GENEREX

SNMP / WEB MANAGER

CS141 External & Slot Cards

- ● **Ethernet-Adapter for the control and the management of UPS Facilities**

- ● **CS141Pro and MODBUS with Battery Management Function BACS**

CS141L
CS141SC

CS141 PROFESSIONAL

Control and Management of UPS, Inverters, Rectifiers, Environmental Sensors, Alarm Contacts and BACS

CS141LM
CS141SCM

CS141 MODBUS

With RS485 interface
Control and Management of UPS, Inverters, Rectifiers, Environmental Sensors, Alarm Contacts and BACS

CS141BL
CS141BSC

CS141 BUDGET

Control and Management of UPS, Inverters and Rectifiers through Web, SNMP & Modbus

CS141R_2
CS141MINI

CS141 MINI & R2

Control and Management of UPS, Inverters, Rectifiers and Environmental Sensors

CS141 R_2:
Manager for NETMAN Slots

Features

● High-tech made in Germany and made in the USA
The most powerful and flexible UPS management card worldwide! The CS141 is delivered with an ARM Cortex A8 CPU, 10/100Mbit Auto-sensing Ethernet, 3 serial RS-232 Interfaces (not BUDGET version), 1 USB Port, AUX port for connecting an external interface Card with 4 dry-contact, external alarms output/input or a BACS System. Available also as MODBUS RS485 interface at COM2.

● Grafical interfaces
The web build-in web server is designed for inutuitive monitoring and configuration via the network. Handle extensive functions of the CS141 and perform even the most powerful statistical analysis of the data clearly.Statistical values of all connected devices are displayed graphically - UPS, temperature, humidity, etc. Additionally, the CS141 provides options to communicate with UNMS 2 - or any type of SNMP management software. Thanks to the GENEREX API, the CS141 offers additional interfaces for customers who wish to program the settings on the device using self-defined scripts.

● Universal suitable for nearly type of UPS
Supports more than 1400 UPS types from 120 UPS manufacturers. The incorporation of RS-232 protocol and support of dry contacts makes the monitoring of any device possible. The CS141 is used for the monitoring of UPS, Transfersswitches, Rectifiers, Inverters, Generators and Fuel Cells – plus Batteries.

● Scheduler
Use the intuitive task scheduler to plan recurring tasks such as UPS and battery testing, AUX output switching, or other tasks. The CS141 will take over regular maintenance tasks. Reduce time needed for reading of alarm and data logs!

● Data logging
Measurement values and alarms are logged to the non-volatile storage of the CS141. The time synchronization function through NTP insures that all log entries are precise.

● Email/SMS
Integrated email client via SMTP can be configured to relay either all or specific messages. The email client can also make the use of public email servers and local email servers to distribute information. Compatible with SMTP email systems such as MS Exchange/Outlook, Lotus, and many others. Support for GSM Modem through COM2 for transmitting SMS Textmessage.

● Email Trap for UNMS Remote Monitoring
Every CS141 can send its data packages via "*Email Trap*" to the UNMS II Software with TELESERVICE module. This allows a remote monitoring via email, without compromising the customers network security systems. All measuring values and graphics are visible on the UNMS at any time.

● Multiserver Shutdown
Unlimited shutdown manager for RCCMD clients – for more than 40 different operating systems. This allows the CS141 adapter to inform and shutdown any type of computer in a network which can then be used to centralize the administration of large networks while greatly reducing both the amount of administrative work and amount of network traffic. Different options are available for conducting shutdowns and system start ups: Cold boot (computers are directly cut-off from or connected to the power supply). Warm boot (using RCCMD operating systems are prompted to shutdown or restart). Wake On LAN (using data packages other computers in a local network are prompted to start-up).

● Network Services
UPSMAN compatible server for the alarm management. Supports SNMP V2/V3, IPv4/IPv6, HTTP/HTTPs, DNS, DHCP, SMTP, NTP, SFTP, UPSTCP (UNMS), MODBUS over IP, MODBUS/PROFIBUS over RS232/485, BACnet over IP (optional) and RCCMD (Multiserver/Multi-OS shutdown/ messaging tool).

