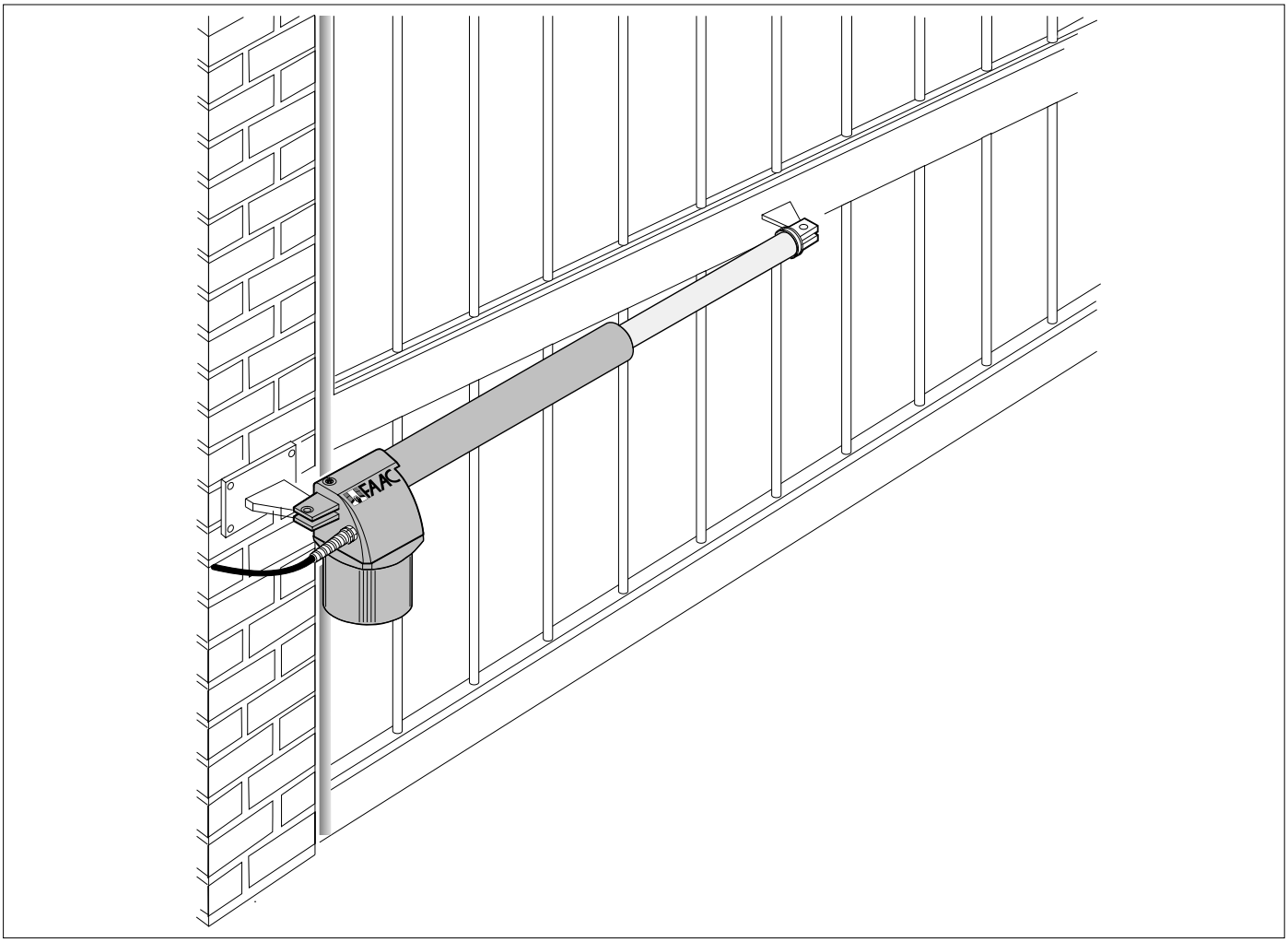
CE

414 P
COMPACT



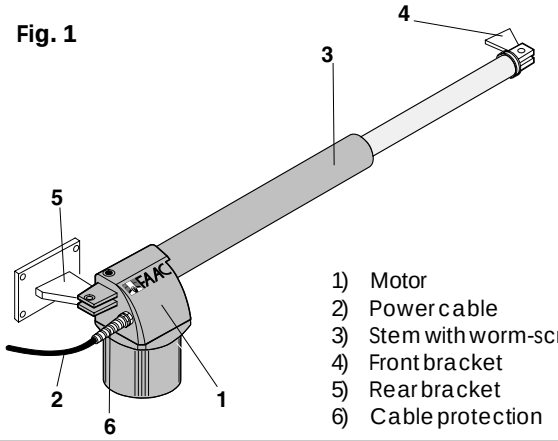
FAAC

414 P

The 414 P automated system for swing leaf gates is an electro-mechanical operator which transmits motion to the leaf by a worm-screw system. It is a self-locking automatic system equipped with a mechanical lock-out, when the motor is not operating. When automated, the gate locks in the STOP position, and, therefore, there is no need to install any lock.

