

MTE

Judge's portable terminal



3474.500.02

Version 1.2

Edition January 2010

CAUTION

- ❑ **Protect the equipment against splashing, rain and excessive sun rays.**
- ❑ **Never use the device if it is damaged or insecure.**
- ❑ **This program may be modified at any time without prior notification.**
- ❑ **Do not open the case; there is nothing that needs servicing inside it. Nevertheless, if the case must be opened, you must call for some qualified personnel. The power supply cable must be disconnected before opening the case.**
- ❑ **The information contained within this document may be modified without warning.**
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This symbol indicates that this product should not be disposed with household waste. It has to be returned to a local authorized collection system. By following this procedure you will contribute to the protection of the environment and human health. The recycling of the materials will help to conserve natural resources (valid in the EU member states and in any countries with corresponding legislation).

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1 INTRODUCTION

The MTE is used by judges to enter notes given to the athletes during aquatics sports, specifically: diving, synchronized diving and synchronized swimming. Some other applications can be made for other uses. The device is protected against water sprayed in all direction; but it is not waterproof: **DO NOT DROP IT IN THE SWIMMING POOL.**

The MTE is equipped with an 18 keys keypad including 11 numerals and 7 function keys. Its 128 x 64 pixel LCD screen is able to display up to 8 lines of 21 characters and offers graphics possibilities.


This handheld device can be wireless connected (ZigBee protocol) or by cable with different standards (RS232, RS422, CAN-bus). A single connector contains all the signals and the power/charger input.

MTE is fitted with a direction adjustable antenna for wireless data transmission up to 100m in open space.



2 MTE BASIC FUNCTION

2.1 Power ON

To power on the MTE, press for 5 seconds the  key or connect the external power supply to the MTE. Some messages are displayed and, after booting, the status screen is displayed (see chapter 2.2) or, according to the settings, the REPEATER MODE status screen is shown (see chapter 3.5).


2.2 Status screen

The status screen indicates the kind of transmission used, the communication activity, the level of the battery (with 10% steps) and if the battery recharge is enabled.



Note: The MTE returns to the status screen if no command is received during one minute.

2.3 Power OFF

From the status screen, press and hold for 5 seconds the  key.
The MTE is automatically switched off after 10 minutes of inactivity.

It is not possible to switch if off if the external power supply / charger is connected.

2.4 Battery recharge

Connect one or more MTE to the supplied cable chain from the charger. When on charge, the MTE displays a flashing “charging” text on the status screen.

Full charge should be reached within 3 hours.



3 MTE SETTING

The various MTE settings are accessed through the menu. Navigation through the menus is done with the **Shift** and the **Enter** keys.



Shift Key: Navigates through the options of the current screen.



Enter Key: Validates or cycle through the possible values of an option.

At factory, the MTEs are preconfigured to the default values. The address SW is set to 99.

The user will have to set the address according to the sport:

Exemple of address SW:

- ARES Diving: 1 to n (n being the number of judges).
- ARES Synchronized sw: 1 to n: if each judge has his own MTE.
1 to n/2: if an artistic and a technical judge share one MTE.
- ARES Water polo: 1 and 2.

3.1 STATUS & CONFIG

From the status screen, press the **Enter** key to see the STATUS & CONFIG screen.

```

STATUS & CONFIG.
ver. SW = 00.22
Addr. MAC = 109
Addr. SW = 9
Communicat. = XBEE(C)
Battery = 100%

[ESC.]      [MODIFY]
    
```

- Software version
- MAC Address, fixed in factory
- Software address, user selectable.
- Transmission selected
- Internal battery level

