

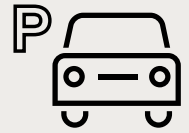


Mastercard EMV Parking Payment Guide

A guide for selecting and implementing
EMV parking payments







Mastercard is leading the growth of EMV parking payments Acceptance

Mastercard recommends:



Contactless Transactions



In parking systems around the world, innovative Mastercard payment solutions are leading the way in facilitating easier, faster and more cost efficient payments.

Mastercard open payments technology offers opportunities to reduce operating costs and manage risk while enhancing speed and convenience for on- and off-street parking.



Mastercard continues to deliver successful solutions for parking in urban areas throughout Asia/Pacific, Canada, Europe, LAC, and the United States.

Enabling EMV parking payments

"Turning Spaces into Sales"

Boost your parking to offer EMV parking payments is not difficult and the **benefits** will amaze you...



REVENUES

INCREASE YOUR REVENUES

- EMV parking payments drive higher purchase amounts
- Compounds value of money as payments are made directly to your bank account



COSTS

DECREASE YOUR COSTS

- Reduce cash & coin handling costs
- Reduce cash collection visits & costs
- Automate reconciliation



SECURITY

IMPROVE YOUR SECURITY

- Reduce risk of break-ins and theft
- Fewer counterfeits



OUTLOOK

DIFFERENTIATE YOUR BUSINESS OUTLOOK

- Improves your overall image with customers
- Is universally recognized by locals and tourists
- Allows for short- and long-term parking

Enabling your parking terminals to accept EMV parking payments makes a lot of **cents**



It's as easy as...

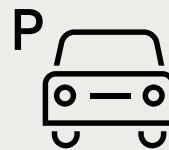
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LOOK



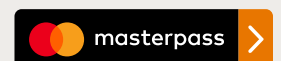
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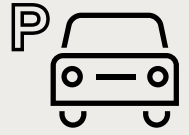
PARK or BOOK



3

PAY





Selected Acceptance Best Practices for Cardholder Activated Terminals (CAT)



BEFORE PURCHASE

- 1 Prominently display Mastercard marks and a contactless symbol
- 2 Use yellow border around the payment terminal



DURING PURCHASE

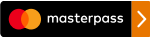
- 3 Understand how pre- and final authorizations work best for your parking business
- 4 Activate all payment interfaces for speed



AFTER PURCHASE

- 5 Issue cardholder receipt unless cardholder refuses one and submit transactions within 7 days
- 6 Display contact information and clear, transparent refund policies

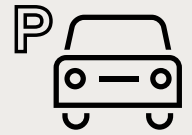
Which CAT is right for my unattended parking needs?

	CAT 1 MPOS Automated Dispensing Machine & Mobile POS	CAT 2 Self-Service Terminal	CAT 3 Limited Amount Offline Terminal	CAT 6 eCommerce / Masterpass
General Rule of Thumb	High value, no maximum transaction amount, maximum transaction security with CVM	Speed important, no maximum transaction amount, no CVM required	Terminal is offline only, limited to EUR 50 and certain merchant industries, no CVM required	Used for online payments, In-app payments as well as Card-on-File or pre-bookings
I want to accept all Mastercard and Debit Mastercard	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
I want to accept Maestro, no restrictions	<input checked="" type="checkbox"/>	May accept Contactless Maestro < EUR 25	May accept Contactless Maestro < EUR 25 or to limited amount(s)	<input type="checkbox"/>
I want to accept digital enabled mobile device payments or Masterpass	<input checked="" type="checkbox"/>	Accepts other form factors via Contactless	Accepts other form factors via Contactless	<input checked="" type="checkbox"/> 
I want to install contactless only devices	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
My terminal requires a secure PIN Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is optional for offline PIN Verification, otherwise no	No PIN Pad, alternative CVM needed, to include Mastercard Securecode or Mastercard ID*
My device needs to be online or online capable	Must authorize a transaction online to issuer or may be authorized offline via CHIP in Europe Region (<EUR200) if CHIP supports	Must authorize a transaction online to issuer or may be authorized offline via CHIP in Europe Region (<EUR200) if CHIP supports	Is OFFLINE only; may be authorized offline via the CHIP to the amounts described for CAT3 terminals	Yes via PC or Mobile
What type of Terminal do I need?	Hybrid Terminal capable of CHIP, Contactless and Magnetic Stripe	A contact CHIP & Contactless Terminal Contactless only also possible	A contact CHIP & Contactless Terminal Contactless only also possible	No Terminal Needed

Mastercard EMV parking payments

Sample Parking Use Cases, Terminal and Authorizations Guide





Parking has two distinct classifications: On-Street and Off-Street

Acquirers in the Europe region should recognize the different needs of municipalities, cities and other parking vendors when considering payment and processing options for MCC 7523 (Parking & Garages). This guide does not address questions around parking control or associated validation.

On-Street Parking

On-Street parking is defined herewith as parking which is done on or next to a street in specially designated spaces. These are normally considered public space(s) and managed by municipalities, cities or other government organizations for which no access control in or out of the parking space or ever-present parking validation exists other than traffic wardens. Therefore, the right to use the parking space exists only if the parking has been paid, for the duration the vehicle resides in the parking space.

