

**Short Description**  
**CS121/BACS\_SPI\_II - Profibus-Converter**

**Extension for the  
WEB-Adapter**

**CS121L, CS121SC  
CS121MINI, CS121\_RII**

**CS141L, CS141SC,  
CS141MINI, CS141R\_2**



# Short Description

## CS121\_SPI\_II - Profibus Binding for UPS

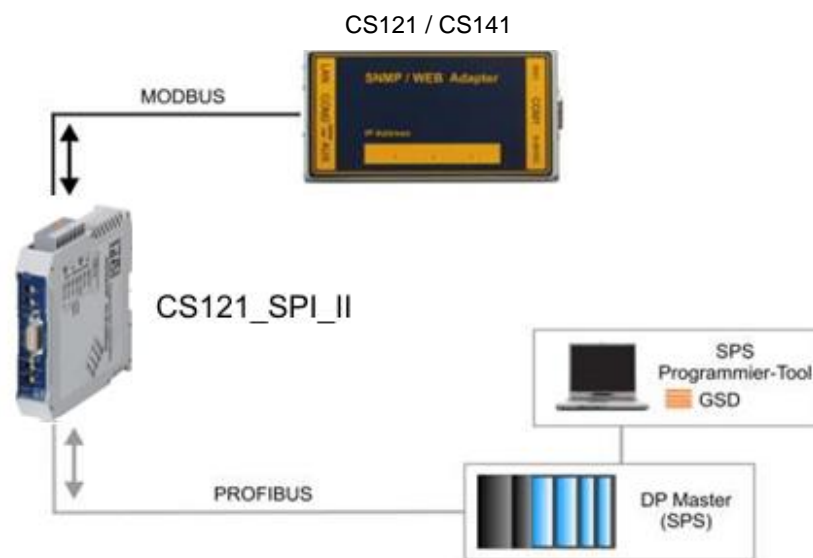
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Connect the CS121 / CS141 Web-Adapter to the desired device, you want to monitor (e.g. an UPS). Use the COM 1 port of the CS121 / CS141 for the connection to the UPS. Do the configuration via the web-interface of the CS121 / CS141 for all required parameters like network settings, the UPS model etc.. Please take a look into the CS121 / CS141 user manual for further information.

**Note:** For the usage of the CS121\_SPI\_II Profibus converter, it is not required to implement the CS121 / CS141 into a Ethernet network. The CS121 / CS141 converts the serial protocol of the connected device at COM 1 to a Modbus RTU protocol. The polling rate should not be less than 1 second (1000ms), to assure a long term operation. If the polling rate is higher than 1 second, incorrect answers may occur.

Connect the CS121\_SPI\_II to the COM 2 port of the CS121 / CS141. Use the enclosed serial cable.

**Advice: It is NOT possible to use the CS121 / CS141 LM or SCM with a RS485 interface at COM 2!**



**The following settings are required for the Profibus binding:**

### CS121:

1. Menu „Network & Security“:
  - Modbus Slave Address: 1
  - Modbus Mode = RTU
2. Menu “COM 2 & AUX”:
  - COM 2 Mode: Modbus
  - COM 2 Baud Rate: 38400
  - COM 2 Parity: None

Use the „Save, Exit & Reboot“ function via the menu „Save Configuration“ to confirm and store your settings.

### CS141:

Select the point **System->General** in the drop down menu on the left side

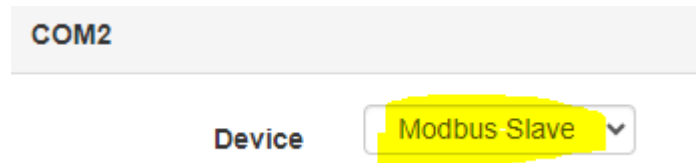
The screenshot shows a web interface for configuring the CS141. The title is 'COM2'. Below the title, there is a dropdown menu labeled 'Device connected to COM2' with 'modbus' selected. At the bottom of the interface, there are two buttons: 'Apply' and 'Cancel'.