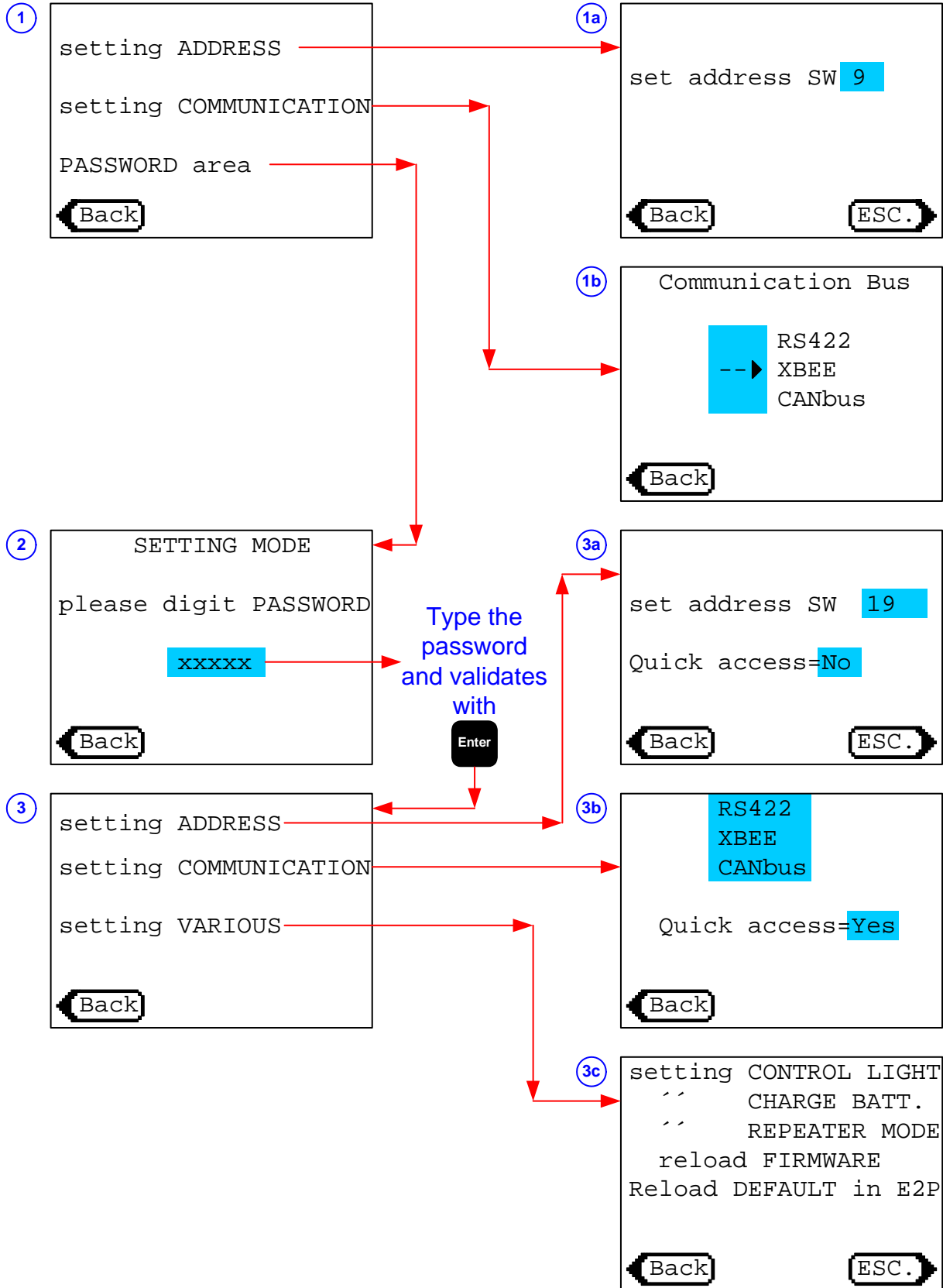
To go back in Status Screen To modify the settings

When you navigate in the menus, use the **Back** function to go back to the previous menu or the **ESC.** function to go back to the STATUS & CONFIG screen.

The **MODIFY** function will show you the screen ① or ②, depending on the setting of the "Quick access" made in the screen ③a and ③b.

3.2 Menu structure

■ indicates modifiable or editable fields.

