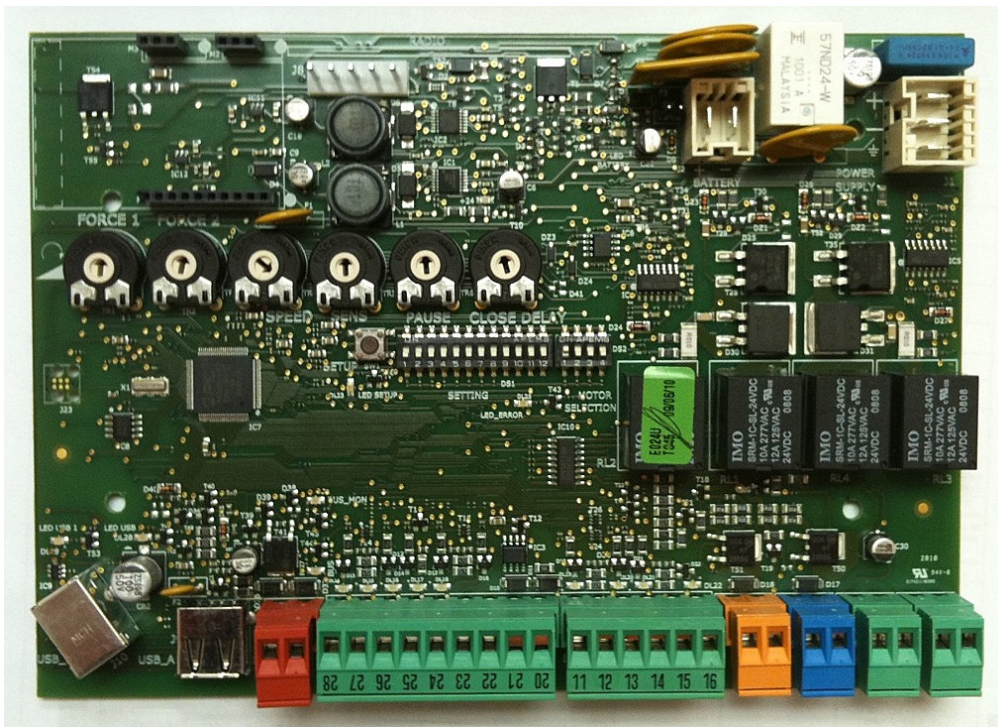


E024 U

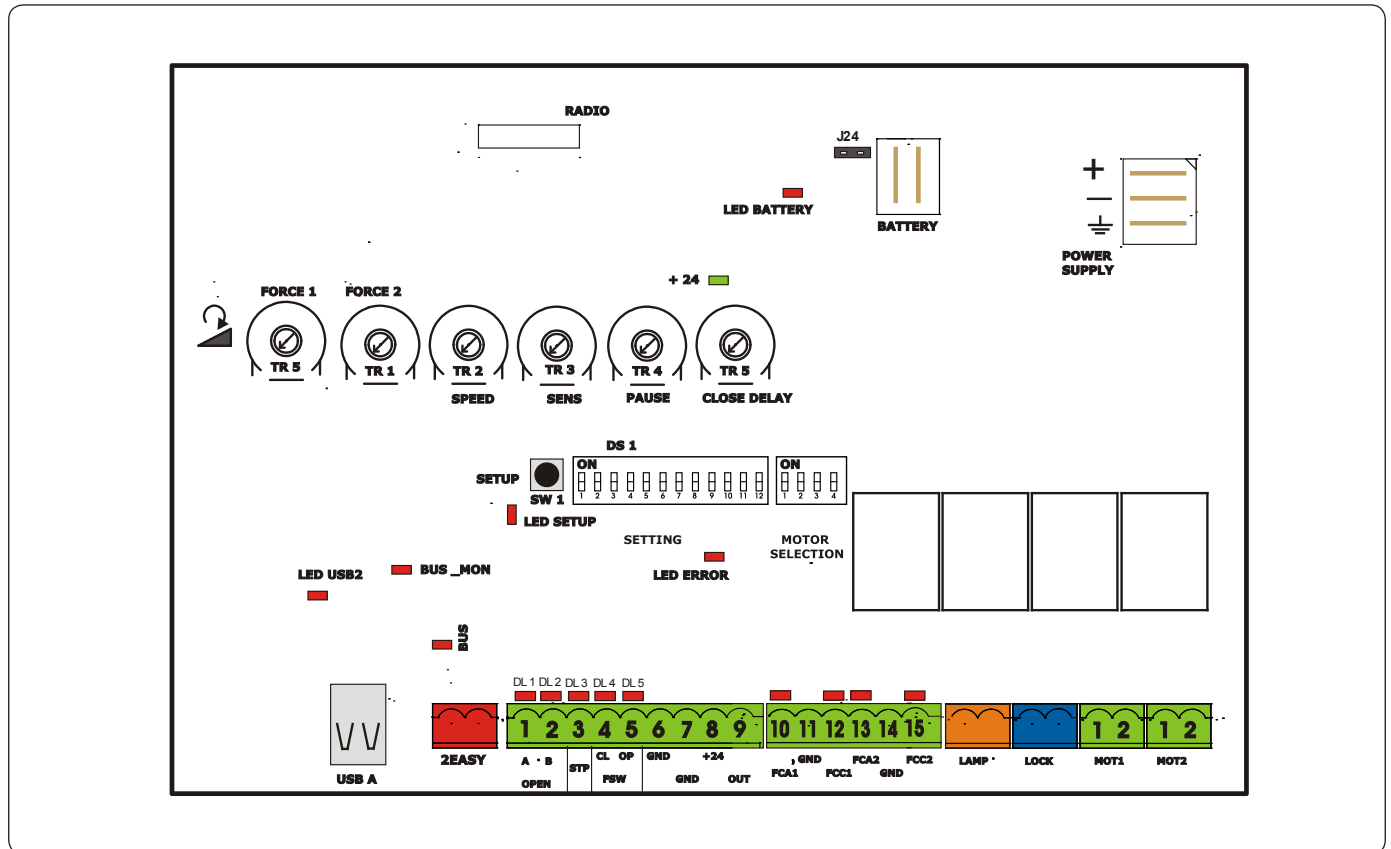
Control Board



FAAC International Inc.
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FAAC



1 TECHNICAL SPECIFICATIONS

Main power supply	230/115 V~ 50/60 Hz switchable
Secondary power supply	24 Vdc - 16 A max. (min. 20 Vdc. - max. 36 Vdc.)
Potenza consumption	stand-by = 4W max. = 400 W
Max load per motor	7 A
Accessory power supply	24 Vdc - 500 mA
Battery charge current	150 mA
Operating temperature	-4 °F.....+131 °F
Protection fuses	All self-resetting
Main power fuse	2.5 A
Operating Logics	E, A, S, EP, AP, SP, B, C
Operating time	Programmable (0 to 10 min)
Pause time	Programmable (0 to 4 min)
Motor force	Programmable with trimmer
Motor speed	Programmable with trimmer
Connector inputs	Power supply, Battery, Radio receiver, USB
Terminal strip inputs	Open A, OpenB, Stop, Open safety fotocell, Closing safety fotocell, Limit switches
Terminal strip outputs	Light, Motors, Lock, One programmable Output, accessory power

2 LAYOUT AND COMPONENTS

RADIO	Connector for the radio receiver
BATTERY	Connector for the backup battery
J24	Jumper to disable battery charging (With the jumper ON the battery is charged)
POWER SUPPLY	DC Power supply input
TR1 to TR6	Programming Trimmers
+24 LED	DC power indicator
SW1 - SETUP	Pushbutton for automatic setup
DS1 - DS2	Programming dipswitches
LED ERROR	Troubleshooting indicator
USB A	USB connection for software upgrade

