SPORTident AIR+

Information for organisers

v1.5 19.03.2018

1. General information

To enable contactless punching in orienteering SPORTident offers the compatible extension “AIR+” to the existing classic punching system. The SPORTident AIR+ system configuration uses the same system solution as the classic one. SPORTident Config+ is used to prepare and setup the SPORTident stations for the event.

SPORTident AIR+ meets the latest IOF specification for contactless punching in orienteering. The SPORTident stations to be used differ according to the discipline:

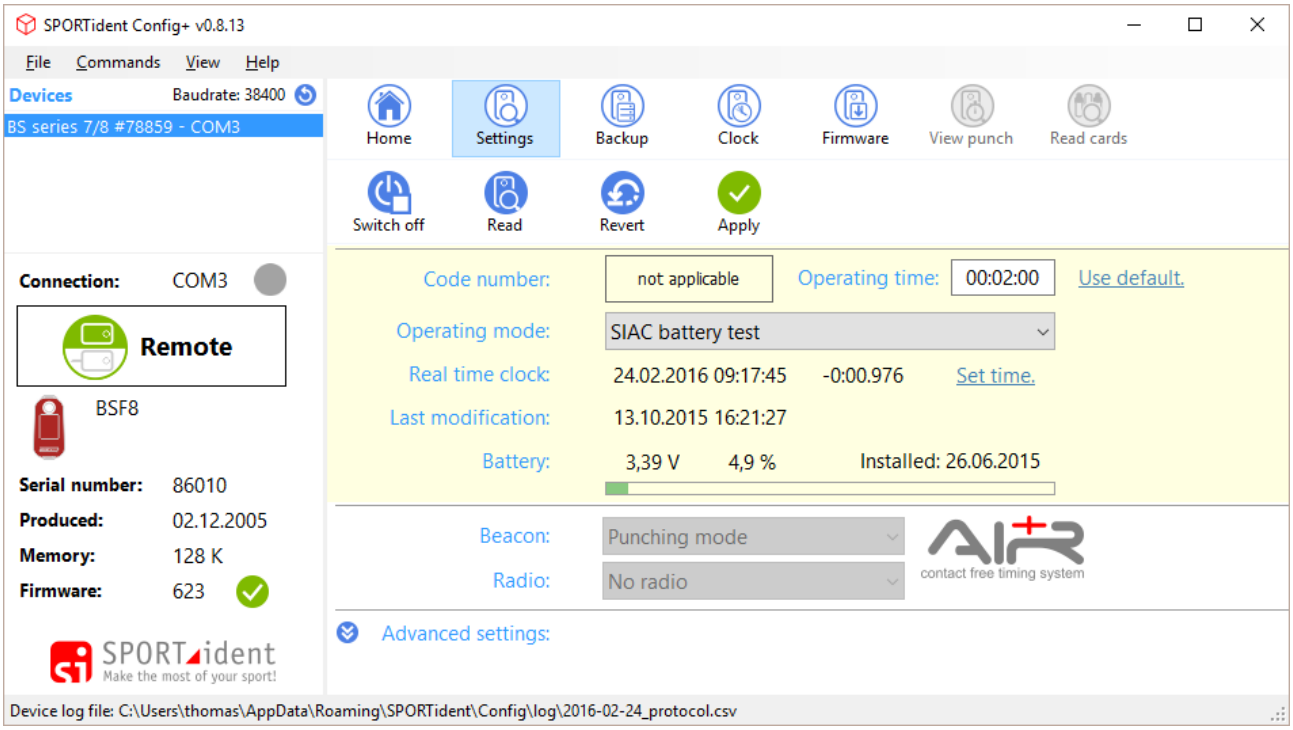
Foot-O:	BSF7/8	
Ski-O:	BSF7/8	>>> BS11-BS blue should not be used for ski-o events!
MTBO:	BS11-BS blue	

