



DRD 700 Quad Multistream Processor

Instruction Manual





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Important Notes!

This manual is for use by qualified personnel only. Handling this device or system requires special electrotechnical knowledge. To reduce the risk of electrical shock or damage to the equipment, do not perform any servicing other than the installation and operating instructions contained in this manual unless you are qualified to do so. This device operates in the given voltage and frequency range without requiring manual adjustment.

Special symbols that might appear on the equipment:





This symbol indicates that there are components under risk from electrostatic discharge. To avoid equipment damages do not touch these components or, observe the respective handling rules!

For continued protection against fire, the fuses may only be replaced by identical fuses with the same electrical specifications which are designed for the corresponding fuse positions.

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Installation Notes

All types of the DRD/DRP family are 19" devices with 1 RU height designed for installation in 19" racks. In addition to the front panel screws an internal module support is required at the rack.

Depending on the Frontend used and the operating adjustments, the input port carries DC voltage (13V / 18V, max. 400 mA).

By connecting a mains cable, the device can become functional without any auxiliary appliances. The power supply units are designed for the wide range of 100-240V AC; a manual adjustment of the voltage is not necessary.

The second power connector is feeding another independent power supply for redundancy. For a maximum of redundancy both power supplies should use different circuits.

All the outputs are decoupled from one another. Thus, the circuit does not have any effect on the functioning of the device. Connections that are not required need not to be terminated.

Suggestion: CAT 6E Ethernet cable for GbEthernet

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General description

DRD 700 is an DVB-Quad receiver. He can be user defined equiped with 2 Twin DVB frontend boards (DVB-S/S2, DVB-T/C or DVB-T/T2). The four independent MPEG-2/MPEG-4 SD/HD input signals are demodulated, descrambled and are available as 4x2 ASI interfaces.

For the descrambling, DRD 700 has four DVB-CI slots, which enables appropriate CAM modules to decode the complete transport stream. Multidecryption is available by default.

The DVB-S/S2 twin frontends allows the receiving and demultiplexing of transport streams regarding EN 302307 Annex H.2. By using two twin frontends four transport streams can be provided at the ASI interfaces. In total there exist 4×2 ASI output interfaces, two interfaces provide the same signal.

Max. four transport streams as 4 x MPTS can be provided by the IP-GbE-SFP interface. In addition the DRD700 is able to provide 60 x SPTS data streams, in total 64 transport stream channels are available via IP interface.

Optionally the IP-GbE-SFP interface can be used as IP input. For redundancy applications the second IP-GbE-SFP interface is available. For both options a license key is necessary.

An additional option is Processing, inclusive Service- and PIF filtering as well as multiplexing of max. four new transport streams from the input signals with table generation.

The device is operated locally, either via a LCD display and an additional wheel or with the implemented web server via a web browser. A SNMP agent with the corresponding MIB is built in for the integration in a network management system. The device is controlled via a separate LAN connection, which has a separate IP address; thus, the device can also be accessed from a distance.

The basic version of the DRD 700 comprises:

- 2 internal slots for Twin-DVB-x frontend boards
- 2 x ASI input
- 4 x 2 x ASI output
- 4 DVB common interface for the CAM modules
- 2 x IP-GbE SFP interface for IP input or IP streaming
 - Dual configured for signal redundancy
 - SFP-interfaces to 100/1000BaseT Half-/Fullduplex manuell configurable
- 10/100 Mbit LAN interface for web browser and SNMP
- Isolated / potential-free switching contacts
- LCD display with wheel and status LEDs
- 2 Wide-range power supply units (Redundancy)

The basic device can be extended with additional hardware / software options:

- DVB-S/DVB-S2 Frontends (with LNB supply and 22kHz switch signal) design, SCPC filter
- DVB-S/DVB-S2 Twin-16APSK-/32APSK-Frontends, SCPC filter
- DVB-T/C Frontend
- DVB-T/T2 Frontend
- ISDB-T Frontend
- IP Frontend (Gigabit-Ethernet) with electric / optical SFP module
- Service filter, PID filter
- NDS CA Decryption
- IP Pro-MPEG FEC

Input

Different DVB Input Frontends can be implemented.

ASI interface

There are 4 x 2 equivalent ASI outputs on the back side of the device. If a fault occurs, the ASI operating outputs can be switched off. Depending upon the (software) configuration and option, the originally received TS or the TS with one or more descrambled services can be maintained on the ASI outputs. As a standard, two ASI inputs are provided on the back side of the device. If an additional frontend is implemented, it is possible to switch between the ASI and frontend input.

Wide-range power supply unit:

DRD 700 has two wide-range power supply units for redundancy purposes. A failure of a power supply will be indicated The input voltage range is 100V AC – 240V AC. In the event of an operational disturbance or a fault in the mains supply the configuration is stored in a non-volatile memory. Upon restart the operation automatically continues with the last setting.

Test Equipment

Devices delivered for demonstration and test purposes might have a limited duration of functionality. After exceeding the test period the main functions are shut off.

Software Options

Description	Туре
IP-Input Streaming (SFP module required) Reception of MPEG2 transport stream encapsulated in UDP over IP interface	APA135-51
IP-GbE-Redundance (additional SFP module required) Redundancy for GbE-SFP Interface (swichting criteria link-loss, sync-loss)	Bundle with SFP-Modul: OPD135-60
Processing Service- and PID-Filtering and multiplexing of max. 4 new transport streams according DVB	APA135-59
NDS CA Decryption Due to the NDS Certification procedure NDS decryption is an option	APA135-56
IP Pro-MPEG FEC	APA135-61

Na	me	Туре	Ordering code	Remarks
DVB Quad Multist Basic-version	ream Processor	DRD 700	D135.01	
DVB-T/C 75 Ohm F		OPD135-03	OPD13501 0300	
DVB-T/T2 DVB-S/S2 APSK	75 Ohm F 75 Ohm F	OPD135-04 OPD135-09	OPD13501 0400 OPD13501 0900	
ISDB-T	75 Ohm F	OPD135-17	LPD10301 1700	

Ordering Codes

	IP-Input Streaming Interface	APA135-51	OPD13501 5100	SFP Modul necessary!
L.	Processing	APA135-59 OPD13501 5900		
ption	NDS Decryption	APA135-56	OPD13501 5600	Customer related NDS certification.
0- <i>N</i>	BISS Decryption	DCA 315	F038.01	BISS by CAM
١S	IP-GbE-Redundancy	APA135-60	OPD13501 6000	
	IP Pro-MPEG FEC	APA135-61	OPD13501 6100	

Activation of software options is described under *Download*.

