



Device Manual

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1 Introduction

1.1 Glossary of Terms Used

Automatic Pay Station (PKA)

The Automatic Pay Station is a payment processing machine, designed for pedestrian access. It is configured to accept the parking ticket/ChipCoin, evaluate the associated fees due, and accept combinations of cash, credit cards, system coupons, and/or system value credentials for payment.

Card Class

The Card Class is an unsigned integer encoded on a parking medium that serves as an identifier of the tariff to be assigned. The standard card class for non-discounted parking is 0. The shop validators used by the retailers encode the card class to a unique number and thus changes the tariff to be used. In this way, the retailers grant parking discounts. The assignment of the card class to a cheaper tariff is done through the entervo *Tariff Management* module. By evaluating this card class in the settlement report, a car park provider can identify an exact number of all validated parking tickets that were issued by a specific shop and were used for discounted parking.

Customer

The Customer is in general a user of the provided parking services.

Short-term Parker

The Short-term Parker is a customer who uses a parking facility for a time necessary for doing shopping and who uses a parking ticket.

Parking Ticket

The Parking Ticket or entry ticket is used for the general run of short-term parkers. It is issued on request (at the press of a button by a customer) at the car park entry. After the parking fee has been paid at an automatic pay station or manual sales device, it is accepted at the exit. The ticket is retained at the exit or - if it is also used as a receipt - returned to the customer.

Tariff

The Tariff represents the assignment of all data that are required for tariff-based evaluation of a parking transaction. This includes the following:

- ☐ Validity period
- ☐ Weekdays
- ☐ Special days
- ☐ Tariff segment with step times and amounts
- ☐ Tariff options
- ☐ Maximum prices

Validation

The Validation of a parking ticket leads to the fee calculation based on a cheaper tariff. Validation can take place in various ways. In many cases, the parking ticket is recoded by retailers to grant a discount to their customers. The operator of the parking facility settles these discounts with the retailers.

1.2 Intended Use

The shop validator PVT35/S re-encodes a magnetic stripe parking tickets to provide short-term parkers making their purchases with parking discounts. The device disposes of a printing unit so that information about a provided reduction of parking fee is printed on the parking ticket. Printed information enables the parking customer and the service personnel recognizing discounted parking ticket and avoiding eventual misunderstandings or double re-encoding of a parking ticket.

The shop validator is an independent device that is not connected to a parking management system. Data required for authorization of a parking discount is transferred via a magnetic stripe ticket encoded with a shop validator.

Validated parking ticket is used at an automatic pay station, manual sales device or at exit terminals where a cheaper tariff is calculated.

The following limitations must be considered regarding the use of the PVT35/S:

- ☐ Only one car park provider can be assigned to one shop validator.
- ☐ A shop validator encodes only one parking discount.
- ☐ A magnetic stripe ticket is rewritable and can be re-encoded more times.

1.3 Place of Use

The shop validator PVT35/S is used by shops that provide their customers with short-term parking on the advantaged conditions using the magnetic stripe parking tickets.

When a customer pays for his/her purchase at the cash desk, he/she passes a parking ticket and a shopping assistant inserts it into the PVT35/S terminal. After successful re-encoding, a magnetic stripe ticket is marked with printed information that was assigned through the configuration software.

Customer uses the ticket at the automatic pay station, manual sales device or exit terminal. The final sum for parking considers discount provided by shop.

1.4 Scope of Delivery

The PVT35/S device is delivered in the following compulsory bundle:

- ☐ PVT35/S device with optical printing (S&B article no.: 0059094)
- ☐ Power supply unit (S&B article no.: 04282370)

1.5 Symbols Used

The following symbols are used in this manual.

1.5.1 Danger Sign

Important instructions that you must observe are identified in this manual with the danger sign.



*Warning! Carefully read this information!
Non-observance is capable of causing malfunctions.*

1.5.2 Information Sign

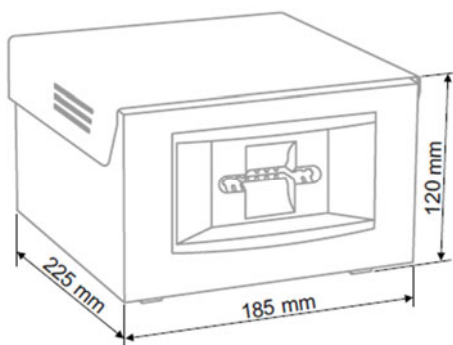
Tips and recommendations that facilitate the product's use are identified with the information sign.



Note / general information

2 Technical Specifications

2.1 Dimensions, Weight and Design



Parameter	Value
Length	185 mm
Width	225 mm
Height	120 mm
Weight	3 kg

Housing of the device is a stainless steel construction with external power supply unit. A ticket slot is placed in the front side. There are a lock and counter in the rear of housing.



