# Securitex Man-Down System

Information and operation procedures

Quick Guide (For User and Administrator)

**Important:**

A copy of this document must be place inside the Man-Down System Ruggedized Carrying Case.


# Lone Worker monitoring system

Man-Down system

Purpose:

- To monitor the well being of a worker who is working alone at a remote location in an installation.
- To ensure medical and other assistance is available in a timely manner as and when it is needed.

Note: The term Lone Worker Monitoring System is also refer to in this documentation as Man-Down System.

# Man-Down System

Components of the Man-Down System:

Hardware system

1. Transmitter unit worn by the lone worker
2. Base station (MD-18B) which will detect signals transmitted by the transmitter (MD-18) in the event that the worker is incapacitated. The base station will send a SMS to the administrator informing him/her that the worker is incapacitated.

# Man-Down System

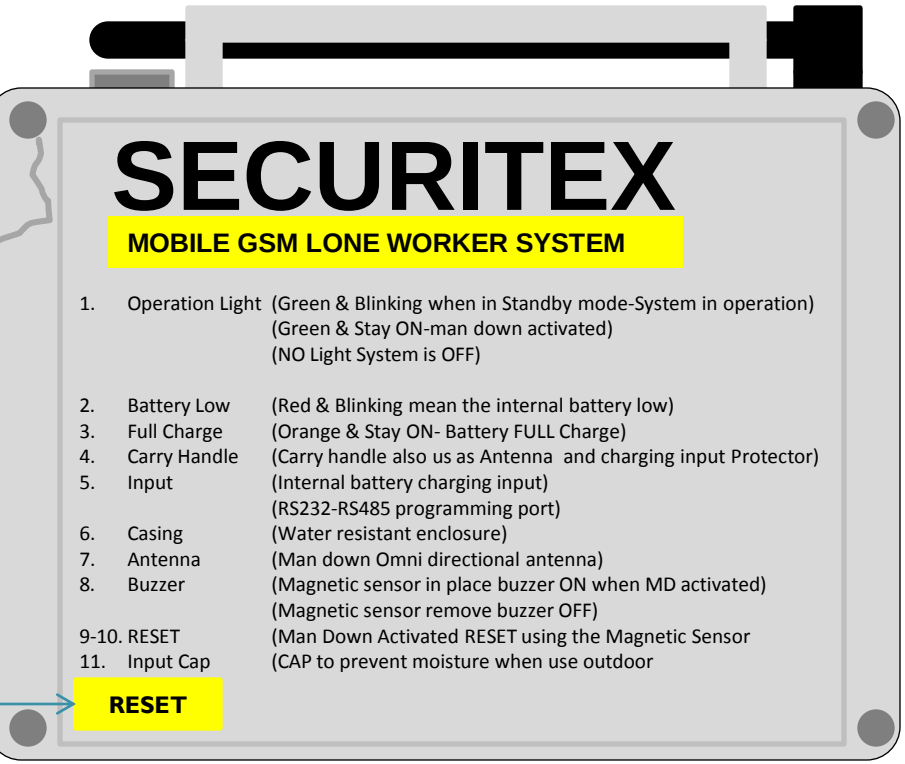
- The transmitter unit is to be worn by the lone worker when he/she is out on the field.
- The unit is to be worn in a **upright** manner.
- The unit is designed to detect the following:
  - Tilt
  - No motion
  - Tilt and no motion
- When the unit detects a 45 degree tilt as well as no motion (depend on the setting) for a period of 30 seconds, it will trigger a pre-alarm for 25 seconds. If there is no response from the worker, it will send a signal to the base station.

# Man-Down System

- The Main Base Unit has a module to detect distress signal from the Man-Down transmitter unit and a GSM unit which is preprogrammed to sent a SMS to the system administrator / Monitoring Administrator when a distress signal is received.
- The unit need to be reset by the administrator on site after he has made arrangements to attend to the emergency.

# SECURITEX MAN-DOWN SYSTEM PARTS

5VDC 2500mA for
Charging MD18
Man down Transmitter

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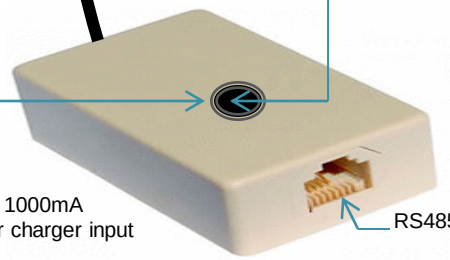
To computer
USB port

USB to Serial
Interface

Driver

8 Pin inline connect to
be inserted to (INPUT 5)

12VDC1000mA for
Charging
Man Down unit



12VDC 1000mA
Adapter charger input

RS485 Input

# Man-Down System

Outfield user operation procedures

These procedures are instituted to ensure that the system is operated in accordance to specifications and the system is within communication range between the administrator and the outfield user. These procedures may be considered cumbersome by some, but the system is designed to protect the safety of the outfield user and as such pre operational checks are essentially part of safety procedures.