On-Street EMV parking payments may be classified as:

1. Free or partly free
2. Pre-Pay
3. Post-Pay

and cover durations of a fixed or variable period of time, usually from a couple of minutes up to 4 hours and possibly a maximum of 8 hours. Parking fees usually range from EUR 0 (free) to an average of between EUR 2 and EUR 5 up to EUR 10, or local currency equivalent, whereby the total amount is typically limited to the selected or maximum parking duration.



Off-Street Parking

Off-Street parking is defined herewith as parking which occurs in specially designated spaces at lots, garages or facilities where vehicles may park and access control in and out of such parking facilities exists. There is normally an option to park for extended periods of time which may range from hours to weeks or even months or longer.

Off-Street payments may be classified in a similar manner to on-street parking:

1. Free or partly free
2. Pre-Pay / Recurring payments
3. Post-Pay

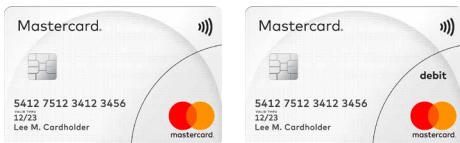
and usually cover durations of variable or extended time periods. The parking duration begins upon entry and stops upon exit, validation of a parking ticket at a payment kiosk or validation via an Automated Plate Recognition System ("APRS"). In the case of recurring payments, parking may be allowed for the payment period, normally a recurring period (e.g. one month) over an extended period of time (e.g. one year to no expiry date).

NOTE: As parking duration equates to a parking payment amount, parking duration will be substituted by a payment amount. Since parking duration may be fixed, or variable, we will consider fixed parking durations to have associated fixed payment amounts. Variable parking durations will equate to estimated amounts until a final amount can be determined at the end of the parking duration.

EMV parking payment Product & Device options for On-Street Parking

Prior to selecting your EMV parking payment device(s), please consider the overall parking plans, parking durations, amounts and customer base (e.g. primarily local, visitors, tourists) as device selection will depend on the unique circumstances of the merchant.

Mastercard Products Accepted



PIN Pad required, except for Contactless < CVM Amount

Cardholder Activated Terminals (CATs) allowed

- CAT 1

Automated Dispensing Machine

Hybrid Terminal which may have dual capability as a CAT 2*
- CAT 2

Self-Service Terminal

A terminal with no PIN pad, may have dual capability as a CAT 1*

* Transaction Processing Rules, Appendix D, CAT Transactions
- CAT 3

Limited Amount/ Offline Terminal

Offline terminal, PIN pad **optional** for OFFLINE PIN entry
- CAT 6

eCommerce/ Masterpass or DSRP

Digital Secure Remote via Mobile App, Masterpass or Internet Webpage using Securecode
- CAT 7

Transponder

A terminal which has no PIN pad
- CAT 9

Mobile POS

Hybrid terminal similar to CAT 1, but is a mobile device with PIN pad

MCC 7523 – Parking & Garages



Parking & garages qualify for the Mastercard Quick Payment Service Program (QPS), deployment of contactless only terminals and / or CAT 3 (Offline Terminal) processing, if required.

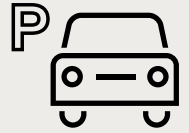
Special Considerations Explained

- QPS

Quick Payment Service is for Mastercard & Debit Mastercard POS transactions only. It is for an **attended** terminal and similar to a contactless payment for amounts < EUR 25. A terminal must prompt for a PIN if a PIN preferred card is presented. See Mastercard Transaction Processing Rules, Chapter 4.8
- Contactless Only Terminals:** Parking qualifies for contactless only terminals for CAT1, CAT2, CAT3 and MPOS terminal installations. Please observe terminal type PIN pad / CVM requirements.
- CAT 3

CAT 3 Limited Amount Terminals: Terminals are "offline" and total amount is limited to EUR 50 in the Europe Region. Offline PIN check is optional if PIN pad present or CDCVM; a local stop list or electronic warning bulletin, including PAN and expiry date validity should be checked.** First Presentment must still meet 7 day deadline

**Chargeback Guide, CAT 3 Device



Sample EMV parking payment Processes for Parking

The Electronic Processes described herewith are samples / examples only and deal with parking fee amount only. Parking fee amounts are assumed to equate to parking durations, depending on your implementation and parking tariffs.

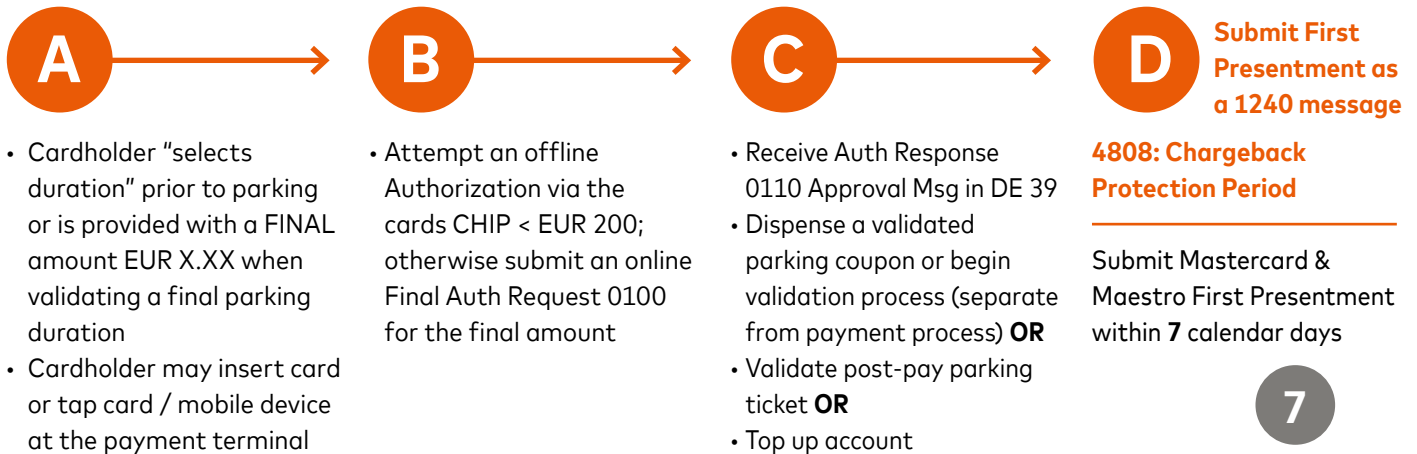
Mastercard Products Supported for Final Amounts