BSF8

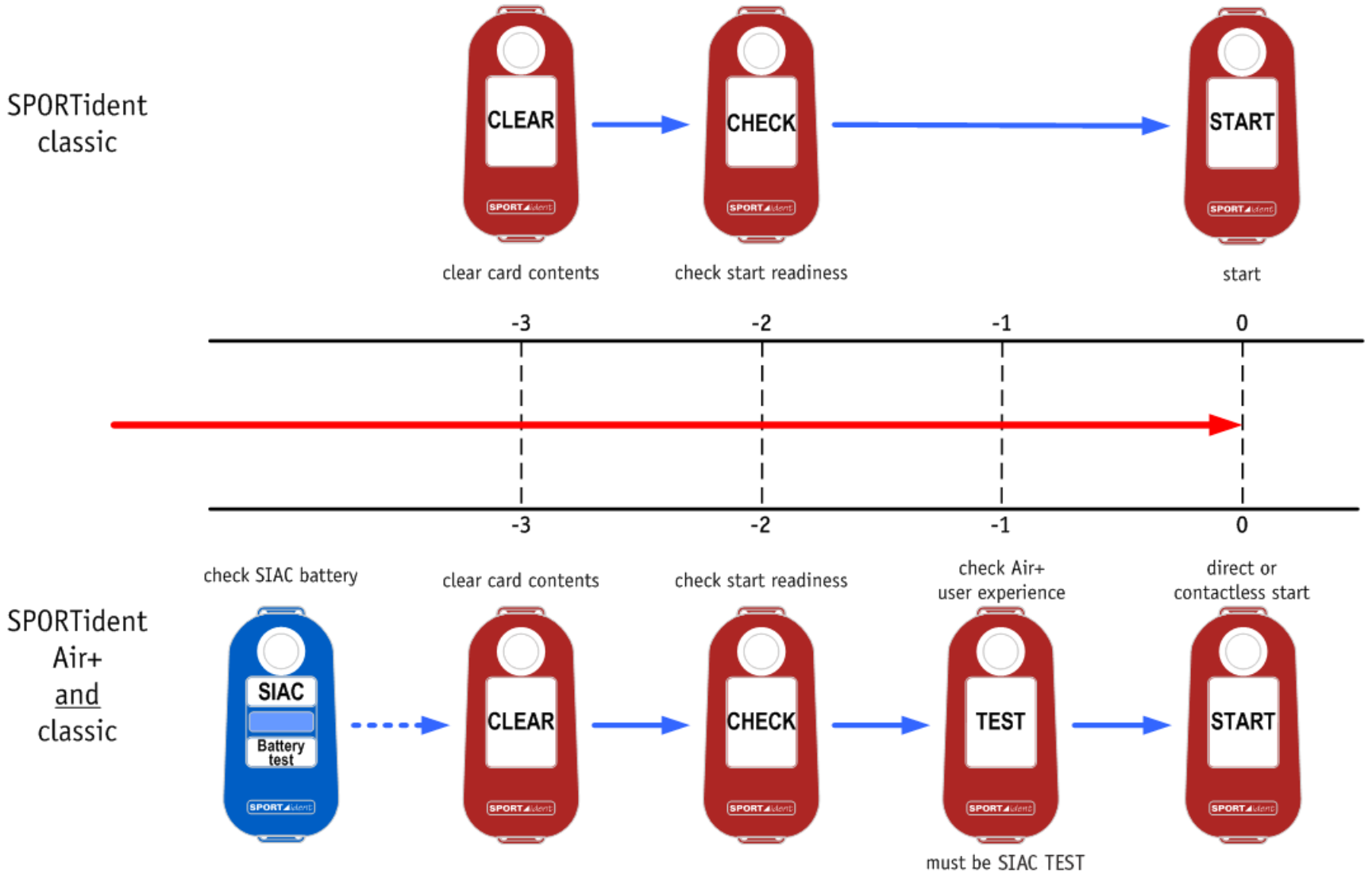
BS11-BS blue

2. System solution

The SIAC is used for contactless punching in the AIR+ system configuration. SIAC contains a battery and it is important to supervise SIAC's battery performance before the event. A new working mode “SIAC Battery test” can be programmed for BSF7/8 using Config+.