1. DESCRIPTION AND TECHNICAL SPECIFICATIONS

Fig. 1



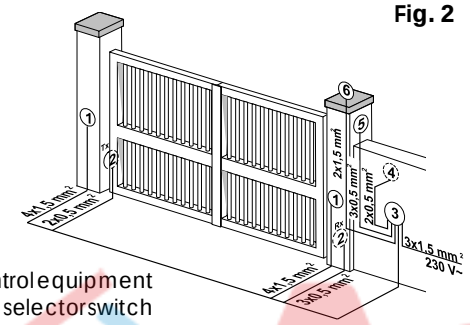
1) Motor
2) Power cable
3) Stem with worm-screw
4) Front bracket
5) Rear bracket
6) Cable protection

Table 1: Technical specifications

Model	BAT		DOUBLE
Power supply	230V~-50Hz	24Vdc	230V~-50Hz
Absorbed power	280W	70W	280W
Absorbed current	1.2A	3A	1.2A
Electric motor	1400		900
Thermal protection	140°C		140°C
Capacitor	8µF/400V		8µF/400V
Maximum thrust	350 daN	300 daN	250 daN
Travel	300 mm / 400 mm		
Speed	1.6 cm/sec		
Operating ambient Temperature	-20°C +55°C		
Operator weight	6.5 kg		
Protection class	IP 44		
Use frequency	20	50	20
Maximum leaf	3 m / 4 m		

2. LAY-OUT OF STANDARD SYSTEM

Fig. 2



1) Operators
2) Photocells
3) Electronic control equipment
4) Key-operated selector switch
5) Radio receiver
6) Flashing lamp

Notes: **1)** To lay the electric cables, use adequate rigid and/or flexible tubes.

2) Always separate low voltage connection cables from 230 Vac power cables. To prevent any interference, use separate sheaths.

Table A **INSTALLATION DIMENSIONS**

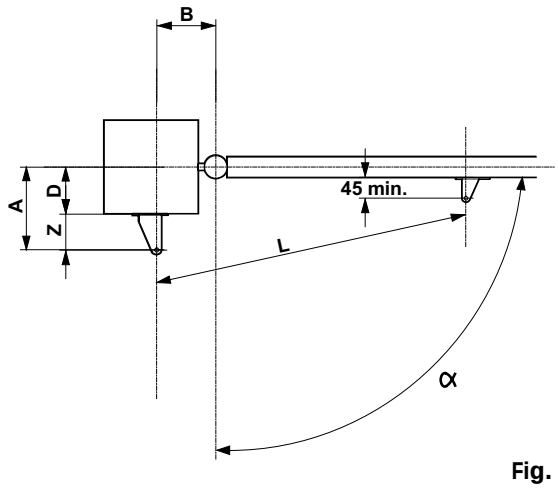


Fig. A

Table A: Recommended dimensions in mm

Model	α	A	B	C (¹)	D (²)	Z (³)	L
300	90°	145	145	290	100	45	895
	110°	125	125	290	80	45	895
400	90°	195	195	390	150	45	1090
	110°	165	165	390	120	45	1090

(¹) stem useful travel (²) max. dimension (³) min. dimension

DETERMINING THE INSTALLATION DIMENSIONS: GENERAL RULES

If the dimensions indicated in table A are not feasible, the following must be taken into consideration in order to determine different measures:

- to obtain **leaf openings at 90°: a + b = c**
- to obtain **leaf openings of over 90°: a + b < c**
- **lower a and b dimensions determine higher leaf opening speeds.** Current standards have to be complied with.
- **limit the difference of dimensions a and b within 4 cm:** higher differences cause high speed variations during the opening and closing movement.
- due to operator overall dimensions, the **minimum Z dimension is 45 mm** (fig. A)
  If the pillar dimension or the hinge position make it impossible to keep the dimension a at the required measure, a niche on the pillar is to be executed as shown in fig. B:

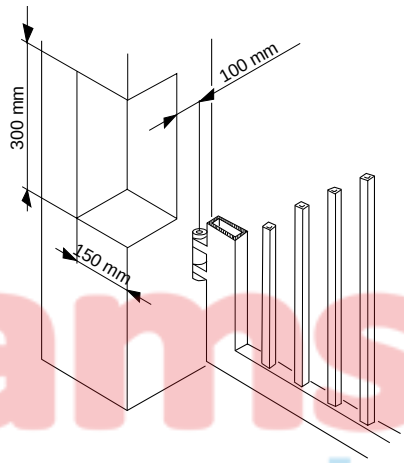


Fig. B

3. INSTALLING THE AUTOMATED SYSTEM

3.1. PRELIMINARY CHECKS

To ensure efficient operation of the automated system, the gate structure must satisfy the following requirements:

- maximum length of single leaf: 3 m (operator useful travel: 300 mm)
- maximum length of single leaf: 4 m (operator useful travel: 400 mm)
- a sturdy, rigid leaf structure,
- Presence of travel limit stops for gate opening and closing movements (mechanical stops).
- existing hinges in good condition
- presence of the electric lock for leaves of over 2.5 m.

We advise you to carry out any metalwork jobs before installing the automated system.

The good condition of the structure directly affects the reliability and safety of the automated system.

3.2. INSTALLING THE OPERATORS

1) Secure the rear bracket to the pillar, following the instructions in **Table A**, if necessary changing the length of the supplied bracket.
   Attention: Observe the indicated dimensions in order not to jeopardise the efficiency of the operator.
   In case of iron pillar, carefully weld the bracket directly on the pillar.
   In case of masonry pillar, secure the base-plate to the pillar (fig. 3) and then weld the bracket to the plate on the wall.
2) Secure the operator to the rear bracket with the supplied pins.
   Attention: right and left operators are supplied. The correct installation direction is shown in fig. 3.
   The right operator must be fitted on the gate's right leaf, looking at it from the inside. The left operator must be fitted on the gate's left leaf, looking at it from the inside.
3) Release the operator (see point 6).

