

Jiuzhou DVS-2018BS Professional Receiver



If you ever made holes in hard concrete with a no-name drill and then switched to a professional drill, you know the difference. The word "professional" is very often a synonym for high quality, high endurance and solidity. Can you imagine a hairdresser using a cheap dryer bought in a supermarket instead of a professional hair dryer?

In satellite TV, we also have professional receivers. One of such units was sent to us from its Chinese manufacturer – Jiuzhou Tech. The package was quite big and solid. That's the way you expect a professional or test & measurement equipment to be packed. The receiver is contained in a 1U case that can be mounted in a standard 19" equipment rack. The elegance of the front panel is partly spoiled by the lack of flap covering the slot for 2 CI modules. But the professional equipment is not designed to beautify your living room. The LCD display is a 2x20 character

receiver, PC and a TV-set. The power cord is detachable and has 3 wires. The grounding wire provides shielding as well as equals the potential between different devices contained in metal housings. The same effect can be achieved with the earthing connector located at the left. If you ever experienced a small electric shock when connecting cables to your set-top-box, this is because the commercial receivers do not use the third wire in a power cord to ground their metal case.

Before we describe the rest of the connectors, we should explain what the functions of

analog TV modulator tuned to a desired channel and then are distributed over entire network. In this way, the conversion is made from satellite digital TV to cable analog TV. Such signal can be received directly by a classical TV-set connected to the cable network. The operator must install in the headend as many professional receivers as many TV channels he wants to introduce into the network.

In digital cable network, we do not use the analog video and audio as the input to the modulator. We need the data stream transmitted by a transponder. Normal commercial receiver can not output such stream. Only professional receiver offers such possibility. The stream is available at the ASI output. ASI stands for Asynchronous Serial

cable operator may choose to combine the channels in different multiplexes than the originals on satellites. So, this is not always that simple that we have a one-to-one equivalent of satellite transponders in a cable network. Anyway, whatever the operator chooses to do, he always needs one professional receiver per one transponder. Note the difference: this time not one for a channel but one for a transponder.

Back to the rear panel, one ASI output is used to output the decrypted stream (provided that we inserted a proper



type with backlight. Next to it, the status LED shines either in red or in green depending on the transponder lock state. There are only 6 control buttons: Menu, OK and the navigational arrows. No Standby button. No remote control. This receiver is not supposed to be operated remotely.

The front panel does not look very different from the commercial receivers, but you cannot say the same about the rear panel. Only some of the connectors are the same as in a family receiver: LNB IN, LOOP OUT, RS 232, RCA stereo audio plus video and the power switch. We can easily guess that they are dedicated to connect: an LNB, a second

a professional receiver are for those readers who never met such device before. Professional receiver should receive a digital satellite TV signal from a selected transponder and output either the analog video and audio of a chosen TV channel or the whole digital bit stream containing all data transmitted by a transponder. The professional receivers are used in cable TV headends: analog or digital ones.

If we have a classical analog cable network, we use the analog video output (BNC connector with CVBS signal) and the balanced audio output on XRL connectors. Both signals are routed to the

Interface and together with SPI (Synchronous Parallel Interface) are the interfaces used in digital TV headends for transferring data streams. Such stream contains video, audio and programming and descriptive data concerning all channels from a given transponder. We can feed it into the input of a digital cable TV modulator (QAM modulator) and "mirror" the whole transponder in the cable network. Of course, the viewers must have cable set-top-boxes in their houses. These are equivalents of satellite receivers but for the digital cable TV.

Having the transport streams from a few transponders, the

CAM with a valid smartcard on the front panel) and the other - the original, not decrypted stream. The latter can be sent to another professional receiver for decryption (via ASI input) or to other headend equipment..

Installation

The on-screen graphics of DVS-2018BS consists of just a welcome screen and a very basic infobar (channel number, channel name, PCR PID, video PID and audio PID). All settings are done with the help of the 2-row front panel display. Because of that, the menu structure can not be complicated. The Main Menu consists of 4 items:



Arabic	العربية	www.TELE-satellite.com/TELE-satellite-0711/ara/jiuzhou.pdf
Indonesian	Indonesia	www.TELE-satellite.com/TELE-satellite-0711/bid/jiuzhou.pdf
Bulgarian	Български	www.TELE-satellite.com/TELE-satellite-0711/bul/jiuzhou.pdf
German	Deutsch	www.TELE-satellite.com/TELE-satellite-0711/deu/jiuzhou.pdf
English	English	www.TELE-satellite.com/TELE-satellite-0711/eng/jiuzhou.pdf
Spanish	Español	www.TELE-satellite.com/TELE-satellite-0711/esp/jiuzhou.pdf
French	Français	www.TELE-satellite.com/TELE-satellite-0711/tra/jiuzhou.pdf
Greek	Ελληνικά	www.TELE-satellite.com/TELE-satellite-0711/hel/jiuzhou.pdf
Croatian	Hrvatski	www.TELE-satellite.com/TELE-satellite-0711/hrv/jiuzhou.pdf
Italian	Italiano	www.TELE-satellite.com/TELE-satellite-0711/ita/jiuzhou.pdf
Hungarian	Magyar	www.TELE-satellite.com/TELE-satellite-0711/mag/jiuzhou.pdf
Mandarin	中文	www.TELE-satellite.com/TELE-satellite-0711/man/jiuzhou.pdf
Dutch	Nederlands	www.TELE-satellite.com/TELE-satellite-0711/ned/jiuzhou.pdf
Polish	Polski	www.TELE-satellite.com/TELE-satellite-0711/pol/jiuzhou.pdf
Russian	Русский	www.TELE-satellite.com/TELE-satellite-0711/rus/jiuzhou.pdf
Turkish	Türkçe	www.TELE-satellite.com/TELE-satellite-0711/tur/jiuzhou.pdf

- User Installation
- Channel Search
- Channel Manager
- CI

After entering the User Instal-

lation submenu, you can set all relevant parameters of the transponder and the LNB you use. Everything is very basic. For example, you do not select

the second digit. When all digits are set, another OK finishes the process. In this way you can do all settings without 0-9 buttons.

Also in this submenu, we may set the digital data parameters like: output packet length (in bytes) and input/output ASI ports. The digital data stream can be output in either 188 or 204 bytes long packets. 188 packets are without the Reed Solomon error correction code. If we select this format, the following device (the QAM modulator) must be set to add these 16 bytes.

Having done that, we may proceed to the second submenu: Channel Search. Here, we can search the just entered transponder in the Search TP submenu item. If the transponder transmits the NIT table listing tuning parameters of other transponder, we may get different results choosing one of the 2 other possibilities: Search SAT or Search Network. Search SAT results in searching all transponders provided in the NIT table of the first one we entered manually.

For example after entering the very first transponder of Hotbird 13° East (10.719 V, 27500) and then starting the Search SAT, we got 419 TV channels and 154 radio channels (both scrambled and FTA). Searching the TPS transponder on 10.758V, 27500 resulted with 403 TV and 153 radio channels. Search Network did not work with the above mentioned transponders but it worked with another one – 10.892 H, 27500. This is the home transponder of the Polish Cyfra+ platform. Network search ended for this transponder with 631 TV channels and 197 radio channels. Satellite search – with 655 TV and 202 radio channels. Evidently, which channels and how many of them are found depends on the data transmitted by the initial transponder in the NIT table.

The channel search was pretty fast. DVS-2018BS was able to find 655 channels on Hotbird within 2.5 minute. However, an intriguing question is: what the satellite and network search are needed for in a professional receiver? The answer is this: the same channel can be transmitted via more than one transponder. In such situ-

ation it may be useful to enter the tuning parameters of transponders containing that channel of interest. If something happens to the basic transponder, we may quickly switch to the other transponder and ensure the continuity of service.

The last menu item in the Channel Search menu is the OTA download with receiver firmware updates. The upgrade can also be done with a PC via serial interface provided on the rear panel.

In the Channel Manager submenu, you choose which channels to decrypt with which CAM module. Another action we may do when in Channel Manager submenu, is switching between TV and radio. When we leave it, it will stay either in TV or radio mode.

The receiver correctly outputs teletext in the VBI form. It was no problem to see it with a TV-set equipped with a teletext decoder!

Everyday Use

To check the receiver performance, we tuned it to a number of transponders and channels. Among them, we tried transponders with low and high symbol rates. For example, we managed to lock to the Pgm1 channel on a SCPC transponder (11.135V, SR=1425, 3/4) on Hellas Sat 2 (39°E) as well as to The Voice channel (12.524H, SR=30000, 7/8) on the same satellite. Pgm1 was actually beyond the specified range (2~45 Msps) but DVS-2018BS locked to it immediately. The quality of the tuner left nothing to be desired. Adding extra attenuation in front of the receiver (to simulate very long cable) did not influenced its quality readings.

Speaking of which, many important reception parameters depend more on the used LNB rather than a receiver. For example frequency drift of the local oscillator of LNB is usually much greater than the receiver frequency drift. The same holds true for the C/N ratio.

