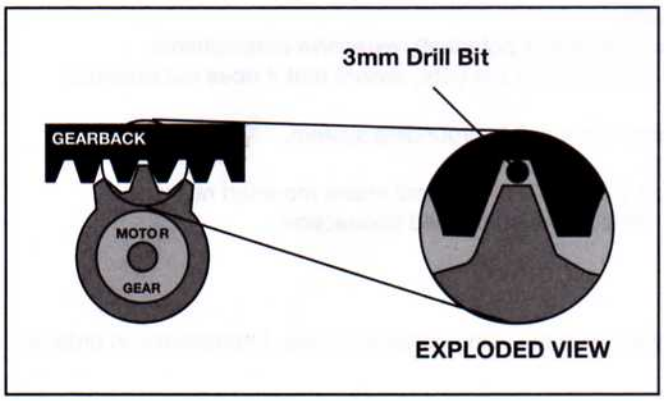


Figure 9a

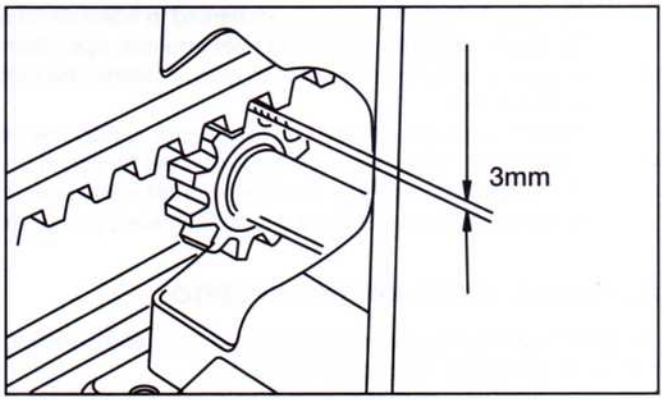


Figure 9b

3.3 MOUNTING OF THE LIMIT SWITCH BRACKET (CAM)

1. Manually place the gate in the open position leaving at least 20mm from the end post.
2. Slide the cam along the rack in the opening direction until the closed limit switch cuts in and secure it to the rack.
3. Perform the same operation for the closed position limit switch. *See figure 10*
4. Lock the SPEEDO into position by pulling the release handle up.

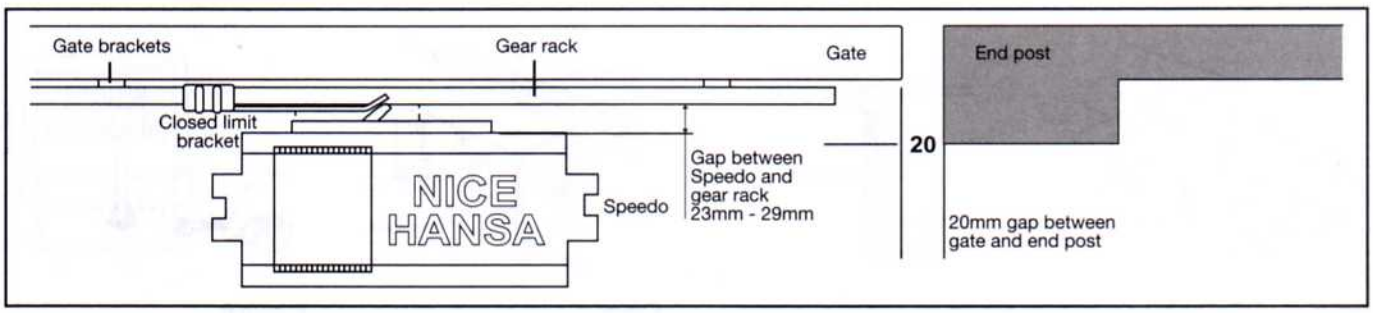


Figure 10

3.4 INSTALLATION OF THE VARIOUS DEVICES

All devices with voltage free contacts such as Radio Receivers, Infra Red Beams, Loop Detectors, Key switches, Intercoms, Wireless Keypads, Card Readers etc can be installed, see BACK PAGE for controller connections together with manufacturer's instructions and see Table 14 for factory default input options.

Auxiliary power
The controller provides 12V D.C. fused power maximum 500mA (terminals23 (0V) and 24(+12V)) and 12V D.C. unprotected power maximum 1A (terminals 25(0V) and 26(+12V)).

3.4.1 HOW TO CONNECT AN I.R.BEAM *See figure 11*

When installing an I.R.Beam, connect two wires from controller to the transmitter and three / four wires from controller to the receiver.

The transmitter should be connected as follows:
1. Connect positive 12 V D.C. (No.24) on controller to positive on I.R.Beam transmitter.
2. Connect negative 0V (No.23) on controller to negative on I.R.Beam transmitter.

The receiver should be connected as follows:
1. Connect positive 12 V D.C. (No.24) on controller to positive on I.R.Beam receiver.
2. Connect negative 0V (No.23) on controller to negative on I.R.Beam receiver.
3. Remove link wire.
4. Connect I.R.Beam (No.9) on controller to Normally Closed on receiver.
5. Bridge a piece of wire between Negative 0 volts and Common on the receiver or use an extra wire to Connect negative 0 V to the Common.

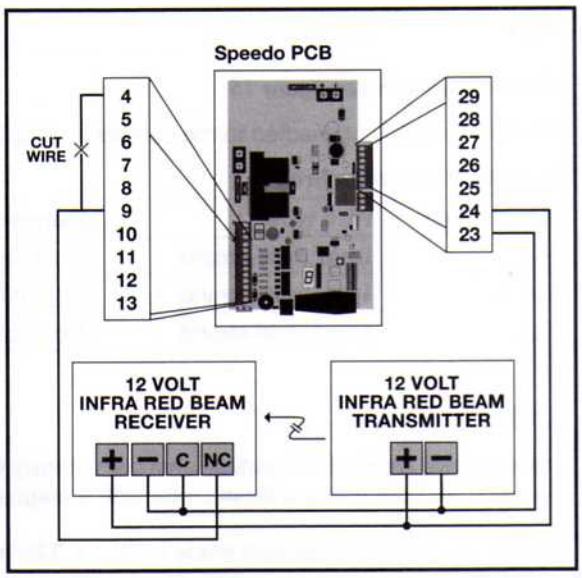


Figure 11

3.5 ELECTRICAL CONNECTIONS

Only carry out electrical connections once the electricity supply to the system has been switched off and the batteries disconnected.

1. Remove the protection cover in order to access the electronic control unit of the SPEEDO. The two screws must be removed and the cover lifted upwards.
2. Insert all the connection cables toward the various devices, leaving a length of 200mm - 300mm longer than necessary. The use of cable glands will ensure a more rigid connection.
3. Connect the mains power and all other auxiliary cables to the appropriate terminals. Do not connect the mains power into the controller, the controller uses DC power and the battery charger uses AC power.

3.6 DESCRIPTION OF THE ELECTRICAL CONNECTIONS

Battery power wires

Table 3: Battery power wires *See figure 12*

Wire Colour	Wire type	Wire mark	Connected on controller
Black	2.5mm² multi-strand panel	-	Negative 0V - 2 way terminal
Red	2.5mm² multi-strand panel	+	Positive 24V - 2 way terminal

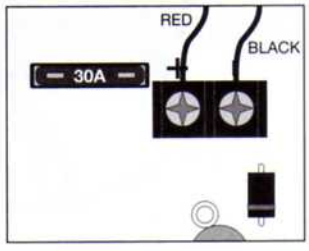


Figure 12

Motor wires

Table 4: Motor wires *See figure 13*

Wire Colour	Wire type	Wire mark	Connected on controller
Black	2.5mm² multi-strand panel	M1	Motor - M1 - 2 way terminal
Red	2.5mm² multi-strand panel	M2	Motor - M2 - 2 way terminal

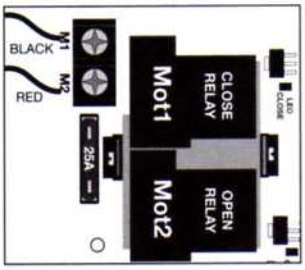


Figure 13

3.7 LIMIT SWITCHES

There are two types of compatible limit switches namely Deluxe limit switch and Nice limit switch.

