

D1 Swing Gate Control Board Manual

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Warning: Insure you have sealed all means of entry to the control box by insects and water.



Control Panel – Model D1

The Easysystems D1 control panel is specially design to match 12Vdc Arm Gate Motor(s).

The electronic panel requires no maintenance as long as the gate operates in proper order and is kept dry and insect free. Mount the Control box as close to the motor(s) (maximum 10m cable) as possible connected with minimum 1.5mm 2-core electrical cable to reduce any voltage drop which will affect the performance of the system. 2.5mm to 4mm house cable is commonly used.

1. Make sure all wiring works are correct and in good condition before supplying the mains power to the control panel.
2. Turn **OFF** the power when doing any maintenance.
3. Ensure the control panel box free from water leakage to avoid short circuiting.
4. Do not supply mains power directly to the motor.

Battery: Your system is supplied with a 12V 7AH Lead Acid Maintenance Free Battery and a Z-Shape steel mounting bracket with screw. With the battery terminals at the bottom facing the center, position battery in the right bottom of your control board. There are 2 plastic locating pegs molded into the control board box. You **MUST** mount battery upside down so as the steel mounting bracket, when installed does not contact between the battery power terminals.

230vac-18vac Transformer: Transformer can be relocated to around 100m from control box using a transformer kit (in a protective electrical box with mains lead and plug) or positioned inside the control box if mains power is available at the gate. In either option you **MUST** install transformer via a RCD to avoid injury from shock as per local government electrical requirements. Always switch off mains power when any works is being carried out on or around gate installation. We recommend a minimum 1.5mm x 2 core direct burial garden lighting cable up to 50m and a larger 2.5 to 4 mm cable is commonly used to around 100m. Connect mains power supply to the 2 x orange wires (230Vac) at the transformer. Connect 2 x white wires (16Vac) to control board block 1 (AC input). As the input is AC, the polarity of the cables need not be observed. Disregard the purple and black wires (if fitted) as these are for our 24VAC sliding gate control board D2 only. Protect the wire ends so as not to make contact with the transformer.

DIP SWITCH setting on the control board:

- [1] ON = Delay Close motor A (MT A) for 2 seconds after MT B
- used in conjunction with solenoid lock
- [1] OFF = Gate(s) open/close at same time
- [2] ON = Small Reverse before opening used with 12V lock
- [2] OFF = Gates open immediately without small reverse movement
- [3] OFF & [4] OFF = Light ON (gate open) & cut off 1 min. after gate closed
- [5] ON = **Single Gate Operation** (MT A) for external Push Switch
- [6] OFF = Not in use
- [7] OFF & [8] OFF = Disable Auto Close
- [7] OFF & [8] ON = 030 sec. Auto Close (Pre-wired to External Switch)
- [7] ON & [8] OFF = 060 sec. Auto Close
- [7] ON & [8] ON = 120 sec. Auto Close

Solar Power: The system can be solar powered via an optional solar systems voltage regulator connected directly to the battery. The 12Vdc 7Ah (amp-hour) battery supplied may not be suitable for heavy gates or frequent use. Add another 7Ah battery (in Parallel) giving a total of 14Ah. You can install this in the lid of the control box using the locating pegs.

DO NOT USE BOTH solar and mains power at the same time. Solar panel must face north and best suited within 10m of battery. Have a minimum of 8 hours of direct sun exposure to be effective. Use a suitable 12V solar regulator installed inside your control box connected directly to your battery leads.

Remote Control: The 12Vdc remote transmitter contains two signal represented by button 1 and button 2 on your remotes. Confirm with owner which function they want for each of the button.

Double gate setup button #1 can be set as single gate operation while button #2 is set as double gate operation. You can change this so that either button will activate BOTH gates by moving the grey wire to join the brown wire at block 7 terminal 1

Single gate setup wire only the white to block 7 (centre terminal) and ½ (grey).

You can relocate the receiver black box to another moisture-free location to increase signal strength using cat.5 network cable.

Antenna: The green wire is the antenna with a tuned length. DO NOT CUT. You can increase the range by installing the Easysystems long range antenna.

