

# University of Wollongong

---

Electronic Monitoring and Access Control Commissioning Standard  
Version 2 – 5 March 2012



## TABLE OF CONTENTS

<b>1</b>	<b>ELECTRONIC MONITORING AND ACCESS CONTROL.....</b>	<b>1</b>
<b>1.1</b>	<b>OVERVIEW .....</b>	<b>1</b>
<b>1.2</b>	<b>COMMISSIONING PROCESS.....</b>	<b>2</b>
<b>1.3</b>	<b>PRE-COMMISSIONING HARDWARE INSPECTION.....</b>	<b>3</b>
<b>1.4</b>	<b>PRE-COMMISSIONING SOFTWARE INSPECTION .....</b>	<b>4</b>
<b>1.5</b>	<b>DOCUMENTATION .....</b>	<b>4</b>
<b>1.6</b>	<b>COMMISSIONING TIME AND DATE.....</b>	<b>5</b>
<b>1.7</b>	<b>COMMISSIONING TESTS.....</b>	<b>5</b>
1.7.1	Alarm Devices.....	5
1.7.2	Access Readers.....	8
1.7.3	Electric Locks.....	10
1.7.4	V-Locks.....	13
1.7.5	Electric Strikes .....	14
1.7.6	Lift Relays .....	16
1.7.7	Detectors.....	18
1.7.8	Third Party Monitoring .....	19
1.7.9	Operator Terminal .....	19
<b>1.8</b>	<b>MINOR DEFECTS .....</b>	<b>22</b>
<b>1.9</b>	<b>COMMISSIONING SCHEDULES.....</b>	<b>22</b>
1.9.1	Commissioning Schedule - Access Readers and Alarm Devices .....	23
1.9.2	Commissioning Schedule - Lift Relays and Alarm Devices.....	24
1.9.3	Commissioning Schedule - Third Party Monitoring.....	25
1.9.4	Commissioning Schedule - Operator Terminal and Reporting.....	26

## 1 ELECTRONIC MONITORING AND ACCESS CONTROL

Electronic monitoring and access control (EMAC) systems form part of the overall security strategy at the University of Wollongong (UOW). EMAC systems are used in conjunction with physical and operational security measures to protect people, property and processes.

The EMAC systems primarily provide alarm monitoring and the capability to control access through the use of electronic locking devices and access card readers.

System monitoring and programming is performed from the operator terminal. The operator terminal is configured to enable operators to perform monitoring and control functions as well as programming and system configuration. As a minimum three access levels are provided. These being operator, system administrator and technician.

### 1.1 OVERVIEW

The quality control process for EMAC equipment involves the following stages:

Stages	Description	Parties Involved
Stage 1	Unit Testing - Performed by the manufacturer at a component level.	Manufacturer
Stage 2	Installation Inspections - Performed by the project manager during the installation process. The objective is to identify poorly installed equipment or parts of the installation that do not comply with the provisions of the design specifications. Provided the defect is identified at an early stage, the cost of remedial work and delays to the project program can be minimised.	Project Manager
Stage 3	Final Commissioning - Performed by the installation contractor and witnessed by the project manager.	Contractor, Project Manager

*Table 1 - Commissioning Stages*

Final commissioning is the most important part of the quality control process. It is at this stage of the project that the project manager will determine whether the system is ready to be approved for Practical Completion.

All commissioning tests are critical and shall be performed to ensure that all field devices will operate correctly. It is UOW's objective to complete the commissioning tests with zero defects remaining in the system.

The EMAC commissioning tests have been designed to verify and record the results from all possible combinations of status and condition for all field devices.

Field devices shall be tested under normal, alarm and fault condition. It is mandatory that all devices are tested under normal and alarm condition. However, due to the time associated with simulating a fault condition, the contractor need only test one device per virtual group under a fault condition.

## 1.2 COMMISSIONING PROCESS

The following flow diagram depicts the commissioning process:

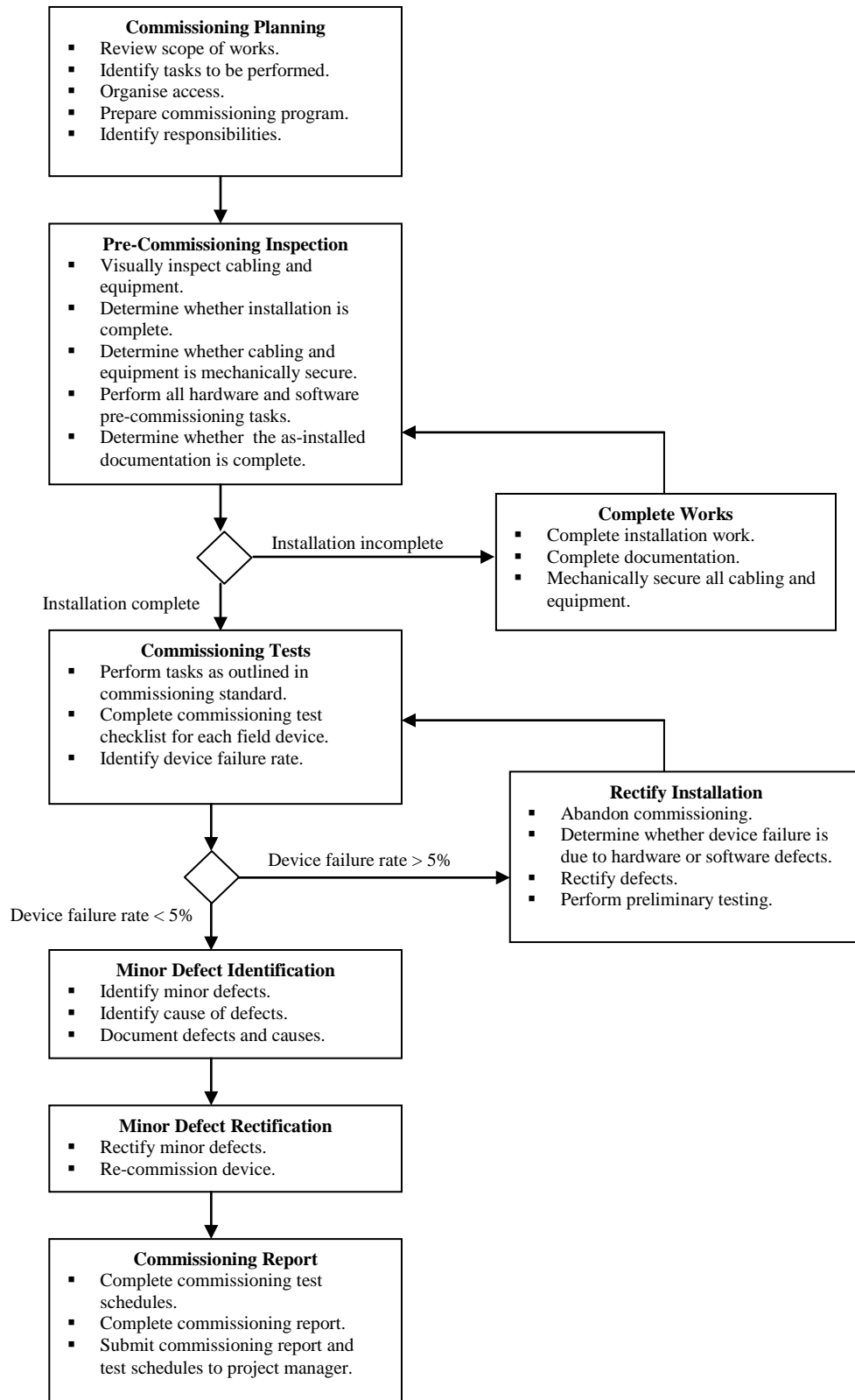


Figure 1 - Commissioning Process Flowchart

### 1.3 PRE-COMMISSIONING HARDWARE INSPECTION

At the completion of the installation and prior to the commencement of the commissioning tests, the contractor shall inspect all hardware and verify that the following tasks have been completed in accordance with the design specifications:

- a. Electrical cables have been appropriately sized and selected to ensure that they will support currently installed and future equipment;
- b. Mechanical protection has been provided to minimise the likelihood of physical damage to cabling;
- c. Cabling has been concealed where possible in ceiling spaces, wall cavities or risers;
- d. All specified field devices have been installed at the locations specified in the design documentation;
- e. Ducting, conduit and cable trays have been effectively secured to ensure that they can support currently installed and future cabling;
- f. Field devices have been properly secured to protect against operational damage and ensure stability for continuous use;
- g. Connections have been correctly terminated and insulated to ensure perfect connectivity and protect against faults and interference;
- h. Field devices have been recessed where possible;
- i. Weather resistant external devices have been installed to ensure protection against moisture and other environmental conditions;
- j. Field processing units (FPU) have been installed in designated service areas with adequate access and ventilation;
- k. FPUs have been installed at locations that maintain separation from other building services such as electrical and fire systems;
- l. FPUs have been properly secured to protect against operational damage and ensure stability for continuous use;
- m. Operator terminal CPU, LCD screen and peripheral devices have been installed at the specified location. Interconnecting cables have been protected from mechanical damage and have been permanently connected;
- n. FPUs and other major system components have been clearly labelled using black lettering on white background self adhesive permanent engraved labels, attached to a suitable fixed part of the equipment;
- o. FPUs and other major system components have been identified with equipment labels that are in accordance with UOW's asset register convention;

All devices must be installed and must pass the pre-commissioning inspection before commencing the commissioning tests.

