

Instruction manual

64-Channel Real-Time TS Analyzer

User manual

for the built-in web-based user interface

CableWorld Ltd. 1116 Budapest, Kondorfa u. 6/B, Hungary Tel.: +36 1 371 2590, Fax: +36 1 204 7839 E-mail: cableworld@cableworld.hu Internet: www.cableworld.eu

42/11



Instruction manual

Contents

Ι.	. Insta	all	
	1.1.	Device overview	3
		1.1.1. Hardware requirements	4
		1.1.2. Software requirements	4
	1.2.	Connecting to the network	5
	1.3	Setup wizard	6
		1.3.1. Web server and SNTP client settings	7
		1.3.2. SMTP client settings	
		1.3.3. Setting up the control network	
		1.3.4. Setting the network parameters of the transport stream input	
		1.3.5. Setting the date and time	
		1.3.6. Formatting the built-in SD memory card	
		1.3.7. IP channel setup	
		1.3.8. ASI channel setup	
		1.3.9. Setting alarm and event logging	
		1.3.10. Enabling alerts and logging	
	1.4.	Backup and restore the settings	
		Restore factory defaults	
		Software update	
2		ing Measurements	
		Opening page	27
		Ethernet and IP measurements	
		2.2.1. Real-time measurement of MAC statistics	
		2.2.2. Real-time measurement of IP statistics	
		2.2.3. Ethernet bitrate diagram	
		2.2.4. Evaluation of MAC statistics from the SD memory card	
		2.2.5. Evaluation of IP statistics from the SD memory card	
	23	Transport stream measurements	
	2.0.	2.3.1. General Statistics (Real-time)	
		2.3.2. PID statistics (Real-time)	
		2.3.3. Channel bitrate analyzer	
		2.3.4. Multichannel bitrate analyzer	
		2.3.5. PID bitrate analyzer	
		2.3.6. MultiPID bitrate analyzer	
		2.3.7. General Statistics (SD Card)	
		2.3.8. PID Statistics (SD Card)	
		2.3.9. PSI analyzer	
		2.3.10. PCR analyzer	
		2.3.11. Packet arrival analyzer	
3	Δler	t & Log	77
0.	. /	3.1.1. View Alerts (Real-time)	48
		3.1.2. View Alerts (SD Card)	
_			-10
Free	quen	tly Asked Questions	
F	1	Abbreviations	49
F		What to do if I forget the IP address of the device	

Links

- L1. www.cableworld.eu
- L2. www.dvb.org



Instruction manual

1. Install

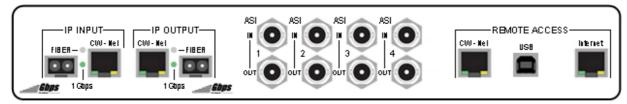
1.1 Device overview



Front panel of the device

ሳ	Power	Indicates the power on status.	
•	Ethernet Link	Indicates the existence of the Ethernet connection at the TS Analyzer Input and the Device Controller interfaces.	
	Ethernet Act	Indicates the Ethernet communication over the TS Analyzer Input and the Device Controller interfaces.	
_	1000 Mbps	Indicates the gigabit Ethernet connection at the TS Analyzer Input and the Device Controller interfaces.	
*	Fiber	Indicates the existence of the optical Ethernet connection at the TS Analyzer Input and the Device Controller interfaces.	
٠	Service Required	Indicates if the analyzer settings are not appropriate.	
	Web Server Status	Indicates the existence of the Ethernet connection and in case of DHCP the successful request for the dynamic IP address of the Internet interface. The LED flashes to indicate Ethernet communication.	
$\mathbf{d}\mathbf{t}$	Analyzer Status	Indicates the existence of the Ethernet connection and the successful linking between the Ethernet interface and the analyzer module.	
	Storage Status	Indicates that all the settings of the analyzer are appropriate for recording on the SD memory card.	
1	Error		
Т	Alert Level I	Indicates the current status of the analyzer Alert & Log function.	
Ш	Alert Level II		
Ш	Alert Level III		

Front panel LEDs



Rear panel of the device



Interface	Connector type	Data rate	Description
TS Analyzer Input	RJ-45 or SFP	10/100/1000 Mbps	Ethernet measuring input of the analyzer.
ASI Input 14	75 Ohm BNC	max. 200 Mbps	ASI measuring input of the analyzer.
ASI Output 14	75 Ohm BNC	max. 200 Mbps	ASI outputs of the analyzer.
Device Controller	RJ-45 or SFP	10/100/1000 Mbps	Control input of the Real-Time Analyzer module.
Ethernet	RJ-45	10/100 Mbps	Interface of the Remote Control module connected to the internal LAN network.
Internet	RJ-45	10/100 Mbps	Interface of the Remote Control module connected to the external public network.
USB	USB type B		Reserved for future development.

Rear panel connectors

1.1.1 Hardware requirements

Microsoft Windows system^[1]

- Intel Pentium IV, EM64T or AMD Athlon XP, Athlon 64, Opteon or better
- min. 512 MBytes of system memory
- min. 100 MBytes storage^[2]
- Ethernet 10/100 network card

Linux system^[1]

- Intel Pentium IV, EM64T or AMD Athlon XP, Athlon 64, Opteon or better
- min. 512 MBytes of system memory
- min. 58 Mbytes storage^[2]
- Ethernet 10/100 network card

^[1] www.java.com/en/download/help/sysreq.xml

^[2] The minimum storage required by the Java virtual machine, the device does not need to use separate management software to download and install.

1.1.2 Software requirements

Microsoft Windows system

- Windows XP, Windows Vista or Windows 7 32/64-bit operating system
- Google Chrome 4.0, Internet Explorer 8 or Firefox 3.5.x browser
- Java Version 6 Update 24 or later version^[1]

Linux system

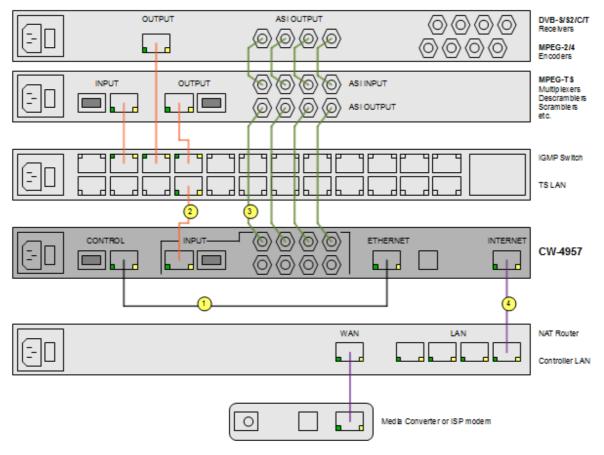
- Oracle Enterprise, Red Hat Enterprise or SUSE 9/10/11 32/64-bit Linux operating system
- Firefox 3.5.x browser
- Java Version 6 Update 24 or later version^[1]

^[1] http://www.java.com/en/download/index.jsp



1.2 Connecting to the network

- 1. Connect the **Device Controller** and the **Ethernet** connectors with the UTP cable supplied with the device.^[1]
- Check, whether the default IP addresses of the analyzer can cause an IP address conflict in the network to be measured.^[2]
- 3. Connect the Internet connector to the central router of the control network.
- 4. For remote access set the NAT in the central router of the control network.
- 5. Connect **TS Analyzer Inputs** to the central switch of the transport stream network at the **CW-Net** or the **FIBER** connector.
- 6. Connect the ASI signals to be analysed to the loop-through ASI inputs.



Installing the CW-4957 type TS Analyzer

Interface	IP address
Device Controller	10.123.13.101
TS Analyzer Inputs	10.123.13.102
Ethernet	10.123.13.103
Internet	192.168.10.10

Default IP addresses



Interface	HTTP port number		
Internet	80		

Default HTTP port number

LINKSYS® A Division of Cisco Systems, Inc.							Đ	mware Version: 1.02.06
Applications	Etherfast® Cable/DSL VPN Router BEFVP41							
& Gaming	Setup	Security	Access Restriction	ns & Ga	ming	nistration	Status	
T	Port Range Forw	arding	Port Triggering	UPni UPni	P Forwarding	OMZ	QoS	
UPnP Forwarding							More	
	Application	Ext.Port	TCP UDP	Int.Port	IP Address	Enabled		
	FTP	21	•	21	192.168.10. 0			
	Teinet	23	• •	23	192.168.10. 0			
	SMTP	25	• •	25	192.168.10. 0			
	DNS	53	•	53	192.168.10. 0			
	TFTP	69	•	69	192.168.10. 0			
нт	TP 80	٩) ()	80	192.168.10). 10		
	POP3	110	•	110	192.168.10. 0]		
	NNTP	119	•	119	192.168.10. 0			
	SNMP	161	•	161	192.168.10. 0]		

Setting the NAT in the Linksys BEFVP41 router

1.3 Setup wizard

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the Setup wizard function from the Start menu.
- 3. Click **Next** to continue.
- 4. Enter the missing data.
- 5. Click **Apply** to validate the settings.
- 6. Click **Next** to continue.

The setup wizard will guide you through the setup step by step. Before starting the setup wizard check the proper connections of the device.



64-Channel Real-Time TS Analyzer Web Interface

1.3.1 Web server and SNTP client settings

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the Web Server Settings function from the Settings menu or use the setup wizard.
- 3. To use dynamic IP address, check the **Enable DHCP** check box.
- 4. To use **static IP address** enter the IP address and the netmask of the Internet interface, and the gateway IP address.
- 5. Enter the **TCP port number** assigned to the HTTP. The default value is 80.
- 6. Enter the **Time Server**^[1] IP address and time zone offset used for the synchronization.
- 7. Click Apply to validate the settings.

-Remote Control Module Internet Interface		
MAC Address		42-57-49-57-00-00
Enable DHCP	3	
IP Address	4	192.168.10.10
Network Mask		255.255.255.0
Gateway IP Address		192.168.10.1
-TCP Port Number for HTTP and DDToTCP	-	
HTTP Port Number	6	80
SNTP Time Server		
Time Server IP Address	6.	148.6.0.1
Time Zone Offset		UTC+1:00 Albania, Slovenia, Macedonia, Norway, Sw
		Web server and SNTP client settings

The Web interface has a valid, unique MAC address that can not be changed. An arbitrary IPv4 IP address can be assigned to the interface.

The analyzer communicates with a time server. Use the PING command to find the Time Server IP address.

C: $\ping pool.ntp.org$ Pinging pool.ntp.org [195.228.45.175] with 32 bytes of data: Reply from 195.228.45.175: bytes=32 time=41ms TTL=58 Reply from 195.228.45.175: bytes=32 time=14ms TTL=58 Reply from 195.228.45.175: bytes=32 time=25ms TTL=58 Reply from 195.228.45.175: bytes=32 time=14ms TTL=58 Ping statistics for 195.228.45.175: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 14ms, Maximum = 41ms, Average = 23ms C: $\$

Finding the Time Server IP address

• [1] <u>www.ntp.org</u>



1.3.2 SMTP client settings

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the SMTP Client Settings function from the Settings menu or use the setup wizard.
- 3. Check **Enable** to send mail.
- 4. Give a brief **description** on the monitoring site, which will appear as the subject of the message to send.
- 5. Enter the SMTP Server IP address and port number. The default port number is 25.
- 6. Enter your login information.
- 7. Enter the sender's e-mail address.
- 8. Enter the recipient's e-mail address.
- 9. Check the Send TEST e-mail checkbox to send a message.

10.Click **Apply** to validate the settings and send the test message.

- Site			
Z Enable 3	4. Digi	tal CATV Headend Monitori	ng
- SMTP Server Settings			
IP Address	6	192.168.10	0.9
Port Number		25	
Sender Login Name	6	noreply@cat	tv.hu
Sender Password	•		
From (Sender e-mail address)			
	noreply@catv.hu	0	
To (Recipient e-mail address)			
	operator@catv.hu	8	
Z Send TEST e-mail 9.			10. Apply
			SMTP client setting

The analyzer can also send alarm e-mail via the Internet interface. For this service an active e-mail account is required. The SMTP client of the analyzer uses the 'AUTH LOGIN' procedure to authenticate the user. If the test message is not received, check if the 'AUTH LOGIN METHOD' is enabled in your mail server. Use the PING command to find the SMTP Server IP address.

C:\>ping mail.t-online.hu
Pinging mail.t-online.hu [84.2.46.3] with 32 bytes of data:
Reply from 84.2.46.3: bytes=32 time=19ms TTL=119
Reply from 84.2.46.3: bytes=32 time=14ms TTL=119
Reply from 84.2.46.3: bytes=32 time=14ms TTL=119
Reply from 84.2.46.3: bytes=32 time=39ms TTL=119
Ping statistics for 84.2.46.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 14ms, Maximum = 39ms, Average = 21ms
C:\>

Finding the SMTP Server IP address



64-Channel Real-Time TS Analyzer Web Interface

1.3.3 Setting up the control network

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the LAN Settings function from the Settings menu or use the setup wizard.

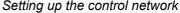
Setting up the **Control interface** of the **Real-Time Analyzer** module

- 3. For the automatic MAC address setting, enable the CW Auto MAC mode function.
- 4. Enter the interface's **IP address** and **communication port number**. The default port number is 64947.