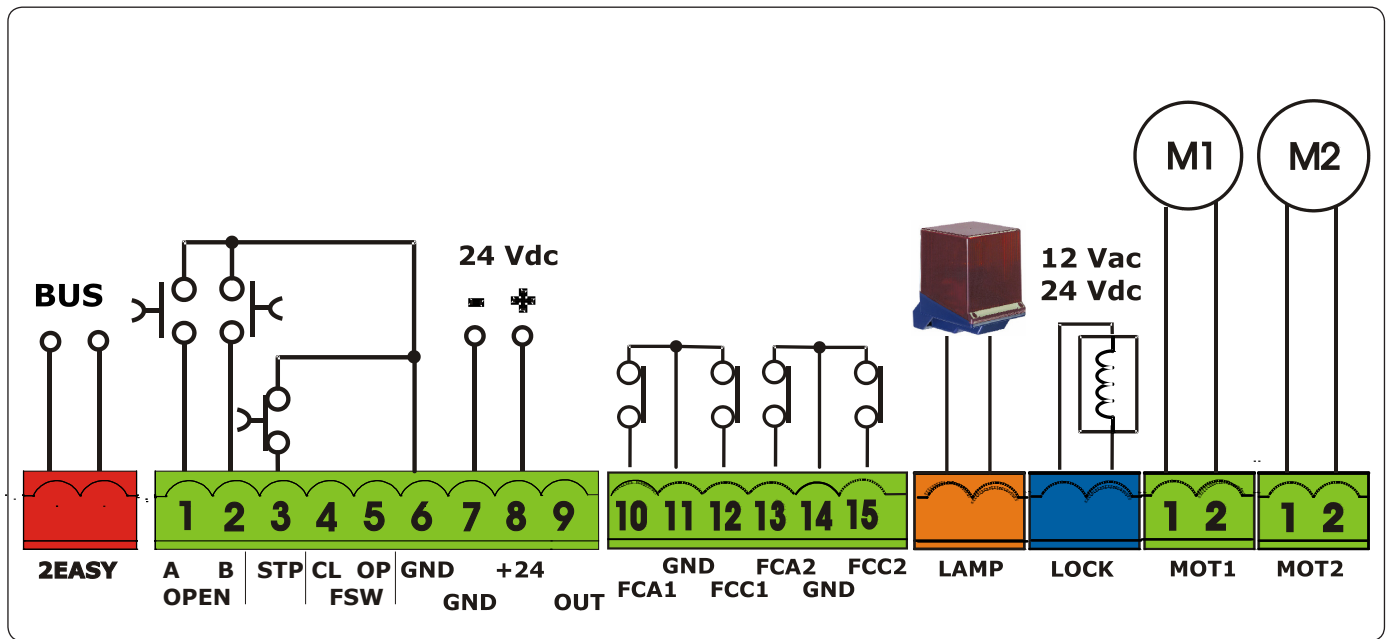
RADIO CONNECTION

On the radio connector it's possible to plug in receivers RP and RP2. With a single channel radio RP it will be possible to activate only the OPEN A input, with a dual channel radio RP2 it will be possible to activate both OPEN A and OPEN B inputs.

Plug in the radio board with the component side towards the internal part of the board.

Make sure you insert or disconnect the board ONLY with the power off.

3 INPUT / OUTPUT DESCRIPTION



PIN	LABEL	FUNCTION
2 EASY	2 EASY	Input for bus 2easy accessories (encoder)
1	OPEN A	N.O. Contact for total opening command
2	OPEN B / CLOSE	OPEN B: N.O. Contact for opening of leaf 1 only CLOSE (LOGIC B-C): N.O. Contact for closing command
3	STOP	N.C. Contact for stop command
4	FSW CL	N.C. Contact for closing safety
5	FSW OP	N.C. Contact for opening safety
6	GND (-)	24 Vdc negative
7	GND (-)	24 Vdc negative
8	+ 24	24 Vdc positive
9	OUT (-)	Programmable output (See: DS1 SW 11-12)
10	FCA 1	Open limit switch Motor 1
11	GND (-)	24 Vdc negative
12	FCC 1	Close limit switch Motor 1
13	FCA 2	Open limit switch Motor 2
14	GND (-)	24 Vdc negative
15	FCC2	Close limit switch Motor 2
LAMP	LAMP	Output for flashing light 24Vdc (Max 15W)
LOCK	LOCK	Output for electrical lock, max 5A pulse (DS2 - SW 4=OFF) 12 Vac / 24Vdc Always ON (maglock): max 1 A (DS2 - SW 4=ON) 24 Vdc
MOT1	MOT 1	Motor 1 output (first moving motor)
MOT2	MOT 2	Motor 2 output (second moving motor)
USB A	USB	Firmware upgrade input

4 PHOTOCELLS CONNECTIONS

Ho to put together Normally Open connections.
(Connect them in parallel)

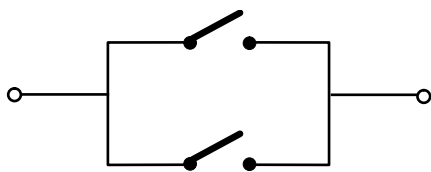


Fig. 6

Ho to put together Normally Close connections.
(Connect them in series)



Fig. 7

The E024U board allows the connection of several safety devices (for example photocells). With photocells you can activate the FAILSAFE function, which, before each movement of the operator, tests each fotocells. In case the test fails the movement is inhibited. To activate this function set to ON the dip-switch N. 11 and 12 of DS1, and connect the negative of the transmitter to the OUT pin (No.9).

The photocells must be connected depending on which area they must protect. (See Fig. 8)

Closing Safety D : These photocells protect the area covered by the gate during the closing movement. They have no effect during the opening movement.

Opening Safety B-C : These photocells protect the area covered by the gate during the opening movement. They have no effect during the closing movement.

Opening/Closing Safety A : These photocells protect the area covered by the gate both during the opening and the closing movements.

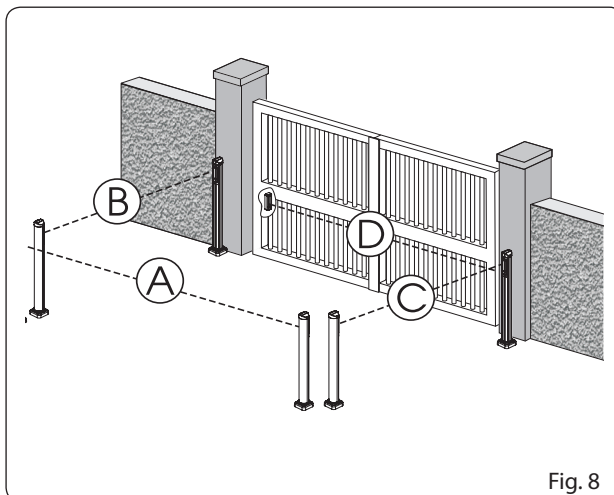


Fig. 8

4.1 CONNECTIONS TO NORMALLY CLOSE (N.C.) PHOTOCELLS

Connection of a pair of closing photocells and a pair of opening/closing photocells