Adding New Remotes:

Remove the back panel of remote (tiny Phillips screw) that is already working on your gate opener. Do the same to the new remote.

Each switch has 3 positions (top, middle and bottom) so care must be taken when setting each DIP switch. Match the new remote DIP settings to the working (current) remote DIP switch positions.

Check the signal transmission by pressing your new remote.

Changing Remote Codes: Positioned inside your gate opener control box is the remote Receiver box with 5 wires connecting to your control board. Open this up to view the code DIP switches which is adjustable to suit your remotes.

If you change these you must also change the remote DIP switch by removing the back panel of the remote (tiny Phillips screw) and matching the receiver DIP setting to match the remote DIP. Each switch has 3 positions (top, middle and bottom) so care must be taken when setting each DIP switch. After the receiver panel is connected to the control panel, check the signal transmission.

Solid Gate-Stops must be fitted in the center of driveway to give a solid pressure point between the stop and the end of each gate. Place a gate stop at the fully open position if desired. This will add strength to the system in the fully closed position and preventing damage to the arm internal parts.

Arm Condensation Drain Hole : Always mount arms with condensation drain holes facing down or water will enter motors and damage the electrics voiding the warranty. This is indicated on your arm with the red **“THIS SIDE DOWN”** marking.

Wiring Double Gates: Connect your arms to block MT1 and MT2. We recommend 1.5mm wire or greater. Lighter cable **will** restrict the performance

of the system. Use a suitable electrical junction box to protect cable joints from moisture damage.

Check Motor Rotation Direction: After power supply has been connected to the Control Panel, make sure the gate swings in the correct direction. The system will initiate an OPEN signal (green LED on board) the first time the remote is pressed. The second time the remote is pressed the system initiates a CLOSE function (red LED on board). Both gates should either OPEN or CLOSE in tandem.

This is important as wrong direction will cause the system work in the reverse manner.

Hint: Check the LED lights above Block 2. Green indicates an OPEN cycle and Red a CLOSING cycle. To reverse the direction of the motor, reverse the wire polarity at the Control Panel.

Setting the System:

Double Gate Operation

1. Unplug AC power **and** Battery (or solar positive wire if fitted) and make sure the gate(s) are **completely CLOSED**.
2. After 30 seconds reconnect power to the system until short clicking from board can be heard.
3. Press remote transmitter for gate(s). Let the motor open (low speed) until gate(s) are fully opened. Check that the LED lights at block 2 are **green**. If red LED is observed, disconnect power then reverse arm wire in question and start setup again from step 1.
4. Both the motor will stop automatically when the gate is hard stopped. High current cut-off by the circuit board is automatically achieved.
5. Press remote transmitter again and let the motor close (high speed) until both gates are fully closed. LED lights at block 2 are **Red**. Both the motor will stop automatically when the gate is hard stopped. High current cut-off by the circuit board is automatically achieved.

The system has now stored the range between opening and closing time. The microprocessor will automatically adjust the low speed and high speed opening / closing of the system.

Setup is now complete.

6. Test each cycle a few times to make sure the microprocessor has stored the correct range.

Note that :

7. The gate will auto reverse when the system detects obstruction (high amp) during closing operation.
8. The gate will stop when the system detects obstruction (high amp) during opening operation.

To Reset :

9. To **RESET** the Memory, remove all power sources (Mains and Battery). Wait for 30 seconds. System will reset the open / close calibration. Repeat Step #1 – 5 to set the memory.

SINGLE Gate Operation:

1. **DIP switch 5** set to **ON** position and connect motor wires to “MT A”
2. **Parallel the receiver output for 1 side and 2 side** and wire into D1 block 7 terminal 3 (single open). Receiver Common is wired to block 7 terminal 2 (COM).

Note: Do NOT have connection on block 7 terminal 2 (dual open) as this will confuse the board and Motor B will not cut off.

