Shop Validator PVT25/S





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 tariffbased 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 PVT25/S re-encodes magnetic stripe parking tickets to provide short-term parkers making their purchases with parking discounts. The device does not dispose of a printing unit so that it is recommended to mark a validated parking ticket which visualizes information on a provided reduction of parking fee at a glance.

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 PVT25/S:

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

Information on magnetic stripe tickets which are not produced within the Scheidt & Bachmann parking management system can be irretrievably lost after validation.

1.3 Place of Use

The shop validator PVT25/S is used by shops that provide their customers with short-term parking on the advantaged conditions using the magnetic stripe parking tickets. It is intended only for indoor use.

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 PVT25/S terminal. After successful validation, a magnetic stripe on the ticket is re-encoded , i.e. a new card class is recorded.

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 PVT25/S device is delivered in the following compulsory bundle:

- PVT25/S device (S&B article no.: 04 22150 without counter, 04 22850 with counter)
- □ Power supply unit (S&B article no.: 50 60005)



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	150 mm
Width	82 mm
Height	32 mm
Weight	320 g
Length of Power Cord	2000 mm

Housing of the device is a synthetic-aluminium construction with shockproved external power supply unit. A ticket slot and a status LED light are placed on the front side.

There is a counter - an optional part of device - on the top of housing. Another diode indicating a presence of ticket is also placed on the top of housing. Power socket is situated in the rear of the device.



2.2 Technical Specifications

Specification	Description			
Potential Number of Card Classes	Selection of one of 4096 potential clas- ses via DIP switches			
Magnetic Card Processing	Read-/write terminal for ISO side-stripe technology (push-pull reader)			
Counter (Option)	4-digit display (LCD) without reset pos- sibility			
Connections	Power supply (via external power pack)			
Power Supply	Via external power pack: – Primary: 230V/50Hz or 120V/60Hz – Secondary: 12V DC			
Power Consumption (ap- prox.)	2,6 VA			
Temperature Range	+10 °C +45 °C			
Air Humidity	±0 % 95 %			
Approvals and Conformity	CE			





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 11.

The following procedure must be kept to validate a magnetic stripe ticket with the PVT25/S shop discounter:

- 1 Check visually if a parking ticket is not marked as validated.
- 2 Check if a front status LED lights up steadily green. If so, device is ready for use.
- Insert a ticket into a slot when a magnetic stripe is inserted downwards on the right – at the direction to the front status diode - as displayed in the picture below.



When the device detects an end of the ticket, top green LED lights up and the front diode changes colour to red.

Pull the ticket out of device and mark it as validated to avoid double validation.

For better overview of granted parking discounts, a counter that is on the top 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.

Now, ticket can be returned to a customer. Number on a counter display got higher by one.

3.2 Device Indications of Validation

Course of validation process is indicated via two operational status LED diodes in the front and on the top of the PVT25/S device. The following LED behaviour describes events which can occur during validation:

Indication	Status
Steady front green light	Device is on and ready for use.
Steady upper green light and steady front red light	Device detects an end of the ticket and encoding can be launched, i.e. the ticket shall be pulled out.
Front green light blinks 5 times	Validation finished successfully.

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Indication	Status
Front red light and upper green light blink 5 times	An error occurs.

The following LED indication corresponds with older versions of the validator with only LED diode:

Indication	Status
Steady green light	Device is on and ready for use.
Steady red light	Device detects an end of the ticket and encoding can be launched, i.e. the ticket shall be pulled out.
Blinking green light	Validation finished successfully.
Blinking red light	An error occurs.
Blinking orange light	Ticket was inserted but device does not detect its end.
Alternately blinking red and green light	Sensor detection failed.

For more information on troubleshooting, see chapter **Troubleshooting** on page 22.



4 Device Configuration

Configuration of the PVT25/S device involves the only following event: checking and setting positions of the DIP switches on the circuit board

The event mentioned above requires the only basic procedure: hardware manipulation with DIP switches

The following section describes a configuration procedure in details.

4.1 Setting Ticket Data Validation

Setting data that the PVT25/S device encodes on a magnetic stripe parking ticket presents manipulation with DIP switches on a circuit board of the device. The following steps cover a complete configuration of the device to set output data assigned to a validated parking ticket:



2 Unloose two screws on the front side.



Shift an upper aluminium plate wired with a circuit board out of the housing.



On circuit board, set DIP switches so that they correspond to a card class expressed as a binary number.



Zero in a binary number corresponds to OFF position of a DIP switch and one to ON position.

