



**SLOVENSKI STANDARD**  
**oSIST prEN 12414:2019**  
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**Nadzorna oprema za parkirišča - Zahteve in preskusne metode za parkirne avtomate**

Vehicle parking control equipment - Requirements and test methods for a parking terminal

Einrichtungen zur Parküberwachung von Fahrzeugen - Parkautomaten - Anforderungen und Prüfverfahren

Équipement de contrôle du stationnement des véhicules - Exigences et méthodes d'essai pour un terminal de stationnement

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39.040.99	Drugi merilniki časa	Other time-measuring instruments
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## Vehicle parking control equipment - Requirements and test methods for a parking terminal

Équipement de contrôle du stationnement des véhicules - Exigences et méthodes d'essai pour un terminal de stationnement

Einrichtungen zur Parküberwachung von Fahrzeugen - Parkautomaten - Anforderungen und Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 226.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European Foreword

This document (prEN 12414:2019) has been prepared by Technical Committee CEN/TC 226 “Road equipment”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12414:1999.

The significant technical changes incorporated in this revision are:

- new requirements depending on the different modes of operation (Pay and Display, Pay and Go, Pay on Departure) which justify the change in the title and the scope of this standard where “pay and display ticket machine” has been replaced by “parking terminal”;
- verification method described for each of the requirements in annex, which justify the change in the title and scope where “test methods” has been added;
- accessibility requirements taking into account new EN 301549:2014;
- requirement for user interface taking into account new technologies (display, keyboards, touch screen...);
- requirements and definition of categories of terminals depending on the level of connectivity with a central system (central system requirement being out of the scope of this standard);
- requirements for minimum information to be exchanged with the central system for connected terminals;
- requirements for payment means taking into account banknotes and new electronic means of payment;
- energy autonomy requirement for terminal powered by mains supply or solar energy or combination of solar energy and non-rechargeable battery, with detailed test procedure in annex;
- protection against theft or burglary with detailed test procedure in annex and introduction of security classes P0 to P4, with a minimum of P0 required;
- update of operation and management requirements;
- update of normative references.

**prEN 12414:2019 (E)****Introduction**

This document is a revision of the EN 12414 issued in 1999. This is not a harmonized standard. This document has been written for those called upon to manufacture, operate, maintain and use a parking terminal with the aim of providing requirements and test methods, especially for parking terminals in addition to the applicable European Directives.

This document takes the different modes of operation of parking terminal into account:

- pay and display mode;
- pay and go mode;
- pay on departure mode;

and the different configurations of:

- user interface;
- means of payment;
- power supply;
- connectivity;
- protection against theft or burglary;

in order to provide measurable minimum requirements and associated test methods to standardize and qualify:

- ease of use;
- ease of operation;
- accessibility;
- security;
- energy autonomy;
- resistance to environment;
- protection against theft or burglary.

A terminal conformity to this document is understood as a conformity to all minimum requirements applicable to the mode and configuration of the said terminal. This standard is for the terminal only, it does not cover the central system. Regarding protection against theft or burglary, conformity to the minimum requirement is reached with class P0, but in addition, classes P1-P4 have been defined to allow terminal suppliers to verify the effectiveness of additional measures to increase the protection against theft or burglary above P0.



## 1 Scope

This document specifies the technical and functional requirements including test methods for parking terminals. It applies to unattended terminals used to obtain the right to park for visual and / or electronic control of multiple road vehicles, with payment where applicable.

This document only covers parking terminals.

For parking terminals connected to centralized system, this document covers the minimum information to be exchanged with a central system. It does not define a standard protocol between parking terminals and central systems. It does not define the centralized system.

