



SPORTident

SPORTident Organiser Guide

SPORTident GmbH

Version 1, February 2018

Table of Contents

Introduction	1
Quick overview	2
Classic punching system	2
Contactless punching system AIR+	3
Types of SI-Cards	3
Types of SI-Stations	4
Classic punching system	6
Description	6
At the start	6
During the race	6
At the finish	7
Featured SI-Stations	7
Featured SI-Cards	8
Basic accessories	9
Contactless punching system AIR+	10
Description	10
SIAC activation / deactivation	11
SIAC mounting	11
For orienteers	11
For trail runners	12
For mountain bikers	12
How not to mount the SIAC	12
BSF7/8 for AIR+	13
Configuration of BSF7/8	13
Special operating modes	15
BS11 for AIR+	16
Charging	18
Configuration of BS11	18
Mounting	21
Activation / deactivation	21
Gate mode	22
Config+	24
Device connection	24
Direct mode	24
Settings overview	25
Remote mode	25
Basic configuration	26
Configuration procedure	27
Switch off feature	29
Operating time	29

Time synchronisation	29
Synchronisation with SI-Master	30
SI-Master additional features	32
Battery status	33
Advanced settings	34
Read backup	35
Firmware update	37
Read SI-Cards	40
Config SI-Cards	42
Short range radio	45
Sender device: BSF8-SRR	45
Sender device: SIAC radio	46
Receiver device: SRR USB Dongle	47
Receiver device: SIGSM-DN	49
Show received data in Config+	51
Live data	53
Introduction	53
Software and web services	53
SI Center	54
Events	54
Modems	55
Monitor	55
Data upload with SI-Reader	56
LCD display information	59
SI-Stations BSx7/8	59
SI-Stations BS11	60



Introduction

This guide provides detailed information about the operation, use and configuration of the SPORTident timing system. The information is given for both the classic and the AIR+ system. For both cases, the system will be explained, followed by detailed instructions on how to set up the system with the configuration software Config+. The aim is to guide you gradually through the possibilities of the system, from the pure basics to the advanced features. SPORTident's slogan is **Make the most of your sport!** This guide supports you with that.

Both beginners and more experienced users of the SPORTident system will find useful information in this guide. All features are explained step by step to be able to get the most out of the system.

The SPORTident Organiser Guide

This book is designed and written by Luc Cloosterman and Sebastian Gaßdorf. Made with [Asciidoc](#).

We are looking forward to receive your feedback on the Organiser Guide. Please submit suggestions, improvements, and questions via the [feedback form on our website](#).

Made with ❤ in Arnstadt. Copyright © 2018 SPORTident GmbH.

Quick overview

Classic punching system



The SPORTident system is comprised of two basic elements: SI-Stations and SI-Cards. Most SI-Stations are technically identical and can be configured to fulfil different functions (such as START, FINISH, or control stations) by using the configuration software Config+. SI-Stations are placed at the start, at control points on the race track and at the finish line. Each control station has a unique control number. Every athlete carries his/her SI-Card, which records the time and control number as he or she passes the SI-Stations during the race.

SI-Cards

For competitors, usage of the SPORTident system is simple: with the SPORTident classic system, the athlete has to **directly punch** the station, i.e. insert the tip of the card into the hole of the control station to record the time and control number to his or her SI-Card. The data is stored in the competitor's card and backed up to the control stations.

SI-Stations

SI-Stations are working autonomously without battery change for several years. The athlete gets an immediate optical and acoustic feedback after a correct punch.

Before the start, some special stations must be punched by the athlete. The CLEAR station will empty the SI-Card. This step can be verified with the CHECK station, which will only give a feedback signal if the SI-Card is empty. Depending on the type of start, the START station has to be punched (with free start time) or not (with mass start or pre-allocated start time). At the end of the race, the FINISH station has to be punched.

Race evaluation

After the race, the SI-Card holds the athlete's start and finish times, as well as the split times with all control numbers. The system can be operated without a computer by printing out the data

directly on a small battery-operated thermal printer. Alternatively, the data can be evaluated by using one of the evaluation programs that are designed for SPORTident equipment.

As one of the key features, the SPORTident system produces an individual sheet of paper with results and split times right after the runner has passed the finish line.

Contactless punching system AIR+

The setup of the AIR+ system is similar to the classic system but offers the possibility of touch free punching. This removes the need for the athlete to slow down at the controls or check points. Regular SI-Stations can be configured to operate in 'beacon mode' to support touch free punching. For the athlete, a special SPORTident ActiveCard (SIAC) is needed to 'punch' the controls from a distance in this touch free punching mode.

This contactless punching system is especially well-suited for applications such as (sprint) orienteering, trail running, mountain biking, Nordic sports and other adventure sports. With this system it is no longer necessary to bring the card and station into direct contact. Time and control numbers are recorded to the athlete's SIAC as he or she passes the station in a distance of no more than 50 cm at a speed of max. 40 km/h.

With special stations (BS11), the maximum allowed distance can be increased up to six metres. When passing a control station, competitors using a SIAC will receive a series of vivid flashes and loud beeps as confirmation that the data has been recorded.

Types of SI-Cards

	SIAC ActiveCard (SIAC) is compatible with the classic and the contactless punching system. This SI-Card can store up to 128 punches.
	SI-Card 8 SI-Card 8 is compatible with the classic punching system. This SI-Card can store up to 30 punches.
	SI-Card 9 SI-Card 9 is compatible with the classic punching system. This SI-Card can store up to 50 punches.
	SI-Card 10 SI-Card 10 is compatible with the classic punching system. This SI-Card can store up to 128 punches.

	ComCard Pro ComCard Pro is compatible with the classic punching system. This SI-Card can store up to 128 punches.
	ComCard Up ComCard Up is compatible with the classic punching system. This SI-Card can store up to 30 punches.
	pCard pCard is compatible with the classic punching system. This SI-Card can store up to 20 punches.



SI-Card 5, SI-Card 6 and SI-Card 11 are no longer produced and therefore not listed in this documentation.

Types of SI-Stations

	BSF8-DB Base Station Field 8 (display bottom) features classic and contactless punching. The station is available in red or blue. Operating modes: CLEAR, CHECK, START, FINISH, SIAC Test, SIAC On, SIAC Off, SIAC Radio readout, SIAC Battery test, BC START, BC FINISH, BC CONTROL
	BSF8-DT Base Station Field 8 (display top) features classic and contactless punching. Operating modes: CLEAR, CHECK, START, FINISH, SIAC Test, SIAC On, SIAC Off, SIAC Radio readout, SIAC Battery test, BC START, BC FINISH, BC CONTROL
	BSF8-DT SI-Master Base Station Field 8 (display top) features classic and contactless punching. Operating modes: CLEAR, CHECK, START, FINISH, SIAC Test, SIAC On, SIAC Off, SIAC Radio readout, SIAC Battery test, BC START, BC FINISH, BC CONTROL

	<p>BS11-BS</p> <p>Base Station 11 (beacon small) features contactless timing with a range of 180 cm.</p> <p>Operating modes: BC START, BC FINISH, BC CONTROL</p>
	<p>BS11-BS</p> <p>Base Station 11 (beacon large) features contactless timing with a range of 300 cm.</p> <p>Operating modes: BC START, BC FINISH, BC CONTROL</p>
	<p>BS11-LA</p> <p>Base Station 11 (loop antenna) features contactless timing with an external ground antenna of up to a length of 600 cm.</p> <p>Operating modes: BC START, BC FINISH, BC CONTROL</p>
	<p>BSM8-D-USB</p> <p>Base Station Main 8 (USB) is a readout station that can be connected to a computer via a USB cable. This station can work in direct mode (e.g. to read SI-Card data with a computer) or can be used to remote control SI-Stations BSF7, BSF8-DB, BSF8-DT, BSF8-DT SI-Master.</p>
	<p>BSF7-DB</p> <p>Base Station Field 7 (display bottom) features classic and contactless punching. The station is available in red or black.</p> <p>Operating modes: CLEAR, CHECK, START, FINISH, SIAC Test, SIAC On, SIAC Off, SIAC Radio readout, SIAC Battery test, BC START, BC FINISH, BC CONTROL</p>
	<p>BSM7-D-USB</p> <p>Base Station Main 7 (USB) is a readout station that can be connected to a computer via a USB cable. This station can work in direct mode (e.g. to read SI-Card data with a computer) or can be used to remote control SI-Stations BSF7, BSF8-DB, BSF8-DT, BSF8-DT SI-Master. The included battery allows autonomous usage without a connection to a computer. BSM7-D is also available as RS232 version for serial connection.</p>



Classic punching system

Description

The SI-Stations are active (battery powered) and the SI-Card is passive. Every station has a 24 hours clock, a day of week counter and a week counter. This makes it possible to use the SPORTident system without reservation in competitions that run past midnight, for example for night orienteering or rogaining.

At the start

Competitors have to **clear** and **check** their SI-Card before entering the start box. The CLEAR station will empty the SI-Card and will provide a feedback signal (an audio signal and a blinking LED) upon completion of the process. This can be verified with the CHECK station, which will only provide a feedback signal if the SI-Card is empty. These stations shall be positioned clearly visible in the starting area.

At the start, the runner just punches the START station. His/her start time will be written on the SI-Card and he/she will get confirmation by a feedback signal. The start station will NOT give a feedback signal if the SI-Card is not empty! It is the runners' responsibility to pay attention to the start procedure. It is the organiser's responsibility to explain the start procedure to the participants.

For events with pre-allocated start times, where punching starts are not required, competitors do not need to punch on the start line. However, they must clear and check their SI-Card before the start line. The start time is based on the allocated start, and not on a start punch. In this case, it is important to ensure that the computers and start clocks are synchronised to the race time to get accurate and consistent timing.

The times of the actions clear, check and start are recorded on the SI-Card in special allocated fields and can always be verified afterwards.

During the race

During the race, the competitor punches by inserting his/her SI-Card into the hole of the SI-Station. The SI-Station reads the SI-Card and writes the control code and time into the SI-Card's memory. The station reads the competitor's SI-Card again to verify that it has been written correctly and then beeps and flashes to provide confirmation to the athlete. SI-Card number and time are also written into the station's backup memory.

Depending on the type of SI-Card, from 20 to 128 data slots are available. If there are no empty data fields available on the SI-Card, the SI-Station will not write anything to the SI-Card. In this case, no feedback signal will be given. However, the failed punch will still be stored in the backup memory of the station (with an error flag).



Organiser and athletes need to ensure that the SI-Card's storage is big enough for the number of controls set on the course.

It is the competitor's responsibility to ensure that the SI-Card is fully inserted into the station and to check the station's feedback signal for confirmation of a correct punch.



Some newer SI-Cards will also provide a feedback. The SI-Card 11 flashes during a couple of seconds and the SIAC provides an audio feedback signal on top of that.

At the finish

The runner punches the FINISH station. The finish time is written to an allocated field on the SI-Card.

SI-Cards are downloaded onto a readout station after the finish to verify the punch sequence and provide time data which may be either printed directly or passed to a timing software on a computer.

Featured SI-Stations

SPORTident offers different types of SI-Stations. You will find detailed information in the datasheets (available on [our website](#)).

	<p>BSF8-DB</p> <p>Base Station Field 8 (display bottom), CLEAR, CHECK, START, FINISH or CONTROL.</p>
	<p>BSF8-DT</p> <p>Base Station Field 8 (display top), CLEAR, CHECK, START, FINISH or CONTROL.</p>
	<p>BSF8-DT SI-Master</p> <p>Base Station Field 8 (display top), SI-Master in combination with CLEAR, CHECK, START, FINISH or CONTROL</p>



	BSM8-D-USB
Base Station Main 8 USB, SPORTident readout station with USB cable.	



For BSx7 stations, functionalities are identical. The size of the station is different (115x62x32 mm compared to 101x51x19 mm for the BSF8 stations) due to the larger battery. BSM7-D-USB can be used autonomously without a computer.

Featured SI-Cards

SPORTident offers different types of SI-Cards. You will find detailed information in the datasheets (available on [our website](#)).

Card 8	Card 9	Card 10	ComCard Pro	ComCard Up	pCard
30 intermediate times	50 intermediate times	128 intermediate times	128 intermediate times	30 intermediate times	20 intermediate times

SPORTident ActiveCard

The SIAC enables contactless punching. The successful punch is indicated by both an optical and acoustic feedback for the athlete. Card readout and record data format are the same as for classic cards, making the SIAC compatible with all existing software solutions. The SIAC stores up to 128 punches and registers a direct punch in 50 ms. With normal use, the battery life time is approximately four years. The battery can be replaced by SPORTident.



The SIAC is fully backward-compatible with the SPORTident classic system.



Older cards, still in use but no longer produced

- SI-Card 5 can hold 30 punches with control code and time, 6 more with code and order of visiting only, plus start, finish and check times. Punching time is 330 ms. Card numbers range from 1 to 499999.
- SI-Card 6 can hold 64 punches with code and time (192 punches after adapting the configuration of the stations – see section [Config + / Advanced Settings](#)), plus start, finish, clear and check times. Punching time is 130 ms. Card numbers range from 500000 to 999999.

Basic accessories



Instruction card SERVICE/OFF

Special SI-Card to put the stations in **standby** or in **service** mode.

Instruction card CLEAR BACKUP

Special SI-Card to clear the backup memory of the SI-Stations

Coupling stick (not in the picture)

Special graphite stick, to be put in the SI-Master station or USB-Station to make the communication with other stations possible.



Contactless punching system AIR+

Description

To enable contactless punching (i.e. punching at a distance from the control), SPORTident offers the extension **AIR+** to the existing (classic) stations. The stations operate in **beacon** mode and the runners need to use a SIAC within a punching range of about 50 cm with common stations. This SIAC (AC stands for **ActiveCard**) can hold 128 punches with code and time plus start, finish, check and clear times.

The tip of the SIAC flashes when a punch has been recorded and the SIAC emits an audible beep. The flashing continues while the SIAC is in the field of the control. The SIAC records a second punch if it has been outside of the beacon station's active field for at least 8 seconds and then is moved back in. The SIAC is compatible with the classic system as it can also be used for direct punching.

SI-Stations in beacon mode will NOT give a feedback signal when a SIAC registers a contactless punch. In contactless punching mode, the SIAC's optical and acoustic feedback signals confirm to the athlete that the control code and timestamp have been successfully written to the card. A contactless punch is only recorded onto the SIAC and is not recorded in the backup memory of the station.

As an active device, the SIAC contains a battery. It is important to check the SIAC's battery performance before the event. The expected life time of the battery is about 4 years. The SIAC's AIR+ feature is not always active so that power consumption can be reduced, and the battery can last longer. The AIR+ functionality becomes active if the athlete punches the **CHECK** station (after clearing the card) or the **SIAC ON** station. The SIACs AIR+ feature is switched off by punching a **FINISH** station. This is why it is important to avoid that runners pass the finish area accidentally while they are racing. SIACs also can be switched off by using a field station configured as **SIAC OFF**.

SPORTident AIR+ is fully backward-compatible with the classic system. Stations used in AIR+ mode implement the AIR+ functionality in addition to the classic direct punching. This means that passive cards (series 5/6/8/9/10/11) can be used for classic direct punching and SIAC can be used for contactless punching in the same event.

A direct punch with a SIAC is a fall-back option to register at controls if for any reason a station would not be in beacon mode. The SIAC will always work in direct punching mode, even if its battery is empty.