Deluxe limit switch *See figure 14*

This limit switch is connected to the controller using a single 0.5mm 3 core cabtyre standard type cable *See table 5*

Table 5: Deluxe limit switch wires

Wire Colour	Wire type	Connected on controller
Green/Yellow	0.5mm² cabtyre	No.4 (0v) - 10 way green connector
Brown	0.5mm² cabtyre	No.7 (LS1 OPN) - 10 way green connector
Blue	0.5mm² cabtyre	No.8 (LS1 CL) - 10 way green connector

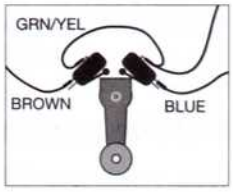


Figure 14

Nice limit switch *See figure 15*

This limit switch is connected to the controller using 3 x 1.0mm² multi-strand panel wires or a polarised molex plug *See table 6*

Table 6: Nice limit wires

Wire Colour	Wire type	Connected on controller
Blue	1mm² multi-strand	No.4 (0v) - 10 way green connector
Black	1mm² multi-strand	No.7 (LS1 OPN) - 10 way green connector
Red	1mm² multi-strand	No.8 (LS1 CL) - 10 way green connector

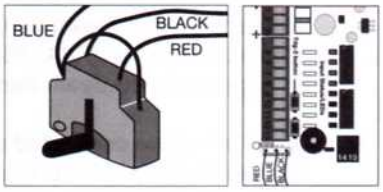


Figure 15

3.8 ENCODERS

There are two types of compatible encoders namely Optical Infra red encoder (using a chopper plate) and Hall effect Nice Magnetic encoder (using a plastic rotor with 4 magnets).

These encoders use a harness made up of 4 x 0.2mm² multi-strand panel wires and a 4 way polarized header.

The harness is made up of the following wires:

1. 2 x Black wires
2. 1 x Red wire
3. 1 x Blue wire

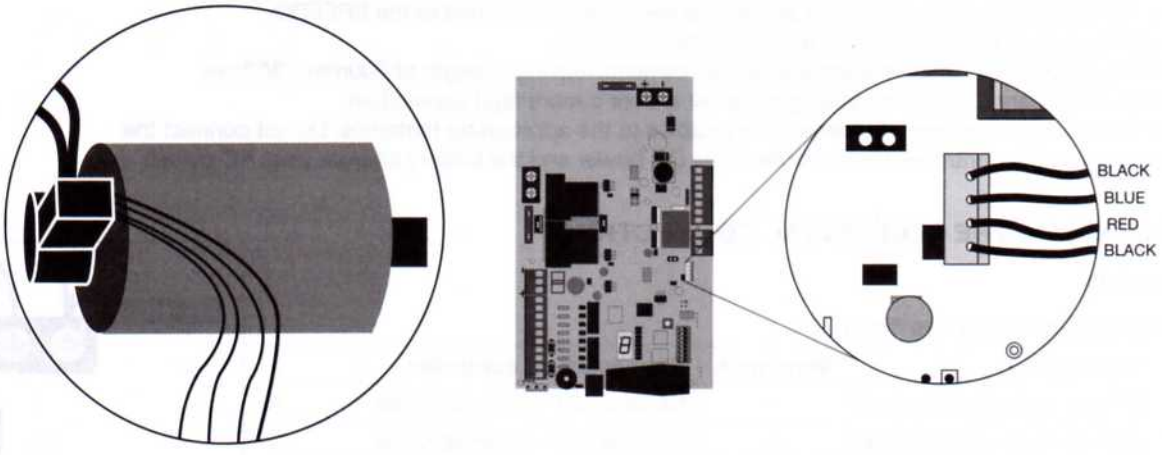


Figure 16

4. GETTING TO KNOW THE SPEEDO CONTROLLER

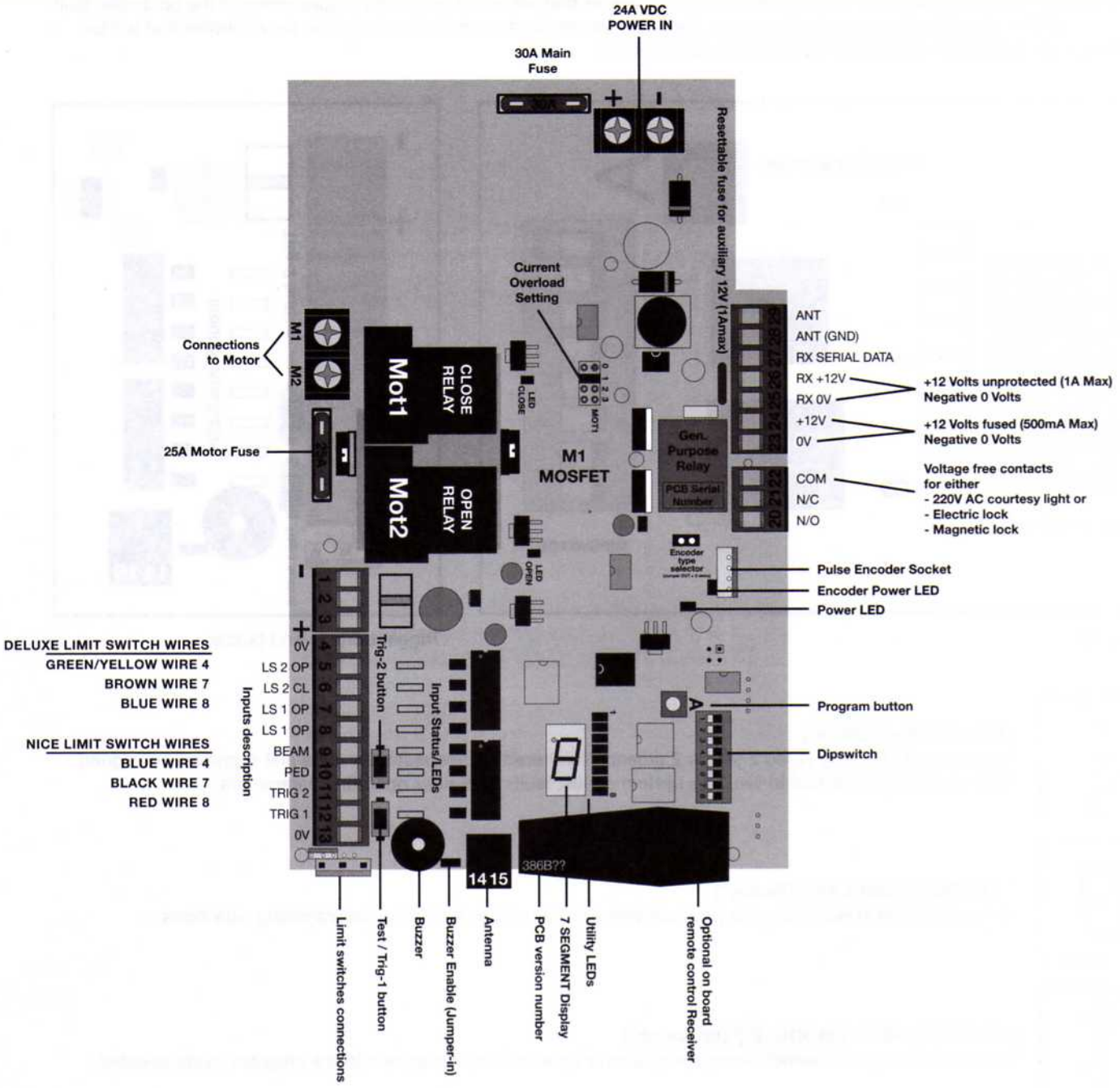


Figure 17

1 - Negative External LED	11 - Trigger 2	21. Normally closed (potentially free)
2 - Earth	12 - Trigger 1	22. Common (potentially free)
3 - Positive External LED	13 - Negative 0 Volts	23. Negative 0 Volts
4 - Negative 0 Volts	14 - Antenna	24. 12 V fused (maximum 500mA)
5 -	15 - Antenna ground	25. Negative 0 Volts
6 -		26. 12 Volts unprotected (maximum 1A)
7 - Limit Switch Open		
8 - Limit Switch Close		28. Antenna ground
9 - I.R.Beam		29. Antenna
10 - Pedestrian Trigger	20 - Normally open (potentially free)	Blade fuses - 30 Amp power / 25 Amp motor