Front view



LED Marking	Colour	Function
INPUT	Green Red Orange	Input signal available Input signal missing Invalid input signal
STATUS	Green Red Orange	Green flashing during SW update/download Other state indications depending from frontend
FAULT	Red	Internal hardware fault

Control with display and navigation wheel

The display is showing the most important status information and the navigation wheel allows the configuration of the LAN connection. All configurations are made by turning and pressing the navigation wheel located at the front of the device at the right side. By turning the wheel, the user can navigate through the entire menu. The selected menu is shown inversely. You can select the menu by simply pressing the navigation wheel.

If the navigation wheel is not operated for 30 minutes, the display illumination is automatically switched off. If you start a new operation, the lights will be switched on once again!

Configuration mode (CFG)

For changing the configurations, the user must select "CFG" in the corresponding menu and keep the wheel pressed for at least 3 sec. until a * appears behind "CFG". Then, the user can select the corresponding parameters with the wheel, which are presented with a blinking display.

You can now change the configuration with the navigation wheel. If a parameter is changed "SAVE" appears in the display; by pressing the navigation wheel, this parameter can be selected for saving. "SAVE" is displayed inversely; the configuration is saved in the device by simply pressing the wheel.

After 30 sec. the configuration mode is switched off automatically if the navigation wheel is not in use.

Operation display

If an input signal is connected the the state of the signal is indicated.

TS1	INP=RF1	LOCKED	
TS2	INP=RF2	LOCKED	
TS3	INP=RF3	LOCKED	
TS4	INP=RF4	LOCKED	

Description of menu

The main menu items can be selected with the navigation wheel. By pressing the wheel, the user navigates to the sub-menus, which are selected in the same manner. The configurations can only be changed in the configuration mode (select "CFG" and press the wheel for at least 3s).

Main Menu	Sub-menu Parameter	Description			
Logbook	Events	Display of all 512 log	book entries		
	Erase	Erase all logbook entr	ies		
System	Reset/Preset	Reset: Restart with stored parameters Preset: Restart with factory settings Attention: Preset resets the IP addresses to default			
	Version	Display of the device type, SW versions and serial no.			
	LCD Contrast	Configuration contrast of display			
LAN	Control	IP address Subnet mask Gateway address MAC address	(192.168.0.200) (255.255.255.000) (192.168.0.001) Display		

Control with web server

DRD 700 has an integrated web server. This web server allows the configuration and status requests with a standard web browser (Recommended: Internet Explorer V.8 and higher, Firefox V.3.6.x and higher, Opera V.11.50 and higher). If you enter the current IP address of the DRD 700 into the web browser, the device can be operated.

For deliveries that are made ex works, the following default IP addresses are configured. If the IP address is not known, the factory configuration can be restored via Preset.

Factory configuration	Standard IP address:	192.168.0.200
Control Port	Subnet mask:	255.255.255.0
	Gateway address:	192.168.0.1
	Standard IP address:	192.168.1.200
Data Port 1	Subnet mask:	255.255.255.0
	Gateway address:	192.168.1.1
	Standard IP-address:	192.168.1.201
Data Port 2 (SFP-Option)	Subnet-mask:	255.255.255.0
	Gateway-address:	192.168.1.1

Home

After configuring the current IP address of DRD 700 on the web browser, the device is responding with the following status information. You can request further information and configurations by selecting the corresponding menu items on the left side.

RD 700			Logged in as: admin (194.55.8.125)	Logout
he		A		
mon Interface	RIA	NKOM		
ut				
	DRD 700 QU/	AD-MULTISTREAM PROCESSOR		
em Accounts		per 040700 QLAD Mutatras Processor	•	aus (2)
ate			4.	and the second
iion		STREETINGS M. REACTINGS IN	•	
nse		Contraction of the second		
DOOK	IP Address:	194 55 8 208		
tact	Device Label:	TecCenter, 31162 Bad Satzdetfurth		
	Input	INPUT SIGNAL STATUS FAILURE		
	Status:	OK		
	Equilt	EAN OTATIO CAN LIDE		

All the configuration entries are password-protected. Thus, the following login window appears after you click *a configuration menu item*:

The default login settings are:

name	Name:	admin	
password	Password:	Blankom	

login

Requests for status and logbook entries are allowed without login. Click the logout button to exit the configuration mode after the device is configured so as to avoid unauthorized access to the device. If no further entries are made, the system automatically exits the configuration mode. The fallback time can be adjusted by the user (*User Accounts*).

me ut mmon Interface	Status TS 1 TS 2	TS 3 TS 4	209	geo in 13, admin (1943/3/129)	Logou
tput N stem er Accounts	TS Source 1 DVB-S/S2 75 (1)	Status LOCKED	TSID / ONID 0x4FB0 / 0x055F	Input Rate (Payload) 39.068 (37.161) Mbps	
ate sion nse	2 OFF 3 DVB-S/S2 75 (3) 4 DVB-S/S2 75 (1)	UNLOCKED LOCKED	0x4FB0 / 0x055F	39.068 (37.161) Mbps	

Input allows the selection of the sources of the transport stream for further processing. The source of the transport streams can be either ASI, IP or different DVB frontends if assembled. A click on the particular transport stream number gives more status information about selected source .