Setting up the LAN interface of the Remote Control module

- 5. For the automatic MAC address setting, enable the **CW Auto MAC mode** function.
- 6. Enter the interface's IP address, the netmask and the default gateway.
- 7. Check the **Set Real-Time Analyzer CI with Broadcast command** check box to configure the analyzer module for broadcast mode. ^[1]
- 8. Click **Apply** to validate the settings

-Real-Time Analyzer Control Interface	
Enable CW Auto MAC mode 3	Z
MAC Address	42-57-0A-7B-0D-65
IP Address	10.123.13.101
Communication Port	64947
Remote Control Module LAN Interface	
Enable CW Auto MAC mode 6	Z
MAC Address	42-57-0A-7B-0D-67
IP Address	10.123.13.103
Network Mask	255.0.0.0
Gateway IP Address	0.0.0.0
Set Real-Time Analyzer Control Interface with Broadcast comma	nd 7. 8. Apply
	O atting a sum the a second as the second second second



The analyzer consists of two main parts: the Real-Time Analyzer module performs the real-time measurements, the Remote Control Module evaluates the data and displays the user interface. The Ethernet connection is required between the two modules, which are directly wired or connected over the controller network. To ensure a smooth communication the direct cable connection is proposed. When connecting over the control network the IP addresses should be chosen to be in one subnet. It is mandatory with direct cable connection.

Except the Internet interface the MAC addresses of all IP interfaces of the analyzer can be changed. In the CW-Net network, the use of the CW Auto MAC mode function is recommended.

• ^[1] The broadcast configuration is allowed to use only in case of a direct cable connection.



1.3.4 Setting the network parameters of the transport stream input

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the TS Receiver Settings function from the Settings menu or use the setup wizard.
- 3. Select the desired **receive mode**.^[1]
- 4. Disable the **MAC address filter** function to enable the **Promiscuous** receive mode. ^[2]
- 5. For the automatic MAC address setting, enable the **CW Auto MAC mode** function.
- 6. Set the IP address of the ransport stream input. [3]
- 7. Click **Apply** to validate the settings.

-Receive Mode Configuration	
64 UDP Transport Streams	Enable MAC Address filter
60 UDP and 4 ASI Transport Streams	
Transport Stream Input Interface	
Enable CW Auto MAC mode	6 Z
MAC Address	42-57-0A-7B-0D-43
IP Address	6 10.123.13.67
	Setting the network parameters of the transport stream input

- ^[1] The analyzer has 64 transport stream inputs. If you only want to analyze IP signals, select the 64 UDP Transport Stream mode. For analyzing ASI signals select the 60 UDP and 4 ASI Transport Streams mode.
- ^[2] Besides the Unicast / Multicast / Broadcast receive modes, the analyzer supports the so-called Promiscuous receive mode, which allows analyzing Unicast streaming among other instruments without interfering the transmission. Important: The analyzer's MAC address filter function must be disabled, and the data stream to be analyzed must arrive to the analyzer's TS input (e.g. using Port Mirroring).
- ^[3] Except the Internet interface the MAC addresses of all interfaces in the device can be changed. In the CW-Net network, the use of the CW Auto MAC mode function is proposed.



1.3.5 Setting the date and time

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the Time Settings function from the Settings menu or use the setup wizard.
- 3. Select the desired **time base**.
- 4. Select a transport stream source for the DVB-SI TDT Synchronized Time mode.
- 5. Click Apply to validate the settings, and then verify that the synchronization has taken place.

-Time Mode	
SNTP Synchronized Time	DVB-SITDT Synchronized Time
C Manually Set Time	3
Transport Stream Channel for TDT synchroniza	ition
Multicast [239.123.13.190 : 58190] - DVB-T 802 MHz	4
UTC @ Browser	
	2011/04/27 13:49:14
UTC @ Analyzer	
	2011/04/27 13:49:14 5
	Setting date and time

The analyzer does not save data to the SD card and will not send alerts without knowing the exact time. The correct date and time must be set at every power on, because the machine has no internal power source to store the time.

SNTP Synchronized Time

- synchronization to a Timer Server available via the Internet ^[1]
- continuous synchronization

Manually Set Time

- synchronization to the internal clock of the computer performing the configuration
- synchronization manually at every reboot

DVB-SI TDT Synchronized Time

- synchronization to the time specified in the TDT table of the selected input transport stream ^[2]
- use of unedited DVB-S/S2 or DVB-T source recommended
- continuous synchronization

•	^[1] <u>Web</u>	server	and	SNTP	client	setting	gs

• ^[2] <u>IP channel settings</u>, <u>ASI channel settings</u>



64-Channel Real-Time TS Analyzer Web Interface

CW-4957

Instruction manual

1.3.6 Formatting the built-in SD memory card

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the SD Card Settings function from the Settings menu or use the setup wizard.
- 3. Enter the identification label for the memory card.
- 4. Click **Optimal Settings** for the default setting.
- 5. Use the sliders to change the default setting.
- 6. Click Format.

	Storage 3
Structure	
Total Block Count	1 967 616
Reserved Block Count	1 024
General Counter Data Block Count	
	6. 466 560 Block(s) - 0 year(s) 180 day(s)
PID Counter Data Block Count	
	924 672 Block(s) - 7 day(s)
Log Data Block Count	та страна и
	575 360 Block(s) - 95 893 events
Optimal Settings 4	6 Format

Formatting the built-in SD memory card

For the long-term storage of measurement data the analyzer uses a built-in SD memory card, on which it creates its own fixed data structure for the quick access (not a file system). The smallest unit of access to the SD card is the 512-byte block.

Area	Size
Structure information	1 024 blocks
Ethernet, IP and channel counters	I × 9 blocks
PID counters per channel	m × 33 024 blocks
Alarm events	n × 6 blocks

SD memory card allocation



Structure information

· fixed-size area comprising the structure identifier, the label and other indicators

Ethernet, IP and channel counters

- results of the MAC Statistics, the IP Stack Statistics and the General Statistics measurements
- the measurements are recorded every 5 minutes along with the associated time stamps

PID counters per channel

- results of the PID Statistics measurements collected continuously from all the 8192 PID of the 64 channels
- because of their big size (~16 Mbytes) the test results a will be recorded every 3 hours

Alarm events

- alert log entries
- the measurements are recorded every 5 minutes if at least one of the preset alarm conditions is met
- ^[1] Data saved previously on the memory card will be deleted during formatting.
- ^[2] Although the estimated lifespan of the SD card is 10 years, it should be replaced every 5 years.



1.3.7 IP channel setup

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the IP Channel Setup function from the Channel Setup menu or use the setup wizard.
- 3. Click Add to add or insert a new channel.
- 4. Enable the new channel.
- 5. Select from the offered modes (Unicast, Promiscuous, Multicast, Broadcast).
- 6. Enter the port number, an in **Promiscuous** and **Multicast** reception modes the IP address, too.
- 7. Type a maximum of 19 character long **description** about the channel.
- 8. Set the desired channel sequence with the **Up** and **Down** buttons.
- 9. Click Apply to validate settings.
- 10. Check the data rate measured in the selected channel in the **IP Channel Monitor** diagram.

IP Cł	nannel M	onitor			Maximum Channel Data F	?ate : 38,03 Mbit/s
Tota	l Input Da	â î î î î î î î î î î î î î î î î î î î	s ^		1 0)
En	able All	Disable All				Delete All
Ch	Enable	Receive mode	IP Address	Port Number	Description	1
1	2	Multicast	239.123.13.100	58100	19.2°E 12187.5 H	
2	2	Multicast	239.101.1.1	57011	RTL Television	
3	Z	Multicast	239.101.2.1	57021	RTL2	
4	2	Multicast	239.101.3.1	57031	Super RTL	
5	Z	Multicast	239.101.4.1	57041	VOX	
6	₹4.	Multicast	5. 239.101.5.1	57051 (6.	n-tv	2
7	Z	Multicast	239.101.6.1	57061	Channel 21	
8	2	Multicast	239.101.7.1	57071	Super RTL CH	
9	V	Multicast	239.101.8.1	57081	VOX CH	1000
10	Z	Multicast	239.123.13.110	58110	19.2°E 12148.5 H	
11	Z	Multicast	239.101.9.1	57091	Beauty TV	1000
12	V	Multicast	239.101.10.1	57101	Alpen gluhen TV	
13	V	Multicast	239.101.11.1	57111	HOPE Channel	
14	V	Multicast	239.101.12.1	57121	JML Shop	
15	V	Multicast	239.101.13.1	57131	YAVIDO	
16	V	Multicast	239.101.14.1	57141	RNF	
17	V	Multicast	239.101.15.1	57151	Channel21 Express	
18	V	Multicast	239.101.16.1	57161	GOD Channel	
**		· · · ·				
	dd 🚺	3 8	Up (Down Delete	Q	Apply

The analyzer is capable of analyzing and monitoring 60/64 IP channels simultaneously. Besides the unicast, multicast and broadcast receive modes the promiscuous receive mode is also can be selected, which allows analyzing the unicast streaming among other devices without disturbing the transmission. The premise for the promiscuous receive mode is, that the analizer's MAC Address filter function must be disabled, and the data stream to be analyzed must arrive to the analyzer's input (e.g. using port mirroring). For treating the multicast data streams the analyzer uses the IGMPv2 protocol.

- 11. Left click **IP Channel Monitor** diagram for detailed display.
- 12. When changing the channel list, the background of the sequential numbers of the channels' concerned turns red, indicating that after clicking the **Apply** button the measurements restart in the channel.



