SMART Manual

Approval by	Checked by	Originated by
LS	CMO	KFL

Versions

Version	Date	Editor	Modifications
1	01-09-2016	KFL	Initial release
2	10-10-2016	CMO	• Base for testing instructions • Modify for cypress touch Chip version • Cypress flashing FW instructions • Changed to Accelerometer ST version • Add the MAC label information
3	07-12-2016	CMO	• Completed the Production tests (especially DTM) • Modified the QR code to a barre code • Updated to V7 (BOM-SCH-Layout) • Removed the Prog connector
4	17-02-2017	CMO	• Updated the TDE Iron position Info for Accelero. • Updated the FW versions
5	03-05-2017	CMO	• Updated the BOM with alternates and Matched antenna values • Updated FW version for SOP

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1 FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning
the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

CFR 47 FCC PART 15 SUBPART C has been investigated. It is applicable to the modular transmitter.

This radio transmitter S96SMART has been approved by Federal Communications Commission to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
2402-2480	Chip	1.0

2 ISED statements

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with Canada radiation exposure limits set forth for uncontrolled environments.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

3 Notice to OEM integrator

The end user manual shall include all required regulatory information/warning as show in this manual. The OEM integrator is responsible for testing their end-product for any additional compliance requirements required with this module installed.

Must use the device only in host devices that meet the FCC/ISED RF exposure, which means the host product manufacturer, to define the application general conditions (mobile, portable) and additional text needed for the host product manufacturer to provide to end users in their end-product manuals.

The end user manual shall include FCC Part 15 /ISED RSS GEN compliance statements related to the transmitter as show in this manual.
Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B, ICES 003.

Host manufacturer is strongly recommended to confirm compliance with FCC/ISED requirements for the transmitter when the module is installed in the host.

Must have on the host device a label showing Contains FCC ID: S96SMART,

Contains IC: 22175-SMART.

The use condition limitations extend to professional users, then instructions must state that this information also extends to the host manufacturer's instruction manual.
This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

le manuel de l'utilisateur final doit inclure la partie 15 / (fac rss gen déclarations de conformité relatives à l'émetteur que de montrer dans ce manuel.
le fabricant est responsable de la conformité de l'hôte, le système d'accueil avec le module installé avec toutes les autres exigences applicables du système comme la partie 15 b, ices - 003.
accueillir le fabricant est fortement recommandé de confirmer la conformité avec les exigences de la fcc /
(émetteur lorsque le module est installé dans l'hôte.

le dispositif d'accueil doivent avoir une étiquette indiquant contient FCC ID: S96SMART,

contient IC: 22175-SMART.

4 Machine label

Contains FCC ID : S96SMART , Contains IC: 22175-SMART

5 Introduction

The 1132-05 SRevamp IRON PCB is located in the iron handle and is the most important board of the system. This board embeds an accelerometer to detect iron movements and a BLE chip to allow to communicate with the ironing board.

6 Mechanical specification

6.1 PCB dimensions and silkscreen

The PCB size is 134.03 x 34.5 mm. The general tolerances on the PCB size are +/- 0.3mm.
The PCB thickness is 2.0 mm. This is a 4 layers PCB.

The PCB is mounted in the iron handle with 2 screws.

