Scientific Atlanta

ROSA™ EM - Element Management System

Description

The ROSA™ Element Manager (EM) is specifically designed to cost effectively monitor and control the transmission network of headends, hub sites and HFC outside plants, and transmitter sites. This unit manages the equipment that is co-located on the site where the ROSA EM resides, whether this equipment has an SNMP, serial (RS-232/422/485) or contact closure interface.

The main functions of the ROSA EM are to:
- Monitor the health of the transmission network
- Act as an SNMP proxy
- Send alarm notifications when a problem occurs
- Automatically backup failed devices
- Perform local automation tasks

The ROSA EM supports several hundred Scientific-Atlanta and third-party devices. Support for new devices is continuously being added to the ROSA EM, which can be exported to existing installations with a simple software upgrade.

The ROSA EM actively polls all of the devices that it manages looking for problems and in the event a problem is detected, ROSA EM will send alarm notifications to the appropriate personnel via SNMP trap, Email, Pager or SMS. ROSA EM communicates with the managed devices via their proprietary protocols or contact closures then translates this information to SNMP, which can be passed to a higher level network management system. When ROSA EM is configured to perform backup protection it will automatically initiate pre-defined backup schemes that reroutes signals, activates and configures standby devices all within seconds of a device failure.

The ROSA EM is a 2 RU high, 19-inch rack-mount embedded platform that operates without a monitor or keyboard. The operator interfaces with the ROSA EM via a simple easy-to-use and understand Web browser client. Communication to the ROSA EM can be established over any LAN/WAN network that supports Ethernet. In addition, dial-in and dial-out (e.g., ISDN) is supported for cases where only a switched connection is available.

Features

- Cost-effective solution for management of devices in all locations (large headend to small hubs/OTN)
- Manages Scientific-Atlanta and third-party equipment via proprietary protocol, SNMP, or contact closures
- Translates proprietary protocols to SNMP and passes configuration/alarm information to network managers
- Highly reliable (no fans, no hard drive) hardware and software solution
- Alarm notification with Email, Pager or SMS
- Easy to use, intuitive Web browser interface
- Provides easy integration with multiple client options – Web browser, TNCS, ROSA NMS, 3rd Party NMS
- Open standards based interfaces (SNMP, HTTP, FTP, HMS, DateTime, etc.)
- Delivered with software already installed
- Software can be upgraded remotely over LAN/WAN
- Automatic remote backup and restore to save the entire configuration of the ROSA EM
- Seamless integration into currently installed TNCS and ROSA systems
- Dual temperature probes available as option
- 2 RU, 19-inch rack-mount chassis

ROSA™ SUPPORTED

Manage your network with ROSA and TNCS open standards element management. Get faster mean-time-to-repair, increased uptime, and management that evolves as you provision your networks. US toll-free 1-800-722-2009. EMEA +32 56 445 445. www.scientificatlanta.com/ROSA

ROSA EM - Element Management System

Operation

ROSA EM supports open standards interfaces, which enable cost-effective integration of equipment into the ROSA EM, as well as cost-effective integration of the ROSA EM into upper-level network managers.
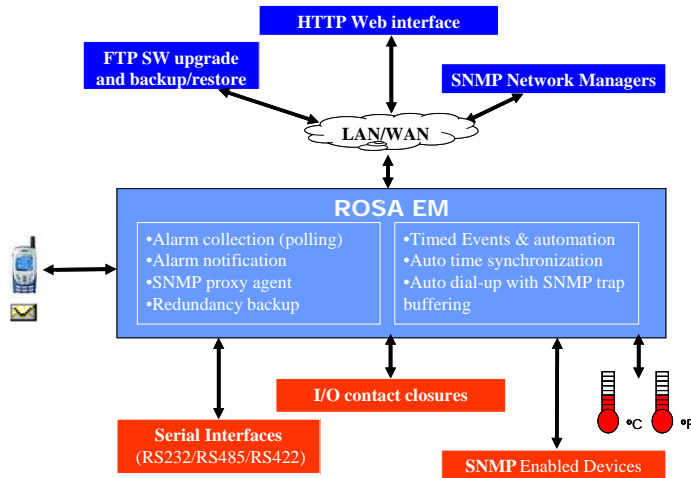
The northbound management interfaces are composed of:

