

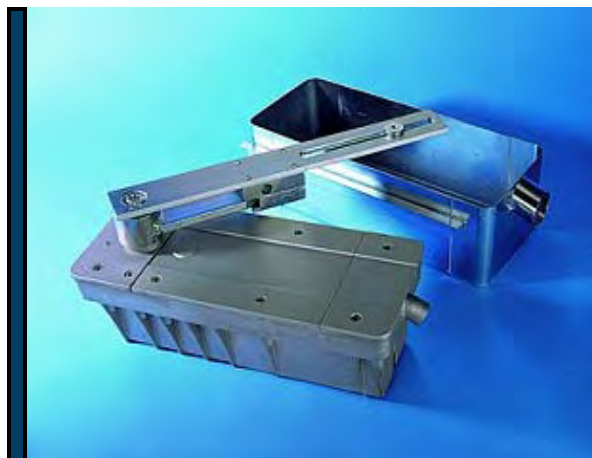
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Sub 180 **CE**
Installation Manual

INTRODUCTION

The **Sub 180** motor is an electromechanical underground operator which is suitable for the automation of metal and wooden swing gates. The motors can open inward or outward with a maximum opening angle of 180°. Two systems are available,

- **Sub 180/1** - Suitable for single wing gate with a maximum span of 2.0m total.
- **Sub 180/2** - Suitable for double wing gate with a maximum span of 4.0m

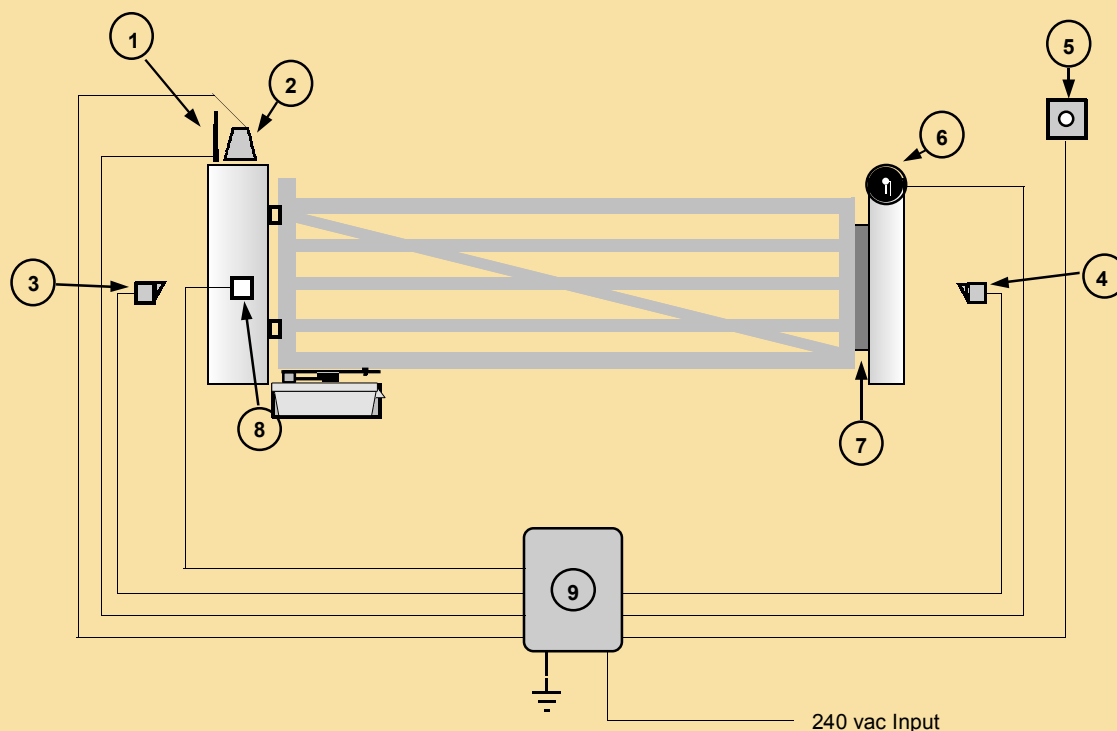
INSTALLATION REQUIREMENTS

PLEASE READ THE FOLLOWING INFORMATION CAREFULLY AND ENSURE THAT ALL REQUIREMENTS ARE OBTAINABLE BEFORE INSTALLATION.

