

EBRAX
ATM SECURITY LLC



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INTRODUCTION

EBRAX ATM SECURITY LLC. is constantly updating the *Anti-Skimming* kit to keep up with new forms and types of attacks. We develop custom developments to make our kit operational in each case.

This document contains the standard components list for the items currently supplied for **EBRAX ATM SECURITY LLC.**, including technical information, part number and pictures.

At the same time
it shows the evolution of the technology applied by **EBRAX ATM SECURITY LLC.** in the achievement of *Anti-Skimming* devices.

1. ANTI SKIMMING DEVICES

The Anti-Skimming kits represent the entire product designed to protect the ATM against attempts of fraud by cloning of magnetic cards and steal of passwords from its owners. Each anti-skimming device has the following components:

- 1 Control Unit
- 1 or 2 Mass Sensors with sensor antenna
- 1 Alarm Cable
- 1 Transducer Cable
- 1 Electromagnetic Transducer
- 1 Sensor Cable
- 1 Power Supply Unit or Power Supply Cable
- 1 Video Power Device
- 1 Acrylic Support and 2 Plastic Nuts
- [OPTIONAL] Serial Cable

PRODUCT DISCONTINUED



Example of packed EBX 1033 device

1.1. ASkimming Device - Generation 2 (Multizone)

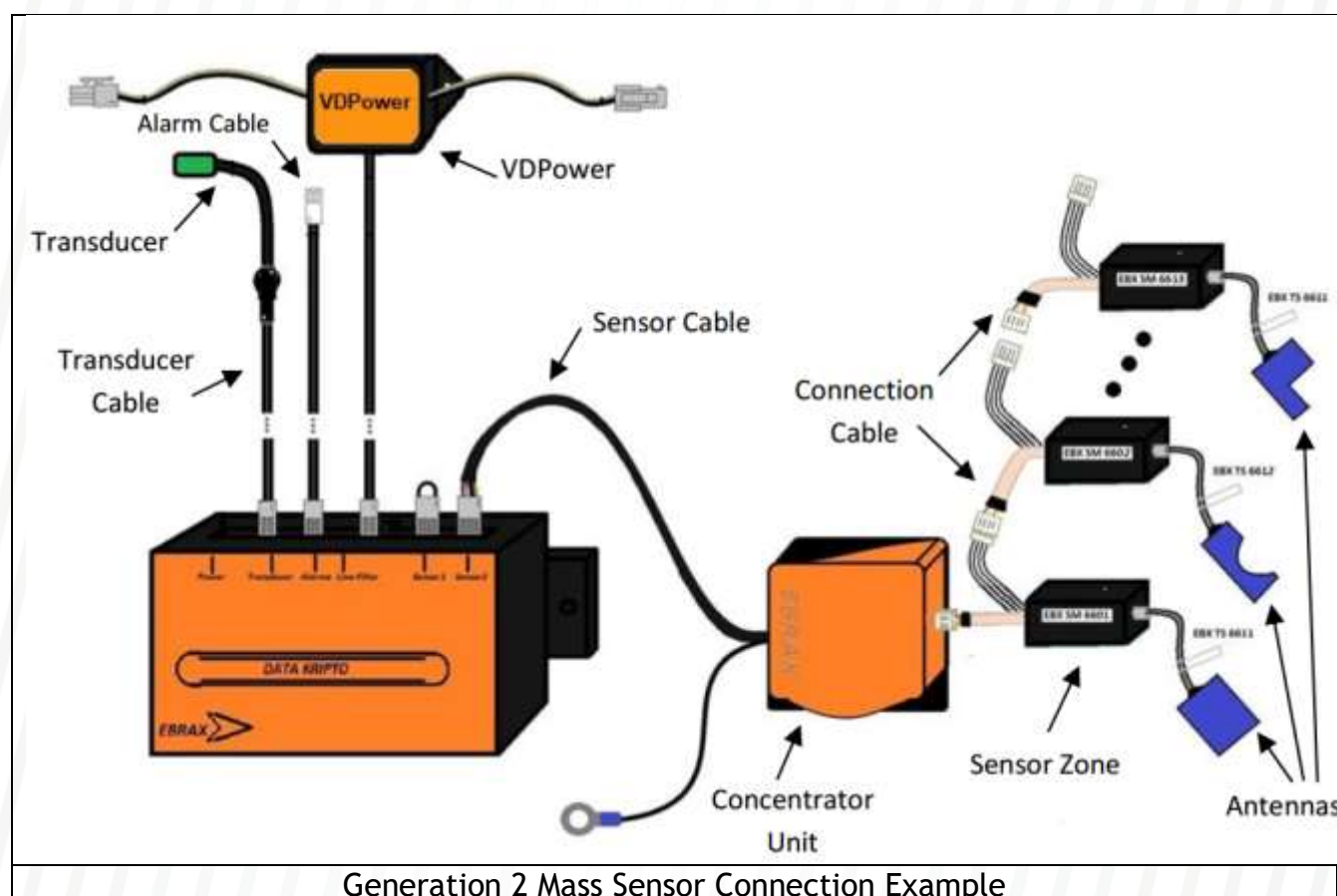
Introduced in 2018, Ebrax new Anti-Skimming devices replaced its previous capacitive sensor for its new model, called “Generation 2 Sensor (G2)”, or “Multizone Sensor” that adds new functionalities to its predecessor, called “Generation 1 Sensor (G1)”.

The G2 sensor included the following extra capabilities in relation to the G1 models:

- Can monitor up to 15 different areas of the ATM, highly increasing the ATM protection against fraud attempts.
- Self-Adjustment function, adapting itself for slow environment changes.

The major elements of the Anti-Skimming G2 Sensor are:

- Concentrator Unit;
- Sensor Zones;
- Sensor Zone Connection Cable.



2. COMPONENT SPECIFICATIONS

This section contains basic information related to a specific part number, as well as pictures or drawings related to it. The part numbers are organized by categories, making it easier to make a comparison of multiple items of the same type.

The categories are:

- Accessories
General Items that are used with anti-skimming devices
- Transducer
The transducer is responsible for the emission of an electromagnetic pulse that disrupts the operation of electronic devices placed over the card reader bezel of the ATM.
- Video Power Devices
The function of these devices is to cut the power of the video monitor of the ATM in case a fraud is detected
- Cables
General Cables related to the anti-Skimming Devices, that includes alarm cables, transducer cables , power supply cables and general accessory cables.
- Sensors and Sensor Antennas
The sensors are responsible for the detection of any fraudulent device installed over the card reader bezel
- Power Supply Units
Devices to provide power supply to the anti-skimming device
- Control Units
The control unit is the component responsible for the coordination of the anti-skimming device as a whole. It integrates all components of the kit.
- Anti-Skimming Devices
The Anti-Skimming kits represent the entire product designed to protect the ATM against attempts of fraud by cloning of magnetic cards and steal of passwords from its owners.

2.1. ACCESSORIES

- **EBX AC 0101 - Acrylic Support**

The acrylic support is designed to support the mass sensor in its installation position. The support can be provided with a double sided tape or with holes for fixation using screws.



Option 1 (No tape)



Option 2 (Double Sided Tape)



- **EBX AC 0102 - Plastic Nuts**

The plastic nuts works together with the acrylic support (EBX AC 0101) to support the mass sensor in its installation position. They are provided in pairs.




- **EBX AC 0104 - Sensor Simulation Terminal**

The sensor simulation terminal is placed in the anti-skimming control unit to simulate a mass sensor installed into it. Since each control unit has support for up to 2 mass sensors, if only one sensor is used, the second sensor slot must be filled with this sensor simulation terminal.

	
<p>Sensor Simulation Terminal</p>	<p>Sensor Simulation Terminal installed in a control unit EBX UC 1033-12</p>

- **EBX AC 0130 - Grounding Strip**


<p>Grounding Strip</p>

- **EBX AC 0131 - Voltage Converter**

The Voltage Converter, adapts the 24V of the EBX UC 1033-24 to 12V of the Deep Insert Sensor.



- **EBX AC 0134 - G2 Sensor Cable Adapter**

The Sensor Cable Adapter connects the Sensor Cable EBX CA 4051 series to the Concentrator Unit of Mass Sensor G2. It is used when a generation 2 of the mass sensor (EBX SM 66XX series) is to be installed in an ATM that have a generation 1 already installed.



- **EBX AC 0206 - G1 Sensor Logger**

This logger is focused on reading measurement data from the capacitive sensor G1. It has support for an external micro SD card for storage. A mini-usb port is used to communicate the logger to a computer, granting access to real time sensibility measurements.



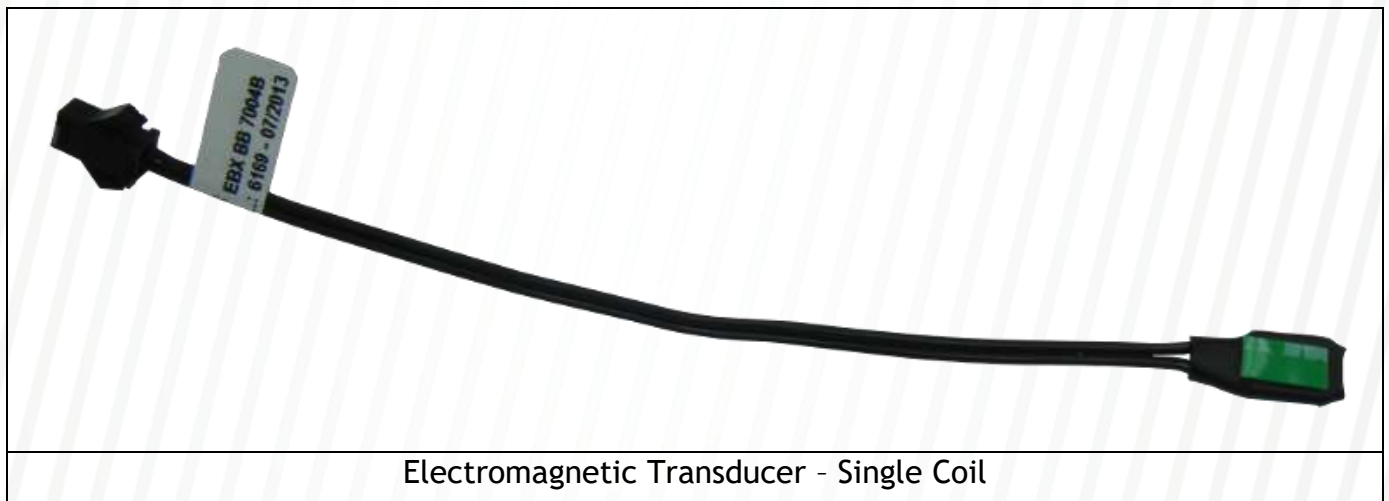
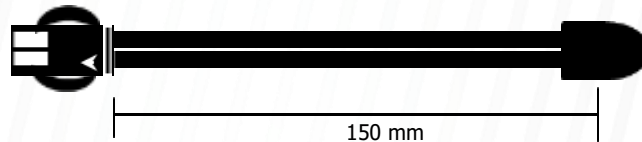
EBX AC 0206 -Logger for Sensor G1

2.2. TRANSDUCER

- **EBX BB 7004B - Electromagnetic Transducer (Single Coil)**

The electromagnetic pulse transducer works together with the detection sensor. While the sensor focuses on the detection of the skimming device, the transducer interferes with its operation, increasing the overall security provided by the kit.

When a fraud is detected and the kit enters alarm mode, the transducer is activated, starting the pulse emission. With its power supply given by the control unit, the transducer emits the magnetic pulses in random and omnidirectional form. These pulses intervene with the operation of the skimming device, making the data collected from the magnetic card completely diverse from the real information contained in it.



- **EBX BB 7005 - Electromagnetic Transducer (Double Coil)**

The double coil transducer works like the single coil version, but having the option to cover two different areas at the same time.



Electromagnetic Transducer - Double Coil

2.3. VIDEO POWER DEVICES

- **EBX BT 8003 - Video Power AC - 12 volts**

Having 12 Vdc internal relays, this video power is compatible with the 12Vdc control unit ([EBX UC 1033-12](#)).

This version is equipped with AC power connectors, making it recommended for use with CRT type video monitors.

Having only one power output, this device is more economical and recommended when there is need to cut the power of only the video monitor.

General Specifications	
Power Cable Length	350 mm
Command Cable Length	3.15m
Number of Electrical Outputs	1
Internal Relays Voltage	12 Volts
Recommended For	AC Powered Devices (CRT Monitors)



Video Power - AC - 12 Volts

- **EBX BT 8003-2 - Video Power AC - 24 volts**

This video-power device is designed with 24 Vdc internal relays, making it compatible with the 24Vdc control unit ([EBX UC 1033-24](#)).

This version is equipped with AC power connectors, making it recommended for use with CRT type video monitors.

Having only one power output, this device is more economical and recommended when there is need to cut the power of only the video monitor.

General Specifications	
Power Cable Length	350 mm
Command Cable Length	3.15m
Number of Electrical Outputs	1
Internal Relays Voltage	24 Volts
Recommended For	AC Powered Devices (CRT Monitors)



Video Power - AC - 24 Volts

- **EBX BT 8004 - Video Power DC - 12 volts - 2 Pins**

This video-power device is designed with 12 Vdc internal relays, making it compatible with the 12Vdc control unit ([EBX UC 1033-12](#)).

