

RC3000E PCM Multi-Service Multiplexer

RC3000E is a compact and cost-effective multi-service multiplexer. It provides one slot for uplink card including 4E1/8E1 and PDH optical interface and 3 slots for downlink cards including FXO, FXS, E&M, magneto telephone, RS232/RS485/V.24 and fractional Ethernet/V.35 to E1. It supports 256 timeslots full cross-connect that makes full use of current line resource and guarantees business expansion. The 1+1 port protection of 8E1 uplink card makes sure all services work continuously when one link breaks down. Because of a large variety of interfaces, RC3000E has wide application, including electricity, industry as well as railway and airport. RC3000E can be deployed either in point-to point topology or point to multipoint topology as the remote site of RC3000-15/RC3000E. It can be managed via local CLI or telnet/SNMP, also can be monitored and managed as the remote site of RC3000-15 in a centralized way on GUI based Raisecom NView NNM system.



The front panel of RC3000E



The back panel of RC3000E

Highlights

Various interfaces for customer access	Supports FXO, FXS, E&M, RS232, RS485, V.24, G.703 64K, Eth, V.35 interface for accessing diversified subscriber's services.
Comprehensive alarm indication	LED on front panel showing device operation/alarm status for convenient monitoring and when detecting alarm, the buzzer on device will ring automatically.
1+1 protection	8E1 uplink card support 1+1 port protection
Full cross connect based on 64k	Supports 512x512 timeslots based on 64Kbps full cross connect.
Easy management	Management via local CLI, telnet, SNMP or as the remote site of RC3000-15 on GUI-based Raisecom NView NNM system.

