

Operating Instructions



3.5" Coin Validator **v² colibri**

with serial ccTalk interface

08.12 WP/Hns/Roe
BA_v2_colibri_ccTalk_EN_1-0



Crane Payment Solutions GmbH | Zum Fruchthof 6 | 21614 Buxtehude | Germany
Web: info@craneps.com | www.craneps.com | Phone: +49 (0) 41 61-729-0 | Fax: +49 (0) 41 61-729-115





Table of contents

1	Revision protocol	7
2	About ...	8
2.1	About these operating instructions	8
2.1.1	Text conventions	8
2.1.2	Additional useful technical documentation	9
2.2	About the v² colibri	9
2.2.1	v ² colibri properties	9
2.2.2	Models and operating modes	10
2.2.2.1	Coin entry and return area	10
2.2.2.2	Communication protocol	10
2.2.2.3	High-speed acceptance (Casino mode)	11
2.2.2.4	Protocol encryption	11
3	Safety instructions	12
3.1	Proper use	12
3.2	Protecting persons and equipment	12
4	Design	13
4.1	Overview	13
4.1.1	v ² colibri as top entry version (standard)	13
4.1.2	v ² colibri as front entry version	14
4.2	Coin path	15
4.3	Nameplate	16
4.4	Switching functions/coin channel assignment sticker	16
4.5	Switch blocks	17
4.5.1	Switching functions S1.1–10	17
4.5.2	Switching functions S2.1–10	17
4.6	Return lever and return button	18
4.7	Interfaces	18

5	Function	19
5.1	Coin acceptance and coin channels	19
5.1.1	Quick coin acceptance in Casino mode	20
5.2	Single or double block data-management	20
5.3	Accepted coin sensor	20
5.4	String recognition	20
5.5	Control for external sorting device	21
5.5.1	Sorting principle	21
5.5.2	Sorting using NRI 3-fold sorter s ² SSD-3000	21
5.6	Coin inhibition/activation of narrow coin channels	22
5.6.1	Inhibiting all coins/individual coin channels via machine control system	23
5.6.2	Inhibiting a coin channel/a group of coin channels by means of a switch block	23
5.7	Teach mode	23
6	Start-up	24
6.1	Installing the coin validator in the machine	24
6.2	Mounting the 3-fold sorter s² SSD-3000 ...	25
6.2.1	... on the v ² colibri top entry version	25
6.2.2	... on the v ² colibri front entry version	27
7	Operation	28
7.1	Selecting memory block (for double block data-management only)	28
7.2	Inhibiting coins/activating narrow coin channel ...	29
7.2.1	Inhibit switch functions – switch block S1	29
7.2.2	Inhibit switch functions – switch block S2	29
7.3	Teaching coin channels in teach mode ... (not for ACMI version)	31
7.3.1	... using the switch block on the coin validator	31
7.3.1.1	Teach mode switching functions with double-block data-management	31
7.3.1.2	Teach mode switching functions with single-block data-management	31
7.3.2	... using ccTalk commands/machine service menu	33
7.4	Activating Casino mode	34

8	Maintenance and service	35
8.1	Cleaning the coin runway	35
8.2	Troubleshooting	36
9	What can be set later?	37
9.1	Service and configuration tools	37
9.1.1	WinEMP PC configuration application	37
9.1.2	On-site service tool HENRI+	37
9.2	Which device functions can be set?	37
10	Technical data	39
10.1	Device data	39
10.2	Interfaces	40
10.2.1	v ² colibri – machine	40
10.2.1.1	Pin assignment	40
10.2.1.2	Implemented ccTalk commands	40
10.2.1.3	ccTalk error code table	42
10.2.1.4	ccTalk standard settings (after reset)	42
10.2.1.5	ccTalk teach mode (not for ACMI version)	43
10.2.2	v ² colibri – external 3-fold sorting device	43
10.3	Accessories	44
10.3.1	Front plates	44
10.3.2	Sorters	44
10.3.3	Service tools	45
11	Index	46



1 Revision protocol

Version	Revision	Chapters/sections concerned

2 About ...



This chapter it is intended to give you an initial overview of the advantages and options of the v² colibri coin validator with serial ccTalk interface. The first section, however, is designed to help you navigate easily within these operating instructions.

2.1 About these operating instructions

These operating instructions describe the design and operation of the electronic 3.5" v² colibri coin validator with serial ccTalk interface. Afterwards, chapters 6 and 7 explain the necessary steps for starting up and operating the coin validator. Chapter 8 describes how to clean the coin validator and remedy the cause of any malfunction.

Chap. 10 "Technical data" and the appended "Index" reduce the search for specific explanations.

2.1.1 Text conventions

To make it easier for you to navigate within these instructions and to operate the device, the symbols below are printed in the text:



Safety instructions which you must observe in order to protect operators and equipment.



Special notes intended to facilitate the use of the coin validator.



At the beginning of each chapter you will find a short "guide" which summarizes the contents of the chapter.



Device functions that are set or prepared on a customer-specific basis at the factory and which you can set or change using our service and configuration tool (cf. Chap. 9 *What can be set later?*, p. 37).

1 2 3 ...

Requests to perform an action are numbered in a different typeface.

[Fig. 1/2]

Cross-reference to an illustration. The number preceding the slash indicates the number of the figure, the number following the slash is the number of the item in the figure.

2.1.2 Additional useful technical documentation

Apart from these operating instructions, there is further documentation for the v² colibri. You can download all the documentation PDF files by visiting www.craneps.com.

2.2 About the v² colibri

The v² colibri coin validator with a serial ccTalk interface in the standard 3.5" format is based on the tried and tested features of the G-13.mft and also uses the patented multi-frequency measuring technology (MFT) for reliable coin validation. Communication with the machine control is via a ccTalk specified four-pin male connector. Due to its compact and modular design, the v² colibri is used above all in entertainment, vending and service machines.

For coin acceptance, the coin validator has available 32 coin channels that can be managed either in a single memory block or divided into two memory blocks – 2 x 16 coin channels – with different coin configurations; in both cases, the blocks can be switched on an individual basis.

Depending on the application, you can fit the coin validator with an optional front plate and it can control a 3-fold sorter.

To be able to react as quickly as possible to new false coins and to make your individual settings, the coin validator can be configured on site in the machine using a service tool or in the workshop via a PC programming station.

You can also configure coins or tokens that are ignored ex-works without needing configuration software, you just insert the coins in teach mode on the coin validator.

2.2.1 v² colibri properties

- Reliable acceptance of genuine coins and rejection of false coins due to MFT multiple sensing of the coins inserted and evaluation of 24 measuring parameters
- Operational safety and security against manipulation by means of an optical accepted coin sensor in the coin validation and coin outlet area
- String recognition
- Acceptance speed of two coins per second
- Switchable Casino mode for speed of coin acceptance – up to six per second are possible
- 32 coin channels managed in one or two memory blocks that are configured independently of one another and are switched individually (2 x 16 coin channels)
- Serial interface
 - flexible and extensive communication with the machine control
 - easy transmission and control of device functions
 - possibility to connect to additional peripheral equipment
 - economical device design
- Service interface for PC programming station or on-site service tool
- Flash technology for easy and time-saving firmware updates (WinFlash2)

- Options
 - Top or front entry version
 - MINI or MIDI front plate
 - SSD-3000 3-fold standard sorter or HSD-3000 3-fold high-speed sorter
 - Licence for updating the complete ccTalk coin and device configuration on machines with PC-based control (remote data block upload)
 - ACMI write protection
 - Additional tamper protection by protocol encryption: BNV (Bill Note Validator encryption), DES (Data Encryption Standard)

2.2.2 Models and operating modes

There are different versions of the v² colibri available. They mainly differ

- in the coin entry and return area
- in the communication protocol and
- in the acceptance speed.

2.2.2.1 Coin entry and return area

- Top entry and return at the bottom right (**36Bxx**. ..)
You insert the coin from the top into the device and it is returned via the return at the bottom right should it not be accepted (*cf. Chap. 4.2 Coin path, p. 15*).
- Top entry and return at the bottom left (**31Bxx**. ..)
You insert the coin from the top into the device and it is returned via the return at the bottom left should it not be accepted (*cf. Chap. 4.2 Coin path, p. 15*).
- Front entry and front return (**39Bxx**. ..)
You insert the coin from the side into the device and it is also returned at the side should it not be accepted (*cf. Chap. 4.2 Coin path, p. 15*). On this coin validator, you can push on the optional NRI MINI or MIDI front plates on the left-hand side of the device (*cf. Chap. 10.3 Accessories, p. 44*).

2.2.2.2 Communication protocol

The coin validator communicates with the machine controller via the serial ccTalk protocol. The coin validator works as slave and the machine as master. The ccTalk protocol is open for everybody and can be used without restrictions. Another advantage is remote uploading, i.e. it is possible to load complete coin and machine configurations into the coin validator via the ccTalk interface from a host computer too. Two versions are possible:

- Standard
Protocol according to ccTalk specification.
- ACMI
The factory programming of the coin validator in this model meets all requirements of the Italian gaming machine act "legge 289 – comma 6" passed in July 2003. The ACMI version of the v² colibri is write-protected so that it is not possible to change the factory programming using configuration tools.



In order to meet the requirements of the Italian gaming machine act subsequent configuration of the ccTalk ACMI model is impossible. If you want to change the factory settings please contact our sales representative.

2.2.2.3 High-speed acceptance (Casino mode)

It is possible to run the v² colibri ccTalk in what is known as Casino mode if it is used in gaming machines and needs to accept coins particularly quickly (up to 6 coins per second).



In Casino mode, the v² colibri runs in favour of fast coin acceptance without accepted coin sensing (cf. Chap. 5.3 Accepted coin sensor, p. 20).

2.2.2.4 Protocol encryption

Using protocol encryption, it is possible to additionally protect the coin validator from manipulation:

- BNV (Bill Note Validator encryption)
- DES (Data Encryption Standard)

3 Safety instructions

Before starting up the device for the first time, please read these instructions and in particular the safety instructions carefully at least once. This is to ensure that you have understood the contents of this manual and how to operate the coin validator.

3.1 Proper use

The v² colibri electronic 3.5" coin validator with serial ccTalk interface is for use in entertainment, vending and service machines with a serial ccTalk interface and is intended to check the coins that are inserted in the machines for specific properties and to either accept or reject them. Use the coin validator exclusively for this purpose. Under no circumstances can the manufacturer be held liable for any damage or loss resulting from improper use of the device.

