GENEREX

SNMP / WEB MANAGER

CS141 External & Slot Cards

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

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

CS141 PROFESSIONAL

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

CS141 MODBUS

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

CS141 BUDGET

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

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 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. The device is also available with a MODBUS RS485 interface at COM2 instead of the RS232 interface.

● **Grafical interfaces**
Several options are available for monitoring and configuring the CS141: every type of SNMP network management station, internet browsers and UNMS II. Additional the GENEREX API offers an interface for scripting tools. The statistical analysis of all connected devices are grafically shown through the web browser. Those statistics show the values of the UPS and all other valures of the connected external devices like temperature-, humidity sensors, etc.

● **Universal suitable for every type of UPS devices (except GAMATRONIC)**
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**
Web server based scheduler allows scheduled on/off of the UPS output or SITESWITCH4 or to start battery tests. This secures that the UPS runs regularly battery tests and informs the user about problems via email, log file etc.

● **Data logging**
Measurement values and alarms are written with time stamps into the non-volatile storage of the CS141 adapter. The time synchronization function through NTP insures that all protocols are written with precise time values.

● **Grafical operation and statistics**
The CS141 WEB-Server provides a simple to use overview for a broad range of functionality within its monitoring and configuration capabilities.

● **Email/SMS**
Integrated email client via SMTP can be configured to relay either all or specific messages, eg. UPS. The email client can also make the use of public email servers and local email servers to distribute informations. Compatible with SMTP email systems such as MS Exchange/Outlook, Lotus, and many others.

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

● **Multiserver Shutdown**
Unlimited shutdown manager for RCCMD clients – for more than 40 different operating systems. This makes it possible for a CS141 adapter to inform and shutdown any type of computer in a given network which can then be used to centralize the administration of large networks while greatly reducing both the amount of administrative work and the 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. This option may require a SITESWITCH.)
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 and V3, IPv4 and IPv6, HTTP, HTTPS, , DNS, DHCP, SMTP, NTP, SFTP, UPSTCP (UNMS), MODBUS over IP, MODBUS/PROFIBUS over RS232/485, BACnet over IP (PRO models only, extra hardware needed) and RCCMD (Multiserver/Multi-OS shutdown/ messaging tool).

● **GSM-MODEM (option)**
Support for GSM Modem through COM2 for transmitting SMS Textmessage and through IP (RASMANG_G_II) for the remote monitoring and administration of UPS and other connected GENEREX devices. The function makes administration of the UPS system possible without compromising the security of the network it is servicing.

● **SNMP**
The CS141 supports the RFC1628 MIB (Standard UPS MIB) and MIB extensions for use with the SITEMANAGER, SITESWITCH 4, and SENSORMANAGER. With the BACS.MIB also all battery data is manageble through SNMP. 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 Sensormanager supports 8 analog inputs for measuring sensors (e. g. temperature, humidity, etc.), 4 digital inputs for alarm detectors (e. g. smoke, fire, water, etc.) and 4 digital outputs (e. g. audible and optical alarm indicators, etc.)
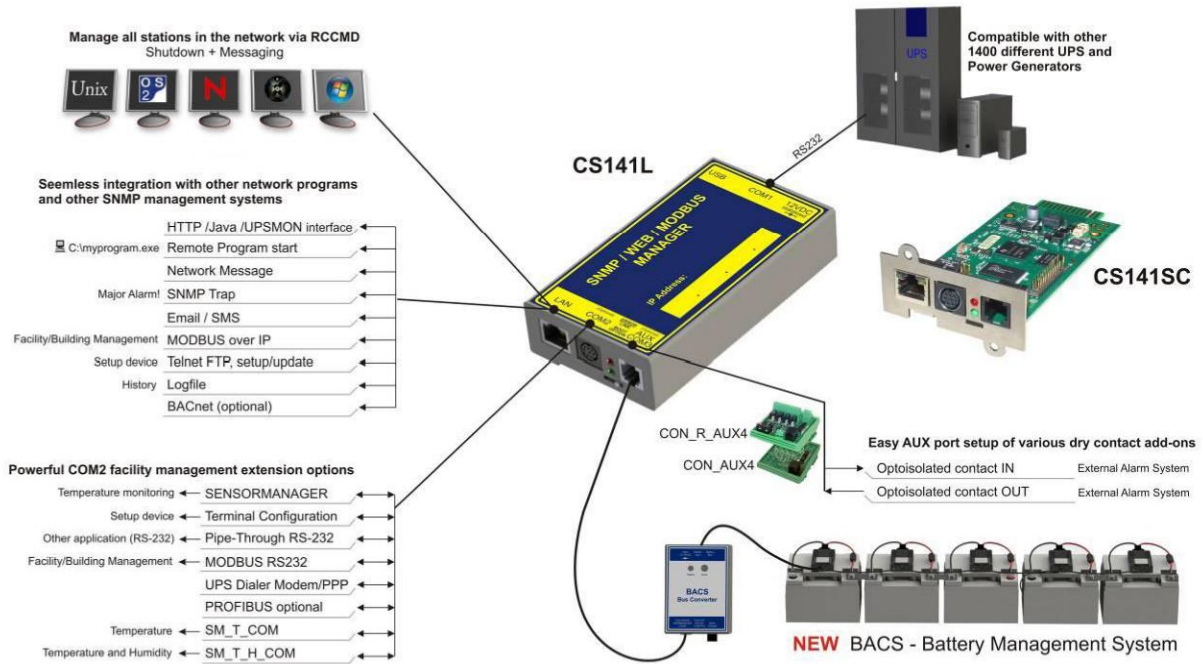
● **Analog IO**
It is possible to connect an Interfaceboard (CON_AUX4/CON_R_AUX4) to the COM3/AUX-port to control 4 analog Inputs or Outputs with the CS141.

