DATASHEET

Environment monitoring systems RAMOS Ultra

CONTEG

COMPLEMENTARY SYSTEMS

ENVIRONMENT MONITORING SYSTEMS

The **RAMOS monitoring system** is used to control the state of the indoor and outdoor environment (temperature, humidity, water leakage, smoke,...) in large data centers, server rooms, or individual racks. It allows you to easily integrate and subsequently monitor other components, such as intelligent power distribution units (PDUs), backup power supplies (UPS), AC units, etc. The system supports remote control.

RAMOS consists of hardware components and software—the CONTEG Pro Server application. Hardware comes in 4 different versions of main monitoring units, which are differentiated by their functionality levels. Each version has different features, a different number of sensors as well as different inputs and outputs. A wide range of accessories is available for the units, such as detectors, sensors, sirens, magnetic door contacts, expansion modules, etc.

The CONTEG Pro Server application has a user-friendly web interface for sensor configuration, data collection, settings for transmitting information about monitored parameters in different ways (SNMP, e-mails, SMS, MMS, SMTP, ...) and extensive graphical display of values.

	RAMOS Ultra/Ultra ACS	RAMOS Optimax/ Optimax GSM	RAMOS Plus/Plus GSM	RAMOS Micro
Suitable for	DC and server rooms	Multiple racks/cabinets or server room	Single or few racks/cabinets	Single racks/cabinets
Sensors	8×/2× intelligent ports (expandable up to 500 sensors)	8× intelligent ports and 10× digital inputs (expandable up to 150 sensors)	4× intelligent port	Up to 5 sensors (Temperature, Humidity, Pressure, CO_2, leakage...) via 2× universal ports and 2× digital inputs
Virtual sensors	80× open	10× open (can be licensed up to 80)	5× open (can be licensed up to 40)	–
Communication	LAN: SNMP v1, v2 and v3, VPN Modbus TCP and RTU GSM: with plug-in USB GSM modem Serial: RS485 (Modbus only)	LAN: SNMP v1, v2 and v3 Modbus TCP, Modbus RTU via external adapter GSM: GSM version only	LAN: SNMP v1, v2 and v3 Modbus TCP GSM: GSM version only	LAN and Wi-Fi 802.11 bgn SNMP v1 and XML
Notifications	E-mails, SNMP traps SMS *, MMS *, Call *, Speech Skype call and SMS Relay control *, Door control * Server restart/shutdown/ wake-up	E-mails SNMP traps Siren and strobe * Relay *, El. latch SMS variant with built-in GSM modem	E-mails SNMP traps Siren and strobe * Relay *, El. latch SMS variant with built-in GSM modem	E-mails
Integration to CONTEG Pro Server	Free for up to 4 units—additional are licensed			Licensed
Advantages	Intelligent ports variability Expandable solution Monitoring of 3rd-party devices Sensor mapping	Intelligent ports variability Expandable solution Variant with built-in GSM modem Monitoring of 3rd-party devices Rack thermal mapping	Intelligent ports variability Variant with built-in GSM modem Monitoring of 3rd-party devices Rack thermal mapping	Small and simple Wi-Fi, PoE, SSL
Dimensions H × W × D	46 × 216 × 138 mm	44 × 432 × 50 mm (19" × 1U)	32 × 115 × 64 mm	30 × 103 × 68 mm
Voltage	7.5 V DC/12 V DC	5 V DC	5 V DC	5 V DC (PoE or via external power adapter)

* Requires appropriate accessories.

Intelligent ports
Connected by LAN cables, automatically detects and powers the accessories.

Easy expandability
Using the expander for RAMOS Optimax and RAMOS Ultra.

Virtual sensors
They allow monitoring of other devices, reading of log parameters, PING, etc. It is possible to integrate 3rd party devices (PDU, UPS, cooling, etc.).

Remote control
Setup and remote control of the device using the CONTEG Pro Server software application.

Notifications
Email, commands via logs, voice messages, SMS, etc.

RAMOS ULTRA AND ACCESSORIES

RAMOS Ultra

RAMOS ULTRA-EX-O16
front and rear panels

RAMOS ULTRA-EX-I8
front and rear panels

RAMOS ULTRA-EX-D8-8 rear and side view

The RAMOS Ultra main monitoring unit for remote monitoring of the protected environment is suitable for server rooms and data centers where more than 8 sensors are required. Using expanders, this system can be expanded to up to 500 sensors, allowing a wide monitoring network to be created.