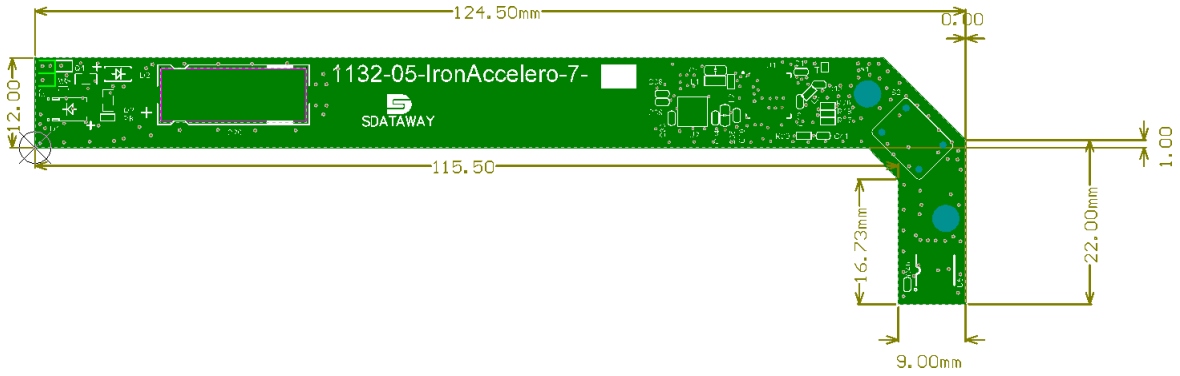


Figure 1: Mechanical view of the board

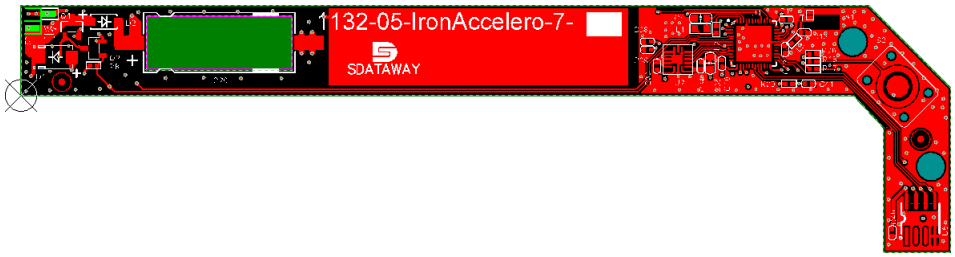


Figure 2: Top silk view

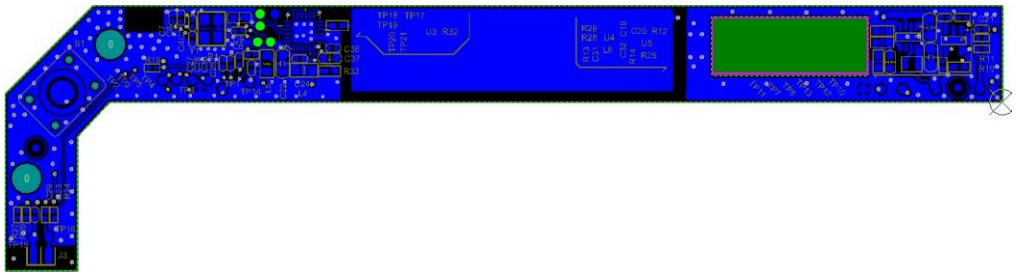


Figure 3: Bottom silk view

6.2 Layout version

The layout version is printed on the edge of the PCB.

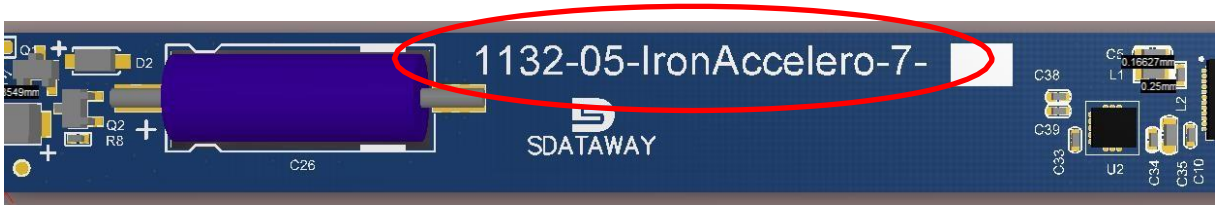


Figure 4: Layout version indication

The actual Layout version is the V7

6.3 Assembly version

The assembly version must be manually written on the white box on the PCB during assembly. (Sticker is also possible)

The Actual Assembly version is 01

7 Cables

This PCB will include 2 different cables soldered on it.
One for the communication and power supply from the POWER PCB, and another for the connection to the FAN button PCB, also located in the IRON.

These two drawings of cables are in the Appendix of this document.

8 Electrical specification

J2

The PCB will have the following connections:

Name	#	Use	Type	Comments
Power input	J2	Power input from power board	Solder	#1 = 12V #2 = GND
Fan button	J3	Connected to the fan button *Located on the bottom side of the board	Solder	#1 = 3V3 #2 = Button_Fan

9 PCB MAC Sticker

The MAC address information need to be known and scanned during the Machine assembly.
It will show the UID (chip MAC address) and a barre code.

We will need 2 different stickers, one in the handle and another removable on the handle.

9.1 Sticker 1 specifications

The sticker size will be in total 30mm x 10mm.
The barre code height will be 5mm.

BE carefull of the MAC BYTES ORDER. Refer to the Test page for getting the Bytes, then put it as

Byte1	Byte2	Byte3	Byte4	Byte5	Byte6

The Sticker will be placed as following:

The sticker will be put in the handle on the plastic as the picture shows

9.2 Sticker 2 specifications

The goal of this sticker is only for the production assembly line. It will be put on the handle visible when handle closed and it will be removed when the machine assembly is finished in the OEM.

