



1) CAR PARK PAY SYSTEM - PARAGON SOLUTION

Car park pay system WP4 PARAGON of FAAC is the new generation system with more flexibility and features than previous BCM. It has been successfully tested on site and some parking has already been equipped with.

PARAGON system allows the management of entry/exit lanes, the control and automatic fee collection for modern car parks and It also updates the occupancy status in real time.

The major plus points are:

- New Design
- Single slot for tickets and cards
- Same hardware unit for entrance, and exit
- Same ticket/card handling device for all units: entry/exit, manned & automated toll booth
- Barcode Read/Write for tickets
- HI-CO Magnetic Read/Write technology for cards
- Communication network RS485
- Stock of 5000 ticket(entry lane)/receipt(exit lane)

Options

- Proximity card handling
- Long range detection Tag vehicle
- Payment in exit lane by bank cards

The system consists on central data computer enabling configuration of parking parameters and transmission via network RS485 to peripheral units.

Peripheral units are:

- entrance/exit control unit
- manned toll-booth module
- automatic pay-station

Central data computer can also acts as manned cashier for small or medium size park. For bigger size, in which there are more than one manual cashier, central computer is linked to all PC's on the site, through an Ethernet network.

The system also includes automatic barriers at entrance/exit, signalling devices such as "spaces/full" panel and lane side traffic lights.



PARAGON system, that is based on multiple technologies data carriers, has the following advantages:

- 1 Thermal printer does not require the ink ribbon cartridge replacement
- 2 printing quality on the ticket is always good and it does not depend on the ink ribbon
- 3 tickets can be customised by messages or company logo pre-set on software and printed when issued
- 4 barcode tickets are also suitable for retailers (superstore checkouts, cash registers)
- 5 the entry ticket, once validated at cashier, is returned as receipt on exit unit
- 6 components are common to all terminals
- 7 downtime for maintenance is shorter thanks to the module "all in one" to be easily replaced
- 8 ticket /card handing unit, is also able to process credit cards to pay on exit lane
- 9 cards flexibility offers a wide range of users passes including prepaid cards
- 10 all card data carriers, can be re-used many times to reduce costs

PARAGON system provides the following major kind of users management:

- **single stay visitor**, that take a bar-coded paper ticket on entrance lane and have to pay before leaving
- **visitor with pre-set value card** that that check his card on entrance and on exit lane; the amount to be paid, is decreased at the exit unit; no stop at cashier kiosk or pay station, is required
- **subscriber with timed card** for a while (day/s, week/s, month/s, etc.) that check his card on entrance and on exit lane; no stop at cashiers is required
- **special with card** for customized needs in which card profiles can be configured by park manager

The system flexibility and modularity, allows to fit many configurations and functional needs.

All devices are user friendly with their interfaces able to give explanation by means of LCD displays (entrance/exit devices) or full colours monitors (pay stations) and help by means of the built-in intercom system.

Data concentrator and manned cashier software packages, are protected by several levels of passwords in order to avoid any misuse and easily allows configuration changes from supervisor.

Fees can be paid on both kind of cashiers, manual and automatic located on the park lot to ensure easy and fast transactions.

User terminals, barriers and pay stations are manufactured to work intensively; all of them are made of steel with anti-corrosion paint and plastic covers (entry/exit) to be protected against the environment conditions. Also design has been conceived to allow an easy maintenance thanks to doors allowing a simple parts replacement.

All FAAC equipment's are in accordance to the CE standards and manufactured following the ISO 9001 standards.



2) HOW THE SYSTEM WORKS

Entry lane

Close to the main entrance, a FULL/SPACES panel, with big "P" on blue back-lighted field, shows the park occupancy status. If green light is ON, there are available SPACES. If the red light is ON, park is FULL and users have to wait until spaces will be freed.

Panel is to be fitted in clearly visible location on the road beside the entrance.

Standard entry lane, is composed by a ticket dispensing/card reading unit, traffic light, rapid barrier and a couple of embedded loops on the ground.

These latter devices enable the unit to deliver ticket/read card and close barrier after the transit.