This version is equipped with 2 pins DC power connectors, making it recommended for use with LCD type video monitors.

Having only one power output, this device is more economical and recommended when there is need to cut the power of only the video monitor.

General Specifications	
Power Cable Length	230 mm
Command Cable Length	3.15m
Number of Electrical Outputs	1
Internal Relays Voltage	12 Volts
Recommended For	DC Powered Devices (LCD Monitors)



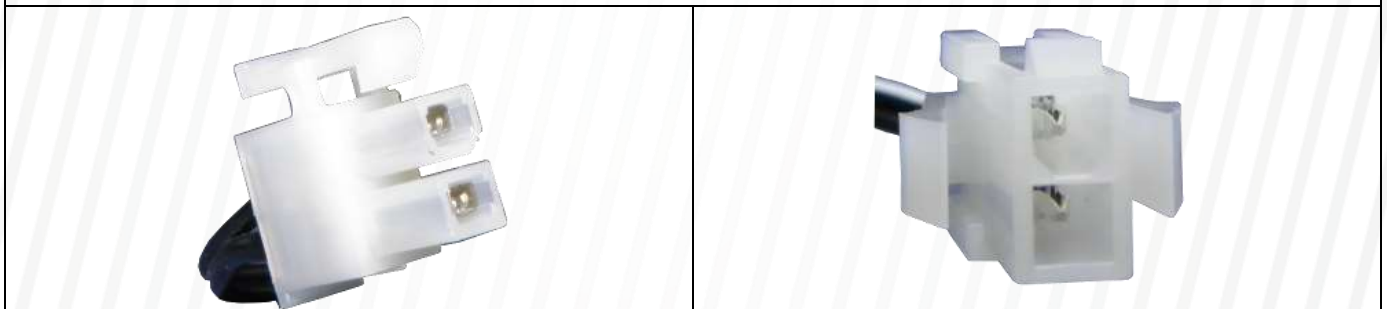
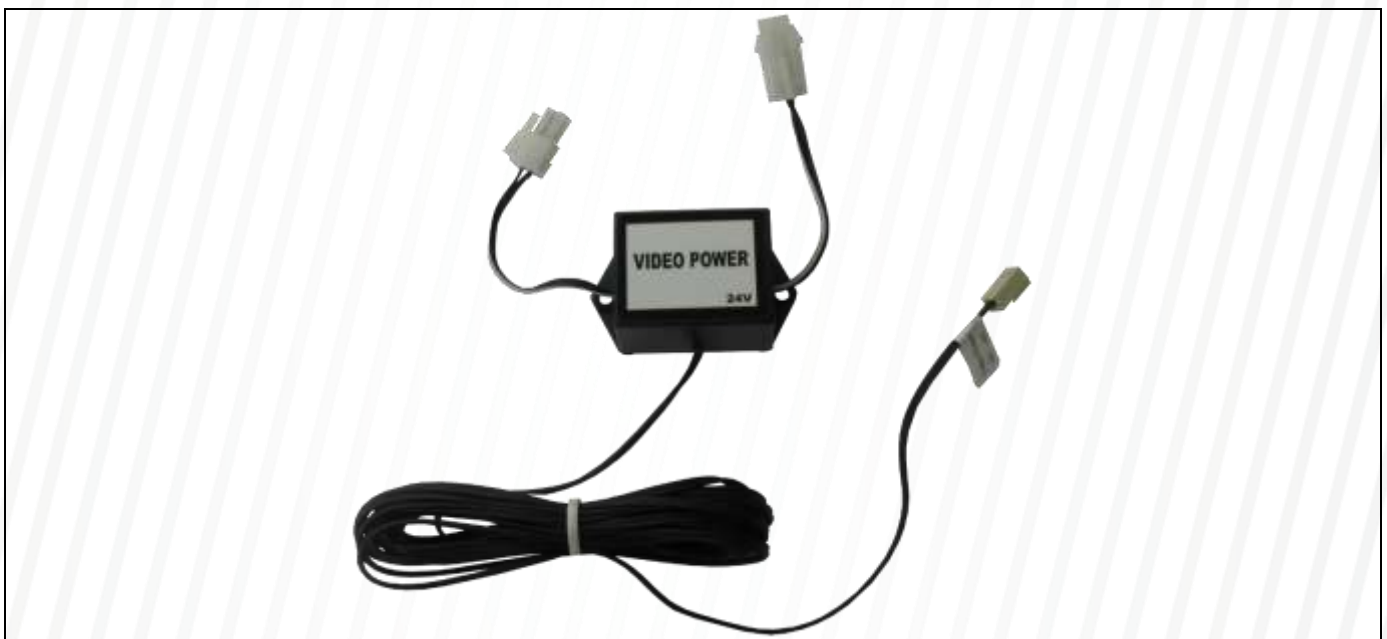
- **EBX BT 8004-2 - Video Power DC - 24 volts - 2 Pins**

This video-power device is designed with 24 Vdc internal relays, making it compatible with the 24Vdc control unit ([EBX UC 1033-24](#)).

This version is equipped with 2 pins DC power connectors, making it recommended for use with LCD type video monitors.

Having only one power output, this device is more economical and recommended when there is need to cut the power of only the video monitor.

General Specifications	
Power Cable Length	230 mm
Command Cable Length	3.15m
Number of Electrical Outputs	1
Internal Relays Voltage	24 Volts
Recommended For	DC Powered Devices (LCD Monitors)



Video Power - AC - 24 Volts

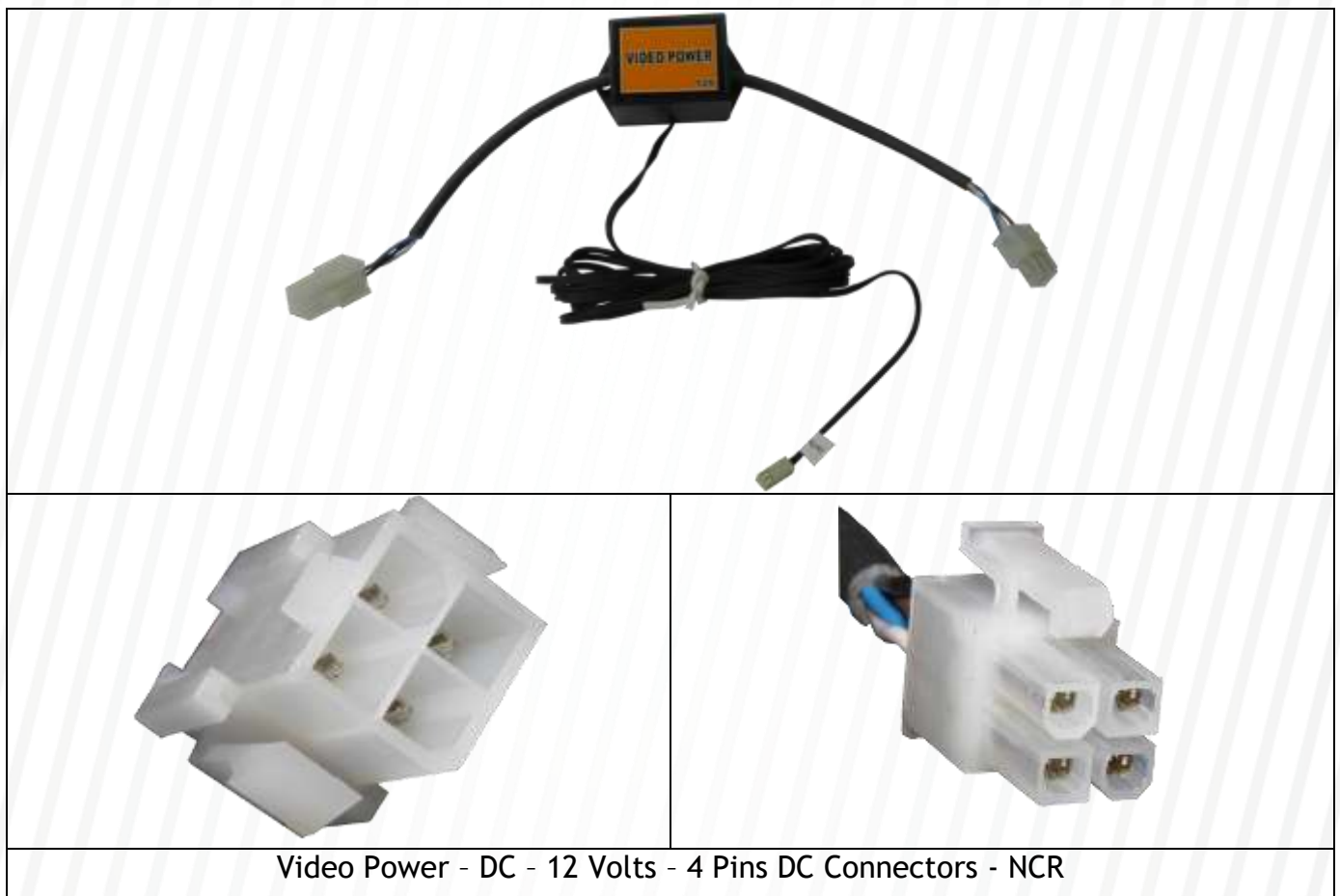
- **EBX BT 8007 - Video Power DC - 12 volts - 4 Pins - Model 2**

This video-power device is designed with 12 Vdc internal relays, making it compatible with the 12Vdc control unit ([EBX UC 1033-12](#)).

Originally designed for NCR ATMs, this version is equipped with 4 pins DC power connectors, making it recommended for use with LCD type video monitors.

Having only one power output, this device is more economical and recommended when there is need to cut the power of only the video monitor.

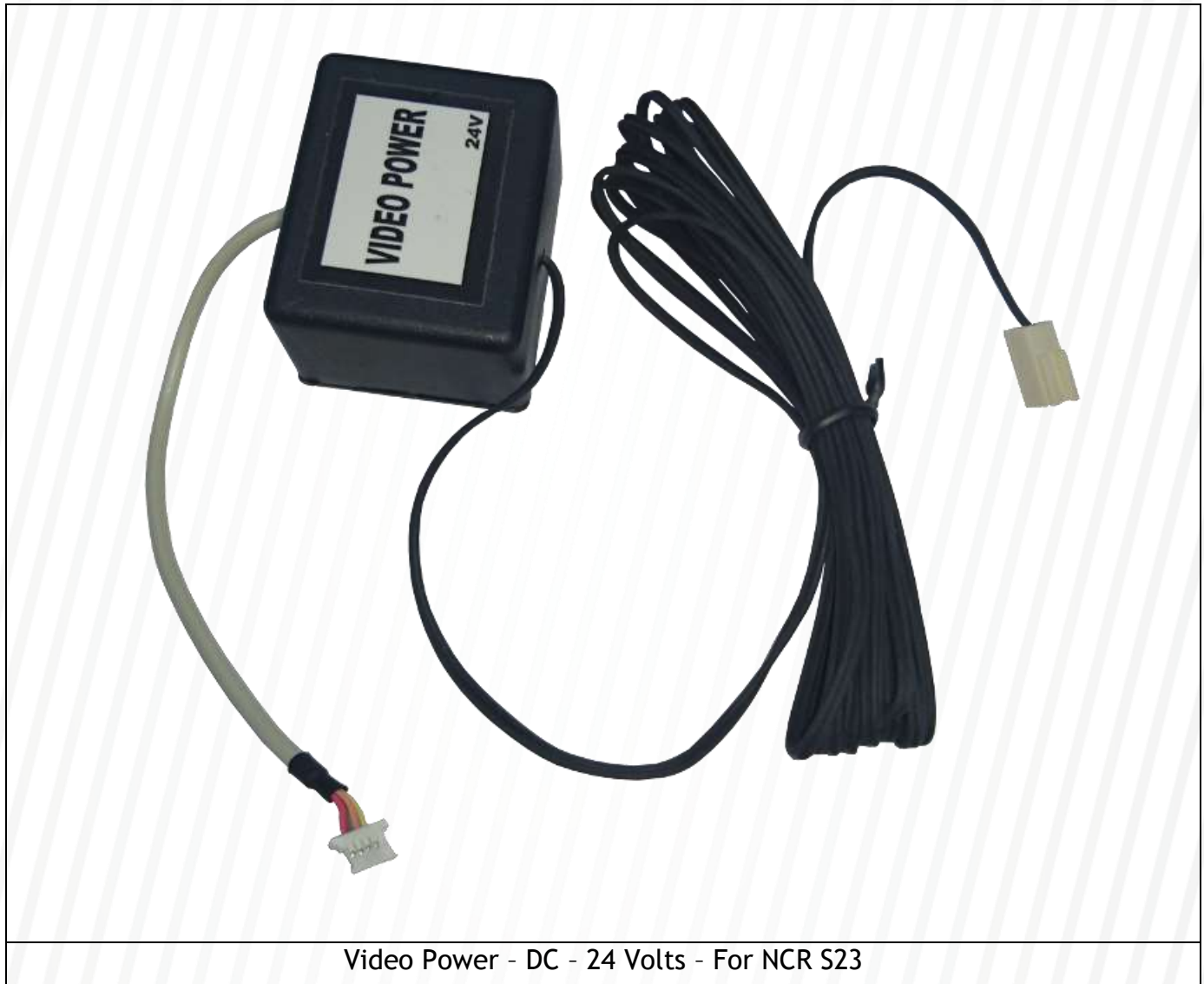
General Specifications	
Power Cable Length	330 mm
Command Cable Length	3.15m
Number of Electrical Outputs	1
Internal Relays Voltage	12 Volts
Recommended For	DC Powered Devices (LCD Monitors)



- **EBX BT 8011 - Video Power DC - 24 volts - For S23**

This video-power device is designed with 24 Vdc internal relays, making it compatible with the 24Vdc control unit ([EBX UC 1033-24](#)).

