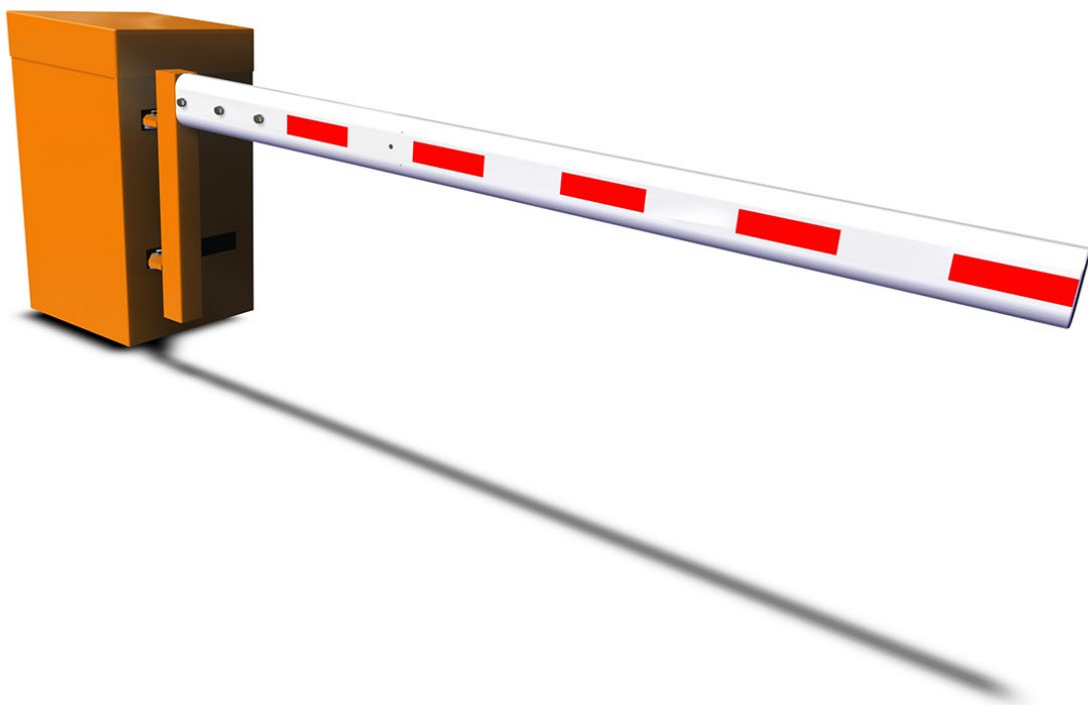


Electrical swinging barrier

BP56



OPERATING MANUAL

(translated from French)

Revision page

Rev	Date	Written by	Checked by	Nature of the modification
02	Nov. 30, 2007	MFy		<ul style="list-style-type: none"> - Adapt to software version 4.1 of AS1320 control board (ch 2.3). - Update of the electric diagram (ch 6). - Addition of the layout plan (ch 7) - Update of the conformity certificates (ch 8).
03	Jun 20, 2008	MFy		<ul style="list-style-type: none"> - Control board: adapted to version 6.x of the program. - Revision of the electric diagram & addition of connector blocks assignment.
04	July 3, 2008	MFy		Ch.6.1: adapt the detection loops pinning references to electric drawings (X9-X11-X13-X14).
05	2009-08-04	MFy		Ch.2.4: operation t° modification. Ch. 8: EC certificate update.
06	2009-11-27	MFy		Ch.1: warning added regarding detection loops installation. Ch.2.3 adapted to control board v 6.2.
07	2010-01-05	MFy		EC certificate update.
08	2015-04-20	SLu	AD	General dimension drawing updated (p.10).
09	2025-09-01	MCo		Removal of references to logic 1320. Addition of AS1620 link.

Table of contents

1.	INTRODUCTION	4
2.	GENERAL	5
2.1.	Overall view.....	5
2.2.	Switching off the equipment.....	6
2.3.	AS1620 Control board.....	7
2.4.	General conditions of use.....	8
2.5.	Emergency operation.....	8
2.5.1.	Opening or closing in case of power failure.....	8
2.5.2.	In case of breakdown.....	8
2.6.	General dimensions.....	10
3.	INSTALLATION	11
3.1.	Preliminary work on site.....	11
3.2.	Handling and installing the unit.....	12
3.3.	Installing barrier arm.....	13
3.4.	Electrical connections and initial power-up.....	14
4.	ADJUSTMENTS AND TECHNICAL INTERVENTIONS	15
4.1.	Belt tension adjustment.....	15
4.2.	Safety torque limiter adjustment.....	17
4.3.	Safety torque limiter adjustment.....	18
5.	MAINTENANCE	19
6.	ELECTRIC DIAGRAM	20
7.	CONTROL BOARD AS1620	20
8.	INSTALLATION PLAN	21
9.	EC DECLARATION OF CONFORMITY	22

1. INTRODUCTION

WARNING:

YOUR SWINGING BARRIER TYPE BP56 COMPRISES A MECHANISM AND VARIOUS ELECTRICAL COMPONENTS. ANY NEGLIGENCE DURING AN INTERVENTION IN THE MACHINE MAY SERIOUSLY ENDANGER YOUR SAFETY. AS SOON AS YOU OPEN THE HOUSING, SWITCH OFF THE CIRCUIT BREAKER (2:1) LOCATED BEHIND THE SIDE DOOR (1:1). BE CAREFUL IN HANDLING ANY INTERNAL ELEMENT WHICH MIGHT BE UNDER POWER OR COULD BE SET IN MOTION.

IMPORTANT INFORMATION CONCERNING HEALTH & SAFETY PROCEDURES

The introduction of a pedestrian or vehicle barrier product as manufactured by **Automatic Systems** places a duty of responsibility for the safety and well-being of any user(s) or person(s) in close proximity to such equipment. You are required therefore to observe and put in place appropriate safety measures, as deemed necessary.

- ◆ Pedestrian flow must be prohibited anywhere within a vehicle barrier passage-way, unless the movement of the barrier system is clearly indicated, e.g. audible and/or visual signals, floor marking, notices, etc.
- ◆ Access keys to any of the internal mechanisms can only be issued to authorised and qualified personnel, aware of the relevant electrical and mechanical safety codes and regulations in force. All equipment housing must be kept locked.

You have a legal obligation and responsibility to enforce good safety practices at all times. See also note below.