This document does not cover pay-on-foot terminals.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1332-3:2008, *Identification card systems - Man-machine interface - Part 3: Keypads*

EN 60068-2-1, *Environmental testing - Part 2-1: Tests - Test A: Cold*

EN 60068-2-2, *Environmental testing - Part 2-2: Tests - Test B: Dry heat*

EN 60068-2-30, *Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

EN 60068-2-61, *Environmental testing - Part 2: Test methods - Test Z/ABDM: Climatic sequence*

EN 60529, *Degrees of protection provided by enclosures (IP Code)*

EN 60904-1, *Photovoltaic devices - Part 1: Measurement of photovoltaic current-voltage characteristics*

EN 61009-1, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules*

EN 62262, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

EN 301549:2014, *Accessibility requirements suitable for public procurement of ICT products and services in Europe*

ISO 9241-305:2008, *Ergonomics of human-system interaction - Part 305: Optical laboratory test methods for electronic visual displays*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ISO/IEC 17065, *Conformity assessment — Requirements for bodies certifying products, processes and services*

**prEN 12414:2019 (E)****3 Terms and definitions**

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

**3.1****token**

medium accepted by a terminal and used as a substitute for currency or for test purposes

**3.2****transaction**

process followed at the terminal to obtain the right to park

**3.3****operator**

person who is responsible for the operation of the parking terminal

**3.4****supplier**

terminal supplier or its representative

**3.5****end-user**

individual obtaining the rights to park

**3.6****connected terminal**

terminal communicating with an external system

**3.7****cash**

any currently valid coins or notes issued by an official banking system with a set monetary value

**3.8****cash box**

receptacle for the storage of cash and tokens until collection

**3.9****coin validator**

terminal component which identifies the validity of the coin/token inserted and accepts or rejects the coin or token

**3.10****escrow device**

unit to hold coins, tokens or banknotes, before confirmation or cancellation of the transaction

**3.11****embedded software**

dedicated software that provides:

- control of the terminal hardware components;
- control of the terminal behaviour when used;
- ability to set the operating parameters of the terminal

**3.12****out of order**

state of a terminal or a part of a terminal that is not able to operate

**3.13****out of service**

state of a terminal or a part of a terminal that has been voluntarily configured by the operator to no longer operate

**3.14****credit note**

printed media issued by the terminal for refund purposes

**3.15****ePurse**

electronic storage of value, which can be used in a manner similar to cash to pay for goods including the right to park

**3.16****private card**

electronic storage of prepaid value which can only be used to pay for the right to park

**3.17****cash safe compartment**

secure part of the terminal that stores cash

**3.18****service compartment**

secure part of the terminal that contains technical components for operation and maintenance outside of the cash safe compartment

**3.19****return cup**

receptacle that contains coins and tokens rejected or returned after cancellation

**3.20****collection box**

external lockable receptacle used for collection of cash

**3.21****ticket**

printed document for enforcement

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### 4 Functional requirements

#### 4.1 Modes of operation

##### 4.1.1 Introduction

The modes of operation describe how the right to park is provided to end-users, then inspected by enforcement personnel.

Three modes of operation are defined in this document:

- a) the Pay and Display mode (with ticket);
- b) the Pay and Go mode (without ticket);
- c) the Pay on Departure (with or without ticket).

Any parking terminal shall comply with one or more modes.

##### 4.1.2 Pay and Display mode (with ticket)

###### 4.1.2.1 General

In this mode, a ticket is printed by the parking terminal and is to be displayed in the vehicle to allow visual inspection by the enforcement agent.

For a cash only offline transaction, a ticket with minimum printed information as detailed in 4.1.2.2, shall be issued within four seconds after confirmation of the transaction.

For pay and display, a printer shall be installed to deliver tickets and shall respect the requirements defined in 4.2.2.

###### 4.1.2.2 Printed information (intended for enforcement)

This ticket shall as a minimum contain the following information on the same side of the ticket:

- amount paid (if applicable);
- parking expiry time and date (at least the month, day, hours and minutes);
- location of the parking terminal (identifier or address).

Where applicable, it shall be possible to add the following information:

- tariff category;
- unique transaction identifier;
- licence plate number;
- space number;
- issuing date and time;
- tax mandatory information;
- parking authority or operator reference.

### 4.1.3 Pay and Go mode (without ticket)

#### 4.1.3.1 General

In this mode, the end-user does not need to display a ticket in a vehicle. Inspections are based on information that allows for identification either the parking space or the licence plate.

To obtain the right to park this information has to be entered by the end-user into the terminal to be recorded locally or in a centralised system.