General Specifications	
Power Cable Length	330 mm
Command Cable Length	3.15m
Number of Electrical Outputs	1
Internal Relays Voltage	12 Volts
Recommended For	DC Powered Devices (LCD Monitors)



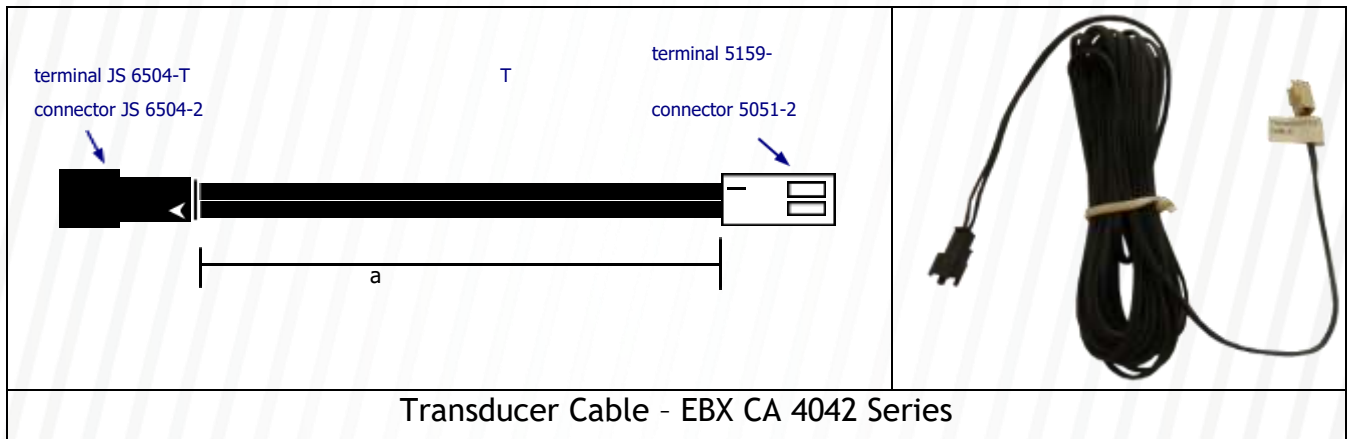
2.4. CABLES

2.4.1. Transducer Cables

- EBX CA 4042 Series

The transducer cable series 4042 connects the control unit to the transducer installed in the card reader bezel. They are currently supplied in 3 different lengths, shown as follows:

Part Number	Cable Length (dimension "a")	RoHS Compliant
EBX CA 4042	5,5 m	Yes
EBX CA 4042-2	4,5 m	Yes
EBX CA 4042-3	3,6 m	Yes
EBX CA 4042-5	3,2 m	Yes

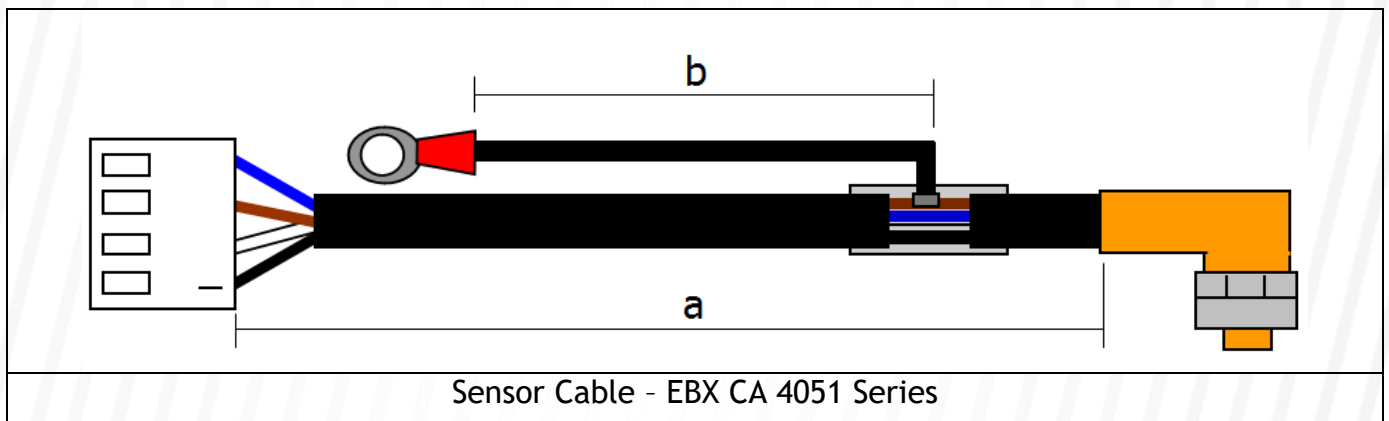


2.4.2. Sensor Cables

- **EBX CA 4051 Series**

The sensor cable series 4051 connects the control unit to the transducer installed in the card reader bezel. Equipped with guide pins, these cables grant protection against wrong installation. They are currently supplied in 3 different lengths, shown as follows:

<i>Part Number</i>	<i>Cable Length (dimension "a")</i>	<i>Grounding Length (dimension "b")</i>	<i>Ground Terminal Diameter</i>	<i>RoHS Compliant</i>
EBX CA 4051-6	3,5 m	250 mm	5 mm	Yes
EBX CA 4051-7	3,5 m	700 mm	5 mm	Yes



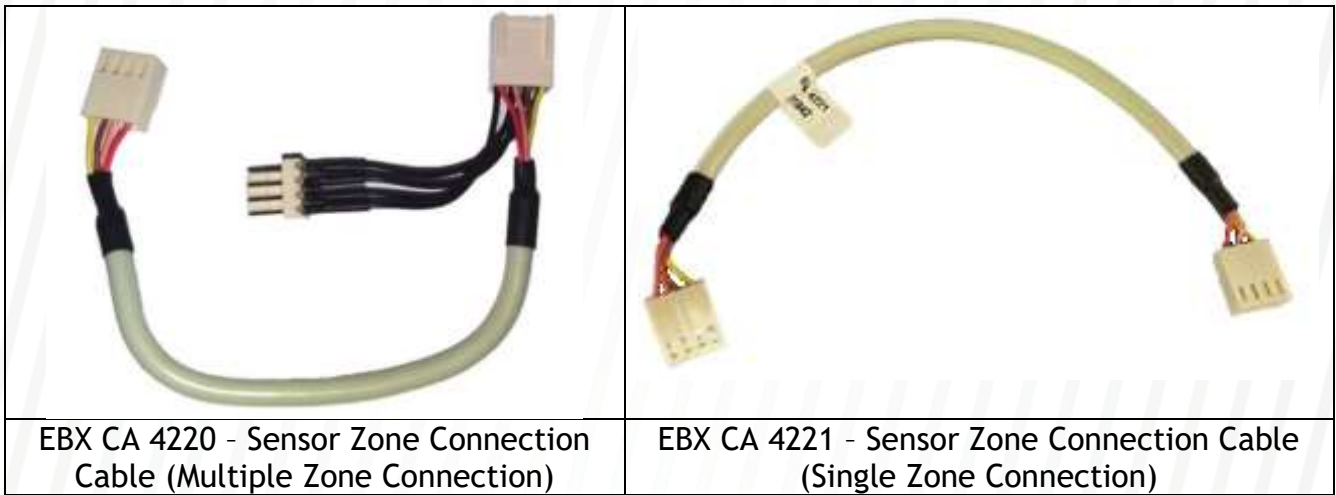
- **EBX CA 4210 Series**

The G2 Sensor Cable connects the Concentrator Unit to the Anti-Skimming Control Unit.



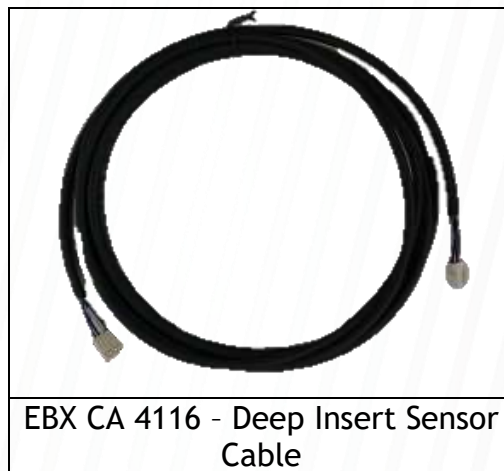
- **EBX CA 4220 Series**

The Sensor Zone Connection Cable connects the Concentrator Unit to the Sensors Zone.



- EBX CA 4116

The Deep Insert Sensor Cable connects the Deep Insert Sensor to the Control Unit.



2.4.3. Alarm Cables

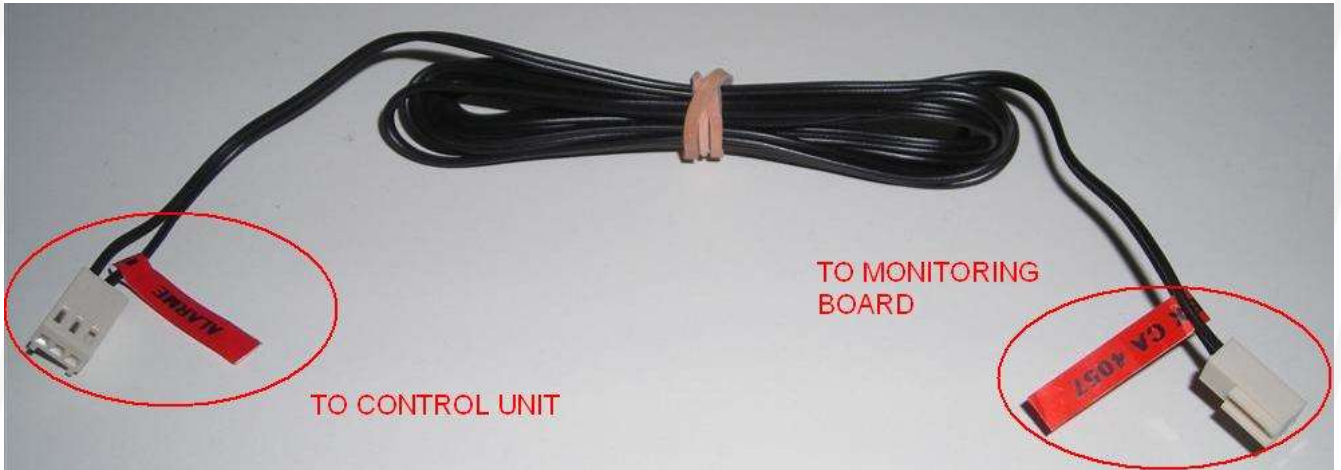
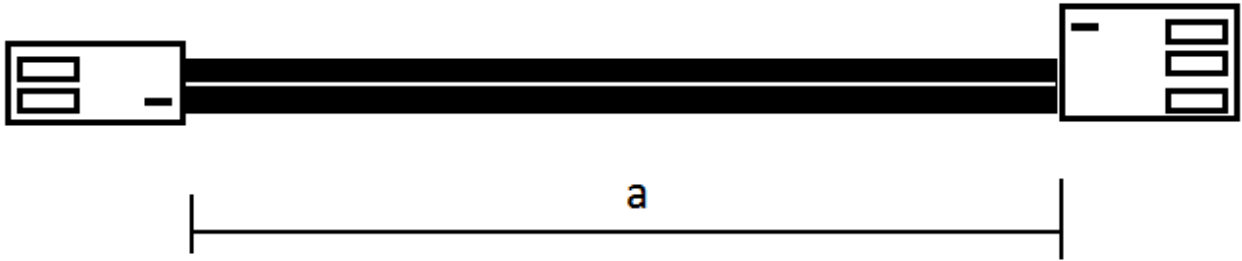
- EBX CA 4057 Series

The alarm cable is responsible for connecting the control unit to the alarm board of the ATM or any other device that will receive the direct contact signal from the control unit indicating that the device is in alarm mode. The standard alarm cable is the EBX CA 4057, but a customized version might be necessary depending on the equipment that will connect to the alarm cable.