Config+: SIAC Battery tests


SPORTident classic
CLEAR
CHECK
START
clear card contents
check start readiness
start
-3
-2
-1
0
-3
-2
-1
0
SPORTident Air+ and classic
check SIAC battery
clear card contents
check start readiness
check Air+ user experience
direct or contactless start
SIAC
Battery test
CLEAR
CHECK
TEST
START
must be SIAC TEST

The organiser should position a “SIAC Battery test” station in the event centre so that athletes can check out SIAC's battery performance some time before they start.

SIAC's AIR+ feature is not always active so that power consumption can be reduced and the battery can last longer. AIR+ functionality becomes active by the “CHECK” process after the chip has been cleared. In all AIR+ applications the CHECK process is mandatory and it is the responsibility of the organiser to ensure that the process takes place. The activation of the SIAC is shown by a flashing green LED.

Please note: SI-Stations BS11 in AIR+ mode have a working range of up to 5 meters. Activated SIAC's inside this range register additional time stamps.

Usually additional records with code numbers that are not used in the competition are not included in the evaluation. Although there is a large storage in the SIAC, you should not store invalid or bad data.

In a relay race you have to pay special attention to the changing area. It is important to avoid that a runner passes the finish area accidentally with an activated SIAC. You should note that mostly two “FINISH” Stations are used: One to record the split times or exchange times and one more to record the finish time of the last runner.

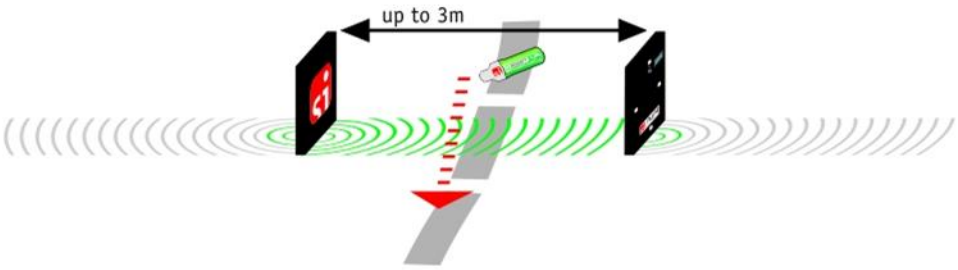
In sprint relays you also have to think about the way a runner has to go from the first card read out to the next changing area in order to avoid switching off the SIAC accidentally.

SIAC's AIR+ feature is switched off by a “FINISH” Station. That's why it is important to avoid that runners passing the finish area accidentally while they are racing.

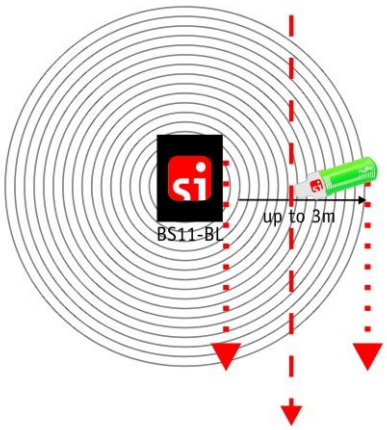
Please comply with the following points:

- Separate the finish area from the start
- In relay races separate the changing area from the finish
- Activate SIAC only immediately before the start
- Switch on the Control Stations at the checkpoint

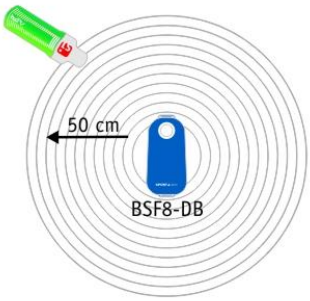
SPORTident Stations BS11-BL can be configured in a “gate” mode. This not only improves the timekeeping accuracy but also secures that SIAC registers records only when “inside” the gate. Using a gate for FINISH significantly reduces accidentally time recording while athletes are racing.