- Gates must not exceed the maximum length as stated in Introduction.
- Sub 180 motors have certain space requirements for fitting (*Fig. 1,2&3*). These must be followed as closely as possible.
- Physical stops are needed to cease the gates' operation. A centre stop is a compulsory requirement, fully open stops are recommended but not essential.
- Drive arms that are supplied may not be suited to the gate you are automating as all applications vary. Drive arms may need fabricating/altering.
- A 240vac power supply is required to one side of the gate (where the control unit is to be housed) fused at 10amps - complete with an RCD protection device.
- If a hardwired intercom system or other controls from the house are to be installed, a communications cable will be needed from the house to control unit.
- A duct between the posts is required to carry cables to second motor and to connect safety photocells.
- The services of a qualified electrician will be required to carry out electrical connections and power supplies/communication cable routing.

TECHNICAL DETAILS

	SUB 180
Power Supply	230vac - 50/60Hz
Current absorption	1.4A
Capacitor	8MF
Thermal protection cut-in	90°
Direction of rotation	2
Self-locking	yes
Electric motor speed	900 R.P.M
Torque	27kg
360° rotation time	75 sec
90° opening time	18 sec
Maximum gate length	2000mm
Maximum gate weight	400kg



1 - Aerial - Pre wired. Gives added range to your remote transmitter (approx. 40m). Recommended fitting location is a high point with a clear line of sight. Usually at the top of your post.

2 - Warning light (optional) - 3 x 1.5mm wire. Emits a flashing light to warn others that an automatic gate is in operation. Recommended fitting location is a high point with a clear line of sight. Usually at the top of post.

3 - Safety photocell (receiving) - 4 x 0.5mm wire & 4 - Safety photocell (emitting) - 2 x 0.5mm wire. Photocells are primarily used as a safety feature but can also be used for automatic entry/exit. We recommend that the photocells are always installed to give maximum safety to vehicles and pedestrians. Photocells pass an infra-red beam between themselves. When the gate is closing, and the beam is broken (by a vehicle or pedestrian) the gate will instantly stop and re-open. Recommended fitting location is between your gate pillars on the outside (opposite to the movement of the gate, therefore the gate will not break their beam during the cycle) at a height of approximately 500mm from floor level.

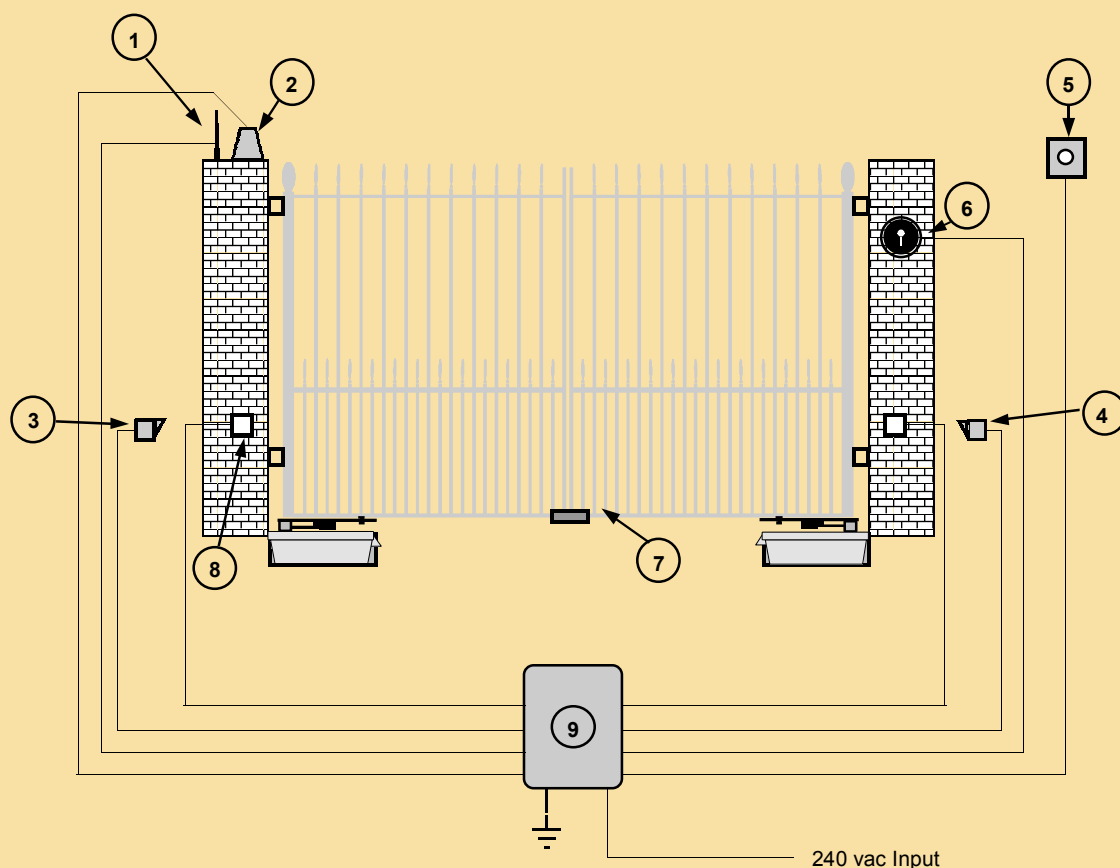
5 - Internal push button station/access facility (optional) - 2 x 0.5mm wire. Creates a normally open switch to release the gate from inside the property or at the gate.