<i>Part Number</i>	<i>Cable Length (dimension "a")</i>	<i>RoHS Compliant</i>
EBX CA 4057	1,6 m	Yes
EBX CA 4057-2	1,0 m	Yes
EBX CA 4057-3	2,2 m	Yes

terminal 5159-T
connector 5051-2

terminal 5159-T
connector 5051-3

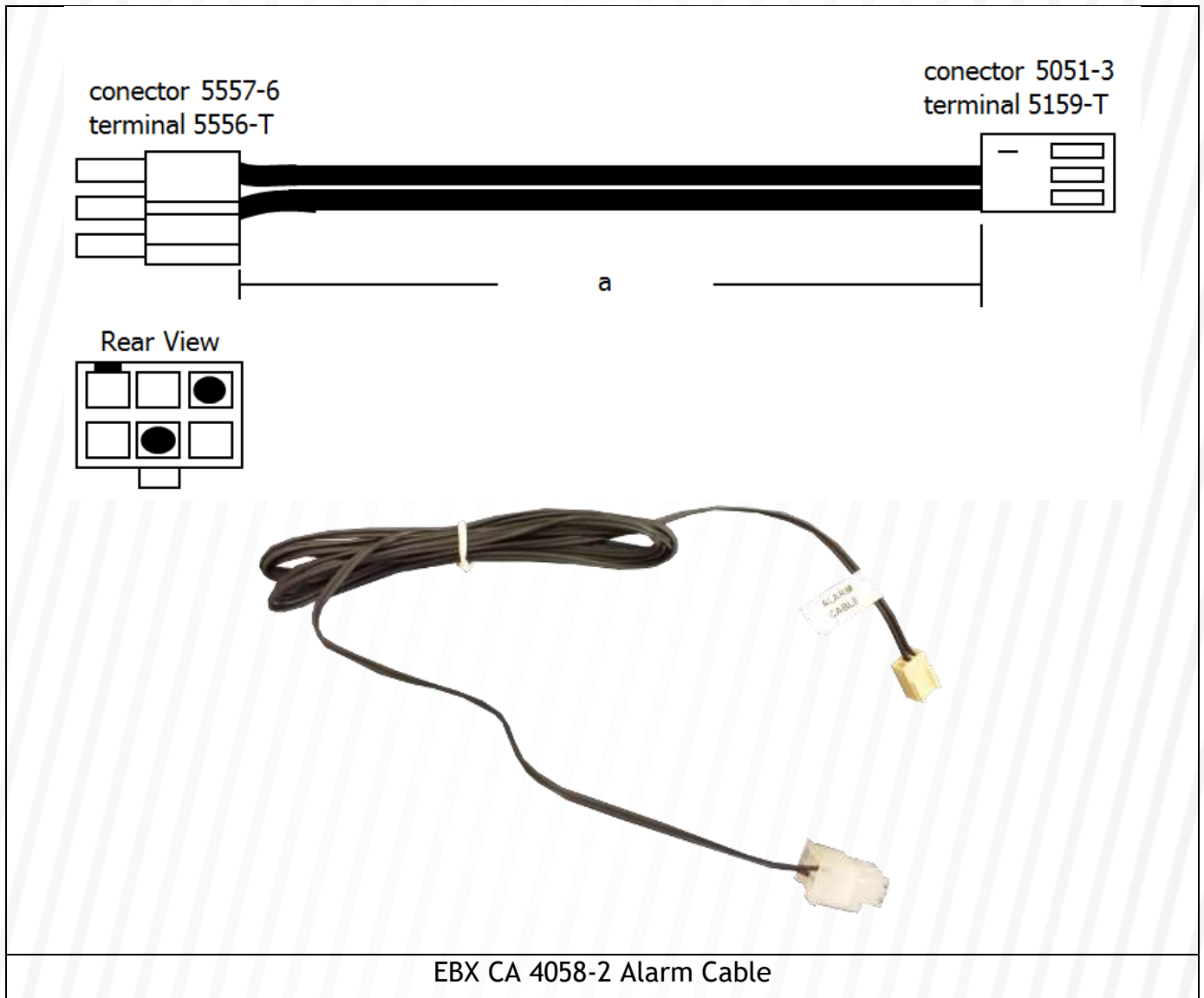


EBX CA 4057 Series Alarm Cable

- **EBX CA 4058-2**

This alarm cable has been customized due to a specific request by NCR, since they needed an alarm cable that would fit a specific equipment. In terms of functionality, it works exactly the same as the standard alarm cable, the EBX CA 4057 series.

<i>Part Number</i>	<i>Cable Length (dimension "a")</i>	<i>RoHS Compliant</i>
EBX CA 4058-2	2,2 m	Yes

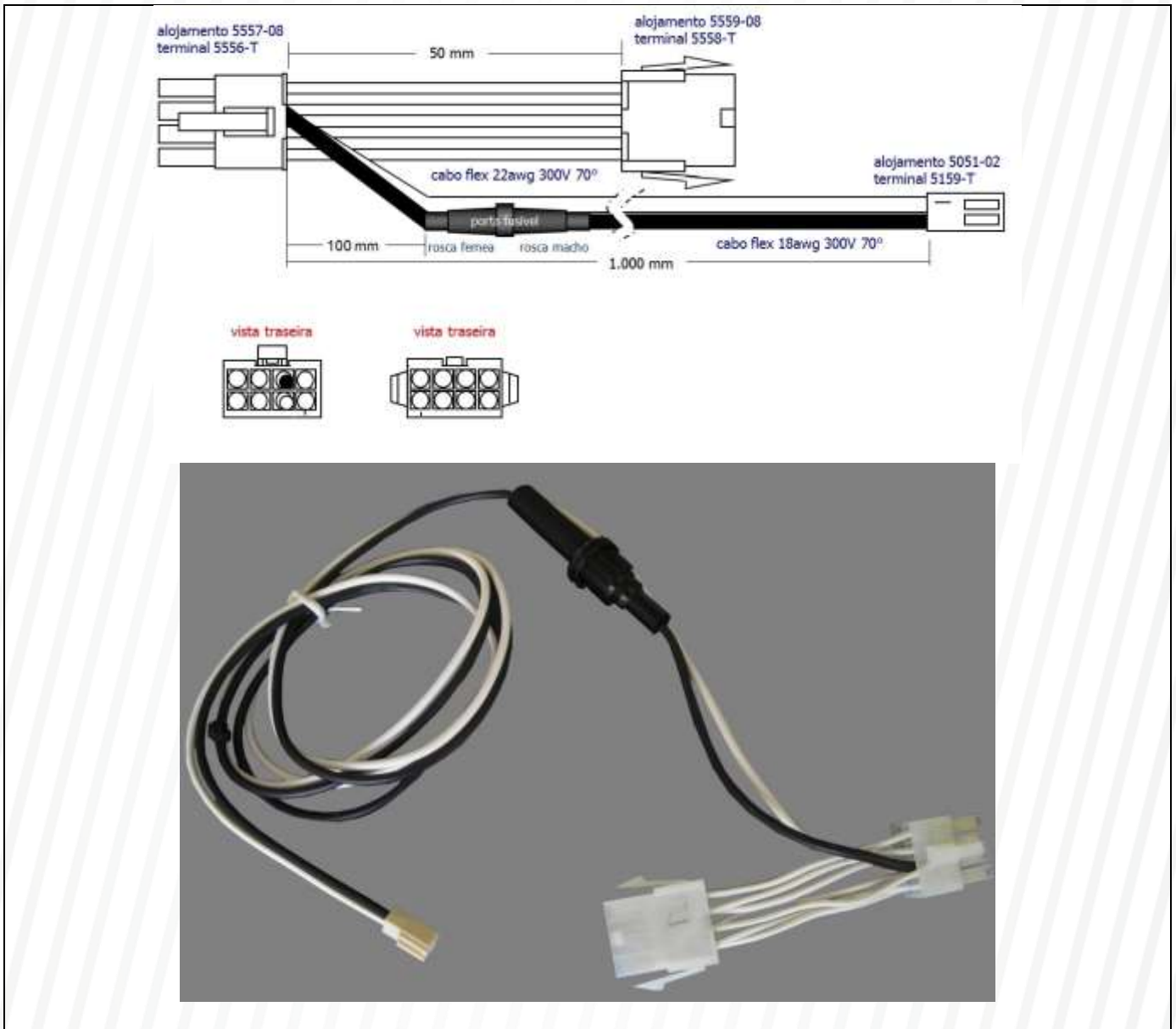


2.4.4. Power Supply Cables

The power supply cable is responsible for providing a 12 Vdc power supply from the ATM to the control unit of the Anti-Skimming device.

- EBX CA 4064

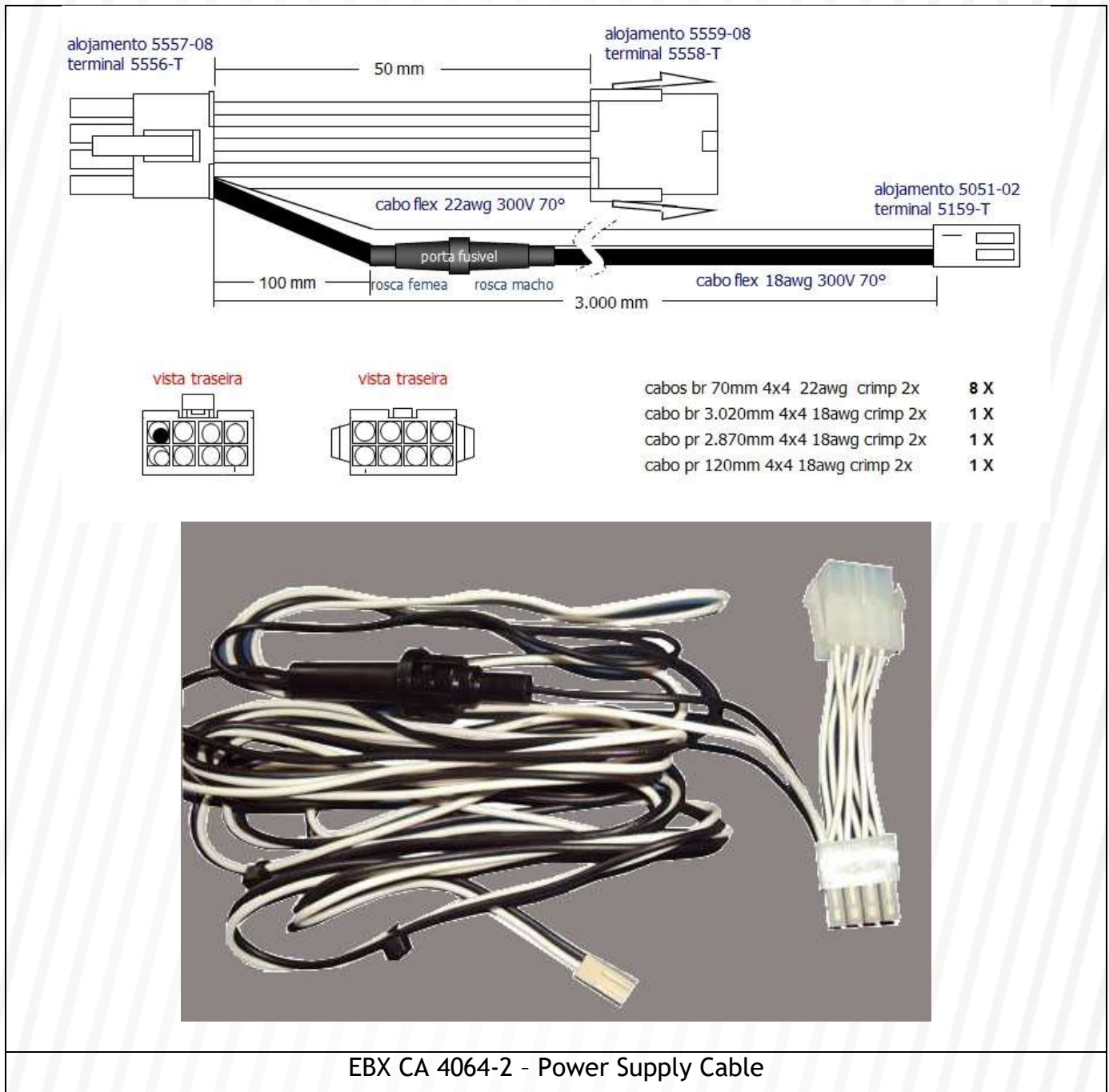
<i>Part Number</i>	<i>Cable Length (dimension "a")</i>	<i>RoHS Compliant</i>
EBX CA 4058-2	1.0 m	Yes



