

Eurocoin Technical Support Document

Product Description



Original Manufacturer	Eurocoin Part Number	Current Revision	Date of Release

Document Content Summary



HOPPER – U DISCRIMINADOR



1. INTRODUCTION AND DESCRIPTION OF COMPONENTS

This Manual offers technical information on the Discriminator series Hopper. These hoppers are especially designed to pay out two types of coin simultaneously. Due to its modularity and its high level of performance, it can be adapted to machines of varying shapes and sizes and voltages, not foregoing efficiency in any of its applications.

The communication protocol the Discriminator hopper uses is called cctalk. Communication is carried out through only one bi-directional line (DATA). This solution vastly simplifies and reduces the cost of the wiring.

1.1 DESCRIPTION AND HOW IT WORKS

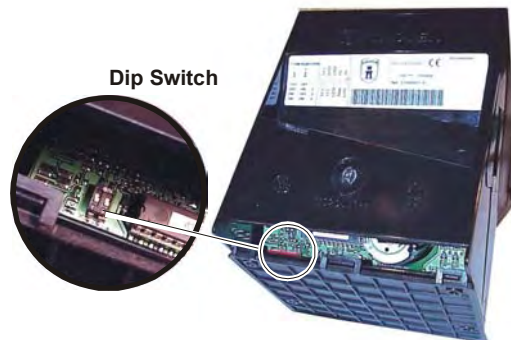
How the Discriminator series hopper works is based on the principle of using three sensors to measure the diameter of the coins.

The coins the Discriminator series hopper uses must have a minimum difference in diameter of 1 millimetre for it to work correctly





The most important features of the "U" series hoppers are:

- A power supply of 12Vdc or 24Vdc depending on models.
- Jamming. These hoppers have a current consumption detection system to manage the possible coin jams that may occur. When the detection system activates, the spin of the hopper motor is reversed for one second to move the coins in the hopper thus avoiding an imminent jam.
- Spans. If during the payout of various coins the time span interval between them is over 5 seconds, the spin of the hopper motor is reversed for 1.5 seconds to move the coins in the hopper thus achieving an improved flow in the payout of the coins.
- The machine can control the hopper full and hopper empty states through the hopper's two infrared optic sensing systems.

- The dipswitches on the underside of the hopper are used to configure the address nodes, as shown in the following illustration:



NOTE: in cctalk protocol address 1 is the machine, 2 is the validator, 3 is the first hopper, 4 is the second hopper, 5 is the third hopper, 6 is the fourth hopper, etc.

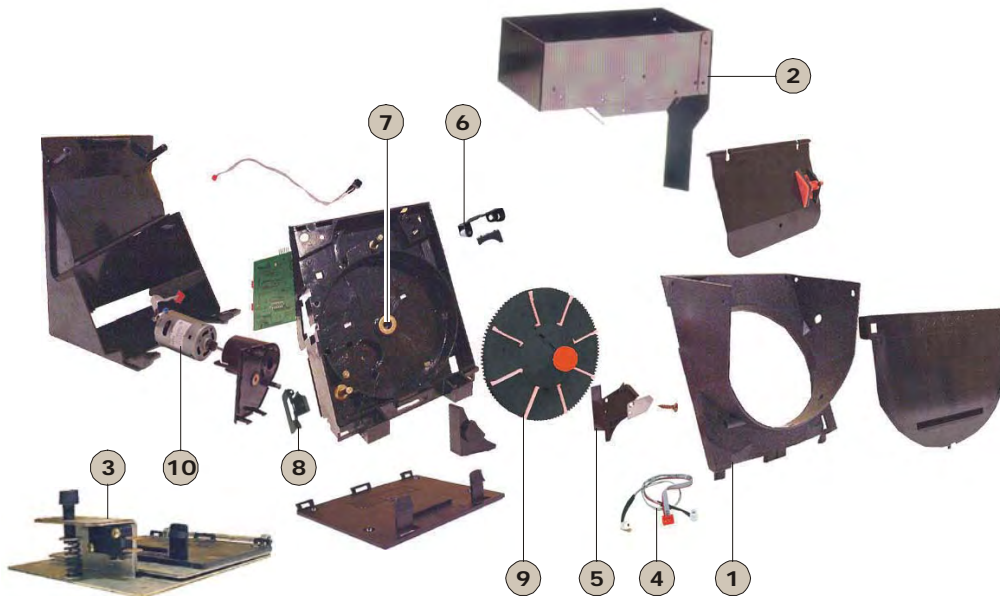
	SW1	SW2	Hopper Number	cctalk address
	OFF	OFF	1	3
	OFF	ON	2	4
	ON	OFF	3	5
	ON	ON	4	6