Note: *In the countries of the European Union, the requirement 1.3.7.2 of the EC Machines Directive prescribes that the pictogram for "Dangerous area" -- no entry for pedestrians" be affixed on both sides of the equipment (* within 1 meter of the barrier arm).*

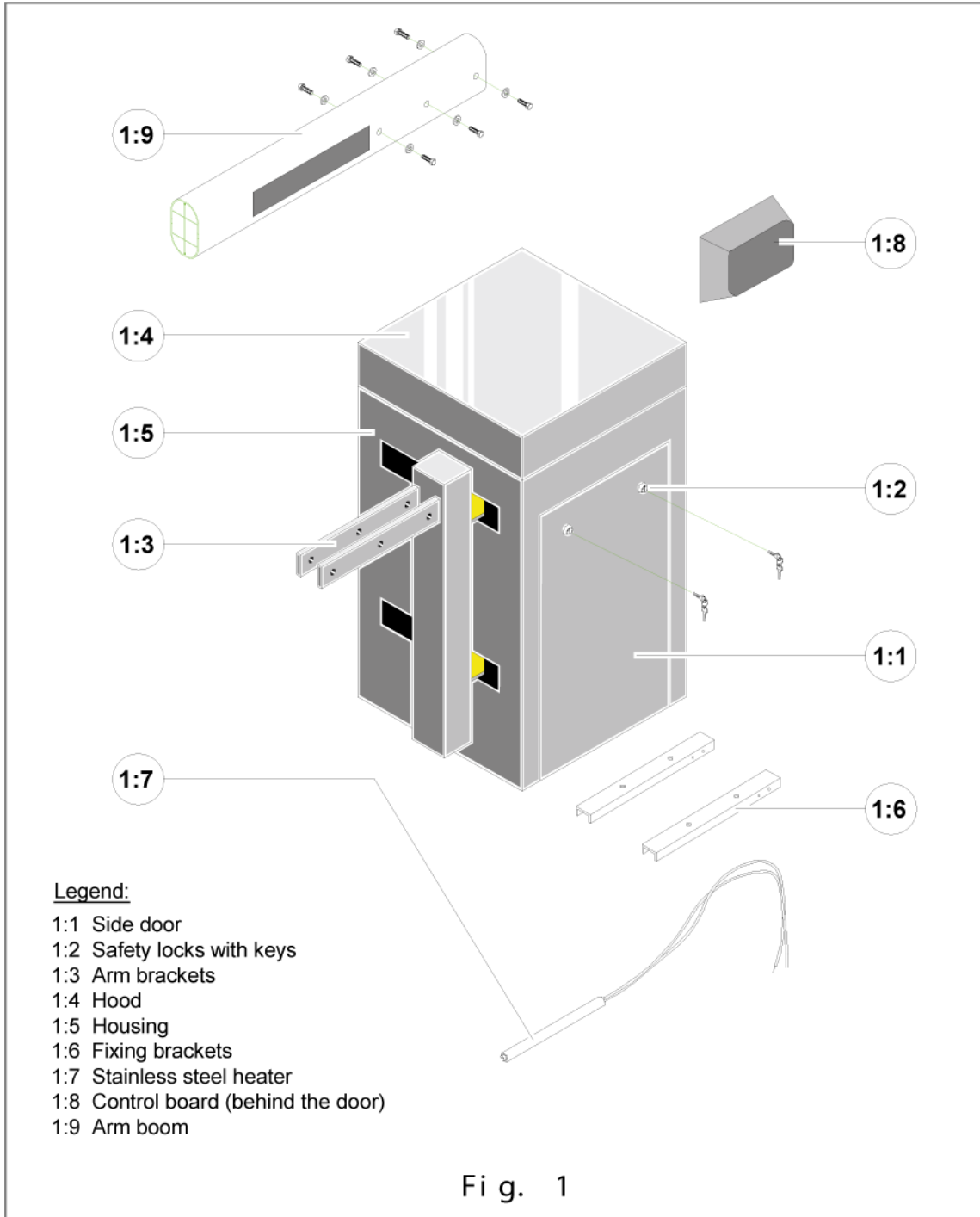


The installation of detection loops must be validated by qualified personnel who will determine their optimal configuration (adapted to vehicle type and passageway).

WARNING: The risk of injury exists for people when using standard detection loops: they can incorrectly detect trucks and (motor)bikes and close the gate on them!

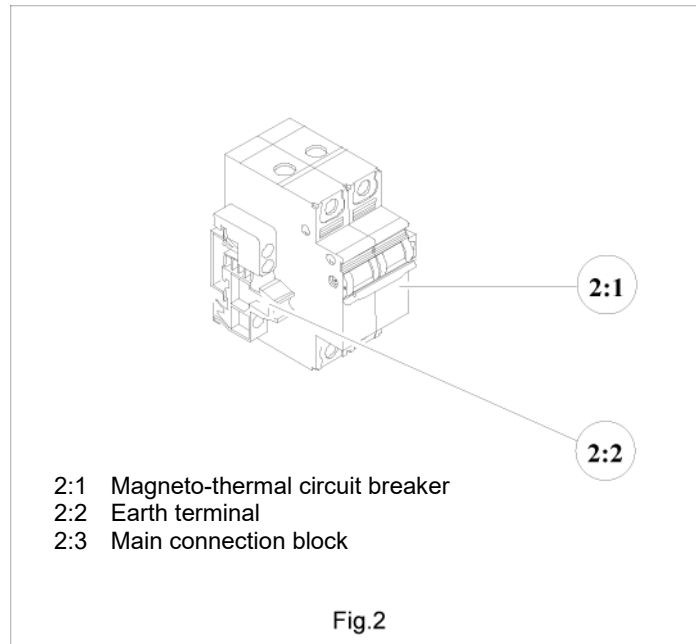
2. GENERAL

2.1. Overall view



2.2. Switching off the equipment

- As soon as you open the housing, switch off the power by switching off the magneto-thermal circuit breaker (2:1) located behind the side door (1:1).



