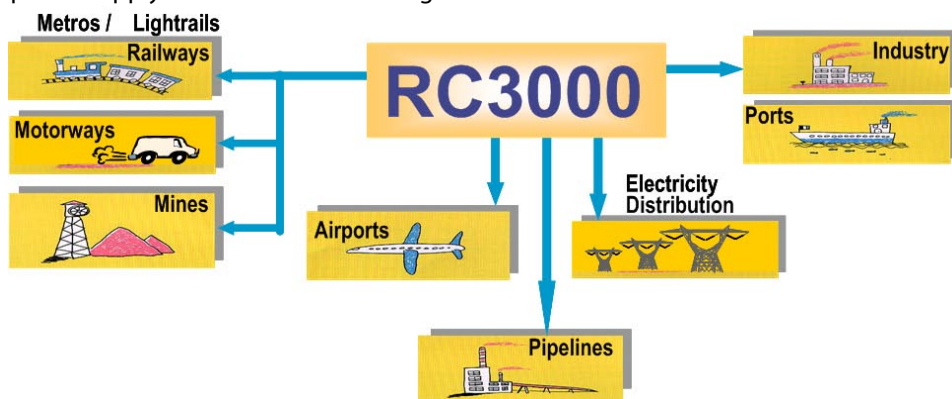


## RC3000-15 Multi Service Access Node

Raisecom's RC3000-15 represents a new generation of intelligent multi service access concentrator designed for cost-effective and efficient customer premises multiplexer. It provides full range of voice and digital data services to subscribers located at different locations require to interconnect and establish a voice and data network over E1 and STM1 link. The RC3000-15 Multi Service Access Node, whose kernel is powerful cross matrix, is integrated with the functions of digit/ analogue access multiplexer cross-connect transmission and protocol conversion. The RC3000-15 has capacity for 13 single slots and 2 power supply slots. The RC3000-6 has capacity for 6 single slots and 2 power supply slots. The 19 inch 6U high

RC3000-15 and 3U high RC3000-6 provide access for a variety of interfaces, including STM-1, 1/4/8/16 optical E1, Electrical E1, FXO, FXS, E&M, Analog voice trunk, Hot-line, magneto telephone, RS232, RS422, RS485, G.703, V24, V35, G.SHDSL, FE and GE. These interfaces are compatible with other Raisecom's products such as the OPCOM3500E (SDH), the RC3000 (PCM), the RC3101 (PCM), and the RC3201 (PCM). By deploying these products, network is integrated broadband and narrowband, and transmission and access.

Raisecom's network management platform NVIEW NNM is also available for figure information of the real-time monitoring, alarms, management and maintenance.



RC3000-15  
Multi Service Access Node



RC3000-6  
Multi Service Access Node

### Specification

Item	RC3000-15	RC3000-6
Chassis(high)	6U	3U
Number of Service-slots	13	6
Number of Power-slots	2	2
Max. E1 channels	96	32
Cross-connect capacity	256 Mbps	256 Mbps
Max. FXO/FXS channels	352	128
Max. E&M channels	192	64
Max. V.35 channels	96	32
Max. FE channels	96	32
Physical Description		
Height	267mm(10.5 in.)	134mm(5.3 in.)
Width	483mm(19.0 in.)	483mm(19.0 in.)
Depth	240mm(9.42 in.)	240mm(9.42 in.)
Power supply	DC:- 48V (-36V~-72V)	
Power consumption	≤150W	≤80W
Ringing generator	75V; 25Hz	
Operating Environment		
Temperature	-5° to 50° C	
Air pressure	86 to 106Kpa	
Humidity	5% to 95% relative humidity, noncondensing	

### Introduction:

RC3000-15 adopts rack design, including chassis, fan board, plug board and power supply board.

For the plug board, including following parts: STM-1 board: STM-1 boards should be in slot 1 or 2.

System control board: DXC boards should be in slot 7 or 8.

GE aggregate board: SUB-ESW-2GE boards should be in slot 9.

Power supply board: Power boards should be in slot 14 or 15.

Services board: E1, PDH fiber, FXO, FXS, Hot-line, 2/4Wire E&M, RS232/V.24, RS485/V.28, V.35(Nx64 Kbps), G.703, Ethernet LAN(Nx64 Kbps), inverse multiplexing, G.SHDSL boards should be in slot 1,2,3,4,5,8,9,10,11,12,13.

### Relative Standards

ITU-T G.703	ITU-T G.704
ITU-T G.706	ITU-T G.707
ITU-T G.711	ITU-T G.712
ITU-T G.713	ITU-T G.714
ITU-T G.732	ITU-T G.813
ITU-T G.821	ITU-T G.823
ITU-T G.825	ITU-T G.826
ITU-T V.35	ITU-T V.11
ITU-T V.24	ITU-T V.28