The address can also be configured by software using cctalk protocol MDCES commands, reaching a maximum of 253 addressable nodes.

- To maximise the use of space in the machine, two Discriminator series hoppers can be mounted in "cascade" as shown in the following illustration:



1.2 DESCRIPTION OF COMPONENTS



1. Coin bay

This element of the hopper holds the coins. There are various models with different coin capacities and sizes.

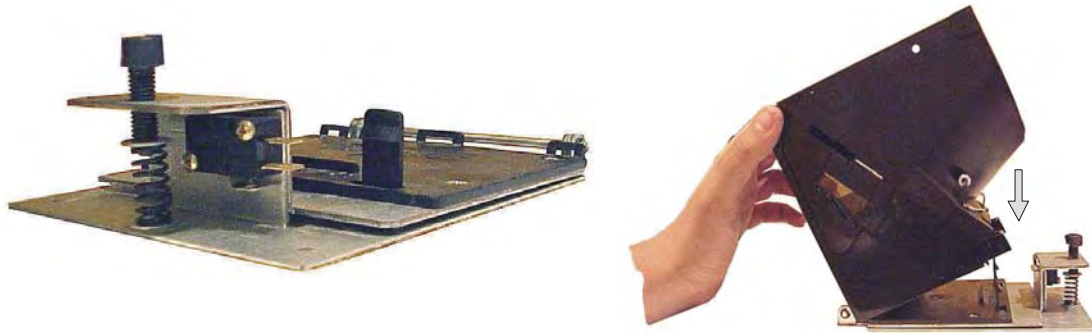
Coin bays							
Hopper	Coin capacity						
	Ø 24 mm Thickness 2.8 mm	5 € cents	10 € cents	20 € cents	50 € cents	€1	€2
Small	250	450	450	350	250	275	225
Medium	400	775	775	600	375	425	325
Large	600	1,100	1,100	975	700	750	650

2. Mechanical supplement of greater capacity for the coin bay

This element is a coin bay accessory that increases its capacity. There are different models and sizes for each of the different types of hoppers.

3. Hopper full detection system

There are three ways of controlling when the hopper full state. One is mechanical and consists of the overflow of the coins; another is electronic and is managed by two infrared photoelectric cells. The third is a electromechanical weighing system that uses a scale to determine if the hopper is full.



This hopper accessory detects when the hopper is full by weighing the coins inside. It has a base that can be screwed down and is fitted to the bottom of the hopper.

Hopper full detection systems			
Type of hopper	Infrared photocells	Overflow	Electromechanical scale
Small	Yes	No	Yes
Medium	Yes	Yes	Yes
Intermediate	Yes	Yes	Yes
Large	Yes	Yes	Yes

Capacities of the hoppers with overflow						
Hopper	Coin capacity					
	5 € cents	10 € cents	20 € cents	50 € cents	€1	€2
Small	N/A					
Medium	430	430	350	225	300	250
Intermediate	650	650	475	325	425	300
Large	N/A					

4. Hopper empty detector

This system is based on management by an electronic infrared photocell.