IP Input (option):

The input source "IP" is accessible if this option is activated. IP 2 is configurable if the redundancy option is activated and a SFP modul is inserted.

Max. four MPTS/SPTS transport streams can be received via IP input. By using IGMPv.3 the source port IP address can be specified (SSM: Source Specific Multicast).

Standard data protocol is UDP. The selected data protocol must correspond to the IP source protocol! In the same manner the IP address and the port channel of the source must match. Multicast is possible by selecting the corresponding IP addresses. Addresses in the range 225.x.x.x to 232.x.x.x and 234.x.x.x to 238.x.x.x are reserved for Multicast transfer (one source, multiple recipients).

DRD 700 Home	Input > TS 1 TS 2 TS 3 TS 4 Set <					Logged in as: admin (1	Logout		
Common Interface Output LAN									
System User Accounts Update	Source DVB-S/S2 75 (1) V								
Version	From	uonou Modo	y.		Ctotuo:		LOOVED		
License	CAT	Demoliale IN		SAT-DOWNLINK	TOID //	DNUD.			
Logbook	SAL	-Downlink [iv	HZJ:	11097	151070		UX4FBU/UXUSSF		
	LNB	Frequency [MHz]:	9750	Input R	ate (Payload):	29.617 (28.597) Mbps		
Contact	SAT	-IF:		1347 MHz	SAT-IF:		1346.1 MHz		
	Symbol Rate [MSps]: 29.9500 DVB Standard: AUTOMATIC V LNB Voltage: OFF V		29.9500	Level:		-41 dBm			
			AUTOMATIC 💙	DMATIC 😪 BER:		<1.0E-07			
			Standa	rd:	DVB-S				
	LNB	22 kHz Tone	:	OFF 💌		late:	7/8		
	SCP	C Mode:		OFF M	C/N (Re	eserve):	16.3 (9.0) dB		
	DVB	-\$2							
	MIS	ISI:		2 💌					
	APS	K Mode:		OFF 💌					
	PL D	escrambling	F	OFF 💌					
	No.	D	Туре		Mode	Name			
	1	0x0191	0x01 - diç	rital tv service	CA	TF1 HD			
	2	0x0192	0x01 - dig	rital tv service	CA	FRANCE 2 HD			
	3	0x0193	0x01 - dig	pital tv service	CA	M6 HD			
	4	0x0197	0x01 - dig	pital tv service	FTA	KT0			
	5	0x0198	0x01 - dig	fital tv service	FTA	TV8 MONT BLANC			
	6	0x0194	0x01 - dig	pital tv service	CA	ARTE HD			
	7	0x01A3	0x01 - dig	pital tv service	CA	FRANCE 0			
	8	0x0195	0x01 - dig	nital tv service	FTA	Normandie TV			
	9	UX0199	UX01 - dig	ntal tv service	FTA	NRJ Paris			
	10	0X0196	UXUI - dig	ntai tv service	FTA	vosges Televisio	n		

Input-DVB-S/S2 (Option)

The selection of the input source DVB-S/S2 will show the following configuration menu, where you can configure the parameters required for DVB-S/DVB-S2. Click *Set* to transfer the configured data to the device. By this the SAT-ZF DVB-S/S2 signal is selected as the input signal. ASI and IP Input are disabled. The symbol rate must be precisely specified. By pre-selecting the DVB-S or DVB-S2 mode the tuning procedure of the DRD 700 is accelerated. However the usual mode of operation is AUTOMATIC.

The menu items 'LNB Voltage' and 'LNB 22 kHz Tone' can be configured accordingly.

The SCPC mode should be enabled if a narrow-band transport stream (< approx. 5 Msps) has to be received and if there are several narrow-band transport stream on the transponder at the same time. By entering the transport stream ID (SCPC TSID) it is ensured that the DRD 700 tunes on the selected transport stream. The TSID must be entered in hexa-decimal format.

Common Interface

This menu gives an overview of the programs included in the transport stream (TS). Moreover the user procures information as to whether the transport stream is encrypted and how many elementary stream PIDs of a service are in the transport stream.

Multiple Service Decryption (also called Multi-decryption or Bulk Descrambling) is supported. Depending on the CAM in operation up to 16 PIDs can be decoded in general. Professional CAMs are supporting up to 32 PIDs.

There are a lot of different CAMs with different hardware and software option on the market please contact your CAM vendor for more information about the number of services the CAM can descramble. Please use officially supported CAMs only to avoid decryption problems.

The menu item *Common Interface* provides information about the used CAM and the supported CA System ID of the encoding system. With the CA PMT List, you can select from different initialisation methods during the Multi-Decryption function. Some CAMs do not support all the methods.

- only-add: The CA-PMT list is activated via 'only' and 'add' commands.
- first-more-last: The CA-PMT list is activated via 'first', 'more' and 'last'.

If you click on *No* the Descrambling Monitoring System (DMS) menu will open. Here you can select individual elementary PIDs for decoding via the common interface. After finishing all entries the configuration must be transferred to the device by clicking *Set*.

The *Reset button* allows a targeted resetting of one CAM. A click on *CAM MMI* gives the access to more information about CAM and Smart Card via an additional menu.