## Feature

• Compact 3U or 6U high enclosure	• Modular construction with six, thirteen services slots						
• Integrated with digit/analogue access, duplex, cross, transmission and protocol conversion functions							
• ADM or terminal STM-1 standard	• Electrical and optical E1 interfaces						
• Flexible network topologies : Point-to-Point , Linear Drop/Insert, Star, Ring and Mesh							
• Conforms to Bellcore, IEEE and ITU standards	• Modularity and support hot swap						
• Support 1+1 redundance for power module, STM-1 module and management module							
• Local and remote loopbacks	• Remote Configuration Control and Performance Monitoring						
• Extra-large scale ASIC of independence knowledge property right adopted, thus good reliability, high integrated level brought							
• Multipoint (multidrop) voice and data interfaces	• Supports Gigabit Ethernet aggregate uplink						
• Programmable A,B signaling bits (time slot 16; E1 systems) supports all voice switching equipment							
• Support uplink Interfaces: STM-1 Optical Interfaces, Gigabit Ethernet Electrical Interfaces							
• Support High Speed Interfaces: 1/4/8/16 E1 Electrical and Optical Interfaces, G.SHDSL							
• Support Voice Interfaces:	<table border="1"> <tr> <td>FXO</td> <td>FXS</td> <td>Hot-line(FXS-FXS)</td> </tr> <tr> <td>2/4 Wire E&amp;M</td> <td>Magneto Telephone</td> <td>Carrier Telephone</td> </tr> </table>	FXO	FXS	Hot-line(FXS-FXS)	2/4 Wire E&M	Magneto Telephone	Carrier Telephone
FXO	FXS	Hot-line(FXS-FXS)					
2/4 Wire E&M	Magneto Telephone	Carrier Telephone					
	- RS232 Asynchronous Data Interface 600 bps ~ 19.2Kbps						
	- V.24 Synchronous Data Interface 64 kbps ~ 256 Kbps						
	- X.50 Sub-rate Data Interface up to 8 individual channels per time slot						
• Support Data Interfaces:	- RS485 Asynchronous Data Interface 300 bps - 19.2Kbps						
	- V.35 Synchronous Data Interface N×64 Kbps (N=1~31)						
	- 10/100 Base-T Ethernet Interface N×64 Kbps (N=1~31)						
	- 10/100 Base-T Ethernet Interface N×E1(N=1~8)						
	- G.703 co-directional at 64Kbps Data Interfaces						
• SNMP agent for in-band and out-of-band network management using Raisecom's NNM View software							

## Main Technical Performance

### System Parameters

Supportable Channel Capacity:	Up to 2880 channels at 64Kbit/s	Clock Frequency:	2048KHz±50ppm
Frame Structuer:	ITU-T Recommendation G.703	Clock Source:	internal, slave, or external
Performance Monitoring:	ITU-T Recommendation G.821	Management Interface:	RS232, RS485, Ethernet
Channel Interfaces	Channels Per Board	Interface Types	
STM-1 Board	2	one optical interface supports 155 Mbps .	
PDH tributary Board	1/2	one optical interface supports 1/4/8/16 channels E1 interfaces	
E1 ports Board	8	E1 electrical port	
FXO/FXS/Hotline Board	32/16/8	FXO, FXS, Hot-line	
2/4 Wire E&M / Magneto Board	16	E&M, Magneto	
Low Speed Data Board	16	RS232/V.24, RS485/V.28, G.703 co-directional at 64Kbps	
High Speed Data Board	8	X.50, V.35, 10/100 Base-T Ethernet port, G.SHDSL	

### Uplink Interface: STM-1 Optical port

Bit rate:	155.520 Mbps	Code:	NRZ	Connector:	SC
Supportable Capacity:	63 VC12	Fiber link option:	Dual-strand fiber		
Transmission distance:	Dual-strand fiber: up to 120Km				

## Main Technical Performance

### Uplink Interface: PDH Optical port

Part Number :	30X8-OPT	120X2-OPT	240FE-OPT	P240FE-OPT	P480FE-OPT
Channel Capacity:	1E1 X 8	4E1 X 2	8E1+FE	8E1+FE(1+1 protection)	16E1+FE(1+1 protection)
Code format :	CMI/Scramble NRZ	Scramble NRZ	Scramble NRZ		Scramble NRZ
Minimum allowable repeater span loss :	15 dB-bit error rate <1-E10			Standard Fiber:	10/125 μm single mode
Optical transmission:	Single mode	Multimode	Wavelength:	1310 nm	1550 nm
Transmission distance:	Dual-strand fiber: up to 120Km			Single-strand fiber: up to 50Km	
Optical source:	LED	Optical connector:	SC	Optical detector:	PIN-FET or SFP

### Electrical Interface: 2.048Mbit/s

Bit rate:	2048KHz±50ppm	Code:	HDB3	Impedance:	75Ω unbalanced or 120Ω balanced
Nominal Peak Voltage of a Mark:	75Ω: 2.37V	120Ω: 3.0V	Pulse Duration:	244±25 ns	
Pulse Mask:	ITU-T Recommendation G.703		Intervene loss:	attenuation range is 0-6dB at 1024KHz	

### Voice Interfaces

Voice Frequency Interface:	Channel Sampling Rate:	8KHz	Companding Law:	A-Law			
Voice Interface:	2-wire	4-wire	Signalling	FXO	FXS	E&M Magneto	
Frequency:	300 to 3400Hz	Impedance:	600Ω balanced	Maximum Impedance of DC Circuit:	2000Ω		
Transmit Level			Receive Level				
2-Wire channel	0dB±0.4dB	4-Wire channel	-14dB±0.3dB	2-Wire channel	-3.5dB±0.4dB	4-Wire channel	+4dB±0.3dB
(-16dBm ~ +5dBm,adjustable)		(-16dBm ~ +5dBm,adjustable)		(-16dBm~ +6dBm, adjustable)		(-13dBm~+7dBm, adjustable)	
Total distortion	ITU-T Recommendation G.712		Attenuation/frequency distortion		ITU-T Recommendation G.712		
Variation of gain with inputlevel	ITU-T G.712		Idle channel noise:	≤-67dB	Overload Threshold:	+3.14 dBm0	
Return Loss:	From 300 Hz to 600 Hz:	> 12 dB	From 600Hz to 3400 Hz:	> 15 dB	Group delay:	< 300μs	
Frequency character:	300 Hz - 400 Hz:	-0.3~-0.1 dB	400 Hz - 2 400 Hz:	0.2~0.1 dB	2400Hz -3400 Hz:	0~-0.7 dB	
Crosstalk :	-65 dBm0, 300 to 3400Hz		Ring current voltage:	25±3Hz,AC75±15V			