2.3. AS1620 Control board

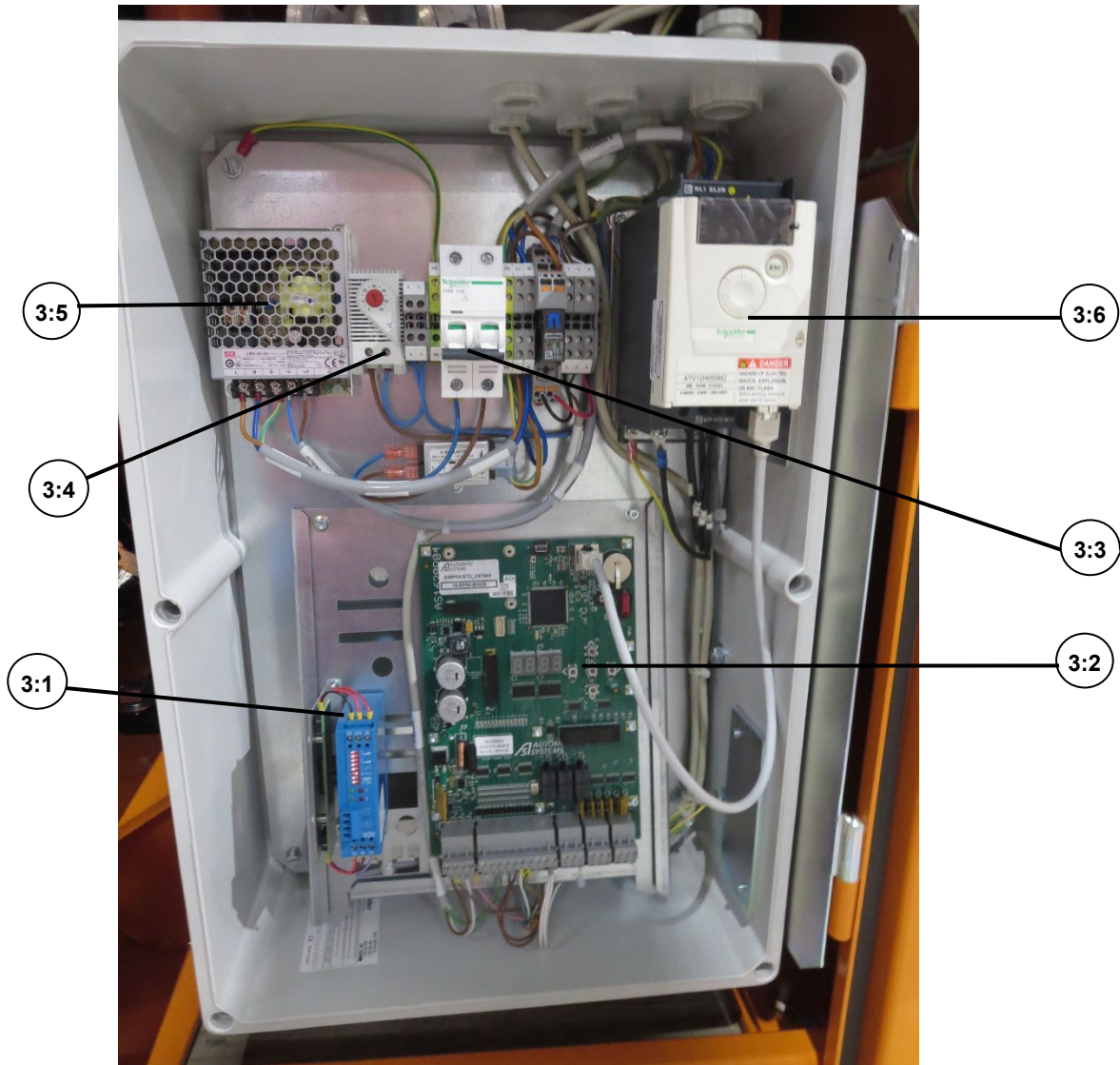


Fig. 3

Legend

- 3:1. Detector for inductive loop
- 3:2. AS1620 logic
- 3:3. Circuit breaker
- 3:4. Thermostat-controlled heating
- 3:5. Power supply
- 3:6. Frequency converter

2.4. General conditions of use

- Your swinging barrier type BP56 has been designed to operate in any kind of climatic environment, from -20°C to +50°C, with up to 95% of relative humidity.

2.5. Emergency operation

- The following instructions are to be given to the installation supervisor.

2.5.1. Opening or closing in case of power failure

- Insert the emergency crank handle into the crank hole provided in the housing. A safety device automatically switches off the power supply, thus eliminating any risk of accident in case the power supply returns.
- Turn the crank in either direction to unlock the barrier arm mechanically from its closed or open position, then go on until the desired position is reached.
- When the arm is in the closed or open position, keep turning the crank to lock the barrier mechanically.

