ELAD:
RADIOLUTIONARY.

SWITCH BOX ASW-2/ASW-2 E/ASW-2 H

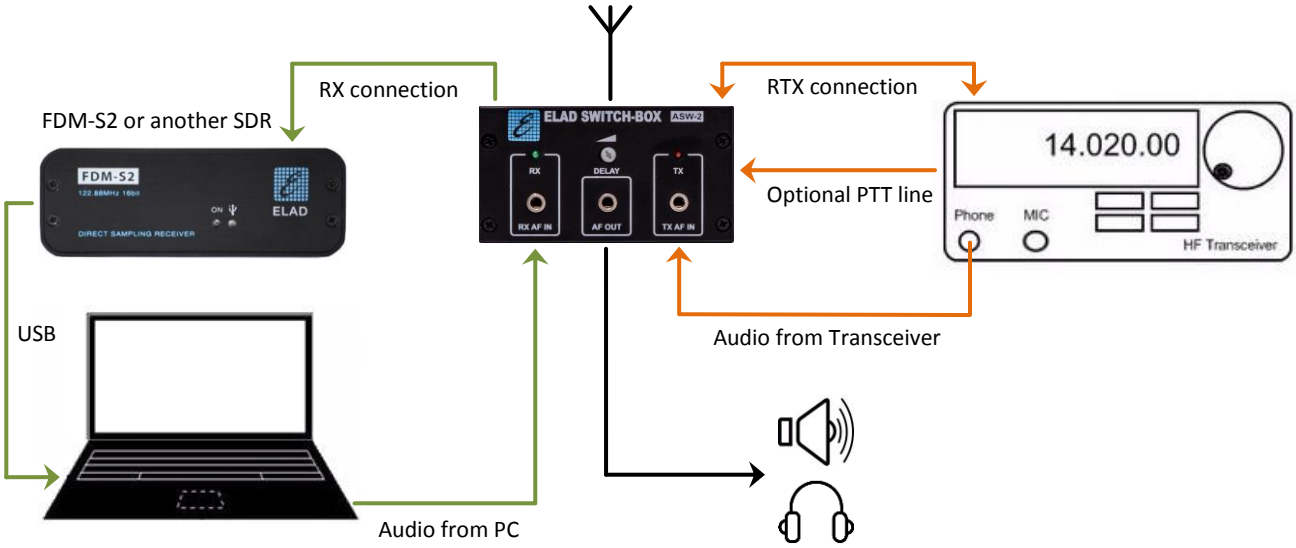
RX/TX Antenna Exchanger

Overview

ELAD SWITCH BOX ASW-2 is a **Receive/Transmit antenna switch** which is also able to switch audio path. To switch antenna from receive to transmit path **two operating modes** can be used :

- Manual Mode : transceiver PTT output is used to choose RF path,
- Automatic Mode : transceiver output power is sensed to automatically switch antenna path.

