

CHAMBERLAIN™
MotorLift™



- de** Mechanische Installation HC100ML-2, HC500ML-2
- fr** Installation mécanique HC100ML-2, HC500ML-2
- en** Mechanical Installation HC100ML-2, HC500ML-2
- it** Installazione meccaniche HC100ML-2, HC500ML-2
- nl** Mechanische Installatie HC100ML-2, HC500ML-2

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IMPORTANT FITTING AND OPERATING INSTRUCTIONS

PLEASE START BY READING THESE IMPORTANT SAFETY RULES • SAVE THESE INSTRUCTIONS



This safety alert symbol means "Caution" - failure to comply with such an instruction involves risk of personal injury or damage to property. Please read these warnings carefully.



This gate drive mechanism is designed and tested to offer appropriately safe service provided it is installed and operated in strict accordance with the following safety rules. *Incorrect installation and/or failure to comply with the following instructions may result in serious personal injury or property damage.*



When using tools and small parts to install or carry out repair work on a gate exercise caution and do not wear rings, watches or loose clothing.



It is important to make sure that the gate always runs smoothly. Gates which stick or jam must be repaired immediately. *Employ a qualified technician to repair the gate, never attempt to repair it yourself.*



Installation and wiring must be in compliance with your local building and electrical installation codes. Power cables must only be connected to a properly earthed supply.



Keep additional accessories away from children. Do not allow children to play with pushbuttons or remote controls. A gate can cause serious injuries as it closes.



Any entrapment possibility by the moving wing between wing & walls must be secured with safety edges or IR-sensors.



Disconnect electric power to the system before making repairs or removing covers.



Please remove any locks fitted to the gate in order to prevent damage to the gate.

A disconnecting device must be provided in the permanently-wired installation to guarantee all-pole disconnection by means of a switch (at least 3mm contact gap) or by a separate fuse.



After the installation a final test of the full function of the system and the full function of the safety devices must be done.



Make sure that people who install, maintain or operate the gate drive follow these instructions. *Keep these instructions in a safe place so that you can refer to them quickly when you need to.*



This drive cannot be used with a gate incorporating a wicket door unless the drive cannot be operated with the wicket door open.



The full protection against potential squeeze or entrapment must work direct when the drive arms are installed.

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Contents in HC100/HC500 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

(7) Control unit with pre-installed radio receiver(1x)

(8) Flashing lamp

(9) Light barrier (pair)

(10) Remote control 84333EML

Optional Accessories

(11) Remote control 84335EML

(12) Remote control 84330EML

(13) External Antenna ANT4X-EML

(14) Key switch 41EML

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.**

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!

- **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).*

CHECK LIST - PRE-INSTALLATION WORK

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. **1**

OVERVIEW OF INSTALLATION

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 **3 A-C**

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 **2 A-D **4****

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) **5**

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. 5** 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. Finished.

FITTING LIMIT SWITCHES (TO GATE) **6 **9****

The limit switches are assembled as shown in **fig. 6A,B and 9A,B**. 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.

Attention: Please notice fitting of the magnets on the rack bar (fig. 9A+B).

Magnet A (1) = to the left

Magnet B (2) = to the right

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. **fig.7**

MAINTENANCE WORK

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.8.**

TECHNICAL DATA

	HC100	HC500
Voltage IN	230Volt	230Volt
Frequency	50Hz	50Hz
Power	300W	360W
Current rated	1.3A	1.5A
Torque	9Nm	10Nm
Capacitor	8µF	10µF
Thermal Overload Protection	140°C	140°C
Travel Speed	12cm/sec	12cm/sec
Duty Cycle	30	30
Working Temperature Range	-20°C - 55°C	-20°C - 55°C
Protection Class	IP44	IP44
Degree of Protection	I	I
Weight	9	9
approx. Gate Length	5m	8m
Max. Gate weight at max. length (incl. 20% reserve)	300kg	500kg

Declaration of Conformity

Automatic Gate Opener Models HC100ML-2, HC500ML-2 Series are in conformity to the applicable sections of Standards EN300220-3 • EN55014 • EN61000-3 • EN60555, EN60335-1 • ETS 300 683 • EN60335-1: 2002 • EN60335-2-103: 2003 • EN55014-1: 2000 + A1 + A2 • EN55014-2: 2001 • EN61000-3-2: 2000 • EN61000-3-3: 1995 + A1 • EN 301 489-3, V1.3.1 • EN 300 220-3 V1.1.1 • EN13241-1 per the provisions & all amendments of the EU Directives2006/95/EC, 2004/108/EC, 1999/5/EG

Declaration of Incorporation

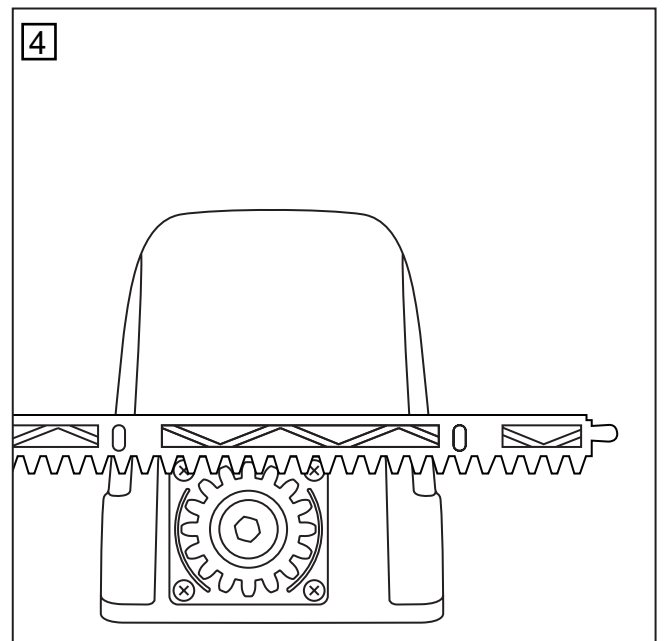
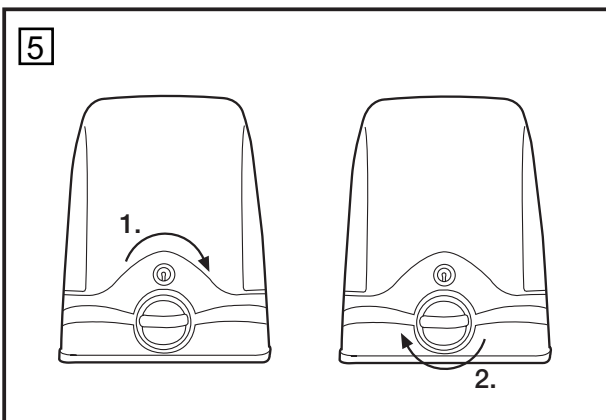
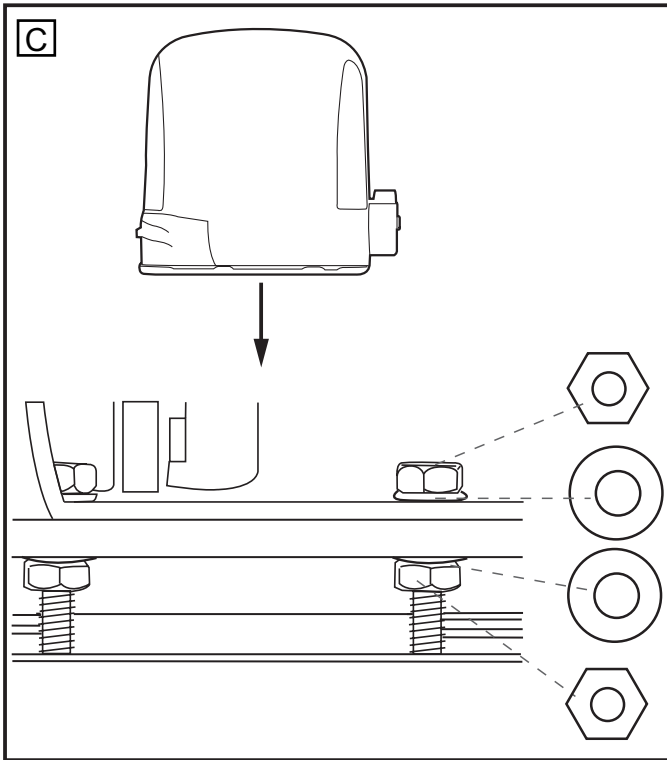
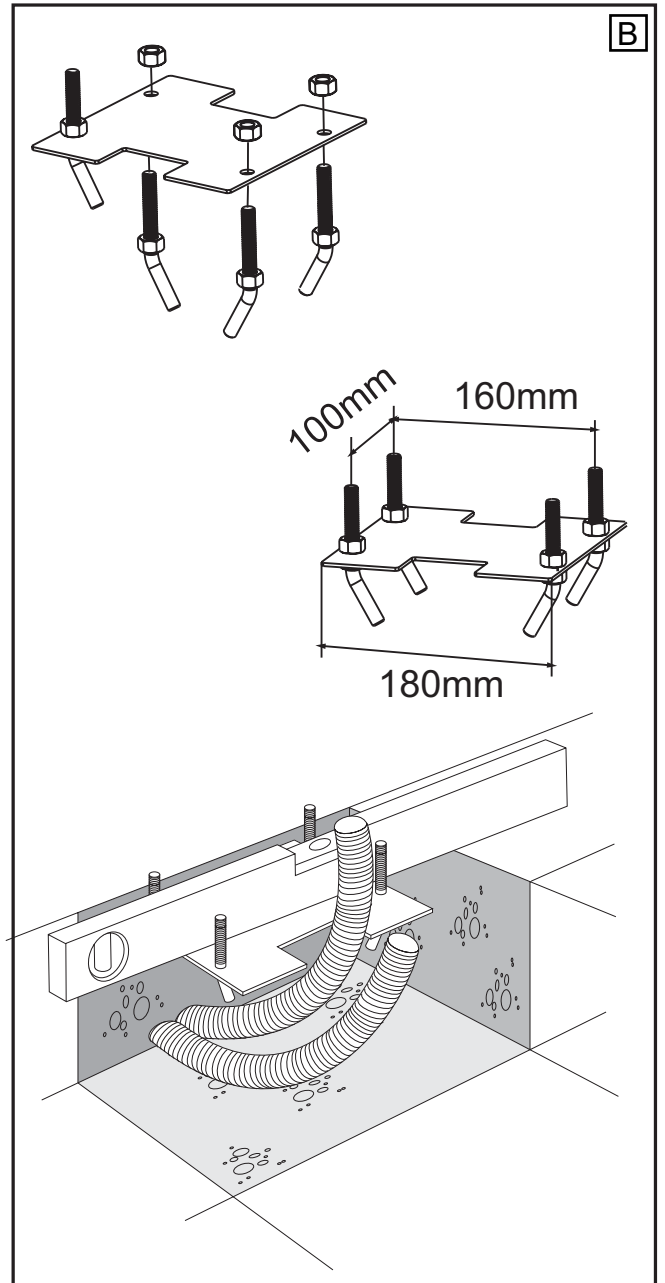
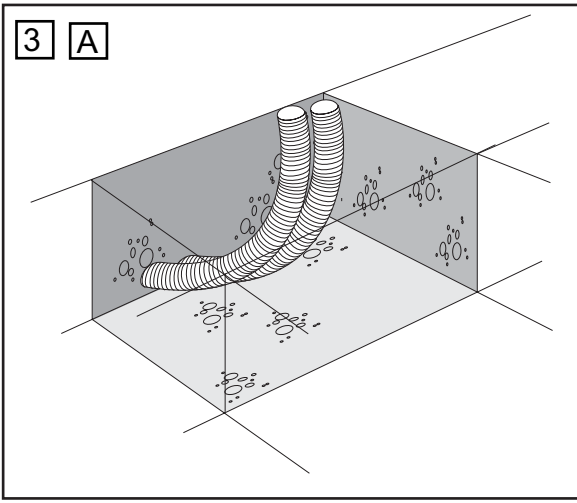
Automatic Gate Opener Models when installed and maintained according to all the Manufacturer's instructions in combination with a Gate, which has also been installed and maintained according to all the Manufacturer's instructions, meets the provisions of EU Directive 89/392/EEC and all amendments.