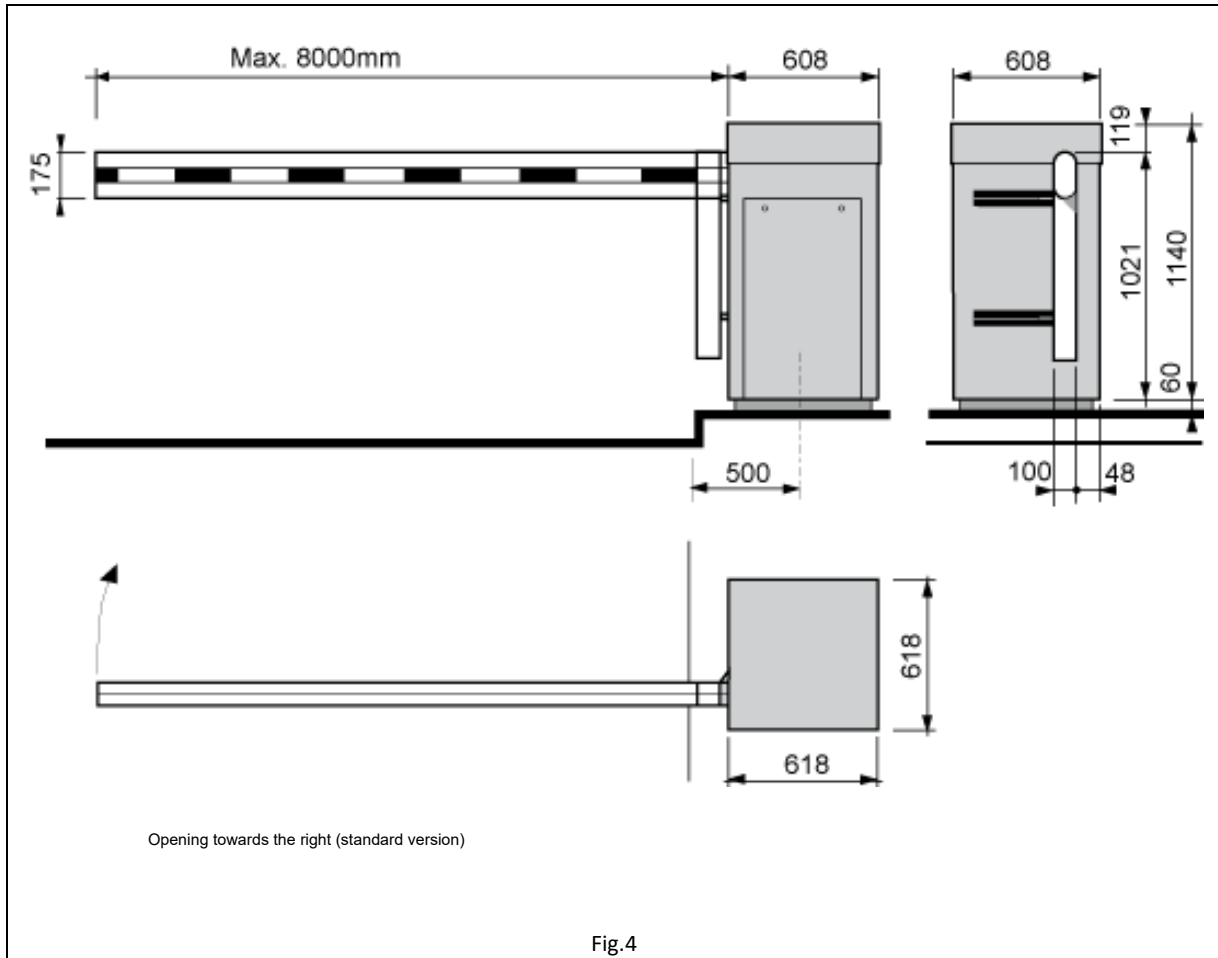
2.5.2. In case of breakdown

SYMPTOM(S)	PROBABLE CAUSE(S)	CONTROL(S) OR APPROPRIATE SOLUTION(S)
The barrier remains open	An opening command is sent continuously.	<ul style="list-style-type: none"> Check that the open command is a pulse and not a continuous command or an active command "locked in open position".
	A security is active	<ul style="list-style-type: none"> Check LD4. Adjust the programming if the security is not present.
	The (optional) loop sensor remains engaged.	<ul style="list-style-type: none"> Check the sensor's sensitivity adjustment and reset the loop sensor to zero. If the sensitivity setting is too high, it can cause the barrier to be locked in the open position. View the status of the LEDs on the sensor to check if it and/or the loop are in good condition.
	The (optional) cell is signalling a presence	<ul style="list-style-type: none"> Check photocell alignment. Ensure photocells are not dirty.
The barrier stays locked or gets stuck while moving.	Variable frequency drive is defective.	<ul style="list-style-type: none"> Check if the drive is faulty: the red LED on the side of the drive is flashing. If so, contact an Automatic Systems agent.
The barrier gets stuck and the control logic LEDs are off	Power supply	<ul style="list-style-type: none"> Check the electrical power supply at the general power supply box. Check that the circuit breaker is switched on and that the voltage corresponds to that requested in the technical specifications. Check the connection of the controls against the electrical diagram and the correct torque of all the electrical cables and re-tighten if necessary. Check the output of the 24Vdc power supply and the associated LED. Check that the power supply indicator on AS1620 LD1 green is on. Check that LD5 and LD24 are flashing. If not, programme the processor(s).

The barrier stays locked, but the display of the control logic is lit.	Short-circuit on the external communication terminal block.	<ul style="list-style-type: none"> • In the input and output area, check whether the green LEDs (inputs) and the orange LEDs (outputs) correspond to the expected statuses. • On the OLED display, (Menu ⇒ Commands), display the cause of the non-movement. • On Web Interface, display the "Visualisation" page: <ul style="list-style-type: none"> - Cause of non-movement - Barrier position - Blue background = active inputs • Switch off the power supply and disconnect the inputs/outputs if necessary. • Check and adjust the NO/NC settings.
The barrier takes a long time to close after a vehicle has passed	The closing after passage timer is set for too long.	<ul style="list-style-type: none"> • Check the values of the timers. • View on: <ul style="list-style-type: none"> - HMI (Run => SEE => Hm) - OLED display (Menu ⇒ Settings ⇒ Timers) - Web Interface (Menu ⇒ Configuration ⇒ Timers)
The barrier opens by itself.	The opening loop (optional) is too sensitive.	<ul style="list-style-type: none"> • Adjust the sensitivity and/or frequency of the opening sensor. A sensitivity setting that is too high or an improper frequency may cause unwanted openings.
	The access control system sends unwanted commands.	<ul style="list-style-type: none"> • Check it.
The mains power disconnects when the barrier is switched on	An incorrect leakage breaker is being used.	<ul style="list-style-type: none"> • Use a 300 mA leakage breaker for up to 5 barriers and for cases requiring a 30mA system, use a SI (super immunised) type circuit breaker for each barrier. • For IT networks with insulated, earthed neutral and non-standard configurations, consult your technical support.

Note: *If the trouble persists after you carry out the checks above, call your local Automatic Systems agent.*

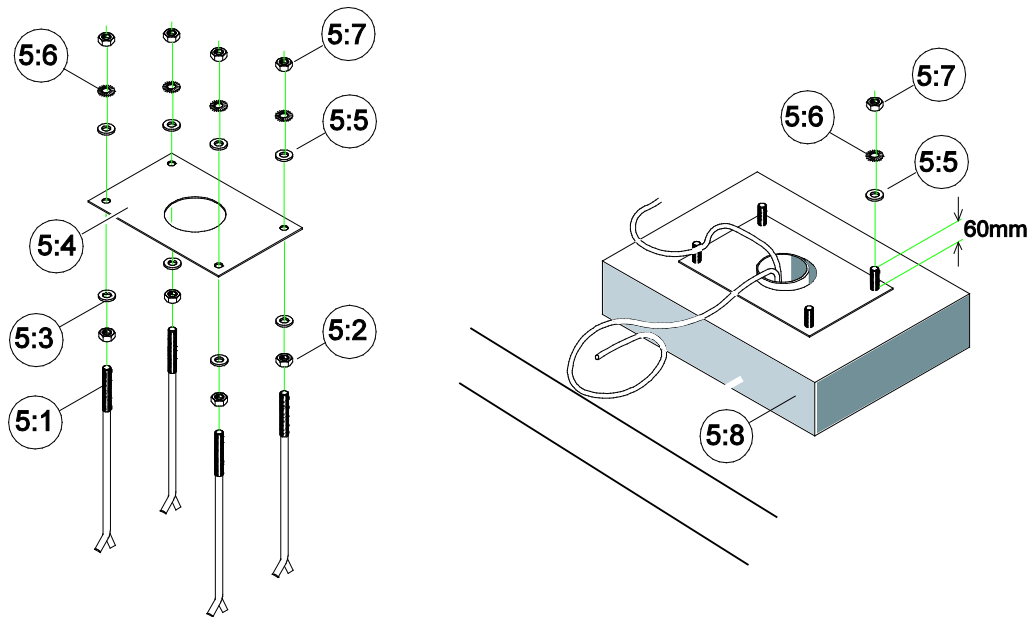
2.6. General dimensions



3. INSTALLATION

3.1. Preliminary work on site

- This is basically the following:
 - Assembly of the barrier installation basement kit, delivered as an accessory.



Pass the four anchoring bolts (5:1) into the holes of the sealing frame (5:4) using a nut (5:2) and a flat washer (5:3) each time. The curved end of the anchoring bolts must be oriented downwards and the threaded end upwards as illustrated in Fig.5a. Secure the anchoring bolts on the sealing frame by putting a flat washer (5:5), a lock washer (5:6) and a nut (5:7) on each threaded rod with a 60mm tail. Tighten the nuts. It is advisable to protect the threads sticking out of the sealing frame from concrete projections by means of adhesive tape.