3. Set the ARM in the CLOSE position and then power up the board.
4. Press the remote transmitter and observe GREEN Led indicating Opening cycle on D1 board. Gate is running on Slow Speed. If it is RED then switch OFF power and reverse the motor wire polarity to change the direction of the motor. Return to step 3.
5. Board auto cutoff when high amp. GREEN Led will go off.
6. Press transmitter again. Gate should close. Observe the RED Led indicating Closing cycle
7. In the 1 Arm operation, gate when fully closed (at high speed) the first time, may reopen. This is ok.
8. Press the Transmitter again. Observe the RED Led indicating closing cycle.
9. When the gate is stopped, the RED Led will go off.

12Vdc power only used: When the system is running on battery only (in the event of AC failure), the arms will open simultaneously but closes sequentially i.e. 1 x arm starts after the other finishes. This ensures that the battery will be loaded on only 1 arm at any one time. The cycle will be 20-30% slower then if powered with transformer.

External auto-close switch: The switch installed at the bottom of the control panel is hard wired as *30 sec Auto Close* only. You must place 7 and 8 to OFF to use the switch. There are 3 x male connectors on the back of the switch under the control board. Line up the “0” on the switch to its adjacent male connector and connect the red female (black wire) tab from the control board. Use the middle male connector with the second red female tab.

“0” means the 30 sec auto close is OFF

“1” means the 30 sec auto close is ON

Optional 12V devices: One number of 12Vdc Output (parallel to the Battery), protected with a 1 Amp in-line fuse has been pre-wired in your control panel. Connect the Positive (+12V) of the optional device to the wire connector with the red cable and the (Com) to the connector with the black cable.

Keypad Output to Open the Gate: Connect keypad to block 7 on the control board with keypad signal to 1 (2 arrows) and keypad common to terminal 2 (2 arrows). This will activate both arms on double swing setup. If double gate setup and you want only 1 gate to open (pedestrian access) connect signal to terminal 3.

Exit Button or Intercom gate release: Connect common to block 7 terminal 2 (COM) and signal to terminal 1 (dual open) or terminal 2 (single open). This will activate both arms on double swing setup. If double setup and you want only 1 gate to open (pedestrian access) connect signal to terminal 3.

For exit buttons it does not matter which way you connect the wires at block 7 terminal 1 and 2.

Close Switch Port: Used where the user requires to “CLOSE” the gate only. It can either function as a single or double gate close operation. DIP switch 5 must be set to ON before single gate operation can be used.

Safety infrared beams: Connect beams 12V power to block 5, terminal 1 (+) and 2 (-). Connect beams common to terminal 3 (COM) and beams signal (normally closed or NC) to 4.

Note: You will need to remove the small loop / jumper wire that is positioned between terminal 3 and 4. Replace the loop / jumper wire when beams are not in use!

Lock: Used when a 12Vdc lock is used to keep gates from being forced open when fully closed. Connect to “lock” at block 3. DIP switch 2 is placed to ON to allow lock tongue to release freely a second before gate performs an open cycle.

Loop Detector / Free Exit Function: Connect the Loop Detector signal cables to Block 6.

In the Free-Exit-Mode, a command via the loop detector or underground motion sensor will cause the gate to open. If another command is made (i.e. another car passes through) during the opening phase, it has no effect. The gate will continue the opening stroke.

When the gate has been fully opened and stopped, the auto-close timer begins. This is the Pause-Period.

If no further command is received, the gate will automatically close back at the end of the pause-period (auto-close time).

If another command is made during the Pause Period, the cycle for Auto-close timer will reset and gate auto closing will commence after the end of the new cycle.

If a command is made during the closing stroke (i.e. a car passes by the loop while the gate is closing), the gate will pause and reopens.

Important Note:

Photo-beams must be fitted as an additional safety device when using Free-Exit Function and / or Auto-Close function is used.

External Light connection:

D1 Arm gate Board has a 12Vdc output on the Lamp Relay Terminal. Left terminal is negative and right is positive. This output is to energize an EXTERNAL 12Vdc relay which in turn can be used to turn on /off a higher rating electrical item such as a Pillar Light.

Warning: All 240V wiring MUST be done by a qualified electrical person.