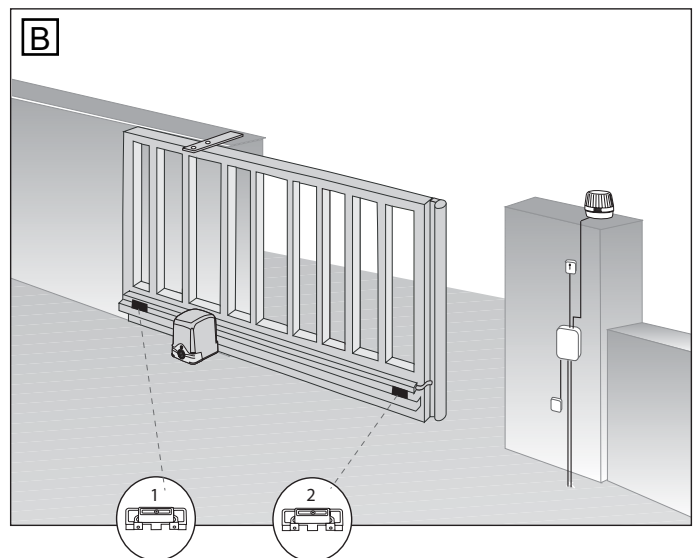
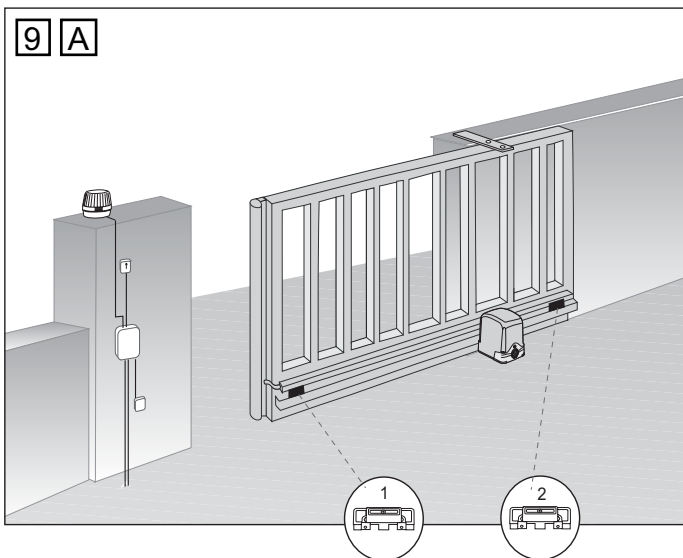
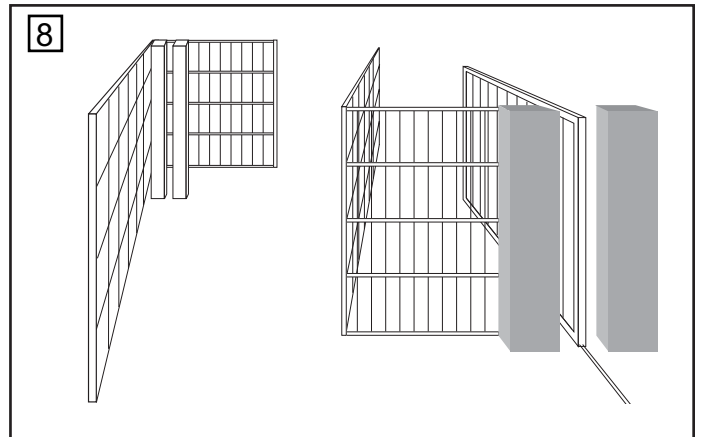
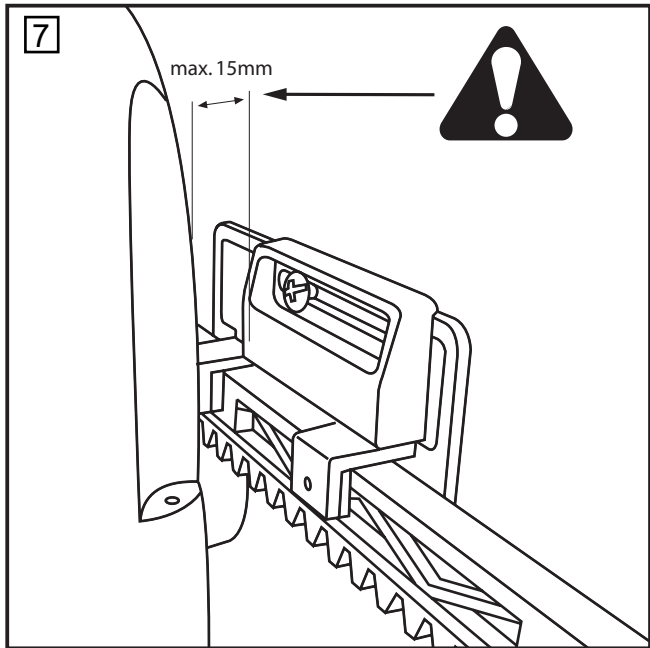
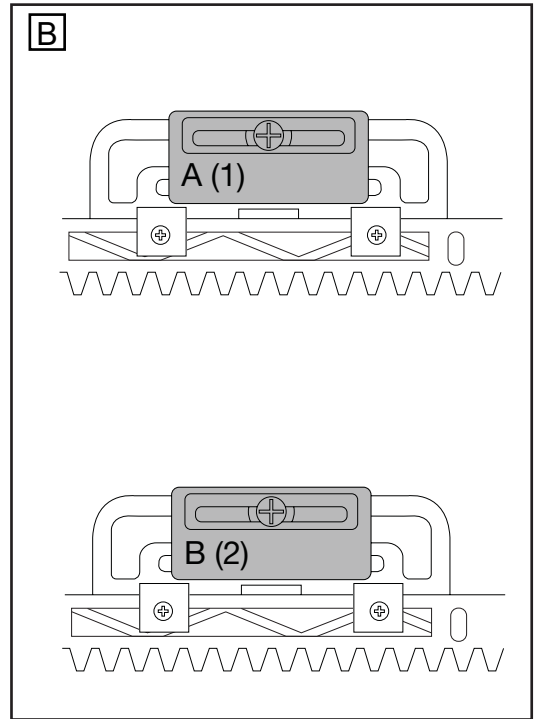
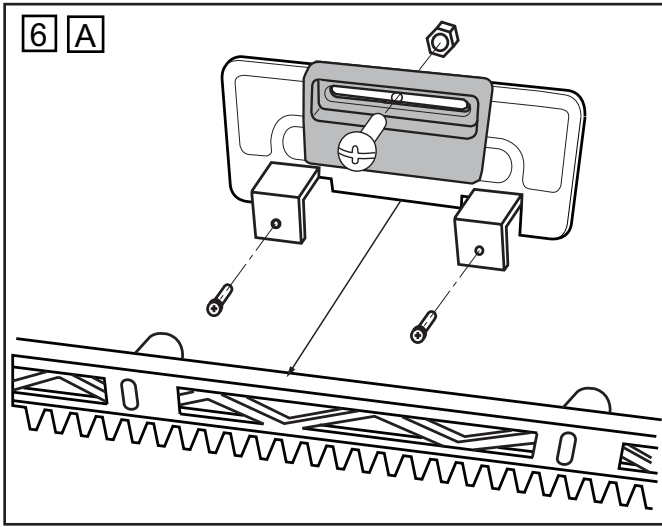
I, the undersigned, hereby declare that the equipment specified above and any accessory listed in the manual conforms to the above Directives and Standards.

