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Contents in SLY500-120 packs

- (1) Drive motor (1x)
- (2) Capacitor (pre-installed) (1x)
- (3) Limit switch A or (1) (1x)
- (4) Limit switch B or (2) (1x)
- (5) Base plate for drive motor (1x)
- (6) Accessories bag

Additionally for models: SLY500E-120

(7) Control unit with housing (pre-installed as standard

for right-hand installation) (1x)

Additionally for models: SLY500K-120

- (8) Flashing lamp (1x)
- (9) Light barrier (pair)
- (10) Radio receiver (pre-installed) (1x)
- (11) Handset 433MHz (2x)
- (12) Key-operated aerial (1x)
- (13) External Antenna (1x)

READ THESE IMPORTANT SAFETY INSTRUCTIONS BEFORE STARTING WORK



This symbol means 'Caution!'; it is a sign that compliance with the given instruction is required as non-compliance can lead to persons being injured and property damaged. Please read such warnings carefully.

This gate drive has been designed in such a way and tested to ensure that it offers adequate safety providing its installation and use exactly comply with the following safety instructions.



Non-compliance with the following safety instructions can lead to persons being seriously injured or property badly damaged.



Take great care when working with tools and hardware. Never wear rings, watches or loose clothing when you are performing installation or repair work on the gate.



It is important to keep the gate in good working order. Gates that do not open and close smoothly and fully should be repaired without delay. Do not try to repair the gate yourself. Have it done by a person qualified.



Electric cables should be laid in accordance with local building and installation regulations and may only be connected to a properly earthed mains supply by a qualified electrician.



Keep any extra items of equipment and accessories out of the reach of children. Do not allow children to operate the push-buttons or remote control. Serious injuries can be caused by a gate that is closing.



When installing the drive, sufficient clearance must be left between the item driven and the surrounding parts of the given building (e.g. a wall) due to the opening movement of the item driven.



Automatically controlled equipment must be disconnected from the mains when maintenance work e.g. cleaning is being performed.

In the case of a permanently laid installation, an isolating device must be fitted to ensure that all the connections can be isolated via a switch (min. 3mm contact opening clearance) or a separate fuse.



Please remove all locks fitted to the gate in order to avoid damaging the gate.



Once installation has been completed, you must check that the mechanism is correctly adjusted and that the drive, safety system and emergency release all function as they should.



Make sure that the persons installing, servicing or using the drive observe these instructions. Keep the instructions in a safe yet readily accessible place.



If the gate system is fitted with a slip-gate, the drive may not be started or move further until the slip-gate has been closed properly.



Once the drive has been installed, the gate must be tested to ensure that there is no risk of persons trapping or cutting themselves.



CAUTION! Only use the drive if you have a clear view of the gate, if there are no obstacles in the gate's path and the drive is correctly adjusted. Children should not be playing near the gate when the drive is to be used.



Disconnect the gate drive from the power supply before any repairs are made.

The sliding gate drive can be activated via push-buttons, key-operated switches, keyless switches (radio) or remote control; once the drive has been disengaged with the appropriate key, the gate can be opened by hand. The sequence of functions initiated by a command issued via a remote control, push-button, etc. depends on how the control's electronic system has been set.



BEFORE YOU BEGIN

There are many factors that are key to the choice of the right sliding gate drive. Assuming the gate is in good working order, the most difficult aspect is getting the gate to move. Once the gate is in motion, force requirements are in the main significantly reduced.

• Gate size: Gate size is a very important factor. A light yet long gate (long = + 5m) needs a far greater force to set it in motion than a short, heavy gate does.

WIND CAN BRAKE A GATE'S MOVEMENT OR MAKE IT HARD TO MOVE, THUS INCREASING FORCE REQUIREMENTS SIGNIFICANTLY.

- Gate weight: Gate weight is only an approximate indicator the actual relevance of which can vary greatly. Example: A light gate that slides poorly is likely to need a stronger drive than a heavy, smooth-sliding gate.
- Temperature: Low outdoor temperatures make it difficult or, in some cases, impossible to get the gate moving due, for instance, to changes in the ground conditions. In such cases, a stronger drive again might be necessary. High outdoor temperatures can cause the thermal protection mechanism to be activated sooner.
- Operating frequency / Duty cycle: Sliding gate drives have a
 maximum duty cycle of approx. 30% (e.g. 30% per hour). CAUTION:
 The drives were not designed to be run for the maximum duty cycle
 on a regular basis (permanent operation). If the drive gets too hot, it
 switches itself off until it has cooled down to activation temperature.
 The outdoor temperature and the gate itself are key factors
 determining the drive's actual duty cycle
- Safety: A sliding gate drive has to be fitted with a flashing lamp, contact strips and, if necessary, with additional light barriers as safety features. Please ensure that you comply with the standards and regulations relevant to your particular case.
- Control unit: The control unit was developed specifically with safety aspects in mind. It is already located under the drive hood and wired up for right-hand installation as standard (motor to the right of the gate). See figs. 2 3.