A SI-Station used in AIR+ mode uses about ten times more power than a similar station used only for direct punching. A BSF8 with a brand-new battery will operate for about 1500 hours (120 events) before the battery needs to be changed, a BSF7 about double that time. To reduce power consumption, it is strongly recommended to turn the stations into **standby** mode by using the instruction card **SERVICE/OFF** immediately after the event.

In Foot-O, the use of AIR+ is beneficial in particular in urban sprint and sprint relays where a whole group of competitors may arrive at a control at the same time with little space to place multiple punching units. The AIR+ system allows several runners to punch a single control at the

same time.

In Ski-O and MTBO, it is a little awkward for competitors to use traditional punching and it is easier for them to use contactless punching. The special BS11 stations are the ideal solution. Of course, for other sports with check points that are not easily accessible or with many participants, AIR+ offers many advantages.

SIACT activation / deactivation

With a CLEAR station, the SIAC's memory is cleared. With a CHECK station, this process is verified and the SIAC is switched on. The SIAC remains active for about 20 hours if it is not switched off. This timer is reset with each direct or proximity punch. The SIAC indicates an active state with a slowly blinking green LED. The SIAC is deactivated by a FINISH punch (with a classic punch or in the contactless way in beacon mode). The SIAC can also be turned off by a SIAC OFF station.



If a SIAC is not activated before the start of the race, it will not be possible to get any time records from a distance. In this case only direct punching will work.



There are two ways to activate the AIR+ functionality. For orienteering we recommend using a **CHECK** station as part of the starting procedure. Organisers need to make sure that there is a **CLEAR** station before the **CHECK** station. If a SIAC is not cleared, it will not be possible to switch it on with a **CHECK** station. For other sports we recommend using a field station configured as **SIAC ON**. In this case SIAC can be switched on without clearing the card in advance.



It is recommended to programme the CLEAR station with code 1. This will suppress the SIAC's feedback beeps and flashes when clearing. This way, the SIAC can punch the CHECK station without delay to activate contactless punching. If an alternative code is used for the CLEAR station, there is the possibility that the athlete will punch the CHECK station while the SIAC is still beeping and flashing. In this case the **CHECK** punch will **not** register, and contactless punching will not be activated for the SIAC.

SIACT mounting

For orienteers

There is no recommended best practice to attach and carry a SIAC. However, it is important that the athlete should be able to observe the SIACs feedback signals. For foot orienteering, the SIAC is generally carried as a finger stick. For orienteers who know the classic punch system, there is no need to change the common way of carrying the card.

For trail runners

For trail running and other sports, we recommend that athletes carry the SIAC on their wrists. If there is no need for the athletes to punch the SIAC in the classic way and the card is activated before the race start, the wrist is the optimal position.

For mountain bikers



For MTB applications we recommend carrying the SIAC on the wrist or using the **SPORTident Mounting holder "Bike"** to affix the card on the frame or handlebar of the athlete's bike. Please ensure that the SIAC is mounted at the height of the field stations used for the event.

How not to mount the SIAC

GPS could influence SIAC signal



The AIR+ mode can be compromised by disturbances caused by third party equipment. The active antenna of some GPS watches can significantly reduce the SIAC's sensitivity. As a rule, a GPS watch and SIAC shall not be carried on the same arm.

Battery packs could influence SIAC signal

Advanced LED lamps use a switching circuitry to modulate the lamp's brightness. Some lamp models are not properly protected against emission of these signals. Even the battery leads of these lamps can act as an antenna. Therefore, the LED lamp shall not be mounted next to the SIAC and battery leads should not be positioned near the SIAC.

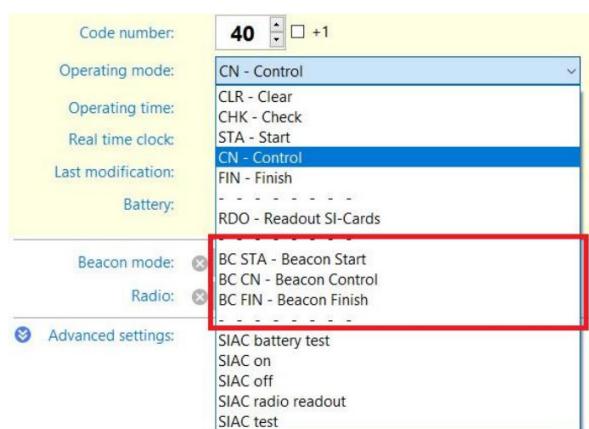


BSF7/8 for AIR+

The BSF7/8 stations can be used for contactless punching. The **operating mode** of the stations has to be changed with Config+ in the same way as for the classic system (see section [Config+ / Basic configuration](#)). The stations must be programmed in beacon mode. Possible operating modes are: Start (BC STA), Finish (BC FIN) and Control (BC CN).

Configuration of BSF7/8

1. Read the station in **remote** mode by clicking on **Settings**. For more information on how to do that, please refer to section [Config+ / Device connection](#).
2. Click on the field of the **operating mode**. The different options are shown. Choose the desired function.



3. To confirm, simply click the **Apply** button in the main toolbar.

4. A progress bar will pop up and confirm the configuration.

Operating mode	Functionality
BC STA - Beacon Start	Start time will be written on the SIAC in the contactless way. Subsequent start punches will overwrite the start time slot in the SI-Card memory, but the first start time will remain available in the start reserve slot.
BC CN - Beacon Control	Works like a normal control station, but also in the contactless way. The SIAC can store up to 128 controls.
BC FIN - Beacon Finish	Finish time will be written on the SI-Card in the contactless way. Subsequent finish punches will overwrite the finish time slot in the SI-Card memory, but the first finish time will remain available in the finish reserve slot. The SIAC automatically turns off after receiving BC FIN.



Stations operating in beacon mode must be activated using a direct punch. It is very important that for competitive events 'real' competitors do not find the controls in **standby** mode because beacon mode is not active in standby mode and consequently contactless punching is not possible. Pre-runners must punch all the controls in the morning, first with a direct punch and then with a contactless punch by using an activated SIAC to ensure that they are indeed functioning correctly. Both punches can be registered with the same SIAC.



The operating time must be set so that the controls are still active when the first and the last real competitor visits the controls. Furthermore, it should be noted that contactless punching does not reset the operating time and thus needs to be set to last for the duration of the whole event. The default value for stations in beacon mode is 12 hours.

The stations will deactivate automatically at the end of the operating time, but to reduce power consumption it is strongly recommended to turn the SI-Stations into standby mode manually by using the instruction card **SERVICE/OFF** immediately after the stations are collected. A BSF7/8 station used in AIR+ mode uses more power than a similar station being used only for direct punching. After using the stations, they should be set back into normal mode if the beacon mode is NOT required for the next event. To handle this efficiently, it is helpful to use the software Config+ and the command **Apply default**.



Important notice: The SERVICE/OFF instruction card does NOT enable the beacon field of the station but switches to service mode/standby only.



Special operating modes

The screenshot shows a configuration interface for a station. At the top, there's a dropdown menu for 'Code number' set to '40'. Below it, 'Operating mode' is set to 'CN - Control'. Under 'Operating time', options include 'CLR - Clear', 'CHK - Check', 'STA - Start', and 'CN - Control' (which is selected). 'Last modification' and 'Battery' fields are also present. In the 'Beacon mode' section, 'BC STA - Beacon Start' and 'BC FIN - Beacon Finish' are listed. The 'Radio' section includes 'BC CN - Beacon Control'. The 'Advanced settings' section, which is highlighted with a red box, contains the following items:

- SIAC battery test
- SIAC on
- SIAC off
- SIAC radio readout
- SIAC test

Stations can also be configured to fulfil a special function, linked to the SIAC. These stations do not perform any other action/mode (like CONTROL, START, ...). The procedure is identical as described above and the possibilities are shown below. SIAC special operating modes can be configured in BSF7, BSF8, BSM7-USB (or RS232) and BSM8-USB.

SIAC Battery test

The battery voltage of the punched SIAC is measured and shown on the station's service display. An acoustic signal 'normal beep' indicates that the battery is **OK**. For voltages **below 2.72 Volts**, the station will show **WARN** (warning) and emit a **warning** signal – several beeps at higher frequency. In this case the battery is close to the end of life, but should easily last for the current event, unless a lot of data is being collected from the chip for live timing. In case of **FAIL** (failure) for voltages **below 2.44 Volts**, there is no feedback signal. In this case, the battery voltage is below the critical level and the SIAC cannot be used for contactless punching. Battery service is needed.

It is recommended to conduct the test before every event. SIAC Battery test stations should therefore be placed in the event centre, so that athletes can use them early before the start. The station's battery voltage evaluation software considers the temperature dependency of the battery voltage. Voltages measured are stored in the station's backup memory. Information consisting of SIAC ID and the battery voltage can be read out by using Config+ (see section [Config+ / Read backup](#)).

#	SIID	Control time	Voltage
1	8655042	30-Sep-17 19:05:40	2.98 V



SIAC ON and SIAC OFF

Stations with SIAC ON / SIAC OFF operating modes activate and terminate the SIAC's AIR+ functionality.

In the context of an event usage cycle, the AIR+ functionality in orienteering is typically activated by the CHECK station and switched off by the FINISH station. With the typical procedure, the time of **check** and **finish** are written on the SIAC.

Using SIAC ON / SIAC OFF is an alternative way. The difference is that no record is written into the SIAC and that the SIAC is activated with SIAC ON even when the SIAC has not been cleared before. By means of these operating modes several training sessions with breaks in between are supported during one day. Data are collected over the day and a final evaluation can be done afterwards.



SIAC ON does not clear the card. It has to be ensured that this is done before the race or training.

SIAC Radio readout

A station programmed in this working mode and punched directly by a SIAC triggers the SIAC (even when it is turned off) to send out all data records stored by its internal radio. This punch does not modify the card memory (i.e. data records on the SIAC are not deleted). To receive the data, a SI-SRR dongle or SIGSM-DN is needed (see chapter [Short range radio](#)). The radio dongle (SI-SRR USB Dongle) receives these records and supplies them to the computer for further evaluation. The GSM modem SIGSM-DN can be used to upload live data to SPORTident web services.

Radio readout is recommended when evaluations between single sections are required. For example, the procedure is very useful for evaluating promptly single split times during a training day.

Data read out are not stored in the Radio readout station's backup memory.

SIAC test

Despite all precautions taken by the organiser, it might occur that a runner enters the start box without having activated his/her SIAC. This can easily be verified with the SIAC TEST station. When coming in range of the station (50 cm), the SIAC should react as for a normal punch. The SIAC TEST station will not write any data on the SIAC. The card remains empty and is thus still able to register the start time (the START will not work when a SI-Card is not empty). The same test is also useful for allocated start times.

BS11 for AIR+

Identification at check points in outdoor sport disciplines like trail, biking and skiing is slightly different than in orienteering. In general, passing speed is higher. The BS11 stations are specially

adapted for these applications by enabling identification over the air over a larger distance. With the BS11-BL station, the SIAC can register the intermediate and start/finish times in a range of up to 3 metres.

	BS11-BS Base Station 11 (beacon small) features contactless timing with a range of 180 cm. Operating modes: BC START, BC FINISH, BC CONTROL
	BS11-BL Base Station 11 (beacon large) features contactless timing with a range of 300 cm. Operating modes: BC START, BC FINISH, BC CONTROL
	BS11-LA Base Station 11 (loop antenna) features contactless timing with an external ground antenna up to a length of 600 cm. Operating modes: BC START, BC FINISH, BC CONTROL

The **BS11-BS** (beacon small) and **BS11-BL** (beacon large) stations allow for contactless registration of time records over a distance of up to 1.8 and 3 metres, respectively. Both stations can easily be carried around and set up. They can be integrated in the AIR+ system without any special measures. These stations are mounted vertically on a holder instead of horizontally as the classic stations. The bigger antenna with an area of 185 mm x 240 mm generates a powerful low frequency radio field while keeping the power consumption low. This enables a highly mobile and flexible setting of the stations at any course and at any location without the need of any additional external equipment.

The BS11-BS/BL can be configured as start or finish or as a control point on the track. They are typically mounted at the side of the track and operate unattended once set up and switched on. The stations work with an unlimited number of SIACs simultaneously. The stations are especially useful as a start and finish for all sports and as a control in sports with a big number of participants (for example trail, running, etc.) or for sports where the distance of 50 cm for contactless punching (as for the normal stations) is too small to avoid stopping at the control to get into the data transfer range (for example MTBO, Ski-O, etc.).

They are the perfect solution for sports with different stages in terrains where it is difficult to install a lot of equipment (for example MTB Enduro). In most cases, the BS11-BS are used at the start of a stage and the BS11-BL at the finish. The functioning of the stations is basically identical to the classic stations. The control codes and time records are transmitted and registered on the SIACs. There is no need to modify the timing software either.

Alternatively, a loop antenna (BS11-LA) can be used for lanes with widths of up to 6 metres, e.g.

in ski orienteering. The loop antenna is put directly at the finish line and buried in the snow or covered with a thin carpet (no metal objects can be used as they would disturb the magnetic field).

Charging

BS11 stations have a rechargeable battery and need to be charged before application. The stations are equipped with a standard mini USB connector. The stations need to be connected directly to a USB port of the computer or with an adapter to the socket. To assure waterproofness of the stations, the mini USB connectors are protected.



The mini USB connector is located at the short side for the BS11-BS under the rubber cap.



The mini USB connector is located at the backside of the BS11-BL under the blue cap.

The charging progress is indicated by LED in the display:

- Yellow – Indicates (5 seconds only) that the station is successfully connected to a USB interface.
- Red – Indicates that the station is charging.
- Green – Indicates that the charging is completed.



A fully charged station BS11-BS will work for about 75 hours and a fully charged station BS11-BL for about 90 hours.



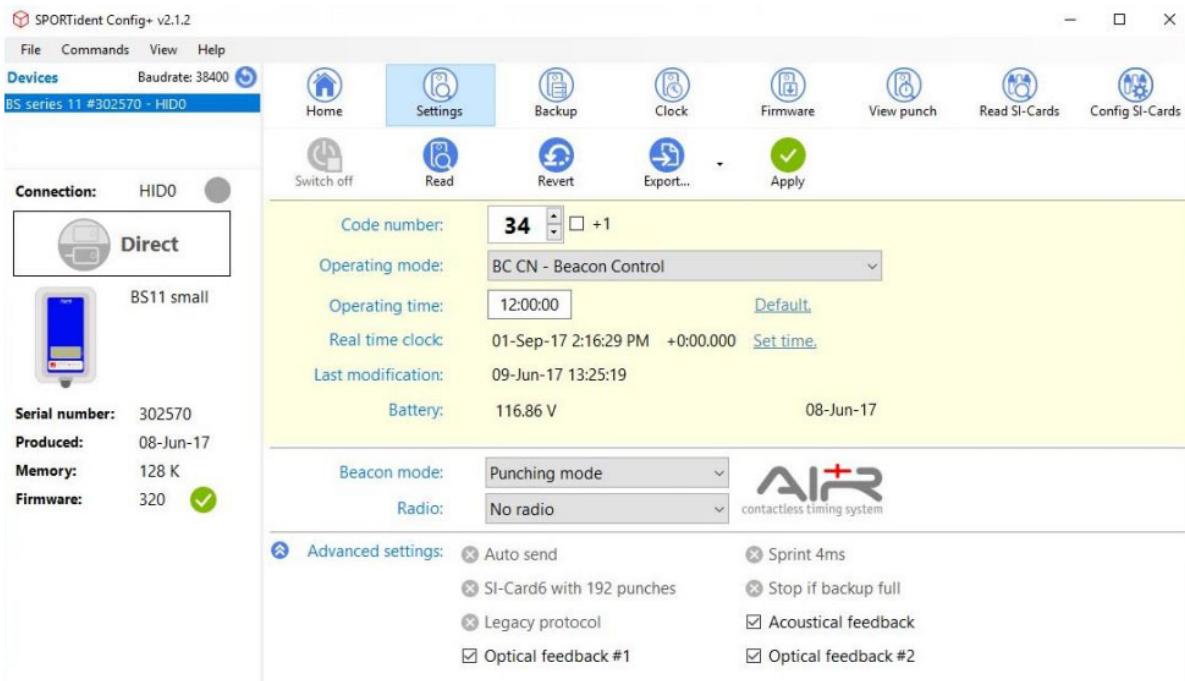
We recommend charging the BS11 units before every race.

