

## 4K UHD Receiver/Decoder

Impulse 400D



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

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

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 all-IP-headend system.

### Key Features

- Receiving
  - Multiple tuner options to support DVB-S2X/S2/S/T2/T/C, DTMB, 8VSB and ISDB-T
  - Supports redundant backup between any two input sources
  - Supports DVB-S2 multi-stream receiving (optional)
  - Supports T2-MI transport stream decapsulation (optional)
  - Supports Genlock signal input (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
  - VBI subtitle insertion from analogue video
  - PSI/SI/PSIP processing and regeneration
  - Supports TS & Service multiplexing
  - Supports TS & EIT pass-through
- Output
  - MPEG-2/H.264/H.265/HEVC/AVS+/AVS2 UHD/HD/SD video decoding
  - HDMI2.0, 3G-SDI, CVBS output (Either HDMI/SDI or CVBS can be 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 NMS
  - Front panel LCD screen and press buttons
  - SNMP support for system integration

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## SPECIFICATIONS

### RF

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

Input	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

Input	RF (F-type), 75Ω
Symbol Rate	1~6.952 MBauds
QAM Type	J.83 A/B/C
Input Frequency Range	48~862 MHz
MaxBit-rate	55Mbps
Signal Level	40~100dBuV (64QAM) 44~100dBuV (256QAM)

#### DVB-T Input

Input	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	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	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

#### 8VSB Input

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

### TS/IP

#### GbE IP

Interface	2*GbERJ45 ports
Package Format	UDP & RTP
Traffic Type	Unicast Multicast
FEC	ProMPEG CoP3v2 (input& output) (Future)
TCP/IP Protocol	IPv4
IGMP	Version1, 2 & 3

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### 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

<b>Interface</b>	
Genlock Input	1xBNC, Black Burst/Tri-level sync
Composite Video Output	1xBNC, 75Ω PAL/NTSC
SD/HD/3G-SDI Output	2xBNC, 75Ω
Digital Output	1xHDMI 2.0 connector
Analog Audio Outputs	4xBNC,75Ω unbalanced 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 PRD: SP@ML MPEG-2 HD 4:2:0 MP@ML MPEG-4 AVC/H.264 SD MP@L3 PRD:SP@L0-3 MPEG-4 AVC/H.264 HD MP@L4.1/HP@4.1 H.265/HEVC Main/Main10 profile@Level5.1 High-tier AVS-P16(AVS+) AVS2 P2 10 bit Profile @Level 8.2.60
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Output Format	720x576i@25 720x480i@29.97,30 720x480p@50,59.94,60 1280x720p@50,59.94,60 1920x1080i@25,29.97,30 1920x1080p@25,30,50,59.94,60 3840x2160@25,30,50,60
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Aspect Ratio Conversion	4:3 letterbox, 4:3 pan and scan 16:9 letterbox, 16:9 pan and scan
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### Audio Decoding

Number of Audio Pairs	1 by default, 2 is a future option
Audio Codecs Supported	Mpeg-1 Layer II Dolby Digital/AC-3 (Optional) Dolby Digital Plus/E-AC3 (optional) AAC-LC, HE-AAC, & HE-AACv2 (optional)
SDI Embedded Audio Output	1 audio pair by default, 2 audio pairs (future option)
Adjustable Volume Level	-63~0dB

### DVB-ASI

Interface	4 BNC, 75Ω (2xASI input, 2xASI output)
Max Bit-rate	150Mbps
Packet Type	188/204 bytes
Input Mode	Spread and burst
Output Mode	Spread
Supports MPEG-2/H.264/H.265/HEVC/AVS+/AVS2 SD/HD/UHD stream bypass transmission	

### Ancillary Data Support

SDI ANC Data	Closed Captions (CEA/EIA-708)
SDI VBI Waveform	Line 21 Captions (CEA/EIA-608)

### Management

Connector	RJ-45 10/100Mbps - auto negotiation
Protocols	HTTP, HTTPS and SNMP
User Interfaces	Full control via web GUI Front panel
Automation Interfaces	Full status via SNMP Configurable SNMP traps
Firmware Updates	Via web GUI

### Physical & Environment

Power Supply	100~240 VAC 50/60Hz Dual AC (via a hardware upgrade, optional) Dual 36~72V DC (via a hardware upgrade, optional)
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	Description
Impulse 400D	1*RF input (optional 2*RF), single DVB-S2 tuner by default,2*ASI in/out, 2*IP in/out MPEG-2/H.264/H.265/HEVC/AVS+/AVS2, Mpeg-1 Layer II, HDMI/SDI/CVBS output
Impulse 400D-G (Future)	1*RF input (optional 2*RF), single DVB-S2 tuner by default,2*ASI in/out, 2*IP in/out MPEG-2/H.264/H.265/HEVC/AVS+/AVS2, Mpeg-1 Layer II, HDMI/SDI/CVBS output, Genlock, EIA-608 & 708 Closed caption