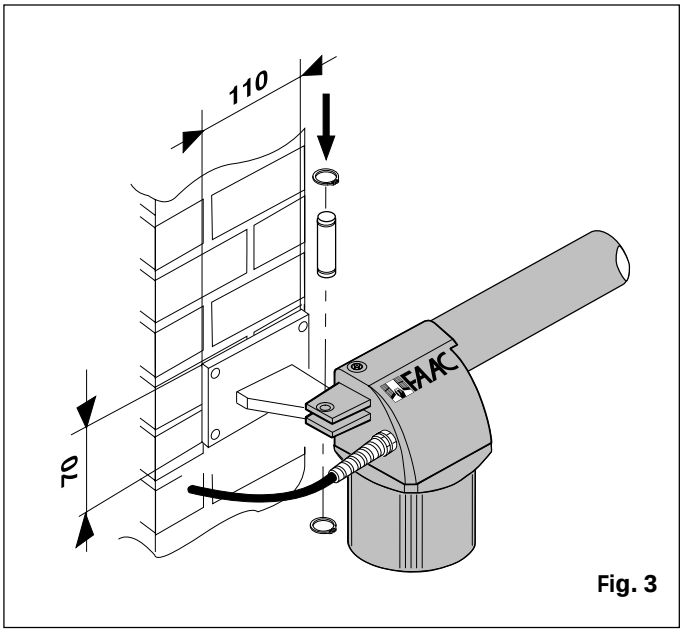


Fig. 3

4) Fully remove the operator's stem (fig. 4).
5) Lock the operator again (see point 7).
   RELEASE: The operation described in points 3) and 5) must be carried out only in the case of a self-locking operator.
6) Turn the operator stem twice clockwise (fig.4).

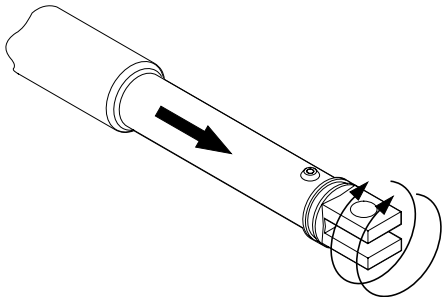


Fig. 4

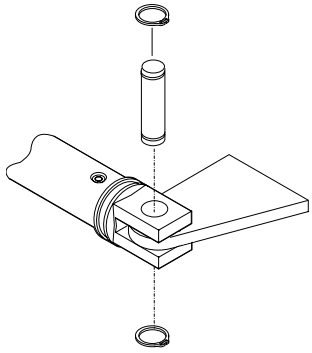


Fig. 5

7) Fit the front bracket on the operator's removed stem as shown in fig. 5.
8) Close the gate leaf and, keeping the operator perfectly horizontal, locate the front bracket securing point on the leaf (fig. 6).

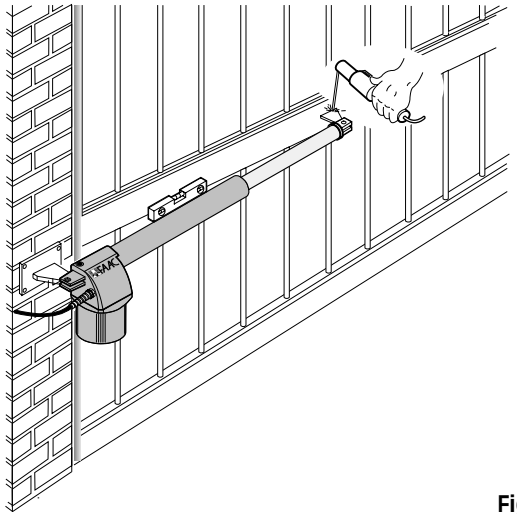


Fig. 6

9) Temporarily fasten the front bracket on the leaf with two welding spots.
   NB.: If the gate structure makes it impossible to secure the bracket firmly, the structure must be adapted to provide a solid support base.
10) Release the operator and manually check if the gate is able to open completely, up to the mechanical limit stops and if the leaf movement is smooth and friction-free.
11) Definitively weld the front bracket on the leaf. To do this, temporarily release the operator from its fitting to prevent welding waste damaging it.

NB.:
1) Grease all the securing pins of the fittings.
2) If it proves impossible to weld the base-plate of the right and left brackets, use the pre-drilled holes to fasten the brackets with screws and washers.

12) Install the second operator, if any, repeating the above operations.
13) Install the electronic control equipment enclosure, taking dimensions into account.

4. START-UP OF ELECTRONIC CONTROL EQUIPMENT

1) Program the electronic control equipment according to the user's needs - see the relevant instructions.
2) Power up the system and check the status of the LEDs , as shown in the table in the instructions for the electronic control equipment.

5. TEST OF THE AUTOMATED SYSTEM

Check operating efficiency of the automated system and all accessories connected to it.

Hand the "User's Guide" to the Customer and explain correct operation and use of the operator in line with its purpose. Inform the User about the possible dangers entailed in using the gate automated system.

6. MANUAL OPERATION

As concerns self-locking operators, the gate can be activated manually too, e.g. in the event of a power cut or on noticing a malfunction. To release the operator, lift the protection plug and fit the supplied key in the lock of the release system, as shown in fig. 7.

To release, turn the key in the gate's leaf closing direction (fig. 7).

After release, the gate can be opened and closed manually.

7. RESTORING NORMAL OPERATION MODE

Before resetting the locked conditions, you must first cut electrical power to the operators, to avoid the risk of accidental activation while performing the above operations.

To lock the operator again, turn the key in the release system lock, in the gate's leaf opening direction (fig. 7).

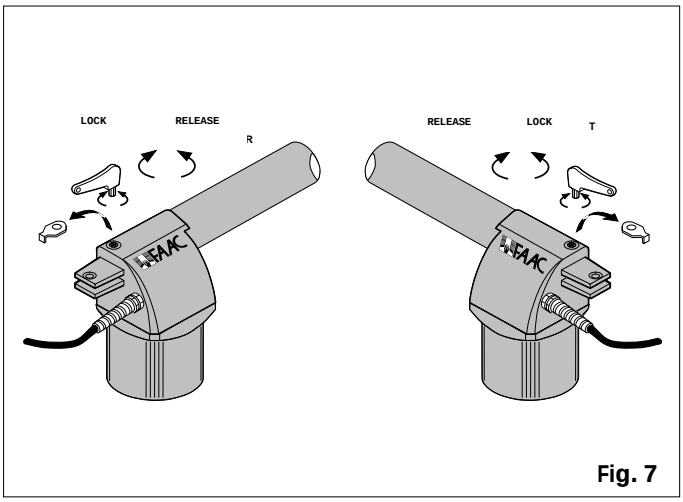


Fig. 7

8. SPECIAL USE

There are no types of special uses.

