
Technical Manual
ccTalk USB Hub
CCT 910

- version 1.00 -

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Preliminary

Safety Precautions

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The Company would be very grateful if any accidental inaccuracies could be pointed out to us with any other constructive criticism which might lead to a better understanding.

Preliminary

1. CCT 910 Overview

The CCT 910 connects all payment devices easily to any PC application thus offering a universal platform for all Kiosks and PC based amusement machines.

All common ccTalk devices (e.g. coin selectors, bill validators and hoppers) can be plugged into the board and are connected via an USB interface directly to the PC. Also other components such as MDB change givers or various peripheral components (e.g. electronic anti pin systems, motor escrows, electronic motor rejects) can be easily integrated via this board.

CCT 910 offers in comparison to the CCT 900 even more ccTalk- and two RS 232 interfaces, as well as 8 in- and outputs each for sensors and actuators (e.g. motors, solenoids and lamps). By this means wh Münzprüfer consequently carries forward the strategy of developing universal solutions for machines with integrated money-handling-components.

In the past a considerable development effort was required to implement the various proprietary systems and to integrate the single components into the software application. By means of the CCT 910 this is not necessary anymore. A .NET 1.1 class library is available for easy implementation of the single components.

The following picture shows the CCT 910.

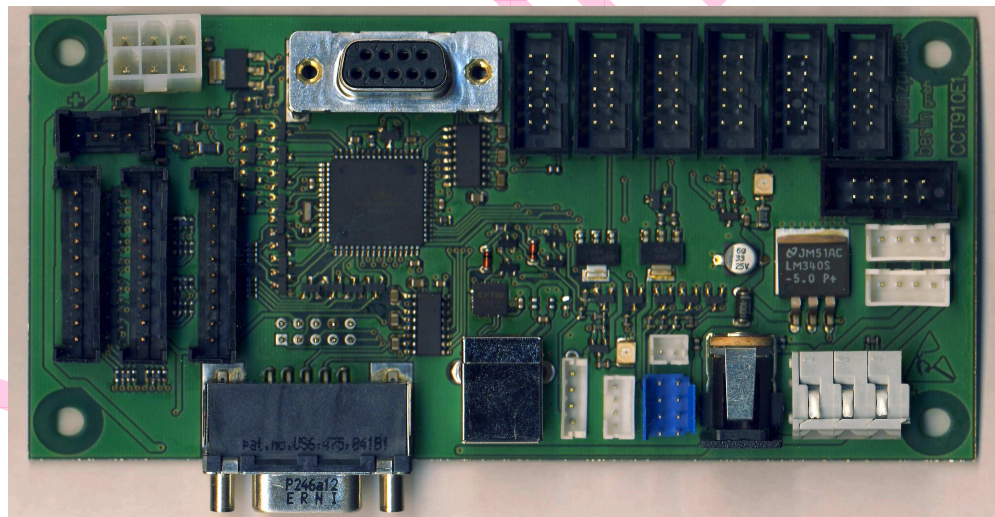


Fig. 1 CCT 910

2. Technical Data

Dimensions	71 x 140 mm
Power supply	12 volts DC or 24 volts DC
Sensor outputs	5 volts DC – 24 volts DC
Actuator outputs	8 Open Collector outputs, 45 volts / 500 mA

The micro-processor and the plugged-in components get their voltage supply (12 V DC or 24 V DC) centrally via the CCT 910 circuit board. The input of the voltage supply for the CCT 910 is effected by means of a power jack connector or a terminal block. The operator must take care that the used power supply unit offers enough capacity for the supply of all plugged-in components.

3. Interfaces

Following Interfaces are available:

Description	Quantity and Function
ST1	1 x USB connector for connection to a pc board
ST2, ST11	2 x ccTalk connector, type 7, 4-pole inline (e.g. for coin selector)
ST3	1x 4-pole connector, inline, for ID003 alternatively SSP interface
ST4 – ST10	7 x ccTalk connector, type 5, 10-pole for ccTalk devices such as coin selectors bill validators, chip card reader, displays, buttons, counters, hopper, hopper counting scales, printers etc.
ST12	1 x power jack, 12 volts power supply for connected devices
ST13	1 x connector for the electronic anti pin system ES 003
ST14	1 x 10-pole connector, inline, for customized additional functions
ST15, ST18	2 x connectors for the motor escrow E 105
ST16	1 x connector for the electronic motor reject EMR 100
ST19	1 x MDB connector, 6-pole
ST20	1 x 10-pole connector, inline, 8 open collector outputs 45V/500mA
ST21	1 x 10-pole connector, inline, 8 inputs for switches resp. sensors
ST22, ST 23	2 x RS 232 interfaces, 9-pole D-Sub
X1	1 x terminal block, 2-pole, 12 volts power supply for connected components