### Higher Quality Speech Interfaces

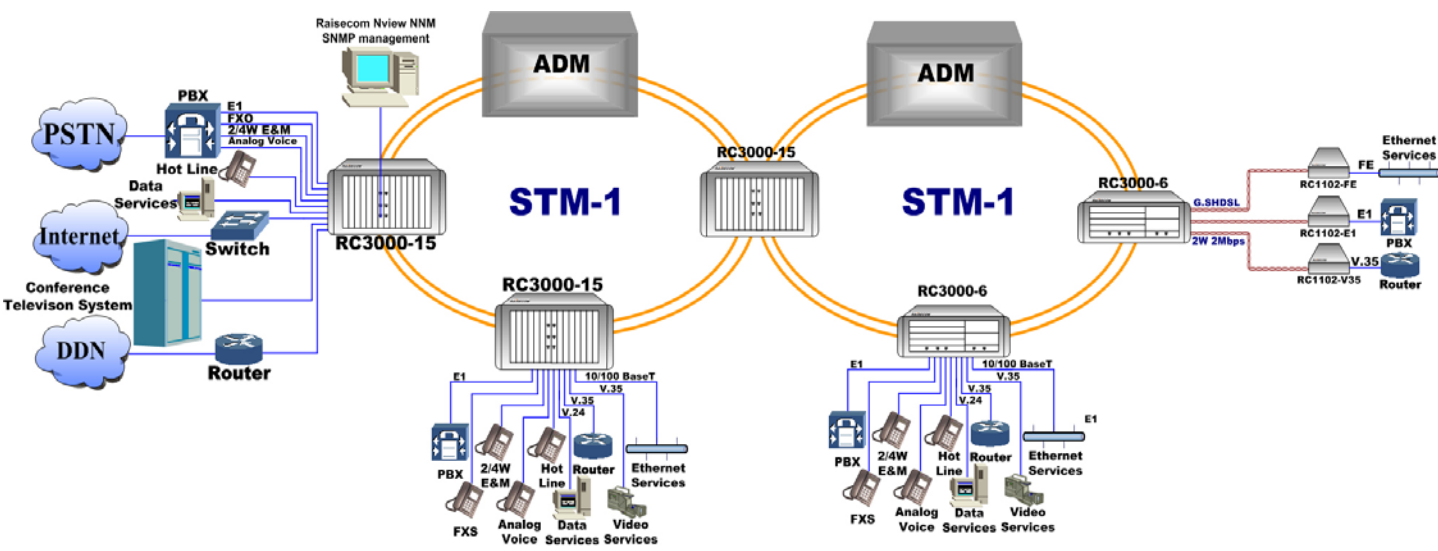
Voice Frequency Interface:	Channel Sampling Rate:	15/32KHz	Companding Law:	ITU-T G.721	
Word Length:	12bit (11data+ 1 parity bit)		Frequency:	400 to 15kHz	
	(-16dBm ~ +5dBm,adjustable)	(-16dBm ~ +5dBm,adjustable)	(-16dBm~ +6dBm, adjustable)	( -16dBm~+6dBm, adjustable)	
Transmit Level:	(-17dBrs ~ +6dBrs)		Receive Level:	(-10dBrs ~ +6dBrs)	
			Overload Level:	+12dBm0s	

