

## Mounting the ASI + IP output board into STB

First it is necessary to consider if there is enough space to mount the board into the STB housing. Also please remember about holes for the output connectors. The board should be placed so that the connecting wires will be as short as possible, all wires should be of the same length (approximately).



## ASI-IP module parralel TS in



Fig.1. Numbering of ASI + IP output board connector pins. First pin has square pad, other pads are circles (see bottom side)

After locating the place for the board, you can start soldering. To reduce the noise influence it is necessary to place ground wires of 1 to 23 contacts between the signal wires of 2 to 24 contacts, and ground wires must be connected together at one point to a ground at the STB board as shown at Fig.2. Choice of the connection point to the ground of the STB depends on the particular STB. Preferably, the connection point should be near a receiver's tuner. If you have

chosen a wrong point, a lot of errors can appear in the stream. In this case it is necessary to choose other point checking quality of output signal.



Fig.2.

ASI + IP output board is powered by STB power supply (9...27V), see Fig. 3.





If ASI+IP board is mounted properly, it starts outputting the ASI stream right away.





Fig. 4. ASI+IP board is mounted into STB

Connecting the ASI+IP output board to STB can be done in two ways depending on what program (FTA or encrypted) need to be converted in ASI/IP format:

- 1. In case if FTA program is received, ASI+IP output board should be connected to the STB's demodulator (tuner) contacts.
- 2. When encrypted program is received, ASI+IP output board should be connected to the CAM module contacts (Common Interface).

## Connecting the ASI+IP output board to the STB's tuner

Different tuners can have different output connector pin assignment. The pins assignment can be found in the tuner documentation or identified by means of an oscilloscope.

If you need to identify pins assignment by means of an oscilloscope, follow the steps below:

- Use a two-channel oscilloscope;
- Check the tuner output connector pins and find SYNC signal (periodic single pulse);
- Synchronize to SYNC signal;
- Look signals at other tuner output pins:

Beginning of VALID signal coincides with beginning of SYNC.

Data signals value should be as indicated at Fig.5 (when SYNC=1). First byte of data should be equal 47hex or 71 decimal or 01000111 binary. Other bytes are in random order.



Fig. 5.

## Connecting the ASI+IP output board to Common Interface (CI).

Mounting the ASI +IP output board should be done in accordance with the schematics (see Fig 6) by skilled technician.

Common	Interface		parralel TS out(descrambled)				.)	ASI-IP module parralel TS in				
Common	Intervention 19 19 20 46 47 48 49 50 53 56 56 56 29 28 27 26 56 29 28 27 26 25 24 25 24 25 24 22 212 11 8 0 21 13 14	MIVAL MCLKI MDL00 MDI01 MDI02 MDI03 MDI03 MDI04 MDI03 MDI04 MDI05 MDI06 MDI07 A00 A01 A01 A01 A02 A03 A04 A03 A04 A05 A06 A07 A08 A09 A10 A11 A12 A13 A14	par:	mailel   T     MOVAL   MCVAL     MCLKO   MOSTRT     MD000   MD001     MD003   MD003     MD003   MD004     MD003   MD003     MD004   MD005     MD005   MD006     MD006   MD007     D00   D011     D02   D03     D04   D05     D06   D07     VPP1   VP2     VS1#   CD2#     CD1#   CD2#     CE2#   CE2#	S   01     62   57     63   64     65   66     37   38     40   41     30   31     32   2     3   4     5   6     11   32     2   3     4   5     6   6     6   6     7   43     36   67     7   42	ut (descrambled) FCLK SYNC DAT0 DAT1 DAT2 DAT3 DAT4 DAT5 DAT6 DAT6 DAT7	)	ASI-IP mod SYNC VALID FCLK DAT7 DAT6 DAT6 DAT6 DAT4 DAT3 DAT2 DAT1 DAT0 GND to 1 to rece:	24 $23$ 20 21   20 19   18 17   16 13   12 11   10 9   8 7   6 5   4 3   2 1   be connected   iver's groun	d	in	
	25 24 23 22 12 12 8 12 21 31 4 21 21 21 8 12 21 13 14 17	A03 A04 A05 A06 A07 A08 A09 A10 A11 A12 A13 A14	XCIF	D03 - D04 - D05 - D06 - D07 - VPP1 - VS1# - CD1# - CD2# - CE1# - CE2# - CE2# - CE2# -	3 4 5 6 18 52 36 67 7 42 9			GND to be co to receiver'	be connected iver's groun	d		



Fig.7. Numbering of CAM Connector pins (bottom side)

It is necessary to pay attention that in some STB ASI +IP Out board will output ASI stream if a smart card is inserted in CAM and encrypted program is selected. In this case there will be decrypted by CAM programs as well as all other programs including FTA in the ASI stream. In case if FTA program is selected, streams will not appear at ASI and IP outputs.