Hopper empty detecting systems	
Hopper	Infrared photocells
Small	Yes
Medium	Yes
Intermediate	Yes
Large	Yes

**5. Long blade****6. Trigger****7. Encoder**

This device is used to determine the coin type. It uses two infrared photocells.

8. Coin exit gate

This element allows the coin to be ejected from the hopper or returns it to the coin bay.

9. Extractor disk

The Discriminator series only has one extractor disk. It is black and made of antistatic material. The red pivot indicates its 8 cavities.

10. Drive motor for the extractor disk

Current		
	12 Vdc	24 Vdc
Idle	75 mA	75 mA
Start up	3 A	2.5 A
Spinning	450 mA	310 mA

1.2 CALIBRATION OF THE DISCRIMINATOR SERIES HOPPER

Calibration is the process of memorising the measurements of the different coins the hopper is going to use.

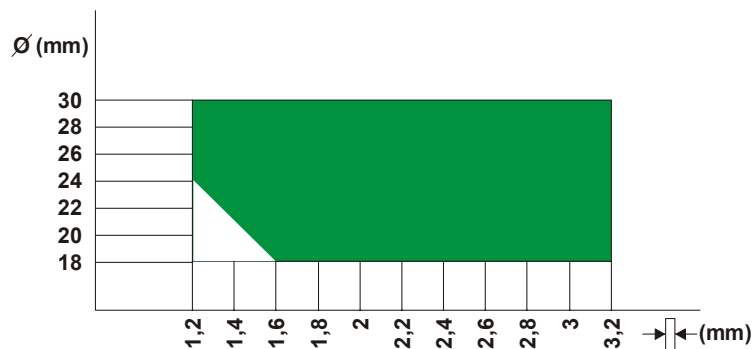
All the Discriminator series hoppers are factory calibrated. Nonetheless, it is necessary to recalibrate them after dismantling or manipulating any of the following measurement elements: encoder, trigger or optic sensor circuit boards. The recalibration can be done from the machine, if this application is implemented in its software, or by a tool called Tester Hopper that can be supplied by Azkoyen Medios de Pago S.A.

It is necessary to put 25 €1 coins (\varnothing 23 mm and 2.2 mm thick) or similar measurements into the hopper to calibrate it correctly.

2. WORKING CONDITIONS AND NORMS

Optimum results from using this equipment can be obtained by meeting the following requirements:

- Power the hopper with a transformer that meets the EN-60742 Norm and provides a maximum of 42.5 Vac on standby.
- Install the Discriminator series hoppers with a maximum inclination of +/- 3° on all axes.
- Temperatures:
 - ↘ Storage: from -25 to +70°C.
 - ↘ Working: from +5 to +55°C.
- Humidity: maximum 95% (relative humidity without condensation)
- Physical characteristics of the coins that are admissible:

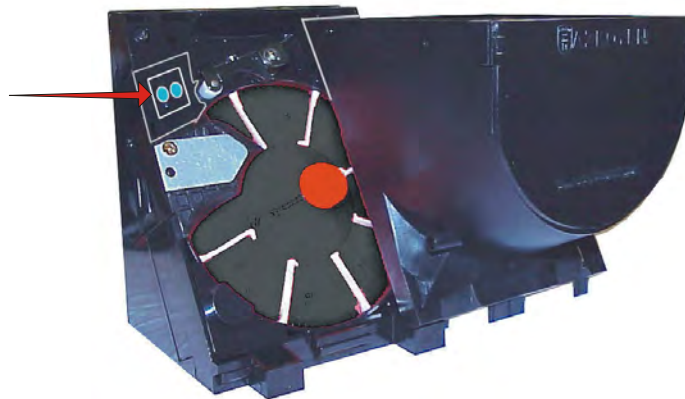


- Norms that are met:
 - ↘ EN5008: general emission norm
 - ↘ EN50022: conductive emission
 - ↘ EN50022: radiation emission
 - ↘ EN50082-1: general immunity norm
 - ↘ IEC801-2: electrostatic discharges. ESD measurement
 - ↘ IEC801-3: radiation immunity
 - ↘ IEC801-4: Peaks and spikes immunity
 - ↘ EN60335 (94-95): electric appliance safety norm
 - ↘ Meets the BACTA norm, "Binary Interface V1.0E".