CHECK LIST - PRE-INSTALLATION WORK $oldsymbol{\mathsf{A}}$ - $oldsymbol{\mathsf{C}}$

Prior to actual installation, please check that you have been provided with all the parts indicated within the scope of supply.

Make sure your gate system is in good working order.

The gate must run smoothly, not jerkily and not make contact with the ground at any point. Bear in mind that the ground can be several centimetres higher in winter. The gate needs to be stable with as little play as possible to prevent any lateral movement from occurring. The easier the gate moves, the more sensitive the force setting needs to be.

Make a note of the materials you still need and make sure you obtain them prior to installation - adhesive anchors (strong plugs), screws, stops, cable, distributor boxes, tools, etc.

OVERVIEW OF INSTALLATION

A general overview of installation can be found on the front sheet of these instructions. The drive has to be installed behind the wall to ensure that no part of it projects out into the gate opening. The motor has to be mounted on the flush fitted base plate. The rack bar shown has to be fitted to the gate with the fixing material supplied.

Decide which is the best height for fixing the rack bar to the gate and use this to determine the installation dimensions for the motor unit and base plate. Should the gate be unsuitable for fitting the rack bar to it, a fixing profile (angle bracket, shaped tubing, etc.) needs to be mounted first.

INSTALLATION OF DRIVE BASE PLATE 5 - 6 A

The base plate for the drive can either be concreted in or, if appropriate, welded into position. The place where the base plate is usually located is shown on the installation overview. The concrete plinth needs to be of an appropriate size (approx. 50cm x 50cm x 50cm).

Please note: If it is impossible to precisely determine the height of the plinth and the distance from the gate prior to installation, it is advisable to mount the rack bars first and then concrete in the base plate. Spacers are fitted to move the rack bars approx. 40mm towards the inside.

The distance from the bottom edge of the rack bar to the base plate is approx. 8 - 9cm. The base plate permits final height and depth adjustments of several centimetres to be made, but you are advised to work as precisely as possible from the outset.

MOUNTING MOTOR AND GEAR UNIT

The drive should be fitted on to the threaded bolts in the base plate. The height should be set such that there is a gap of approx. 1 - 2mm between the cog wheel and the rack bar. The weight of the gate should not be borne by the cog wheel! Position the drive via the adjustment holes such that its location vis-à-vis the rack bar complies with the installation dimensions.

MOUNTING RACK BAR 4

The easiest way to fit the rack bar is to first place it on the motor's drive cog, disengage the motor and, by pushing the gate further with the rack bar, screwing the bar bit by bit firmly in position. In this way, you ensure that the rail bar engages with the cog wheel in an optimum manner. While doing this, do not forget to mark each fixing point.

DRIVE RELEASE MECHANISM (MANUAL OPERATION) 7

The drive is equipped with a lockable release mechanism to enable the gate to be operated manually in a power cut. The release mechanism is shown in fig. 7 with the clutch disengaging the link between the cog wheel and the gear.

To release the drive: Position the socket spanner appropriately and turn it 180 degrees. Then turn the release lever 180 degrees too.

FITTING LIMIT SWITCHES (TO GATE) 8

The limit switches are assembled as shown in fig. 8.

One limit switch magnet is designated A (1) and the other B (2).

Fit the limit switches on to the rack bar in those places where the final travel positions are roughly expected to be. The magnet should point towards the motor. The switch (contact) is located in the middle of the motor. Screw the retaining clip only provisionally in place or slot it lightly on to the rack bar.

Limit switch A (1) for gate closed; limit switch B (2) for gate open

TESTING LIMIT SWITCH FUNCTIONALITY (LIFTMASTER CONTROL)

Disengage the gate and operate it only using your hands. Push the gate into the respective final travel positions. The control unit should already have been connected up.

