ELAD

ELAD SPF-08

Switchable Preselector Filter Board for FDM SDRs

USER MANUAL

Contents

Revision History

Revision	Date	Description
Rev 1	11/2014	• First version.
Rev 2	05/2021	• Updated section **1 - Overview** • Added section **4 - Filter Installation** • Updated section **5 - Filter Module Family**.

1 Overview

ELAD SPF-08 is a switchable pre-selector board that allows selection between 8 configurable filters. Users can configure the board by choosing the right set of filter within the filter module family provided by ELAD.
Moreover, ELAD FDM-SW2 SDR software can be configured to automatically select the proper filter as a function of the tuning frequency.

To know about compatibility between the SPF-08 preselector and FDM devices, check on the ELAD website.

2 Package Contents

ELAD SPF-08 package contains:

- SPF-08 switchable pre-selector board;
- FBPY bypass module **already** installed in slot No. 8;
- DB9 male/male flat cable;
- SMA male/male cable;
- Rubber feet;
- User manual.

3 Hardware Description

3.1 Front Panel Description

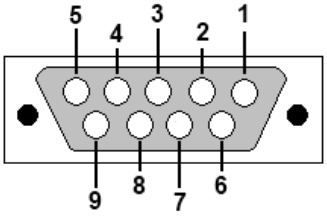
1 - LED Bar
Indication of which filter is selected.

3.2 Rear Panel Description

1 - RF IN
SMA female 50Ω RF Input connector.

2 - RF OUT
SMA female 50Ω RF Output connector.

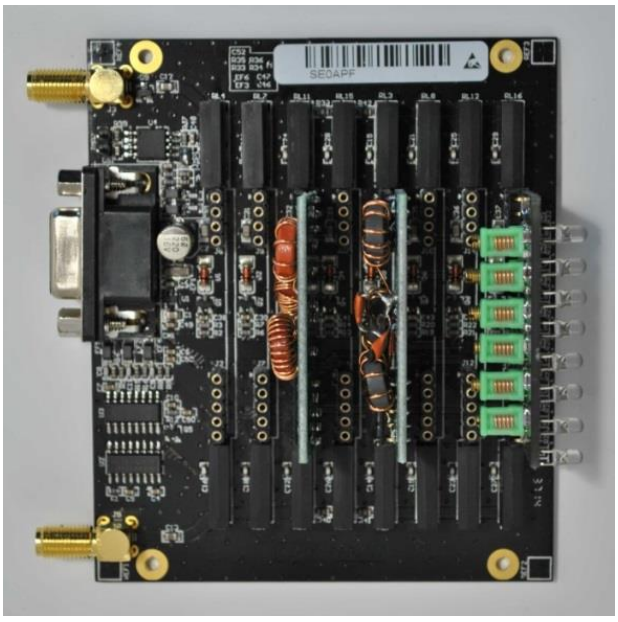
3 – EXT I/O
DB9 female connector that allows communication with FDM SDRs. **This is NOT a standard serial port.**



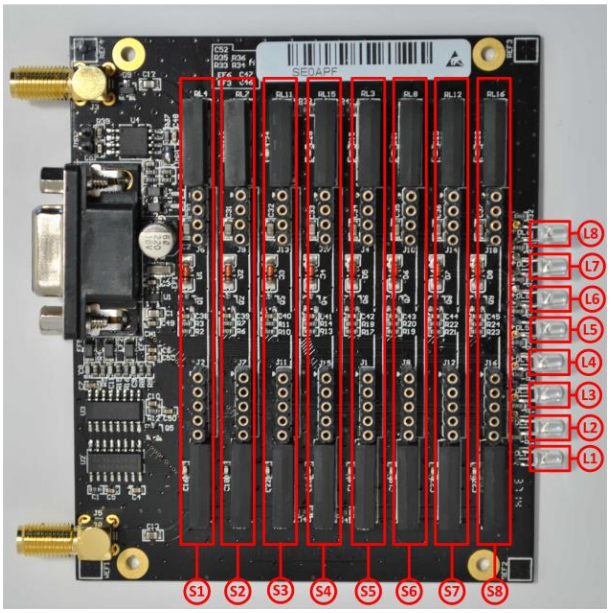
- Pin 1: SPI Latch
- Pin 2: I2C SCL
- Pin 3: SPI Clock
- Pin 4: I2C SDA
- Pin 5: Ground
- Pin 6: Not Connected
- Pin 7: Not Connected
- Pin 8: SPI Data
- Pin 9: +5V

3.3 Internal Description

Empty SPF-08 board



SPF-08 board with 3 filter modules



Slots identification

- S1 to S8 are the eight slots for filter modules 1 to 8.
  NB : if the bypass module is used, it must be placed in slot 8.
- L1 to L8 are the eight LEDs that indicate which filter modules is selected (“Lx” LED lights up when “Sx” slot is selected).