● Network Security
The CS141 provides manifold security features to ensure a maximum of network security. The CS141 uses industrial standards to provide HTTPs and SSL encrypted communication with user created certifcates - the CS141 can be configured to deny outdated or invalid certificates. As a standard, it uses SNMP v3 communication, also less secured systems are supported. Advanced password security and hard-coded user management provides configuration menues according to user level.To prevent unauthorized access inside full-automated scenaries, the webserver can be disabled after configuration – the encapsulated operating system does not support a ROOT access so that no change is possible. An intelligent build-in watchdog will reboot the CS141 in case of unexpected incidents causing a hang-up. As a special feature, the CS141 provides tools to assist administrators during network security auditings of a network segment. *Upcoming:* Digitally signed firmware updates prevent installing hacked software.

● SNMP
The CS141 supports the RFC1628 MIB (Standard UPS MIB) and MIB extensions for use with the SITEMANAGER 4,5,6, BACS and SENSORMANAGER. This enables the CS141 adapter to make all of its gathered information from other devices available via SNMP. All SNMP based network-management systems are supported.

● BACS Battery Management System (option)
The CS141 is now capable to connect a BACS system at the COM3/AUX port. This upgrades your CS141 to a BACS WEBMANAGER – this is the ultimate version of the CS141 range and adds a battery management functionality to your system. A possible failure of your UPS batteries is now under your control and you gain a massive batterylife increase compared to systems without BACS .

● MODBUS
All of the CS141 adapters are equipped with MODBUS-over-IP, which enables the CS141 to incorporate PLC devices (SPS) like those from Schneider Group or any other MODBUS based management system. The CS141 devices with a COM2 port possess MODBUS over RS232 additionally. The CS141 devices LM or SCM provide MODBUS over RS485.

● Sensormanager (option)
The optional sensor manager offers 8 analog inputs for almost all analogue sensors on the market. In addition, the sensor manager provides 4 digital inputs for alarm sensors (e.g., for smoke, fire, water, etc.) and 4 digital outputs (e.g., for visual and visual alarms).

● Analog IO
It is possible to connect an Interfaceboard (CON_AUX4/CON_R_AUX4) to the COM3/AUX-port to control 4 analog Inputs or Outputs with the CS141.

● PROFIBUS/LONBUS/BACNET (option)
More Fieldbuskonverters are available as option.

● Fully automated
Within very large installations, scripting offers a very interesting way to simplify normalized operations via automated processes. For example, the scripts could import basic configurations, read out log data, save backups, download and import firmware, etc. The CS141 is capable of scripting. Use these and other powerful features to integrate the CS141 into your own customized solution

● NEW: The intelligent third-party UPS communication Assistant
As a default, a CS141 offers communication using RS232 or slots for almost any UPS systems on the market - even communication with transfer switches and generators is supported. In some cases, this direct connection is not possible due to missing or blocked interfaces on the UPS - e.g. if manufacturers prevent this and use their own network cards. New is that the CS141 can now communicate with such 3rd party SNMP cards, and uses the Ethernet cables as UPS connectivity cable to read the UPS data via TCP/IP using SNMP RFC1628 standard (or private MIBs e.g. from APC). The CS141 now ensures compatible communication methods to formerly incompatible UPS solutions.