The visitor's entrance only is possible, when panel GREEN light is ON, by taking a ticket from dispensing unit PARAGON and car is standing over the arming loop embedded on the ground.

When ticket is withdrawn from the dispenser slot, lane traffic light commute from red to green and 620 hydraulic rapid barrier opens to allow the user entrance.

When user car leaves the transit loop, located under the beam, 620 barrier receive the command from dispenser to close immediately and the system is ready for a new transaction.

Entry tickets have a tolerance time, set by park manager; within this time (typically few minutes to give the option of users to change their mind), the exit is allowed with no payment.

Card holders, with pre-set value card, subscribers, etc., just check their valid title on the slot to open barrier and enter.

A build in INTERCOM device, allows user to receive assistance from operator by pressing the call button.

According to the chosen park lot policy, the system can be set to count all users or only visitors.

In the first case, even subscribers must check the panel before entrance otherwise they can enter even if the FULL/SPACES panel is red.

Payment

After the stay, visitors have to pay the relevant hourly fee at manned or automatic cashier station.

In manned cashier, operator validates entrance ticket by means of his toll booth module and, automatically, the due amount appears on cashier screen and user fee display. Due amount is computed according to tariffs that has been pre set on data concentrator by park supervisor.

In pay on foot station, after inserting valid entrance ticket, the due amount appears on full colour LCD display.

Pay on foot unit allows payment by means of coins, notes (option) or credit card (option). It gives change in coins (option) and notes (option). A build in intercom device, allows user to receive assistance from operator by pressing the call button.

Paid ticket, is the same entrance ticket with validation bar code and payment references printed out as receipt.

Separate receipt printer(option), can produce a receipt on normal thin thermal paper, on request

Exit lane

Exit lane is composed by PARAGON ticket/card reading unit, traffic light and rapid barrier.

Visitor with his paid ticket, has to check his title only when car is standing over the presence loop.

Exit paid tickets have a grace time, set by park manager; within this time (typically few minutes to give the time to reach the exit lane), the exit is not allowed any longer and user must pay for the extra time.

When ticket is withdrawn from the reader slot, lane traffic light commute from red to green and 620 hydraulic rapid barrier opens to allow the user exit.

When user car leaves the transit loop, located under the beam, 620 barrier receive the command from reader to close immediately and the system is ready for a new transaction.

Card holders are not requested to pass at manned or automatic toll booth and just check their card on the slot.

All cards are controlled by anti pass back; exit is allowed only after an entrance and vice versa to avoid abuses.

A build in INTERCOM device, allows user to receive assistance from operator by pressing the call button.



2.1) SYSTEM INTERFACE

Introduction

Several user categories interact with the car park management system. The man-machine interface (MMI) scheme is designed in order to fulfil the requirements of each category: application-oriented for car park management operators and as simple as possible for park-users.

Car park management

All car park management functions are carried out from workstations that act as clients of the data server. These workstations are based on Personal Computers and Windows software. Such solution allows the use of all the MMI features of the Windows environment, and the maximum of flexibility in allocating functions to workstations.

This means that workstations can be configured in order to concentrate in a single unit all the management functions (and also the data server functions): a solution suitable for small parking.

Due to the high degree of specialization of the car park management users, the MMI is designed in order to allow an efficient use of the system:

- All transactions use the typical “terms” of the parking systems
- All transactions have help facilities that can be recalled at any time

It has to be stressed out that the use of the MS-Windows software, and of the standard Microsoft packages, allows for an easy localization of the software, since Windows is already available for almost all languages, and the application messages are designed to reside on dedicated files, making translation easily and safely.

Park User

The operating sequences which occur between the park user and the system, are described below. Entry/exit units are considered to be equipped with magnetic loops for car detecting.

During payment and exit from the car park, some operations are carried out:

1. **checking of payment**, check that payment has been done and recorded on the ticket or card
2. **payment operations**, using tickets/cards issued by the management. Tickets/cards are proof of entry
3. **filter for fraud attempts**, for tickets and cards (black list, anti pass back, etc.)

