

## PDH-5100P

### H.264 HD 4:2:0 IRD and Processor



The PDH-5100P IRD and Processor provides operators an ideal solution for receiving, remultiplexing, descrambling and decoding operations. Equipped with a variety of inputs that ensures compatibility with all transmission media. The PDH-5100P's remultiplexing capabilities enable creation of new transport streams that are subsets of the original stream. Customized services may be output as multiple SPTS or MPTS over IP, as well as over ASI. By the dual DVB common interfaces, PDH-5100P could decrypt multiple services in one transport stream or two. PDH-5100P is also a professional IRD that features a broadcast quality decoder for MPEG-2 and MPEG-4 AVC/H.264 in both Standard Definition and High Definition formats, and provides a variety of industry standard digital and analog outputs, including CVBS video, AES/EBU Audio, analog Audio, SD-SDI and HD-SDI. The unit also performs HD down-conversion and aspect ratio adaptation of HD programs to generate professional quality baseband analog video and audio outputs for easy integration with existing cable network infrastructure. This all-in-one architecture makes the PDH-5100P an ideal product for distribution and contribution networks.

#### Dual DVB Common Interface and Multi Programs decryption



#### A variety of industry standard digital and analog outputs

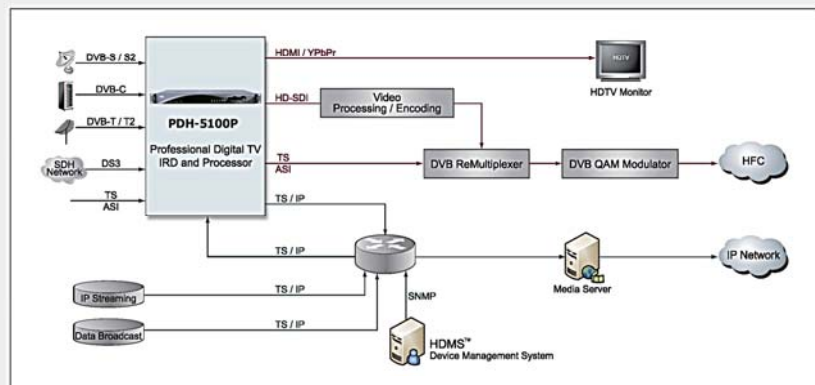


#### Gigabit Ethernet or Dual 100M TS/IP interface for IP based networks



#### Main Feature

- Multiple inputs DVB-T2/S2/S/C/T/T2, TS/IP, ASI and DS3/E3 (optional)
- Supports DVB-S2 Input Stream Identifier (ISI, optional) and DVB-T SFN MIP pass through
- Redundant backup among Tuner, ASI and TS/IP with configurable priority
- SD/HD MPEG-2 and MPEG-4 AVC/H.264 digital video decoding
- Two Audio PIDs decode or pass through (compressed) in SDI output
- Multiple Analog and Digital Outputs, ASI, CVBS, YPbPr, HDMI, SD/HD-SDI, AES/EBU Audio, TS/IP
- Built-in TS re-multiplexer receives 2xASI, Tuner and TS/IP Inputs
- 2xDVB-CI Slots, multi-program decryption, BISS-1 and BISS-E decryption
- Dynamic PMT detection and automatic updating
- Supports VBI TELETEXT, EBU/DVB Subtitle, Closed Caption
- UDP/RTP, Unicast/Multicast, and SPTS/MPTS over IP (full duplex, optional)
- Remote Control and Supervision by SNMP, HTTP WEB and Proprietary HDMS software
- PCM audio embedded in SDI and HDMI outputs
- PCM audio output on two AES/EBU audio output ports
- On Site software update through IP
- RSSI, received Eb/No & BER monitoring