B.P.Kelkhoff
 Manager, Regulatory Affairs
 Chamberlain GmbH
 D-66793 Saarwellingen
 January, 2008

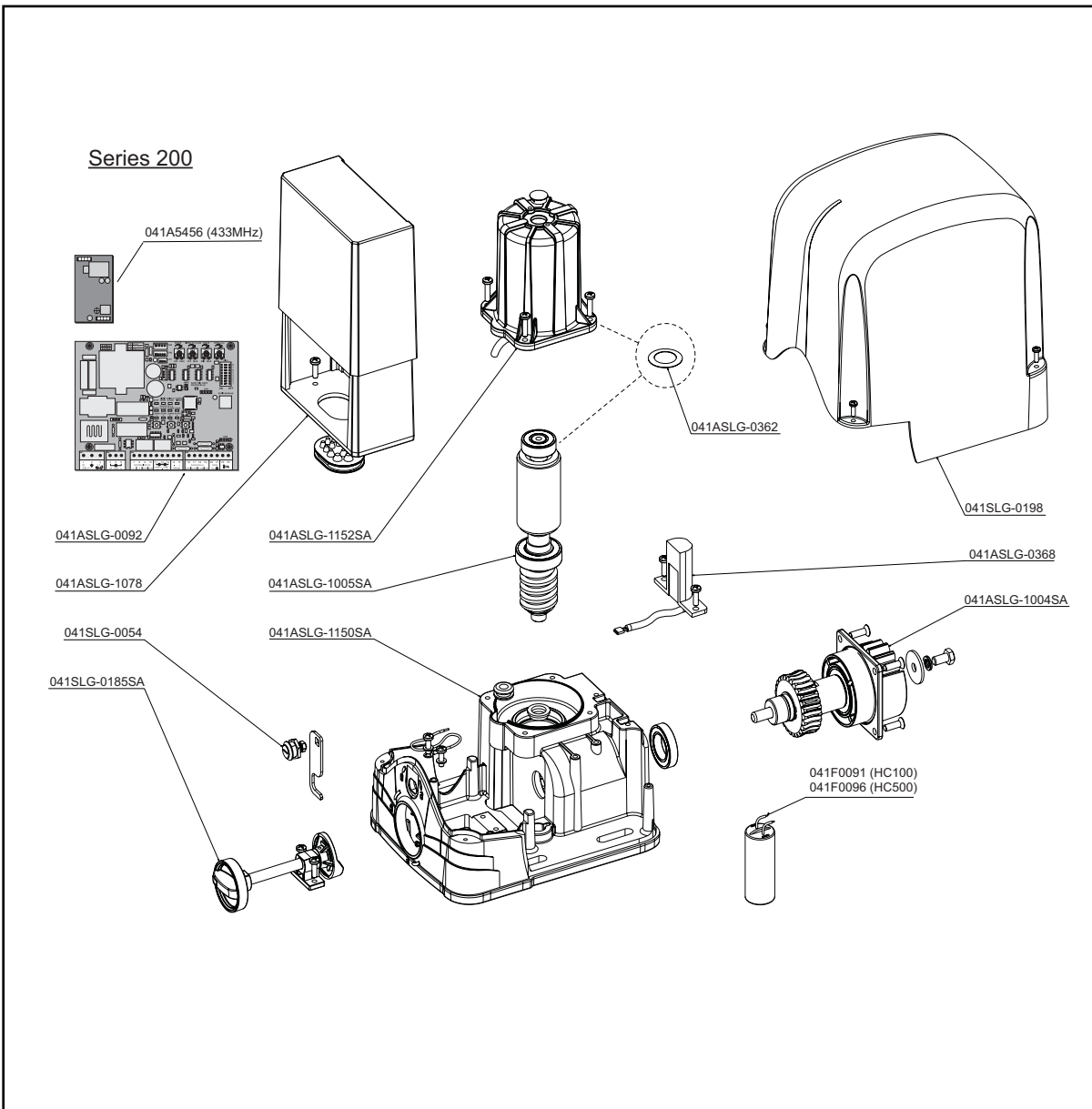
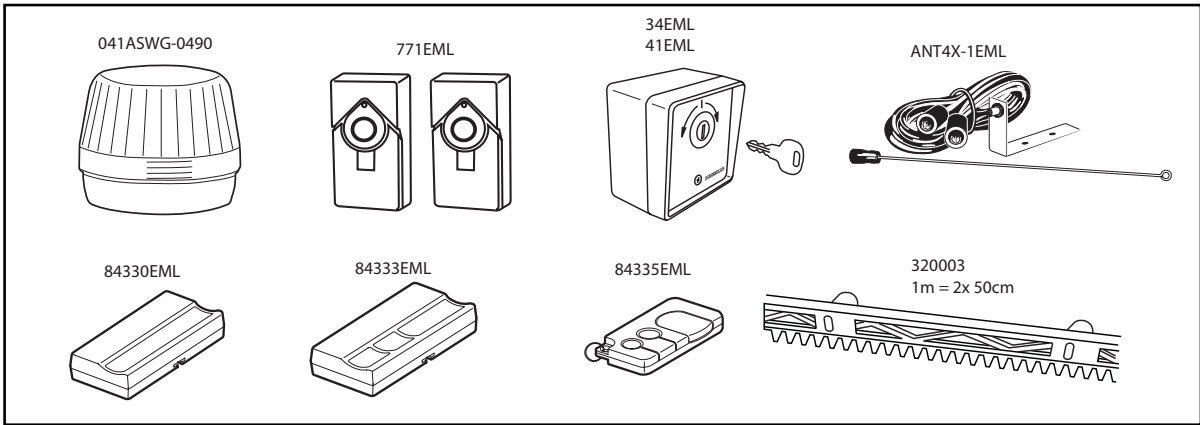