There are two units of DIP switches on a circuit board. Each of them has 6 switches in OFF or ON position – ON position is on the side of numbers (1 - 6).



Example:

Selected card class is 3. This decimal number requires converting to a binary number, i.e. to **0000 0000 0011**.

Conversion of decimal numbers to the binary system is carried out via calculator as follows:

After selecting **Programmer** or **Scientific** view mode (depends on calculator version), type in decimal value when **Dec** mode is activate. Then, switch to the **Bin** mode. Displayed number presents binary version of the decimal number.



<u>V</u> iew <u>E</u> dit <u>I</u>	<u>H</u> elp								<u>V</u> iew <u>E</u> dit <u>I</u>	<u>H</u> elp							
								3								C	11
						00	000 (0011 0							90	999	9011
() Hex		Mod	Α	MC	MR	MS	M+	M-	© Hex		Mod	Α	MC	MR	MS	M+	M-
Dec Oct	(В	-	CE	С	±	1	O Dec	(В	-	CE	с	±	V
) Bin	RoL	RoR	С	7	8	9	/	%	Bin	RoL	RoR	С	7	8	9	1	%
O Qword	Or	Xor	D	4	5	6	*	1/x	© Qword	Or	Xor	D	4	5	6	*	1/x
O Dword	Lsh	Rsh	E	1	2	3	-		O Dword	Lsh	Rsh	E	1	2	3	-	
Ø Byte	Not	And	F)	,	+	_	Ø Byte	Not	And	F		0	,	+	

The binary number **0000 0000 0011** must be read from the right to the left. DIP switches are taken from the left to the right. Switches are shifted to online position matching number 1 as it is in the picture below:



5 Mount the circuit board with aluminium plate back into the housing.

The device is ready to encode a configured card class.



4.2 Configuration Test

Before deployment of the PVT25/S device in shopping premise, the validation process must be tested. This chapter is dedicated to checking output data encoded into a magnetic stripe parking ticket.

Checking a card class encoded into a magnetic stripe

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 PVT25/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.
- Check if a card class stated in the window checks up with a required value.
- If not, a configuration must be repeated.



Assigning a Card Class to Tariff

5

Card class presents a digit encoded into 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:

- Configure a card class on the PVT25/S device keeping instructions in chapter **Setting Ticket Data Validation** on page 14.
- 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*.
- 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.

Tariff number	6	Operator number	SCHEIDT & BACHMANN GmbH
Name	Tarif 2013 Park 2	Computer number	2010
		Facility	<any></any>
Tariff data		Card data	
Tariff module	Standard tariff	Card type	<any></any>
Tariff data	Tariff data short term	Card subtype	<any></any>
Validity	current millennium ++	Card class	from 0 to 0
Tariff structure	Tariff structure		

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 data	
Card type	<any></any>
Card subtype	<any></any>
Card class	from 52 to 52



1

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 entervo 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:

Ro	Article	Article No	Article Group	Quantity	Amount
1					
2			**** TURNOVER ****		
3	2099	9511	Turnover cashl tot		6,00
4	2099	9504	Turnover cash tot		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 4 2 4	506,50
13					
14			**** TURNOVER BY CARD SALES ****		
15	0	100	Short larm 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.

PVT25/S	Maintenance	Interval	Cyclic maintenance
Magnetic card processing	•	every 6 months	30.000 tick- ets
General maintenance	0	every 6 months	

 \circ 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 into ticket slot. Check if nothing keeps from a fluent shift of ticket.

Carry out a configuration test keeping instructions in chapter **Configuration Test** on page 16.

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 synthetic-aluminium coat of the housing should be cleaned biannually with simple suds (washing-up liquid).
- □ 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.



- Unloose two screws in the front and shift the aluminium upper part of housing from the back to the front. If you dismount a validator equipped with a counter, be aware that the top part is wired with circuit board.
- □ Blow out the paper rests cautiously using compressed air or an air pump.
- Clean two plastic feed rollers which are held by a steel strap fastened on the top with a small nut. For cleaning, use a dry, soft cloth. If a dirty situation requires, use a moistened cloth.
- □ Check all cable connections.
- □ Mount the device back to the initial state.

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 16.



7 Troubleshooting

This chapter is dedicated to the problems that can arise within manipulation with a device. Problem determination is based on LED status indication. The following LED behaviour indicates specific problems listed below:

Front red and upper green lights are alternately blinking

Description: Front LED light blinks alternately red and green, green top light blinks.

Reason: While sensor for ticket detection was initialised, a ticket was inserted. It can be also considered, that the sensor is damaged.