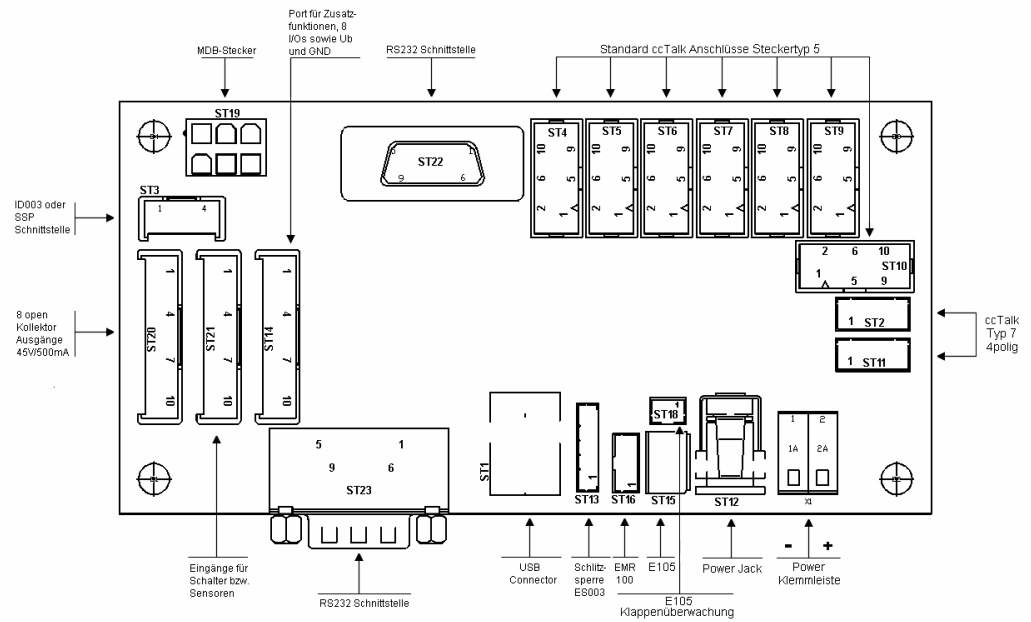


Fig. 2 Figure 2 Location of connectors CCT 910

CCT 910 is a very compact circuit board measuring only 71 x 140 mm. Four fixing holes, each 4.4 mm in diameter, are provided for mounting. Moreover mounting in a housing for top hat rail mounting can also be considered.

If a serial connection to the PC is preferred instead of USB, the serial interface ST23 (RS 232) can be configured accordingly. The USB connector is still usable without restrictions.

By means of assembly variants the CCT 910 may adhere to the customers requirements.

3.1. Pining

Connector ST2 and ST11

Pin	Signal
1	12 resp. 24 VDC
2	
3	GND
4	data

Connector ST3

Pin	Signal
1	GND
2	12 resp. 24 VDC
3	TxD
4	RxD

Connector ST4 to ST10

Pin	Signal
1	data
2	
3	
4	
5	
6	
7	12 resp. 24 VDC
8	GND
9	
10	

Connector ST14

Pin	Signal
1	GND
2	Port A0
3	Port A1
4	Port A2
5	Port A3
6	Port A4
7	Port A5
8	Port A6
9	Port A7
10	12 resp. 24 VDC

Connector ST 20

Pin	Signal
1	GND
2	Output 1
3	Output 2
4	Output 3
5	Output 4
6	Output 5
7	Output 6
8	Output 7
9	Output 8
10	12 resp. 24 VDC



Open collector output lines are the ones from 1 to 8. When connecting inductive load it is to be considered, that the output transistors are to be protected by an appropriate circuit against stress superelevation, which might occur during cut-out. Preferably free wheeling diodes are applied.

connector ST 21

Pin	Signal
1	GND
2	Input 1
3	Input 2
4	Input 3
5	Input 4
6	Input 5
7	Input 6
8	Input 7
9	Input 8
10	12 resp. 24 VDC