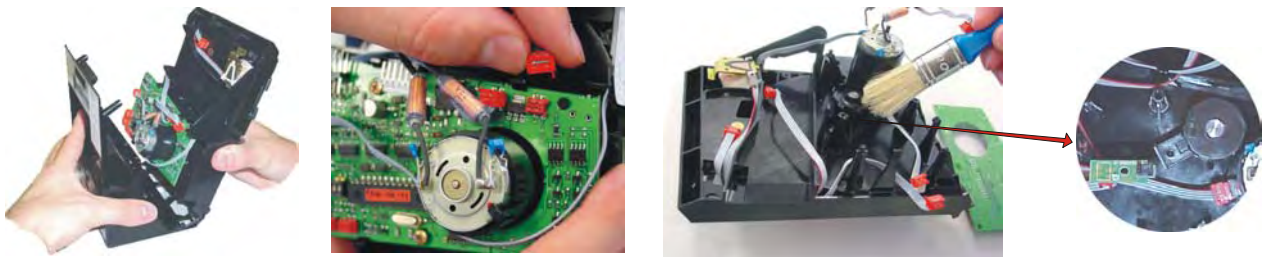
3. CLEANING AND MAINTENANCE

The maintenance required for the Discriminator series hopper can be summed up as:

- General cleaning of the apparatus after 500,000 coin extractions
- It is recommended to clean the coin exit area where the optic sensors are more frequently. This can be done with cotton wool bud dipped in alcohol.



- It is also necessary to clean the optic sensors on the encoder as shown in the illustration.



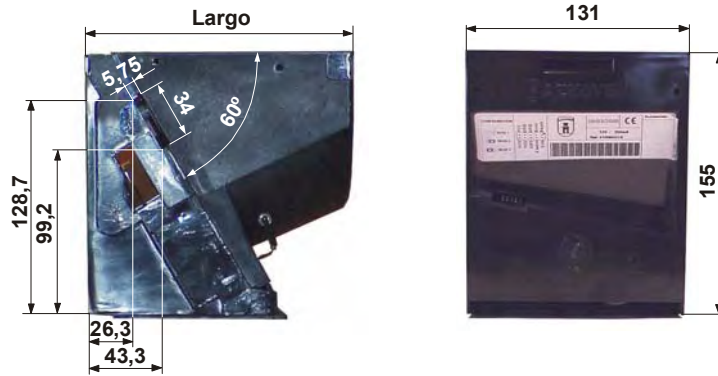
WARNING:

- ⚠ Never use products that contain benzene hydrocarbons. These products severely degenerate the plastic parts producing irreparable damage.
- ⚠ Never submerge the *Discriminator* series hopper in any liquid.