RAMOS Ultra can record all events in its database with a time stamp of an alarm event and action taken. It has 8 auto-sense intelligent sensor ports to which it is possible to connect a wide range of intelligent sensors (temperature, humidity, water leakage, airflow, access control, control relays, detect AC voltage, measure DC voltage, ...). Sensors include an integrated data collection and graphing package to spot trends in airflow, temperature, and humidity.

RAMOS Ultra has an easy-to-use web-based user interface for sensor configuration, data collection, and extensive graphing. Complete SNMP functions, including secured protocol SNMP v3, are also supported. RAMOS Ultra also supports Modbus Primary/Secondary, Modbus RTU, and Modbus over TCP/IP creating a customized, easy to configure Modbus to SNMP gateway. The web-based interface is written in PHP allowing the user to change language settings or add another language. RAMOS Ultra has a battery-operated clock for accurate record-keeping. RAMOS Ultra uses an open Linux Operating System. It is TCP/IP compliant and runs a Lighttpd web server that includes HTTPS (SSL), Bash, Perl, Telnet, PHP, Email, and Nagios.

RAMOS Ultra can also be integrated into the CONTEG Pro Server application for central management and supervision of the monitored environment.

- 8× intelligent ports, adjustable as input or output
- 4× expansion ports on the front panel for connecting expansion expanders (RAMOS ULTRA-EX-O16, RAMOS ULTRA-EX-I8, and RMS-ACS-U-RDU) allowing monitoring of up to 500 intelligent sensors
- Up to 80× virtual sensors monitoring other network devices, for example via SNMP, Modbus, PING, etc.
- All accessories are powered by the monitoring device.
- Configurable notification functions: E-mail, SNMP traps, SMS/MMS, SNMP and Modbus commands, etc.
- Fully configurable User and Group management
- Built-in graphs and data logging, internally or to a remote PC.
- Syslog history on internal memory or on the external Syslog server.
- In the application, it is possible to add sensor and detector icons using the drag & drop function onto the uploaded image or data center/server room diagram.
- The web-based interface is written in PHP allowing the end-user to change language preferences or create their own translation.
- USB 2.0 for connecing an external GPRS/GSM modem, Bluetooth, and Wi-Fi adapter
- SNMP (v1, v2, and v3), Modbus TCP/IP, and Modbus RTU protocols supported
- SD card slot for extending memory for history (up to 32 GB). SD card is not included.
- Integrated microphone and speaker

Package includes: 7.5 V DC 3A external power supply with exchangeable power cable, crossover patch cord cable 1.5m length, 1U high bracket with screws, and installation CD

Code	Description
RAMOS Ultra	Main monitoring unit

Expansion module RAMOS ULTRA-EX-I8

An expansion module that has 8 intelligent sensor ports and is connected to any expansion ports located on the front panel of the RAMOS Ultra or RAMOS Ultra ACS base units. They are connected using a standard CAT5 LAN cable.

The expander may also be daisy-chained using the E-Out/E-In ports on other Expanders. For Expansion can be used cable with max length of 300 m between each unit.

Compatible with RAMOS Ultra, RAMOS Ultra ACS, and RAMOS Optimax standard expansion ports.

The front pair of LEDs indicate the status of the connected accessories of all 8 intelligent ports.

Package includes: 7.5 V DC 3A external power supply with exchangeable power cable, 1U high bracket with screws, 1.5 m LAN CAT 5 cable

Code	Description
RAMOS ULTRA-EX-I8	Expander with 8 intelligent sensor ports

Expansion module RAMOS ULTRA-EX-O16

An expansion module that has 16 optoisolated inputs and is connected to any expansion ports located on the front panel of the RAMOS ULTRA, RAMOS ULTRA ACS, RAMOS Optimax main monitoring units. They are connected using a standard CAT5 LAN cable.

The Expander may also be daisy-chained using the E-Out/E-In ports on other Expanders. For expansion can be used cable with a maximum length of 300 m between each unit.

A wide variety of equipment that generates an output signal or voltage can be connected to each of the 2 wire dry contact inputs located on the back of the module.

Compatible with Ramos Ultra, Ramos Ultra ACS, and Ramos Optimax standard expansion ports.

