

**Gsertel was born with a** key objective: designing and manufacturing professional monitoring equipment that would surpass existing technologies in order to provide the end user with simple solutions that were not covered until now.

## How we do it



### R&D

In Gsertel we have a **high capacity for innovation** through a highly qualified engineering department, with extensive experience in the development of monitoring and control equipment.



### Manufacture

Gsertel belongs to the **Televes Corporation**. The factory has production and packaging lines fully robotized, which makes possible to minimize human errors and ensure the high performance of our products.



### Distribution

We market our products in more than 90 countries through a partners network oriented to the professional segment, with more than 10,000 units in operation worldwide.

### One family, full monitorization





Capability of **parallel processing up to 12 multiplex and simultaneously by RF, ASI or IP inputs** makes the Gsertel Monitoring Family a powerful tool for early detection and diagnosis of potential failures in point of your network. **Full Spectrum Analyser:** spectrum analysis from 5 Hz to 1 GHz with mask function and automatic alarm.



### The members of the family



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RCS 400 RCS 100	RCS 400 is the big brother of the Gsertel monitoring family. It is a network professional monitoring platform that allows the remote, proactive, simultaneous and real-time monitoring of <b>up to 4 digital television multi-</b> <b>plex, both at RF and transport levels</b> . RCS 100 is <b>designed for a 24x7 monitoring signal</b> , allowing to ensure the availability of services in a TV network.
RCS 100	allowing to ensure the availability of services in a TV
<b>RCS 50</b>	Aimed to <b>small and medium transmitter sites and field</b> <b>monitoring</b> (reception), with RCS 50 network operators have an alert & diagnosis tool allowing to monitor glob- al trends and anticipate potential failures.
GProbe10	Gsertel's GProbe10 is a cost-effective IP probe that allows remote and real-time IP signal monitoring. With a compact desing, GProbe10 is the <b>perfect probe for</b> <b>last mile analysis of IP signals</b> .

# RCS RF Analysis



Full band real-time spectrum analyser (5Hz-1GHz) with mask function and automatic alarm.

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Advanced measure of echoes, with masks in amplitude and delay.

### Constellation

Constellation representation including pilot carriers and TPS.



### **SFN Drift**

Temporal deviation in the superframe transmission at the transmitter output with respect to the given synchronization time stamps in the packets MIP of the transport stream, as well as another chart that shows the time evolution of the frequency offset.

6

# RCS TS Analysis

	43,56905 + 482 MHz	P.T.T.	-1/6 T2MI D/	u						AVI	Piper
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w01FE w01FF w0200 w0201	Last 5 mn   Service TOTAL TS (TSIC-0x082) Null Packets Si Tables Litref, Packets La 1 La 2 Lab Clan		19.906944 0.535424 0.208456 0.000000 3.605512 4.997720 2.026832 1.953008	Horn Profile Set Profile Set Profile Set Profile Set Profile Set Profile	0x00073	Subtitle spa AlT	is for the ray		Mbps 0.022296 Mbps 0.005664 Mbps 0.001632	MGB1(payload, 1s, 1s) MGB1(payload, 1s, 1s)	Set Pro

### Bitrate

Complete TS Analysis.

### Statistics see a second second

### **PCR Jitter**

Measurement and temporal representation of the PCR Jitter.



Net

X Delete All

Previous

### Service monitoring

Detects changes in the selected services y activates an alarm automatically.



Direct recording or event recording of the transport stream.

# RCS Management

GSERTEL NO

Copy Delete

Export

user\_default\_rf1 user\_default\_rf2 user\_default\_rf3 user\_default\_rf4



### Historical of Alarms

Intuitive graphical filtering of alarms.

### Alarms setup

Configure the Alarms the way you want.

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### SNMP

Full management through SNMP v2.0.

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			RF 1 + Binghing	ABLER	1010
System	input/Output	Channel Plans	stilling		Profiles
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### BBDD

System alarms are saved in the meter database, grouped by months, so you can check them easily.

## **GProbe10**

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GPROBE10												۰.	dmin	
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		ch1_tsoip2	230.0.1.1	3000		0	TSoIP2	Default	Default	Default	Default	1	-	
	8	ch2_tsoip1	230.0.1.2	3000		0	TSolP1	Default	Default	Default	Default	1		
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		ch3_tsoip1	230.0.1.3	3000		0	TSoIP1	Default	Default	Default	Default	1		
		ch4,tsoip1	230.0.1.4	3000		0	TSolP1	Default	Default	Default	Default	1	-	
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		ch6_dektec	230.0.5.11	5000		0	TSoIP1	Default	Default	Default	Default	1	-	
		ch21_tsoip2	230.0.1.21	3000		0	TSoiP1	Default	Default	Default	Default	1		

### Monitor

Multiple IP flows in parallel (up to 64).