4.1 IMPORTANT DEVICES

The SPEEDO Electronic Controller has a number of useful devices that will assist you in the programming of the controller, fault finding as well as an access to innovative functions. There are six very important devices found on the controller that will be assisting in the efficient installation of the SPEEDO *see figure 18*

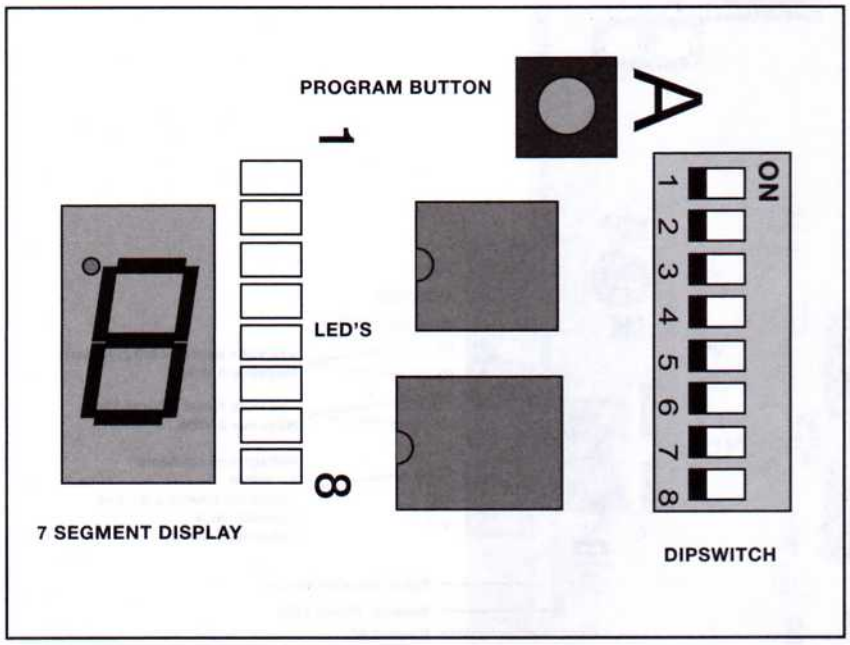
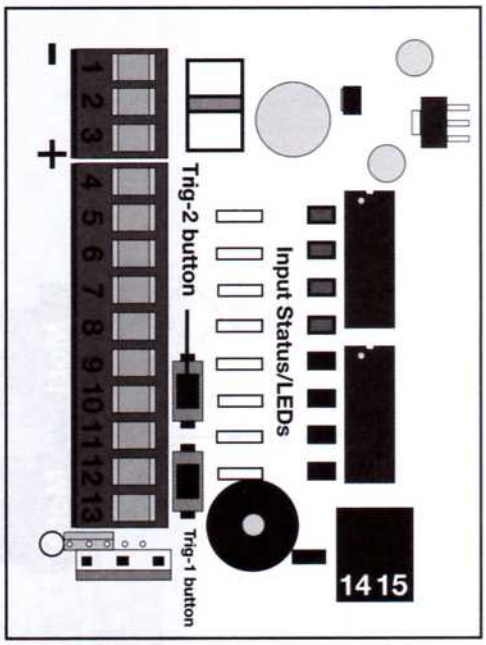


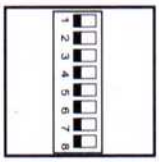
Figure 18



Trigger buttons and buzzer

LED ARRAY – ("LED's")
There is an 8 LED strip (4 red 2 yellow 2 green) (Numbered 1-8 respectively) . This unit is primarily designed as a visual diagnostic tool to visualize system status, faults as well as operating parameters.

7 SEGMENT DISPLAY ("Display")
This unit assists in visualizing the program sequence as well as indicating programming selections.



8 WAY DIPSWITCH MODULE ("Dipswitch")
This unit allows you to select various programs or options in accordance with the program mode selected.

SURFACE MOUNT TACTILE SWITCH ("Program Button")
This button, indicated as "A" on the controller is used to navigate and select the various functions available.

For example – if you wish to check the condition of the batteries you will use the"Program Button" to select the letter "b" on the "Display" and the "LEDs" will indicate the condition of the battery. The illumination of the green led's and the red led's will indicate good condition whilst the illumination of the red led's only will indicate a poor condition.

These devices are used in conjunction with each other and can be accessed only when the gate is in the closed position.

4.2 FUSES

There are two blade type fuses on the controller. For fuse type and fuse location. *See figure 19*

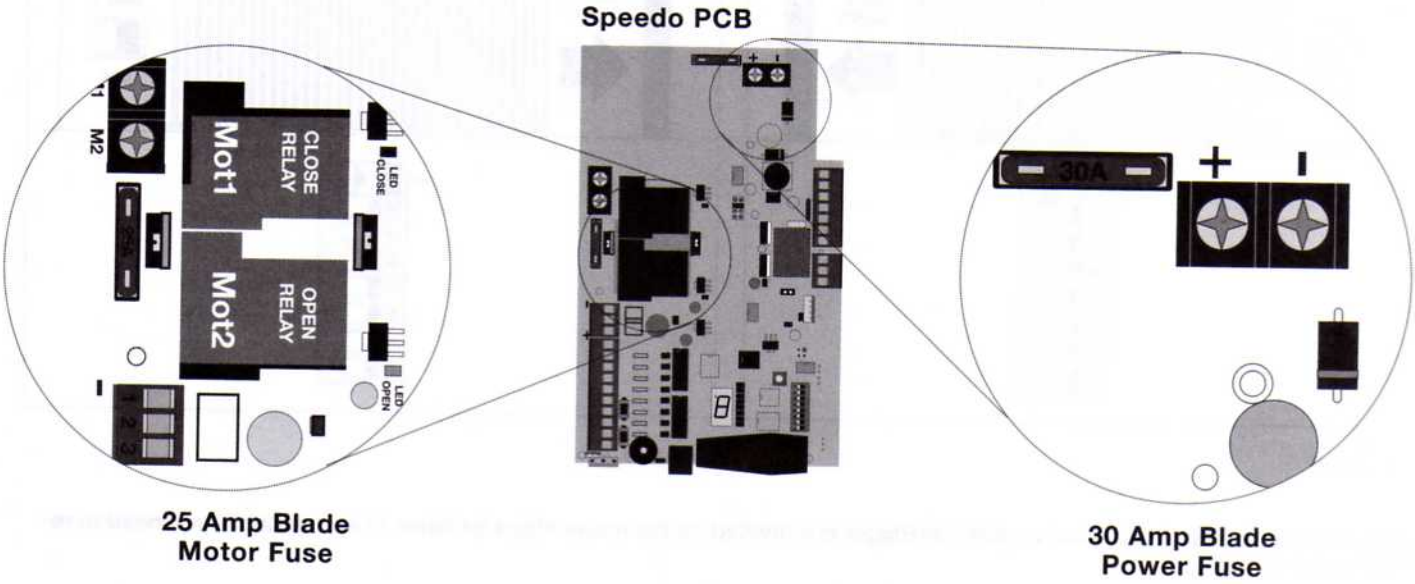


Figure 19

5. FINAL CHECKS AND START UP

Position the gate approximately 1 m from the closed position before starting the checking and start up phase of the automation.