Fig. 1: PVT35/S:
side view



Fig. 2: PVT35/S:
front view



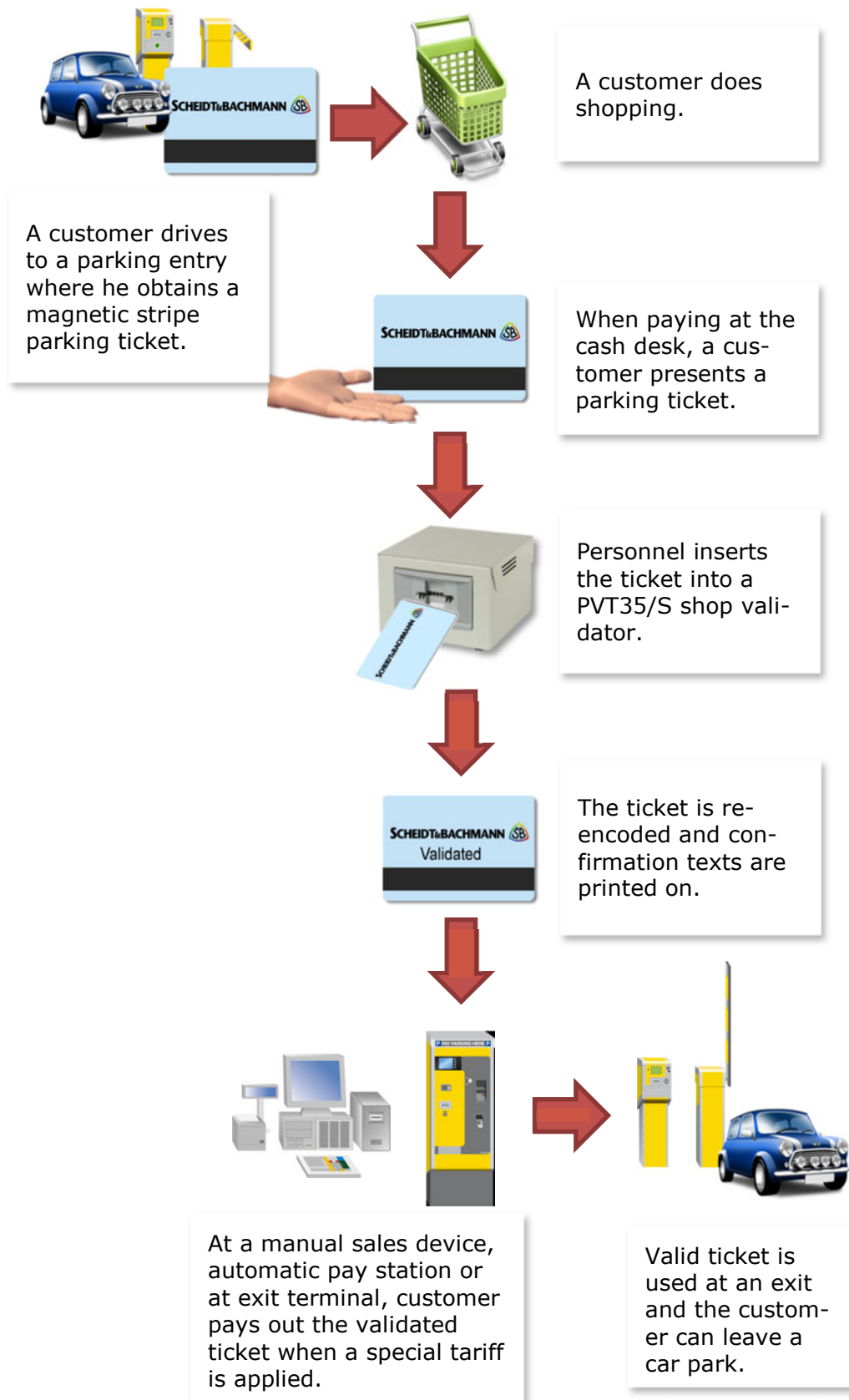
Fig. 3: PVT35/S:
rear view

2.2 Technical Specifications

Specification	Description
Potential Number of Card Classes	256
Magnetic Card Processing	<input type="checkbox"/> Motor-driven read-/write terminal with ISO side-stripe technology <input type="checkbox"/> Thermal ticket printer
Counter (Option)	4-digit display (LCD) without reset possibility
Connections	<input type="checkbox"/> Power supply (via external power pack) <input type="checkbox"/> RS232 interface for configuration: serial port is available after removing top part of housing

Specification	Description
Power Supply	Via external power pack: – Primary: 230V/50Hz or 120V/60Hz – Secondary: 12V DC, 3.8 A
Power Consumption (approx.)	6 VA to 16 VA (quiescent / max. current)
Standard Paint	RAL 9002 (grey white)
Temperature Range	+10 °C ... +45 °C
Air Humidity	±0 % ... 95 %
Approvals and Conformity	CE, UL, CUL

3 Course of Discounted Parking



3.1 Validation Process

This chapter is dedicated to validation of a parking ticket obtained from a customer at a cash desk. A complete process of discounted parking is captured in chapter **Course of Discounted Parking** on page 12.

The following procedure must be kept to validate a magnetic stripe ticket with the PVT35/S:

- 1 Check visually if a parking ticket is not marked as validated.



For better overview of granted parking discounts, a counter that is on the backside of a shop validator shows a number of carried validations. As magnetic stripe tickets can be re-encoded multiple times, double validated parking tickets misrepresent this number.

- 2 Insert a ticket into a slot.
 - 3 Device encodes a card class and prints text on the ticket that appears in a slot.
- ✓ Ticket can be returned to a customer. Number on a counter display got higher by one.

4 Device Configuration

Configuration of the PVT35/S device covers the following events:

- ☐ checking status of the software installed on the device
- ☐ checking and setting positions of the rotary switches on the device
- ☐ configuration of a card class required for a parking discount
- ☐ firmware update
- ☐ serial connection setting
- ☐ setting a detailed report or dumping a memory to carry out deep diagnostics of a software or hardware bug

The events mentioned above require the following basic procedures:

- ☐ hardware manipulation with rotary switches
- ☐ software configuration via *Ladesoftware PVT35_S* application

The following sections describe particular configuration procedures in details.

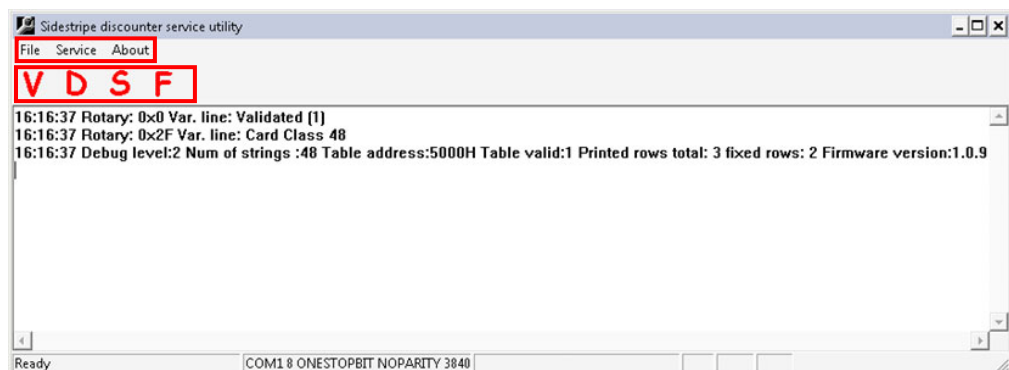
4.1 Configuration Software

The *Ladesoftware PVT35_S* application presents a main configuration software tool. It enables performing the following operations:

- ☐ checking the status of a device firmware
- ☐ checking and setting a card class corresponding with shop owner identification and provided parking discount
- ☐ checking and configuring the text printed on the validated parking ticket
- ☐ setting a number of required variable data to download by device
- ☐ firmware updates
- ☐ setting a number of reported events displayed in a debug view
- ☐ saving a dump file that serves as a carrier of a flash memory configuration

The Graphical User Interface (GUI) enables activating particular functions through:

- ☐ menu bar
- ☐ shortcut keys
- ☐ ribbon with operational letters



The up-to-date version of the software is always available on the internet domain:

www.service-parkhaus.de

4.2 Checking Software Status

To check an initial status of the software installed on the PVT35/S device, *Ladesoftware PVT35_S* application must be used. The application can be downloaded from the domain **www.service-parkhaus.de**.