6 - Key switch - 2 x 0.5mm wire. Used to access the gate with a conventional key. Recommended fitting location is on the gate pillar, inside or out, depending on the required function.

7 - Physical stop. This is essential to the overall operation of the gate and, if not existing, can be purchased from your supplier if required. Alternatively any suitable centre stop can be used. With single gate a stop can be fixed to the close post or in the ground.

8 - Junction box for motor - 4 x 1.5mm wire. Used to junction motor cable before routing back to PM5000 control unit.

9 - PM5000 control unit. Central control unit where all connections are made. Please refer to separate instruction manual for wiring diagrams and operational functions. Recommended fitting location is local to gate behind gate post or fixed to the back of adjacent wall.



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8 - Junction boxes for motors - 4 x 1.5mm wire. Used to junction motor cable before routing back to PM8000 control unit.

9 - PM8000 control unit. Central control unit where all connections are made. Please refer to separate instruction manual for wiring diagrams and operational functions. Recommended fitting location is local to gates behind gate post or fixed to the back of adjacent wall.

Please note, all fitting locations are recommendations only.

SUB 180 - MOTOR INSTALLATION

- Check that you have all listed components.
- Check **Installation requirements** on page 1 and ensure that the application satisfies all points.
- Using *Fig. 3 Or 4* Calculate the correct position for your motor/s, respecting the position of your gate hinges and required opening angle.
- Dig holes to accommodate your motor boxes (approximately 250mm width, 450mm length, 200mm depth) ensuring that there is sufficient space underneath the box (for drainage purposes) and around each side of the box (for securing well with concrete).
- Once the hole is prepared, lay a bed of sand at the base of the hole (this is optional but is ideal drainage for motors).
- Position your motor box in the hole ensuring that the top of the box is flush with your finished floor level.
- Insert a duct (preferably a flexible conduit) through the spout of the box leading to your nearest gate post as shown in *Fig. 7*. Feed your motor cable through this duct and terminate at the gate post with junction box. This cable will be wired back to your control unit when electrical connections are made.
- Concrete around the box. Ensure that a strong concrete mix is used and that the motor is firmly secure when set.
- Once set, insert the motor into the box.
- Attach drive arm to motor drive shaft.
- Offer the arm to the underside of the bottom rail of your gate to calculate where to position your drive arm holding pin, *Fig. 8*. The holding pin should pass through the centre of the slot in the drive arm.
- Fix the holding pin to the gate, preferably welding if gate is metal.
- Place the pin through the slot of the drive arm and tighten the holding bolt. If the distance between ground and bottom rail of your gate is too great, you may not be able to use the holding pin provided. If this is the case, we recommend you use a suitable alternative.
- Remove the two screws from the front cover of your motor using a 6mm allen key and remove cover. Connect the internal motor wires to your prepared motor cable using the terminal block provided. Replace cover. Please refer to your control unit instruction (PM8000 or PM5000) for all wiring directions/instruction. *Note, please use cable provided as this cable is suitable for the cable gland of the motor.*

Motor cable, **Blue** = common, **Brown & Black** = direction (open & close), **Yellow/Green** = earth.

If your system has two motors **Sub 180/2**, please repeat the same installation procedure for the second motor/gate.