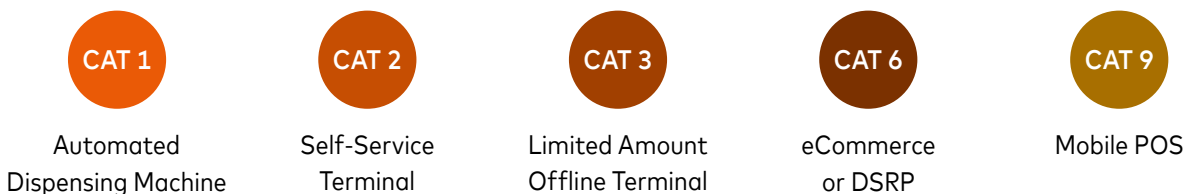
A Final Amount for Pre-Pay or Post Pay Parking

This example may apply to:

1. On-Street pre-pay parking for a fixed amount
2. Off-Street post-pay parking for a fixed amount
3. Top-Up of a Pre-Paid Parking Account or wallet for a fixed amount



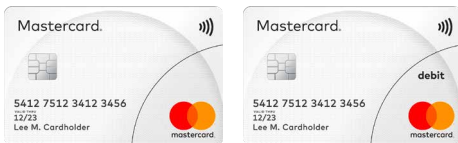
Possible Cardholder Activated Terminal Types for Final Amount Processing



Sample EMV parking payment Processes

The Electronic Processes described herewith are samples / examples only and deal with parking amounts only. Parking amounts are assumed to equate to parking durations, depending on your implementation and parking tariffs.

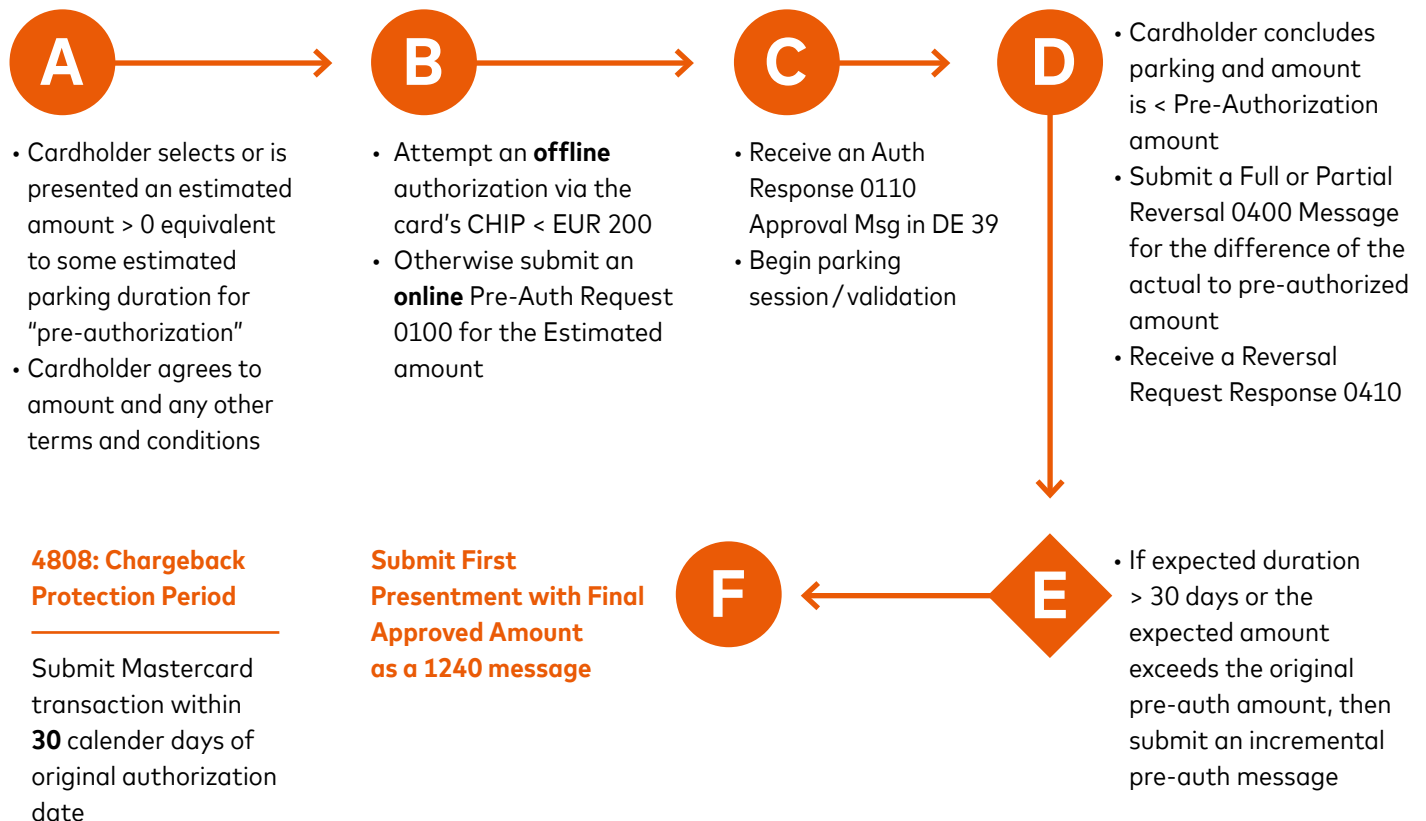
Mastercard Products Supported for Estimated Amounts