5.1 PROGRAMMING THE CONTROLLER TO INITIALIZE MOTOR SET-UP USING A LEARN CYCLE

STEP 1- DEFAULTING THE CONTROLLER

1. Ensure that the power to the controller is off by removing the 30 Amp power fuse.
2. Move all Dipswitches off.
3. Press and hold Program Button whilst applying power by inserting the 30 Amp power fuse.
4. Allow the LED's to flash at least 4 times, release the Program Button.
5. Remove the 30 Amp power fuse.
6. You have now defaulted the controller to factory settings.
7. Insert the 30 Amp power fuse again and check the display flashing a "0", if not repeat from point number 1 above.

STEP 2 – APPLY POWER AND ALLOW THE CONTROLLER TO LEARN THE GATE PARAMETERS USING A "LEARN CYCLE"

1. Switch the controller on by inserting the 30 Amp power fuse.
   When applying power for the first time, the "LEDs" will flash (four at a time) to indicate that the system needs to "learn" the open / close cycle and store it in the memory and the Display will show the factory default installation option. The unit is factory defaulted to a medium weight gate (10kg – 15kg pull force) on even ground, this is shown as a "0" on the Display.

If the battery level is low, the controller will automatically shut down, a "b" will appear on the Display and illuminate LED No. 2. You cannot proceed into the program mode if the batteries are not fully charged (charge the batteries).

2. Standing inside the property looking out towards the street, move Dipswitch 1 as follows:

Table 7: Choosing the direction

Gate direction	Dipswitch setting
Gate closes to the right	Dipswitch 1 ON *see figure 20*
Gate closes to the left	Dipswitch 1 OFF *see figure 21*

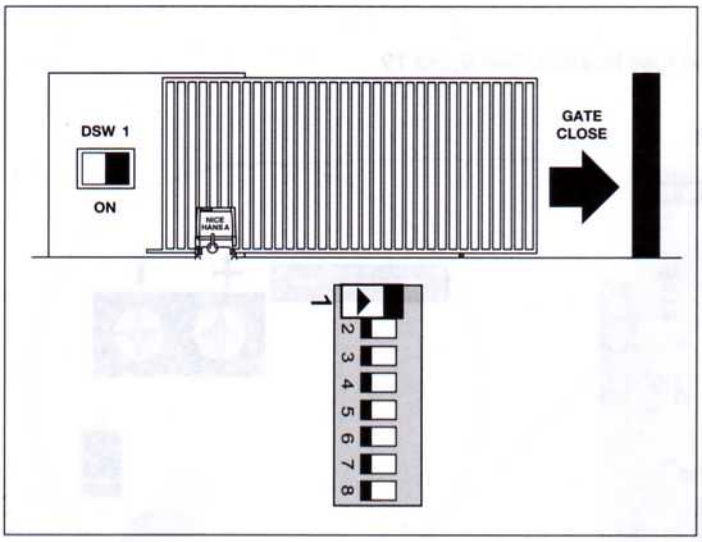


Figure 20

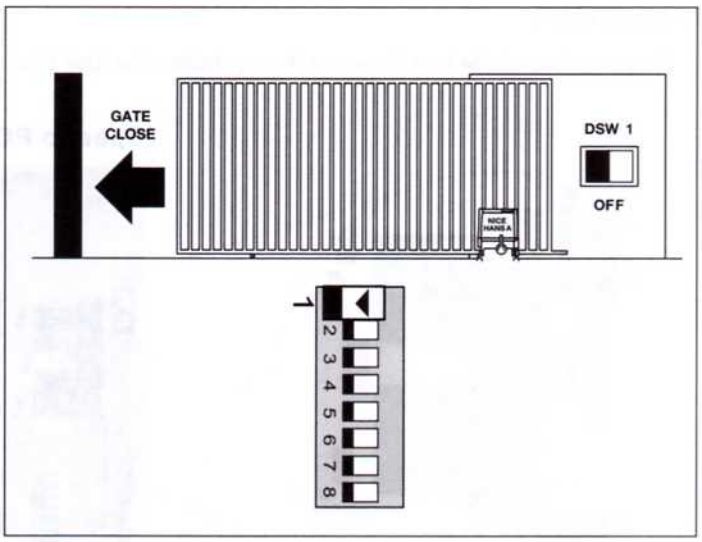


Figure 21

Important: If during the learn cycle any trigger is activated, or the motor stops because of any obstacle, you need to re-start from step 1.

3. Move Dipswitch 2 ON to proceed into program mode, " - " is displayed. Press and hold Program button until " **p-r-g-A** " is displayed followed by three installation selection types " **0** ", " **1** ", and " **2** ". Look at Table 8 below to select an installation type best suited to the gate.

Table 8: List of programming options

Options	Gate parameters
0	Medium weight gate
1	Light weight gate
2	Heavy weight gate

N.B.: A heavy weight gate (option 2) has a longer acceleration and deceleration time compared with a medium weight gate (option 0).

When your choice is displayed, press and release Program button A. " **II** " is now displayed and the close relay is activated.

4. Press and hold Trigger 1 to close the gate, the gate will start to close very slowly. The LED's will flash indicating that the encoder is working. Once the gate reaches the closed position, the motor stops.
5. Release trigger 1, Display shows " **L** " indicating low speed and that the learn cycle has begun, the gate will automatically start opening slowly in search of the open limit switch. Upon reaching the open limit switch the gate stops and automatically starts to close slowly now in search of the close limit switch. During this operation travel distance is measured.
6. Once the gate reaches the closed limit switch and the Display shows " **I** " indicating that the motor current level is being measured, the gate will automatically start to open at normal speed and slow down in search of the open limit switch and then automatically close at normal speed, slow down in search of the close limit switch. During this operation travel distance and current is measured and stored into memory.
7. Once the gate is closed, the Display shows " **r-d-y** " followed by " **I-** ".
8. Move Dipswitch 2 OFF and the learn cycle is complete, the Display shows " **U** ". At this stage new data is stored into memory.
9. You are now ready to operate the gate normally.

If at any stage an error in the acquisition of the parameters is encountered during the slow speed learn cycle, the Display will indicate an " E ", the controller will automatically repeat the slow speed learn cycle to acquire the correct parameters.

5.2 TRIGGER FUNCTIONS

1. **Trigger 1 – Number 12 and 13** (pulse/non-latch action, negative on closing – normally open contact)
Trigger 1 is the master trigger enabling the user to stop, start and reverse the gate. Trigger 1 is used in condominiums as well as domestic applications. Trigger 1 is dedicated to override and reinstate auto-close override function. All accessories with voltage free contacts can be used example: radio receiver, key switch, intercom, wireless keypad, card reader etc. *See table 9*

2. **Trigger 2 – Number 11 and 13** (pulse/non-latch action, negative on closing – normally open contact)
Trigger 2 is a second trigger used in conjunction with Auto-close and is dedicated to only open the gate, once the gate starts to close a trigger 2 activation will stop and reverse the gate. Loop detectors used in condominiums and domestic applications employ the trigger 2 function. All accessories with voltage free contacts can be used example: radio receiver, key switch, intercom, wireless keypad, card reader etc. *See table 9*

3. **Pedestrian trigger – Number 10 and 13** (pulse/non-latch action, negative on closing – normally open contact)
Pedestrian trigger enables the user to activate pedestrian feature. When activated a time delay of 3 seconds has to expire before the gate starts to open, the gate will open for a distance between 1 to 1,5 meters, stay open for 5 seconds and close thereafter. Once the gate is in pedestrian mode, only pedestrian trigger and trigger 1 is effective. Pedestrian trigger is used in both condominiums as well as in domestic applications. All accessories with voltage free contacts can be used example: radio receiver, key switch, intercom, wireless keypad, card reader etc but refrain from using a loop detector. *See table 9*

! In case of an emergency stop, the cycle can be restarted by any trigger. This will force the gate to close first, reference at the close limit switch and automatically start a cycle.