The coin validator has been built in accordance with state-of-the-art standards and the recognized safety rules. Nevertheless, this equipment can constitute a source of danger. Please observe therefore the following safety instructions.

3.2 Protecting persons and equipment



The coin validator must only be connected by a trained electrician.

Use the coin validator only in accordance with its proper use. Under no circumstances can the manufacturer be held liable for any damage or loss resulting from improper use of the device.



The coin validator PCB is fitted with components which may be damaged beyond repair by electrostatic discharges. Please observe the handling instructions for components exposed to the risk of electrostatic discharge.

Select the correct voltage for the coin validator (see label).

Never pull the connecting cable of the coin validator from the machine when a voltage is applied.

Pull the mains plug of the machine before installing, cleaning or removing the coin validator.

Please consult Crane Payment Solutions if you intend to make additions or modifications to the device that go above and beyond the modifications described here.

Keep water and other liquids away from the coin validator.

Please dispose of the device correctly at the end of its service life.

We reserve the right to make technical modifications to the device which are not covered by these instructions!



4 Design



This chapter describes

- the main component parts of the v² colibri and
- all parts required for the operation of the coin validator.

4.1 Overview

of the

- top entry version and
- front entry version with optional front plate

4.1.1 v² colibri as top entry version (standard)

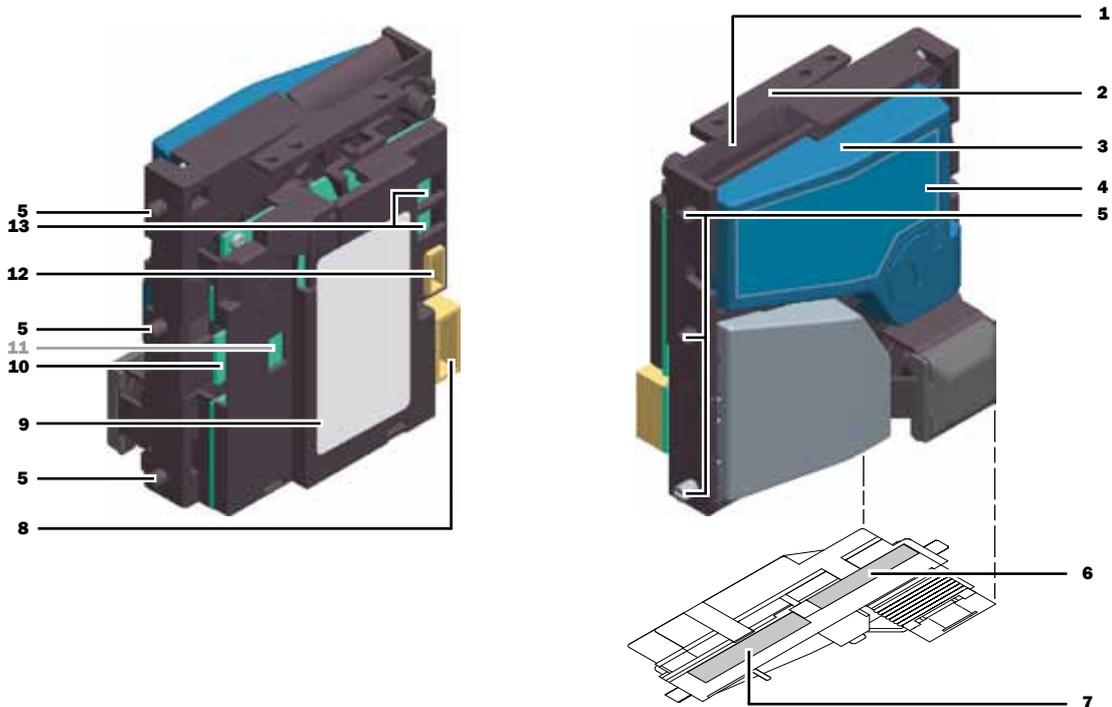


Fig. 1: Design – v² colibri as a top entry version

- | | |
|---|--|
| 1 Coin insert funnel | 8 Interface – external 3-fold -sorter |
| 2 Coin return lever | 9 Label – switch block/coin channel assignment
(cf. Chap. 4.4 Switching functions/coin channel assignment sticker, p. 16) |
| 3 Flight deck | 10 Interface – service/configuration |
| 4 Nameplate | 11 Interface – for other v ² colibri series only |
| 5 Mounting studs | 12 Interface – machine (ccTalk) |
| 6 Coin outlet – return
(with inverted coin outlet: Cash-box/sorting device (cf. Chap. 4.2 Coin path, p. 15)) | 13 Switch blocks |
| 7 Coin outlet – cash-box/sorting
(with inverted coin outlet: Return (cf. Chap. 4.2 Coin path, p. 15)) | |

4.1.2 v² colibri as front entry version

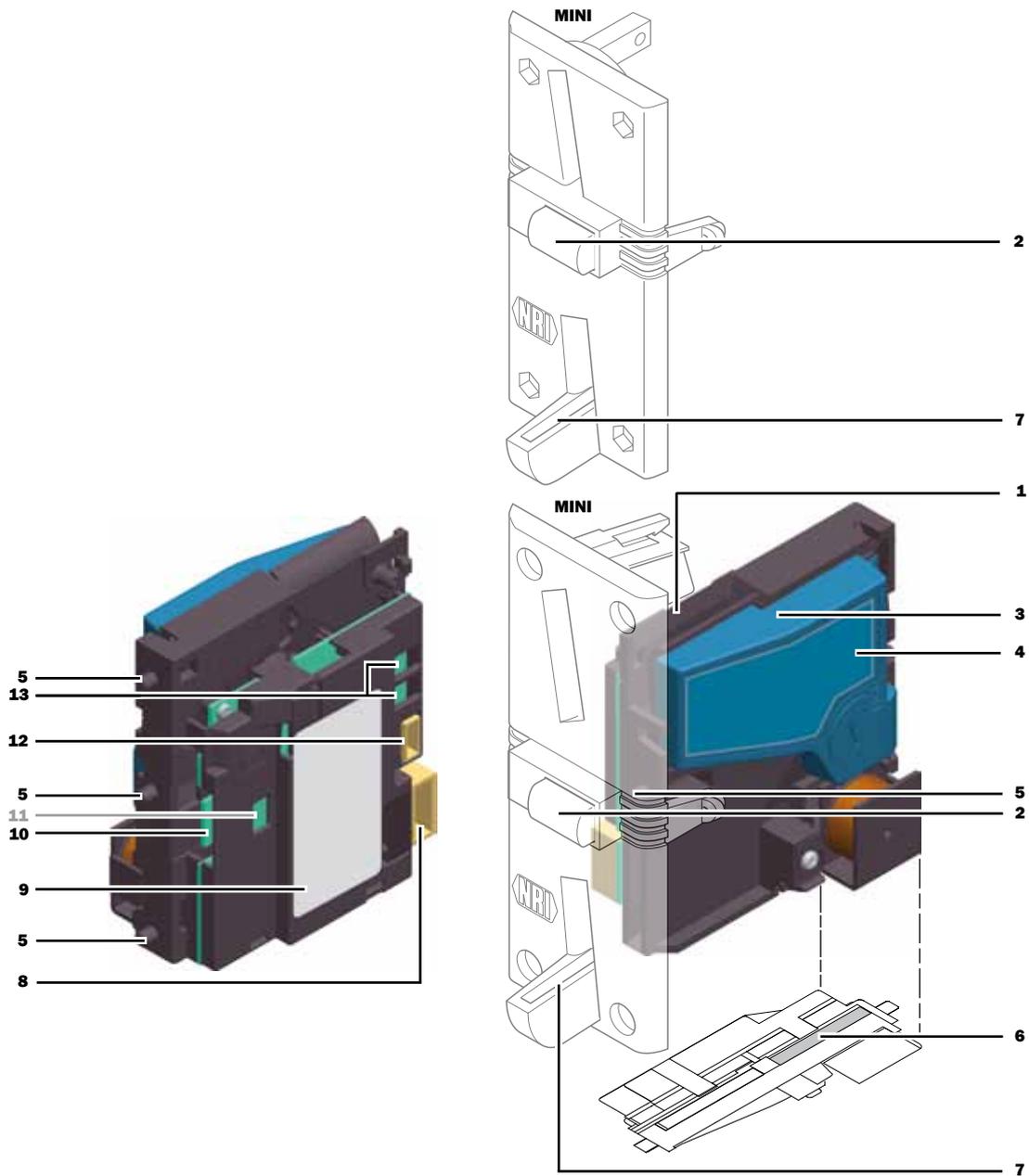


Fig. 2: Design – v² colibri as a front entry version with MINI and MIDI front plate

- | | |
|--|--|
| <ul style="list-style-type: none"> 1 Coin insert funnel 2 Coin return button 3 Flight deck 4 Nameplate 5 Mounting studs 6 Coin outlet – cash-box/sorting 7 Coin outlet – return | <ul style="list-style-type: none"> 8 Interface – external 3-fold -sorter 9 Label – switch block/coin channel assignment
<i>(cf. Chap. 4.4 Switching functions/coin channel assignment sticker, p. 16)</i> 10 Interface – service/configuration 11 Interface – for other v² colibri series only 12 Interface – machine (ccTalk) 13 Switch blocks |
|--|--|

4.2 Coin path

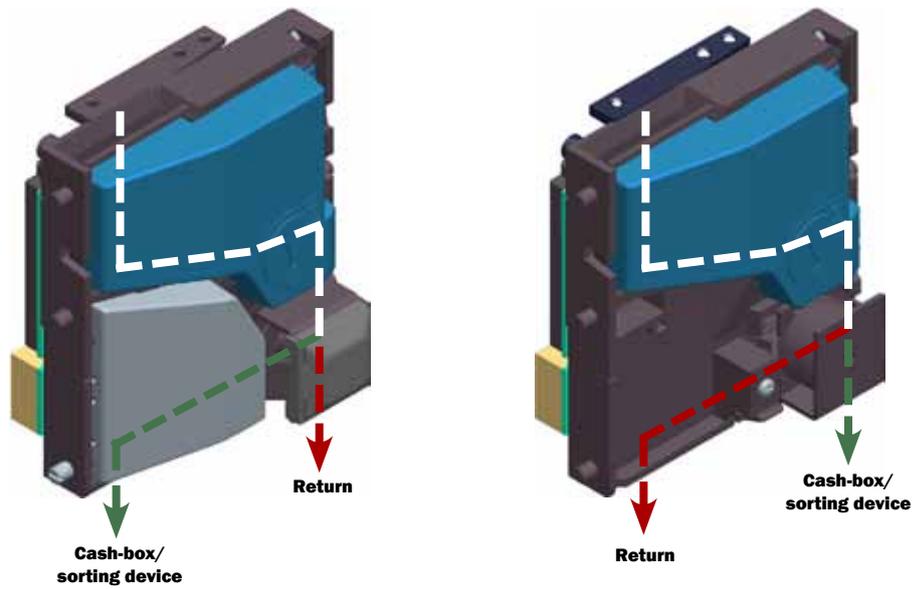


Fig. 3: Coin path of top entry version, standard coin outlet (on the left) and inverted coin outlet (on the right)