					Logged	l in as: <mark>admin (194.55.8.125</mark>)	Lo	ogout
C	ommon	Interface Slot	1					
5	Status	Slot 1 Slot 2	Slot 3 Slot 4					
	Set CAM	Reset CAM MMI)					
Soi CA CA	urce: PMT List: Module: System IDs	TS 1 - DVB-S/S2 7 only - add	5 (1) 🗸					
CA	System IDs							
518	ius.							
		120						
No.	. D	Туре		Mode	ES PIDs	Name	CA Decryption	Status
No.	. ID 1 0x01	Type 91 OxOl - digita	l tv service	Mode CA	5 ES PIDs	Name TF1 HD	OFF	Status
	. D 1 0x01 2 0x01	Type 91 OxOl - digita 92 OxOl - digita	l tv service l tv service	Mode CA CA	5 4	Name TF1 HD FRANCE 2 HD	CA Decryption	Status
	. D 1 0x01 2 0x01 3 0x01	Type 91 0x01 - digita. 92 0x01 - digita. 93 0x01 - digita.	l tv service l tv service l tv service	Mode CA CA CA	ES PIDs 5 4 5	Name TF1 HD FRANCE 2 HD M6 HD	OFF V OFF V	Status
	. D 1 0x01 2 0x01 3 0x01 4 0x01	Type 91 0x01 - digita. 92 0x01 - digita. 93 0x01 - digita. 97 0x01 - digita.	l tv service l tv service l tv service l tv service	Mode CA CA CA FTA	ES PIDs 5 4 5 7	Name TF1 HD FRANCE 2 HD N6 HD KT0	CA Decryption	Status
	. D 1 0x01 2 0x01 3 0x01 4 0x01 5 0x01	Type 91 0x01 - digita. 92 0x01 - digita. 93 0x01 - digita. 97 0x01 - digita. 98 0x01 - digita.	l tv service l tv service l tv service l tv service l tv service	Mode CA CA CA FTA FTA	ES PIDs 5 4 5 7 3	Name TF1 HD FRANCE 2 HD N6 HD KT0 TV8 MONT BLANC	CA Decryption OFF V OFF V OFF V OFF V OFF V	Status
	. D 1 0x01 2 0x01 3 0x01 4 0x01 5 0x01 6 0x01	Type 91 0x01 - digita 92 0x01 - digita 93 0x01 - digita 97 0x01 - digita 98 0x01 - digita 94 0x01 - digita	l tv service l tv service l tv service l tv service l tv service l tv service	Mode CA CA CA FTA FTA CA	ES PIDs 5 4 5 7 3 3 3	Name TF1 HD FRANCE 2 HD N6 HD KTO TV8 MONT BLANC ARTE HD	CA Decryption OFF V OFF V OFF V OFF V OFF V	Status
	I 0x01 2 0x01 3 0x01 4 0x01 5 0x01 6 0x01 7 0x01	Type 91 0x01 - digita 92 0x01 - digita 93 0x01 - digita 97 0x01 - digita 98 0x01 - digita 94 0x01 - digita 93 0x01 - digita	<pre>1 tv service 1 tv service</pre>	Mode CA CA FTA FTA CA CA	ES PIDs 5 4 5 7 3 3 3 3 0	Name TF1 HD FRANCE 2 HD N6 HD KTO TV8 MONT BLANC ARTE HD FRANCE 0	CA Decryption OFF V OFF V OFF V OFF V OFF V OFF V	Status
	I 0x01 2 0x01 3 0x01 4 0x01 5 0x01 6 0x01 7 0x01 8 0x01	Type 91 0x01 - digita. 92 0x01 - digita. 93 0x01 - digita. 97 0x01 - digita. 98 0x01 - digita. 94 0x01 - digita. 95 0x01 - digita. 96 0x01 - digita. 97 0x01 - digita. 98 0x01 - digita.	<pre>1 tv service 1 tv service</pre>	Mode CA CA FTA FTA CA CA FTA	ES PIDs 5 4 5 7 3 3 3 0 0 2	Name TF1 HD FRANCE 2 HD N6 HD KTO TV8 MONT BLANC ARTE HD FRANCE 0 Normandie TV	CA Decryption OFF V OFF V OFF V OFF V OFF V OFF V OFF V	Status
	ID 1 0x01 2 0x01 3 0x01 4 0x01 5 0x01 6 0x01 7 0x01 8 0x01 9 0x01	Type 91 0x01 - digita. 92 0x01 - digita. 93 0x01 - digita. 97 0x01 - digita. 98 0x01 - digita. 94 0x01 - digita. 95 0x01 - digita. 94 0x01 - digita. 95 0x01 - digita. 99 0x01 - digita.	<pre>1 tv service 1 tv service</pre>	Mode CA CA FTA FTA CA CA FTA FTA FTA	ES PIDs 5 4 5 7 3 3 3 0 2 2 3	Name TF1 HD FRANCE 2 HD M6 HD KTO TV8 MONT BLANC ARTE HD FRANCE 0 Normandie TV NRJ Paris	CA Decryption OFF ✓ OFF ✓ OFF ✓ OFF ✓ OFF ✓ OFF ✓ OFF ✓	Status

BISS Decryption

Basic Interoperable Scrambling System, usually known as BISS, is a satellite signal scrambling system.

Using BISS the transmission is protected by a 12 digit "session key" that is agreed by the transmitting and receiving parties prior to transmission. The key is entered into both the encoder and decoder, this key then forms part of the encryption of the digital TV signal and only receivers with the correct key will decrypt the signal.

BISS Decryption with DRD700 is realized with Alphacrypt Classic Pro.

Select the appropriate slot > "CAM MMI" > "5" for Module Options > "5" for BISS Settings:

DRD 700		Logged in as: admin (194.55.8.125)	Logout
Home	CAM MMI Slot 1		
Input Common Interface	Status Slot 1 Slot 2 Slot 3 Slot 4		
Multiplexer Output LAN	Set Back		
System	AlphaCrypt 3.23 Pro (c) Mascom GmbH		
User Accounts	BISS Menu		
Update	1/ Display/edit BISS service-IDs		
Version	2/ Enter Injected ID		
License	3/ BISS decryption: ON		
Loghook	4/ Back		
Logoon	Please select with OK		
Contact	Select Menu 1-4:		
	Set Main Menu Back		

"3" and ENTER for BISS decryption ON, and "1" to edit the service IDs.

