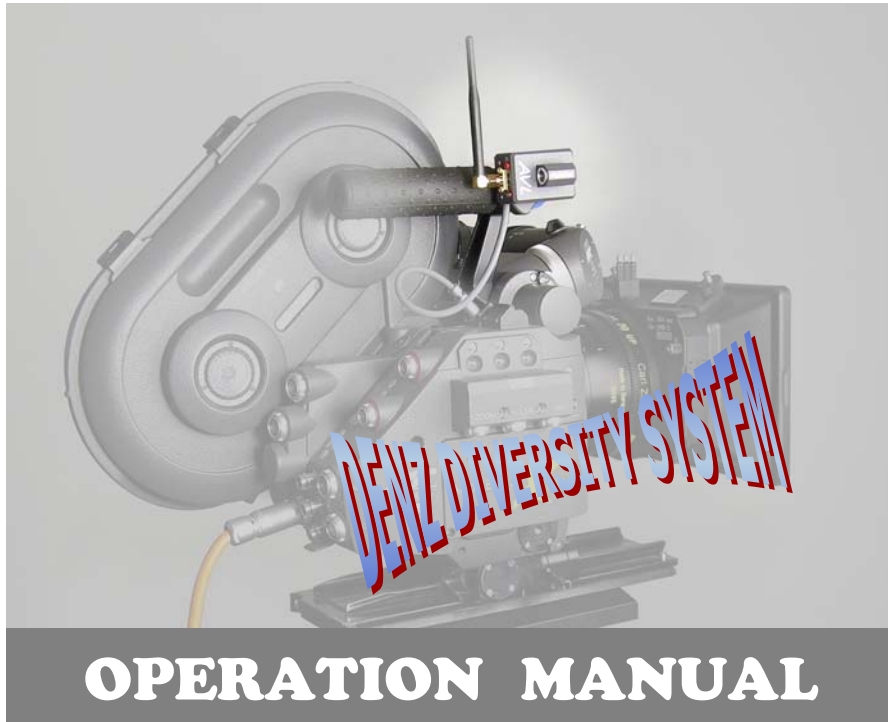


AVL

Analogue Video Link Wireless



1 Installation

1.1 Transmitter

1.1.1 VCSC Type

Connect the AVL transmitter for VCSC directly to the monitor socket on the modified dc converter module of the DENZ video assist. The unit is fixed mechanical by the new bracket on the D2000/D2005. The monitor socket is looped through at the transmitter for further connecting of monitors.

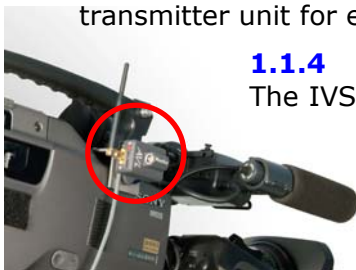
1.1.2 Booster

All AVL transmitters can be equipped with the booster AVLB, which is allowed in some countries for providing a higher transmission range. It is screwed to the transmitter instead of

the right angle antenna. The included key tool can be used to tighten the screw on the golden SMA antenna connectors.

