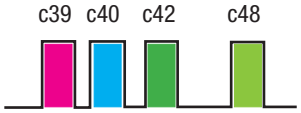
SERIES / MODEL	FAMILY	DESCRIPTION
TPC 010	ClassA Analog/Digital TV-Channel Processing Equipment DVB-T/T2 and DVB-C	Usable as channel convertors (output channel different to input channel) or processors (output channel is the same as input channel).



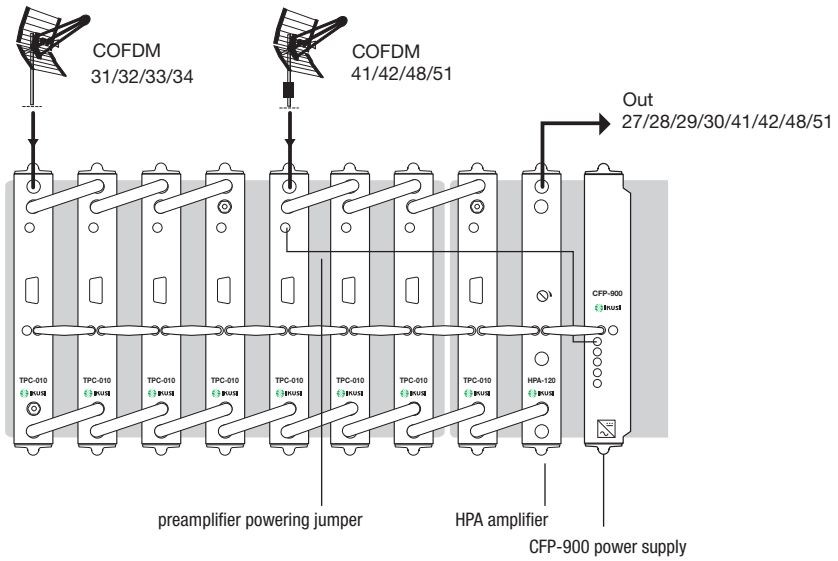
DVB-T/T2 and DVB-C Input signal

DVB-T/T2 and DVB-C output signal

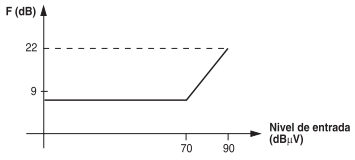
Double function:

- **Filter a channel** (ex. c40) or
- **Convert one channel to another** (ex. the ch 40 to ch 41)

Application example



— **Exemple of «TPC» headend for conversion of four digital channels and processing of other four ones. Contains 8 TPC-010 Processors, 1 Amplifier and 1 Power Supply, all fixed on 2 horizontally joined Baseplates.**

