

UPS MANAGEMENT SYSTEMS



UPS SUPERVISION AND CONTROL SYSTEMS

GLOBAL SPECIALIST IN ELECTRICAL
AND DIGITAL BUILDING INFRASTRUCTURES



UPS MANAGEMENT GUIDE

On its own, a UPS is unable to guarantee total protection of the data processing systems it powers. This is due to several factors, amongst which:

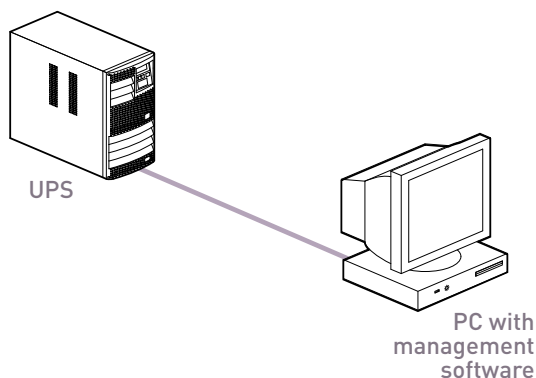
- Batteries do not have unlimited autonomy
- Unexpected load connections, such as stoves and vacuum cleaners, can cause overloads which annul the protection provided by the UPS.
- Installation in unmanned areas such as EDP rooms and basements or round-the-clock operations can make alarm reception difficult or impossible. This consequently put critical equipment at risk.

Moreover, since the systems can be extremely costly to repair, also owing to the time relevant downtime, it is easy to understand the importance to equip a UPS with a supervision system able to inform the user of the imminent danger and automatically proceed with a series of actions to protect the data and the operating systems.

Legrand offers 2 solutions for the UPS supervision according to the type of installation and the management method:

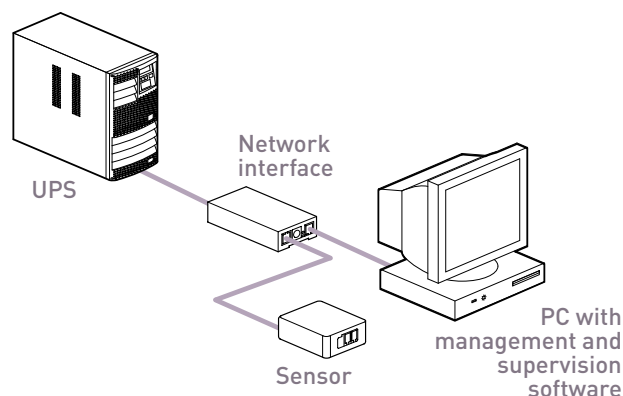
“Software” solution

The Management is performed by the software installed on the PC or server to protect. This solution is recommended for small installations where the UPS is installed close to PC or server.



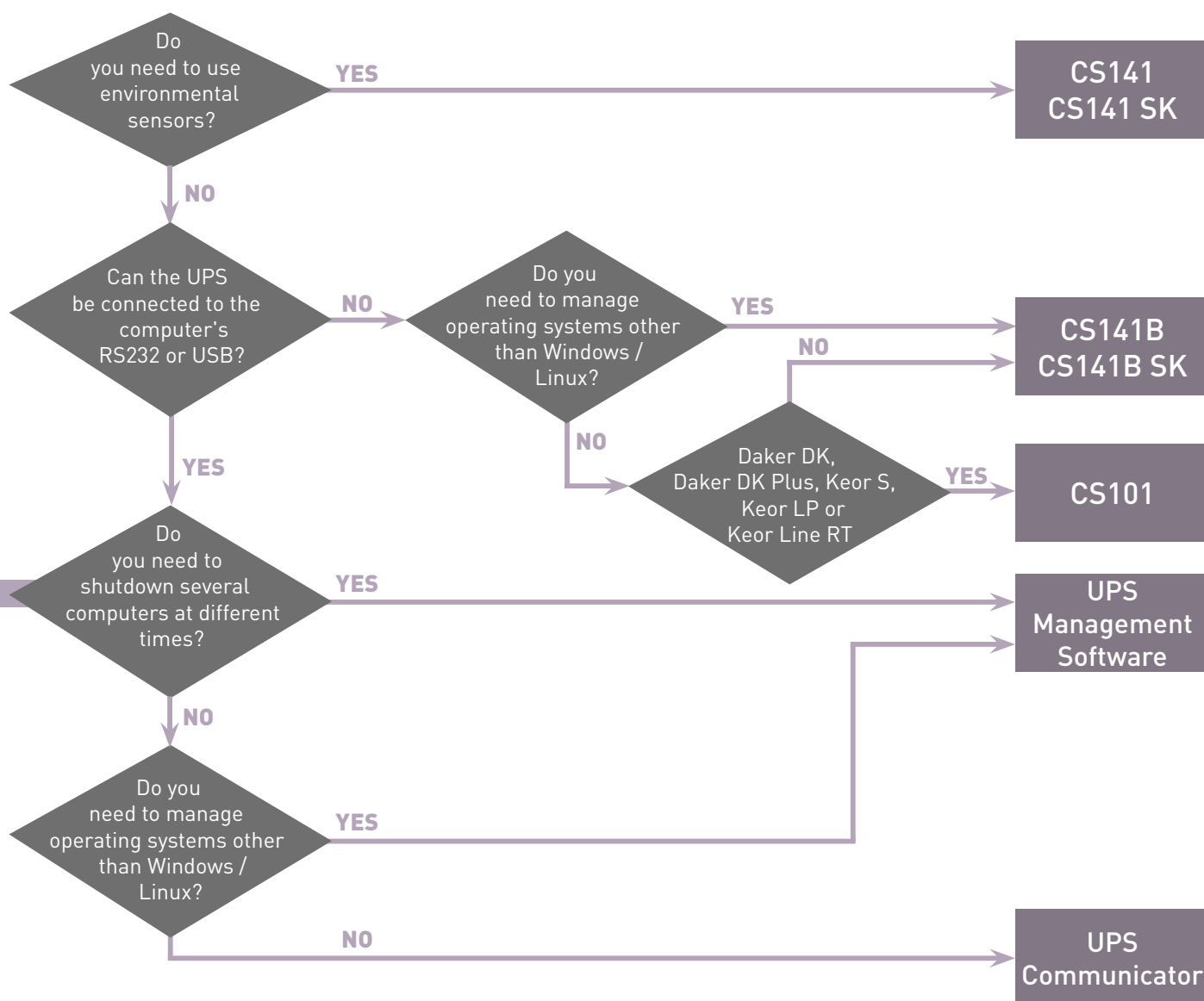
“Hardware + software” solution

The System is made by a set of communication accessories and software allowing to perform more extended supervision, direct or remotely by INTERNET.