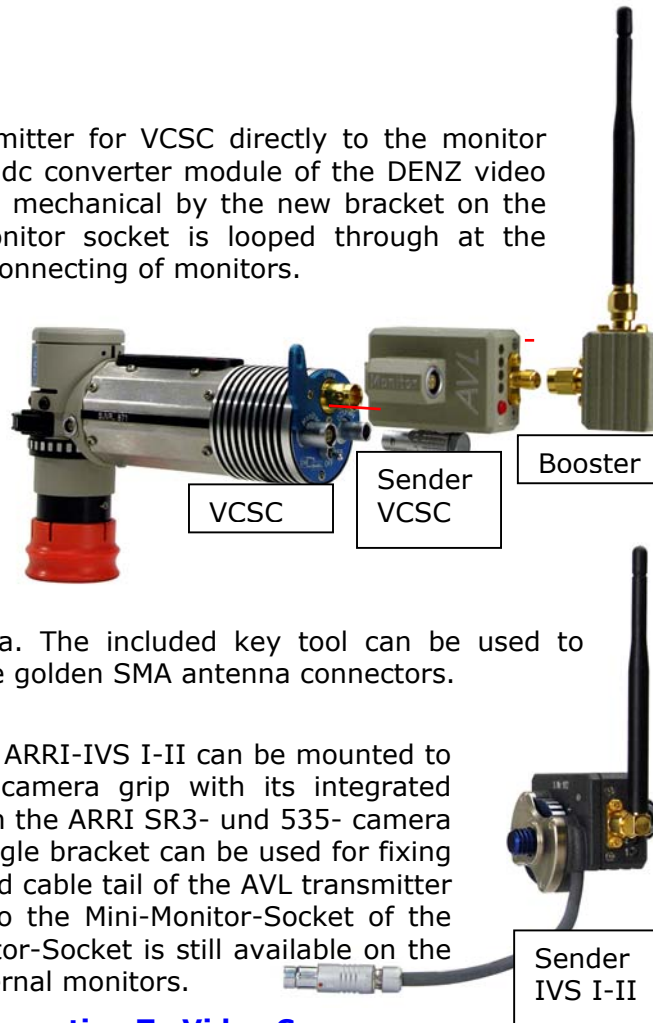
1.1.3 IVS I – II Type

The AVL transmitter for ARRI-IVS I-II can be mounted to any 3/8" hole at the camera grip with its integrated screw. When using with the ARRI SR3- und 535- camera the additional DENZ- angle bracket can be used for fixing on the camera. The fixed cable tail of the AVL transmitter is to be plugged to the Mini-Monitor-Socket of the IVS I-II. The Mini-Monitor-Socket is still available on the transmitter unit for external monitors.



1.1.4 Connecting To Video Cameras

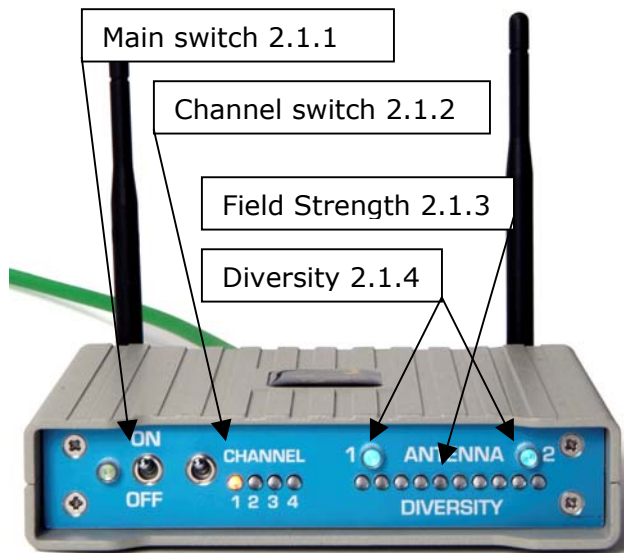
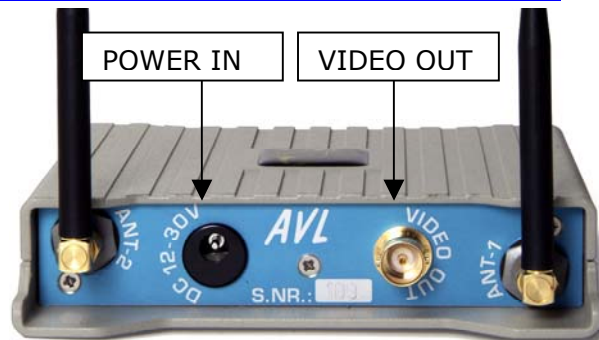
The IVS type transmitter of AVL can also be used with all professional video cameras (Sony, Ikegami,...) that provide a PAL/NTSC video output. A split cable has to be connected then to the BNC Video socket and to the 4pin-HRS



power output of the camera. DENZ provides a bracket to fix the transmitter on top of the camera housing.

1.2 Receiver

The receiver should be located next to the monitor and the two antennas have to be unfolded to a nearly upright position. The plug of the power supply (wall adapter) must be connected to the DC Input. If the receiver is intended for mobile usage, it can be connected to any DC voltage between 9 – 30 volt, using the small DC cable connector, included in the receiver set for a custom made battery cable. The received video signal is available on the BNC output socket and can be screened on any NTSC/PAL monitor, using a standard BNC cable.



2 Operating

2.1 Receiver

2.1.1 Power Up

Switch on the receiver by setting the main switch to the ON position. The power LED will shine green in normal operation. If it starts flashing red, the supply voltage is lower than 9 V , as warning for empty batteries. Lower than 7volt, the unit switches off.

Above 35 Volt, the LED flashes yellow as indication for too big supply voltages.

2.1.2 Channel Selection

Choose the receiving channel by pressing down the channel select button. The actual channel number is indicated by one of four corresponding yellow LEDs. If two LEDs are on, channel no. 5 is operating for wireless compatibility to other radio control systems. After power up the receiver automatically returns to the last channel number, which was adjusted by the user.