DRD 700 Home Input	CAM MMI Slot 1 Status Slot 1 Slot 2 Slot 3 Slot 4	Logged in as: admin (194.55.8.125)	Logout					
Common Interface Multiplexer Output LAN	Set Back							
System	AlphaCrypt 3.23 Pro (c) Mascom GmbH							
User Accounts	BISS service IDs (hexadecimal/decimal)							
Update	1/ 1: XXXX / XXXXX							
Version	2/ 2: XXXX / XXXXX							
License	3/ 3: XXXX / XXXXX							
Logbook	4/ 4: /							
Logbook	5/ 5: /							
Contact	6/ 6: /							
Contact	7/ 7: /							
	8/ 8: /							
	9/ Back							
	Please select with OK							
	Select Menu 1-9:							
	Set Main Menu Back							

Select a free BISS setting, create a new setting or select a matched setting.

Enter the service-ID in decimal format and the 6 SW bytes (decimal).

DRD 700 Home Input Common Interface Multiplexer Output	CAM MMI Slot 1 Status Slot 1 Slot 2 Slot 3 Slot 4 Set Back	DRD 700 Home Input Common Interface Multiplexer Output LAN	CAM MMI Slot 1 Status Slot 1 Slot 2 Slot 3 Slot 4 Set Back
LAN System User Accounts Update	Please enter the ID in decimal:	System User Accounts Update	Please enter the SW bytes in decimal:
Version License Logbook	Input: Set Main Menu Back	License Logbook Contact	Set Main Menu Back
Contact			

After successful entering the settings, go back to the service list (Common Interface Slot x) and set the CA Decryption of the appropriate service to ON.

Multiplexer

This menu allows the multiplexing of services to new output data streams. Up to four new data streams can be created from the services of the four selected input data streams.

First select the service ID mode (SID Mode) from the source list box (AUTO, MANUAL), afterwards the TSID and ONID. Finally set the (maximum) output data rate (Data Rate). If the SID mode is MANUAL please check that every output service-ID is selected only once otherwise there will be PID collisions.

The Add button allows to add new services.

Note: The data rate of all services within one new transport stream may not exceed the total output data rate. Normally the data rate of the services are variable (VBR) therefore the output data rate should be high enough to avoid data rate problems.

DRD 700					Logg	ed in as: admin ((194.55.8.18)	Logout		
Home	Multi	Multiplexer > MUX 1								
Input Common Interface	MUX 1	MUX 1 MUX 2 MUX 3 MUX 4								
Multiplexer Output LAN	Set	Set								
System	SID Mode	:	MANUAL							
User Accounts	TSID:		0x0001							
Version	ONID:	ONID: 0x0003								
License	Data Rat	e [Mbps]:	50.000							
Logbook	Output R	ate Payload:	24.845 Mbps							
Contact	No.	Source			Priority	Output SID	Status			
	1	TS 1 - 0x6D6	δ - ZDF			0x0001	OK	🗊Delete		
	2	TS 2 - 0x6DC	A - Das Erste			0x0002	<mark>0K</mark>	Delete		
	3	TS 3 - 0x2EE	3 - RTL Television			0x0003	OK	ि©Delete		
	4	TS 4 - 0x7034	- arte			0x0004	<mark>0K</mark>	🗊Delete		
	_							Add		
	Add TS	1 Add TS 2	Add TS 3 Add T	3 4 Delete All						

MPTS Output

The outgoing MPTS-IP data streams are configured in this menu. To establish a connection the destination address and the port have to be selected. Standard protocol is UDP. RTP and Pro-MPEG FEC (Option) is selectable

Multicast is possible by selecting the adequate multicast destination IP address. IP addresses in the range of 225.x.x.x to 232.x.x.x and 234.x.x.x to 238.x.x.x are multicast addresses. The receiver must be set to the corresponding multicast address.

The 4 MPTS transport streams can be switched to the ASI outputs.

DRD 700 Home Input	Outpu	Logged in as: admin (194.55.8.18 Output > MPTS MPTS SPTS						Logout
Output LAN System	Set							
User Accounts	No.	Source		ASI Enabled	IP Enabled	Port	Destination Address	Protocol
Update	1	🛈 TS 1	MUX 1	V	\checkmark	1000	224.168.1.204	UDP 💌
Version	2	🖲 TS 2	MUX 2	v	V	1001	224.168.1.204	UDP 💌
License Logbook	3	⊙ TS 3	MUX 3		•	1002	224.168.1.204	UDP 💌
Ť	4	🖲 TS 4	MUX 4		v	1003	224.168.1.204	UDP 💌
Contact								

SPTS Output

The outgoing SPTS-IP data streams are configured in this menu. First select the service for the SPTS stream in the source list box and then configure the IP destination address and the port. Standard protocol is UDP. RTP is selectable.

Multicast is possible by selecting the adequate multicast destination IP address. IP addresses in the range of 225.x.x.x to 232.x.x.x and 234.x.x.x to 238.x.x.x are multicast addresses. The receiver must be set to the corresponding multicast address.

The current software version allows up to 28 SPTS streams.

DRD 700 Home Input	Outpu	Die Bahn - Reiseportal http://www.bahn.de/pv/view/index	.shtml		Logged in as: admin (194.	55.8.147)	Logout
Common Interface Multiplexer Output	Set	SP15					
LAN System User Accounts Update Version	EIT Inserti SAP Inser	ion: ON V tion: ON V					
License	No.	Source	Enabled	Port	Destination Address	Protocol	
Logbook	1	TS 1 - 0x6DCA - n/a 🔽	✓	1234	224.1.1.1	UDP 🔽	🗊Delete
	2	TS 1 - 0x6DCB - n/a 🔽		1006	224.1.1.5	UDP 🔽	🗊Delete
Contact	3	TS 1 - 0x6DCC - n/a 💌		1007	224.1.1.5	UDP 🔽	🗊Delete
	4	TS 1 - 0x6DCF - n/a 💌		1008	224.1.1.5	UDP 🔽	🗊Delete

The EIT (Event Information table) Insertion button allows the insertion of EIT tables. The SAP (Session Announcement Protocol) Insertion button allows the generation of announcement information for SAP clients like the VLC player according to RFC 2974.

