Users manual

Emit Start Display

ESD1

EMIT START DISPLAY ESD1

ESD1 is a digital start display well suited for orienteering, cross-country skiing, cycling and other sports with interval start. The display has two lines with six digits each, which displays both numbers and small/big letters. Seven different run modes are available; from simple start clock mode to programmed classes and pursuit start. ESD1 can also be used to show only the running time (mode 0), or be controlled from a PC to show "anything".

The display is based on modern LED technology, with strong light emitting diodes that are easily seen, even in direct sunlight. The light strength is automatically adjusted by the built-in sensor, which is placed between the two first digits on the upper line. In strong sunlight the ESD1 will automatically intensify the light strength, while in less sunlight the light strength will be adjusted down to save the rechargeable batteries.

Equipment:
ESD1 is delivered with the following equipment:
- AC Adaptor 15V, 2A with cable
- PC-keyboard ACK-595 (mini)
- 1 meter USB cable
- CD with USB-driver

Charging/batteries
ESD1 has 8 built-in rechargeable batteries (9Ah NiMH) . The batteries are charged by connecting the charger (15V, 2A) to the contact at the far right. When the charger is connected, the red diode to the left of the charger-contact turns on. Leave the charger connected until the green diode turns on instead. The green diode turns on when the battery capacity is 95%. This will usually take about 8 hours, if the batteries were almost empty when the charging was started. To "top charge" the batteries leave the charger connected for another 1-2 hours. The batteries are not harmed in any way, even if the charger is connected for several hours after the green light turns on.

When fully charged, the batteries will last for app. 10 hours in strong sunlight and temperatures below zero. In better light conditions the batteries can last up to 20-25 hours. The green diode flashes regularly when ESD1 is turned on and the battery capacity is between 50 and 100%, while the red diode starts to flash regularly when the capacity drops below 50%. It is not possible to turn on the display when the batteries are almost empty. Then the charger must be connected before turning ESD1 on.   If the battery capacity drops below 20%, ESD1 will beep and show "LOW BATT" regularly. Then the charger should be connected as soon as possible. If the charger is not connected, ESD1 will turn off automatically within 1-3 hours depending on the light conditions.

Connections:

In addition to the charger contact, there are three other connection possibilities. These are:

- PS2 interface for connection of the PC-keyboard
- Serial port (RS232) for connection to a PC
- USB-port for connection to a PC

Run mode:

ESD1 starts in run mode 0 – time, when turned on. Switch to the next run mode by pressing *Next* (short press). If *Next* is pressed and held down (long press) nothing happens. Press *OK* (short press) to turn on/off the beeper. Press and hold down the *OK* button (long press) to enter programming mode.

ESD1 has the following seven run modes:

- **Mode 0 - "Time"**
  The real time is shown at the upper line. If any text has been entered this is shown at the lower line.
- **Mode 1 - "Start clock with start time 00:00:00"**
  The real time is shown at the upper line. Countdown to start is shown at the lower line (not start number). The start time is calculated from 00:00:00, and NOT from the start time entered. The start interval may be set to any value (minimum 10 sec.)
- **Mode 2 - " Start clock with variable start time"**
  The real time is shown at the upper line. Countdown to start is shown at the lower line (not start number). The start time is calculated from the start time entered. The start interval may be set to any value (minimum 10 sec.)
- **Mode 3 - " Startklokke med variabel starttid og visning av startnr."**
  The real time is shown at the upper line. Countdown to start is shown at the lower line, as well as the start number. The start time is calculated from the start time entered, and start number 1 **always** starts at this time. The start interval may be set to any value (minimum 10 sec.)
- **Mode 4 - "Start clock with programmed classes "**
  The real time is shown at the upper line. Countdown to start is shown at the lower line, as well as the start number. The start time, start interval, start number and number of people starting together, is calculated based on the information entered when programming the classes. Instruction on how to program different classes follows on the next page.
- **Mode 5 - "Mass start"**
  The real time is shown at the upper line. Countdown to start is shown at the lower line . The running time is shown at the lower line after start.
- **Mode 6 - "Pursuit start"**
  The real time is shown at the upper line. Countdown to start is shown at the lower line, as well as the start number. Depends on a pursuit start file being transferred to the ESD1; if not "No pursuit data in clock" is shown. Use the PC-program to transfer the pursuit start file to ESD1 (coming soon…)

Programming:

It is possible to control the display using the two buttons on the outside of the suitcase, by using the keyboard, or by using a PC-program.

The four first run modes, and run mode 6 "mass start", can be programmed using the two pushbuttons, while using the keyboard makes it possible to enter "programmed classes" (run mode 4). Run mode 6 "pursuit start" can only be used with a PC-program.

Pushbuttons:

It is possible to set the time, interval and start time using the pushbuttons. Push and hold the *OK*-button to enter programming mode. The display shows "SET TIME". In programming mode a short press on the *OK*-button acts as enter (accept value), while a short press on the *Next*-button increases the value by one, or goes to the next choice. A long press (press and hold) on the *OK*-button has no function in programming mode, while a long press (press and hold) on the *Next*-button acts as exit programming mode.

Example:
We want to set the time to 11:08:00, the interval to 45 sec., and the start time to 11:30:00.