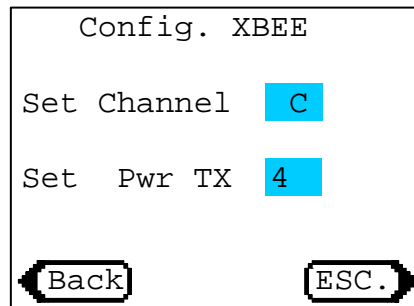


The password to enter in the “advanced setting” is **12345**.



3.3 XBEE parameters

When you select the XBEE communication mode from the protected menu (after entering the password), you can choose some parameters:



Set Channel

Selection of the channel used for the transmission. If more than one installation is used in the same area, they must be set on different channels. Available channels are C, D, E, F, 10, 11, 12, 13, 14, 15, 16 and 17. All channels except the C are crypted to increase transmission security.

Set Pwr TX

Selection of transmission power from 1 (minimum) to 4 (maximum and default). European regulations requires the level 1.

3.4 Setting VARIOUS

This chapter will give some details for the screen [3c](#).

CONTROL LIGHT

Allow to select how many seconds the backlight is lit every time a key is pressed. Default is 0 (backlight off). Enabling the backlight will reduce the battery autonomy.

CHARGE BATT.

Display some information about the internal battery and its recharge.

The total number of recharge is displayed and can be changed. NEVER CHANGE IT except if you change the internal battery.

REPEATER MODE

This allows configuring the MTE as repeater, or one could say as a transmission converter, i.e. receives from RS232 and translates it to XBEE.

Select the transmission type for Side A, select the transmission type for Side B, confirm it.

You then have to switch off the MTE and switch it on again.

See chapter 3.5 for more details about the repeater mode.

Reload FIRMWARE

DO NOT USE THIS FUNCTION UNLESS INSTRUCTED BY SWISS TIMING!

This function is used to upgrade the firmware of the MTE.

See manual 3474.502 for the complete procedure.

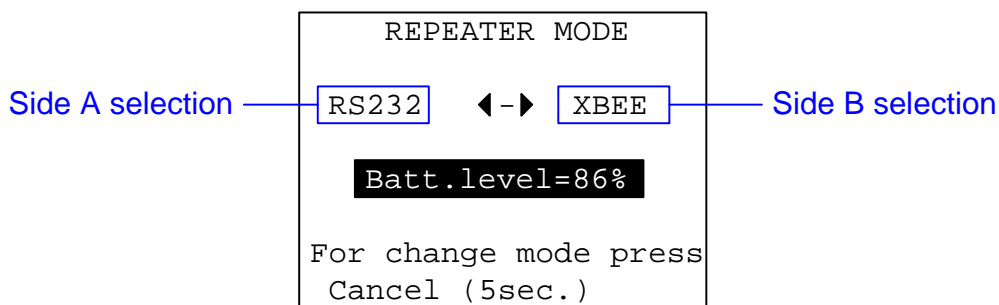
Reload DEFAULT in E2P

This function is used to reload the factory default parameters of the MTE. It must be done after each firmware reload.

3.5 Repeater mode

The repeater mode is mostly used to bridge a cable transmission to a wireless transmission.

For example, you can use a MTE connected by RS232 to your computer to wirelessly communicate with the judge's MTE. To do it, the MTE must be configured in REPEATER MODE (see chapter 3.3). After configuration, when you switch on the MTE the following screen is displayed:



To exit the REPEATER MODE, press and hold the  key.



4 USB – WIRELESS CONVERTER

4.1 Introduction



A USB-Wireless adapter is provided with the MTEs kits: MaxStream XBee-PRO-PKG.

This device is pre-programmed in our factory for an easy setup.

4.2 Driver installations

The XBee-PRO USB RF Modem is a "plug-and-play" device that should automatically be detected by the PC. To interface between the modem and a PC, two drivers must be installed. After the modem is detected, the PC will display an installation wizard that facilitates driver installations.

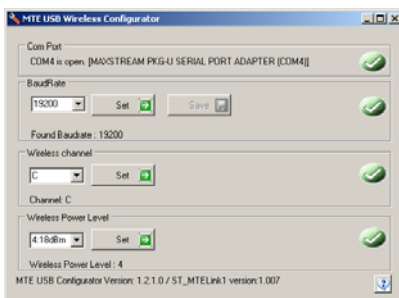
The drivers for Windows operating system are included in the provided ARES CD. For instance, after having installed the ARES Diving application, the drivers can be found in "C:\ARES\Diving 2009\MTE USB MASTER Drivers".