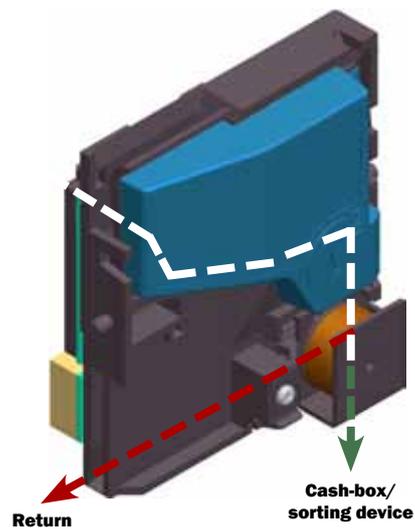


Fig. 4: Coin path of front entry version

4.3 Nameplate

The nameplate [Fig. 1/4]/[Fig. 2/4] shows the characteristic data of the device like the device series, type and operation as well as the customer-specific currency and coin programming:

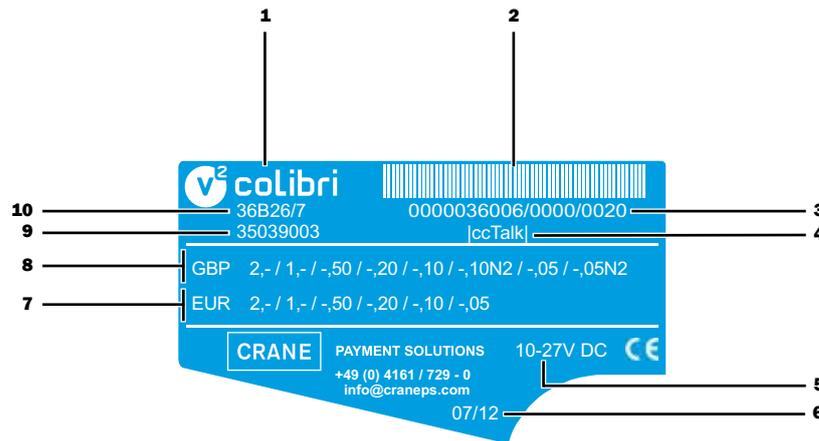


Fig. 5: Nameplate

- | | |
|--|---|
| <ul style="list-style-type: none"> 1 Device type 2 Bar code 3 Ordering code (10-digit), order number (4-digit), device serial number (4-digit) 4 Machine interface 5 Nominal voltage 6 Date of manufacture | <ul style="list-style-type: none"> 7 Coin programming – memory block 1 (if DIL switch S1.10 to ON) 8 Coin programming – memory block 0 (if DIL switch S1.10 to OFF)
N = new coinage 9 Data block number (– revision number) 10 Model number 3xBxx/7
36B top entry version
37B front entry version with MIDI front plate
38B front entry version with MINI front plate
39B front entry version without front plate
B26 with sorting line |
|--|---|

4.4 Switching functions/coin channel assignment sticker

For easy operation of the coin validator, you will find a sticker on the back of the device; [Fig. 1/9]/[Fig. 2/9] at the top, it briefly shows the functions of the individual DIL switches (cf. Chap. 4.5 Switch blocks, p. 17) and below this the coin channels from memory block 0 and 1 that are assigned to the individual programmed coins (cf. Chap. 5.2 Single or double block data-management, p. 20):

-  Currency and coin denomination
-  Normal channel (No.)
-  Narrow channel (No.)
-  Super narrow channel (No.)



The unique assignment to the device and nameplate is given by means of the model and data block number below.

After configuration, we recommend that you change the nameplate and the sticker to reflect the new settings or that you make a note of the new settings in a different form for the workshop and the place of use.

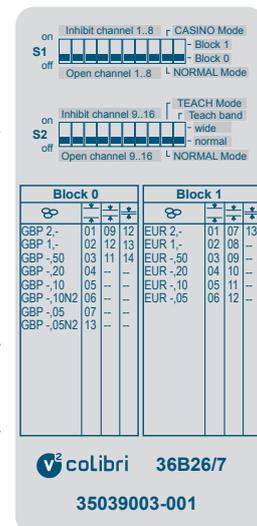


Fig. 6: Switching functions/coin channel assignment sticker

4.5 Switch blocks

On the back of the coin validator, there are two switch blocks S1 and S2 [Fig. 1/13]/[Fig. 2/13] that each have ten DIL switches S1.1-10 and S2.1-10. Using the DIL switches, you can set specific device functions:

To find out how to set the individual functions with the help of the switch blocks, refer to *Chap. 7 Operation, p. 28*



There is a brief description of the individual switching functions on the back of the device [Fig. 7/].

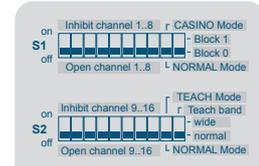
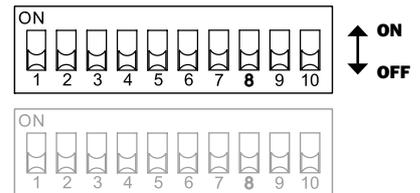


Fig. 7: Switching functions sticker section

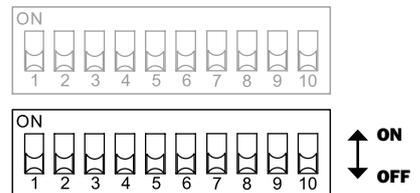
4.5.1 Switching functions S1.1-10

DIL switch	Function	OFF	ON
S1.1	Coin channel 1	accepts	inhibited
S1.2	Coin channel 2	accepts	inhibited
S1.3	Coin channel 3	accepts	inhibited
S1.4	Coin channel 4	accepts	inhibited
S1.5	Coin channel 5	accepts	inhibited
S1.6	Coin channel 6	accepts	inhibited
S1.7	Coin channel 7	accepts	inhibited
S1.8	Coin channel 8	accepts	inhibited
S1.9	Operating mode	Standard mode	Casino mode
S1.10	Memory block	0	1



4.5.2 Switching functions S2.1-10

DIL switch	Function	OFF	ON
S2.1	Coin channel 9	accepts	inhibited
S2.2	Coin channel 10	accepts	inhibited
S2.3	Coin channel 11	accepts	inhibited
S2.4	Coin channel 12	accepts	inhibited
S2.5	Coin channel 13	accepts	inhibited
S2.6	Coin channel 14	accepts	inhibited
S2.7	Coin channel 15	accepts	inhibited
S2.8	Coin channel 16	accepts	inhibited
S2.9	Mode	Operating mode	Teach mode
S2.10	Teach mode	Normal band	Wide band



4.6 Return lever and return button

You activate the return lever [Fig. 1/2] at the top of the devices using the return button on the machine if you want the machine to return coins or to remove a jam caused by coins that have got stuck, for example. Actuation of the return lever opens the measurement and validation area of the coin validator so that all objects in the coin validator are directed to the return area.

Devices with front entry via a front plate do not have a return lever. With these devices, you open the measuring and validation area by pressing the return button [Fig. 2/2] on the front plate.

4.7 Interfaces

For more information on the machine and sorting interface, [Fig. 1/8, 12]/[Fig. 2/8, 12] refer to *Chap. 5 Function, p. 19* and *Chap. 10 Technical data, p. 39*

5 Function



This chapter describes how the coin validator works:

- Coin acceptance and coin channels
- Single or double block data-management
- Accepted coin sensor
- String recognition
- Control for external sorting device
- Coin inhibition/activation of narrow coin channels
- Teach mode

5.1 Coin acceptance and coin channels

For coin acceptance the coin validator has 32 "memory blocks" to which up to 32 different coin types or tokens can be assigned. These "memory slots" are called coin channels. The acceptance band of one coin type/token is assigned to each coin channel and the respective coin type/token is accepted in this channel.



After a reset, coin acceptance is inhibited and must be enabled by the machine. By default, the v² colibri refuses to accept any further coins if the machine had not addressed it within the last 500ms or if the machine has not yet polled the last accepted coin.

To enable reliable rejection of false coins, channels with a narrow or even very narrow acceptance band are frequently set up for a coin type in addition to the normal coin channel. The limit values of these coin channels are closer together so that counterfeit money with similar measured values can be rejected if the normal channel is disabled (cf. Chap. 7.2 *Inhibiting coins/activating narrow coin channel ...*, p. 29). However, narrow and super-narrow coin channels also have a lower acceptance rate.

In addition, it is possible to assign coins with different measured values but identical coin values to different coin channels. In this way the coin validator can accept e.g. old and new coins of the same denomination.

In addition to the acceptance band of a coin type, further coin information which defines further processing of the coin after its acceptance is assigned to a coin channel: e.g. the coin value or sorting information for an external sorting device.



Since in most cases not all coin channels are assigned by customized factory programming, further coin types and the desired information can be assigned to these free channels at any time using the NRI configuration and service tools. Existing configurations can be changed.

The last eight coin channels 25 to 32 (or 9-16 with double block data-management (cf. Chap. 5.2 *Single or double block data-management*, p. 20)) are intended for teach mode. In these teach channels, you can also teach new types of tokens/coins directly via the switch blocks on the coin validator without needing configuration and service tools; i.e. a new coin or token is assigned to a channel (cf. Chap. 5.7 *Teach mode*, p. 23).

5.1.1 Quick coin acceptance in Casino mode

If you are using the v² colibri in gaming machines, the device can be switched to Casino mode so that inserted coins can be accepted faster (up to six coins per second instead of two per second) (cf. Chap. 7.4 Activating Casino mode, p. 34).