SELECTION GUIDE

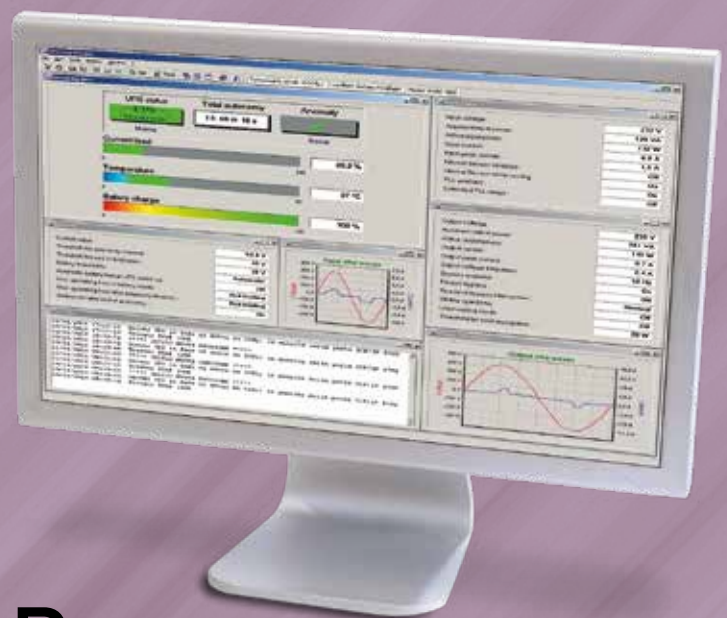
The following diagram shows how is possible to choose the best configuration for your needs:



MANAGEMENT SOFTWARE

The management software provides two main functions:

- UPS management and control: UPS Communicator and UPS Management Software;
- UPS supervision (monitoring and remote control): RCCMD, UNMS.



UPS COMMUNICATOR

Free download from www.ups.legrand.com. It comprises a group of applications that continually monitor UPS operation and protect the operating systems of the computers powered by the UPS itself.

The client/server structure makes it extremely flexible, efficient, simple to use and "light" when it comes to required system resources. Compatible with all Windows operating systems (98 and more recent) and with all Linux distributions.

UPS Communicator includes the following main modules:

UPS SERVER:

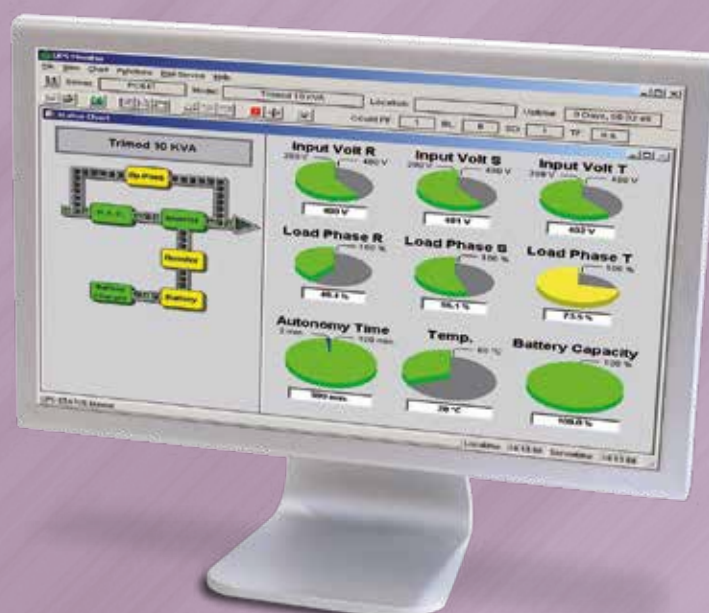
Server module for UPS management through the RS232 link. This server module can control numerous events (power failure, overload, bypass, internal faults, etc..) and is able to carry out lots of actions for each one (data registration in the log file, transmission of pop-up messages, e-mail transmission, program execution, local and remote shutdown, etc...).

UPS DIAG MONITOR:

Graphic interface which, after connection to the UPS Server module, allows to access the operating data of the UPS, make a complete diagnosis, program special functions and perform tests.

RS SYSTEM:

Agent for executing commands on remote computers (shutdown, customised commands, pop-up messages) via the TCP/IP protocol.



UPS MANAGEMENT SOFTWARE

This is a paid version, supplied on CD-Rom. It comprises a group of applications that permanently monitor UPS operation and protect the operating systems of the computers powered by the UPS itself. The client/server structure makes it extremely flexible, efficient, simple to use and "light" when it comes to required system resources.

Compatible Windows 2000 and more recent, Linux, Mac OS X 10.x. and Includes one RCCMD license for executing commands on an additional PC. The upgrades can be downloaded from the website www.ups.legrand.com.

UPS Communicator includes the following main modules:

UPSMAN:

Server module for UPS management through the RS232 link. This module can control numerous events (power failure, overload, bypass, internal faults, etc..) and is able to carry out lots of actions for each one (data registration in the log file, transmission of pop-up messages, e-mail transmission, program execution, local and remote shutdown, etc...), also at different times.

RCCMD:

agent to run commands on remote computers (shutdown, commands custom, pop-up messages) via TCP / IP protocol.

SUPERVISION SOFTWARE (MONITORING AND CONTROL)

UPS RCCMD



This software enables a computer to receive and execute, via the TCP/IP protocol, the following remote commands transmitted by the UPS management systems:

- Shutdown of the operating system;
- Display of pop-up messages;
- Execution of customised programs (.COM, .EXE, .BAT, .CMD) with the relative options.

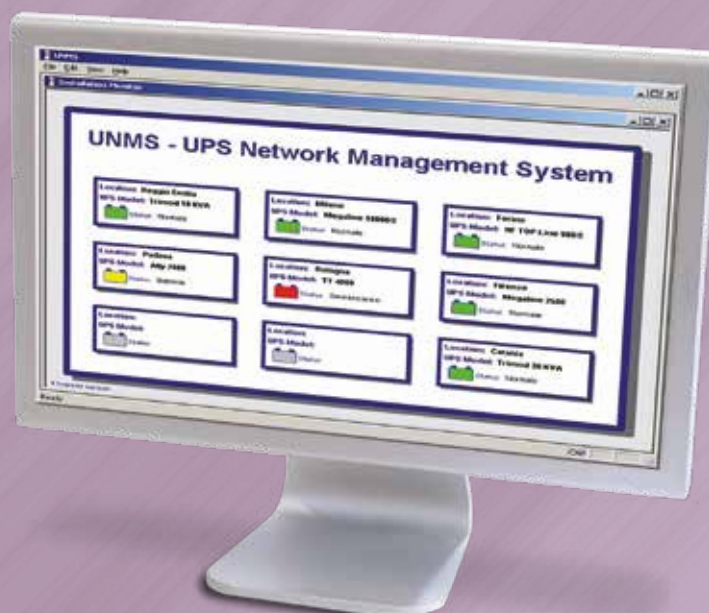
All the commands received are recorded in a log file.