Instruction manual

19.2*E 12228.5 H Multicast [239.123.13.120 : 58120] TS ID: 1091 (0x0443) Service(s): 10 Current Data Rate : 38,02 Mbit/s Total Input Data Rate : 299,69 Mbit/s Total Input Data Rate : 299,69 Mbit/s Checkve mode IP Address Port Number Description 1 V Multicast 239.123.13.100 2 V Multicast 239.101.1 57011 RTL 2 4 V Multicast 239.101.2.1 5 V Multicast 239.101.3.1 Sign of Mainest 239.101.4.1 57021 RTL2 4 V Multicast 239.101.4.1 57081 VOX 6 V Multicast 239.101.5.1 57051 n-tv 8 V Multicast 239.101.5.1 57061 Channel 21 9 V Multicast 239.101.5.1 57061 Channel 21 9 V Multicast 239.101.5.1 57091 Beauty TV<	: 38,03 Mbit/	mum Channel Data Rate		2511	140 DBE 4000	or	onitor	nannel M	IP CI
TS ID: 1091 (0x0443) Service(s): 10 Current Data Rate : 38,02 Mbit/s Maximum Data Rate : 38,03 Mbit/s Total Input Data Rate : 299,69 Mbit/s Enable All Disable All Ch Enable Receive mode IP Address Port Number Description 1 V Multicast 239.123.13.100 \$8100 19.2°E 12187.5 H 2 V Multicast 239.101.1 57011 RTL2 3 V Multicast 239.101.2.1 57021 RTL2 4 V Multicast 239.101.3.1 57031 Super RTL 5 V Multicast 239.101.8.1 57081 VOX CH 7 V Multicast 239.101.5.1 57051 n-tv 8 V Multicast 239.101.7.1 57071 Super RTL CH 9 V Multicast 239.101.7.1 57071 Super RTL CH 10 V Multicast 239.101.7.1 57091 Beauty TV 12 V Multicast 239.101.1.1 <									
Current Data Rate : 38,02 Mbit/s Maximum Data Rate Image: State			20 : 58120]	9.123.10	Multicast [239				
Maximum Data Rate : 38,03 Mbit/s Imaximum Data Rate : 38,03 Mbit/s Input Data Rate : 299,69 Mbit/s Enable All Disable All Visit Control of the state in the sta			Service(s):	0x0443)	TS ID: 1091 (
Maximum Data Rate : 38,03 Mbit/s Imaximum Data Rate : 39,012,13,100 Imaximum Data Rate : 39,101.1,1 Imaximum Data Rate : 38,03 Mbit/s Imaximum Data Rate : 39,101.5,1 S7051 Imaximum Dat			8.02 Mbit/s	Rate	Current Data				
Image: Constraint of the second sec			· · · · · · · · · · · · · · · · · · ·						
Enable All Disable All Ch Enable Receive mode IP Address Port Number Description 1 Image:			0,03 101015						
Enable Receive mode IP Address Port Number Description 1 ✓ Multicast 239.123.13.100 58100 19.2°E 12187.5 H 2 ✓ Multicast 239.101.1.1 57011 RTL Television 3 ✓ Multicast 239.101.2.1 57021 RTL2 4 ✓ Multicast 239.101.3.1 57031 Super RTL 5 ✓ Multicast 239.101.4.1 57041 VOX 6 ✓ Multicast 239.101.5.1 57081 VOX CH 7 ✓ Multicast 239.101.5.1 57051 n-tv 8 ✓ Multicast 239.101.7.1 57061 Channel 21 9 ✓ Multicast 239.101.7.1 57071 Super RTL CH 1 ✓ Multicast 239.101.7.1 57091 Beauty TV 2 ✓ Multicast 239.101.1.1 57101 Alpen gluhen TV 2 ✓ Multicast						Rate : 299,69 Mbit/s	ita Rat	l Input Da	Fota
Enable Receive mode IP Address Port Number Description 1 ✓ Multicast 239.123.13.100 58100 19.2°E 12187.5 H 2 ✓ Multicast 239.101.1.1 57011 RTL Television 3 ✓ Multicast 239.101.2.1 57021 RTL2 4 ✓ Multicast 239.101.3.1 57031 Super RTL 5 ✓ Multicast 239.101.4.1 57041 VOX 6 ✓ Multicast 239.101.5.1 57081 VOX CH 7 ✓ Multicast 239.101.5.1 57051 n-tv 8 ✓ Multicast 239.101.7.1 57061 Channel 21 9 ✓ Multicast 239.101.7.1 57071 Super RTL CH 1 ✓ Multicast 239.101.7.1 57091 Beauty TV 2 ✓ Multicast 239.101.1.1 57101 Alpen gluhen TV 2 ✓ Multicast		_							
1 ✓ Multicast 239.123.13.100 58100 19.2°E 12187.5 H 2 ✓ Multicast 239.101.1.1 57011 RTL Television 3 ✓ Multicast 239.101.2.1 57021 RTL2 4 ✓ Multicast 239.101.3.1 57031 Super RTL 5 ✓ Multicast 239.101.4.1 57041 VOX 5 ✓ Multicast 239.101.5.1 57051 n-tv 6 ✓ Multicast 239.101.6.1 57061 Channel 21 7 Multicast 239.101.7.1 57071 Super RTL CH 0 ✓ Multicast 239.101.7.1 57091 Beauty TV 2 ✓ Multicast 239.101.10.1 57101 Alpen gluhen TV 2 ✓ Multicast 239.101.11.1 57111 HOPE Channel 1 ✓ Multicast 239.101.12.1 57121 JML Shop 2 ✓ Multicast 239.101.13.1 57131 YAVIDO 3 ✓ Multicast <t< td=""><td>Delete All</td><td></td><td></td><td></td><td></td><td>Disable All</td><td>_</td><td>able All</td><td>Er</td></t<>	Delete All					Disable All	_	able All	Er
2 ✓ Multicast 239.101.1.1 57011 RTL Television 3 ✓ Multicast 239.101.2.1 57021 RTL2 4 ✓ Multicast 239.101.3.1 57031 Super RTL 5 ✓ Multicast 239.101.4.1 57041 VOX 6 ✓ Multicast 239.101.8.1 57081 VOX CH 6 ✓ Multicast 239.101.5.1 57051 n-tv 7 ✓ Multicast 239.101.6.1 57061 Channel 21 9 ✓ Multicast 239.101.7.1 57071 Super RTL CH 10 ✓ Multicast 239.101.7.1 57091 Beauty TV 2 ✓ Multicast 239.101.9.1 57091 Beauty TV 2 ✓ Multicast 239.101.10.1 57111 HOPE Channel 4 ✓ Multicast 239.101.12.1 57121 JML Shop 5 ✓ Multicast 239.101.13.1 57131 YAVIDO 6 ✓ Multicast		Description	ort Number	ss	IP Addres	Receive mode	R	Enable	Ch
3 7 Multicast 239.101.2.1 57021 RTL2 4 7 Multicast 239.101.3.1 57031 Super RTL 5 7 Multicast 239.101.4.1 57041 VOX 5 7 Multicast 239.101.8.1 57081 VOX CH 6 7 Multicast 239.101.5.1 57051 n-tv 7 7 Multicast 239.101.6.1 57061 Channel 21 7 Multicast 239.101.7.1 57071 Super RTL CH 9 7 Multicast 239.101.7.1 57091 Beauty TV 0 7 Multicast 239.101.9.1 57091 Beauty TV 2 7 Multicast 239.101.10.1 57101 Alpen gluhen TV 3 7 Multicast 239.101.11.1 57111 HOPE Channel 4 7 Multicast 239.101.12.1 57121 JML Shop 5 7 Multicast 239.101.13.1 57141 RNF 6 7 Multicast 239.101.15.1		E 12187.5 H	D	0 58	239.123.13.10	ticast	Multica	V	1
4 7 Multicast 239.101.3.1 57031 Super RTL 5 7 Multicast 239.101.4.1 57041 VOX 5 7 Multicast 239.101.8.1 57081 VOX CH 6 7 Multicast 239.101.5.1 57051 n-tv 7 7 Multicast 239.101.6.1 57061 Channel 21 7 7 Multicast 239.101.7.1 57071 Super RTL CH 9 7 Multicast 239.101.7.1 57071 Super RTL CH 0 7 Multicast 239.101.7.1 57091 Beauty TV 2 7 Multicast 239.101.10.1 57101 Alpen gluhen TV 2 7 Multicast 239.101.11.1 57111 HOPE Channel 4 7 Multicast 239.101.12.1 57121 JML Shop 5 7 Multicast 239.101.13.1 57141 RNF 6 7 Multicast 239.101.14.1 57151 Channel21 Express		Television	1	57	239.101.1.1	ticast	Multica	V	2
Multicast 239.101.4.1 57041 VOX Multicast 239.101.8.1 57081 VOX CH Multicast 239.101.5.1 57051 n-tv Multicast 239.101.6.1 57061 Channel 21 Multicast 239.101.7.1 57071 Super RTL CH Multicast 239.101.7.1 57091 Beauty TV Multicast 239.101.10.1 57101 Alpen gluhen TV Multicast 239.101.11.1 57111 HOPE Channel Multicast 239.101.12.1 57121 JML Shop Multicast 239.101.13.1 57131 YAVIDO Multicast 239.101.13.1 57131 YAVIDO Multicast 239.101.15.1 57131 Channel21 Express		2	1	57	239.101.2.1	ticast	Multica	V	3
Multicast 239.101.8.1 57081 VOX CH Multicast 239.101.5.1 57051 n-tv Multicast 239.101.6.1 57061 Channel 21 Multicast 239.101.7.1 57071 Super RTL CH Multicast 239.101.7.1 57071 Super RTL CH Multicast 239.101.7.1 57091 Beauty TV Multicast 239.101.10.1 57101 Alpen gluhen TV Multicast 239.101.11.1 57111 HOPE Channel Multicast 239.101.12.1 57121 JML Shop Multicast 239.101.13.1 57131 YAVIDO Multicast 239.101.14.1 57141 RNF Multicast 239.101.15.1 57151 Channel21 Express		er RTL	1	57	239.101.3.1	ticast	Multica	V	4
V Multicast 239.101.5.1 57051 n-tv V Multicast 239.101.6.1 57061 Channel 21 V Multicast 239.101.7.1 57071 Super RTL CH 0 V Multicast 239.101.7.1 57071 Super RTL CH 1 V Multicast 239.101.9.1 57091 Beauty TV 2 V Multicast 239.101.10.1 57101 Alpen gluhen TV 3 V Multicast 239.101.12.1 57121 JML Shop 5 V Multicast 239.101.13.1 57131 YAVIDO 6 V Multicast 239.101.14.1 57141 RNF 7 V Multicast 239.101.15.1 57151 Channel21 Express	11111		1	57	239.101.4.1	ticast	Multica		5
12 Multicast 239.101.6.1 57061 Channel 21 0 ✓ Multicast 239.101.7.1 57071 Super RTL CH 0 ✓ Multicast 239.123.13.110 58110 19.2*E 12148.5 H 1 ✓ Multicast 239.101.9.1 57091 Beauty TV 2 ✓ Multicast 239.101.10.1 57101 Alpen gluhen TV 3 ✓ Multicast 239.101.12.1 57121 JML Shop 5 ✓ Multicast 239.101.13.1 57131 YAVIDO 6 ✓ Multicast 239.101.14.1 57141 RNF 7 ✓ Multicast 239.101.15.1 57151 Channel21 Express		CH	1	57	239.101.8.1	ticast	Multica	V	8
Multicast 239.101.6.1 57061 Channel 21 Multicast 239.101.7.1 57071 Super RTL CH Multicast 239.123.13.110 58110 19.2°E 12148.5 H Multicast 239.101.9.1 57091 Beauty TV Multicast 239.101.10.1 57101 Alpen gluhen TV Multicast 239.101.11.1 57111 HOPE Channel Multicast 239.101.12.1 57121 JML Shop Multicast 239.101.13.1 57131 YAVIDO Multicast 239.101.14.1 57141 RNF Multicast 239.101.15.1 57151 Channel21 Express	1111		1	57	239.101.5.1	ticast	Multica	> ⊻	4
0 V Multicast 239.123.13.110 58110 19.2°E 12148.5 H 1 V Multicast 239.101.9.1 57091 Beauty TV 2 V Multicast 239.101.10.1 57101 Alpen gluhen TV 3 V Multicast 239.101.11.1 57111 HOPE Channel 4 V Multicast 239.101.12.1 57121 JML Shop 5 V Multicast 239.101.13.1 57131 YAVIDO 6 V Multicast 239.101.14.1 57151 Channel21 Express	311111	nel 21	1	57	239.101.6.1	ticast	Multica	7 🗹 👘	3 🔨
1 Image: Multicast 239.101.9.1 57091 Beauty TV 2 Image: Multicast 239.101.10.1 57101 Alpen gluhen TV 3 Image: Multicast 239.101.11.1 57111 HOPE Channel 4 Image: Multicast 239.101.12.1 57121 JML Shop 5 Image: Multicast 239.101.13.1 57131 YAVIDO 6 Image: Multicast 239.101.14.1 57141 RNF 7 Image: Multicast 239.101.15.1 57151 Channel21 Express	1000	r RTL CH	1	57	239.101.7.1	ticast	Multica	2)
Z Willicast 239.101.10.1 57101 Alpen gluhen TV 3 V Multicast 239.101.11.1 57111 HOPE Channel 4 V Multicast 239.101.12.1 57121 JML Shop 5 V Multicast 239.101.13.1 57131 YAVIDO 6 V Multicast 239.101.14.1 57141 RNF 7 V Multicast 239.101.15.1 57151 Channel21 Express		E 12148.5 H	D	0 58	239.123.13.11	ticast	Multica	V	0
3 7 Multicast 239.101.11.1 57111 HOPE Channel 4 7 Multicast 239.101.12.1 57121 JML Shop 5 7 Multicast 239.101.13.1 57131 YAVIDO 6 7 Multicast 239.101.14.1 57141 RNF 7 7 Multicast 239.101.15.1 57151 Channel/21 Express	11000	ty TV	1	57	239.101.9.1	ticast	Multica	V	1
4 7 Multicast 239.101.12.1 57121 JML Shop 5 7 Multicast 239.101.13.1 57131 YAVIDO 6 7 Multicast 239.101.14.1 57141 RNF 7 7 Multicast 239.101.15.1 57151 Channel/21 Express	1.111	n gluhen TV	1	57	239.101.10.1	ticast	Multica	V	2
Image: Second	11111	Channel	1	57	239.101.11.1	ticast	Multica	V	3
6 ✓ Multicast 239.101.14.1 57141 RNF 7 ✓ Multicast 239.101.15.1 57151 Channel21 Express	10000	Shop	1	57	239.101.12.1	ticast	Multica	V	4
7 🔽 Multicast 239.101.15.1 57151 Channel21 Express	111111	IDO	1	57	239.101.13.1	ticast	Multica	V	5
	STREET,		1	57	239.101.14.1	ticast	Multica	Z	6
8 🔽 Multicast 239.101.16.1 57161 GOD Channel	10000	nel21 Express	1	57	239.101.15.1	ticast	Multica	V	7
					239.101.16.1			Z	
		~							^

Changes in the channel list



1.3.8 ASI channel setup

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the ASI Channel Setup function from the Channel Setup menu or use the setup wizard. ^[1]
- 3. Enable the ASI channels to be used. ^[2]
- 4. Type a maximum of 19 character long **description** about the channels.
- 5. Set the desired channel sequence with the **Up** and **Down** buttons.
- 6. Click **Apply** to validate the settings.
- 7. Check the data rate measured in the selected channel in the IP Channel Monitor diagram.
- 8. The ASI channel measurements can be restarted with the **Reset All** button.

ASI	Channel N	<i>f</i> onitor			Maximum Cha	annel Dat	a Rate : 0 bit/s
Tota	il Input Da	ita Rate : 0 bit/s					
E	nable All	Disable A	II			8	Reset All
Ch	Enable		Source		Desc	ription	
61		ASI Input 1			R&S DVG Generator		
61 62	-				R&S DVG Generator Test QAM Receiver	4	
	₹3.					4	
62	₹3.	ASI Input 2				4	
62 63	₹3.	ASI Input 2 ASI Input 3				4	
62 63	₹3.	ASI Input 2 ASI Input 3	6 Up	Down		6	Apply

- ^[1] To receive the ASI channels the analyzer should be set to the <u>60 UDP and 4 ASI Transport Stream</u> mode.
- ^[2] The analyzer transmits the signals connected to the ASI Input terminals to the ASI outputs without alterations.



1.3.9 Setting alarm and event logging

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the Setup Alert & Log function from the Alert & Log menu or use the setup wizard.
- 3. Select the desired channel. Wait until the analysis ends.
- 4. Use the Automatic Configuration function, then fine-tune the settings.
- 5. Click **Apply** to validate the settings.