Configuration

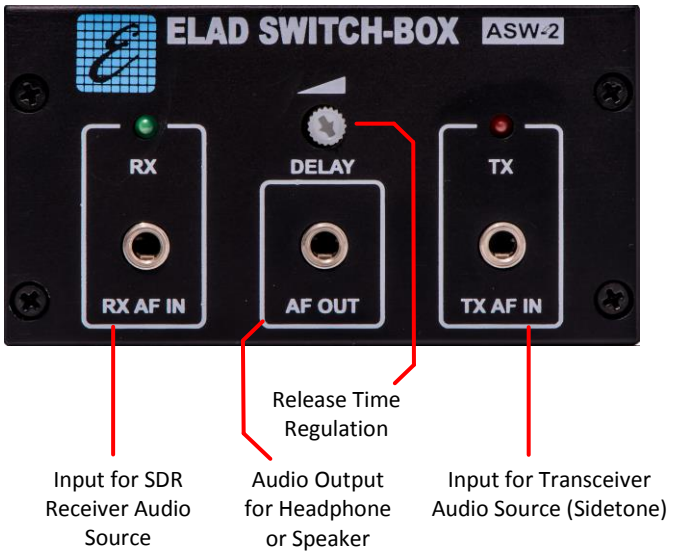


Technical Specifications

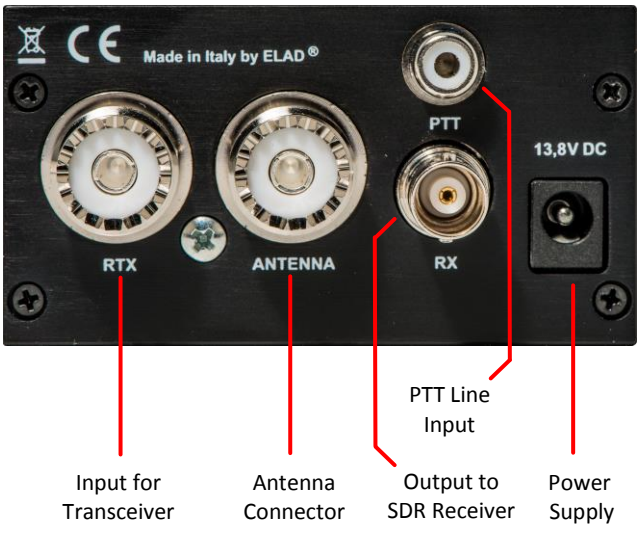
- 50 Ω impedance.
- Gas discharge protection on the ANTENNA connector.
- DC – 160 MHz frequency range.
- Power supply : 13.8 VDC, 200 mA.
- Maximum RTX input power: 100 W.
- RF sense threshold : <10 mW (1.8 MHz – 30 MHz tested).
- On time : <20 ms. Release time : adjustable from 150 ms to 3 s.
- Insertion loss : <0.2 dB @144MHz (0.15 dB typical).
- RX/TX and audio switch made with relays.
- RX path isolated and grounded with additional relay during transmission to improve ANTENNA/RX isolation.
- RX isolation : see **RF Specifications** and **Typical Performance Characteristics** in this manual.
- Audio switch for CW operation allowing real time sidetone from transceiver (no SDR latency).
- Audio switch made by pure contact allowing the use for other purposes (delayed PTT chain, aux PTT, bias injection).
- Default ANTENNA-RTX connection when not powered to avoid transceiver damage.

Panels Description

Front Panel



Rear Panel



Manual Mode

To operate in Manual Mode connect the PTT output of your transceiver to the **PTT** input (RCA connector) of the ELAD ASW-2. By grounding the **PTT** input, **RTX** connector is switched to **ANTENNA** connector, **RX** connector is grounded for better isolation and **AF OUT** output is switched to **TX AF IN** input. If the **PTT** input is left opened, **ANTENNA** connector is switched to **RX** connector and **AF OUT** output is switched to **RX AF IN** input.

Automatic Mode

To operate in Automatic Mode do not connect the **PTT** input. When the ELAD ASW-2 senses RF power on **RTX** connector, it automatically switches **RTX** connector to **ANTENNA** connector, grounds **RX** connector for better isolation and switches **AF OUT** output to **TX AF IN** input. Otherwise, if no RF power is sensed, **ANTENNA** connector is switched to **RX** connector and **AF OUT** output is switched to **RX AF IN** input.

Package Contents

- 1 ELAD SWITCH BOX ASW-2 *
- 2 Mini stereo jack cable (1/8", 3.5 mm) **
- 1 BNC-BNC RG58 C/U cable
- 1 DC Plug Cable