Execution of these commands depends on an authorization control: the commands are only accepted if the UPS that transmitted them is part of an authorization list.

A "redundancy" list can be created, i.e. a command will only be executed if it has been transmitted by several UPS (e.g. to shutdown computers with redundant powering on two or more UPS).

The software is compatible with 99% of the operating systems currently available on the market (including the AS/400 systems and virtualization systems like VMware) and is also available for different types of architecture (e.g. Intel, PowerPC, Alpha processors).

Compatible with: UPS Management Software, CS141 network interface (all models).



UPS UNMS

UNMS (UPS Network Management System) is a WEB based application that can continuously monitor the status of all the UPS installed in one or more locations by means of the UPS management systems (network interface, UPS Management system, SNMP) and the TCP/IP protocol.

All the alarm signals generated by the various UPS are received by the monitoring station. That allows to achieve an immediate and thorough diagnosis of the problem and allow the technical assistance service to act urgently if needed.

The operating status of each UPS is represented by a traffic light icon. In case of anomaly, the icon of the UPS in the alarm status changes colour, depending on the seriousness of the fault. The control program sends pop-up messages, e-mail and runs customised programs.

The monitoring function of the UPS concerned can be accessed with an Internet browser and a simple click on the mouse.

The SNMP protocol's support allows this application to be used with different brands of UPS, as long as they are compatible with the MIB RFC 1628 specifications.

The system also allows the graphic interface to be customised, memorising of all alarms received in a database for research purposes and can display graphs showing the trend of the main operating parameters of the UPS.

The basic version is free of charge and it allows to manage up to nine UPS at the same time (a maximum of 3 UPS can be of different brands or connected at network interface CS101).

UNMS is available for Windows 7 and more recent.

COMMUNICATION AND MANAGEMENT ACCESSORIES

The communication accessories can be classified in:

- Network interface (Standard, Professional and Industrial)
- Control unit for load management with independent output
- Sensors for environmental and mechanical monitoring

NETWORK INTERFACES



They are special network devices designed to autonomously manage UPS. External software is not required: a 32-bit processor resides in the board along with an operating system of the "UNIX Embedded" type which is able to continuously monitor the operation of the UPS, handle lots of events (power failure, overload, bypass, faults,...).

The network interfaces are available in external and internal version. The internal version can be installed in a dedicated slot inside the UPS. The Professional and Industrial versions have programmable digital contacts and additional RS232/RS485 communication ports. All CS141 network interfaces include an RCCMD license for executing commands on additional PC.

The firmware can be upgraded using specific software package available for free at www.ups.legrand.com.

Main functions :

- Event log with date and time;

- Memorising the trend of the main operating data, complete with date and time;
- E-mail transmission;
- Accomplishment of scheduled actions;
- Displaying pop-up messages, shutdown and customised commands on remote computers;
- Transmission of SNMP trap messages;
- Turning the UPS off and on;
- Transmitting Wake On LAN (WOL) signals;
- Compatible with SNMP protocol and the main types of operating software (HP OpenView, IBM Tivoli, etc...);
- Data and configuration display via the Internet browser (Internet Explorer, Mozilla Firefox, Opera, etc...) or Telnet;
- 10/100Mbit Base-T Ethernet link (half-duplex and full-duplex) with self-recognition function;
- DHCP Function.

SENSORS



The range consists of two different types of sensors, according to the type of connection to the UPS.

Some sensors are available for the direct connection to the CS141 network interfaces while others must be connected to the SENSOR MANAGER II.

The available types of sensors are:

FOR NETWORK INTERFACE

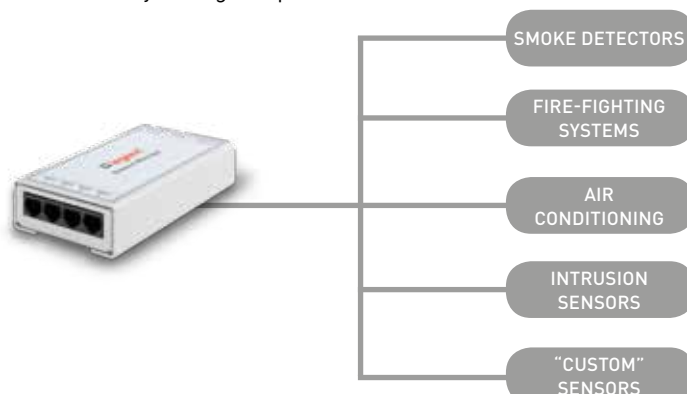
- temperature sensor
- temperature and humidity sensor

FOR SENSOR MANAGER II

- temperature sensor
- temperature and humidity sensor
- reed switch and magnet sensor
- flashing illuminated signal.

The SensorManager II is a device that allows the connection of several types of sensors to the UPS. It is able to manage up to 8 analog inputs, 4 digital inputs and 4 digital outputs.

Thanks to the configuration functions "Scale" and "Off set" it can be used with any analog setup.