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

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

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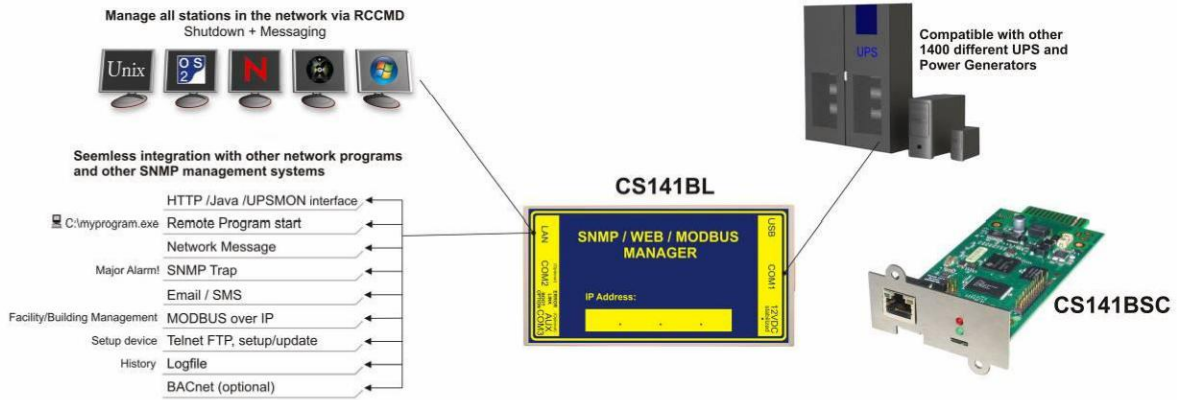CS141L + BACS Bus Converter + Power Supplies + 6x Bus Connection Cables