5.2 Single or double block data-management

At the factory, the device is programmed on a customer-specific basis whether the 32 coin channels of the coin validator are managed in one memory block or, divided up into 16 channels each, in two memory blocks (double block data-management).

If double block data-management is configured, the v² colibri can manage two (memory) blocks 0 and 1 that are programmed independently of one another (cf. Chap. 4.3 Nameplate, p. 16). 16 coin channels with different coin types (also currencies), sorting information etc. can be assigned to each block. Only one block at a time can be active and used for coin measurement and further coin processing. You choose the desired block using the top switch block on the device (cf. Chap. 7.1 Selecting memory block (for double block data-management only), p. 28).

5.3 Accepted coin sensor

To ensure that accepted coins get to the cash-box or an external sorting device and that acceptance is not tampered with, an accepted coin sensor (light barrier) checks before the cash-box coin exit [Fig. 1/6]/[Fig. 2/6] whether the inserted coin drops without hindrance through the coin outlet towards the cash-box or the sorting device. Only when the coin has passed these checking devices, does the system either accept the coin or, in the case of tampering, transmit an error code to the machine (cf. Chap. 10.2.1.3 ccTalk error code table, p. 42).

If the accepted coin sensors are covered permanently, e.g. by a coin jam, coin acceptance is inhibited.



If the v² colibri is used in Casino mode, the coin validator cannot use the accepted coin sensor in favour of fast coin acceptance. In Casino mode, coin acceptance is transferred before the coin passes the accepted coin sensor. This means that the coin validator's acceptance gate can be tampered with, e.g. by a coin being inserted attached to a string.

5.4 String recognition

To protect the device from string tampering, the accepted coin sensor in the v² colibri is designed such that coin acceptance is only transferred to the machine if the coin passes the accepted coin sensor from the direction of the insert funnel. If a coin was pulled back on a string, the system transfers an error code (cf. Chap. 10.2.1.3 ccTalk error code table, p. 42). Pulling back a coin is also made more difficult by the design of the coin validator.

5.5 Control for external sorting device

To route the accepted coins either to the cash-box or to change tubes or hoppers, for example, you can fit the coin validator with the NRI s² SSD-3000 3-fold sorter or another sorting device.

5.5.1 Sorting principle

The sorting gates are controlled by two sorting lines on pins 3 and 4 of the 10-pin connector [Fig. 1/8]/[Fig. 2/8] on the back of the device.

You set which coin is to be sorted on which sorting line by means of the machine's controller.



Assignment of coin type to sorting line as well as sorting time (for how long shall the sorting gates be controlled? 300-1000ms).



While the coin validator is sorting an accepted coin (the sorting time), it cannot accept any further coins unless the same ccTalk sorting path is addressed. If external sorting is no longer needed and the sorting time is not set to zero, the system continues to reduce the coin acceptance speed by the set sorting time. This means that you should set the sorting time to zero for faster coin acceptance.

5.5.2 Sorting using NRI 3-fold sorter s² SSD-3000

There are three different versions of the NRI 3-fold sorter for the top entry version of the v² colibri depending on the machine environment. They differ by virtue of the position of the return chute:

- s² SSD-3001: Return chute in front of the right-hand sorting chute
- s² SSD-3002: Return chute next to the right-hand sorting chute
- s² SSD-3003: Return chute behind the right-hand sorting chute

The front entry version can be combined with the s² SSD-3004.

With all four versions of the 3-fold sorter, you can distribute the individual coin types to the three sorting chutes regardless of the coins' dimensions. Each chute can be defined as a cash-box chute.

The following table lists the sorting line and ccTalk sorter path that must be addressed for sorting to be carried out into a specific sorting chute:

Sorting chute	Sorting line	ccTalk sorter path
LEFT	6 (pin 4)	3
MIDDLE	-	1, 4-8
RIGHT	5 (pin 3)	2

For details on how to connect the sorting device to the coin validator, refer to (cf. Chap. 6.2 Mounting the 3-fold sorter s2 SSD-3000 ..., p. 25).

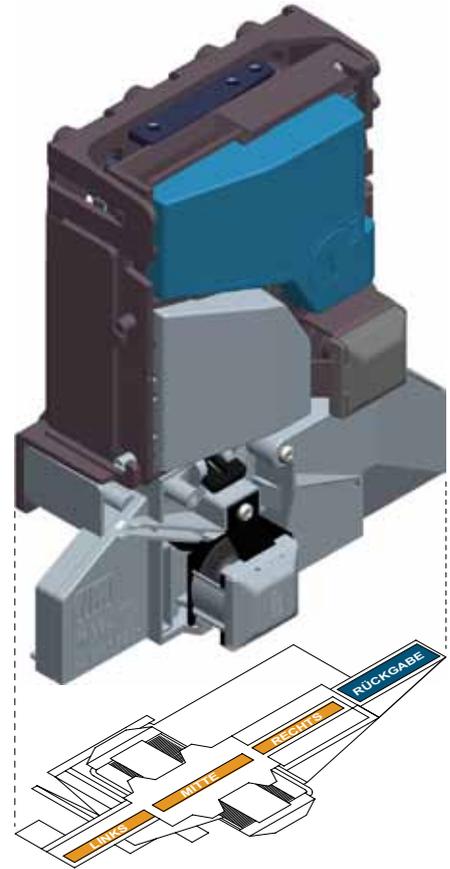


Fig. 8: Sorting and return chutes (s² SSD-3002)

5.6 Coin inhibition/activation of narrow coin channels

If coins are no longer to be accepted for payment on the machine you can either

- inhibit coin acceptance completely,
- inhibit all coin channels of a certain coin to ensure that this coin is no longer accepted, or
- inhibit the normal coin channel of a certain coin so that this coin is accepted only in the narrow channel.



After a reset, coin acceptance is inhibited and must be enabled by the machine. By default, the v² colibri refuses to accept any further coins if the machine had not addressed it within the last 500ms or if the machine has not yet polled the last accepted coin.



Alternatively: Inhibit individual coin types in the long term

5.6.1 Inhibiting all coins/individual coin channels via machine control system

The control system can

- inhibit coin acceptance completely. In this case the coin validator does not accept any coins.
- inhibit all coin channels of a certain coin, e.g. if there is no more change in an external payout unit or in case of high fraud hazard.
- inhibit the normal coin channel of a certain coin so that this coin is accepted only in the narrow channel.

For information on how to program the inhibiting or enable functions, refer to the "ccTalk Serial Communication Protocol, Generic Specification" that is available on the Internet at www.ccTalk.org, or

5.6.2 Inhibiting a coin channel/a group of coin channels by means of a switch block

As an alternative to blocking with the controller, you can use the two switch blocks on the coin validator to inhibit individual coin channels or groups of coin channels on site (cf. Chap. 7.2 *Inhibiting coins/activating narrow coin channel ...*, p. 29).

5.7 Teach mode

You can teach coin channels in teach mode without configuration software either by means of the bottom switch block on the coin validator or the ccTalk machine controller, i.e. a token or coin is assigned to a new coin channel. The new acceptance band is generated by inserting the tokens/coins. It is not necessary to remove the coin validator from the machine for this purpose. With double block data-management, the last eight coin channels 9–16 (the teach channels) of the activated memory block are available for teaching, with coin channels 25 to 32 being available for this in the case of single block data-management (cf. Chap. 7.3 *Teaching coin channels in teach mode ... (not for ACMI version)*, p. 31).



Activating/deactivating teach mode/channels

6 Start-up



This chapter describes how you

- start up the v² colibri in a machine
- mount the NRI 3-fold sorter s² SSD-3000



When carrying out any assembly and installation work on the coin validator and machine, always observe the following safety instructions:

- **The coin validator must only be connected by a trained electrician.**
- **Never use the coin validator if there is damage to the device or the connecting cables.**
- **Select the correct voltage for the coin validator (see label).**
- **Never pull the connecting cable of the coin validator from the machine when a voltage is applied.**
- **Pull out the mains plug of the machine before installing or dismantling the coin validator.**

6.1 Installing the coin validator in the machine

To install the v² colibri in a machine with a ccTalk interface:

- 1 If necessary, make individual settings on the switch blocks [Fig. 9/1] (cf. Chap. 7 Operation, p. 28).
- 2 If necessary, mount the 3-fold sorter on the coin validator.
- 3 Disconnect the machine from the mains supply.
- 4 Connect the coin validator via the 4-pin ccTalk interface [Fig. 9/2] and the associated connecting cable to the machine.
- 5 Suspend the coin validator on its lateral mounting studs [Fig. 9/4] in the machine mount.
- 6 Reconnect the mains supply to the machine.



- 1 Switch blocks
- 2 Interface – machine (ccTalk)
- 3 Interface – external 3-fold -sorter
- 4 Mounting studs

Fig. 9: Installation

6.2 Mounting the 3-fold sorter s² SSD-3000 ...

If you want to operate the v² colibri with the s² SSD-3000 sorter, you mount it on the top or front entry version using a special bracket:

6.2.1 ... on the v² colibri top entry version

There are three different versions of the NRI 3-fold sorter for the top entry version of the v² colibri depending on the machine environment. They differ by virtue of the position of the return chute:

- s² SSD-3001: Return chute in front of the right-hand sorting chute
- s² SSD-3002: Return chute next to the right-hand sorting chute
- s² SSD-3003: Return chute behind the right-hand sorting chute

Mounting the sorter will be explained using the s² SSD-3002 as an example:

- 1** Fasten the mounting frame [Fig. 10/1] using the three screws [Fig. 10/2] on the back of the sorter [Fig. 10/3].



Depending on the machine environment, three different heights are possible.

- 2** Connect the sorter [Fig. 10/3] to the coin validator by means of the 10-pin sorting connector [Fig. 10/4] on the back of the sorter and of the coin validator with the help of the associated sorting cable.
- 3** Suspend the coin validator on its mounting studs [Fig. 10/5] in the mounting frame [Fig. 10/1]: insert it first at the bottom then press it in at the top until it snaps in.
- 4** Connect the coin validator to the machine (cf. Chap. 6.1 *Installing the coin validator in the machine*, p. 24).