Table 9: Trigger options

	Radio receiver	Loop detector	Wireless keypad	Intercom	Keyswitch	I.R. Beam	Card readers	G.S.M
Trigger 1	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Trigger 2	Yes	Yes + I.R.B	Yes	Yes	Yes	Yes	Yes	Yes
Pedestrian	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes

5.3 CHECKING GATE MOVEMENTS

It is advisable to carry out a number of monouevres in order to check that the gate travels properly.

1. Press the trigger to open the gate. Check that the gate opening occur regularly, without any variations in speed. The gate must only slow down and stop when it is between 500mm and 800mm from the open limit switch. The gate will then stop on the limit switch.
2. Press the trigger to close the gate. Check that the gate closing occur regularly, without any variations in speed. The gate must only slow down and stop when it is between 500mm and 800mm from the open limit switch. The gate will then stop on the limit switch.
3. During the manoeuvre check that the LED on the controller flashes 1 pulse per second whilst the gate is opening and 1 pulse per 2 seconds whilst the gate is closing.
4. Trigger to open and close the gate several times to make sure there are no points of excessive friction and that there are no defects in the installation.
5. Check that the fastening of the SPEEDO gear motor, the rack and the limit switch brackets are solid, stable and suitably resistant, even if the gate accelerates or decelerates sharply.
5. Check that the auxiliary 12V D.C. power is maintained throughout the checking stage.
6. Check that the manufacturer's parameters of any peripheral devices have been met and that they are operating to specifications eg. Infra Red Beams installed properly and if activated (*see Inside Back Cover* shown on the controller at the input status LED's as a red LED will be off) will prevent the gate from closing but once the I.R.Beam is clear the gate will close after a trigger. If I.R.Beam is activated whilst the gate is closing, the gate will stop and reverse to the open limit switch.

5.4 MANUAL ADJUSTMENT OF SLOW DOWN TRAVEL DISTANCE (DOCKING DISTANCE)

There is a need on certain installations to adjust the slow down travel distance, for example:
On certain heavy gates one might want to lengthen the slow down distance to accommodate the ease of movement and to compensate for the extra inertia, the following steps will assist in changing the existing slow down travel distance.

The slow down travel distance can be set for either the opening or the closing cycles, in order to do the following instructions, familiarize yourself with the program button (the shortest slow down travel distance - Option 0 and 1 is 350mm and Option 2 is 500mm).

1. Trigger the gate, whilst the gate is moving, establish where you would like the gate to start slowing down.
2. Once that point has been reached, Press and release the Program Button. This will mark and memorize the point where the gate will start to slow down before reaching the limit switch.

The open and close cycles are independent of each other, therefore this process must be carried out independently for opening and closing. You can select different ramp down distances for opening or closing.

6. SELECTING PRESET FUNCTIONS

All the features can be accessed via the Dipswitch on the controller. If the Dipswitch is OFF the function will not be activated, if it is ON the function will be activated. Some functions are only possible in specific conditions indicated in the brackets. *See table 10*

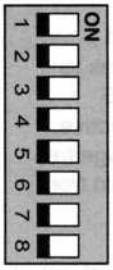
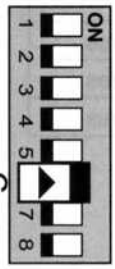


Table 10: Dipswitch selection

Dipswitch	Description
1	Select motor direction (ON - Gate closes to the right)
2	Set learn cycle
3	Set auto-close time
4	General purpose relay (courtesy light/electric lock/magnetic lock)
5	Select A.S.A.P
6	Select Auto-close function
7	Select Auto-close override
8	General purpose relay (magnetic lock-works with Dipswitch 4 on)

6.1 AUTO-CLOSE

This function is enabled by moving Dipswitch No.6 ON. The factory default time for auto-close is 5 seconds.



Always use Auto-close in conjunction with I.R. Beams

1. To initiate auto close the gate can be at any position.
2. Move Dipswitch 6 ON to activate Auto-close with a factory default setting of 5 seconds, to change the time see 6.2 AUTO-CLOSE TIME CHANGE
3. After 5 seconds has elapsed, the gate will start to auto-close at normal operating speed in search of the close limit switch.
4. If the gate is triggered to open and is triggered to stop halfway or reaches a fully open position, the Auto-close time countdown begins immediately, if the I.R.Beam is interrupted, the gate will not Auto-close but as soon as the I.R.Beam is clear the gate will Auto-close.

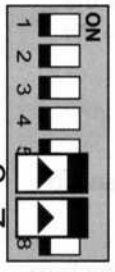
6.2 AUTO-CLOSE TIME CHANGE

The factory default time for Auto-close is 5 seconds, this can be varied by doing the following (the maximum auto-close time is 250 seconds):

1. The gate must be in a closed position.
2. Move Dipswitch 3 ON
3. Press and hold Program Button until the LEDs flash and " P-r-g-b " is displayed.
4. The display starts counting in seconds to assist in establishing the Auto-Close time.
5. Once you reached the desired Auto-Close time, press and hold program button until the LEDs flash and " r-d-y " is displayed followed by " I- " .
6. Move Dipswitch No.3 back to the OFF position, you have exited programming and your new Auto-Close time is set.
7. Move Dipswitch No.6 ON to enable the auto-close facility.

6.3 AUTO-CLOSE OVERRIDE

Should you wish to override auto-close facility from time to time, make use of Trigger 1 only and do the following:



1. The gate must be in a closed position.
2. Move dipswitch 7 ON.
3. Press and hold in trigger 1 for 7 seconds
4. Release trigger 1 and the gate will start to open fully
5. Auto-close has successfully been overridden, the gate will stay in open position and not close automatically
6. Using trigger 1 will simultaneously close the gate and deactivate auto-close override facility
7. Auto-close facility has now been reinstated, repeat from step 3 to redo auto-close overide facility

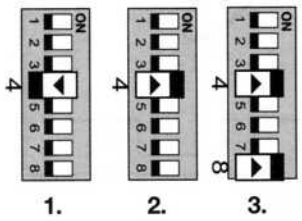
6.4 GENERAL PURPOSE RELAY (CONTACTS ARE VOLTAGE FREE)

A general purpose relay facilitates the control of courtesy light, electric strike lock or magnetic lock. An indicator LED situated close to the relay shows when the relay is activated.

Table 11: Choosing the general purpose relay facility

Type of facility	Dipswitch selection
Courtesy light	4 + 8 OFF
Electric strike lock	4 ON 8 OFF
Magnetic lock	4 + 8 ON

These facilities have factory default time settings and cannot be changed.

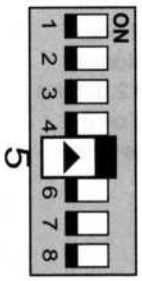


1. Courtesy light. Once dipswitch 4 is moved OFF and the controller is activated by either Trigger 1 or Trigger 2, the relay will activate the courtesy light for a time period of 4 minutes. If either Trigger 1 or Trigger 2 is activated before the 4 minutes has expired, the time will be reset and start a new 4 minute count. If pedestrian mode is activated, the relay will activate the courtesy light for a time period of 1 minute.
2. Electric strike lock. Move dipswitch 4 ON. If in a closed position the gate is triggered, the relay will activate the electric lock for 1 second before the gate opens.
3. Magnetic lock. Move dipswitch 4 and 8 ON. If in a closed position the gate is triggered, the relay will activate the magnetic lock and remain switched on during the cycle and only switch off once the gate is in a fully closed position.

The relay contacts are voltage free and are rated at:
10 A / 220 V AC, or 10 A / 28 V DC.

6.5 A.S.A.P MODE

To use this function you require an I.R.Beam.



The A.S.A.P. mode is enabled by moving Dipswitch 5 ON. If the gate is opening and the I.R.Beam is interrupted, the gate will carry on opening. Once the I.R.Beam is clear and the gate is busy opening, the gate will stop and immediately start to close. If the I.R.Beam is uninterrupted during the open cycle, the gate will stop on the open limit switch and only start to close after the Auto-close time has elapsed.