Note:

IPv4 global scope sessions use multicast addresses in the range 224.2.128.0 - 224.2.255.255 with SAP announcements being sent to 224.2.127.254 Port 9875 (note that 224.2.127.255 is used by the obsolete SAPv0 and MUST NOT be used).

IPv4 administrative scope sessions using administratively scoped IP multicast. The multicast address to be used for announcements is the highest multicast address in the relevant administrative scope zone.

For example, if the scope range is 239.16.32.0 - 239.16.33.255, then 239.16.33.255 is used for SAP announcements.

LAN

All the IP configurations for the Ethernet interfaces for the control port (RJ45, control port) and the Gigabit Ethernet Ports (SFP, data port) are made under *LAN*. Data device 1 is configured as standard. Data device 2 is an option for redundancy and only configurable if the port has a licence.

DRD 700 Home Input Common Interface	Logged in as: admin (194.55.8.18) Logou LAN > Interfaces Interfaces SNMP Telnet Redundancy					
Output LAN Svstem	Set					
User Accounts		Control	Data 1	Data 2		
Update Version	IP Address:	192.168.61.143	192.168.1.200	192.168.1.201		
License	Subnet Mask:	255.255.255.0	255.255.255.0	255.255.255.0		
Logbook	Gateway Address:	192.168.61.1	192.168.1.1	192.168.1.1		
Contact	Speed/Duplex Mode:	AUTO-NEGOTIATION	AUTO-NEGOTIATION	AUTO-NEGOTIATION		
Contact						
	SFP-Module:		plugged	plugged		
	Vendor:		FINISAR CORP.	FINISAR CORP.		
	Connection:	Link is up: 100 Mbps (half duplex)	Link is down	Link is down		

If a SFP module is inserted additional information about vendor and status of the SFP are shown.

LAN-SNMP

The DRD 700 has an built-in SNMP agent. With this agent the device can be integrated in an Network Management System (NMS). If an error / fault occurs corresponding traps are sent to the NMS. The target addresses for the traps can be entered in this menu.

DRD 700 Home Input	LAN :	> SNMP	Redundancy	Logged in as: admin (194.55.8.18)	Logout
Output LAN System User Accounts Update Version	Set SNMPv2 SNMP M	tc: ENABLED I	LANKOM_DRD700.mib		
License Logbook	<u>Commu</u> Road	nity			
Contact	Set	private			
	<u>Trap</u>				
	User	IP Address	Comment	Mode	
	1	192.168.0.100		OFF 💌	
	2	192.168.0.101		OFF 💌	
	3	192.168.0.102		OFF 💌	
	4	192.168.0.103		OFF 💌	
	<u>Alarm Se</u> Input Status Fault	<u>everity</u>			

Alarm Severity enables the user to activate SNMP traps for different types of events. Under SNMP-MIBs the MIBs of the DRD 700 can be downloaded out of the device.

LAN-Telnet (Option)

Telent enables the access to the DRD 700 via command line interface.

DRD 700 Home	LAN > Te	Inet	Logged in as: admin (194.55.8.125)	Logout
Input Common Interfects	Interfaces	SNMP Telnet		
Output				
LAN	Set			
System				
User Accounts	Telnet:	ENABLED		
Update				
Version				
License				
Logbook				
Contact				

System

Device Label is a free editable field with information about e.g. the location or available services for easy identication of the device. This label is displayed in the web start menu and included in SNMP. *Display Contrast* allows the change of the contrast of the LCD display.

With *PSI-ID Display Format* the user can toggle between hexadecimal and decimal display format.

Power Supply Check: If only one power supply is used, the alarm (Power Failure) can be deactivated. (Otherwise the alarm is generated if one of the two power supplies is faulty)

DRD 700			Logged in as: admin (194.55.8.147)	Logout
Home	System > Main			
Input	Main Date/Time Device	Settings		
Common Interface]			
Multiplexer	Set Beset Factory setting	7		
Output		_		
LAN				
System	Device Label:	Volker		
User Accounts	Display Contrast:	46% 🗸		
Update	PSI-ID Display Format:			
Version	Power Supply Check:			
License	Untime	0.4.00:01:57		
Logbook	opume.	0 0 00.01.37		
Contact				

If you click *Reset*, the device restarts with the saved parameters.

If you click *Factory setting*, the device is reset to the factory parameters.

Note: While *Factory setting* via the web browser or SNMP the IP address is **not** reset to the factory setting! While *Factory setting* via the front panel, the IP address is reset to the factory setting (192.168.0.200 and 192.168.1.200/192.168.1.201).