Function Overview of the CS141 Professional
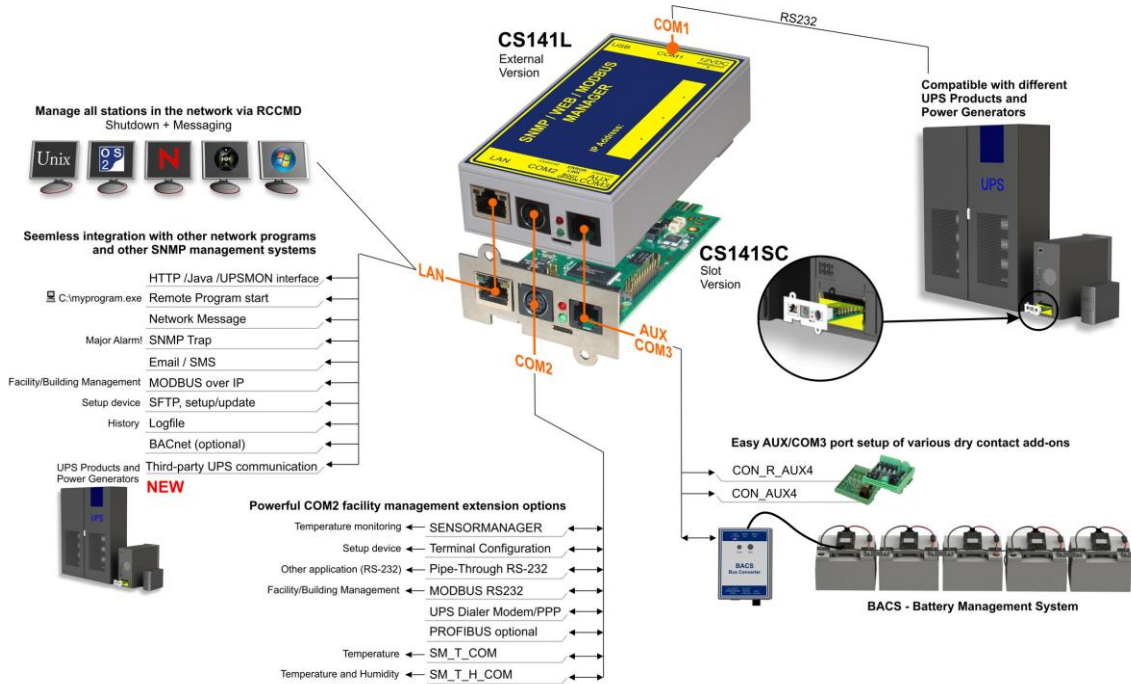
Technical Data of the CS141 Professional

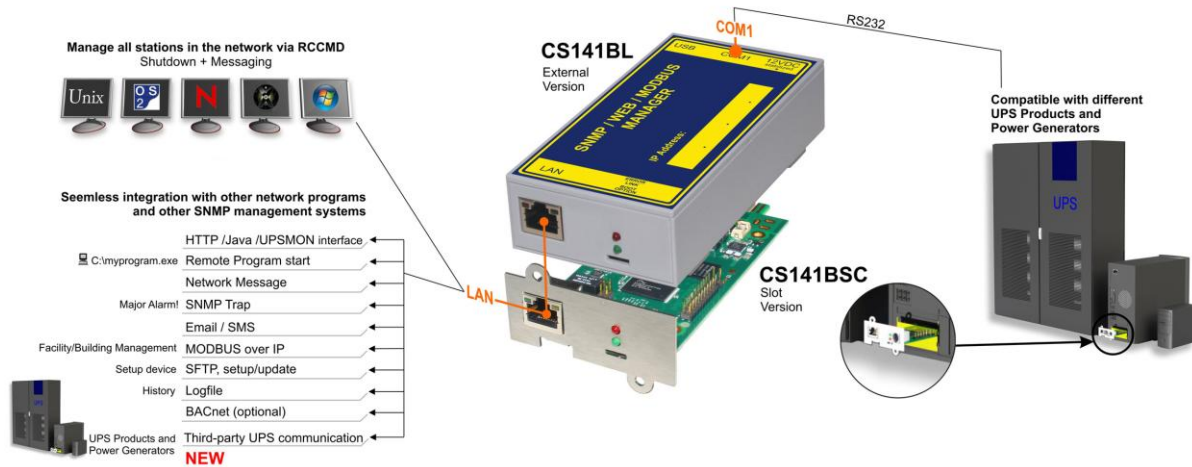|	CS141L "Professional External" (all UPS vendors)	CS141SC "Professional Slot" (all UPS vendors with SC slot format)
Power supply	12V (min. 9V, max. 30V DC), 150 mA	12V (min. 9V, max. 30V DC), 150 mA
Size (W x L x H), weight	69 x 126 x 35mm, 210 g	60 x 120 x 29mm, 66 g
Ethernet	10/ 100Mbit Base-T auto sense	10/ 100Mbit Base-T auto sense
RS-232 Interface	2	2
RS-485 Interface	-	-
USB Interface	1	-
AUX Interface	1	1
MODBUS over IP	Standard	Standard
Status LED's	normal green, boot/error red	normal green, boot/error red
User manual	German, English	German, English
MIB	RFC 1628 und and private extension	RFC 1628 und and private extension
Operating temperature	0 – 70 °C	0 – 70 °C
Storage temperature	0 – 70 °C	0 – 70 °C
Max. Recommended ambient temp.	55 °C	55 °C
CPU	ARM Cortex A8 800 MHz	ARM Cortex A8 800 MHz
Flash Memory	512 MB	512 MB
Access memory	128 MB DDR3 RAM	128 MB DDR3 RAM
Humidity	20-95%, not condensated	20-95%, not condensated
Certification	CE, UL/NEMKO	CE, UL/NEMKO
MTBF (EN/IEC 61709)	849.192 hours (96,9 years)	874080 hours (99,8 years)
Warranty	2 years	2 years