## Main Technical Performance

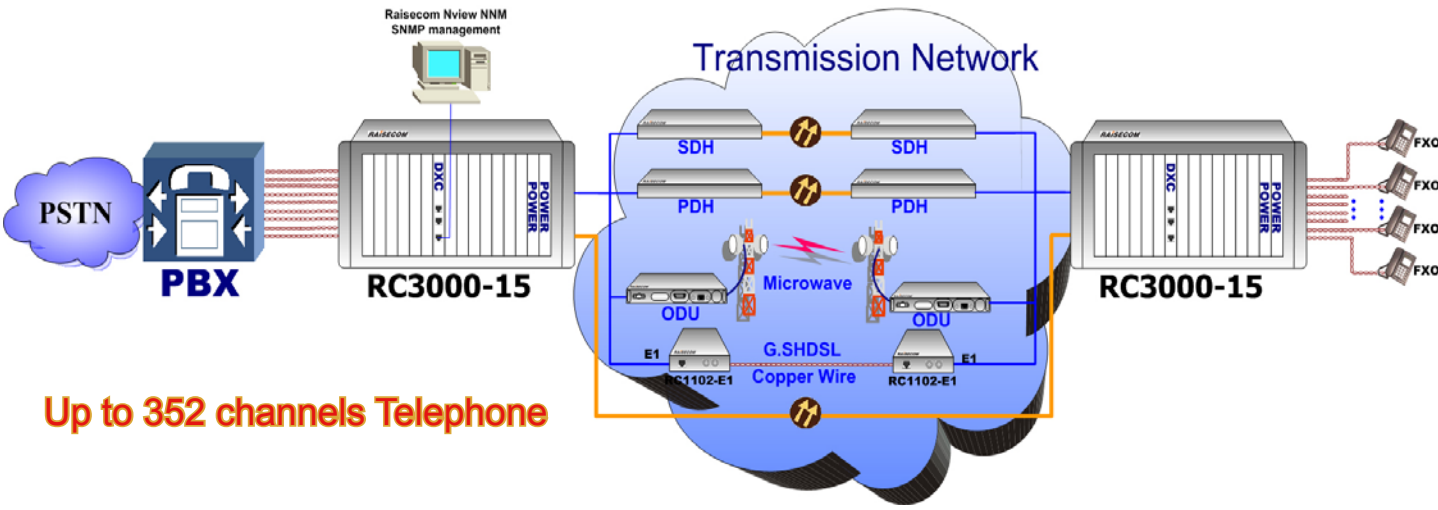
Data Interfaces							
Low Speed Data Interface:	RS232	V.24	RS485	V.28	V.35	C64K	X.50 Sub-rate
Characteristic:	ITU-T Recommendation V.24, V.28		Data Format:	Asynchronous		Synchronous	
Bit rate:	Asynchronous Data: 600,1200,2400,4800,9600, and 19.2Kbps			Synchronous Data:		64 kbps ~ 256 Kbps	
X.50 Sub-rate data interface:	Up to 8 individual channels per time slot			Bit rate:	600,1200,2400,4800,9600, and 19.2Kbps per time slot		
G.703 co-directional at 64Kbps Data Interface:	Characteristic:	ITU-T Recommendation G.703		Bit rate:	64Kbps		
G.SHDSL Interface:	Type:	1 pair wire		Bit rate:	2 Mbps or 5.7 Mbps		
V.35 Data Interface:	Characteristic:	ITU-T Recommendation V.35		Bit rate:	N×64Kbps, N=1~31		
Ethernet Data Interface:	Characteristic:	IEEE 802.3		Bit rate:	N×64Kbps, N=1~31		
FE with inverse multiplex:	Characteristic:	IEEE 802.3		Bit rate:	N×E1, N=1~8, 9~16		