2.1.3 Field Strength Display

The bar of 10 LED for field strength indication can be used for different purposes:

1. Evaluation of the transmission range: if only one or two LED light up, the distance between transmitter and receiver should not be extended or the booster should be used.
2. Search for AVL transmission channel: During channel selection, the AVL transmitter can be detected by observing the LED bar, even if no video signal is available or the monitor is switched off.
3. Detection of jamming transmitters: If the AVL transmitter is switched off, other existing transmitters can be detected on the LED bar. For AVL transmission an alternate channel can be selected then.

2.1.4 Diversity Display

The diversity function does not need any user operation. But the two blue LED indicate proper operation: Each LED shows the activity of one receiver antenna. If transmitter or receiver move to an interference location, where the active antenna does not receive any signal, the diversity system switches over to the other antenna, before the video picture gets disturbed. The fast and video synchronized switching ensures, that always a picture can be seen on the monitor. In rooms with many radio reflection surfaces frequently switching can be seen with the blue LED.

2.2 Transmitter

2.2.1 Power Up

The transmitter has no main switch. If it gets supplied with DC voltage by the connected camera, it starts transmitting immediately on the last chosen channel. Operation is indicated by the yellow channel LED.

2.2.2 Channel Selection

During operation channels can be selected by pressing the red channel select button. With each pressing of the button the next channel LED lights up and indicates the selected channel. Transmitter and receiver LED patterns have to be equal for transmission. Channel no. 5 is indicated by two LEDs.

2.3 Booster

The booster needs no user operation. It starts working when it is connected to the transmitter and delivers a ten times higher RF output power than the transmitter itself for better range performance. It is not allowed in Europe.

3 Tips For Optimum Transmission

The following options are not necessary, but they can help to maintain a better picture and transmission quality:

- Keep antennas of transmitter and receiver parallel and upright.
- Put the AVL units on a high position to have a line of sight between transmitter and receiver during movement of camera, or receiving monitor.
- Set the two diversity antennas on receiver site into a slight V-position (about 10°).
- Switch off jamming RF sources, if they are not needed or set them to channels far apart. (Laptop-PC: deactivate WLAN, avoid Bluetooth devices class I)
- Put away radio reflecting things (corrugated metal sheets produce extreme interferences)
- Keep video signal level correct (1V p-p) on transmitter site
- Keep the rules for terminal resistances (75Ohm), if more than one device is connected to the video output of the AVL receiver.
- Use „clean“ power supply units for transmitter and receiver. Some dc converter units produce noise patterns to the video picture.

4 Error Correction

Symptom	Cause	Remedy
No picture (black) at receiver, but field strength display is high	Transmitter is supplied, but VCSC is off	Switch on the Denz-VCSC
No picture (snowy screen), and field strength display is low	Transmitter and receiver work on different channels	Choose same channel for transmitter and receiver
Horizontal stripes or patterns are coming in pulses to appear on the screen overlapping the transmitted video	The used channel is occupied by a different transmitter (i.e. Systems in 2.4 GHz-ISM Band: WLAN, Wireless-Focus-Iris-Zoom with bluetooth technology)	Switch off the AVL Transmitter for a moment and search a free channel with low field display on the AVL receiver. Then use this channel with the AVL transmitter. Some disturbing transmitters can also be switched to different channels
Snowy picture and low field strength	Transmission range is exceeded	Reduce distance or use the booster
Picture has low contrast.	Video signal level is wrong, too many 75 Ohm Inputs connected to the receiver	Use only one 75Ohm Device , and deactivate the other input resistors.
Picture is distorted horizontal	Video signal level at transmitter is wrong	Use video source with standard level 1Vpp at 75 Ohm

5 Appendix

5.1 Technical Data

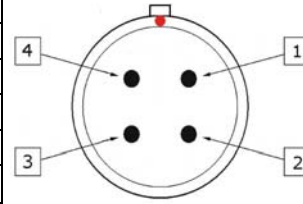
AVL General		
Radio frequencies	5 channels in the 2.4GHz ISM Band	Non-overlapping
Operation range	Maximum 300m, inside buildings ca. 30m	With optimum RF conditions
Environment	-20°...+70°C,	
Video format	PAL / NTSC / SECAM	1V p-p / 75 Ohm
AVL Transmitter		
Transmission power	10mW	Max. legal in Europe
Electric Supply	9V ... 30V DC	Ca. 1W
Size	VCSC: 38,5x32x47mm IVS: 44x40x47mm	
Weight	VCSC: 72g IVS: 102g	
AVL Receiver		
Electric Supply	9V ... 30V DC	Ca. 2W
Size	120*27*128mm	
Weight	370g	
Diversity-System	Special fast video synchronized interference detection system by DENZ with switching of receiving antennas.	
AVL Booster		
Supply	5V, 350mA	From transmitter
Transmission power	Factor: 45 x input power	Export only!
Size	9x30x22mm	
Weight	20g	