9. MAINTENANCE

Periodically check the gate's structure and, in particular, make sure that the hinges are perfectly efficient. Periodically check the correct adjustment of the electronic anti-crushing safety device and the efficiency of the release system enabling the gate to be manually activated.

All safety devices must be checked at least once every six months.

10. REPAIRS

For repairs, contact FAAC's authorised Technical Assistance Centres.

11. ELECTRICAL CABLES LAY-OUT

11.1 INSTALLATION DIAGRAM

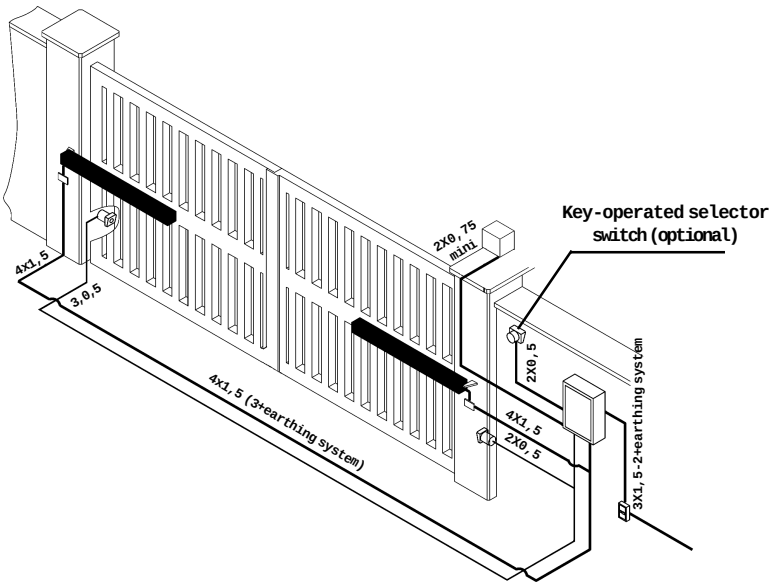


Fig. 8

11.2 ELECTRONIC CONTROL EQUIPMENT FOR REP 1RCU1

TECHNICAL SPECIFICATIONS

PROTECTION FUSES F1: 160 mA (24 V) F2: 3 .15 A (mains)

LK1 - Programming jumper
- Closed: programming mode
- Open: use mode

If any kind of job is necessary on the LK1 jumper, always turn OFF electrical power and turn it ON again, when you have finished the necessary operations.

DL1 START LED - Normally OFF - it goes ON if the START command is given or when a push-button on the transmitter is pressed.

DL2 PHOTOCELLS LED - Normally ON - it goes OFF when the photocell beam is interrupted.

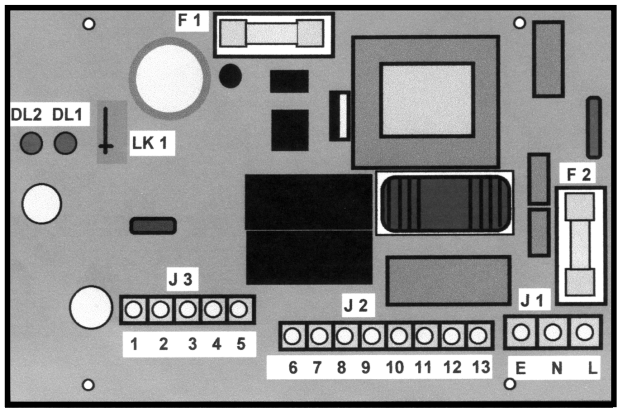


Fig. 9

- The photocells are active when the gate is closing. If the beam of an active photocell is interrupted during closing, this causes the gate to re-open.
- If the beam is interrupted during opening , the leaf movement direction does not change.

J1 - MAINS TERMINAL BOARD

E - Earthing terminal. Connect the electrical mains earth connection + 2 earth connections of the motor (green and yellow cable).

N - Neutral terminal (blue cable) 220 Vac

L - Phase terminal (black or red cable) 220 Vac

J2 - OUTPUTS TERMINAL BOARD

220 Vac (motor + flashing lamp)

6 - Opening output - motor + capacitor cable
7 - Common output - motor
8 - Closing output - motor + capacitor cable
→ 2nd leaf

9 - Opening output - motor + capacitor cable
10 - Common output - motor
11 - Closing output - motor + capacitor cable (closing delay)
→ 1st leaf (1st opening)

12 - 220 Vac output - for flashing lamp type E27 40 watt

13 - 220 Vac output - for flashing lamp type E27 40 watt

J3 - LOW VOLTAGE TERMINAL BOARD

1 - "-" Common for all accessories ("-" photocells)
2 - Antenna input
3 - START input (dry, pulse terminal)
4 - Photocell receiving Signal input
5 - "+" power supply to accessories ("+" photocells)

- In the case of single-leaf gates, the motor must be connected to terminals 6-7-8.
- Delay time must be programmed to 0 seconds (DIP 4: OFF - DIP 5: OFF)
- If no motor is connected, the cycle will not start.