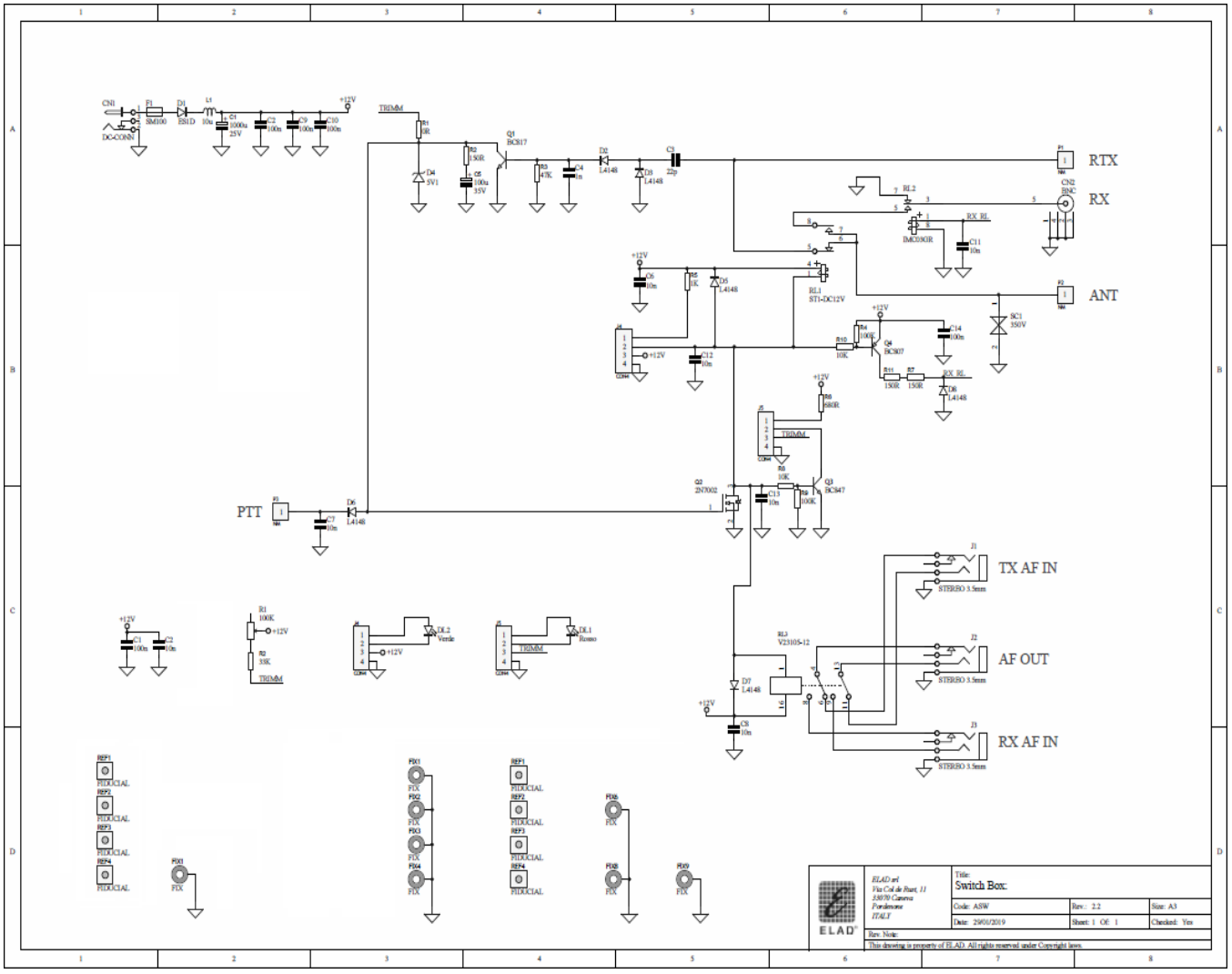
* See **Part Numbering** alongside.
** Not supplied for the Entry Level model.

Part Numbering

Part Number	Audio Switch	Isolation
ASW-2	Yes	Standard
ASW-2 E	No	Standard
ASW-2 H	Yes	High

ASW-2 E : Entry Level model.
ASW-2 H : High Isolation model.
See **RF Specifications** for differences between models.

Schematic



RF Specifications

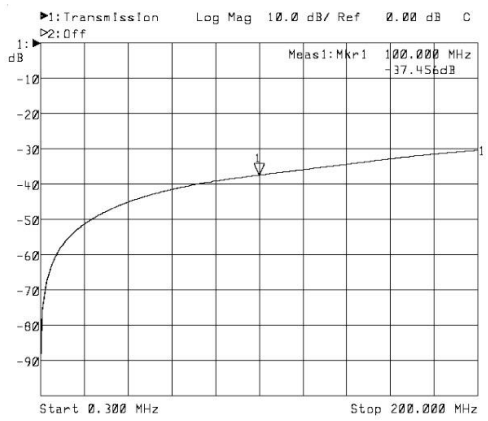
	RX MODE			TX MODE		
	Loss	VSWR	Isolation	Loss	VSWR	Isolation
Freq	RX-Ant	Ant	Ant-RTX	Ant-RTX	RTX	RX-Ant
(MHz)	(dB)	(SWR)	(dB)	(dB)	(SWR)	(dB)
1	0,01	1,05	-70	0,05	1,06	-90
10	0,02	1,06	-57	0,04	1,08	-79
25	0,02	1,12	-49	0,08	1,16	-72
50	0,04	1,09	-43	0,09	1,10	-66
75	0,08	1,18	-39	0,06	1,08	-62
100	0,10	1,18	-36	0,10	1,08	-59
125	0,12	1,17	-35	0,13	1,06	-57
150	0,21	1,30	-33	0,14	1,13	-56
175	0,20	1,34	-31	0,13	1,10	-54
200	0,21	1,25	-30	0,15	1,10	-53