Channel	_
Multicast [239.123.13.100 : 58100] - 19.2°E 12187.5 H	<u> </u>
General Settings	
Enable channel alerts	Send mail on Alert Level I
	Send mail on Alert Level II
Send mail on Error	Send mail on Alert Level III
Transport Stream Errors	
Priority	Disabled 🔽
Synchron byte error	Disabled 🔽
Synchron lost error	Disabled 🔽
Continuity counter error	Disabled 🔽
Transport error indicator	Disabled 🔽
Bitrate Errors	
Priority	Disabled 🔽
Minimum TS bitrate [kbit/s @188]	Disabled
Maximum TS bitrate [kbit/s @188]	Disabled
Transport Stream Structure Errors	
Priority	Disabled 🔽
Transnort Straam ID (Dan)	Disabled
Clear Automatic Configuration 4	Add PID Alert Delete PID Alert 6 Apply

Besides the real-time measurements the analyzer is capable of continuous monitoring of the channels and also generating alarms of different levels. Four different alarm levels are available for the preset alarm conditions: Error, and Alert Level I, II, III. The alert level may be different for each channel. All alarm events are recorded in the alert log. The alarm messaging must be enabled.

General settings

Enable channel alerts

• monitoring the alarm conditions of the selected channel

Send mail on Error, Alert Level I, II, III

· enabling the messaging at a given alert level

✓ Send mail on Error	Send mail on Alert Level III
	Send mail on Alert Level II
Z Enable channel alerts	Send mail on Alert Level I
General settings	

General settings

Setting alarm and event logging



Transport Stream Errors

Priority

• alert level of the transport stream errors

Synchron byte error

- alarm threshold of the synchron byte errors occurring within 15 seconds
- synchron byte error: the value of the first byte of the transport stream packet is not 0x47

Synchron lost error

- alarm threshold of the synchron lost errors occurring within 15 seconds
- synchron lost: three consecutive synchron byte errors

Continuity counter error

- alarm threshold of the continuity counter errors occurring within 15 seconds
- · continuity counter: four-bit counter in the header of the transport stream packets
- continuity error: the counter does not increment continually in the successive TS packets of the same PID value

Transport error indicator

- · alarm threshold of the TEI errors occurring within 15 seconds
- TEI bit: flag in the header of the transport stream packets
- TEI error: the receiver (DVB-S/S2, DVB-C, DVB-T) was not able to correct the transmission errors

- Transport Stream Errors	
Priority	Error 💌
Synchron byte error	100 / 15s 🔽
Synchron lost error	50 / 15s 🔽
Continuity counter error	100 / 15s 🔽
Transport error indicator	100 / 15s 🔽
	•• •• • • • •

Alarm settings for transport stream errors

Bitrate Errors

Priority

• alert level of the bitrate errors

Minimum TS bitrate [kbit/s @ 188]

- · the minimum value of the entire transport stream bitrate in the current channel
- by setting zero the function can be disabled

Maximum TS bitrate [kbit/s @ 188]

- the maximum value of the entire transport stream bitrate in the current channel
- by setting zero, the function can be disabled

-Bitrate Errors	
Priority	Error 💌
Minimum TS bitrate [kbit/s @188]	19000
Maximum TS bitrate [kbit/s @188]	75998

Limits of the data rate



Transport Stream Structure Errors

Priority

• alert level of the structural defects in the transport stream

Transport Stream ID (Dec)

- monitoring the Transport Stream ID value in the PAT table
- by setting zero, the function can be disabled

Service count

- monitoring the number of services in the transport stream
- by setting zero, the function can be disabled

-Transport Stream Structure Errors	
Priority	Alert Level I
Transport Stream ID (Dec)	1089
Service count	13

Monitoring the structure of the Transport Stream

PID Errors

Priority

• alert level of the PID errors

Enable

· monitoring the alarm conditions of the current PID value

PID (Dec)

• decimal value of the PID

Scrambled PID

- monitoring the two-bit Scrambling Control field in the header of the transport stream packet
- the alarm condition: checked checkbox and scrambled PID (the Scrambling Control field value is not zero)

CC Error

- alarm threshold of the continuity counter errors occurring within 15 seconds
- · continuity counter: four-bit counter in the header of the transport stream packets
- continuity error: the counter does not increment continually in the successive TS packets of the same PID value

Min. Bitrate [kbit/s]

- the minimum value of the elementary stream bitrate
- by setting zero, the function can be disabled

Max. Bitrate [kbit/s]

- the maximum value of the elementary stream bitrate
- by setting zero, the function can be disabled



Instruction manual

PID Er	rors					
Priority						Alert Level II 💌
Enable	PID (Dec)	Scrambled	CC Error	Min. Bitrate [kbit/s]	Max. Bitrate [kbit/s]	Information
Z	0	V	50 / 15s	2	6 PAT	
Z	1	Z	50 / 15s	2	6CAT	
V	16	V	50 / 15s	1	4 NIT	
V	17	V	50 / 15s	1	2BAT	/SDT
Z	18	V	50 / 15s	381	1522 EIT	
Z	44	V	50 / 15s	1	4RTL	Television (12003), PMT
V	163	V	50 / 15s	1738	6950 RTL	Television (12003), VIDEO
V	104	V	50 / 15s	102	406 RTL	Television (12003), AUDIO
V	108	V	50 / 15s	2	6 RTL	Television (12003), PES
7	105	V	50 / 15s	150	600 RTL	Television (12003), PES
Z	106	V	50 / 15s	197	786 RTL	Television (12003), PES
Z	110	V	50 / 15s	34	136 RTL	Television (12003), PES
Z	109	7	50 / 15s	4	18 RTL	Television (12003), PES
7	54	7	50 / 15s	2	6RTL	HH SH (12004), PMT
			50.145	-	0.071	UD UDO (LODOC) DUT

Alarm settings for PID errors

Use the Automatic Configuration function to complete the table, and then fine-tune the settings. To fill it manually use the PSI generated pop-up menu or enter the desired PID value.

Delete All		
Enable All		
Disable All		
Add new PID alert >	E PSI 🕨	
	🗊 RTL Television (12003) 🕨 🏥 44 (0x002C) - PMT	
	RTL HH SH (12004) IG3 (0x00A3) - VIDEO	PES
	RTL HB NDS (12005) 104 (0x0068) - AUDIO	PES
	RTL FS (12006)	
	RTL2 (12020)	
	RTL Living (12030)	
	Super RTL (12040)	
	Super RTL CH (12041) 109 (0x006D) - PES	
	■ VOX (12060)	
	VOX CH (12061)	
	Channel 21 (12080)	
	🗊 n-tv (12090) 🕨 🕨	
	Channel 21 (12095)	
	Unreferenced or CA	

Adding the PID using the pop-up menu



1.3.10 Enabling alerts and logging

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the Enable or Disable Alerts function from the Alert & Log menu.
- 3. Enable the device alert function.
- 4. Check the channels you want to enable.
- 5. Click **Apply** to validate the settings.

able Alerts	3 ≥	
hannel Alert Control		
Select All Unselect All Inv	vert	
Multicast [239.101.12.1 : 5/121] JML Shop	Multicast [239.101.41.1 : 57411] Sportklub	1
Multicast [239.101.13.1 : 57131] YAVIDO	Multicast [239.101.42.1 : 57421] National Geograpic	
Multicast [239.101.14.1 : 57141] RNF	Multicast [239.101.43.1 : 57431] Disney Channel	
Multicast [239.101.15.1 : 57151] Channel21 Express	Multicast [239.101.44.1 : 57441]	
Multicast [239.101.16.1 : 57161] GOD Channel	Multicast [239.101.45.1 : 57451] FEM3	- [
Multicast [239.101.17.1 : 57171] Media Shop	Multicast [239.101.46.1 : 57461] Private Spice	
Multicast [239.123.13.120 : 58120] 19.2°E 12228.5 H	Unicast [10.123.13.66 : 1234] TEST	- 1
Multicast [239.101.18.1 : 57181] HSE24 extra		
Multicast [239.101.19.1 : 57191] NICK AUSTRIA		

Enabling the alerts and logging



Instruction manual

1.4 Backup and restore the settings

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the **Backup & Restore** function from the **Settings** menu.
- 3. Click **Backup Settings** to save the settings.

-Restore Options		
Restore Web Server Settings		
Restore Analyzer Settings		
Restore Channel Settings	_	
Restore Channel Alert Settings	=	
Backup Settings 3		Restore Selected Settings
		Backup the settings

4. Enter the place of saving in the pop-up file dialog box.

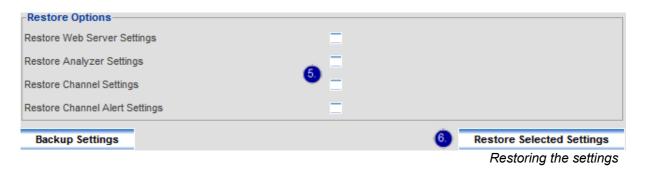
🛃 Create back	up file		×
Save jn:	Archive	1	00 0- 00 0-
	•		
	· · · · ·		
File <u>N</u> ame:	tsa_settings_20110524		
Files of <u>T</u> ype:	Common Binary Storage files (*.cbs)		-
		Save	Cancel

Selecting the file

- 5. Check the groups of settings to restore.
- 6. Click Restore Selected Settings to restore.



Instruction manual



7. Select the file comprising the settings in the pop-up file dialog box.

📓 Select backı	up file		×
Look <u>i</u> n: 📑 /	Archive	đ 💼	■ 0.0: 0=
t as_20110	524.cbs		
	0		
File <u>N</u> ame:	tas_20110524.cbs		
Files of <u>Type</u> :	Common Binary Storage files (*.cbs)		•
		Open	Cancel

Selecting the file



Instruction manual

1.5 Restore factory defaults

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the Factory Defaults function from the Settings menu.
- 3. Check the Web Server Settings checkbox to restore the default settings for the web server.
- 4. Check the Analyzer Settings checkbox to restore the default settings for the analyzer.
- 5. Click **Factory Defaults** ^[1] to validate the settings.

Options ✓ Web Server Settings ③	4 🗾 Z Analyzer Settings, Channel Settings, Channel Alert Settings
	6 Factory Defaults
	Restore factory defaults

 ^[1] Restoring the factory defaults may cause an IP address collision in the network. <u>Connecting to the</u> <u>network</u>



1.6 Software update

- 1. Load the analyzer's web-based interface to the browser by adding the **/admin.html** supplement to the URL (e.g. 192.168.10.10/admin.html).
- 2. Select the Software Update function from the Settings menu.
- 3. Select the image file comprising the software.
- 4. Click **Update** to start the software update. ^[1]
- 5. The update process can be tracked on the **Software Update Progress** panel.

-Device Information			
Firmware version	1.0		
Company	CableWorld Ltd.		
Device	64Ch TSAnalyzer		
Model Number	CW-4957		
Serial Number	0		
FlashFS Version	1.00		
Release Data	2011/05/18		
Total Page Count	32768		
Free Page Count	27606		
Label	CW-4957-1-00-DEFAUL		
Avaible Software Images	Software Image		
🌻 Download from cableworld.eu 3 🔅 Select a file on local computer	FlashFS Version		
[2011/05/23] Operating Software v1.00	Release Data		
	Total Page Count		
	Free Page Count		
	Label		
- Software Update Progress			
Download			
Flash erase 5			
Flash program			
	4 Update		
	· · · ·		
	Software update		

At the end of the update process the analyzer will restart. If after the restart the analyzer interface does not appear in the browser, contact <u>CableWorld Ltd</u>.

The manufacturer is developing continuously the analyzer's interface and functions. The latest software is available in the database on the website of CableWorld. Besides the software image files the database also includes other documents, which can be found in the Download Manager function of the Help menu. Double-click the item you want to download.



Firmware
Software
[2011/05/23] Operating Software v1.00
Docments
[2011/03/21] Product overview
[2011/03/21] Termékismertető
[2011/03/21] Termonamericito

Download Manager

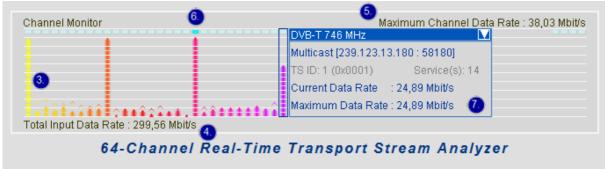
• ^[1] Do not power off the device during the software update.



2. Making Measurements

2.1 Opening page

- 1. Select the **Summary** function from the **Start** menu.
- 2. After loading the JAVA applet left-click the chart for detailed viewing.



Channel Monitor diagram

- 3. Channel data rate columns
- 4. Total input data rate
- 5. Maximum channel data rate
- 6. Channel alarm status
- 7. Details



Instruction manual

2.2. Ethernet and IP measurements

2.2.1 Real-time measurement of MAC statistics

- 1. Select the MAC ^[1] Statistics (Real-Time) function from the Ethernet Analyzer menu.
- 2. Right-click the chart and use the pop-up menu to customize the table.

The MAC statistics summarize the measured and calculated quantities of the Ethernet frames ^[2] received at the transport stream input of the analyzer. The MAC is the sublayer of the data link layer of the OSI reference model, which provides error-free transfer for the network layer between two devices using the services of the physical layer. The sender sends the data to be sent in pieces as data frames and processes the acknowledgement frames sent back by the receiver. The frame is the data unit of communication.