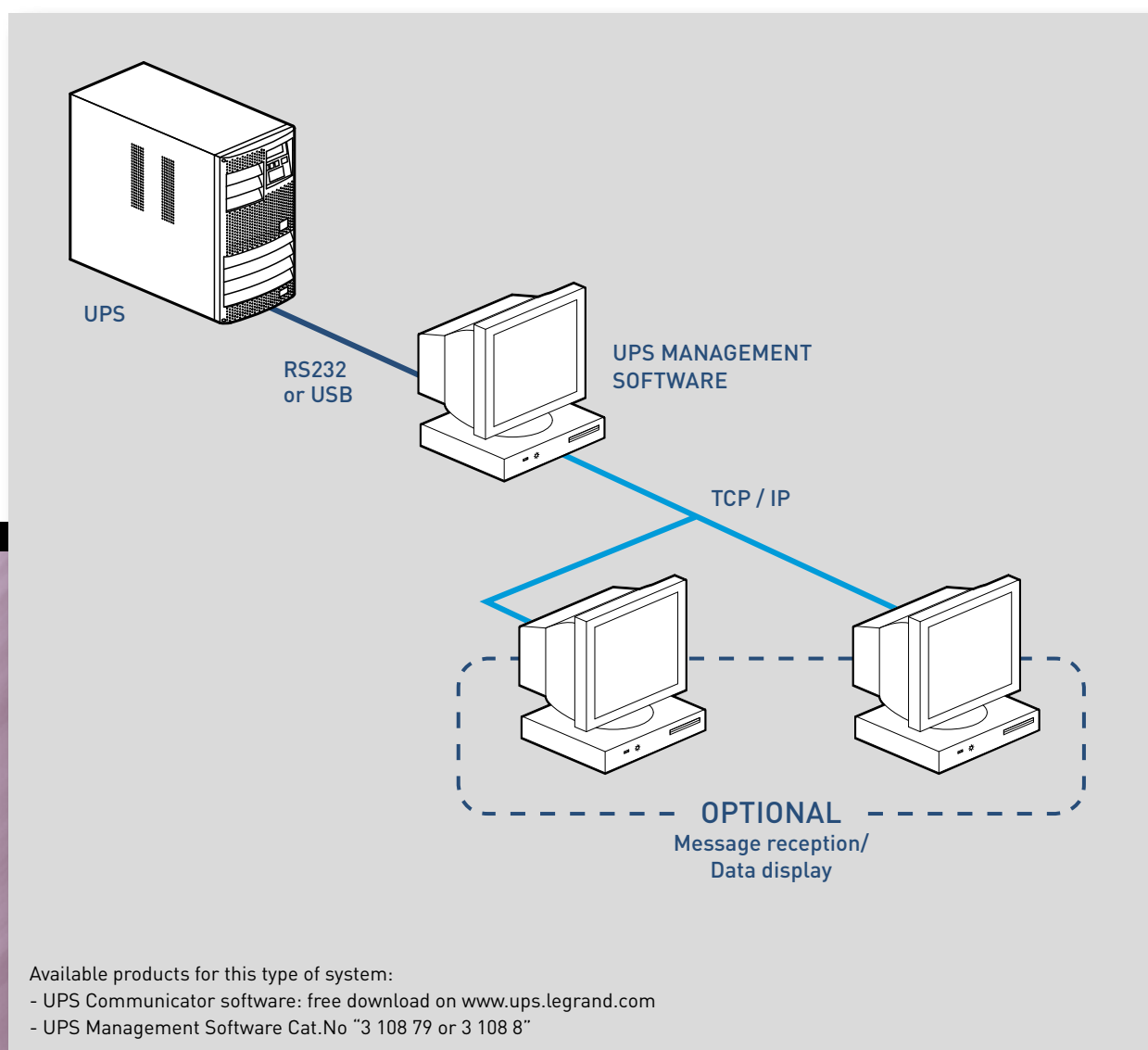
UPS MANAGEMENT TYPES

LOCAL PROTECTION

To protect a single computer (server or workstation) and its relative peripherals, it is enough to use an RS232 or USB connection and install the operating software in the system that must be protected.

If the computer is linked to an IP network, it is possible to receive alarm signals from the UPS as pop-up and e-mail messages, while the operating data can be graphically displayed via specific monitoring programs.

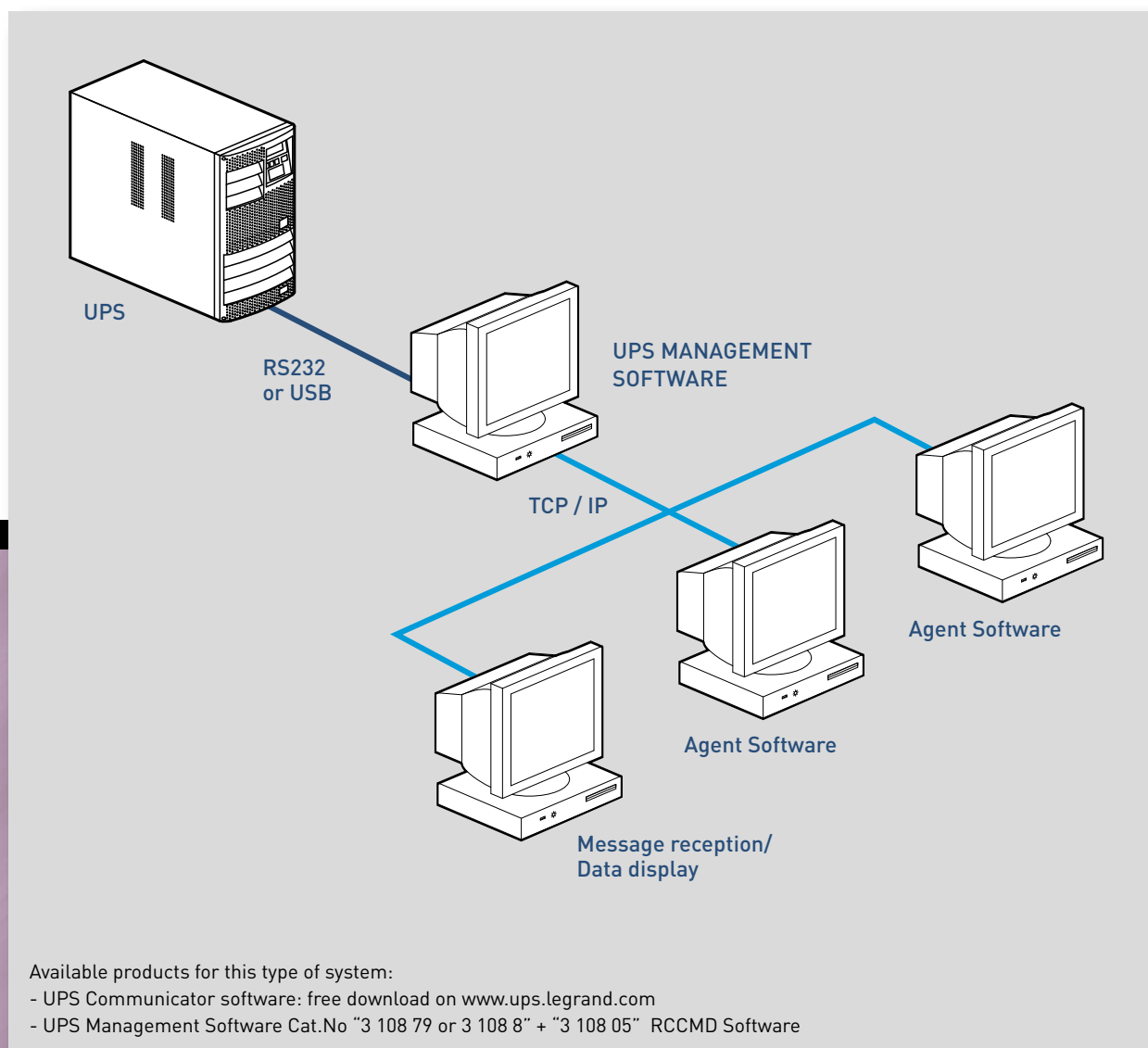
The advantage of this type of management is the low cost of the implementation, but the UPS must be positioned near the system to be protected.



EXTENSION OF THE LOCAL PROTECTION

In case of several computers to manage, the previously described solution can be used with a special software "agent" installed on the other computers. This special software will then receive and run the commands transmitted by the computer interfaced with the UPS.