BACS System Starter Kit
Order No. **BACSKIT_LB4**
CS141L + BACS Bus Converter + Power Supplies + 6x Bus Connection Cables

BACS System Starter Kit
Order No. **BACSKIT_BSC4**
CS141SC + BACS Bus Converter + Power Supplies + 6x Bus Connection Cables

Function Overview of the CS141 BUDGET

Technical Data of the CS141 BUDGET

	CS141BL "BUDGET External" (all UPS vendors)	CS141BSC "BUDGET Slot" (all UPS vendors with SC slot format)
Power supply	12V (min. 9V, max. 30V DC), 150 mA	12V (min. 9V, max. 30V DC), 150 mA
Size (W x L x H), weight	69 x 126 x 35mm, 210 g	60 x 120 x 29mm, 66 g
Ethernet	10/ 100Mbit Base-T auto sense	10/ 100Mbit Base-T auto sense
RS-232 Interface	1	1
USB Interface	1	-
AUX Interface	-	-
MODBUS over IP	Standard	Standard
Status LED's	normal green, boot/error red	normal green, boot/error red
User manual	German, English	German, English
MIB	RFC 1628 und and private extension	RFC 1628 und and private extension
Operating temp.	0 – 70 °C	0 – 70 °C
Storage temp.	0 – 70 °C	0 – 70 °C
Max. Recommended ambient temp.	55 °C	55 °C
CPU	ARM Cortex A8 800 MHz	ARM Cortex A8 800 MHz
Flash Memory	512 MB	512 MB
Access memory	128 MB DDR3 RAM	128 MB DDR3 RAM
Humidity	20-95%, not condensated	20-95%, not condensated
Certification	CE, UL/NEMKO	CE, UL/NEMKO
MTBF (EN/IEC 61709)	884.463 hours (101 years)	909.620 hours (103,8 years)
Warranty	2 years	2 years

Function Overview of the CS141 MODBUS
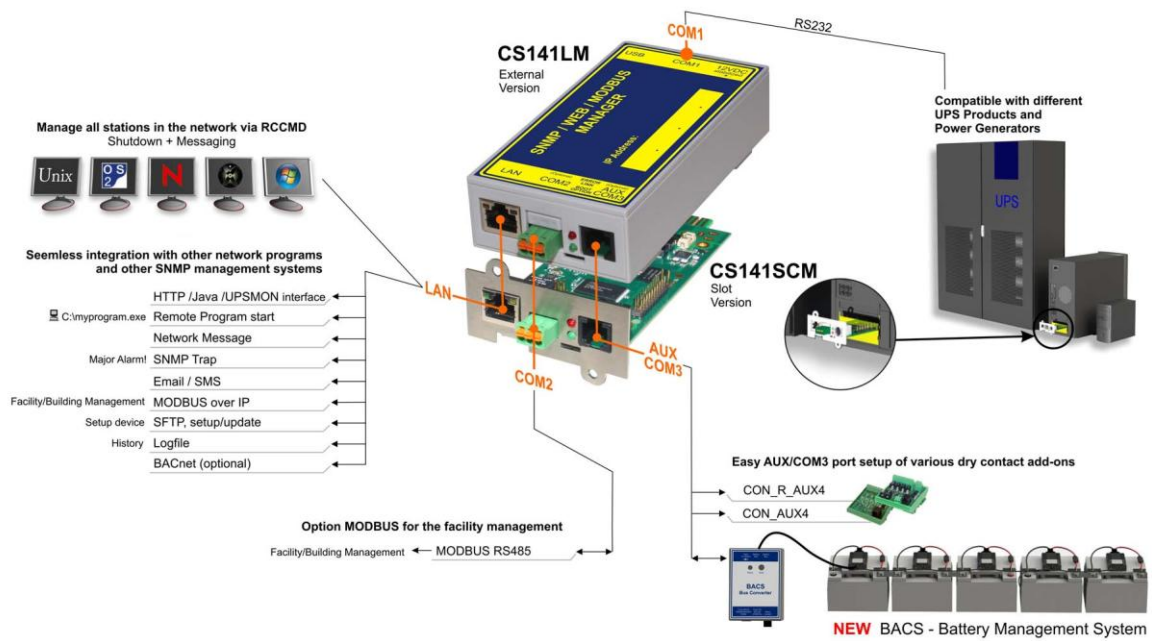
Technical Data of the CS141 MODBUS