No.	Serial number of measurement results. The current measurement result is always shown in the first line of the table.		
Time Stamp	Time stamp of the given measurement result.		
Relative Time	Difference of the time stamp belonging to the measurement result in the given line and the current time stamp.		
Delta Time	Difference between the time stamps of the given line and the previous line.		
Total Bytes ReceivedTotal amount of data received at the transport stream input of the analyzer from the beginning of the measurement.			
Delta Bytes Received Difference between the total amounts of data received in the given line and the			
Bitrate [kbit/s]	Data rate measured between the times of measurement in the given line and the previous line.		
Total Frames	Number of Ethernet frames received between the times of measurement in the given line and the previous line.		
Delta Frames	Change in the number of Ethernet frames between the times of measurement in the given line and the previous line.		
Delta/Total Ratio	Ratio of Delta Frames to Total Frames in the given line.		
Broadcast Frames	Number of Broadcast type Ethernet frames received between the times of measurement in the given line and the previous line.		
Broadcast/Total Frame Ratio of Broadcast Frames to Total Frames in the given line.			
Multicast Frames Number of Multicast type Ethernet frames received between the times of measing iven line and the previous line.			
Multicast/Total Frame Ratio	Ratio of Multicast Frames and Total Frames in the given line.		
Unicast Frames	Number of Unicast type Ethernet frames received between the times of measurement in the given line and the previous line.		
Unicast/Total Frame Ratio	Ratio of Unicast Frames to Total Frames in the given line.		
Total CRC Error Count	Number of Ethernet frames received with CRC error at the transport stream input of the analyzer from the beginning of the measurement.		
CRC Error Count Number of Ethernet frames received with CRC error between the times of meas the given line and the previous line.			
CRC Error Ratio	Ratio of CRC Error Count to Total Frames in the given line.		
500 ms	Measurement interval, which shows the test results of the last 15 seconds with 500 ms resolution.		
15 s Measurement interval, which shows the test results of the last 5 minutes with 15 sec resolution.			
5 min Measurement interval, which shows the test results of the last 1 hour with 5 minutes resolution.			

 ^[1] Media Access Control. The sublayer of the data link layer of the OSI (Open System Interconnection) reference model.

• ^[2] IEEE 802.3 : CSMA/CD (Ethernet) Access Method



64-Channel Real-Time TS Analyzer Web Interface

CW-4957

Instruction manual

2.2.2 Real time measurement of IP statistics

- 1. Select the IP Statistics (Real-Time) function from the Ethernet Analyzer menu.
- 2. Right-click the chart and use the pop-up menu to customize the table.

The IP statistics summarize the measured and calculated quantities of the IP packets ^[1] received at the transport stream input of the analyzer.

No.	Serial number of measurement results. The current measurement result is always shown in the first line of the table.		
Time Stamp	Time stamp of the given measurement result.		
Relative Time	Difference of the time stamp belonging to the measurement result of the given line and the current time stamp.		
Delta Time	Difference between the time stamps of the given line and the previous line.		
Ethernet Frames	Number of Ethernet frames received between the times of measurement in the given line and the previous line.		
IPV4 Packets	Number of IPV4 type packets received between the times of measurement in the given line and the previous line.		
IPV4/Total Ratio	Ratio of IPV4 Packets to Ethernet Frames in the given line.		
IPV6 Packets	Number of IPV6 type packets received between the times of measurement in the given line and the previous line.		
IPV6/Total Ratio	Ratio of IPV6 Packets to Ethernet Frames in the given line.		
ARP Packets	Number of ARP type packets received between the times of measurement in the given line and the previous line.		
ICMP Packets	Number of ICMP type packets received between the times of measurement in the given line and the previous line.		
IGMP Packets	Number of IGMP type packets received between the times of measurement in the given line and the previous line.		
UDP Packets	Number of UDP datagrams received between the times of measurement in the given line and the previous line.		
UDP/Total Ratio	Ratio of UDP Packets to Ethernet Frames in the given line.		
TCP Packets	Number of TCP segments received between the the times of measurement in the given line and the previous line.		
TCP/Total Ratio	Ratio of TCP Packets to Ethernet Frames in the given line.		
500 ms	Measurement interval, which shows the test results of the last 15 seconds with 500 ms resolution.		
15 s	Measurement interval, which shows the test results of the last 5 minutes with 15 sec resolution.		
5 min	Measurement interval, which shows the test results of the last 1 hour with 5 minutes resolution.		

• ^[1] IETF RFC 791 : Internet Protocol

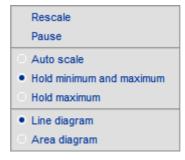


2.2.3 Ethernet bitrate graph

- 1. Select the Interface Bitrate Analyzer function from the Ethernet Analyzer menu.
- 2. Right-click the graph and use the pop-up menu to customize the graph.

The graph shows the total input data rate over time measured at the transport stream input of the analyzer. The current resolution of the vertical coordinate axis is indicated in the lower left corner by the gray number in bits/s units. In the upper right corner the minimum, average and maximum of the displayed function are shown.

Rescale	Rescaling the graph.		
Pause	Pausing and restarting the drawing of the graph.		
Auto scale	Auto scaling the graph.		
Hold minimum and maximum	Auto scaling the graph holding the minimum and maximum values.		
Hold maximum Auto scaling the graph holding the maximum value. The minimum value always 0 bit/s.			
Line diagram	Drawing a line diagram.		
Area diagram	Drawing an area diagram.		



The pop-up menu



64-Channel Real-Time TS Analyzer Web Interface

CW-4957

Instruction manual

2.2.4 Evaluation of MAC statistics from the SD memory card

- 1. Select the MAC ^[1] Statistics (SD Card) function from the Ethernet Analyzer menu.
- 2. Wait until the indexing process finishes.
- 3. Enter the starting point of the time interval to be analyzed.
- 4. Enter the endpoint of the time interval to be analyzed.
- 5. Click **Refresh** to display the data.
- 6. Right-click the table and use the pop-up menu to customize the table.

Start	2011/03/24 13:56:09	-	▼ End	2011/03/24.3:56:09	► ▼ 5 Refresh
_	2011/03/24 18:32:23	A E	-	Exercise Publication	
_	2011/03/24 23:08:47	3	_	DITAIR (KDITE)	1059 117
	2011/03/25 03:45:57				
	2011/03/25 08:25:29				
	2011/03/25 13:12:19				
	2011/03/25 17:48:44				
	2011/03/25 22:28:37				
	2011/03/26 03:05:00				
	2011/03/26 07:41:23				
	2011/03/26 12:18:29				
	2011/03/26 16:57:34				
	2011/03/26 21:33:56				
	2011/03/27 03:10:16				
	2011/03/27 07:49:50				
	2011/03/27 12:26:05				
	2011/03/27 17:02:23				
	2011/03/27 21:42:07				

Selecting the time interval to be analyzed

The MAC statistics summarize the measured and calculated quantities of the Ethernet frames [2] received at the transport stream input of the analyzer. The MAC is the sublayer of the data link layer of the OSI reference model, which provides error-free transfer for the network layer between two devices using the services of the physical layer. The sender sends the data to be sent in pieces as data frames and processes the acknowledgement frames sent back by the receiver. The frame is the data unit of communication.

No.	Serial number of measurement results. The current measurement result is always shown in the first line of the table.
Time Stamp	Time stamp of the given measurement result.
Relative Time	Difference of the time stamp belonging to the measurement result in the given line and the current time stamp.
Delta Time	Difference between the time stamps of the given line and the previous line.
Total Bytes Received	Total amount of data received at the transport stream input of the analyzer from the beginning of the measurement.
Delta Bytes Received	Difference between the total amounts of data received in the given line and the previous line.
Bitrate [kbit/s]	Data rate measured between the times of measurement in the given line and the previous line.
Total Frames	Number of Ethernet frames received between the times of measurement in the given line and the previous line.
Delta Frames	Change in the number of Ethernet frames between the times of measurement in the given line and the previous line.
Delta/Total Ratio	Ratio of Delta Frames to Total Frames in the given line.
Broadcast Frames	Number of Broadcast type Ethernet frames received between the times of measurement in the given line and the previous line.



64-Channel Real-Time TS Analyzer Web Interface

CW-4957

Instruction manual

Broadcast/Total Frame Ratio	Ratio of Broadcast Frames to Total Frames in the given line.				
Multicast Frames	Number of Multicast type Ethernet frames received between the times of measurement in the given line and the previous line.				
Multicast/Total Frame Ratio	Ratio of Multicast Frames and Total Frames in the given line.				
Unicast Frames	Number of Unicast type Ethernet frames received between the times of measurement in the given line and the previous line.				
Unicast/Total Frame Ratio	Ratio of Unicast Frames to Total Frames in the given line.				
Total CRC Error Count	Number of Ethernet frames received with CRC error at the transport stream input of the analyzer from the beginning of the measurement.				
CRC Error Count	Number of Ethernet frames received with CRC error between the times of measurement in the given line and the previous line.				
CRC Error Ratio	Ratio of CRC Error Count to Total Frames in the given line.				
500 ms	Measurement interval, which shows the test results of the last 15 seconds with 500 ms resolution.				
15 s	Measurement interval, which shows the test results of the last 5 minutes with 15 sec resolution.				
5 min	Measurement interval, which shows the test results of the last 1 hour with 5 minutes resolution.				

• ^[1] Media Access Control. The sublayer of the data link layer of the OSI (Open System Interconnection) reference model.

• [2] IEEE 802.3 : CSMA/CD (Ethernet) Access Method



Instruction manual

2.2.5 Evaluation of IP statistics from the SD memory card

- 1. Select the IP Statistics (SD Card) function from the Ethernet Analyzer menu.
- 2. Wait until the indexing process finishes.
- 3. Enter the starting point of the time interval to be analyzed.
- 4. Enter the endpoint of the time interval to be analyzed.
- 5. Click **Refresh** to display the data.
- 6. Right-click the table and use the pop-up menu to customize the table.

Start	2011/03/24 13:56:09	-	▼ End	 2011/03/2 	24.3:56:09	► ▼ 5. Refi	resh
_	2011/03/24 18:32:23	a E					
_	2011/03/24 23:08:47	•		Ditrate.	CONTRACTOR OF		DOCUMAN.
	2011/03/25 03:45:57						
	2011/03/25 08:25:29						
	2011/03/25 13:12:19						
	2011/03/25 17:48:44						
	2011/03/25 22:28:37						
	2011/03/26 03:05:00						
	2011/03/26 07:41:23						
	2011/03/26 12:18:29						
	2011/03/26 16:57:34						
	2011/03/26 21:33:56						
	2011/03/27 03:10:16						
	2011/03/27 07:49:50						
	2011/03/27 12:26:05						
	2011/03/27 17:02:23						
	2011/03/27 21:42:07	-					

Selecting the time interval to be analyzed

The IP statistics summarize the measured and calculated quantities of the IP packets ^[1] received at the transport stream input of the analyzer.

No.	Serial number of measurement results. The current measurement result is always shown in the first line of the table.
Time Stamp	Time stamp of the given measurement result.
Relative Time	Difference of the time stamp belonging to the measurement result of the given line and the current time stamp.
Delta Time	Difference between the time stamps of the given line and the previous line.
Ethernet Frames	Number of Ethernet frames received between the times of measurement in the given line and the previous line.
IPV4 Packets	Number of IPV4 type packets received between the times of measurement in the given line and the previous line.
IPV4/Total Ratio	Ratio of IPV4 Packets to Ethernet Frames in the given line.
IPV6 Packets	Number of IPV6 type packets received between the times of measurement in the given line and the previous line.
IPV6/Total Ratio	Ratio of IPV6 Packets to Ethernet Frames in the given line.
ARP Packets	Number of ARP type packets received between the times of measurement in the given line and the previous line.
ICMP Packets	Number of ICMP type packets received between the times of measurement in the given line and the previous line.



	Number of IGMP type packets received between the times of measurement in the given line and the previous line.
	Number of UDP datagrams received between the times of measurement in the given line and the previous line.
UDP/Total Ratio	Ratio of UDP Packets to Ethernet Frames in the given line.
	Number of TCP segments received between the the times of measurement in the given line and the previous line.
TCP/Total Ratio	Ratio of TCP Packets to Ethernet Frames in the given line.
500 ms	Measurement interval, which shows the test results of the last 15 seconds with 500 ms resolution.
15 s	Measurement interval, which shows the test results of the last 5 minutes with 15 sec resolution.
5 min	Measurement interval, which shows the test results of the last 1 hour with 5 minutes resolution.

• ^[1] IETF RFC 791 : Internet Protocol



2.3. Transport stream measurements

2.3.1 General Statistics (Real-time)

- 1. Select the General Statistics (Real-Time) function from the Channel Analyzer menu.
- 2. Select the channel to be examined from the drop-down box.
- 3. To re-scale the bar graphs that appear in the cells of the table, click Reset Diagrams.
- 4. To reset the counters, click Reset Channel.
- 5. Right-click the table and use the pop-up menu to customize.

Channel	Multicast [239.123.13.100 : 58100] - 19.2°E 12 7.5 H	-	5. Reset Channel	4. Re	set D	iagra	ms

Channel selector toolbar

The general statistics summarize the measured and calculated quantities of the transport stream packets received at the transport stream input of the analyzer.