The following steps cover software checking procedure:

- 1 Unlock the upper part of housing on the backside and pull it from the front to the back.



- 2 Interconnect a device with computer with serial RS232 cable. Plug-in the cable into the serial port of the computer and the other end into the serial port of the device.



It is highly recommended to unplug the device from a power supply unit to avoid damages caused by electric power.

- 3 If the device is off, switch it on – an orange diode on the mother board next to the serial port blinks for a short moment.
- 4 Via **DISC32.exe** file, launch the *Ladesoftware PVT35_S* application. A start screen with an initial software and configuration status of the device appears.





The initial firmware version is **1.0.A**. The higher number is – it replaces also a letter A, the newer version is installed on the device.

The status information can be anytime initiated also via menu selection **Service – Get version information** or by clicking **V** letter on the ribbon.



Information on an actual version of the firmware is available also via menu selection **Service – Update firmware** or by clicking **F** letter on the ribbon.

If the start screen does not show relevant information on installed software - timeout message appears or all operational buttons are inactive – a problem with connection between computer and device has occurred.

For more information, see **Troubleshooting** on page 28.

- 5 To check card data settings in details, click **S** letter on the ribbon or use menu selection **Service – Download strings**. A new window with all relevant information on writable data appears.

For more information, see **Setting Ticket Data Validation** on page 16.



To check a selected card class visually, look at a combination of the rotary switches on the device and compare it to the combinations listed in the table.

- ✓ After successful checking, proceed to configuration or disconnect the device.

4.3 Setting Ticket Data Validation

Setting data that the PVT35/S device writes on a magnetic stripe parking ticket consists of manipulation with the device and software configuration. The following steps cover a complete configuration of the device to set output data assigned to a validated parking ticket:

- 1 Connect the device to a computer with serial RS232 cable.
- 2 Launch *Ladesoftware PVT35_S* application and check a status of the software installed on the device. For more information, see **Checking Software Status** on page 15.

Make sure that the firmware is up-to-date. If not, update it as noted in chapter **Firmware Update** on page 19.

- 3 Click the **S** letter on the ribbon or select a menu item **Service – Download strings** or use a shortcut key **Crtl + 3** to open the configuration window below.

Index	String	Magnetic
17	Validated (24)	.000024?
18	Validated (25)	.000025?
19	Validated (26)	.000026?
1A	Validated (27)	.000027?
1B	Validated (28)	.000028?
1C	Validated (29)	.000029?
1D	Validated (30)	.000030?
1E	Validated (31)	.000031?
1F	Validated (32)	.000032?
20	Validated (33)	.000033?
21	Validated (34)	.000034?
22	Validated (35)	.000035?
23	Validated (36)	.000036?

String: Validated (31)
Magnetic: .000031? [Update]
Variable lines to download: 32
Printout lines total: 3 fixed: 2 variable: 1
Fixed lines: 2 Total lines: 3
Fixed line 1: Validated Ticket
Fixed line 2: Thank you for visit
Download status:
[Close] [Download]

- 4 In the table, select a line you intend to edit to a card class.
- 5 In the **String** box, type in the text that will be assigned to the card class. This text is printed on a parking ticket after validation. The maximum number of characters including spaces is 20.
- 6 In the **Magnetic** box, type in a text string identifying a card class within the configuration software. The format of this entry must be **;xxxxxx?** where **x** presents a number.



This entry identifies a card class so that it is recommended to leave the text without any change or leave the number matching the card class included in this text string.

*It identifies a card class even when the **String** text has been changed. It is not used anywhere in the parking system, only within the configuration application.*

- 7 Click **Update**.

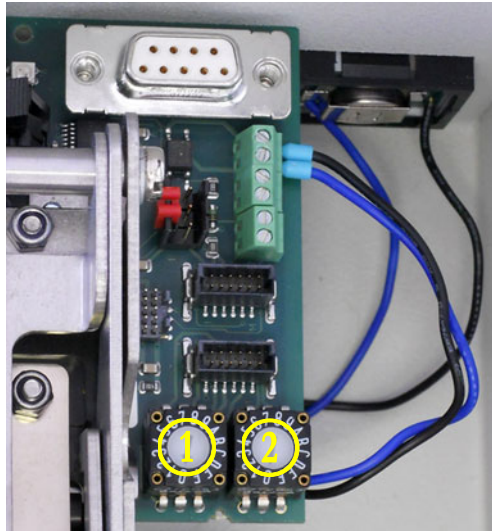
✓ Changed entries have been inserted into the table.



*Be aware that closing the application at this moment leads to a loss of all changes committed during the configuration. The **Update** function posts data only within the application.*

- 8 In a line of the card class, take note of the **Index** value and in the PVT35/S device, set the combination of rotary switches that corresponds to this value.

From a front view of the device, left rotary switch matches the first character of the value, the right one corresponds to the second one. See picture below:



- 9 From the **Variable lines to download** list, select the number of variable lines which the device will recognize after finishing the configuration. The range of lines is from 16 to 256.
- 10 From the **Fixed lines** list, select a number of lines printed on the validated parking ticket. The range of lines is from 0 to 2.
- 11 From the **Total lines** list, select a number of all lines printed on the validated parking ticket. The range of lines is from 0 to 3.



*Number of total lines is usually one larger than the number of fixed lines as the **String** line is always printed.*

- 12 In the **Fixed line 1**, type in a text for the second line under the **String** text that will be printed on a parking ticket after validation.
 - 13 In the **Fixed line 2**, type in a text for the third line that will be printed on a parking ticket after validation.
 - 14 Click **Download**.
- ✓ When the download status bar achieves the maximum, the data update on the device has successfully finished. Click **Close**.

4.4 Configuration Test

Before deployment of the PVT35/S device in shopping premise, outputs of the validation process must be tested. This chapter is dedicated to checking output data encoded and printed on a magnetic stripe parking ticket.