To Install Drivers

The following steps were recorded while using the Windows XP operating system:

1. Connect the XBee-PRO RF Modem to a PC using a USB cable. ["Found New Hardware Wizard" dialog box appears].
2. Verify the CD-ROM is inserted into the drive.
3. Select "Install from a specific list or location (Advanced)" option; then select the 'Next' button.
4. a. Select the 'Search for the best driver in these locations' option.
b. Check 'Search removable media (CD-ROM...)' box; then select the 'Next' button. [Hardware Installation "Windows Logo Testing" alert box appears].
5. Select the 'Continue Anyway' button.
6. Select the 'Finish' button.
7. Repeat steps 2 through 6 to install the next driver.
8. Reboot computer if prompted to do so.

4.3 Configuration



A configurator is supplied with ARES Diving, Synchronized swimming and water polo.

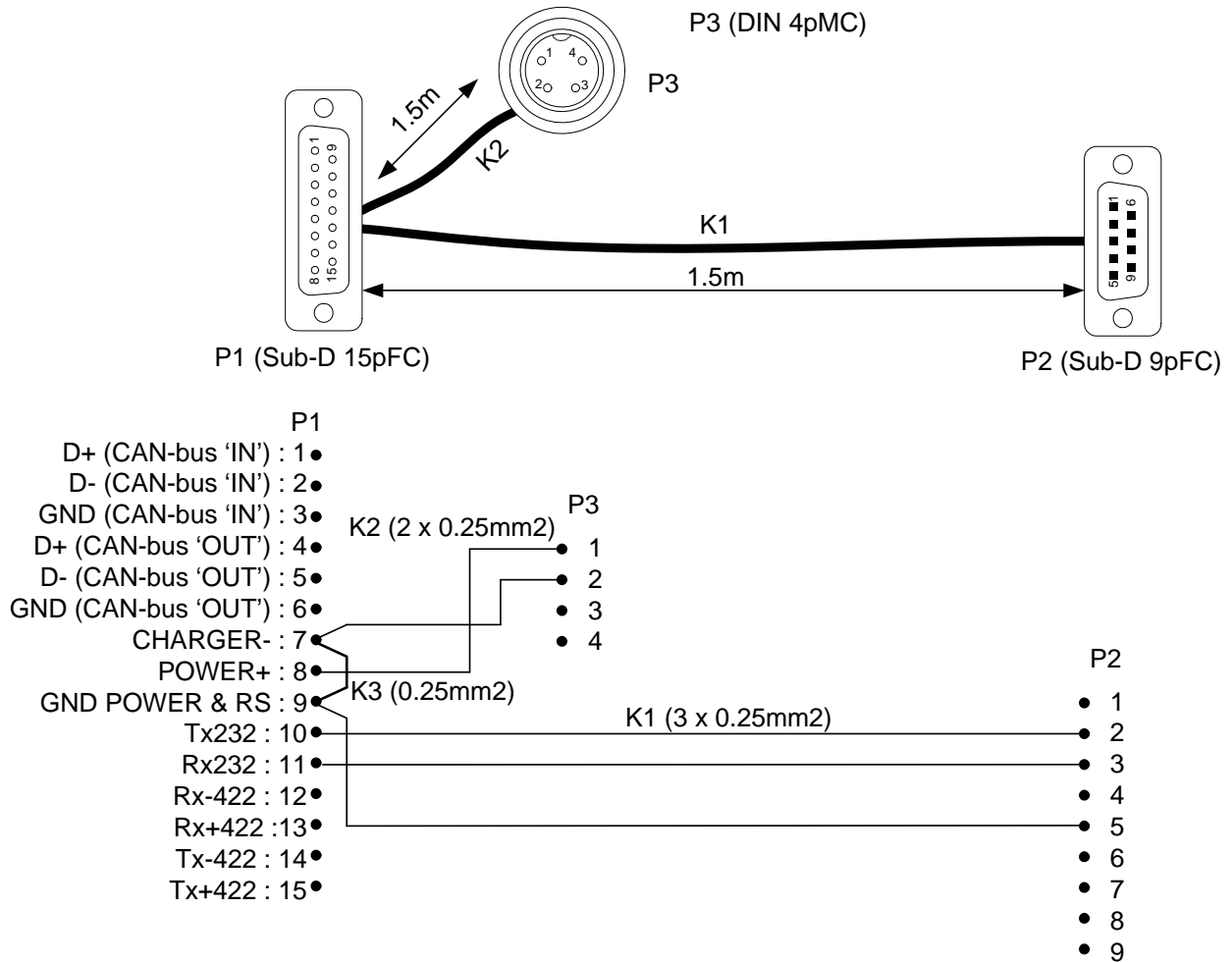
Use it to configure or check the USB-Wireless adaptor.