4. DIMENSIONS AND MEASUREMENTS

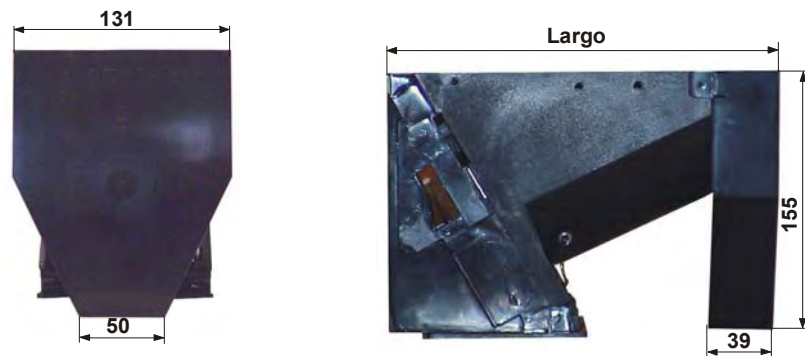
Hopper without overflow

Tolvas	Largo
Pequeña	115
Mediana	154
Grande	228

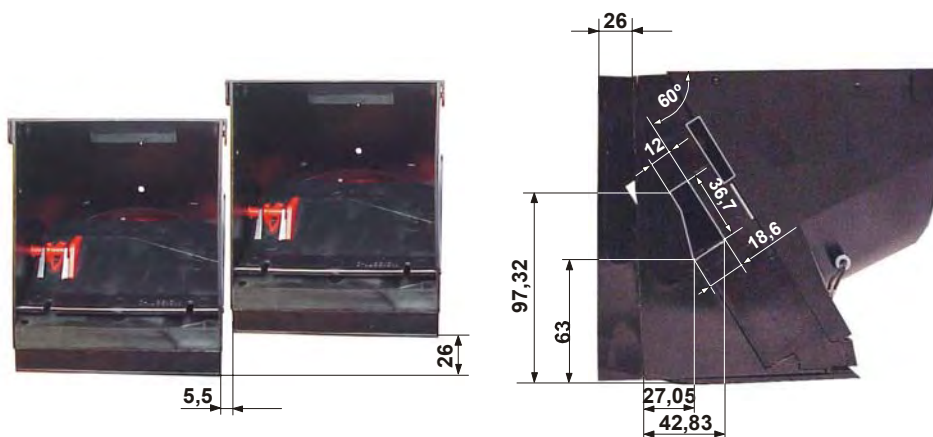


Hopper with overflow

Tolvas	Largo
Mediana	191
Intermedia	228

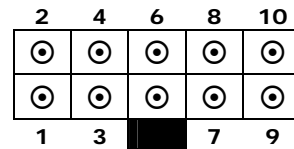
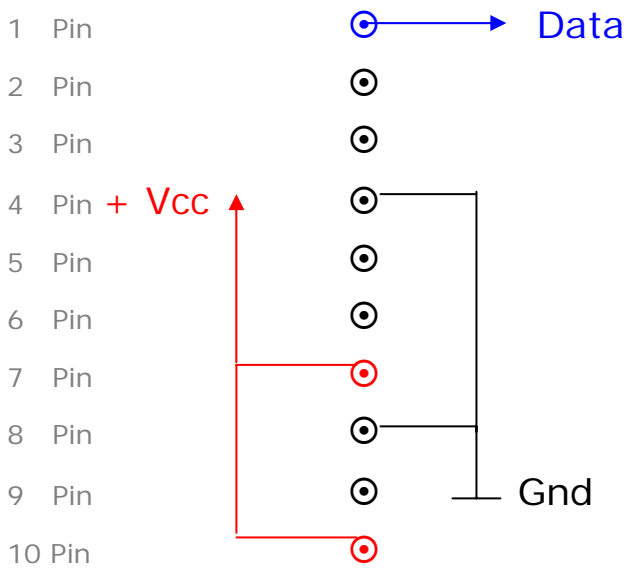