11.2 CONNECTION OF OPERATORS

THE **LEFT** LEAF OPENS FIRST, INWARD

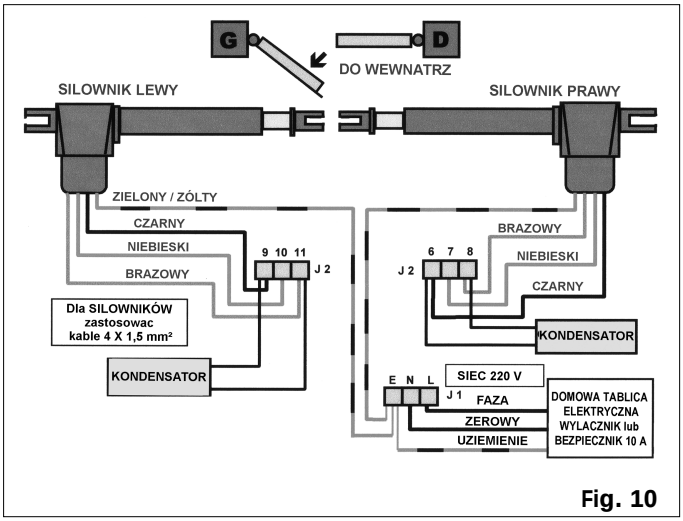


Fig. 10

11.3 CONNECTION OF OPERATORS

THE **RIGHT** LEAF OPENS FIRST, INWARD

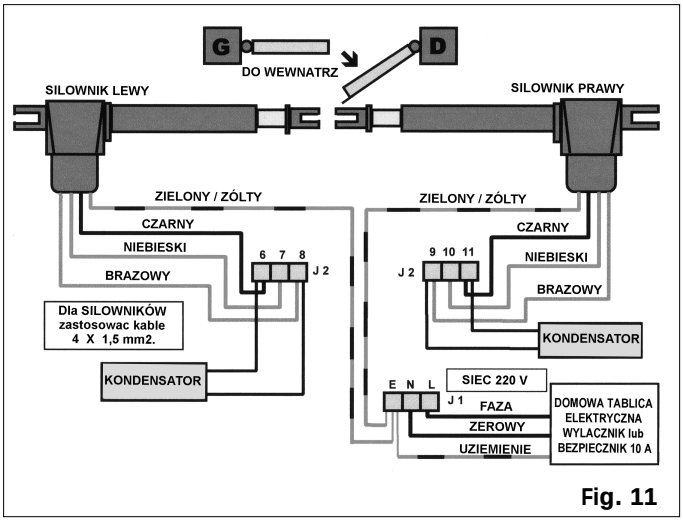


Fig. 11

11.4 CONNECTION OF ACCESSORIES - PHOTOCELLS

NO PHOTOCELL CONNECTED

- Jumpers 1 and 4 must be installed

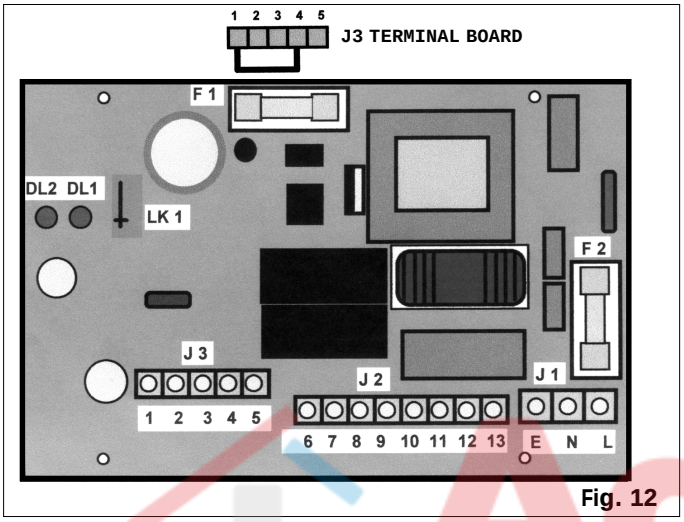


Fig. 12

PHOTOCELL GROUP CONNECTED

- Use a 0.75 mm² cable or a telephone cable.

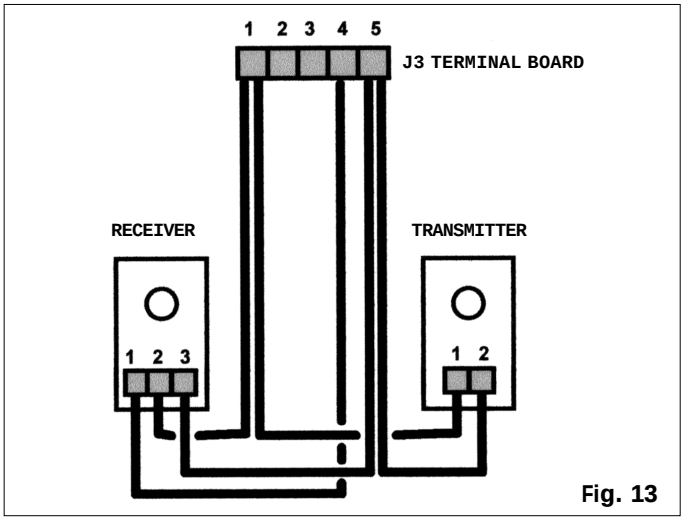


Fig. 13

FLASHING LAMP CONNECTION

- Use a 0.75 or 1 mm² cable.

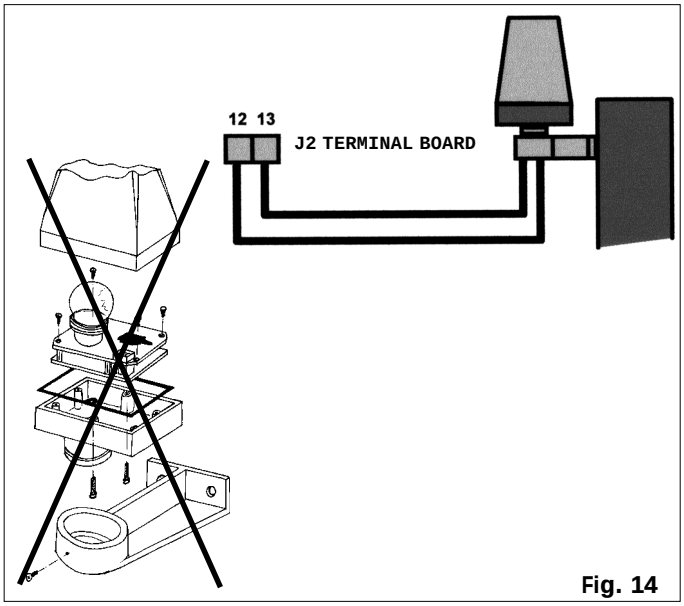


Fig. 14

APPLY SILICONE TO THE CABLE ENTRANCE POINTS

CONNECTION OF KEY-OPERATED SELECTOR SWITCH

- Use a 0.75 mm² cable or a telephone cable.