Configuration of BS11



After connecting a BS11 station with the USB cable to the computer, it can be configured with Config+. The station is read by double clicking on the device in the start-up screen (Direct and Remote are not active).

Config+ provides access to the full configuration of the station, allowing for flexible and advanced use cases. The configuration screen is similar to the classic stations, although some options are different.



The operating modes are limited to some functions that already have been explained for the BSF7/8 stations (see section [BSF7/8 for AIR+](#)) and their operation is identical.

Operating time

The operating time has to be set to last longer than the total time of the event. It is important to activate the station for a sufficient operating period as all punches will be contactless. The operating time is not extended automatically when a time record is registered with a SIAC.

A buffer of several hours is recommended to account for potential delays of the start. A default value of 12 hours is suggested by Config+. After the defined operating time, the station switches OFF automatically. The maximum operating time is 94 hours. The working time of a fully charged BS11 station is about 75 to 90 hours depending on the type of the station (BS11-BS or BS11-BL).



Real time clock

In a typical application, only the real time clock needs to be set before a race. Simply click on **set time** to synchronise the station with the computer time or use the **clock** button and **set time** (see [Config+ / Time synchronisation](#)).



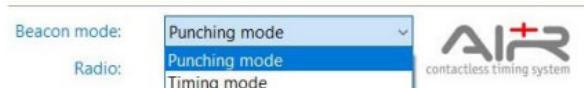
Real time clock: 01-Sep-17 2:16:29 PM +0:00.000 [Set time.](#)



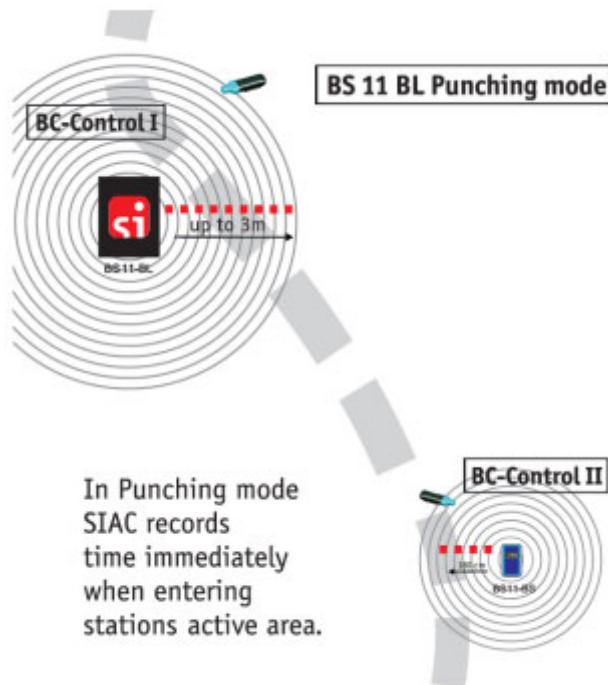
You also can synchronise the time by clicking **Clock** on the main navigation bar.

Beacon mode

The BS11 stations can be programmed in Punching or Timing Mode.

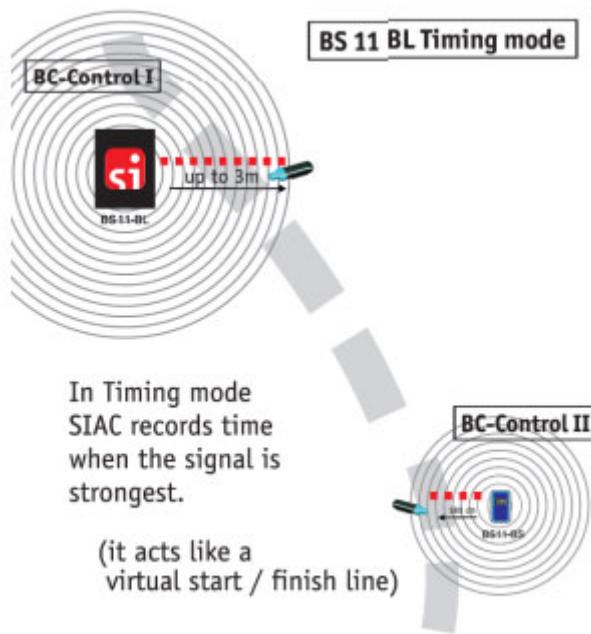


Punching mode



In orienteering, **Punching mode** is recommended for all controls. The SIAC registers the time and station's code number when it enters the station's active field. The SIAC's feedback signals stay active while the SIAC stays in the station's active area.

Timing mode



In **Timing mode**, the punching time of the SIAC will be recorded at the maximal field strength. This method enables exact timing at START, FINISH (for any sport) or at every CONTROL point (for sports with different stages for example MTB Enduro). SIAC only provides a feedback after the athlete has left the field with a short flash and beep.



Because of the SIAC's late feedback in timing mode we recommend using an **AIR+ Signal Indicator** for testing purposes.

Mounting

BS11-BS and BS11-BL stations should be secured according to the environment and event course. Make sure that there are no metal objects near the beacon stations, as it could interfere with stations. The minimal distance between stations should be at least twice their working distance.

Activation / deactivation

To **switch on/off** the BS11 stations, the on/off switch (a magnet) has to be held to the area marked **I/O** next to the LCD display. The left picture below shows a BS11-BS, the right picture a BS11-BL.



The stations initialise with an acoustic and optical signal. The display is active. Additionally, there are repeating short optical feedback signals while the station is active.



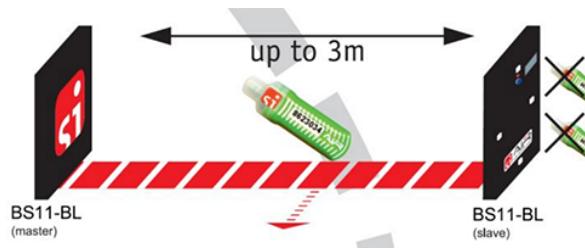
To deactivate the BS11 units, hold the **Switch On/off** at the **I/O** marked area, until a red LED light is blinking three times and the display is switched off.



The activation of the stations should be done on the course. Do not activate a station if another station is in range. If **ERROR** is shown on the display, deactivate and activate the unit once again.

Gate mode

When two BS11-BL stations are put in front of each other, they automatically create a gate (i.e. a virtual line). This is the ideal solution for a finish. Time is only recorded when crossing the finish line. SIACs passing outside of this gate are not affected or accidentally deactivated. A safety zone of 2 m is still recommended.



To create a gate as a finish:

1. Prepare the BS11-BL stations in Config+. Choose the following options
 - a. Operating mode: Beacon Finish
 - b. Beacon mode: Timing mode
 - c. Do not forget to **set time** for the clock of the station.
2. Once mounted, switch on the first station. This station will automatically be the **master** station.
3. Switch on the second station within the range of the first station. This station will start up as **slave** station. You can verify gate mode by checking if one display shows "Gate M" and the other "Gate S".

4. The finish gate is now operational.



The gate mode is working for all operating modes of the BS11-BL stations.



The master station will define operating mode, beacon mode and time. It is good practice to configure both stations with the same settings to avoid mistakes.



Config+

The SPORTident Config+ software enables you to read out and configure your SPORTident equipment. The SPORTident USB driver is necessary to communicate with a readout station connected via USB to your computer. Config+ provides functionality to read and modify the station, as well as any station put on top of this station and SI-Cards inserted into the station.



In 90% of the cases, stations arrive pre-configured and labelled. For many sports or activities, no modification is needed. This guide is explaining possible modifications of the configuration that might provide you with extra possibilities for your sport.

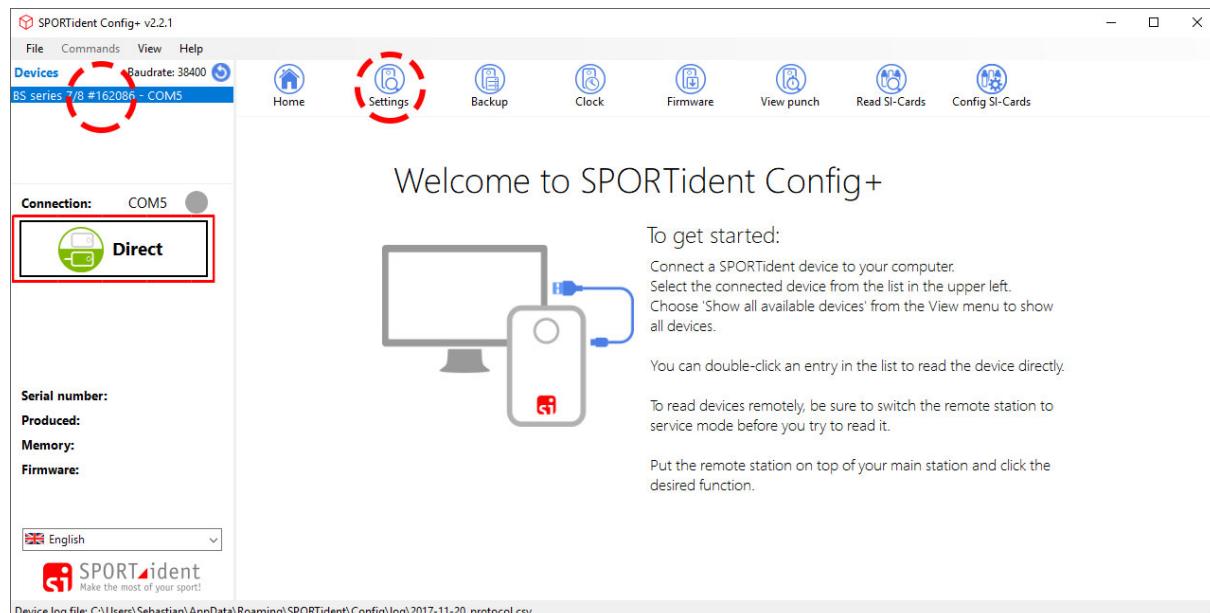
Please [download](#) and install Config+ and the USB driver from the SPORTident website. When installing Config+, installation of the USB driver is proposed as an option. The easiest solution is to check the checkbox for the USB driver and install it right away. Follow the instructions on the screen.



Config+ can be run in **portable** mode. This will not leave any traces on the machine it is running on. You can extract all files of the application into a folder on your thumb drive or memory card.

Device connection

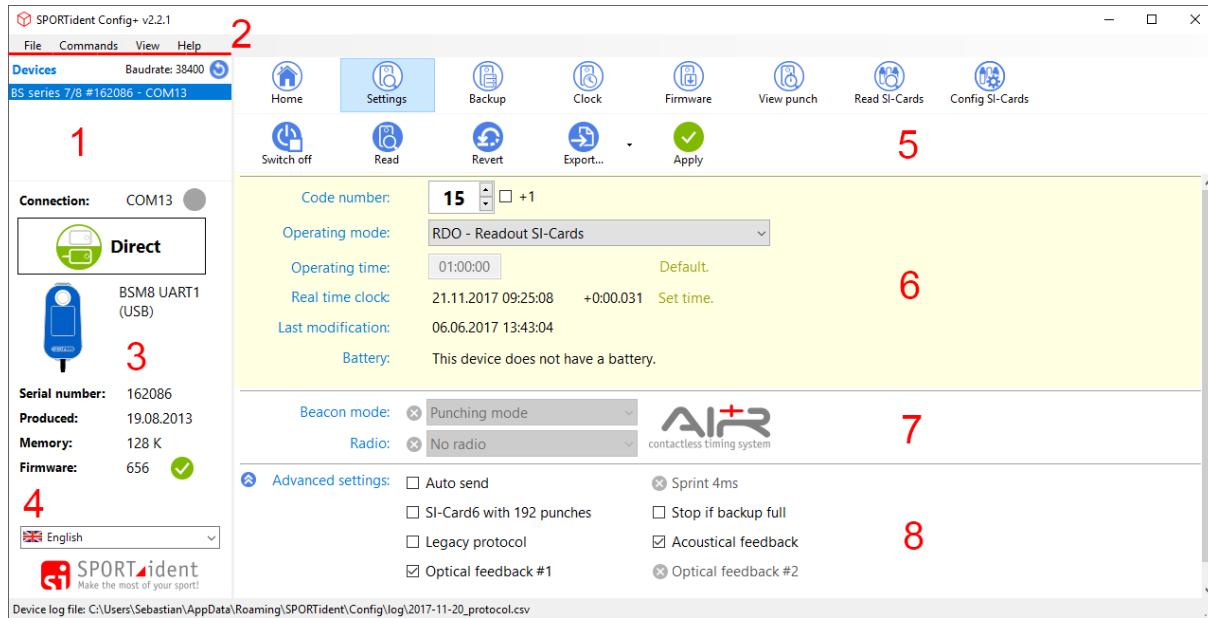
Direct mode



1. Connect the readout station (e.g. BSM8-USB or BSM7-USB) to the PC.
2. Start the Config+ software (the shortcut is usually on the desktop).

3. If not selected already, click on the **device** you want to read.
4. The button below connection needs to be on the position **Direct**.
5. Then click on ‘settings’. The data of the station will be read and displayed.