No.	Serial number of measurement results. The current measurement result is always shown in the first line of the table.					
Time Stamp	Time stamp of the given measurement result.					
Relative Time	Difference of the time stamp belonging to the measurement result in the given line and the current time stamp.					
Delta Time	Difference between the time stamps of the given line and the previous line.					
Total Packets Received	Total amount of TS packets received at the transport stream input of the analyzer from the beginning of the measurement.					
Packets Received	The number of TS packet received at the transport stream input of the analyzer from the beginning of the measurement.					
Bitrate [kbit/s] @ 184	Data rate measured between the times of measurement in the given line and the previous line without the TS packet headers.					
Bitrate [kbit/s] @ 188	Data rate measured between the times of measurement in the given line and the previous line together with the TS packet headers.					
Bitrate [kbit/s] @ 204	Data rate measured between the times of measurement in the given line and the previous line together with the TS packet headers and the RS bytes.					
Delta Packets	Difference between the number of TS packets in the given line and the previous line.					
Delta Packet Ratio	Ratio of Delta Packets to Packets Received in the given line.					
TTL Max.	The maximum value of the IP datagram TTL fields ^[3] containing TS packets, received betwee the times of measurement in the given line and the previous line.					
TTL Max.	The minimum value of the IP datagram TTL fields ^[3] containing TS packets, received betwee the times of measurement in the given line and the previous line.					
Format	The TS packet format for embedding into IP datagrams. (N×188, M×204, ES/PSI, IPTV, TSoverIP)					
Min. UDP Arrival Time [us]	The minimum period measured between the arrival of the UDP packets containing TS packets.					
Max. UDP Arrival Time [us]	The maximum period measured between the arrival of the UDP packets containing TS packets.					
Total Eth. CRC Error Count	Number of Ethernet frames ^[2] received with Eth. CRC error at the transport stream input of the analyzer from the beginning of the measurement.					
Eth. CRC Error Count	Number of Ethernet frames received with Eth. CRC error between the times of measurement in the given line and the previous line.					
Eth. CRC Error Ratio	Ratio of Eth. CRC Error Count to Total Frames in the given line.					
Total Sync Error Count	The number of TS packets received with sync error ^[1] in the given channel from the beginning of the measurement.					
Sync Error Count	The number of TS packets received with sync error between the times of measurement i given line and the previous line.					



[
Sync Error Ratio	Ratio fo Syinc Error Count and Packets Received in the given line.				
Total Sync Lost Count	Number of sync losses ^[1] from the beginning of the measurement.				
Sync Lost Count	Number of sync losses ^[1] between the times of measurement in the given line and the previous line.				
Sync Lost Ratio	Ratio of Sync Lost and Packet Received in the given line.				
Total Eth. CRC Error Count	The number of Ethernet frames ^[2] received with CRC Error in the given channel from the beginning of the measurement.				
Eth. CRC Error Count	The number of Ethernet frames ^[2] received with CRC Error between the times of measurement in the given line and the previous line.				
Eth. CRC Error Ratio	Ratio of Eth. CRC Error Count and Packets Received in the given line.				
Total Sync Error Count	The number of TS packets with Sync Error ^[1] in the given channel from the beginning of the measurement.				
Sync Error Count	The number of TS packets received with Sync Error between the times of measurement in the given line and the previous line.				
Sync Error Ratio	Ratio of Sync Error Count and Packets Received in the given line.				
Total Sync Lost Count	The number of Sync losses ^[1] in the given channel from the beginning of the measuremet.				
Sync Lost Count	The number of Sync losses between the times of measurement in the given line and the previous line.				
Sync Lost Ratio	Ratio of Sync Lost Count and Packets Received in the given line.				
Total CC Error Count	The number TS packets received with Continuity Counter Errors ^[1] from the beginning of the measuremet.				
CC Error Count	The number of TS packets received with CC Error between the times of measurement in the given line and the previous line.				
CC Error Ratio	Ratio of CC Error Count and Packets Received in the given line.				
Total Transport Error Count	The number of TS packets received with Transport (TEI) Error ^[1] in the given channel from the beginning of the measuremet.				
Transport Error Count	The number of TS packets received with Transport (TEI) Error ^[1] between the times of measurement in the given line and the previous line.				
Transport Error Ratio	Ratio of Transport Error Count and Packets Received in the given line.				
Last Packet Time Stamp	The arrival time stamp of the last TS packet received to the measurement time of the given line.				
Last Error Time Stamp	The arrival time stamp of the last erroneous TS packet to the measurement time of the given time.				
500 ms	Measurement interval, which shows the test results of the last 15 seconds with 500 ms resolution.				
15 s	Measurement interval, which shows the test results of the last 5 minutes with 15 sec resolution.				
5 min	Measurement interval, which shows the test results of the last 1 hour with 5 minutes resolution				

 ^[1] ETSI TR 101 290 : Measurement guidelines for DVB systems, 5. Measurement and analysis of the MPEG-2 Transport Stream

- [2] IEEE 802.3 : CSMA/CD (Ethernet) Access Method
- ^[3] IETF RFC 791 : Internet Protocol



2.3.2 PID Statistics (Real-time)

- 1. Select the **PID Statistics (Real Time)** function from the **Channel Analyzer** menu.
- 2. Select channel.
- 3. Select the measurement period.
- 4. Click Sample to display the data.
- 5. Right-click on the table to customize the table.
- 6. Click the table column head for sorting the table.

The PID Statistics summarize for every PID the measured and calculated quantities of the transport stream packets received at the transport stream input of the analyzer.

PID (Dec)	The packet identifier ^[2] in the transport stream packet header displayed in decimal.
PID (Hex)	The packet identifier ^[2] in the transport stream packet header displayed in hexadecimal.
Туре	The type of data stream or table belonging to the given PID.
Service ID (Dec)	The decimal value of the program identifier belonging to the given PID.
Service ID (Hex)	The hexadecimal value of the program identifier belonging to the given PID.
Service Name	The program name belonging to the given PID.
Total Packets Received	The number of packets received on the given PID from the beginning of the measurement.
Packet Ratio	Ratio of the packets received on the given PID and the Total Packet Received between the times of measurement in the given line and the previous line.
Bitrate [bit/s] @188	Data rate measured on the given PID between the times of measurement in the given line and the previous line together with the TS packet headers.
Sync Error Count	The number of sync errors ^[1] on the given PID from the beginning of the measurement.
CC Error Count	The number of CC Errors ^[1] on the given PID from the beginning of the measurement.
Transport Error Count	The number of TEI errors ^[1] on the given PID from the beginning of the measurement.
PSI CRC Error Count	The number of PSI sections with CRC Errors ^{[1][3]} on the given PID from the beginning of the measurement.
Scrambled	Indicates if any scrambled packets arrive on the given PID from the beginning of the measurement.
PCR	Indicates if any packets containing PCR ^[2] arrive on the given PID from the beginning of the measurement.
Last Packet	The time stamp of the last packet received on the given PID.
Priority	Indicates if any higher priority packets arrive on the given PID from the beginning of the measurement.
Description	The accurate description of the elementary stream type ^[2] received on the given PID.
Information	Additional information ^[3] in the PMT belonging to the given PID.

 ^[1] ETSI TR 101 290 : Measurement guidelines for DVB systems, 5. Measurement and analysis of the MPEG-2 Transport Stream

- ^[2] ITU-T Rec. H.222.0 | ISO/IEC 13818-1 : Generic coding of moving pictures and associated audio information: Systems
- ^[3] ETSI EN 300 468 : Digital Video Broadcasting; Specification for Service Information (SI) in DVB systems



2.3.3 Channel bitrate analyzer

- 1. Select Channel Bitrate Analyzer function from the Channel Analyzer menu.
- 2. Select channel.
- 3. Right-click to customize the graph.

The graph shows the bitrate of the selected channel together with the TS packet headers as a function of time.



Customization

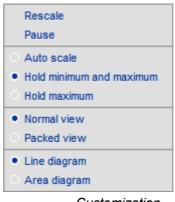
Rescale	Rescale the graph		
Pause	Pausing the drawing of graph		
Auto scale	Auto scale the graph		
Hold minimum and maximum	ximum Holding the minimum and maximum values during measurement		
Hold maxiumum	Holding the maximum value during measurement, the minimum value is always 0 bit/s		
Line diagram	Drawing line diagram		
Area diagram	Drawing area diagram		
Channel Color	Coloring the graph according to the color of the channel		



2.3.4 MultiChannel bitrate analyzer

- 1. Select the MultiChannel Bitrate Analyzer function from the Channel Analyzer menu.
- 2. Select the channels to be measured on the left panel.
- 3. Right click to customize the graph.
- 4. Click the table column head for sorting the table.

The graph shows the bitrates of the selected channels together with the TS packet headers as a function of time.



Customization

Rescale	Rescale the graph
Pause	Pausing the drawing of graph
Auto scale	Auto scale the graph
Hold minimum and maximum	Holding the minimum and maximum values during measurement
Normal view	Several channel bitrates on the same graph without offset
Packed view	Several channel bitrates on the same graph with offset in packed view
Line diagram	Drawing line diagram
Area diagram	Drawing area diagram



2.3.5 PID bitrate analyzer

- 1. Select the Channel Bitrate Analyzer function from the Channel Analyzer menu.
- 2. Select channel.
- 3. Drop down the PID selector fild and wait until the end of analyzing.
- 4. Select the PID to be measured.
- 5. Right-click to customize the graph.

Multicast [239.123.13.120 : 58120] - 12			NO PID SELECTED	3 •
Multicast [239.123.13.120 : 58120] - H 📃 🤜				A .
	ES PID : 513 (0201)			i i i
	ES PID: 661 (0295)	[GER]		
	101 ES PID : 577 (0241)	[דאד]		
	Service ID : 28800 (0x7080)	RTL Austria		
	📕 PMT PID : 200 (00C8)		•	
			4	
	ES PID : 201 (00C9)			L
	ES PID : 202 (00CA)	[GER]		
	ES PID : 203 (00CB)	נדאדן		
	Service ID : 28805 (0x7085)	VOX Austria		
	PMT PID : 300 (012C)			

PID selection

The graph shows the bitrate of the selected PID together with the TS packet headers as a function of time.



Customization

Rescale	Rescale the graph
Pause	Pausing the drawing of graph
Auto scale	Auto scale the graph
Hold minimum and maximum	Holding the minimum and maximum values during measurement
Hold maxiumum	Holding the maximum value during measurement, the minimum value is always 0 bit/s
Line diagram	Drawing line diagram
Area diagram	Drawing area diagram



CW-4957

Instruction manual

2.3.6 MultiPID bitrate analyzer

- 1. Select the MultiPID Bitrate Analyzer function from the Channel Analyzer menu.
- 2. Select channel.
- 3. Select the PID to be measured.
- 4. Click [+] to add the selected PID.
- 5. Click [\equiv] to display additional functions.
- 6. Right-click to customize the graph.
- 7. Right-click on the table to customize.
- 8. Click the table column head for sorting the table.

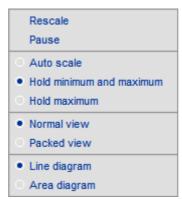
Multicast [239.123.13.100 : 58100] - 19.2°E 12187.52	NO PID SELECTE(3) ▼ 4+ - 5 =
	PIDs addition

The graph shows the bitrates of the selected PIDs together with the TS packet headers as a function of time.

Additional functions

- Add all PIDs from selected service
- Add all VIDEO PIDs
- Add all AUDIO PIDs
- Add all PSI PIDs
- Remove all PIDs

Bitrate graph



Customization

Rescale	Rescale the graph
Pause	Pausing the drawing of graph
Auto scale	Auto scale the graph
Hold minimum and maximum	Holding the minimum and maximum values during measurement
Normal view	Several PID bitrates on the same graph without offset
Packed view	Several PID bitrates on the same graph with offset in packed view
Line diagram	Drawing line diagram
Area diagram	Drawing area diagram



PID table

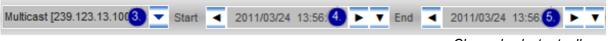
Channel	Channel description.
PID (dec)	The packet identifier ^[1] in the transport stream packet header displayed in decimal.
PID (hex)	The packet identifier ^[1] in the transport stream packet header displayed in hexadecimal.
Туре	The type of data stream or table belonging to the given PID.
Service ID (dec)	The decimal value of the program identifier belonging to the given PID.
Service ID (hex)	The hexadecimal value of the program identifier belonging to the given PID.
Service Name	The program name belonging to the given PID.
Information	Additional information ^[2] in the PMT belonging to the given PID.
Minimum	The minimum value of the bitrate in bit/s together with header of the transport stream packet.
Average	The average value of the bitrate in bit/s together with header of the transport stream packet.
Maximum	The maximum value of the bitrate in bit/s together with header of the transport stream packet.

- [1] ITU-T Rec. H.222.0 | ISO/IEC 13818-1 : Generic coding of moving pictures and associated audio information: Systems
- ^[2] ETSI EN 300 468 : Digital Video Broadcasting; Specification for Service Information (SI) in DVB systems



2.3.7 General Statistics (SD Card)

- 1. Select the General Statistics (SD Statistics) function from the Channel Analyzer menu.
- 2. Wait until the indexing process is complete.
- 3. Select channel.
- 4. Enter the start time of the evaluation.
- 5. Enter the end time of the evaluation.
- 6. Click **Refresh** to display the data.
- 7. Right-click the table and use the pop-up menu to customize.



Channel selector toolbar

The general statistics summarize the measured and calculated quantities of the transport stream packets received at the transport stream input of the analyzer.