The front pair of LEDs indicate the status of all 16 inputs.

Package includes: 7.5 V DC 3A external power supply with exchangeable power cable, 1U high bracket with screws, 1.5 m LAN CAT 5 cable

Code	Description
RAMOS ULTRA-EX-O16	Expander with 16 optoisolated inputs

Expander for intelligent port

The expander allows creating 8 inputs/outputs on a single intelligent port of the main unit. Each port can be set as an input or output (output up to 20 mA). The expander's input contact is capable of supporting any type of door contact. The device is automatically recognized and powered from the main unit. The expander is connected using a standard LAN CAT 5/6 cable. Maximum cable extension length is 300 m.

Package includes: 1.5 m LAN CAT 5 cable

Code	Description
RAMOS ULTRA-EX-D8-8	Expander for intelligent port

Relay Box 8

The Relay Box 8 is a specially designed multi-port relay for advanced process control with 8 changeover relay contacts that can be operated manually or via notifications. The Relay Box 8 is easily controlled by any sensors or detectors. The relay can provide automatic responses to sensor status changes. Setting up the Relay Box 8 is easy thanks to its built-in auto-sense feature and user-friendly web interface. This device allows controlling the power, turning On/Off cooling equipment, activating alarms, etc. It requires an external power supply 7.5 V DC (RMS-U-PW). Connection to the main monitoring unit is made using a standard LAN CAT 5/6 cable.

Package includes: 1.5 m LAN CAT 5 cable, 19" mounting brackets

Code	Description
RMS-U-RB-8	Relay Box 8

Temperature & Humidity Sensor

The encased temperature and humidity sensor is designed for placement inside racks and measures temperature in the range –55 °C to +75 °C and humidity in the range 0 to 100 %. The sensor can be extended for reach of up to 300 m using a LAN CAT 5/6 cable.

Package includes: 1.5 m long loose cable

Code	Description
RMS-I-STHB	Temperature & Humidity sensor with extension up to 300 m

Air-flow sensor

The sensor detects the presence or absence of flowing air inside the racks. The sensor works on the principle of differential measurement, which compares the resistance of the external and internal thermistor. This device can be connected to an alarm response and can be extended up to 30 m using a LAN CAT 5/6 cable.

Package includes: 1.5 m LAN CAT 5 cable

Code	Description
RMS-I-AF	Air-flow sensor

Siren & strobe light

The Siren & Strobe serves as a visual and acoustic alarm for the operator. It emits a loud piercing of up to 100 dB at a distance of 1m from the device and the strobe flashes are at a frequency of 400 times per minute. The device has extensive setting options, such as turning off the alarm. Extension is done using a standard LAN CAT 5/6 cable. Maximum cable extension length is 30 m.

Package includes: 1.5 m LAN CAT 5 cable

Code	Description
RMS-I-AS	Siren & strobe light

Smoke Detector

The detector emits an 85 dB two-state-alarm signal at a distance of 3 m from the unit and is also fitted with LED indication. It should be mounted on to the ceiling for maximum smoke detection ability. This device is powered from the main unit and can be connected to a back-up 9 V battery. It is connected using a standard LAN CAT 5/6 cable with maximum connection length of 150 m. Has a built-in flash light to alert when smoke is detected.

Package includes: 1.5 m LAN CAT 5 cable

Code	Description
RMS-I-DE-01	Smoke Detector

PIR motion detector

Motion detector with 60° detection angle and 3 m detection distance; used for securing rooms or buildings and sending alerts in case of intrusion into the monitored zone. It has a LED indication of the device status. Up to 10 motion sensors can be chain linked to a single intelligent port. Maximum total LANCAT 5/6 cable length for 10 sensors is 46 m. Maximum cable length between individual sensors should be less than 6 m. Maximum connectable cable length for a single sensor is 300 m.

Package includes: 1.5 m LAN CAT 5 cable

Code	Description
RMS-I-DE-02	PIR motion detector

Spot water sensor

The spot water detector is able to detect water at the installation site. It has the possibility of LED indication on the device itself. Extension is done using a standard LAN CAT 5/6 cable. Maximum cable extension length is max. 60 m.