Setting the time: Push and hold the *OK*-button until a long beep is heard and "SET TIME" is shown on the display. Push the *OK*-button (short). The display shows "TIME" at the upper line, and the running time at the lower line. Press the *OK*-button again and zeroes replace the running time while the first number starts to blink. Press the *Next*-button (short) and the first number increases by one (from zero to one). Press the *OK*; the second number starts to blink. Press *Next*; the second number increases by one (from zero to one). Press *OK*; the third number starts to blink. Press *OK* again (the third number should be zero); the forth number blinks. Press *Next* eight times (until the forth number is eight). Press *OK* two more times (the fifth and sixth number should be zero). The display shows "OK TO SET CLOCK" at the upper line, while the lower line shows "11:08:00". Press *OK* exactly when the official time is 11:08:00. The displays returns to programming mode.

Setting the interval: While in programming mode and "SET TIME" is shown press *Next* once. The display shows "SET INTV". Press *OK*. The display shows "INTV" (interval) at the upper line and "30" (current interval) at the lower line. Press *OK* to change the interval. The number 10 starts to blink at the lower line. This is the smallest interval value accepted. By pressing *Next* the interval value increases by 5 sec. each time. Press *Next* until the interval shows 45 sec. Press *OK* to accept this value. The display shows "OK TO SET NEW INTERVAL" at the upper line, while the lower line shows "45". Press *OK* to accept the new start interval. The displays returns to programming mode.

Setting the start time: While in programming mode and "SET INTV" is shown press *Next* once. The display shows "SET START". Press *OK*. The display shows "START" at the upper line and the current start time at the lower line. Press *OK* again. The start time is replaced by zeroes, and the first number starts to blink. Press the *Next*-button (short) and the first number increases by one (from zero to one). Press the *OK*; the second number starts to blink. Press *Next* ; the second number increases by one (from zero to one). Press *OK*; the third number starts to blink. Press *Next* three times; the third number increases to

three. Press *OK*; the forth number blinks. Press *OK* three more times (the three last numbers should be zeroes). The display shows "OK TO SET NEW START TIME" at the upper line, while the lower line shows "11:30:00". Press *OK* to accept the new start time.. The displays returns to programming mode.

To exit programming mode press *Next* once more; the display shows "DO EXIT". Press *OK* to exit programming mode.

Keyboard:
The following commands are available from the keyboard:

- **F1 -** Set the time. Use the numeric keys to enter the new time. Accept by pressing *Enter* exactly when the official time is corresponding.

- **F2 -** Set the interval. Use the numeric keys to enter the new interval. Accept by pressing *Enter*.

- **F3 -** Set the start time. Use the numeric keys to enter the new start time. Accept by pressing *Enter*.

- **F4 -** Programmed classes - This choice makes it possible to enter many different classes with different start numbers, start times, intervals, and number of people starting at the same time. If no classes are entered, the display shows "------" at the upper line, while the lower line shows "NO CLASSES" in addition to a help text that scrolls by. The following commands are available:

  - **Ins -** Insert new class. Press *Ins (Insert)* to enter the class-programming menu. The upper line shows "1 CLAS", while the lower line shows a help text. Now it's time to enter the start time, interval, first start number, last start number, and number of people starting together for this class.
    - **S -** Set the start time. Use the numeric keys to enter the start time, and accept by pressing *Enter*.
    - **I -** Set the interval. Use the numeric keys to enter the interval, and accept by pressing *Enter*.
    - **F -** Set the first start number. Use the numeric keys to enter the first start number starting in this class (at the start time entered earlier). Accept by pressing *Enter*.
    - **T -** Set the last start number. Use the numeric keys to enter the last start number starting in this class. Accept by pressing *Enter*.
    - **P -** Set the number of people starting together. Use the numeric keys to enter the correct value, and accept by pressing *Enter*.
    - **Enter -** Save the class. When all values for this class are correct, press *Enter* to save the class. ESD1 returns to the class-menu.

  - **Del -** Delete class. Press *Del (Delete)* to delete the chosen class. This choice must be confirmed by pressing *Enter*.

- o **+ and -** Go to the next/previous while in class-menu.

- o **Esc -** Exit. Press *Esc (Escape)* to exit the class-menu.

- **F5 -** Enter text/commercial. Press F5 to enter a text that is shown at regular interval depending on the run mode. The upper line shows "TEXT" while the lower line shows a help text. Enter the chosen text followed by *Enter*. Press *Enter* again to accept. If a text already is entered, press *Del (delete)* before a new text is entered.
- **F6 -** Turn on/off the sound. Press *F6* to turn off the sound. The display shows "SND OF" at the upper line. Press *F6* again to turn the sound back on. The display shows "SND ON".
- **F10 -** Show battery-capacity (in %). Press *F10* to show the battery-capacity in %. Press *Enter* or *Esc* to return to run mode
- **F11 -** Choose language (nor/swe). Press *F11* to choose between Norwegian or Swedish letters. Press *N* to choose Norwegian letters (default) or *S* for Swedish letters.
- **F12 -** Turn on/off pre-warning sound. Press *F12* to turn on/off the 10 sec. pre-warning sound (default is off).
- **+ and -** increases/decreases the run mode by one. If + is pressed the run mode increases by one, if - is pressed the run mode decreases by one.
- **< and >** adjusts the scroll speed on text/help-text. < decreases the scroll speed, while > increases the scroll speed.

NB!: This is a preliminary users manual for the ESD1. It will be updated continuously, and the newest version is available for download at our web pages: www.emit.no/support/ESD1eng.pdf