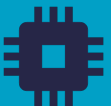
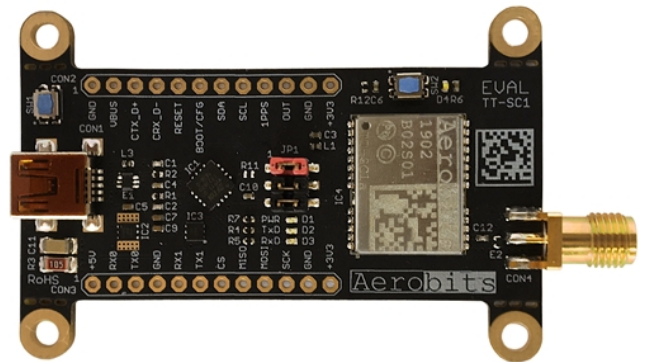




Subsystems for the
UAS intergration into
the airspace

EVAL TT-SC1 EXTENDED

Data sheet & User manual



Introduction

The evaluation kit provides a quick introduction to the TT-SC1-EXT module. It is a high quality 1090 MHz band receiver with an integrated ADS-B (Automatic Dependent Surveillance - Broadcast) decoder, conforming to MOPSS specified in TSO-C199.

EVAL-TT-SC1-EXT with the dedicated software allows the user to discover the module properties within a short time, paving the way towards quick prototyping. The software allows simple configuration of the module and data visualization in various modes, from raw data, through tabular and 3D views.

[Check all our evaluation kits here](#)

For more information please contact: support@aerobits.pl.

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1 Technical parameters

General Technical Parameters				
Parameter	Min.	Typ.	Max.	Unit
Carrier frequency ADS-B	-	1090	-	MHz
RX sensitivity ADS-B	-	-85	-	dBm
AERO (baud)	115200	921600	3000000	bps
Operation temperature	-30		+85	°C
Storage temperature	-5		+40	°C

Table 1: General technical parameters.

1.1 Hardware and layout

The EVAL TT-SC1 EXTENDED is designed around the OEM TT-SC1 EXTENDED module. It uses all I/Os, as well as custom I/Os (unused by the standard firmware). The top layer may be found in fig. 1.

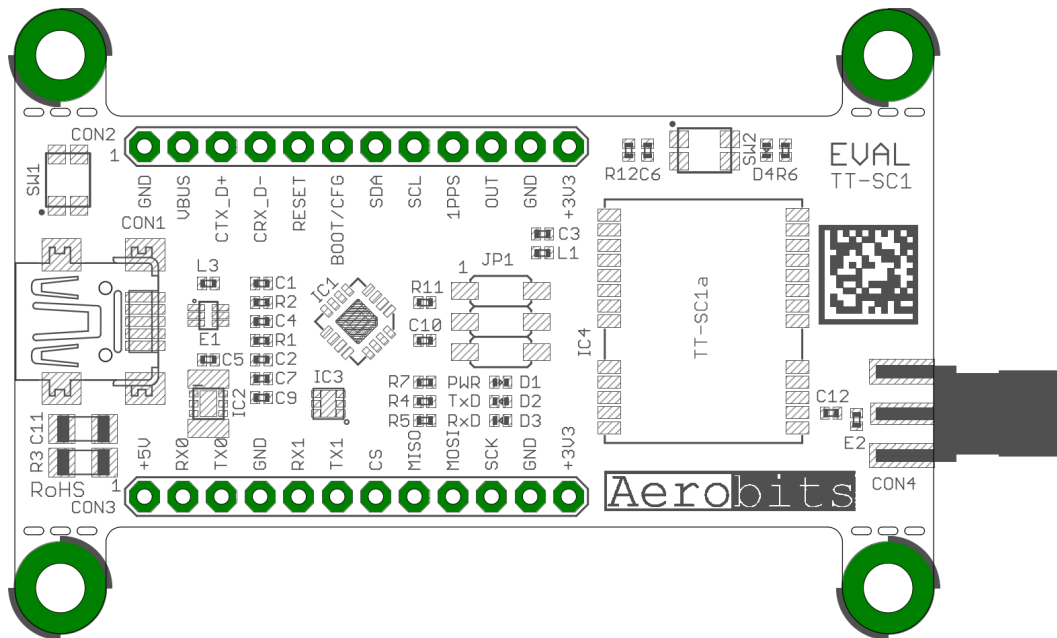


Figure 1: Top view of EVAL TT-SC1 EXTENDED.