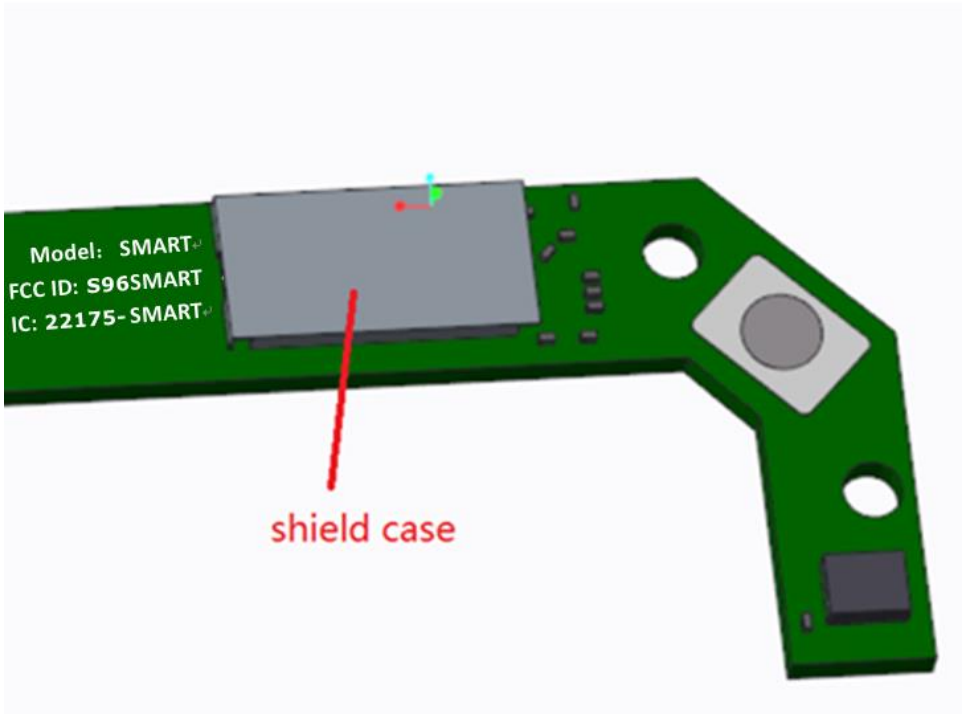
The sticker have to be easy to remove without leaving marks of glue.

The sticker size will be in total 50mm x 25mm.
The barre code size will be about 40mm x 10mm.

BE carefull of the MAC BYTES ORDER. Refer to the Test page for getting the Bytes, then put it as

Byte1	Byte2	Byte3	Byte4	Byte5	Byte6

9.3 FCC ID/IC information



10 PCB specification

The PCB shall be made with FR4 material, surface shall be tin plated and the PCB must be ROHS compliant.