On the control unit there are two red LEDs (LED 5 & LED 6) that go out when the magnet on the gate trips the given switch. One LED is for limit switch OPEN (LED 5) and the other for CLOSED (LED 6). When you open the gate manually, the correct LED should go out. If the wrong LED goes out, you need to swap limit switches A (1) and B (2) around. Alternatively, the limit switch cables connected to the control unit (17 + 19) can be swapped around. The distance between the limit switch magnet and the switch on the drive should be as small as possible. Under no circumstances should it be more than 25mm.

Important: If the limit switches have been swapped around, the gate will open and not close after the set pause when in programme selection (automatic) mode!

Caution: A sliding gate must run in a guide rail and should not be able to leave the rail. This means end stops need to be fitted for both directions!



INFRARED SENSOR 9 - 9 B

The infrared sensor is a safety-enhancing facility and must be used. Its installation location depends on the design of the given sliding gate. Generally speaking, the light barrier is fitted at knee height approx. 35cm above ground level. Infrared sensors comprise a transmitter element and a receiver element which have to be located opposite one another. A screwdriver can be used to open the light barrier housing (plastic). The infrared sensor is fitted to the wall with small screws and wall plugs. Usage of a single infrared sensor is a minimum requirement; we recommend using two infrared sensors (and other safety features if necessary).

Should a further infrared sensor be active for the OPEN direction of travel, it has to be connected to contact 11 + 12 (stop). This is necessary if the area behind the gate has to be secured. If contact strips (accessories) are to be employed as additional safety features, they also have to be connected to the stop contact.

The transmitter element needs a 2-pole cable, the receiver element a 4-pole one.

Cable cross-sectional area: 0.5mm² or more.

Voltage: 12/24 volt AC/DC.

Electrical connections: See control unit instructions.

FLASHING LAMP 10 - 10 A

Usage of a flashing lamp is mandatory. It serves a safety-related purpose in that it warns persons in the vicinity of the gate that the given gate is moving.

The flashing lamp is fixed in position using screws and wall plugs. The earthed cable has to be run up to connect with the lamp.

Normally speaking, it is installed at the highest possible point (on a pillar).

Cable cross-sectional area: 0.75mm2, 3-pole

Voltage: 120 volt AC.

Electrical connections: See control unit instructions.

KEY SWITCH 11 - 11 A

The key switch can be used to activate the drive as well as open and close the gate. Cable cross-sectional area: 0.5mm² or more.

Electrical connections: See control unit instructions.

INSTALLATION OF AN EXTERNAL ANTENNA

An external antenna is not a mandatory requirement. A short antenna is located on the control unit's radio adapter. Should the range of the remote control need to be extended, fit an external antenna compatible with 433MHz (the ANT4X-1LM model incl. 750 ohm coaxial cable). It has to be connected up via the radio adapter on the control unit (see control unit instructions). The best location for an antenna is high up and as far away from electrical equipment as possible. The short cable antenna that is supplied as standard and pre-connected may then no longer be used.

Electrical connections: See control unit instructions.

INITIAL OPERATION

Check gate functionality manually when the drive has been disengaged. Electrical operation is only possible with the control unit that is supplied as standard.

Electrical connections: See control unit instructions.

Always ensure that the mechanical and electrical safety requirements relevant to the given system are complied with.

MAINTENANCE WORK 12

The drive mechanics are maintenance-free. Check at regular intervals (monthly) that the gate hardware and the drive are all firmly in place. Disengage the drive and check gate functionality. Only an easy-running gate will work well with a drive. A drive is no substitute for a poorly functioning gate.

A sliding gate can also be secured by implementing on-site measures (fence, wall, etc.). See fig. 12.

TECHNICAL DATA

Voltage IN 120Volt Frequency 60Hz Power 360W Current rated 1.5A Torque 10Nm Capacitor 10 Therminal Overload

Protection 140 Motor Speed 1400 Travel Speed 12 **Duty Cycle** 30

Working Temperatur

-20°C - 55°C Range Protection Class Degree of Protection Weight 9 approx. Gate Length Max. Gate weight at max. length (incl.

IP44

SLY500

8m

500kg 20% reserve)

TECHNICAL DATA - CONTROL UNIT

Voltage: 120V~ ±10% 60Hz

Max. consumption: 10\//

120V~ 60Hz 700VA max Max. drive supply:

Infrared Sensor supply: 24V~ 0.5A max Working temperature: -25°C - 55°C

Operating modes:

Automatic / Semi-automatic / Step-by-step / Dead man

Max. running time: 120 sec Pause period: 8 - 200sec

109x145mm (without box) Dimensions:

ELECTRICAL INSTALLATION

The CB2-120 control unit is designed to be installed in a special box under the hood of the sliding gate drive and, as such, can be ordered as an accessory if not already available. The control unit can also be accommodated externally (on the wall) in a watertight box (accessory).