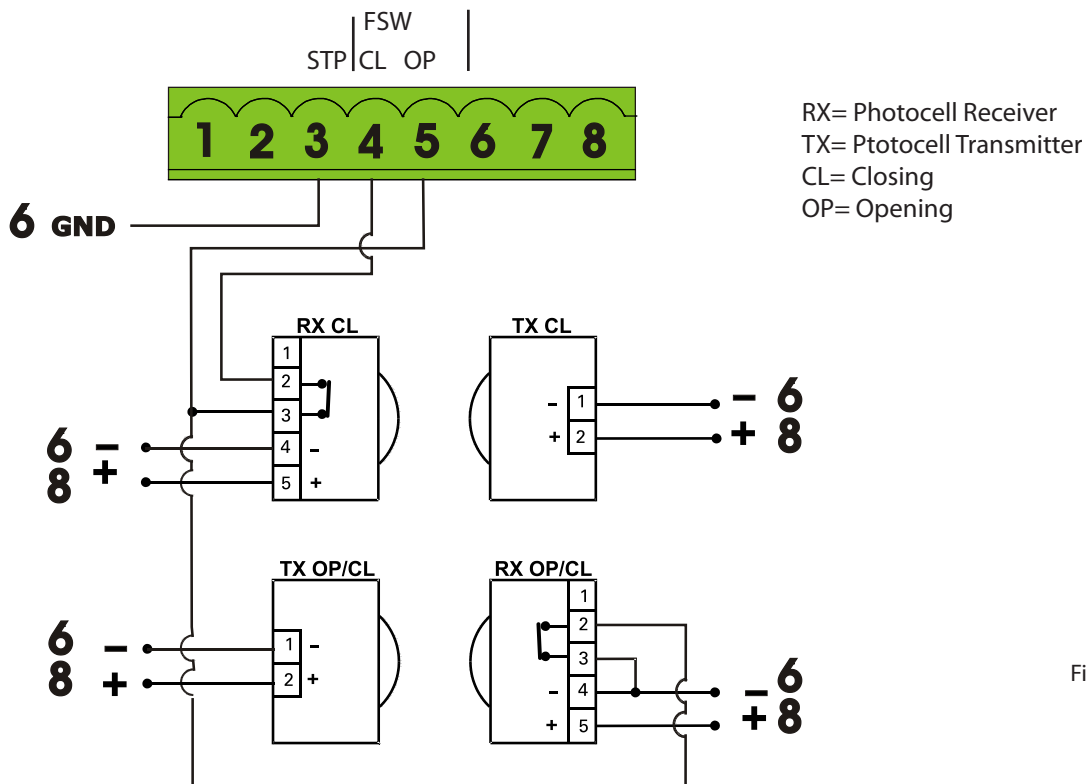


Fig. 9

To use the FAIL-SAFE mode connect the negative power supply of the transmitters to OUT (pin 9), and set dip-switch 11 and 12 to ON on DS1

Connection of two pairs of closing photocells

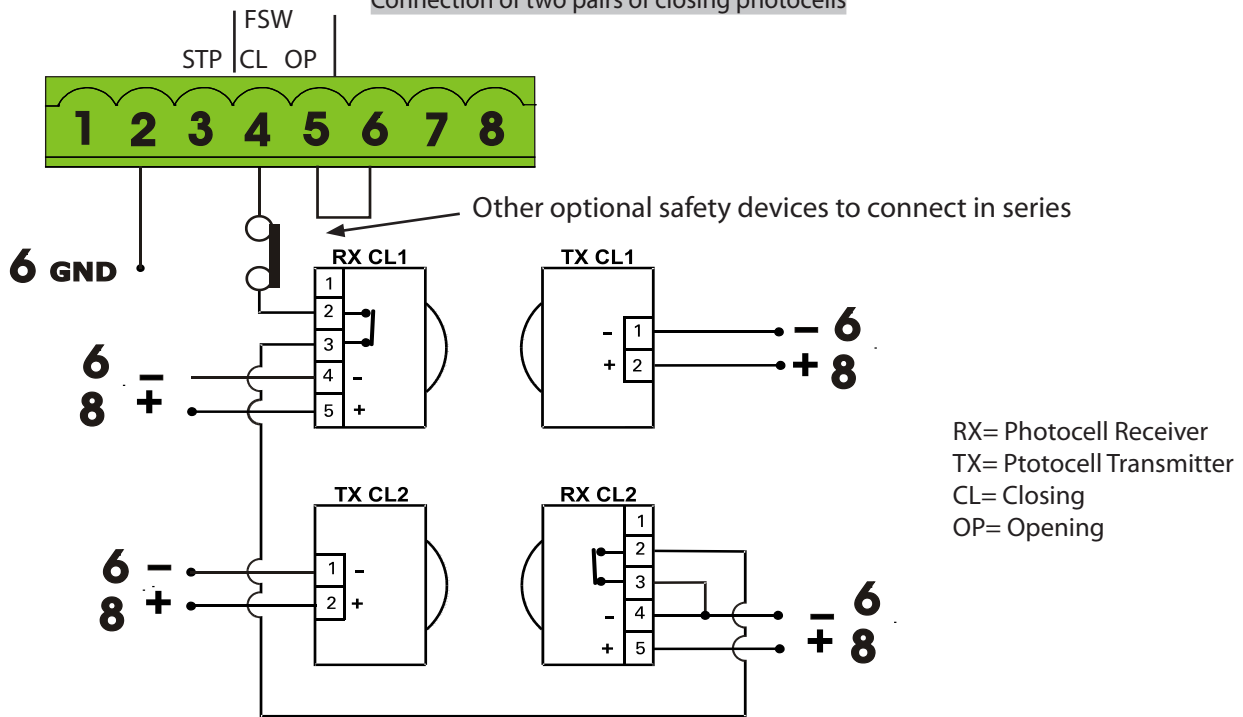


Fig. 10

☞ To use the FAIL-SAFE mode connect the negative power supply of the transmitters to OUT (pin 9), and set dip-switch 11 and 12 to ON on DS1

☞ When using the FAIL-SAFE mode also the safety inputs not used (FSW CL , FSW OP) must be connected to OUT (pin No. 9)

Connection of a pair of closing photocells, a pair of opening photocells and a pair of opening/closing photocells

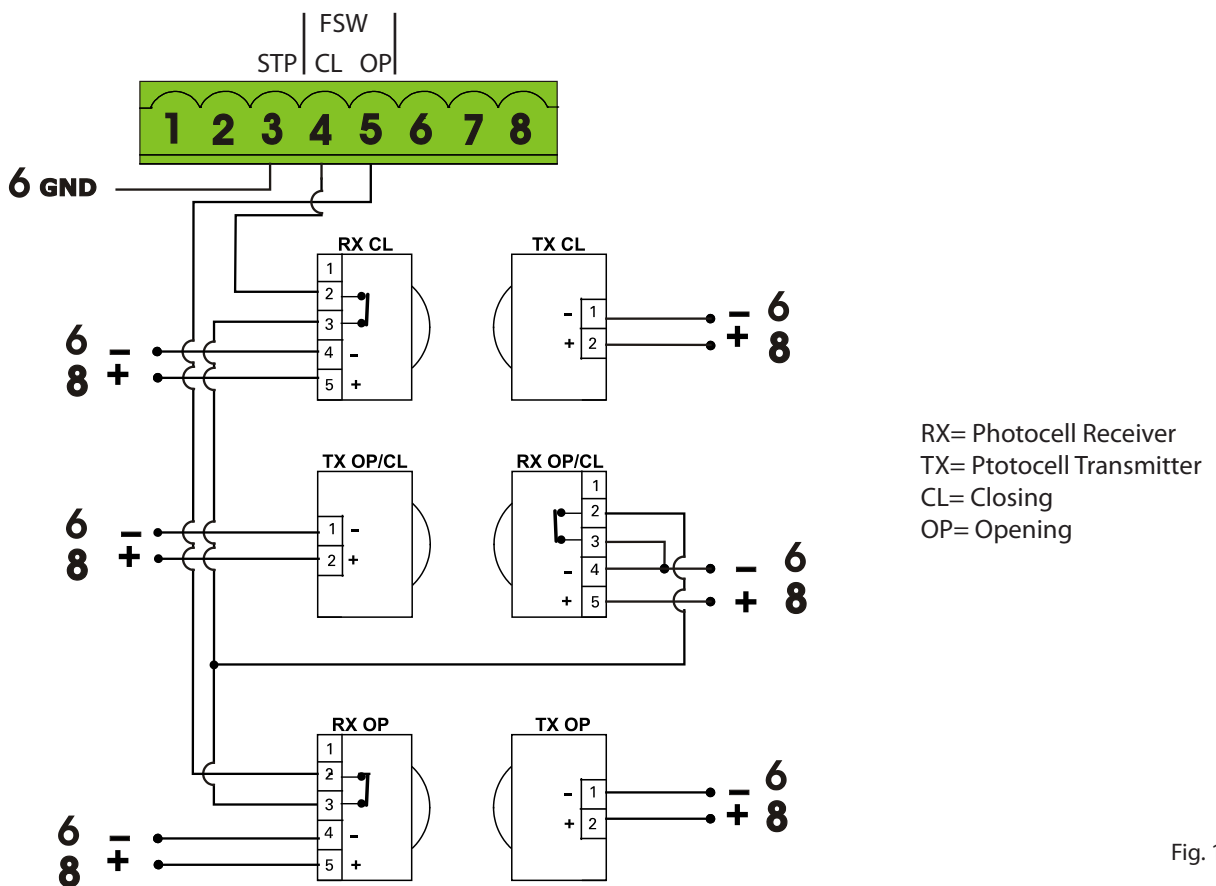


Fig. 11

☞ To use the FAIL-SAFE mode connect the negative power supply of the transmitters to OUT (pin 9), and set dip-switch 11 and 12 to ON on DS1