2 Electrical specification

2.1 Power supply

Parameter	Value
Power connector	Standard mini USB connector
Power consumption	80 mA
Power supply	3.3V 5V(RF) (recommend mini USB Supply)

Table 2: Power supply of EVAL TT-SC1 EXTENDED

2.2 Most important components

RefNo	Description
CON1	Mini USB connector
CON2	Extensions connector I
CON3	Extensions connector II
CON4	ADS-B RF Input
JP1	Jumper group
SW1(C)	BOOT/CONFIG switch
SW2(R)	RESET switch
D1	POWER LED
D2	UART TX LED
D3	UART RX LED
D4	SYSTEM/ADS-B LED
IC4	OEM TT-SC1 EXTENDED

Table 3: Most important components. See fig. 1

2.3 Connectors and jumpers


CON2	No.	Marking	Function
	1	GND	Ground
	2	VBUS	Power supply of USB
	3	CTX_D+	USB: D+ line CAN: transmit line
	4	CRX_D-	USB: D- line, CAN: receive line
	5	RESET	Reset signal
	6	BOOT/CFG	BOOT/CONFIG signal
	7	SDA	I2C: data line
	8	SCL	I2C: clock line
	9	1PPS	GNSS: 1 pulse per second input (time reference)
	10	OUT	Output (used for D4 LED)
	11	GND	Ground
	12	+3V3	3.3V Power supply

Table 4: Connector CON2 description.


CON3	No.	Marking	Function
	1	+5V	5V Power supply
	2	RX0	UART0 – Receive line
	3	TX0	UART0 – Transmit line
	4	GND	Ground
	5	RX1	UART1 – Receive line
	6	TX1	UART1 – Transmit line
	7	CS	SPI – Chip select
	8	MISO	SPI – MISO signal
	9	MOSI	SPI – MOSI signal
	10	SCK	SPI – Serial clock
	11	GND	Ground
	12	+3V3	3.3V Power supply

Table 5: Connector CON3 description.

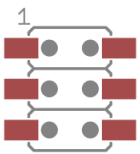
JP1	No.	State	Function
	1	Closed	3.3V power supply provided by on-board regulator (default)
		Open	3.3V power supply provided by CON3 (PIN14)
	2	Closed	UART TX via USB (default)
		Open	UART TX via CON3 (PIN4)
	3	Closed	UART RX via USB (default)
		Open	UART RX via CON3 (PIN3)

Table 6: Jumper group JP1 description.

2.4 LED indicators

LED	Color	Description
D1	Green	ON: Power supply
D2	Red	ON: OEM TT-SC1 EXTENDED transmitting data
D3	Yellow	ON: OEM TT-SC1 EXTENDED receiving data
D4	White	In BOOTLOADER state: continuous on In CONFIGURATION state: blinking at 5Hz In RUN state: 1 blink for every ADS-B frame received