7. PROGRAMMING THE NICE RADIO TRANSMITTER/RECEIVER PAIR

7.1 DESCRIPTION OF THE PRODUCT

Up to a maximum of 256 transmitters can be memorized in the receiver. No one transmitter can be cancelled; all the codes must be deleted. During the transmitter code memorization phase, one of these options may be chosen.

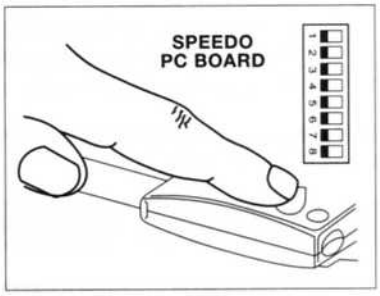


Figure 22

Mode 1:
Each transmitter button activates the corresponding output in the receiver, that is, button 1 activates output 1, button 2 activates output 2, and so on. In this case there is a single memorization phase for each transmitter, during this phase it doesn't matter which button is pressed and just one memory sector is occupied.

Mode 2:
Each transmitter button can be associated with a particular output in the receiver, that is, button 1 activates output 2, button 2 activates output 1, and so on. In this case, the transmitter must be memorized, pressing the required button, for each output to activate. Naturally, each button can activate just one output while the same output can be activated by more than one button. One memory section is occupied for each button.

7.2 MEMORISING A REMOTE CONTROL

When the memorisation phase is activated, any transmitter correctly recognised within the reception range of the radio is memorised.

The procedures for memorizing the remote controls must be performed within a certain time limit. Please read and understand the whole procedure before starting. In order to carry out the following procedure, it is necessary to use the button located on the box of the radio receiver (*reference A, see figure 23*), and the corresponding LED (*reference B, see figure 23*) to the left of the button.

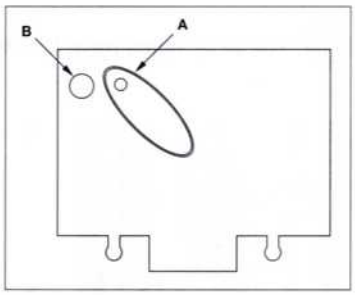


Figure 23

Mode 1 memorizing

1. Press and hold down the receiver button for at least 3 seconds
2. Release the button when the Led lights up
3. Within 10 seconds press the first button on the transmitter to be memorized, holding it down for at least 2 seconds.

N.B.: If the procedure was memorized correctly, the Led on the receiver will flash 3 times. If there are other transmitters to memorize, repeat step 3 within another 10 seconds. The memorization phase finishes if no new codes are received for 10 seconds.

Mode 2 memorizing

1. Press and release the receiver button as many times as the number of the desired output (twice for output no.2).
2. Make sure the Led flashes as many times as the number of the desired output (2 flashes for output no.2).
3. Within 10 seconds press the desired button on the transmitter to be memorized, holding it down for at least 2 seconds.

N.B.: If the procedure was memorized correctly, the Led on the receiver will flash 3 times.If there are other transmitters to memorize, repeat step 3 within another 10 seconds. The memorization phase finishes if no new codes are received for 10 seconds.

7.3 REMOTE MEMORISING

It is possible to enter a new transmitter in the receiver memory without access to the receiver. A previously memorized and operational remote control must be available. The new transmitter will learn the characteristics of the previously memorized one. Therefore, if the first transmitter is memorized in mode 1, the new one will also be memorized in mode 1 and any of the buttons of the transmitter can be pressed. If the first transmitter is memorized in mode 2 the new one will also be memorized in mode 2 but the button activating the required output must be pressed on the first transmitter as must the button required to be memorized on the second. Now position the two remote controls within the operating range of the radio controls and carry out the instructions below:

1. Press the button on the NEW transmitter for at least 5 seconds and then release.
2. Press the button on the OLD transmitter 3 times slowly (1 second intervals).
3. Press the button on the NEW transmitter slowly and then release.

N.B.: If there are other transmitters to memorize, repeat the above steps for each transmitter.

Figure 24

7.4 DELETING ALL TRANSMITTERS

All the memorized codes can be deleted as follows:

1. Press the receiver button and hold it down.
2. Wait for the Led to light up, then wait for it to switch off and then wait for it to flash 3 times.
3. Release the button exactly during the third flash

N.B.: If the procedure was performed correctly, the Led will flash 5 times after a few moments confirming that all codes have been deleted.

8. TESTING

1. In order to ensure the maximum safety levels, this is the most important stage in the automation system installation procedure. Testing can be adopted as a method of checking that all devices in the system are functioning correctly.

! Testing of the entire system must be performed by qualified and experienced personnel who must establish which tests to conduct on the basis of the risks involved, and verify the compliance of the system with applicable regulations, legislation and standards.

2. Each component of the system e.g. infra red beams, emergency stop, etc. requires a specific testing phase. We therefore recommend observing the procedures shown in the relevant instruction manuals from the manufactures. On completion of the installation, it is advisable to carry out a number of manoeuvres in order to check that the gate travels properly.
3. Press the trigger to open and close the gate. Check that the gate opening and closing occurs regularly, without any variations in speed. The gate must only slow down and stop when it is between 500mm and 800mm from both the mechanical stops.
4. Open and close the gate several times to make sure that there are no points of excessive friction and no defects in assembly or adjustments.
5. Check that the fastening of the Hansa SPEEDO Gate Operator, the rack and the limit switch cams are solid, stable and suitably resistant, even if the gate accelerates or decelerates sharply.
6. Ensure that the instructions outlined in this manual have been observed in full.
7. Using the control or stop devices (key-operated selector switch, control buttons or radio transmitter) test the opening, closing and stopping of the gate. Make sure that the gate moves in the intended direction.
8. Check the proper operation of all the safety devices one by one (e.g. infra red beams, emergency stop, obstacle sensing, etc). Check that the gate performs correctly particularly each time a device is activated.

9. ADDITIONAL INFORMATION

9.1 FACTORY DEFAULT VALUES

Table 12: Normal cycle parameters

Normal cycle parameters	Values
Auto-close time	5 Seconds
Maximum current allowed	10 Amps
Courtesy light duration	4 minutes
Slow down distance option "0"	500mm - 600mm
Slow down distance option "2"	650mm - 750mm

Table 13: Pedestrian cycle parameters

Normal cycle parameters	Values
Time delay before opening	3 Seconds
Opening distance	1 to 1,5 meters
Auto-close time for pedestrian cycle	5 seconds
Courtesy light time	60 seconds

9.2 FACTORY DEFAULT INPUT OPTIONS

This controller uses a negative (0 volts) trigger for activation. All limit switches as well as the triggers employ normally open contacts except for I.R.Beam that uses a normally closed contact. *See table 14*

Table 14: Input options

Inputs	Activation	Action
Open limit switch	Negative on closing	Normally open contact
Close limit switch	Negative on closing	Normally open contact
I.R.Beam	Negative on closing	Normally closed contact
Trigger 1	Negative on closing	Normally open contact
Trigger 2	Negative on closing	Normally open contact
Pedestrian trigger	Negative on closing	Normally open contact

9.3 BUZZER OPERATIONS

The controller has the facility to warn the user prior to an opening or closing cycle by means of a buzzer mounted on board. The buzzer also indicates different error conditions with various beep sequences. *See table 15*

Table 15: Buzzer status indication

Number of beeps	Fault conditions
1 beep at 1 second intervals	Battery level low during gate travel
1 short beep and a long beep	Battery level low gate closed
3 beeps	Current overload
4 beeps	Encoder slip or fault
6 beeps	Limit switch overrun / Any combination of the above

9.4 EXTERNAL LED / CONTROLLER LED

The controller has the facility to warn the user prior to an opening or closing cycle by means of an on LED mounted on the controller as well as a external LED. This LED also indicates different error conditions with various flash sequences. *See table 16*

Table 16: External LED status indication

Gate status	LED indication	Signification
Open	Steady on	Gate open
Gate in motion	One flash per second	Gate opening
Gate in motion	One flash per 2 seconds	Gate closing
Closed	Five flashes per second	I.R.Beam interrupted
Closed	Slight flickering	Battery level low
Closed	Permanently off	All normal

