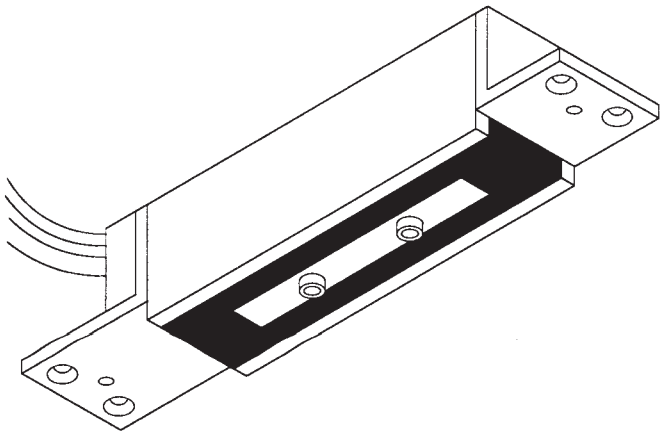
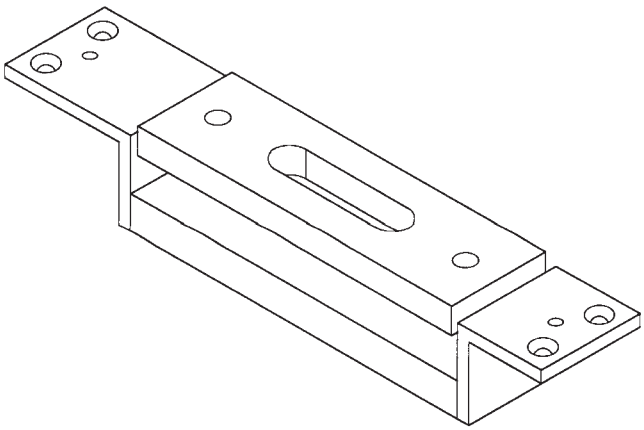
ADAMS RITE EUROPE LIMITED

Armlock® 1354 Mini Electro-Shearmagnet (Mortice)





Contents

Before You Start

Before commencing the installation of the Armlock® 1354 Mini ShearMagnet (Mortice) please check the following:

- The power supply intended for the application provides smooth DC and will supply sufficient amperage to accommodate the peak draw of the shear magnet(s) together with the needs of any other hardware in the system. For the electrical requirements of the Armlock® 1354 refer to page 11.
- Use the diameter and type of cable that is suitable for the product and the length of the run. Line drop is one of the most common causes of operating problems with electrical locking devices.
- It is generally good practice when fitting electro-magnetic locks that they should not be located in proximity to any other product that may cause interference; for example AC power cable, CAT5 cable and transformers (this list is not exhaustive).

  Although in the design of this product every precaution has been taken to reduce the effect of interference the following recommendations should be followed to limit any problems: -

  1. The recommended position for the PCB is as close as possible to the magnet assembly; ideally within one metre.

  2. For applications where the supplied cable is to be extended up to 20 metres (maximum provided the same gauge of cable is used) please ensure that the 100 nf ceramic capacitor is fitted across the green and blue wires at the cable extension join.

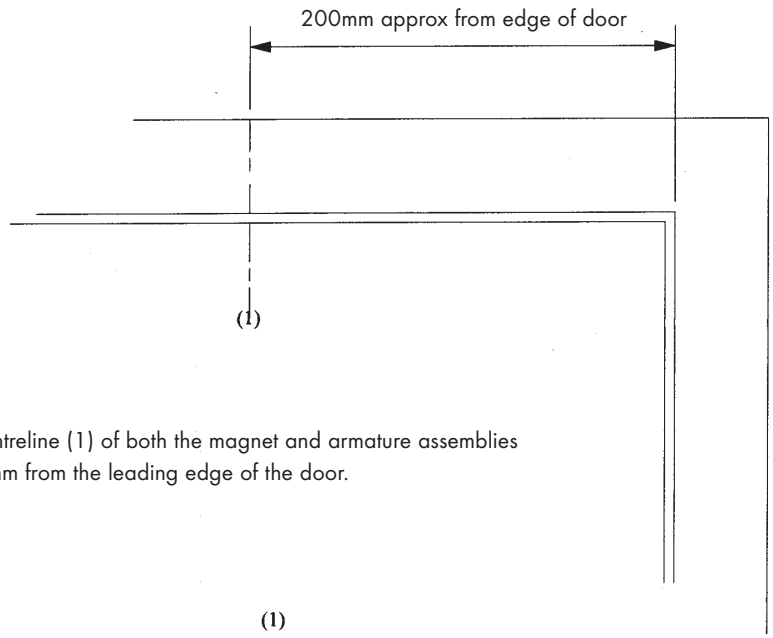
  3. We recommend a minimum gauge of 16 strands of 0.2 cable is used when extending the run.

- If the application is steel it is recommended that a separate door contact be used, which suitable for steel doors. Otherwise, the field of the auto relock sensor may be blocked, preventing operation.
- Study the fitting instructions carefully and relate them to the proposed application. In particular, the width of the door and the depth of the frame are sufficient to accept the product including clearance for the cable. Time taken here could help eliminate potential installation problems before it is too late.
- Inspect the application to ensure it offers sufficient strength to support the shear magnet installation.
- Check that the gap between the door and frame is within 3mm to 6mm.
- In situations where the installation and the wiring are the responsibility of separate companies, ensure that you have received all of the components necessary to complete the installation. A component checklist is provided for reference.
- It is recommended that a good quality door closer be used to control the closing action of the door. Check that the door closes against the doorstop in the case of a single application and centres accurately on a double action door.
- Remove the armature from its assembly and apply the 'threadlock' provided sparingly to the threads of the armature bolts and re-assemble.

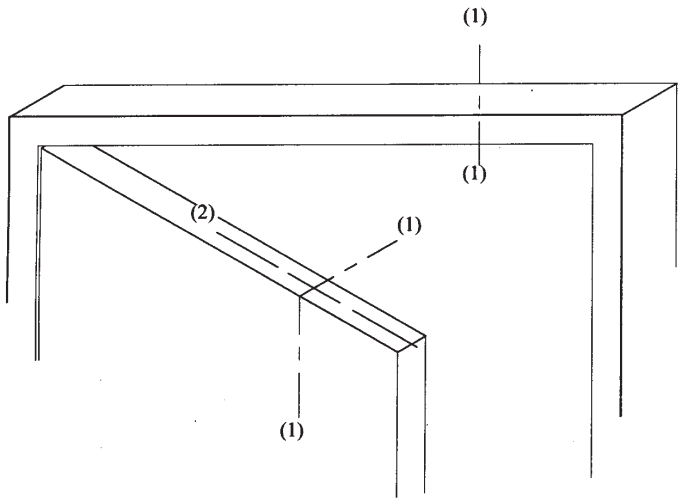
Checklist

- Magnet Assembly 1
- Armature Assembly 1
- PCB 1
- PCB Mounting Box c/w Cable Glands 1
- Fixing kit containing machine and wood screws, bottle of threadlock, Allen key for armature adjustment and black self adhesive screw cover pads ..... 1 Set

