

**Technical Manual**  
**ccTalk USB Hub**  
**CCT 900**

- version 1.20 -

<b>0</b>	<b>Safety Precautions</b> .....	<b>3</b>
<b>1</b>	<b>CCT 900 Overview</b> .....	<b>4</b>
<b>2</b>	<b>Technical Data</b> .....	<b>4</b>
<b>3</b>	<b>Interfaces</b> .....	<b>5</b>
3.1	PINING .....	7
3.2	CABLES .....	8
<b>4</b>	<b>Software library and commands</b> .....	<b>9</b>
4.1	CCTALK ADDRESS .....	9
4.2	COMMANDS.....	9
<b>5</b>	<b>EC Conformation Declaration</b> .....	<b>11</b>

## **0 Safety Precautions**

You are advised to observe the safety information during operation, maintenance and repairing of the ccTalk USB hub CCT 900. Failure to do so may result in warranty and other claims being excluded.

Whilst every care has been taken in the preparation of information contained in this manual, wh Münzprüfer Berlin GmbH will not be liable for any consequential loss or damage howsoever caused.

This manual is protected by copyright and all rights are reserved. Without prior authorisation by wh Münzprüfer Berlin GmbH, no part of this manual may be reproduced in any form by photocopy, microfilm or other processes nor may it be transmitted in any form usable by data processing. The rights of reproduction by lecture are also reserved.

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.

## 1 CCT 900 Overview

The CCT 900 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.

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. A .NET 1.1 class library and a Windows DLL are available for easy implementation of the single components.

The following picture shows the CCT 900.

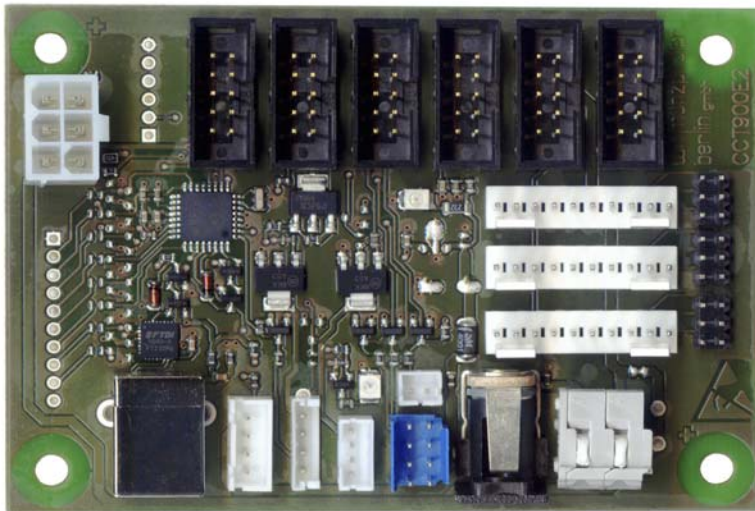


Figure 1 CCT 900

Following versions are available:

CCT 900.M	ccTalk Hub without USB interface
CCT 900.S	ccTalk USB Hub standard version
CCT 900.U	ccTalk USB Hub with a minimum of coin handling components

## 2 Technical Data

dimensions 71 x 100 mm

The power supply for the micro-processor is provided via the USB Bus. The plugged-in components get their voltage supply (12 V DC or 24 V DC) centrally via the CCT 900 circuit board. The input of the voltage supply for the CCT 900 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	CCT 900		
		.M	.S	.U
ST1	1 x USB connector for connection to a pc board	-	X	X
ST2 – ST4	3 x ccTalk connector, type 8, 10-pole inline and jumpers to set addresses for hopper	X	X	X
ST5 – ST10	6 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.	X	X	X
ST11	1 x ccTalk connector, type 7, 4-pole inline (e.g. for coin selectors)	X	X	X
ST12	1 x power jack, 12 volts power supply for connected devices	X	X	X
ST13	1 x connector for the electronic anti pin system ES 003	-	X	-
ST14	1 x 10-pole inline connector for additional functions and devices	-	-	-
ST15, ST18	2 x connectors for the motor escrow E 105	-	X	-
ST16	1 x connector for the electronic motor reject EMR 100	-	X	-
ST19	1 x MDB connector, 6pole	-	X	-
X1	1 x terminal block, 2-pole, 12 volts power supply for connected components	X	X	X