Typical Application

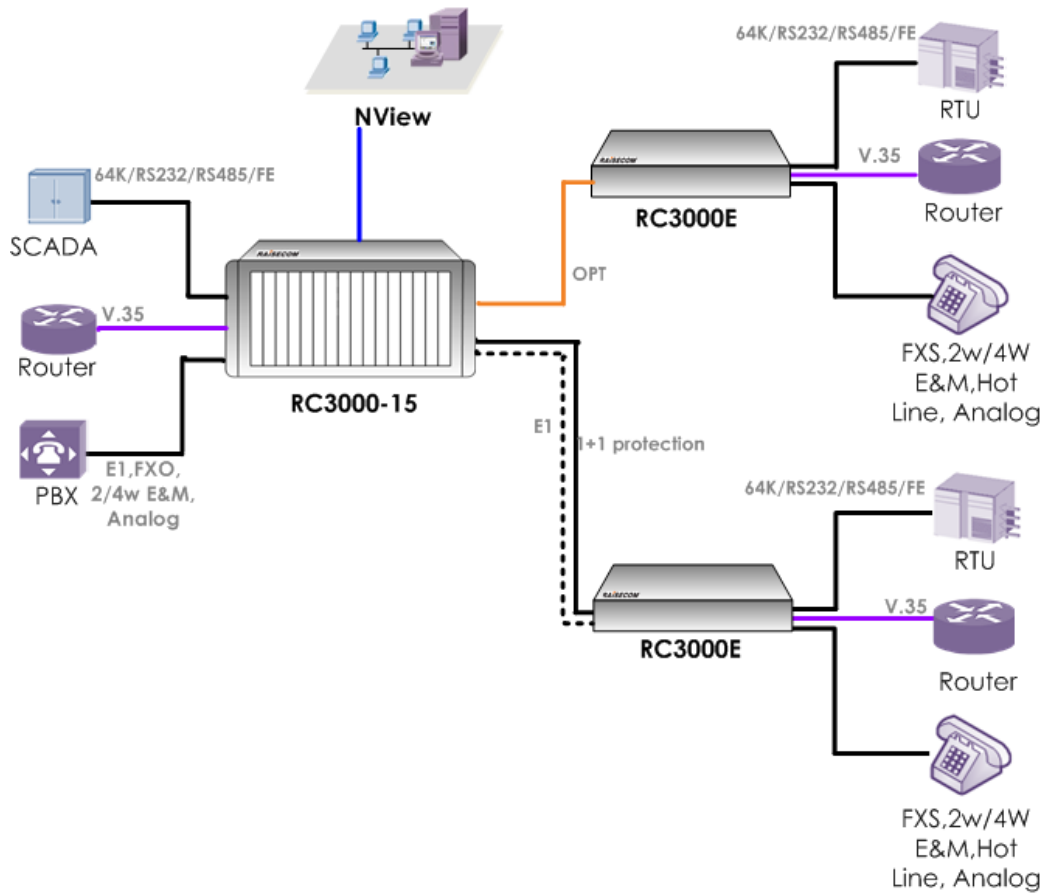


Figure.1 Point to multipoint as remote site

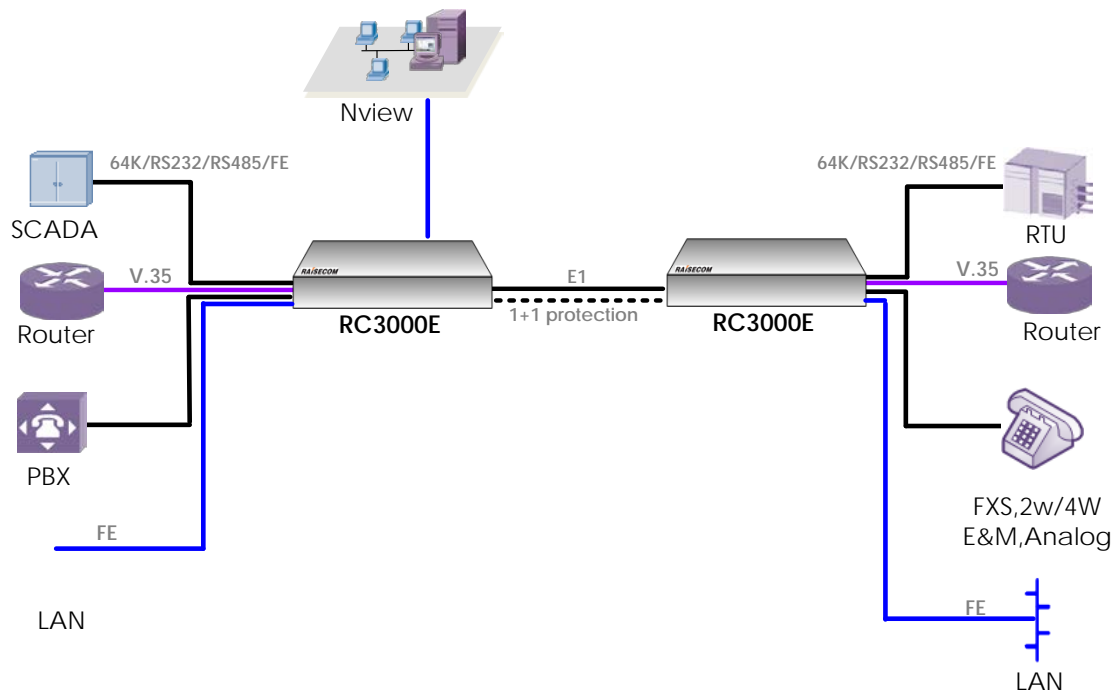


Figure.2 Point to point with E1 for uplink

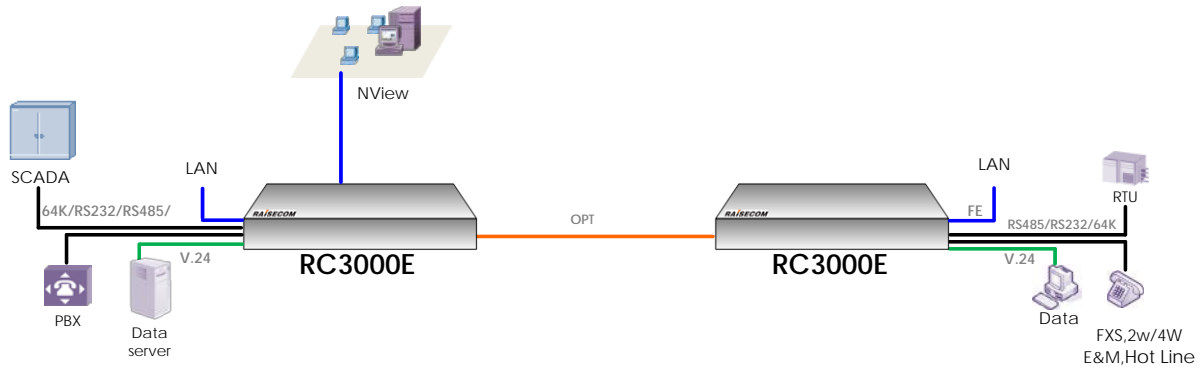


Figure.3 Point to point with optical for uplink

Key Features

4E1 uplink card	4x E1 ports 120Ω balanced with RJ45 connector or 75Ω unbalanced with CC3 connector E1 code: HDB3 Unframed, PCM30, PCM31 and CRC4 configurable Internal/external loopback BERT E1 sends clock mode: master/slave E1-1 and E1-2, E1-3 and E1-4 bypass when power is down
8E1 uplink card	8x E1 ports 120Ω balanced or 75Ω unbalanced configurable by DIP switch E1 code: HDB3 Unframed, PCM30, PCM31 and CRC4 configurable Internal/external loopback BERT E1 sends clock mode: master/slave 1+1 port protection, auto-switch time less than 50ms
OPT-FE2E1 uplink card	Optical interface: 1 PDH optical interface with SFP connector Support ALS function. Support remote device power-off alarm E1 interface: 2 E1 ports with DB9F connector, balance, unbalance configurable Unframed, PCM30, PCM31 configurable Ethernet interface: Electrical 10/100Mbps auto-negotiation, speed and duplex configurable MTU: 1916Byte Flow control: IEEE 802.3X in full duplex mode Back pressure in half duplex mode Rate limit: ingress/egress with increments 64kbit/s
Cross connect	512 timeslots cross-connecting with signaling
Clock mode	Master/slave configurable
Work mode	Master/slave configurable
Online Upgrading	Support online upgrade firmware, BOORTROM and FPGA file via telnet interface
Alarm output	Support 2x Alarm output terminal
Voice downlink card	Analog exchange to digital network interface (A-law PCM)

Up to 10 FXS/FXO interfaces