Connection of a pair of closing photocells and a pair of opening photocells

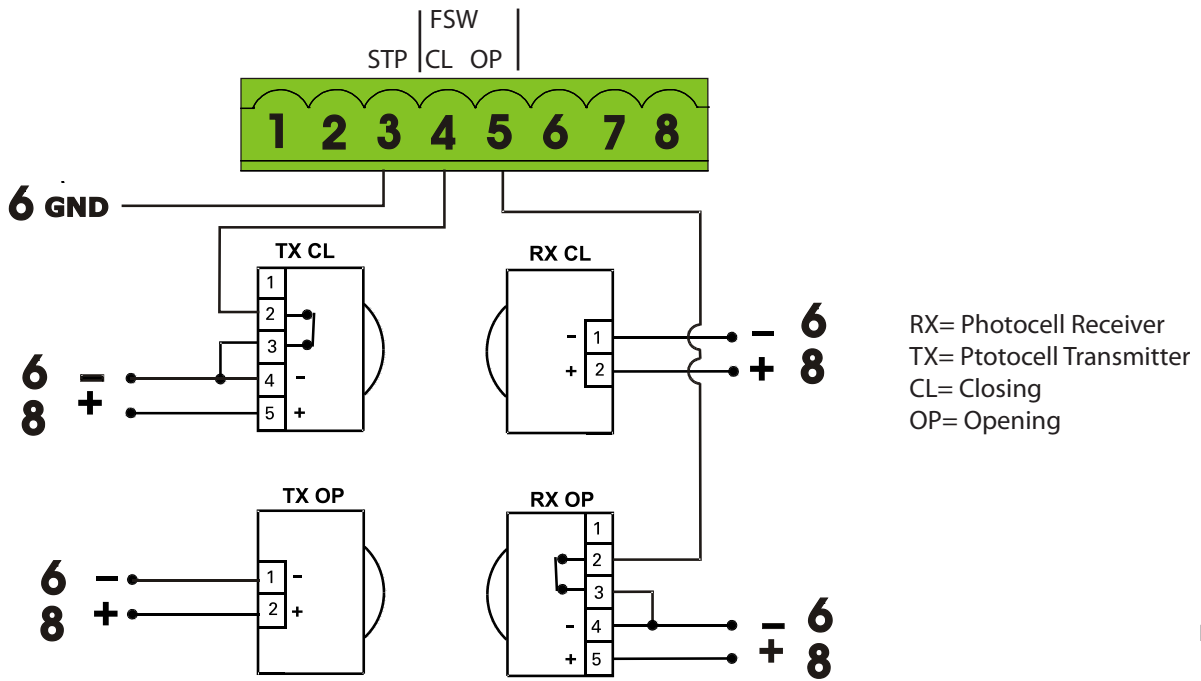


Fig. 12

To use the FAIL-SAFE mode connect the negative power supply of the transmitters to OUT (pin 9), and set dip-switch 11 and 12 to ON on DS1

Connection of no safety or stop devices (NOT RECOMMENDED)

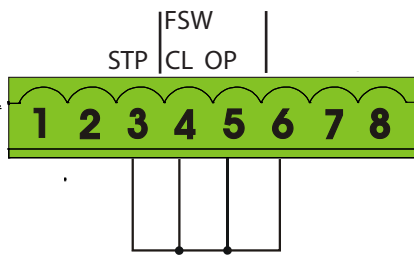
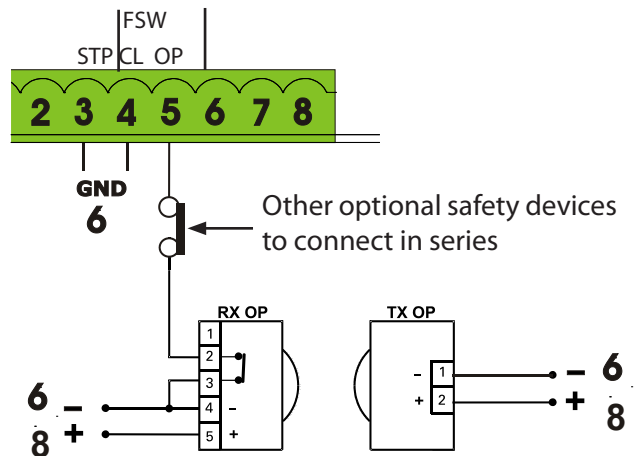


Fig. 13

Connection of one pair of opening photocells



To use the FAIL-SAFE mode connect the negative power supply of the transmitters to OUT (pin 9), and set dip-switch 11 and 12 to ON on DS1

When using the FAIL-SAFE mode also the safety inputs not used (FSW CL , FSW OP) must be connected to OUT (pin No. 9)

Fig. 15

Connection of a generic closing safety device and a generic open safety device

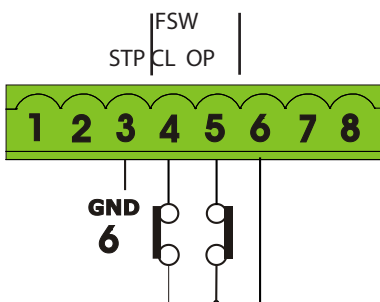
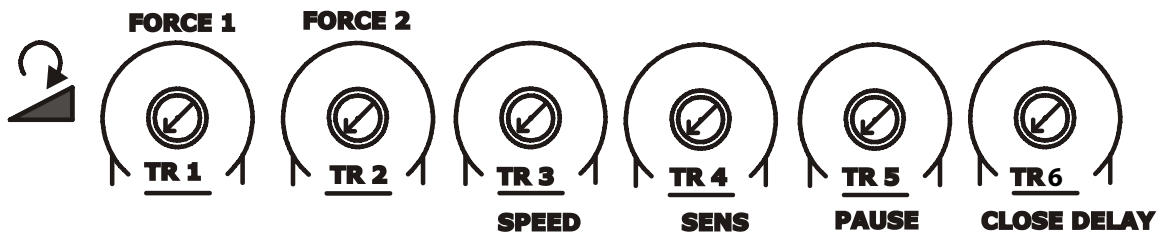


Fig. 14

5 PROGRAMMING

5.1 ADJUSTING TRIMMERS



TR1 – FORCE ADJUSTMENT MOTOR 1
Turn clockwise to increase the opening and closing force

TR 2 – FORCE ADJUSTMENT MOTOR 2
Turn clockwise to increase the opening and closing force

TR 3 – SPEED ADJUSTMENT FOR MOTOR1 AND MOTOR 2
Turn clockwise to increase the opening and closing speed

TR 4 – SENSITIVITY ADJUSTMENT FOR OBSTACLE DETECTION FOR MOTOR 1 AND MOTOR 2
Turn clockwise to increase the sensitivity for obstacle detection.
With this trimmer you can adjust the reaction time for the board to invert the motion of the gate in case of obstacle detection, or the complete stop in case the board is in the positive stop detection zone

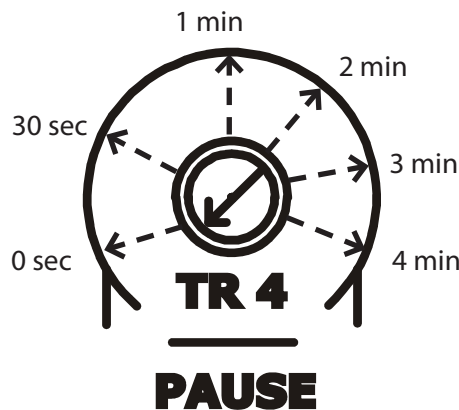
IF SW 11=OFF and SW 12 = OFF on DS1

- In a logic with pause time the first time an obstacle is detected during close the gate will reopen and stay open until a new impulse is given. If, during the next cycle and obstacle is detected again then the board will go in alarm mode and won't take any more command until the power is cycled (See Obstacle Alarm on page xx)

OTHERWISE

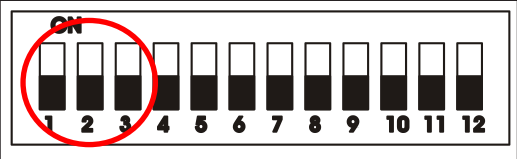
- The third time an obstacle is detected in the same direction it will be considered as positive stop and the gate will be stopped in that position

TR 5 – PAUSE TIME ADJUSTMENT (0 - 4 min.)
Turn clockwise to increase the pause time.