Solution: In case of an inserted ticket, pull the ticket out of reading slot and switch the device off. Switch it on, again. The front LED should light up steadily on green. If not, deeper diagnosis must be performed which can lead to replacement of the sensor.

Front red and upper green lights blink five times

Description: After pulling a ticket out of device, front red LED blinks 5 times. At the same time, upper green LED blinks 5 times. This occurs also when a ticket is leaved in a reading slot longer than 5 seconds.

Reason: Validator did not obtain a valid input data in consequence of missing synchronisation data that are required for initialisation of re-encoding process. This occurs when:

- a magnetic stripe does not comprise any data it is empty, the data are damaged or in an invalid format
- □ the ticket was not inserted with magnetic stripe downwards on the right
- □ reading time for a magnetic head was inadequate.

Solution: Pull the ticket with missing or invalid synchronisation data out of device and insert the valid one.

Pull the ticket out of validator and insert it in such a way that a magnetic stripe is downward on the right.

After insertion taking more than 5 seconds, pull the ticket out of validator, insert it again and after the upper green LED lights up, pull it out.



8 Spare Parts

A replacement of failed parts require a general knowledge of construction of the PVT25/S. The device comprises the following main parts:

- □ housing
- □ upper aluminium plate with a green diode
- □ reading slot
- □ two plastic feed rollers
- □ circuit board
- □ counter(optional)

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 or compact construction does not allow replacement:

Spare Part	S&B Article Number
External power supply unit	50 60005
Circuit board	03 43322
Reading slot	04 22145

8.1 Replacing a Power Supply Unit

If the front LED indicator on the validator is not alight or a power cable is defective, a power supply must be replaced.

It must be also considered, that the front LED diode that is not alight can indicate a defective circuit board. In that case, it must be replaced.

8.2 Replacing a Battery in Counter

Counter as an optional part of the PVT25/S device is equipped with a battery of R44 size. It serves to keep information on number of provided parking discounts.

If a digit on a counter display is 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 Unloose two screws in the front to open a validator.
- 2 Shift aluminium top plate from the back to the front. Avoid tearing out connection cables connecting a status diode and counter with a circuit board.
- 3 Push battery out of the counter fastened on the aluminium plate.



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

6 If the voltage is insufficient, replace the battery for a new one.

If the counter does not display a digit, it must be replaced. As it is glued to the top plate, whole validator must be replaced.

Counter displays a number 0 and is ready to use.

8.3 Replacing a Reading Slot

Reading slot (S&B article no.: 04 22145) is a plastic formed part that directs movement of an inserted ticket. In rare cases, it can be damaged and must be replaced as follows:



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

1 After unloosing two screws in the front and shifting an upper plate forwards, open the device.





3 Replace the reading slot.

✓ After remounting, the validator is ready for use.

8.4 Replacing a Circuit Board

The following procedure covers disassembling the device in purpose of replacement of a defective circuit board (S&B article no.: 03 43322):



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



- 1 After unloosing two screws in the front and shifting an upper plate forwards, open the device.
- 2) Unscrew six screws to unloose a reading slot from circuit board.
- Unloose wires connecting circuit board with a status diode and counter (if it is a part of device) placed on top plate.
- 4 Replace defective board with a new one.
- ✓ After reassembling, the device is ready for 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

Ve declare / Wir erklären nder our sole responsibility, tl alleiniger Verantwortung, da	SCH Sche Breit ss das Produkt Ss das Produkt Ss das Produkt	IEIDT&BACHMANN idt & Bachmann GmbH e Str. 132 8 Mönchengladbach nany
Designation: Bezeichnung:	Validator for Magnetic Sidestripe T Rabattierer für Seitenstreifen-Tick	Fickets e <i>ts</i>
Model: Modell:	PVT25/S	
according to the following co	des:	
2004/108/EG	EMC-Electromagnetic Compatibility Directive	/ EMV-Richtlinie
2006/95/EG	Low Voltage Directive / Niederspannungsricht	tlinie
EN 55022 EN 55024 EN 60950	Radio Disturbance / ITE - Funkstöreigenschaf Immunity Characteristics / ITE - Störfestigkeit Safety of Information Technology Equipment	ten
	Sicherheit von Einrichtungen der Informations	stechnik – ITE
EN 61000-3-2	Harmonic Current / EMV - Oberschwingungss	trôme



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12 Record of Revisions

Revision	Date	Description	Author
-	22.07.2013	Creation	M. Lejtrich



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