SPORTident Stations for contactless timekeeping can be programmed in Punching or Timing Mode.



Timing Mode



Punching Mode

In orienteering Punching Mode is recommended for all controls. SIAC registers the time and station's code number when it enters the station's radio field. As long as SIAC is within the station's working range it continuously emits acoustic and visual feedback signals. The feedback signals from the SIAC confirm that the athlete has successfully recorded a visit to the control.

In Timing Mode the record is stored when the field is at its strongest. When passing a control SIAC confirms with acoustic and visual feedback signals.

In addition to the stations for controls SPORTident offers special equipment for timekeeping at start and finish. Using SI-Station BS11-BL there is a working distance of more than 3 metres. Timekeeping accuracy can further be improved by a gate configuration.

Alternatively a loop antenna can be used for lanes with widths of up to 6 metres, e.g. in ski orienteering. The loop antenna is put directly under the finish line and burrowed in the snow.

BS11-BL

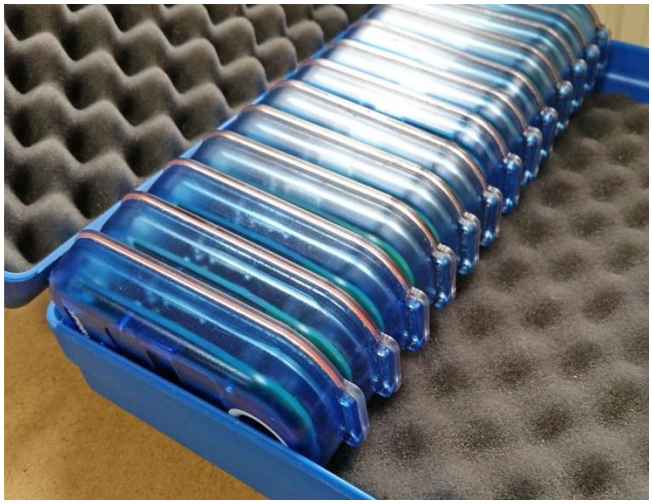
Loop antenna

It is also important to store BSF8 Stations in the recommended way to avoid unnecessary power consumption.

Please also have a look to the paper:
“Storage and transportation instructions for SPORTident Stations series 7 & 8”.