Barbara P. Kelkhoff

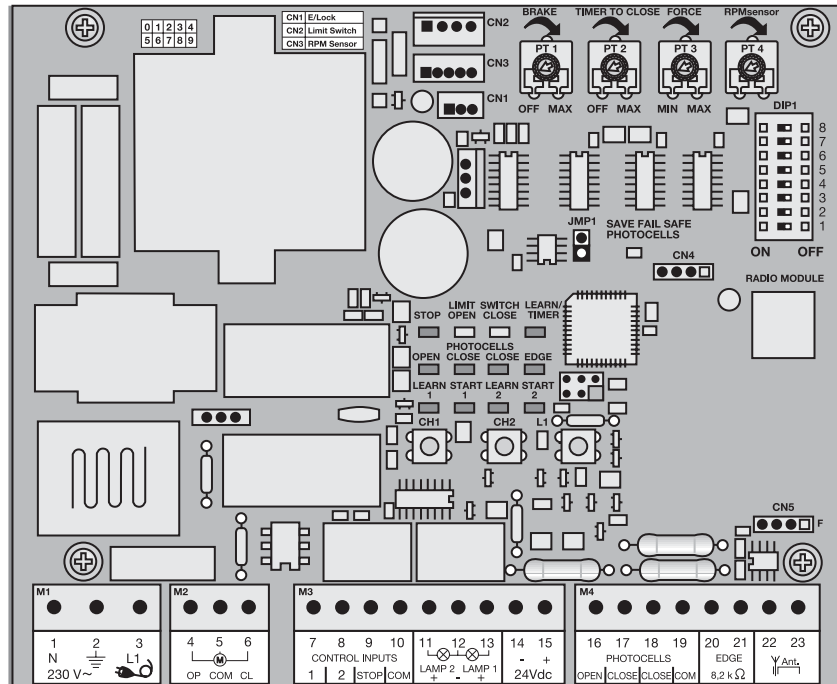




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- it** Istruzione e installazione elettrica HC100ML-2, HC500ML-2, TPD500
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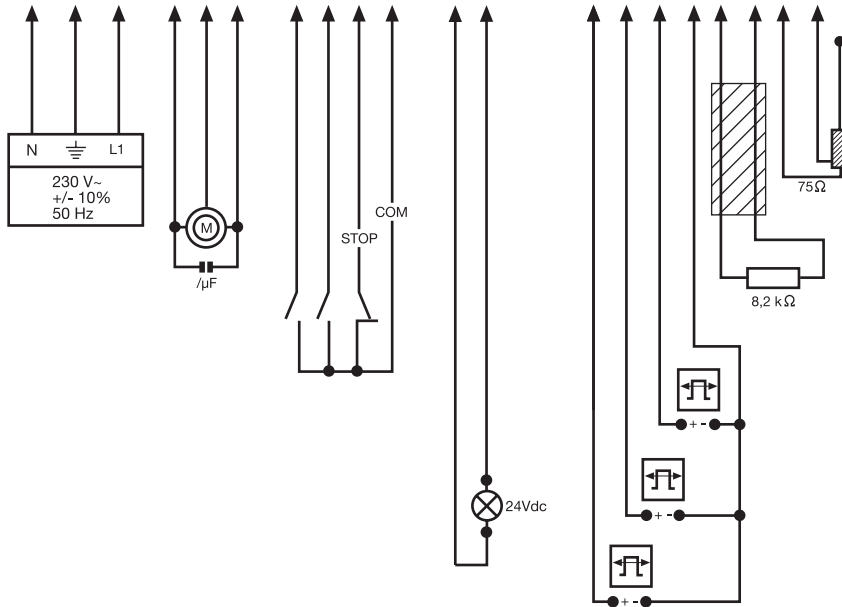
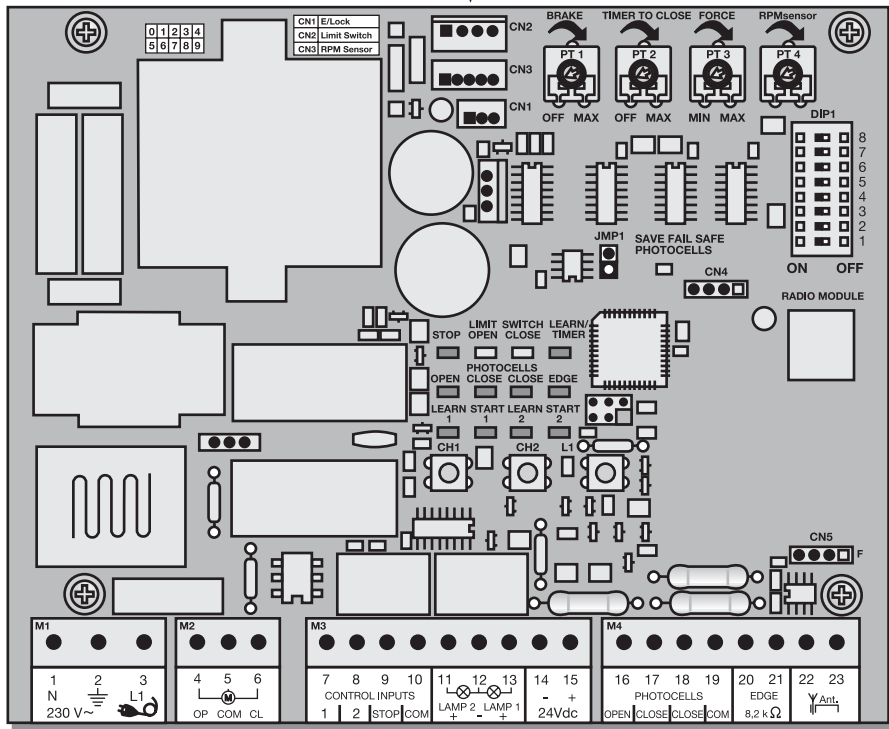
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Keep additional accessories away from children. Do not allow children to play with pushbuttons or remote controls. A gate can cause serious injuries as it closes.



Any entrapment possibility by the moving wing between wing & walls must be secured with safety edges or IR-sensors.



Disconnect electric power to the system before making repairs or removing covers.



Please remove any locks fitted to the gate in order to prevent damage to the gate.

A disconnecting device must be provided in the permanently-wired installation to guarantee all-pole disconnection by means of a switch (at least 3mm contact gap) or by a separate fuse.



After the installation a final test of the full function of the system and the full function of the safety devices must be done.



Make sure that people who install, maintain or operate the gate drive follow these instructions. Keep these instructions in a safe place so that you can refer to them quickly when you need to.



This drive cannot be used with a gate incorporating a wicket door unless the drive cannot be operated with the wicket door open.



The full protection against potential squeeze or entrapment must work direct when the drive arms are installed.

FITTING THE CONTROL BOX

The control board was designed for installation in a special box under the cover of the sliding gate drive and can be ordered as an accessory, if not already available.

The control board can also be fitted externally (on the wall) in a waterproof box (041FA277BX).

The motor control unit is a highly modern electronic unit controlled by a microprocessor. It has all wiring facilities and functions required for safe operation. The control box with the motor control unit is mounted with the cable entries facing down. It must not be permanently exposed to direct sunlight. The electronics can be used for the precise adjustment of the push-pull torque. The gate can be held by hand if the fitting/setting is correct.

During operation, the gate can be stopped at all times via remote control, push-button or key-operated switch. The gate wing requires a firm stop for the "OPEN" and "CLOSED" positions.

ELECTRICAL INSTALLATION

The control board should be connected last of all, i.e. install the drive, lay the required cables and attach the photocells (contact strips). For a fixed fitting, an accessory is required for the disconnection from the mains that has a contact spacing of at least 3 mm (main switch).

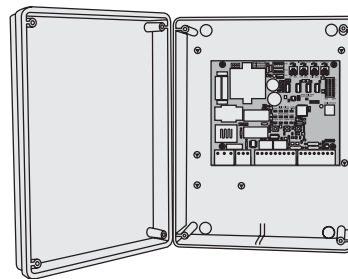
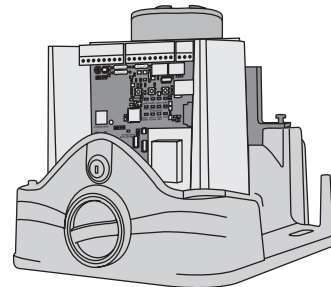


Moisture and water will destroy the control board. Make sure under all circumstances that water, moisture or storage moisture cannot penetrate the control board. All openings and cable entries must be sealed watertight.

The following minimum cable cross-sections should be used:

- 100-230 volts 1.5mm² or more
- 0-24 volts 0.5mm² or more

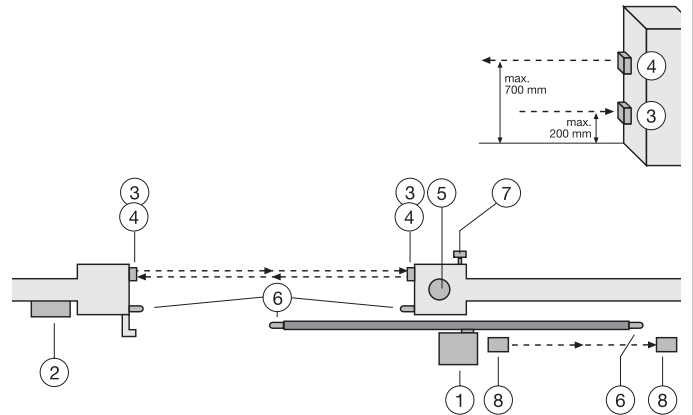
Tips: Bell wires often cause problems when used, because they lose too much voltage if lines are long. Disconnect the cables in the cable trunkings i.e. the motor cable and the cable for the photocell, in particular for key-operated switches and start buttons (coming from the house), otherwise malfunctions are possible if lines are long.

**TECHNICAL DATA**

Voltage:	230 V~ ±10 % 50 Hz
Max. consumption:	22 mA
Drive max.:	230 V~ 50 Hz 1000 W max
Power supply for accessories:	24 V~ 0.5 A max
Operating temperature:	-25 °C + 55 °C
Operating modes:	
Standard/	standard with pedestrian function/ no self-hold (hold to run)
Max. running time:	80 sec
Rest time:	0 + 150 sec
Dimensions:	119x145 mm (without box)

TYPICAL CONFIGURATION OF A UNIT

1. Drive with control board
The drive is located on a height-adjustable mounting plate
2. Control board (if mounted externally)
If the control board is mounted externally (external mounting box required), the cables and feeder cables must be laid correctly
3. photocell (771EML) 150-200 mm (optional)
First photocell. Protects people
4. photocell (771EML) 700 mm (optional)
Second photocell. Protects vehicles and higher objects
5. Flashing light
Important visual information on the movement of the gate
6. Contact strip (optional)
Safeguards the gate on being touched. Contact strips can be mounted on the gate or on the pillars. If the gate has openings exceeding 45mm, a contact strip is required on the pillar (accessory). If required, contact strips must be mounted at a height of up to 2.5m.
7. Key-operated switch (optional)
Is mounted on the outside. The gate is opened by key or by entering a number.
8. photocell (optional)
Safeguards the gate on opening. This photocell can be omitted if the construction itself prevents people from being present in this area. A contact strip can be fitted here as an alternative option.