4 Filter Installation

To install a new filter it is necessary to open the SPF-08 enclosure. To do that, remove the four screws of the rear panel.

Now it is possible to extract the printed circuit board and insert new filters.

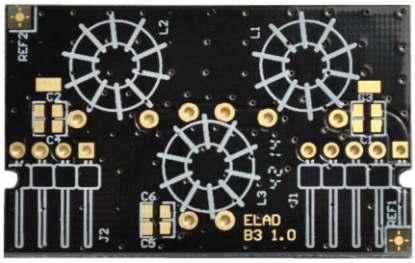
5 Filter Module Family

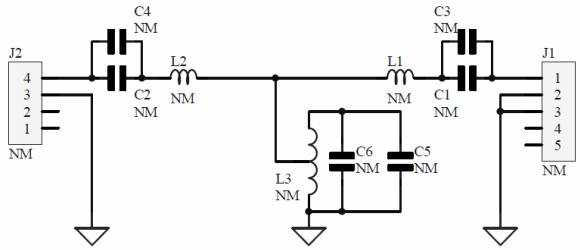
The table below lists the filter modules available from ELAD :

Module Code	Module Description	Module Code	Module Description
FBPY	Bypass module (*)	FBP40-1	Band Pass 40 m
FLP05M-1	Low Pass 500 kHz	FBP30-1	Band Pass 30 m
FHP05M-1	High Pass 500 kHz	FBP20-1	Band Pass 20 m
FHP1M7-1	High Pass 1700 kHz	FBP17-1	Band Pass 17 m
FPCB-B3	Empty module for self-made filters	FBP15-1	Band Pass 15 m
FPCB-H5	Empty module for self-made filters	FBP12-1	Band Pass 12-10 m
FBP160-1	Band Pass 160 m	FBP1321	Band Pass 13-21MHz
FBP80-1	Band Pass 80 m	FBP2135	Band Pass 21-35MHz
FBP60-1	Band Pass 60-49 m		

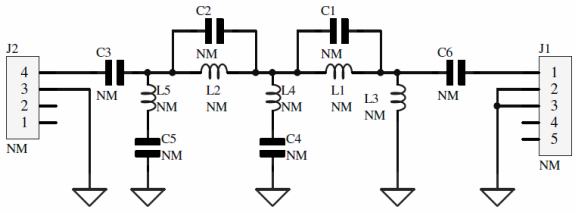
(*) The bypass module is included with the SPF-08 Preselector.

5.1 FPCB-B3 Module Schematic





5.2 FPCB-H5 Module Schematic



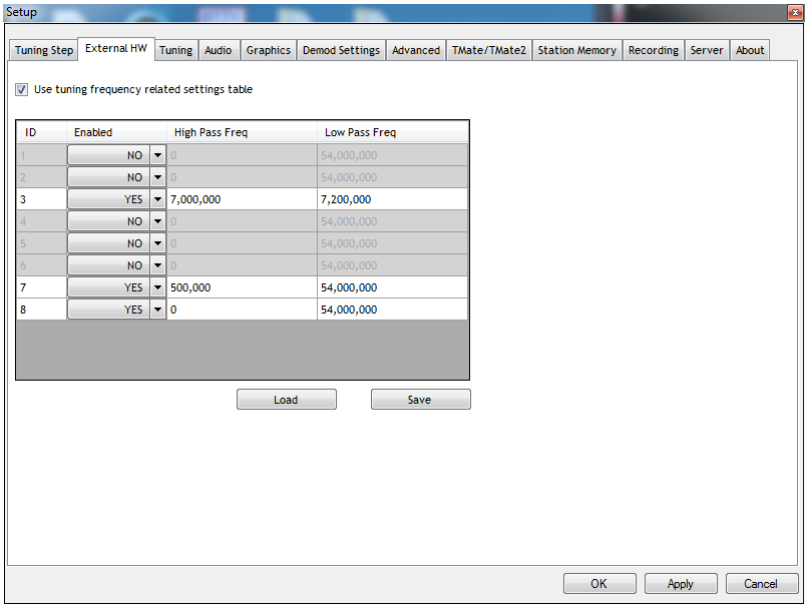
6 Using SPF-08 with FDM-Sx Receivers and FDM-SW2 SDR Software