9.5 TROUBLE SHOOTING

- **If the gate does not operate at all.**
  1. Check 30 Amp power fuse and 25 Amp motor fuse.
  2. Check utility LED's. If No. 2 red LED is on - check battery voltage. When battery levels are low, the controller shuts down and turns the battery low LED No. 2 on.
- **Gate closes slowly.**
  On power up reset or manual release of gate, gate will move at half speed in search of the closed limit switch.
- **Gate operates but stops suddenly.**
  1. Check limit switches for bad connections, water damage or corrosion.
  2. Check utility LED's. If No. 8 green LED is on – faulty encoder or connections.
- **Gate operates but in closing stops and reverses and in opening stops only.**
  1. Check utility LED's. If No. 7 green LED is on - the current has reached the overload limit, check gate condition.
  2. Check utility LED's. If No. 7 green LED is off - check I.R.Beam connection
- **Gate opens but does not close although it is triggered and buzzer beeps.**
  1. Check I.R.Beam (connected as normally closed and negative trigger), alignment (sunlight interference especially at dusk and dawn).
  2. Check limit switches (connected as normally open)
- **Gate is triggered, buzzer beeps and the gate does not open or close.**
  Check the 25 Amp motor fuse.
- **Whilst doing the initial motor setup (programming gate parameters by using a learn cycle), gate starts to move at high speed.**
  Controller or encoder is faulty.
- **Gate starts to close after inserting 30Amp power fuse.**
  Provided that the "learn cycle" has been carried out, a " U " will show on the Display whenever power is applied, if the gate is open, the gate will automatically close at half speed in search of the closed limit switch.
- **Gate opens fully at normal speed and buzzer starts to beep, when the gate closes, motor runs at half speed with buzzer beeping.**
  Check utility LED's. If No. 2 red LED is on - Battery's power is low, charge batteries.
- **Gate overruns the limit switch.**
  Check utility LED's. If No. 5 or No. 6 yellow LED is on - gate has overrun either the open or the closed limit switch respectively.
  1. Also check utility LED's. If No. 8 green LED is also on - The gate has travelled and has not read pulses from the encoder 500mm before reaching either limit switches. Check encoders and encoder cable.
  2. Reprogram the controller by using a learn cycle.
- **Gate moves a very short distance when triggered from a fully closed position and comes to a sudden stop.**
  Adjust current overload setting by moving jumper to the next higher number, *see Table 19* (Current overload setting).
- **Gate runs eratically and stops at different positions on the limit switches**
  Check encoder

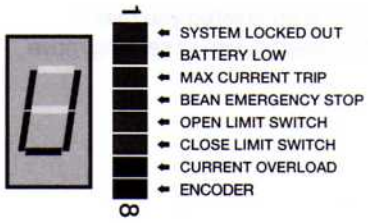
9.5.1 DISPLAY MODES

The Display mode can only be accessed whilst the gate is in the closed position, it is possible to select different types of data from the 7 Segment Display with the LED array. Stepping through by pressing and releasing the Program Button will take you though the display cycle.

Table 17: Display indication

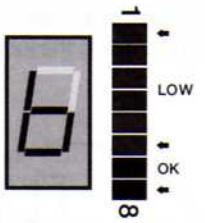
No. of Activations	Display	Indication
0	U	Fault condition
1	b	Battery level
2	0	Dipswitch status
3	ı	Trigger input status
4	blank	Direction (c = close / 0 = open)
5	-	No display
6	I	Current
7	S	SPEEDO speed
8	U	It swings back to fault condition

9.5.1.1 FAULT CONDITION



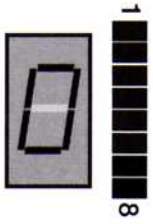
This status is explained further. *See table 18*

9.5.1.2 BATTERY LEVEL



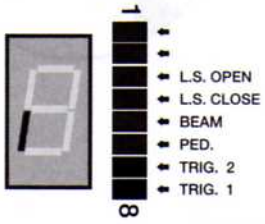
The condition of the batteries can be checked using the display with the LED array. If the Red and yellow LED's are lit, this indicates that the battery level is low. All led's illuminated indicate that the batteries are in a good state.

9.5.1.3 DIPSWITCH STATUS



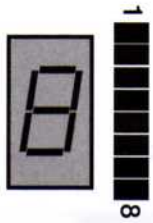
This indicates the dipswitch condition being read by the CPU. If an LED is lit, this indicates that the corresponding dipswitch number to be on as well, eg. Dipswitch 1 ON = LED number 1 ON

9.5.1.4 TRIGGER INPUT STATUS



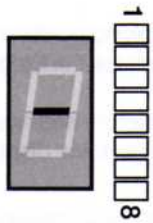
This indicates the trigger inputs being read by the CPU. If an LED is lit, this indicates that the corresponding input trigger is active, eg. Trigger 1 active = LED number 8 ON. Beam is always active until interrupted.

9.5.1.5 DIRECTION STATUS (C = CLOSE / O = OPEN)



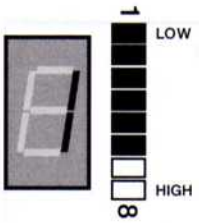
A "c" on the Display indicates that the gate is in a closed position or that the gate is travelling in a close direction. A "O" on the Display indicates that the gate is in an open position or that the gate is travelling in an open direction.

9.5.1.6 NO DISPLAY



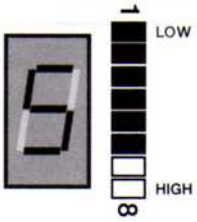
This status will remain with no display until a fault condition happens and then the display will revert to a "U".

9.5.1.7 CURRENT



This status will indicate the motor current being drawn from the power source, low indicates less current. A heavy gate or flat batteries will always draw high current.

9.5.1.8 SPEEDO SPEED



This status will indicate the speed at which the speedo is running. Normal speed is displayed by the red and yellow LED's being lit. Slow speed is displayed by the red LED's only.

9.5.2 LED'S UTILITY EXPLANATIONS (8 LED ARRAY)

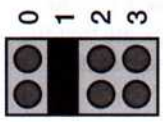
Whenever a "U" appears on the display, check the LED's in establishing the type of fault condition. *see table 18*

Table 18: LED's status indication

LED COLOUR	LED NO.	PROBLEM	REASON
Red	**1**	System locked out	Not implemented
Red	**2**	Battery low	The system is disabled because the battery cannot operate the gate
Red	**3**	Max current trip	The gate has stopped because the absolute maximum current was reached
Red	**4**	I.R.Beam activation	The gate stopped and reversed because of an I.R.Beam interruption
Yellow	**5**	Open limit switch	The gate has gone past the open limit switch
Yellow	**6**	Close limit switch	The gate has gone past the close limit switch
Green	**7**	Current overload	The gate has stopped and reversed because of a current overload or obstruction sensing in normal speed
Green	**8**	Encoder fault	The gate is operating at low speed because the encoder is faulty or obstruction sensing in low speed

9.5.3 CURRENT OVERLOAD SETTING

The learn cycle should always be done with current overload setting in position 1. After the learn cycle is completed you may increase the power required to stop the gate by moving the jumper to position 2 or 3. To disable the current overload sensing move jumper to position 0. *see Figure 25.*