- Web browser client interface on the ROSA EM that allows management of network devices as well as viewing real-time status and alarms.
- The SNMP agent in ROSA EM provides a northbound SNMP interface to higher level Network Management Systems (supports TRAPS, GETS and SETS).
- Utilizes FTP to remotely upgrade ROSA EM software as well as the backup and restoration of ROSA EM configuration data.
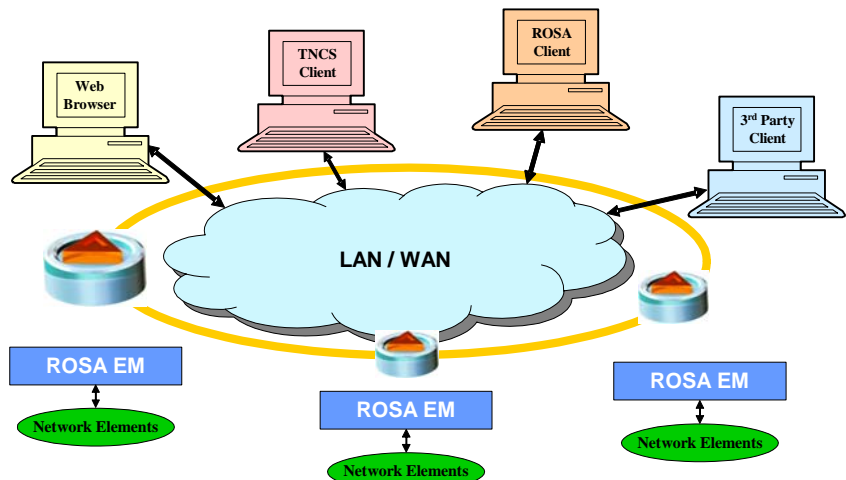
The southbound management interfaces are designed to communicate with the managed devices and consist of:

- Multiple serial ports (RS-232, RS-485, RS-422)
- Digital and analog I/O contact closures interface
- SNMP Manager
- Temperature probes
- Network interface card

Flexible Client Options

There are four fundamental client options available for the ROSA EM; a simple Web browser, TNCS client, ROSA NMS client and third party Network Management Systems each designed to meet specific needs of the user. ROSA EM can be configured to do as much or as little as required to meet the needs of the technicians and engineers charged with managing the broadband network.

- **Simple Web Browser** – The user will open a Web browser window for each ROSA EM site. This is an ideal application for small systems that have only one or two sites with ROSA EM installed.
- **TNCS Client** – The TNCS client will aggregate all of the ROSA EM sites to produce a single network view that is easy to understand. In addition, TNCS will aggregate the alarms, perform multi-site backup schemes and retain historical logs for alarms, system executables, and software status for all of the ROSA EM sites.

- **ROSA NMS Client** – A ROSA client provides all of the TNCS functionality as well as a relational database that enables the operator to produce performance and trending reports on the network, the managed devices, and overall system performance. ROSA also has several modular advanced tasks that provide significant added value to system operators, engineers and managers.
- **Third-Party Client** – ROSA EM is ideally suited to integrate into an overall 3rd party NMS via SNMP. The northbound SNMP interface in ROSA EM supports Traps, Gets and Sets allowing the overall NMS to have control of the managed devices. Launching the Web browser in ROSA EM allows the NMS operator to easily view the details of any managed device from the operations center.