EBX CA 4064 - Power Supply Cable

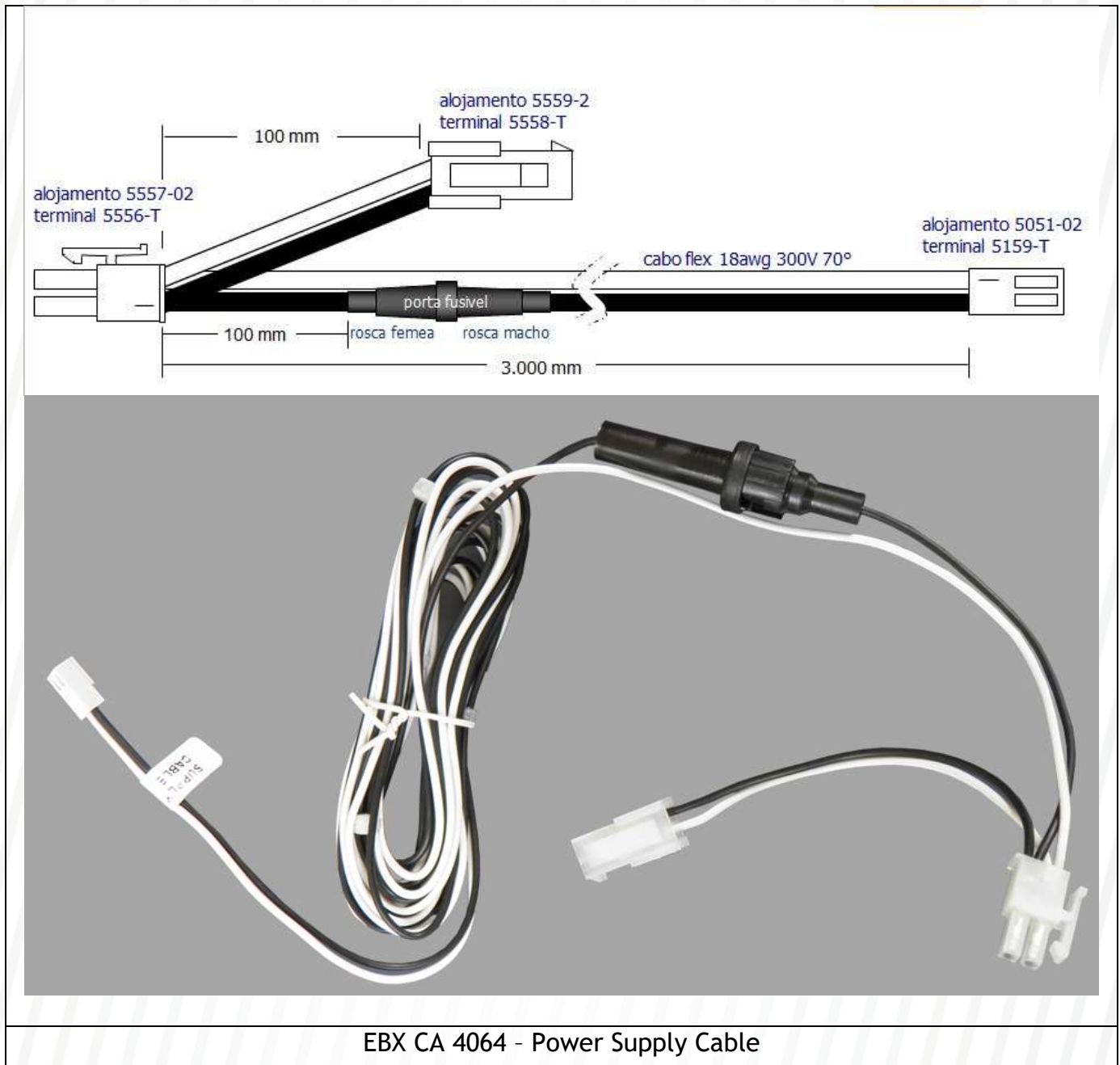
- EBX 4064-2

Part Number	Cable Length (dimension "a")	RoHS Compliant
EBX CA 4064-2	3.0 m	Yes



- EBX CA 4099

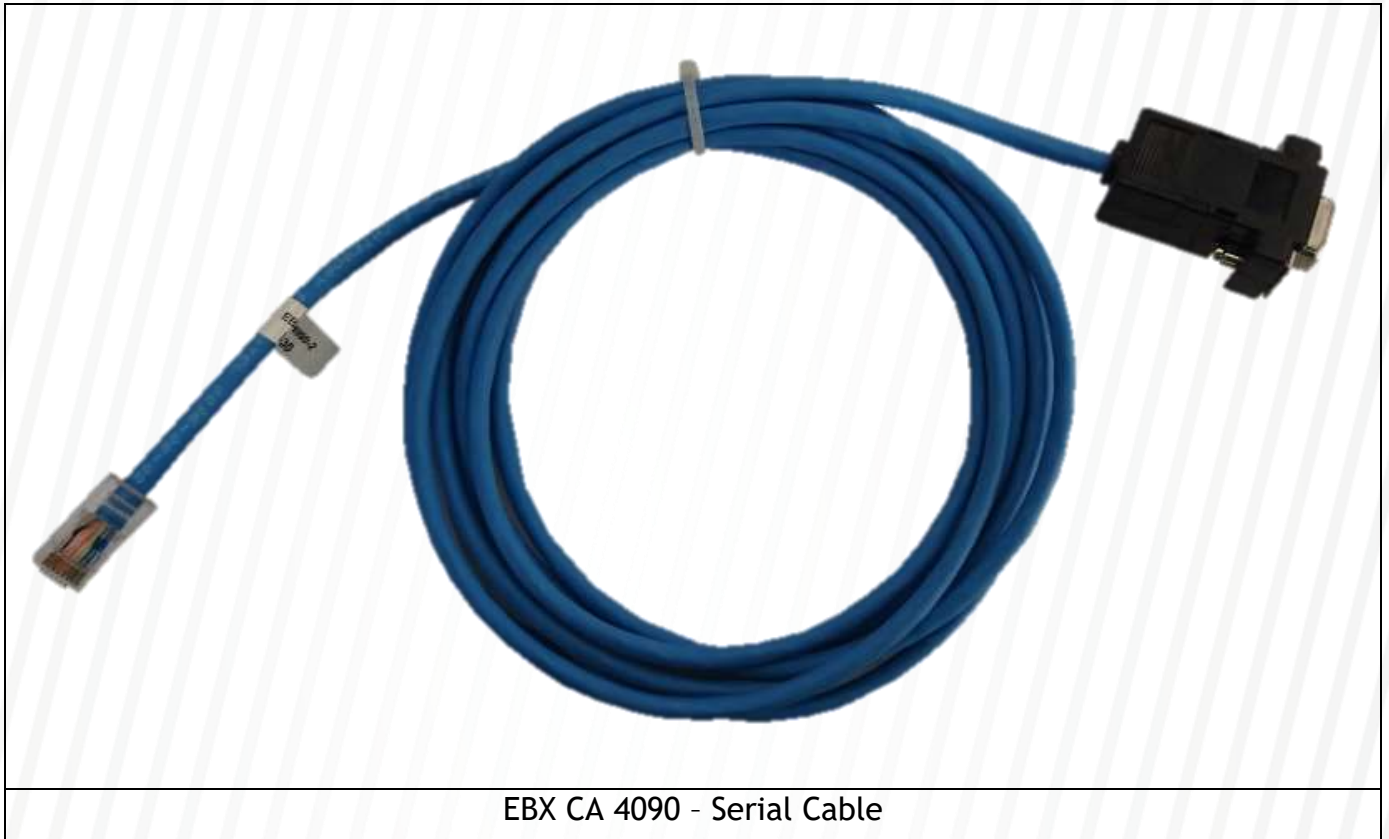
Part Number	Cable Length (dimension "a")	RoHS Compliant
EBX CA 4099	3.0 m	Yes



2.4.5. Communication Cables

- EX 4090 - Serial Cable Series

<i>Part Number</i>	<i>Cable Length (dimension "a")</i>	<i>RoHS Compliant</i>
EBX CA 4090	2.5 m	Yes
EBX CA 4090-2	3.0 m	Yes



2.5. SENSORS AND SENSOR ANTENNAS

2.5.1. Mass Sensors (Generation 1)

- **EBX SM 6013 Series**

The mass sensor EBX SM 6013 series was originally developed for usage with 5870 NCR ATM models, but can be used in several ATM brands, especially the ones with rounded bezels. Its design is focused on having improved detection in the front part of the bezel, granting good protection for the magnetic head of the card reader.

Having its sensitive part built in FR-4 composite, this antenna has improved shielding in its surface, granting great stability. With the antenna directly welded to the sensor body, this configuration provides good resistance against environment interference.

The antenna is attached to the bezel by a 3M white colored double sided tape.

Its 16/50 sensitivity makes the sensor capable of detecting both presence and absence of masses around the card reader bezel, granting protection against fraudulent calibration.

General Specifications

Characteristic	EBX SM 6013-5	EBX SM 6013-6
Antenna Crafting Material	FR-4 (rigid)	FR-4 (rigid)
Absence of Mass Detection	Yes	Yes
Type of Connector	Directly Welded	Directly Welded
Grounding Cable Length	250 mm	380 mm
Type of Double Sided Tape	White	White



EBX SM 6013-5 - Mass Sensor - Flat Surface Antenna

- **EBX SM 6016 Series**

The mass sensor EBX SM 6016 series was originally developed for usage with 5870 NCR ATM models, but can be used in several ATM brands, especially the ones with rounded bezels. Its design is focused on having improved detection in the front part of the bezel, granting good protection for the magnetic head of the card reader.

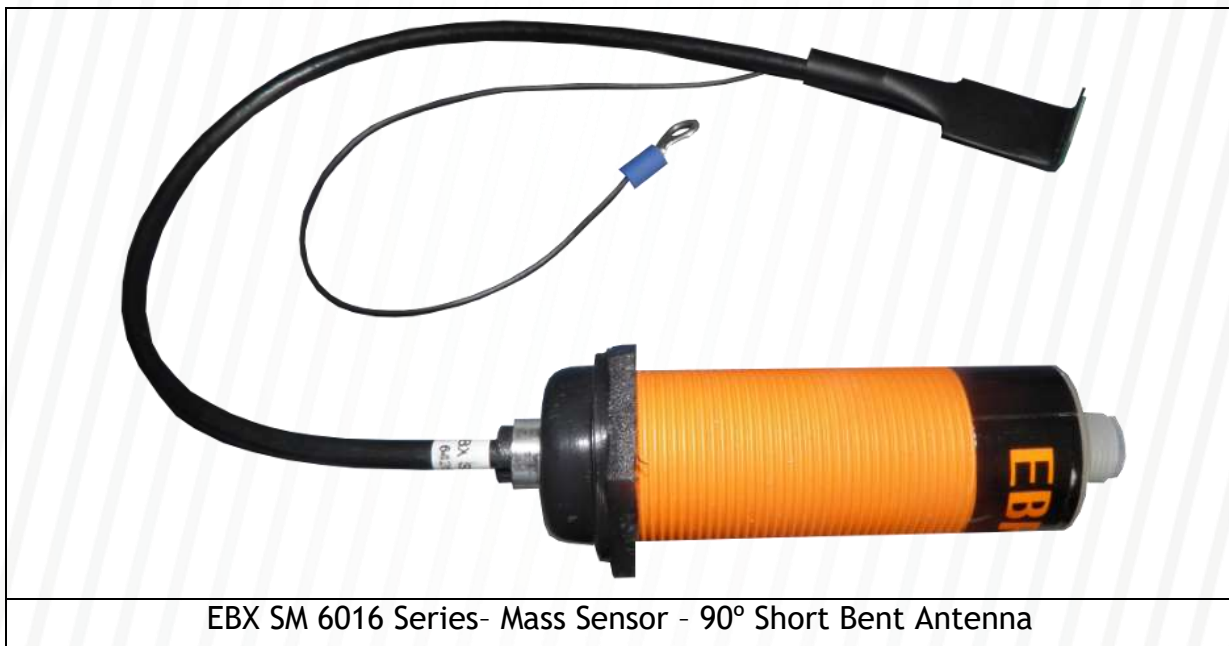
Having its sensitive part built in FR-4 composite, this antenna has improved shielding in its surface, granting great stability. With the antenna directly welded to the sensor body, this configuration provides good resistance against environment interference.

The antenna is attached to the bezel by a 3M white colored double sided tape.

Its 16/50 sensitivity makes the sensor capable of detecting both presence and absence of masses around the card reader bezel, granting protection against fraudulent calibration.

General Specifications

Characteristic	EBX SM 6016-6	EBX SM 6016-7
Antenna Crafting Material	FR-4 (rigid)	FR-4 (rigid)
Absence of Mass Detection	Yes	Yes
Type of Connector	Directly Welded	Directly Welded
Grounding Cable Length	250 mm	380 mm
Type of Double Sided Tape	White	White



- **EBX SM 6018 Series**

The mass sensor EBX SM 6018 series was originally developed for usage with 6622 NCR ATM models. Its design is focused on having improved detection in the front part of the bezel, granting good protection for the magnetic head of the card reader. Having its sensitive part built in FR-4 composite, this antenna has improved shielding in its surface, granting great stability. With the antenna directly welded to the sensor body, this configuration provides good resistance against environment interference. The antenna is attached to the bezel by a 3M transparent double sided tape. Its 16/50 sensitivity makes the sensor capable of detecting both presence and absence of masses around the card reader bezel, granting protection against fraudulent calibration.