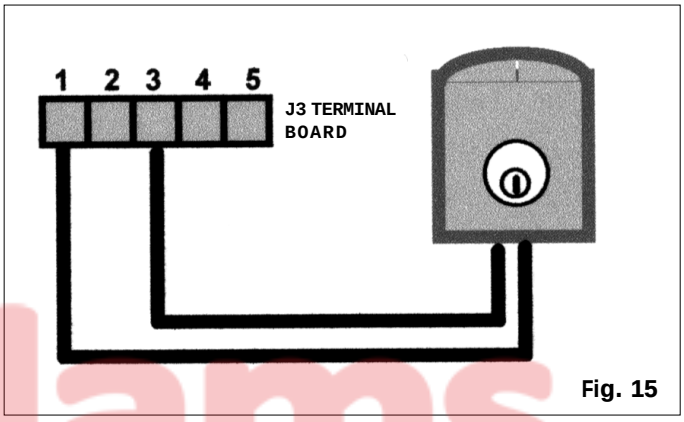


Fig. 15

Consult the instructions on the key-operated selector switch.

CONNECTION OF ENTRY-PHONE OR VIDEO ENTRY-PHONE

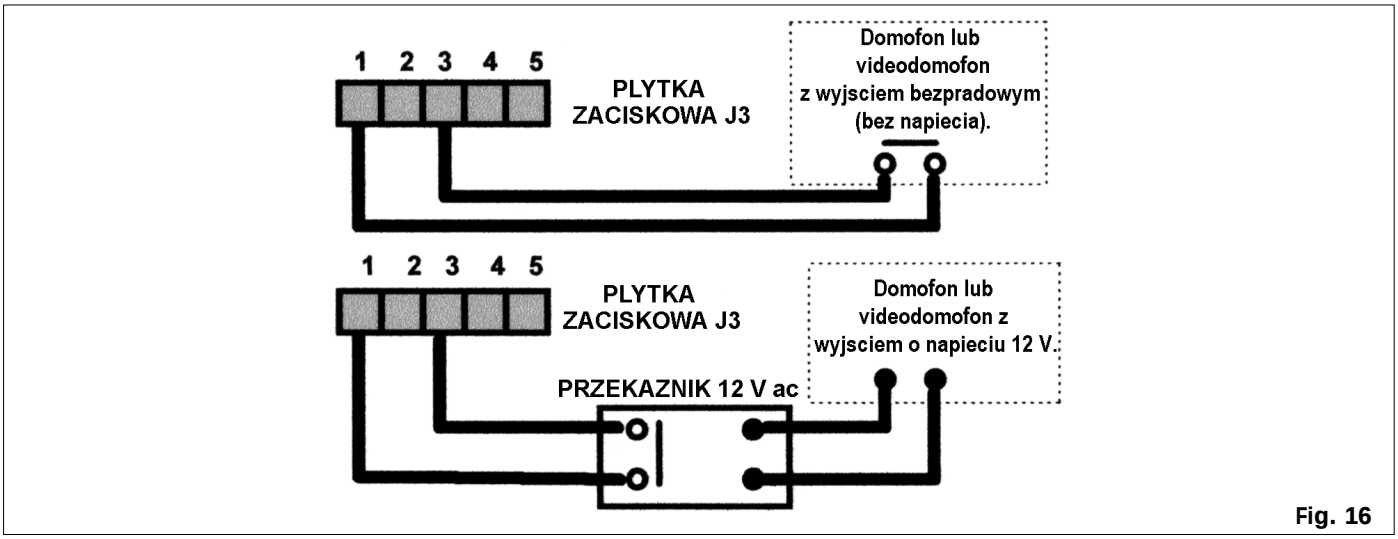


Fig. 16

Consult the instructions for the entry-phone or video entry-phone.