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### CS141:

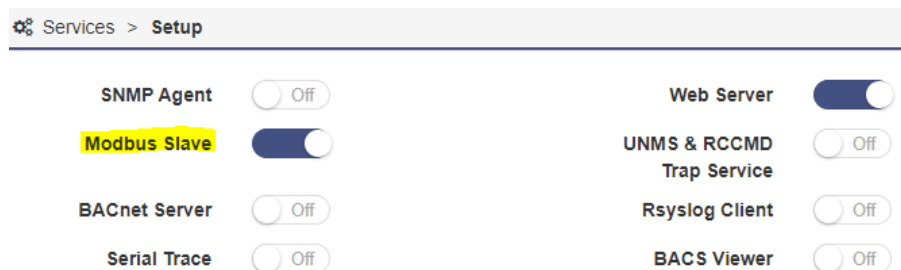
At **Services**→**Setup** select Modbus slave for COM 2



COM2

Device **Modbus Slave** ▼

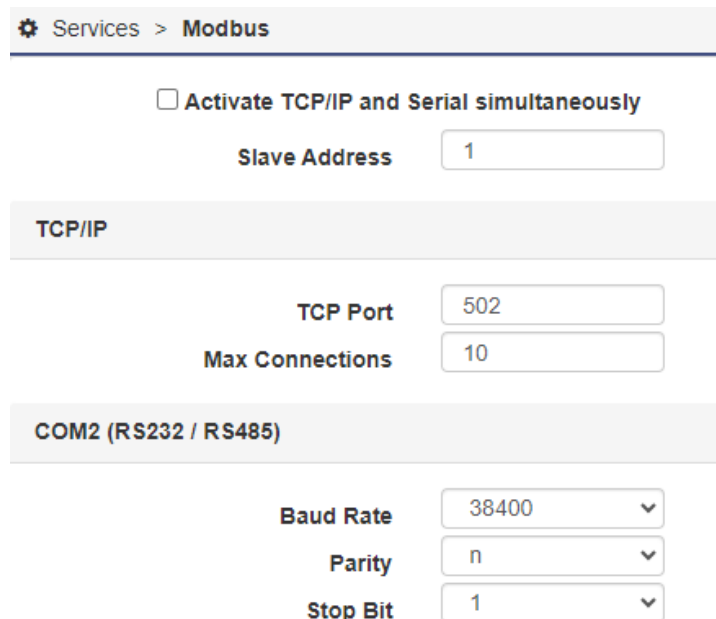
Enable Modbus Slave at **Services** → **Setup**



Services > Setup

SNMP Agent	<input type="checkbox"/> Off	Web Server	<input checked="" type="checkbox"/>
<b>Modbus Slave</b>	<input checked="" type="checkbox"/>	UNMS & RCCMD Trap Service	<input type="checkbox"/> Off
BACnet Server	<input type="checkbox"/> Off	Rsyslog Client	<input type="checkbox"/> Off
Serial Trace	<input type="checkbox"/> Off	BACS Viewer	<input type="checkbox"/> Off

Check the settings at Services→Modbus – it should look as followed:



Services > Modbus

Activate TCP/IP and Serial simultaneously

Slave Address

TCP/IP

TCP Port

Max Connections

COM2 (RS232 / RS485)

Baud Rate  ▼

Parity  ▼

Stop Bit  ▼

Click apply to confirm your setup – a reboot of the CS141 is not required.