Checking a card class encoded into a magnetic stripe ticket

To check a card class that is encoded with shop validator on a ticket, keep steps as follows:

- 1 Validate a magnetic stripe parking ticket via a configured PVT35/S device.
- 2 Launch the *entervo Cashier* module.

- 3 Press **Read ticket** and insert the ticket into reading slot. A new window with complete information on the ticket appears.
- 4 Check if a card class stated in the window checks up with a required value.

✗ If not, a configuration must be repeated.

Checking the texts printed on a ticket

- 1 Validate a magnetic stripe parking ticket via a configured PVT35/S device.
- 2 Check if all required text lines were printed on the ticket.
- 3 Check if all texts are of the same form as required.

✗ If not, a configuration must be repeated.

4.5 Firmware Update

To update a firmware on the PVT35/S device, there are two applications to use:

- ☐ *Ladesoftware PVT35_S* application – used as primary update software
- ☐ *Silicon Laboratories Flash Utility* – a secondary update software

The following chapters describe a use of both applications.

4.5.1 Ladesoftware PVT35_S Application

This application is S&B software product and its up-to-date version can be downloaded from the domain **www.service-parkhaus.de** in the following location:

Technician area -> Software -> PVT35 -> Ladesoftware PVT35_S.zip

- 1 Connect the device to a computer as described in chapter **Checking Software Status** on page 15.
- 2 Launch the **DISC32.exe** file.
- 3 Click the **F** letter on the ribbon or use shortcut key **Ctrl + 4** or select the menu item **Service – Update firmware**. A new window appears.

- 4 In the **File to download** box, load .hex file that stores essential information to update firmware on the device.



All .hex files are available on the **www.service-parkhaus.de** domain where can be downloaded after logging in.

- 5 Click **Download** and start update by clicking **OK**. Whole update process lasts approximately for 13 seconds.



Please be aware that a power failure and disconnection can interrupt an updating process.

- 6 After a status bar achieves the maximum and all buttons get active, click **Close**. New status information appears.

10:51:40 Firmware update started
10:51:51 DW of IMG CRC:9279h Size:16674 kB finished
10:51:53 RST:90
10:51:54 Rotary: 0x0 Var. line: Validated [1]

- 7 To check a firmware version, click the **V** letter on the ribbon or use a menu selection or shortcut key **Ctrl + 1**.

✓ When an update was successful a new version number appears. You can use a new firmware now.



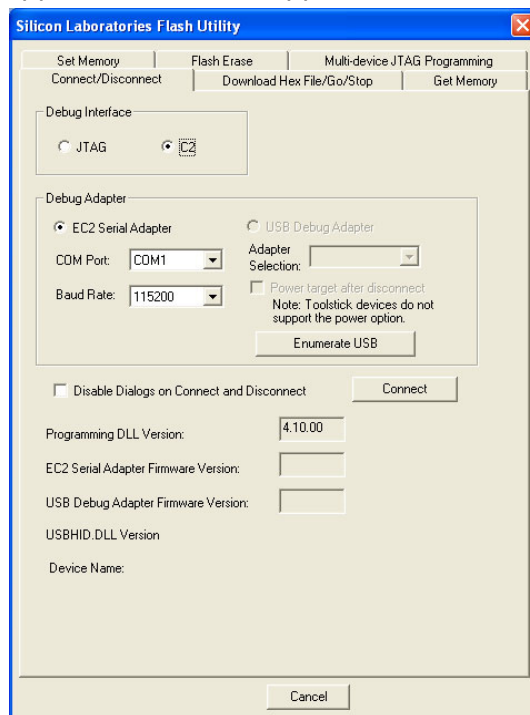
If a new firmware does not work, an update procedure must be repeated or third party update software, i.e. **Silicon Laboratories Flash Utility** must be used.

4.5.2 Silicon Laboratories Flash Utility

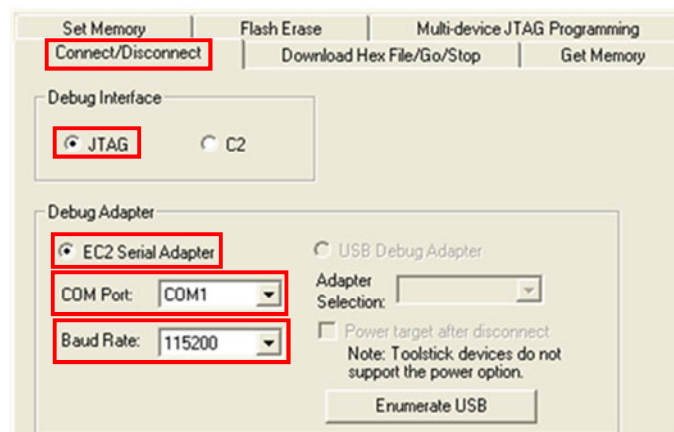
This application is third party software that updates data in any flash memory. Regularly, it is used when firmware update using the *Ladesoftware PVT35_S* application fails.

The software is available on the domain **www.silabs.com**

- 1 Connect the device to a computer as described in chapter **Checking Software Status** on page 15.
- 2 Install the application on a local disc and start the **FlashUtil.exe** file. An application window appears.



- 3 In the **Connect/Disconnect** tab, select the **EC2 Serial Adapter** and set the following parameters:
 - In the **Debug Interface** field, select the **JTAG** option.
 - In the **Debug Adapter**, select a relevant COM port in the **COM Port** list and in the **Baud Rate** list, value **115200**.



- 4 Click **Connect** to test the connection between the PVT35/S and a computer. Information on successful connection appears.

The screenshot shows the 'Connect/Disconnect' tab of the Ladesoftware PVT35_S application. The 'Debug Interface' section has 'JTAG' selected. The 'Debug Adapter' section has 'EC2 Serial Adapter' selected, with 'COM1' as the COM Port and '115200' as the Baud Rate. The 'Connect' button is highlighted with a red rectangle. Other tabs include 'Set Memory', 'Flash Erase', 'Multi-device JTAG Programming', 'Download Hex File/Go/Stop', and 'Get Memory'.



*If a warning message about connection failure shows up, some problems with connection between a computer and the device occurred and troubleshooting must be taken. For more information, see **Troubleshooting** on page 28.*

- 5 In the **Download Hex File/Go/Stop** tab, click **Browse** and open a relevant .hex file.
- 6 Click **Download** to start update process.



Please be aware that a power failure and disconnection can interrupt an updating process.

- 7 To check a firmware version, start the *Ladesoftware PVT35_S* application.
- ✓ After successful update, start using a new firmware.