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ROSA EM - Element Management System

Specifications

Remote Control and Configuration Ports (*)	
Ethernet management port	
Number of ports	2
Connector type	RJ-45
Physical layer	10/100Base-T
LED indication	LINE and ACT
Dielectric isolation	1.5 kV AC
Note: In case a client (simple Web browser, TNCS client, ROSA NMS client or third party NMS) is used in combination with ROSA EM, it must be possible to perform a successful ping command between ROSA EM and the client in both directions.	
RS-232 Serial Ports	
Number of ports	4
Connector type	Male, 9 pin Sub-D
Pin layout	Standard DTE
Physical layer	RS-232
Baud rate	Up to 38.4 kbaud
Protocol	RCDS, SMC or other
ESD	Max. 15 kV Performance Criterion B
RS-232 - RS-485 - RS-422 Serial Ports (configurable)	
Number of ports	4
Connector type	Male, 9 pin Sub-D
Pin layout	Configurable (for RCDS or SMC pin layout refer to user's guide)
Physical layer	RS-232, RS-422 or RS-485
Baud rate	Up to 38.4 kbaud
Protocol	RCDS, SMC or other
ESD	Max. 15 kV Performance Criterion B
Digital Input Ports	
Number of ports	108
Connector type	Female, 25 pin Sub-D
Contacts per port	2
Decision threshold	TTL / CMOS
Input voltage range	Max. ± 15 V
ESD	Max. 15 kV Performance Criterion B
Galvanic Isolated Digital Input Ports	
Number of ports	12
Connector type	Female, 25 pin Sub-D
Contacts per port	2
Decision threshold	Low: < 0.8 V, High: > 2 V
Differential over voltage protection	Max. ± 15 V
Common mode input voltage	Max. 60 V DC or 42 V AC
ESD	Max. 15 kV Performance Criterion B
Dielectric isolation	500 V port to port
Relay Outputs	
Number of ports	24
Connector type	Female, 25 pin Sub-D
Contacts per port	3 (common, normal open, normal closed)
Maximum voltage	42 V AC / 60 V DC
Maximum load current	1 A @ 30 V DC
Dielectric isolation	500 V
Load	Resistive load
External Temperature Sensor	
Number of ports	2
Note: Temperature sensors available as an option.	

ROSA EM - Element Management System

Specifications - continued

Remote Control and Configuration Ports - continued	
Analog Inputs	
Number of ports	8
Connector type	Female, 25 pin Sub-D
Contacts per port	2
Input range	0 to +15 V by default, configurable to 0 to +60 V
Type	Differential input
Resolution	8 bit (55 mV step with 15 V input range, 250 mV step with 60 V input range)
Input impedance	> 100 kΩ
Analog Outputs	
Number of ports	2
Connector type	Female, 25 pin Sub-D
Contacts per port	2
Output voltage range	0 to +10 V
Resolution	8 bit (40 mV step)
Output impedance	1 kΩ
Craft Interface	
Number of ports	1
Connector type	Male, 9 pin Sub-D
Pin layout	Standard DTE
Physical layer	RS-232
Baud rate	Up to 38.4 kbaud (default 19.2 kbaud)
ESD	Max. 15 kV
Keyboard and Mouse	
Number of ports	2
Connector type	PS/2
Pin layout	Standard PS/2
Physical layer	RS-232
ESD	Max. 15 kV
Monitor	
Number of ports	1
Connector type	DB15H
Pin layout	VGA
Resolution	Up to 1024 x 768 (SVGA)

(*) Note concerning Safety Extra-Low Voltage (SELV) Circuit Warning

To avoid electric shock and in order to comply with the product's regulatory safety compliance certifications:

- Do not connect any I/O, signal or communication port to circuits falling beyond the requirements for SELV circuits
- Always verify voltage, current and energy levels of connected circuits against SELV requirements (for a full definition of SELV requirements, refer to UL, EN or IEC 60950 standards for limit values).
- Ensure that only 'Digital Input Ports', Galvanic Isolated Digital Input Ports' or 'Relay Outputs' are connected to outdoor circuits.