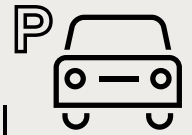


An Estimated Amount, or starting a Parking Session

This example may apply to:

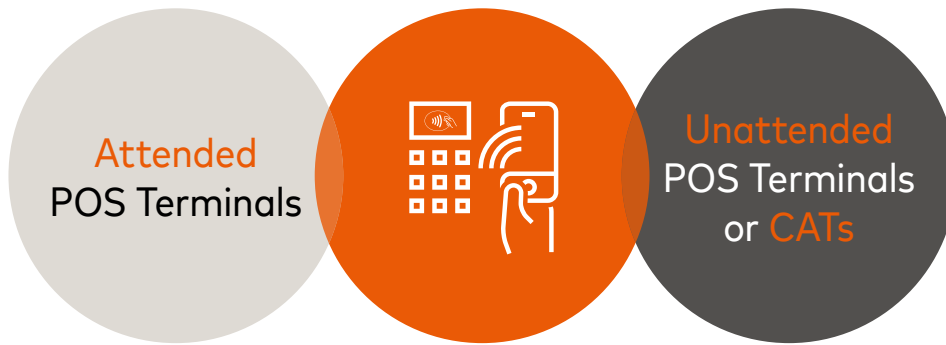
1. On-or Off-Street parking where the duration or final parking amount is not known at the beginning of the parking session.
2. A parking session starts (e.g. from a Mobile App) and the cardholder will be charged for the exact amount when the parking is completed.
3. An off-street parking lot or garage where you wish to have a tap in or tap out functionality.





Mastercard also supports multiple payment terminal types for Parking, which have two major classifications

Mastercard Electronic Payment Terminals are classified into two major types, depending on situation: (a) Attended Terminals and (b) Unattended Terminals or **Cardholder Activated Terminals (CATs)**

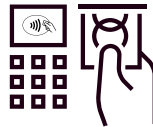


A POS transaction occurring at an **attended** POS terminal is a face-to-face transaction, **since a sales person or representative is present at the time of the transaction.**

A POS transaction occurring at an **unattended** POS terminal is a non-face-to-face transaction, **as NO sales person or representative is present at the time of the transaction.** Examples of unattended POS terminals include ticket dispensing machines, vending machines, automated fuel dispensers, toll booths, and parking meters.

A Mastercard POS transaction that occurs at an unattended POS terminal must be identified as a **Cardholder-Activated Terminal (CAT) Transaction**, as described in Appendix D of the Mastercard Transaction Processing Rules Manual. See overview below:

Level*	Description
0	Not a Cardholder Activated Terminal – often used for gates or parking points of entry



Mastercard recommends:



Contactless Transactions

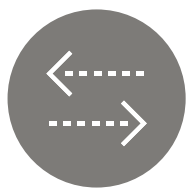


Level*	Description
CAT 1	Automated dispensing machines
CAT 2	Self-service terminals
CAT 3	Limited amount terminals
CAT 4	Not relevant for Parking
CAT 5	Reserved
CAT 6	Electronic Commerce & Digital Secure Remote Payments ("DSRP") & Masterpass
CAT 7	Transponders
CAT 8	Reserved
CAT 9	Attended and unattended Mobile Point of Sale (MPOS)

*Use Correct Indicator Values in DE61, Subfield 10 of an 0100 Message as well as PDS 0023 in 1240/1442 Messages depending on the device being used

Balancing the need for cardholder convenience and your risk management

Liability for the processing of Mastercard transactions depends on a number of factors, notwithstanding (a) the correct transaction processing and security handling of all card transactions in line with the then valid Mastercard rules; (b) receiving an authorization for the amount of the transaction and (c) verifying the cardholder or implementing a Cardholder Verification Method.