## Specification

|                                                    |                                                                            |
|----------------------------------------------------|----------------------------------------------------------------------------|
| <b>Tuner Input</b>                                 |                                                                            |
| <b>DVB-S/S2 Tuner Input (ISI Factory Optional)</b> |                                                                            |
| Connector Type                                     | 1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output |
| Input Frequency Range                              | 950~2150MHz                                                                |
| Input Level                                        | -25~-65dBm                                                                 |
| Symbol Rate                                        | 2~45Mbaud                                                                  |
| Roll-off Factor                                    | DVB-S QPSK: 0.35                                                           |
|                                                    | DVB-S2 QPSK: 0.35, 0.25, 0.2                                               |
| FEC Code Rate                                      | DVB-S QPSK: 1/2, 2/3, 3/4, 5/6, 7/8                                        |
|                                                    | DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10                       |
|                                                    | DVB-S2 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10                                 |
| LNB Polarity Selection Voltage                     | 0, 13V, 18V selectable                                                     |
| LNB Band Selection Tone                            | 0/22KHz selectable                                                         |
| Satellite Selection Command                        | DiSEqC 1.0                                                                 |
| ISI ID                                             | 1 ~ 255 user configurable                                                  |
| <b>DVB-C Tuner Input</b>                           |                                                                            |
| Connector Type                                     | 1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output |
| Input Frequency Range                              | 48~862MHz                                                                  |
| Input Level                                        | 45~75dBμV                                                                  |
| Symbol Rate                                        | 1~7Mbaud (ITU J.83 Annex A)                                                |
| Constellation                                      | 16/32/64/128/256QAM                                                        |
| Bandwidth                                          | 6MHz/7MHz/8MHz                                                             |
| Input Return Loss                                  | 7dB (typ.)                                                                 |
| <b>DVB-T/T2 Tuner Input</b>                        |                                                                            |
| Connector Type                                     | 1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output |
| Input Frequency                                    | 104~862MHz (VHF/UHF)                                                       |
| Input Level                                        | -20~-70dBm                                                                 |
| Constellation                                      | DVB-T: QPSK/16-QAM/64-QAM                                                  |
|                                                    | DVB-T2: QaPSK, 16QAM, 64QAM, 256QAM                                        |
| Bandwidth                                          | 6MHz/7MHz/8MHz                                                             |
| FFT Mode                                           | DVB-T: 2K/8K                                                               |
|                                                    | DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K                                           |
| Guard Interval                                     | DVB-T: 1/4, 1/8, 1/16, 1/32                                                |
|                                                    | DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32, 1/64, 1/128                      |
| FEC Code Rate                                      | DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8                                             |
|                                                    | DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6                                       |
| Input Return Loss                                  | 7dB (typ.)                                                                 |
| <b>ASI Input</b>                                   |                                                                            |
| Connector Type                                     | 2×BNC female, 75Ω                                                          |
| Standard                                           | DVB-ASI, EN50083-9                                                         |
| Input Bit Rate                                     | ≤ 100Mb/s                                                                  |
| <b>DS3 Input (Option)</b>                          |                                                                            |
| Connector Type                                     | 2×BNC female, 75Ω, including loop through                                  |
| Standard                                           | Compliant with ITU-T G.703                                                 |
| Frame Structure                                    | Compliant with ITU-T G.752 and ITU-T G.804                                 |
| Bit Rate                                           | 44.736Mb/s                                                                 |
| <b>TS over IP</b>                                  |                                                                            |
| Connector Type                                     | 1×RJ-45, 10/100 Base-T or 100/1000 Base-T for TS/IP                        |
| Effective Bit Rate                                 | 70Mb/s for 10/100 Base-T, 80Mb/s for 1000Base-T                            |
| Protocol                                           | UDP / RTP, Multicast / Unicast, IGMPv2, ARP                                |