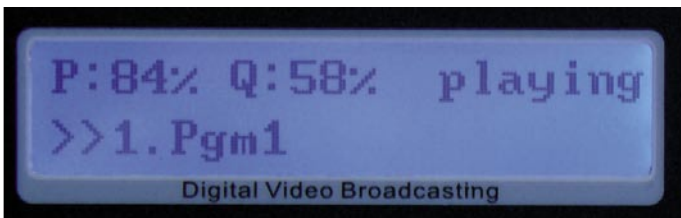
The professional receiver must be able to resist well the intermodulation since we provide to its input a very wide spectrum of frequencies with strong and weak signals, and yet it must output video and audio of exceptionally high quality and stable level. We can nothing but



Channel search |



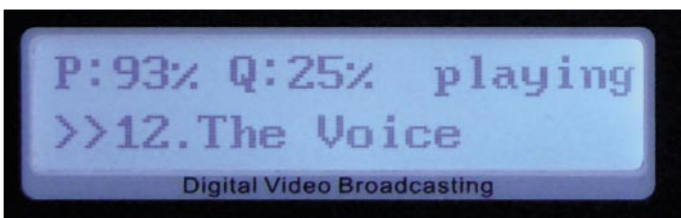
Welcome screen |



Playing Pgm1 |



Infobar |



Playing The Voice |

polarization of the signal but the LNB Power (OFF, 14 V for vertical or 18 V for horizontal). You also have to set manually the 22 kHz signal presence or absence. When entering frequency, you can not do that normally - there is no remote control unit with 0-9

buttons.

It works in the following way. When you press the OK button, the first digit of the frequency value is highlighted. With up/down arrows, you can change it to the proper value and then press a right arrow to move the highlight to

praise Jiuzhou for these things.

But that's not all. We rarely think about the stability of receiver software. It is an extremely important parameter for the equipment we want to install in a headend.

One very simple but dramatically effective test for software stability is leaving the receiver for a longer period of time (e.g. for a whole night) with a very weak signal - just slightly over the reception threshold. Tremendous amount of bit errors is present in the incoming signal then. Not every receiver can survive this test. We checked that DVS-2018BS could handle

that test without failure!

Once we turned on the receiver, there was not much to do with it. Of course, we could change channels with up/down arrows (less than 2 seconds needed) or adjust volume with left/right arrows, but of course there was no EPG, Favorite lists and all that stuff we usually test in commercial boxes. The professional receiver is supposed to stay on the transponder we tuned it in with exactly the same settings. Did you hear a story about a shopping mall owner who used a kind of commercial satellite receiver as a source of music for his loudspeaker system? Everything was working fine

until the first power outage. On power up, the receiver started to play very loudly and of course nobody knew where the key to the equipment room was. You may imagine that a professional receiver is not supposed to enter

standby mode or change its settings after power cycling.

It should recover as soon as possible with exactly the same settings as before. And that's exactly what DVS-2018BS does.

Experts Conclusion

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This is very stable, solid receiver. It is well equipped by Jiuzhou with external cables (ASI BNC-BNC) and adapters (XRL to BNC). Some of its features are even not marketed by the manufacturer (like teletext output or the SCPC reception below 1.5 Msps). It quickly restores to its initial settings after power failure.



Peter Miller
TELE-satellite
Test Center
Poland

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Since this a very basic unit, some users may need more advanced features depending on their headends, like 4:2:2 handling, network control or more audio formats.

TECHNIC DATA	
Manufacturer	SICHUAN JIUZHOU ELECTRIC GROUP CO., LTD, 17th Floor, China Youse Building, 6013 Shennan Avenue Futian District 518040, ShenZhen, GuangDong, CHINA
Webpage	www.jiuzhou.com.cn
Contact	overseas@jiuzhou.com.cn
Tel	+86-816-2468774
Fax	+86-816-2468903
Model	DVS-2018BS
Function	Professional Digital Satellite Receiver with 2 CI slots
Input	DVB-S, MPEG-2, ISO/IEC 13818-1
Input frequency range	950MHz to 2150MHz (DVB-S)
Input signal level	-65 to -25dBm
Symbol rate	2.0 to 45.0 MS/s
SCPC compatible	yes, confirmed from 1.425 Msps
C/Ku compatible	yes, any LOF can be entered manually
Video	ISO/IEC 13818-2, MPEG-2 MP@ML PAL/NTSC (4:3), max resolution 720x576, 1.0Vp-p, 75 ohm
Audio	ISO/IEC 13818-3, MPEG-1 Layer I&II, output: single track, left, right and stereo, balanced and non-balanced
Power supply	87-265 V AC, 50/60 Hz, 35 W max.
Dimensions	480 x 320 x 45 mm
Hardware	Main chip: STi5518BQC, 81MIPS, FLASH: 16Mb, AV SDRAM: 32Mb