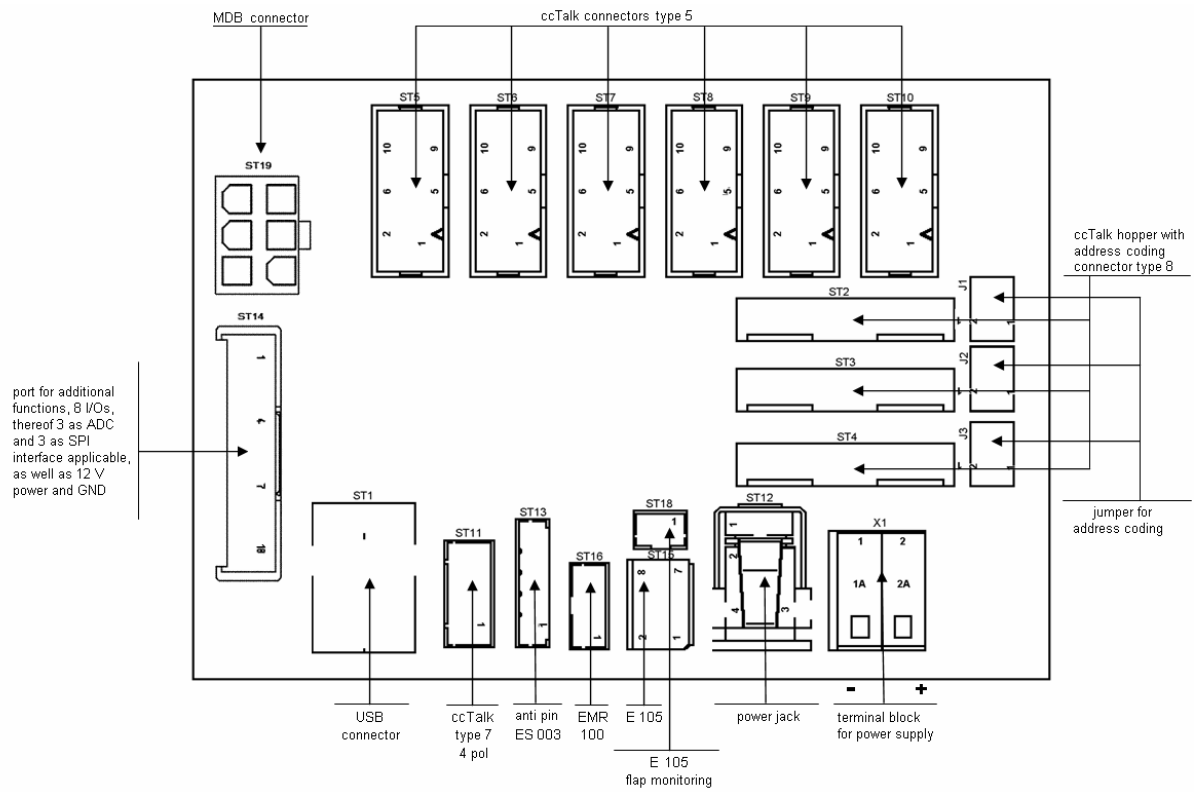


Figure 2 Location of connectors CCT 900

CCT 900 is a very compact circuit board measuring only 71 x 100 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.

By means of assembly variants the CCT 900 may adhere to the customers requirements.