2.5 Layout

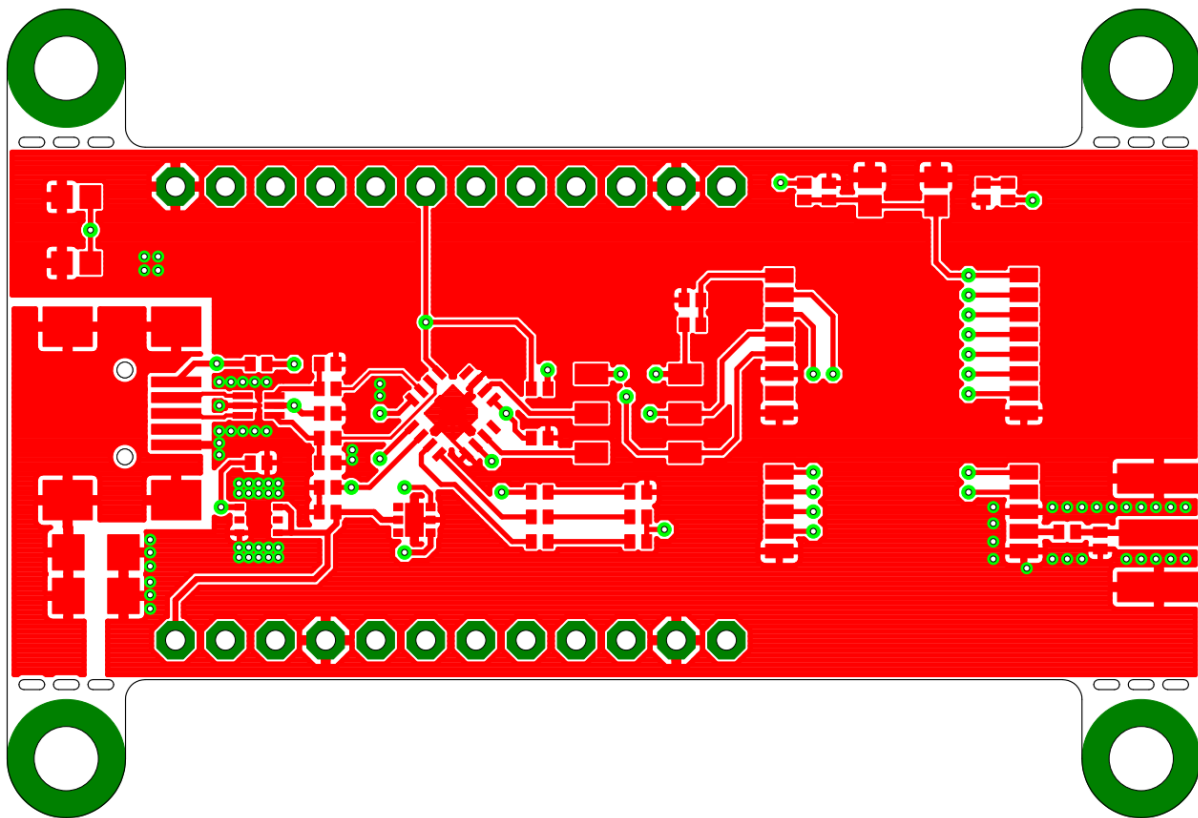


Figure 2: Top copper layer of EVAL TT-SC1 EXTENDED

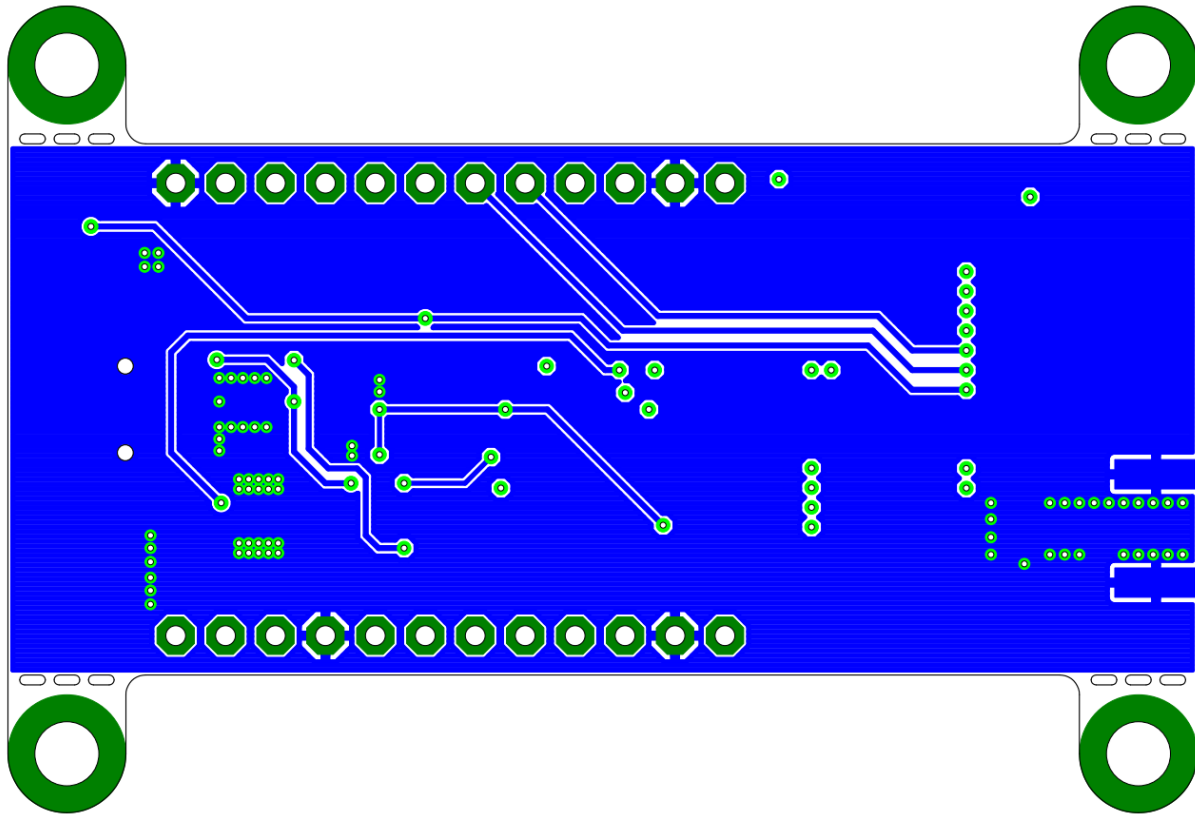


Figure 3: Bottom copper layer of EVAL TT-SC1 EXTENDED

2.6 Electrical diagram