!!!!!! PLEASE ENSURE THAT AFTER ALL FINAL CONNECTIONS ARE MADE THAT THE CABLE GLAND IS TIGHT AND SEALED WITH A WATERPROOF SEALANT TO PREVENT WATER INGRESS. IF MOTOR CONNECTIONS ARE FOUND TO BE INADEQUATELY SEALED, THIS MAY INVALIDATE YOUR PRODUCT WARRANTY !!!!!!!!!!!

SUB 180 INSTALLATION - Electrical connection

WE ONLY SUGGEST CARRYING OUT ELECTRICAL CONNECTION USING THE SERVICES OF A QUALIFIED ELECTRICIAN.

For full wiring instruction of motor and accessories, please refer to the PM8000/PM5000 control unit manual.

SUB 180 INSTALLATION - System test

Upon completion of mechanical installation and electrical connection we recommend that the system is tested. Please follow the test procedure below,

- Apply power.
- Give signal from access unit i.e. transmitter, key switch.

At the initial signal the motors should always move in the opening direction, if this is not the case for one or both of the motors, the directional wires (brown & black) of each incorrect motor must be reversed.

- Run motors for a number of operations to evaluate whether any operational timer adjustments are needed. These timers are found in control unit and include, **run timer** (amount of time motors are running for), **delay timer** (allowing a delay between first and second motor-PM8000 only), **pause timer** (amount of time motors remain open before closing), **torque regulator** (regulates power supplied to motors). All timer adjustments are detailed in control unit instruction.

Please note, system is set up for automatic closure. If this is not required, please refer to control unit instruction to alter the system operation.

Fig 3 - Installation of motors when gate is hinged on inside face of post - up to 90° opening

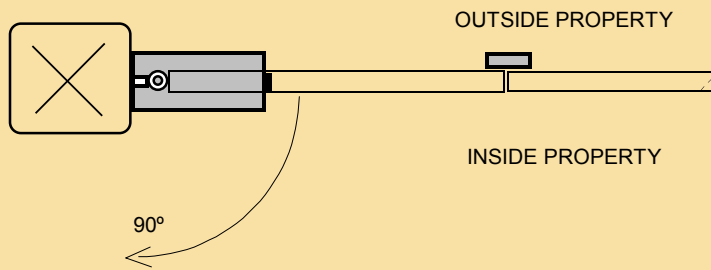


Fig 4 - Installation of motors when gate is hinged on back face of post - up to 180° opening