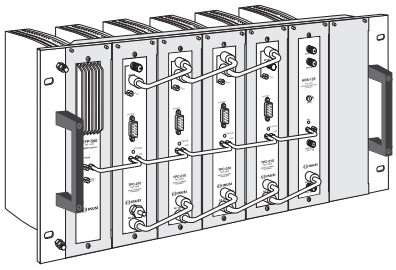


- Noise Figure vs. Input Level

Features

MODEL		TPC-010
REF.		**3842**
Type of application channel		Analog / Digital
Remote mode		No
Standard / TV System		DVB-T/T2 ,, DVB-C ,, B/G ,, D/K ,, I ,, L
Frequency band of input channel	MHz	52 - 862
Selectable output channel located between:	MHz	52 - 862
Frequency selection steps	MHz	analog 0.125 / digital 0.500
Input level (AGC: 40 dB, manual adjustment for L-system channels)	dBµV	analog 50-90 / digital 44-84
Input loop-through gain	dB	0 ±1
Selectable tuning offset	kHz	(±) 125 / 250 / 375 / 500
Noise figure	dB	< 9 (input level <70 dBµV)
Bandwidth of SAW filtering at -3 dB	MHz	6.875 (7 MHz channels) 7.850 (8 MHz channels)
Selectivity for 7 MHz channels	dB	> 9 (fc ± 3.75 MHz) > 70 (fc ± 4.75 MHz)
Selectivity for 8 MHz channels	dB	> 18 (fc ± 4.75 MHz) > 70 (fc ± 5.25 MHz)
Image rejection	dB	> 70
Adjustable output level	dBµV	analog 65-80 / digital 60-75
Output loop-through loss	dB	1.1 (typ.) ,, 1.4 (max)
Group delay ripple	ns	< ±40
Spurious in band	dBc	< -58
Phase noise of output channel	dBc/Hz	83 dBc@1kHz 98 dBc@10kHz 98 dBc@100kHz
Broadband noise (ΔB=5MHz)	dBc	< -75
Supply voltage	VDC	+12
Consumption	mA	700
Operating temperature	°C	0 ... +45
Input RF connector type		(2x) female F
Output RF connector type		(2x) female F
DC connector type		banana socket
Programming interface		RS-232 / DB-9
Dimensions	mm	230 x 195 x 32

- Usable as channel converters (output channel different to input channel) or processors (output channel is the same as input channel).
- Input and output port, with loop through.
- Output signal with very low phase noise
- Very clean wideband spectrum.



TPC HEADENDS

- Double heterodyne conversion in the 52-862 MHz frequency range. IF SAW filtering.
- Agile Processing Modules, usable either as channel converters (output channel is different to input channel) or as channel processors (output channel is the same as input channel). Adjacent channel operation at input and output.
- A TPC headend includes:
  - As many TPC Processing Modules as channels to be converted or processed.
  - One HPA Amplifier that amplifies the sum of the combined output channels from the processors.
  - One or more CFP Power Supplies.
  - One or more Rack-Frames or wall-fixing Base-Plates. The base-plates can be joined horizontally.
  - Usually, housing units for the base-plates.
  - If the headend is large, one or more AMX-400 combiners.

The TPC headends provide a multichannel signal whose level is appropriate to feed the distribution network. An extension input at the HPA amplifier allows easy coupling of the wideband 47-862 MHz signal provided by another existing headend.

FUNCTIONAL DESCRIPTION OF THE TPC PROCESSORS

In a TPC module can be distinguished three main sections:

a) "Input Channel → IF" conversion. Includes a delayed AGC circuitry that operates in the 50-90 dBµV (analog) or 40-80 dBµV (digital) input level ranges.

b) IF filtering. A double SAW filter is used, what provides very high selectivity (>70 dB at ±5.25 MHz from the centre for 8MHz-wide channels).

c) "IF → Output Channel" conversion. The output level can be adjusted between 65 and 80 dBµV.

The TPC-010 must be programmed by the SPI-300 unit.

Programming of a TPC processor involves the following selections and settings:

- Input Frequency. Is the central frequency for digital channel and the picture carrier for analog channel.
- Tuning Offset. Applicable when a strong adjacent channel interferes with the channel being processed.
- AGC on/off. The automatic gain control must be switched off for system L analog channels.
- Manual Gain Control, only if the AGC function has been disabled.
- IF Bandwidth. Two options: 7 or 8 MHz.
- Output Frequency. Same indications stated above for input frequency.
- RF output level. 15 dB adjustable.

The output signal has very low phase noise and very clean wideband spectrum. On the other hand, a vey low broadband noise floor (< -75 dBc) permits using multiple processors in a headend with very little deterioration of the CNR.

CABLING OF TPC HEADENDS

Antenna or cable network signal is fed to the modules (see the figure). On the output side a channel coupling line is installed by using the supplied F bridges; the sum of the combined channels is then connected to the drive amplifier —the HPA module or an external wideband amplifier— which then feeds the distribution network. For power connection, each module has two DC banana sockets that allow to build a +12 VDC cascade. A third banana socket is available to connect the power for an optional mast-head preamplifier.

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