Here again, the implementation costs are very low, but the management system is completely inhibited when the computer interfaced with the UPS is shutdown (fault, maintenance, upgrading, etc...). If this happens, it will no longer be able to receive the alarm signals and will endanger the remaining computers.

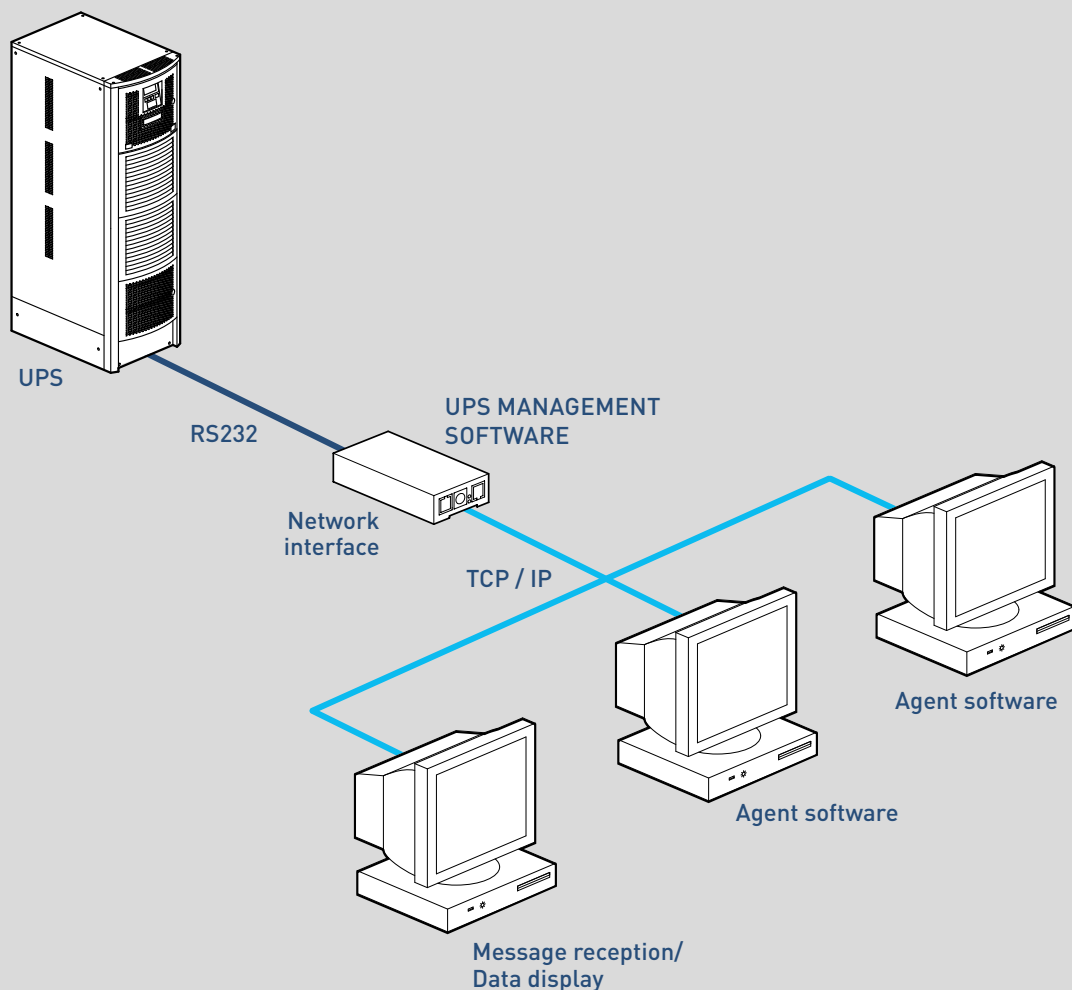


UPS MANAGEMENT TYPES

IP NETWORK INTEGRATION

For this type of installation, the UPS must be connected to a special network interface on which the management software was installed. The network board is then connected to the IP network. Since the UPS is directly linked to the UPS network, its management system can send e-mail and pop-up messages, shutdown and restart the computers s again. Protection for the various computers is guaranteed by equipping them with agent software that receives commands from the network interface of the UPS. There are lots of advantages with this solution:

- The UPS can even be installed at a distance from the systems it must protect;
- The entire management no longer depends on one single computer, effectively guaranteeing that all the devices connected are protected;
- The data can be displayed via any WEB browser without need of dedicated software.



Products for this type of system:

- any CS141 network interface + n.1 x 3 108 05 RCCMD licence
- CS101 network interface

MANAGEMENT OF SEVERAL UPS

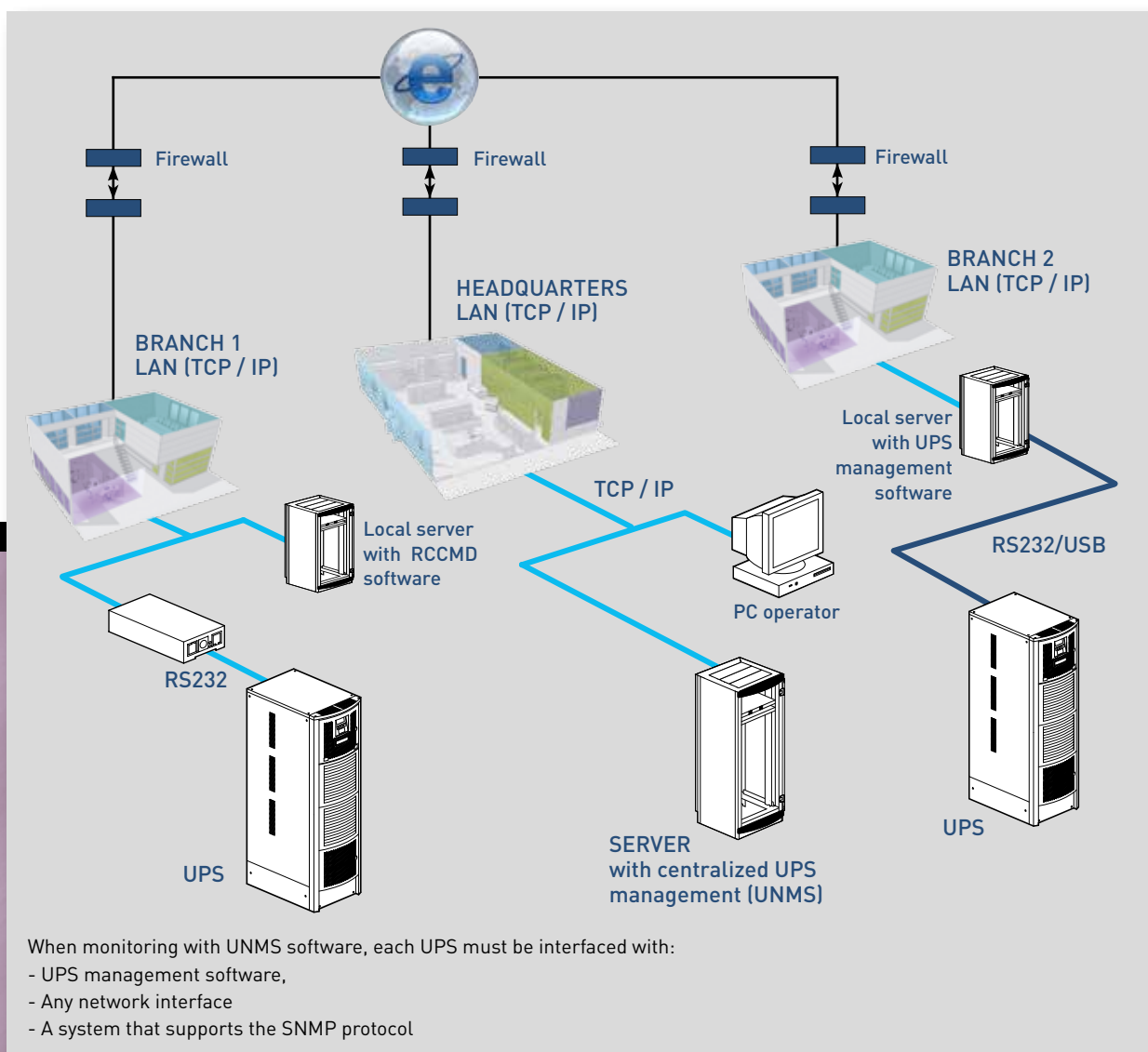
This solution requires a software application that continuously monitors a high number of UPS installed either locally or at remote locations.

