



RipFrame™

Receiver for Internet Protocol over Frame Relay with
Advanced Modulation Enhancement

O V E R V I E W

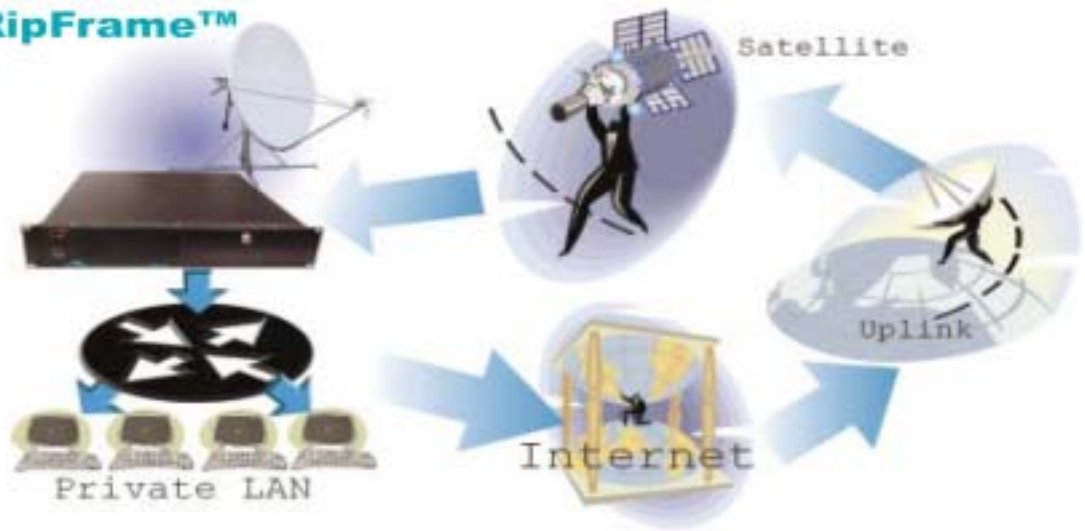
The RipFrame is the Frame Relay Integrated Satellite Receiver Router designed to distribute IP Data over Broadband satellite carriers at a very competitive price.

The operator does not have to invest into an expensive redundant IP/DVB Gateway to offer carrier class IP backbone services. It minimizes protocol overhead, increases the bandwidth efficiency (especially for small VOIP packets) and overcomes the data rate limit of Standard HSSI port.

H I G H L I G H T S

- DVB-S2, DVB-DSNG, DVB-S compliant
- Satellite baud rate 1 to 45 Mbaud
- Up to 95 Mbit/s throughput for 30 Bytes packets
- De-encapsulating the Frame-Relay data based on DLCI
- Forwarding the extracted data directly to customer LAN
- No on-board mechanical components
- Additional processor for watchdog control
- 10/100/1000 Base-T Ethernet Output interface
- Low cost

RipFrame™



F E A T U R E S

TUNER

- DVB-S2 compliant (EN 302307), Normal Frames
- DVB-S compliant (EN 300421)
- DVB-DSNG compliant (EN 301210)
- Highly integrated : tuner, demodulator, decoder
- Automatic spectrum inversion
- Frequency range : 950-2150 MHz
- 20% - 25% - 35% roll-off factor
- LNB power control

DEMODULATOR

- QPSK, 8PSK and 16QAM DVB-S/DSNG mode
- QPSK, 8PSK, 16APSK, 32APSK - DVB-S2 mode
- Baud rate range: 1 - 45 Mbaud
- Excellent performance in combination with Satellite Modulators Newtec NTC2077/2080/2277/2280, Tandberg TV SM5600, Comtech EF DATA SDM2020M
- De-encapsulating the Frame-Relay data

ROUTING AND MANAGEMENT

- Unicast, Multicast, Broadcast Routing
- Minimization of protocol overhead
- Improved bandwidth efficiency
- Easy to install & set-up
- Monitoring of BER, Eb/No, Received IP Packets & Bytes
- Fully IPv4, UDP, PPP, TCP, PPTP Protocols Compliant
- RS-232 PC Terminal
- Management & monitoring through SSH secure protocol

COST SAVING ON HSSI PORT

- Integrated Receiver Router solution with 1000 Base-T Ethernet LAN Output
- Overcomes Standard HSSI router port limit of 51.84 Mbps
- Tested with Metro Data PA1000 POS STM-1/OC3 155 Mbps to Extended HSSI converter
- Variable Bit Rate 2-95 Mbps

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TUNER

RF Input

Frequency range :	950-2150 MHz
Return loss :	> 9 dB (75 Ohm-F(F))
Level signal :	-25 to -65dBm

LNB Power and Control

Max. current :	350 mA
Voltage :	11.5-14 V (vertical polarisation) 16-19 H (horizontal polarisation)
Additional:	22 KHz ± 4 kHz (band selection) (according to universal LNB)

Typical RF Parameter (LNB) Requirements

Equiv. inp. noise temp. :	100K (typ.)
LNB gain :	55 to 70 dB
Cable loss (100m) :	< 20 dB
Carrier frequency accuracy:	± 300 kHz