### CS121\_SPI\_II:

1. Turn-Switch on the top face  
- The Profibus slave address will be set via the turn-switch.

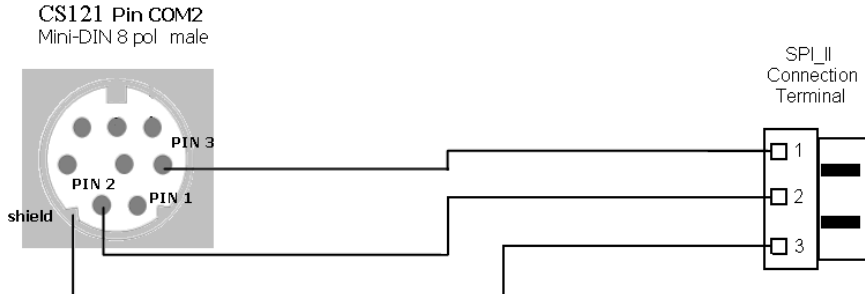
All parameters, which are required for the Modbus- and Profibus communication, will be defined via the Profibus-Master. Please take a look into the enclosed „CS121\_SPI\_II user manual“ (CD-ROM) for further information.

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In addition you will find examples for the configuration of a Modbus-Master (Siemens S7) on the CD-ROM.

### Cable from CS121/COM2 to SPI\_II



### Default UPS – Address Description

From script version Rev. 002 it is no longer required, to configure the Modbus polling into the Profibus master.

You will find the revision number of your CS121\_SPI\_II as button onto the device. The revision number 002 will be delivered from september 2010 by default.

The CS121\_SPI\_II gateway is polling by itself accordingly, cyclical to the CS121 / CS141. At a valid Modbus answer the UPS data will be send with an additional byte and Modbus error byte to the Profibus cyclical.

It is required to select into the module “64 words I/O (consistent) into the Profibus master out of the GSD file UGIC3218”.

For the allocation of the UPS data to the transferred bytes on the Profibus, please take a look into the following table.

Byte	Name	Description	Lenght
1	Counter	Increase at valid answer	1 Byte
2	Modbus Error Byte	Data valid if 0x00 only	1 Byte
3 + 4	OUTPOWER0	Outpower Phase 1 %	1 Word
5 + 6	OUTPOWER1	Outpower Phase 2 %	1 Word
7 + 8	OUTPOWER2	Outpower Phase 3 %	1 Word
9 + 10	BATTCAP	Battery Capacity %	1 Word
11 + 12	INVOLT0	Input Voltage Phase 1 V	1 Word

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13 + 14	INVOLT1	Input Voltage Phase 2 V	1 Word
15 + 16	INVOLT2	Input Voltage Phase 3 V	1 Word
17 + 18	TEMPDEG	Temperature C°	1 Word
19 + 20	AUTONOMTIME	Autonomy Time minutes	1 Word
21 + 22	STATUS (e. g. UPS normal = "4", Powerfail = "12", Battery test running = "68", Bypass = "5" )	UPS Status (ASCII HEX)  Please note UPSMAN status bytes table below	1 Word
23 + 24	BATTVOLT	Battery Voltage V	1 Word
25 + 26	INFREQ0	Input Frequency Hz Phase 1	1 Word
27 + 28	INFREQ1	Input Frequency Hz Phase 2	1 Word
29 + 30	INFREQ2	Input Frequency Hz Phase 3	1 Word
31 + 32	CNT_PF	Powerfail Counter	1 Word
33 + 34	Alarm Battery Bad	1 = active; 0 = not active	1 Word
35 + 36	Alarm: On Battery	1 = active; 0 = not active	1 Word
37 + 38	Alarm: Battery Low	1 = active; 0 = not active	1 Word
39 + 40	Alarm: Battery Depleted	1 = active; 0 = not active	1 Word
41 + 42	Alarm: Over temperature	1 = active; 0 = not active	1 Word
43 + 44	Alarm: Input Bad	1 = active; 0 = not active	1 Word