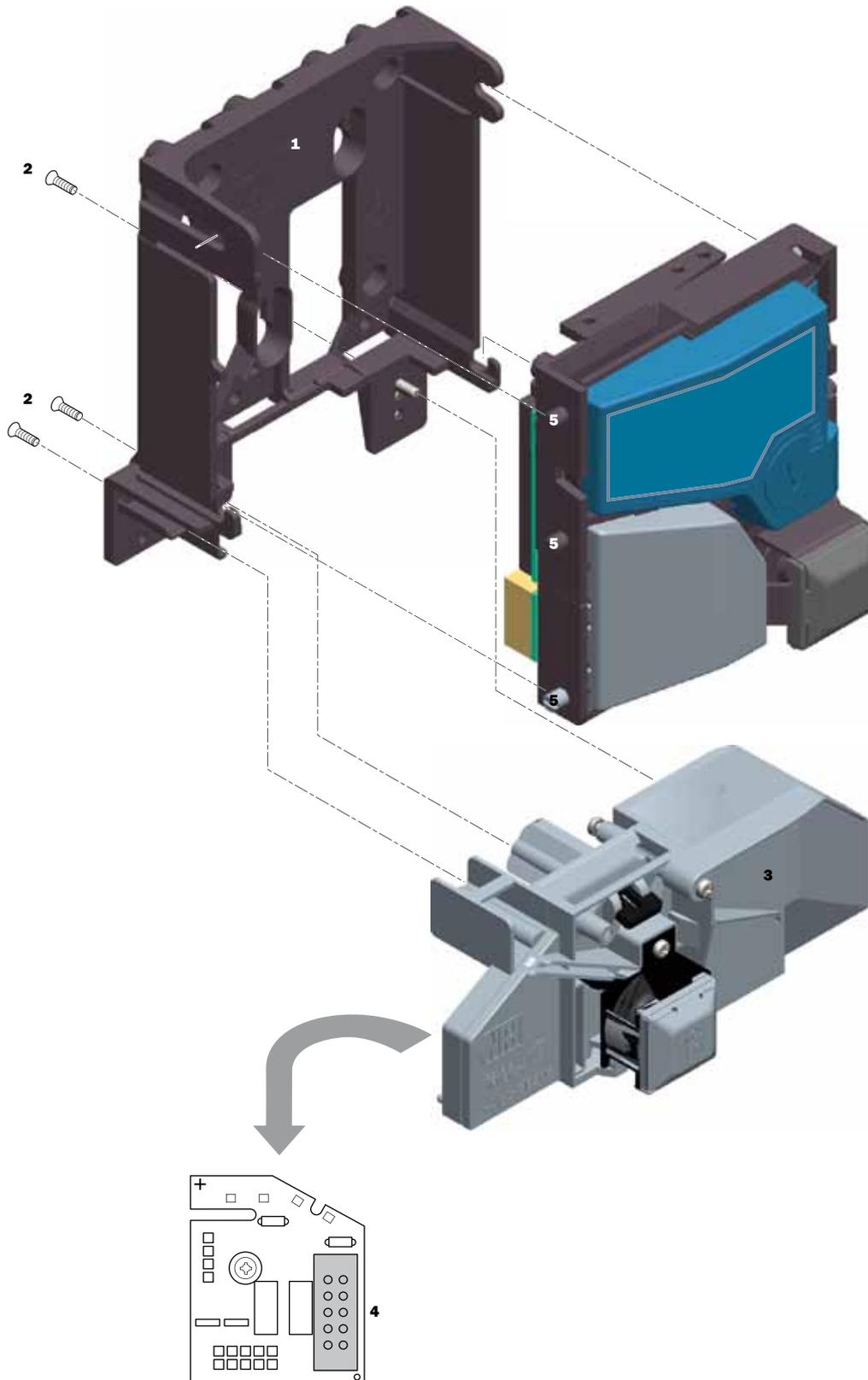


Fig. 10: Connecting the top entry version of the v² colibri to the s² SSD-3002 3-fold sorter

6.2.2 ... on the v² colibri front entry version

- 1** If necessary, fasten the retaining plate [Fig. 11/1] with the two screws [Fig. 11/2] to the sorter [Fig. 11/3].
- 2** Remove the screw [Fig. 11/4] from the coin validator.
- 3** Using the retaining plate [Fig. 11/1], plug the sorter from the right onto the coin validator.
- 4** Fasten the sorter [Fig. 11/3] on the coin validator with the screw [Fig. 11/4].
- 5** Connect the sorter [Fig. 11/3] to the coin validator by means of the 10-pin sorting connector [Fig. 11/5] on the back of the sorter and of the coin validator with the help of the associated sorting cable.
- 6** Connect the coin validator to the machine (*cf. Chap. 6.1 Installing the coin validator in the machine, p. 24*).

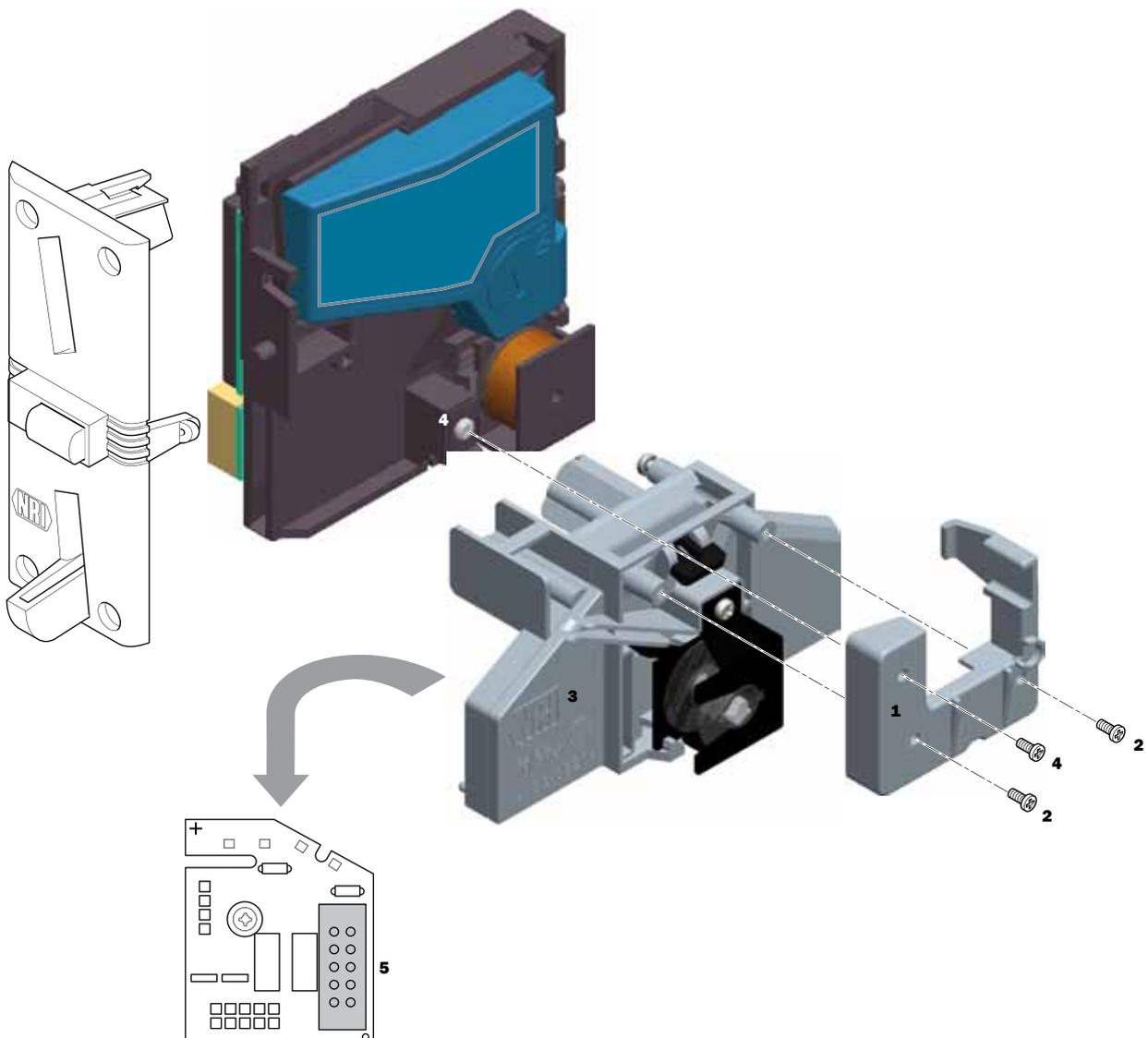


Fig. 11: Connecting the front entry version of the v² colibri to the s² SSD-3004 3-fold sorter

7 Operation



This chapter describes how to operate the coin validator, i. e. set certain functions on the coin validator:

- Selecting a memory block
- Inhibiting coins/activating narrow coin channel
- Teaching coin channels in teach mode
- Selecting Casino mode

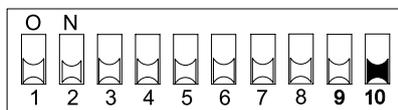
The settings which are made directly on the coin validator are described. To find out how to make the settings using the WinEMP PC configuration software, refer to the separate guide (cf. *Chap. 9 What can be set later?*, p. 37).

The exact function of the settable device options is described in *Chap. 5 Function*, p. 19.

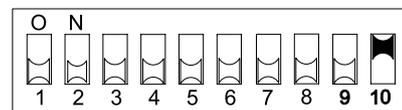
7.1 Selecting memory block (for double block data-management only)

If the coin validator is to access the other memory block and accept euro coins instead of national currency coins, for example, you can choose the correct block using the top switch block:

- 1 Unhook the coin validator from the machine.
- 2 For memory block 0, set DIL switch S1.10 downwards (to OFF); for memory block 1, set it upwards to ON.



Memory block 0 selected



Memory block 1 selected

- 3 Remount coin validator in the machine.
- 4 Switch power off and on again.
The required memory block is activated.
- 5 Check coin acceptance of the new memory block selected.

7.2 Inhibiting coins/activating narrow coin channel ...

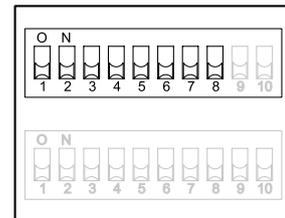
Using the two switch blocks on the coin validator, you can individually inhibit on site each of the 16 coin channels of the activated memory block or each of the coin types assigned to specific coin channels, i.e. these inhibited coin channels are no longer used for payment on the machine.