|	CS141LM "Professional External RS485" (all UPS vendors)	CS141SCM "Professional Slot RS485" (all UPS vendors with SC slot format)
Power supply	12V (min. 9V, max. 30V DC), 150 mA	12V (min. 9V, max. 30V DC), 150 mA
Size (W x L x H), weight	69 x 126 x 35mm, 210 g	60 x 120 x 29mm, 66 g
Ethernet	10/ 100Mbit Base-T auto sense	10/ 100Mbit Base-T auto sense
RS-232 Interface	1	1
RS-485 Interface	1	1
USB Interface	1	-
AUX Interface	1	1
MODBUS over IP	Standard	Standard
Status LED's	normal green, boot/error red	normal green, boot/error red
User manual	German, English	German, English
MIB	RFC 1628 und and private extension	RFC 1628 und and private extension
Operating temperature	0 – 70 °C	0 – 70 °C
Storage temperature	0 – 70 °C	0 – 70 °C
Max. Recommended ambient temp.	55 °C	55 °C
CPU	ARM Cortex A8 800 MHz	ARM Cortex A8 800 MHz
Flash Memory	512 MB	512 MB
Access memory	128 MB DDR3 RAM	128 MB DDR3 RAM
Humidity	20-95%, not condensated	20-95%, not condensated
Certification	CE, UL/NEMKO	CE, UL/NEMKO
MTBF (EN/IEC 61709)	844.138 hours (96,4 years)	871.680 hours (99,5 years)
Warranty	2 years	2 years

BACS System Starter Kit
Order No. **BACSKIT_LMB4**
CS141LM + BACS Bus Converter + Power Supplies + 6x Bus Connection Cables

BACS System Starter Kit
Order No. **BACSKIT_SCMB4**
CS141SCM + BACS Bus Converter + Power Supplies + 6x Bus Connection Cables

Function Overview of the CS141 MINI
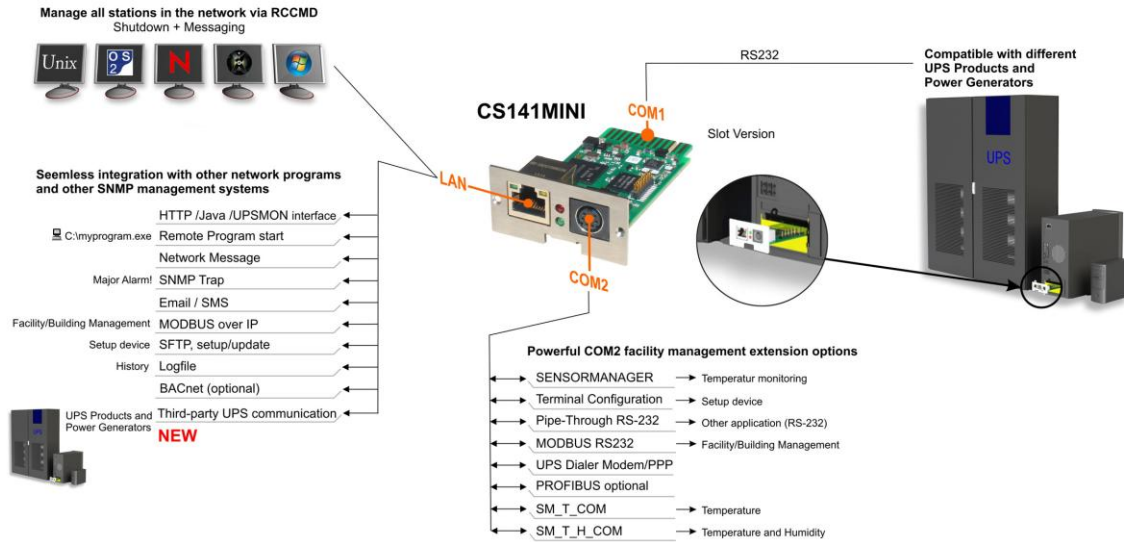
Technical Data of the CS141 MINI