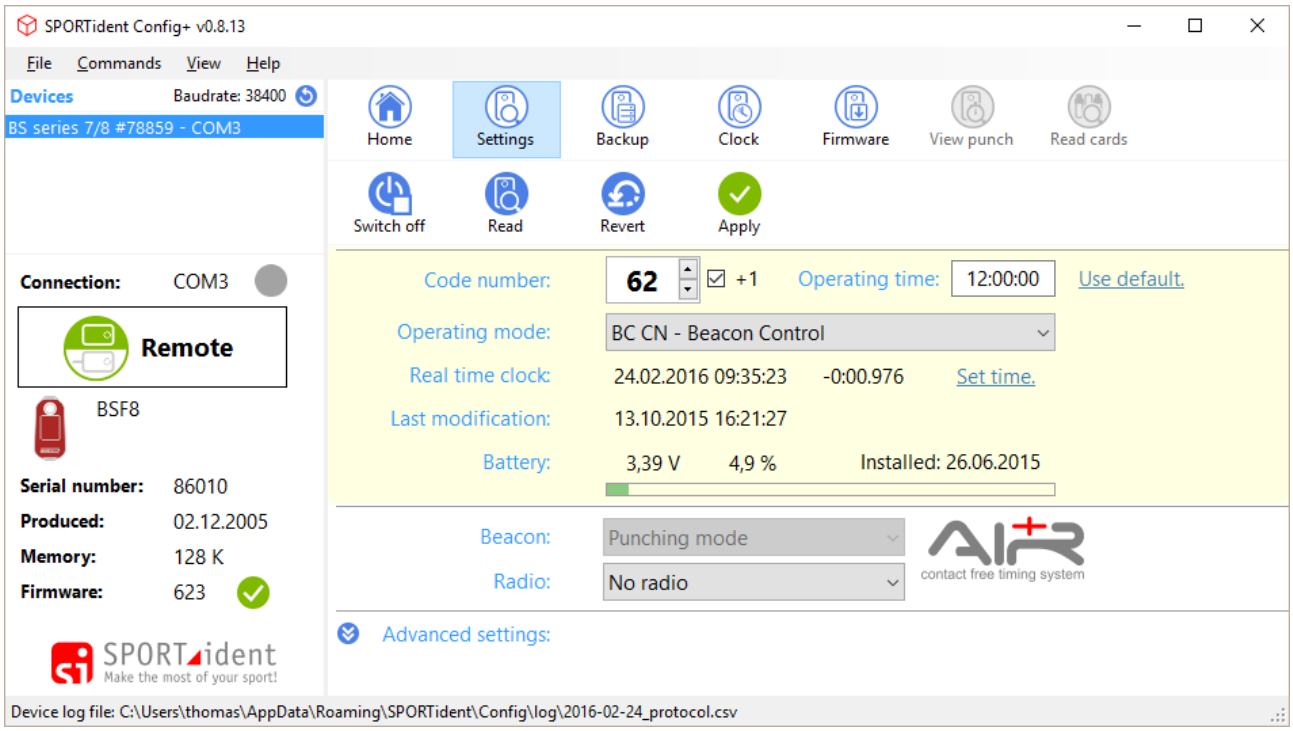
CORRECT storage

WRONG storage



3. Foot-O

SI-Stations BSF7/8 can be used as beacons in AIR+ mode with firmware V6.23 and higher. A firmware update for older Stations BSF7/8 may be needed to make this possible. An update check as well as a firmware download are implemented in Config+. The typical working range for Stations BSF7/8 in AIR+ mode is about 50 cm and meets the IOF specification.



Config+: AIR+ mode

SI-Stations BSF7/8 used in AIR+ mode implement the AIR+ functionality in addition to the classic direct punching. This means that passive SPORTident Cards (series 5/6/8/9/10/11) can be used for classic direct punching and **ALSO** SIAC can be used for contactless timekeeping in the same event. SIAC will always work in direct punching mode too even if its battery is empty.

Please note: The set operating time in AIR+ mode cannot be reset by the SIAC recording the times. That means that all stations programmed in AIR+ mode switch off automatically after the set working time elapsed. Therefore, it is very important to set an operating time, which includes the whole time for the competition AND a bit extra time covering start delays.

The operating time of SPORTident stations BSF7/8 is re-started only by a direct punch, for the Stations BS11 a magnet is needed to re-start. It is important to activate the station for a sufficient operating period if all punches will be contactless. A default value of 12 hours is offered in Config+.

The AIR+ mode of the Stations BSF7/8 must be started by a direct punch with a passive SI-Card. Stations switched on by an instruction card “Service/OFF” will switch off after 10 minutes.

A BSF7/8 Station used in AIR+ mode uses more power than a similar station being used only for direct punching. A BSF8 Station's battery is sufficient to work for more than 120 AIR+ events and a BSF7 Station battery will support twice as many. To reduce power consumption, it is strongly recommended to turn the stations into sleep mode by using the instruction card “Service/OFF” immediately after the event. After using the stations, they should be set back into normal mode. Therefore, it is helpful to use the software Config+ and the command “Apply default”.

4. Ski-O, MTBO

SI-Stations BS11-BS blue with a working range of 1.80 metres are recommended to be used for MTBO and BSF7/8 for Ski-O. Station's working range meets the IOF-specification for these disciplines.

All Stations BS11 include a rechargeable lithium battery. Charging is done by using the stations' USB port. Stations have to be switched on and off by using a magnet. The magnet has to be hold at the marked position next to the display for about four seconds.