- Accept coin without limitation: All the assigned coin channels are enabled
- Limit acceptance band: Normal coin channel is inhibited
- Inhibit coin: All the assigned coin channels are inhibited

The 16 DIL switches inhibit the following coin channels:

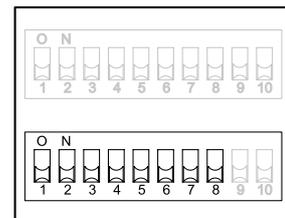
7.2.1 Inhibit switch functions – switch block S1

DIL switch	Function	OFF	ON
S1.1	Coin channel 1	accepts	inhibited
S1.2	Coin channel 2	accepts	inhibited
S1.3	Coin channel 3	accepts	inhibited
S1.4	Coin channel 4	accepts	inhibited
S1.5	Coin channel 5	accepts	inhibited
S1.6	Coin channel 6	accepts	inhibited
S1.7	Coin channel 7	accepts	inhibited
S1.8	Coin channel 8	accepts	inhibited



7.2.2 Inhibit switch functions – switch block S2

DIL switch	Function	OFF	ON
S2.1	Coin channel 9	accepts	inhibited
S2.2	Coin channel 10	accepts	inhibited
S2.3	Coin channel 11	accepts	inhibited
S2.4	Coin channel 12	accepts	inhibited
S2.5	Coin channel 13	accepts	inhibited
S2.6	Coin channel 14	accepts	inhibited
S2.7	Coin channel 15	accepts	inhibited
S2.8	Coin channel 16	accepts	inhibited



For information on which coins are assigned to which coin channels ex-works, refer to the sticker on the back of the device (cf. Chap. 4.4 Switching functions/coin channel assignment sticker, p. 16).



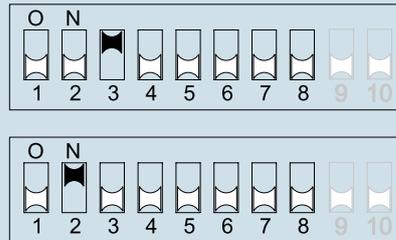
This assignment may have been changed using the configuration tool.

Apart from this, there is a brief description of the individual switching functions on the back of the device.

If all coins are to be accepted for payment on the machine, DIL switches S1.1-8 and S2.1-8 on both switch blocks are in the bottom position (set to OFF). If you want to inhibit a coin channel, you only need to set the associated DIL switch upwards to ON.

Example

The coin validator is not to use coin channels 3 and 10 for acceptance any more so that coin channels 3 and 10 must be inhibited.



With this setting, coin channels 3 and 10 are no longer used!



If one normal and one narrow coin channel are programmed for a coin type on the coin validator, you must inhibit the normal coin channel as described above to activate the narrow coin channel. If both channels are activated, the wider acceptance band of the normal coin channel is used. If you intend to inhibit the coin type, you must also inhibit both coin channels.

To inhibit coin channels on the coin validator:

- 1** Unhook the coin validator from the machine.
- 2** Use DIL switches S1.1-8 and S2.1-8 to inhibit the desired coin channels (see the example above). The desired coin channels are inhibited.
- 3** Remount coin validator in the machine.

7.3 Teaching coin channels in teach mode ... (not for ACMI version)

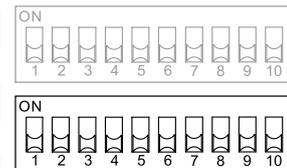
You can assign a token or a new coin to a coin channel either using the switch blocks on the coin validator or by means of ccTalk commands and a service menu of the machine.

7.3.1 ... using the switch block on the coin validator

To generate new acceptance bands, you can teach up to eight coin channels (teach channels) by means of the bottom switch block on the coin validator. You need at least ten coins of the new type. The switch block assignment is different with double and single block data-management:

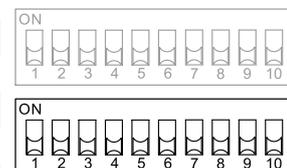
7.3.1.1 Teach mode switching functions with double-block data-management

DIL switch	Function	OFF	ON
S2.1	Teach mode	-	Teach coin channel 9
S2.2	Teach mode	-	Teach coin channel 10
S2.3	Teach mode	-	Teach coin channel 11
S2.4	Teach mode	-	Teach coin channel 12
S2.5	Teach mode	-	Teach coin channel 13
S2.6	Teach mode	-	Teach coin channel 14
S2.7	Teach mode	-	Teach coin channel 15
S2.8	Teach mode	-	Teach coin channel 16
S2.9	Teach mode	OFF	ON
S2.10	Teach mode	Normal acceptance band	Wide acceptance band



7.3.1.2 Teach mode switching functions with single-block data-management

DIL switch	Function	OFF	ON
S2.1	Teach mode	-	Teach coin channel 25
S2.2	Teach mode	-	Teach coin channel 26
S2.3	Teach mode	-	Teach coin channel 27
S2.4	Teach mode	-	Teach coin channel 28
S2.5	Teach mode	-	Teach coin channel 29
S2.6	Teach mode	-	Teach coin channel 30
S2.7	Teach mode	-	Teach coin channel 31
S2.8	Teach mode	-	Teach coin channel 32
S2.9	Teach mode	OFF	ON
S2.10	Teach mode	Normal acceptance band	Wide acceptance band

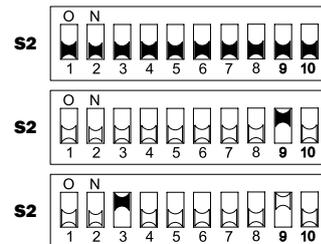


To assign a coin type/token to coin channel 9-16 or 25-32, proceed as follows:



If you use the bottom switch block to inhibit individual coins, make a note of the current switch settings so that you can restore them afterwards for normal operating mode.

- 1** Unhook the coin validator from the machine.
- 2** Set DIL switches S2.1-10 downwards to OFF.
- 3** Set DIL switch S2.9 upwards to ON.
The device is in the teach mode for teaching the coin channels.
- 4** Enable the coin channel to be taught (9-16/25-32, here: 11/27) by setting the corresponding DIL switch (S2.1-8, here: S2.3) upwards to ON.
- 5** If necessary, remount the coin validator in the machine.
- 6** Insert at least 10 coins of the new coin type/token into the coin validator or machine. Insertion of the tenth coin is confirmed by one-off activation of the acceptance gate (a brief clicking noise). Further coins can be inserted.



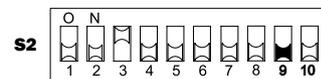
If there is no signal after the 10th coin has been inserted, the coins inserted cannot be used.

- 7** If necessary, unhook the coin validator from the machine again.

Now you can save the measured values generated by the inserted coins with a normal (a) or a wide (b) acceptance band. A wide acceptance band presents itself if you only have available a limited selection of tokens for teaching.

To save with the normal acceptance band:

- 8a** Set DIL switch S2.9 downwards back to OFF.
The system indicates successful saving with a single actuation of the acceptance gate and an error at saving with a double actuation (a brief clicking noise in each case) if the acceptance band of the inserted coins and that of an already programmed coin channel overlap or the generated measured values are too different and the tolerances would be too high, for example.



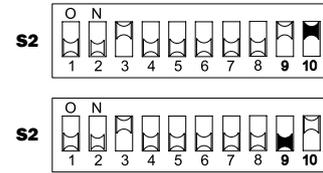
To cancel the operation, first set the DIL switch of the corresponding coin channel (S2.1-8, here: S2.3) and then DIL switch S2.9 downwards to OFF.

To save with the wide acceptance band:

- 8b** Set an additional DIL switch, S2.10, upwards to ON.
The acceptance band has been widened.

Only now set DIL switch S2.9 back downwards (to OFF).

The system indicates successful saving with a single actuation of the acceptance gate and an error at saving with a double actuation (a brief clicking noise in each case) if the acceptance band of the inserted coins and that of an already programmed coin channel overlap or the generated measured values are too different and the tolerances would be too high, for example.



To cancel the operation, first set the DIL switch of the corresponding coin channel (S2.1-8, here: S2.3) as well as DIL switch S2.10 for the wide acceptance band and then DIL switch S2.9 downwards (to OFF).

- 9** If necessary, set DIL switch S2.1-8 again for normal operation (cf. Chap. 7.2 Inhibiting coins/activating narrow coin channel ..., p. 29).
- 10** If necessary, remount the coin validator in the machine.
- 11** Switch power off and on again.
- 12** Enable the taught coin channel (here: 11/27) via the control system and adapt sorting, if necessary.

The coin validator will now accept the new coin type/token for payment.

7.3.2 ... using ccTalk commands/machine service menu

If the coin validator is not write-protected, you can teach coin channels via a ccTalk command set to generate new acceptance bands (cf. Chap. 10.2.1.5 ccTalk teach mode (not for ACMI version), p. 43). This command set can be used to start and monitor the teach mode e.g. via a service menu.

The new acceptance bands are generated and saved by inserting ten coins/tokens of the new type. After saving of the acceptance bands the coin validator will accept the new coin type/token for payment.

Fur further information about teaching of coins/tokens via the service menu please refer to the instruction manual for the machine.



If you have overwritten an already configured coin channel in teach mode, you must adapt all the properties that are assigned to this channel (e.g. coin ID, sorting, etc.) to the new coin/token (see the separate WinEMP manual).

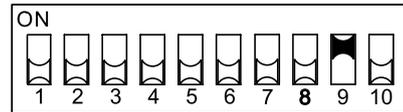
7.4 Activating Casino mode

If you want to operate the v² colibri in Casino mode, you can change the operating mode by simply resetting the top switch block:

Set DIL switch S1.9 upwards to ON.

The device now operates in Casino mode with fast coin acceptance of five to six coins per second.

Tripping time of the acceptance gate



In Casino mode, the v² colibri cannot use the accepted coin sensor in favour of fast coin acceptance (cf. Chap. 5.3 Accepted coin sensor, p. 20).

8 Maintenance and service



This chapter describes how to

- clean the v² colibri and
- remedy the cause of malfunctions.

8.1 Cleaning the coin runway

On their way through the coin validator the coins may leave residues on sensitive parts which must be removed from time to time to ensure reliable coin acceptance and rejection. Apart from this, no further maintenance work is required.