5 Assigning a Card Class to Tariff

Card class presents a digit encoded onto a magnetic stripe ticket that serves as an identifier of a ticket to assign a parking discount and shop owner. In the parking management system, this card class is assigned to a specific tariff which enables creating and redeeming parking discounts. Each shop owner disposes of a unique card class so that it serves also as a shop identifier. This is useful when a month settlement of granted parking discounts is provided.

The following procedure is a general description of process when a card class is assigned to tariff using the *entervo Tariff Management* module:

- 1 Configure a card class on the PVT35/S device keeping instructions in chapter **Setting Ticket Data Validation** on page 16.
- 2 Start the *entervo Tariff Management* module.
- 3 Create a tariff for discounted parking. A complete process can be found in the user's manual dedicated to the *entervo Tariff Management*.
- 4 In the right **Tariff** area, click **Tariff assignment**.
- 5 Click the line with a created tariff. On the toolbar, click **Edit on**. A new configuration area appears.

- 6 In the **Card data** area, in the **Card class from ... to ...** type in a configured card class or a range of card classes if you intend to assign more than one card class to a tariff.



Card class 0 is a predefined card class for all short-term parking tickets obtained at entry.

7 In the toolbar, click **Edit off**.

✓ Now, a parking system recognizes all parking tickets with a defined card class as parking tickets assigned to a special tariff.

Summarizing list of all redeemed parking discounts is available via the entero Settlement module. Usually, a parking operator provided a shop owner with a settlement where discounted parking tickets are listed as displayed in a picture below:

i

Ro	Article	Article No	Article Group	Quantity	Amount
1					
2			**** TURNOVER ****		
3	2099	9511	Turnover cashl tot		6,00
4	2099	9504	Turnover cash lot		506,50
5	2099	9503	Turnover total		512,50
6					
7			*** VAT (Sum of single items) ***		
8	1002	1	VAT 15,00 %		81,81
9	2099	9600	VAT total		81,81
10					
11			**** DEVICE-RELATED TURNOVER ****		
12	2099	9503	Manual sale device 1 2010	1 424	506,50
13					
14			**** TURNOVER BY CARD SALES ****		
15	0	100	Short term ticket card class 52	2	0,00
16	0	101	Prepaid ticket	1	17,00
17	0	102	Free tariff ticket	25	233,50
18	0	108	Substitute credit	1	20,00
19	2000	900000	P.tick.sales tot.	29	270,50

6 Maintenance

6.1 Maintenance Survey

This maintenance instruction should be used as pattern for the owner's maintenance list or should be copied for direct use.

PVT35/S	Maintenance	Interval	Cyclic maintenance
Magnetic card processing	•	every 6 months	30.000 tickets
General maintenance	○	every 6 months	

○ Maintenance can be carried out by experienced personnel according to written instructions!

• Maintenance must be carried out by service personnel that were trained by S&B or by S&B service technicians!

Device / Location:	Date:	Time:	Name:	Signature:
Comment:				

Maintenance list:

1. Magnetic card Processing

Clean magnetic head (cleaning card)	Tick here and enter your comments:
Remove paper rests	
Check cable connections	
Check function	

2. General Maintenance

Clean device outside	Tick here and enter your comments:
----------------------	------------------------------------

6.2 Preventive Maintenance

1. Checking the Functionality

Plug the device to a power supply unit and insert a parking ticket to ticket slot. Check if feeding the ticket is fluent.

Carry out a configuration test keeping instructions in chapter **Configuration Test** on page 18.

2. Cleaning of the Housing Surface

Cleaning interval of the housing after 6 months.



The device has to be unplugged from the power source before cleaning.



- ☐ The external lacquer coat of the housing should be cleaned biannually with simple suds (washing-up liquid).
- ☐ A retouch of the coat (as need may be) can be carried out by means of a colourless, customary polish.
- ☐ A glass pane of a counter on a backside should be cleaned with simple suds (washing-up liquid).

3. Cleaning Subassemblies

Cleaning interval of the device subassemblies after 6 months.



The device has to be unplugged from the power source before opening and cleaning the inside subassemblies of the device.



- ☐ Unlock the upper part of housing on the backside and pull it from the front to the back. Release the top support held by safety bolt with two springs. Blow out the paper rests cautiously using compressed air or an air pump.
- ☐ Clean rubber feed rollers. A whole surface can be cleaned with delicate wheeling of the toothed belt pulleys located on the side. For cleaning and care of the rubber materials, we recommend to use rubber cleansing kit, e.g. of Messrs. SONAX. It cleans and keeps all rubber parts in good condition. Rubber care extends the durability.
- ☐ Clean plastic and metal feed rollers and shafts with a dry, soft cloth. If a dirty situation requires, use a moistened cloth.
- ☐ Check if a toothed belt is not damaged and has proper tension.
- ☐ Then place the top support of the device into an initial position and check all cable connections.
- ☐ Lock the upper part of housing by keys.

4. Cleaning Magnetic Encoding Parts

Cleaning after 30,000 processes or at least every 6 months.



- ☐ Insert cleaning card with switched-on unit 2 times after another. (See application instructions of the cleaning set).
- ☐ **Cleaning set: 50 60434 (card); 93 00042 (cleaning fluid)**

5. Final Checking the Functionality

Switch on the device and insert a parking ticket to the ticket slot. Check if feeding the ticket is fluent.

Carry out a configuration test keeping instructions in chapter **Configuration Test** on page 18.

7 Troubleshooting

This chapter is dedicated to the problems that can arise within the configuration or manipulation with the device.

A warning message "APL ACK timeout ended" shows up

Description: After connecting computer to the PVT35/S device and consecutive launching the *Ladesoftware PVT35_S* application, multiple warning messages "ACK timeout ended" appear.

Reason: Application sends requests to the device with no response. The device is off, the cable type is inappropriate or is not properly plugged into the port on the device board or into the computer port. In this case, operational icons on ribbon can be inactive.

Solution: Make sure that the device is on. While turning the device on, an orange diode on the circuit board next to the serial port flashes for a moment. If not or is constantly on, problems with power supply or circuit board arise and specific electrical diagnose must be taken.

Make sure that the serial cable type corresponds with the one listed **Scope of Delivery** on page 8. Comparing S&B article numbers is required.

Make sure that serial cable is properly plugged into the port of the device and computer. Some malfunctions of the ports can be also considered.