#### **1.4 PRE-COMMISSIONING SOFTWARE INSPECTION**

Prior to the commencement of the commissioning tests, the contractor shall verify that the correct application software has been installed and configured on both the operator terminal and the FPU.

As a minimum the contractor shall confirm the following:

- a. All software modules specified in the design documentation or the modules required to perform all specified operation functions have been installed and configured to meet UOW's system requirements;
- b. The latest release version of all software modules has been provided;
- c. The operator terminal and FPU CPU, memory and hardware resources have sufficient capacity to support the software routines and functions under worst case demand conditions;
- d. All access cards, access rights, field device attributes system reports, screens and menus have been programmed.

If any of the above has not been completed, the commissioning tests shall be abandoned and re-scheduled.

#### **1.5 DOCUMENTATION**

The contractor shall submit a complete set of documentation to the project manager no later than one (1) week prior to the planned commissioning date. As a minimum the documentation shall comprise:

- a. As-installed drawings;
- b. Hardware and software technical manuals;
- c. Operator manuals
- d. Programming schedules;

The contractor shall obtain written approval of the documentation before commencing the commissioning tests.

## 1.6 COMMISSIONING TIME AND DATE

The contractor shall submit a program to the project manager containing the proposed time and date for each commissioning test at least two (2) weeks prior to the planned commissioning date. The program must contain allowances for defect rectification and remedial works.

The contractor shall obtain written approval of the program from the project manager before commencing the commissioning tests.

## 1.7 COMMISSIONING TESTS

Commissioning tests shall be performed to assess the overall functionality of the EMAC system. Each commissioning test is an end-to-end test where each function is initiated under normal operating conditions and its performance verified.

Each device must be individually tested to ensure that it transmits the correct signal or data to the operator terminal.

The commissioning tests require at least two testers. One tester shall be located at the operator terminal and the other at the field device. Portable communication devices, such as handheld radios, shall be used for communication between the two testers.

As each commissioning test is performed, the results shall be recorded on the appropriate commissioning test schedule. Any comments regarding abnormal operation in particular to failed tests shall be recorded in the comments section of the commissioning schedule.

If the test failure rate is greater than 5% after conducting the first 100 tests, then the commissioning process shall be abandoned. The contractor shall determine the cause of the defects and retest the devices. A report shall be provided to the project manager outlining the cause of the failures and action taken to ensure that the remainder of the installation shall not experience the same failure rate.

### 1.7.1 Alarm Devices

The alarm devices monitor the condition of doors, windows and other access points. An alarm device status may be secure, temporary access (access card use) or automatic access (programmed time schedule). An alarm device condition may be normal, alarm or fault.

The following tests shall be performed for each perimeter alarm device:

- a. Program the alarm device and establish a secure status and normal condition.

If the alarm device displays secure/normal on the operator terminal, then this test has been successful and "S" shall be recorded in the



commissioning schedule. If the alarm device does not display secure/normal then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the alarm device shall be returned to its appropriate status.

- b. While the alarm device is secure/normal simulate an automatic access from the operator terminal and then open the door.

If the alarm device changes state on the operator terminal from secure/normal to automatic access/normal and an alarm is not generated when the door is opened then this test has been successful and "S" shall be recorded in the commissioning schedule. If the alarm device does not change state to access/normal or an alarm is generated when the door is opened then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the alarm device shall be returned to its appropriate status.

- c. While the alarm device is secure/normal, generate an out of service command from the operator terminal.

If the alarm device changes state on the operator terminal from secure/normal to out of service (the condition is not important) then this test has been successful and "S" shall be recorded in the commissioning schedule. If the alarm device does not change to out of service then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the alarm device shall be returned to its appropriate status.

- d. While the alarm device is secure/normal attempt to gain temporary access by correctly operating the access control device, e.g. swipe valid card in card reader.