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45 + 46	Alarm: Output Bad	1 = active; 0 = not active	1 Word
47 + 48	Alarm: Output Overload	1 = active; 0 = not active	1 Word
49 + 50	Alarm: On Bypass	1 = active; 0 = not active	1 Word
51 + 52	Alarm: Bypass Bad	1 = active; 0 = not active	1 Word
53 + 54	Alarm: Output Off as requested.	1 = active; 0 = not active	1 Word
55 + 56	Alarm: UPS Off as requested.	1 = active; 0 = not active	1 Word
57 + 58	Alarm: Charger Failed	1 = active; 0 = not active	1 Word
59 + 60	Alarm: UPS Output Off	1 = active; 0 = not active	1 Word
61 + 62	Alarm: UPS System Off	1 = active; 0 = not active	1 Word
63 + 64	Alarm: Fan Failure	1 = active; 0 = not active	1 Word
65 + 66	Alarm: fuse failure	1 = active; 0 = not active	1 Word
67 + 68	Alarm: general fault	1 = active; 0 = not active	1 Word
69 + 70	Alarm: diagnose test failed	1 = active; 0 = not active	1 Word
71 + 72	Alarm: communication lost	1 = active; 0 = not active	1 Word
73 + 74	Alarm: awaiting power	1 = active; 0 = not active	1 Word
75 + 76	Alarm: shutdown pending	1 = active; 0 = not active	1 Word
77 + 78	Alarm: shutdown imminent	1 = active; 0 = not active	1 Word
79 + 80	Alarm: test in progress	1 = active; 0 = not active	1 Word
81 + 82	AUX Port 1	1 = active (high) 0 = not active (low)	1 Word

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83 + 84	AUX Port 2	1 = active (high) 0 = not active (low)	1 Word
85 + 86	AUX Port 3	1 = active (high) 0 = not active (low)	1 Word
87 + 88	AUX Port 4	1 = active (high) 0 = not active (low)	1 Word
89 + 90	BACS State	see table below BACS_State	1 Word
91 + 92	BACS State 1	see table below BACS_State_1	1 Word
93 + 94	BACS_Alarms	see table below BACS_Alarms	1 Word

#### BACS\_State

BACS_STATE_RUNNING	0x0001
BACS_STATE_CONNECTED	0x0002
BACS_STATE_MODULE_LOST	0x0004
BACS_STATE_DISCHARGING	0x0008
BACS_STATE_CHARGING	0x0010
BACS_STATE_DISCHARGING_STOPPED	0x0020
BACS_STATE_FLOAT_CHARGING	0x0040
BACS_STATE_EQUALIZING	0x0080
BACS_STATE_SYSTEM_FAILURE	0x0100
BACS_STATE_VOLTAGE_OUTOFRANGE	0x0200
BACS_STATE_TEMPERATURE_OUTOFRANGE	0x0400
BACS_STATE_RESISTOR_OUTOFRANGE	0x0800
BACS_STATE_MODULE_ADDRESSING	0x1000
BACS_STATE_MODULE_SEARCHING	0x2000
BACS_STATE_MODULE_INITIALIZING	0x4000
BACS_STATE_MODULE_POLLING	0x8000

#### BACS\_State\_1

BACS_STATE_GENERAL_ALARM	0x0001
BACS_STATE_VOLTAGE_DIFF_HIGH	0x0002
BACS_STATE_BATTERY_BREAKER_OPEN	0x0004

#### BACS\_Alarms

BACS_ALARM_GENERAL_ALARM	0x0001
BACS_ALARM_COMMUNICATION_LOST	0x0002
BACS_ALARM_VOLTAGE_HIGH	0x0004
BACS_ALARM_VOLTAGE_LOW	0x0008
BACS_ALARM_TEMPERATURE_HIGH	0x0010
BACS_ALARM_TEMPERATURE_LOW	0x0020
BACS_ALARM_RESISTOR_HIGH	0x0040
BACS_ALARM_RESISTOR_LOW	0x0080
BACS_ALARM_EQUALIZING_ERR	0x0100

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BACS_ALARM_VOLTAGE_WARN_HIGH	0x0200
BACS_ALARM_VOLTAGE_WARN_LOW	0x0400
BACS_ALARM_TEMPERATURE_WARN_HIGH	0x0800
BACS_ALARM_TEMPERATURE_WARN_LOW	0x1000
BACS_ALARM_RESISTOR_WARN_HIGH	0x2000
BACS_ALARM_RESISTOR_WARN_LOW	0x4000
BACS_ALARM_MODREV_INCOMPATIBLE	0x8000