Entry with ticket

1. barrier is closed
2. user enters the lane and stand over presence loop
3. user requests a ticket by means of the push-button at dispensing unit
4. dispenser issues the ticket
5. user takes out the ticket from the slot. The unit waits for the user to take the ticket before completing any operation. A time-out is however foreseen, to handle the case of the ticket not being taken and the vehicle drive backwards (ticket swallowed)
6. once the ticket has been taken, barrier opens and user is invited to move forward
7. barrier closes after the transit
8. entry lane equipment's are ready for a new cycle

Entry with card

1. barrier is closed
2. user enters the lane and stand over presence loop
3. user checks the card in ticket dispenser/card reader unit
4. unit displays information's regarding the remaining validity of the card
5. unit validates the card
6. Once the card has been validated, barrier opens and the user is invited to move forward
7. barrier closes after the transit
9. entry lane equipment's are ready for a new cycle



Payment with ticket at pay on foot station (POF)

1. POF is ready
2. user inserts the entry ticket in POF reader
3. POF reads the ticket and checks it
4. if a fraud is detected, the ticket is withheld and relevant alarm procedures are activated
5. if ticket is valid, POF provides detailed instructions, with payment details
6. if change has to be given, the note and coin change dispensers are enabled
7. at the end of the operations, the exit ticket with grace time is given to user
8. pay station is ready for a new payment

Exit with paid ticket

1. barrier is closed
2. user enters the lane and stand over presence loop
3. user inserts his paid ticket in the ticket/card reading unit slot
4. unit checks the information's on the ticket
5. if user has paid and is within the exit grace time, barrier opens and the user is invited to leave
6. if the unit detects any irregularity in the operations needed for exit, barrier remains closed and the user is requested to remedy the irregularity
7. once the user has freed the lane, the unit returns to the initial status with barrier closed

Exit with card

1. barrier is closed
2. user enters the lane and stand over presence loop
3. user checks his card previously used to enter
4. unit checks the information's on the card
5. if card allows complete payment, barrier opens
6. if card does not cover complete payment, the user is invited to use another card
7. if the second card is not covering full payment, the user is invited to pay at automatic or manned station:
The unit invites the user to free the lane driving backwards
8. once the user has freed the lane, the unit returns to the initial status with barrier closed.



2.2) MAIN SYSTEM FEATURES

All units are continuously controlled by data concentrator to keep the system features at the highest possible level.

The PARAGON system allows:

- parking entrance upon dispensing of paper ticket with date and time or upon card checking
- automatic computing and displaying of due amount on both manual and automatic cashier in accordance to the fees pre-loaded on the system
- after payment, it gives the exit ticket with grace time, also usable as receipt
- parking exit upon reading a paid ticket or valid card
- retuning of exit paid ticket as receipt
- issuing of pre-set time, pre-set value cards and vouchers (discount/promotional tickets)
- up-dates the black list of stolen/lost cards
- anti-pass-back management on cards to avoid misuses
- parking status monitoring by commuting on FULL the panel when no spaces are available
- events recording in terms of financial transactions, operator's shifts, system failures, etc.
- data storage and release of data for further processing
- operator alert about current failures and lack of ticket on entry lane and in pay station
- date and time setting on all equipment's on the network
- access control for restricted area (residents, employers, etc)



3) DATA CARRIERS

PARAGON system manages several kinds of data carrier:

single stay visitors

→ bar-coded thermal paper ticket; ISO planar dimensions with thickness 0,20mm

card holders

- HI-CO magnetic plastic card; ISO size
- Proximity plastic card, ISO size
- Proximity plastic card; key ring format
- Long range active TAG; Window button with suction cup to be fixed to windscreen

The above two categories, correspond to users that do not have (visitors) or already have (card holders) data carrier, to access on park lot.

Tickets

The bar code ticket is a low cost data carrier suitable for short term single stay visitors

Tickets are made of thermal paper in which bar code is printed out when requested.

Tickets are cut from a fan fold, made of neutral white paper and printed with all needed data, like date/time, entry lane, etc.

Thickness is 200 gr/sqm

Advices or park logo can be printed out when ticket is issued.

Fan fold tickets are packed into cartons with capacity of 5000 pcs.