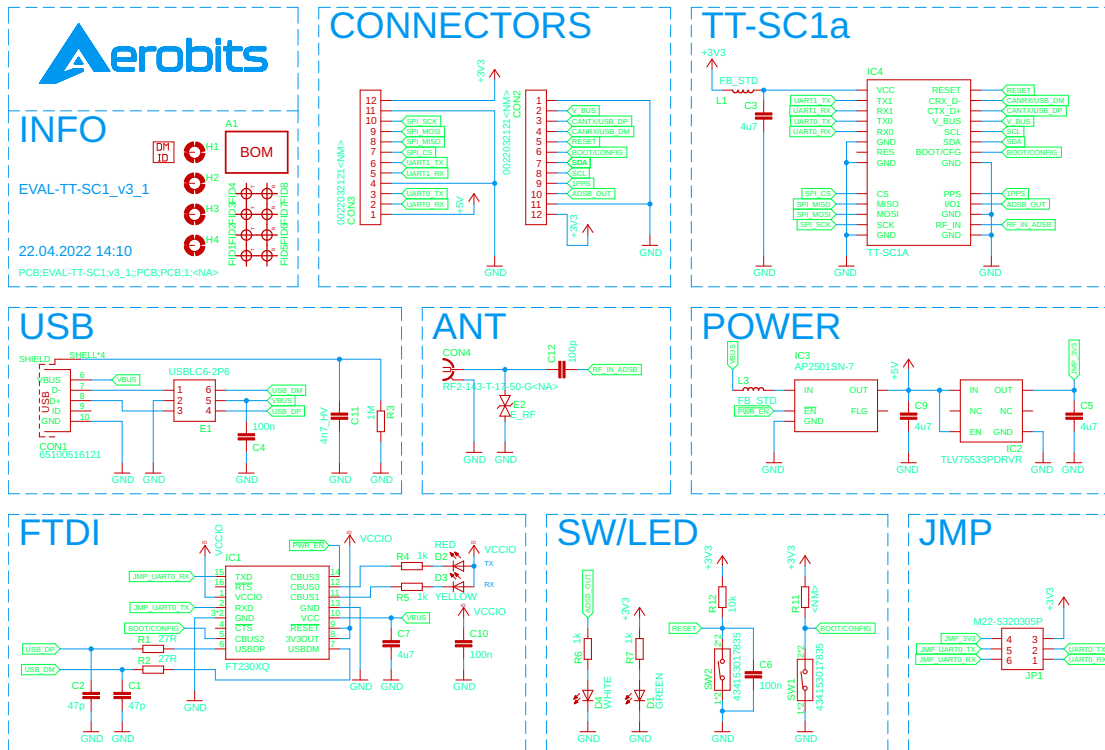


Figure 4: Electrical diagram of EVAL TT-SC1 EXTENDED

3 Mechanical specification

3.1 Mechanical parameters

Parameter	Value
Dimensions	60.5 x 27.0 x 1.5 mm
Weight	10.0 g

Table 7: Mechanical parameters of EVAL TT-SC1 EXTENDED