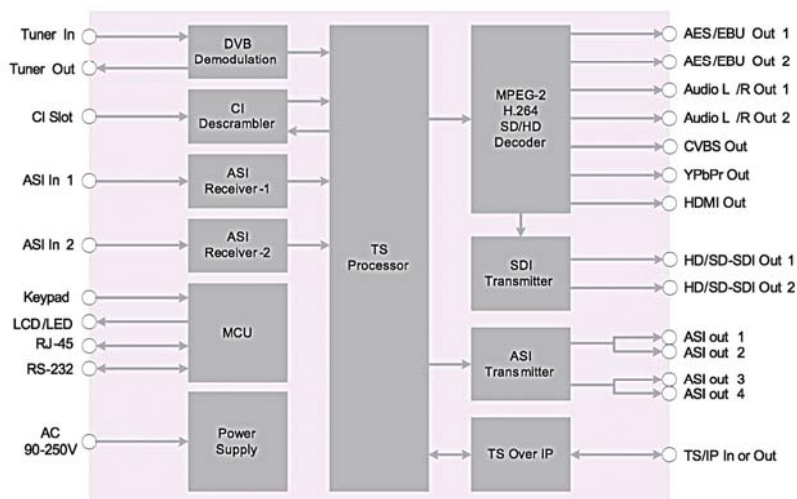
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|---------------------------------|-----------------------------------------------------------------------------------------------------|
| FEC                             | SMPTE 2022M (Pro-MPEG) FEC (for GbE only)                                                           |
| <b>TS Processing</b>            |                                                                                                     |
| TS Input Management             | Demux and Remux among Tuner / DS3(optional) / E3 (optional), ASI and TS/IP Inputs                   |
| TS Output Management            | Demux and Remux for 2 independent ASI outputs                                                       |
| Service and PID Management      | Remux, filtering and remapping                                                                      |
| PSI/SI                          | PSI/SI table regeneration, NIT and SDT edition, LCN Edition and Re-generation                       |
| Descrambler                     | DVB Common Scrambling Algorithm (CSA)                                                               |
| BISS Mode                       | BISS-1, BISS-E                                                                                      |
| Common Interface                | Double PCMCIA slots, compatible with major CA CAMs in the market                                    |
| <b>ASI Output</b>               |                                                                                                     |
| Connector Type                  | 2 pairs of BNC female, 75Ω                                                                          |
| Standard                        | DVB-ASI, EN50083-9                                                                                  |
| Output Bit Rate                 | ≤ 99Mb/s                                                                                            |
| TS Processing                   | 2 Independent TS Re-multiplexed from tuner, TS/IP and 2 ASI inputs                                  |
| <b>HDMI Output</b>              |                                                                                                     |
| Standard                        | 1×HDMI 1.3 interface (up to 1080i)                                                                  |
| Video Resolution and Frame Rate | 1080i×30, 1080i×29.97, 1080×25, 720p×60, 720p×59.94, 720p×50, 480p×60, 576p×50, 576i×25, 480i×29.97 |
| Audio Embedded                  | 2×stereos or compressed data pass through*                                                          |
| <b>Digital Video Processing</b> |                                                                                                     |
| Video Standard                  | MPEG-2 (MP@ML for SD, MP@HL for HD)                                                                 |
|                                 | MPEG 4/H.264 AVC Part 10 (MP@L3 for SD, HP@L4.1 for HD)                                             |
| SDI Video Resolution            | 1080i×30, 1080i×29.97, 1080i×25, 720p×60                                                            |
|                                 | 720p×59.94, 720p×50, 576i×25, 480i×29.97                                                            |
| Video PID Bit Rate              | < 80Mb/s                                                                                            |
| <b>HD/SD-SDI Output</b>         |                                                                                                     |
| Connector Type                  | 1 pair of BNCs (mirrored), female, 75Ω                                                              |
| SD Standard                     | SMPTE 259M, 270 Mb/s (10bit)                                                                        |
| HD Standard                     | SMPTE 292M, 1.485 Gbit/s (10bit)                                                                    |
| Level                           | 800mV p-p                                                                                           |
| <b>Digital Audio Processing</b> |                                                                                                     |
| Connector Type                  | 2×D-sub 9 male with ×LR adaptor cables                                                              |
| Number of Output                | 2×audio are decoded or passed through*                                                              |
| Audio Sampling Rate             | 32, 44.1 and 48 KHz                                                                                 |
| Audio Bit Rate                  | 32, 64, 96, 128, 160, 192, 224, 256, 288, 320, 352, 384, 416 and 448 kb/s for MPEG-1 Layer I        |
|                                 | 32, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 and 384 kb/s for MPEG-1 Layer II          |
| Nominal Output Level            | 1V p-p (with standard test stream)                                                                  |
| Output Format                   | AES/EBU                                                                                             |
| Load Impedance                  | 110Ω (with ×LR adaptor cables)                                                                      |
| <b>Analog Video Output</b>      |                                                                                                     |
| YPbPr Connector                 | 1 set of RCA female, 75Ω                                                                            |
| CVBS Connector                  | 1×BNC female 75Ω, 1×RCA female 75Ω                                                                  |
| CVBS Standard                   | NTSC, PAL, and SECAM                                                                                |



|                                  |                                                                                                      |
|----------------------------------|------------------------------------------------------------------------------------------------------|
| YPbPr Resolution                 | 1080i×30, 1080i×29.97, 1080i×25, 720p×60, 720p×59.94, 720p×50, 480p×60, 576p×50, 576i×25, 480i×29.97 |
| Nominal Output Level             | 1.0 Vp-p±5% (with standard test stream)                                                              |
| Frequency Response               | <±1 dB, at 5.5 MHz for PAL/SECAM, 4.2MHz for NTSC and 15MHz for HD YPbPr                             |
| Chroma-Luma Delay                | <±30 ns                                                                                              |
| Field Time Distortion            | <2%                                                                                                  |
| Line Time Distortion             | <1%                                                                                                  |
| Short Time Distortion            | <2%                                                                                                  |
| Differential Gain                | <3%                                                                                                  |
| Differential Phase               | <2°                                                                                                  |
| Signal to Noise Ratio            | >55dB (luminance weighted)                                                                           |
| <b>Analog Audio Output</b>       |                                                                                                      |
| Connector Type                   | 2×D-sub 9 male, with ×LR adaptor cable                                                               |
| Output Impedance                 | 600Ω (balanced)                                                                                      |
| Output Mode                      | Left, Right, Dual Mono, Stereo                                                                       |
| Number of Output                 | 2 pairs of stereo audio outputs (2 Audio PIDs or 4 channels are decoded).                            |
| Cross Talk Among Channels        | >70dB                                                                                                |
| THD                              | <0.3% @ 400Hz, 1KHz test tone                                                                        |
| Frequency Response               | ±0.5dB over 20Hz ~ 18KHz                                                                             |
| Output Level                     | 0dBm in 600Ω (0dBu), adjustable range ±10dB                                                          |
| <b>Ancillary Data Processing</b> |                                                                                                      |
| Subtitle                         | DVB, EBU                                                                                             |