- Cleaning interval: As required, at least annually
- Cleaning agent/tool: Compressed air/soft brush/moistened cloth, lukewarm water



**Moisten the cloth only slightly to prevent fluid from entering the device. This would damage the PCB.
Do not use solvents or scouring agents that could affect the plastic and appearance of the device.**

- 1 Pull the mains plug of the machine.
- 2 Carefully unfold the flight deck [Fig. 12/1] on the left-hand side of the coin insert funnel and hold it open.
- 3 Clean the coin runway in the coin validator using compressed air, a soft brush or cloth.
- 4 Remove dust and coin residues from the validation area using cloth/brush or compressed air.
- 5 Wipe the two sides of the coin runway clean using a slightly moistened cloth.
- 6 Allow all parts to dry.
- 7 Close the flight deck again.
- 8 Reconnect the machine to the mains supply.

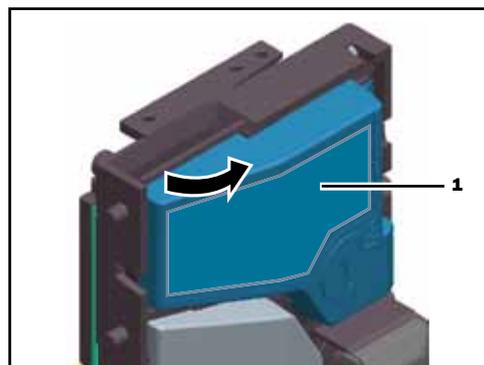


Fig. 12: Unfolding the flight deck of the coin validator

8.2 Troubleshooting

Malfunctions can occur in all electronic devices. These do not always have to be faults in the device. In many cases improper connections or incorrect settings are the reason. Therefore: please check first of all whether the malfunction can simply be remedied using the following table.

Problem	Possible cause	Remedy, hints
Coin validator does not accept coin	No power supply	<ul style="list-style-type: none"> • Connect the cable correctly to the coin validator and the machine • Connect power to the machine
	Return lever/button pressed/jammed	Ensure that the return lever/button has not been permanently pressed by mistake
	Coin runway dirty	Open the flight deck and clean the coin runway (cf. Chap. 8.1 <i>Cleaning the coin runway</i> , p. 35)
	Coin inhibited	<ul style="list-style-type: none"> • Ensure that the machine controller is not inhibiting coin acceptance • Ensure that the coin is not inhibited via the DIL switch on the back of the device or that just the narrow coin channel is enabled and the normal one is inhibited (cf. Chap. 7.2 <i>Inhibiting coins/activating narrow coin channel ...</i>, p. 29)
Coin validator accepts coin, but no credit is given	Coin does not exit the device	Make sure that the coin outlet is not blocked by foreign objects or devices connected to the bottom of the coin validator

If the malfunction cannot be remedied, please contact our service technicians.

9 What can be set later?



In this chapter, you will find out general information about the NRI service and configuration tools for the v² colibri and what device functions you can retrospectively configure (cf. Chap. 10.3 Accessories, p. 44).



In order to meet the requirements of the Italian gaming machine act subsequent configuration of the ccTalk ACMI model is impossible. If you want to change the factory settings please contact our sales representative.

9.1 Service and configuration tools

Depending on whether you want to configure the coin validator in the workshop or on site a PC software or a mobile service tool is recommended.

9.1.1 WinEMP PC configuration application

The WinEMP PC application is for diagnostics and individual configuration of NRI coin validators and for updating the complete coin and device configuration using the data blocks currently made available by Crane Payment Solutions (data block upload).

The WinEMP application identifies the coin validator that is connected to the PC and its specific data and displays this data on your PC's screen for diagnosis and configuration.

The separate software manual describes how to connect the coin validator to your PC and how to install and use the software.

9.1.2 On-site service tool HENRI⁺

The HENRI⁺ service tool is suitable for on-site configuration to also update the complete coin and device configuration quickly and easily by means of a data block upload.

The separate short reference guide describes how to connect and use the tool.



HENRI⁺ is also suitable for on-site firmware updates.

9.2 Which device functions can be set?

- Acceptance of genuine coins and rejection of false coins (acceptance band adjustment after insertion of genuine coins and false coins)
- Coin via channel assignment of
 - coin value
 - ccTalk coin ID
 - ccTalk coin type/position 1–16

- Sorting via
 - Assigning the sorting control line/sorter path and coin type
 - Definition of a sorting time
- Long-term coin deactivation
- Teach mode via
 - Activating/deactivating teach mode
 - Activating/deactivating teach channels
- New coins/tokens
(generation of a new acceptance band and assignment of the coin/sorting data)
- Complete data block upload for current coin and device data

10 Technical data



This chapter contains

- All relevant v² colibri data
- details of machine and sorting interfaces
- Information about v² colibri accessories

10.1 Device data

Supply voltage	10V to 27V DC
Current consumption in	Standby mode: < 30mA Measuring mode: approx. 100mA Acceptance mode: approx. 100mA + approx. 3W
Transmitter/Receiver (active low)	Inactive (H): 3.5..5V, I _{max} = 5μA Active (L): 0..1V, I _{max} = 30mA
Temperature range	-25 °C to 70 °C
Temperature change	Max. 0.2 °C/min.
Rel. humidity	Up to 93%
Condensation	Not permitted
Machine interface	<u>ccTalk</u> : 9600 Baud, 8-bit, N, 1, 5 V TTL, common send and receive line, active low protocol according to "cctalk Serial Communication" Generic Specification, Money Controls For pin assignment, see <i>Chap. 10.2.1 v2 colibri – machine, p. 40</i>
Sorting interface	2 + 4 parallel outputs (open collector) (<i>cf. Chap. 10.2.2 v2 colibri – external 3-fold sorting device, p. 43</i>)
Coin acceptance	Max. 32 coin types in 2 x 16 or 1 x 32 channels Coin diameter: 15-31.5mm (optionally up to 32.5mm) Coin thickness: 1.5-2.5mm (optionally up to 3.3mm) Speed: 2 coins/s (Casino mode: 5-6 coins/s)
Device dimensions	Height: 102mm Width: 89mm (+ 2 x 4.7mm for mounting studs) Depth: 54mm Refer to the separate documentation for all the installation dimensions
Mounting position	Vertical, max. deviation: ± 2°
Directives applied	EMC 2004/108/EC EN 55 014-2 (interference resistance) EN 55 022 (interference emission) Machinery: 2006/42/EC R&TTE: 1999/5/EC (Radio and telecommunications terminal equipment) (<i>cf. Declaration of Conformity</i>)

10.2 Interfaces



On the next few pages, you will find the pin assignments and v² colibri-specific ccTalk commands/ settings and error messages for connecting the coin validator to

- the machine
- an external 3-fold sorting device

10.2.1 v² colibri – machine

10.2.1.1 Pin assignment

Pin	Function	Level
1	Supply 12V DC	-
2	-	-
3	GND	-
4	Data	active low



You will find a detailed description of the serial ccTalk interface with different connection diagrams in the Generic Specification "ccTalk Serial Communication Protocol" available on the Internet at www.cctalk.org.

10.2.1.2 Implemented ccTalk commands

Header	Command	Function, No. of data bytes [expected/ returned]	Optional ACMI deviations for Italian gambling machine market
254	Simple poll	[0/0]	
253	Address poll	[0/1]	
252	Address clash	[0/1]	
251	Address change	[1/0]	
250	Address random	[0/0]	
249	Request polling priority	2, 20 (= "200ms") [0/2]	
248	Request status	0 = OK, 1 = return lever actuated, 2 = coin on string detected [0/1]	
247	Request variable set	Customer no. (binary) [0/4]	
246	Request manufacturer ID	"CPS" [0/3]	
245	Equipment category ID	"Coin acceptor" [0/13]	
244	Request product code	"Colibri" [0/3]	
243	Request database version	0 = remote coin database not available [0/1]	
242	Request serial number	3 bytes [0/3] 7-digit no. = 4-digit order no. + 3-digit device no.	
241	Request software revision	"xxx-xxx" [0/7]:	

Header	Command	Function, No. of data bytes [expected/returned]	Optional ACMI deviations for Italian gambling machine market
240	Test solenoids	[1/0] Bit 0: gate 0 (acceptance) Bit 1: gate 1 (internal sorter) Bit 2: gate 2 (internal sorter) Bit 3: gate 3 (internal sorter)	
238	Test output lines	[0/1] Bit 0: 1 = open escrow to cash box Bit 1: 1 = open escrow to return Bit 2: 1 = activate return lever motor	
236	Read opto states	[0/1] Bit 0: SO1 (Sizing Optics) Bit 1: SO2 (Sizing Optics) Bit 4: CP3 (Coin Position) Bit 5: CP4 (Coin Position)	
232	Perform self test	[0/1] 0 = no error 1 = EEPROM checksum fault (settings corrupt)	
231	Modify inhibit status	[2/0]	
230	Request inhibit status	[0/2]	
229	Read buffered credit or error codes	[0/11] <i>(cf. Chap. 10.2.1.3 ccTalk error code table, p. 42)</i>	
228	Modify master inhibit status	[1/0]	
227	Request master inhibit status	[0/1]	
222	Modify sorter override status	[1/0]	
221	Request sorter override status	[0/1]	
219	Enter new PIN	[4/0] (no function)	
218	Enter PIN	[4/0] (no function)	
216	Request data storage availability	0,0,0,0,0 [0/5]	no reply
213	Request option flags	[0/1] Bit 7: MSB, 1 = remote teach support Bit 6: 1 = escrow control supported Bit 5: 1 = return lever motor control Bit 4..0: 0 (not used)	
210	Modify sorter paths	5 bytes [5/0] or 2 bytes [2/0]	2 bytes [2/0]
209	Request sorter paths	4 bytes [1/4]	1 byte [1/1]
202	Teach mode control	[1/0] <i>(cf. Chap. 10.2.1.5 ccTalk teach mode (not for ACMI version), p. 43)</i>	no reply
201	Request teach status	[0/2] <i>(cf. Chap. 10.2.1.5 ccTalk teach mode (not for ACMI version), p. 43)</i>	no reply
196	Request creation date	[2/0]	
195	Request last modification date	[2/0]	
192	Request build code (incl. Write protection info)	"DE0" (no protection) "DE1" (ACMII) "DE2" (VDAI) "DE2" (extra)	"IT0" (no protection) "IT1" (ACMII) "IT2" (VDAI) "IT3" (extra)