Transaction Processing for Parking

please consult, at a minimum, the:

1. Transaction Processing Rules ("TPR")
2. Customer Interface Specifications (CIS Manual)
3. IPM Clearing Formats Manual, and
4. Chargeback Guide
5. M/Chip Requirements
6. Masterpass Checkout Services Implementation Guide



Authorizations

please see Chapter 3 of the TPR:

1. You must inform a cardholder of any estimated or final amount for which an authorization will be requested and obtain consent before initiating the authorization request.
2. You must also obtain an **online** authorization from the cardholder's issuer for all transactions, with the following exceptions:
 - a) Contact chip and EMV Mode contactless transactions at a CAT 3 device up to the then limited amount, currently EUR 50.
 - b) Chip transactions authorized offline by the EMV chip, including both Contact Chip and EMV mode contactless transactions, when the transaction amount is equal to or less than EUR 200 in the Europe Region.
 - c) Refund transactions



Cardholder Verification Methods (CVM)

please see Chapter 3.1.3 of the TPR



No CVM

- CAT 2, 3 or 7 devices
- Quick Payment Service (QPS) – < QPS amount
- Contactless transactions < CVM amount



Offline or Online PIN

- All contact chip transactions
- All contactless transactions > CVM amount



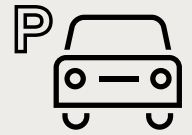
Cardholder Device CVM

- Use with Mastercard approved mobile devices and corresponding contactless transactions



Mastercard SecureCode or ID

- Masterpass
- eCommerce transactions



Quick guide: How do I select which unattended terminal or CAT is right for my parking needs?

The CAT rules apply to Mastercard or Debit Mastercard POS transactions only, as Maestro acceptance normally requires a PIN to verify the cardholder identity, exceptions are:

- EMV or chip based Maestro contactless < EUR 25 for all contactless Maestro transactions
- EMV or chip based Maestro contact transactions at CAT 3 terminals for limited amounts
- Digital Secure Remote Payment transactions using a mobile wallet enabled with Maestro

	CAT 1 Automated Dispensing Machine	CAT 2 Self-Service Terminal	CAT 3 Limited Amount Terminal	CAT 6 eCommerce/ Masterpass/ Digital Secure Remote Payments	CAT 7 Transponder	CAT 9 MPOS
--	--	---------------------------------------	---	---	-----------------------------	----------------------







1 My unattended Terminal:						
must have a secure online connection	✓	✓		✓	✓	✓
is offline			✓			
must have a mag stripe reader as backup to CHIP	✓					✓
must have a secure PIN pad	✓	If PIN pad present, then CAT 1 if PIN entered	Optional	mPIN or biometrics with DSRP, or Mastercard Securecode or Mastercard ID		✓
may be a contactless only* terminal	✓	✓	✓	No terminal necessary	✓	✓
may process recurring payments				✓		
2 My Terminal should accept:						
All Mastercard, Debit Mastercard	✓	✓	✓	✓	✓	✓
Full Maestro or under certain restrictions	No restrictions	See below	See below	See below	See below	No restrictions
3 Certain Restrictions						
	None	Maestro Contactless < EUR 25	Limited to EUR 50	Masterpass enabled Maestro transactions	Maestro w/PIN pad, CDCVM or Contactless < EUR 25	Maestro w/PIN pad, CDCVM or Contactless < EUR 25

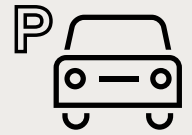
*Contactless only is limited to certain industries only, including parking. Although possible, consider your market conditions and possible transaction amounts. Offline CHIP Authorization is possible in the Europe Region for < EUR 200 if supported by the cards chip, your terminal should attempt this.

The following is a detailed guide to selecting an appropriate Cardholder Activated Terminal (CATs)

The rules apply to Mastercard and Debit Mastercard transactions only, unless indicated and with the following exceptions:

- CAT 4 is reserved for In-Flight terminals and is not covered here
- CAT 5 & CAT 8 are reserved for future use

	 CAT 1	 CAT 2	 CAT 3	 CAT 6	 CAT 7	 CAT 9
	Automated Dispensing Machine	Self-Service Terminal	Limited Amount Terminal	eCommerce / Masterpass / Digital Secure Remote Payments	Transponder	MPOS
Rule of Thumb	Generally dispenses something of high-value	Generally dispenses something of low value – speed at device important	Is only allowed for certain merchant types and the terminal is OFFLINE	Is used for electronic commerce transactions as well as Masterpass and Digital Secure Remote transactions (e.g. Mobile App or Mobile Browser based)	Are transponder type terminals, usually card is on-file	Same as a CAT1 or attended hybrid terminal
Acceptable Mastercard Products	All Mastercard, Debit Mastercard & Maestro cards	All Mastercard, Debit Mastercard & restricted Maestro cards	All Mastercard, Debit Mastercard & restricted Maestro cards	All Mastercard, Debit Mastercard & restricted Maestro cards	All Mastercard, Debit Mastercard & restricted Maestro cards	All Mastercard, Debit Mastercard & restricted Maestro cards
Maestro Acceptance Restrictions	Accepts all Maestro if secure PIN entry possible or CDCVM for Contactless	Contactless < €25	Contactless < €25 Contact See maximum amounts*	eCommerce pre-authorizations Tokenized/Digital Maestro wallet/ Mobile applications	Contactless < €25 > €25, if offline or online PIN possible	Accepts all Maestro if secure PIN entry possible or CDCVM for Contactless
Maximum Amounts	No maximum transaction amount	No maximum transaction amount	MCC 4684: €50 MCC 7523: €50 MCC 7542: €50 MCC 5499: €25	No maximum transaction amount	No maximum transaction amount	No maximum transaction amount
Recommended / Required Terminal Type	Hybrid only terminal	• EMV Contact + Contactless • Contactless only possible	• EMV Contact + Contactless • Contactless only possible	No terminal required for eCommerce DSRP enabled payment gateway for DSRP	EMV Contact or Contactless	• Hybrid terminal • Contactless only
Online or Online Capable for Issuer Authorization	Must authorize transaction online to issuer or may be authorized offline via CHIP (< €200)	Must authorize transaction online to issuer or may be authorized offline via CHIP (< €200)	Is OFFLINE only; may be authorized offline via the CHIP (< €200)	Must authorize transactions online to issuer	Must authorize transaction online to issuer or may be authorized offline via CHIP (< €200)	Must authorize transaction online to issuer or may be authorized offline via CHIP (< €200)
Needs Cardholder Verification (e.g. PIN Pad and PIN Entry)	Needs a secure PIN entry device for online or offline PIN	No CVM required	Optional for offline PIN verification, otherwise no CVM required	Mastercard Securecode or ID for eCommerce, CVC2 or AVS, if applicable mPIN or Biometrics (CDCVM) for DSRP	Optional for offline PIN verification, otherwise no CVM required	Needs a secure PIN entry device for online or offline PIN
No further Cardholder Verification Required when	Contactless CDCVM enabled; or a contactless transaction is < CVM limit	CDCVM enabled; or a contactless < CVM limit	CDCVM enabled; or a contactless < CVM limit	CDCVM enabled (e.g. DSRP), Mastercard Securecode or ID if eCommerce	CDCVM enabled; or a contactless transaction < CVM limit	Contactless CDCVM enabled; or a contactless or QPS transaction is < CVM limit
MCC or Industry Restrictions, if applicable	None	None	4684: Bridges, tolls 7523: Parking, garages 7542: Car wash 5499: Vending machines	None	None	None