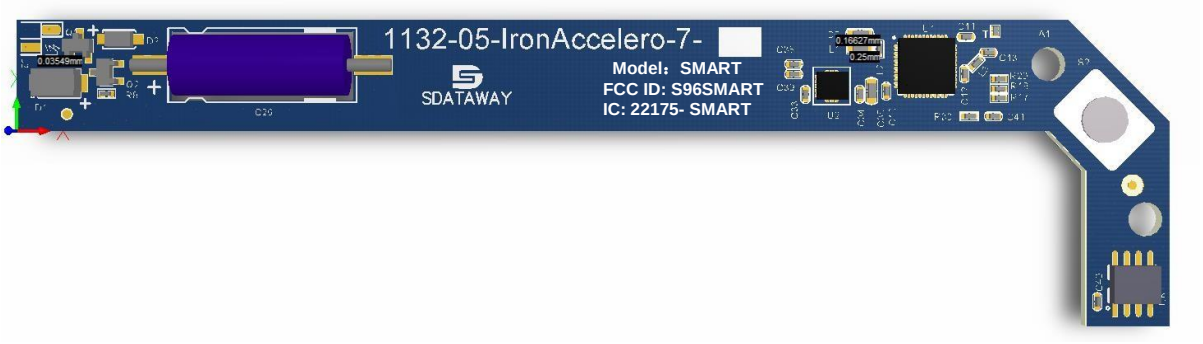


Figure 5-1: Top view of the PCB

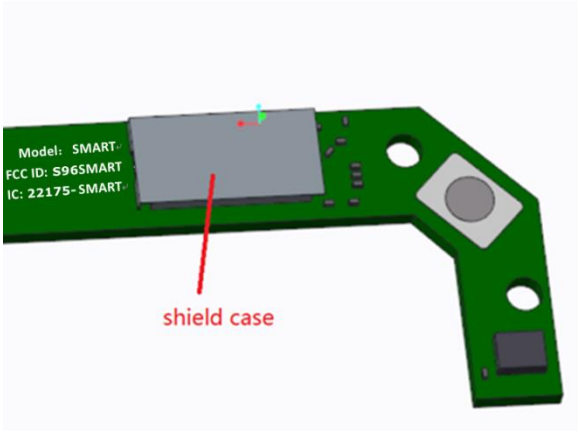


Figure 5-2: Add Shield Case view

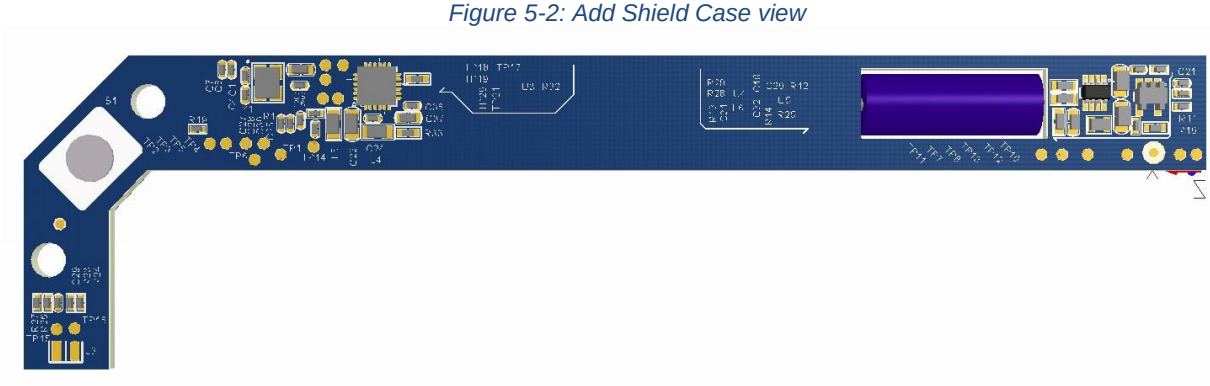


Figure 6: Bottom view of the PCB

10.1 Electrical specification

	Typ	Units
Voltages	3.3, 12	V
Stand-by power	< 0.5	W

10.2 Schematics

The PCB schematic is shown in the APPENDICE of this document.
It is based on many pages showing different functions of the PCB. The main functions are connected together in the Top Level page. We find also a history of changes made to the different versions made.

10.3 BOM

Like the Schematics, the BOM is also present in the APPENDICE.
This BOM contains all the used components for the present version. The components are listed and are linked to the chosen manufacturer. The manufacturer Reference is listed to be able to check the good sourcing.

Step	Description	Action	Pass criteria
1	Voltage test	1. Measure voltage on TP12 2. Measure voltage on TP14	1. Measured voltage is DC 12V for module 2. Measured voltage is DC 3.3V for chip
2	Start UART com	Connect the tester	NA
3	Test the inputs	Read the Byte 1	Must be : 0x00 when nothing is pressed or touched 0x01 when hand on touch 0x02 when fan input is switched 0x04 when Dome button L is pressed 0x08 when Dome button R is pressed
4	Accelerometer test	Read the Byte 2, 3, 4	When the Electronic is in Pos. A, the ACC values need to be close to the described values of POS.A
5		Read the Byte 2, 3, 4	When the Electronic is in Pos. B, the ACC values need to be close to the described values of POS.B
6		Read the Byte 2, 3, 4	When the Electronic is in Pos. C, the ACC values need to be close to the described values of POS.C
7	Check FW version	Read the Byte 5 and 6	The FW version needs to match with the latest one described in this document
8	Get the MAC Address	Read Byte 7..12	Print the 2 Stickers with barre code and put it on the plastic handle
9	Start DTM to check BLE	Send “B” character	Communication will start with UART DTM and the Std UART here will be stopped
10	Test DTM	Use the DTM uart to control the BLE	DTM tests passed.
11	Restart the PCB	Unplug it and plug it again after 10s	
12	Validate the PCB	Send “V” character	Uart will reply the “O” character