Settings overview



1. The available device(s) and connection(s)
2. The menu bar
3. Information about the station and the installed firmware
4. The language selector. By clicking it, another language can be selected
5. The main toolbar
6. Station’s basic settings area
7. Station’s AIR+ settings area
8. Station’s advanced settings area (can be shown/hidden by clicking the arrow left from ‘Advanced settings’)

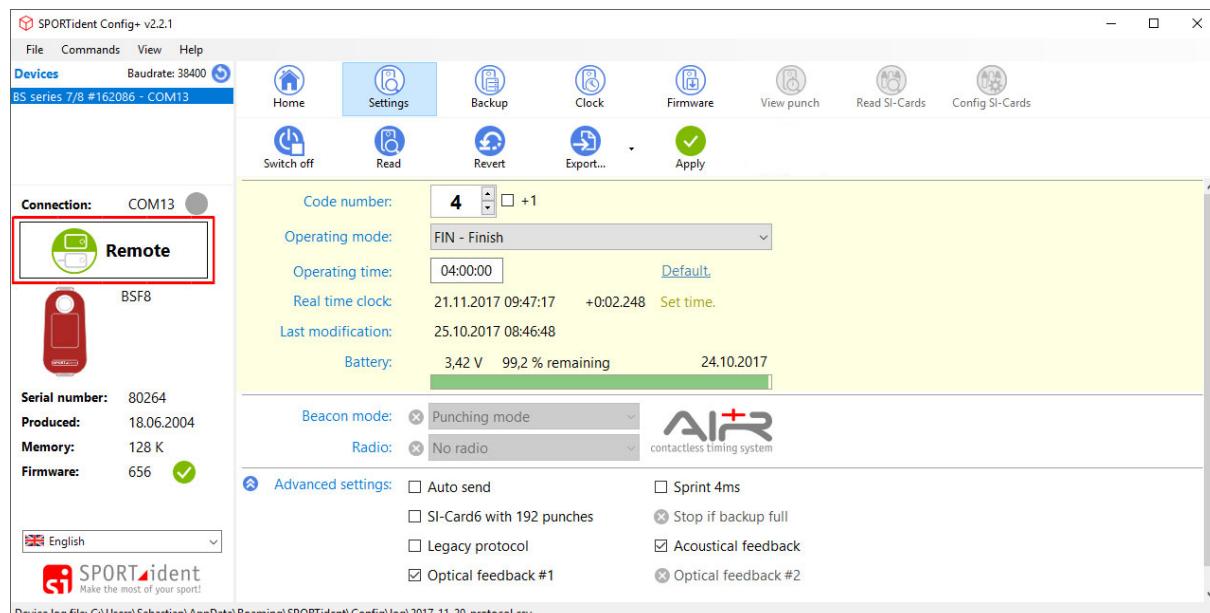
Remote mode

1. Connect the main station (e.g. BSM8-USB or BSM7-USB) to the computer.
2. Put the SI-Station you want to read out and/or configure in **service mode**. Place the **SERVICE/OFF** instruction card ONCE in the station. On the LCD display **SERVMO** is visible (afterwards the other data of the station are shown).
3. Start Config+.



Put the coupling stick (ferrite for faster transmission) into the USB station and place the station (in service mode) on top of it (this station becomes the slave station).

The **Direct** button needs to be toggled to **Remote**. If the button show 'Direct' click on it to toggle it. Click on **Settings** in the main toolbar. The data of the station will be read and displayed.



The layout of the screen is identical to the one in direct mode, although some action buttons are not active (inactive buttons are grey instead of blue).



In **direct mode**, the settings of the station connected to the computer can be read/modified. In **remote mode**, the settings of the station put on top of the main station can be read/modified.

Basic configuration

Most SPORTident stations are technically identical and can be assigned any of the available functions. For the basic setup, these functions are CLEAR, CHECK, START, CONTROL and FINISH. The other possibilities will be explained with the AIR+ system.

An SI-Card has allocated fields for the time of punching the stations CLEAR, CHECK, START and FINISH and a number of fields for the controls and the punching time.

Operating mode	Functionality
CLR - CLEAR	Removes all data from the SI-Card and provides a feedback signal upon completion.
CHK - CHECK	Verifies that the SI-Card is empty and provides a feedback signal only if this is the case.
STA - START	Verifies that the SI-Card is empty and writes the start time on the SI-Card if this is the case. Provides a feedback signal if the start time has been written successfully. If the SI-Card is not empty, the old start time is not overwritten. If there are no controls punched yet, the start time is overwritten.
CN - CONTROL	Reads the competitor's SI-Card and writes the control code and time on the SI-Card. The SI-Station then reads the SI-Card again to verify that it has been written correctly and then beeps and flashes and writes the SI-Card number and time into the station's backup memory. If there are no data fields available anymore, the station will not write anything on the SI-Card (only in its backup memory) and will provide no feedback.
FIN - FINISH	Writes the finish time on the SI-Card (and overwrites a potential previous finish time, for example if somebody realized he/she had forgotten a control and went back) and confirms with a feedback signal.



The SIAC has two allocated fields for clear, start and finish (a normal and a reserve field). The reserve field is never overwritten and always stores the first time when start or finish were punched.



The function of a station is defined by the choice of operation mode in Config+. The label on top of the station should match this setting or otherwise be modified to match the setting! The numbers used to label the SI-Stations are available separately.

Configuration procedure

1. Read the station in remote mode by clicking on **Settings**

2. Click on the field of the operating mode (below the control number). The different options are shown. Choose the desired function.

3. To modify the control number, just change the code by clicking on the arrows (up or down) or type in the desired number. Control numbers 1 to 511 are allowed, but typically the control numbers start at 31 (see remark below). Important: Most of the PC software for orienteering and the SI-Card 5 can only process numbers between 31 and 255.



The code numbers 1 to 30 are available but are most of the time only used for the **special** stations CLEAR, CHECK, START, FINISH and READOUT. Typically, these are numbered from 1 to 5 as this is the logical sequence for the use of the stations.



4. To confirm, simply click the **Apply** button in the main toolbar. A window with a progress bar will pop up and show the activity.

Switch off feature



If the **Switch off** button in the main toolbar is activated, the station will automatically go in **standby** mode when the **Apply** button is used.

Operating time

The SI-Station is always on and works in a low power **standby** mode. There is no need to switch on the SI-Station or to make any special preparation before the unit can be used. In **standby** mode the SI-Station is fully qualified to receive SI-Cards. The wake-up time is at most 1 second.

In standby mode, the SI-Station is scanning for SI-Cards every second, in **active** mode the interval is 40 ms. The wake-up time is variable and depends on where in the 1 second cycle the SI-Card is inserted. Once the SI-Station is in **active** mode, the reaction time to the insertion of subsequent SI-Cards is very quick. The SI-Station then operates in active mode until the set operating time is reached. Any further punches reset that countdown. For example, the unit only switches back to **standby** mode 4 hours after the last punch if the 4 hours default setting for the operating time is used.

Change operating time

To modify the operating time in Config+:

1. Read the station in **remote** mode by clicking on 'Settings'.
2. To modify the operating time, change the HH:MM:SS time or click on 'Default'. For the classic system, the default operating time of the stations is 4 hours. The minimum operating time is 2 minutes, the maximum operating time is 95 hours.

Operating time:

04:00:00

3. To confirm the changes simply click the **Apply** button in the main toolbar.



Clicking the **Apply** button always overwrite all information of the station. Any kind of backup data will be deleted.

Time synchronisation

All stations have an internal clock and their 'real time' has to be monitored. The station's real time clock system is calibrated and temperature compensated. This offers a high accuracy also at very high and very low temperatures. The internal time resolution is approximately 4 ms and the

deviation about 4 seconds per week.

It is vital that all stations and especially the start and finish stations are time synchronised before a race. That can be achieved by Config+ or by using the SI-Master station. If you use a SI-Master station for time synchronisation you do not need a computer, except to synchronise the SI-Master itself to computer time. The SI-Master station can transmit the time directly to the other stations.



Time synchronisation with the main computer used for evaluating the competition is strictly recommended before the race start.



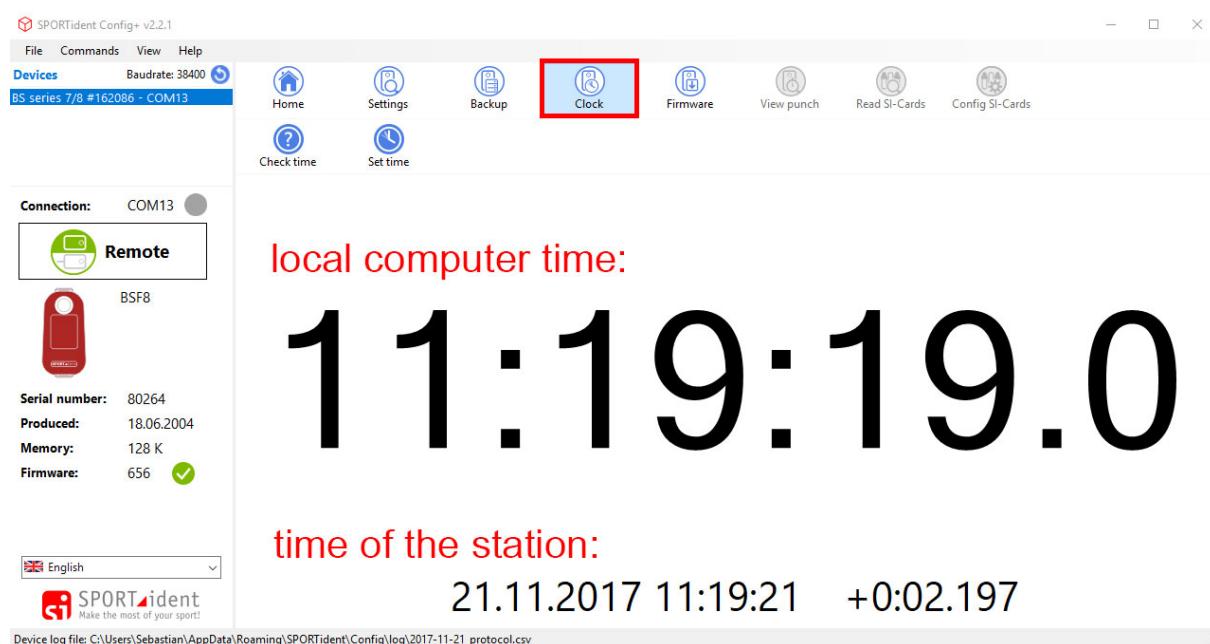
If you use multiple computers during an event, make sure that all computers run on the same local time.

The time of a SPORTident station will automatically set when:

1. ... you are **booting the firmware** of a SI-Station
2. ... you are **changing the configuration** of a SI-Station

Synchronisation with SI-Master

1. Put the SI-Master station on top of the USB station and read **remote** by clicking on **Settings**.
2. Click on **Clock**. Computer time (in big) and the station's time will be shown.



Make sure to have your PC's clock set to the right (official) time in the PC before setting the time in the station.

3. Click on **Set time** and the time of the station is modified to match the computer time. **Check**

time allows you to verify this afterwards.



Alternatively, it is possible to click on **Set time** in the settings area of the station. The clock will also be synchronised.



The station will remember the date of the last modification of the station settings but not of setting the time of the clock. In other words, the last modification is NOT the date of the last time synchronisation of the station.



If the settings of a station are modified and applied by clicking the **Apply** button, the time of the clock is automatically synchronised.

4. Remove the SI-Master from the main station.

5. Put the **SERVICE/OFF** instruction card twice (with a very short time interval) in the SI-Master. On the front side of the SI-Master there is a small LCD display. On this screen **TIMEMA** must be shown. When you see this the station is ready.

6. Put the coupling stick in the SI-Master.



7. Place the **SERVICE/OFF** instruction card ONCE in the station you want to synchronise. On the LCD display **SERVMO** is visible (afterwards the other data of the station are shown).

8. Place the station on the coupling stick and the SI-Master. After some seconds there is a 'beep'. The time of the station is now adjusted.



9. Place the 'SERVICE/OFF' instruction card into the station until the LCD display is empty. The

station is now back in **standby** mode (it would automatically switch into **standby** mode after 5 minutes).



If the event is on the Sunday of the weekend when the clocks are adjusted for **daylight saving time**, special care must be taken. The SI-Stations will not be aware of the change!



In **ExtendedMaster** mode the SI-Master transmits its clock time to any other SPORTident station. Additionally, the SI-Master clears the backup memory of the coupled station and transmits its own active time to the coupled station. You can activate the **ExtendedMaster** by punching the **SERVICE OFF** three times in the SI-Master. The display will show **EXTMA**.

SI-Master additional features

The SI-Master station works both as a 'Time Master' and as a normal SI-Station, for example as a clear station. This means that there are two functions in one unit. The SI-Master is an extended control station. It works and can be configured the same way as any other SI-Station. Each action by an ordinary SI-Card immediately activates the station's base mode. All functionalities of the regular SI-Stations are available. However, as this station is about 50% more expensive, it is recommended not to use it as a regular SI-Station. When punching a SI-Master station in standby mode with the SERVICE/OFF instruction card, it will cycle between the following modes:

Service mode (SERVMO):

Displays the most important settings, switches back to standby mode after 5 minutes.

Time master (TIMEMA):

The station will synchronise and set the time of every coupled SI-Station (see section [Synchronisation with SI-Master](#)).

Extended master (EXT MA):

The station will not only synchronise and set the time of every coupled SI-Station but also change the operating time to the one of SI-Master station (see section [Operating time](#)) and clear the backup memory of the coupled station (see section [Read backup](#)). With these 3 actions executed at the same time, an organiser can save significant time when preparing the stations for a race.

Standard master (STD MA):

The station will synchronise and set the time of every coupled SI-Station and restore the **default** standard configuration for the station that has been set up in advance using Config+ and clear the backup memory of the coupled station. This is an ideal solution for stations frequently used by different persons.

Start clock (STACLK):

This mode is only available if the device is programmed in start operating mode.



In extended master mode, the operating time of a station is set to a value of 12 hours if the coupled station is programmed in one of the beacon operating modes and the program value in Config+ is less than 12 hours. Higher values are disregarded (see chapter [Contactless punching system AIR+](#)).

Battery status

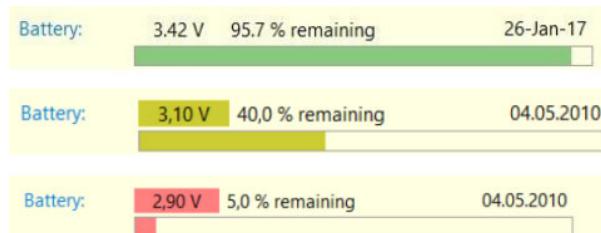
A lithium battery is soldered to the printed circuit board and can be replaced (size 1/2 AA in the BSF8 station, AA in the BSF7 station). The double size of the battery of the BSF7 stations provides an extended life time to the stations before battery replacement is required (4 to 7 years for the BSF7 stations against 3 to 5 years for the BSF8 stations). The listed life time is of course an average, and depends basically on the frequency of use of the stations, the number of participants and the use of AIR+.

The voltage of all stations should be checked (at least twice a year) to make sure that the batteries are OK. There are different possibilities to check the battery:

- If the battery is almost empty, the station will beep 6 times with short intervals while punched.
- Read the voltage directly on the station (see chapter [LCD display information](#)). The voltage should be in the range of 3.20 V and 3.50 V.
- Check the voltage with Config+. This is the most reliable way.

1. Read the station in 'remote' mode by clicking on **Settings**.

2. The condition of the battery is indicated on the screen in the stations setting area. A colour code (green – light green – red) indicates if the battery is still in good condition or if immediate changing of the battery is due.



3. To have an idea of the age of the battery, the date of installation of the battery is displayed just above the battery bar.