General Specifications

Characteristic	EBX SM 6018-6	EBX SM 6018-7
Antenna Crafting Material	FR-4 (rigid)	FR-4 (rigid)
Absence of Mass Detection	Yes	Yes
Type of Connector	Directly Welded	Directly Welded
Grounding Cable Length	250 mm	380 mm
Type of Double Sided Tape	Transparent	Transparent



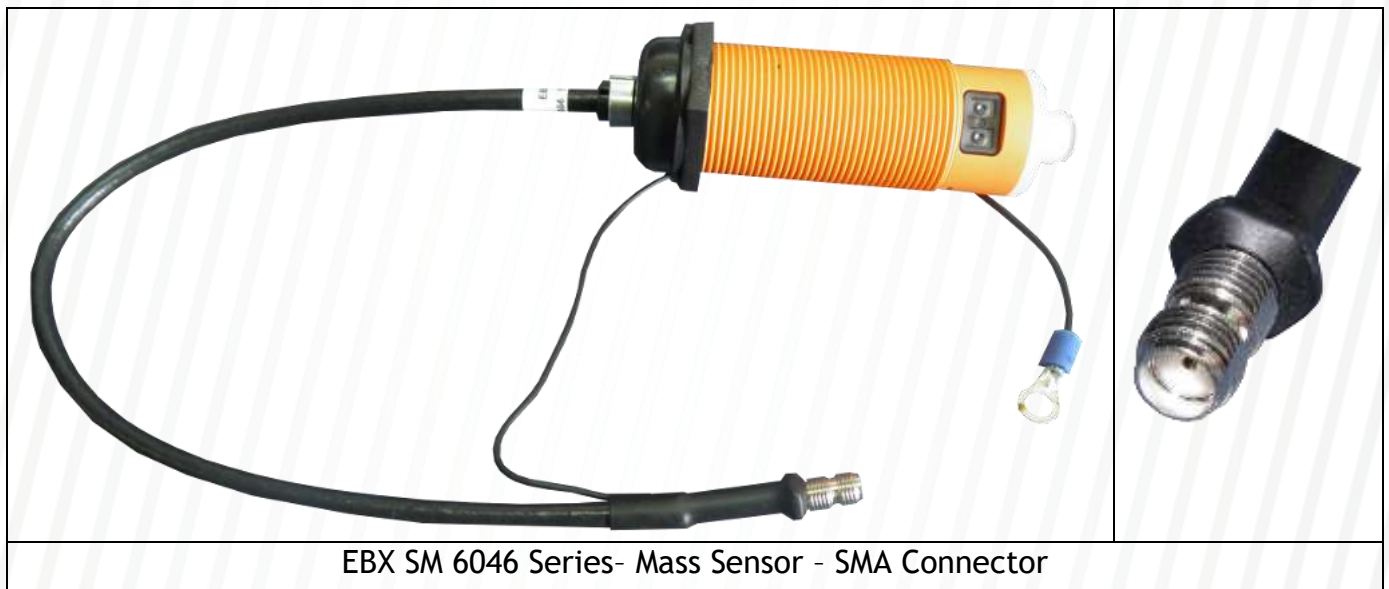
- **EBX SM 6046 Series**

The mass sensor EBX SM 6046 series was developed to replace its predecessor, the EBX SM 6045 series. Equipped with a metallic SMA Connector, this sensor can quickly connect to any sensor antenna with the same type of connector and has improved shielding over the previous red colored plastic connector.

Its 16/50 sensitivity makes the sensor capable of detecting both presence and absence of masses around the card reader bezel, granting protection against fraudulent calibration.

General Specifications

Characteristic	EBX SM 6046	EBX SM 6046-2	EBX SM 6046-3	EBX SM 6046-4
Grounding Cable Length	250 mm	380 mm	180 mm	50 mm
Type of Connector	SMA Connector Ebrax Code: EX4059			
Absence of Mass Detection	Yes			



2.5.2. Mass Sensor (Generation 2)

- **Concentrator Unit (EBX SM 6600)**

The Concentrator Unit constantly receives data from up to 15 Sensor Zones, process this data and sends a signal of the equivalent status to the Anti-Skimming Control Unit.

It also receives the adjustment signal and manage the calibration process of the Sensor Zones.

Supply Voltage	12/24VDC
Current Consumption	<15mA
Output	OC PNP
Status LED	Orange



- **Sensor Zone (EBX SM 6601 Series)**

The Sensor Zone is capable of detecting capacitance changes on an Antenna connected to it.

Through a proprietary protocol, it sends the status of its measured level to the Concentrator Unit.

The Sensor Zone has an algorithm that compensates small and slow changes on the environment, mitigating the occurrence of false alarms.

As different monitoring zones of the ATM may require specific configurations regarding sensibility and temporization, different specifications for the sensor zones might be applied. In the manner, they will be supplied with different codes as needed.

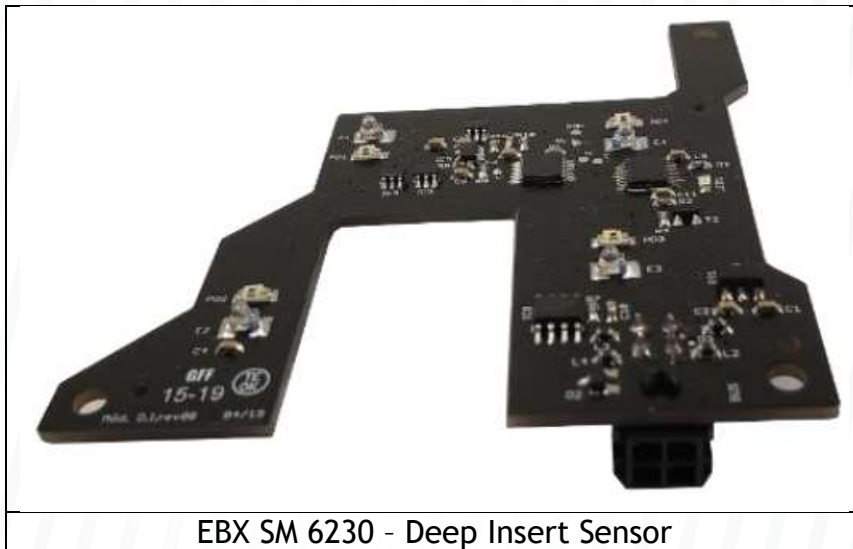
Supply Voltage	7.5VDC
Current Consumption	<10mA
Output	Proprietary Protocol
Status LED	Green



2.5.3. Deep Insert Sensor

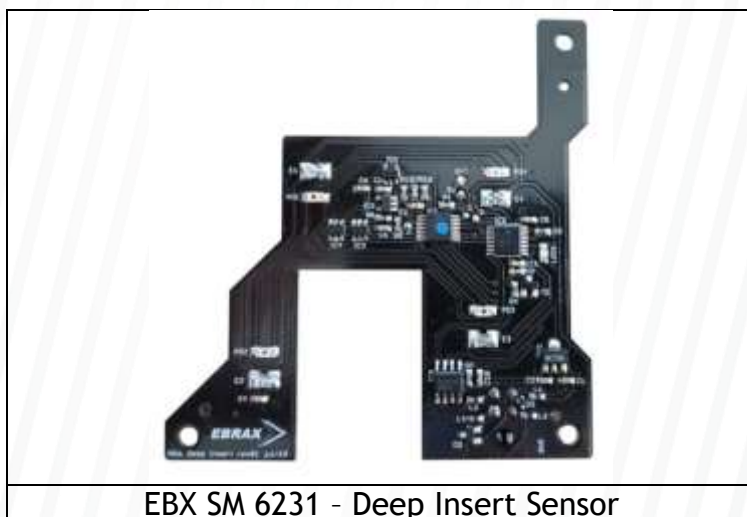
- **EBX SM 6230**

This Deep Insert Sensor was developed to be installed on Sankyo DIP card readers. Its main objective is to detect the presence of any object installed inside the card reader.



- **EBX SM 6231**

This Deep Insert Sensor was developed to be installed on Sankyo DIP card readers for Wincor and Diebold ATMs. Its main objective is to detect the presence of any object installed inside the card reader.



- **EBX SM 6234**

This Deep Insert Sensor was developed to be installed on Sankyo DIP card readers with tamper protection. Its main objective is to detect the presence of any object installed inside the card reader.



EBX SM 6234 - Deep Insert Sensor

2.5.4. Sensor Antennas

- EBX TS 6103B

This Antenna was developed for usage with Sankyo DIP bezels, which can be used in several ATM brands, like Wincor and Itaotec.

Its design is focused on having improved detection in the front part of the bezel, granting good protection for the magnetic head of the card reader.

Having its sensitive part built in FR-4 composite, this antenna has improved shielding in its surface, granting great stability.

Its SMA connector makes this antenna easily replaceable when needed. The shielded cable grants improved stability against interference, making the antenna more stable.

The antenna is attached to the bezel by a 3M white colored double sided tape.

General Specifications	
Crafting Material	FR-4 (rigid)
Cutting Protection	No
Type of Connector	SMA Connector Ebrax Code: EX4059
Connector + Cable Length	80 mm
Ebrax Sensor this Antenna Pairs with	EBX SM 6046
Type of Double Sided Tape	White (3M Code = 4930)



EBX TS 6103 - Sensor Antenna - 90° Short Bending - Red Colored Plastic Connector

- **EBX TS 6131B**

This Antenna was developed for usage in the NCR 6622 bezels. Its lateral wings provide detection in both the front, top and bottom sides of the bezel.

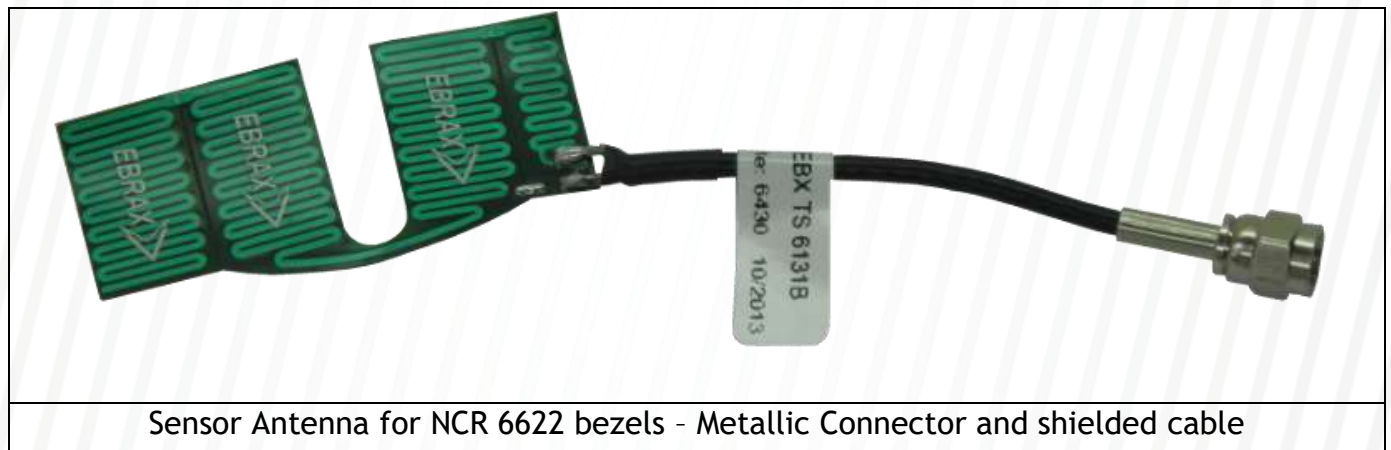
This antenna is equipped with cutting protection, meaning it will alarm in case its wire structure is damaged, granting protection against a drilling machine or other invasive methods to get access to the card reader.

Its SMA connector makes this antenna easily replaceable when needed. The shielded cable grants improved stability against interference, making the antenna more stable.

Its flexible material makes it easier to adapt to the installation position in the bezel.

The antenna is attached to the bezel by a 3M transparent double sided tape.

General Specifications	
Crafting Material	KAPTON (flexible)
Cutting Protection	Yes
Type of Connector	SMA Connector Ebrax Code: EX4059
Connector + Cable Length	70 mm
Ebrax Sensor this Antenna Pairs with	EBX SM 6046
Type of Double Sided Tape	Transparent (3M Code = 4905)



Sensor Antenna for NCR 6622 bezels - Metallic Connector and shielded cable

- **EBX TS 6132B**

This Antenna was developed for usage in the NCR 6622 bezels. Its design is focused on having improved detection in the front part of the bezel, granting good protection for the magnetic head of the card reader.

Having its sensitive part built in FR-4 composite, this antenna has improved shielding in its surface, granting great stability.

Its SMA connector makes this antenna easily replaceable when needed. The shielded cable grants improved stability against interference, making the antenna more stable.

The antenna is attached to the bezel by a 3M transparent double sided tape.

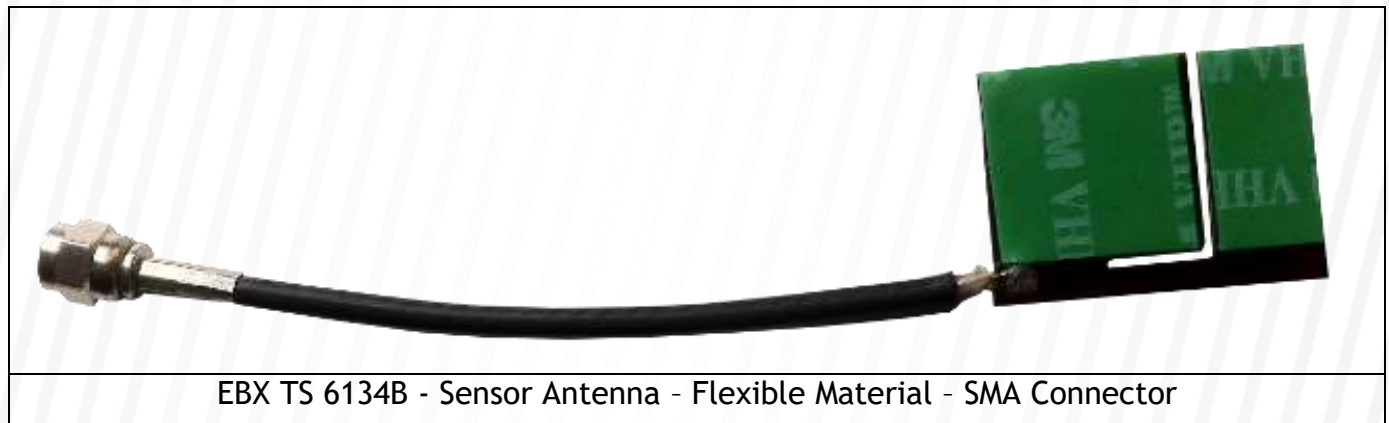
General Specifications	
Crafting Material	FR-4 (rigid)
Cutting Protection	No
Type of Connector	SMA Connector Ebrax Code: EX4059
Connector + Cable Length	70 mm
Ebrax Sensor this Antenna Pairs with	EBX SM 6046
Type of Double Sided Tape	Transparent (3M Code = 4905)



- **EBX TS 6134B**

In this antenna, all the regions covered by the double sided tape have sensitivity. Its SMA connector makes this antenna easily replaceable when needed. The shielded cable grants improved stability against interference, making the antenna more stable. This antenna is equipped with cutting protection, meaning it will alarm in case its wire structure is damaged, granting protection against a drilling machine or other invasive methods to get access to the card reader. Its flexible material makes it easier to adapt to the installation position in the bezel.