	CS141MINI "MINI Slot" (all UPS vendors with Mini slot format)
Power supply	12V (min. 9V, max. 30V DC), 150 mA
Size (W x L x H), weight	42 x 80 x 26mm, 36 g
Ethernet	10/ 100Mbit Base-T auto sense
RS-232 Interface	2
USB-Interface	-
AUX Interface	-
MODBUS over IP	Standard
Status LED's	normal green, boot/error red
User manual	German, English
MIB	RFC 1628 und and private extension
Operating temp.	0 – 70 °C
Storage temp.	0 – 70 °C
Max. Recommended ambient temp.	55 °C
CPU	ARM Cortex A8 800 MHz
Flash Memory	512 MB
Access memory	128 MB DDR3 RAM
Humidity	20-95%, not condensated
Certification	CE, UL/NEMKO
MTBF (EN/IEC 61709)	916.028 hours (104,6 years)
Warranty	2 years

# Function Overview of the CS141R_2
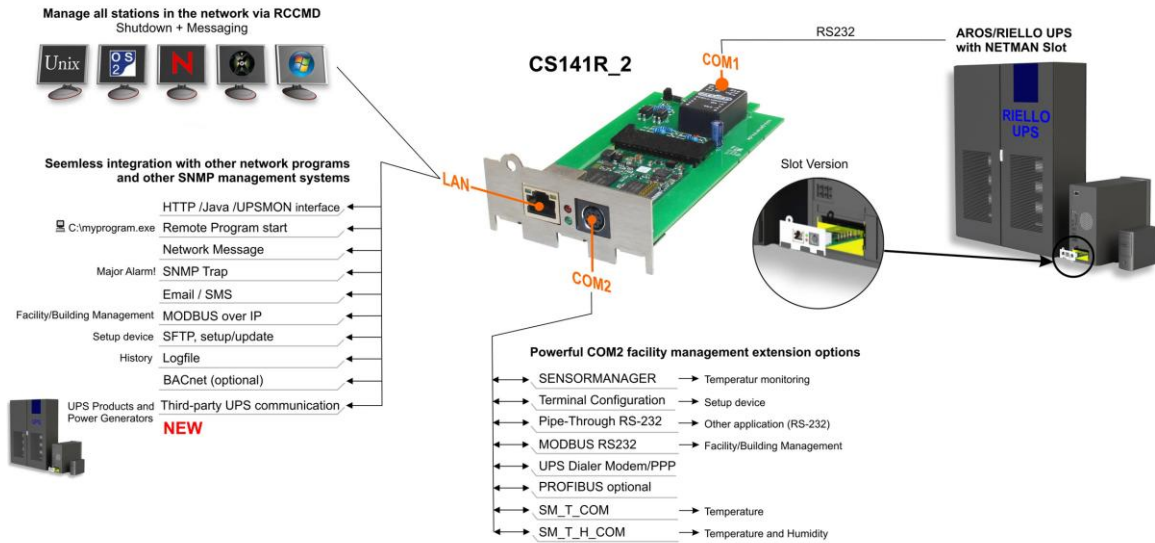
Technical Data of the CS141R_2