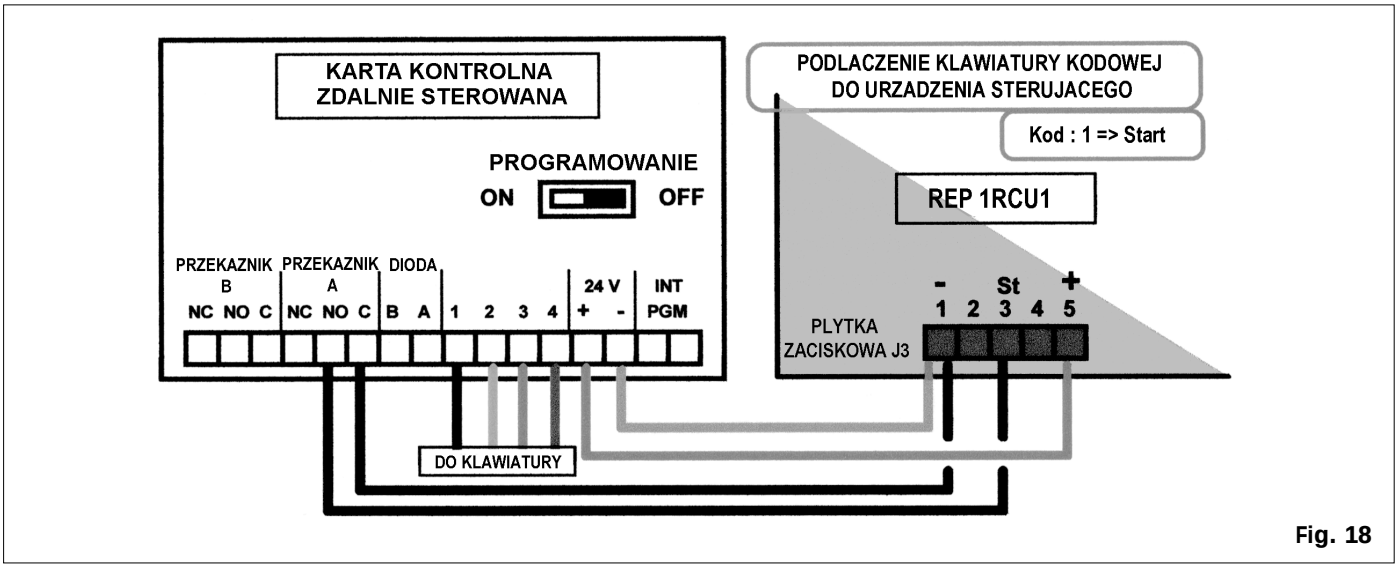


Fig. 18

Consult the instructions for the coded keyboard.

RADIO ANTENNA CONNECTION

- 15 cm electrical cable
- 433 Mhz outdoor antenna (optional)

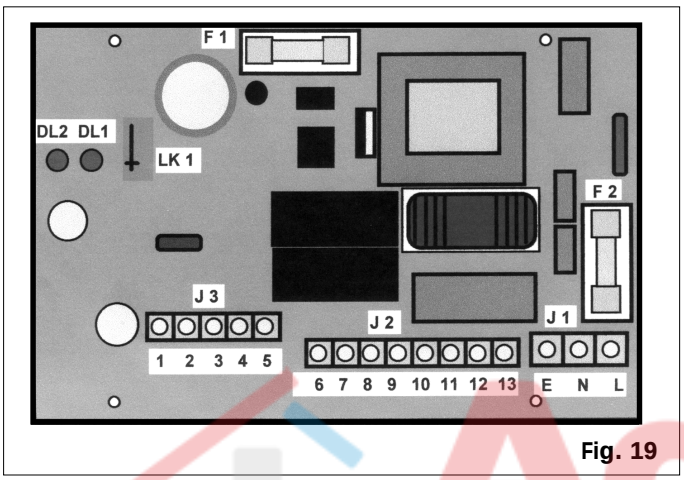


Fig. 19

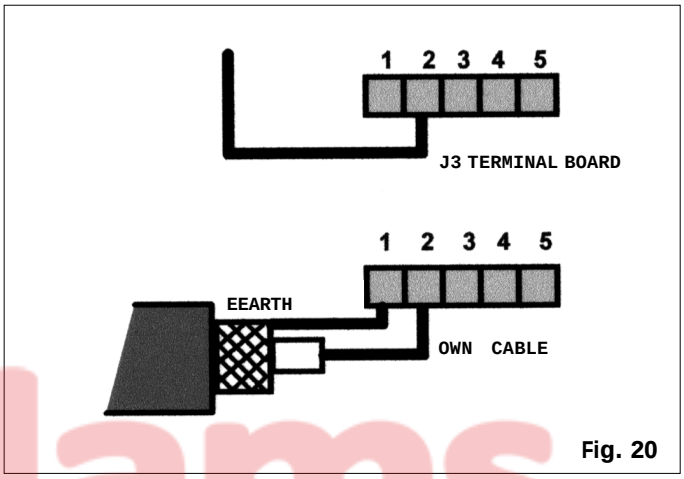


Fig. 20

Consult the instructions for the radio antenna.
APPLY SILICONE TO THE CABLE ENTRANCE POINTS.

11.5 PROGRAMMING

PROGRAMMING THE FUNCTIONS OF THE ELECTRONIC CONTROL EQUIPMENT

The functions are adjusted with the aid of the transmitter, using the 12 microswitches indicated as "DIP" on the programming table.

PRELIMINARY OPERATIONS

- Turn OFF the 220 V mains power (switch).
- Close the < LK 1> jumper (programming mode).
- Turn on mains power.
- Check if the DL 2 LED is lighted.

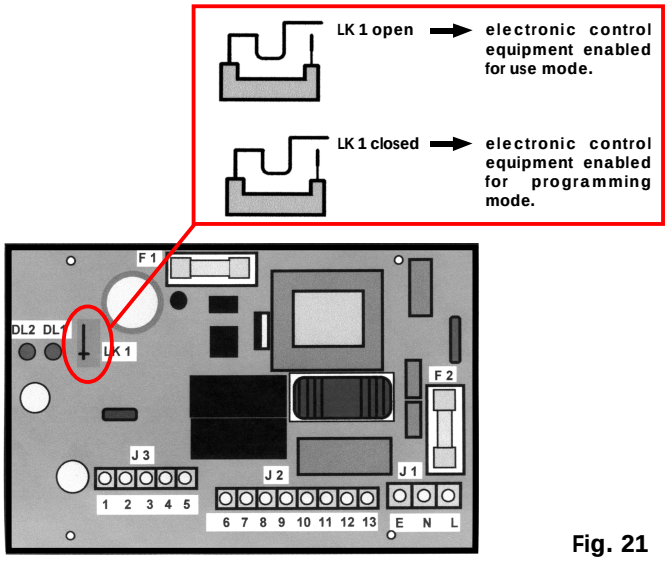


Fig. 21

- Take the transmitter and open the enclosure. Turn the transmitter so that you can read the 12 digits of the DIP Microswitches.
- Turn DIP 12 of the transmitter to <ON>.
- Consult the programming table shown below.