Preparation of Door and Frame



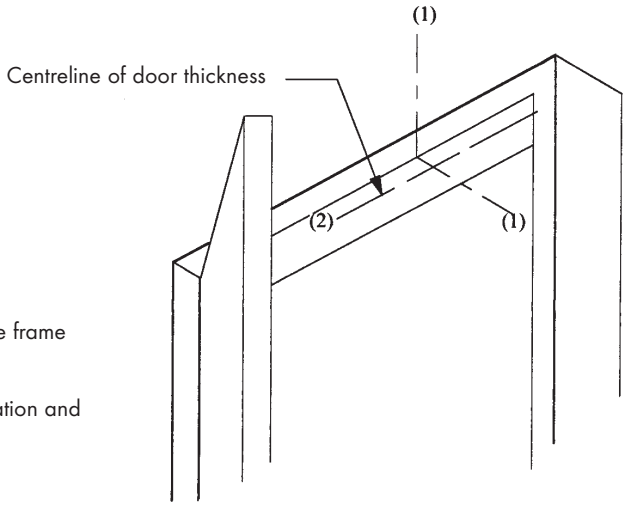
Mark the vertical centreline (1) of both the magnet and armature assemblies approximately 200mm from the leading edge of the door.



Continue this line across the width of the underside of the frame and the top of the door.

Measure the thickness of the door and mark its centreline (2).

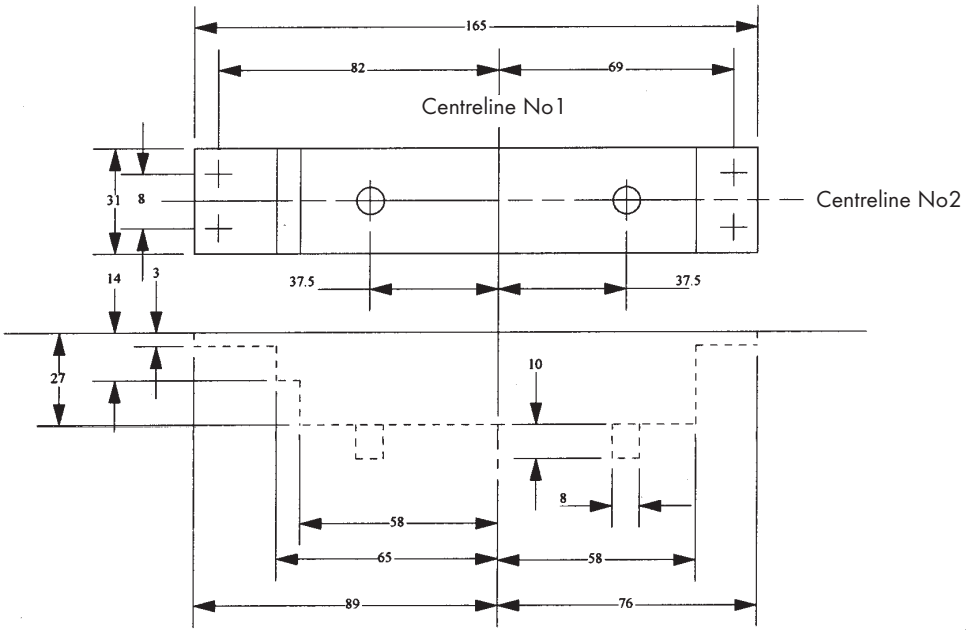
Select the appropriate drawing for the application's door material and follow the steps outlined in the text.



Mark the centreline (2) of the door thickness onto the frame where it rests in its closed position.

Select the appropriate drawing for the frame application and follow the steps outlined in the text.

Preparation for the Armature Assembly in a Timber Application



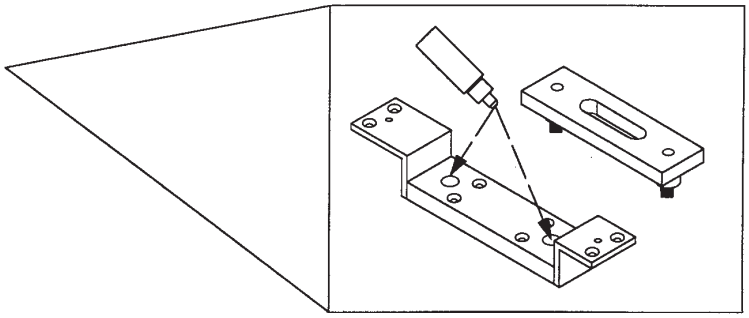
Follow the preparation details shown above and reproduce them onto the top of the door.

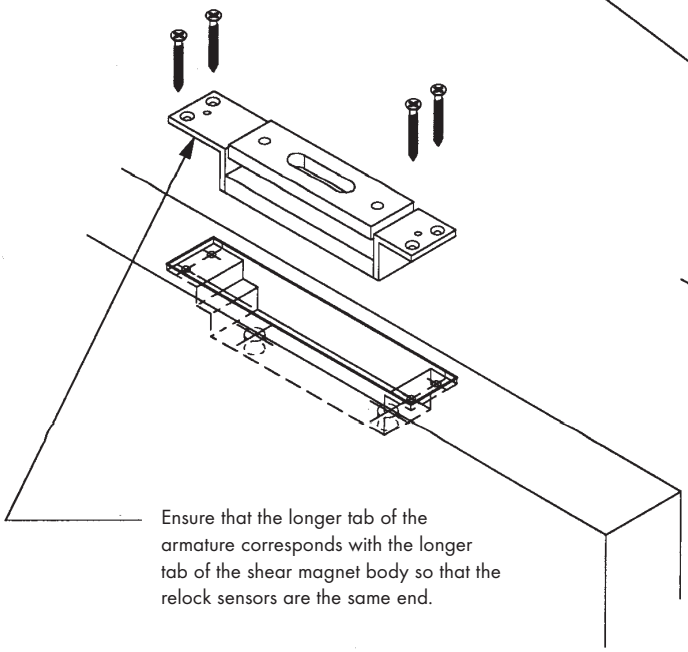
Ensure that the longer tab of the armature corresponds with the longer tab of the shearlock body so that the relock sensors are the same end.

In order to check that the setting out is correct before any wood is removed, offer both armature and magnet assemblies to their respective positions as a final check.

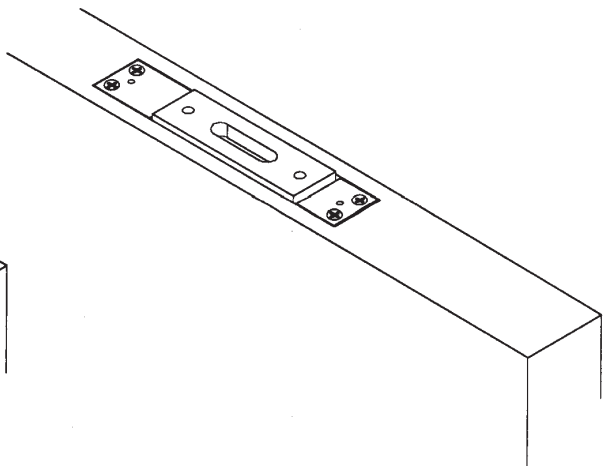
It is important that adequate clearance is allowed for the auto-relock sensors which project beneath the fixing tab of the armature assembly.