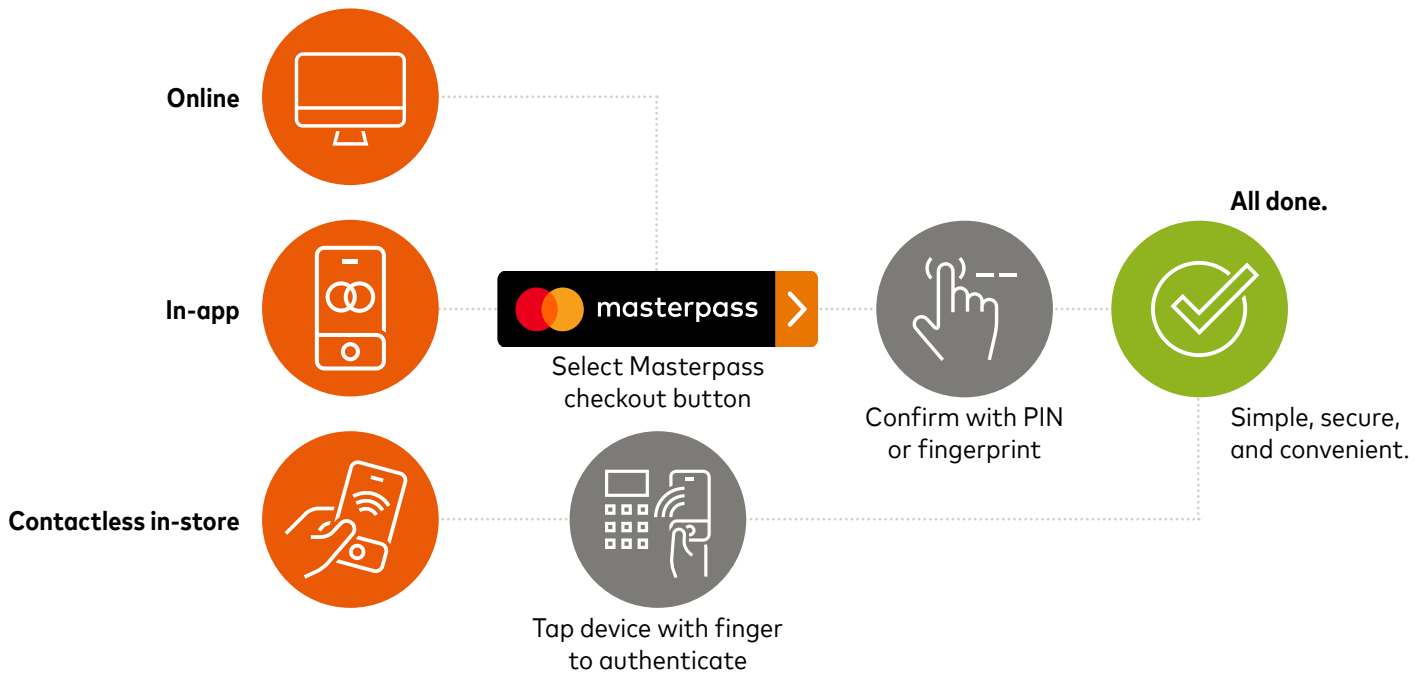


Masterpass guide:

How it works – Acceptance



Masterpass™ is a global digital payment checkout service that offers merchants and consumers an intuitive and secure way to make purchases across devices, channels and borders from a single solution.