The control unit should be the last item to be connected up, i.e. mounting the drive, laying the necessary cable and fitting light barriers (contact strips). If installation is to be performed in a permanent location, a means of disconnecting the equipment from the mains supply with a contact clearance of at least 3 mm is needed (master switch). Humidity and water will destroy the control unit. Always make sure that water, humidity and condensation cannot enter the control unit. It is vitally important that all openings and cable glands are sealed so that they are watertight.

INSTALLATION OF CONTROL BOX

The motor control unit is a microprocessor-controlled electronic appliance featuring state-of-the-art technology. It is equipped with all the connecting options and functions needed to guarantee safe operation. The control box incorporating the motor control unit should be installed with the cable intakes pointing downwards. It should not be continuously exposed to direct sunlight. The electronic equipment enables the pull and push forces to be set with great accuracy. If installed and set correctly, the gate can be stopped manually.

When in motion, the gate can be stopped at any time by operating the remote control, the push-button or the key-operated switch.

The gate must be fitted with a robust end stop for the OPEN and CLOSED positions.

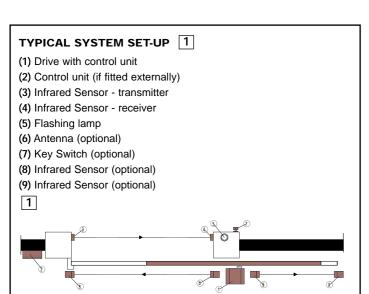
Generally speaking, the following minimum cable crosssectional areas must be adhered to:

- 100-230Volt 1,5mm2 or more
- 0-24Volt 0,5mm² or more

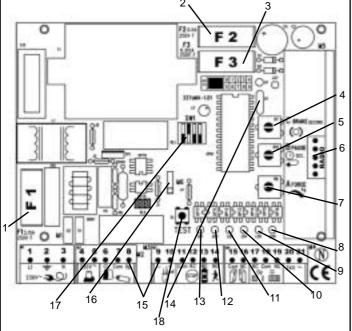
Tips: Bell wire is often problematic in practical use because it loses too much voltage if long lengths of wire are used.

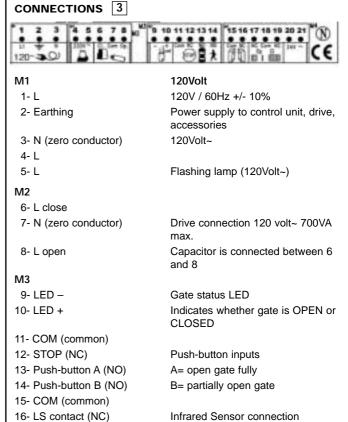
Segregate the cables in cable trunking, i.e. motor cable and light barrier cable, especially in the case of key-operated switches and ON switches (from the house wiring system) to prevent interference where long lengths of cable are used.





INSTALLATION 2 (1) F1 Main fuse (230Volt) (2) F2 Secondary fuse 24Volt ~ (3) F3 Central fuse (logic circuitry) (4) C (5) B Pause (gate waits in open position) Socket plinth for radio (model 801719) (6) M5 Opening and closing force (7) A Limit switch monitor (8) LED 5 (9) LED 6 Limit switch monitor (10) LED 4 Infrared Sensor (monitor) (11) LED 3 B push-button input (12) LED 2 A push-button input (13) LED 1 STOP (emergency stop) (14) LED 7 Diagnosis (general) (15) M1 - M4 Connection terminals (16) M6 Connection accessories (not needed) (17) SW1 Programme switch (DIP switch) (18) TEST Test push-button (opens fully)





Limit switch connection

24 volt~ +/-5% 500mA

Pre-fitted for right-hand installation

Power supply to accessories

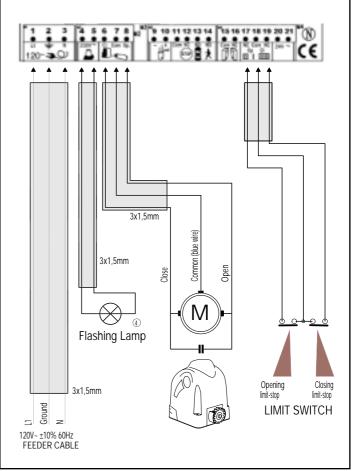
17- OPEN (NC)

18- COM (common)

19- CLOSE (NC)

20- L

21- L





OPERATION

LED MONITORS

The system has six LED monitors which can be used for error analysis or function control purposes.