To establish an adequate serial connection, activate a proper serial port on service computer via the *Barcode Discounter Service Utility*. Click a menu item **Service -> COM settings** or use shortcut key **Ctrl + 4**. From a displayed table, select a proper COM port and click **OK**. After successful procedure, all operational icons on ribbon are activated.

Strings download interrupted

Description: After configuration via **Strings download** function within the *Ladesoftware PVT35_S* application, a warning message "Strings download interrupted" shows up.

Reason: This warning implies that the data were not transferred from computer to the device and there might be no established connection.

Solution: Keep instructions described above.

Rotary switches are out of range

Description: After configuration via **Strings download** function within the *Ladesoftware PVT35_S* application, a warning message "Rotary is out of range" shows up.

Reason: This warning indicates that a selected combination of the rotary switches is out of range of the downloaded variable lines. See the following example:

13:05:29 Downloading of 32 strings finished.
13:05:30 Rotary is out of range. Max:0x1F Used:0x2F

Index	String	Magnetic
2A	Validated (43)	;000043?
2B	Validated (44)	;000044?
2C	Validated (45)	;000045?
2D	Validated (46)	;000046?
2E	Validated (47)	;000047?
2F	Card Class 48	;000048?
30	Validated (49)	;000049?
31	Validated (50)	;000050?
32	Validated (51)	;000051?
33	Validated (52)	;000052?
34	Validated (53)	;000053?
35	Validated (54)	;000054?
36	Validated (55)	;000055?

String: Card Class 48
Magnetic: ;000048? Update

Variable lines to download: 32

Printout lines total: 3 fixed: 2 variable: 1
Fixed lines: 2 Total lines: 3
Fixed line 1: Validated ticket
Fixed line 2: Thank you for visit

Solution: Troubleshooting requires setting a higher number of downloaded variable lines in this case. For more information, see **Setting Ticket Data Validation** on page 16.

7.1 Debug View

Debug view is a reporting tool of the *Ladesoftware PVT35_S* application that informs on events running on the device while validating a parking ticket. It is presented by a text area of an application window. This tool is dedicated to detect problems arisen at validation. Number of displayed details depends on selected debug level. The tool enables also saving particular reports into a .log file format.

Debug level selection and saving procedure occur as follows:

- 1 Launch the *Ladesoftware PVT35_S* application. Information on connection or configuration appears.
- 2 To select a number of displayed details, click the **D** letter on the ribbon or select a menu item **Service – Set debug level** or use a shortcut key **Ctrl + 2**. A new window appears.

Discounter debug level

Debug level

☒ Debug level 0
☐ Debug level 1
☐ Debug level 2
☐ Debug level 3
☐ Debug level 4
☐ Debug level 5

Update

- 3 Select a debug level when a higher number presents more detailed report.
 - 4 Click **Update**. A message about a debug level update shows up.
- ✓ A number of displayed details about running processes has been updated. Testing a device can start.

Example of testing on different debug levels

The following example shows logging processes while invalid ticket is inserted into a device slot. See the different number of displayed events:

Debug level 1

```
19:44:18 Insert ticket.
19:44:19 Middle => ERASE,
PRINT
19:44:19 Unhandled modul
Ph:002, Ev:001.
19:44:19 No valid ticket!
19:44:19 Unhandled modul
Ph:005, Ev:003.
19:44:20 Unhandled modul
Ph:005, Ev:001.
19:44:21 Ticket out.
```

Debug level 3

```
19:44:39 Exec Phase: 00, Evt: 01
19:44:39 Insert ticket.
19:44:39 Exec Phase: 01, Evt: 02
19:44:39 Middle => ERASE, PRINT
19:44:40 Exec Phase: 02, Evt: 01
19:44:40 Unhandled modul Ph:002,
Ev:001.
19:44:40 Exec Phase: 02, Evt: 03
19:44:40 No valid ticket!
19:44:40 Exec Phase: 05, Evt: 03
19:44:40 Unhandled modul Ph:005,
Ev:003.
19:44:40 Exec Phase: 05, Evt: 01
19:44:40 Unhandled modul Ph:005,
Ev:001.
19:44:41 Exec Phase: 05, Evt: 02
19:44:41 Exec Phase: 06, Evt: 01
19:44:41 Ticket out.19:45:02 Exec
Phase: 05, Evt: 02
19:45:03 Exec Phase: 06, Evt: 01
19:45:03 Ticket out.
```

7.2 Dumping a Flash Memory

Dumping a flash memory represents the highest level of troubleshooting when a software developer participates in process of fixing a firmware bug. The dumping process is carried out via *Ladesoftware PVT35_S* application.

A file resulted from a flash memory dump is composed of binary records - hexadecimal numbers, which represent machine language code and/or constant data. This output is intended to software development.

This is how to create a dump file via the *Ladesoftware PVT35_S* application:

- 1 Connect the device to a computer with serial RS232 cable.
- 2 Launch the *Ladesoftware PVT35_S* application.

- 3 Click the **F** letter on the ribbon or select a menu item **Service – Update firmware** or use a shortcut key **Ctrl + 4** to open the configuration window below.

- 4 In the **Memory dump** area, type in hexadecimal numbers that determine start and end addresses of the memory. Full range of addresses is from 0 to 4E00.
 - 5 Click **Dump** to start a dumping process.
 - 6 Select a location where a dump file will be saved.
- ✓ When the status bar achieves the maximum, memory dumping process has successfully finished. Click **Close**.

8 Spare Parts

A replacement of failed parts required a general knowledge of construction of the PVT35/S. The device comprises the following main parts:

- ☐ housing with a lockable top part
- ☐ upper revolving support with thermal printer head locked with safety bolt and two springs
- ☐ feeder mechanism
- ☐ circuit board
- ☐ counter

In case of disrupted running, technicians replace only spare parts included in the table below as other parts of device would require a specific diagnostic:

Spare Part	S&B Article Number
External power supply unit	04 28237
Circuit board	04 29281
Counter	50 60641

8.1 Replacing a Power Supply Unit

If a LED indicator on the unit is not alight with a constant green light or a power cable is defective, a power supply must be replaced.