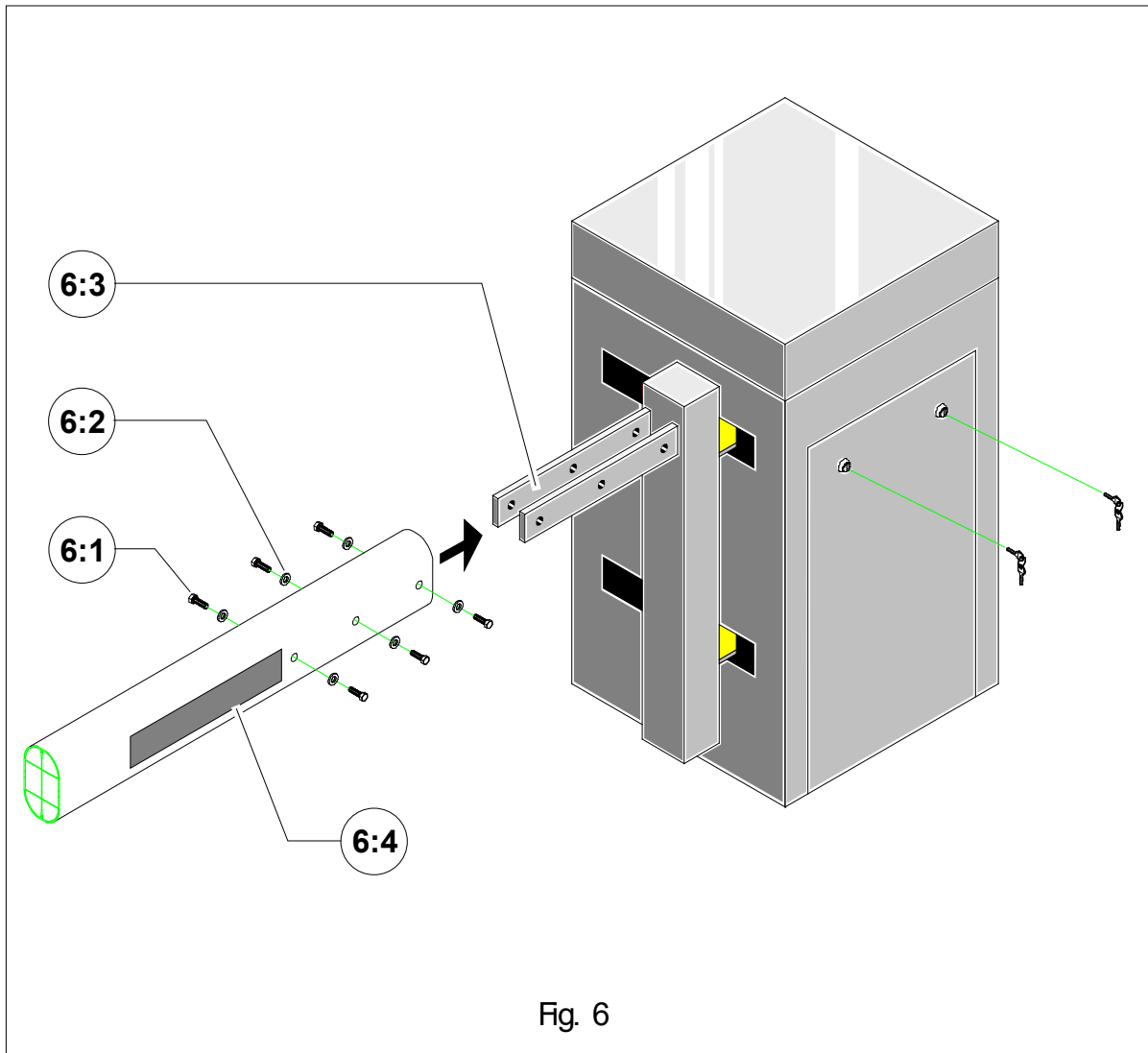
- PVC tube (minimum diameter 60mm) to be provided to allow the power supply and remote control wires to exit from within the concrete base.
- Construction of a concrete base (5:8) in which the basement kit is to be buried according to the instructions of plan Nr CH2260. The basement kit must be flush with the finished level of the concrete base and perfectly horizontal (Fig.5b). When the concrete is dry (allow minimum 21 days), remove the adhesive protection tape from the threads, and remove the nuts (5:7), the lock washers (5:6) and the flat washers (5:5).
- Wiring (to be provided by the customer, according to the legal prescriptions in use in the country of installation):
 - # Power supply (from the general power supply box to the concrete base)
 - # Control wiring (from the place where the control box will be installed to the concrete base).
 Ensure that the cables have a minimum of 1 metre out of the concrete base.

3.2. Handling and installing the unit

- The barrier has been packaged in a wood crate for transport. Carry the material to the installation site with the help of a fork-lift truck or a crane (according to the site configuration), place the crate upright and dismantle.
- Unlock and remove the side door (1:1). Keys are attached on the arm brackets (1:3) by means of adhesive tape.
- Unlock the two latches from the inside of the housing (1:5) and remove the hood (1:4).
- Check the state of the equipment. Though it has been carefully packed, damage may have occurred during transport: in this case, do not forget to advise your local **Automatic Systems** agent or your insurance company. If need be, proceed with the necessary repairs.
- Strip the insulation of the cables from within the concrete base along approx.50cm.
- With the help of the fork-lift truck or the crane, in order not to damage the anchoring bolts, place the housing (1:5) on its concrete base.
- Insert the two fixing brackets (1:6) inside the unit onto the anchoring bolts (5:1) of the basement kit.
- Secure the barrier to the basement kit by locking the fixing brackets (1:6) with the flat washers (5:5), the lock washers (5:6) and the nuts (5:7).
- Fix the stainless steel heater (1:7) into the sheath provided behind the gearbox console, below the technical identification plate.
- If required, add shims between the sealing frame and the housing in order to ensure the barrier is perfectly level.

Note: <i>Since final adjustment of the alignment with the roadway may be necessary after the arm is installed, do not tighten the nuts (5:7) firmly now.</i>

3.3. Installing barrier arm



Attention: Fixing the arm requires at least two people, depending on its length! In case of difficulty, the use of a crane is highly advisable.

- Remove the three screws (6:1) and flat washers (6:2) from the twin arm bracket (6:3).
- Insert the arm tube (6:4) inside the arm bracket (6:3), if necessary using a crane.
- Fix the flat washers (6:2) and screws (6:1) again. Tighten the screws (6:1) firmly.
- Check the alignment of the complete barrier with the roadway and adjust if necessary.
- Tighten the nuts (5:7) firmly to lock the barrier on the sealing frame.

3.4. Electrical connections and initial power-up

Warning: high leakage current (between 3.5 mA and 5% of the nominal current).