1. Set Dip Switch [3] and [4] to OFF Position. Active for 1min.
2. Connect a 12Vdc relay as is shown in Figure 1.

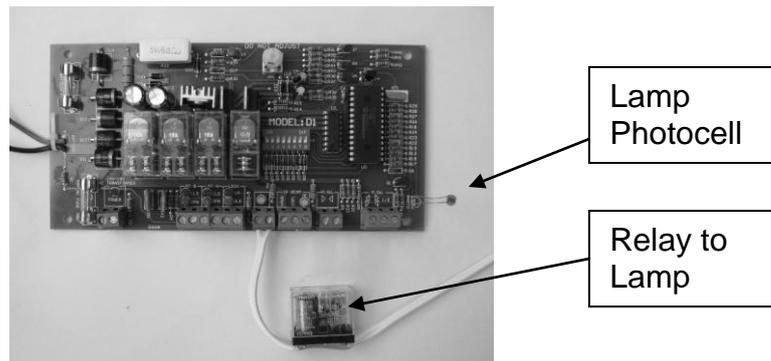


Figure 1: Connection of 12Vdc Relay for 240V lights

Note: D1 board is designed with a Lamp Photocell (bottom right side of D1 board), so that Lamp Relay will be activated only in a dark ambient environment.

In a bright ambient, the Lamp Relay is not activated in the Opening Cycle of the Arm (Green LED). This is due to the fact that the Lamp Photocell is exposed to significant lighting.

When connected to Pillar Lights, this design prevents the Pillar Light from turning ON during the Day.

If you wish that the Pillar Lights be turned on, irrespective of the ambient lighting, use a Dark Tape to cover the Lamp Photocell or turn the Photocell inwards when mounted in the Control Box.

Lamp Relay Activated when Lamp Photocell is covered (black-out).

Please note however, that due to the different lighting intensity, direction of lights, reflection etc in the Control Panel Box, it is possible that that Lamp Relay is activated even if the external ambient is significantly bright.

Point the lamp photocell to the side Gills of the supplied box for ambient light detection.

Other Settings of the DIP Switch 3 & 4

- | | |
|----------------------|---|
| DIP 3 [ON] & 4 [ON] | Lamp deactivated (for solar setup power saving). |
| DIP 3 [ON] & 4 [OFF] | Lamp permanently ON. You can have your gate-pillar lights stay ON at night then turn OFF when sun comes up. |

Trouble-Shooting.

Problem: The system does not response when transmitter is pressed.

- Make sure the transmitter in good condition. Ensure that the battery is functioning and LED on the transmitter lights up when button is pressed. Replace transmitter if the LED does not light after new battery is replaced.
- Try any external push buttons or exit buttons. If they activate the gate but all transmitters do not activate the gate, check receiver wiring to board.
- Check remote DIP switches match the transmitter DIP Switches.
- Check the wiring of the receiver panel and make sure the power is connected in correct polarity. Check also the power to the control board with the red LED at block1 is ON and the battery has 12V. Ensure 12Vdc is supplied to the receiver box.
- Check arm(s) are working using power direct from the battery.
- Check wires are connected properly to the control board.

Problem: The gate will open but not close

- Check the wire loop is still in place on block 5 between terminal 3 and 4. If beams are fitted, check beam wiring/setup/ obstructions.

Problem: The gate does not fully open and close, or stops half way.

- Ensure there is no obstruction to the movement of the gate. This could also be high resistance such as poor gate installation or high winds activating the anti-obstruction sensing. This can be verified by releasing the gate to Emergency release mode. Manual push the gate open and close to detect any obstruction.
- Ensure that on the first setting setup, the gate is fully closed before the board is initialized. Short distance detection will result in error of count for the gate opening and closing angle.

