



# CR 90

Efficient “short edge” sensor technology for the secure validation of banknotes

**The CashRay 90 detects banknotes of nearly all currencies in automatic cash-in equipment and banknote acceptors for self-service terminals.**

Advanced optical recognition technology enables reliable validation of banknotes, including authentication and fitness sorting. Two sensor versions comply with the various market requirements within the Transport, Retail, Banking, Financial Services segments.

The different product versions are interchangeable, since the design and interfaces are standardized. If market requirements change, the necessary adjustments may be made quickly.

Both versions fulfill the European Central Bank authenticity guideline, the “F version” (fitness version) additionally fulfills the fitness guideline of ECB.

Standard and customized templates from over 70 currencies, which can be loaded remotely or on-site, enable the global use.

More than 60,000 Sensors already have been sold for a wide range of applications, testifying to the performance and cost effectiveness of the CashRay 90 sensor.

## Technical Data

### Design

- > Banknote transport short edge first
- > Banknote processing in any orientation
- > Single- and bundle-note processing
- > Multi-currency capability in one transaction
- > Up to 200 denominations processable with one adaptation template
- > Currency templates: loadable via serial interface in system or remotely
- > Easily adaptable to different currencies

### Processing Speed

- > CashRay 90 C: 1.5–2.0 m/sec.
- > CashRay 90 F: 1.0–2.0 m/sec.
- > Max. 8 banknotes per second

### Processable Banknote Formats

- > Length: 100–185 mm
- > Width: 55–100 mm

### Security Functions

- > Optical verification of banknote paper and printing inks in transmission and reflection using different wavelengths
- > Multi-track magnetic sensors for authenticity checks of hard- and soft-magnetic banknote properties
- > Optical UV sensor
- > Inspection of special security features in banknotes

### Guidelines

- > ECB guidelines for the detection of counterfeit euro banknotes (Article 5 of decision no. ECB/2010/14)
- > ECB guidelines for the detection of unfit euro banknotes (Article 6 of decision no. ECB/2010/14)
- > Further guidelines on request

### Traceability of Banknotes

- > PIDSY System (Post IDentification SYstem)

### Interfaces

- > Asynchronous serial interface:  
RS-232 C up to 115.2 Kbit/sec.
- > Synchronous serial interface:  
TTL, 2 Mbit/sec.

### Type of Interface

15-pole High-Density-SUB-D, male connector

### Electrical Ratings

Voltage: 5 V +5%/–3% DC  
Current: ≤ 0.4 A  
300 mA(av)/800 mA(peak)

### Dimensions (L/W/H)

122 mm × 67 mm × 108 mm

### Weight

Approx. 500 g

### Guidelines

CE, UL, others on request

## Areas of Application

- > Ticket Vending Machines
- > Parking Ticket Machines
- > Automatic Till Systems (Self-Check-Out)
- > Kiosk Terminals
- > Self-service Recycling Systems
- > Self-service Deposit Systems
- > Automatic Cash Safes (TCR)

## Overview of the CashRay 90 versions

### CashRay 90 C

The CashRay 90 is the standard model of the sensor family. It offers high protection against counterfeits. Where quick processing of deposits and payments is required the CashRay 90 C is the optimum solution.

### CashRay 90 F (Fitness)

This version fulfills the fitness standard of the European Central Bank banknote recycling framework. The CashRay 90 F can evaluate the fitness of circulated banknotes as being degraded or worn-out. Defects, like holes, tears and many more can be recognized and distinguished. Such banknotes will be classified as genuine on the condition that all authentication features are o.k. additionally, these can be marked as unfit.