Before installing the armature assembly, completely undo the height adjusters and apply the threadlock supplied into the threaded holes in the cradle.

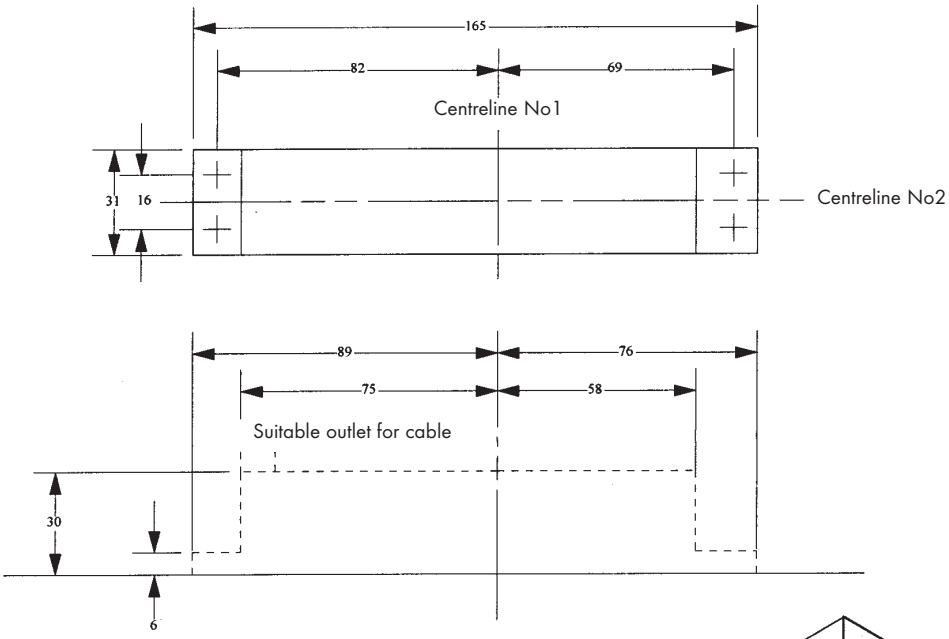




Ensure that the longer tab of the armature corresponds with the longer tab of the shear magnet body so that the relock sensors are the same end.



Preparation for Magnet Assembly in a Timber Application

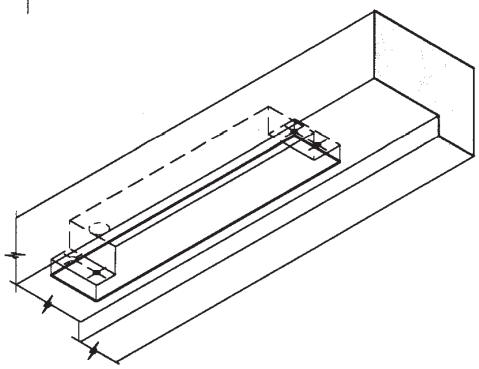


Follow the preparation details shown above and reproduce them onto the frame using the vertical and horizontal centrelines already drawn as the datums. Ensure that the longer tab of the armature corresponds with the longer tab of the shearlock body so that the relock sensors are the same end.

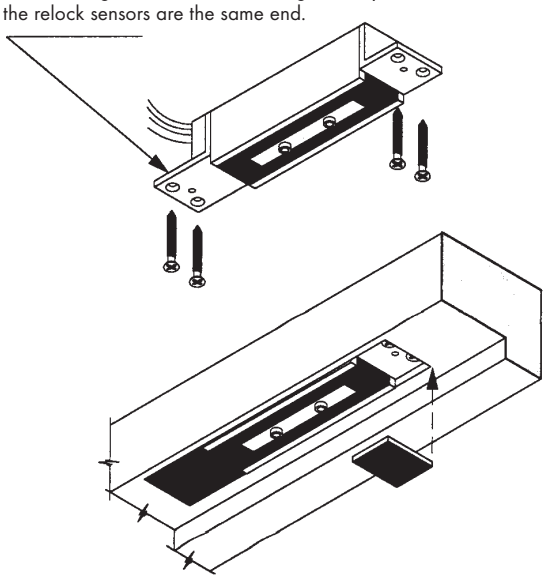
In order to check that the setting out is correct before any wood is removed, offer both armature and magnet assemblies to their respective positions as a final check.

To maintain the lateral play built into the design, allow the magnet face to sit slightly proud of the mortice. In applications where the air gap is too small to allow this, neatly cut away the area around the magnet face to give the same effect.

The characteristics of the application may dictate the route of the cable exit from the frame and therefore, the depth of the preparation for the body. As it would be impossible to show every possibility it is left to the judgement of the installer to find the best compromise. The overiding factors must be maintaining the structural integrity of the application without damaging the integral cable of the magnet assembly.

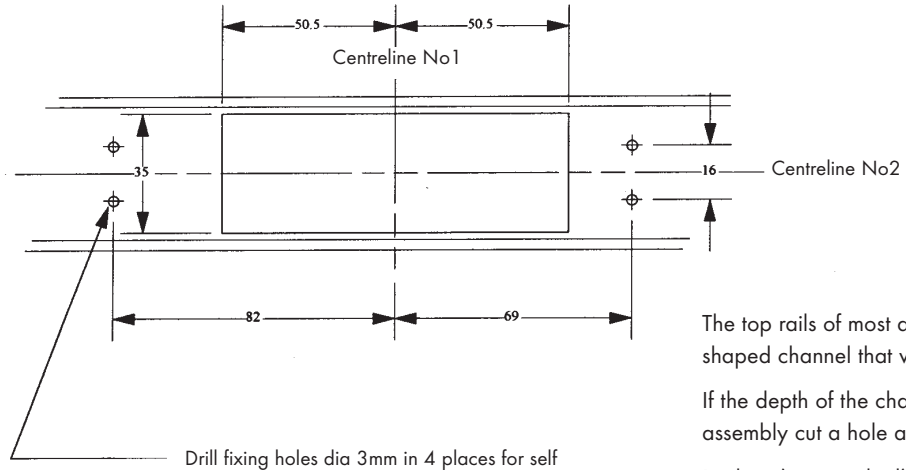


Ensure that the longer tab of the armature corresponds with the longer tab of the shear magnet body so that the relock sensors are the same end.



The black plastic pads supplied may be used to fill the recess around the fixing tabs. They are the same size even though the tabs are not, to allow clearance for the auto re-lock sensor.

Preparation for Armature Assembly in An Aluminium Top Rail



The top rails of most aluminium doors tend to have a 'U' shaped channel that varies in depth from system to system.

