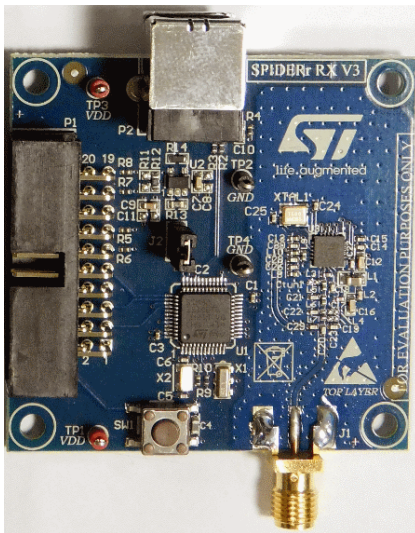


Wireless receiver board of the kit STDES-IDS003V1 and STDES-IDS002V1



Features

- When used in conjunction with the STDES-ERH001V1 or STDES-ERH003V1 companion board, it forms an autonomous wireless sensor node based on the SPV1050 ULP energy harvester and battery charger
- Compatible with the user-friendly STSW-IDS002V1 software for remote reading of sensors and monitoring of electrical parameters
- All ST components are:
 - CE Certified
 - RoHS and China RoHS compliant
 - WEEE compliant

Description

The [STDES-ERH002V1](#) application example mounts a low power microcontroller and RF Sub-1 GHz receiver for wireless transmission.

The STDES-ERH002V1 is part of the [STDES-IDS002V1](#) and [STDES-IDS003V1](#) kits.

Together with the [STDES-ERH001V1](#) or [STDES-ERH003V1](#) companion board included in the STDES-IDS003V1 and STDES-IDS002V1 kits, respectively, they represent an example of autonomous wireless multi sensor nodes powered by TEG or PV panels, respectively.

Both kits include a second [STDES-ERH001D](#) companion board which allow the GUI to display the electrical characteristics of the harvesting (TEG or PV panel) module and battery, SPV1050 conversion efficiency and MPPT accuracy.

The dedicated [STSW-IDS002V1](#) provides a user-friendly GUI able to show the data sensed by the STDES-ERH001V1 or STDES-ERH003V1 and received by the STDES-ERH002V1.

Product summary

[STDES-ERH002V1](#): Wireless receiver board of the kits STDES-IDS003V1 and STDES-IDS002V1

[STDES-IDS002V1](#): SPIDEr™ Autonomous wireless multi-sensor node powered by PV cells and based on SPV1050

[STDES-IDS003V1](#): SPIDEr™ Autonomous wireless multi-sensor node powered by TEG and based on SPV1050

[SPV1050](#): Ultra low power energy harvester and battery charger with embedded MPPT and LDOs