Benefits to your customers

Convenience

- One solution to pay across channels
- Simple, one-time registration, ready to use in minutes
- No forms online or in-app; no fumbling for coins or wallets

Confidence

- Trust the security of their bank and Mastercard
- Backed by the strongest payment protection available today

Choice

- Acceptance network enables shopping with millions of merchants worldwide
- Consistent and simple experience across digital payment scenarios

Benefits to parking operators

Access to more consumers with a single button

- Gain access to new consumers through the Masterpass™ global network of banks
- Reach Android Pay, Samsung Pay and Microsoft Wallet users soon

Secure every channel

- Multi-layered security helps protect in-store and digital payments

Improve the checkout experience

- Reduce steps and security concerns at checkout online, in-app and in-store
- One consistent and familiar user experience across channels

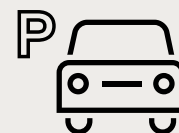
Prepare for PSD2 and beyond

- Comply with existing regulations
- Be ready for all upcoming security enhancements

Authorization types for all parking terminals, including Cardholder Activated Terminals

Supported Authorization Requests
European Region ONLY





Authorization Types, their Definitions and Requirements applicable to all Terminal Types

Merchants or acquirers in the Europe Region must ensure that any authorization request for any amount greater than zero is identified as either a Pre-Authorization or as a Final authorization.*

Pre-Authorizations*

In the Europe Region, a transaction should be identified as a Mastercard or Debit Mastercard POS transaction authorization request or a Card-not-Present Maestro POS transaction as a **Pre-Authorization** if:



1. Authorization is requested for an **estimated amount** that is greater than zero;

OR

2. The transaction might not be completed for reasons other than technical failure or lack of full issuer approval; for example:
 - a. When the cardholder will be offered the choice at a later time to complete the transaction with another payment means (such as when checking out of a hotel or returning a rental car);
 - b. When the products ordered by the cardholder might be later found to be out of stock; **OR**
 - c. If the mobile phone number for which the cardholder has requested a top-up is later found not to exist.



NOTE: All clearing messages corresponding to a Pre-Authorization must be presented within **30 calendar days** for a **Mastercard or Debit Mastercard** and **7 calendar days** for a **Maestro** of the authorization approval date



Final Authorizations*

In the Europe Region, any authorization request for an amount greater than zero is identified as a **Final authorization** if:



1. The transaction may no longer be cancelled after the authorization request is approved in full by the issuer (excluding non-completion for technical reasons such as telecommunications failure or POS terminal failure);

AND

2. The authorization being requested is for the final **transaction amount**.



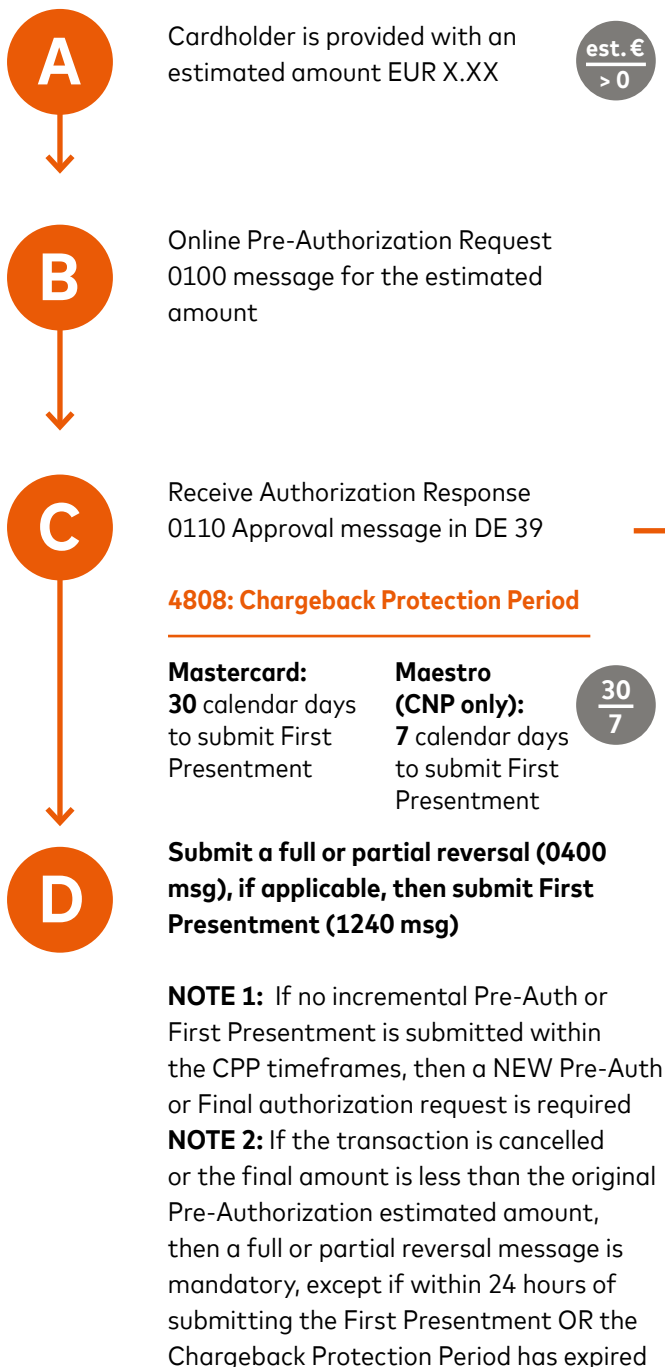
NOTE: All clearing messages corresponding to a final authorization for either Mastercard or Maestro must be presented within 7 calendar days of the authorization approval date

*See Transaction Processing Rules, Chapter 2.1, 2.5, 2.7 and, Europe Region Sections