### **Channel Card**

IP and UDP payload bitrate, Media loss rate and loss IP frame, IP Jitter.



### Extended information

Complete analysis of all the IP signals.



### Alarms

Level 1 and level 2 priority errors and Configurable type of alarm (Info, Warning, Error).

### RCS & GProbe10 Specifications

### **RCS** Specifications

RCS General Specifications	RCS 50	RCS 100	RCS 400					
Display	Graphic LCD STN. Resolution: 256x64							
Format		1U 19" rackable unit						
Weight		3250 g.						
Dimensions		448x380x43.3mm						
Operating temperature	-5°C to 45°C (23°F to 104°F)							
Storage temperature	-20	-20°C a 70°C (-4°F a 158°F)						
Humidity	5% to 95% non-condensing							
Interfaces	Web and keyboard							
Power supply	100	-240 VAC 50-60Mz '	1.4A					
Storage capacity	500 GB	11	ГВ					
Internal GPS	-	Option	902566					

RCS Technical Specifications	RCS 50	RCS 100	RCS 400						
Frecuency									
Range		862MHz (Demodulatic -1000MHz (Spectrum)	n)						
Resolution		100 KHz							
Tuning	C	hannel and frequency							
Inputs									
RF	1 x N 50Ω connector	1 x N 50Ω connector	4 x N 50Ω connector						
ASI	1 x BNC 75Ω connector (option 902554)	1 x BNC 75Ω connector	4 x BNC 75Ω connector						
Synchro	-	1 x 1pps BNC 50 1 x 10MHz BNC 5							
IP	-	Option 9	02518						
Outputs									
ASI	1	x BNC 75Ω connector							
A/V		1 x HDMI 1.4							
Spectrum Analyzer (Op	otion 902511 only fo	r RCS100 y RCS400)							
Span	-	10, 20, 50, 100, 200	, 500, 1000 MHz						
Scale	-	-100 dBm to	20 dBm						
Max. & Min. Hold	-	✓							
Marks	-	2							
Mask	-	✓							
RF Analysis									
U.A.L. Technology (Universal Auto Lock)		ection of signal charaction of signal charaction parameters.							
RCS-T (DVB-T/T2)	RCS 50	RCS 100	RCS 400						
Demodulation	ETSI EN 300744	4 (DVB-T), ETSI EN 302	2755 (DVB-T2)						
Constellation	DVB-T: COFDM (QPSK, 16QAM, 64QAM)								
	DVB-T2: COFD	M (QPSK, 16QAM, 64G	AM, 256QAM)						
Power		-100 dBm to 20 dBm							
C/N		Up to 50 dB							
MER		Up to 40dB							
Constellation Diagram	Option 902511	1							
Echoes		√							
BER Measurements		9.9E-2 - 1.0E-6 / VBER: 2: LDPCBER: 9.9E-2 - 1							
	BCHBER: 1.0E-	3 - 1.0E-8 / Link Margir							
Left Shoulder	-	< 50							
Right Shoulder	-	< 50							
SFN Drift Graphs	-	Option 902511							
Polling Feature	Option 902557	√ 	00544						
Frequency offset	-	Option 9	02511						
Base Band Frame Error Rate (BBFER ETR 290) Only for DVB-T2		1.0E0 - 1.0E-6							
LDPC iterations (Only for DVB-T2)		$\checkmark$							
RCS-I (ISDB-T/Tb)	RCS 100	R	RCS 400						
Demodulation	AR	RIB STD-B31 (ISDB-T/Th	) )						
Constellation	DQPS	K, QPSK, 16QAM y 640	QAM						
Power		-100 dBm to 20 dBm							
C/N		Up to 50 dB							
MER		Up to 38dB							
	1	•							