## Typical Application

The STM-1 ring Applications



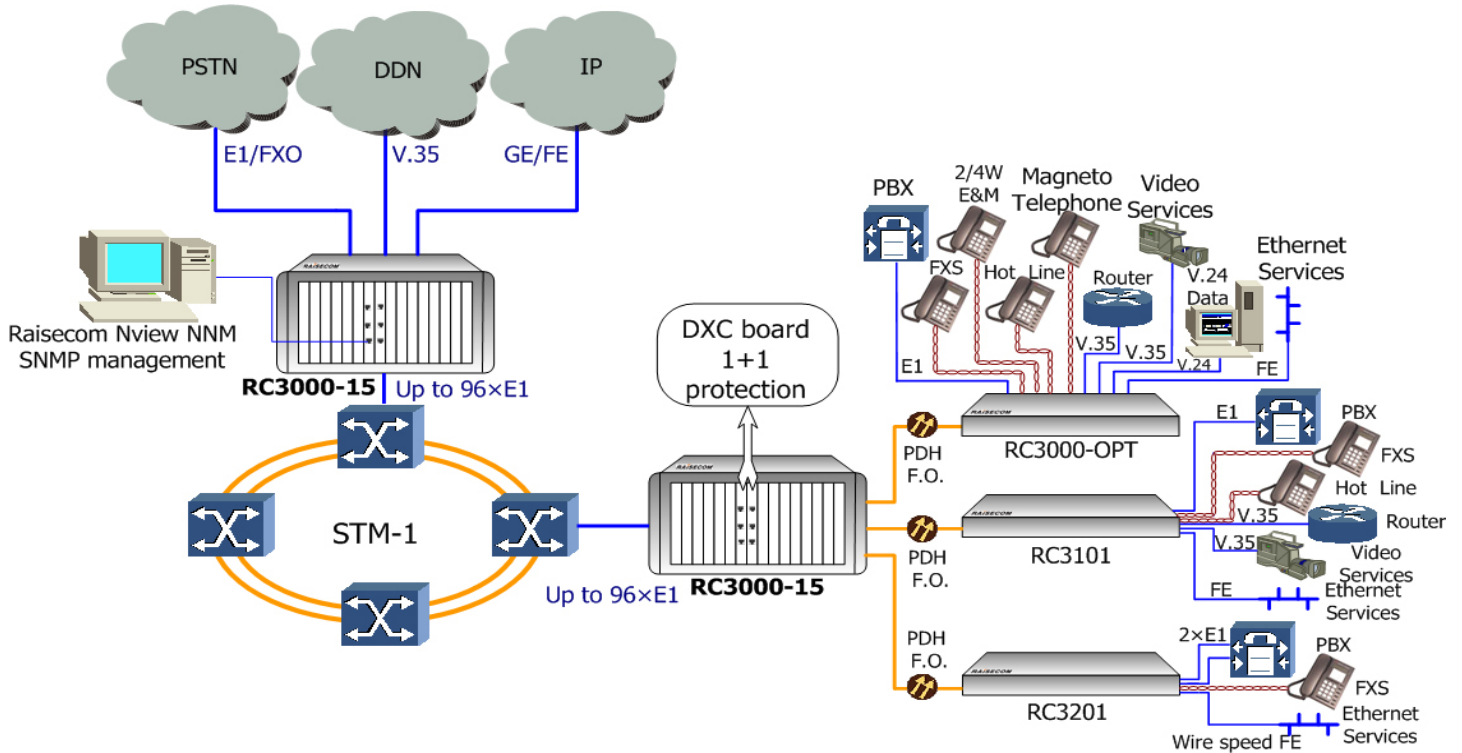
FXO/FXS Applications



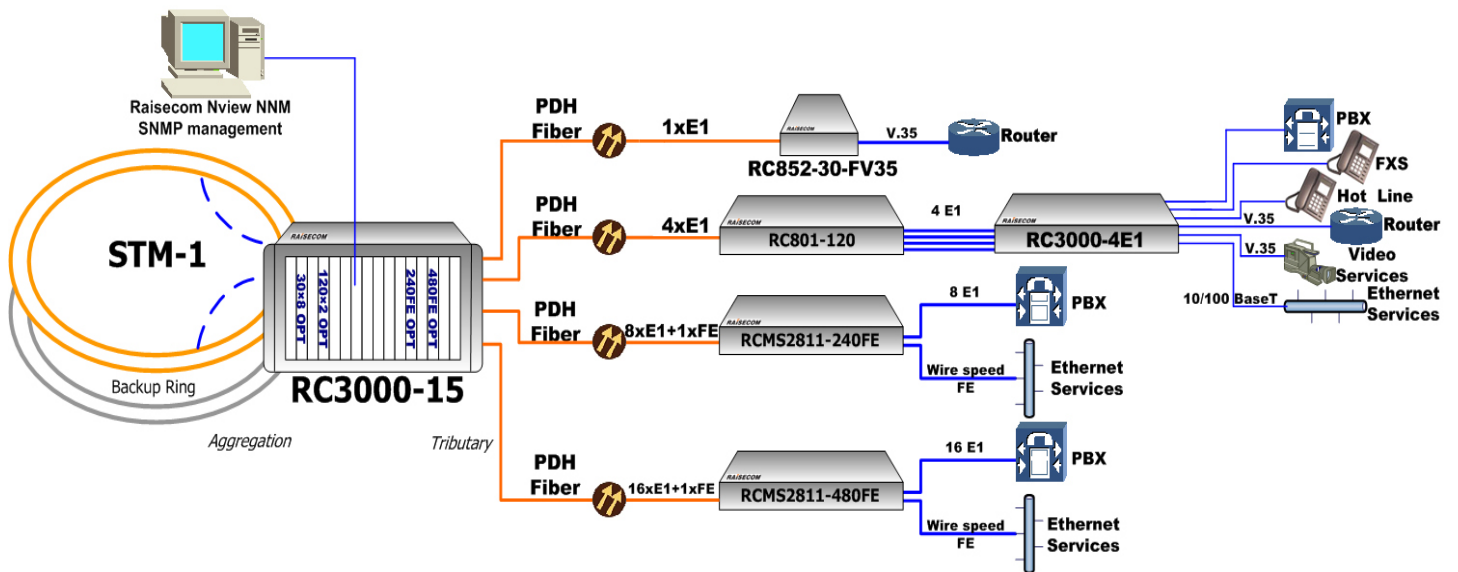
Up to 352 channels Telephone

## Typical Application

### Fiber-Optical Transmission