If the alarm device changes state on the operator terminal from secure/normal to temporary access/normal for a predefined period of time, e.g. twenty (20) seconds, then returns automatically to secure/normal then this test has been successful and "S" shall be recorded in the commissioning schedule. If the alarm device does not change to temporary access/normal then return to secure/normal after the predefined time period then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the alarm device shall be returned to its appropriate status.

- e. While the alarm device is secure/normal attempt to gain temporary access by incorrectly operating the access control device, e.g. swipe invalid card in card reader.

If the alarm device does not change state on the operator terminal from secure/normal then this test has been successful and "S" shall be recorded in the commissioning schedule. If the alarm device changes state from secure/normal to any other state for any period of time then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the alarm device shall be returned to its appropriate status.

- f. While the alarm device is secure/normal generate a door forced alarm by manually unlocking and opening the door.

If the alarm device changes condition on the operator terminal from secure/normal to secure/alarm and an alarm is generated on the alarm summary then this test has been successful and "S" shall be recorded in the commissioning schedule. If the alarm device does not change to secure/alarm or if an alarm is not generated on the alarm summary then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the alarm device shall be returned to its appropriate status.

- g. While the alarm device is secure/normal generate a door open too long alarm by holding the door open longer than the predefined allowable time period, e.g. sixty (60) seconds.

If the alarm device changes condition on the operator terminal from secure/normal to secure/alarm then this test has been successful and "S" shall be recorded in the commissioning schedule. If the alarm device does not change to secure/alarm then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the alarm device shall be returned to its appropriate status.

- h. While the alarm device is secure/normal generate a tamper alarm.

If the alarm device changes state on the operator terminal from secure/normal to secure/alarm then this test has been successful and "S" shall be recorded in the commissioning schedule. If the alarm device does not change to secure/alarm or if an alarm is not generated on the alarm summary then this test has failed and "F" shall be recorded in the commissioning schedule.

At the completion of the test return the alarm device to secure/normal.

- i. While the alarm device is secure/normal simulate a fault condition on the alarm device or its FPU. e.g. open circuit a data cable.

If the alarm device changes state on the operator terminal from secure/normal to secure/fault and an alarm is generated on the alarm summary then this test has been successful and "S" shall be recorded in the commissioning schedule. If the alarm device does not change to secure/fault or if an alarm is not generated on the alarm summary then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the alarm device shall be returned to its appropriate status.

### 1.7.2 Access Readers

Access readers provide controlled access through nominated doors by comparing the access privileges stored in the FPU's. An access reader status may be secure, temporary access (access card use) or automatic access (programmed time schedule). An access reader condition may be normal or fault.

The following tests shall be performed for each access reader:

- a. Program the access reader and establish a secure status and normal condition i.e. no alarms or faults.

If the access reader displays secure/normal on the operator terminal then this test has been successful and "S" shall be recorded in the commissioning schedule. If the access reader does not display secure/normal then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the access reader shall be returned to its appropriate status.

- b. While the access reader is secure/normal insert an invalid access card and attempt to operate the device e.g. to open the door.

If the access reader remains in secure/normal status on the operator terminal and the door remains locked then the test has been successful and "S" shall be recorded in the commissioning schedules. If the access reader changes status from secure/normal or the door unlocks then the test has failed and "F" shall be recorded in the commissioning schedules.

At the conclusion of this test the access reader shall be returned to its appropriate status.

- c. While the access reader is secure/normal insert a valid access card and attempt to operate the device e.g. to open the door.

If the access reader changes status on the operator terminal from secure/normal to temporary access/normal and the door unlocks within two (2) seconds for the predefined period of time, e.g. twenty (20) seconds, then the test is a success and "S" shall be recorded in the commissioning schedule. If the access reader does not change status from secure/normal to temporary access/normal or the door does not unlock within two (2) seconds for the predefined period of time, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the access reader shall be returned to its appropriate status.

- d. While the access reader is secure/normal simulate a temporary access from the operator terminal and attempt to operate the device e.g. to open the door.

If the access reader changes status on the operator terminal from secure/normal to temporary access/normal and the door unlocks within two (2) seconds for the predefined period of time, e.g. twenty (20) seconds, then the test is a success and "S" shall be recorded in the commissioning schedule. If the access reader does not change status from secure/normal to temporary access/normal or the door does not unlock within two (2) seconds for the predefined period of time, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the access reader shall be returned to its appropriate status.

- e. While the access reader is secure/normal simulate an automatic access from the operator terminal and attempt to operate the device e.g. to open the door.

