

## Impulse 400D 4K UHD Receiver/Decoder IRD



The Impulse 400D is a powerful and cost-effective 4K UHD receiver decoder/IRD that supports MPEG-2/H.264/H.265/ AVS+/AVS2 UHD/HD/SD video decoding and major audio decoding.

With many tuner input options and multiple input/output interfaces, it can achieve the RF signal reception, program descrambling, multiplexing, downscaling and decoding output that you need.

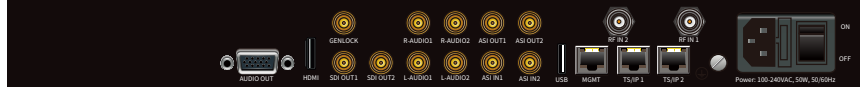
With IP-based stream processing and management interfaces, it is ideal to support advanced content distribution, 4K decoding, content remultiplexing, digital signal turnaround and transmission via an IP based-headend system.

### Key Features

- Receiving
  - Supports ASI and TS-IP input
  - Support for internet delivery protocols (HLS, and SRT)
  - Multiple tuner options to support DVB-S2X, S2, S, T2, T, C (QAM), 8VSB and ISDB-T
  - Supports redundant backup between any two input source
  - Supports Genlock signal input
  - Supports T2-MI transport stream decapsulation (optional)
- Data Processing
  - Two independent common interfaces support multi-channel descrambling, making the unit compliant with various popular CAM modules
  - Embedded BISS-1 & BISS-E supports TS & Service level descrambling
  - PSI/SI/PSIP processing and regeneration
  - Supports TS & Service multiplexing and demultiplexing
  - Supports TS & EIT pass-through
- Output
  - MPEG-2/H.264/H.265/AVS+/AVS2 UHD/HD/SD video decoding
  - HDMI2.0, 3G-SDI output
  - SDI output with 1 embedded audio and expandable to 2 embedded audios (future)
  - Up to 2 pairs of balanced analogue audio and 2 pairs of unbalanced AES/EBU audio output via DB15 connector (1 by default, 2 is a future option)
  - Up to 2 pairs of unbalanced analog audio output via BNC connector(1 by default, 2 is a future option)
  - Multicast and unicast broadcasting in LAN and WAN network via two GbE ports
  - GPI alarm output (reserved for future use)
  - Two TS over IP output ports
  - Two ASI output ports
- Management
  - 1 Ethernet 10/100Base-TX, RJ45
  - Web-based user interface
  - Front panel LCD screen and control buttons

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## SPECIFICATIONS



### RF

#### DVB-S/S2/S2X Input

|                  |                                    |
|------------------|------------------------------------|
| Input            | 2 x RF (F-type), 75Ω               |
| Constellation    | QPSK, 8PSK, 16APSK, 32APSK, 64APSK |
| Symbol Rate      | 1~45 MSps                          |
| Input Frequency  | 950~2150 MHz                       |
| Max Bit-rate     | 150Mbps                            |
| Signal Level     | -65~-25 dBm                        |
| LNB Power        | DC 13/18V@350mA                    |
| Control Tone     | 22K on/off                         |
| Roll-off Factors | 0.35, 0.25, 0.20, 0.15, 0.10, 0.05 |

#### DVB-C Input (QAM)

|             |                     |
|-------------|---------------------|
| Input       | 2x RF (F-type), 75Ω |
| Symbol Rate | 1~6.952 MBauds      |

#### DVB-C (QAM) Type

|                       |   |
|-----------------------|---|
| J.83 A/B/C            |   |
| Input Frequency Range | 48-862 MHz                                |
| MaxBit-rate           | 55Mbps                                    |
| Signal Level          | 40-100dBuV (64QAM)<br>44-100dBuV (256QAM) |

#### 8VSB Input

|                      |                               |
|----------------------|-------------------------------|
| Input                | 2x RF (F-type), 75Ω           |
| Bandwidth            | 6MHz                          |
| InputFrequency Range | 57 -803 MHz (fixed frequency) |
| Signal Level         | -83~-8dBm                     |
| Channel Plans        | Broadcast                     |
| Max Bit-rate         | 19.39 Mbps                    |

#### DVB-T Input (QAM)

|                       |                         |
|-----------------------|-------------------------|
| Input                 | 2x RF (F-type), 75Ω     |
| Constellation         | QPSK/16QAM/64QAM        |
| Bandwidth             | 6/7/8M                  |
| Input Frequency Range | 48~862 MHz              |
| Max Bit-rate          | 31.67Mbps               |
| Signal Level          | -65~-25dBm              |
| Transmission Mode     | 2K, 8K                  |
| FEC Mode              | 1/2, 2/3, 3/4, 5/6, 7/8 |
| Guard Interval        | 1/4, 1/8, 1/16, 1/32    |

### RF

#### DVB-T2 Input

|                       |   |
|-----------------------|---|
| Input                 | 2x RF (F-type), 75Ω                         |
| Constellation         | QPSK/16QAM/64QAM/256QAM                     |
| Bandwidth             | 6MHz, 7MHz, 8MHz                            |
| Input Frequency Range | 48~862 MHz                                  |
| Max Bit-rate          | 50.1Mbps                                    |
| Transmission Mode     | 1K, 2K, 4K, 8K, 16K, 32K                    |
| FEC Mode              | 1/2, 3/5, 2/3, 3/4, 4/5, 5/6                |
| Guard Interval        | 1/4, 1/8, 1/16, 1/32, 1/128, 19/256, 19/128 |