 Direct Inward Dialing (DID) with polarity reversal for direct access to PBX extensions via the public network
 Private Line Automatic Ring down (PLAR) to link two telephones together for immediate connection as a "hotline"
 Programmable A,B signaling bits (timeslot 16; E1 systems) support all voice switching equipment
 Supports Caller ID Display Systems
 Supports both tone and pulse dialing
 Software adjustable gain of each Tx/Rx channel step at 0.1dB

E&M downlink card Analog exchange to digital network interface (A-law PCM)
 Supports the E&M Types V
 Software configurable 2-wire or 4-wire mode
 Software adjustable gain of each Tx/Rx 2/4W channel step of 0.1dB

Low speed data downlink card RS232 Asynchronous Data Interface 300 bps - 19.2Kbps
 V.24 Synchronous Data Interface 64Kbps - 128Kbps
 RS422 Asynchronous Data Interface
 RS485 Asynchronous Data Interface 300 bps - 19.2Kbps
 G.703 co-directional at 64Kbps Data Interface
 V.35 Synchronous Data Interface Nx64 Kbps (N=1~31)

Eth downlink card 10/100Mbps auto-negotiation, full duplex/half duplex auto-negotiation, speed and duplex configurable.
 MTU:1916Byte
 Flow control: IEEE 802.3X in full duplex mode
 Back pressure in half duplex mode
 Packet relay: IEEE 802.1d Spanning Tree transparent
 IEEE 802.1q VLAN transparent
 Bandwidth: Nx64Kbps(N=1~31)

Management Transparent transmit SA bit
 Optional SA4, SA5 and one timeslot for management channel
 Management via local CLI, telnet
 Management as the remote site of RC3000-15/RC3000-6/RC3000E on GUI based NView NNM system

Specifications

Compliances

Standards & protocols	IEEE 802.3x flow control IEEE802.3u 100Base-T ITU-T G.703, ITU-T G.704
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**E1 interface for
uplink subcard**