DRD 700 Home Input	System > Date/Ti Main Date/Time	me Device Settings	Logged in as: admin (194.55.8.147)	Logout
Multiplexer Output LAN	Set			
System	Date-Time Sync Mode:	NTP SERVER 💌		
User Accounts	Date:	10.07.12		
Update	Time:	10:24:08		
Version	Time Offset:	+1.0 h 💌		
License Logbook	NTP Server 1:	192.53.103.108	Update n/a	
	NTP Server 2:	192.53.103.104	Update n/a	
Contact	NTP Sync Interval [min]:	60		
	Daylight Saving Time:			
	Sync Threshold [s]:	4		

Date-Time Sync Mode:	source of the system clock; OFF, NTP server, or one of the transport streams TS1 to TS4 $$
Time Offset:	deviation to GMT
NTP-Server 1/2: IP addr	esses of NTP-Server 1 and 2
NTP Sync Intervall:	time interval to synchronise the internal clock with time of the NTP-server
Daylight Saving Time:	summer-/wintertime (19urope only)
Sync Threshold:	maximum allowed deviation to synchronize the internal clock

DRD 700 Home Input	System Main	Device Settings Date/Time Device Settings		Logged in as	: admin (194.55.)	8.147)	Logout
Multiplexer Output LAN	Rename	Create Delete All Export	Import				
System	No.	Name	Creation Date/Time	Version	Save	Open/Load	Delete
User Accounts	1	Setting No.1	10.07.12,10:25:05	3.23a	-		Ť <u></u>
Update	2	Setting No.2	10.07.12,10:25:16	3.23a		2	Ť <u></u>
Version License Logbook							
Contact							

Up to 16 settings can be defined with *Create* and stored (*Save*) or reloaded (*Open/Load*) in the device.

Export/Import allows to save all settings in one file (Setting_DRD700_xxxxxx.dat) on an external storage.

Note: Activating of a new setting can produce a short signal lost!

User Accounts

User Accounts allows the configuration of access rights for other users. Besides you can change the standard login according to the user requirements so that the security of the device in a network is guaranteed. Under *Fallback Time* you can configure the automatic fallback time after a login.

Use	Accounts			Lo	gged in as: admin (194.55.8.125)	Logout
Set						
	,					
	Nama		Decouverd		Graun	
4	Name		Passworu		Group	
	admin		•••••			
2						
3			1		OFF	
4					OFF 💌	
5					OFF 💌	
6					OFF	
7					OFF 💌	
8					OFE	
Fallbac	k Time:	10 minutes				
Fallbac	k Time:	10 minutes	s 💌	Cours 2	Second 1	
Fallbac Acces:	k Time: s Level	10 minutes Group 1	Group 2	Group 3	Group 4	
Fallbac Access Input	k Time: s Level	10 minutes Group 1 V	Group 2	Group 3	Group 4	
Fallbac Access Input Comm	k Time: s Level on Interface	10 minutes Group 1 V	Group 2	Group 3	Group 4	
Fallbac Access Input Comm Multiple	k Time: s Level on Interface exer	10 minutes Group 1 V V	Group 2	Group 3	Group 4	
Fallbac Access Input Comm Multiple Output	k Time: s Level on Interface exer	10 minutes Group 1 V V V	Group 2	Group 3	Group 4	
Fallbac Access Input Comm Multiple Output LAN	k Time: s Level on Interface exer	10 minutes Group 1 V V V	Group 2	Group 3	Group 4	
Fallbac Access Input Comm Multiple Output LAN System Pace	k Time: s Level on Interface exer	10 minutes Group 1 V V V V	Group 2	Group 3	Group 4	
Fallbac Access Input Comm Multiple Output LAN System Reset	k Time: s Level on Interface exer	10 minutes Group 1 V V V V V V V	Group 2	Group 3	Group 4	
Fallbac Access Input Comm Multiple Output LAN System Reset Preset	k Time: s Level on Interface exer	10 minutes Group 1 V	Group 2	Group 3	Group 4	
Fallbac Access Input Comm Multiple Output LAN System Reset Update	k Time: s Level on Interface exer	10 minutes Group 1 V V V V U V U	Group 2	Group 3	Group 4	

Access level allows to define four different user rights for selected WEB sites.

Admin is able to choose between four different classes of user rights for different accounts. The user rights and accounts can be assigned by the *Admin* only.

Update

In the *Update* menu the following actions can be done:

- 1. Software update
- 2. Get configuration
- 3. Activation of software options

For the software update please select the update file and start the update process with the start button. Please read the release notes carefully for additional hints.

Get Configuration

The config file contains system relevant settings. It is possible to get this file to save it and to write it back to the DRD 700 again.

- Click Get Konfiguration
- Save Config file "DRD700_xxxxxx.dat".

DRD 700 Home	Update	Logged in as: admin (194.55.8.125)	Logout
Input Common Interferee	Get Configuration		
Output			
LAN	File transfer to DRD 700		
System			
User Accounts		Durchsuchen	
Update	Start		
Version			
License			
Logbook	TFTP File URL		
Contact	tftp://194.55.8.16/drd700-application-vxx.drd		
	Start		

Activating of Software Options

- Click Get Configuration
- Save the configuration file "DRD700_xxxxxx.dat" and
- send it via email to Blankom (service@blankom.de).

After receiving a written Order Blankom will

- Create a Key file "DRD700-Option-Key-SerNr_xxxxxx.dat" and
- send it back via email to the customer
- Click Durchsuchen(Select)
- Select Key file.
- Click Start

An automatic Reset after this procedure updates the option list. Via *License* the success of enabling a new option can be checked.

Version

Version lists information of the internal status of the device. No configurations can be done.

DRD 700	Version		Logged in as: admin (194.55.8.147)	Logout
Input				
Common Interface	Model:	DRD700 4xDVB-8/82 75		
Multiplexer	Bootloader:	1.00 (20.12.10 11:27:14)		
Output LAN System	Application:	3.23a (09.07.12 16:35:48)		
	FPGA:	3.04 (15.06.12 17:30:55)		
	FPGA CPU:	3.07 (09.07.12 14:11:27)		
Undate	Serial Number:	0223751		
Version	Device Type ID:	D135.01		
License	MAC Address 1:	00:50:C2:B7:5B:84		
Logbook	MAC Address 2:	00:50:C2:B7:5B:85		
Contact				

License

License show all the available as well as activated software options. It is also possible to activate further options at a later time through a license file that can be applied for.