! The control board complies with the latest EU directives. One of these directives specifies that the closing forces at the gate edge must not exceed 400 N (40 kg) for the last 500 mm before the gate is CLOSED. Above 500 mm, the maximum force at the gate edge must not exceed 140 N (140 kg). If this cannot be ensured, a contact strip must be mounted on the gate at a height of up to 2.5 m or on the opposite pillar (EN12453).

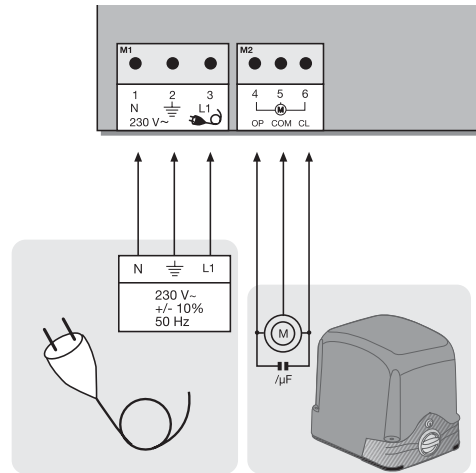
MOTOR

Connect the motor to the control board exactly as shown on the connection layout diagram.

- Terminal 4 cable black
- Terminal 5 cable blue
- Terminal 6 cable brown

The cable for the capacitors supplied with the motors must be inserted in terminals OP and CL together with the cables for the direction of rotation. Make sure that it is connected correctly and powered sufficiently. The capacitor is responsible for the force that the motors have later on.

Note: If drives/motors other than ours are connected, it might be required to swap the cables of terminals 4 + 6 to ensure correct operation. This is shown during "Initial operation", if the control board does not maintain the correct moving directions. See also the Limit switch connection instructions for more information.



LIMIT SWITCH CONNECTION

2005 design: The cable is connected to terminal CN2 using the connector.

Other designs: There is no connector on the limit switch. On purchasing a single control board, a connector is provided with a short cable. Both cables are connected by means of a soldered connection or a block terminal. Different types of limit switch systems can be connected to the control board. The limit switch has to have 2 contacts NC (normal closed). See the illustration for the correct connection.

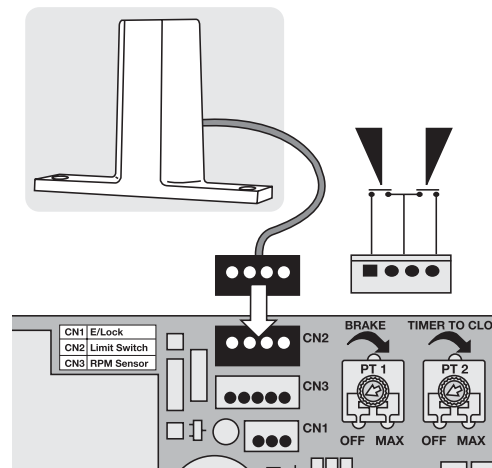
Position of the magnets on the gate for magnetic limit switch:

The magnet with the designation 1 must always be fixed on the left side of the rack bar.

The magnet with the designation 2 must always be fixed on the right side of the rack bar.

Note: The correct operation of the control LED should be re-checked before initial operation.

Note: In order to have the correct direction for OPEN, check the the setting of DIP7.



CONTROL BOX CONFIGURATION

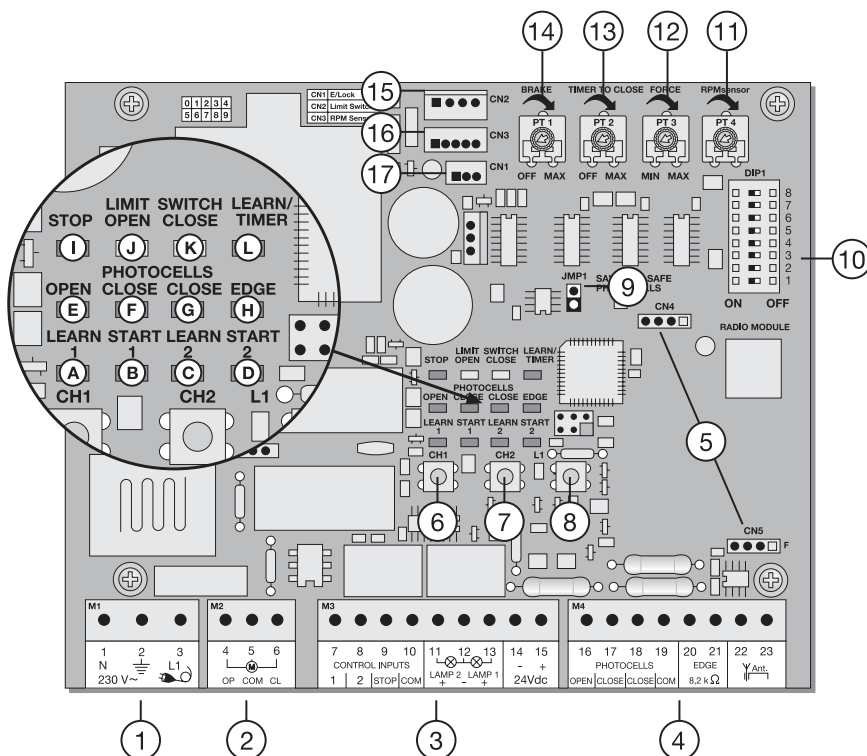
POINT	DESCRIPTION	FUNCTION
1	M1, terminals:1,2,3	Feeder cable
2	M2, terminals:4,5,6	Drive
3	M3, terminals:7,10	Impulse transmitter channel 1
	Terminals:8,10	Impulse transmitter channel 2
	Terminals:9,10	Emergency-stop push-button / must be bridged without switch connected
	Terminals:11,12	no function
	Terminals:12,13	Flashing lamp
	Terminals:14,15	Connection for accessories 24V
4	M4, terminals:16,19	Optional photocell OPEN
	Terminals:17,19	Optional photocell CLOSED
	Terminals:18,19	Main photocell CLOSED
	Terminals:20,21	Contact strip 8.2 kilo ohms
	Terminals:22,23	Antenna
5	CN4/CN5, connector	Radio module sockets
6	CH1, pushbutton	Learn/Delete radio channel 1
7	CH2, pushbutton	Learn/Delete radio channel 2
8	L1, pushbutton	Learning the distance covered
9	JMP1, jumper	Programming the photocell
10	DIP1	Dip switch block
11	PT4, potentiometer	no function
12	PT3, potentiometer	Force setting
13	PT2, potentiometer	Automatic closing
14	PT1, potentiometer	Brake
15	CN2, connector	Magnetic limit switch
16	CN3, connector	no function
17	CN1, connector	no function

DESCRIPTION OF THE LEDs

RED LEDs should be switched off. Indication of faults to be rectified; this does not apply to failsafe photocells not connected. (see "photocell" description)

(Example: short circuit, photocells and/or contact strip)

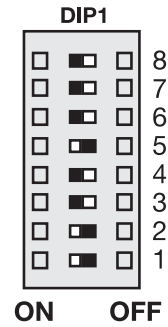
POINT	DESCRIPTION
LED A	RED Learn/Delete radio channel 1
LED B	RED Start impulse channel 1
LED C	RED Learn/Delete radio channel 2
LED D	RED Start impulse channel 2
LED E	RED photocell active for OPEN
LED F	RED photocell active for CLOSE
LED G	RED photocell active for CLOSE
LED H	RED contact strip
LED I	GREEN stop
LED J	YELLOW limit switch gate OPEN
LED K	YELLOW limit switch gate CLOSED
LED L	RED learn program (distance covered)



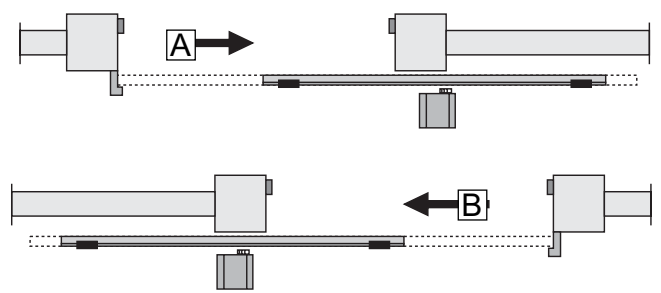
PROGRAMS

The control board has 3 operating modes (programs). The desired program is set using the dip switch "ON" or "OFF".