If the depth of the channel is shallower than the armature assembly cut a hole as shown.

Packers (not supplied) of an appropriate height will be required to raise the armature assembly to achieve the necessary air gap between it and the magnet assembly.

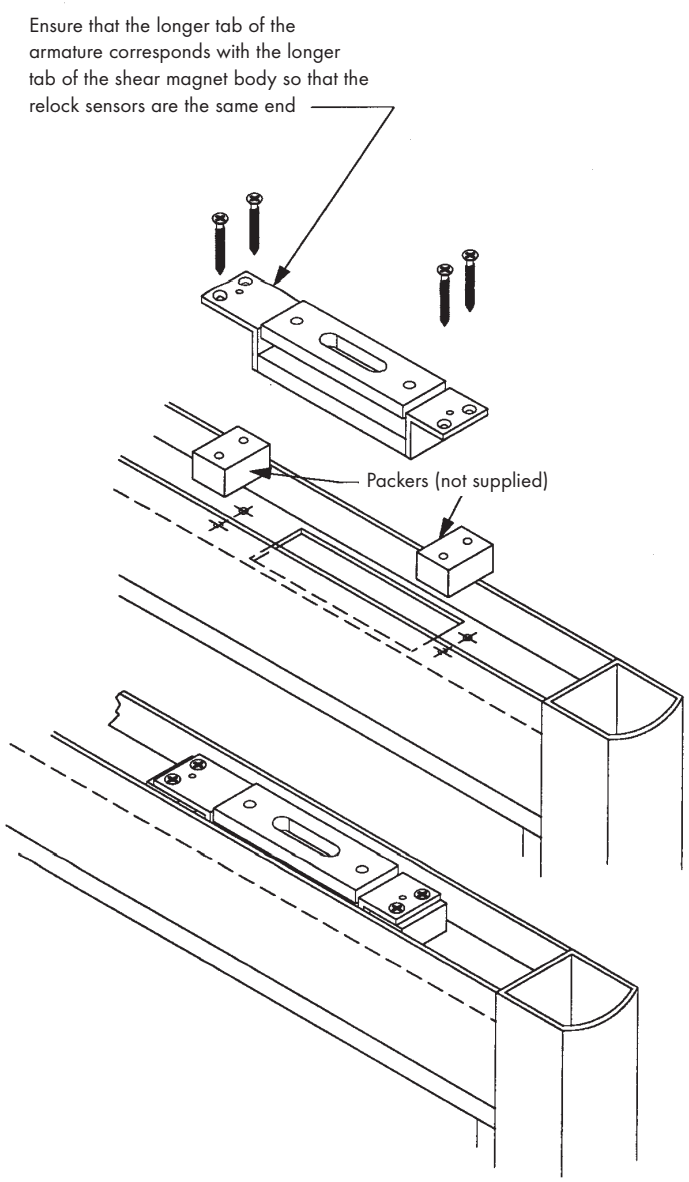
The packers should offer sufficient strength and rigidity whilst not compromising the security of the fixing.

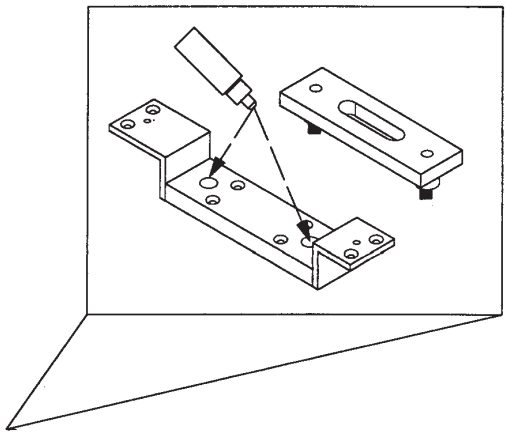
Follow the preparation details shown on the left and reproduce them onto the top of the door. Ensure that the longer tab of the armature corresponds with the longer tab of the shear magnet body so that the relock sensors are the same end.

Refer to the drawing showing the preparation of the frame and reproduce them onto the frame.

In order to check that the setting out is correct before any metal is cut, offer both armature and magnet assemblies to their respective positions as a final check.

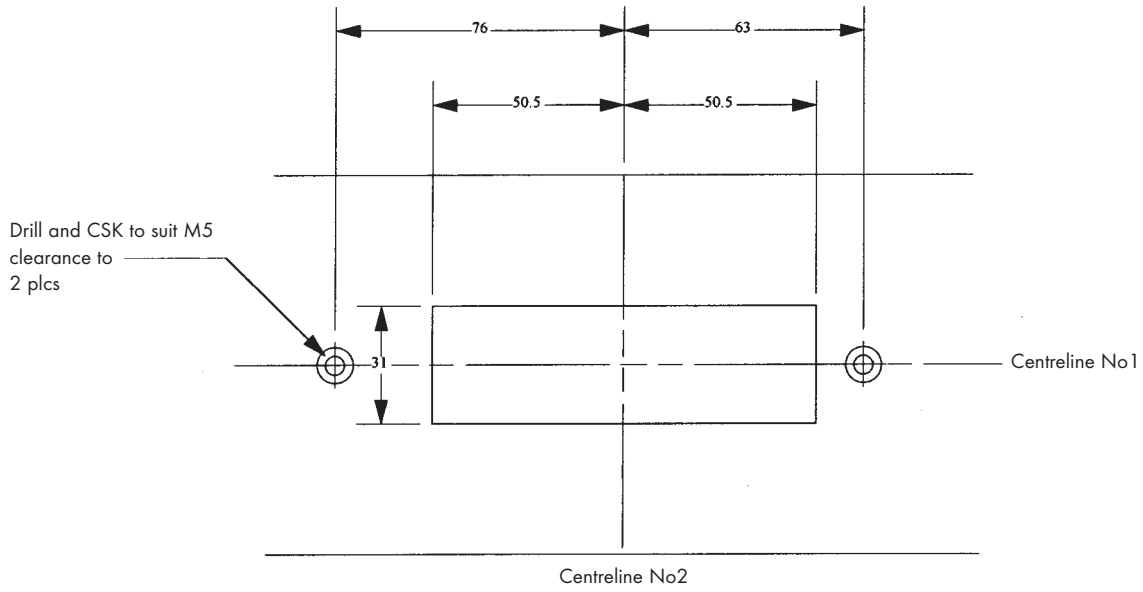
It is important that adequate clearance is allowed for the auto-relock sensors which project beneath the fixing tab on the armature assembly.





Before installing the armature assembly, completely undo the height adjusters and apply the threadlock supplied into the threaded holes in the cradle.

Preparation for Magnet Assembly in An Aluminium or Steel Frame



Refer to the preparation details shown above and reproduce them onto the frame. Ensure that the longer tab of the armature corresponds with the longer tab of the shear magnet body so that the relock sensors are the same end.

In order to check that the setting out is correct before any metal is cut, offer both armature and magnet assemblies to their respective positions as a final check.