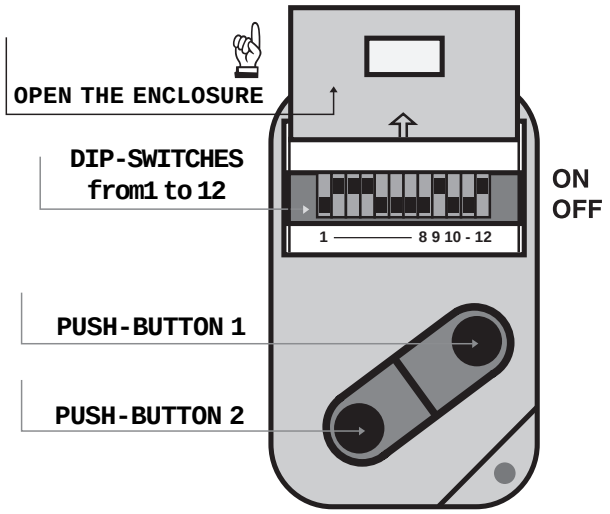


Fig.22

11.6 PROGRAMMING TABLE

FUNCTION 1	DIP 1	DIP 2	DIP 3	OPERATORS' FUNCTIONING TIME
Box 1	OFF	OFF	OFF	16 SECONDS
Box 2	OFF	OFF	ON	18 SECONDS
Box 3	OFF	ON	OFF	20 SECONDS
Box 4	OFF	ON	ON	22 SECONDS (recommended)
Box 5	ON	OFF	OFF	24 SECONDS
Box 6	ON	OFF	ON	26 SECONDS
Box 7	ON	ON	OFF	28 SECONDS
Box 8	ON	ON	ON	30 SECONDS

FUNCTION 2	DIP 4	DIP 5	DELAY TIME DURING LEAF CLOSING
Box 9	OFF	OFF	0 SECONDS
Box 10	OFF	ON	2 SECONDS
Box 11	ON	OFF	4 SECONDS (recommended)
Box 12	ON	ON	8 SECONDS

FUNCTION 3	DIP 6	DIP 7	DIP 8	OPERATING MODE	INTERVAL TIME
Box 13	OFF	OFF	OFF	STEPPED	Recommended and obligatory if not photocells provided
Box 14	OFF	OFF	ON	AUTOMATIC	5 SECONDS
Box 15	OFF	ON	OFF	AUTOMATIC	10 SECONDS
Box 16	OFF	ON	ON	AUTOMATIC	20 SECONDS
Box 17	ON	OFF	OFF	AUTOMATIC	30 SECONDS
Box 18	ON	OFF	ON	AUTOMATIC	60 SECONDS
Box 19	ON	ON	OFF	AUTOMATIC	120 SECONDS
Box 20	ON	ON	ON	AUTOMATIC	180 SECONDS

FUNCTION 4	DIP 9	DIP 10	DIP 11	MOTOR POWER ADJUSTMENT
Box 21	OFF	ON	ON	HEAVY GATE
Box 22	ON	OFF	OFF	HEAVY GATE OR COLD CLIMATE
Box 23	ON	OFF	ON	RECOMMENDED SETTING
Box 24	ON	ON	OFF	LIGHT GATE
Box 25	ON	ON	ON	MINIMUM SETTING

Example: Mark your definite choice of program with a cross in the numbered boxes.

11.7 PROGRAMMING (continued)

- Release the operators, position the gate leaves at 45°, and re-lock the operators.
- Press the selected transmitter push-button. The work cycle will start according to settings.
- Check if the gate opens and allow it to perform a full cycle through to closure (in stepped mode, press the transmitter push-button again to close).
- In the NEGATIVE, press the transmitter push-button to stop the cycle (consult paragraph "First start-up").
- In the AFFERMATIVE, go ahead with the adjustments. You can modify and try out a variety of settings without any limits, until you find the solution you require.
- Turn OFF DIP-SWITCH 12 and turn ON DIP microswitches 9, 10 and 11.
- Arrange DIP microswitches from 1 to 8 in any order you prefer. In this way, your personal code will be defined.
- Press the push-button on the transmitter selected for transmitting the code.
- Allow the cycle to finish until the gate closes.
- Turn OFF mains power.
- Open the < LK 1> jumper (use mode).
- Turn ON mains power.
- The automated system is ready to operate.

ONE OR ,MORE SETTING PARAMETERS CAN BE CHANGED AT ANY TIME. JUST SET THE TRANSMITTER'S PROGRAMMING MODE.

11.8 HOW TO PROGRAM AN ADDITIONAL TRANSMITTER

To program one or more additional transmitters, just turn DIP Microswitch 12 to the same position set for the first transmitter.

11.9 HOW TO MODIFY THE TRANSMITTER'S PERSONAL CODE

- Turn OFF mains power.
  - Close LK 1 (programming),
  - Turn ON mains power.
- Take the transmitter.
  - Turn OFF DIP-SWITCH 12.
  - Turn ON DIP microswitches 9, 10 and 11.
- Arrange DIP microswitches from 1 to 8 in any order you prefer (Personal Code).
- Press the push-button on the transmitter selected for transmitting the new code.
  - Allow the cycle to finish.
- Turn OFF mains power.
  - Open LK 1 (use).
- Turn ON mains power.

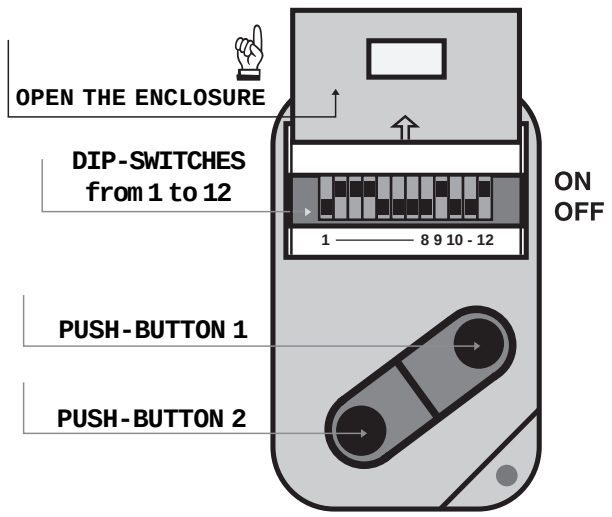


Fig. 23