DIP 1	On Off	
DIP 2	On Off	Assigned to various drive operating modes. (see separate table)
DIP 3	On Off	
DIP 4	On	Soft stop (slow run) is active The soft stop is activated 2 seconds before the limit switch is reached. The drive stops only when the limit switches have been reached or as soon as the maximum soft stop phase (10 seconds) has expired.
	Off	Soft stop (slow run) is disabled. The drive shuts down immediately in both directions OPEN/CLOSED as soon as the limit switches have been reached.
DIP 5	On	Setting for Chamberlain failsafe photocells (771EML), complies with EN60335-2-103
	Off	Setting for Chaimberlain photocells (263EML) or others
DIP 6	On	Preflash function of flashing light 2 seconds before the drive starts.
	Off	Preflash function disabled
DIP 7	On	see B
	Off	see A
DIP 8		no function



⚠ Only modify settings when control board is disconnected. Otherwise modifications will not be accepted!!!



POTENTIOMETER

PT1 (TRIMMING POTENTIOMETER 1): BRAKE

When the gate reaches its limit switch, the drive shuts down. Depending on weight and function of the gate, it may continue to move on a bit further before stopping. The brake function is for the active braking of the gate in order to minimise this additional movement. Left stop = brake OFF.

PT2 (TRIMMING POTENTIOMETER 2): AUTOMATIC CLOSING (TIMER TO CLOSE)

The waiting time for the gate for GATE OPEN can be defined. The gate is closed 0-150 sec. after the set time expires.

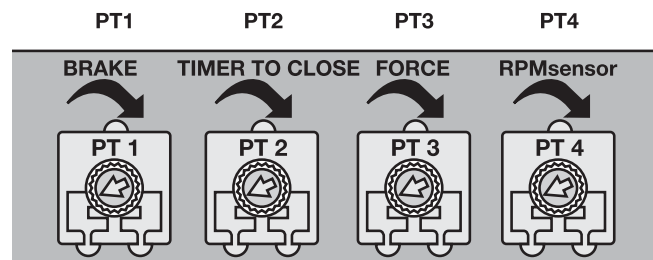
Only possible if failsafe photocell is connected (771EML). (Not possible for self-hold and channel separation)

PT3 (TRIMMING POTENTIOMETER 3): FORCE SETTING

Definition of the force with which motor is to operate. The required force depends on weight and function of the gate.

PT4 (TRIMMING POTENTIOMETER 4): RPM SENSOR

no function



⚠ Only modify settings when control board is disconnected. Otherwise modifications will not be accepted!!!

Separate table for setting the operating modes

	DIP1	DIP2	DIP3	Impulse transmitter/channel 1	Impulse transmitter/channel 2
Standard	ON	ON	OFF	1. impulse opens, the next one stops, the next one closes, the next one opens Impulse during closing opens Impulse during the rest closes the gate immediately	1. impulse opens for pedestrians, gate is moved open for 10 seconds (fixed), next impulse closes, next impulse opens again for pedestrians.
Standard & pedestrian function	OFF	ON	OFF	1. impulse opens, the next one closes, the next one opens Impulse during the rest closes the gate immediately	1. impulse opens for pedestrians, gate is moved open for 10 seconds (fixed)
No self-hold (hold to run)	OFF	OFF	OFF	Permanent signal required for opening, letting go stops Radio disabled, safety equipment disabled, limit switches are active	Permanent signal required for closing, letting go stops Radio disabled, safety equipment disabled, limit switches are active

Note: If important safety equipment (photocell/contact strip) is damaged, constantly active (switching) or if programmed equipment is not connected, the control board operates without self-hold (hold to run). See description. For any corrections, check the status LEDs or see functional description and “Frequently asked questions”.

ACCESSORIES

PHOTOCELLS (OPTIONAL)

The photocells are for safeguarding the gate and must be used. The fitting location depends on the gate’s design. EN12453 specifies that a pair of photocells must be installed at a height of 200mm; a second pair must be installed in the same position at a height of 700mm. A third pair of photocells can be optionally installed. The photocells consist of a transmitter and a receiver and must be opposite each other. The housing of the photocell (plastic) can be opened using a screwdriver. The photocell is mounted on the wall using small screws and wall plugs. It is possible to use two different photocell systems. (see Dip switch description). To enable the “Automatic closing” function, the Chamberlain failsafe photocell must be installed. A combination of photocells is not possible. The Chamberlain failsafe system (2-cable system) has small LEDs (light) that can be seen from the outside on both sides to indicate the status of the photocell. Two Chamberlain failsafe photocell models are available. The one model is ideal for walls lying opposite. The other model is ideal for the inside of the gate, because fittings are already available.

Diagnosis at the Chamberlain failsafe photocell

- LED constant = OK
- LED flashes = photocell disables control board
- LED off = no current, incorrect connection or polarity

Diagnosis on the control board

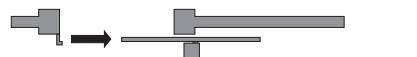
- LED off = OK
- LED on constantly = control board disables
- LED flashes = OK no photocell connected

Cable cross-section: 0.5 mm² or more.

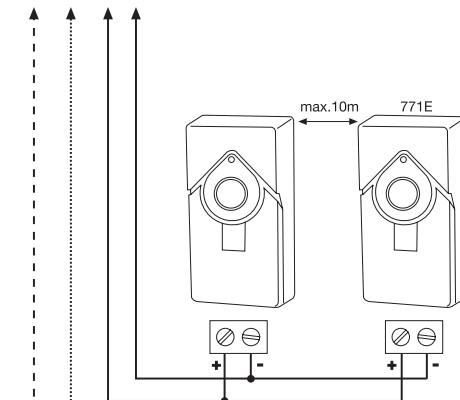
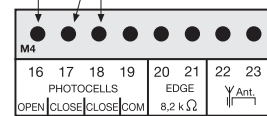
Voltage: 12/24 volts AC/DC.

Do not use any fixed copper lines. Do not lay any 230 volt cables in parallel and do not lay any 2 cables in the same cable trunking.

open/öffnen/ouvrir/open



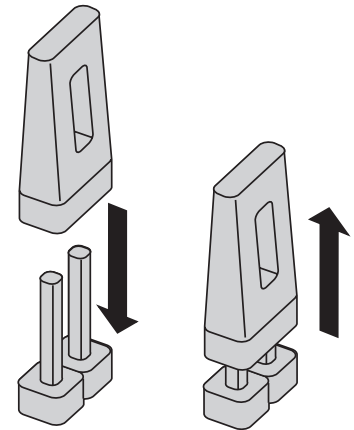
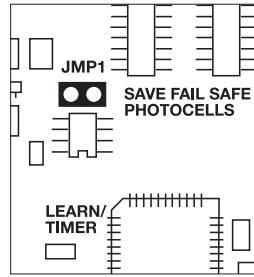
close/schliessen/fermer/sluiten



JUMPER

Programming of failsafe photocells model 771EML

1. Before the Initial Setup
 2. When connecting or removing photocell(s)
 - Switch off control board (disconnect from current)
 - Slip jumper on designated pins
 - Dipswitch 5 to "ON"
 - Connect photocell(s) according illustration
 - Reconnect control board, wait short-time
 - Pull jumper, wait short-time
- Done! (The number of photocells connected are stored)




Programming of relay photocells such as 263EML

The control board must be disconnected from the mains for a few seconds. All terminals to which no photocell is connected must be bridged with COM. (16-19, 17-19, 18-19). The power supply for the relay photocell of terminals 14-15. Dip switch 5 must be at OFF. The jumper must be unplugged.

Note: Relay photocells are no longer permitted for new installations as per EN12978, because they cannot perform self-checks (failsafe).

Operation without photocells

 Not permitted for normal operation. In this case contact strips must safeguard the gate. The control board must be disconnected from the mains for a few seconds. Terminals 16-17-18-19 must all be bridged. Dip switch 5 must be at OFF. The jumper must be unplugged.

Note: It is NOT possible to combine different photocell types.

PUSHBUTTON / KEY-OPERATED SWITCH (OPTIONAL)

The control board / drive can be activated using various inputs. This can be done using a hand-held transmitter or key-operated switch (Terminals 7 + 10).

Hand-held transmitter = see Teaching the hand-held transmitter
 Switch input 1 = input control 1. Normal operation
 Switch input 2 = input control 2. Active for special settings (see Dip switch description)

EMERGENCY STOP (OPTIONAL)

A switch can be connected to stop or disable the unit. The movement of the wings is stopped immediately. Terminals 9 and 10 must be bridged if no switch is installed.

Cable cross-section: 0,5 mm² or more.
Voltage: 12/24 volts AC/DC.