Earth connection with a cable of minimum 1 mm² section is mandatory before connecting power supply.

- The electrical connections must be made according to the electric diagram.
- Make sure the power supply cables are not live.
- Remove the control board from the housing.
- Connect the two phases of the power supply to the circuit breaker (2:1).
- Connect the earth wire to the earth terminal (2:2).
- Connect the wires from the three-push button box to the control board connector.
- Connect the wires of the stainless-steel heater to connector (3:4).
- If the installation includes one (or more) detection loop(s), connect it(them) to connectors.
- Proceed to the other electrical connections (if the case arises) according to the electrical diagram supplied with the equipment.
- Arm the overload protection of the electrical control board by switching on the circuit breaker (2:1). If the installation includes one (or more) detector(s), make sure no vehicle activates it (them) at that moment since this might distort the detector(s)' sensitivity.
- Proceed with an electrical opening/closing test by pushing the OK button of the control board or using the push button box.
- Fix the cables under the electrical control board by means of the cable binders provided.
- Replace the control board into the housing, and tighten the fixing screw (4:5) again.

<p>Note: For further information on the control logic or the type of detector to use (according to the road width, etc.), please refer to the corresponding technical data sheet or contact your local Automatic Systems distributor.</p>

4. ADJUSTMENTS AND TECHNICAL INTERVENTIONS

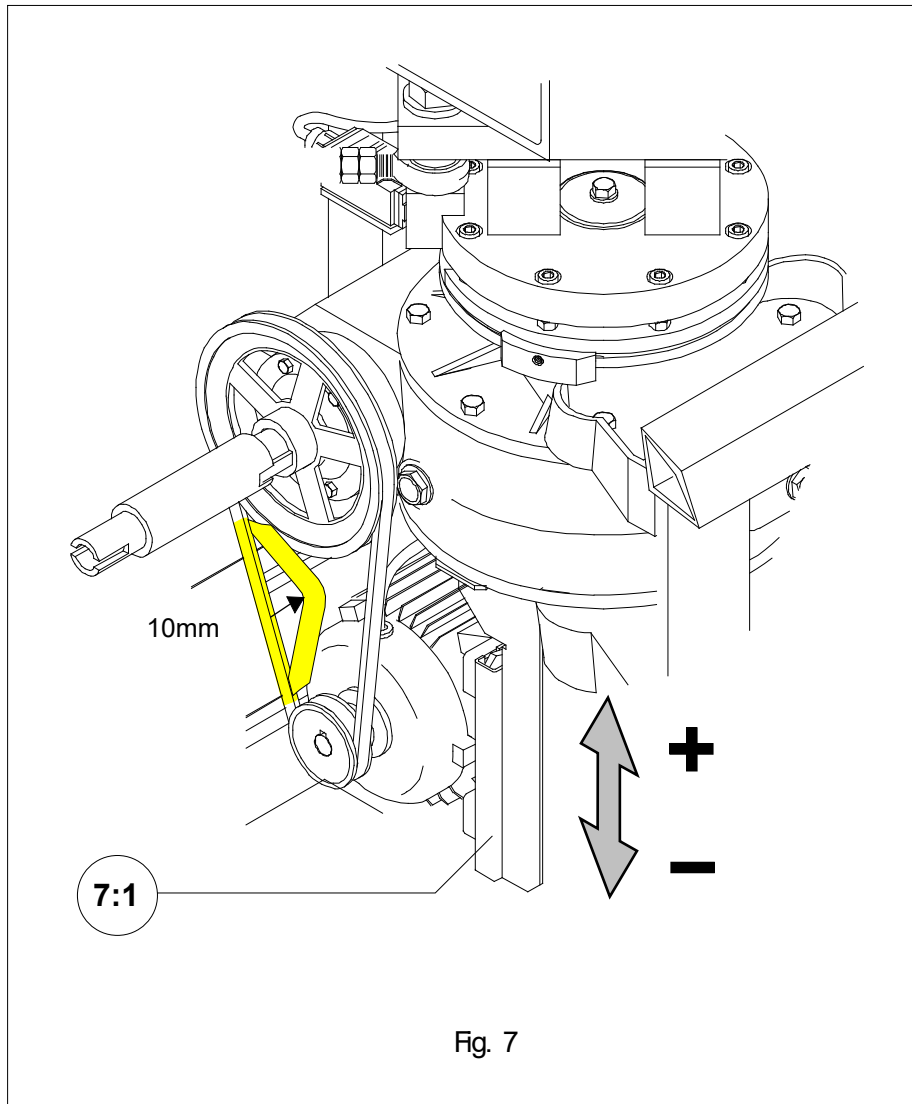
WARNING!

REMINDER: YOUR SWINGING BARRIER TYPE BP56 COMPRISES A MECHANISM AND VARIOUS ELECTRICAL COMPONENTS. ANY NEGLIGENCE DURING AN INTERVENTION IN THE MACHINE MAY SERIOUSLY ENDANGER YOUR SAFETY. AS SOON AS YOU OPEN THE HOUSING, SWITCH OFF THE POWER BY SWITCHING OFF THE CIRCUIT BREAKER (2:1) LOCATED BEHIND THE SIDE DOOR (1:1). BE CAREFUL IN HANDLING ANY INTERNAL ELEMENT WHICH MIGHT BE UNDER POWER OR COULD BE SET IN MOTION.

THE HOOD SHOULD BE REMOVED ONLY IF YOU NEED TO REPLACE THE DRIVING SHAFT OR THE BALANCE SPRING, ADJUST THE BELT OR PROCEED WITH THE MAINTENANCE.

4.1. Belt tension adjustment

- The tension of the belt must be adjusted after replacement or after a certain time of operation, or when all the motor power cannot be transmitted to the mechanism. As a consequence, the belt slips on the pulleys and there is a formation of black dust. Proceed as follows to check the tension and/or replace the belt.
 - Arm the overload protection of the barrier by switching the circuit breaker (2:1) on.
 - Open the barrier arm electrically.
 - Close it electrically.
 - Reverse the movement when the arm is half-way (45° angle).
 - By slipping slightly, the torque limiter must absorb the inertia of the arm (NOT THE V-BELT!).
 - If necessary, adjust the belt tension as follows, after switching off the circuit breaker (2:1):
 - ☞ Loosen slightly the four screws that fix the motor.
 - ☞ If required, slide the motor downwards in its guides (7:1), remove the old V-belt and fix the new one.
 - ☞ Slide the motor upwards in its guides. The tension is properly adjusted if the belt can be depressed about 10mm when you push on it as illustrated in Fig.7.
 - ☞ Make sure that the motor is horizontal.
 - ☞ Tighten the four screws firmly again.



Reminder: In case a closing or opening movement is reversed, the belt must not absorb the inertia of the mechanism!