Bit rate: 2048KHz±50ppm
Code: HDB3
Impedance:
75Ω unbalanced or 120Ω balanced
configurable
Nominal Peak Voltage of a Mark
75Ω: 2.37V 120Ω:3.0V
Pulse Duration: 244±25 ns
Pulse Mask: ITU-T G.703
Jitter Performance: ITU-T G.823
Intervene loss: attenuation range is
0-6dB at 1024KHz
FXS:
Feed Voltage: DC -48V/DC -24V
Loop circuit: 18~24Ma
Ring current voltage: AC 65±10 V , 25 Hz
2-wire input impedance: 200+680Ω
Gain :0±0.5 db (from 2-wire mode to
4-wire mode);-3.5±0.5 db(from 4-wire
mode to 2-wire mode)
Frequency characteristics:0±0.2 db
Return Loss: 30~40 db
Balance: 60~70 db
CMRR: 60~70 db
PSRR: Vcc: 30 db
Vbat: 30 db
Idle channel noise: 75 db
FXO:
Ringing detection voltage: ≥35 V
Ringing detection frequency: 17~63 Hz
2-wire loop impedance:
Offhooking: 200+680Ω
Onhooking: 2MΩ
Gain :onhooking: -0.60 db(from 2-wire
mode to 4-wire mode);offhooking:
-3.5±0.5 db(from 4-wire mode to 2-wire
mode)
Frequency characteristics: 0±0.2 db
Return Loss: 30~40 db

**Voice interface for
downlink subcard**

ITU-T G.706
ITU-T G.712
ITU-T G.823
ITU-T V.11
ITU-T V.28
ITU-T V.35
ITU-T V.24

Balance: 60~70 db
MMRR: 60~70 db
PSRR: 30 db
Idle channel noise: 75 db

E&M interface for downlink subcard

2-wire E&M:
AD gain: 0 db
DA gain: -3.5 db
Frequency characteristics
300~3400Hz: 0±0.2 db
Output/Input loop impedance: 600Ω
Balance: 60~70 db
Return Loss: 20 db
Maximum common mode voltage:
300 V

MMRR: 30 db
Idle channel noise: 60 db
4-wire E&M:
AD gain: +14 db
DA gain: +4 db
Frequency characteristics
300~3400Hz: 0±0.2 db
Output/Input loop impedance: 600Ω
Balance: 60db
Maximum common mode voltage:
300 V

Management port

MMRR: >60 db
PSRR: 30 db
Idle channel noise: >60 db
1xconsloe (RJ45)
1xSNMP port

Indicator	SYS for system operation PWR,PWR1 and PWR2 for power supply LOS/LOF/ AIS for E1 alarm RAL: remote device alarm LINK/ACT for work status of SNMP port 100M for speed of SNMP port MCLK for device clock status
DIP switch	DIP 1: ON :master clock OFF: slave clock DIP 2-8: reserved
Dimension	440mm (wide) x360mm (deep) x44.5mm (high)
Weight	4kg
Power supply	AC: 100V-240V DC: -36V~-72V
Power consumption	≤ 40W
Working enviroment	Temp: 0°C ~50°C RH: ~90% non-condensing

Ordering Information

CHASSISES

RC3000E-AC/D PCM Multi-service Multiplexer, it provides 1 slot for uplink card and 3 slots for downlink card, dual AC power supply

RC3000E-DC/D PCM Multi-service Multiplexer, it provides 1 slot for uplink card and 3 slots for downlink card, dual DC power supply

UPLINK CARDS

RC3000E-UP-4E1 Up-link E1 unbalance interface card, 4 interfaces per card, 8 CC3 connectors.
Adapter cable:CBL-E1-CC3/BNCF-1m

RC3000E-UP-4E1-BL Up-link E1 balance interface card, 4 interfaces per card, 4 RJ45 connectors.

RC3000E-UP-8E1 Up-link E1 unbalance or balance interface card, 8 interfaces per card, one DB37 connector.
Support 1+1 port protection. Adapter cable:CBL-E1-DB37F/16BNCF-2.5m for unbalance or
CBL-E1-DB37/8RJ45-2.5m for balance

RC3000E-UP-OPT-FE2E1-S1 Up-link optical interface card, Single mode dual-strand, 1310nm, 0-25km, with two E1

interfaces(DB9 connector) and one FE interface(RJ45) Adapter
cable:CBL-E1-DB9M/4BNCF(2RJ45)-2.5m

RC3000E-UP-OPT-FE2E1-S3 Up-link optical interface card, Single mode dual-strand, 1550nm, 15-120km, with two E1 interfaces(DB9 connector) and one FE interface(RJ45) Adapter
cable:CBL-E1-DB9M/4BNCF(2RJ45)-2.5m

