

REBLE610 XPIC ASI-IP-SDH link



Rev.3 2K15

DESCRIPTION

The REBLE610 features an accurate hardware design, absence of internal cabling and full modularity. The unit is composed by a basic chassis with 4 extractable boards which makes maintenance and critical operations, like frequency modification, easy and efficient. The REBLE610 contains two hot swappable power supplies (both AC and DC versions are available). The modular approach has brought to the development of the digital processing module (containing modulator, demodulator and data interface) and the RF module (containing Transmitter, Receiver and channel filters). From an RF point of view, the new transmission circuitry is able to guarantee around 1 Watt with every modulation scheme, introducing, in addition, wideband precorrection (up to 1GHz depending on frequency band). Major innovations on the digital inputs side with three different data interface boards available: version A is equipped with 10 ports ASI/BTS on BNC connector, configurable as inputs or outputs, so that it is possible to include the ASI distribution and ASI matrix capabilities in the same equipment; it also provides a GbE port L1 for IP traffic, a 2048 Kbit/s E1 data channel (as an alternative to 2 ASI/BTS ports), and a "transit" connection (not to waste coaxial connectors); version B is equipped with 5 DVB-ASI/BTS/SMPTE310 ports (in or out) and 5 E1 channels; version C is oriented to TELCO and new generation broadcasting networks, offering both SDH and IP interfaces, with electrical and optical connections, integrating optionally a L2 switch with QoS capabilities.

To transfer all these signals the channel capacity has been increased to 56MHz leading to a maximum throughput of 310Mbit/s; using an optional XPIC module (and an extra REBLE610) it is possible to duplicate the bitrate increasing to 610Mbit/s, exploiting H and V polarizations and cancelling undesired content using special algorithms.

Redundant configurations (SD and FD) are supported, as well as HSB adding CLEBER RF switch.

A new management software offers complete control over device parameters and settings, an on-board TFT touch-screen allows a simple and intuitive user interface to check for anomalies. The same monitoring and control can be carried out through a particularly easy to use web interface and SNMP.

FEATURES

- Half-duplex, Full-duplex or Repeater
- Frequency:

2	2000-2300
3	3400-4200
4	4400-5000
5	5000-5500
6L	5925-6425
6U	6425-7125
7	7125-7825
8	7825-8500
10	10000-10700
11	10700-11700
13	12700-13200
14	14000-15500

Others on request.

- Direct frequency conversion (Zero-IF)
- Excellent System Gain performances
- Interfaces:

Version A:

10 x DVB-ASI/BTS
1 x E1 (2.048Mbit/s)
1 x 10/100/1000BASE-T

Version B:

5 x DVB-ASI/BTS/SMPTE310
5 x E1 (2.048Mbit/s)
1 x 10/100/1000BASE-T

Version C:

2 x STM-1
2 x OC-3
4 x 10/100/1000BASE-T
2 x 1000BASE-X
1 x E1 (2.048Mbit/s)
1 x Voice Channel

- Bandwidth: 1.75÷56 MHz
- VBR up to 310 Mbps (620 Mbps with XPIC option)
- Integrated hitless switch for 1+1 configuration (HSB,SD,FD)
- Redundant hot-swappable power supply (AC and/or DC)
- WEB interface, SNMP v2 and GPIO

SPECIFICATIONS

General:

Configuration: Direct frequency conversion

Frequency Resolution: 250 kHz

Frequency stability: ± 1 ppm

Transmitter:

Return Loss RF: > 26 dB

Spurious level: -70 dBc

Receiver:

Return Loss RF input: > 26 dB

Noise figure: < 4 dB (channel filters included)

Modem:

Baud Rate: Up to 49.5 Mbaud

Net Payload: Up to 310 Mbit/s

Constellation: QPSK; 8PSK; 16-32 APSK;
16-32-64-128-256QAM

Bandwidth: 1.75÷56 MHz

Protection: 1. Low Density Parity Check encoder
2. Reed-Solomon

Data interface:

Access: **Version A:** 10xASI/BTS, 1xE1, 1xGbE
Version B: 5xASI/BTS/SMPTE310, 5xE1, 1xGbE
Version C: 5xGbE, 2xSTM-1, 2xOC-3, 1xE1, 1xVoice

Service: XPIC

1+1

Transit

Connectors: Version A:

ASI/BTS: unbalanced BNC(f) 75 Ohm

E1: unbalanced BNC(f) 75 Ohm

1+1: differential pairs RJ-45

Version B:

ASI/BTS/SMPTE: unbalanced BNC(f) 75 Ohm

E1: balanced RJ-45 120 Ohm

1+1: differential pairs RJ-45

Version C:

GbE: 4x 10/100/1000BASE-T RJ-45

2 x 1000BASE-X SFP

E1: balanced RJ-45 120 Ohm

STM-1: unbalanced BNC(f) 75 Ohm

OC-3: SFP

1+1: SFP

Common:

XPIC: differential pairs RJ-45

Transit: differential pairs RJ-45

1+1 Hot-standby and frequency/space diversity support

IP Features (Version C):

4 traffic classes (Qos) based on:

Port / IEEE 802.1p tagged frames / IPv4's Type of Service (TOS) & Differentiated Services (DS) / IPv6's Traffic Class / 802.1Q VID / Destination MAC address / Source MAC address

Flux Control: "Pause frame-based" and "Back-pressure".

L2 protocols supported:

- 802.1D Spanning Tree Protocol
- 802.1w Rapid Spanning Tree
- 802.1s Multiple VLAN Spanning Tree
- Programmable per-port VLAN configurations
- 802.1Q and Port States

Policy:

- Layer 2 Policy Control List (PCL) enables drop, trap, or mirroring based on SA, DA, VID, Ethertype, VBas, PPPoE, UDP and DHCP Option 82
- Frame and queue priority overrides based on DA, SA, VID, Ethertype, BC, IP, PPPoE, ARP, or Snoot
- Strict, Weighted, or mixed mode QoS selectable per port
- DSCP (layer 3) to frame priority (layer 2) marking

VLAN

- 802.1Q VLAN supported for 4096 VLAN IDs
- Enhanced 802.1s Per VLAN Spanning Tree supporting up to 64 spanning tree requests
- Port Trunking and Port Monitoring/Mirroring
- Egress tagging/untagging selectable upon port or 802.1Q VLAN ID

Control:

Front panel (TFT touchscreen display)

Web browser (embedded http server, no additional software needed)

SNMP v2

Electrical:

Supply: 90-260 V~ 50/60 Hz IEC 320
DC 22 ÷ 65 V 2 pins connector

Consumption: 90 W

Mechanical:

Chassis: 1U Rack 19"

Dimensions: Width 482.6 mm

Height 43.6 mm

Depth 512.85 mm (without circulator)

Weight: 8 Kg

Environmental:

Operative temperature range: -10 ÷ 55°C

Relative Humidity: 0 - 95% non condensing

PERFORMANCES DATA

Frequency band	2	3	4	5	L6	U6	7	8	10	11	13	14	15
RF Connectors	N(f)	N(f)	N(f)	N(f)	N(f) / UER 70	N(f) / UER 70	N(f)	N(f)	UBR 120	UBR 120	UBR 120	UBR 140	UBR 140
Power [dBm]@ QPSK	35	35	35	35	35	35	35	35	34	34	32	32	32
Power [dBm]@128QAM	31	31	31	31	31	31	31	31	30	30	28	28	28
Sensitivity [dBm] @ QPSK 28 MHz	-88	-88	-88	-88	-88	-88	-88	-88	-88	-88	-87	-87	-87
Sensitivity [dBm] @ 128QAM 28 MHz	-72	-72	-72	-72	-72	-72	-72	-72	-72	-72	-71	-71	-71



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