### 3.1 Pining

#### Connector ST2 - ST4

Pin	Signal
1	address selection 0
2	address selection 1
3	address selection 2
4	12 / 24 VDC
5	12 / 24 VDC
6	GND
7	GND
8	data
9	
10	

#### Connector ST5 - ST10

Pin	Signal
1	Data
2	
3	
4	
5	
6	
7	12 / 24 VDC
8	GND
9	
10	

#### Connector ST11

Pin	Signal
1	12 / 24 VDC
2	
3	GND
4	data

### 3.2 Cables

The following table shows common ccTalk components and their required connecting cables for the CCT 900.

component	Connector	wh cable / part number
Electronic coin selector EMP 8x0.13 ccTalk	ST11	K854/500
Electronic coin selector EMP 8x0.13 ccTalk	ST5, ST6, ST7, ST8, ST9, ST10	K867/500
Electronic coin selector EMP 900.13 ccTalk	ST5, ST6, ST7, ST8, ST9, ST10	K800/500
ccTalk hopper without address coding	ST5, ST6, ST7, ST8, ST9, ST10	K800/500
ccTalk hopper with address coding	ST2, ST3, ST4	/
Banknote validator with ccTalk	ST5, ST6, ST7, ST8, ST9, ST10	K800/500
Coin feeder CIS 100 with ccTalk interface	ST11	K854/500
Coin feeder CIS 100 with ccTalk interface	ST5, ST6, ST7, ST8, ST9, ST10	K867/500
Electronic counting scale for hopper HZW 100 with ccTalk interface	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	ST13 ==> 4 poles	K202/500 or K202/500
Electronic anti-pin system ES 003.xx.F with anti strimming sensor	ST13 ==> 5 poles	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 900. Therefore the required cables need to be defined.

## 4 Software library and commands

### 4.1 ccTalk Address

The implementation of components which do not have their own ccTalk interface is effected by another microprocessor of the CCT 900. 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	‚CCT900‘
242	Request Serial Number	e.g. [119][196][199]
241	Request Software Revision	‚CCT900 V1.00‘ or any newer revision
197	Calculate ROM Checksum	[Low][Mid-Low][Mid-High][High]
192	Request Build Code	‚Build 20.07.2007‘
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 for future use	
133	Start Motor Reject	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	Reserved	
129	Reserved	
128	Reserved	
127	Reserved	
126	Reserved	
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 milliseconds 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
	MDB Send Break (from firmware 1.03 onwards)	Send break condition.
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

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

**5**

**EC Conformation Declaration**

according to EN 45 014

Supplier name: wh Münzprüfer Berlin GmbH

Address: Teltower Damm 276, 14167 Berlin, Germany

Declares bearing the sole responsibility and based on a sample testing, that the product:

Product name: cc-Talk USB Hub

Part number: CCT 900


complies with the following Bills, Engineering standards, Safety Rules and Guidelines:

89/336/EWG	EMV-Richtlinie
IEC 61000-6-1:1997	Electromagnetic compatibility
EN 61000-6-1 (08/2002)	Electromagnetic compatibility
EN 61000-6-2 (08/2002)	Electromagnetic compatibility
EN 55014-2 (08/2002)	Electromagnetic compatibility

Date: 3rd of May 2007

Signatures

  
Ch. Trexner  
Managing Director

  
B. Weickmann  
Head of Research and Development

## Appendix A – Konfiguration of Multi IO Ports

8 byte data are sent, which configures the use of the assigned port bits. The following values are defined:

Value	Function
0	Digital input
1	Digital input with internal pull-up resistor
2	Digital output
3	Analogue input
4	Output pulse width modulation

For each bit following values are allowed.

Bit	Allowed values
0	0, 1, 2
1	0, 1, 2
2	0, 1, 2
3	0, 1, 2, 3
4	0, 1, 2, 3
5	0, 1, 2, 3
6	0, 1, 2, 4
7	0, 1, 2, 4

8 Bytes are received. These indicate the set function. A value of 99 indicates an invalid setting.

In case digital or analogue signals are received or transmitted via the port bits, no validation of the configuration is carried out.