A special low ticket sensor, sends the alarm to central PC in order to alert operator for pack replacement on time to avoid lack of tickets on entry lanes and pay station.

Tickets can also be customised with pre-printing logo, instructions, advertising, etc., on the rear face upon request (option to be quoted)

Cards & TAG's

Cards numbering

Since PARAGON system, may manage various data carriers for card holders on the same site, it is essential to be careful to serial cards numbering.

As example, in case of multiple cards data carrier technology (magnetic & passive proximity), serial numbering must differs in order to avoid conflicts on the system data base.

Magnetic Cards

Is still the most common identification card.

FAAC magnetic cards are in PVC and, according to the ISO standards, is encoded over track 2.

Standard magnetic HI-CO plastic cards, are provided with FAAC logo, serial number printed out and neutral magnetic stripe. Size is in accordance of ISO standards.

Cards encoding, is provided by toll booth module on manned cashier.

If special customisation is requested with company logo, inscriptions, etc, it can be done accordingly (option to be quoted).



Passive proximity cards

Proximity card is a passive transponder ISO size (7816 type ID-1) or key ring that is able to communicate with a touch less RF reader.

Card has an build in chip with 64 bits (14 char octal basis) of laser programmed memory with unique code.

Functioning energy is provided by means of the electromagnetic field induced by the card build in coil.

A card converter transform the power supply from AC to DC.

When DC threshold has been overpasses, chip start with data exchanging with ASK reader (Amplitude Shift Keying) in Manchester standard. Resonance frequency is 125 KHZ. Card is defined passive, since energy comes from external source and does not have any build in battery.

Passive transponders ISO size, are provided with FAAC logo and serial number printed out.

Passive transponders, key ring format, are provided neutral with no logo or serial number.

Cards loading, is provided by toll booth module on manned cashier.

If special customisation is requested with company logo, inscriptions, etc, it can be done accordingly (option to be quoted).

Active TAG's

The long range transponder is a small device suitable to be secured on the vehicles windscreen by means of suction cup.

This transponder is recognised by means of a special reader that allow a reading distance up to 8 mt. even in high speed conditions. A build in battery grant a life of 5 years.

Active TAG's, also called window button, are provided with serial number.

TAG's loading is by software on manned toll booth.



Bar code tickets**Entry ticket**

Bar-code ticket released by dispenser to single stay visitors

Entry ticket in black list

Bar-code ticket released by dispenser to a single stay visitor that drove backwards

Paid ticket

Entrance bar-code ticket, validated by manned or automatic cashier to be used within the grace time

Lost ticket

Bar-code ticket released by manned (or automatic) cashier to users that lost their entry ticket

Discount ticket

Promotional bar-code ticket, released by the manned cashier, to be used on manned or automatic cashier to get discounts

NOTE : all tickets must be encoded on manned toll booth module



Plastic magnetic cards

Season card (only available with manned cashier station)
with an expire date encoded at manned toll booth with control of anti pass back

Set-value card (only available with manned cashier station)
card with a pre-set value, encoded at manned toll booth with control of anti pass back

Short range proximity passive cards

Season card (only available with manned cashier station)
with an expire date encoded at manned toll booth with control of anti pass back

NOTE : all magnetic & proximity cards must be loaded on manned toll booth module



Ticket & card samples



Active TAG's

Season card (available with AT-8 long range reader)
with an expire date encoded at manned toll booth with control of anti pass back

AT- 8 reader



window button



Long range reader AT 8

Power supply	230vac +6% -10% absorbed current 125 mA 24vdc +5% -5% absorbed current 2 A
Dimensions	310 x 250 x 100 mm
Operating temperature	-20°C +55°C
Weight	5 Kg
Housing	St. steel cabinet with plastic front door.
Controller	Microchip
Lane management unit	Cobra 1500
Interface	RS232, Omron ISO 7811/2
Protection class	IP 65
Identification distance	8 mt
Identification signalling	By buzzer
Frequency range	2400 Mhz / 2483,5 Mhz
AT-8 to Cobra 600 max distance	Max. 40 mt