If the access reader changes state from secure/normal to automatic access/normal and the door is unlocked, then this test has been successful and "S" shall be recorded in the commissioning schedule. If the reader does not change state to automatic access/normal or the door does not unlock then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the access reader shall be returned to its appropriate status.

- f. While the access reader is secure/normal, generate an out of service command from the operator terminal.

If the access reader changes state from secure/normal to out of service (the condition is not important) then this test has been successful and "S" shall be recorded in the commissioning schedule. If the reader does not change to out of service then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the access reader shall be returned to its appropriate status.

- g. While the access reader is secure/normal simulate a fault condition on the reader or it's FPU, e.g. open circuit a data cable.

If the access reader changes state from secure/normal to secure/fault and an alarm is generated on the alarm summary then this test has been successful and "S" shall be recorded in the commissioning schedule. If the access reader does not change to secure/fault or if an alarm is not generated on the alarm summary then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the access reader shall be returned to its appropriate status.

### 1.7.3 Electric Locks

Electric Locks provide automatic locking of doors. An electric lock status may be locked or unlocked. An electric lock condition may be normal or fault.

The following tests shall be performed for each electric lock:

- a. Program the electric lock and establish a locked status and normal condition i.e. no alarms or faults.

If the electric lock displays locked/normal on the operator terminal then this test has been successful and "S" shall be recorded in the commissioning schedules. If the electric lock does not display locked/normal then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric lock shall be returned to its appropriate status.

- b. While the electric lock is locked/normal generate a temporary access from the operator terminal.

If the electric lock changes state on the operator terminal from locked/normal to unlocked/normal and the door unlocks within two (2) seconds for the predefined period of time, e.g. twenty (20) seconds, then the test has been successful and "S" shall be recorded in the commissioning schedules. If the electric lock does not change state from locked/normal to unlocked/normal or the door does not unlock within two (2) seconds for the predefined period of time, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric lock shall be returned to its appropriate status.

- c. While the electric lock is locked/normal simulate an automatic unlocked state from the operator terminal.

If the electric lock changes state on the operator terminal from locked/normal to unlocked/normal and the door unlocks, then the test has been successful and "S" shall be recorded in the commissioning schedules. If the electric lock does not change state from locked/normal to unlocked/normal or the door does not unlock then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric lock shall be returned to its appropriate status.

- d. While the electric lock is locked/normal activate the device controlling the lock, e.g. access reader.

If the electric lock changes state on the operator terminal from locked/normal to unlocked/normal and the door unlocks within two (2) seconds for the predefined period of time, e.g. twenty (20) seconds, then the test has been successful and "S" shall be recorded in the commissioning schedules. If the electric lock does not change state from locked/normal to unlocked/normal or the door does not unlock within two (2) seconds for the predefined period of time, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric lock shall be returned to its appropriate status.

- e. While the electric lock is locked/normal, generate an out of service command from the operator terminal.

If the electric lock changes state from locked/normal to out of service/(the condition is not important) then the test has been successful and "S" shall be recorded in the commissioning schedules. If the electric lock does not change state from

locked/normal to out of service/(the condition is not important) then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric lock shall be returned to its appropriate status.

- f. While the electric lock is unlocked/normal, hold the door open and set the electric lock to locked.

If the electric lock changes state on the operator terminal to door-not-locked/fault and an alarm is generated on the alarm summary screen then this test has been successful and "S" shall be recorded in the commissioning schedule. If the electric lock does not change to door-not-locked/fault or if an alarm is not generated on the alarm summary screen then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric lock shall be returned to its appropriate status.

- g. While the electric lock is locked/normal generate a door forced alarm by manually unlocking and opening the door.

If the electric lock changes condition on the operator terminal from locked/normal to alarm and an alarm is generated on the alarm summary then this test has been successful and "S" shall be recorded in the commissioning schedule. If the electric lock does not change to alarm or if an alarm is not generated on the alarm summary then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric lock shall be returned to its appropriate status.

- h. While the electric lock is unlocked/normal generate a door open too long alarm by holding the door open longer than the predefined allowable time period, e.g. sixty (60) seconds.

If the electric lock changes condition on the operator terminal from unlocked/normal to alarm then this test has been successful and "S" shall be recorded in the commissioning schedule. If the electric lock does not change to alarm then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric lock shall be returned to its appropriate status.

#### 1.7.4 V-Locks

V-Locks provide secure locking for the passive leaf of double leaf doors. A V-Lock status may be locked or unlocked. A V-Lock condition may be normal or fault.

The following tests shall be performed for each V-Lock:

- a. Program the V-Lock and establish a locked status and normal condition i.e. no alarms or faults.