Current overload setting learn cycle

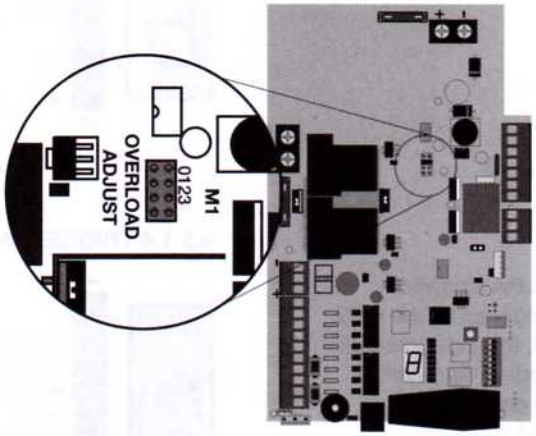


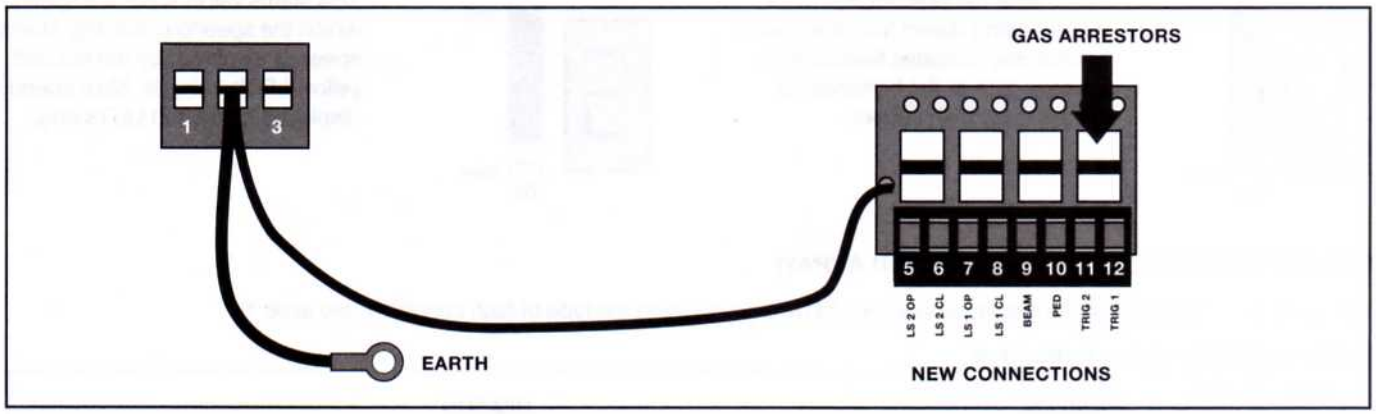
Figure 25

9.5.4 DEFAULTING THE CONTROLLER

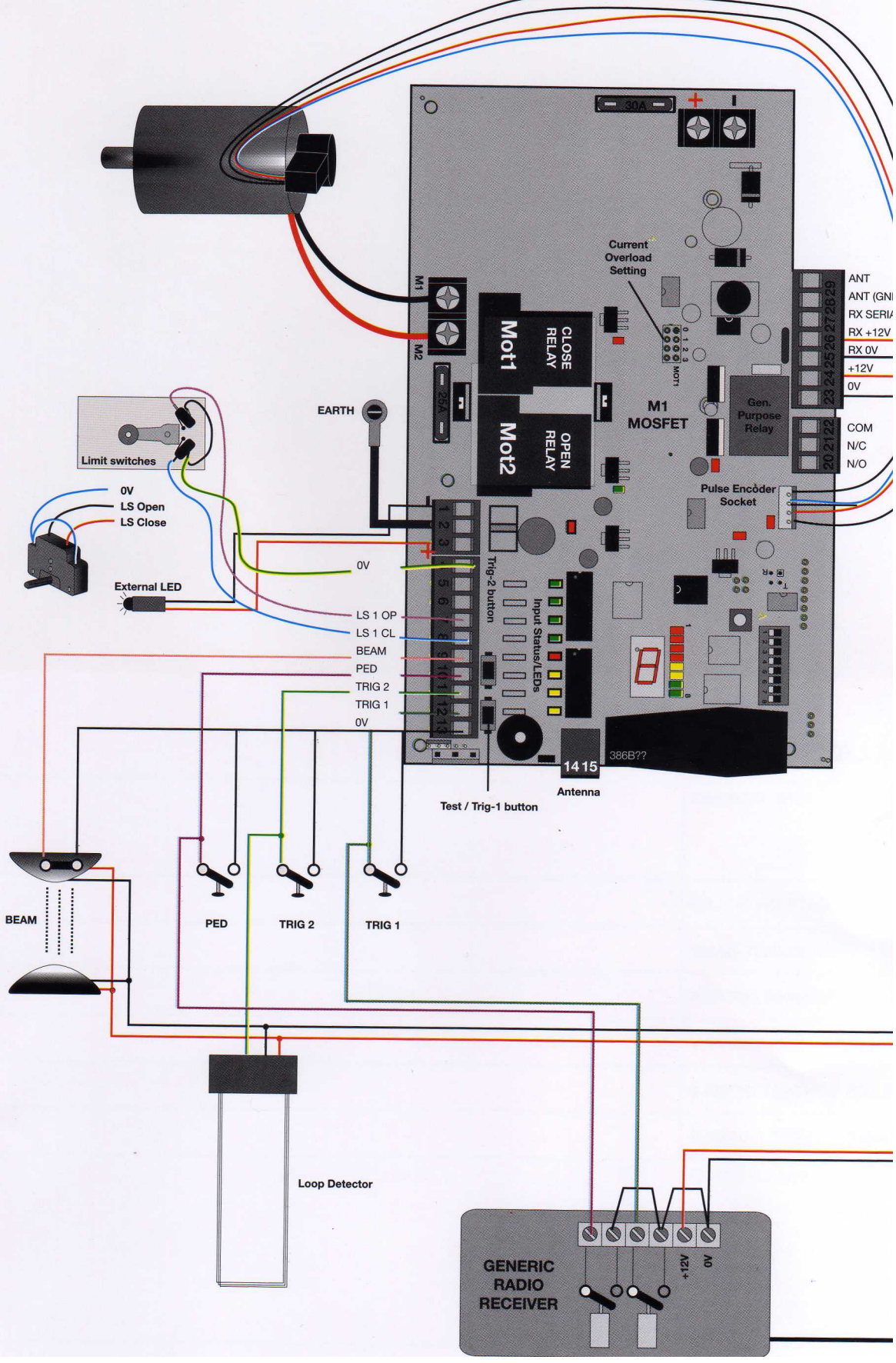
1. Ensure that the power to the controller is off by removing the 30 Amp power fuse.
2. Move all Dipswitches off.
3. Press and hold Program Button whilst applying power by inserting the 30 Amp power fuse.
4. Allow the LED's to flash at least 4 times,release the Program Button.
5. Remove the 30 Amp power fuse.
6. You have now defaulted the controller to factory settings.
7. Insert the 30 Amp power fuse again and check the display flashing a " 0 ", if not repeat from point number 1 above.

10. ACCESSORIES

10.1 Lightning protection board (optional) - pluggable



10.2 SMXI radio receiver
10.3 PLANOTIME radio controlled timer management unit
10.4 Radio receiver interface unit for SMXI with channel 1 and 2 as a Latch/non-latch operation and channel 3 and 4 as a non-latching operation only.
10.5 MOTXR 2 channel wireless keypad
10.6 MOSE key switch
10.7 SOLEMYO solar panels
10.8 LUCY24 / LUCYB - flashing light
10.9 FK / MOF - Infra red beams
10.10 PLA10 (VERTICAL) / PLA11 (HORIZONTAL) Electric lock
10.11 Edge trim detector
10.12 Magnetic lock
10.13 Loop detector
10.14 Card reader
10.15 Intercom


30A
M1
M2
25A
Mot1
CLOSE RELAY
Mot2
OPEN RELAY
Current Overload Setting
M1 MOSFET
Gen. Purpose Relay
Pulse Encoder Socket
ANT
ANT (GN
RX SERI
RX +12V
RX 0V
+12V
0V
COM
N/C
N/O
EARTH
Limit switches
0V
LS Open
LS Close
External LED
0V
LS 1 OP
LS 1 CL
BEAM
PED
TRIG 2
TRIG 1
0V
Trig-2 button
Input Status/LEDs
1415
386B??
Antenna
Test / Trig-1 button
BEAM
PED
TRIG 2
TRIG 1
Loop Detector
GENERIC RADIO RECEIVER
+12V
0V