Hoppers in cascade



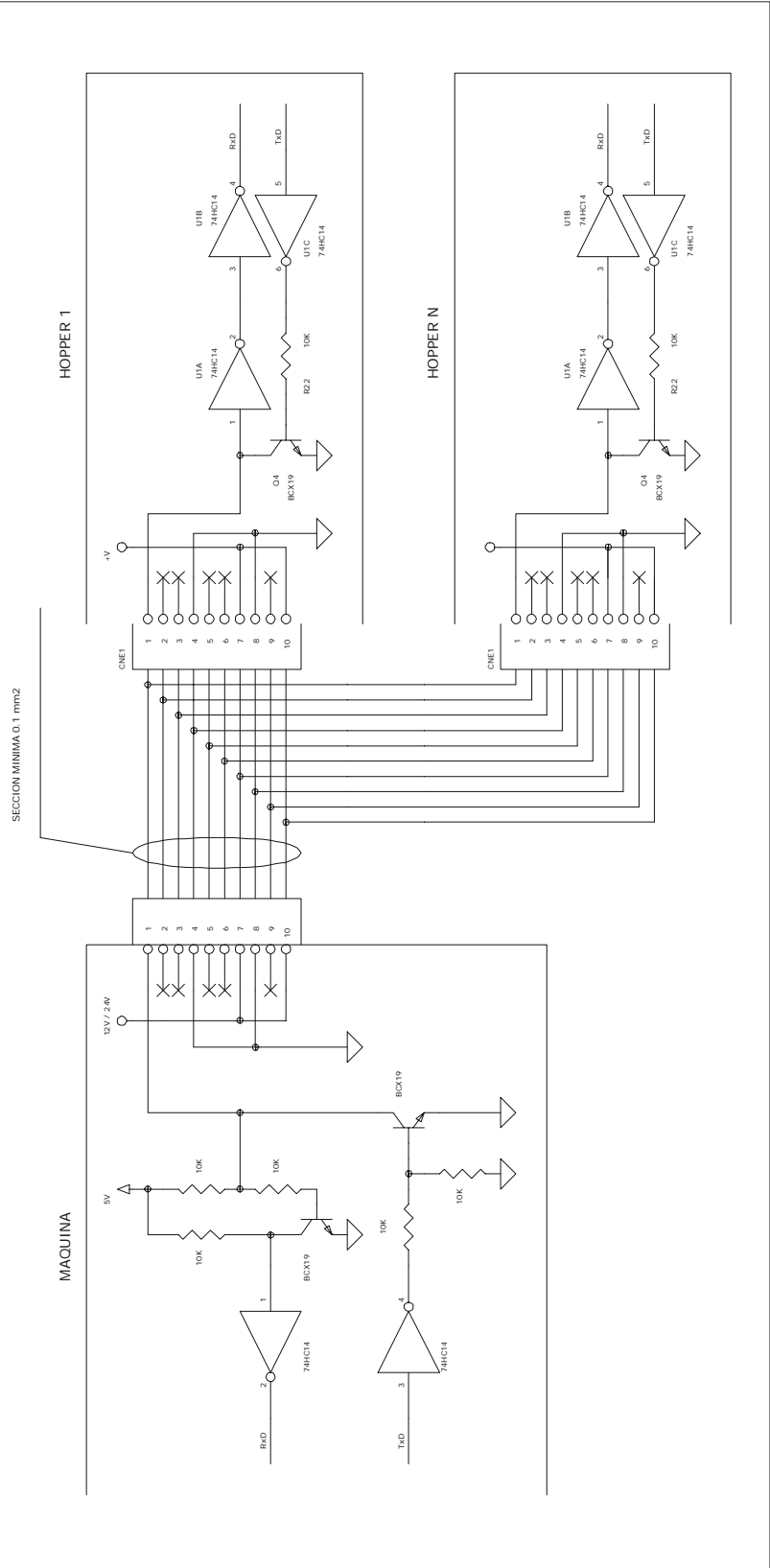
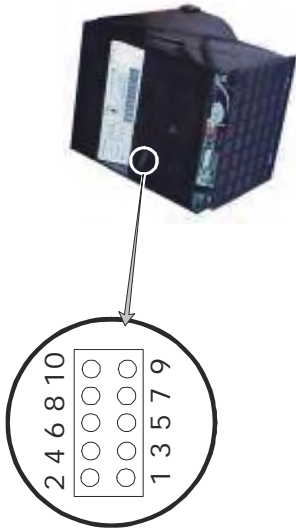
5. PINOUT AND DIAGRAMS

The following is the pin out:



cctalk serial communication

PIN	Función	Function
1	Dato	Data
7,10	+	+
4,8	-	GND





Brands of



AZKOYEN

AZKOYEN MEDIOS DE PAGO S.A.



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