If the V-Lock displays locked/normal on the operator terminal then this test has been successful and "S" shall be recorded in the commissioning schedules. If the V-Lock does not display locked/normal then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the V-Lock shall be returned to its appropriate status.

- b. While the V-Lock is locked/normal generate a temporary access from the operator terminal.

If the V-Lock changes state on the operator terminal from locked/normal to unlocked/normal and the door unlocks within two (2) seconds for the predefined period of time, e.g. twenty (20) seconds, then the test has been successful and "S" shall be recorded in the commissioning schedules. If the V-Lock does not change state from locked/normal to unlocked/normal or the door does not unlock within two (2) seconds for the predefined period of time, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the V-Lock shall be returned to its appropriate status.

- c. While the V-Lock is locked/normal simulate an automatic access state from the operator terminal.

If the V-Lock changes state on the operator terminal from locked/normal to unlocked/normal then the test has been successful and "S" shall be recorded in the commissioning schedules. If the V-Lock does not change state from locked/normal to unlocked/normal then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the V-Lock shall be returned to its appropriate status.

- d. While the V-Lock is locked/normal activate the device controlling the lock, e.g. the access reader.



If the V-Lock changes state on the operator terminal from locked/normal to unlocked/normal and the door unlocks within two (2) seconds for the predefined period of time, e.g. twenty (20) seconds, then the test has been successful and "S" shall be recorded in the commissioning schedules. If the V-Lock does not change state from locked/normal to unlocked/normal or the door does not unlock within two (2) seconds for the predefined period of time, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the V-Lock shall be returned to its appropriate status.

- e. While the V-Lock is locked/normal, generate an out of service command from the operator terminal.

If the V-Lock changes state on the operator terminal from locked/normal to out of service/(the condition is not important) then the test has been successful and "S" shall be recorded in the commissioning schedules. If the V-Lock does not change state from locked/normal to out of service/(the condition is not important) then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the V-Lock shall be returned to its appropriate status.

### **1.7.5 Electric Strikes**

Electric strikes provide automatic locking of doors. An electric strike status may be locked or unlocked. An electric strike condition may be normal or fault.

The following tests shall be performed for each electric strike:

- a. Program the electric strike and establish a locked status and normal condition i.e. no alarms or faults.

If the electric strike displays locked/normal on the operator terminal then this test has been successful and "S" shall be recorded in the commissioning schedules. If the electric strike does not display locked/normal then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric strike shall be returned to its appropriate status.

- b. While the electric strike is locked/normal generate a temporary access from the operator terminal.

If the electric strike changes state on the operator terminal from locked/normal to unlocked/normal and the door unlocks within two (2) seconds for the predefined period of time, e.g. twenty (20) seconds, then the test has been successful and "S" shall be recorded in the commissioning schedules. If the electric strike does not change state from locked/normal to unlocked/normal or the door does not unlock within two (2) seconds for the predefined period of time, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric strike shall be returned to its appropriate status.

- c. While the electric strike is locked/normal simulate an automatic access state from the operator terminal.

If the electric strike changes state on the operator terminal from locked/normal to unlocked/normal then the test has been successful and "S" shall be recorded in the commissioning schedules. If the electric strike does not change state from locked/normal to unlocked/normal then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric strike shall be returned to its appropriate status.

- d. While the electric strike is locked/normal activate the device controlling the lock, e.g. the access reader.

If the electric strike changes state on the operator terminal from locked/normal to unlocked/normal and the door unlocks within two (2) seconds for the predefined period of time, e.g. twenty (20) seconds, then the test has been successful and "S" shall be recorded in the commissioning schedules. If the electric strike does not change state from locked/normal to unlocked/normal or the door does not unlock within two (2) seconds for the predefined period of time, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric strike shall be returned to its appropriate status.

- e. While the electric strike is locked/normal, generate an out of service command from the operator terminal.

If the electric strike changes state from locked/normal to out of service/(the condition is not important) then the test has been

successful and "S" shall be recorded in the commissioning schedules. If the electric strike does not change state from locked/normal to out of service/(the condition is not important) then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the electric strike shall be returned to its appropriate status.

### 1.7.6 Lift Relays

The status of the lift relay may be secure, temporary override (access card use), or programmed override. The condition of each lift relay may be normal, fault or high priority alarm for fire service override, passenger alarm, car fault or service override.

The following tests shall be performed for each lift relay.

- a. Program the lift relay and establish a secure state and normal condition.