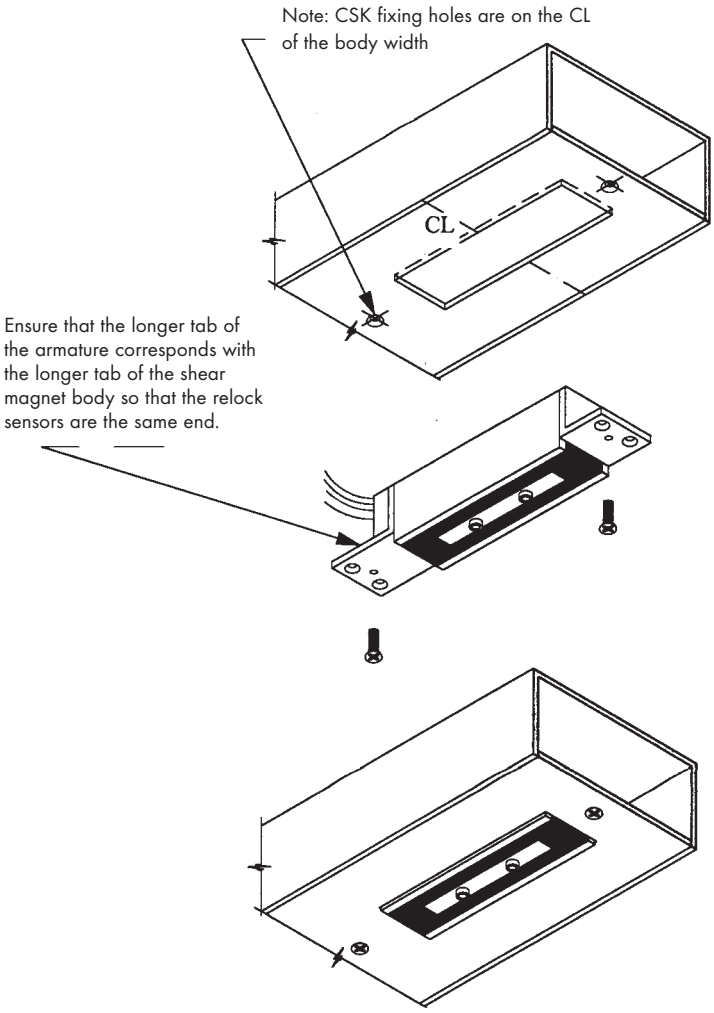
As can be seen in the lower drawing, the fixing tabs of the magnet assembly are concealed within the frame. The threaded hole in both fixing tabs is used to secure the assembly into position using the CSK machine screws supplied.

Depending upon the wall thickness of the frame and the size of the door gap, it may prove necessary to insert a packing piece (not supplied) between the inside face of the frame wall and the face of the fixing tab. This would raise the assembly within the section reducing the projection of the magnet face and potential interference of the shear teeth with the top rail of the door in applications where there is a small door gap.

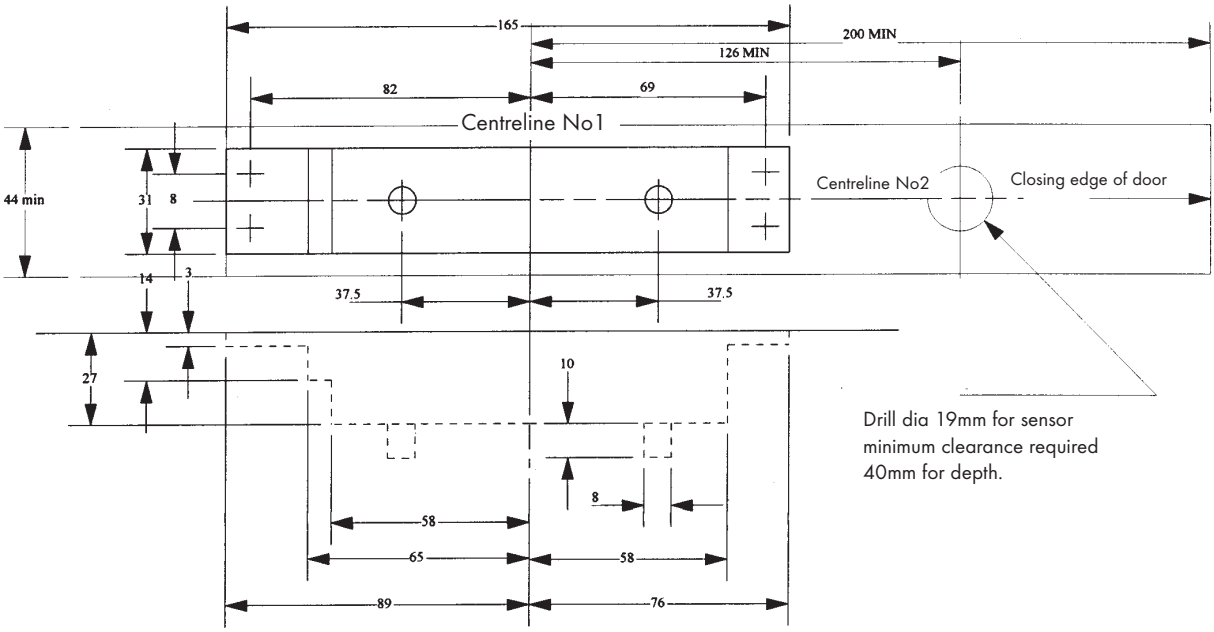
To maintain the lateral play built into the design allow the magnet face to sit slightly proud of the mortice.

In steel door applications it is recommended that a separate door position sensor is used to activate the auto relock facility.

Most aluminium frame sections are of an open box design with a clip on faceplate. In this situation it is recommended that the securing of the clip on faceplate is fully supported in an appropriate manner to prevent the strength of the application being compromised.



Preparation for the Armature Assembly in a Steel Application



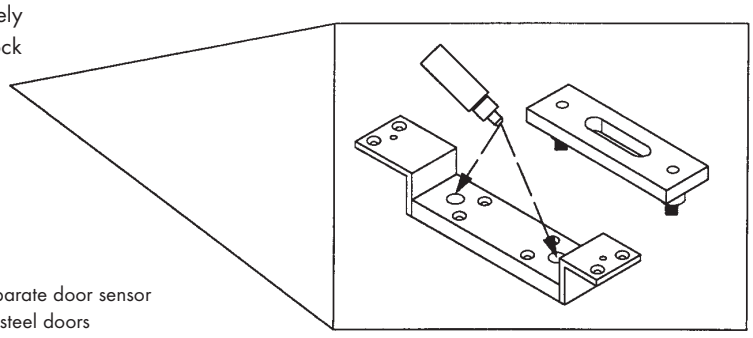
Follow the preparation details shown above and reproduce them onto the top of the door.