4.2. Safety torque limiter adjustment

- The torque limiter is a safety device and is factory-adjusted. However, some further adjustment may be necessary when the equipment has been installed or after a certain time of operation. Proceed with the adjustment in the following cases:
 - Either the barrier arm does not open easily when a closing movement is reversed. The friction clutch then slips and must be tightened.
 - The force needed to block the arm by hand during a closing or opening movement is too strong. The friction clutch then sticks and must be loosened.
- In either case, the state of the V-belt must first be checked according to *paragraph [4.1.Belt tension adjustment]*. Then proceed as follows:

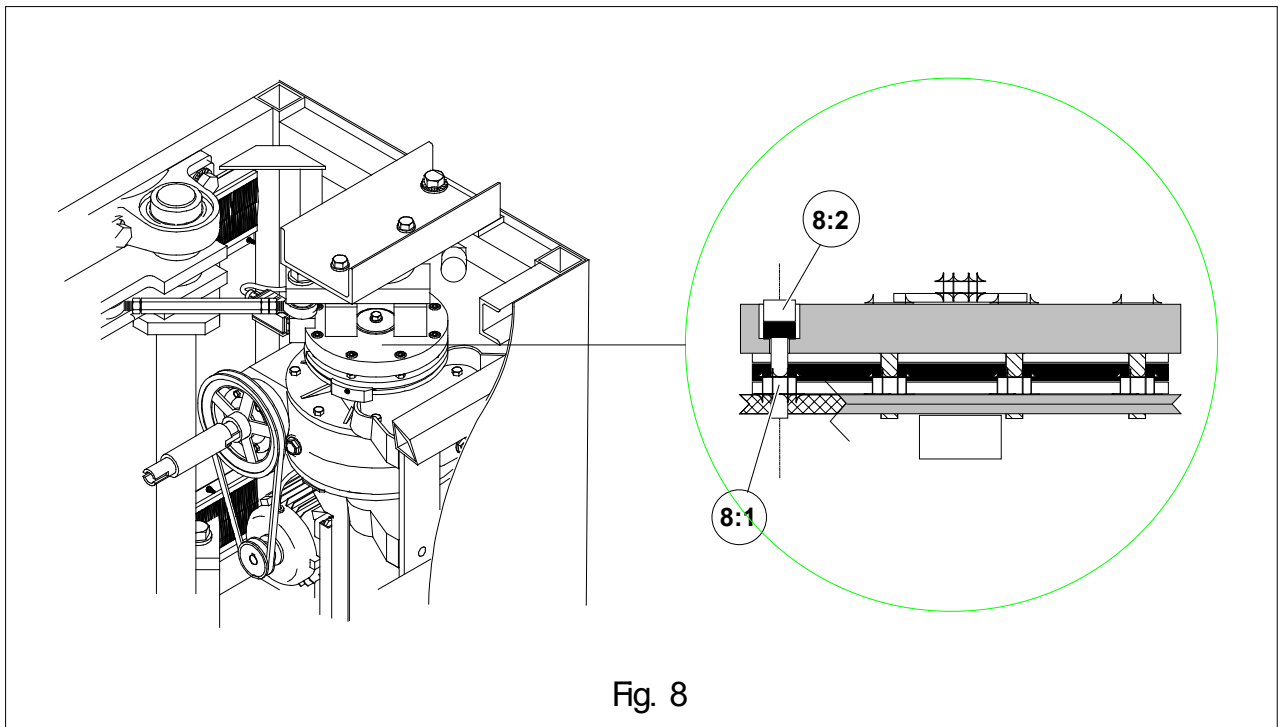


Fig. 8

- Loosen the eight lock nuts (8:1).
- Tighten the eight screws (8:2) to tighten the torque limiter, untighten them to loosen it.
- Switch on the circuit breaker (2:1).
- Make an electrical opening/closing test, and repeat the procedure above until the desired result is obtained. Never forget to first switch off the equipment.
- When the adjustment is completed, switch off the circuit breaker (2:1).

Warning: Proceed smoothly by 1/8th of a turn successively, since the adjustment is very sensitive. When the adjustment is completed, do not forget to tighten the 8 lock nuts (8:1).

IMPORTANT: The excessive tightening of the clutch may damage the gear box!

- To test the torque limiter adjustment, proceed as follows:
 - Arm the overload protection of the barrier by switching on the circuit breaker (2:1).
 - Open the barrier arm electrically to an angle of 90°.
 - Close it electrically.
 - Reverse the movement when the arm is half-way (angle of 45°).
 - By slipping slightly, the torque limiter must absorb the inertia of the arm (NOT THE V-BELT!).
 - When the check is completed, switch off the circuit breaker (2:1).

4.3. Safety torque limiter adjustment

The factory settings allow the frequency drive and gear motor to be protected against all malfunctions. These values should therefore not be changed under any circumstances.

Attention: Any changes to these parameters without having the express permission of Automatic Systems, is your responsibility and will void the product warranty.

The frequency converter is connected in Modbus.

Configuration is performed via Modbus. The only parameters to be entered manually are the Modbus address (add = 1) and the baud rate (tbr = 38,4 kbps), which can be accessed via the configuration menu:

```

ConF (Configuration) ⇒ FFL ⇒ mda (Modbus)
ConF (Configuration) ⇒ Full ⇒ Com (Communication) ⇒ Add = 1
                                                    ⇒ tbr Transfer baud rate = 38400
  
```

Turn the power OFF then ON to activate the modifications.

Note: Once the control logic is restarted, the frequency converter should display a value. For example: 11

Main error messages

In case of failure, the frequency converter can indicate the origin of the fault via codes. The most common are described below.

Attention: After a power failure, the code disappears and is no longer readable once the gate has restarted. Therefore, it is imperative to note these addresses before resetting the barrier!

CODE	DESCRIPTION
OHF	Overheating of the frequency converter.
OLF	Overloading of the gear motor.
ObF	Excessive braking.
SLF1	Modbus communication fail: check that the cable connecting the control logic and the frequency driver is connected properly.
OPF1	Loss one phase at the frequency converter output.