For activating another software option, select "Get configuration" under the menu item "Update". The file that is read out must be sent to Blankom along with the purchase order for the option. A file that is delivered by Blankom having the corresponding options is then loaded in DRD 700 via "Download". Activation of software options is not free of cost.

Logbook shows all logbook entries of the DRD 700. A maximum of 512 logbook entries can be stored. Then the oldest entries are overwritten by new events. *Erase* delete all entries, *Save to File* save all entries in a Textfile "LOGBOOK_DRD 700_xxxxxx.log" (xxxxxx=serial-no) in the specified Downloadarea.

Logout exits the configuration mode with a security message.

Connections



Туре	Interface	Description			
IEC connector	Power Connector 1/2	100 to 240 V AC,			
J 45	Ethernet (10/100 LAN)	1 TxD+, 2 TxD-, 3 RxD+, 6 RxD-			
Mini CombiCon	Alarm	Correct working: 1-3 closed Alarm: 1-2 closed			
BNC	8 x ASI Out, 1-4 a/b	Coaxial connector, 75 Ohm			
BNC	2 x ASI In, ½	Coaxial connector, 75 Ohm			
F	RF-Input ½, ¾	Depending on the frontend			
SFP slot 1	GbE (SFP)	SFP module			
SFP slot 2	GbE (SFP)	SFP module (Option)			

Technical data

	DRD 700
SAT input (Option)	
Input frequency	950 MHz to 2150 MHz
Lock-in range	± 5 MHz
Retaining range	±12 MHz
Input impedance	2 x 75 Ohm, F Connector
LNB supply:	
Voltage	13V / 18V, reversible, can be switched off
Current	Max 400mA, short-circuit proof
Input level	-65 dBm to -25 dBm
Bandwidth	36 MHz
DVB-S	
Modulation	QPSK
Symbol rate	1 to 45 Msps
Lock-in range	≤ ± 100 ksps
Roll-off	35%
Inner coding (FEC)	¹ / ₂ ; 2/3; ³ / ₄ ; 5/6; 7/8 Viterbi, K=7
DVB-S2 (QPSK, 8PSK)	
Modulation	OPSK, 8PSK (incl. DVB-S)
Symbol rate	1 to 36 MS/s (OPSK)
-,	1 to 30 MS/s (8PSK)
Roll-off	20, 25, 35 %
FEC Code rates (depending upon the type of modulation)	1/2; 3/5; 2/3; 3/4; 4/5; 5/6; 8/9; 9/10
DVB-S2 (16APSK, 32APSK)	Only for Input 1 and 3!
Modulation	QPSK, 8PSK, 16APSK, 32APSK (incl. DVB-S)
Symbol rate	1 to 50 MS/s (QPSK, 8PSK) 1 to 40 MS/s (16APSK) 1 to 30 MS/s (32APSK) t.b.d.
Roll-Off	20, 25, 35 %
FEC Code rates (depending upon the type of modulation)	1/4; 1/3; 2/5; 1/2; 3/5; 2/3; 3/4; 4/5; 5/6; 8/9; 9/10
FEC-Frame	Normal (64800bits), Short (16200bits)
	CCM, ACM, VCM
DVB-T (Option)	
Modulation	COFDM
Input frequency	47 MHz to 862 MHz
Input level	-80 dBm to -10 dBm
Symbol rate	All for 7 MHz and 8 MHz bandwidth
DVB-T2 (Option)	
Modulation	COFDM
Input frequency	47 MHz to 862 MHz
Input level	-80 dBm to -10 dBm
Symbol rate	All for 7 MHz and 8 MHz bandwidth
DVB-C (Option)	
Modulation	16-, 32-, 64-, 128-, 256-QAM
Input frequency	47 MHz to 862 MHz
Input level	-60 dBm to -10 dBm
Symbol rate	2 Msym/s 7 Msym/s
Bandwidth	2 MHz, 4 MHz, 7 MHz, 8 MHz

ISDB-T (Option)	
Modulation	COFDM, 2k,4k,8k
Input frequency	47 MHz to 862 MHz
Input level	-80 dBm to -10 dBm
Symbol rate	All for 6 MHz bandwidth
IP Frontend (Option)	
Input	SFP, electrical RJ45, optical LC
Format	Gigabit Ethernet, UDP, Uni-und Multicast RTP, proMPEG
Data rate	Max. 200 Mbit/s
IP Data Port (Option)	
Output	SFP, electrical RJ45, optical LC
Format	Gigabit Ethernet, UDP, Uni-und Multicast, RTP (Option), proMPEG (Option), MPTS (Option), Service Filter (Option), SPTS (Option)
Data rate	Depending on input data rate
ASI input	
Input	2 x ASI (in conformance with EN 50083-9), 75 Ohm, BNC
Reflection / return loss	> 18 dB
Format	188/204 Byte
Data rate	Max. 200 Mbit/s
ASI output	
Output	8 x ASI (in conformance with EN 50083-9), 75 Ohm, BNC
Reflection / return loss	> 18 dB
Format	188 Byte
Data rate	Max. 200 Mbit/s
Monitoring, configuration	
Ethernet	IP check port, RJ45, LAN
Format	10/100M, TCP/IP, SNMP, Web server, Software Download
Alarm	Potential-free relay contact
General	
Power consumption	25 Watt (without LNB powering)
Power supply	100V _{AC} to 240 V _{AC}
Dimensions	482 x 44 x 260 mm (19" 1RU)
Weight	4.7 kg
EMC	EN 50083-2
Safety	EN 60950-1

History

Revision	Modifications	Date
A	First Release	21.03.2011
В	Editorial changes, SPTS streaming	22.07.2011
С	BISS Decryption described.	12.08.2011
D	Editorial changes	23.08.2011
E	Processing	01.12.2011
F	New: ProMPEG, ISDB-T	26.04.2012
G	RTP, Device Settings new. SAP	10.07.2012
Н	Editorial changes	08.04.2013

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