TR6 - ADJUSTMENT OF THE START TIME DELAY IN CLOSING OF LEAF 1 OVER LEAF 2 (0 - 15 sec)
Turn clockwise to increase the delay

5.2 DIP SWITCH SETTINGS DS1 SW1,SW2,SW3 : OPERATING LOGIC

OPERATING LOGIC					
DS 1 : SW 1 - SW 2 - SW 3					
LOGIC	SW 1	SW 2	SW 3	PAUSE TIME	DESCRIPTION
E (default) Semiautomatic	OFF	OFF	OFF	NO	One command opens, the next one closes
A Automatic	ON	ON	ON	0 - 4 min	One command opens, waits for the pause time an then closes automatically
S Security	OFF	OFF	ON	0-4 min	One command opens, waits for the pause time and then closes automatically. If the closing safety is activated or another command is given during the pause time it closes
EP Semiautomatic step by step	OFF	ON	OFF	NO	One command opens, the next one closes. During the movement a command stops the gate
AP Automatic step by step	OFF	ON	ON	0-4 min	One command opens, waits for the pause time and then closes automatically. A command during the pause time holds the gate open
SP Security step by step	ON	OFF	OFF	0-4 min	One command opens, waits for the pause time and then closes automatically. If the closing safety is activated during pause time the gate closes in 5 s. A command during pause time holds open the gate
B Manned Pulsed	ON	OFF	ON	NO	An open A command opens the gate, an open B command closes the gate
C Manned Constant	ON	ON	OFF	NO	Holding open A active opens the gate, holding Open B active closes the gate

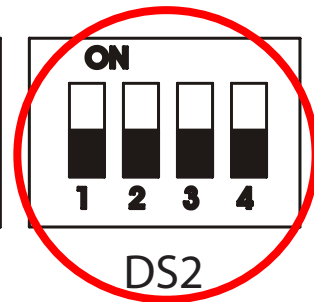
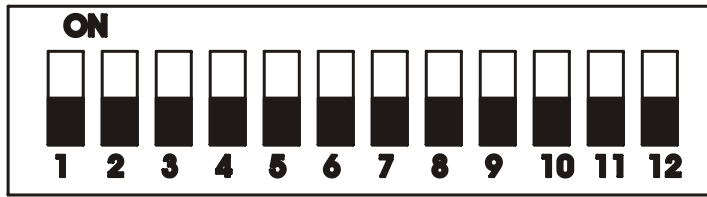


For more details on the operating logics please refer to Chapter XX

5.3 DIP SWITCH DS1 SW4.....SW12: BOARD SETUP

DS 1 SETTINGS SW 4 to SW 12			
OPENING DELAY	SW 4	The opening of leaf 2 to avoid that the gate's leafs interfere with each other during the initial part of the movement.	
0 sec (default)	OFF		
2 sec	ON		
REVERSE AND LAST STROKE	SW 5	If active, before opening, while the gate is closed, the motors thrust to close for 2 s to facilitate the release of the electric lock. At closing the motors are activated for a final stroke after slowdown to facilitate locking of the electric lock.	
inactive (default)	OFF		
active	ON		
MAX THRUST AT STARTUP	SW 6	With this fuction active the motors work at maximum force at start-up (regardless of the force setting) during the initial phase of the movement. Useful for heavy leafs	
inactive (default)	OFF		
active for 3 sec	ON		
AUTOMATIC OPENING IN CASE OF POWER FAILURE	SW 7	If active and with the optional backup battery installed, the board will open the gate after one minute from the power failure. Within the minute wait it's always possible to open and close the gate with a command. If the logic used has a pause time the board will close the gate when the power comes back.	
inactive (default)	OFF		
active	ON		
CLOSING SAFETY LOGIC	SW 8	With this function you can choose the behaviour of the closing safety. With SW8 OFF the gate movement will be inverted as soon as the safety is active, with SW8 ON the gate will stop shen the safety is active and will reverse only when the safety is deactivated again.	
immediate inversion (default)	OFF		
inversion when cleared	ON		
PREFLASHING	SW 9	This function activates the flashing lamp for 5s before the movement of the gate	
inactive (default)	OFF		
active for 5 sec	ON		
EXTRA SENSITIVITY TO OBSTACLE DETECTION	SW 10	If active this function allows to have an immediate reverse in case the gate hits a rigid obstacle, while keeping the motor active in case of a gradual increment of resistance, like with wind pressure on the gate or increased friction	
inactive (default)	OFF		
active	ON		
OUT FUNCTION (pin 9) max 100mA	SW 11	SW 12	ACTIVATES AN OUTPUT TO GND (-) DEPENDING ON THE SETTING OF DIP SWITCHES 11-12
FAIL SAFE active USE OUT (pin 9) AS NEGATIVE FOR PHOTOCELLS	ON	ON	This setting enables a self test of the photocells befor moving the gate. If the test fails thegate will not move. Pin 9 must be used as the negative power supply of the photocells transmitters.
OBSTACLE ALARM	OFF	OFF	After the second consecutive obstacle detection all the commands are disabled and the pin 9 output is activated. To re-enable the operator you need to cycle power and open the STOP contact (pin 3)
OUTPUT ALWAYS ACTIVE, EXCEPT DURING THE FIRST 3 SEC AFTER THE START OF ANY MOVEMENT (OPEN / CLOSE)	OFF	ON	Use pin 9 as power supply negative for any accessory that must be have the power shut down for 3 sec after every movment (open or close) for example a Maglock
LAMP FUNCTION	ON	OFF	Use pin 9 as power supply negative for a warning lamp. The lamp will be active during opening, pause and stop. Flashing during close, off when the gate is closed

5.4 DIP SWITCH DS2 CHOOSE OPERATOR AND LOCK OUTPUT MODE



DS2

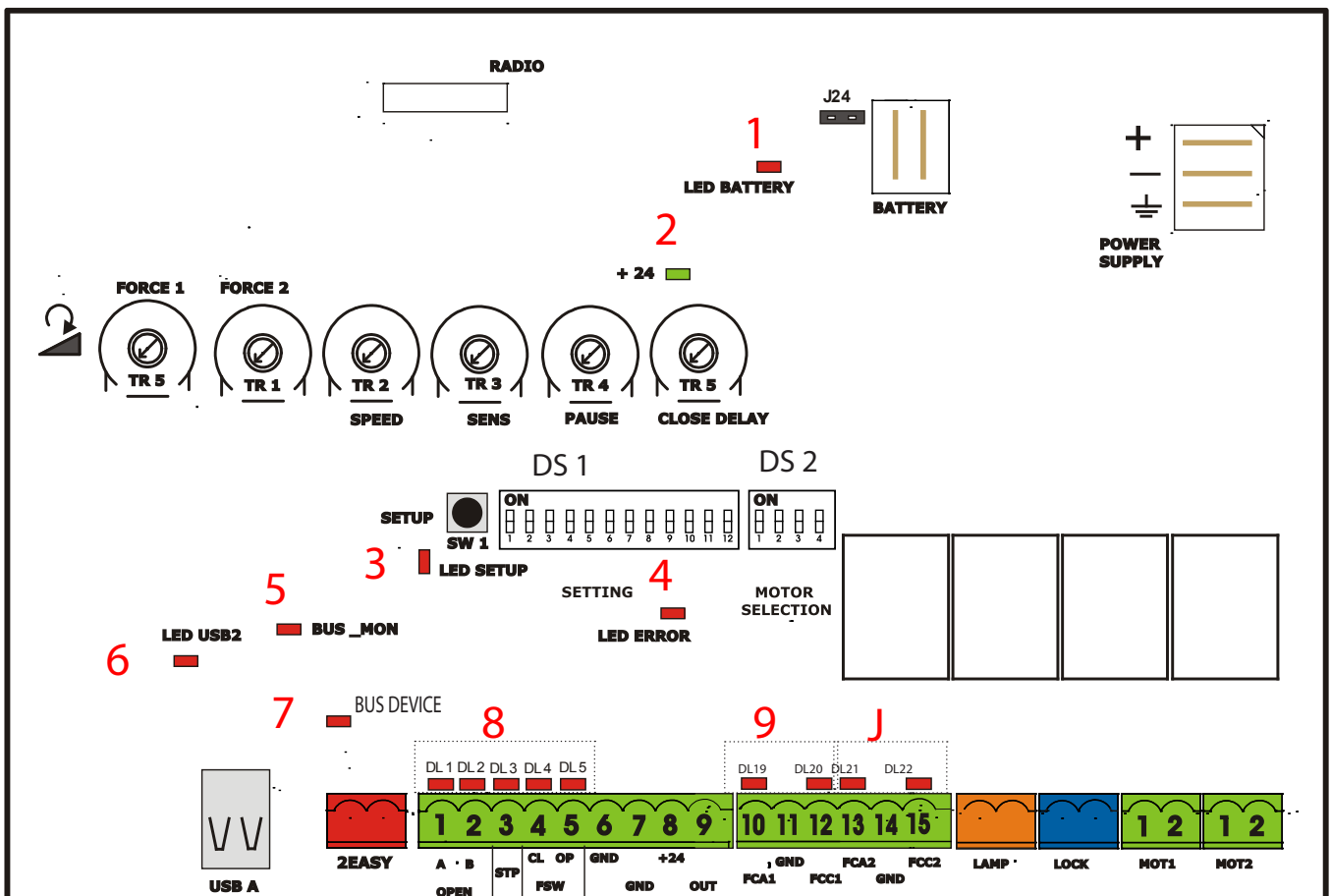
VERY IMPORTANT!