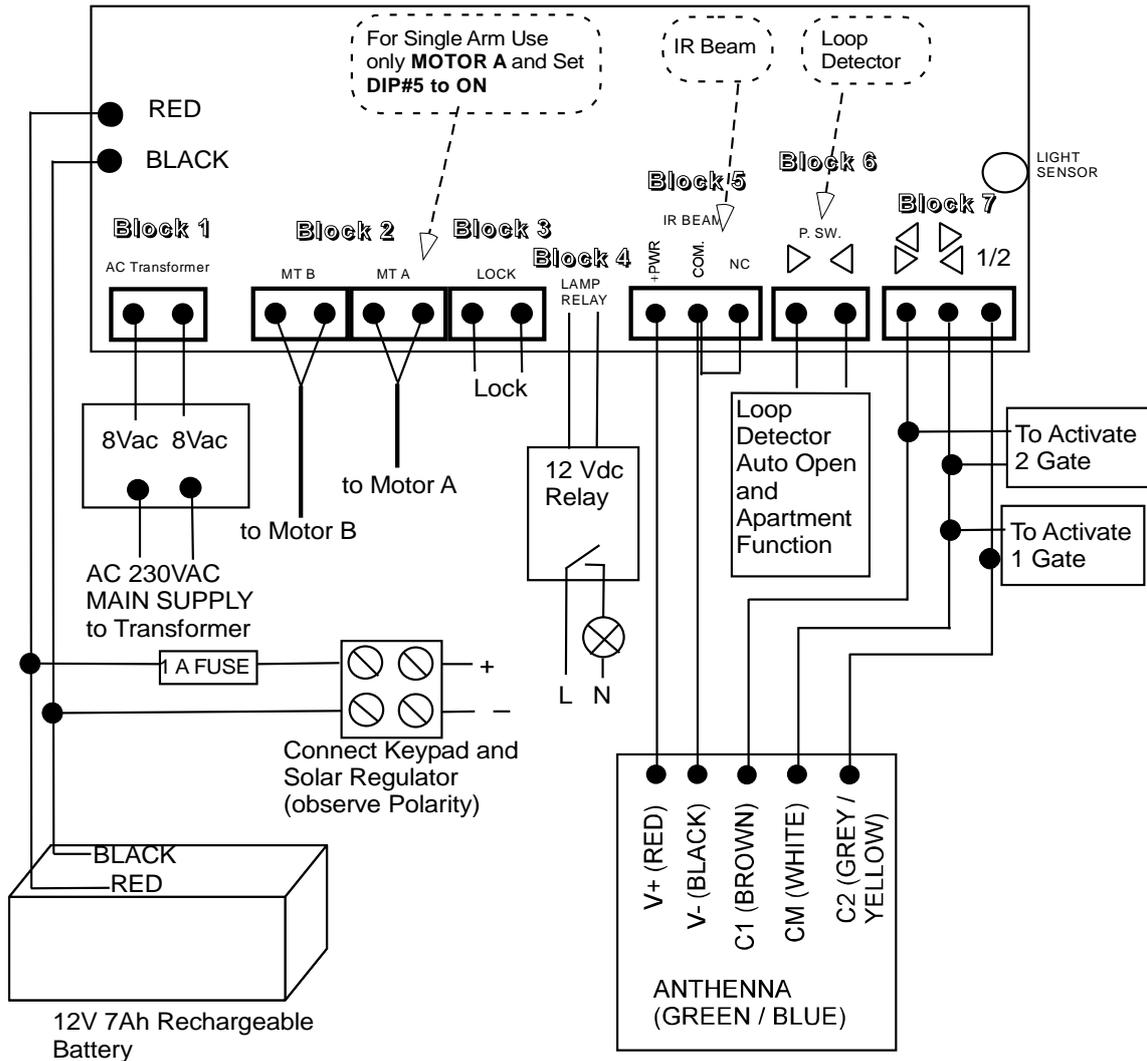
Problem: The gate does not travel smoothly when opening or closing.

- Ensure there is no obstruction to the movement of the gate such as hitting the ground. This can be verified by releasing the gate to Emergency release mode. Manually swing the gate open / close to detect any tight spots.
- Ensure that the gate is properly leveled and that the dimension guide for the installation of the Automatic gate is followed. Arm **must not be** parallel to the gate when fully open or fully closed.

Problem: On double setup one gate closes fully before the 2nd gate starts.

- System is running on battery only (eg. Solar setup) and transformer AC not connected. Check power with volt meter.

EASYSYSTEMS D1 SWING GATE CONTROL BOARD (version 1.3.0)



Warning: Insure you have sealed all means of entry to the control box by insects and water.