# Outfield user operation procedures

## Drawing out the system

1. Fill out the Man-Down System register.
2. Check the operational readiness of the 'main' unit
   i. Check to ensure that the 'orange' LED on the top left hand corner is lit up. This will indicate that the unit is fully charged. If the 'orange' LED is not lit up, it is alright as long as the unit has been charged for minimum 8 hours.
   ii. Check to ensure that the 'red' LED at the centre of the row of LED is not blinking. If the 'red' LED is blinking, this **unit should NOT** be deployed unless it is connected to a AC power source.
   iii. Check to ensure the 'green' LED at the right hand side of the row is blinking. If the 'green' LED is not lit up, the system is switched off; if the 'green' LED is lit continuously, the system need to be reset by the 'reset' key.

# Outfield user operation procedures

3. Check the operational readiness of the ‘transmitter’ unit

   I. Switch ON the unit; put it at an upright position and it will initialize itself. On completion of the initialization, it would display the unit ID (1 to 9) followed by a beep and a ‘yellow’ LED will blink intermittently.

   II. If there is no light, the unit’s battery is flat.

   III. If the ‘yellow’ LED turns red is lit continuously, it is also an indication that the battery is low and needs to be recharged.

   IV. Press the ‘yellow’ button continuously for 3 seconds to trigger the alarm. Once the alarm is triggered, 4 ‘red’ LED lights will blink. Press the ‘yellow’ button continuously again for 3 seconds until you hear a single beep to reset the MD-18.

   V. You will receive 2 SMS indicating that ‘Man-Down System’ has been activated and reset. When these SMS’s are received, the system is fully operational and is ready to be deployed at the field. The resetting of the system is done by the supervisor on site by a magnetic key.

# Outfield user operation procedures

4. On reaching the work area, the field worker will repeat the steps to trigger the Man-Down System again and the supervisor will do a system reset via SMS. The purpose of this exercise is to ensure that the mobile phone signal strength is adequate for the system to operate efficiently.
5. Upon completion of the job assignment, the system is to be returned to the supervisor and the Man-Down system register updated.

# Supervisor operation procedures

**The supervisory team is made up of a minimum team of 2 personnel to any Number up to 8 which the company deem necessary.**

The responsibilities of the supervisor are:

1. To maintain the Man-Down system register. Care must be taken to make sure that the draw-out date, time and return time are properly recorded. All SMS generated from the Man-Down system can be recalled by the Telco that the SIM card is registered, the Telco can generate a SMS log as and when required for control and audit purposes.
2. To ensure that the main receiver unit as well as the transmitter unit are properly charged at all time to be fully operational.
3. To act on any distress messages received **immediately** and arrange for assistance **immediately**.
4. To program and to ensure that the settings are properly configured and to change any anomalies as and when it occurs and to keep a record of all this setting for future reference.

# Supervisor operation procedures

1. On receipt of the Man-Down system:
   I. Put the main unit on continuous charge.
   II. Put the transmitter unit on 6 hour charge.
   III. Record and update the Man-Down System register.
2. On drawing out of the Man-Down System:
   I. Check to ensure that the 'red' LED on the main unit is not blinking which indicates low battery.
   II. Check to ensure that the 'green' LED on the main unit is blinking which indicates that the system is operational. If the 'green' LED is lit continuously, reset the system using the system reset magnet key or by phone.
   III. Check to ensure that the MD-18 transmitter unit is properly initialized and the 'yellow' LED on it is blinking. If the 'yellow' LED is lit continuously; it is an indication that the transmitter is in Tilt condition.
   IV. Make sure that the user do a system's test before the system is deployed to the field. <u>You will need to reset the main unit before the system is released to the worker on the field.</u>