Applications

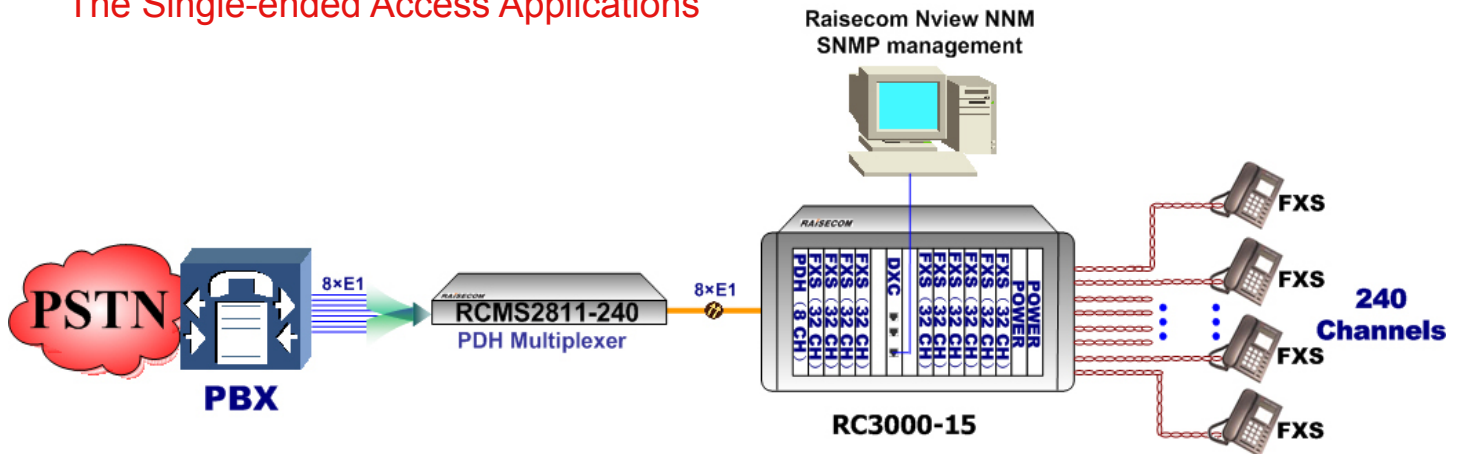


### PDH Transmission Applications

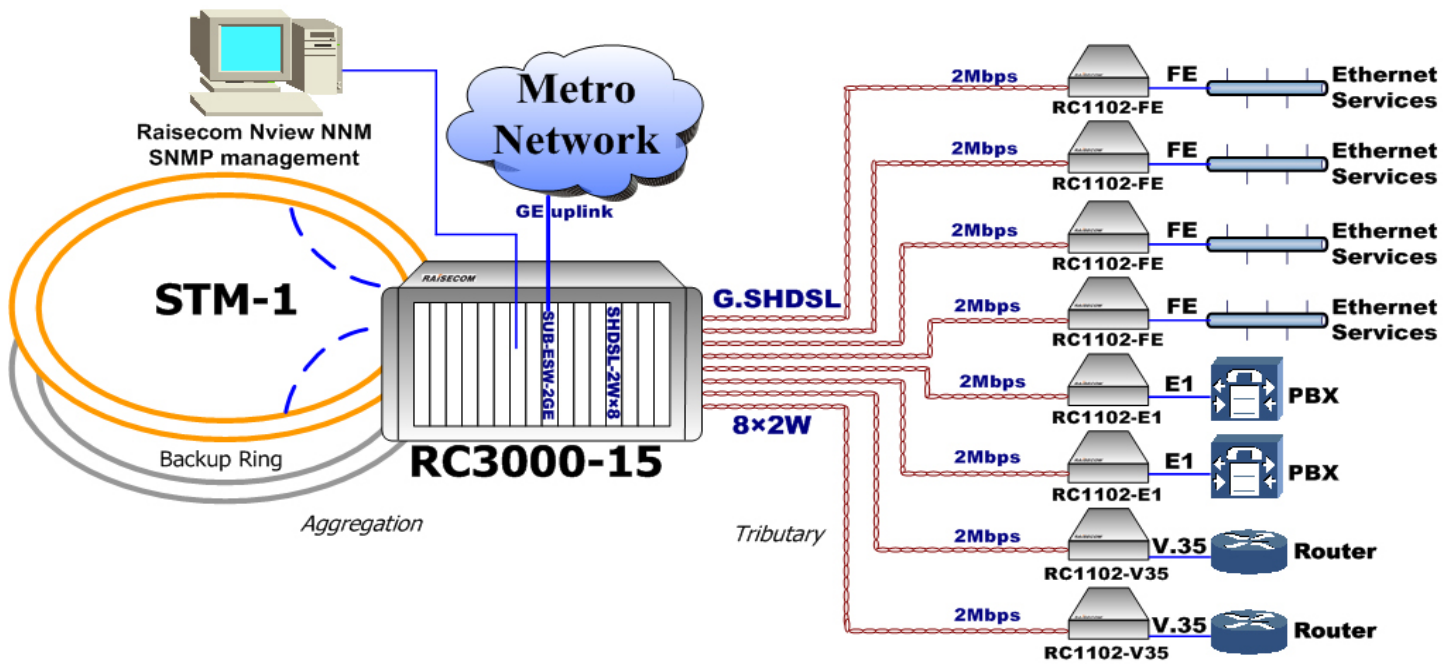


## Typical Application

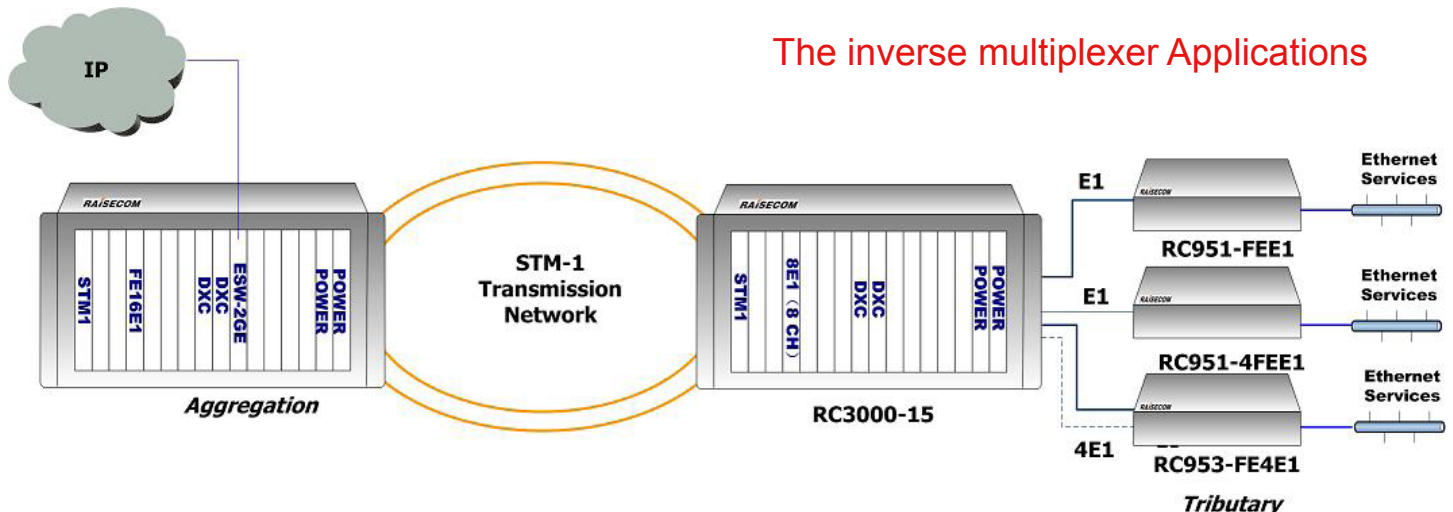
### The Single-ended Access Applications



