

**Product Overview:**

The SR-210, Smart Rack Management and Control unit converts standard equipment racks into “Smart-Racks” and allows the users to monitor the parameters and status of multiple rack units, remotely, from an NMS.



The SR-210 is energy efficient as it not only assists in conserving power by selectively switching off the rack's cooling fans according to the prevailing temperature conditions in the equipment rack but also greatly increases the life span (MTBF) of the fans, as the fans are switched off when they are not required to operate, while always maintaining the user defined ambient temperature.

As a rule, all fan units have a “life cycle” that is specified by its manufacturer and stated in “number of operating hours” after which the fans become increasingly susceptible to failure. The SR-210, Smart-Rack Management and Fan Control Unit monitors the user set RPM thresholds of each fan unit to track their RPM and forewarns the users of a fan failure, or even its impending failure. In the event of a fan failure, or if its RPM falls below a user set threshold (which could occur due to a “faulty fan rotor bearing” or a “choked” air filter), the SR-210 triggers its alarm relay (which may be connected to an external Logic, Audio or Visual alarm) to alert the administrator. The SR-210 also generates an “alarm” message which is transmitted to the administrator as an Ethernet string containing all the vital information of the rack to a central site over the IP link. All events and alarms are accurately time-stamped as the SR-210 can be synchronized to an external (remote) NTP / SNTP Server for accurate time and date synchronization.

Even when the fans are not in use, the SR-210, Smart-Rack Management and Fan Control Unit is designed to “test and prime” the fans, once in every 24 hours, by switching them “on” for a short duration to ensure that the fans always remain operational at their optimum speeds. Such a feature ensures that all fans are exercised periodically and shall function normally, without fail, whenever required by the rack's changing ambient conditions. The SR-210 not only becomes an important tool to improve the operating efficiency of an electronic equipment rack but also to assist in providing preventive maintenance and enhancing the operating life of the equipment installed in the rack by maintaining an optimum operating environment.

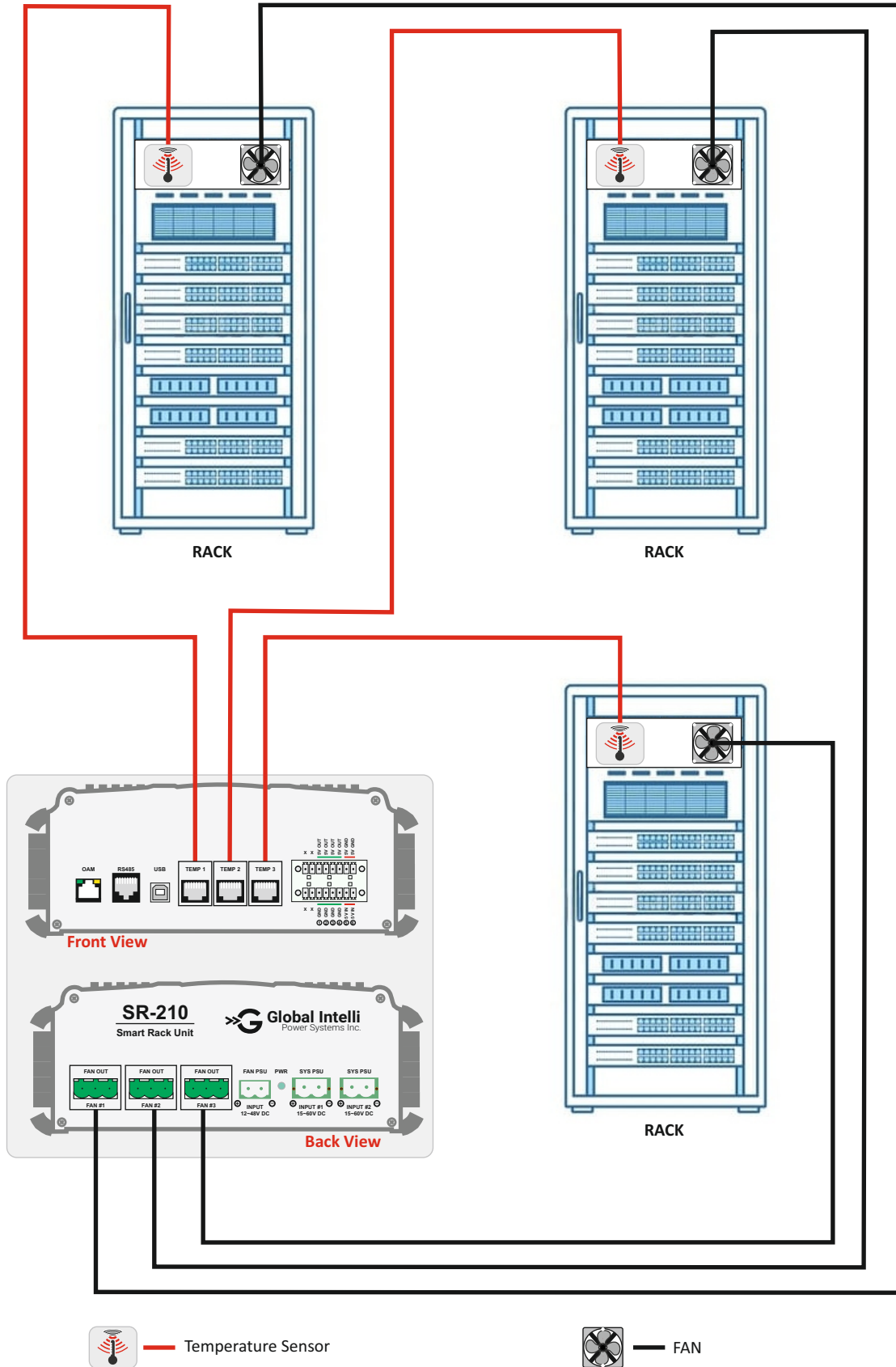
The SR-210, Smart-Rack Management Unit provides the following options:

- Controls the ambient temperature of an equipment rack by automatically switching on / off ventilation fans according to the user desired thermal environment in the equipment rack.
- Monitors up to 3 temperature zones.
- Provides 4 binary inputs for sensing dry contact relays (NO/ NC) and 2 potential inputs with time stamping. These binary inputs may be used to connect to rack alarms such as smoke alarm, fire alarm, water-level alarm, or used to connect to dry-contact relays that are normally provided on other electronic equipment installed in the rack to indicate equipment failure.

**Features:**

- Energy efficient: Switches on/off cooling fans to control the ambient temperature of the equipment rack
- 3 separate temperature sensors to monitor up to three temperature zones within the rack
- Extends equipment life and fan MTBF life
- Fan Performance Monitoring
- Fan Failure Alerts
- Supports user configurable fan speed (RPM) thresholds
- Monitors up to 4 dry-contact relay inputs, with timestamping, which may be connected to:
  - Rack-door open alarm
  - High Water level/Flooding alarm
  - Multiple equipment failure alarm(s)
- Monitors up to 2 potential inputs, with timestamping, which may be connected to:
  - Smoke Alarm
  - Fire Alarm
  - High Humidity Alarm
- Provides NTP / SNTP Time and Date Synchronization
- Provides Real-time Alarm and Event Logging
- Daily Automatic Fan Test and Priming Routine
- LCD Display (External)
- Provides Serial Management (USB) port to manage the unit locally
- Provides remote (10/100BaseT Ethernet) management port to enable the user to manage multiple units remotely from an NMS over the IP network
- Transport protocol supported MQTT/TCP-IP/UDP
- Certificate based “Unified Management System”. Allows the user to securely monitor multiple racks from a central management server.

Application Diagram



## Technical Specifications

### Power Supply Specifications:

Input DC voltage	48V DC (nominal)
Range of input voltage	15V to 60V DC Input
Voltage reversal protection	Provided
Short circuit protection	Provided

### Local / Remote Communication Options:

- Telnet / SSH (With option to disable clear text communication to comply with NERC security requirements)
- CLI Control Interface (HyperTerminal or VT100)
- System log

### Management and Control Ports:

- Serial Management Port - USB Port
- 10/100 BaseT for remote management

### Security and Protection:

- Crypto Authenticated Hardware and Firmware protects the hardware and firmware from being cloned.

### Command Language:

- English text commands
- Graphical User Interface (GUI) - English

### Environmental (Equipment):

Operational	0°C to 50°C (Typical: +25°C)
Altitude	5000 mtrs.
Storage	-10C to +60C
Humidity	95% non-condensing
Cooling	Convention Cooled.

### Mechanical Specifications:

- H x W x D: 72 x 190 x 176 mm
- Weight : 1.4 Kg

### Compliance:

- CE
- RoHS
- EMC - FCC Part 15 Class 2
- Transportation ETS 300 019 Class
- Storage ETS 300 019 Class 1.2
- Operation ETS 300 019 Class 3.2

### Equipment Power Consumption:

- < 15W

### Fan Power Supply Options:

- 12V to 48V DC (support for 12V/24V/48V DC FAN's)

### Ordering Information

#### Core Unit without PSUs:

Part No.	Product Description
SR-210-DC015	SR-210, Smart-Rack Management and Fan Control unit DIN Rail Mounting Version - 1x 15~60V DC Power Supply Input - Management: Telnet (RJ45 (F) Port), Serial Port (USB), EMS, GUI - Installation Kit: System Core Cables, Mounting Hardware, Documentation, User Manual

#### Optional: External sensors and alarms

Part Number	Description
GIS-ESEN 0001	Smart Rack Water Level / Flooding Sensor
GIS-ESEN 0003	Smart Rack-Door Open Sensor
GIS-ESEN 0004	Smart Rack Smoke Alarm (12V DC Power Supply Input required)
GIS-ESEN 2458	Smart Rack Temperature Sensor
GIS-DISP 2461	Smart Rack Controller LCD Display
GIS-EFAN 0005	Smart Rack Ventilation FAN(120x120x32mm with Pulse Tach-RPM) Sensor, 48V DC, 3-wire
GIS-EMOD 0423	<b>(Please add Power Supply for GIS-ESEN 0004, Smoke Alarm)</b> External Power Supply - DIN Rail Mount
<b>AC220</b>	Power Supply (External) AC to DC Converter, DIN Rail Mount: <ul style="list-style-type: none"> <li>• Input: 1 x AC Input [90~240V AC, 50-60Hz]</li> <li>• Output: 1 x DC Output [12V DC~2.1A, 25.2W]</li> </ul>
<b>Dc220</b>	Power Supply (External) DC to DC Converter, DIN Rail Mount: <ul style="list-style-type: none"> <li>• Input: 1 x DC Input [110~250V DC]</li> <li>• Output: 1 x DC Output [12V DC~2.1A, 25.2W]</li> </ul>

Technical specifications are subject to changes without notice.  
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