[STSW-IDS002V1](#): GUI for STEVAL-ISV021V1, STDES-IDS002V1 and STDES-IDS003V1

1 Bill of material

Table 1. Bill of material

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
1	5	C1, C2, C3, C15, C17	100nF	Capacitor	MURATA	GCM155R71C104KA55
2	1	C4	22 μ F	Capacitor	TDK	C1608X5R0J226M
3	2	C5, C6	6pF	Capacitor	MULTICOMP	MCCA000087
4	1	C7	100nF	Capacitor	KEMET	C0603C104K5RACTU
5	0	C8, C11 (DNM)	-	Capacitor	-	-
6	3	C9, C12, C16	1 μ F	Capacitor	MURATA	GCM188R71E105KA64
7	1	C10	4.7 μ F	Capacitor	YAGEO	CC0603KRX5R5BB475
8	1	C13	100pF	Capacitor	MURATA	GRM1555C1H101JZ01D
9	3	C14, C18, C26	330pF	Capacitor	YAGEO	CC0402KRX7R9BB331
10	0	C19, Ctun1 (DNM)	-	Capacitor	-	-
11	2	C20, C29	220pF	Capacitor	MURATA	GRM1555C1H221JA01D
12	1	C21	7pF	Capacitor	MURATA	GJM1555C1H7R0BB01D
13	1	C22	2.4pF	Capacitor	MURATA	GRM1555C1H2R4WA01D
14	1	C23	3.6pF	Capacitor	MURATA	GRM1555C1H3R6CA01D
15	2	C24, C25	18pF	Capacitor	MULTICOMP	MC0402N180J500CT
16	1	C27	10nF	Capacitor	MURATA	GCM155R71H103KA55
17	1	C28	1.5pF	Capacitor	MURATA	GRM1555C1H1R5WA01D
18	1	C30	2pF	Capacitor	MULTICOMP	MC0402N2R0C500CT
19	1	J1	5pin, 50 Ω	Socket for Antenna	RS	526-5785
20	1	J2	1 row, 2 way	2 pins plug	TOPTECK	PH1S25-140GB 6/3-L
21	1	L1	10 μ H	Inductor	MURATA	LQM21FN100M70L
22	1	L2	27nH	Inductor	COILCRAFT	0402CS-27NXGLU
23	1	L3	100nH	Inductor	MURATA	LQG15HSR10J02
24	0	L4 (DNM)	-	Inductor	-	-
25	1	L5	3.6nH	Inductor	MURATA	LQG15HN3N6S02
26	1	L6	5.1nH	Inductor	MURATA	LQG15HN5N1S02
27	1	L7	0 Ω	Resistor	YAGEO	RC0402JR-070RL
28	1	L8	18nH	Inductor	MURATA	LQG15HN18NJ02
29	2	L9, L10	15nH	Inductor	MURATA	LQG15HN15NJ02
30	1	P1	2 rows, 20 ways	JTAG	TE CONN	2-1634689-0
31	1	P2	Socket USB-B	Socket USB-B	TE CONN	292304-1
32	2	R2, R3	10 Ω	Resistor	TE CONN	CRG0402F10R
33	1	R4	1M Ω	Resistor	YAGEO	RC0402FR-071ML
34	4	R5, R6, R7, R8	10k Ω	Resistor	YAGEO	RC0402FR-0710KL
35	1	R9	560 Ω	Resistor	YAGEO	RC0402FR-07560RL

Item	Q.ty	Ref.	Part / Value	Description	Manufacturer	Order code
36	1	R10	0Ω	Resistor	YAGEO	RC0402JR-070RL
37	0	R11 (DNM)	-	Resistor	-	-
38	1	R12	9.76kΩ	Resistor	VISHAY	CRCW06039K76FKEA
39	1	R13	5.6kΩ	Resistor	TE CONN	CRGH0603J5K6
40	1	R14	0.01Ω	Resistor	YAGEO	PF0603FRE7T0R01Z
41	1	SW1	PUSH BUTTON	RESET BUTTON	DIPTRONICS	DTSM-61NVT-R
42	2	TP1, TP3	RED Test Point	Test Point	KEYSTONE	5000
43	2	TP2, TP4	BLACK Test Point	Test Point	KEYSTONE	5001
44	1	U1	32MHz MCU	MCU	ST	STM32L151CBT6
45	1	U2	85mA LDO	Voltage Regulator	ST	ST715MR
46	1	U3	Sub 1GHz transceiver	Wireless Transceiver	ST	SPIRIT1QTR
47	1	X1	4MHz Oscillator	Crystal Oscillator	MURATA	CSTCR4M00G53Z-R0
48	1	X2	32MHz Crystal Oscillator	Crystal Oscillator	ABRACON CORPORATION	ABS07-32.768KHZ-6-T
49	1	XTAL1	50MHz Crystal	Crystal Oscillator	TXC	7M-50.000MAAJ-T
50	1	-	868MHz to 915MHz SMA ANTENNA	ANTENNA	LPRS	WR868
51	1	-	USB TYPE A USB TYPE B	USB CABLE	RS	815-8466