LED 1	Yellow	ON = emergency stop vacant or wire jumper available.
LED 2	Green	ON = signal from switch or radio is present (open gate fully).
LED 3	Green	ON = signal from switch or radio is present (open gate partially).
LED 4	Red	ON = Infrared Senor(s) vacant or wire jumper available.
LED 5	Red	ON = OPEN limit switch activated
LED 6	Red	ON = CLOSE limit switch activated
LED 7	Red	
	Flashes slowly =	OK
	Flashes quickly =	connection error and/or short circuit in 120 volt area.
		Both limit switches have been ACTIVATED simultaneously!
9 – 10		It is possible to connect a gate status LED that indicates the given state of the gate.
	OFF	= gate closed
	Flashes slowly	= gate opening
	ON Flashes quickly	= gate open = gate closing

FUSES

F1	3,15A, 250V	Main fuse
		Protects the control unit/transformer/flashing lamp/motor in case of a short circuit
F2	0,5A, 250V	24AC supply
		Reacts in case of short circuit or overload on terminals 20 – 21
F3	0,315A, 250V	Fuse for logic circuitry
		Push-button, emergency stop, light barrier, receiver

Never use stronger fuses than those prescribed!

INITIAL OPERATION

DEFAULT SETTINGS

- (1) Connect drive in accordance with the attached connection instructions
- (2) Put gate in semi-open position and engage motor
- (3) Adjust motor control unit to following default settings:
 - A Set force adjustment to 30%.
 - B Deactivate automatic close mode (DIP switch 1 to OFF and 2 to ON).
 - C Set running time to 30%.
- (4) Switch on 120V power supply
- (5) Start motor control unit by pressing test push-button; the gate should now open. If the gate closes, the connection leads to the motor + limit switches (4 + 6) need to be swapped around.
 - Make sure you switch off mains supply prior to swapping leads around!
- (6) Repeat steps 2 and 5 until desired functionality has been established
- (7) Adjust potentiometer C (brake) to set braking force for gate. Small or light gates need no active brake.

INITIAL OPERATION (CONTD.)

- (8) Adjust potentiometer A to set the force generated by the motors such that it is sufficient to just open and close the gate in a proper manner.
- (9) Run through several complete cycles to test how the gate behaves when operated and note whether it switches off when it reaches the limit switches.
- (10) Test Infrared sensor functionality
- (11) Should you prefer a different programme (automatic closing mode), wait until the end before changing the setting. Refer back to the instructions to ascertain what impact the programme selected has on functionality.

TEACHING IN REMOTE CONTROL 13

The radio remote control is licensed by the Post Office and costs nothing to operate. It works on the basis of a private security code (approx. 3.5 billion code options) that is pre-programmed via computer. Your sliding gate drive can thus only be activated by a correspondingly coded handset. The range obtained depends on the given local environment. The receiver element of the motor control has an integrated self-learn function. It can be set to the handset's pre-programmed code by pressing the self-learn push-button (fig. 13).

The control unit has two self-learn channels and is therefore able to partially open a gate (pedestrian function) or open or close it fully via appropriate operation of the handset. Should, for instance, channel 1 (1) receive the handset's remote control code, the gate will only open partially. If you teach the remote control on to channel 2 (2), you will be able to open the gate completely.

To memorise the code, all you need do is press the button of your choice on the handset and keep it depressed while, at the same time, briefly pressing the self-learn button on the electronic unit with the other hand. *Repeat this procedure for all handsets*. Please note: If you release the given push-button before the self-learn LED has stopped flashing, the remote control code will not be accepted.

DELETION OF PROGRAMMED REMOTE CONTROL CODE

Press the appropriate self-learn button (1 or 2) on the receiver control board for approx. 10 seconds until the self-learn LED extinguishes. The codes previously 'learned' and allocated to the given self-learn button have thus been deleted.

REPROGRAMMING

For reprogramming purposes, the coding procedure mentioned above should be repeated for all the remote controls in use and/or their appropriate operating buttons.

The radio remote control's range varies according to the given local environment. Keep the push-button on the handset depressed until such time (approx. 2 seconds) as the gate is seen to move.