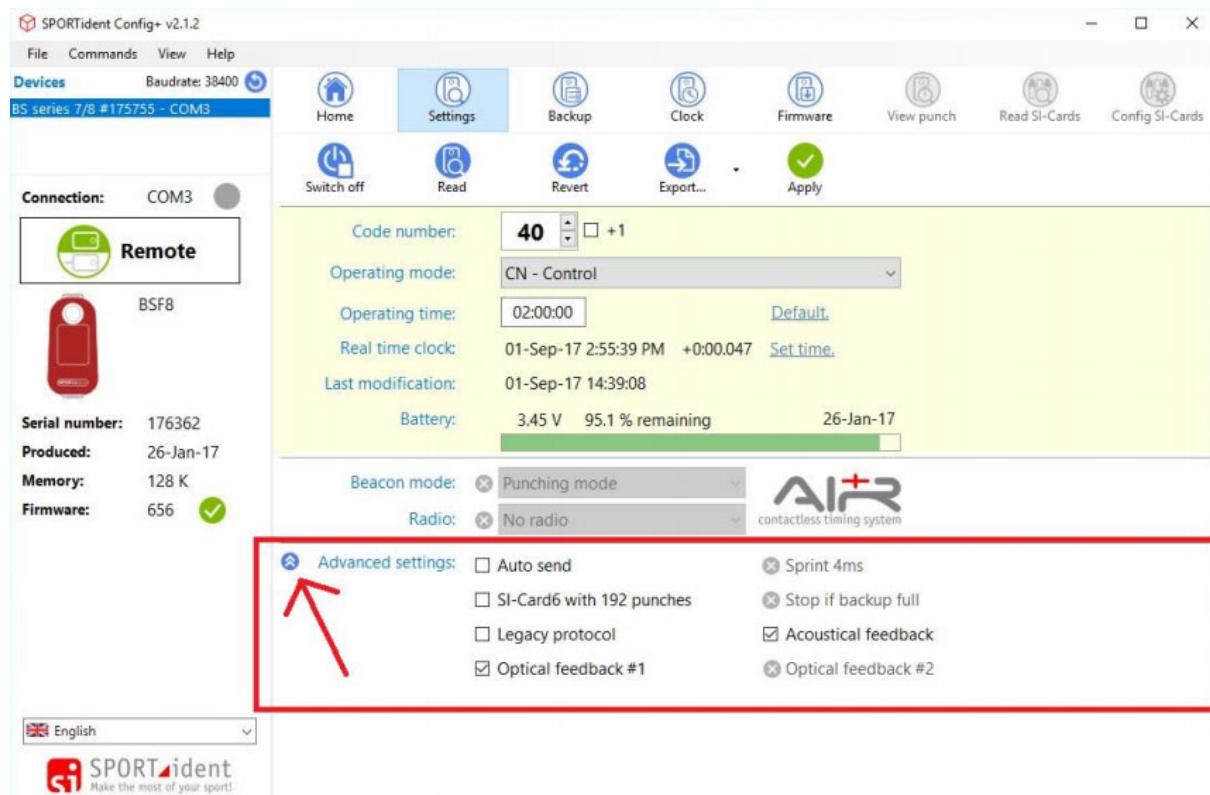
A battery voltage below 3.0 Volts is critical as a lithium cell tends to lose voltage quite fast at this point. For a small race or a training, it might still be fine. At cold temperature and for longer races or races with many participants, the station should not be used anymore. It is better to change the battery when the voltage falls below 3.0 Volts. At 2.60 Volts the station turns off. This voltage can cause the beeper, display or controller to drain too much power and as a consequence the station interrupts the operation.



Changing the battery is possible and needs to be done by SPORTident or one of its retailers.

Advanced settings

By clicking on the arrow next to **Advanced settings**, additional configuration options will be displayed. Depending on the configuration of the station, different options will be available. The picture below shows the options for a normal control station.



Auto send

Basically, Auto send can be enabled for cabled stations with all operating modes. For stations without cable Auto send only makes sense for the BSF8-SRR or for the operating mode Readout. This causes the station to automatically read the card contents and store it in its backup memory. Later this backup memory of the station can be read to retrieve all card data. This is a useful feature to create backup data for the read SI-Cards.

SI-Card 6 with 192 punches

The (old) SI-Card 6 checkbox means that the stations will continue to write data on a SI-Card 6 which will be able to store up to 192 punches.



All stations (including the readout station) must have this box checked to support registration of more than 64 records on a SI-Card 6.



Legacy protocol

It is recommended not to activate this setting except for the use with old event software that does not support the new protocol.

Optical feedback # 1

With this option enabled the LED of a station will blink when punched. Checked is the default setting.

Acoustical feedback

With this option checked, the station will emit a beep when punched. It can be useful to uncheck this box for night orienteering or special adventure races or raids. Checked is the default setting.

Sprint 4ms

This option is only available with the start and finish stations. If this option is enabled, the SI-Station will write the time with 4 ms resolution instead of seconds resolution. Please note that the event software must support this feature, otherwise it makes no sense to check this box. This feature is especially useful in competitions where a race time is needed with a precision of 0.1 sec.



If Sprint 4ms is checked, the code number in the card memory will be exchanged with the sub second value. Therefore, the code number will not be available for evaluation.

Stop if backup is full

This option is only available for the readout station. If this option is enabled, the station in operating mode **Readout SI-Cards** with 'auto send' enabled will turn off when the backup memory is full. This ensures that old backup memory will not be overwritten (as is the default case). This is useful if you are required to have a full backup set of read SI-Cards and old records should not be overwritten. The station will stop reading to prevent data loss. This will enable the operator to switch stations.

Optical feedback # 2

This option is only available for the BS11 stations. It activates/deactivates the second LED light.

Read backup

Every direct punch of a SI-Card is stored in the SI-Station's backup memory. Config+ can be used to read the backup memory. The data can then be inspected to check if a runner punched and if it was correctly done. The backup memory can hold up to 21802 punches or 1022 SI-Card data records. When full, the oldest data is overwritten. The operating mode of the station defines the backup memory format.



It is the competitor's responsibility to ensure that the electronic punch is recorded on the SI-Card by not removing the SI-Card until the feedback signal has been received.



The SI-Station reads the competitor's SI-Card and writes the control code and time on the competitor's SI-Card. The station then reads the competitor's SI-Card again to verify that it has been written correctly. It then beeps and flashes and writes the SI-Card number and time into the station's backup memory.

It should be noted that even if a control is not recorded on the SI-Card, the SI-Card is most probably registered in the backup memory of the control station with an error code. It is almost impossible to insert an SI-Card into a station without the SI-Station having the time to read and record the number of the SI-Card. Error codes are given as ErrA to ErrF, depending on the moment of the interruption of the writing process.

The handling of complaints in orienteering about missing controls (see § 20 and appendix 4 of the IOF competition rules). If the competitor did not wait for the feedback signal when punching, there will be no punch record on the SI-Card. However, the punch will be stored in the station's backup memory with an error code. Usually the competitor will complain and assert that he had waited for the signal and thus should have this punch.

It is possible to download the stations from that control and search for this punch using the SI-Card number. Two cases are possible:

- There is a punch record with an error code. An error code proves that the runner did not wait for the signal. This means that he does not have a valid punch from that control.
- There is no punch record found. Then the runner did not punch at all at this control.

However, the IOF orienteering rules and almost all national competition rules strictly stick to what data is found on the chip and they do not allow for any evaluation by downloading punches from controls unless it can be established with certainty that the missing or unidentifiable punch is not due to the competitor's fault. In this exceptional circumstance, other evidence may be used to prove that the competitor visited the control, such as evidence from the read-out from the control unit.



We recommend clearing the backup memory of all stations before every race. Remember that every reconfiguration of a station, automatically clears the backup memory.



Reading a station's backup memory works in remote and direct device connection.

Read backup procedure

1. In **remote** or **direct** mode, click the **Backup** button in the main toolbar.
2. A progress bar will show the activity.
3. A list of punches with SI-Card number and date/time will be available when there is some

data in the backup memory. Otherwise the list will be empty.

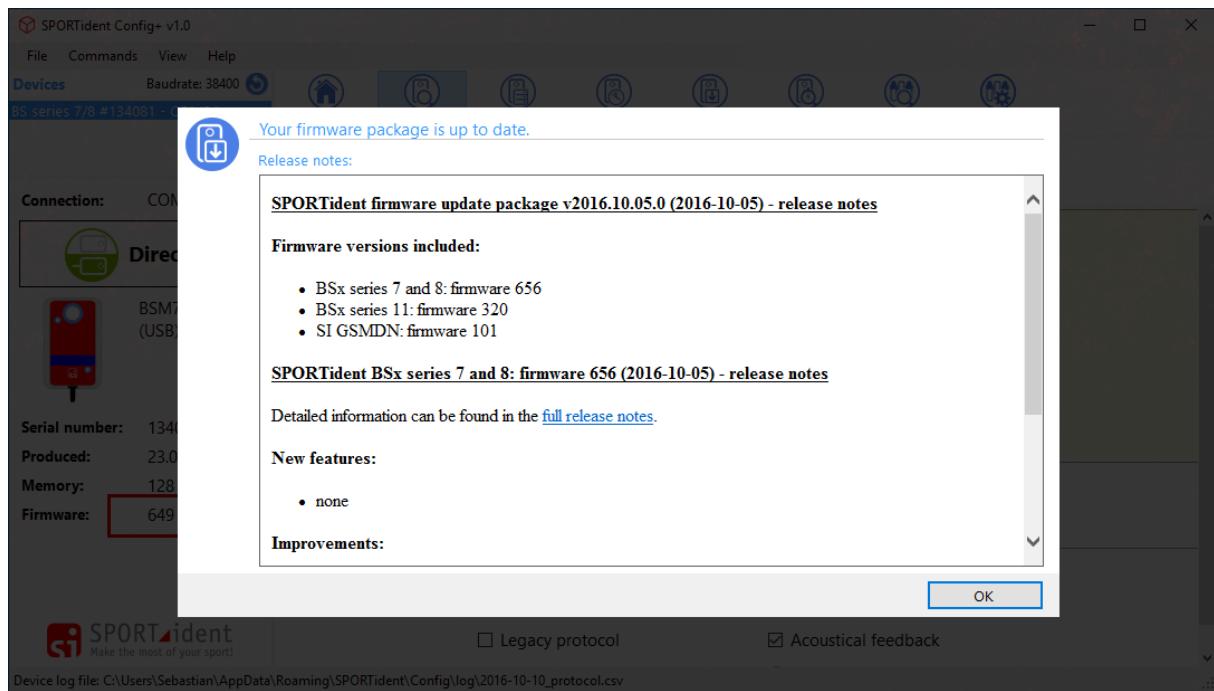
It is possible to search for a specific SI-Card by scrolling the list, to export the file (raw format or CSV format) or to print the list. If an error occurred during the punching process, the time will be replaced by the error code. It is easy to identify these errors on the screen as they are highlighted in red.



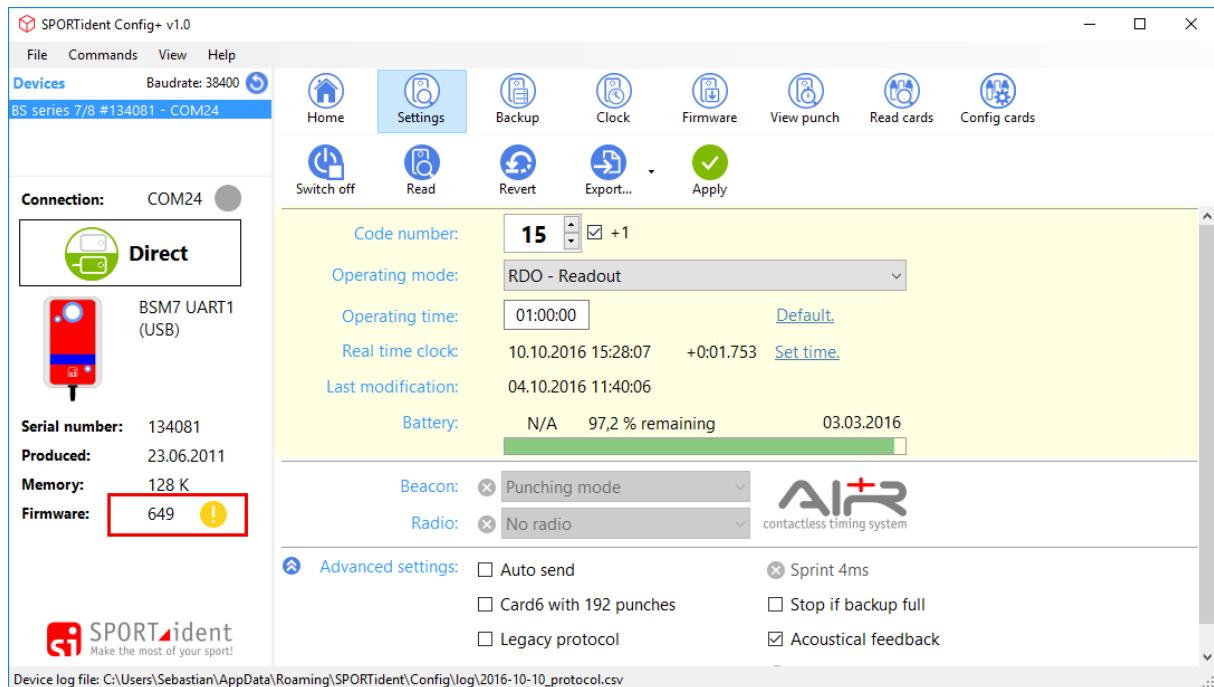
The buttons **Re-read**, **Clear backup**, **Export** and **Print** are available for further action if necessary.

Firmware update

SPORTident frequently updates the firmware of its devices. Firmware updates include new features and fix issues. New firmware is available through the firmware update features of SPORTident Config+. This software will frequently check for new firmware versions. You can also manually check for updates (Menu "Help"). If a new firmware version has been found and is ready to be installed, an information dialog will be shown:



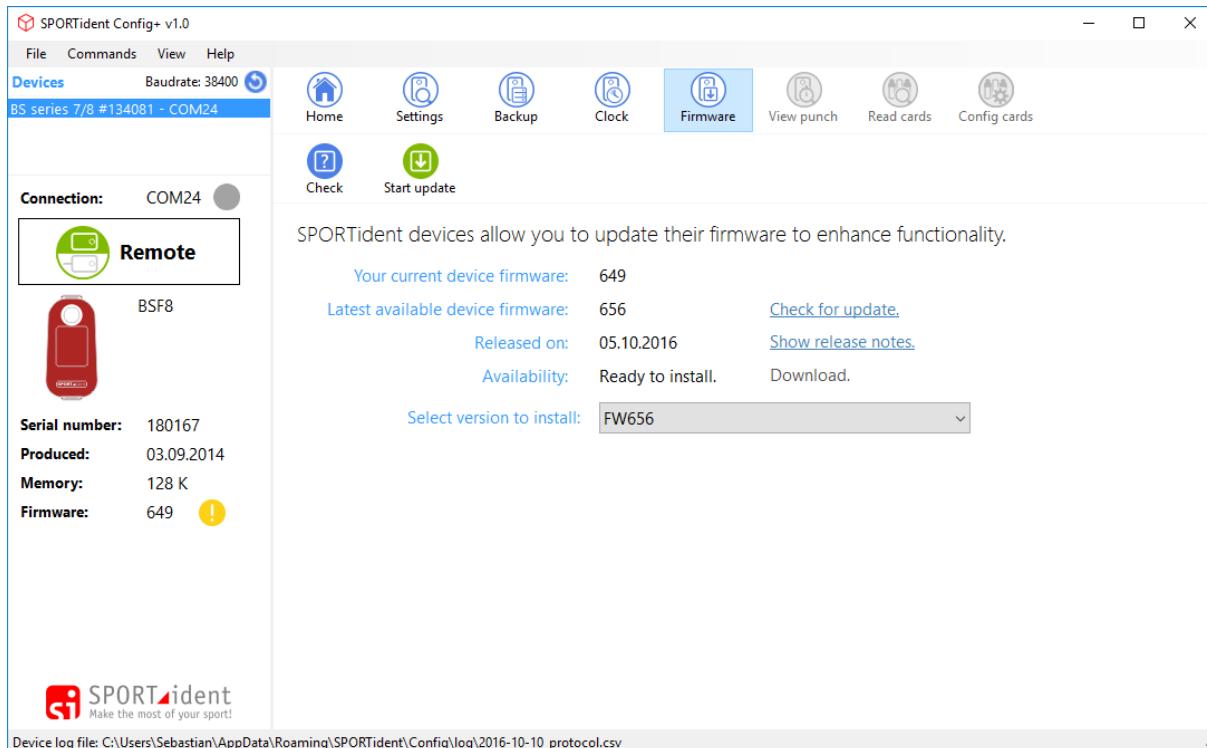
To check if you need to update your station to the new firmware, read the target device with Config+. The left view will indicate the firmware version. The yellow icon will tell you that your firmware is not up to date. A green icon will indicate that the firmware is up to date.