NEW 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
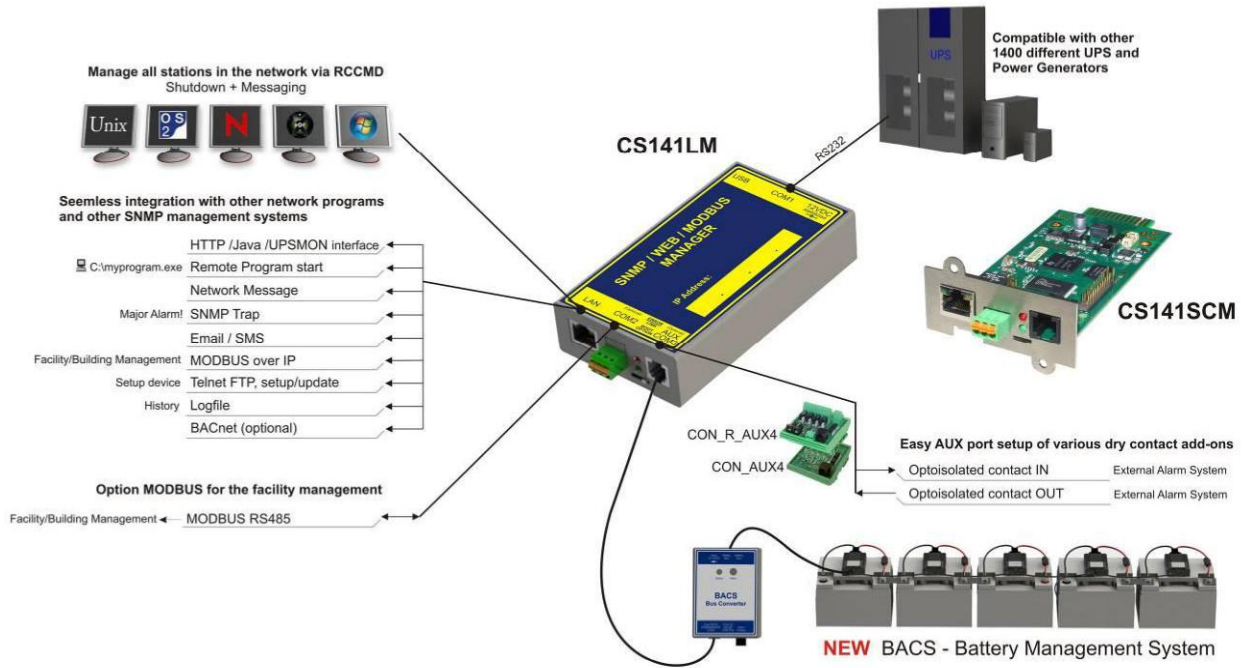
Technical Data of the CS141 MODBUS

	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

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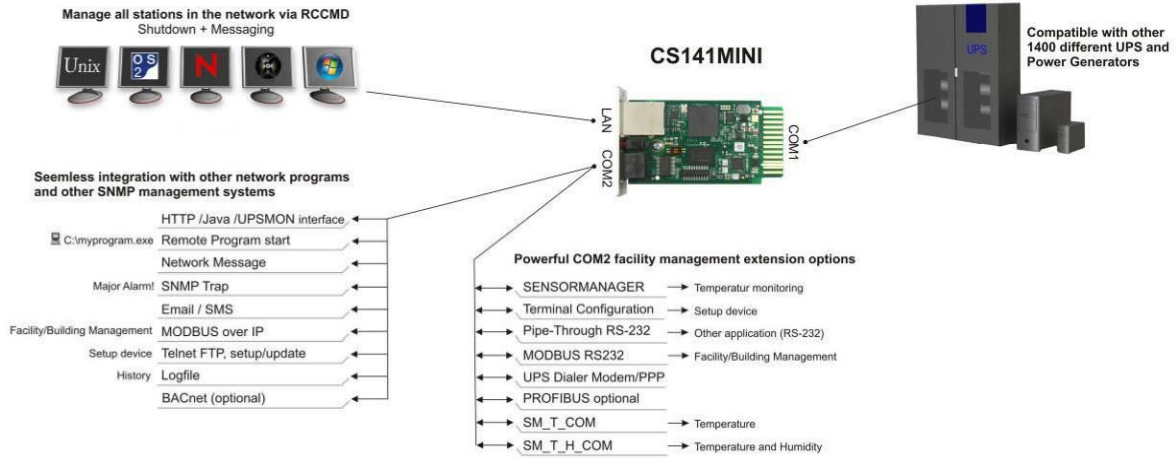CS141LM + BACS Bus Converter + Power Supplies + 6x Bus Connection Cables

NEW 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
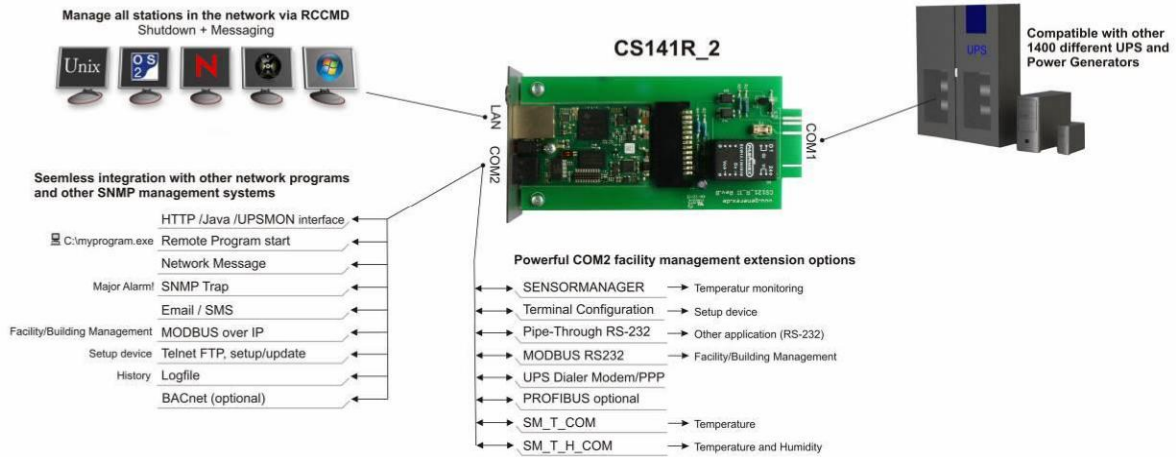
Technical Data of the CS141R_2