If the lift relay displays secure/normal on the operator terminal then this test has been successful and "S" shall be recorded in the commissioning schedules. If the lift relay does not display secure/normal then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the lift relay shall be returned to its appropriate status.

- b. While the lift relay is secure/normal, insert an invalid access card into the lift access reader, then remove the access card and press all lift floor buttons.

This test should result in no floors being accessed. If this occurs then the test has been successful and "S" shall be recorded in the commissioning schedule. If any floors are accessed, the test has failed and an "F" shall be recorded in the commissioning schedules.

At the conclusion of this test the lift relay shall be returned to its appropriate status.

- c. While the lift relay is secure/normal, insert a valid access card into the lift access reader then remove the access card and press all lift floor buttons.

If the lift relay changes state on the operator terminal to temporary override/normal within two (2) seconds for the predefined period of time, e.g. twenty (20) seconds, and only the first lift button that was

pressed is activated and the lift goes to that floor, and the access card identification number, the registered access card holder's name and destination floor are recorded in a history file on the operator terminal, then the test has been successful and "S" shall be recorded in the commissioning schedule. If the lift relay does not change status or the lift does not go to the correct floor, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the lift relay shall be returned to its appropriate status.

- d. While the lift relay is secure/normal generate a temporary override command from the operator terminal and press all lift floor buttons.

If the lift relay changes state on the operator terminal to temporary override/normal within two (2) seconds for the predefined period of time, e.g. twenty (20) seconds, and only the first lift button that was pressed is activated and the lift goes to that floor, then the test has been successful and "S" shall be recorded in the commissioning schedule. If the lift relay does not change status or the lift does not go to the correct floor, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the lift relay shall be returned to its appropriate status.

- e. While the lift relay is secure/normal simulate a programmed override from the operator terminal and press all lift floor buttons.

If the lift relay changes state on the operator terminal to programmed override/normal and only the first lift button that was pressed is activated and the lift goes to that floor, then the test has been successful and "S" shall be recorded in the commissioning schedule. If the lift relay does not change status or the lift does not go to the correct floor, then the test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the lift relay shall be returned to its appropriate status.

- f. While the lift relay is secure/normal, generate an out of service command from the operator terminal.

If the lift relay changes state on the operator terminal from secure/normal to out of service/(the condition is not important) then this test has been successful and "S" shall be recorded in the commissioning schedule. If the lift relay does not change to out of service then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the lift relay shall be returned to its appropriate status.

### 1.7.7 Detectors

Detectors are used to monitor movement within an environment. The status of a detector may be secure or automatic access (programmed time schedule). The condition of a detector may be normal, alarm or fault.

The following tests shall be performed for each detector:

- a. Program the detector and establish a secure status and normal condition i.e. no alarms or faults.

If the detector displays secure/normal on the operator terminal then this test has been successful and "S" shall be recorded in the commissioning schedule. If the detector does not display secure/normal then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the detector shall be returned to its appropriate status.

- b. While the detector is secure/normal activate the detector by performing a movement test within the detector's range.

If the detector changes state from secure/normal to secure/alarm and an alarm is generated on the alarm summary then this test has been successful and "S" shall be recorded in the commissioning schedule. If the detector does not change status to secure/alarm or an alarm is not generated on the alarm summary then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the detector shall be returned to its appropriate status.

- c. While the detector is automatic access/normal, attempt to activate the detector by performing a movement test within the detector's range.

If the detector does not change state on the operator terminal from automatic access/normal, then this test has been successful and "S" shall be recorded in the commissioning schedule. If the detector changes state on the operator terminal from automatic access/normal to automatic access/alarm then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the detector shall be returned to its appropriate status.

- d. While the detector is secure/normal, generate an out of service command from the operator terminal.

If the detector changes state on the operator terminal from secure/normal to out of service/(the condition is not important) then this test has been successful and "S" shall be recorded in the commissioning schedule. If the detector does not change to out of service then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the detector shall be returned to its appropriate status.

- e. While the detector is secure/normal simulate a fault condition on the lift relay, e.g. open circuit.

If the detector changes state on the operator terminal from secure/normal to secure/fault and an alarm is generated on the alarm summary then this test has been successful and "S" shall be recorded in the commissioning schedule. If the detector does not change to secure/fault or if an alarm is not generated on the alarm summary then this test has failed and "F" shall be recorded in the commissioning schedule.

At the conclusion of this test the detector shall be returned to its appropriate status.