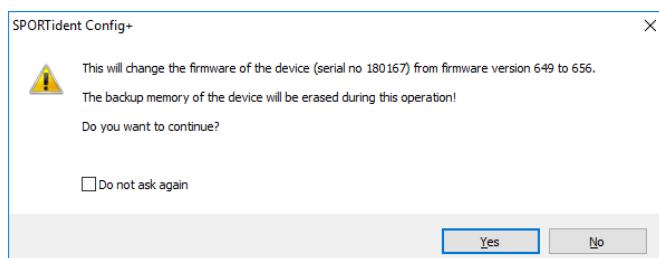
How to perform the upgrade

1. In Config+, read the settings of the device you want to update. Read **Remote** if you want to update a slaved station or **Direct** if you want to update a main station.

2. Open the firmware update view by clicking the **Firmware** button in the main toolbar.
3. The firmware update view will show which firmware is available for your device:



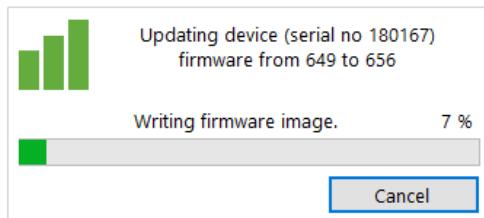
Click "Start update" to start the firmware update process. The device settings will be verified and Config+ will ask you to confirm the firmware update. Click Yes in the upcoming dialog.



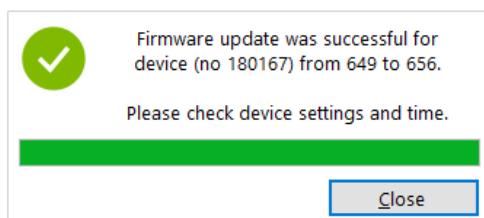
Be aware that the device backup memory will be cleared during the update.

If you update a slaved station, keep it steady on the main station.

Wait for the process to complete. The coloured indicator shows the transmission quality of the firmware image. You can improve it by using a coupling stick if it turns yellow or even red.



When the update process has completed, you will see a message telling you that the update was successful.



Please check the device settings and time after the firmware update. Finally, if you have used a RS232 master station or Printout station, the data transfer speed might have been changed from slow (4800 baud) to fast (38400 baud) to speed up the firmware upgrade. Usually this speed will be reset after the upgrade process. However, to make sure your station is working at the desired speed, check with Config+ and correct if necessary.

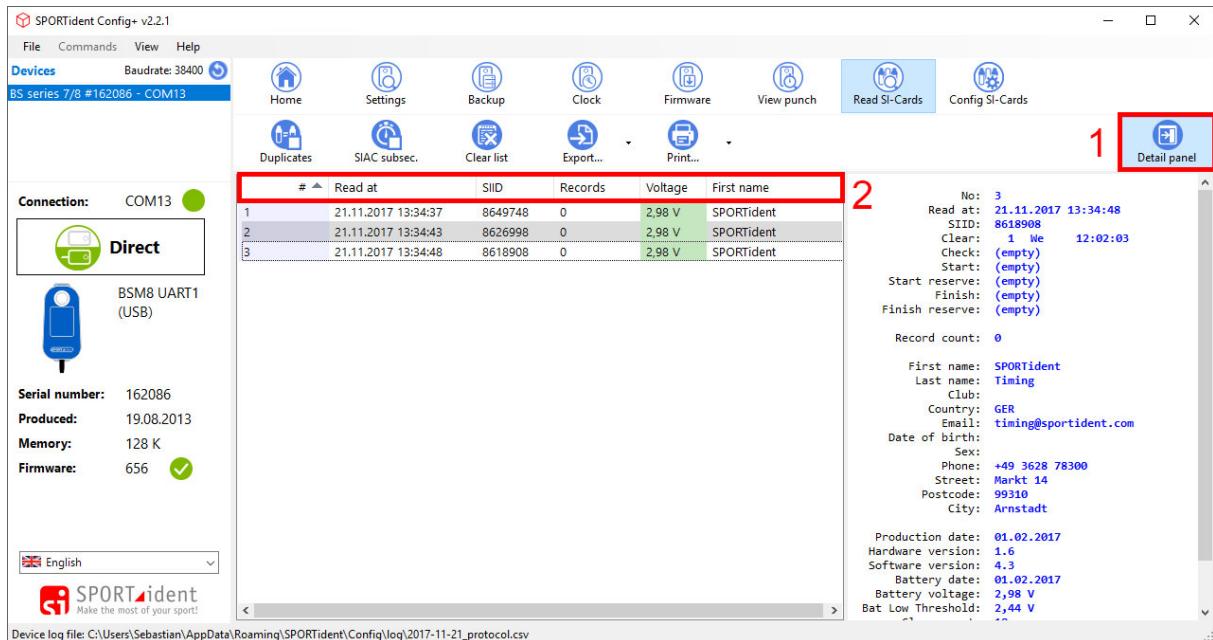
Read SI-Cards

With Config+ it is possible to show the raw data of a transponder and export it in different ways.



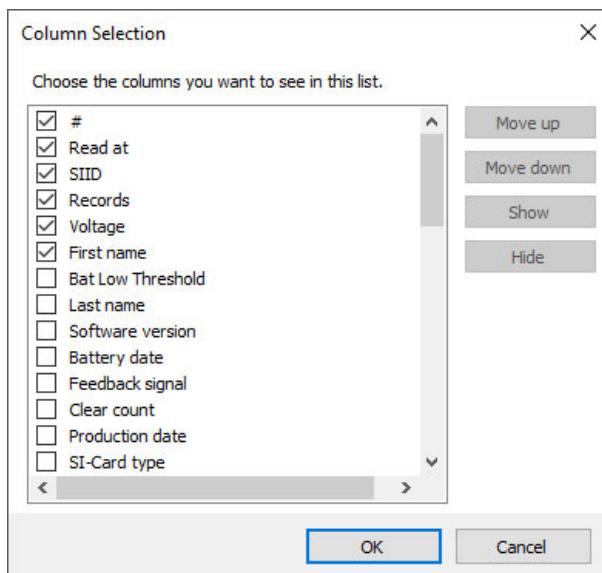
In **direct** mode, click on **Read SI-Cards**. The card will be read automatically when inserted in the main station. A progress bar will pop up.

All data on the card will be shown: on top the time of clear, check, start and finish, followed by the different punches and at the bottom the personal data of the runner.



1. Clicking on the "Detail panel" button will hide the data on the card.

2. By clicking the header with the right mouse button, you can select the columns you like to display in the table. You can load and save your selection by clicking the right mouse button in the readout table.



Read SI-Cards navigation bar



By activating the **Duplicates** button, a SI-Card can be read more than once in the list. If this



option is not checked, the card will not be read again if it is already listed.



By activating the **SIAC subseconds** button, SIACs punching sub seconds are read from the SIAC's memory. Every contactless punch with a SIAC at a station in beacon mode will be registered with sub seconds. However, not every timing software can process this data.



Clear list will delete all readouts of the last session. If the cards are not cleared, all data is still stored in the cards. By right clicking a row in the table of a card readout, single cards can be deleted.



By clicking the **Export** button in the main bar, a sub navigation will open. Here you could export the current view of your readout list or a file with all card information (full detail view). By right clicking a row in the table of a card readout, single cards can be exported.



By clicking the **Print** button in the main bar a sub navigation will open. Here you can print single card details or the complete list. To print just one card, a row in the table needs to be selected.

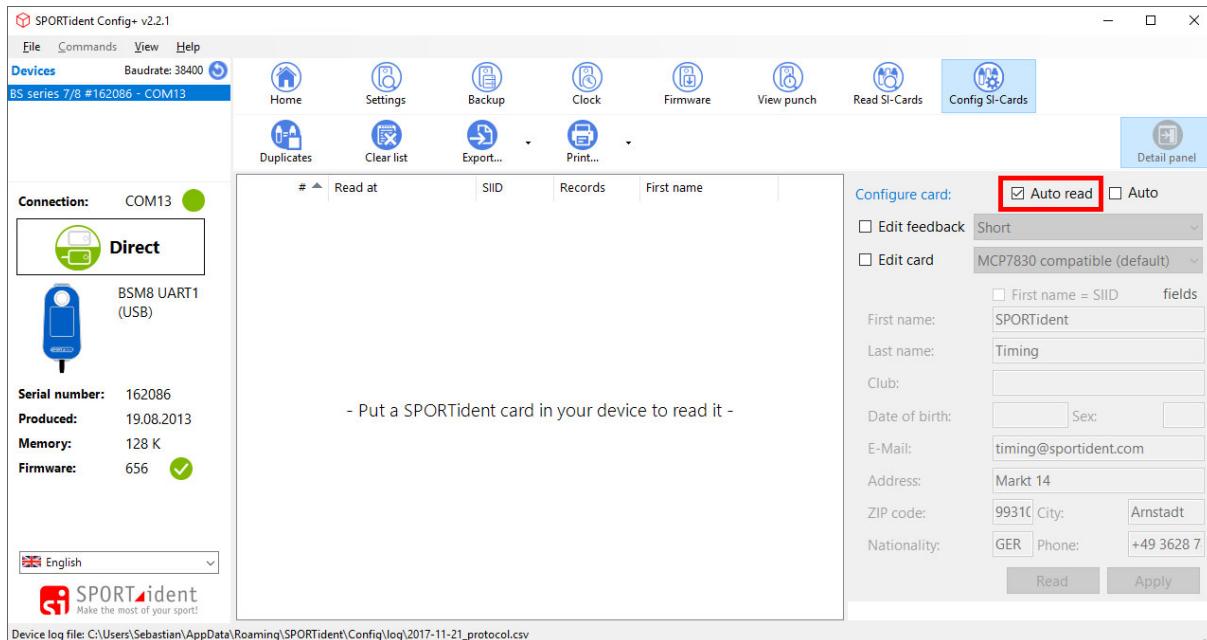


This feature allows you to read all relevant data on the SI-Card, which is useful if there is a complaint by an athlete to be investigated. Specifically, the allocated fields clear and check are not read by every timing software.

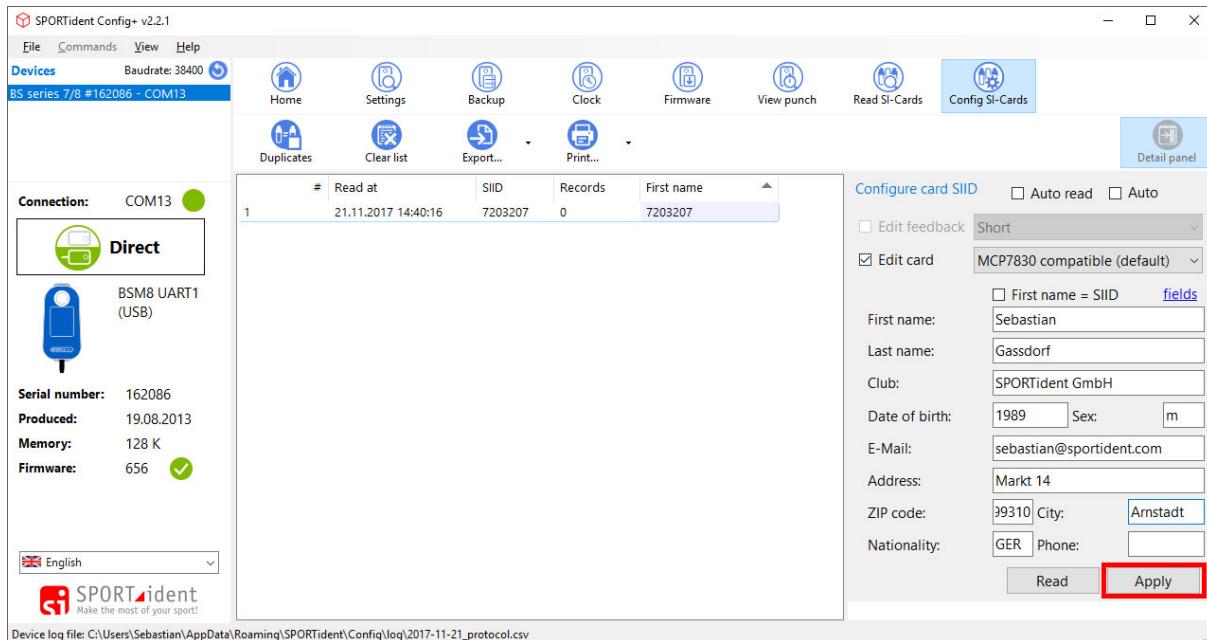
Config SI-Cards



1. In **direct mode**, click on **Config SI-Cards**. Insert the SI-Card in the main station. The SI-Card will be read automatically if the **Auto Read** checkbox is on. Otherwise, click on the **Read** button and the SI-Card will be read.



2. Click in the checkbox next to **Edit card personal data** and the fields where information can be written become active. The number of fields varies with the type of SI-Card from none (SI-Card 5), first name and last name (SI-Card 8 and 9) to everything (SI-Card 6, 10, 11, pCard and SIAC).



3. When finished, click on **Apply**. This button is only available if the SI-Card is in the main station.

4. For the SI-Card 11 and the SIAC, the feedback signal can be configured. During the time that the SI-Card is flashing (and beeping), a subsequent punch cannot be recorded. This means that with long feedback periods, these SI-Cards are not suitable for some activities such as rapidly punching all the boxes on a table to check if they are working.

Edit feedback Short ▼

Check the checkbox **Edit Feedback signal** and click in the field that becomes active. The default feedback is about 3 seconds to best meet the requirements of typical orienteering events. In general, it is recommended to use a longer feedback cycle for applications in Ski-O and MTBO and a shorter feedback cycle for FootMicro-O. The option **Blink only** is available for the SIAC (as the SI-Card 11 is not emitting a sound signal as feedback).



The option ‘Auto read’ checked will read and overwrite the personal data. This is useful if there are no common fields between different SI-Cards. Otherwise it is easier to use the **Read** button.



The option **Auto apply** checked is useful to edit the card data first and then put the SI-Card in the main station to write the data to the SI-Card immediately.