### The G.SHDSL Applications



### The inverse multiplexer Applications



## Ordering Information

RC3000-15	RC3000-15 Multi Service Access concentrator chassis with back board 6U-high chassis with 15 module slots.
RC006-FANS1	Optional accessory, fans upon OPCOM3500E-12, RC006-12 or RC3000-15, 19inch, 1Unit high.
SUB-PWR II-DC-300	DC -48V input power supply board output DC +5V, DC -5V, ringing current, DC -48V power feed. 300 watts
RC3000-15-DXC	Master Control Card, 128 E1 cross connect of 64k timeslot, 1+1 protection, network management, power consumption less than 10W.
RC3000-15-STM1-A	SDH aggregate card, it provides two STM-1 optical interfaces, power consumption less than 20W.
SUB-ESW-2GE	Ehernet switch card, 2 channels GE interfaces per card, 2xRJ45+2xSFP, power consumption less than 10W.
RC3000-15-P480FE-A	PDH tributary unit, two PDH optical interfaces for redundancy and 10/100M Fast-Ethernet interface, every optical port supports 16 channels E1 interfaces.
RC3000-15-P240FE-A	PDH tributary unit, two PDH optical interfaces for redundancy and 10/100M Fast-Ethernet interface, every optical port supports 8 channels E1 interfaces, power consumption less than 10W.
	A = the type of fiber optic interface S1: single mode 10/125um dual-strand, 1310nm, SC, 0-25km S2: single mode 10/125um dual-strand, 1310nm, SC, 10-60km S3: single mode 10/125um dual-strand, 1310nm, SC, 15-120km SS1: single mode 10/125um single strand, 1310nm TX 1550nm RX, SC, 0-25km SS2: single mode 10/125um single strand, 1310nm TX 1550nm RX, SC, 10-60km
RC3000-15-120x2-A	PDH tributary unit, two optical interfaces, every port supports 4 channels E1 interfaces, power consumption less than 8W.
RC3000-15-30x8-A	PDH tributary unit, eight optical interfaces, every port supports 1 channel E1 interface, power consumption less than 10W. S1: single mode 10/125um dual-strand, 1310nm, SC, 0-25km S2: single mode 10/125um dual-strand, 1310nm, SC, 10-60km S3: single mode 10/125um dual-strand, 1550nm DFB, SC, 15-120km SS13: single mode 10/125um single strand, 1310nm TX 1550nm RX, 0-25km SS15: single mode 10/125um single strand, 1550nm TX 1310nm RX, 0-25km SS23: single mode 10/125um single strand, 1310nm TX 1550nm RX, 10-60km SS25: single mode 10/125um single strand, 1550nm TX 1310nm RX, 10-60km
RC3000-15-8E1	E1 tributary unit, it provides 8xE1 75ohm unbalanced interfaces one DB37 connector, power consumption less than 5W. Adapter cable: E1 cable (CBL-E1-DB37F/16BNM-2.5m)
RC3000-15-8E1-BL	E1 tributary unit, it provides 8xE1 120ohm balanced interfaces one DB37 connector, power consumption less than 5W. Adapter cable: E1 cable (CBL-E1-DB37F/8RJ45-2.5m)
RC3000-15-SHDSL-2Wx8	G.SHDSL interface card, it provides 8 channels G.SHDSL port, data rate: Nx64Kbps N=3~31, two RJ45 connectors, power consumption less than 15W.
RC3000-15-32FXS	2-wire Foreign Exchange Subscriber (FXS) interface card, 32 interfaces per card, DB37 connector, power consumption less than 7W. Adapter cable Voice cable (CBL-VOICE-DB37F/NC-3m)
RC3000-15-32FXO	2-wire Foreign Exchange Office (FXO) interface card, 32 interfaces per card, DB37 connector, power consumption less than 5W. Adapter cable Voice cable (CBL-VOICE-DB37F/NC-3m)
RC3000-15-16E&M	2/4 wire E&M trunk interface card, 16 interfaces per card, DB26 connector, power consumption less than 3W. Adapter cable: E&M cable (CBL-EM-HDB26M/NC-2m)