8.2 Replacing a Circuit Board

A defective circuit board can be signaled with a permanent orange light of LED diode placed on the circuit board next to serial port. The following procedure covers disassembling the device in purpose of replacement of a defective circuit board:

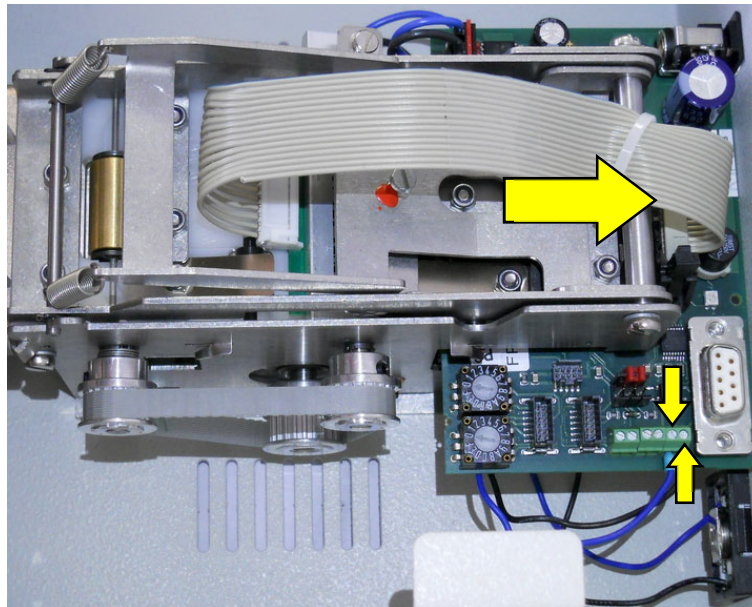


For safe manipulation with a device, unplug the device from a power supply unit to avoid damages caused by electric power.

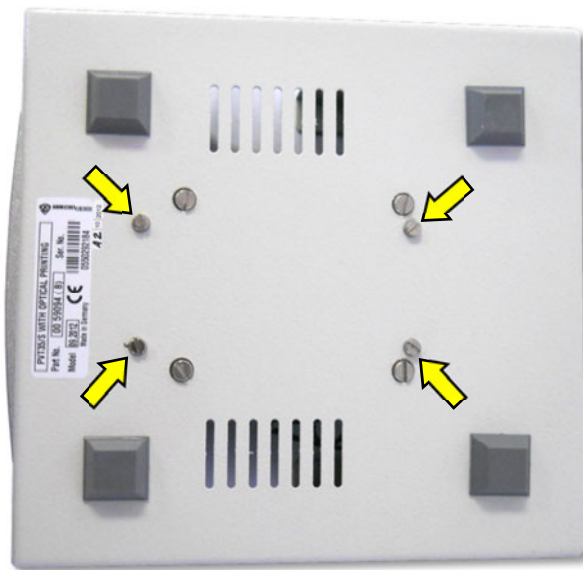
- 1 Unlock the upper part of housing on the backside and pull it from the front to the back:



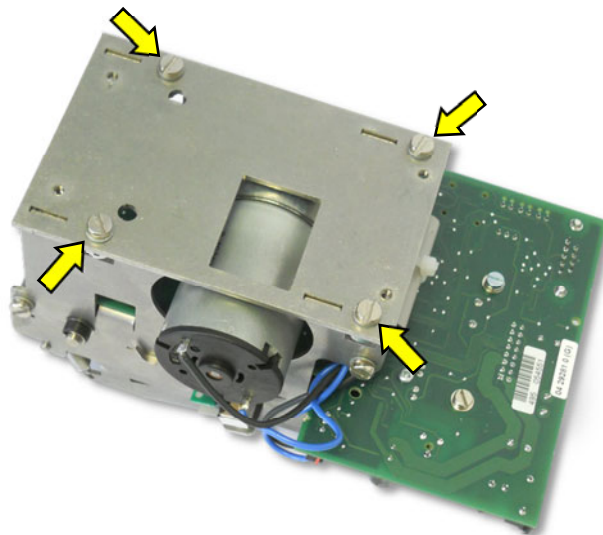
- 2 Disconnect a cable leading to a thermal printer and unscrew cables that connect board with a counter:



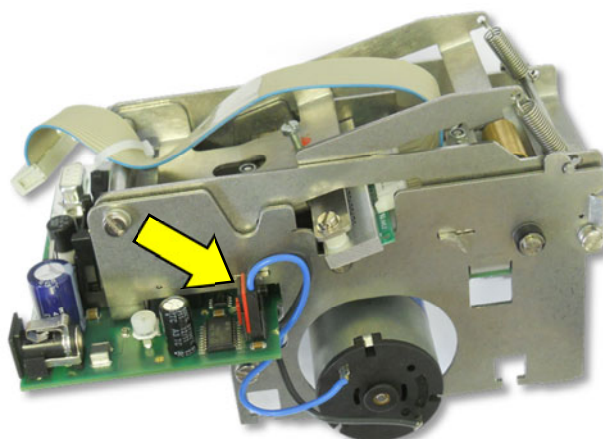
- 3 Put the device on a side and unscrew 4 smaller retaining screws on the bottom of housing to release a magnetic encoding unit. While unscrewing, hold the unit from the other side to avoid a fall:



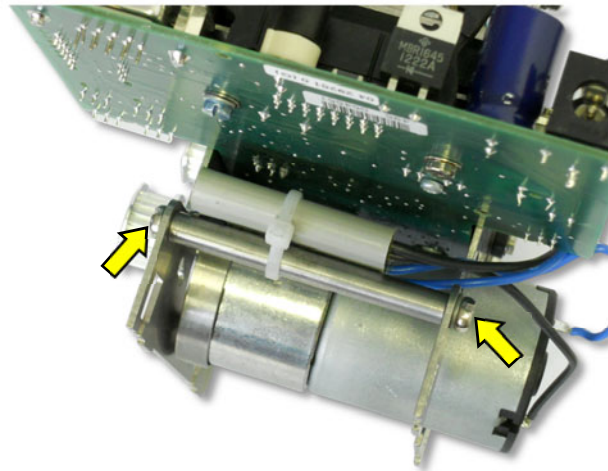
- 4 Release a base plate by unscrewing 4 pan head screws:



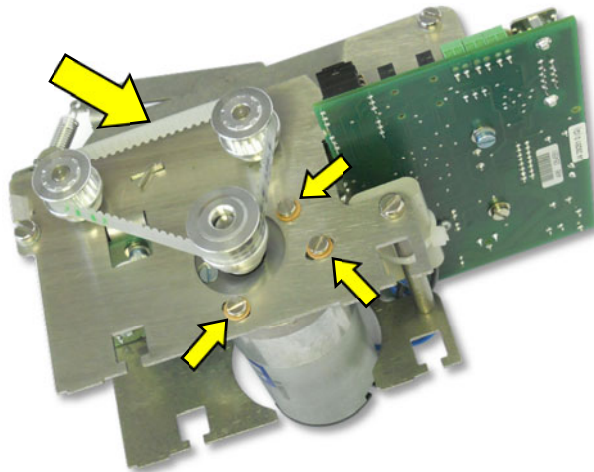
- 5 Unplug a cable from a circuit board that connects a geared motor with the board:



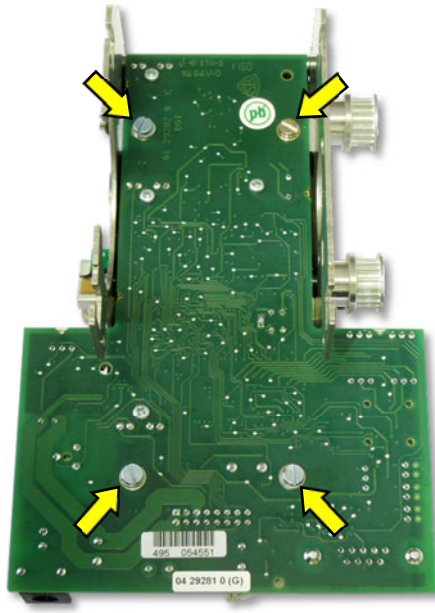
- 6 Release a spacing bolt by unscrewing two retaining screws. Be aware of a power filter that is mounted on the bolt with a plastic ribbon:



- 7 Loosen 3 pan head screws that uphold a geared motor and remove a toothed belt. Then release the motor from device plates:



- 8 Unloose a circuit board by unscrewing 4 screws:



- ✓ Now, you can replace a defective circuit board and re-mount the device keeping instructions above in a reverse order.

8.3 Replacing a Battery in Counter and the Whole Counter

The counter as an optional part of the PVT35/S device is equipped with a battery of R44 size. It serves to keep information about the number of provided parking discounts.

If the digits on the counter display are illegible, a discharged battery or defective counter must be considered. As discharging of the battery is hardly predicted, a periodic logging a counter status is highly recommended.

The following procedure covers replacing a battery and counter.

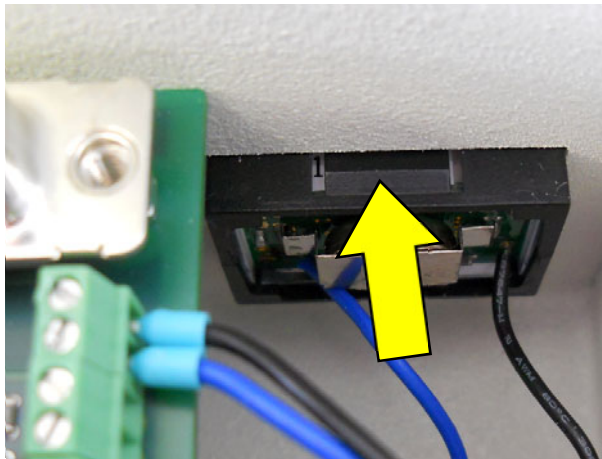


For safety reasons, unplug the device from a power supply unit to avoid damages caused by electric power.

- 1 Unlock the upper part of housing on the backside and pull it from the front to the back:



- 2 Push a click-in stop on a plastic rim of the counter from above and push the rim outwards through a pan in housing:



- 3 A plastic rim of the counter consists of two parts so that draw up one part from it:



- 4 Push battery out of the holder.
- 5 Check out contact surfaces on the battery or metal holders, if they are clean. If not, use a cotton bud for cleaning.

- 6 When all surfaces are cleansed, check out a voltage of the battery with a voltmeter.



Plus pole is usually marked with a plus sign. The minus pole is applied to circuit board.

- 7 If the voltage is insufficient, pull the battery out of holders and replace it for a new one. If the counter does not display number 0, counter must be replaced - proceed to the next step.
 - 8 Remove a plastic rim and dismount connection cables from a circuit board.
 - 9 Place a new counter with a new battery into a rim and connect it to the board.
 - 10 Push the counter in a pan in housing.
- ✓ Counter displays number 0 and is ready to use.

9 Disposal



Packaging materials must be disposed of according to local regulations.




This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.



Disposing of batteries into household garbage is not permitted; you are bound by law to return used batteries. Used batteries can contain harmful substances which can damage the environment or your health when not disposed of correctly. Batteries also contain important commodities such as iron, zinc, manganese or nickel which will be recycled. You may send the used batteries back to us, or you can return them to your local recycling center free of charge (recommended). The symbol of the crossed waste container is a warning against disposing of hazardous materials into household garbage.

10 CE-Conformity Certificate



EC DECLARATION OF CONFORMITY EU-KONFORMITÄTSERKLÄRUNG

We declare / Wir erklären

under our sole responsibility, that the equipment
in alleiniger Verantwortung, dass das Produkt

Designation: Validator for Magnetic Sidestripe Tickets
Bezeichnung: *Rabattierer für Seitenstreifen-Tickets*


Model: PVT35/S
Modell:

is according to the following codes:
den folgenden Richtlinien entspricht:

2004/108/EG	EMC-Electromagnetic Compatibility Directive / <i>EMV-Richtlinie</i>
2006/95/EG	Low Voltage Directive / <i>Niederspannungsrichtlinie</i>


Applied standards and comparable documents, particularly:
Angewendete Normen und normative Dokumente, insbesondere:


EN 55022	Radio Disturbance / <i>ITE - Funkstöreigenschaften</i>
EN 55024	Immunity Characteristics / <i>ITE - Störfestigkeit</i>
EN 60950	Safety of Information Technology Equipment – ITE / <i>Sicherheit von Einrichtungen der Informationstechnik – ITE</i>
EN 61000-3-2	Harmonic Current / <i>EMV - Oberschwingungsströme</i>
EN 61000-3-3	Voltage Fluctuation / <i>EMV - Spannungsschwankungen</i>

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 Head of Quality Assurance
Leiter Qualitätswesen


 Director R&D
Leiter Gestaltung

Modifications of the above equipment, which are not approved by Scheidt & Bachmann, will waive the above declaration.
Bei einer nicht mit Scheidt & Bachmann abgestimmten Änderung der Geräte verliert diese Erklärung ihre Gültigkeit.

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