3.2. Cable

The following table shows common ccTalk components and their required connecting cables for the CCT 910.

component	connector	wh cable/part number
Electronic coin selector EMP 8x0.13 ccTalk	ST2, ST11	K854/500
Electronic coin selector EMP 8x0.13 ccTalk	ST4, ST5, ST6, ST7, ST8, ST9, ST10	K867/500
Electronic coin selector EMP 900.13 ccTalk	ST4, ST5, ST6, ST7, ST8, ST9, ST10	K800/500
ccTalk hopper without address coding	ST4, ST5, ST6, ST7, ST8, ST9, ST10	K800/500
Banknote validator with ccTalk	ST4, ST5, ST6, ST7, ST8, ST9, ST10	K800/500
Coin feeder CIS 100 with ccTalk interface	ST2, ST11	K854/500
Coin feeder CIS 100 with ccTalk interface	ST4, ST5, ST6, ST7, ST8, ST9, ST10	K867/500
Electronic counting scale for hopper HZW 100 with ccTalk interface	ST4, ST5, ST6, ST7, ST8, ST9, ST10	K800/500
Escrow E 105	ST15	K311/500
Optional switch for E 105 to control position of flaps	ST18	K312/500
Electronic anti-pin system ES 003, ES 006	ST13 (4-pole)	K202/500 or K202/500
Electronic anti-pin system ES 003.xx.F with anti strimming sensor Electronic anti-pin system ES 003.xx.F with anti strimming sensor	ST13 (5-pole)	K213/500
electronic motor reject EMR 100	ST16	K873/500

Of course any additional ccTalk device may be integrated into the system via the CCT 910. Therefore the required cables need to be specified.

4. Software library and commands

4.1. ccTalk Address

The implementation of components which do not have their own ccTalk interface is effected by the microprocessor of the CCT 910. This appears in the ccTalk Bus as an individual ccTalk component and has the Default address 80.

4.2. Commands

Header	Function	Response, data and remarks
254	Simple Poll	Response with ACK
253	Address Poll	MDCES Support according specification
252	Address Clash	MDCES Support according specification
251	Address Change	MDCES Support according specification
250	Address Random	MDCES Support according specification
246	Request Manufacturer ID	,WHM'
245	Request Equipment Category ID	,Dongle'
244	Request Product Code	,CCT910'
242	Request Serial Number	e.g. [119][196][199]
241	Request Software Revision	,CCT910 V2.00' or any newer revision
197	Calculate ROM Checksum	[Low][Mid-Low][Mid-High][High]
192	Request Build Code	,Build 20.10.2009'
169	Request Address Mode	[132] address is stored in EEPROM and can be changed
135	Modify Escrow State	parameter: Byte 0: 0 – close 1 – open acceptance 2 – open reject Byte 1: =0 – open continuously >0 – duration of opening in 0.1 sec In case byte 1 is not transmitted, the opening duration is for 1 second.
134	Reserved	

133	Start Motor Re-ject	starts motor reject
132	Modify Anti Pin Status	parameter: Byte 0: 0 - disabled: always closed 1 - open automatically 2 - always open
131	Request Peripheral Status	response: Byte 0: status of the escrow flaps similar to Byte 0 for header 135 Byte 1 status of escrow micro switch, 0 = open, ≠ 0 = closed Byte 2: anti-pin setting similar to Byte 0 for header 132 Byte 3: anti-pin system status Bit 0: coin recognized Bit 1: anti pin system open Bit 2: anti-strimming sensor Byte 4: motor reject status Bit 0: micro switch closed
130 bis 125	Reserved	
124	Clear Uptime Counter	clears uptime counter
123	Request Uptime Counter	[Low][Mid-Low][Mid-High][High] in seconds
122	MDB Communication (from firmware 1.03 onwards)	parameter: Byte 0 : Max. Timeout in miliseconds Byte 1 ... Byte n: MDB data block response: Byte 0: Status: Bit 0: MDB data block received Bit 1: check sum error Bit 2: received timeout Bit 3: break still active Byte 2 ... Byte n: MDB data block
121	MDB Send Break (from firmware 1.03 onwards)	Send break condition.