Package includes: 4.5 m LAN CAT 5 cable

Code	Description
RMS-I-DE-04	Spot water sensor

Rope water sensor

The rope water sensor with 3 m long detection rope protects water-sensitive devices stored inside a rack from potential damage. It is also capable of short-term detection of accumulator acid. The detection cable can be extended with a 3 m long extension cable up to a total length of 50 m. The detector is powered from the main monitoring unit and is recognized automatically. It is connected using a standard LAN CAT 5/6 cable with maximum connection length of 30 m. The sensor is fitted with a 3 m detection rope and 6 m long durable connecting cable.

Package includes: 1.5 m LAN CAT 5 cable

Code	Description
RMS-I-DE-06	Rope water sensor with 3 m length detection cable
RMS-I-DE-06-EXT3	Rope water sensor extension—3m sensing cable

Rope Water Locating Sensor

The rope water locating sensor is designed for specific location water detection. It can be connected to the main monitoring unit by intelligent sensor ports (RJ-45). This device is powered from the main unit. This sensor includes 3 m detection rope extendable via 3m extension detection cable, durable 6 m cable for connecting ropes to detector and detection module, main sensing module connected to intelligent LAN CAT 5/6 port via cable.

Package includes: 1.5 m LAN CAT 5 cable

Code	Description
RMS-I-DE-07	Rope water locating sensor with 3m length detection cable
RMS-I-DE-07-EXT3	Rope water locating sensor extension—3m sensing cable.

Dry contact

The dry contact sensor is used to connect external devices, such as security or fire systems, or any application that requires control by the unit. When used as an output, it can supply up to 20 mA. The input power supply range is 0 to 5 V. The contact is powered from the main unit. The extension is performed using a standard CAT5/6 network cable and an RJ45-RJ45 coupler RMS-I-CON. The maximum length of the extension cable is 300 m.

Package includes: 4.5 m LAN CAT 5 cable

Code	Description
RMS-I-DRC	Dry contact

Magnetic door contact

The magnetic door contact is a security feature for door and side panel monitoring. With the magnetic door contact it is possible to monitor unauthorized opening of doors as well as side panels. The contact is powered from the main unit. The extension is performed using a standard CAT 5/6 network cable and an RJ45-RJ45 coupler (category 5e) RMS-I-CON. The maximum length of the extension cable is 300 m.

Package includes: 4.5 m LAN CAT 5 cable, mounting bracket

Code	Description
RMS-I-MK	Magnetic door contact

AC-Sensor controlled relay (110V/220V)

The AC-Sensor controlled relay allows you to control electrical devices over the internet. It monitors the power load and receives a control signal which is sent from the unit. The relay can provide automatic responses to sensor alerts. It has a built-in replaceable 10A fuse and is equipped with connectors C13 and C14. The relay can be controlled by any sensor. It is connected using a standard LAN CAT 5/6 cable with maximum connection length of 30 m.

Package includes: 1.5 m LAN CAT 5 cable

Code	Description
RMS-I-PWR-NO	AC-Sensor controlled relay

4-20 mA Converter

The 4-20 mA signal converter is used to integrate the unit with a 4-20 mA transmitter. The 4-20 mA technology is used to communicate analog signals over long distances where electrical interference is a problem. This solution is often used in the process control industry to collect the analog values from a wide array of remote sensors. The 4-20 mA converters can now be integrated into the unit and can be enhanced by adding graphing, web interface, email interface, thresholds and limits. The converter is powered by the main unit. It is connected using a standard LAN CAT 5/6 cable with maximum connection length of 4.5 m.

Package includes: 1.5 m LAN CAT 5 cable

Code	Description
RMS-I-VC	4-20 mA Converter

Coupler for extension

CAT 5e RJ45-RJ45 coupler is used to extend the sensor cable.

Package includes: 10 pcs

Code	Description
RMS-I-CON	CAT 5e RJ45-RJ45 coupler

USB GSM Modem

The USB modem can be used to send SMS, Voice Call and MMS alert directly from the base unit to a mobile phone or to a list of mobile phones. This RAMOS Ultra modem is a stand-alone solution and doesn't require third-party applications.

Code	Description
RMS-U-GSM	USB GSM Modem with audio cable (Quad-band)

CONTEG, spol. s r.o.
Stetkova 1638/18
140 00 Prague 4
Czech Republic

Tel.: +420 565 300 358
conteg@conteg.com
www.conteg.com

CONTEG