	CS141R_2 (all UPS vendors with RIELLO/AROS Netman slot format)
Power supply	12V (min. 9V, max. 18V DC), 150 mA
Size (W x L x H), weight	75 x 145 x 32mm, 92g
Ethernet	10/ 100Mbit Base-T auto sense
RS-232 Interface	2
USB Interface	-
AUX Interface	-
MODBUS over IP	Standard
Status LED's	normal green, boot/error red
User manual	German, English
MIB	RFC 1628 und and private extension
Operating temp.	0 – 70 °C
Storage temp.	0 – 70 °C
Max. Recommended ambient temp.	55 °C
CPU	ARM Cortex A8 800 MHz
Flash Memory	512 MB
Access memory	128 MB DDR3 RAM
Humidity	20-95%, not condensated
Certification	CE
MTBF (EN/IEC 61709)	916.028 hours (104,6 years)
Warranty	2 years

Current Consumption:
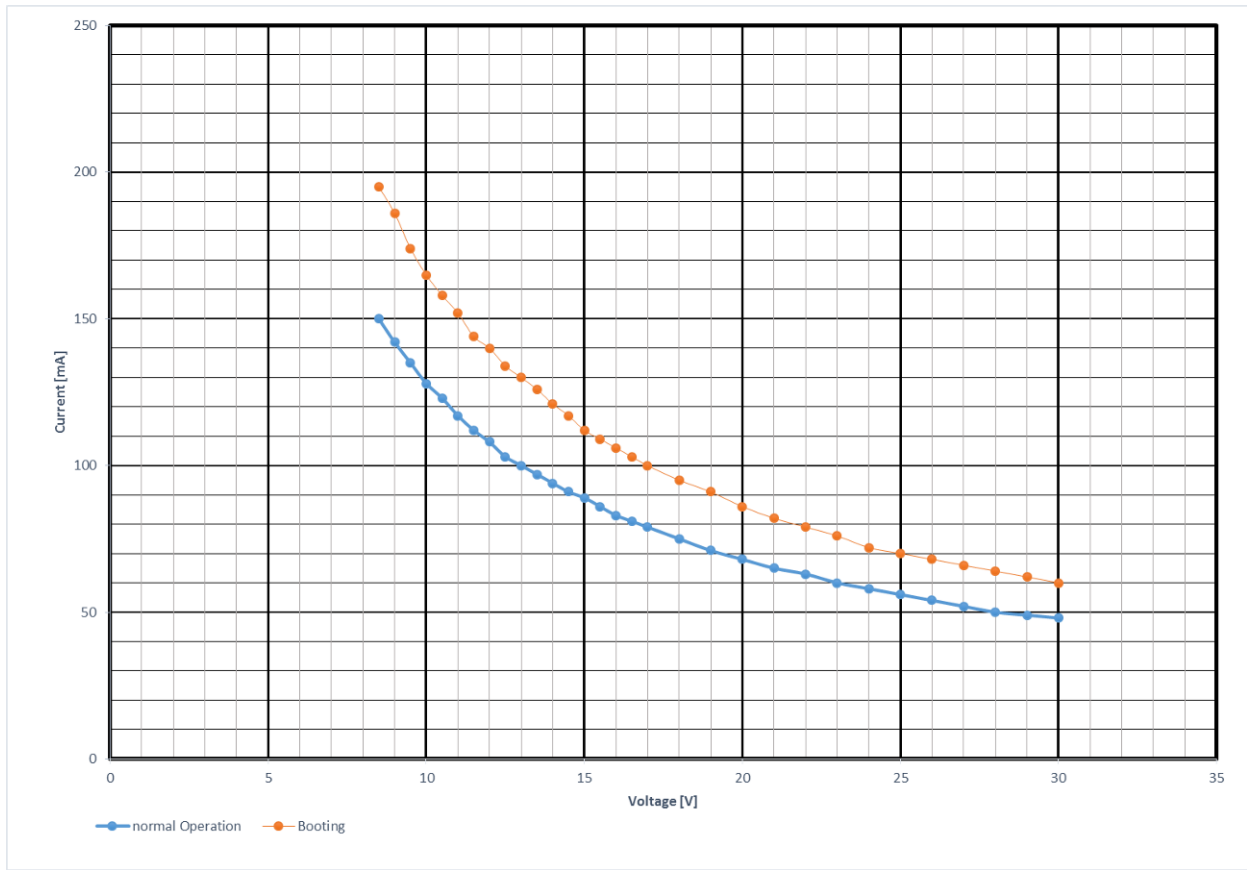
Current Consumption of the CS141 during the booting process (orange graph) and normal operation (blue graph)