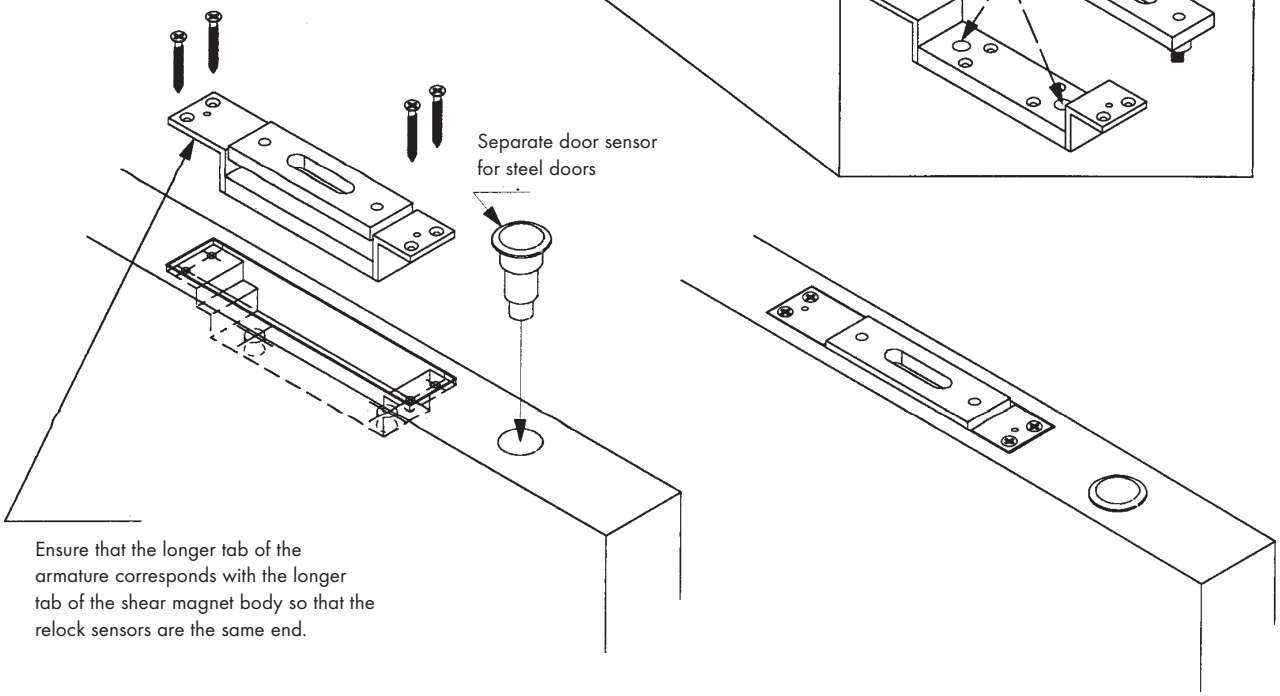
Ensure that the longer tab of the armature corresponds with the longer tab of the shear magnet body so that the relock sensors are the same end.

In order to check that the setting out is correct before any metal is cut offer both armature and magnet assemblies to their respective positions as a final check.

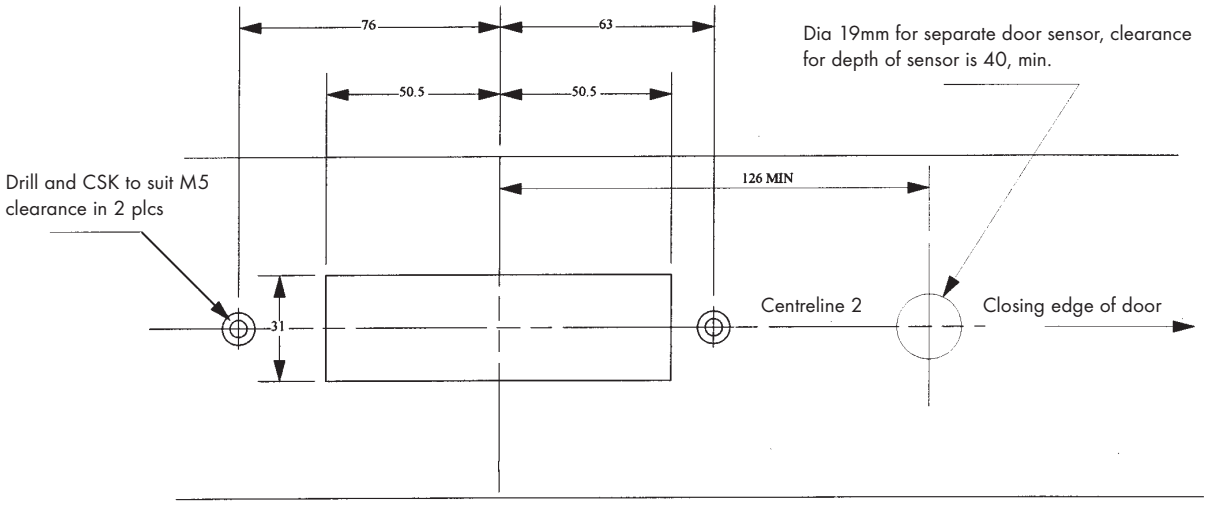
It is important that adequate clearance is allowed for the auto-relock sensors which project beneath the fixing tab on the armature assembly.

Before installing the armature assembly, completely undo the height adjusters and apply the threadlock supplied into the threaded holes in the cradle.





Preparation for the Magnet Assembly in a Steel Frame



Refer to the preparation details shown above and reproduce them onto the frame. Ensure that the longer tab of the armature corresponds with the longer tab of the shear magnet body so that the relock sensors are the same end.

In order to check that the setting out is correct before any metal is cut, offer both armature and magnet assemblies to their respective positions as a final check.