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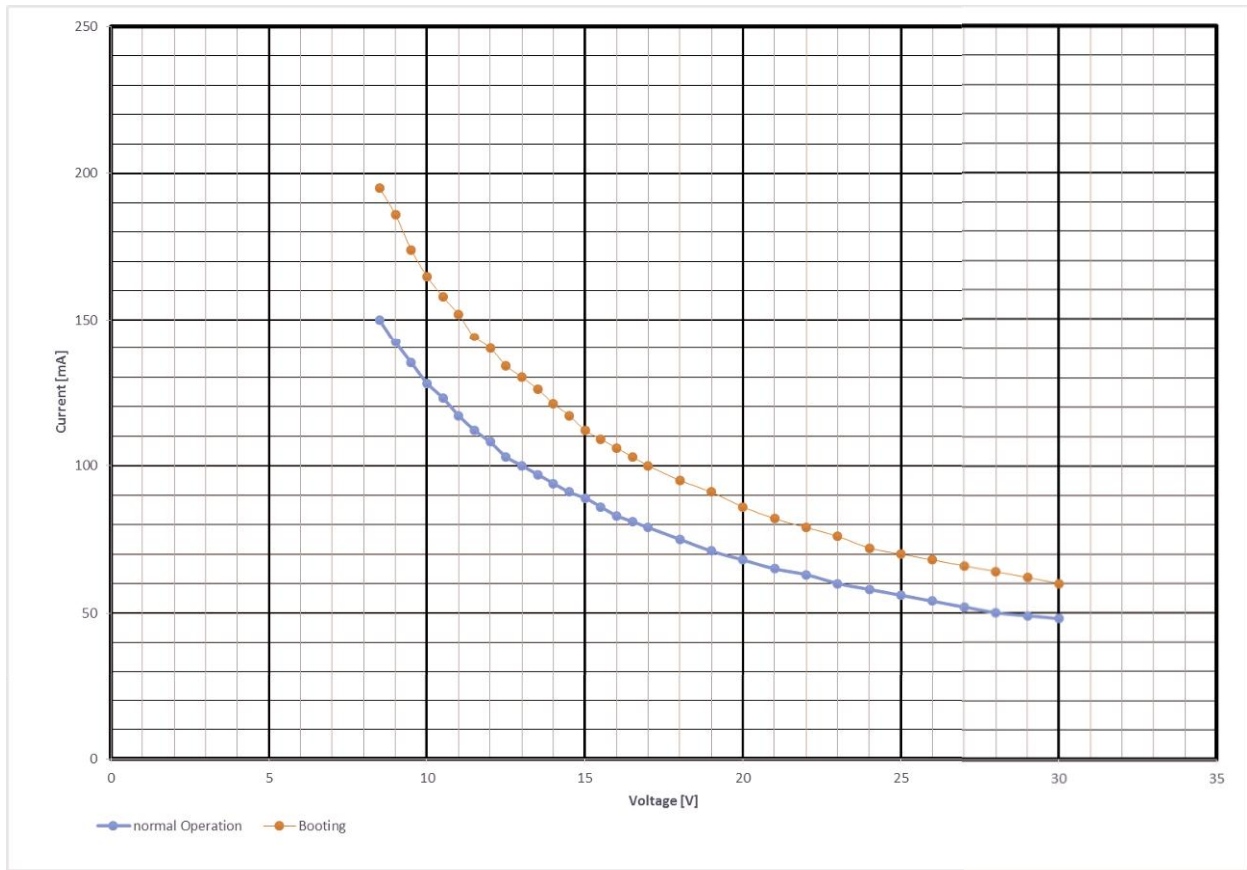
Current Consumption of the CS141 during the booting process (orange graph) and normal operation (blue graph)

	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