FLASHING LAMP (OPTIONAL)

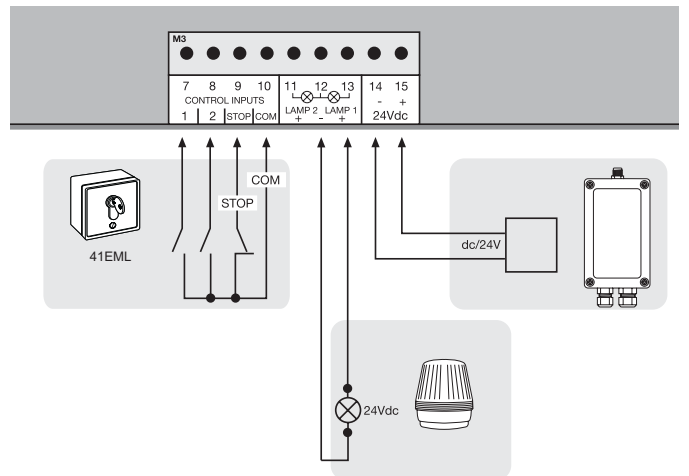
A flashing lamp can be connected to the control board. It warns when the gate is being moved. The flashing light should be fitted as high as possible and in good clear view. The control board emits a constant signal that the lamp converts to a flashing signal.

Cable cross-section: 0.5 mm² or more.
Voltage: 24 V DC

24 VDC - OUTPUT

For relay infrared sensors or other devices (e.g. receivers)
 max.500 mA

 Do not use any fixed copper lines. Do not lay any 230 volt cables in parallel and do not lay any 2 cables in the same cable trunking.



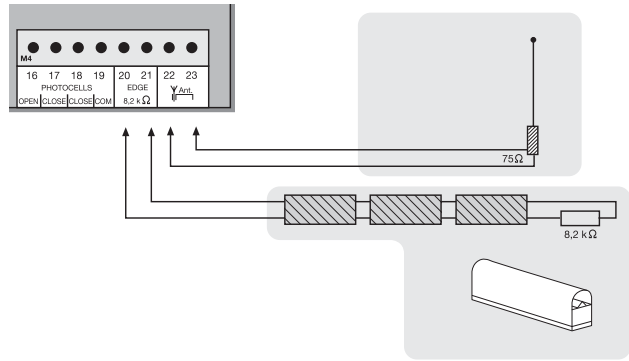
CONTACT STRIP (OPTIONAL)

A contact strip working according to the 8.2 kilo ohm principle can be connected to the control board, i.e. a 8.2 kilo ohm test resistor is attached to the end of the contact strip. It ensures that the electric circuit is monitored permanently. The control board is supplied with an 8.2 kilo ohm resistor installed. Several contact strips are connected in series.

Cable cross-section: 0.5mm² or more.

ANTENNA (OPTIONAL) ANT4X-1EML

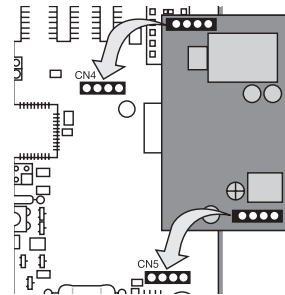
The control board is standard-equipped with a wire antenna. An external antenna (accessory) can be connected to terminals 22 and 23. A larger range (radio) can thus be achieved. Mount the antenna as high as possible.



Do not use any fixed copper lines. Do not lay any 230 volt cables in parallel and do not lay any 2 cables in the same cable trunking.

RADIO MODULE (PLUGGED)

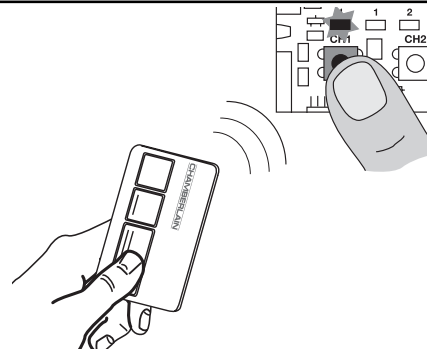
To operate the control board via radio remote control, a radio module must first be installed in slots CN4/CN5.



TEACHING / DELETING THE HAND-HELD TRANSMITTERS

Press button CH1. The LED "Learn1" lights up red. Now press one of the transmitter's button for approx. 5 seconds. The LED "Learn 1" flashes now. Finished. Proceed in exactly the same way for CH2. However, now press one of the transmitter's buttons that has not yet been assigned. Up to 128 hand-held transmitters can be programmed in this way.

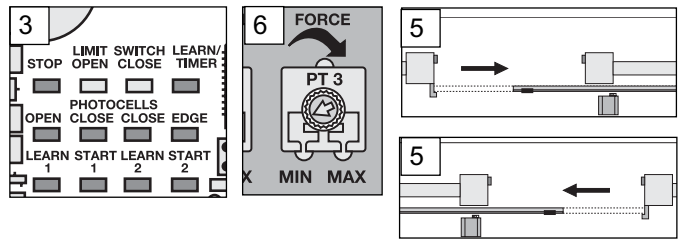
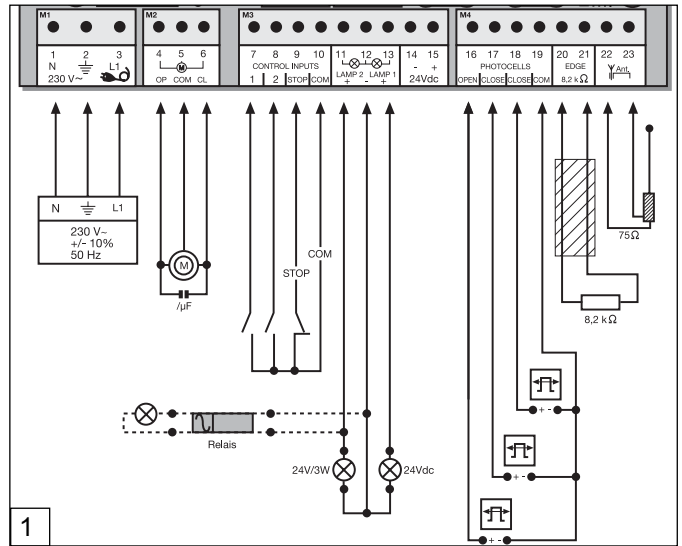
To delete the programmed transmitter setting, simply press button CH1 until the LED goes out. Proceed in the same way for CH2.



INITIAL OPERATION / BASIC SETTING

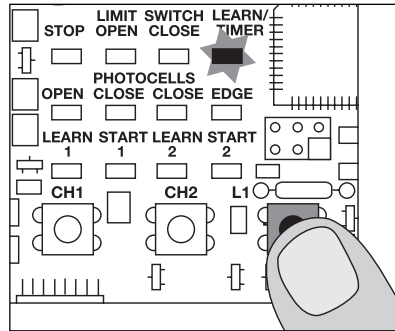
Proceed step by step. If you are not sure, start again at the beginning. Take sufficient time to make these settings.

1. Are all components required for operation connected? Motor(s), photocell (!), flashing light, push-button or switch etc?
 2. Make sure that nobody is present in the range of the gates.
 3. Check whether the LEDs (lamps) are working correctly or whether they are blocking a function. RED LEDs should be off, green LEDs should be on. (with the exception of the LEDs for the limit switch status - yellow)
 4. Set the dip switch to the standard program, if not already done on delivery: 1= "ON", 2="ON", 3="OFF".
Any changes can be made late. (see Dip switch description)
 5. Dip switch 7 determines the direction of opening (see Dip switch description)
 6. Set the force at the potentiometer "FORCE " to max. 30%. Even lower if the gates are very light. Try before correcting. Only increase the force in small steps.
 7. Switch off control board (disconnect from current)
 - 7.1 Slip jumper on designated pins
 - 7.2 Dipswitch 5 to "ON"
 - 7.3 Connect photocell(s) according illustration
 - 7.4 Reconnect control board, wait short-time
 - 7.5 Pull jumper, wait short-time
- Done! The LED(s) of the photocell(s) connected stay(s) out.
The LED(s) of the photocell(s) not connected will flash.



Programming the time for the covered distance

1. Unlock the gate and move it manually to the limit switch. This is how you check whether the limit switch for OPEN/CLOSED is displayed at the correct LED
- . If the right limit switch has been activated, the corresponding LED goes out.
2. Move the gate again manually between the limit switches "OPEN" and "CLOSED" and lock it. (Both limit switches must remain free.)
3. Press button L1 briefly (1 second), the gate opens. If the gate reaches the "OPEN" limit switch, it stops briefly and then closes again automatically. Once the gate reaches the "OPEN" limit switch, the programming process is completed.



ATTENTION: If the gate closes instead of opening, dip switch 7 must be moved to the other position! Then restart programming again from the beginning with step 1.

The time for the required covered distance has now been programmed. The soft stop (slow run) is programmed automatically approx. 4-5 seconds before the limit switch is reached. It can then be activated via dip switch. (see Dip switch description)

Completion of the installation/programming:

Once the covered distance is programmed, the hand-held transmitters can be programmed (not required for kits) or deleted.

1. Start the gate with the hand-held transmitter or a connected button and observe the process. Close the gate again WITHOUT having made any settings.

Note1: The gate does not react (see photocell description jumper).