## Ordering Information

RC3000-15-16RS232	low speed RS232 data interface card, up to 19.2Kbps RS232 asynchronous data 16 interfaces per card, 4×DB26 connector, power consumption less than 3 W. Adapter cable: RS232 Data Cable (CBL-RS232-HDB26M/8DB9F(M)-2m)
RC3000-15-8RS232H	low speed RS232 data interface card with handshaking, up to 57.6Kbps RS232 asynchronous data 8 interfaces per card, 4×DB26 connector, power consumption less than 3 W. Adapter cable: RS232H Data Cable (CBL-RS232H-HDB26M/2DB9F(M)-2m)
RC3000-15-8V24	low speed V.24 data interface card, up to 256Kbps V.24 synchronous data 8 interfaces per card, DB26 connector, power consumption less than 3 W. Adapter cable: V24 Data Cable (CBL-V24-HDB26M/4DB25F(M)-2m)
RC3000-15-8V24H	low speed V.24 data interface card with handshaking, up to 128Kbps V.24 synchronous data 8 interfaces per card, DB26 connector, power consumption less than 1.5 W. Adapter cable: V24H Data Cable (CBL-V24H-HDB26M/2DB25F(M)-2m)
RC3000-15-8RS485	low speed RS485 and RS422 asynchronous data interface card, 8 interfaces per card, 4×RJ45 connector, power consumption less than 3 W.
RC3000-15-16C64K	Low speed 64Kbps Co-Directional G.703 data interface card, 16 interfaces per card, 8×RJ45 connector, power consumption less than 3W.
RC3000-15-8 V35	High speed V.35 synchronous data interface card, 8 interfaces per card, user selectable data rate N×64Kbps of "N"=1~31 DCE, 4×HDB26 Connector, power consumption less than 5W. Adapter cable: V.35 Data Cable (CBL-V35-HDB26M/2M34F-2m)
RC3000-15-8 ETH	High speed Ethernet interface card, it provides 8 channels 10/100 Base-T Ethernet port, data rate: N×64Kbps (N=1~31), 8×RJ45 connector, power consumption less than 10W.
RC3000-15-FE16E1	Inverse Multiplex card, it provide 16 channels E1 inverse multiplex function, the FE bandwidth up to 8E1, one Ethernet RJ45 interface, power consumption less than 18W.
RC3000-6	RC3000-6 Multi Service Access concentrator chassis with 3U-high chassis with 6 service module slots and 2 power slots.
RC3000-6-DXC	System Control Card in RC3000-6 chassis, 128 E1 cross connect of 64k timeslot, network management.
MS3-POWER-DC-150	DC -48V input power supply board output DC +5V, DC -5V, ringing current, DC -48V power feed.Output-Power : 150 W
MS3-POWER-HPAC	AC 220V input power supply card output DC +5V, DC -5V, ringing current, DC -48V power feed.300 watts (STM1 card)
RC3000-6-240FE-OPT	PDH tributary unit, can be insert the slot 6 of RC3000-6 , one PDH optical interfaces for redundancy and 10/100M Fast-Ethernet interface, the optical port supports 8 channels E1 interfaces, power consumption less than 10W.
RC3000-6-4E1	E1 tributary unit, it provides 4×E1 75ohm unbalanced interfaces 4× CC3 male connector, power consumption less than 5W. Adapter cable: E1 cable ( CBL-E1-CC3/BNCF-1m / CBL-E1-CC3/BNCFM-2.5M)

## Ordering Information

### Adapter cable

CBL-E1-DB37F/16BNCM-2.5m	The E1 adapter cable of DB37 male connector to 16 BNC 75ohm unbalanced male connector with 2.5 meters, 8 xE1 ports for one cable.
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.
CBL-E1-CC3/BNCF-1m	The E1 adapter cable of CC3 female connector to BNC 75ohm unbalanced female connector with 1 meter, 2 cables per E1 port.
CBL-E1-CC3/BNCM-2.5M	The E1 adapter cable of CC3 female connector to BNC 75ohm unbalanced male connector with 2.5 meters, 2 cables per E1 port.
CBL-VOICE-DB37F/NC-3m	The Voice adapter cable of DB37 male connector with 3.0 meters, 16-channel FXO or FXS ports for one cable.
CBL-RS232-HDB26M/8DB9F-2m	The RS232 adapter cable of HDB26 male connector to 8 DB9 female connector with 2.0 meters, 8-channel RS232 ports for one cable. 2 cables per card.
CBL-RS232-HDB26M/8DB9M-2m	The RS232 adapter cable of HDB26 male connector to 8 DB9 male connector with 2.0 meters, 8-channel RS232 ports for one cable. 2 cables per card.
CBL-RS232H-HDB26M/2DB9F-2m	The RS232H adapter cable of HDB26 male connector to 2 DB9 female connector with 2.0 meters, 2-channel RS232 ports for one cable. 4 cables per card.
CBL-RS232H-HDB26M/2DB9M-2m	The RS232H adapter cable of HDB26 male connector to 2 DB9 male connector with 2.0 meters, 2-channel RS232 ports for one cable. 4 cables per card.
CBL-V24-HDB26M/4DB25F-2m	The V24 adapter cable of HDB26 male connector to 4 DB25 female connector with 2.0 meters, 4-channel V24 ports for one cable. 2 cables per card.
CBL-V24-HDB26M/4DB25M-2m	The V24 adapter cable of HDB26 male connector to 4 DB25 male connector with 2.0 meters, 4-channel V24 ports for one cable. 2 cables per card.
CBL-V24H-HDB26M/2DB25F-2m	The V24H adapter cable of HDB26 male connector to 2 DB25 female connector with 2 meters, 2-channel V24 ports for one cable. 4 cables per card.
CBL-V24H-HDB26M/2DB25M-2m	The V24H adapter cable of HDB26 male connector to 2 DB25 male connector with 2 meters, 2-channel V24 ports for one cable. 4 cables per card.
CBL-V35-HDB26M/2M34F-2m	The V.35 adapter cable of HDB26 male connector to 2-ISO2593(M34) female connector with 2.0 meters, each modular converter need one cable when connect to DTE.
CBL-EM-HDB26M/NC-2m	The E&M adapter cable of HDB26 male connector with 2.0 meters, 4-channel E&M ports for one cable. 4 cables per card.
CBL-485-DB37M-DB9-2m	The RS485 adapter cable of DB37 male connector to DB9 female connector with 2.0 meters. 8-channel RS485 data ports for one cable, 2 cables for each RS485 data card.