Important:

- SELV voltage limits for indoor connections are < 60 V DC (or peak) or < 42.4 V AC RMS.
- SELV voltage limits for outdoor connections are lower than those for indoor connections.
- Outdoor voltages should be no greater than 15 Vrms, 21.2 Vpk, and 30 V DC under normal operating conditions.
- Cabling of outdoor circuits must be shorter than 140 feet or 42 meters.
- In all cases it is needed to protect outdoor cabling by means of a Primary Surge Protector at the position where the wiring enters the building.
- Outdoor cabling should be routed away and spaced with adequate clearances from power and lighting conductors.
- For installations in the United States, refer to the appropriate sections in the National Electrical Code (NEC).
- For installations in other countries, ensure that the installation complies with the National requirements taking in account the above-mentioned recommendations.

ROSA EM - Element Management System

Specifications - continued

Management Specifications
Number of managed devices depends on license with an absolute maximum of 1000 devices
Maximum number of simultaneously connected web browser sessions is 12
Maximum number of simultaneously connected TNCS clients is 8

Environmental Specifications	
Within specs	+10°C to +45°C / +50°F to +113°F
Operating temperature	0°C to +50°C / +32°F to +122°F
Storage temperature	-20°C to +70°C / -4°F to +158°F

Power Supply AC
    Nominal voltage range
    Full voltage range
    Ripple & Noise
    Maximum power consumption
	
	100 – 240 V AC
	90 – 264 V AC, 47 - 63 Hz
	Compliant with ETSI ETS 300-132-1
	25 W

Power Supply DC
    Nominal voltage
    Ripple & Noise
    Maximum power consumption
	
	-48 V DC
	Compliant with ETSI ETS 300-132-2
	25 W

Mechanical Specifications	
Height	88 mm / 3.48 in. (2 RU)
Width	482 mm / 19 in.
Depth	470 mm / 18.5 in.
Weight	Approx. 5 kg / 11.02 lbs

ROSA EM - Element Management System

Ordering Information

ROSA EM – North and Latin America	Part Number
ROSA EM AC version	
ROSA EM, 100 - 240 V AC US, DCL Class 1 (0-10 devices)	4005326
ROSA EM, 100 - 240 V AC US, DCL Class 2 (0-25 devices)	4005370
ROSA EM, 100 - 240 V AC US, DCL Class 3 (0-50 devices)	4005371
ROSA EM, 100 - 240 V AC US, DCL Class 4 (0-100 devices)	4005372
ROSA EM, 100 - 240 V AC US, DCL Class 5 (0-250 devices)	4005373
ROSA EM, 100 - 240 V AC US, DCL Class 6 (0-500 devices)	4005374
ROSA EM, 100 - 240 V AC US, DCL Class 7 (0-750 devices)	4005375
ROSA EM, 100 - 240 V AC US, DCL Class 8 (0-1000 devices)	4005376
ROSA EM DC version	
ROSA EM, -48 V DC US, DCL Class 1 (0-10 devices)	4006322
ROSA EM, -48 V DC US, DCL Class 2 (0-25 devices)	4007210
ROSA EM, -48 V DC US, DCL Class 3 (0-50 devices)	4007211
ROSA EM, -48 V DC US, DCL Class 4 (0-100 devices)	4007212
ROSA EM, -48 V DC US, DCL Class 5 (0-250 devices)	4007213
ROSA EM, -48 V DC US, DCL Class 6 (0-500 devices)	4007214
ROSA EM, -48 V DC US, DCL Class 7 (0-750 devices)	4007215
ROSA EM, -48 V DC US, DCL Class 8 (0-1000 devices)	4007216