No.	Serial number of measurement results. The current measurement result is always shown in the
Time Champ	first line of the table.
Time Stamp	Time stamp of the given measurement result.
Relative Time	Difference of the time stamp belonging to the measurement result in the given line and the current time stamp.
Delta Time	Difference between the time stamps of the given line and the previous line.
Total Packets Received	Total amount of TS packets received at the transport stream input of the analyzer from the beginning of the measurement.
Packets Received	The number of TS packet received at the transport stream input of the analyzer from the beginning of the measurement.
Bitrate [kbit/s] @ 184	Data rate measured between the times of measurement in the given line and the previous line without the TS packet headers.
Bitrate [kbit/s] @ 188	Data rate measured between the times of measurement in the given line and the previous line together with the TS packet headers.
Bitrate [kbit/s] @ 204	Data rate measured between the times of measurement in the given line and the previous line together with the TS packet headers and the RS bytes.
Delta Packets	Difference between the number of TS packets in the given line and the previous line.
Delta Packet Ratio	Ratio of Delta Packets to Packets Received in the given line.
TTL Max.	The maximum value of the IP datagram TTL fields ^[3] containing TS packets, received between the times of measurement in the given line and the previous line.
TTL Max.	The minimum value of the IP datagram TTL fields ^[3] containing TS packets, received between the times of measurement in the given line and the previous line.
Format	The TS packet format for embedding into IP datagrams. (N×188, M×204, ES/PSI, IPTV, TSoverIP)
Min. UDP Arrival Time [us]	The minimum period measured between the arrival of the UDP packets containing TS packets.
Max. UDP Arrival Time [us]	The maximum period measured between the arrival of the UDP packets containing TS packets.
Total Eth. CRC Error Count	Number of Ethernet frames ^[2] received with Eth. CRC error at the transport stream input of the analyzer from the beginning of the measurement.
Eth. CRC Error Count	Number of Ethernet frames received with Eth. CRC error between the times of measurement in the given line and the previous line.
Eth. CRC Error Ratio	Ratio of Eth. CRC Error Count to Total Frames in the given line.
Total Sync Error Count	The number of TS packets received with sync error ^[1] in the given channel from the beginning of the measurement.



	The number of TO methods are included with some ended between the times of measurement in the
Sync Error Count	The number of TS packets received with sync error between the times of measurement in the given line and the previous line.
Sync Error Ratio	Ratio fo Syinc Error Count and Packets Received in the given line.
Total Sync Lost Count	Number of sync losses ^[1] from the beginning of the measurement.
Sync Lost Count	Number of sync losses ^[1] between the times of measurement in the given line and the previous line.
Sync Lost Ratio	Ratio of Sync Lost and Packet Received in the given line.
Total Eth. CRC Error Count	The number of Ethernet frames ^[2] received with CRC Error in the given channel from the beginning of the measurement.
Eth. CRC Error Count	The number of Ethernet frames ^[2] received with CRC Error between the times of measurement in the given line and the previous line.
Eth. CRC Error Ratio	Ratio of Eth. CRC Error Count and Packets Received in the given line.
Total Sync Error Count	The number of TS packets with Sync Error ^[1] in the given channel from the beginning of the measurement.
Sync Error Count	The number of TS packets received with Sync Error between the times of measurement in the given line and the previous line.
Sync Error Ratio	Ratio of Sync Error Count and Packets Received in the given line.
Total Sync Lost Count	The number of Sync losses ^[1] in the given channel from the beginning of the measuremet.
Sync Lost Count	The number of Sync losses between the times of measurement in the given line and the previous line.
Sync Lost Ratio	Ratio of Sync Lost Count and Packets Received in the given line.
Total CC Error Count	The number TS packets received with Continuity Counter Errors ^[1] from the beginning of the measuremet.
CC Error Count	The number of TS packets received with CC Error between the times of measurement in the given line and the previous line.
CC Error Ratio	Ratio of CC Error Count and Packets Received in the given line.
Total Transport Error Count	The number of TS packets received with Transport (TEI) Error ^[1] in the given channel from the beginning of the measuremet.
Transport Error Count	The number of TS packets received with Transport (TEI) Error ^[1] between the times of measurement in the given line and the previous line.
Transport Error Ratio	Ratio of Transport Error Count and Packets Received in the given line.
Last Packet Time Stamp	The arrival time stamp of the last TS packet received to the measurement time of the given line.
Last Error Time Stamp	The arrival time stamp of the last erroneous TS packet to the measurement time of the given time.
500 ms	Measurement interval, which shows the test results of the last 15 seconds with 500 ms resolution.
15 s	Measurement interval, which shows the test results of the last 5 minutes with 15 sec resolution.
5 min	Measurement interval, which shows the test results of the last 1 hour with 5 minutes resolution.

 [1] ETSI TR 101 290 : Measurement guidelines for DVB systems, 5. Measurement and analysis of the MPEG-2 Transport Stream

- ^[2] IEEE 802.3 : CSMA/CD (Ethernet) Access Method
- ^[3] IETF RFC 791 : Internet Protocol



2.3.8 PID Statistics (SD Card)

This function is under development.

2.3.9 PSI analyzer

- 1. Select the **PSI Analyzer** function from the **Channel Analyzer** menu.
- 2. Select the channel to be analyzed from the drop-down box.
- 3. Click Analyze.
- 4. Select the desired page by clicking the tabs below.

2.3.10 PCR analyzer

- 1. Select the PCR Analyzer function from the Channel Analyzer menu.
- 2. Select the input to be analyzed from the left-hand pull-down box.
- 3. Pull down the No PID SELECTED field, then double-click the PCR PID to be analyzed.
- 4. Click Analyze.
- 5. Right-click on the PCR Samples, PCR_AC or PCR_OJ page to select the digital filter.
- 6. The standard-compliant samples in the table and graphs are displayed in green.
- 7. The line of defective samples is grey, the background of cells that contain erroneous values is displayed in red in the table.
- 8. The blue background of the PCR_AC and PCR_OJ cells in the table indicates that the 25 us low jitter application criterion is met.

Measuring the PCR inserting accuracy (PCR_AC)^[1]

- defined for CBR (constant bitrate) data streams
- examines the uncorrected errors due to editing the data stream
- the errors generated during the transfer will not affect the measurement results
- the measurement result is the PCR inserting accuracy as a function of the PCR samples
- within the range of ± 500 ns the PCR_AC is considered correct
- within the range of ± 25 us us the PCR_AC is in accordance with the ISO 13818-9 [3] standard

Measuring the Overall PCR jitter (PCR_OJ)^[2]

- defined for CBR and VBR (variable bitrate) data streams
- examines the errors from editing and transfer of the data stream together
- the measurement result is the overall PCR jitter as a function of the PCR samples
- within the range of ± 500 ns the PCR_OJ is considered correct
- within the range of ± 25 us the PCR_OJ is in accordance with the ISO 13818-9 [3] standard

Measuring the PCR repetition time ^{[3][4]}

- defined for CBR and VBR data streams
- examines the arrival times of the PCR timestamps
- · the measurement result is the overall PCR repetition time as a function of the PCR samples
- the maximum value of 100 ms PCR arrival-time is in accordance with the ISO 13818-1 [1] standard
- the maximum value of 40 ms PCR arrival-time is in accordance with the TR 101 154 [4] standard



In digital television systems the transmission of timing information is essential to display the image and audio information at the receiving side simultaneously. For timing the transmitter generates timestamps for the decoder to indicate, when to decode the current data unit encoded (DTS or Decode Time Stamp) and when to display (PTS or Presentation Time Stamp). The generation of the timestamps is based on the 27-MHz system clock of high accuracy on the transmitter side, which increments a 42-bit counter. The current value of the counter is the PCR (Program Clock Reference), which must be inserted into the stream periodically. The upper 33 bits of the PCR are the PCR_{Base}, the lower 9 bits are the PCR_{Ext}. The PCR_{Ext} counts from 0 to 299 and increments the PCR_{Base} by one at every overflow.

The CW-4957 Real-Time TS Analyzer is primarily designed for the operators of digital television systems, therefore the transmitter-side errors (Frequency offset, Frequency drift rate) are not examined. To measure the errors from the transmitting and editing of the transport stream the analyzer continuously collects information on all PID values that occur at the active inputs, regardless of whether the PID is in reference to the PMT table. From the packets containing the PCR timestamp the following data will be collected: packet counter value, arrival time, PID, TEI (Transport Error Indicator), DI (Discontinuity Indicator), PCR_{Base} and the PCR_{Ext} value. From this data structure the analyzer stores 8192 samples per input.

From a single program input stream (SPTS) that contains one PCR PID, if calculated with 25 ms PCR repetition time, more than 3-minute long sample will be stored. In case of multiple program input stream the storage capacity is dynamically distributed to the PIDs containing the PCR timestamp, if calculated with 8 programs and also 25 ms repetition time, approximately half of a minute long sample can be analyzed. The measurement data will be collected continuously after pressing the Analyze button during the continuous readout and evaluation, however the samples collected during reading will not be processed.

On pressing the Analyze button the analyzer calculates the following values from the measured data: distance between adjacent PCR timestamps measured in time and number of packets, the difference between the adjacent timestamps, PCR inserting accuracy, overall PCR jitter and the transport stream bitrate calculated from the PCR samples. For calculating the quantities of PCR_AC and PCR_OJ, the filters can be chosen are defined in the ETSI TR 101 290 standard, MGF1 (f = 10 mHz), MGF2 (f = 100 mHz) or MGF3 (f = 1 Hz).

The accuracy of the PCR has a prominent role, if PAL signal must be produced on the receiving side. The accuracy of the PAL subcarrier according to the standard is provided by the PCR. In pure digital systems the significance of the PCR is low.

- ^[1] ETSI TR 101 290 I.7.1
- ^[2] ETSI TR 101 290 I.7.4
- ^[3] ETSI TS 101 162 [1]
- ^[4] ETSI TR 101 154 [4]



CW-4957

Instruction manual

2.3.11 Packet Arrival Analyzer

- 1. Select Packet Arrival Analyzer function from the Channel Analyzer menu.
- 2. Select the desired channel to be analyzed from the drop-down box.
- 3. Click Analyze.
- 4. Right-click Packet Arrival Table page to customize.
- 5. Right-click Packet Arrival Diagram page to customize.

In every channel, the device stores the arrival times of the last 8192 TS packets only. For more packets use the SW-4957 software.

Table

No.	Serial number of the packet in the table. The current measurement result is always shown in the last line of the table.
Time Stamp	Time stamp belonging to the packet.
Relative Time	Difference between the time stamps of the given packet and the last packet.
Delta Time	Difference between the arrival time of the given packet and the previous packet.
Delta Time - Average	Difference between the arrival time of the given packet and the average arrival time.
PID (Dec)	Packet identifier ^[1] in the transport stream packet header displayed in decimal.
PID (Hex)	Packet identifier ^[1] in the transport stream packet header displayed in hexadecimal.
Transport Error	Transport Error Indicator field ^[1] in the TS packet header.
Payload Unit Start	Payload Unit Start field ^[1] in the TS packet header.
Transport Priority	Transport Priority field ^[1] in the TS packet header.
Scrambling Control	Scrambling Control field ^[1] in the TS packet header.
Adaptation Field	Adaptation Field ^[1] in the TS packet header.
Continuity Counter	Value of the Continuity Counter ^[1] in the TS packet header.
Туре	The type of data stream or table belonging to the given PID.
Service ID (Dec)	The decimal value of the program identifier belonging to the given PID.
Service ID (Hex)	The hexadecimal value of the program identifier belonging to the given PID.
Service Name	The program name belonging to the given PID.
Description	The accurate description of the elementary stream type ^[1] received on the given PID.
Information	Additional information ^[2] in the PMT belonging to the given PI

Graph

- Draw Lines
- Drawing lines between the packet arrival times and the average packet arrival time.
- Group by UDPMeasuring UDP packet arrival time instead of TS packet arrival time. This measurement is interpreted only for IP inputs.
- ^[1] ITU-T Rec. H.222.0 | ISO/IEC 13818-1 : Generic coding of moving pictures and associated audio information: Systems
- ^[2] ETSI EN 300 468 : Digital Video Broadcasting; Specification for Service Information (SI) in DVB systems



3. Alert & Log

3.1.1 View Alerts (Real-Time)

- 1. Select View Alerts (Real-Time) function from the Alert & Log menu.
- 2. Click the proper cell in the PID error(s) line to load the PID table belonging to the given channel.

3.1.2 View Alerts (SD Card)

- 1. Select View Alerts (SD Card) function from the Alert & Log menu.
- 2. Wait until the indexing process is complete.
- 3. Enter the start time of the evaluation.
- 4. Enter the end time of the evaluation.
- 5. Click **Refresh** to display the data.
- 6. Select the desired log entry from the list on the left.
- 7. Click the proper cell in the PID error(s) line to load the PID table belonging to the given channel.