### **1.7.8 Third Party Monitoring**

Third party monitoring of designated alarms may be performed by a security monitoring company. The following tests shall be performed for each alarm that has been designated as a dialling out alarm for third party monitoring:

- a. Contact the third party security monitoring company with details of the alarm location, alarm type, date of test and time of test;
- b. Activate the alarm at the planned time and date;
- c. Verify with the third party security monitoring company that the correct alarm signal was received at the correct time and date.

### **1.7.9 Operator Terminal**

The security operator terminal is the human interface between the electronic monitoring and access control system and the operational security management team. The operator terminal shall be configured to monitor and control the status and condition of the entire system.

The following three (3) operator profiles shall be set up for the operator terminal:

- Level 1 Security Guard - for general monitoring of the status and condition of field devices and programming access cards.
- Level 2 System Administrator - full control to perform high level changes to the system and repair major system faults.
- Level 3 System Technician - basic system control to perform system analysis and repair minor faults.

The operator terminal shall be programmed to perform the following functions:

- a. Alarm Management;
- b. Device Programming;
- c. Access card programming;
- d. Manual control of field devices;
- e. Reporting;
- f. Database management;
- g. Site plans showing all relevant features;
- h. Automatic access time programming;
- i. High level interfaces communicating;
- j. Produce the following reports:
  - Alarm Report;
  - Event Report;
  - Current Status Report;
  - Device Off Line/Out of Service Report;
  - System Communications Fault Report;
  - Device Details Report;
  - Operators Activity Report;

- Access Card Report;
- Access Card Holders Report;
- Lift Activity Report.

All results shall be recorded in the commissioning schedule.



## **1.8 MINOR DEFECTS**

As minor defects are identified during the commissioning tests, each defect shall be rectified before proceeding to the next test. The device, associated cabling, control equipment or software that was found to be defective will be recorded in the commissioning report.

Once rectification is complete, the field device shall be retested and the results recorded in the commissioning schedules.

## **1.9 COMMISSIONING SCHEDULES**

The commissioning schedules shall be completed in accordance with this standard. Where devices need to be retested, the retest results shall be recorded. At the completion of the commissioning tests, UOW shall have one complete set of commissioning schedules containing all field devices that are free of defects.

### 1.9.1 Commissioning Schedule - Access Readers and Alarm Devices

Building Number: \_\_\_\_\_ Building Name: \_\_\_\_\_

Commissioning Date: \_\_\_/\_\_\_/\_\_\_

Commissioning Contractor Name: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Device ID	Device Type	Device Location	Secure	Temporary Access		Auto Access	Forced Alarm	DOTL Alarm	Out of Service	Fault	Defect Details
				Invalid Card	Valid Card						

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_

### 1.9.2 Commissioning Schedule - Lift Relays and Alarm Devices

Building Number: \_\_\_\_\_ Building Name: \_\_\_\_\_  
 Commissioning Date: \_\_/\_\_/\_\_

Device ID	Device Type	Device Location	Secure	Temporary Access		Auto Access	Passenger Alarm	Fire Service Alarm	Lift Service Alarm	Car Fault Alarm	Out of Service	Fault	Defect Details
				Invalid Card	Valid Card								

Commissioning Contractor Name: \_\_\_\_\_  
 Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_  
 Project Manager Reference: \_\_\_\_\_

### 1.9.3 Commissioning Schedule - Third Party Monitoring

Building Number: \_\_\_\_\_ Building Name: \_\_\_\_\_ Security Monitoring Company: \_\_\_\_\_  
 Commissioning Date: \_\_\_/\_\_\_/\_\_\_ Contact Phone: \_\_\_\_\_

Device ID	Device Type	Device Location	Test Time	Commissioning Results		Details
				Pass	Fail	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	

Commissioning Contractor Name: \_\_\_\_\_  
 Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_  
 Project Manager Reference: \_\_\_\_\_

### 1.9.4 Commissioning Schedule - Operator Terminal and Reporting

Building Number: \_\_\_\_\_ Building Name: \_\_\_\_\_

Commissioning Date: \_\_/\_\_/\_\_

Function	Result	Defect Details
Alarm Management		
Device Programming		
Access Card Programming		
Manual Control of Field Devices		
Database Management		
Site Plans		
Automatic Access Time Programming		
High Level Interfaces Communicating		
<b>Produce the following Reports:</b>		
Alarms		
Events		
Current Status		
Devices Off Line/Out of Service		
System Communication Faults		
Device Details		
Operator Activity		
Access Cards		
Access Card Holders		
Lift Activity		

Commissioning Contractor Name: \_\_\_\_\_

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_