5. SIAC radio

SIAC features an inbuilt radio to enable fully bidirectional data transfer and to deliver timing data for online transmission. SIAC's radio is disabled by default. The radio is activated by a special signal sent from the BSF7/8 respectively BS11.

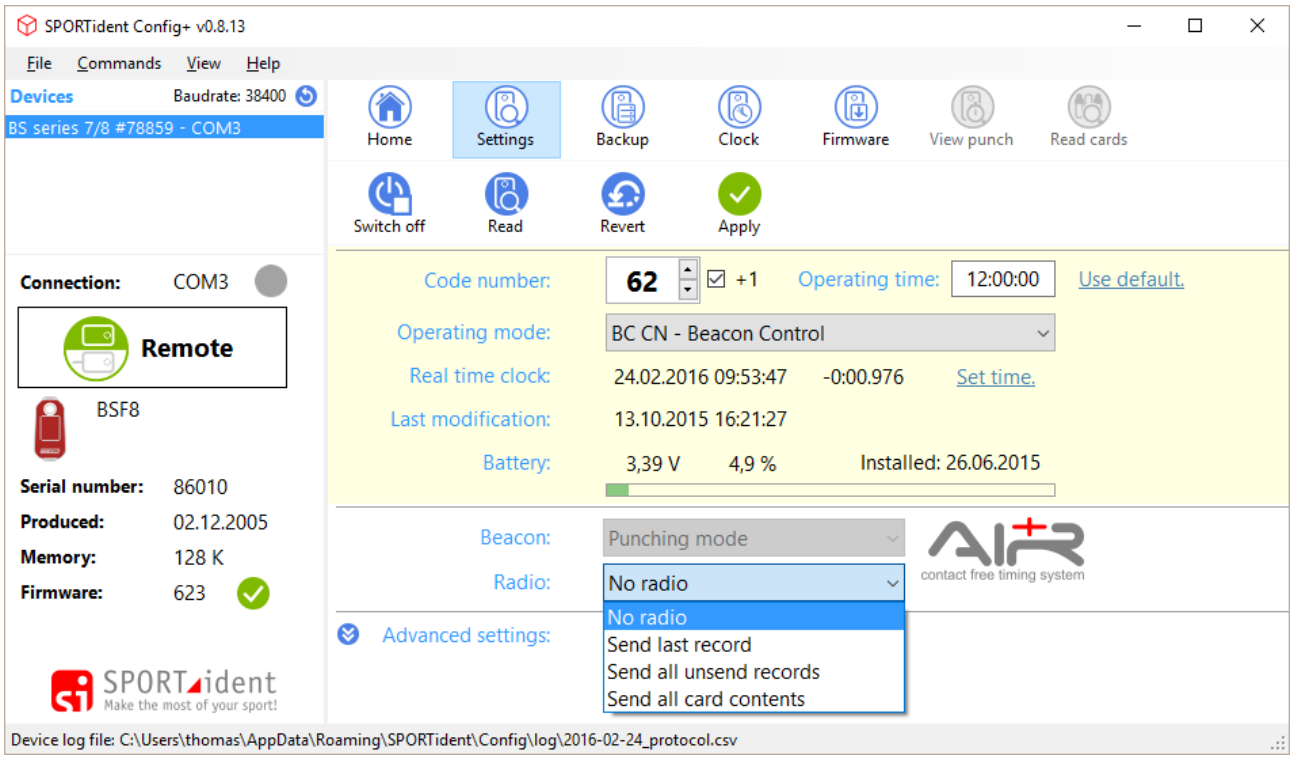
SIAC radio should only be activated if a receiver for SIAC's radio data is mounted nearby. Otherwise SIAC's power consumption is increased significantly. There are receiver dongles and the GSM modem "SIGSMDN" with inbuilt receivers to communicate with SIAC's radio. The transmission distance from the SIAC to a receiver should be kept in a range of up to 6 metres.