When SPF-08 board is connected with an ELAD FDM-Sx SDR receiver (FDM-S1 or FDM-S2), the ELAD FDM-SW2 SDR Software is able to command the preselector board.
In the “Setup” panel select the “External HW” Tab. Checking the “Use tuning frequency related settings table” checkbox the FDM-SW2 software automatically select the correct SFP-08 filter according to the tuning frequency.
The settings table is formed by 8 rows, one for each filter slot of the SPF-08 board.
Each row comprises 4 fields:

- **ID:** slot number from 1 to 8;
- **Enabled**: set “YES” to enable the selected filter;
- **High Pass Freq:** high pass frequency of the selected filter;
- **Low Pass Freq:** low pass frequency of the selected filter.

In the following figure is reported the configuration of a SPF-08 board with:

- FBP40-1 filter module (Band Pass filter for 40 m band) mounted in slot number 3;
- FHP05M-1 filter module (500 kHz High Pass filter) mounted in slot number 7;
- FBPY module (bypass) mounted in slot number 8.



7 Using SPF-08 with the FDM-DUO SDR Transceiver

When SPF-08 board is connected with an ELAD FDM-DUO SDR Transceiver, the configuration is stored in the FDM-DUO internal memory. At the startup, FDM-DUO senses the DB9 connector and if the SPF-08 board is found the transceiver automatically applies the stored configuration according to the tuning frequency.

To save the desired configuration in the FDM-DUO memory, use the “FDM-DUO Manager” feature in the ELAD FMD-SW2 SDR Software.
In the “SPF-08 Perselectros” panel set “YES” in the “Enable Presel SPF-08 Table” to enable the use of preselector board.
The settings table is formed by 8 rows, one for each filter slot of the SPF-08 board.
Each row comprises 4 fields:

- **ID:** slot number from 1 to 8;
- **Enabled**: set “YES” to enable the selected filter;
- **High Pass Freq:** high pass frequency of the selected filter;
- **Low Pass Freq:** low pass frequency of the selected filter.

Press “Save” button to store the table in the FDM-DUO internal memory.

In the following figure is reported the configuration of a SPF-08 board with:

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- FHP05M-1 filter module (500 kHz High Pass filter) mounted in slot number 7;
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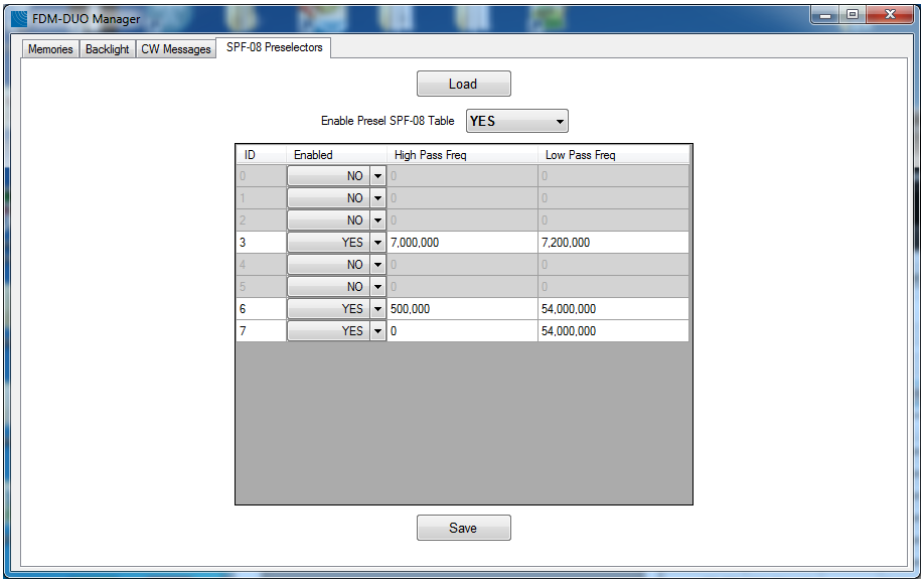
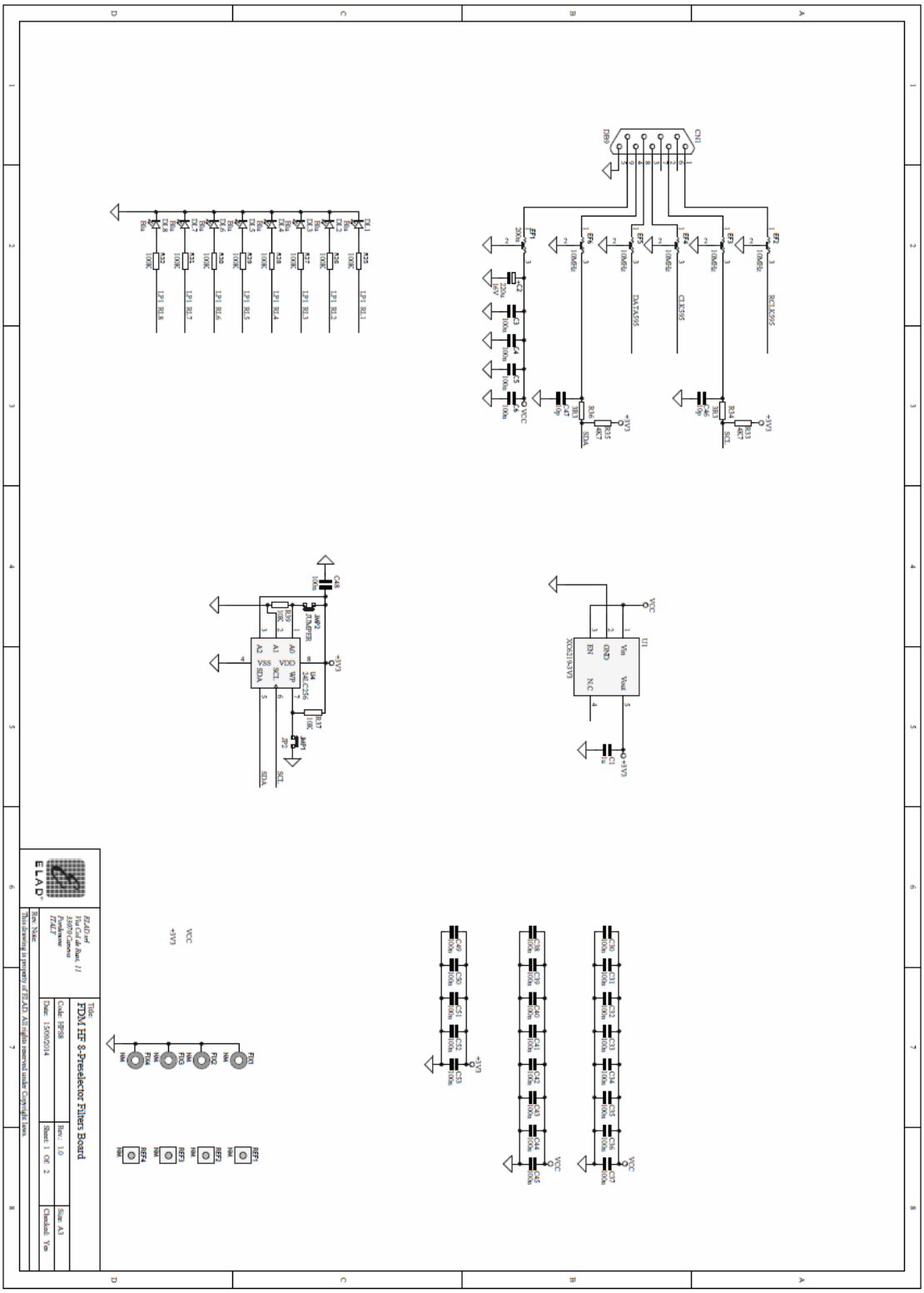
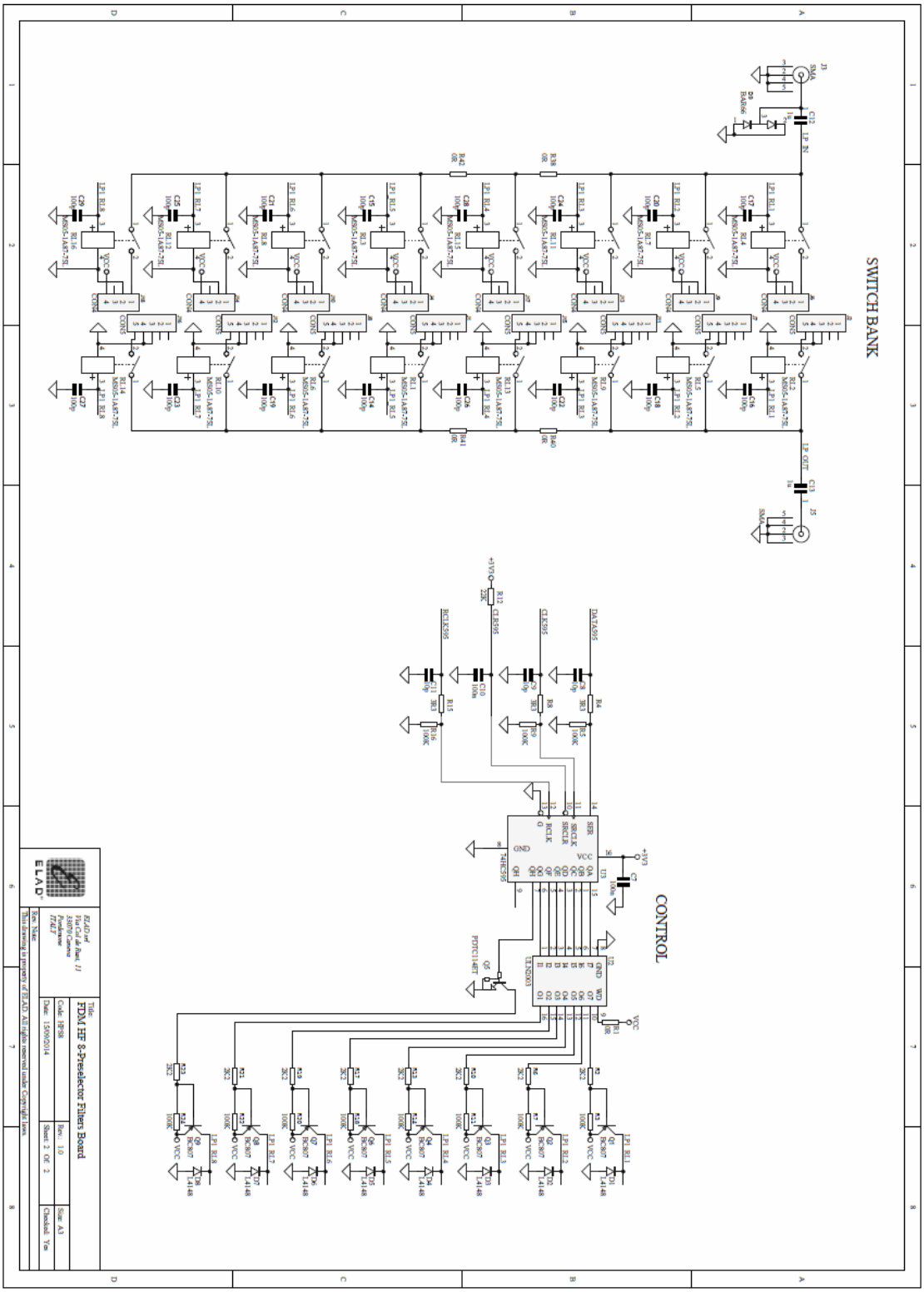


8 SPF-08 Schematic





NOTE: please refer to our website http://sdr.eladit.com for future updates and information.

Declaration of Conformity (EC)

The product marked as

SPF-08

manufactured by

Manufacturer :	ELAD S.r.l.
Address :	Via Col De Rust, 11 I-33070 CANEVA (PN)

is an amateur kit produced in conformity to the requirements contained in the following EC directives :

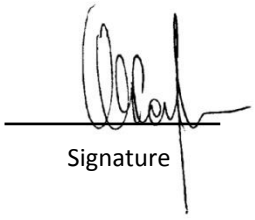
- EMC Directive 2014/30/EU
- RoHS Directive 2011/65/EU

This declaration is under responsibility of the manufacturer

ELAD S.r.l.
Via Col De Rust, 11
I-33070 CANEVA (PN)

Issued by

Name : Franco Milan
Function : President of ELAD S.r.l.

CANEVA	May, 25th 2021	
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