Window Button

Frequency	2,45 Ghz
Stored characters tag standard	14 numeric crt
Power supply life	5 years
Operating temperature	-30°C / 70°C
Housing	Polyester
Installation site	On board by suction cup
Installing surface	Non metallic
Working area	Typical 4 mt , max 8 mt
Dimensions	Diameter 75 mm, thickness 30 mm
Weight	50 gr
TAG Identification speed	Up to 200 Km/h

NOTE : all TAG's must be loaded through manned cashier software



4) SYSTEM CHARACTERISTICS AND FEATURES

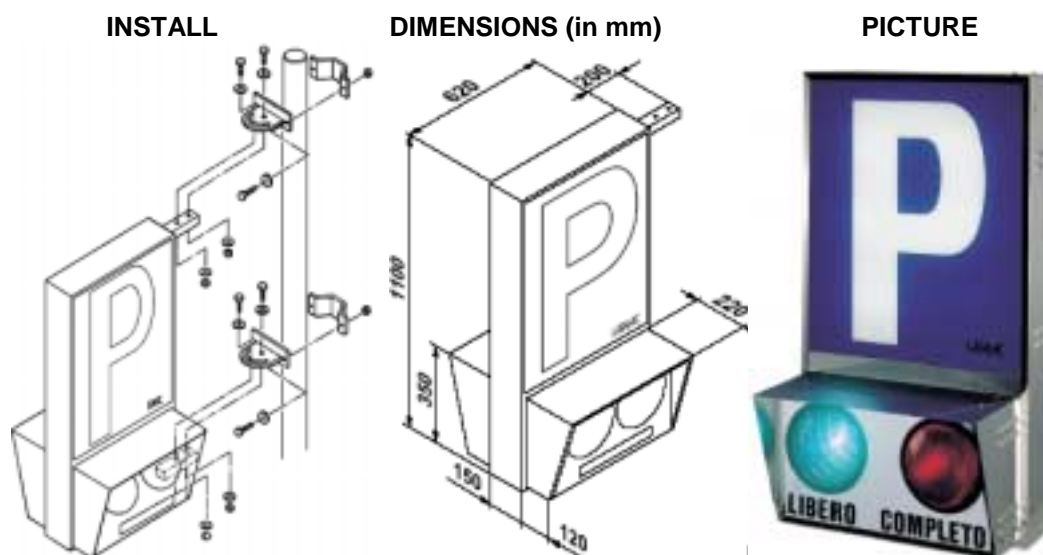
4.1) ENTRY LANE

Entry lane needed equipment's

- n.1 x FULL/SPACES sign and his support pole
- n.1 x PARAGON ticket issuing/card reading unit with dual channels loop detector and intercom
- n.1 x lane side traffic light and his support pole
- n.1 x 620 rapida barrier with 2,5 meters beam (special painting)
- n.1 x vehicle presence loop (to be done in installing phase and not included ion the offer)
- n.1 x vehicle transit loop (to be done in installing phase and not included on the offer)

4.1.1) ENTRY LANE COMPONENTS

FULL/SPACES sign



Characteristics	Single face	Double face
Case	Aluminium	Stainless steel
Panel/s P	Plexiglas back lit by neon lamp	
Blue		
Dimensions	650x1050x360	620x1100x590
	mm (wxhxd)	
Installation	Wall-mounted or on a support pale	
Light	Spaces with green light Full with red light	
Space full	In 5 languages (I, F, GB, E, D)	
Power supply	220/230 vac 50 Hz	



TICKET DISPENSER PARAGON



Paragon ticket dispenser

Entry unit Ticket Dispenser PARAGON, is able to issue bar code tickets and read magnetic stripe cards for various type of users. It is managed by microprocessor and works on line with data concentrator.