SRR USB Dongle

SIGSMDN

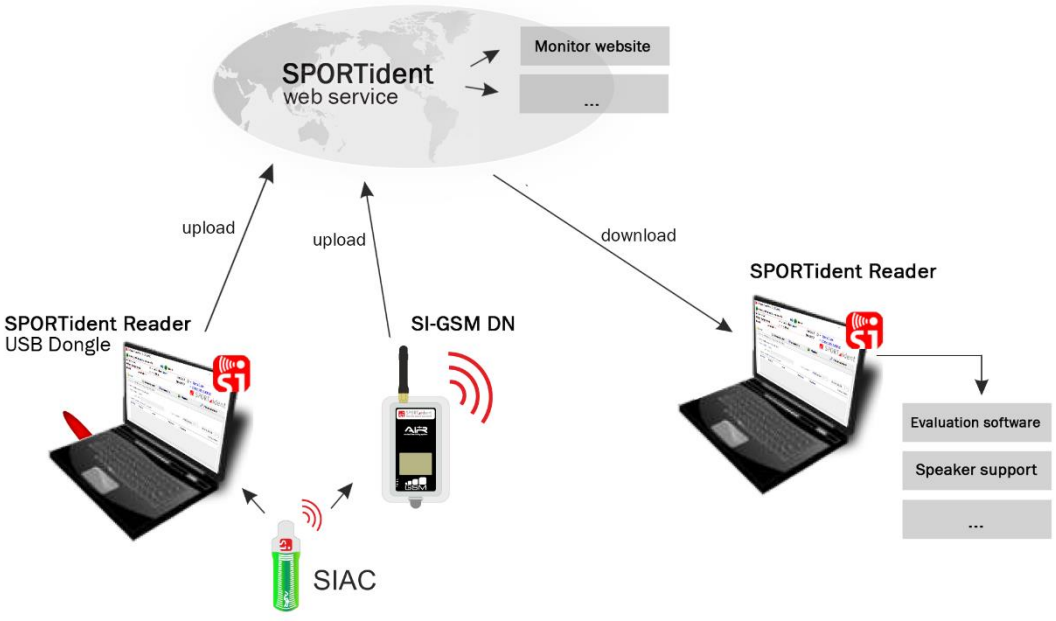
Three different SIAC radio options can be programmed into the station by Config+

- Transmit the most recently received record (“Send last record”)
- Transmit all the records not yet successfully transmitted (“Send all unsend records”)
- Transmit all the records stored in the SIAC’s memory (“Send all card contents”)



Config+: AIR+ radio options

SPORTident software “SI-Reader” is used to upload data to the web additional to the GSM-Modem SIGSMDN. SI-Reader is also used to download data from the web to the event center. SIAC, SRR-receiver, SIGSMDN, SI-Reader and the SPORTident web service form a complete distributed online data system to meet the growing requirements of more information during the race.



6. System setup and test

SPORTident AIR+ enables to combine direct and contactless punching within one event and in a unified system solution. The preparation steps before start have to be extended for contactless punching. There is the “battery check” and SPORTident also strongly recommends the implementation of a “user experience” station for the contactless punching before start. Please refer to the document “SPORTident race preparation scheme”.

It is good practice and a feature of quality to test the proper configuration and operation of SPORTident hardware before the application.

The correct operation of the SPORTident Stations is best ensured by a “punching test”: Take one or more SPORTident Cards through the event life cycle (e.g. “SIAC Battery test”, “CLEAR”, “CHECK”, control(s), and “FINISH”) and evaluate the cards' punches to verify all stations have been set up correctly. Performing such a test only takes minutes even for a large number of stations and ensures stations' functionality, correct code number and time.

Additionally, for AIR+ applications two more features have to be tested with an activated SIAC or the SI signal indicator:

- First, the stations' working distance has to be inside the defined min/max values (left picture below).
- Second, sufficient contactless punching speed is verified by moving the SIAC horizontally above the station (right picture below).