Header	Command	Function, No. of data bytes [expected/returned]	Optional ACMI deviations for Italian gambling machine market
189	Modify default sorter path	[1/0]	
188	Request default sorter path	[0/1]	
185	Modify coin ID (Duration: 0.5..1.5s!!!)	[7/0]	no reply
184	Request coin ID	[1/6] e.g. "EU200A" = €2	
170	Request base year	[0/4] = 2000	
111	Request encryption support	[0/17]	
4	Request comms status revision	1, 4, 2 [0/3] 1, 4, 6 [0/3]	
1	Reset device	[0/0]	

10.2.1.3 ccTalk error code table

Error no.	Error	Description (cp. spec)
1	Rejected coin	
2	Inhibited coin	
8	2 nd close coin error	
10	Credit sensor not ready	Light attack on credit sensor
11	Sorter not ready	External escrow was open
14	Credit sensor blocked	
16	Credit sequence error	
20	Coin-on-string mechanism activated	
126	Return lever motor timeout	Sorter failed. Coin was routed to unintended path. The following coin event will report coin and (unintended) path
254	Coin return mechanism activated	
255	Unspecified alarm code	

10.2.1.4 ccTalk standard settings (after reset)

All the settings that the machine controller makes are volatile (exception: Modify Coin ID). After a reset, the following default settings apply until the controller changes settings:

Header	Command	Value
251	Address change	2
231	Modify inhibit status	00h 00h (all coins inhibited)
228	Modify master inhibit status	01h (not inhibited)
222	Modify sorter override status	FFh (no override)
218	Enter PIN	0 0 0 0 (not used)
210	Modify sorter paths	predefined setting according to data block
189	Modify default sorter path	predefined setting according to data block

10.2.1.5 ccTalk teach mode (not for ACMI version)

Header 202 – Teach mode control

Transmitted data: Position (1 byte)

Received data: ACK

Position: Bit 0..6: Coin type (1..16)

Bit 7: 0 = normal acceptance band
1 = wide acceptance band

Position = 0 = abort teaching process

Header 201 – Request teach status

Transmitted data: None

Received data: Byte 1 = No. of coins inserted

Byte 2 = Status code:

252 = teaching process aborted (see header 202)

253 = teaching error (overlapping with existing acceptance band, coin type not found)

254 = teaching in process

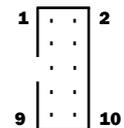
255 = teaching process completed



The status code remains active until reset or the next teaching process.

10.2.2 v² colibri – external 3-fold sorting device

Pin	Function
1	GND
2	Sensor supply 12V DC
3	Sorting line 5
4	Sorting line 6
5	-
6	-
7	Possible sorting line 1
8	Possible sorting line 2
9	Possible sorting line 3
10	Possible sorting line 4

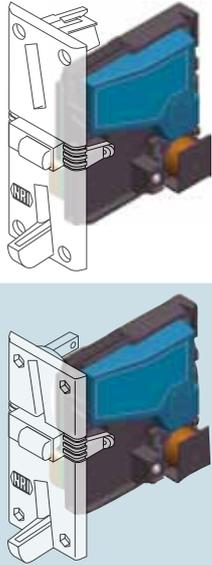


10.3 Accessories

To customize the v² colibri to your own individual requirements, you can purchase the following accessories from Crane Payment Solutions:

10.3.1 Front plates

Designation	Order no.	
MIDI (black, 155 x 63mm)	with white return button	5508
	with black return button	19329
MINI (black, 120 x 60mm)	with white return button	22569
	with black return button	23097



10.3.2 Sorters

Designation	Order no.	
s² SSD-3001/3002/3003/3004 3-way sorter	The order number depends on the version of the sorting device, the bracket and the cable. Please contact our sales staff	
s² HSD-3000	3-way high-speed sorter	30500
	3-way high-speed sorter with frame	33686




For more information on the NRI 3-fold sorter, refer to the separate data sheets. All the documentation is available for download as PDF files on the NRI website (www.nri.de).

10.3.3 Service tools

Designation	Order no.
<p>On-site service tool For updating the complete coin/device configuration and firmware version (including license, USB-PC cable, coin validator cable)</p>	HENRI* for G-13.mft
<p>HENRI*</p> <p>Power supply In the machine, via transformer</p> <p>In the workshop, via 12V power supply with international adapters</p>	<p>33573</p> <p>26482</p>
<p>Cover</p>	34714
<p>PC application For diagnosing and updating individual settings or the complete coin/device configuration (including license, USB-PC cable, 12V power supply)</p>	28535
<p>WinEMP</p> <p>Additional licenses for uploading the complete coin/device configuration</p> <p>Customer-specific series configuration</p>	<p>20169</p> <p>25851</p>



11 Index

- 3-fold sorting device
 - Control 21
 - SSD-3000 21
 - Interface 13, 14
 - Pinning 43
 - S2 SSD-3000
 - Mounting 25
- A**
- Accentuations in the text 8
- Acceptance band 19
 - Narrow 19
 - Activating 29
 - New 23
 - Procedure 31, 43
 - Normal 19
 - Very narrow 19
- Acceptance, coins 19, 39
 - Inhibit 22, 23
- Acceptance speed 39
- Accepted coin sensor 20
- Accessories 44
- Advantages 9
- Angle, mounting position 39
- Application, proper 12
- Applied directives 39
- B**
- Bar code 16
- Block 16, 20
 - Select 28
- Buffered error codes, ccTalk 42
- C**
- ccTalk
 - Error codes 42
 - Implemented commands 42
 - Interface 13, 14, 39
 - Standard settings after reset 42
- Channels 19
 - Inhibit 29
 - Narrow 19
 - Activating 29
 - Normal 19
 - Very narrow 19
- Chapter summary 8
- Cleaning 35
- Coin
 - Inhibit 22, 23
 - Procedure 29
 - New 23
 - Procedure 31, 43
- Coin acceptance 19, 39
 - Inhibit 22, 23
 - Procedure 29
- Coin channels 19
 - Inhibit 29
 - Narrow 19
 - Activating 29
 - Normal 19
 - Very narrow 19
- Coin diameter 39
- Coin flight deck 13, 14
 - Open/clean 35
- Coin insert funnel 13, 14
- Coin outlet 13, 14, 15
- Coin path 15
- Coin runway 15
- Coin thickness 39
- Commands, implemented, ccTalk 42
- Condensation 39
- Configuration 8, 28, 37
 - On site (HENRI+) 37
 - PC programming station (WinEMP) 37
- Connection 24
- Connectors
 - ccTalk 13, 14
 - Pin assignment 40, 43
 - Service/configuration 13, 14
 - Sorting 13, 14
- Current consumption 39

D

Data block number 16
Data block upload 38
Date of manufacture 16
Default settings after reset, ccTalk 42
Design 13
Deviation, mounting position 39
Device
 Dimensions 39
 Number 16
 Type 16
Diagnostics 37
DIL switch 13, 14, 17
 Inhibiting coins 29
 Selecting a memory block 28
 Teaching coins 31
Dimensions 39
Directives, applied 39
Documentation, additional 9

E

Electrostatic discharge 12
EMC Directive 39
Employment, proper 12
Error messages, ccTalk 42

F

Firmware update 37
Flight deck 13, 14
 Open/clean 35
Front entry and front return 10, 15
Function 19

G

General information
 Chapter 8
 Coin validator 9
 Instructions 8
Guide, chapter contents 8

H

Headers, implemented, ccTalk 42
HENRI+ 37
 Ordering code 45
Homepage, NRI 9
HSD-3000 sorter 44
Humidity 39

I

Inhibit coins 22, 23
 Procedure 29
Insert funnel 13, 14
Instructions 8
Instructions, additional 9
Interface
 ccTalk 13, 14, 39, 40
 Label 16
 Service/configuration 13, 14
 Sorting 13, 14, 43
Internet address, NRI 9
Introduction
 Chapter 8
 Coin validator 9
 Instructions 8

L

Label 13, 14

M

Machinery directive 39
Malfunction, what to do? 36
Manuals, additional 9
Marks in the text 8
Measured values 19
Measures 39
Memory block 16, 20
 Select 28
Model number 16
Models 10
Mounting
 Position 39
 Stud 13, 14

N

New coin 23
 Teach 31
Nominal voltage 16

O

Open coin validator 35
Operating
 Instructions, additional 9
 Voltage 39
Operation 28
Options 44
Ordering code
 Accessories 44
 Coin validator 16
Order number 16

P

- PC programming station (WinEMP) 37
 - Ordering code 45
 - Service interface 13, 14
- Pictographs in the text 8
- Pin assignment 40, 43
- Plug
 - ccTalk 13, 14, 39
 - Service/configuration 13, 14
 - Sorting 13, 14, 43
- Power consumption 39
- Power supply 39
- Programming 8, 37
 - On site (HENRI+) 37
 - PC programming station (WinEMP) 37
- Proper use 12

R

- Relative humidity 39
- Requests to perform an action 8
- Return
 - Button 14
 - Chute positions 10, 15
 - Lever 13
 - Description 18
- R&TTE Directive 39

S

- S2
 - HSD-3000
 - Ordering code 44
 - SSD-3000
 - Assembly 25
 - Function 21
 - Ordering code 44
- Safety instructions 8, 12
- Serial number 16
- Settings 8, 28, 37
 - Default after rest, ccTalk 42
 - On site (HENRI+) 37
- Software
 - For configuration 37
 - Update 37

Sorting

- Chute 13, 14
- Function 21
- Interface 13, 14
- Order numbers 44
- Pinning 43
- S2 SSD-3000
 - Function 21
 - Mounting 25
- Standard settings after reset, ccTalk 42
- Start-up 24
- Summary, chapter 8
- Supply voltage 39
- Switch block 13, 14
 - Coins
 - Inhibit 29
 - Teach 31
 - Description 17
 - Selecting a memory block 28
- Symbols in the text 8

T

- Teaching coins 23
 - Procedure 31
 - CcTalk 43
- Technical data 39
- Temperature
 - Change 39
 - Range 39
- Tilt, mounting position 39
- Top entry versions 10, 15
- Troubleshooting 36
- Type plate 16

U

- Update firmware 37
- Use, proper 12

V

- Variants 10

W

- Web site, NRI 9
- WinEMP 37
 - Adjustable functions 8, 37
 - Manual 9
- www.craneps.com 9