5.2 Connector Pinouts

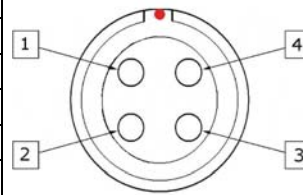
Pin numbers of the connector manufacturer have to be considered.
Connector diagrams: View from outside to the AVL!

5.2.1 Transmitter Denz:

Supply from VCSC (LEMO I HG.0B.304)		
Pinnr	Signal	Remark
1	GNDVideo	Return of Video
2	GNDPow	Power IN Minus
3	POWIn	Power IN Plus 9...30V
4	VideoIn	Video In (1Vpp, 75Ohm)



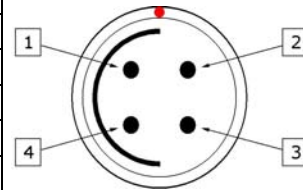
Monitor Out (LEMO EGG.0 3.304)		
Pinnr	Signal	Remark
1	GNDVideo	Return of Video
2	GNDPow	Power Out Minus
3	POWOut	Power Out Plus 9...30V
4	VideoOut	Video Output



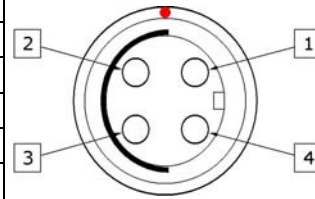
Antenna (SMA Socket)		
Pinnr	Signal	Remark
Ring	Shield	
Pin	RF Out	+5V phantom voltage

5.2.2 Transmitter IVS

Supply from IVS (FISCHER S102 A053)		
Pinnr	Signal	Remark
1	GNDPow	Power IN Minus
2	GNDVideo	Return of Video
3	VideoIn	Video IN (1Vpp, 75Ohm)
4	POWIn	Power IN Plus 9...30V



Mini-Monitor Out (FISCHER D102 A053)		
Pinnr.	Signal	Remark
1	GNDPow	Power IN Minus
2	GNDVideo	Return of Video
3	VideoIn	Video IN (1Vpp, 75Ohm)
4	POWIn	Power IN Plus 9...30V



Antenna Out (SMA Socket)
Like Transmitter Antenna Denz version

5.2.3 Booster

Supply / RF In (SMA Plug)		
Pinnr	Signal	Remark
Ring	Shield	
Pin	HF IN	+5V Supply IN

Antenne Out (SMA Buchse)		
Pinnr.	Signal	Remark
Ring	Shield	
Pin	HF Out	100mW

5.2.4 Receiver

Versorgung DC (DC5.5/2.1 mm)		
Pinnr.	Signal	Remark
Ring	GND Minus	
Pin	Power In Plus	9 ... 30 V DC

Video Out (BNC)		
Pinnr.	Signal	Remark
Ring	Shield	
Pin	Video Out	1Vp-p / 75 Ohm

Antenna In (SMA Socket) ?x
like Booster RF In, without +5V IN

Remark:

All connectors without pin diagram are coax types with one ring and one pin contact.

The ring contact has always ground connection at DENZ-AVL.

The signal of the pin contact is mentioned in the connector tables.

5.3 CE-Conformity

Declaration of Conformity with R&TTE Directive (1999/5/EC) and the Radio and Terminal Equipment Act (FTEG)

The manufacturer

**Präzisions-Entwicklung DENZ Fertigungs-GmbH
Otto-Hahn-Str. 12-14
85521 Ottobrunn**

declares, that the product

**AVL (Analog Video Link) Transmitter and Receiver
V1.0**

complies with the essential requirements (§3 R&TTE / Article 3
FTEG), when used for its intended purpose.

Applied standards:

Safety requirements	EN 60065
EMC	EN 300489-3
Frequency spectrum use	EN 300440-2

Ottobrunn, 30.6.2005
PRÄZIONS ENTWICKLUNG DENZ FERTIGUNGS GMBH



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