#### ISDB-T/Tb Input

|                       |                         |
|-----------------------|-------------------------|
| Input                 | 2x RF (F-type), 75Ω     |
| Constellation         | QPSK/16QAM/64QAM        |
| Bandwidth             | 6MHz                    |
| Input Frequency Range | 48~862 MHz              |
| Max Bit-rate          | 23.42Mbps               |
| Signal Level          | -65~-10 dBm             |
| Carriers Mode         | 2K/4K/8K                |
| FEC Mode              | 1/2, 2/3, 3/4, 5/6, 7/8 |
| Guard Interval        | 1/4, 1/8, 1/16, 1/32    |

### TS/IP

#### GbE IP

|                 |   |
|-----------------|---|
| Interface       | 2x GbE RJ-45 Ethernet Ports                                       |
| Package Format  | UDP, RTP, SRT, HLS  |
| Traffic Type    | Multicast and Unicast   |
| FEC             | Pro MPEG CoP3 SMPTE2022<br>(input & output)(Future)               |
| TCP/IP Protocol | IPv4  |
| IGMP            | Version1, 2 & 3   |
| TS Bitrate      | UDP/RTP: up to 150 Mbps<br>HLS: up to 20Mbps<br>SRT: up to 30Mbps |

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## SPECIFICATIONS

### DVB De-scrambling

| DVB Common Interface 2 slots |   |
|------------------------------|---|
| Bit-rate                     | Max. 150Mbps (Depend on processing capability of CAM module)          |
| CAM Supported                | NEOTION, SMIT, ASTON and other major CAMs                             |
| CAS Supported                | CONAX, IRDETO, Novel-SuperTV, CTI and other major CAS                 |
| BISS-1& BISS-E               | Program level, Decoded Service only TS level (future licensed option) |
| Number of Services           | Limited by CAM  |

### Decoder

#### Interface

|                      |   |
|----------------------|---|
| Genlock Input        | 1xBNC, Black Burst/Tri-level sync   |
| SD/HD/3G-SDI Output  | 2xBNC, 75Ω  |
| Digital Output       | 1xHDMI 2.0 connector  |
| Analog Audio Outputs | 4xBNC, 75Ω unbalanced<br>2 pairs of analogue balanced audio output via 1x15 Pin D-sub (4xXLR Breakout Cable) (1 by default, 2 is a future option) |
| AES/EBU              | 2 pairs of digital unbalanced AES/EBU output via 1x15 Pin D-sub (2xBNC, Breakout Cable) (1 by default, 2 is a future option)                      |

#### Video Decoding

|                         |  |
|-------------------------|--|
| Video Profile/Levels    | MPEG-2 SD 4:2:0 MP@ML-<br>MPEG-2 HD 4:2:0 MP@ML<br>H.264 SD MP@L3<br>H.264 HD MP@L4.1/HP@L4.1<br>H.265 Main/Main 10 profile@L5.1 High-tier<br>AVS-P 16(AVS+)<br>AVS2 P2 10-bit Profile @Level 8.2.60 |
| Output Format           | 720x576i@25<br>720x480i@29.97,30<br>720x480p@50,59.94,60<br>1280x720p@50,59.94,60<br>1920x1080i@25,29.97,30<br>1920x1080p@25,30,50,59.94,60<br>3840x2160@25,30,50,60                                 |
| Aspect Ratio Conversion | 4:3 letterbox, 4:3 pan and scan<br>16:9 letterbox, 16:9 pan and scan   |

#### Audio Decoding

|                           |   |
|---------------------------|---|
| Number of Audio Pairs     | 2* (future, currently 1 pair)   |
| Audio Codecs Supported    | Mpeg-1 Layer II<br>Dolby Digital/AC-3<br>Dolby Digital Plus/E-AC3<br>AAC-LC, HE-AAC, HE-AACv2 |
| SDI Embedded Audio Output | 2* (future, currently 1 pair)   |
| Adjustable Volume Level   | -63~0dB   |

### DVB-ASI

|              |  |
|--------------|--|
| Interface    | 4 BNC, 75Ω (2xASI input, 2xASI output)       |
| Max Bit-rate | 150Mbps                                      |
| Packet Type  | Input:188 and 204 bytes<br>Output: 188 bytes |
| Input Mode   | Spread and burst                             |
| Output Mode  | Spread                                       |

### Ancillary Data Support

|                  |  |
|------------------|--|
| SDI ANC Data     | Closed Captions (CEA/EIA-708)          |
| SDI VBI Waveform | Line 21 Captions (CEA/EIA-608)         |
| DVB Subtitle     | DVB subtitle burning (ETSI EN 300 743) |

### Management

|                  |   |
|------------------|---|
| Connector        | RJ-45 10/100Mbps - auto negotiation     |
| Protocols        | HTTP                                    |
| User Interfaces  | Full control via web GUI<br>Front panel |
| Firmware Updates | Via web GUI                             |

### Physical & Environment

|                             |                        |
|-----------------------------|------------------------|
| Power Supply                | 100~240 VAC 50/60Hz    |
| Size                        | 1RU rack mount chassis |
| Dimension                   | 483mm x 312mm x 44mm   |
| Operating Temperature       | 0 C ~50 C              |
| Storage Temperature         | -10 C ~70 C            |
| Relative Operating Humidity | < 95% (non-condensing) |

### Order Information

#### Model

| Model         | Description  |
|---------------|--|
| Impulse 400D  | Impulse IRD, SDI/HDMI Out, I/P ASI I&O, HLD, H.264/MPEG2, MPEG1 L2, AC#, AAC Audio, Genlock, Needs RX Module |
| Impulse 40010 | DVB-S/S2/S2X Receiver Module   |
| Impulse 40030 | QAM A/C Receiver Module  |
| Impulse 40040 | DVB-T/T2 Receiver Module   |
| Impulse 40050 | ISDBT Receiver Module  |
| Impulse 40300 | Closed Captioning License  |