The parking terminal shall offer the end-user the capability to correct and confirm the identification data manually entered before payment.

The terminal shall always be able to deliver a receipt:

— by a printer that shall respect the requirements defined in 4.1.3.3 and 4.2.2

or,

— digitally transferred to the end-user if allowed by local legislations, banks standards and card issuers if applicable and shall respect the requirements defined in 4.1.3.3.

#### 4.1.3.2 Storage of transactions data and associated inspection

##### 4.1.3.2.1 General

At least one of the means of storage described in 4.1.3.2.3 and 4.1.3.2.4 shall be used.

##### 4.1.3.2.2 Stored information

Transactions shall be stored with the following information:

— parking expiry time and date (at least the month, day, hours and minutes);

— licence plate number or space number;

— amount paid (if applicable);

— location of the parking terminal (identifier or address);

Where applicable, it shall be possible to add the following information:

— specific category of the user;

— unique transaction identifier;

— date and time of issue.

##### 4.1.3.2.3 Local storage of transaction

For terminals belonging of Category A (as defined in 4.3.2), when the transaction is confirmed by the end-user, the information defined in 4.1.3.2.2 shall be saved in the local memory of the parking terminal for local inspection by enforcement agent. The terminal shall have the capacity to store a minimum of 100 active transactions for enforcement purpose. If the maximum transaction capacity is reached the terminal shall block next transactions.

**prEN 12414:2019 (E)****4.1.3.2.4 Online storage of transaction**

For terminals belonging of Category B (as defined in 4.3.3), transactions completed by the end-users shall be transmitted to a centralised system to enable inspection by enforcement agent. If online transmission is not possible the terminal shall offer one of the two following possibilities:

- the transaction shall be blocked, or
- the transactions shall be allowed and stored locally until transmission to the centralised system.

**4.1.3.3 Receipt**

In case of a ticketless transaction, an offer shall be made to the end-user to obtain a receipt or it shall be automatically issued. An offer made at the end of the transaction shall remain for at least five seconds.

The minimum information contained on the receipt shall be the following:

- amount paid (if applicable);
- parking expiry time and date (at least the month, day, hours and minutes);
- the information that makes it possible to identify the vehicle either the licence plate or parking space number;
- location of the parking terminal (identifier or address).

Where applicable, it shall be possible to add the following information:

- tariff category;
- unique transaction identifier;
- issuing date and time;
- tax mandatory information;
- parking authority or operator reference;
- licence plate number;
- space number;
- date and time of issue.

**4.1.4 Pay on departure****4.1.4.1 General**

This mode of operation applies only to terminal in category B (as defined in 4.3.3).

To obtain the right to park, the end-user needs to start the parking session at arrival. The parking session is either stopped by the user when departing or automatically by the system when reaching user selected or maximum defined parking end time.

Pay on departure mode can be managed with or without ticket.

The terminal shall always be able to deliver a receipt:

- by a printer that shall respect the requirements defined in 4.1.4.3.2 and 4.2.2,

or

- digitally transferred to the end-user if allowed by local legislations, banks standards and card issuers if applicable and shall respect the requirements defined in 4.1.4.3.2.

#### **4.1.4.2 Transaction data**

##### **4.1.4.2.1 Parking session start data**

Parking session start data shall contain the following information:

- licence plate number, and/or
- space number, and/or
- unique identifier;
- parking start time (at least the month, day, hours and minutes);
- user selected or maximum defined parking end time.

Where applicable:

- specific category of the user;
- location of the parking terminal (identifier or address).

##### **4.1.4.2.2 Parking session end data**

Parking session end data shall contain the following information:

- licence plate number, and/or
- space number, and/or
- unique identifier;
- parking start time (at least the month, day, hours and minutes);
- parking end time (at least the month, day, hours and minutes);
- amount paid.

Where applicable:

- specific category of the user;
- unique transaction identifier;
- location of the parking terminal (identifier or address).

#### **4.1.4.3 Registration of parking transaction data, payment procedure**

##### **4.1.4.3.1 Parking session starts**

- a) Terminals without ticket