ROSA EM – EMEA (Europe, Middle-East, Africa) and AP (Asia, Pacific)	Part Number
ROSA EM Headend	
ROSA EM Headend, 100 - 240 V AC EU DCL Class 5 (0-250 headend devices)	4005317
ROSA EM Headend, 100 - 240 V AC UK DCL Class 5 (0-250 headend devices)	4005320
ROSA EM Headend, 100 - 240 V AC AUS DCL Class 5 (0-250 headend devices)	4005323
ROSA EM Headend, -48 V DC DCL Class 5 (0-250 headend devices)	4007217
ROSA EM Hub & HFC	
ROSA EM Hub & HFC, 100 – 240 V AC EU DCL Class 6 (0-500 Hub & HFC network devices)	4005318
ROSA EM Hub & HFC, 100 – 240 V AC UK DCL Class 6 (0-500 Hub & HFC network devices)	4005321
ROSA EM Hub & HFC, 100 – 240 V AC AUS DCL Class 6 (0-500 Hub & HFC network devices)	4005324
ROSA EM Hub & HFC, -48 V DC DCL Class 6 (0-500 Hub & HFC network devices)	4007218
ROSA EM Transmitter sites	
ROSA EM Tx Site, 100 – 240 V AC EU DCL Class 1 (0-10 devices in transmitter sites)	4005319
ROSA EM Tx Site, 100 – 240 V AC UK DCL Class 1 (0-10 devices in transmitter sites)	4005322
ROSA EM Tx Site, 100 – 240 V AC AUS DCL Class 1 (0-10 devices in transmitter sites)	4005325
ROSA EM Tx Site, -48 V DC DCL Class 1 (0-10 devices in transmitter sites)	4007219

ROSA EM Upgrades	Part Number
ROSA EM Device Count License (DCL) Upgrade	4005377

Class Info
    DCL Class 1 : 0-10 devices
    DCL Class 2 : 0-25 devices
    DCL Class 3 : 0-50 devices
    DCL Class 4 : 0-100 devices
    DCL Class 5 : 0-250 devices
    DCL Class 6 : 0-500 devices
    DCL Class 7 : 0-750 devices
    DCL Class 8 : 0-1000 devices	

ROSA EM Options	Part Number
ROSA EM external temperature sensor, maximum 2 per ROSA EM (cable length 15 m / 50 ft)	4005382

ROSA EM - Element Management System

Ordering Information - continued

Related Products

Cable Kits
For Scientific-Atlanta TNCS devices and RCDS devices, refer to the corresponding cable kits.

ROSA Network Management System	Part Number
Components for ROSA Network Management System	
Performance Logging Task	V9529450
Performance Data Compression Task	V9529652
Service Availability Reporting	7001733
SNMP Manager Runtime License (runs custom SNMP profile drivers)	V9529615
SNMP Profile Manager (includes one SNMP Manager Runtime license)	V9529616
Group-wise Equipment Manager	V9529823
UDD Runtime License (runs custom Universal Device Drivers)	V9529595
UDD Profile Manager (includes one UDD Runtime license)	V9529610
Note: Reporting Component is part of the basic ROSA package	
Copernicus MKIV ROSA Network Management Server	
COPERNICUS ROSA Network Management Server 100-120/200-240 V AC Std Standard SQL database (MSDE) Including RS-232/4 and RS-485/4, ROSA 3.X Client, license for 250 points	V000112011
COPERNICUS ROSA Network Management Server 100-120/200-240 V AC LS Large System SQL database (MS SQL Server 2000 Standard Edition) Including RS-232/4 and RS-485/4, ROSA 3.X Client, license for 250 points	V000112021

TNCS Client	Part Number
Software	
TNCS Software, Version 2.0	4006663
Desktop Computer (Optional)	
Computer, Server, Mini-tower, Includes: 17" Monitor, Speakers, Keyboard, CD Writer, Ethernet Card, 56KModem, Windows 2000	738693
Rack Mount Computer (Optional)	
Computer, Server, Rack Mount, Includes: Ethernet Card, Internal 56K Modem, CD Writer, RS-458/422 PCI Card and Windows 2000 (4 RU)	735727
Rack Mount Keyboard & 17" Monitor (Optional)	
Keyboard, Rack Mount, with Touchpad and Mounting Hardware (1 RU)	730165
Monitor Cabinet, Rack Mount, for 17" monitor, (11 RU)	735741
Monitor, 17" with Internal Speakers	738034
Rack Mount Keyboard & Flip-up Monitor (Optional)	
Keyboard, Rack Mount, with Flip-up Monitor, Touchpad, & Mounting Hardware (2 RU)	735740
Power Cord	
Power Cord, European	747746

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