Short range radio

Live data is essential in competitions for delivering information to organisers or speakers. It enhances the overall experience for spectators and competitors. For spectators, it is far less spectacular to watch an event like orienteering, MTB Enduro, trail, and so on, by having only the final results. The competitors in the forest or on the track might at some stage pass by the competition arena, but most of the time they are invisible for the spectators. With the use of additional SPORTident equipment (SI radios and receivers), live data can be produced to provide more information for the speaker and the public, like the position in the race of the participants, allowing them to make race predictions and to analyse the respective split times.

The following SPORTident products are specifically designed for SRR (short range radio):

Data radios	Data receivers
BSF8-SRR	SRR radio dongle (connects to a PC)
SIAC	SIGSM-DN (GSM modem)

The collected data can be processed by a web service or used directly by evaluation software (see chapter [Live data](#)).

Sender device: BSF8-SRR

	BSF8-SRR station The special SI-Station BSF8-DB is additionally equipped with SRR modules. It enables wireless transmission of SPORTident data records over distances of up to 8 metres. The radio is working in the licence free 2.4 GHz radio band and can be used worldwide.
---	---

The data from a direct punch with a SI-Card is transmitted to a receiver. The BSF8-SRR can be configured as a normal station in the operating modes CLEAR, CHECK, START, CONTROL and FINISH.

A typical application for SI-SRR is the so called **online controls** in orienteering sport. Because the control point in orienteering can be placed at nearly any position in any terrain, a wired data transmission from the control station can be inconvenient or even impossible. SI-SRR creates a wireless data bridge to a receiver or repeater mounted some metres away. The receiver (SRR dongle) can be connected directly to a computer and a repeater (SIGSM-DN) can be used to send the data to a web service.

SI-SRR uses two radio channels (named 'red' and 'blue') to achieve a robust data transmission with a low error rate. While the SRR stations uses the two channels simultaneously, the data receivers (SRR dongles) always work on one and the same channel.

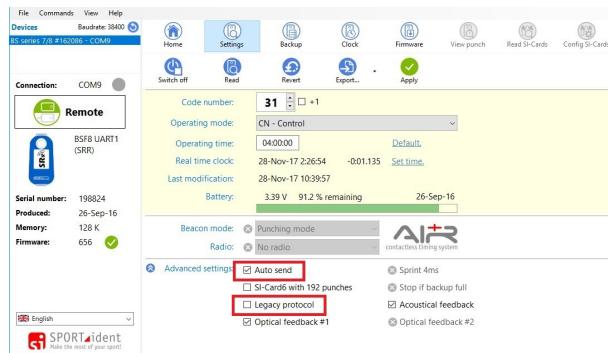
BSF8-SRR configuration by using Config+:



1. Read the station in **remote mode** by clicking on **Settings**.

2. The following advanced settings have to be set:

- Enable **Auto send**
- Disable **Legacy protocol**



To avoid unnecessary energy consumption, the setting **Auto send** should only be activated when a radio receiver is present.

Sender device: SIAC radio

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

When punching a control, the information is always stored in the memory of the SIAC. The BSF7/8 and BS11 stations can optionally be configured such that their signals tell the SIACs in range to transmit the punch details along with the SI card number. For using this feature, the BSF7/8 stations must be configured in beacon mode (the BS11 stations are always in beacon mode) to enable the radio options in the AIR+ settings area. Essentially, during each contactless punching the station tells the SIAC which data to send via its radio (the default setting is no radio).

The receiver is ideally placed very close to the control. The transmission distance from the SIAC to a receiver should be kept in a range of no more than 8 metres..



If a BSF8-SRR station is configured as a beacon control and is punched with a SIAC in the contactless way, the data stored in the SIAC (depending on the configured settings) will be sent to the receiver by the SIAC. The radio of the SRR station has no function at that moment.

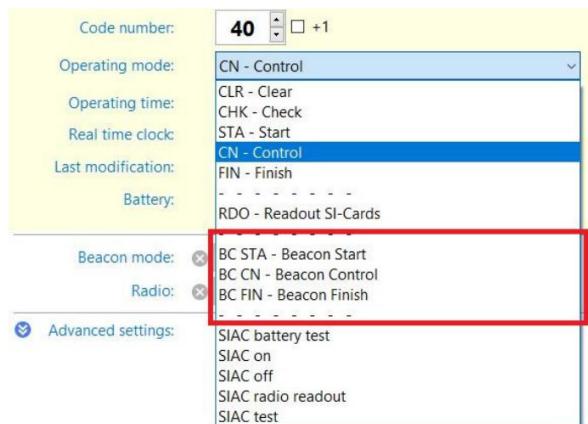


The SIAC's power consumption is significantly increased when using its radio. Therefore, the SIAC's radio should only be activated by a control station if a receiver for radio data is mounted nearby.

Programming the radio options in Config+:

1. Read the station by clicking on **Settings**.

2. Click on the field of the operating mode (below the control number). The different options are shown. Choose the desired beacon function.



3. Four different SIAC radio options can be chosen in the **AIR+ settings** area:

- **No radio:** This is the default setting. It should only be changed if radios will be used during the event to avoid unnecessary consumption of battery power of the SIAC.
- **Send last record:** Transmits the most recently received record. This is normally, the 'punching' of the control where the radio is mounted.
- **Send all unsent records:** Transmits all the records not yet successfully transmitted.
- **Send all card contents:** Transmit all the records stored in the SIAC's memory.



In cases where a SIGSM-DN receiver (repeater) is used, it is possible that the data is transmitted with a certain delay, depending on the coverage of the GSM network. If for any reason the information cannot be sent because of a momentary poor coverage, the information is not transmitted to the monitoring software and thus not available for further use. The SIAC is of course not aware of this delay. When using 'Send all unsent records' at the next transmission point, the SIAC will only send the new records recorded after the previous transmission point.

Receiver device: SRR USB Dongle



SRR Dongle

The SRR dongle receives data records sent by a BSF8-SRR or a SIAC. The device features an USB interface for easy connection with a PC, laptop or other standard communication equipment.

The SRR dongle can manage up to eight logical radio links. There is no upper limit for data sources working in ad-hoc mode. SIAC always works in this mode.

Although the radios are working on two radio channels simultaneously, the SRR dongle only works on one radio channel permanently. This channel has to be configured by Config+. When using the radio signal from the SIAC, this signal is only available for a very short time due to the speed of the participants. This is especially the case for MTB or ski competitions of any kind. Therefore, to profit from the frequency agility of the SI SRR, two receivers are required, respectively operating at the red and blue channel. Both SRR dongles are connected to the computer.



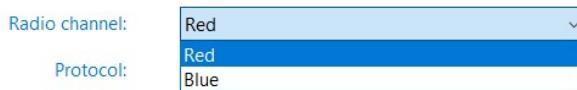
For correct functionality it is important to check that the SRR dongles and occasionally other receivers in the neighbourhood do not work at the same radio channel.

Configuring the radio channel of the SRR dongle in Config+:

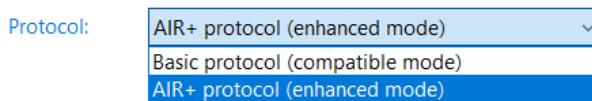
1. Plug the SRR dongle in a USB port of the computer and click on **Settings**.

The screenshot shows the Config+ software interface. The top menu bar includes File, Commands, View, Help, Devices (set to SRR dongle (USB) #3130 - COM10), Baudrate (set to 38400), and a refresh icon. The main window has a toolbar with icons for Home, Settings (which is selected and highlighted in blue), Backup, Clock, Firmware, View punch, Read SI-Cards, and Config SI-Cards. Below the toolbar, there are buttons for Switch off, Read, Revert, Export..., and Apply. The 'Radio channel:' dropdown is set to 'Red'. The 'Protocol:' dropdown is set to 'AIR+ protocol (enhanced mode)'. On the left side, there is a sidebar with a 'Devices' section showing 'Connection: COM10' and a 'Serial number: 3130'. Below that, 'Produced: 18-Apr-17', 'Memory: N/A', and 'Firmware: 450'. At the bottom left, there is a language selection dropdown set to 'English' and the SPORTident logo with the tagline 'Make the most of your sport!'. The bottom right corner of the software window has a close button.

2. Choose the radio channel for the dongle. If you only use a single dongle, there is no preferred channel, both are identical from the technical point of view. It is recommended using two dongles, one working on the red and the second on the blue radio channel to avoid occasional loss of information.



3. The default setting for the communication protocol is the 'AIR+ protocol'. Unless an older evaluation software is used, this setting should not be changed.



The SRR dongle can manage up to eight connected SRR stations. There is no upper limit for collecting information from transmitting SIACs.

Receiver device: SIGSM-DN

	SIGSM-DN
	<p>The SIGSM-DN GSM modem features two built in SRR receiver modules (red and blue) and automated data transmission to a web service by using the mobile network. No SRR-specific configuration is needed.</p>

The SIGSM-DN (GSM Modem) is delivered **ready to use** by SPORTident. This means that a SIM card is already mounted inside of the box. The SIM card offers a general service and automatically selects the best signal provider. The SIGSM-DN is equipped with two receivers, one for the red and one for the blue channel. Each SIGSM-DN has his unique identification number. This is important as it will be used to identify the device that is sending data to the monitoring or evaluation software.

As the SIGSM-DN is delivered with an active SIM card, costs for the use of the device will be based on the number of runners per event and day.

Please contact support@sportident.com for more information.

The SIGSM-DN is turned on by holding the 'on/off switch' against the 'I/O' label until the LCD screen becomes active. To turn it off, the switch needs to be kept against the 'I/O' label for about 4 seconds. A blinking orange LED confirms the turning off procedure until the LCD display is empty.

The SIGSM-DN has a rechargeable battery and need to be charged before application. Therefore, the stations are equipped with a standard mini USB connector. The stations need to be connected directly to a USB port of the computer or with an adapter to the socket. To assure

the waterproofness of the stations, the mini USB connectors are protected.



When switching the SIGSM-DN on, information becomes available on the LCD display. A green LED is blinking, confirming that the GSM is on.

The upper part of the display shows:

For information: xx/xxx/xxx: the number of pings sent to the server / the number of data records in the memory to be sent / the number of data records sent

For information: xxx/xxx: an internal working code / the time before the next ping will be sent

More importantly, in the right bottom: the coverage by the selected provider (as with a normal GSM device) at the current location.

The bottom part of the displayed shows:

Cyclically: The time the device is already on (xx:xx:xx) and the remaining operating time in minutes. The default operating time is 96 hours (5760 minutes) and cannot be modified.

A pictogram of the remaining capacity of the battery.

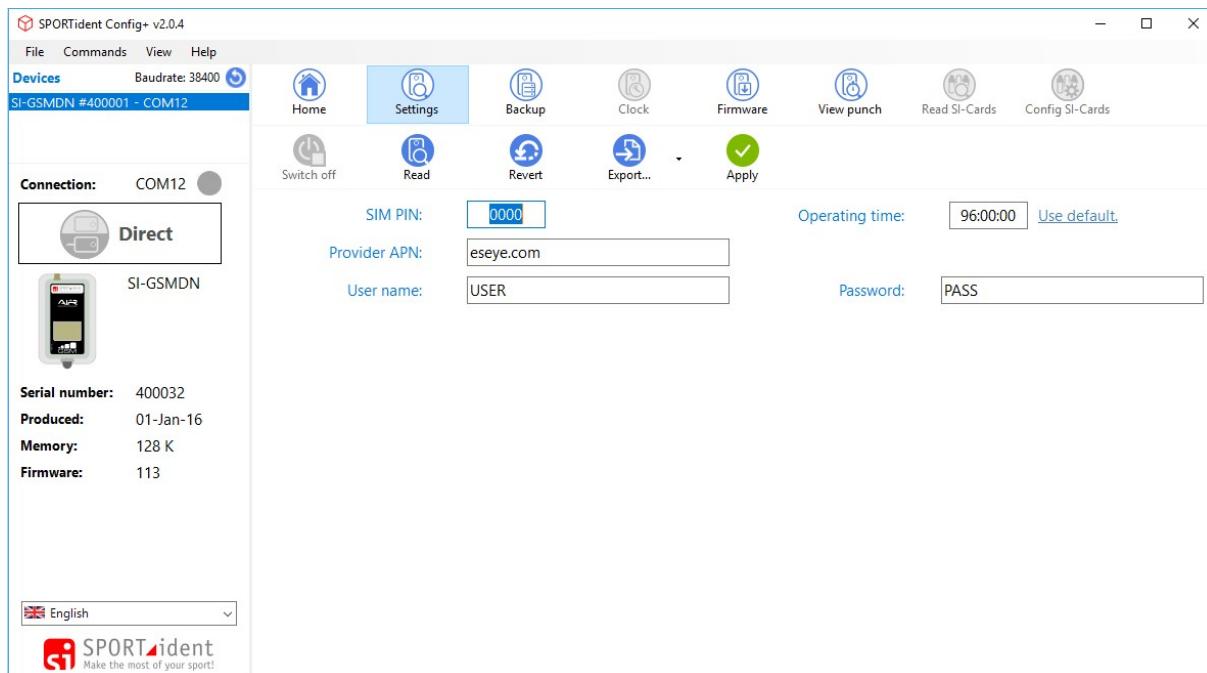
The bottom line will give some information during the starting up procedure (from initialising the device, searching the provider and testing the connection with the monitoring server). If all steps are concluded positively, WAIT_DATA appears, confirming that the SIGSM-DN is ready for use.

If NO_SERVICE appears, there is no connection to the provider and another location should be found to set up the SIGSM-DN.



When using the SIGSM-DN, testing of the availability of a decent GSM network at the desired location might be necessary prior to the competition. This can easily be done by punching a classic SI-Card in a BSF8-SRR station or with a (switched on) SIAC and a station in beacon mode.

Reading the SIGSM-DN in Config+:



The settings of the SIGSM-DN can be read in Config+ by selecting the device and clicking on **Settings**. The settings are visible but cannot be modified. The SIGSM-DN is delivered preconfigured and any changes would only disturb the correct operation of the device. The default operating time is 96 hours, which is identical to the capacity of the battery. In a normal use case the device should be manually switched off. The buttons **Backup** and **View punch** will provide the needed information in the same way as any other SI device.

Show received data in Config+

Config+ features a simple monitor function to visualize the SRR functionality. Select a SRR dongle or a SIGSM-DN (it has to be 'on') as target device and choose the feature **View punch** in the main toolbar. The devices will immediately show the data received from a BSF8-SRR station or a SIAC (instructed to send its data). The available information is slightly different between a classic and an AIR+ punch.



The screenshot shows the 'View punch' tab of the software. At the top, there are tabs for Home, Settings, Backup, Clock, Firmware, View punch (which is highlighted in blue), Read SI-Cards, and Config SI-Cards. Below the tabs, there's a connection status bar showing 'Connection: COM11' and 'SRR AP (Dongle)'. On the left, there's a sidebar with device information: Serial number: 3133, Produced: 18-Apr-17, Memory: N/A, Firmware: 450. At the bottom left is a language dropdown set to English. The main area is a table titled 'Read at' with columns for #, Read at, SID, CN, DOW, Punch time, Mode, No, Count, Radio, Battery, SI-Card, Beacon mode, Gate, and RSSI Information. Two rows of data are shown:

#	Read at	SID	CN	DOW	Punch time	Mode	No	Count	Radio	Battery	SI-Card	Beacon mode	Gate	RSSI Information
1	28-Nov-17 7:19:36 PM	7203207	39	Tu	19:19:38.902	Unknown	0	1						
2	28-Nov-17 7:19:41 PM	8623231	44	Tu	19:19:41.226	BcControl	0	1	SrRadioSendLast	OK	OK	PunchingMode	No	

The first row shows the information for a classic punch, the second one for a SIAC. Here, information is given about the configuration of the station that gave instructions to the SIAC (in this example Beacon Control 44 – radio Send last record – punching mode – No gate). It also displays information about the used SIAC (for example Battery OK).