RC3000E-UP-OPT-FE2E1-SS13 Up-link optical interface card, Single mode dual-strand, 1310nm, 0-25km, with two E1 interfaces(DB9 connector) and one FE interface(RJ45) Adapter
cable:CBL-E1-DB9M/4BNCF(2RJ45)-2.5m

RC3000E-UP-OPT-FE2E1-SS15 Up-link optical interface card, Single mode dual-strand, 1550nm, 0-25km, with two E1 interfaces(DB9 connector) and one FE interface(RJ45) Adapter
cable:CBL-E1-DB9M/4BNCF(2RJ45)-2.5m

RC3000E-UP-OPT-FE2E1-SS23 Up-link optical interface card, Single mode dual-strand, 1310nm, 10-50km, with two E1 interfaces(DB9 connector) and one FE interface(RJ45) Adapter
cable:CBL-E1-DB9M/4BNCF(2RJ45)-2.5m

RC3000E-UP-OPT-FE2E1-SS25 Up-link optical interface card, Single mode dual-strand, 1550nm, 10-50km, with two E1 interfaces(DB9 connector) and one FE interface(RJ45) Adapter
cable:CBL-E1-DB9M/4BNCF(2RJ45)-2.5m

SUBSCRIBER'S SUBCARDS

RC3000-SUB-10FXS Down-link Foreign Exchange Subscriber (FXS) interface card, 10 channels per card, 3 RJ45 connectors

RC3000-SUB-10FXO Down-link Foreign Exchange Office (FXO) interfaces card, 10 channels per card,3 RJ45 connectors

RC3000-SUB-8EM Down-link 2/4-wire E&M voice card, 8 channels per card, one SCSI50 Female connector
Adapter cable: CBL-VOICE-SCSI50M(40)/NC-3m

RC3000-SUB-DMT Down-link magneto telephone interface card, 8 interfaces per card, RJ-45 connector

RC3000-SUB-DETHx2 Down-link high speed 10/100 Base-T Ethernet port, two interfaces per card, user selectable data rate Nx64Kbps of "N" (1~31) , RJ45 connector

RC3000-SUB-DV35 Down-link high speed V.35 synchronous data interface card, one interface per card, user selectable data rate Nx64Kbps of "N" (1~31) , DCE, HDB26 connector ,additional cable for M34 standard V.35 interface.

RC3000-SUB-DV24 Down-link low speed V.24 synchronous data interface card, bit rate: 64Kbps to 128Kbps, 4 interfaces per card, RJ45 connector

RC3000-SUB-D232 Down-link low speed RS232 data interface card, up to 19.2Kbps RS232 asynchronous data, 8

interfaces per card, RJ45 connector

RC3000-SUB-D485 Down-link low speed RS485 asynchronous data interface card, up to 19.2Kbps,8 interfaces per card, RJ45 connector

RC3000-SUB-DC64K G.703 Co-directional 64Kbps data interface card,4 interfaces per card, RJ45 connector

CABLES

CBL-E1-CC3/BNCF CC3 connector to BNC 75ohm unbalanced female connector, 1m

CBL-V35-HDB26M/M34F HDB26 male connector to DCE cable of M34 female connector, 2m

CBL-HDB26M/M34M-X HDB26 male connector to M34 male connector crossover cable, 2m

CBL-V35-HDB26M/DB25M-X-D HDB26 male connector to DB25 female connector (DB25 is international standard DCE wire sequence) crossover cable

CBL-VOICE-SCSI50M(40)/NC-3m The voice adopt cable of SCSI50 Male connector to blank wire cable,3m, 8 EM interfaces per cable

CBL-RS232-RCJ45/2DB25F-2m RJ45 connector to 2 DB25 female connector (DB25 is international standard DCE wire sequence) crossover cable,2m

CBL-E1-DB9M/2RJ45-2.5m DB9 male connector to 2 RJ45 120ohm balanced connector,2.5m

CBL-E1-DB9M/4BNCF-2.5m DB9 male connector to BNC 75ohm unbalanced female connector,2.5m

CBL-E1-DB37F/8RJ45-2.5m The E1 adapter cable of DB37 male connector to 8 RJ45 120ohm balanced connector with 2.5 meters,8 xE1 ports for one cable.