sat-nms MNC - Monitoring & Control System

The sat-nms Monitoring & Control System from SatService GmbH is a comprehensive software-based system providing monitoring and control of any type of satellite ground station and associated baseband equipment. The system consists of two parts:

- **sat-nms MNC Server**
  System interfacing to the ground station equipment

- **sat-nms MNC Client**
  Software operating on any computer which has a TCP/IP connection to the server

The sat-nms MNC System can operate as stand-alone solution or fits into the overall sat-nms NMS Network Management System Solution provided by SatService. It has the advantage that several ground stations can be monitored & controlled both locally and from a central site.

Functionality of the sat-nms MNC System

The sat-nms MNC System monitors and controls the equipment of a satellite ground station. The monitoring is performed locally without any influence and connection of any operator client. The connected equipment is polled and monitored continuously. Typical alarm flags of the equipment, like summary alarm, lock alarm, etc., thresholds or limits of data quality are detected. The alarm message is stored in the internal sat-nms MNC Database at the sat-nms MNC Server and the operator is alerted via both a graphical and an audible alarm. The internal database can easily be scanned and searched via a user-friendly interface for analysis. The sat-nms MNC Operator has full control over all equipment, the different functions and can monitor and change any equipment parameters without service interruption. The sat-nms MNC Operator can store complete equipment configurations and can generate presets for easy retrieval of equipment configuration. Each device is represented in its own window and the concept of the Virtual Device Driver defines families of satellite ground station equipment with common user interfaces for operators with multi-vendor equipment in the field.

The client user interface is adaptable to the special operational requirements of the user:

- The device-oriented user interface provides all parameters of the satellite ground station equipment and a deep insight into the equipment for system engineers
- The task-oriented user interface is a customized user interface, is fully configurable and reduces the user interface to the special requirements of

### Key Features

- Client-Server Software Architecture
- TCP/IP-based Design
- Full remote Administration and Support
- Client is independent from Operating System
- Unlimited Number of Clients possible
- Event/Alarm Log with Filter Utilities
- Task- and device-oriented User Interfaces
- Macro Recording Functionality
- Software configurable Interface Device Configuration
- CAD Like Screen Configuration Utility for user-configurable Operator Screen Contents
- Comparable Equipment of different Manufacturers has the same "Look and Feel" due to the virtual Device Driver Concept
- Support of SNMP Protocol

### Contact Information

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Technical Specification

Each sat-nms MNC System consists of an Industrial PC designed for 19" rack mounting (2RU) with an Ethernet interface and space for up to three serial interface cards with max. 24 RS232 or RS485 interfaces. This provides a wide capability of the number of interfaces of an MNC System. If the number of serial interfaces exceeds the internal capabilities, we also support port terminal servers.

Supported Interfaces to Satcom Equipment
Serial Interface RS232 and/or RS422/RS485 on a D-SUB9 Patch Panel
Network Interface (IP over Ethernet, TCP, SNMP, HTTP)
Opto-Coupler Inputs and Outputs for Alarm/Status Contacts or Waveguide/Coaxial Switches via sat-nms IO-FEP
Potential free Relay Output Contacts via sat-nms IO-FEP
Ethernet Interface for overall Network Management and User Interface

Electrical and Mechanical Specification, Environmental Conditions
Supply Voltage 230V/50Hz, 110V/60Hz, 100VA
Temperature Range 10° to 40°C
Humidity Up to 90% non-condensing
Dimensions 19", 2 RU x 480mm or 1RU

Common M&C System Configurations
MNC-0/0 Only Network Interfaces
MNC-4/8 4x RS422/485, 8x RS232 and Network
MNC-0/24 24 x RS232 and Network

sat-nms IO Frontend Processor

The sat-nms IO-FEP interfaces to any “low level” interface commonly used in satellite ground stations like equipment alarm contacts, waveguide- or coaxial-switches and other status signals. It provides opto-coupled in- and outputs and potential free relay output contacts and interfaces for PT1000 temperature sensors. As additional feature, the sat-nms IO-FEP can also perform the RF-inhibit of high power amplifiers.

Included software modules
- Antenna Pointing manages Satellite Lists
- 1:N Protection Switching
- Device Settings and Parameter Mirror
- Parameter Logging and Strip Chart Display
- Arithmetic and Comparison Operations
- EIRP Settings and Control Loop
- Uplink Power Control
- Site Diversity Switching

and many more functions are already built-in.