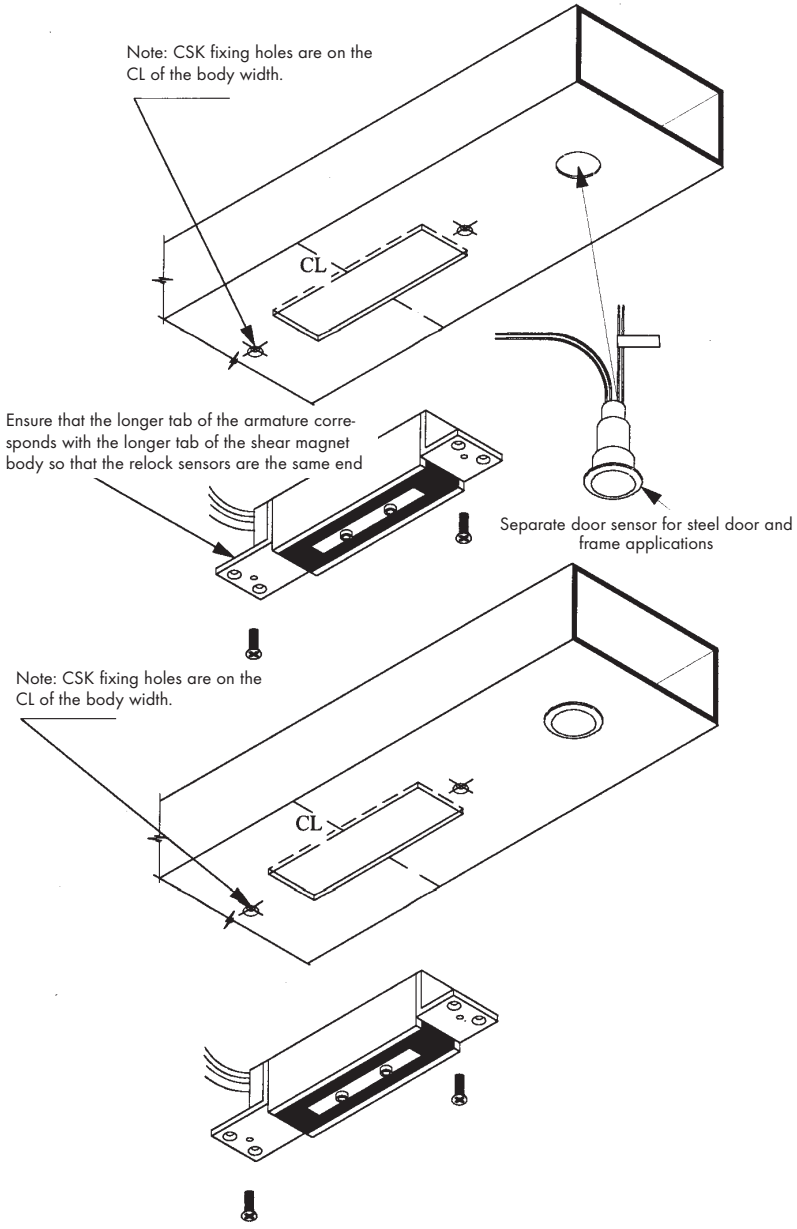
As can be seen in the lower drawing, the fixing tabs of the magnet assembly are concealed within the frame. The threaded hole on both fixing tabs is used to secure the assembly into position using the CSK machine screws supplied.

Depending upon the wall thickness of the frame and the size of the door gap, it may prove necessary to insert a packing piece (not supplied) between the inside face of the frame wall and the face of the fixing tab. This would raise the assembly within the section reducing the projection of the magnet face and potential interference of the shear teeth with the top rail of the door in applications where there is a small door gap.

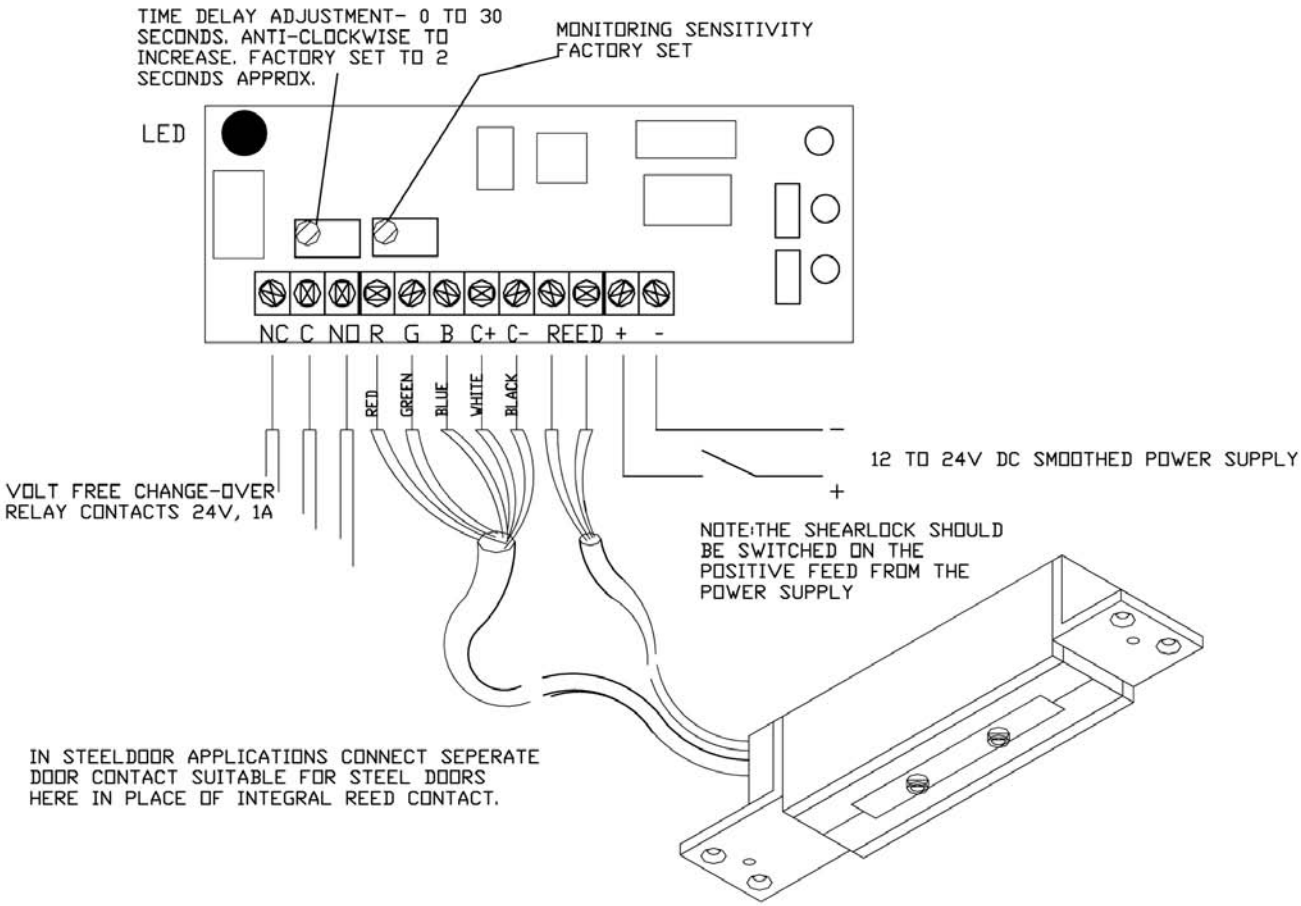
To maintain the lateral play built into the design allow the magnet face to sit slightly proud of the mortice.

In steel door applications it is recommended that a separate door position sensor is used to activate the auto relock facility.