All the alarms generated by the UPS through their respective management systems are received, via the IP network, by this application, which memorises them in a database and transmits a series of e-mail and pop-up messages to the operators. They are able to identify rapidly the UPS that generated the alarm (via a web browser) and to make a complete and efficient diagnosis.

A Bank is a typical example of how this application can be used:

- Each branch has a UPS monitored by one of the previously described management systems, which controls and protects the local network;
- The various different local networks are linked to each other permanently;
- The monitoring station that continuously controls all the UPS is installed in the headquarters.

The advantage of this solution is the standard monitoring system which allows to manage UPS without having to know their IP address.



UPS MANAGEMENT TYPES

ENVIRONMENTAL MONITORING

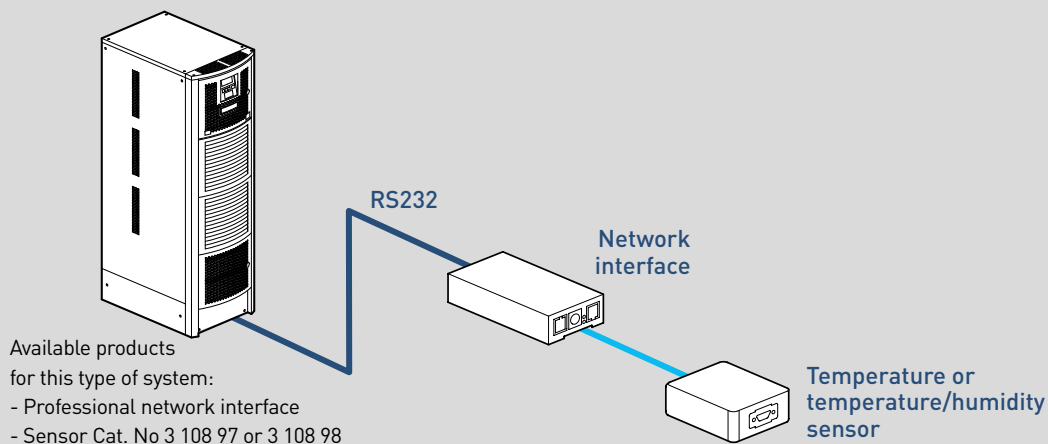
There are applications which require both UPS and environmental monitoring.

CS141 / CS141 SK network interface allow to monitor temperature and humidity using special sensors.

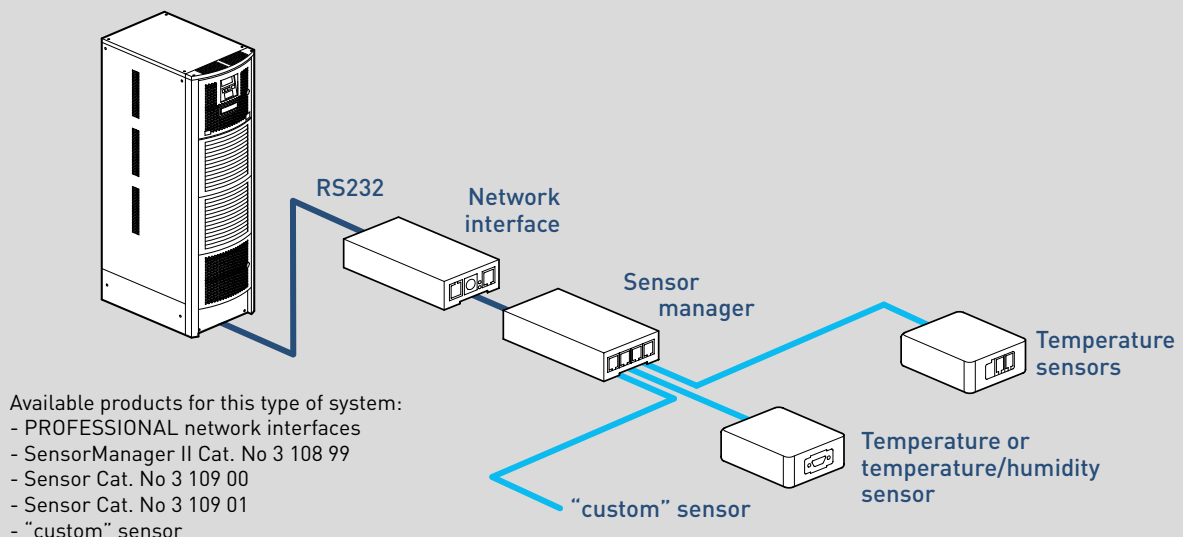
Within environmental monitoring is also possible to set threshold values and program relevant job to execute as: sending e-mail, pop-up message, remote computer command, shutdown, etc.

For installations with more than one sensor, the Sensor Manager, installed between the network interface and the different sensors, allows connection of up to 8 units.