DS 2			
OPERATOR SELECTION			
OPERATOR TYPE	SW 1	SW 2	SW 3
S450H, S700H	OFF	OFF	OFF
S418	OFF	OFF	ON
412, 413, 415, 390, 770	ON	OFF	OFF
391	OFF	ON	OFF
NON FAAC	ON	OFF	ON

DS 2	
LOCK OUTPUT MODE	
OUTPUT MODE	SW 4
Active only for 3 sec. after an open impulse (from gate closed)	OFF
Active always except 3 sec. before an opening	ON

6 DIAGNOSTIC



LEDS DIAGNOSTIC (Tab. X)				
L E D	DESCRIPTION	LED STATUS		
		In BOLD the normal state with gate closed and working		
		ON STEADY	OFF	BLINKING
1	LED BATTERY	Board working on battery power or ext supply	Board working on AC power	Battery low
2	LED +24	Main power present	Main power OFF	
3	LED SET-UP		Normal operation	SLOW BLINK (1 sec. ON - 1 sec. OFF) SET-UP needed
				FAST BLINK (0.5 sec. ON - 0.5 sec OFF) SET UP in in progress
4	LED ERROR	Board malfunction	No errors	Error conditions. See Tab. XX
5	LED BUS_MON	Communication on Bus "2easy" OK	Communication bus "2Easy" inactive. Verify the bus "2Easy" devices for shorts	Bus 2Easy devices with the Same address. Verify dip switch Setting on photocells or Encoder LEDs
6	LED USB		Software update done or USB key not present	USB key inserted and software Update in progress (DON'T Remove the USB key)
7	LED BUS DEVICE	Bus 2easy photo-cell aligned and working	Bus 2easy photocell Either not aligned or blocked	
8	LED DL 14 OPEN A INPUT (N.O.)	OPEN A active	OPEN A not active	
	LED DL 15 OPEN B INPUT (N.O.)	OPEN B active	OPEN B not active	
	LED DL 16 STOP INPUT (N.C.)	STOP non active	STOP active	
	LED DL 17 FSW CL INPUT (N.C.)	Closing safety devices clear	Closing safety devices triggered or wiring error	
	LED DL 18 FSW OP INPUT (N.C.)	Opening safety devices clear	Opening safety devices triggered or wiring error	
9	LED DL 19 FCA1 OPEN LIMIT SWITCH MOTOR1 (N.C.)	Limit switch OFF or not used	Limit Switch activated	
	LED DL 20 FCC1 CLOSE LIMIT SWITCH MOTOR1 (N.C.)	Limit switch OFF or not used	Limit Switch activated	
J	LED DL 21 FCA2 OPEN LIMIT SWITCH MOTOR2 (N.C.)	Limit switch OFF or not used	Limit Switch activated	
	LED DL 22 FCC2 CLOSE LIMIT SWITCH MOTOR1 (N.C.)	Limit switch OFF or not used	Limit Switch activated	




 The diagnostic LED shows only one error condition at a time, with the priority of the below table. In case there are more than one error once one is eliminated the LED will show the next

TABLE 4: LED ERROR DISPLAY		
NUMBER OF FLASHES	ERROR CONDITION	SOLUTION
1	OBSTACLE DETECTION	Remove the obstacle
2	MOTORE 1 and/or 2 CURRENT LIMITED	Increase with trimmer 1 and/or 2 the motor force Check for possible high friction on the gate
3	MOTOR 1 FAILURE	Replace motor 1
4	MOTOR 2 FAILURE	Replace motor 2
5	ENCODER 2easy bus motor 1 or motor 2 broken or wiring error	Verify the encoder wiring and LED status. If they are correct replace the encoder
6	FLASHING LAMP SHORTED	Verify the wiring, if correct replace the lamp
7	LOCK OUTPUT SHORTED OR CURRENT SURGE	Verify that the lock is not shorted and that the current is not over 5 A
8	BOARD THERMAL PROTECTION ACTIVE	Turn off the board and wait until the components cool down
8	MAX RUN TIME REACHED WITHOUT FINDING THE POSITIVE STOP (10 min.)	- Verify that the operator manual release is not engaged - Verify that the board recognizes the mechanical stop, if in doubt redo the setup procedure

7 TIME LEARNING (SET-UP)

 After powering up the board for the first time or when the board will need it the SETUP LED will blink at a slow frequency to indicate that the SETUP procedure to learn the running times is needed

 After the SETUP first movement, if the leaves are opening instead of closing you need to invert the wires going to the motor that moves in the wrong direction

7.1 AUTOMATIC TIME LEARNING

WARNING: If the time learning setup is done automatically then the slow down points are set by the board on his own

Move the leafs to the mid position Very important for a good result

1. Press and hold the SETUP button until the SETUP LED lights up, wait about 3 sec. until it turns off and then release it immediately. NOTE: If you wait too long to release it the manual set-up will start. The LED will blink during all the setup procedure
2. The leaf 2 (if present) starts to move slowly in closing direction, stopping when it reaches the mechanical stop or FCC2.
3. The leaf 1 begins to move slowly in closing direction,

stopping when it reaches the mechanical stop, or FCC1.

4. The leaf 1 starts to move slowly in opening direction, followed by the leaf 2 (if present) still slowly.
5. When they both reach the open mechanical stop or FCA1 and FCA2 they stop and reverse, the leaf 2 (if present) automatically starts closing at full speed followed by leaf 1.
6. When they reach the close mechanical stop or FCC1 and FCC2 both leafs stop and leaf 1 restarts automatically opening at full speed followed by leaf 2 (if present).
7. If you selected an automatic logic the board will wait for the pause time and then closes the gate automatically. Otherwise you have to give an OPEN command to close the gate.