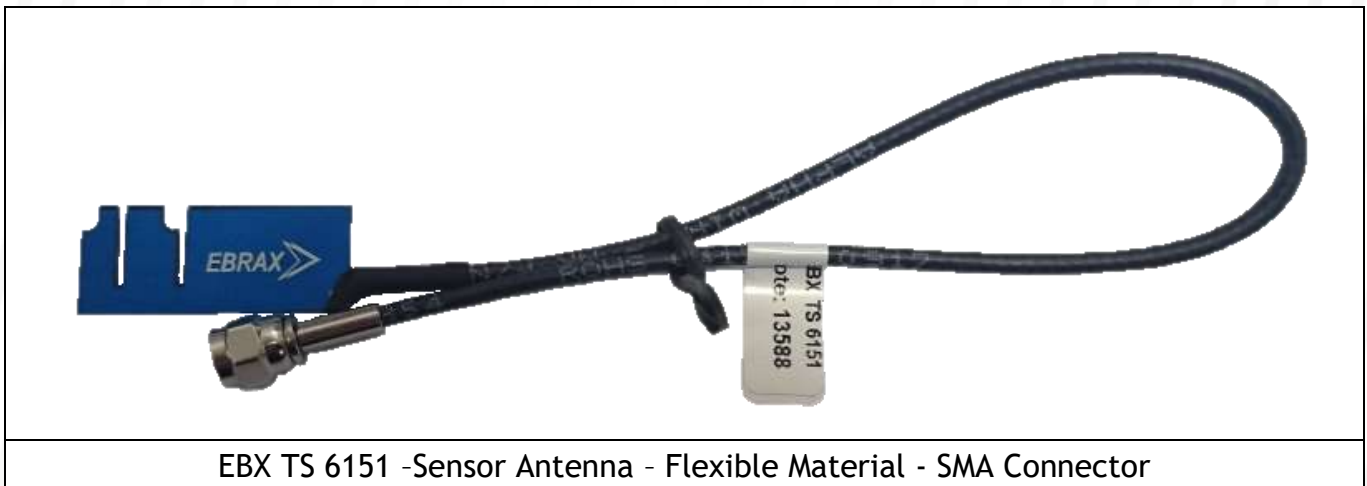
General Specifications	
Crafting Material	KAPTON (flexible)
Cutting Protection	Yes
Type of Connector	SMA Connector Ebrax Code: EX4059
Connector + Cable Length	100 mm
Ebrax Sensor this Antenna Pairs with	EBX SM 6046
Type of Double Sided Tape	Transparent (3M Code = 4905)



- **EBX TS 6151**

This antenna was developed for usage with the new NCR ATM S23. Its SMA connector makes this antenna easily replaceable when needed. The shielded cable grants improved stability against interference, making the antenna more stable. Its flexible material makes it easier to adapt to the installation position in the bezel. The antenna is attached to the bezel by a 3M white colored double sided tape.

General Specifications	
Crafting Material	KAPTON (flexible)
Cutting Protection	Yes
Type of Connector	SMA Connector Ebrax Code: EX4059
Connector + Cable Length	250 mm
Ebrax Sensor this Antenna Pairs with	EBX SM 6046 Series
Type of Double Sided Tape	White (3M Code = 4930)



- **EBX TS 6157**

This Antenna was developed for usage with NCR 6622 Motorized Card Readers. Its design is focused on having improved detection in the front part of the bezel, granting good protection for the magnetic head of the card reader. Having its sensitive part built in FR-4 composite, this antenna has improved shielding in its surface, granting great stability. Its SMA connector makes this antenna easily replaceable when needed. The shielded cable grants improved stability against interference, making the antenna more stable. The antenna is attached to the bezel by a 3M white colored double sided tape.

General Specifications	
Crafting Material	FR-4 (rigid)
Cutting Protection	No
Type of Connector	SMA Connector Ebrax Code: EX4059
Connector + Cable Length	125 mm
Ebrax Sensor this Antenna Pairs with	EBX SM 6046 series
Type of Double Sided Tape	White (3M Code = 4930)



EBX TS 6157 - Sensor Antenna - SMA Connector

2.5.5. RUPTURE SENSOR

Even if most of the mass sensor antennas have cutting protection in its surface, sometimes there is a need to cover a larger area of the bezel or around the card reader. Having this necessity in mind, the rupture sensors are designed to be installed around the area that needs to be protected, being connected directly to the transducer of the anti-skimming. In this manner, when the surface of the rupture sensor is cut or drilled, the anti-skimming will alarm immediately. These rupture sensors have been designed to combat the type of fraud where the criminal try to get access directly to the card reader of the ATM, so that he can install an internal fraud.



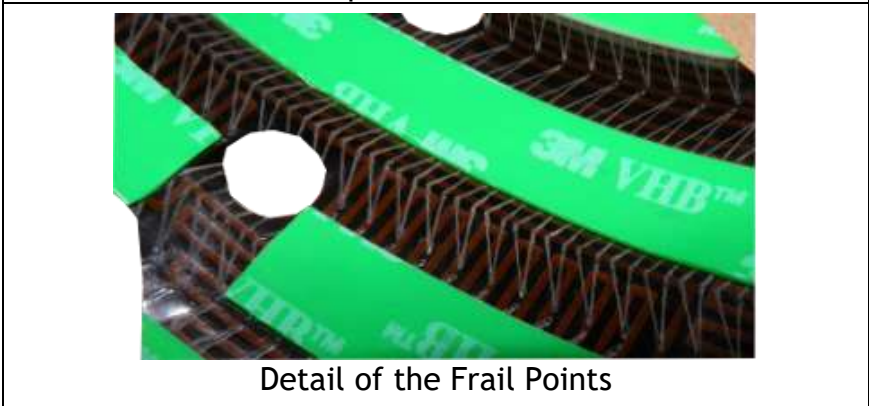
Example of internal fraud that connects directly to the card reader

- **EBX SC 6400**

This rupture sensor was developed for usage by wrapping it directly around the card reader (sankyo model). This concept was focused on granting protection against both drilling from the outside of the bezel as well as unauthorized access to the card reader from inside the ATM. In addition to the cutting protection from its wire structure, this sensor has also frail points around its geometry so that it will rupture and alarm if removed after being installed.

Its flexible material makes it easier to adapt to the installation position in the card reader. The antenna is attached to the card reader by a 3M white colored double sided tape.

General Specifications	
Crafting Material	KAPTON (flexible)
Cutting Protection	Yes
Frail Poinis	Yes
Type of Connector	WST Connector
Connector + Cable Length	100 mm
Type of Double Sided Tape	White (3M Code = 4930)



2.6. POWER SUPPLY

- **EBX FA 9013**

The power supply unit is used to feed the control unit with 14,5Vdc from full-range AC input (95Vac~230Vac).

General Specifications	
Input Voltage	95~230 Vac
Output Voltage	14.5 Vdc
Maximum Current	500 ma
Cable Length	3 m



EBX FA 9013 - Power Source Unit

2.7. CONTROL UNIT

- **EBX UC 1033 Series**

The control unit is responsible for all the interfaces between the sensors and the ATM. It process the signals received and has functionality to activate the alarm and cut the power supply of essential elements of the terminal. The unit is also able to communicate with the monitoring board of the ATM.

General Specifications

Characteristic	EBX UC 1033-12	EBX UC 1033-24
Operating Voltage	12 Vdc	24 Vdc
External Battery Support	Yes	Yes
ATM Communication	RS-232	RS-232
Standard Temporization	135s	135s
Customizable Temporization	Yes	Yes
Maximum Number of Sensors Supported	2	2



Control Unit - EBX UC 1033 Series

2.8. Modular ATM Security System (MASS)

Introduced in 2019, MASS has been developed based on Generation 2 Anti Skimming solution. It uses the same type of sensor (G2), including multizone support and self-adjustment functions. However, MASS has been developed as a modular solution, providing more flexibility over previous systems.

Being a modular solution, MASS can provide the exact solution the customer needs with the smallest number of necessary hardware. Only the modules related to the requested features must be acquired, allowing customers to have an efficient and economical solution for their needs.

In addition, MASS allows the equipment to be easily upgradeable by the addition of other modules anytime. Currently available modules are:

- ❖ Control Module;
- ❖ Actuator Module;
- ❖ Alarm Module;
- ❖ Communication Module;
- ❖ Overlay Sensor;
- ❖ Deep Insert Sensor

Each module has its exclusive function in the system, communicating with each other using a proprietary encrypted protocol. This allows the MASS to be installed in any part of the ATM, **without** the need to have any part installed inside the safe.



Modular ATM Security System (MASS)

- **EBX MCT 2010 - Control Module**

The Control Module is responsible for controlling the modules attached to system as well as providing a stable power supply voltage, regardless the input voltage.

As its provides the power supply and controls the communication bus, The Control Module is the only mandatory module.



- **EBX MAT 2020 - Actuator Module**

The Actuator Module activates or deactivates the Electromagnetic Transducer and the VDPower depending on the system status (Alarm/No Alarm).

It also signals to the system the Actuator status. In this manner, is possible to detect an Electromagnetic Transducer and/ or VDPower disconnection or malfunction.



- **EBX MAL 2030 - Alarm Module**

The Alarm Module reports the system status through two dry contact outputs.

This two outputs can be configurable to signal “System Alarm” and/ or “System Failure” or it can signal alarm from two different sources (Capacitive sensor and Optical Sensor).



- **EBX COM 2040 - Communication Module**

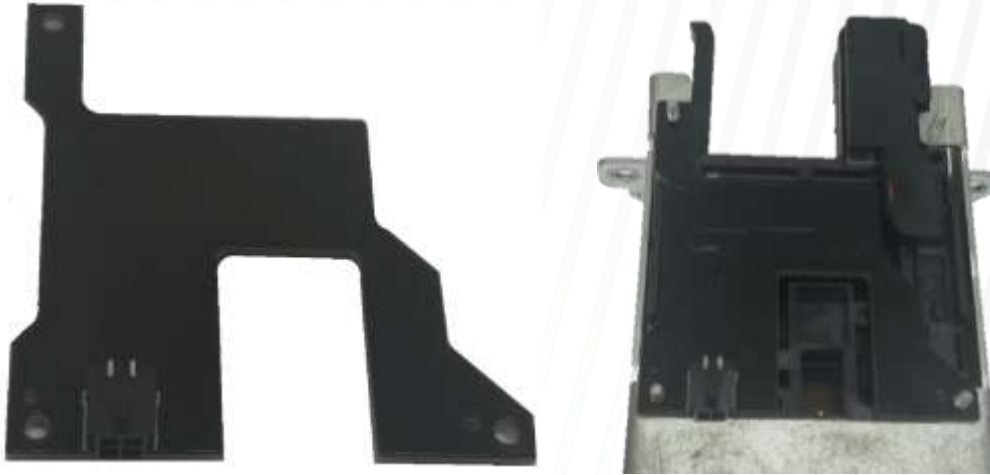
The Communication Module connects the MASS system to the ATM computer through a USB connection.

Through this connection, is possible to monitor actuator and individual sensor status, as well perform a system calibration.



- **EBX MSO 2050 - Deep Insert Sensor**

The Deep Insert Sensor is installed inside the card reader and monitors the presence of any foreign object in the card slot area. It focuses on detecting “Deep Insert Skimmers”.



- **EBX MSM 2070 - Sensor Module**

The Sensor Module detects the presence of any object placed on its antenna detection area. It has the same functionality of the G1 and G2 sensors, but it is optimized to operate in the MASS system. Up to 8 Sensor Modules can be installed in the same system, allowing a multiple ATM area protection.



- **EBX CA 4223 - Connection Cable to Sensor Module**


The Connection Cable to Sensor Module connects the Sensor Module to the MASS system.

- **EBX CA 4222 - Connection Cable Between Modules**

The Connection Cable Between Modules connects the modules between each other in a MASS system.