MONITORING OF ONE SINGLE SENSOR



MONITORING OF SEVERAL SENSORS



Accessories

Management software



Pack	Cat. Nos.	Software
		Description
1	downloadable	UPS Communicator Set of applications for real-time control of the operation of the UPS and to ensure the integrity of the systems on the computers supplied by this UPS. Operates with an agent for executing commands on remote computers (RS System).
1	3 108 79	UPS Management Software Set of applications for real-time control of the operation of the UPS and to ensure the integrity of the systems on the computers supplied by this UPS. Requires the addition of an agent for executing commands on remote computers (RCCMD).
1	3 108 80	UPS Management Software Set of applications for real-time control of the operation of the UPS and to ensure the integrity of the systems on the computers supplied by this UPS. Requires the addition of an agent for executing commands on remote computers (RCCMD). Includes an RS232/USB converter.
		RCCMD Software enabling a computer to receive and execute, using the TCP/IP protocol, all the remote commands sent by the management systems of the UPS. An RCCMD licence is necessary for each computer to be controlled. Only the licences are supplied: the software can be downloaded on the Internet (after requesting the activation code).
1	3 108 85	RCCMD Multi-OS RCCMD licence
1	3 108 86	RCCMD Pack of multi-OS RCCMD licences
1	3 108 87	RCCMD Pack of 10 multi-OS RCCMD licences
1	3 108 88	RCCMD Pack of 25 multi-OS RCCMD licences
1	3 108 89	RCCMD Pack of 50 multi-OS RCCMD licences
1	3 108 90	RCCMD RCCMD licence for AS/400 (minimum release: V5R3M0)
		UNMS "WEB based" application capable of real-time supervision of the status of all UPS, via the management systems of the UPS and the TCP/IP protocol.
1	3 108 91	UNMS UNMS licence for 25 UPS
1	3 108 92	UNMS UNMS licence for 50 UPS
1	3 108 93	UNMS UNMS licence for 150 UPS

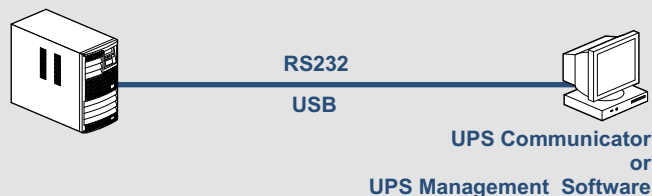
Accessories

Management software

Examples of types of management and communication that can be created with software and hardware.

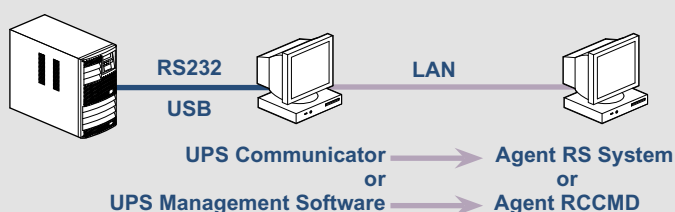
Local protection

Protects and controls a single station (PC or server) which must be located less than 12 metres away.



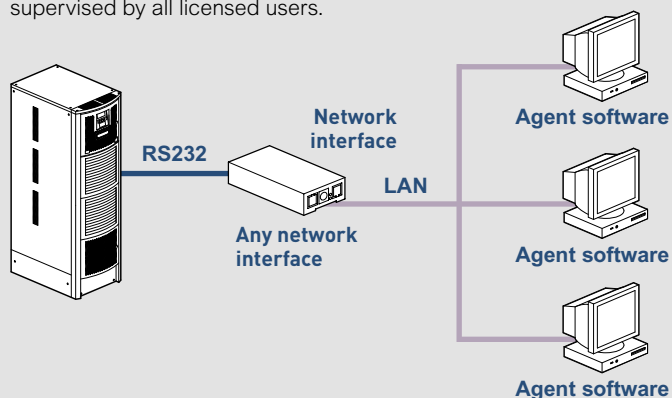
Extended local protection

Protects a larger number of stations (PC or server) but they are all controlled by the station directly connected to the UPS.



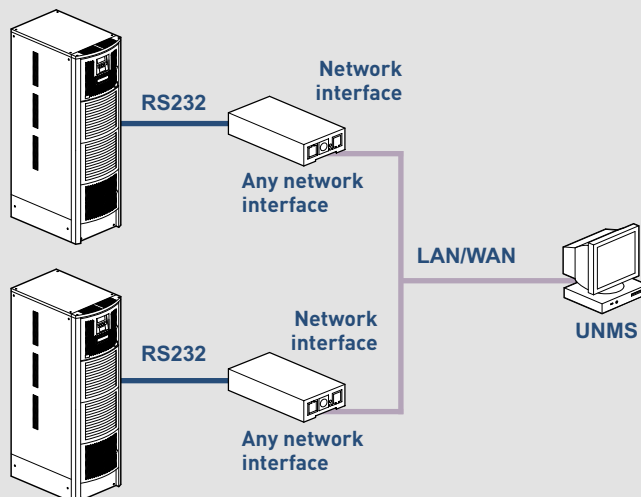
Protection via TCP/IP network

Enables control of all the stations that can communicate with the network interface. The management of the system can be supervised by all licensed users.



Centralised protection

Using the UNMS supervision software, it is possible to control all the UPS connected to a TCP/IP network.