120 to 117	Reserved	
116	Setup Serial Port	<p>parameter:</p> <p>Byte 0: Number of interface: 0...2 2 is ID003</p> <p>Byte 1: Baud rate: 0: 1200 1: 2400 2: 4800 3: 9600 4: 19200 5: 38400 6: 57600 7: 115200</p> <p>Byte 2: Character length 0: 5 Bit 1: 6 Bit 2: 7 Bit 3: 8 Bit</p> <p>Byte 3: Parity 0: None 1: Even 2: Uneven</p> <p>Defaults in bold writing.</p>
115	Serial Communication	<p>parameter:</p> <p>Byte 0: Number of interface: 0...2, 2 is ID003</p> <p>Byte 1: Max. Timeout in msec</p> <p>Byte 2: Index for byte length in the response +1, 0 -> no byte length.</p> <p>Byte 3: Length of response when Byte 2 = 0, otherwise to be added to the length byte for total receipt length.</p> <p>Byte 4: ... Byte n: Data block to be sent</p> <p>Response:</p> <p>Byte 0: Status: Bit 0: Block received Bit 1: Bit 2: timeout of receipt Bit 3: Break not terminated</p> <p>Byte 2 ... Byte n: Receiver Data block</p>
114	Serial Send Break	<p>Transmit break.</p> <p>parameter:</p> <p>Byte 0: Number of interface: 0...2, 2 is ID003</p>

113	Get Serial Lines	parameter: Byte 0: Number of interface: 0...1 For No. 2 (ID003) not supported. Response: Byte 0: Current status: Bit 0: CTS Bit 1: not in use
112	Set Serial Lines	parameter: Byte 0: Number of interface: 0 ...1 For No. 2 (ID003) not supported Byte 1: Status to be set: Bit 0: not in use Bit 1: RTS
110	Request Features	Response: Byte 0: Serial interfaces Bit 0:MDB Bit 1: Serial 1 Bit 2: Serial 2 Bit 3: ID003 Byte 1: parallel interfaces Bit 0: LED control eightfold Bit 1: Switch request eightfold Byte 2: 0x00
109	Request IO Port Usage	Response: Byte 0: Use of universal IO Ports 0: Standard (see Header 102 to 104) 1: Control Dispenser
108	Set LED Flashing	parameter: Byte 0: Number of LED: 0...7 Byte 1: Flashing period in 50 ms
107	Set Single LED	parameter: Byte 0: Number der LED: 0...7 Byte 1: Action: 0: Switch on 1: Switch off 2: Switch over Switches off possible active flashing for this LED.
106	Set All LEDs	parameter: Byte 0: Control of LEDs 0...7 Switches off possible active flashing for all LED's.
105	Request Switch State	Response: Byte 0: Switch bank 1 Bit 0: Switch 1 ...

		Bit 7: Switch 8 Byte 1: 0x00
104	Configure IO Port	parameter: Byte 0 ... Byte 7: configuration of port bits 0...7: 0: Input, normal 1: Input with pull-up resistor 2...7: Reserved 8: Output, normal 9: Output, open-collector 10: Reserved
103	Read IO Port	Response: Byte 0: State Bits 0...7, if configured as input. For bits, which are configured as output, the state is undefined.
102	Write IO Port	parameter: Byte 0: Control bits 0...7, if configured as output. For bits, which are defined as input, the command has no influence.
104 bis 100	Reserved	
4	Request Comms Revision	[001][004][000] ccTalk Level 1, specification 4.0
3	Clear Comm Status Variables	Clears communication status variables
2	Request Comm Status Variables	Request 3 bytes communication status variables
1	Reset Device	Executes software reset



Parameters, which are not transferred, are always considered as 0.

5. Configuration of Multi IO Ports (Option)

The Multi IO Port can be configured, read-out and written by header 102, 103 und 104.

Moreover customized projects can be implemented based on this port. For this, headers 117 to 120 are reserved.

By means of header 109 the function of ports can be identified.

Preliminary

6. EC Conformation Declaration

Under sole responsibility and based on a sample testing wh Münzprüfer Berlin GmbH declares, that the products

Product name: ccTalk USB Hub CCT 910
Date: 20.01.2010

Correspond to the following Acts, Standards, Safety rules and Guidelines (Harmonized European Standard):

EN 61000-4-2: 2008-09,
EN 61000-4-4: 2005-07,
EN 61000-6-1: 2007-10,
EN 61000-6-2: 2006-03 und
EN 55014-2: 2009-06.

These tests grant that the ccTalk USB Hub CCT 910 meets the general regulations. However, they do not exempt the seller of the machines from his duty of care as there maybe still some other important characteristics of the machine which could impede the CE conformity or restrict it.

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