Sample Transaction Flows for Pre-Authorizations for a Final Amount, then use a Final Authorization (1/2)

Pre-Authorizations are for estimated amounts. Incremental Pre-Authorizations extend or increase the original Pre-Authorization amount

Pre-Authorizations*



Incremental Pre-Authorization*

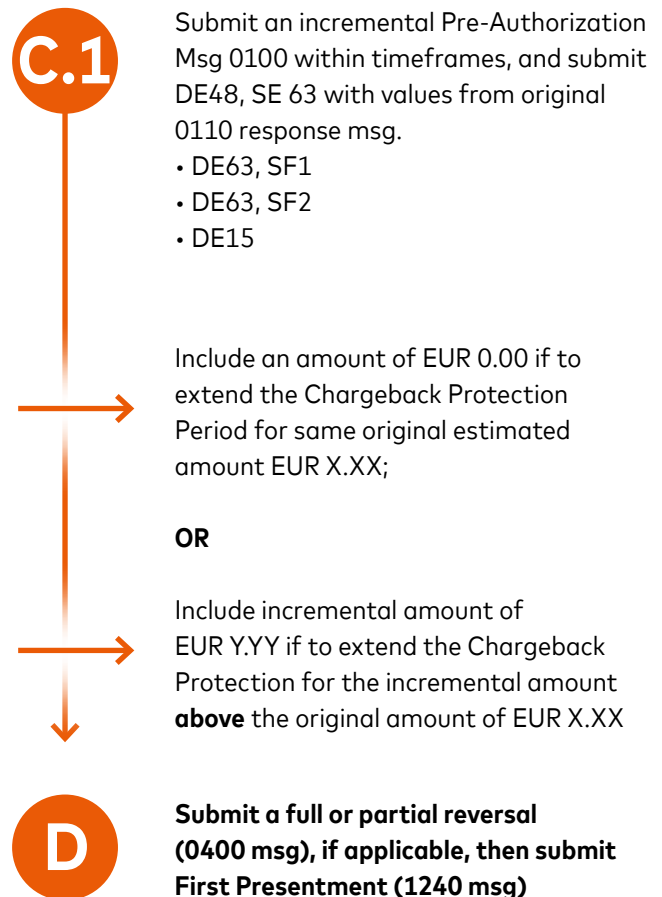
An incremental Pre-Authorization "extends" the original Pre-Authorization Chargeback Protection Period for either:

- The originally estimated amount;

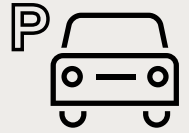
OR

- Incrementally increases the original amount by an incremental amount

4808: Chargeback Protection Period extension if submitted within the original timeframes **AND** for the same original estimated amount or an incremental amount – see below



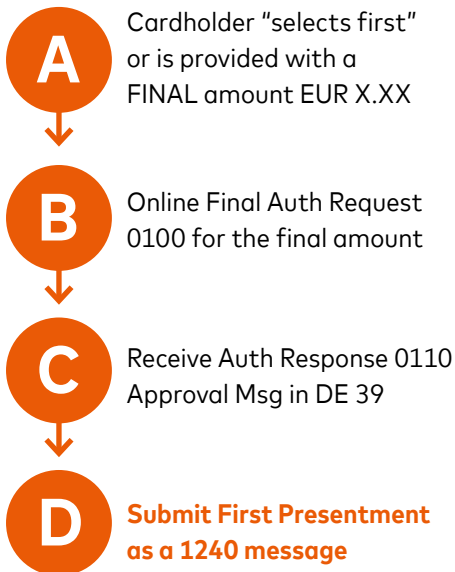
*See Transaction Processing Rules, Chapter 2.1, 2.5, 2.7 and, Europe Region Sections



Final Authorization Flows for a Final Amount (2/2)

Final authorizations are for a final amount. These may also be used for Mastercard parking transactions where there is pre-funding or real-time approval

Final Authorization



4808: Chargeback Protection Period

Mastercard & Maestro:
7 calendar days to submit First Presentment

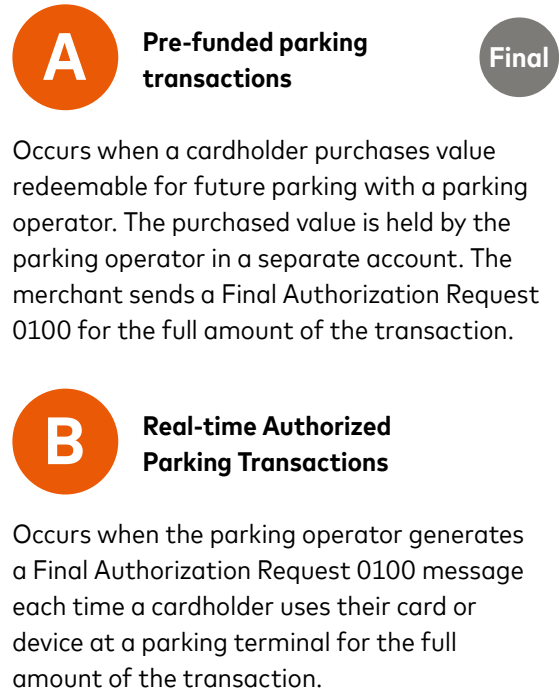
Final

7



Parking: Pre-Funded or Real-Time

These parking transactions are similar to the final authorization:





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