Standard Isolation Model

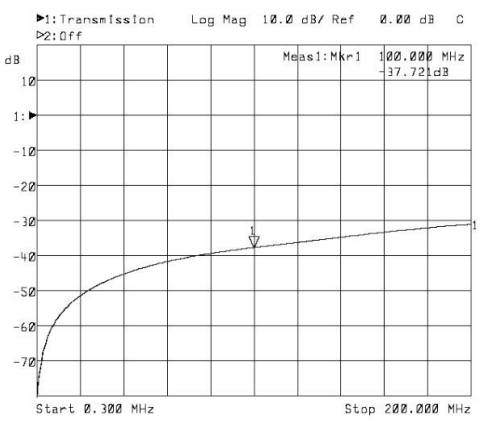
	RX MODE			TX MODE		
	Loss	VSWR	Isolation	Loss	VSWR	Isolation
Freq	RX-Ant	Ant	Ant-RTX	Ant-RTX	RTX	RX-Ant
(MHz)	(dB)	(SWR)	(dB)	(dB)	(SWR)	(dB)
1	-0,01	-1.036	-77	0,05	-1.020	-98
10	-0,02	-1.039	-57	0,04	-1.029	-95
25	-0,03	-1.075	-49	0,08	-1.061	-93
50	-0,04	-1.106	-43	0,09	-1.117	-86
75	-0,05	-1.066	-40	0,06	-1.157	-85
100	-0,05	-1.055	-37	0,10	-1.160	-80
125	-0,11	-1.130	-35	0,13	-1.125	-77
150	-0,15	-1.232	-33	0,14	-1.090	-74
175	-0,17	-1.310	-32	0,13	-1.040	-72
200	-0,19	-1.329	-31	0,15	-1.065	-71

High Isolation Model

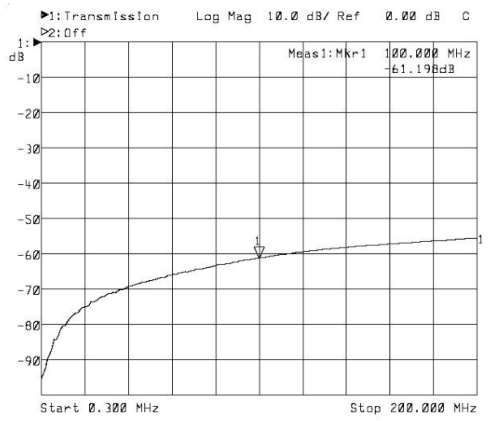
Typical Performance Characteristics



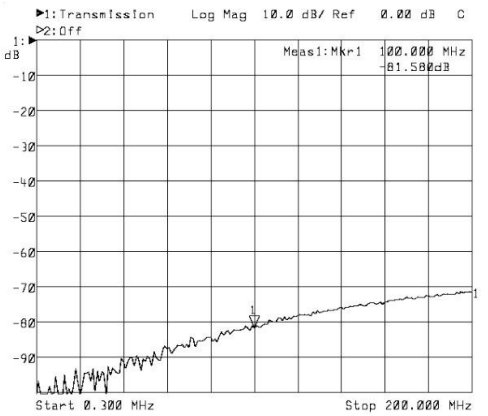
ANTENNA/RTX Connectors Isolation in Rx Mode
Standard Isolation Model



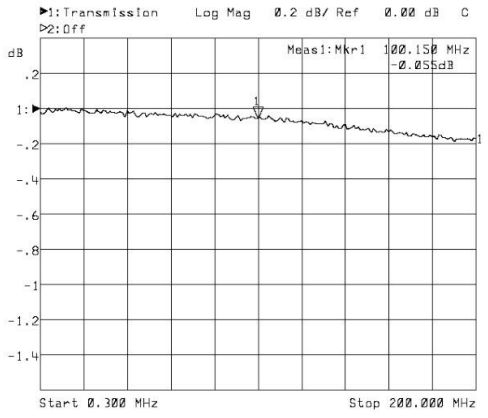
ANTENNA/RTX Connectors Isolation in Rx Mode
High Isolation Model



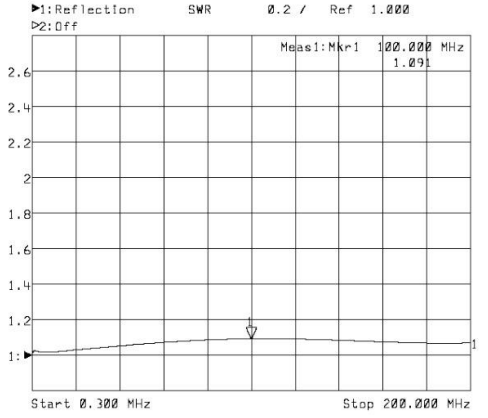
ANTENNA/RX Connectors Isolation in Tx Mode
Standard Isolation Model



ANTENNA/RX Connectors Isolation in Tx Mode
High Isolation Model



RX/ANTENNA Connectors Insertion Loss in Rx Mode
High Isolation Model



SWR on RTX connector in Tx Mode
High Isolation Model