Recommended baud rate is 19200.

In Europe, Wireless Power Level must be set to 1.

5 OPTIONS

5.1 RS232 connection cable [3474.600]





6 PROPERTIES

Dimensions (without antenna):	220 x 115 x 95mm
Weight:	480g
Battery autonomy:	12 hours (wireless judge's MTE @ 20°C)
Battery recharge duration:	3 hours
Display:	128 x 64 pixels matrix monochrome LCD (66 x 33mm)
Keyboard:	18 keys
External power and recharge:	8 to 30VDC
Power consumption:	~0.12A @ 12VDC (without recharge)
Power and recharge consumption:	~0.33A @ 12VDC
Cabled data transmission:	RS232, RS422
Wireless transmission protocol:	ZigBee
Antenna connector:	SMA
Transmission range:	100m (in open space)

Operating temperature: 0 to 50°C
 Protection: IP44

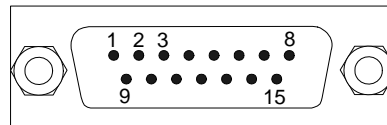
Certifications:



Connector:

Sub-D 15pMT

- 1: D+ (CAN-bus 'IN')
- 2: D- (CAN-bus 'IN')
- 3: GND (CAN-bus 'IN')
- 4: D+ (CAN-bus 'OUT')
- 5: D- (CAN-bus 'OUT')
- 6: GND (CAN-bus 'OUT')
- 7: CHARGER-
- 8: POWER+
- 9: GND POWER & RS
- 10: Tx232
- 11: Rx232
- 12: Rx-422
- 13: Rx+422
- 14: Tx-422
- 15: Tx+422



To power the MTE, use pin 8 and 9.

To charge the battery: use pin 7 and 8 as GND and pin 9 as charging voltage.

ONLY USE THE PROVIDED POWER SUPPLY.

7 MAINTENANCE AND PROTECTION

7.1 Storage

Ideally, the MTE should be stored in its transporting case in a place which is not too humid and where the temperature is around 20°C.

If the MTE remains unused for a long period of time, it is recommended to connect it to the power supply for about 3 hours every 6 months in order to recharge the internal battery.

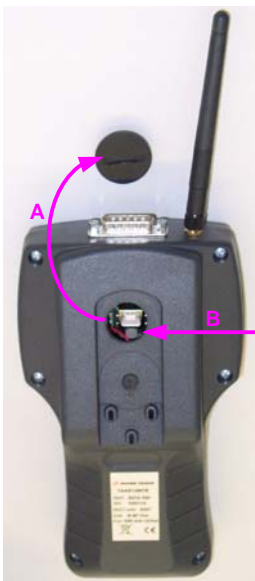
7.2 Maintenance

Do not use thinner, benzene or other organic cleaning agents to remove dirt or finger prints from the display.

7.3 Reset

In case of trouble, a reset of the device can be helpful:

- Remove the plastic cap at the rear of the MTE by unscrewing it with a coin (**A**).



- Press the reset button with a pencil (**B**), if the device has no external power supply connected, it will switch off.