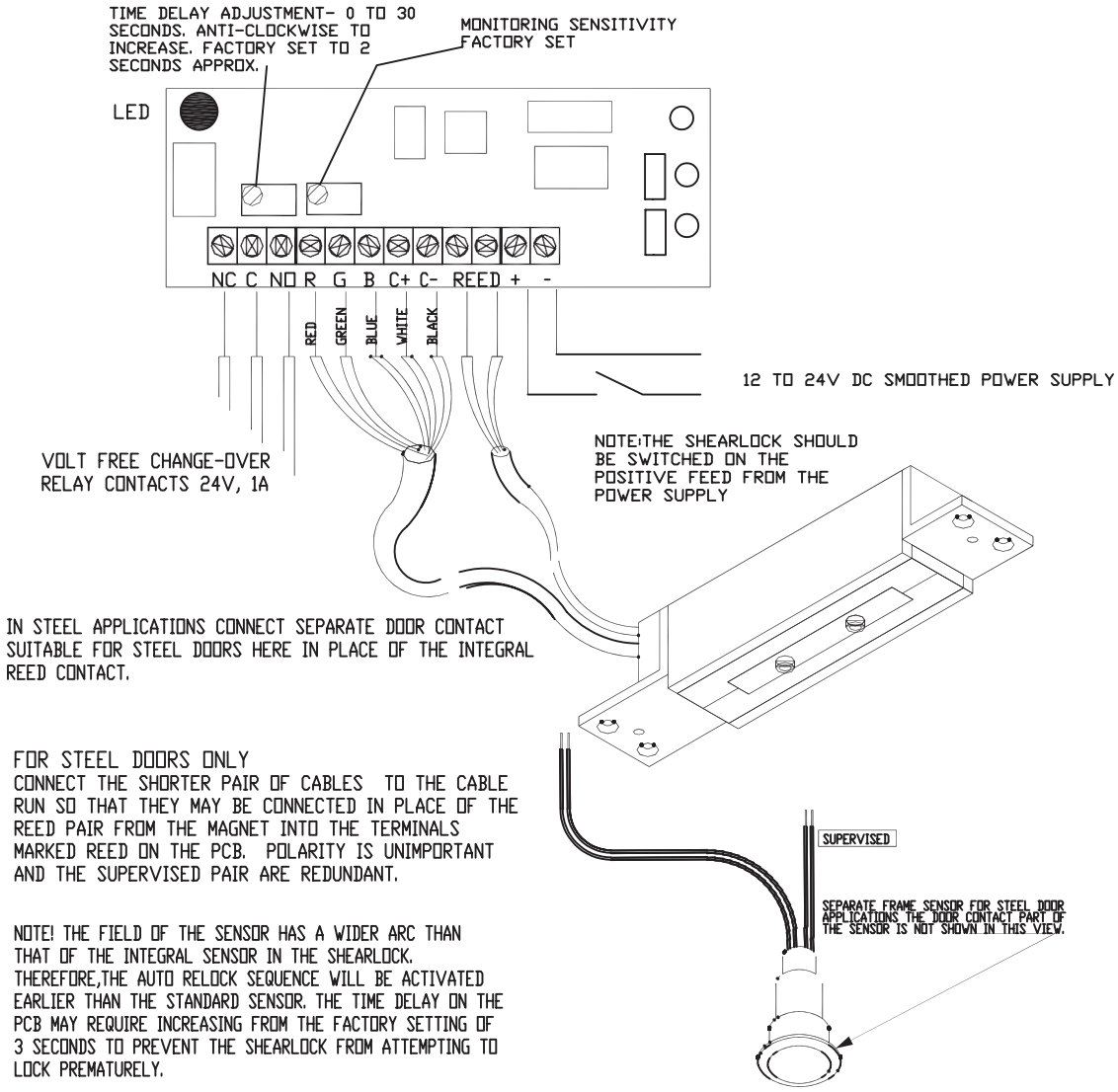
Most aluminium frame sections are of an open box design with a clip on faceplate. In this situation it is recommended that the securing of the clip on faceplate is fully supported in an appropriate manner to prevent the strength of the application being compromised.



Wiring Diagram



Wiring Diagram with Separate Door Contact



FOR STEEL DOORS ONLY
CONNECT THE SHORTER PAIR OF CABLES TO THE CABLE RUN SO THAT THEY MAY BE CONNECTED IN PLACE OF THE REED PAIR FROM THE MAGNET INTO THE TERMINALS MARKED REED ON THE PCB. POLARITY IS UNIMPORTANT AND THE SUPERVISED PAIR ARE REDUNDANT.

NOTE! THE FIELD OF THE SENSOR HAS A WIDER ARC THAN THAT OF THE INTEGRAL SENSOR IN THE SHEARLOCK. THEREFORE,THE AUTO RELOCK SEQUENCE WILL BE ACTIVATED EARLIER THAN THE STANDARD SENSOR. THE TIME DELAY ON THE PCB MAY REQUIRE INCREASING FROM THE FACTORY SETTING OF 3 SECONDS TO PREVENT THE SHEARLOCK FROM ATTEMPTING TO LOCK PREMATURELY.

Armlock® 1354 Wiring and Troubleshooting

Wiring

1. Wire the Armlock® 1354 as shown in the diagram. The voltage supply can be anywhere between 12V and 24V smoothed DC.

2. Closing the door contacts will activate the auto relock facility and instigate the time delay, which may be set between 0 and 30 seconds. The factory setting of 2-3 seconds should suit most applications.

   After the time delay voltage and full current will be applied to pull the armature onto the magnet face.

   The current position will then lower to a holding level to reduce heat output and power consumption.

   If the magnetic circuit is closed i.e. the lock is secure, then the LED on the PCB will change from red to green. This will also change the Volt-free contacts of the PCB relay, rated at 24 Volt, 1 amp, allowing remote monitoring of the lock status.

3. If the Armlock® 1354 tries to lock but fails due to misalignment it will retry 100 times before stopping.

   Although persistant misalginment should be remedied by adjusting the door positioning, this facility should deal with situations where the position of the door has been temporarly misalgnment and is now correctly positioned in time to be successfully secured by the activation of the retry facility.

   Consistent misalignment caused by incorrect door positioning is unlikely to be resolved by the facility but it will provide an audible indication that the unit has not been successfully locked. If the monitoring is used this will give remote indication of the Armlock® 1354's status.

   After the retry facility has completed the 100 cycles the shearlock will remian in the open position. To restart its operation, align the door correctly and reset the system by operating the switch, card reader etc.

4.

Supply Voltage	Pull-in Current	Hold Current	Air Gap Mag/Armature	Air Gap Mag/Cradle Face
12VDC	1.5A(2 sec)	0.5A cont.	3-5mm	8mm max.
24VDC	1.5A(2 sec)	0.45A cont.	3-5mm	8mm max

Troubleshooting

1. If the Armlock® 1354 shearlock fails to function please check the following:
   Check the power supply is sufficient and that the polarity is correct.
   Check the door contacts are 'making' when the door is closed. Test by putting a 'jumper' across the REED terminals.
   Check the air aps are in accordance with the table above.
   If the door and frame is steel, that a separate door contact suitable for steel applications has been used.

2. If the Armlock® 1354 shearlock tries to lock 100 times but fails:
   Check the polarity of the coil connections c+ and c-.
   Check the faces of the magnet and armature are free from contamination and are correctly aligned both laterally and longitudinally.
   Check the centring of the door closer for misalignment.

3. If the 1354 shearlock works intermittently:
   Ensure all guidelines have been followed within these instructions and check that the 1354 is not being affected by another source that could cause interference.

   If the cable run has been extended ensure the correct gauge of cable has been used and the 100 nf ceramic capacitor has been fitted across the green and blue wires at the cable join.