# Supervisor operation procedures

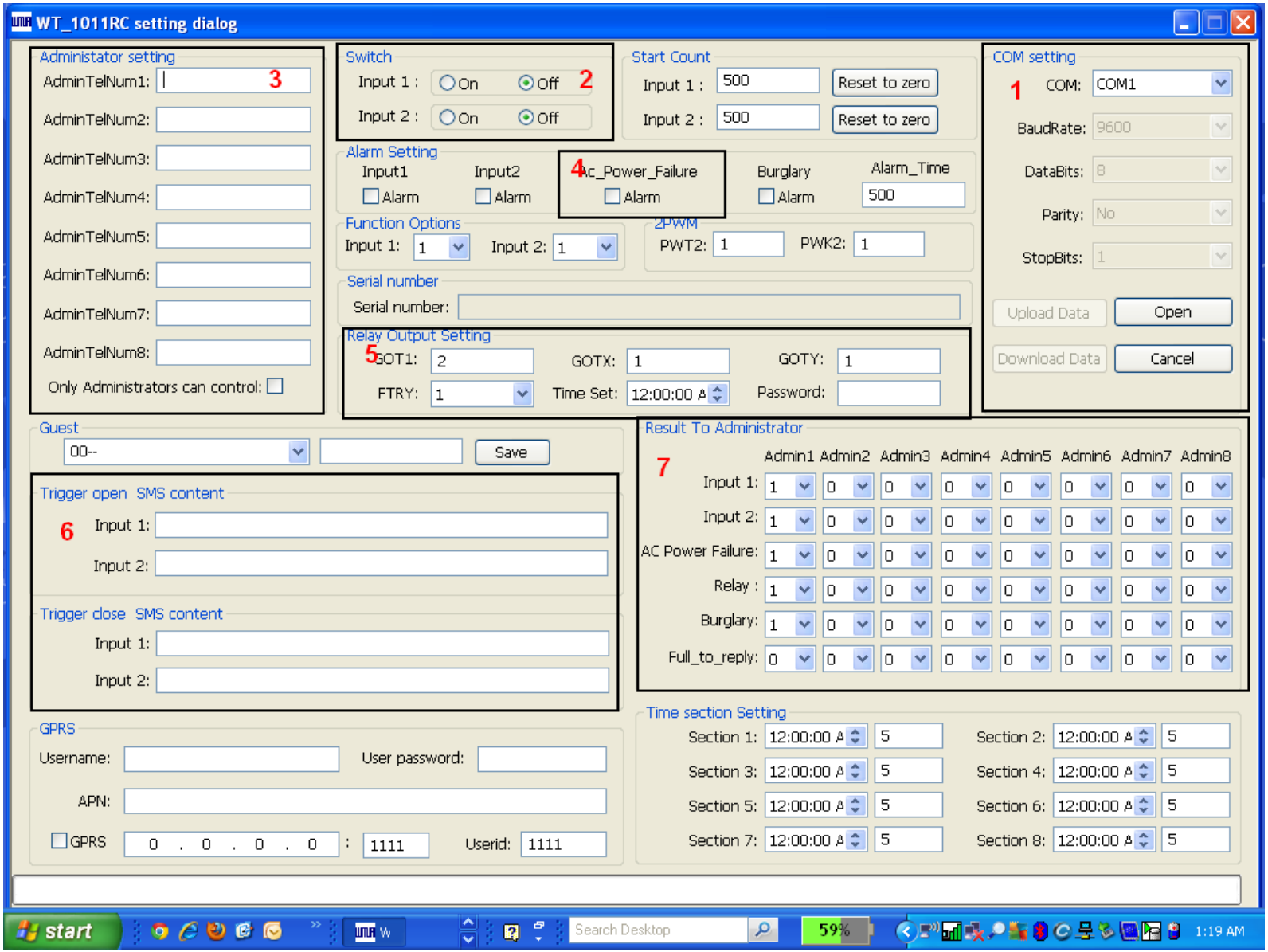
3. Check to ensure that a second system's test is done after the man has reached the work area. You will need to reset the system via the mobile phone before the unit is ready to be used. **Warning:** Do not omit this test because if the unit is operated in an area where the mobile phone unit GSM Signal is extremely weak, any distress signal may not be received by the Monitoring Administrator and the system is ineffective. In areas of weak mobile phone signal, the user has to put the main unit at a place where the reception is adequate.
4. To liaise with the search and rescue team when a distress signal is received from the Man-Down system. Reset the system by the magnetic key or by SMS after the distress signal has been attended to.