5. MAINTENANCE

- The following operations are to be repeated every 6 to 12 months according to the traffic intensity.
 - Unlock and remove the side door (1:1).
 - Unlock the two latches from the inside and remove the hood (1:5) if necessary.
 - clean the interior of the housing.
 - Check if all screws and nuts have been tightened firmly.
 - Check if all wires are firmly connected to their respective terminal blocks. Check the state of the contacts and relays of the control board: black traces, etc.
 - Check if the arm is correctly fixed. If not, refer to *paragraph [3.3.Installing barrier arm]*.
 - Check the state and the tension of the V-belt referring to *paragraph [4.1.Belt tension adjustment]*.
 - Check if the arm reopens with difficulty in case a closing movement is reversed, or if it cannot be stopped by hand during a manoeuvre. If necessary, refer to *paragraph [4.2.Safety torque limiter adjustment]*.
 - Open and close the barrier electrically: at the end of each movement, check that the arm is mechanically blocked, with motor stopped.
 - Grease the ball straps (spherical rod ends) once a year. Use a lithium or metallic lithium-base anticorrosive, multifunction grease with a working range from -25°C to +110°C (-13°F to +250°F).
 - Check if you did not forget any tool inside the barrier.
 - Replace the hood (1:4) and lock it from the inside with the two latches.
 - Put the side door (1:1) and lock it.
 - Clean the outside of the housing and the arm with a soft cloth or brush. In countries with prolonged periods of sunshine, it is also advisable to polish the outside of the housing on a regular basis

Note: <i>The reduction gearbox and the pillow blocks are life-lubricated and do not require any maintenance. Just check on a regular basis if they do not leak.</i>
--

6. ELECTRIC DIAGRAM

Note: The reference diagram is inside the equipment.

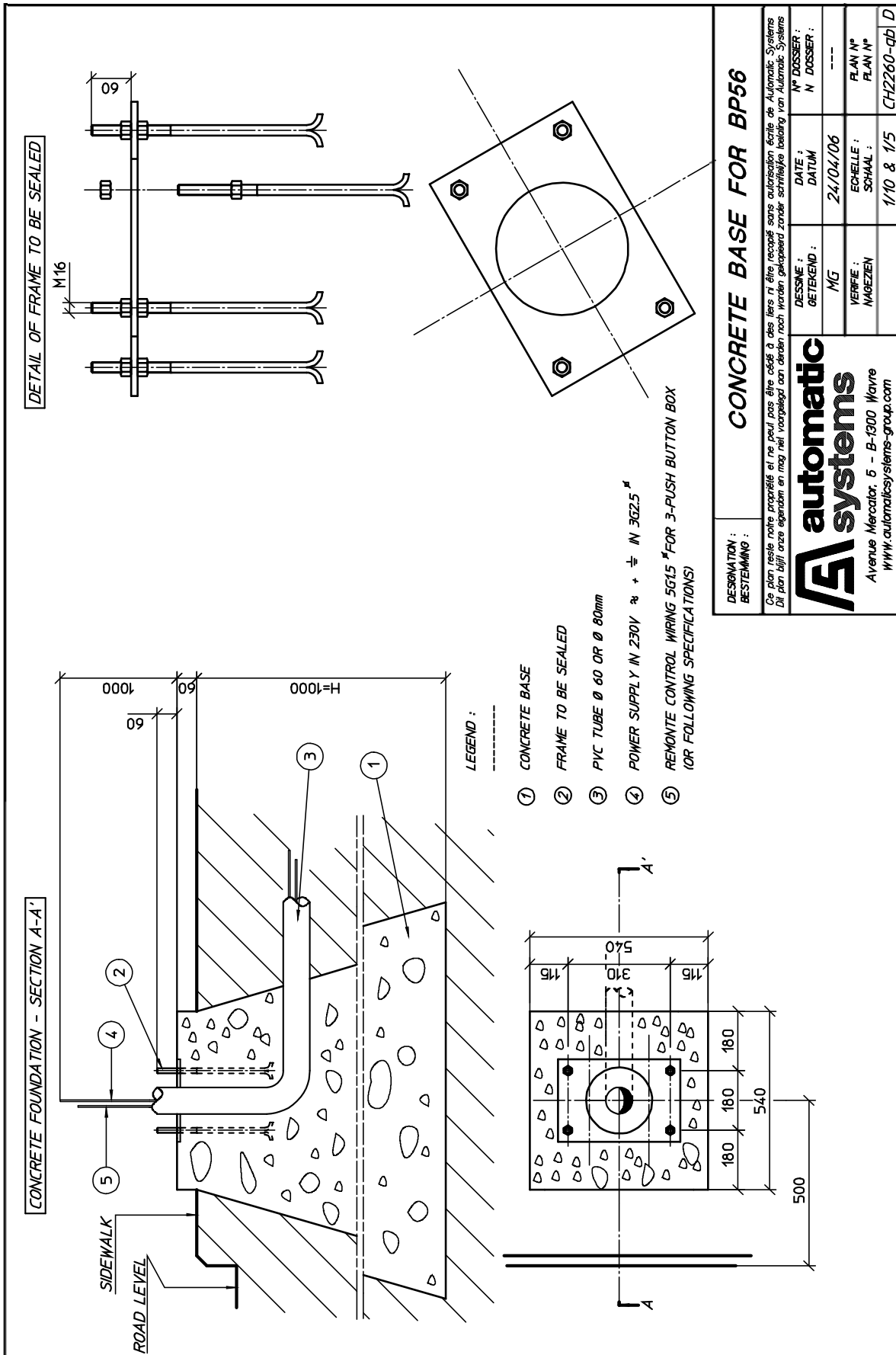
7. CONTROL BOARD AS1620

See specific manual.



[link](#)

8. INSTALLATION PLAN



The information contained in this document is the property of Automatic Systems and is confidential. The recipient shall refrain from using it for any purpose other than the use of the products or the execution of the project to which it refers, and from communicating it to third parties without Automatic Systems' prior written agreement. Document subject to change without notice.

9. EC DECLARATION OF CONFORMITY



DECLARATION OF CONFORMITY

We, undersigned,

AUTOMATIC SYSTEMS s.a.
Avenue Mercator, 5
1300 Wavre
BELGIQUE

Herewith declare that the following machine:

Automatic swinging barrier
BP 56

is in accordance with the conditions of the following Directives, standards and other specifications:

- Machinery Directive 2006/42/EC.
- Low-voltage Directive 2014/35/EU.
- Electromagnetic compatibility Directive 2014/30/EU.
- Directive RoHS 2 (Restriction of Hazardous Substances) (2011/65/EU) - Delegated Directive RoHS 3 (EU) 2015/863.
- EN 12453:2017+A1:2021: Industrial, commercial and garage doors and gates - Safety in use of powered doors - Requirements and test methods.
- EN 13241+A2: 2016: Industrial, commercial, garage doors and gates - Product standard, performance characteristics.
- EN 12100:2010: Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010).
- EN 60204-1 :2018: Safety of machinery - Electrical equipment of machines - Part 1: General requirements.
- EN 61000-6-3 :2021: Electromagnetic compatibility (EMC) - Generic standards - Emission standard for residential, commercial and light-industrial environments.
- EN 61000-6-2 :2019: Electromagnetic compatibility (EMC) - Generic standards - Immunity standard for industrial environments.

Made in WAVRE,
Date: 2025.09.02

François SANCHEZ | Director of Engineering



Automatic Systems SA

Head Office :
Avenue Mercator, 5 - 1300 WAVRE - BELGIUM
+32.(0)10.23.02.11

www.automatic-systems.com