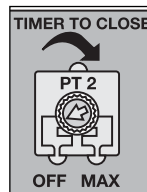
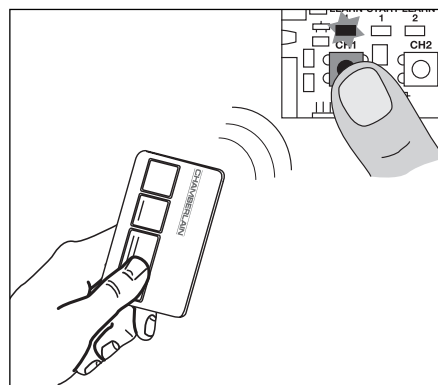
Note2: If the gate now only reacts with one switch (terminals 7+10), either the radio has not been programmed/is not available or the radio module is not plugged in correctly.

2. If the gate does not close completely by itself, adjust the potentiometer to other values, adapted to fit the experience value from the test. (force correction)
3. Now start a second attempt and proceed as above. Close the gate first before you make any settings.

4. Once all settings have been made, check the function of photocells, buttons, flashing lamp, hand-held transmitter, accessories etc. If you desire automatic closing, turn the "TIMER TO CLOSE" potentiometer in clockwise direction. You can set the rest time between 0 and 150 seconds, as desired.

Also make these settings with the gate closed.

5. Show all persons that use the gate how the gate moves, how the safety functions work and how to operate the drive by hand.



Frequently asked questions

<p>How long is the probable service life of a gate opener?</p>	<p>When used for private purposes, a correctly installed gate opener can operate perfectly for in excess of 10 years. Both the gate and the gate opener must be checked regularly and serviced in accordance with their respective instructions.</p>	
<p>How long does it take to install a gate opener?</p>	<p>Depending on your specific technical skills, the installation of the mechanical components can take approx. 3 to 4 hours. Firstly, the gate needs to be properly prepared such that installation work can commence. The electrical connection work takes approx. 1 to 2 hours. Each user should be instructed for at least 30 minutes with regard to the operation of the gate opener, whereby its functionality should be demonstrated and safety aspects, protective facilities and procedure in case of power failure should all be explained.</p>	
<p>What happens in case of power failure?</p>	<p>All Chamberlain gate openers are equipped with a release system by means of which the gate can be operated manually in case of power failure.</p>	
<p>Is it possible to open just one wing of the gate (pedestrian mode)?</p>	<p>Yes, it is possible. This process can be operated via remote control (a 2-channel remote control is the minimum requirement here) or via switch operation (see "Standard" operation mode setting).</p>	
<p>Gate opener does not function / does not respond when button is pressed.</p>	<ol style="list-style-type: none"> 1. Connection to button is loose. 2. STOP switch connection is loose; STOP LED is off. 3. Obstacle is blocking photocell in direction of movement. 4. Safety edge is damaged or has encountered an obstacle. 5. Gate opener is still released. 	<ol style="list-style-type: none"> 1. Check button and COM connections. 2. Check STOP switch connections (STOP and COM). 3. Remove obstacle. 4. Remove obstacle and check connections and wiring. 5. Lock gate opener.
<p>Immediately after the gate has started moving, it stops and reverses.</p>	<p>Obstacle in area of gate.</p>	<p>Check area of gate for objects</p>
<p>The gate opener does not open the gate fully.</p>	<ol style="list-style-type: none"> 1. Has the running time of the controller been set correctly? 2. Has the force been set correctly? 	<ol style="list-style-type: none"> 1. Reprogram as required – plus approx. 3 seconds. 2. Correct force setting (gate opener runs somewhat slower in windy conditions).
<p>The gate opener hums slightly but has no force</p>	<ol style="list-style-type: none"> 1. Capacitor is not correctly connected to the brown and black cable. 2. Force has not been set. 3. The gate opener has been released. 	<ol style="list-style-type: none"> 1. Check wiring of capacitor. 2. Turn force potentiometer in a clockwise direction. 3. Lock gate opener.
<p>The controller doesn't respond when I alter the Dip-switches.</p>	<p>Disconnect controller from power supply, then alter Dip-switches.</p>	
<p>The gate opener only works when I press and hold the button on the remote control.</p>	<ol style="list-style-type: none"> 1. Controller in 'hold to run' operating mode. 2. A safety facility is not working correctly (photocell, safety edge). 	<ol style="list-style-type: none"> 1. Disconnect controller from power supply, then alter Dip-switches. 2. Observe LEDs; find and rectify fault.
<p>"Timer to close" doesn't work.</p>	<ol style="list-style-type: none"> 1. Only works if the 2-cable photocell 770E(ML) or 771E(ML) has been installed. 2. Then turn "timer to close" potentiometer in a clockwise direction. 	
<p>The gate opener doesn't respond at all, although the controller has been connected (LEDs are on).</p>	<ol style="list-style-type: none"> 1. Remote control has not been programmed. 2. LEDs indicate a fault. 3. Photocell connected incorrectly. 4. Jumper between STOP and COM missing. 5. Motor terminal possibly not connected properly. 	<ol style="list-style-type: none"> 1. Programming remote control. 2. Find and rectify fault(s) (see description of LEDs). 3. Check photocell connection / programming. 4. Connect simple jumper. 5. Check terminals and connections.
<p>The gate opener doesn't respond at all; no LED is on.</p>	<p>Possibly power failure.</p>	<ol style="list-style-type: none"> 1. Check conductor and zero conductor. 2. Check house fusing.
<p>The gate opener stops suddenly and then restarts only after a lengthy pause.</p>	<p>If the gate is operated constantly, the motor will reach its cut-off temperature - protective facility - as the gate opener is not designed for permanent operation.</p>	<p>Allow motor sufficient time to cool (min. 15 minutes).</p>
<p>The gate must follow a slope.</p>	<p>Not recommended! Change gate! The gate can move in an uncontrolled (dangerous) manner if the gate opener has been released. A stronger force is needed in the upwards direction of the slope and then, in the opposite direction, the gate opener's force is too strong.</p>	

The remote control's range is too short.	The installation of an external aerial is recommended as the controller with the short cable aerial is located either behind the post or near ground level in most cases. The optimum location of the aerial is as high as possible in all cases. An appropriate aerial with installation kit can be obtained from Chamberlain as an accessory with the product ref. no. ANT4X-1EML.	
The force setting has been altered, but no difference is apparent.	Disconnect the controller from the power supply for a few seconds in order to activate the control board's self-diagnosis functionality.	
The control board does not work any more using the hand-held transmitter, only with the switch and even then only as long as a button is pressed and kept pressed. Open with push-button (1) or CLOSE with push-button (2)	<ol style="list-style-type: none"> 1. Dip switch setting not as desired 2. A safety photocell, a contact strip or the stop disables the control board 3. Only one photocell was connected for OPEN 	<ol style="list-style-type: none"> 1. Correction of the dip switch, elimination of fault required. If the fault cannot be repaired, it will be necessary to "reset" and reprogram (see photocell) 2. At least one photocell must be connected and activated for CLOSED or OPEN & CLOSED.
The unit does not close automatically, it OPENS automatically	Check setting of Dipswitch 7	Change setting of Dipswitch 7
Control board does not work with hand-held transmitter	<ol style="list-style-type: none"> 1. Hand-held transmitter not programmed 2. An photocell blocks 	<ol style="list-style-type: none"> 1. Program hand-held transmitter 2. Check photocells
Gate can only be opened	<ol style="list-style-type: none"> 1. photocell blocks 2. Dip switch setting not as desired 	<ol style="list-style-type: none"> 1. First limit switch gate OPEN Function and connection of the limit switches must be checked 2. Check dip switch
The control board is not running	No covered distance learned	Learn covered distance. See Initial operation
The wing does not open completely for the soft stop	<ol style="list-style-type: none"> 1. Insufficient force in the event of high wind loads (entire gates) 2. Gate sluggish/heavy 	<ol style="list-style-type: none"> 1. Reset force (increase) 2. Improve ease of movement 3. Program control board without soft stop
(Remote controlled) universal receiver does not work	Observe polarity (terminals 14/15)	Swap "+" and "-" cables

Declaration of Conformity


Automatic Gate Opener Models HC100ML-2, HC500ML-2 Series
are in conformity to the applicable
sections of Standards EN300220-3 • EN55014 • EN61000-3 • EN60555, EN60335-1 • ETS
300 683 • EN60335-1: 2002 • EN60335-2-103: 2003 • EN55014-1: 2000 + A1 + A2 •
EN55014-2: 2001 • EN61000-3-2: 2000 • EN61000-3-3: 1995 + A1 • EN 301 489-3,
V1.3.1 • EN 300 220-3 V1.1.1 • EN13241-1
per the provisions & all amendments
of the EU Directives2006/95/EC, 2004/108/EC, 1999/5/EG

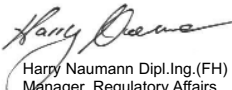
Declaration of Incorporation

Automatic Gate Opener Models 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
Mai, 2008





Harry Naumann Dipl.Ing.(FH)
Manager, Regulatory Affairs