CS141		**CS121**	
Feature	**Customer advantage CS141**	**Feature**	**Restrictions at CS121**
Processor ARM Cortex A8 800 MHz	• Higher performance in comparison to CS121 (app. 10 times faster) • The CS141 uses open Source for future development • Future-proof platform	**32-Bit RISC-Processor**	• No compatible source code available • Limited development
Flash memory 512MB	• Bigger capacity, over 4500 log file entries • Can be used as BACS Webmanager	**Max. memory size 64MB (for BACSKIT_B/BSC/BII)**	• Logfiles about 12-16h
DIP switches on the front plate	• No remove from slot necessary if change required	**DIP switches on motherboard**	• Remove from slot necessary to change settings of the DIP switch
Different users	• Different authorization • Only administrative users can change network settings	**Only one user**	• Only one user with admin rights
Leaner menu structure	• Easier configuration • Easier event handling • Faster and easier to use	**Classic menu**	• Restricted event configuration
Firmware Update via "Drag & Drop"	• Easier handling • Firmware update possible with every browser independent from OS	**Firmware Update via Flash Wizard**	• Windows is necessary for firmware update • FTP must be active (in newer network structures this is often complicated)
BACS	• Integrated	**BACS**	• Not available for CS121SC/L • A BACS Webmanager has to be used
Changed settings are taken over immediately	• No save, exit & reboot required • Simplified operation • Massive time saving	**Save, Exit and Reboot required**	• Changing configuration and saving needs about 5 -10 minutes every time
Auto log out + advanced security settings	• Higher security due HTTPS and SSH	**No auto log out, no SSH, limited https**	• Security is restricted • The CS121 fails many security tests because of using old interfaces
Rescue Boot Mode	• Second OS for backup completely usable	**No rescue system**	• Reparing is possible only with Flash wizard • Complete loss of configuration
USB Port	• Connecting UPS devices with USB is possible in future versions	**No USB port**	• Tools only available via COM2
AUX Port with Serial Protocol	• Robust against UPS noise through RS232 • Longer cable wires possible than CS121 (up to 20 meters), for CON_R_AUX/CON_AUX	**AUX Port with Optokoppler**	• Prone for UPS noise • Only short wires for AUX, less than 1meter
RCCMD Broadcasting	• Possible with new firmware • Through this functions whole networks segments can be shut down within a few seconds	**RCCMD Broadcasting**	• CS121 can only use single IP addresses for RCCMD Shutdown • No broadcasting (Command gathering)
SMS via IP Modem (RASMAN_G_II)	• Possible, RASMAN_G_II can be installed anywhere (better transmission/signal)	**SMS via IP Modem (RASMAN_G_II)**	• CS121 can not handle IP modems, restricted to signal of GSM modem range
IP V4 / V6	• Both are possible	**IP V4 / V6**	• Only IPv4
CS141LM/SCM terminal strip instead of Mini DIN8 plug	• No solding necessary	**Mini DIN 8 connector**	• Mini DIN8 plug requires soldering
Mean Time before Failure	• MTBF 100 years	**Mean Time before Failure**	• 10 years, components of CS121 are >10 years no longer available
Preise	• Identical price as CS121 range	**Prices**	• Components for CS121 are no longer available respectively very expensive • no spare parts available
Performance in High network load networks	• 10 times faster than CS121	**Performance**	• The CPU of the CS121 is overloaded in bigger networks and causes reboots of the device. Only possibility is to limit traffic which is often denied by customers
Standards	• Embedded OS, industry standard	**Standards**	• Embedded OS, but not Linux but POSIX (outdated) • Proprietary Generex OS • The CS121 can not receive any more update which affect the OS • Vulnerable to hackers, outdated SSL TLS lib.
Current consumption	• 12V (min. 9V, max. 30V DC), 150 mA	**Current consumption**	• 12V (min. 9V, max. 30V DC), 160 mA
Boot phase	• Less than 30 seconds	**Boot phase**	• Between 5 and 10 minutes