3.2 Dimensions

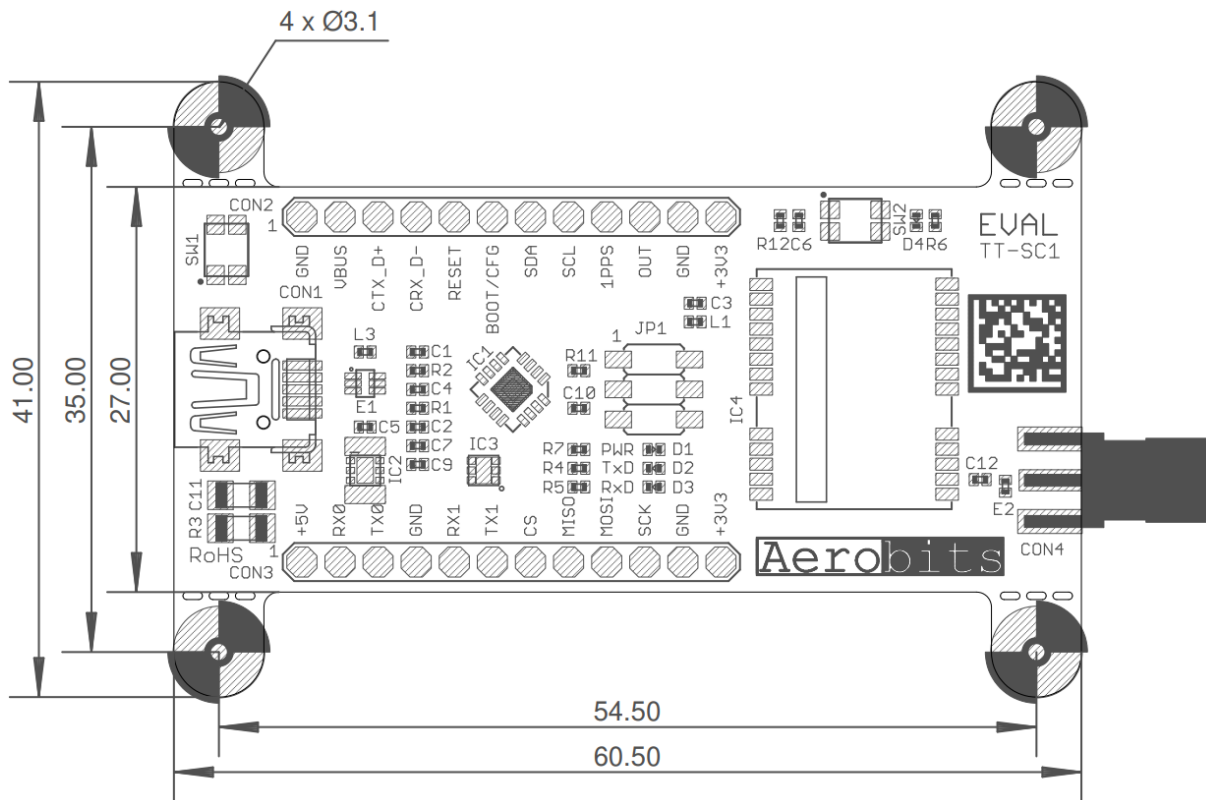


Figure 5: Dimensions of EVAL TT-SC1 EXTENDED

NOTE: For more specific information see [OEM ADS-B receiver: TT-SC1-EXT](#)

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