|                                                                                                 |                                                                                |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| VBI                                                                                             | Teletext, WSS, VFD, VPS                                                        |
| Closed Caption                                                                                  | EIA 608, EIA 708, EIA 608-to-708                                               |
| <b>Redundancy</b>                                                                               |                                                                                |
| Redundancy Port                                                                                 | among Tuner, 2×ASI inputs and TS/IP                                            |
| Switching Condition                                                                             | TS Sync Loss                                                                   |
| Switching Mode                                                                                  | Main, Spare                                                                    |
| <b>Control &amp; Monitoring</b>                                                                 |                                                                                |
| Connector Type                                                                                  | 1×RJ-45, 10/100 Base-T, for equipment IPControl                                |
| Remote Control                                                                                  | SNMP, HTTP (Web Interface), Proprietary HDMS(Headend Device Management System) |
| Local Control                                                                                   | LCD display and 6-key keypad                                                   |
| Serial Port                                                                                     | 1×RS-232 D-sub female, for debug use only                                      |
| Equipment Upgrade                                                                               | Embedded FTP loader and Telnet                                                 |
| <b>Physical</b>                                                                                 |                                                                                |
| Dimension                                                                                       | 44mm×483mm×320mm                                                               |
| Weight                                                                                          | 3.4Kg Net, 5.4Kg Gross                                                         |
| Power Supply                                                                                    | AC 90V ~ 250V, 50/60Hz                                                         |
| Power Consumption                                                                               | 24W (exclusive of LNB power)                                                   |
| Operating temperature                                                                           | 0~45°C                                                                         |
| Storage temperature                                                                             | -10~60°C                                                                       |
| Operating Humidity                                                                              | 10~90%, non-condensed                                                          |
| <b>Certification</b>                                                                            |                                                                                |
| EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, EN 61000-3-2:2006, EN 61000-3-3:2008 |                                                                                |
| FCC: Part 15 Class B                                                                            |                                                                                |
| LVD: EN 60950-1:2006 + A11:2009                                                                 |                                                                                |

## Block Diagram



## Order Information

| Interface                           | Model                                                                                                                                                                                                                                                                         | PDH-5100P-30X | PDH-5100P-43X | PDH-5100P-44X | PDH-5100P-46X |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|---------------|
| Tuner                               | X = Tuner option: <input type="checkbox"/> -T2: DVB-T2 <input type="checkbox"/> -T: DVB-T <input type="checkbox"/> -C: DVB-C <input type="checkbox"/> -S2: DVB-S2 <input type="checkbox"/> -ISI: DVB-S2 ISI <input type="checkbox"/> -D: DS3 <input type="checkbox"/> -E3: E3 |               |               |               |               |
| ASI Input                           |                                                                                                                                                                                                                                                                               | × 2           | × 2           | × 2           | × 2           |
| Common Interface                    |                                                                                                                                                                                                                                                                               | × 2           | × 2           | × 2           | × 2           |
| Built-in Re-mux                     |                                                                                                                                                                                                                                                                               | •             | •             | •             | •             |
| ASI-Output                          |                                                                                                                                                                                                                                                                               | × 2           | × 2           | × 2           | × 2           |
| HDMI                                |                                                                                                                                                                                                                                                                               | × 1           | × 1           | × 1           | × 1           |
| SDI                                 |                                                                                                                                                                                                                                                                               | × 2           | × 2           | × 2           | × 2           |
| YPbPr                               |                                                                                                                                                                                                                                                                               | × 1           | × 1           | × 1           | × 1           |
| Audio L/R                           |                                                                                                                                                                                                                                                                               | × 2           | × 2           | × 2           | × 2           |
| AES-EBU                             |                                                                                                                                                                                                                                                                               | × 2           | × 2           | × 2           | × 2           |
| CVBS                                |                                                                                                                                                                                                                                                                               | × 2           | × 2           | × 2           | × 2           |
| 10/100M extension board (Dual 6 Ch) |                                                                                                                                                                                                                                                                               |               | •             |               |               |
| 10/100M extension board (32 Ch)     |                                                                                                                                                                                                                                                                               |               |               | •             |               |
| GbE extension board (Full duplex)   |                                                                                                                                                                                                                                                                               |               |               |               | •             |

## Back panel Interface (Full option)