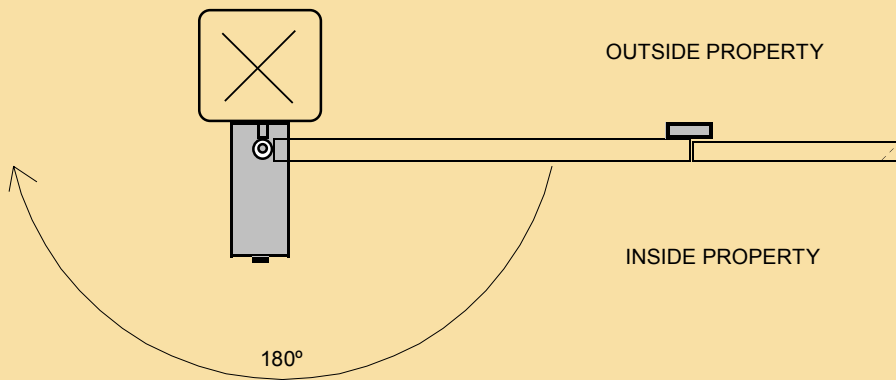


Fig 5 - Foundation box dimensions

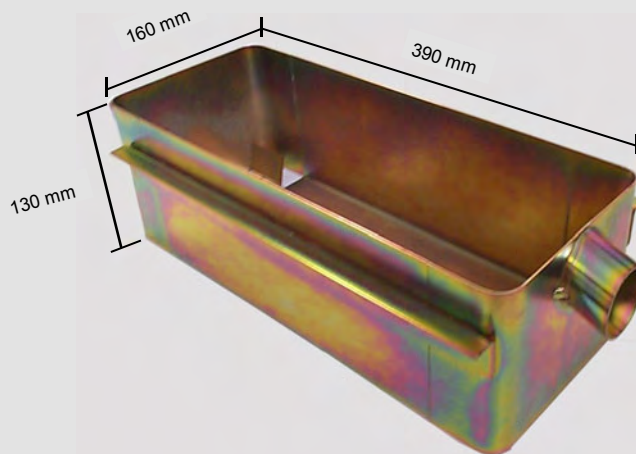


Fig 6 - Installation of motor box

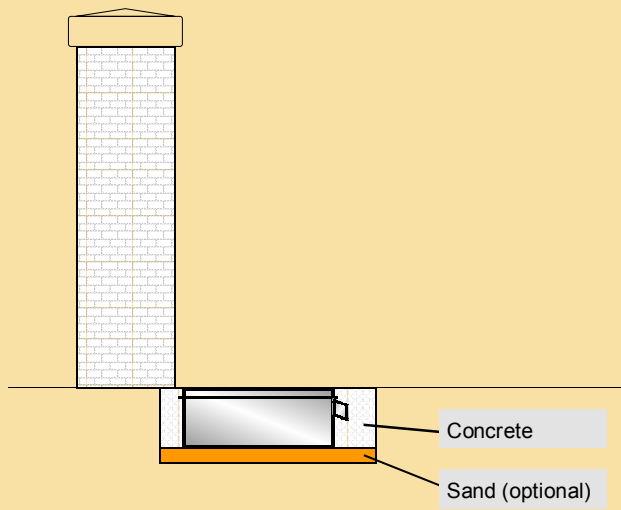
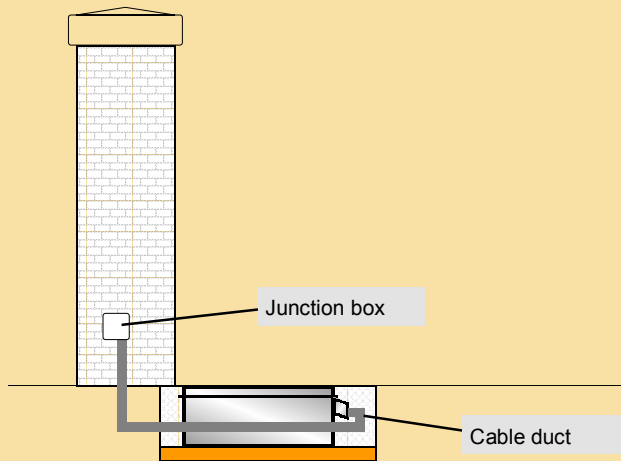
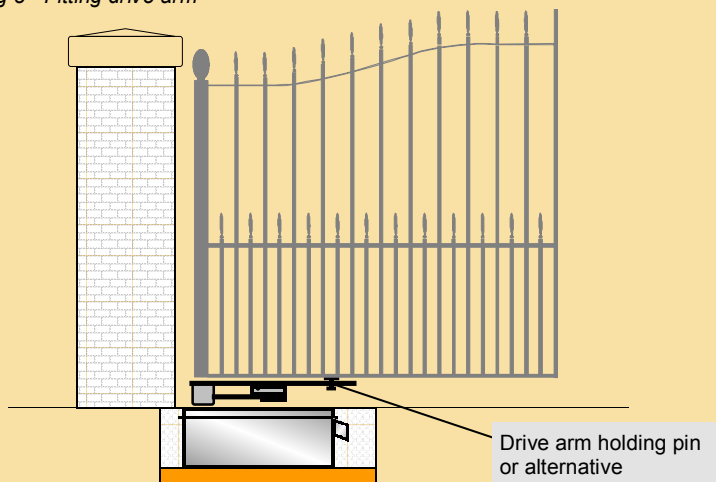


Fig 7 - Ducting for motor joining cable



Junction wires in adaptable box located on the nearest pillar. Route this cable to control unit.

Fig 8 - Fitting drive arm





EMERGENCY OPERATION - Manual release

In the event of a power failure situation, you may open your gates using the manual release function. Manual release is achieved by inserting the manual release key into the drive arm release key hole and rotating clockwise. The arm then separates from the holding section and you may open the gates manually.

Once power is restored, reverse the manual release procedure and give the gate system a signal from your transmitter. The arms will re-connect during operation and function as normal.

ADDITIONAL ACCESSORIES - Security, safety, access control

WDS supply a range of additional extras that can enhance your system. These include additional,

- Security and visitor identification.
- Safety equipment.
- Advanced access control equipment.

All products and full descriptions can be found on page 9 of **WDS** company brochure.



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