2011/04/04 01:04:33 Multicast [239.123.13.100 : 58100] Multicast	Start 🔫	2011/04/03	00:55	5:3) 🕨 🔻 End 🖪 🛛 I	Now 🕘 🕨 🔻 Refresh 🄕	
2011/04/04 01:37:23 19:2°E 12187.5 H RTL Te 2011/04/04 04:13:34 Level I Alert Count 2 2011/04/04 04:25:34 Level II Alert Count 48 2011/04/04 04:30:35 Synchron error 0 2011/04/04 04:43:35 Synchron lost error 0 2011/04/04 04:55:34 Continuity counter error 0 2011/04/04 06:00:35 Transport error 0 2011/04/04 05:05:35 Minimum total TS bitrate error 0 2011/04/04 05:20:35 Fransport Stream ID error 0 2011/04/04 05:20:35 Service count error 0 2011/04/04 05:20:35 Fransport Stream ID error 0 2011/04/04 05:20:35 Service count error 0 2011/04/04 05:35:36 011/04/04 05:35:36 011/04/04 2011/04/04 05:53:36 011/04/04 06:05:37:6 0 2011/04/04 06:05:37:6 011/04/04 06:05:37:6 011/04/04 2011/04/04 06:05:37:6 011/04/04 06:05:37:6 011/04/04<	Date			Details		
2011/04/04 04:13:34 Level I Alert Count 1 2011/04/04 04:18:34 Level I Alert Count 2 2011/04/04 04:25:34 Level II Alert Count 48 2011/04/04 04:30:35 Synchron error 0 2011/04/04 04:33:35 Synchron lost error 0 2011/04/04 04:33:35 Synchron lost error 0 2011/04/04 04:5:5:34 Continuity counter error 0 2011/04/04 05:0:35 Minimum total TS bitrate error 0 2011/04/04 05:0:35 Transport Stream ID error 1 2011/04/04 05:0:35 Service count error 1 2011/04/04 05:0:35 Service count error 1 2011/04/04 05:0:36 0 1 2011/04/04 05:0:36 0 1 2011/04/04 06:00:36 0 1 2011/04/04 06:00:36 0 1 2011/04/04 12:07:58 0 1 2011/04/04 106:05:316 0 1 2011/04/04 14:34:31	2011/04/04	01:04:33	*		Multicast [239.123.13.100 : 58100]	Multica
2011/04/04 04:18:34 2011/04/04 04:25:34 2011/04/04 04:25:34 2011/04/04 04:30:35 2011/04/04 04:33:35 2011/04/04 04:33:35 2011/04/04 04:33:35 2011/04/04 04:33:35 2011/04/04 04:33:35 2011/04/04 04:33:35 2011/04/04 04:43:35 2011/04/04 04:43:35 2011/04/04 04:55:34 2011/04/04 05:00:35 2011/04/04 05:00:35 2011/04/04 05:00:35 2011/04/04 05:00:35 2011/04/04 05:00:35 2011/04/04 05:00:35 2011/04/04 05:20:35 2011/04/04 05:20:35 2011/04/04 05:30:36 2011/04/04 05:30:36 2011/04/04 05:50:36 2011/04/04 06:00:36 2011/04/04 06:00:36 2011/04/04 12:07:58 2011/04/04 14:34:31 2011/04/04 14:34:31 2011/04/04 <td>2011/04/04</td> <td>01:37:23</td> <td></td> <th></th> <td>19.2°E 12187.5 H</td> <td>RTL Te</td>	2011/04/04	01:37:23			19.2°E 12187.5 H	RTL Te
2011/04/04 04:25:34 Level II Alert Count 48 2011/04/04 04:30:35 Synchron error 0 2011/04/04 04:38:35 Synchron lost error 0 2011/04/04 04:43:35 Synchron lost error 0 2011/04/04 04:43:35 Synchron lost error 0 2011/04/04 04:55:34 Continuity counter error 0 2011/04/04 05:00:35 Minimum total TS bitrate error 0 2011/04/04 05:05:35 Maximum total TS bitrate error 0 2011/04/04 05:02:35 Transport Stream ID error 0 2011/04/04 05:03:36 Service count error 0 2011/04/04 05:03:36 0 0 2011/04/04 05:03:52 0 0 0 2011/04/04 05:03:52 0 0 0 2011/04/04 06:03:66 0 0 0 2011/04/04 12:07:58 0 0 0 2011/04/04 12:07:58 0 0 0 2011/04/04 12:07:58 0 0 <th>2011/04/04</th> <th>04:13:34</th> <th></th> <th></th> <th>1</th> <th></th>	2011/04/04	04:13:34			1	
2011/04/04 04:30:35 Level III Alert Count 0 2011/04/04 04:30:35 Synchron error 0 2011/04/04 04:38:35 Synchron lost error 0 2011/04/04 04:43:35 Synchron lost error 0 2011/04/04 04:43:35 Synchron lost error 0 2011/04/04 04:55:34 Continuity counter error 0 2011/04/04 05:00:35 Minimum total TS bitrate error 0 2011/04/04 05:05:35 Minimum total TS bitrate error 0 2011/04/04 05:05:35 Transport Stream ID error 0 2011/04/04 05:20:35 Transport Stream ID error 0 2011/04/04 05:32:35 PID error(s) 7 1 2011/04/04 05:03:5 7 1 1 2011/04/04 05:03:5 7 1 1 2011/04/04 06:05:316 1 1 1 2011/04/04 12:07:58 1 1 1 2011/04/04 14:42:44 1 1 1 1 2011/04/04	2011/04/04	04:18:34			—	
2011/04/04 04:30:35 2011/04/04 04:38:35 2011/04/04 04:43:35 2011/04/04 04:43:35 2011/04/04 04:43:35 2011/04/04 04:55:34 2011/04/04 05:00:35 2011/04/04 05:00:35 2011/04/04 05:05:35 2011/04/04 05:05:35 2011/04/04 05:20:35 2011/04/04 05:20:35 2011/04/04 05:27:35 2011/04/04 05:32:35 2011/04/04 05:32:35 2011/04/04 05:32:35 2011/04/04 05:35:36 2011/04/04 05:50:35 2011/04/04 05:03:56 2011/04/04 06:00:36 2011/04/04 06:00:36 2011/04/04 06:00:36 2011/04/04 12:07:58 2011/04/04 14:42:44	2011/04/04	04:25:34				
2011/04/04 04:30:30 04:30:30 2011/04/04 04:43:35 Synchron lost error 0 2011/04/04 04:55:34 Continuity counter error 0 2011/04/04 05:00:35 Transport error 0 2011/04/04 05:05:35 Minimum total TS bitrate error 0 2011/04/04 05:20:35 Transport Stream ID error 0 2011/04/04 05:20:35 Service count error 0 2011/04/04 05:37:36 Service count error 0 2011/04/04 06:05:37 6 0 2011/04/04 06:05:37 6 0 2011/04/04 06:05:37 6 0 2011/04/04 06:05:37 6 0 2011/04/04 06:05:37 6 0 2011/04/04 12:07:58 0 0 0 2011/04/04 14:32:43 0 0 0 0 2011/04/04 14:42:44 0 0 0 0 0	2011/04/04	04:30:35		Level III Alert Count	*	
2011/04/04 04:55:34 2011/04/04 04:55:34 2011/04/04 05:00:35 2011/04/04 05:05:35 2011/04/04 05:05:35 2011/04/04 05:15:35 2011/04/04 05:20:35 2011/04/04 05:20:35 2011/04/04 05:20:35 2011/04/04 05:20:35 2011/04/04 05:20:35 2011/04/04 05:32:35 2011/04/04 05:50:35 2011/04/04 05:50:36 2011/04/04 06:00:36 2011/04/04 12:07:58 2011/04/04 14:34:31 2011/04/04 14:42:44	2011/04/04	04:38:35		Synchron error		
2011/04/04 04:03:04 04:05:04 2011/04/04 05:00:35 Transport error 0 2011/04/04 05:05:35 Minimum total TS bitrate error 0 2011/04/04 05:20:35 Maximum total TS bitrate error 0 2011/04/04 05:20:35 Transport Stream ID error 0 2011/04/04 05:20:35 Service count error 0 2011/04/04 05:32:35 PID error(s) 7 0 2011/04/04 05:50:35 0 7 0 0 2011/04/04 06:05:376 0 0 0 0 2011/04/04 12:07:58 0 0 0 0 0 2011/04/04 12:07:58 0 0 0 0 0 0 2011/04/04 14:42:44 0<	2011/04/04	04:43:35		Synchron lost error		
2011/04/04 05:05:35 2011/04/04 05:05:35 2011/04/04 05:15:35 2011/04/04 05:20:35 2011/04/04 05:27:35 2011/04/04 05:32:35 2011/04/04 05:37:36 2011/04/04 05:55:36 2011/04/04 06:05:36 2011/04/04 12:07:58 2011/04/04 14:34:31 2011/04/04 14:42:44	2011/04/04	04:55:34				
2011/04/04 05.05.35 Maximum total TS bitrate error 2011/04/04 05:20:35 Transport Stream ID error 2011/04/04 05:27:35 Service count error 2011/04/04 05:32:35 PID error(s) 2011/04/04 05:50:35 7. 2011/04/04 06:05:36 7. 2011/04/04 06:05:36 1. 2011/04/04 12:07:58 No. 2011/04/04 14:34:31 2011/04/04 2011/04/04 14:42:44 1.	2011/04/04	05:00:35				
2011/04/04 05:7:35 2011/04/04 05:32:35 2011/04/04 05:37:36 2011/04/04 05:55:36 2011/04/04 06:05:36 2011/04/04 12:07:58 2011/04/04 14:34:31 2011/04/04 14:42:44	2011/04/04	05:05:35		Minimum total TS bitrate error	-	
2011/04/04 05.20.35 Interpret of out of the one one of the one of the one one of the one of t	2011/04/04	05:15:35		Maximum total TS bitrate error		
2011/04/04 05.27.35 Oct vice count error 2011/04/04 05.32:35 PID error(s) 2011/04/04 05:50:35 0 2011/04/04 06:00:36 Image: Count error 2011/04/04 06:05:36 Image: Count error 2011/04/04 12:07:58 Image: Count error 2011/04/04 14:34:31 Image: Count error 2011/04/04 14:34:31 Image: Count error 2011/04/04 14:42:44 Image: Count error	2011/04/04	05:20:35		Transport Stream ID error	-	
2011/04/04 05:37:36 2011/04/04 05:50:35 2011/04/04 05:55:36 2011/04/04 06:00:36 2011/04/04 12:07:58 2011/04/04 14:34:31 2011/04/04 14:42:44	2011/04/04	05:27:35		Service count error	•	
2011/04/04 05:50:35 2011/04/04 05:55:36 2011/04/04 06:00:36 2011/04/04 12:07:58 2011/04/04 14:34:31 2011/04/04 14:42:44	2011/04/04	05:32:35	_	PID error(s)	A •	
2011/04/04 05:55:36 2011/04/04 06:00:36 2011/04/04 06:05:3 6 2011/04/04 12:07:58 2011/04/04 14:34:31 2011/04/04 14:42:44	2011/04/04	05:37:36			•	
No. PID (Dec) PID (Hex) Minimum bitrate error Maximum bitrate 2011/04/04 14:34:31 2011/04/04 14:42:4	2011/04/04	05:50:35				
No. PID (Dec) PID (Hex) Minimum bitrate error Maximum bitrate 2011/04/04 12:07:58 2011/04/04 14:34:31 2011/04/04 14:42:44 2011/04/04 14:42:44 2011/04/04 14:42:44 2011/04/04 14:42:44 2011/04/04 2011/04/04 2011/04/04 2011/04/04 14:42:44 2011/04/04	2011/04/04	05:55:36				
2011/04/04 12:07:58 2011/04/04 14:34:31 2011/04/04 14:42:44	2011/04/04	06:00:36				
2011/04/04 12:07:58 2011/04/04 14:34:31 2011/04/04 14:42:44	2011/04/04	06:05:376		No PID (Dec) PID (Hex)	Minimum bitrate error Maxim	um hitrate
2011/04/04 14:42:44	2011/04/04	12:07:58			maxin	annonnate
	2011/04/04	14:34:31				
2011/04/04 15:29:29	2011/04/04	14:42:44				
	2011/04/04	15:29:29				

Alerts log view



Frequently Asked Questions

F1. Abbreviations

ASI	Asynchronous Serial Interface	High-speed (270 MBit/s) serial digital transmission mode in MPEG-TS transfer between the devices.
ATSC	Advanced Television Systems Committee	USA standard for digital video broadcasting.
DHCP	Dynamic Host Configuration Protocol	Automatic IP address assignment for network devices.
DNS	Domain Name System	Address resolution mechanism.
DVB	Digital Video Broadcasting	Europian standard for digital video broadcasting.
IP, IPv4, IPv6	Internet Protocol	The basic protocol of the Internet.
MAC	Medium Access Control	The sublayer of the data link layer of the OSI (Open System Interconnection) reference model.
MPEG-TS	MPEG Transport Stream	Standard format for audio video and data transmisson in DVB and ATSC broadcast systems.
NAT	Network Address Translation	NAT allows LAN devices to communicate directly with external hosts without public IP address.
NTP, SNTP	Network Time Protocol, Simple Network Time Protocol	Time syncronization protocol used for network devices.
PCR	Program Clock Reference	PCR = PCR _{Base} × 300 + PCR _{Ext}
PTS	Presentation Time-stamp	Time stamp in the PES header.
SMTP	Simple Mail Transfer Protocol	Protocol used for sending e-mail.

F2. What to do if I forget the IP address of the device

The device continuously sends ARP messages which contains its IP address. Use Ethernet analyzer to read it out (e.g. Wireshark).

Links

L1.www.cableworld.eu

L2.www.dvb.org