In the frequency ranges licensed by the German Post Office for gate drives, there are also radio-operated systems in use for medical, industrial, scientific, military and private purposes with, in some cases, very powerful transmitting capabilities. Should you be in the vicinity of such systems, this may cause your radio remote control to suffer from reduced range or temporary interference.

Your radio remote control is digitally coded, i.e. accidental operation of the gate drive is more or less impossible.

Declaration of Conformity

Declaration of Incorporation

Automatic Gate Opener Models SLY500E/K-120 and the control unit CB2-120, when installed and maintained according to all the Manufacturer's instructions in combination with a Gate, which has also been installed and maintained according to all the Manufacturer's instructions, meets the provisions of EU Directive 89/392/EEC and all amendments.

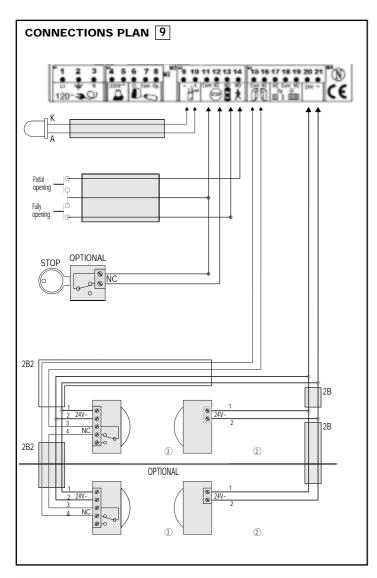
I, the undersigned, hereby declare that the equipment specified above and any accessory listed in the manual conforms to the above Directives and Standards.

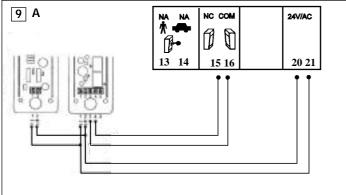
Chamberlain GmbH D-66793 Saarwellingen May, 2002

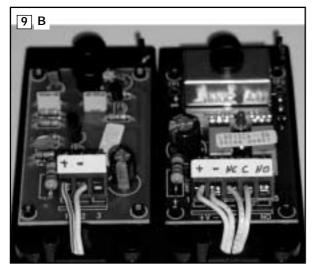












PROGRAMMES

The control unit offers 4 operating modes (programmes). DIP switches 1 + 2 are used to select the programme required.

Default (step-by-step):

DIP switch 1 OFF

DIP switch 2 ON



The gate does not close automatically. Trimmer (potentiometer) B is non-functioning. The infrared sensor reverses the gate to OPEN when the latter closes. Should the infrared sensor also need to be active when the gate is opening, it has to be connected to contact 11 + 12 (stop).

Automatic:

DIP switch 1 OFF

DIP switch 2 OFF



Once it has opened fully, the gate then closes automatically after the set time has elapsed (pause, trimmer B). The infrared sensor reverses the gate to OPEN when the latter closes. If the infrared sensor is interrupted in a gate open position, the set pause is automatically extended.

Automatic (rapid close mode):

DIP switch 1 ON

DIP switch 2 OFF



Should the control unit receive a pulse signal from a handset or switch when the gate is opening, the latter will then be closed immediately. If the infrared sensor is interrupted while the gate is waiting in an open position, the set pause is reduced and the gate is closed immediately (otherwise as automatic mode).

Hold to run:

DIP switch 4 ON



A signal has to be sent constantly to the control unit via the key switch or handset in order to operate the gate in this mode. If the signal is interrupted, the gate stops and moves in the opposite direction when the next signal is received. This mode should always be selected when the gate has not been properly secured or the infrared sensor is out of action.

SETTINGS

Once you have decided which programme you want to select, you then need to set the potentiometer accordingly.

Potentiometer A force adjustment

This setting defines the force with which the motor should work. The force needed depends on the weight and functionality of the given gate.

The force measured at the gate's closing edge may not exceed 400N. If the closing force is set to more than 400N, the light barrier has to be installed.

Trimmer B pause (waiting time in open position)

Should the automatic or automatic with STOP programme have been selected, the gate's waiting time must be defined when it is in gate OPEN mode. Once the set time has elapsed, the gate closes.

Trimmer C brake

When the gate reaches its limit switch, the drive switches off. The gate's momentum carries it a little further depending on its weight and functionality. The brake function can be set to actively brake the gate and minimise any undesirable further travel. Maximum anticlockwise setting = brake OFF.

DIP SWITCH

Switch 1 Programme

Switch 2 Programme

Switch 3 Speed sensor (optional)

Switch 4 Dead man (drive runs as long as signal is sent)