3. Anti-Skimming Models - List of Components

- KIT EBX 1033-9F

General Info	
Current Status	IN PRODUCTION (NRND)
Equivalent KIT	-
Recommended ATM	NCR SS4
Alarm Signaling	Dry-Contact through Alarm Cable
Card Reader	DIP
Bezel	
Sensor Model	G1 with connector
Firmware	1.4
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 15s Buzzer on time during alarm: 2 minutes Buzzer off time during alarm: 60 minutes


KIT EBX 1033-9F		
PART NUMBER	DESCRIPTION	QTY
EBX UC 1033-12	CONTROL UNIT 12V	1
EBX SM 6046-3	MASS SENSOR	1
EBX BB 7004B	ELECTROMAGNETIC TRANSDUCER	1
EBX AC 0104	SENSOR SIMULATION TERMINAL	1
EBX AC 0115	ACRYLIC SUPPORT + PLASTIC NUTS	1
EBX CA 4051-4	SENSOR CABLE	1
EBX CA 4057-11	ALARM CABLE	1
EBX CA 4042-2	TRANSDUCER CABLE	1
EBX FA 9013	POWER SUPPLY UNIT 12V	1
EBX BT 8004	VIDEO POWER DC 12V	1
EBX TS 6132B	SENSOR ANTENNA	1

- **KIT EBX 1033-9G**

General Info	
Current Status	IN PRODUCTION (NRND)
Equivalent KIT	-
Recommended ATM	NCR KIOSK SS 60
Alarm Signaling	Dry-Contact through Alarm Cable
Card Reader	DIP
Bezel	
Sensor Model	G1 with connector
Firmware	1.4
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 15s Buzzer on time during alarm: 2 minutes Buzzer off time during alarm: 60 minutes


KIT EBX 1033-9G		
PART NUMBER	DESCRIPTION	QTY
EBX UC 1033-12	CONTROL UNIT 12V	1
EBX SM 6046-3	MASS SENSOR	1
EBX BB 7004B	ELECTROMAGNETIC TRANSDUCER	1
EBX AC 0104	SENSOR SIMULATION TERMINAL	1
EBX AC 0115	ACRYLIC SUPPORT + PLASTIC NUTS	1
EBX CA 4051-6	SENSOR CABLE	1
EBX CA 4057-11	ALARM CABLE	1
EBX CA 4042-2	TRANSDUCER CABLE	1
EBX FA 9013	POWER SUPPLY UNIT 12V	1
EBX BT 8004	VIDEO POWER DC 12V	1
EBX TS 6103B	SENSOR ANTENNA	1

- **KIT EBX 1033-32**

General Info	
Current Status	IN PRODUCTION (NRND)
Equivalent KIT	-
Recommended ATM	NCR Personas 70
Alarm Signaling	Dry-Contact through Alarm Cable
Card Reader	DIP
Bezel	
Sensor Model	G1 without connector
Firmware	1.4
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 15s Buzzer on time during alarm: 2 minutes Buzzer off time during alarm: 60 minutes


KIT EBX 1033-32		
PART NUMBER	DESCRIPTION	QTY
EBX UC 1033-24	CONTROL UNIT	1
EBX SM 6013-5	MASS SENSOR	1
EBX AC 0104	SENSOR SIMULATION TERMINAL	1
EBX AC 0102	PLASTIC NUTS	2
EBX AC 0101	ACRYLIC SUPPORT	1
EBX CA 4051-6	SENSOR CABLE	1
EBX CA 4057	ALARM CABLE	1
EBX CA 4042-3	TRANSDUCER CABLE	1
EBX CA 4064-2	POWER SUPPLY CABLE	1
EBX BT 8002-3	VIDEO POWER	1

- **KIT EBX 1033-33**

General Info	
Current Status	IN PRODUCTION (NRND)
Equivalent KIT	-
Recommended ATM	NCR Personas 70
Alarm Signaling	Dry-Contact through Alarm Cable
Card Reader	DIP
Bezel	
Sensor Model	G1 without connector
Firmware	1.4
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 15s Buzzer on time during alarm: 2 minutes Buzzer off time during alarm: 60 minutes


KIT EBX 1033-33		
PART NUMBER	DESCRIPTION	QTY
EBX UC 1033-24	CONTROL UNIT	1
EBX SM 6013-5	MASS SENSOR	1
EBX AC 0104	SENSOR SIMULATION TERMINAL	1
EBX AC 0102	PLASTIC NUTS	2
EBX AC 0101	ACRYLIC SUPPORT	1
EBX CA 4051-6	SENSOR CABLE	1
EBX CA 4057	ALARM CABLE	1
EBX CA 4042-3	TRANSDUCER CABLE	1
EBX CA 4064-2	POWER SUPPLY CABLE	1
EBX BT 8004-2	VIDEO POWER	1

- **KIT EBX 1033-45**

General Info	
Current Status	IN PRODUCTION (NRND)
Equivalent KIT	-
Recommended ATM	NCR SS 66XX
Alarm Signaling	Dry-Contact through Alarm Cable
Card Reader	DIP
Bezel	
Sensor Model	G1 without connector
Firmware	1.40
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 15s Buzzer on time during alarm: 2 minutes Buzzer off time during alarm: 60 minutes


KIT EBX 1033-45		
PART NUMBER	DESCRIPTION	QTY
EBX UC 1033-12	CONTROL UNIT	1
EBX SM 6018-6	MASS SENSOR	1
EBX AC 0104	SENSOR SIMULATION TERMINAL	1
EBX AC 0102	PLASTIC NUTS	2
EBX AC 0101	ACRYLIC SUPPORT	1
EBX CA 4051-6	SENSOR CABLE	1
EBX CA 4057	ALARM CABLE	1
EBX CA 4042-3	TRANSDUCER CABLE	1
EBX FA 9013	POWER SUPPLY UNIT	1
EBX BT 8004	VIDEO POWER	1

- **KIT EBX 2040**

General Info	
Current Status	IN PRODUCTION
Equivalent KIT	-
Recommended ATM	NCR SS 66XX
Alarm Signaling	Dry-Contact through Alarm Cable
Card Reader	DIP
Bezel	
Sensor Model	G2 modular
Firmware	1.1 modular
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 10s


KIT EBX 2040		
PART NUMBER	DESCRIPTION	QTY
EBX MCT 2010	CONTROL MODULE	1
EBX MAT 2020	ACTUATOR MODULE	1
EBX MAL 2030	ALARM MODULE	1
EBX MSM 2070	SENSOR MODULE	1
EBX TS 6132B	ANTENNA	1
EBX BT 8004	VIDEO POWER	1
EBX CA 4057	ALARM CABLE	1
EBX CA 4223	CONNECTION CABLE TO SENSOR MODULE	1
EBX CA 4222	CONNECTION CABLE BETWEEN ODULES	2
EBX CA 4099-2	POWER SUPPLY CABLE	1
EBX BB 7006	TRANSDUCER	1

- **KIT EBX 2041**

General Info	
Current Status	IN PRODUCTION
Equivalent KIT	-
Recommended ATM	NCR SS 66XX
Alarm Signaling	Dry-Contact through Alarm Cable System Status through USB port
Card Reader	DIP
Bezel	
Sensor Model	G2 modular
Firmware	1.1 modular
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 10s


KIT EBX 2041		
PART NUMBER	DESCRIPTION	QTY
EBX MCT 2010	CONTROL MODULE	1
EBX MAT 2020	ACTUATOR MODULE	1
EBX MAL 2030	ALARM MODULE	1
EBX COM 2040	COMMUNICATION MODULE	1
EBX MSO 2050	DEEP INSERT SENSOR	1
EBX MSM 2070	SENSOR MODULE	1
EBX TS 6132B	ANTENNA	1
EBX BT 8004	VIDEO POWER	1
EBX CA 4057	ALARM CABLE	1
EBX CA 4133	MINI USB CABLE WITH FILTER	1
EBX CA 4223	CONNECTION CABLE TO SENSOR MODULE	1
EBX CA 4222	CONNECTION CABLE BETWEEN ODULES	4
EBX FA 9048	POWER SUPPLY CABLE	1
EBX CA 4091	USB CABLE	1
EBX BB 7006	TRANSDUCER	1

- **KIT EBX 2045**

General Info	
Current Status	IN PRODUCTION
Equivalent KIT	-
Recommended ATM	KIOSK NCR SS04
Alarm Signaling	Dry-Contact through Alarm Cable System Status through USB port
Card Reader	DIP
Bezel	
Sensor Model	G2 modular
Firmware	1.1 modular
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 10s


KIT EBX 2045		
PART NUMBER	DESCRIPTION	QTY
EBX MCT 2010	CONTROL MODULE	1
EBX MAT 2020	ACTUATOR MODULE	1
EBX MAL 2030	ALARM MODULE	1
EBX COM 2040	COMMUNICATION MODULE	1
EBX MSM 2070	SENSOR MODULE	1
EBX TS 6132B	ANTENNA	1
EBX BT 8004	VIDEO POWER	1
EBX CA 4057	ALARM CABLE	1
EBX CA 4223	CONNECTION CABLE TO SENSOR MODULE	1
EBX CA 4222	CONNECTION CABLE BETWEEN ODULES	3
EBX FA 9048	POWER SUPPLY CABLE	1
EBX CA 4091	USB CABLE	1
EBX BB 7006	TRANSDUCER	1

- **KIT EBX 2045-4**

General Info	
Current Status	IN PRODUCTION
Equivalent KIT	1033-16F
Recommended ATM	NCR SS23/SS27
Alarm Signaling	Dry-Contact through Alarm Cable/ Alarm Module System Status through USB port/ COMM Module
Card Reader	DIP
Bezel	
Sensor Model	G2 modular
Firmware	1.1 modular
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 0s


KIT EBX 2045-4		
PART NUMBER	DESCRIPTION	QTY
EBX MCT 2010	CONTROL MODULE	1
EBX MAT 2020	ACTUATOR MODULE	1
EBX MAL 2030	ALARM MODULE	1
EBX COM 2040	COMMUNICATION MODULE	1
EBX MSM 2070	SENSOR MODULE	1
EBX TS 6151	SENSOR ANTENNA	1
EBX BT 8011-2	VIDEO POWER	1
EBX CA 4057	ALARM CABLE	1
EBX CA 4223-3	CONNECTION CABLE TO SENSOR MODULE (3.7m)	1
EBX CA 4222	CONNECTION CABLE BETWEEN ODULES	3
EBX CA 4099-3	POWER SUPPLY CABLE	1
EBX CA 4133	USB CABLE	1
EBX BB 7004D	TRANSDUCER	1
EBX CA 4042	TRANSDUCER CABE	1

- **KIT EBX 2045-5**

General Info	
Current Status	IN PRODUCTION
Equivalent KIT	1033-16N
Recommended ATM	NCR 5582
Alarm Signaling	Dry-Contact through Alarm Cable/ Alarm Module System Status through USB port/ COMM Module
Card Reader	DIP
Bezel	
Sensor Model	G2 modular
Firmware	1.1 modular
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 0s

KIT EBX 2045-5		
PART NUMBER	DESCRIPTION	QTY
EBX MCT 2010	CONTROL MODULE	1
EBX MAT 2020	ACTUATOR MODULE	1
EBX MAL 2030	ALARM MODULE	1
EBX COM 2040	COMMUNICATION MODULE	1
EBX MSM 2070	SENSOR MODULE	1
EBX TS 6161	SENSOR ANTENNA	1
EBX BT 8004-4	VIDEO POWER	1
EBX CA 4057	ALARM CABLE	1
EBX CA 4223-2	CONNECTION CABLE TO SENSOR MODULE (4.5m)	1
EBX CA 4222	CONNECTION CABLE BETWEEN ODULES	3
EBX CA 4099-3	POWER SUPPLY CABLE	1
EBX CA 4133	USB CABLE	1
EBX BB 7004D	TRANSDUCER	1
EBX CA 4042	TRANSDUCER CABLE	1

- **KIT EBX 2045-6**

General Info	
Current Status	IN PRODUCTION
Equivalent KIT	1033-16Q
Recommended ATM	NCR S23
Alarm Signaling	Dry-Contact through Alarm Cable/ Alarm Module System Status through USB port/ COMM Module
Card Reader	DIP
Bezel	
Sensor Model	G2 modular
Firmware	1.1 modular
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 0s

KIT EBX 2045-6		
PART NUMBER	DESCRIPTION	QTY
EBX MCT 2010	CONTROL MODULE	1
EBX MAT 2020	ACTUATOR MODULE	1
EBX MAL 2030	ALARM MODULE	1
EBX COM 2040	COMMUNICATION MODULE	1
EBX MSO 2050-3	DEEP INSERT SENSOR	1
EBX MSM 2070	SENSOR MODULE	1
EBX TS 6151	SENSOR ANTENNA NCR S23	1
EBX BB 7004D	TRANSDUCER	1
EBX CA 4042-3	TRANSDUCER CABLE	1
EBX CA 4057	ALARM CABLE	1
EBX CA 4223-3	CONNECTION CABLE TO SENSOR MODULE (3.7m)	1
EBX CA 4133	USB CABLE	1
EBX CA 4099-3	POWER SUPPLY CABLE	1
EBX BT 8011-2	VIDEO POWER	1
EBX CA 4222	CONNECTION CABLE BETWEEN ODULES	4

- **KIT EBX 1103**

General Info

Current Status	IN PRODUCTION
Recommended ATM	NCR S23
Alarm Signaling	Dry-Contact through Alarm Cable
Card Reader	N/A
Bezel	N/A
Sensor Model	PRESENCE SENSOR
Firmware	1.4
Turn off video on alarm	Yes
Temporization	Time to Alarm: 135s Return from Alarm: 0s

KIT EBX 1103		
PART NUMBER	DESCRIPTION	QTY
EBX AC 0104	SENSOR SIMULATOR	1
EBX AC 0139	TRANSDUCER SIMULATOR	1
EBX AC 0301	VDPOWER ADAPTER	1
EBX BT 8011	VDPOWER	1
EBX CA 4057	ALARM CABLE	1
EBX CA 4130	PRESENCE SENSOR CABLE	1
EBX CA 4099	POWER SUPPLY CABLE	1
EBX SM 6240	PRESENCE SENSOR	1
EBX UC 1033-24	CONTROL UNIT	1

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