LNB phase noise requirement

equiv. inp. noise:	-178 dBm/Hz
Phase noise SSB	
type A :	all rates
Type B :	DVB-S2 (with pilots on only) for QPSK > 10-30 Mbaud for 8PSK > 10-30 Mbaud
DVB-S:	for QPSK > 5 Mbaud for 8PSK > 22 Mbaud for 16 QAM > 6Mbaud
Type A (PL-DRO)	Type B (free running DRO)
	<-35 dBc/Hz at 10 kHz
<-70dBc/Hz at 100 kHz	<-63dBc/Hz at 100 kHz
<-75dBc/Hz at 1kHz	<-73dBc/Hz at 1 kHz
<-80dBc/Hz at 100kHz	<-85dBc/Hz at 10kHz
	<-90dBc/Hz at 100kHz
	<-96 dBc/Hz at 1kHz
	<-108dBc/Hz at 1kHz

Frame Relay
FR IETF Encapsulation DLCI Hardware Filtering
FR FCS Hardware Processing IP over FR Unicast Routing
Throughput Sustained: 95 Mbit/s for 30 Bytes packets
Processing Packet rate: 300 kpps

BER PERFORMANCE

Measured performance, 188 bytes PER 1E-5 (BER~5E-8)

DVB-S2 mode:	EN 302307 Simulations	Short Frames Normal Frames		
		1-15 Mbaud	1-40 Mbaud	>40 Mbaud
CONFIG				
QPSK-1/3 (*)	-1.24	-0.6	-0.7	-0.5
QPSK-2/5	-0.3	0.4	0.2	0.3
QPSK-1/2	1.00	1	1.4	1.4
QPSK-3/5	2.23	3.1	2.8	2.7
QPSK-2/3	3.10	3.8	3.6	3.5
QPSK-3/4	4.03	4.5	4.3	4.4
QPSK-4/5	4.68	5.1	5.1	5.1
QPSK-5/6	5.18	5.8	5.5	5.6
QPSK-8/9	6.20	6.7	6.6	6.6
QPSK-9/10	6.42	-	6.7	6.8
			1-35Mbaud	>35Mbaud
8PSK-3/5 (*)	5.50	6.5	6.3	6.9
8PSK-2/3 (*)	6.62	7.4	7.1	7.1
8PSK-3/4	7.91	8.6	8.4	8.4
8PSK-5/6	9.35	10.2	9.7	9.9
8PSK-8/9	10.69	11.4	11.1	11.2
8PSK-9/10	10.98	-	11.3	11.3
			1-35Mbaud	>35Mbaud
16APSK-2/3	8.97	9.9	9.6	9.7
16APSK-3/4	10.21	10.9	10.5	10.9
16APSK-4/5	11.03	11.06	11.5	11.7
16APSK-5/6	11.61	12.4	12.1	12.2
16APSK-8/9	12.89	13.6	13.3	13.3
16APSK-9/10	13.13	-	13.6	13.6
			1-25Mbaud	>25Mbaud
32APSK-3/4	12.73	/	13.5	13.6
32APSK-4/5	13.64	/	14.3	14.5
32APSK-5/6	14.28	/	14.8	14.9
32APSK-8/9	15.69	/	16.1	16.1
32APSK-9/10	16.05	/	16.5	16.5

(*) only with pilots on

DVB-S mode:	EN 301 210 specifications before RS	Eb (188 byte)/No (dB) after RS @ BER < 1E-7	
		<20 Mbaud	>20 Mbaud
CONFIG			
	@ BER = 2E-4		
QPSK-1/2	4.5	3.9	3.9
QPSK-2/3	5.0	4.4	4.5
QPSK-3/4	5.5	4.9	5.1
QPSK-5/6	6.0	5.4	5.8
QPSK-7/8	6.4	5.8	6.4
8PSK-2/3	6.9	6.3	6.5
8PSK-5/6	8.9	8.3	8.8
8PSK-8/9	9.4	8.8	9.8
16QAM-3/4	9.0	8.4	8.6
16QAM-7/8	10.7	10.1	11.1



DEMODULATOR

User Rates :

Satellite baud rate: QPSK	0.256 to 45 Mbaud
8PSK	0.256 to 40 Mbaud
16APSK	0.256 to 40 Mbaud
32APSK	1 to 30 (Normal Frames only)

Synchronization :

Carrier acquisition range : +-3MHz max.
 Clock acquisition range : +-200ppm max.
 Average acquis. time : < 3 sec, 90% probability
 at carrier freq. offset <±2.5MHz ptp and PER< 1E-7
 Outer Decoder:

ROUTING AND MANAGEMENT

Routing

Unicast, Multicast, Broadcast Routing

IP Protocols

Fully IPv4 Compliant (RFC 791, 792, 919, 922, 950, 1112)
 Fully UDP Compliant (RFC 768) Fully PPP Compliant (RFC 1661, 1662)
 Fully TCP Compliant (RFC 793) Fully PPTP Compliant (RFC 2637)
 Management Interfaces
 Terminal SSH
 Terminal RS232
 Monitoring
 Digital Level ; Eb/No ; Eb/No margin (DVB-S2 Es/No; Es/No Margin)
 Lock & Status

PHYSICAL / ENVIROMENTAL

Physical Interfaces

RF Input:	F-Type
Data Output:	Ethernet 1000 Base-T (Network RJ45)
Terminal:	RS-232, Serial 9-Pin D-Sub (Male)

Environmental / Physical

Prime Power:	230 Vac, 50-60 Hz, 1.0A
Operating Temp. / Humidity:	0 to 45 °C, 90% noncondensing
Storage Temp. / Humidity:	-20 to 60 °C, 99% noncondensing
Chassis size:	48.26 x 37.60 x 8.90 cm

19" 2U Rack Unit,
 weight: 4.5 kg,
 shipping Weight: 5.4 kg