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BER Measurements		<b>ER (by layer):</b> 1.0E-2 - 1								
	<b>Post-BER (by layer):</b> 9.9E-2 - 1.0E-8 < 50 dB									
Left Shoulder		< 50 dB < 50 dB								
Right Shoulder		< 50 dB								
Constellation Diagram		1								
Echoes		V								
Polling Feature		✓ 								
Frequency offset	Option 902511 Option 902511									
SFN Drift Graphs	RCS 100 RCS 400									
RCS-C (DVB-C) Demodulation		TU-T J.83 Annex A/C	CS 400							
Constellation		, 32, 64, 128, 256QAM	1							
Power		-100 dBm to 20 dBm								
C/N		Up to 50 dB								
MER	Up to 43 dB (6.	9Msym/s, QAM256, Lo	evel>-45dBm)							
	BER (A	Annex A/C): 1.0E-3 - 1.	0E-9							
BER Measurements	<b>BER:</b> 1.0E-3 - 1.0E-8									
		CBER: 1.0E-3 - 1.0E-9								
Constellation Diagram		$\checkmark$								
Polling Feature		~								
RCS-S (DVB-S/S2/ S2X)	RCS 50	RCS 100	RCS 400							
Demodulation	ETSI EN 30042	1 (DVB-S), ETSI EN 302	2307 (DVB-S2)							
Constellation		QPSK, 8PSK								
Power		40 to 85 dBuV								
		Up to 20 dB / MER: U								
BER Measurements		-2 - 1.0E-6 / VBER: 1.0E <b>/B-S2X:</b> Link Margin: u								
DER medsurements	MER: Up to 2	E-2 - 1.0E-6								
Constellation Diagram	Option 902511	V	1							
Polling Feature	Option 902557	√	√							
TS Analysis										
Service Bitrate		√								
Table Bitrate		√								
PID Bitrate		~								
Captures of all Services	Option 902553	1								
Network Delay	-	Option 9	02512							
Tree View		√ 	02512							
Scramble Status		√								
Table Repetition		√								
PCR Jitter Graphs	-	Option 9	02512							
BTS Analysis (ONLY	_	Option 9	02516							
RCS-I) ETSI TR 101 290	Level 1 and 2 prio- rity errors: Option 902555) Level 3 priority	Level 1, 2 and 3 (Level 3 optic	priority errors							
	errors: Option 902559									
Live Streaming of the selected service		Option 902520								
Manual TS Recording	Option 902556	Option 9	02519							
Alarm TS Recording	-	Option 9	02519							
RDS Analysis	-	√								
Electronic Program Guide	-	~								
Loudness metering according EBU Tech Doc 3341	-	Option 90	02569							
T2-MI Measurements C	NLY RCS-T (Option	902513 only for RCS	100 an <u>d RCS400)</u>							
T2-MI BitRate	-	1								
Transport Stream BitRate	-	√								
Packet Analysis	-	√								
TR 101 290	-	Priorities 1, 2 and	3 implemented							
T2-MI PLP extraction		~								
(Up to 4 streams)	-	V								

Extended T2-MI PLP extraction (Up to 8 streams)	-	Option 902567
IP Measurements (Opti	ion 902518 only for	RCS100 and RCS400)
Maximum arrival interval between packets	-	✓
Minimum arrival interval between packets	-	~
IP payload bitrate	-	✓
UDP payload bitrate	-	✓
Media loss rate	-	✓
Loss IP frame	-	✓
Corrected IP	-	✓
Polling	-	✓
Alarms		
4 groups: RF, Levell1, Level2, Level3	Level 1 and 2 priority erros Option 902555	√ (Level 3 option. 902512)
Configurable type of alarm (Info, Warning, Error)		✓
T2-MI TR 101 290 alarms	-	Option 902513
TS recording by alarms	-	Option 902519
System alarms		wer supply (only for RCS with double supply) and alarms deletion

### **GProbe10** Specifications

GProbe10 General Specifications					
Weight	495g without 1 RU adapter				
Dimensions	120mm x 140mm x450mm without 1 RU adapter				
Operating temperature	-5°C to 45°C (23°F to 104°F)				
Storage temperature	-20°C to 70°C (-4°F to 158°F)				
Humidity	5% to 95% non-condensing				
Control Interfaces	1xEthernet RJ45 / Web (HTML5) / SNMP				
Storage	20 MB				
External Storage	USB				
Power Supply	12V - 1.5A power supply / -48VDC (optional)				

GProbe10 Technical Specifications					
Inputs					
IP Input	2 x GE RJ45 (TSoIP) (Option)				
IP Analysis					
Multiple IP flows in parallel (up to 16)	✓				
Additional IP flows (16 additional flows each license up to 64)	Option				
Max. arrival interval between packets	✓				
Min. arrival interval between packets	~				
IP payload bitrate	√				
UDP payload bitrate	√				
Media loss rate	√				
Loss IP frame	√				
Jitter IP	√				
UDP and RTP mode (auto)	✓				
Alarms					
4 groups: RF. Level1, Level2, Level3	√ (Level 3 opt.)				
Configurable type of alarm (Info, Warning, Error)	$\checkmark$				

Specifications are subject to change without notice

## Support

In Gsertel we guarantee the quality and reliability of all our products. We also want our customers to feel supported after purchasing them, to ensure they get the most benefit from them.

### All of our clients have our Customer Service including:

### Access to online and telephone support:

Consultation and resolution of doubts.

Opening of technical assistance and repair of equipment cases. Should you require examination of the equipment, in our support center we guarantee a maximum repair time of 10 days for its repair or updating. We coordinate collection and delivery. We even provide online access to track your analyzer through the whole process.

### Access to new versions of firmware:

All of our new software and firmware versions are available from our website, adding new functions to equipment in a fast and convenient way.

### Warranty:

Two-year warranty on any equipment and one year on batteries for portable equipment.

**Technical Service telephone number:** +34 981 522 447

**Technical Service e-mail:** support@gsertel.com

www.gsertel.com





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