Accessories

Network interfaces

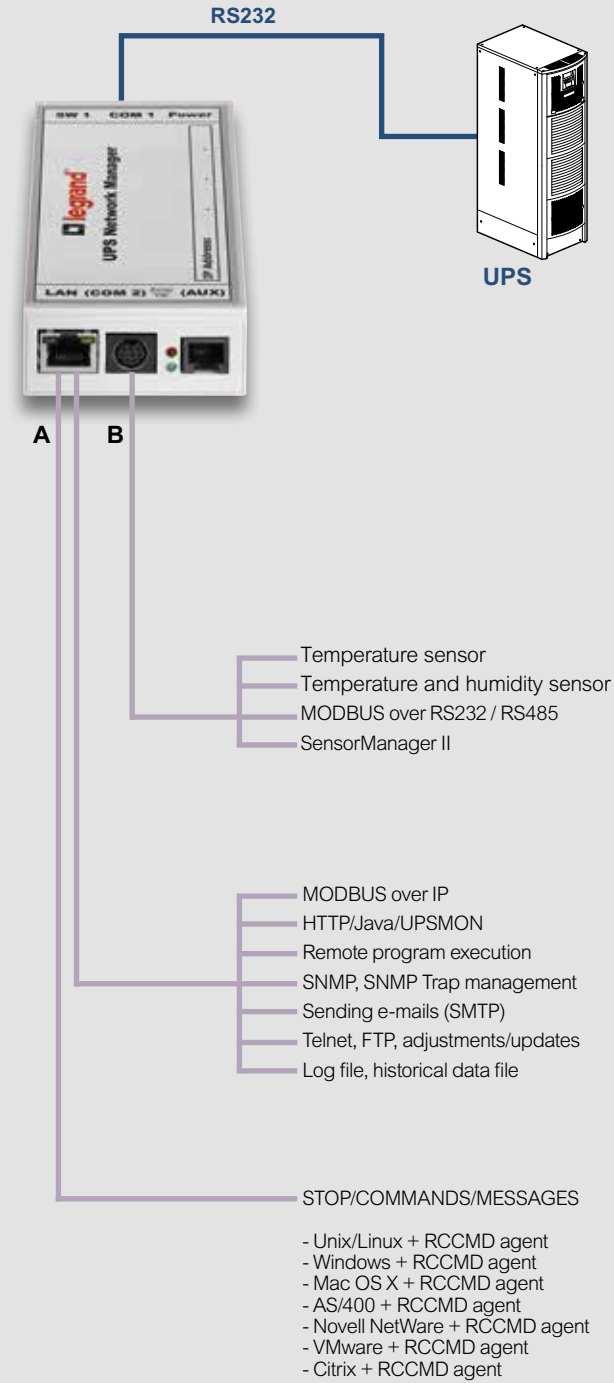


Pack	Cat. Nos.	CS141 Network interface
		The network interfaces for managing UPS do not require any external software. They include a proprietary system capable of real-time control of the operation of the UPS and managing numerous events (power failure, overload, bypass, problem, etc.) and as a result executing a series of actions, such as: <ul style="list-style-type: none">• Memorisation of events in time-stamped log files• Regular memorisation of the main operating parameters• Sending e-mails• Execution of scheduled actions• Display of pop-up messages, shutdown, and execution of customised ncommands on remote computers• Stopping and restarting the UPS• Sending "Wake on LAN (WOL)" signals• Support of the SNMP protocol• Sending SNMP trap messages• Displaying data and configuration via a web browser (Internet Explorer, Mozilla Firefox, Opera, etc.)• Firmware updatable, which can be downloaded free of charge on the Internet• Ethernet 10/100 Base-T (half-duplex and full-duplex) connection with auto-recognition function• DHCP function• 1 RCCMD licence included Available in external and internal version (in this case it is inserted in a dedicated slot in the UPS). Supply voltage 9 - 30 VDC (power supply included in external versions). The professional and industrial versions have an additional RS 232/RS 485 communication ports.
1	3 109 30	CS141 SK PROFESSIONAL network interface, internal version (card)
1	3 109 31	CS141B SK STANDARD network interface, internal version (card)
1	3 109 32	CS141 PROFESSIONAL network interface, external version
1	3 109 33	CS141B STANDARD network interface, external version
1	3 109 34	CS141M INDUSTRIAL network interface, external version
1	3 109 35	CS141M SK INDUSTRIAL network interface, internal version (card)
1	3 109 38	CS101 Network interface, internal version (card) for Daker DK, Daker DK Plus, Keor S, Keor LP or Keor Line RT

Accessories

Network interfaces

CS141 Characteristics



Model	A	B
CS141B	X	
CS141B SK	X	
CS141	X	X
CS141 SK	X	X
CS141M	X	X*
CS141M SK	X	X*

* Only Modbus over RS 485

Accessories

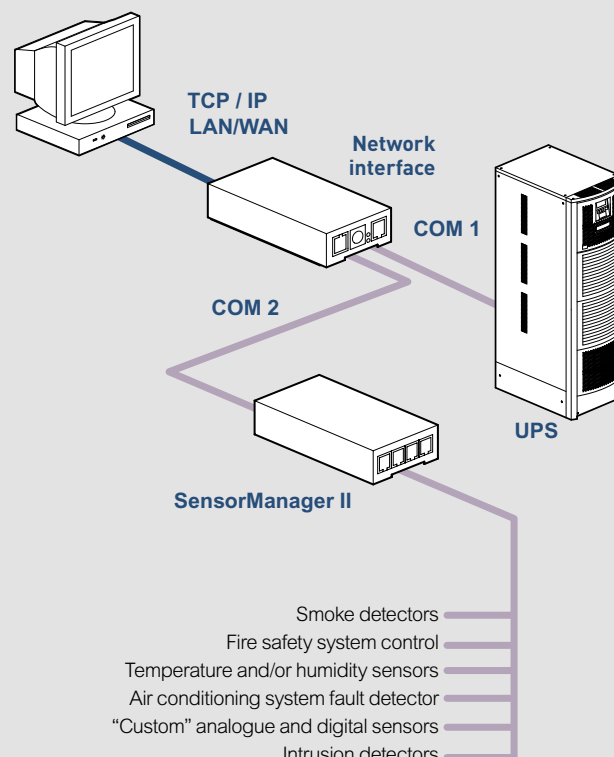
Sensors and other accessories



Pack	Cat. Nos.	Sensors
		Description
1	3 108 97	SM_T_COM Temperature sensor for direct connection to the COM2 port on the CS141 and CS141 SK interfaces. Cannot be used with SensorManager II.
1	3 108 98	SM_T_H_COM Combined temperature and humidity sensor for direct connection to the COM2 port on the CS141 and CS141 SK interfaces. Cannot be used with SensorManager II.
1	3 108 99	SensorManager II Manager for sensors: connects to the COM2 port on the CS141 and CS141 SK interfaces and manages up to 8 analogue inputs, 4 digital inputs and 4 digital outputs. The configuration is managed directly by the CS141 interfaces (PROFESSIONAL version), described previously. The "Scale Divisor" and "Off set" configuration functions enable SensorManager to be used with any analogue device (see characteristics). It includes 1 "SM_T" temperature sensor
1	3 109 00	SM_T Temperature sensor that can only be used with SensorManager II. It enables another "SM_T" sensor to be connected using a special connector.
1	3 109 01	SM_T_H Combined temperature and humidity sensor that can. Only compatible with SensorManager II.
1	3 109 02	Door sensor This consists of a reed switch and a magnet. Only compatible with SensorManager II.
1	3 109 03	SM_flash Flashing illuminated signal. Only compatible with SensorManager II.

Accessories

Sensors and other accessories



SensorManager II technical characteristics

Supply voltage (VDC)	9-24
Temperature (°C)	0 ÷ 65
Non-condensing humidity (%)	10 ÷ 80
Analogue inputs (V)	0 ÷ 10
Digital inputs (V)	9 ÷ 24
10 mA digital outputs (V)	9 ÷ 24
Dimensions (WxDxH) (mm)	70 x 130 x 30

Sensor technical characteristics

	3 108 97	3 108 98	3 109 00	3 109 01
Supply voltage VDC	9 to 15*	9 to 15*	15 to 24**	15 to 24**
Temperature range °C	-25 to +100	-25 to +100	0 to +100	0 to +100
Relative humidity ± 5% (%)		0 to 100		0 to 100
Connection cable included (m)	1.8	1.8	5	5
Dimensions H x W x D (mm)	27 x 70 x 70			

* Direct from the network interface

** Direct from SensorManager



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