7.2 MANUAL TIME LEARNING

WARNING: If the manual time learning setup is done then the slow down points must be set by the installer during the procedure

Move the leafs to the mid position Very important for a good result

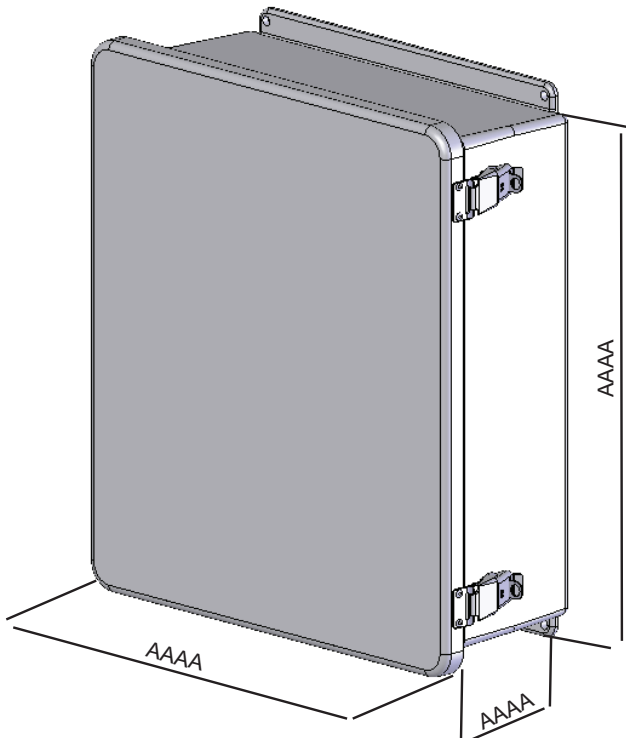
1. Press and hold the SETUP button until the SETUP LED lights up, keep it pressed for about 3 sec. until it turns off and keep it pressed more until the leaf 2 (if

present) starts moving slowly. The LED will blink during all the setup procedure

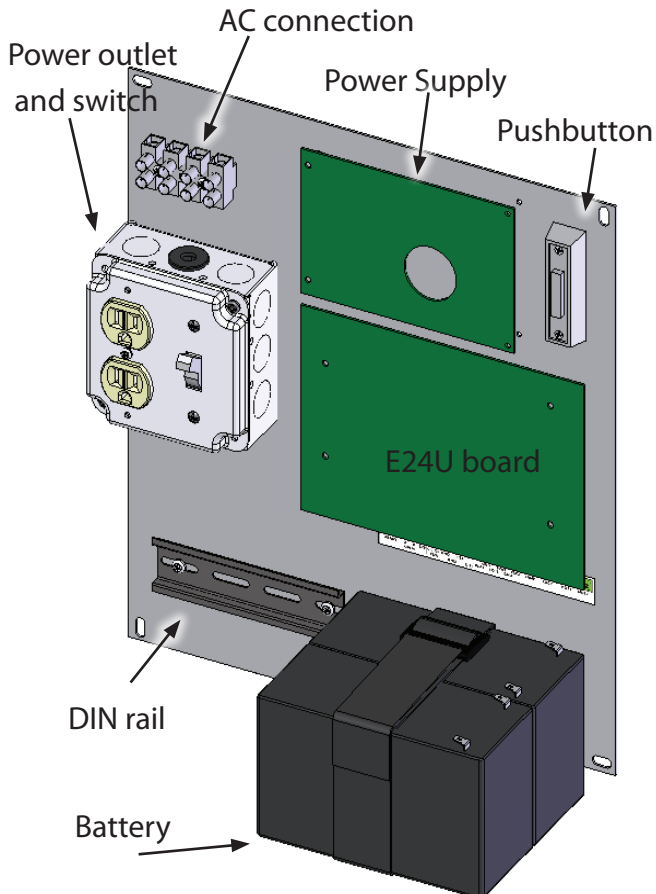
2. The leaf 2 will move in closing direction until it reaches the mechanical stop or FCC2
3. The leaf 1 starts moving slowly until it reaches the mechanical stop or FCC1
4. The leaf 1 starts moving in opening direction at the set speed (trimmer speed).
5. At the point where you want the slowdown to start give an OPEN A command with the push button or the remote that is already stored in memory. The leaf 1 starts to slow down and stops when it reaches the mechanical stop or FCA1.
6. The leaf 2 starts moving in opening direction at the set speed (trimmer speed)
7. At the point where you want the slowdown to start give an OPEN A command with the push button or the remote that is already stored in memory. The leaf 2 starts to slow down and stops when it reaches the mechanical stop or FCA2.
8. The leaf 2 starts to close at the set speed (trimmer speed).
9. At the point where you want the slowdown to start give an OPEN A command with the push button or the remote that is already stored in memory. The leaf 2 starts to slow down and stops when it reaches the mechanical stop or FCC2.
10. The leaf 1 starts to close at the set speed (trimmer speed).
11. At the point where you want the slowdown to start give an OPEN A command with the push button or the remote that is already stored in memory. The leaf 1 starts to slow down and stops when it reaches the mechanical stop or FCC1.
12. 12. The manual time learning procedure is complete.

8 Enclosure

The E024U board is supplied on a panel that fits in a standard 16x10" enclosure.



On the panel are installed the control board, the power supply and additional accessories. See Fig. XX



9 AC power connection

AC POWER GUIDELINES:

THE E024U control board and power supply uses a single phase AC power line to operate, charge the batteries, and power gate accessories. Use the following guidelines when installing the AC power:

1. Check the local wiring codes in all cases and follow all local building codes. Wiring and hookup should be performed by a qualified electrician/installer only.
2. AC power should be supplied from a circuit breaker panel and must have its own dedicated circuit breaker. This supply must include a green ground conductor.
3. Only use U.L. approved 14 AWG or larger 600 Volt Insulated Wire. Check your local codes before installation
4. Properly ground the gate operator to minimize or prevent damage from power surges and/or lightning. Use a grounding rod if necessary. A surge suppressor might be recommended for additional protection.

AC POWER CONNECTION:

To connect AC power to the controller:

1. Turn the circuit breaker for the AC gate operator power OFF before connecting the AC input wires.
2. Turn OFF the Power Switch located on the left side of enclosure before connecting the AC input wires.
3. Connect the AC input wires to the AC terminal located on the top left of the control box. See diagram below.
4. Batteries must be installed after the AC power is on. See Battery Power Connection.

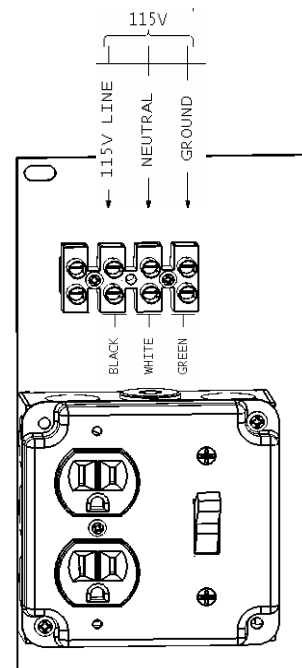
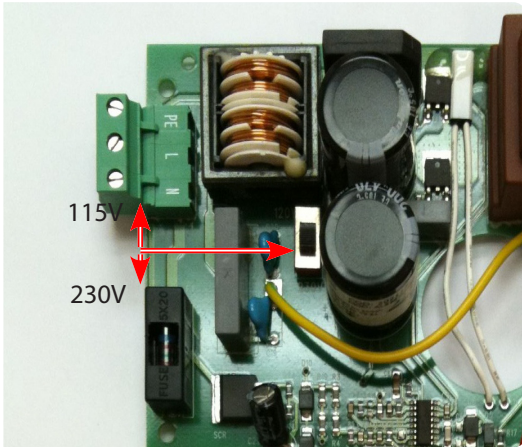


Fig. 2

10 POWER SUPPLY

The E024U board is powered by a high efficiency switching power supply that take 115V or 230V in input and provides 36VDC to power the board.

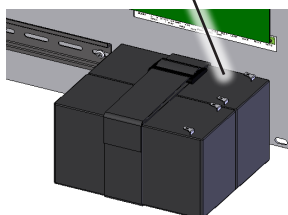
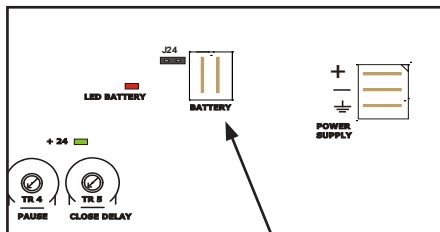
Before turning the power ON you have to select the proper input voltage for the power supply using the two position switch you see in fig. X



11 OPTIONAL BACKUP BATTERY CONNECTION

The E024U board allows the connection of a 24V backup battery to provide power to operate the gate during blackouts. For more details about how the boards handles the loss of main power and how to configure its behaviour please see par X.X and DS1 switch 7.