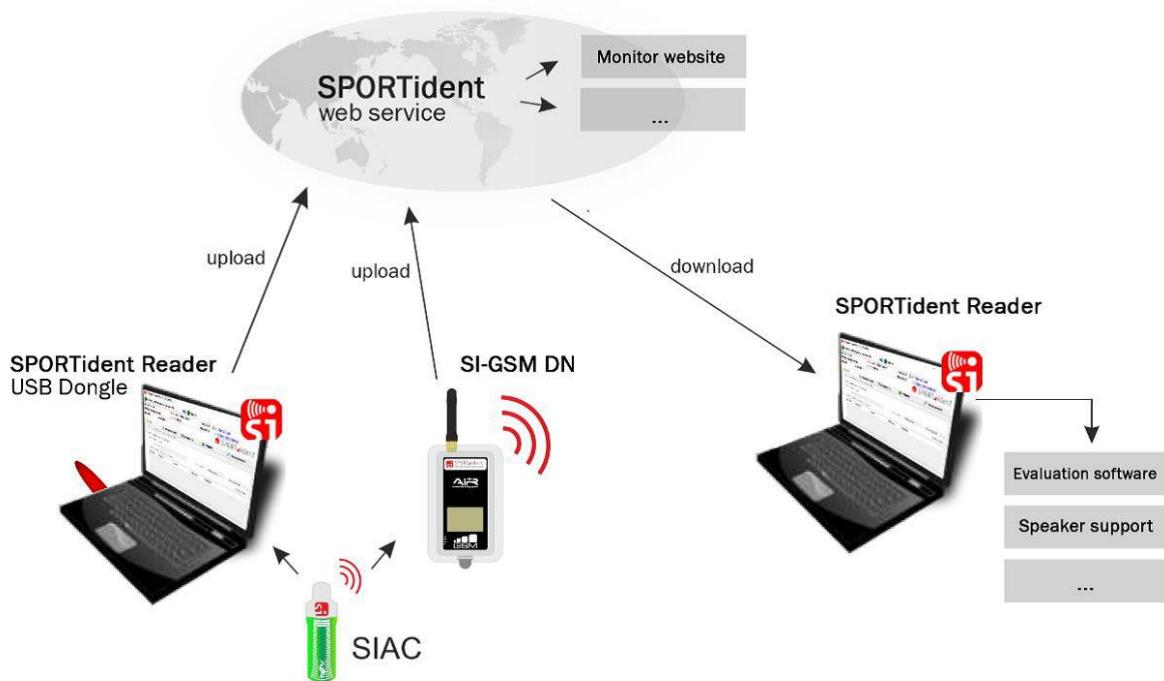
This feature in Config+ allows you to test the equipment that will be used before the competition.

Live data

Introduction

The use of live data has to be considered as a complete system, from collecting and uploading the data of the competitor to a server (or directly to a PC with a SRR dongle), to the downloading and processing of the data by an evaluation software. The SPORTident components and the settings described in the previous sections are necessary to ensure their correct functioning as part of the system, and their setup can differ from one race to another and from one sport to another. SIAC, BSF8-SRR station, SRR dongle, SIGSM-DN, SI-Reader software and the SPORTident web service provide a complete distributed online data system to meet the growing need for live information during the race.

The basic setup of the system is given in the scheme below.



Of course, having access to the internet is essential.

Software and web services

To be able to upload/download data during a race and to handle an event, from the setup of the race, entries registration, until the publication of the (intermediate) results, a series of software and web services are available. Together, they offer the complete package for handling an event and to make it attractive for the organiser, athletes and spectators.

SI-Reader



SPORTident offers the (free) software SI-Reader as a universal data capture program. It is able to upload data from a BSF8-SRR or SIAC, received by a SRR dongle to the SPORTident web service (in addition to the data from a SIGSM-DN that are directly sent to the web service) and, if necessary, to download the data to an evaluation software at the event centre. However, downloading data is frequently done directly by an evaluation software such as SiTiming.

SI-Reader can be downloaded from the following page: <https://www.sportident.com/products.html#software>

SI Center

The SPORTident web service is hosting the database that stores information on events, modems and timing data. The service allows you to assign your SIGSM-DN (GSM modem) to an event for a certain period. The data received by this modem are displayed.

Access can only be granted by a SPORTident administrator. If you want to use the service, please contact support@sportident.com. As a user, you will receive a confirmation e-mail for your account with your user name. You will have to activate the account by setting your password. Once this is accomplished, you will be redirected to the website: <https://center.sportident.com/>

SiTiming by SPORTident UK

SiTiming is a SPORTident UK Ltd results software. A license has to be bought if you want to use this software. More information is available at <http://www.sportident.co.uk/autodownload/buy.php>

A detailed user guide is available at <http://www.sportident.co.uk/sitiming/>. Only a few features of SiTiming are highlighted in this guide.

SI Center

The first step to upload data is the setup of the available modems for an event. Open the program at <https://center.sportident.com/>. Three tab sheets are available: monitor, events and modems.

Events

Create a new event by clicking the **+** button. Choose the name, start date and end date of the event and complete the process by clicking **create**. Your event will now be added to the event list.

Events

Event Name	Date Range	User	Modems	Stamps
Benelux Test	November 28, 2017 – December 1, 2017	Cloostermans Luc	1 modem	9 stamps

Any event can be modified by clicking on the pencil. Some additional information is shown.



Additional information	
Event ID	130
Event GUID	58bd3ab8-773a-a713-9bec-38eeaa5fa423
SOAP API Key	4aad9f2e-e4b4-1ea5-334f-98922beae1d8



The Event ID and the SOAP API Key are necessary for the SI-Reader program to be able to upload data. Event GUID is only used internally so far.

Modems

The list displays the available modems assigned to the user. The modems are assigned by SPORTident to a user. There is no possibility to add a modem by yourself. In case of questions, please contact support@sportident.com.

image::images/live_monitoring_modems1.jpgpdfwidth='100%',align='center']

An icon indicates the state of the modem (grey if offline, green if online) and its battery level. This is useful information for testing the modem on site before the event (or even to monitor the modem during an event).

A modem can only be assigned to a single event at the same time. To assign a modem to an event, click on the runner icon at the top right of the screen.



Some extra fields are shown. Select one of your events from the list and confirm it. The modem is now assigned to that event.

Monitor

Monitor 9

Search for event... ▾		Search for modem... ▾		Card	Control			« 29.11.2017 »		« 07:51 »	
Event	Modem	Card	Control	Punch Time		Readout Time					
Benelux Test	400032	8623231	31	08:50:24		07:50:29					
Benelux Test	400032	7203207	31	08:39:55		07:40:00					

The monitor provides an overview of the data received for a selected event, for a specified SIGSM-DN modem, for any card (enter the card number) or for any control number (enter the



control number) for a selected time period. The default setting is the day and time of opening the program.



This functionality is useful for testing the configuration and correct operation of the equipment that will be used during the event.



Data uploaded by a PC and received with a SRR dongle can also be uploaded and monitored. The field 'Modem' will be empty in this case.



Incoming data collected with SI-Reader will be shown without **Modem ID**.

Data upload with SI-Reader

After installing the program SI-Reader, it might be necessary to click **Show/hide settings** in the configuration bar.

The screenshot shows the main window of the SPORTident ReaderUI application. At the top, there's a status bar with the text "SPORTident.ReaderUI v2.105 (27-Oct-17)" and standard window controls. Below the status bar is the title bar "SPORTident Live SOAP Service". The main area has several sections:

- SI-Cards read:** 0 • Wall-clock time: 0:00:00 [Open/Close](#)
- Online-Stamps read:** 0 • SIID #: [Show/hide settings](#)
- Output event ID:** [Show activity form...](#)
- SPORTident** logo

Below these are two tabs: **Device settings** (selected) and **Languages**. The **Device settings** tab contains two main sections:

- Choose input device:** A radio button group with **(●) SPORTident device** selected. To its right is a description: "Select SPORTident device (main station BSM - or - USB dongle): [fresh list](#)". There is also a small icon of a USB port.
- Choose output device:** A radio button group with **(●) None (Use plugin)** selected. To its right is a description: "Select a plugin to use: [Refresh list](#)". Below this is a dropdown menu showing "(none)". To the left of the dropdown is a green puzzle piece icon. To the right is a link: "Configure this plugin."



The desired language can be modified if necessary.

Uploading data to SI Center

The data collected with a readout station or a SRR dongle (the input device), from a single punch up to all data records from a SI-Card, can be uploaded to the SI Center (the output device). The configuration of SI-Reader is a three steps procedure:

1. Configure the input device



Choose input device

SPORTident device  Select SPORTident device (main station BSM - or - USB dongle): [fresh list](#).

SPORTident Live

Connect a readout station or a dongle to the computer and click on **fresh list**.

Choose input device

SPORTident device  Select SPORTident device (main station BSM - or - USB dongle): [fresh list](#).

SPORTident Live

SRR dongle #3130 - COM10



If you want to use two dongles (as recommended for sports were competitors pass at high speed), or a dongle and a readout station, you need to open SI-Reader twice. Only a single input device can be selected per SI-Reader window. Choose a different device in each window. Now data from both sources will be uploaded.

2. Configure the output device

Choose output device

None (Use plugin)  Select a plugin to use: [Refresh list](#).

Text file

Database connection

SPORTident Live [Configure this plugin](#).

There are many options, but these are mainly for developers of evaluation software. As a user, only the last button is necessary.

The API key and event ID of the target event have to be copied from SI Center into the specified fields.

Choose output device

None (Use plugin)  API Key: 4aad9f2e-e4b4-1ea5-334f-98922beae1d8

Text file Event ID: 132

Database connection

SPORTident Live

3. Activate the connections



SPIRTOident.ReaderUI v2.105 (27-Oct-17)

BS series 7/8 #162086 - COM9 **SPORTident Live SOAP Service**

SI-Cards read:	0	• Wall-clock time:	0:08:58		Open/Close
Online-Stamps read:	2	• SIID #:	8623231		Show/hide settings
Output event ID:	<input type="text" value="1"/>		Show activity form...		

The summary of the configuration is given at the top of the screen, in this example from a readout station (the input device) to the SPORTident Center (the output device). The connections are not active yet and this is visualised by the two red dots.

SPIRTOident.ReaderUI v2.105 (27-Oct-17)

BS series 7/8 #162086 - COM9 **SPORTident Live SOAP Service**

SI-Cards read:	0	• Wall-clock time:	0:07:24		Open/Close
Online-Stamps read:	2	• SIID #:	8623231		Show/hide settings
Output event ID:	<input type="text" value="1"/>		Show activity form...		

Click **Open/Close** to open (or to close) the connections. Two green dots will confirm that the communication lines are open. SI-Reader is now ready to receive and to upload data.



In case of a red dot, the connections should be checked. It might be that the internet connection is not available.

Next to the monitoring page in SI Center activity can also be monitored in SI-Reader by clicking on **Show activity form**.

SPIRTOident.ReaderUI - Activity log

#	Timestamp	SIID	Date	Time	Text
1	2017-11...	7203207	Tu	11:16:41	ON...
1	2017-11...	7203207	Tu	11:17:05	ON...
1	2017-11...	7203207	Tu	11:17:03	ON...
1	2017-11...	7203207	Tu	11:17:05	ON...
1	2017-11...	7203207	Tu	11:17:03	ON...
1	2017-11...	7203207	Tu	18:53:56	ON...
1	2017-11...	7203207	Tu	19:15:13	ON...
1	2017-11...	7203207	Tu	19:19:38	ON...
1	2017-11...	7203207	We	08:38:52	ON...
1	2017-11...	7203207	We	08:38:59	ON...
1	2017-11...	7203207	We	08:39:55	ON...
1	2017-11...	7203207	We	11:11:01	ON...
1	2017-11...	7203207	We	13:06:24	ON...

Follow last entry Detailed card readout [Clear output.](#)

LCD display information

SI-Stations BSx7/8

The onboard LCD display can provide a quick overview of the stations' settings and properties. The stations spend most of their life in **standby** mode. This is a low activity mode, which consumes very little power. In this mode, the LCD display is off. Switching from **standby** mode to **active** mode takes place when a SI-Card is inserted in the station. The maximum reaction time is 1 second. In **active** mode, the LCD display cyclically shows the function (including the control code) and the time. It will also display the SI-Card number during 3 seconds after it has been punched. This can be useful at the start to verify the number of the SI-Card of a runner.

From **standby** mode, the station can also be switched to **service** mode. This is done by switching on the station with the **SERVICE/OFF** instruction card. In **service** mode the station's LCD display offers additional information. **SERVMO** indicates that the service mode is active. **Service** mode is automatically terminated after 5 minutes or earlier if the **SERVICE/OFF** Card is used.

	Operating mode  CLR (clear), CHK (check), STA (start), FIN (finish), RDO (readout), CN (control), BST (beacon start), BFN (beacon finish), BCN (beacon control), AC BT (SIAC battery test), AC ON (SIAC on), AC OFF (SIAC off), AC RDO (SIAC radio readout).
	Time of day  24h format.
	OFF time  The number of minutes the station will be idling awake before automatically switching to standby mode. In this example, the unit will go to sleep 2 hours (120 minutes) after the last user punched the control. If the time is above 999, only the last 3 digits are displayed.
	Firmware  The version of the software (firmware) installed on the station, in this case version 656. See section Config+ / Firmware update for the latest version.

	Station backup The number of punches that are currently stored in the backup memory of the station.
	Battery voltage The last measured battery voltage or BAT if no battery voltage has been measured. When it drops below 3.0V (BAT300), time is nearing for a battery replacement.
	Battery capacity Used capacity of the battery. A new battery will indicate 0 . The example shows that the battery has consumed approximately 5% of its power. This value is a computed approximation, not the actual level. Accurate battery check is done with Config+.

SI-Stations BS11

	CN xyz Control number of the SI-Station.
	Time of day 24h format.
	Operating mode BST (beacon start), BFN (beacon finish) or BCN (beacon control).
	Beacon mode PMODE (Punching mode) or TMODE (Timing mode).
	Gate mode NOGATE means no gate . In this case, gate mode is not active. Other possibilities are: GATE M for master station in gate mode and GATE S for slaved station.

	Operating time Remaining operating time in minutes before the station will shut down.
--	---

The following information is only visible in the first minute after activation:

	Date Format (YYMMDD).
	Temperature Device temperature in degrees Celsius.
	Battery capacity Not measured in the current firmware.
	Battery voltage Should be between 3.5 V (low) and 4.5 V (full).
	Radio options Radio options for the SIAC (see section Short range radio / Sender device: SIAC radio). No radio (RAD NO), Send last record (RAD LA), Send all unsent records (RAD AN), Send all card content (RAD AL).
	Serial number Unique serial number of the SI-Station.