2 Schematic

Figure 1. STDES-ERH002V1 schematic (1 of 2)

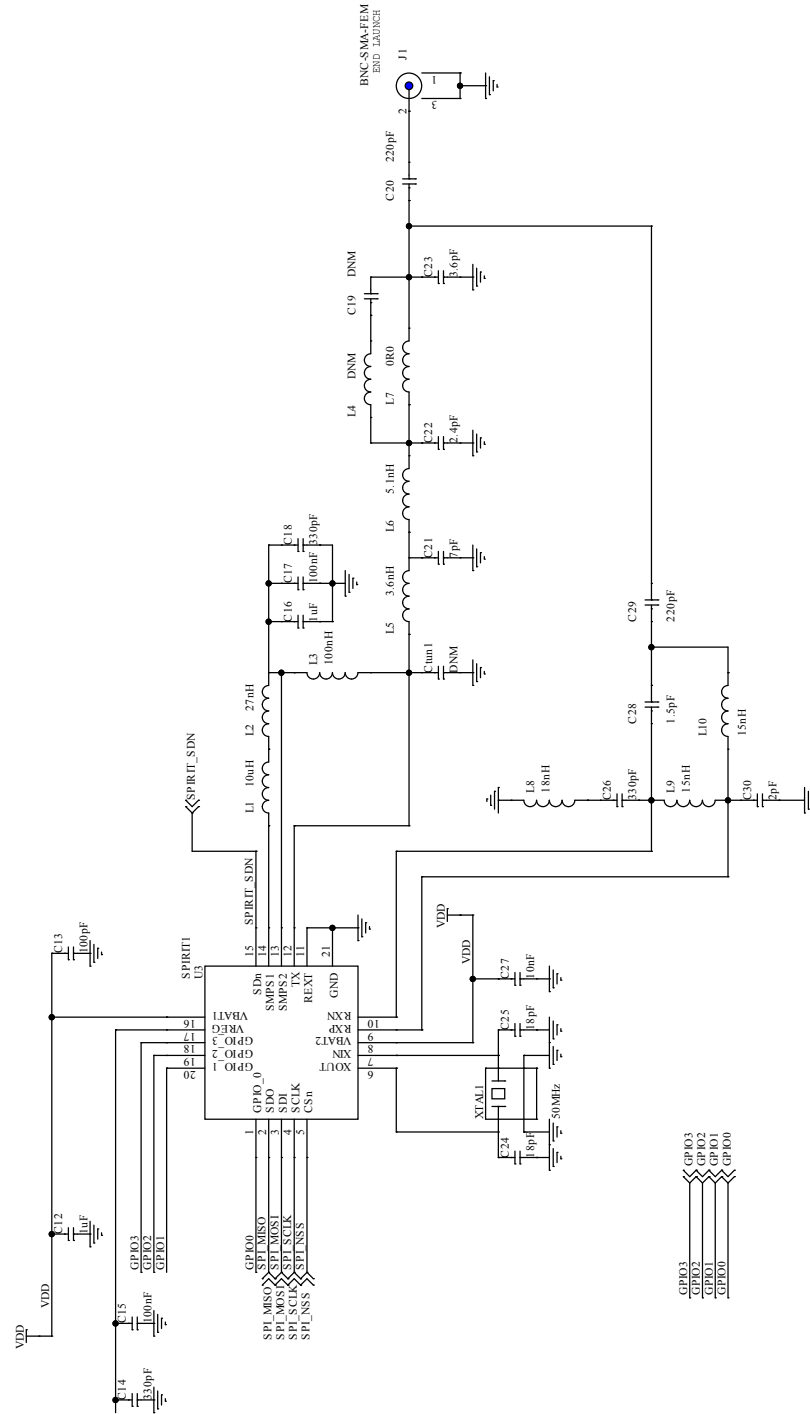
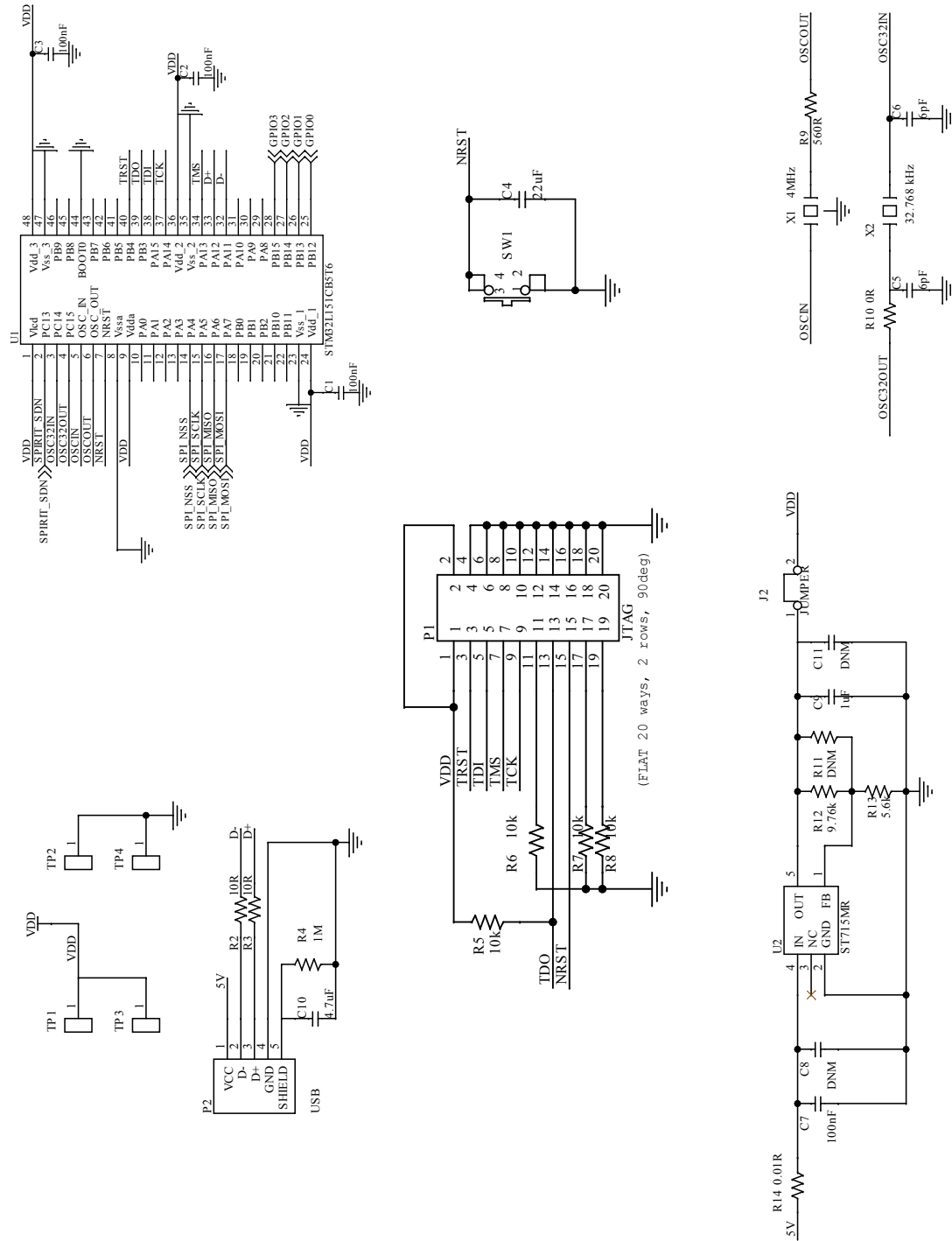


Figure 2. STDES-ERH002V1 schematic (2 of 2)



Revision history

Table 2. Document revision history

Date	Version	Changes
05-Oct-2018	1	Initial release.

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