# Supervisor operation procedures

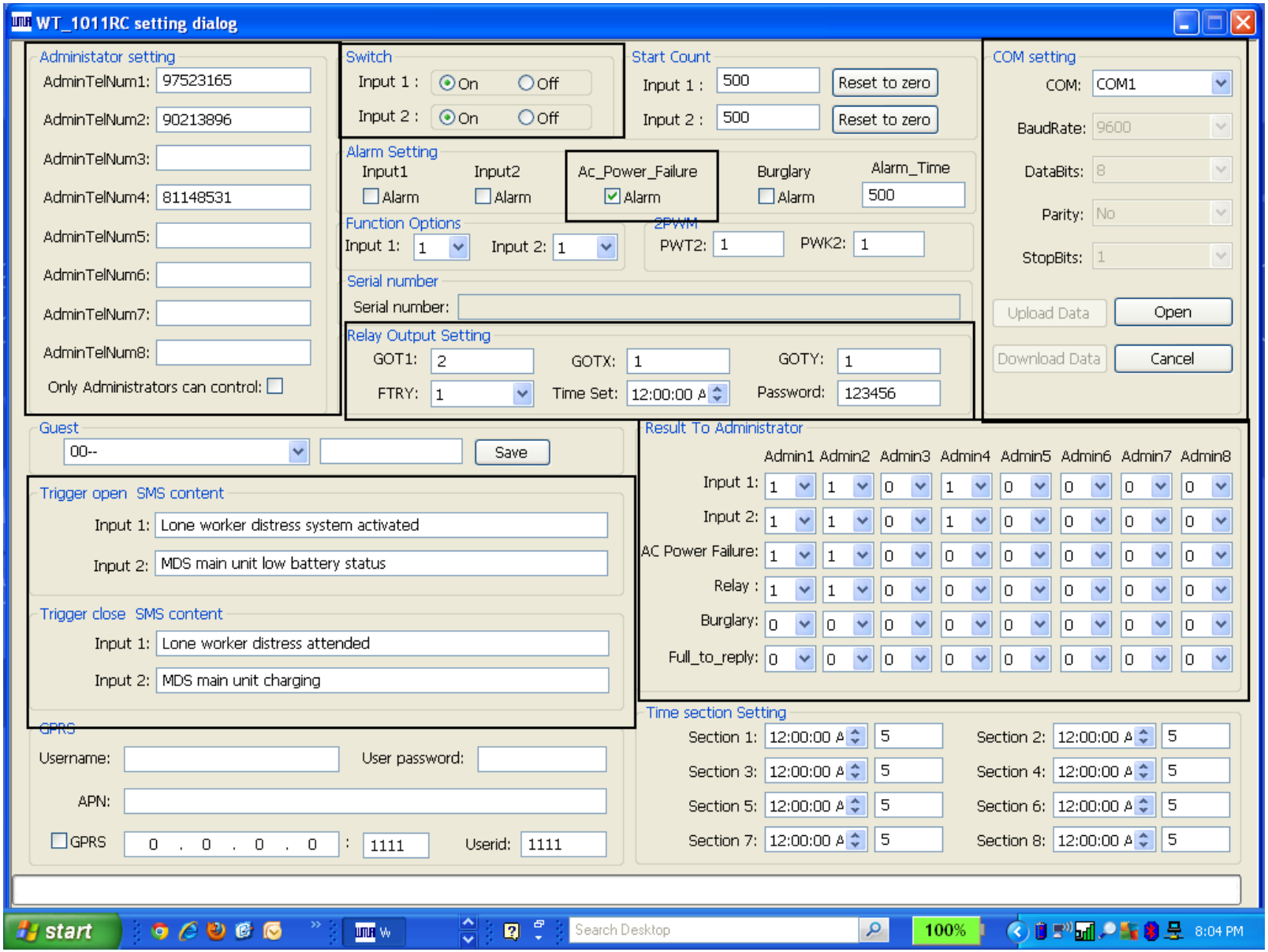
5. Normally the supervisor no: 1 will be responsible for operating the system and Supervisor no: 2 will be the backup. The HSE department will be one of the departments which will receive the distress message in addition to the operations department.
6. The 2 issues that will affect the efficiency of the system are:
   I. Unit operating in weak signal areas.
   II. The units are not properly charged.

It is the supervisors' responsibility to ensure that the unit is working efficiently at all times.

# Programming of the SMS module



# Programming of the SMS module



# Programming of the SMS module

**Control and system notifications via SMS function**

- The following are the important SMS commands necessary to monitor and reset the MDS system.

| SMS command | SMS response | Action |
|---|---|---|
| *SERIE?# | #SERIE=XXXXXXXXX | IMEI number of the Man-Sown device |
| *CSQ?# | CSQ<XX> | <5 means low signal area |
| *ADM?# | TEL1 XXXX,..TEL8 XXX | Admin numbers programmed |
| *RLY1#ON | #RELAY1=ON | MDS unit is switched OFF |
| *RLY1#OFF | #RELAY1=OFF | MDS unit is switched ON |

# Programming of the SMS module

- The administrator uses the **RLY SMS** to reset the system remotely after the outfield user has conducted the system test at the remote work place. Should the administrator have doubts on the signal strength at the remote work place, he can use the **CSQ SMS** to check the signal strength at the remote work place.

# Question & Answer