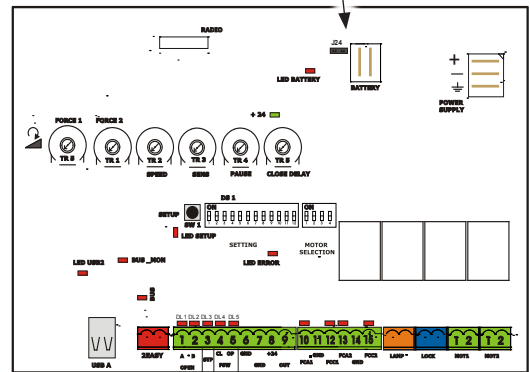
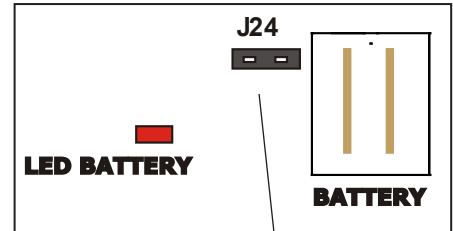
To connect the battery use the provided cable and plug it on the Battery connector on the board. Plug the other end of the cable to the batter, red wire to +24 and black wire to GND



11.1 DISABLE BATTERY CHARGING

To disable the battery charging unplug jumper J24

J24 PRESENT=BATTERY CHARGING ACTIVE
 J24 NOT PRESENT= BATTERY CHARGING NOT ACTIVE



12 FUNCTION LOGICS

LOGIC "E"	PULSES						
SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens the leaves	opens leaf 1	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	stops operation (1)	stops operation	recloses leaves immediately	stops operation	immediately reverses at closing	no effect	stops and opens at release (OPEN stops - saves CLOSE)
OPEN	recloses leaves immediately (1)	recloses leaves immediately	recloses leaves immediately	no effect (OPEN/CLOSE disabled)	no effect	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)
CLOSING	reopens leaves immediately	reopens leaves immediately	no effect	stops operation	no effect	reverses at opening (see 2 nd level prog.)	stops and opens at release (OPEN stops - saves CLOSE)
BLOCKED	closes leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN stops - saves CLOSE)

(1) if the cycle began with OPEN-B (leaf 1), both leaves are activated at opening

LOGIC "A"	PULSES						
SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens and closes after pause time	opens leaf 1 and closes after pause time	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect (1)	no effect	recloses leaves immediately	stops operation	reverses at closing	no effect	stops and opens at release (saves CLOSE)
OPEN IN PAUSE	reloads pause time (1)	reloads pause time of released leaf	recloses leaves immediately	stops operation	no effect	recharges pause time (CLOSE disabled)	recharges pause time (CLOSE disabled)
CLOSING	reopens leaves immediately	reopens leaves immediately	no effect	stops operation	no effect	reverses at opening (see 2 nd level prog.)	stops and opens at release (saves CLOSE)
BLOCKED	closes leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (leaf 1), both leaves are activated at opening

LOGIC "S"	PULSES						
SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens and closes after pause time	opens released leaf and closes after pause time	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect (1)	no effect	recloses leaves immediately	stops operation	reverses at closure	continues to open and recloses immediately	stops and opens at release (saves CLOSE)
OPEN IN PAUSE	recloses leaves immediately (1)	recloses leaves immediately	recloses leaves immediately	stops operation	no effect	stops and, at release, closes	stops and, at release, closes
CLOSING	reopens leaves immediately	reopens leaves immediately	no effect	stops operation	no effect	reverses at opening (see DS1-SW8) and closes immediately at end	stops and opens after release and closes immediately at end
BLOCKED	closes leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (leaf 1), both leaves are activated at opening

LOGIC "EP"	PULSES						
SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens the leaves	opens leaf 1	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	stops operation (1)	stops operation	recloses leaves immediately	stops operation	immediately reverses at closure	no effect	stops and opens at release (OPEN stops - saves CLOSE)
OPEN	recloses leaves immediately (1)	recloses leaves immediately	recloses leaves immediately	no effect (OPEN/CLOSE disabled)	no effect	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)
CLOSING	stops operation	stops operation	no effect	stops operation	no effect	reverses at opening	stops and opens at release (OPEN stops - saves CLOSE)
BLOCKED	restarts moving in opposite direction. Always closes after STOP	restarts moving in opposite direction. Always closes after STOP	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN stops - saves CLOSE)

(1) if the cycle began with OPEN-B (leaf 1), both leaves are activated at opening

LOGIC "AP"	PULSES						
SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens and closes after pause time	opens leaf 1 and closes after pause time	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	stops operation (1)	stops operation	recloses leaves immediately	stops operation	reverses at closing (saves OPEN)	no effect	stops and opens at release (OPEN stops - saves CLOSE)
OPEN IN PAUSE	stops operation (1)	stops operation	recloses leaves immediately	stops operation	no effect	recharges pause time (CLOSE disabled)	recharges pause time (CLOSE disabled)
CLOSING	reopens leaves immediately	reopens leaves immediately	no effect	stops operation	no effect	reverses at opening (see DS1-SW8)	stops and opens at release (OPEN stops - saves CLOSE)
BLOCKED	closes leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (leaf 1), both leaves are activated at opening

LOGIC "SP"	PULSES						
SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens and closes after pause time	opens leaf 1 and closes after pause time	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	stops operation (1)	stops operation	recloses leaves immediately	stops operation	reverses at closure	continues to open and recloses immediately	stops and opens after release and closes immediately at end (OPEN stops - saves CLOSE)
OPEN IN PAUSE	recloses leaves immediately (1)	recloses leaves immediately	recloses leaves immediately	stops operation	no effect	stops and, at release, closes	stops and, at release, closes
CLOSING	stops operation	stops operation	no effect	stops operation	no effect	reverses at opening	stops and opens at release (saves CLOSE)
BLOCKED	restarts moving in opposite direction. Always closes after STOP	restarts moving in opposite direction. Always closes after STOP	recloses leaves immediately	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

(1) if the cycle began with OPEN-B (leaf 1), both leaves are activated at opening

LOGIC "B"	PULSES						
SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens the leaves	no effect	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect	closes leaves	closes leaves	stops operation	reverses at closure	no effect	stops and, at release, closes (saves OPEN/CLOSE)
OPEN	no effect	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)
CLOSING	opens the leaves	no effect	no effect	stops operation	no effect	reverses at opening	stops and opens at release (saves OPEN/CLOSE)
BLOCKED	opens the leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

LOGIC "C"	CONTINUOUS COMMANDS			PULSES			
SYSTEM STATUS	OPEN A	OPEN B	CLOSE	STOP	FSW OP	FSW CL	FSW CL/OP
CLOSED	opens the leaves	no effect	no effect	no effect (OPEN disabled)	no effect (OPEN disabled)	no effect	no effect (OPEN disabled)
OPENING	no effect	closes leaves	closes leaves	stops operation	reverses at closure	no effect	stops and, at release, closes (saves OPEN/CLOSE)
OPEN	no effect	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)
CLOSING	opens the leaves	no effect	no effect	stops operation	no effect	reverses at opening	stops and opens at release (saves OPEN/CLOSE)
BLOCKED	opens the leaves	closes leaves	closes leaves	no effect (OPEN/CLOSE disabled)	no effect (OPEN disabled)	no effect (CLOSE disabled)	no effect (OPEN/CLOSE disabled)

13 FIRMWARE UPGRADE THROUGH THE USB PORT

The E024U board keeps the operating firmware in a field programmable memory, that can be easily upgraded.

WARNING: Only upgrade the firmware with the proper file supplied by FAAC. Not doing this could damage the board.

For the upgrade you need a USB Flash Drive, where you have to copy the file supplied by FAAC. Then follow these steps:

1. Turn the power off and insert the Flash Drive into the USB A input on the board
2. Turn the power back on. The USB2 LED will start to flash to confirm the beginning of the software update. (WARNING: DON'T TURN THE POWER OFF OR REMOVE THE FLASH DRIVE UNTIL THE USB2 LED TURNS OFF.
3. Wait until the USB 2 LED turns off
4. Remove the USB Flash drive.
5. Cycle power and execute a new SET_UP (See chapter 7)