TECHNICAL CHARATTERISTICS

- Housing in steel sheet with protective cataphoresis treatment
- Plastic front panel in baydur equipped with ticket request push-button, ticket/card, users display and intercom device with call button
- Antivalndal ticket request button with flashing light
- thermostat that manages heat-ventilation device able to operate in severe weather conditions
- single slot for ticket and cards with flashing light to keep the user attention
- motorised ticket dispensing unit/card reader, fan-fold ticket feeding with self-sharpening cutter
- high resolution thermal ticket printer
- BARCODE 2/5 INTERLEAVED printing system
- ticket dimensions: 86 x 54 x 0,20 mm
- ticket dispensing capability: 5000 max per ticket pack (200 gr/sqm)
- data printed on ticket: date/hour/minutes/ticket number/dispensing unit number and free notes
- low paper alarm
- users LCD display 20x4 characters
- intercom device, with talk-listen facility and call button
- electronics controlled by microprocessor, suitable for RS485 network connection
- operational parameters protected by back up battery
- opt isolated interfaces with lane devices (traffic lights, barriers, detector)
- stand-alone operation in case of a fault on the data concentrator or line interruption
- build in dual channels detector for vehicle presence and transit
- power supply: 230V/50-60Hz
- max absorbed power: 350 W
- operating ambient temperature: -20° C + 50° C.



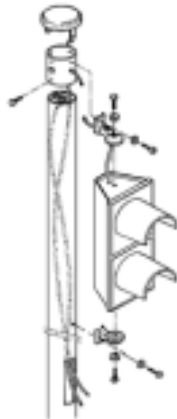
TECHNICAL FEATURES

- Single stay user ticket management
- Car flow management by means of two loop (presence and transit)
- Issuing of bar-coded tickets with entrance date/time, park code, ticket kind, lane number
- Ticket checksum management
- Standard ISO reading/encoding of magnetic cards
- Backlit user LCD display
- Anti pass-back control
- White/black list management
- HW and SW alarms management
- Sending of data and transaction to concentrator
- Pre-set value cards management
- Pre-set time cards management

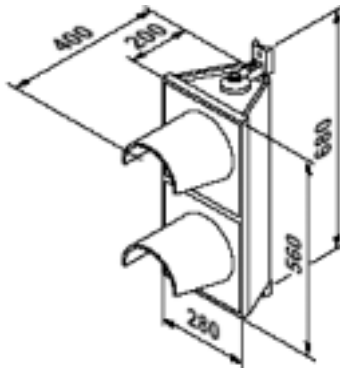


LANE SIDE TRAFFIC LIGHT

INSTALL



DIMENSIONS (in mm)



PICTURE



Traffic light device is made of dark green polycarbonate that can be used in all weather conditions. The device can be pole or wall or roof mounted depending on customer and configuration needs. It is composed by modules and each one having three parts:

- body
- door
- cap

All parts are screw less assembled. The protection degree is IP55.

Optical assembly

Lenses

Red/green colour, 200 mm diameter, shock-resistant polycarbonate stabilised with UV rays according to the DIN 6163 standards and CIE recommendations.

Parabola

Anodised aluminium made or silver plated plastic

Lamp holders

E-27 holder for incandescence bulbs 70W/230V

General characteristics

Traffic light device has been conceived to optimise installation and maintenance issues.

Modules can be mounted to allow the door opening in right or left hand side way.

Caps can be mounted with fixed joint and oriented in several positions.

Supports have indentations to be correspondent to the ones of traffic light in order to allow a strong fixing with the needed angle.

Coloured lenses are waterproofed thanks to an O-ring able to protect against the environment that also allow an easy lamp replacement.

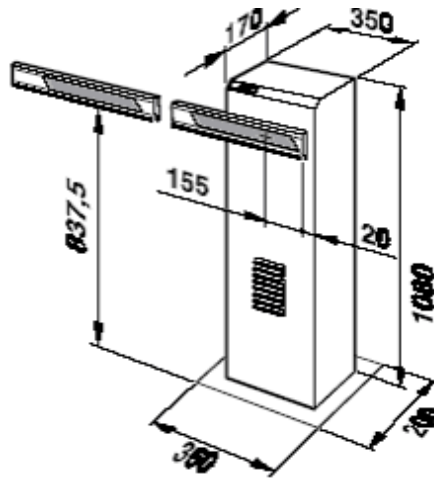
Lamp holders are made of plastic and have auto looking wiring system to easy up the cabling.

Internal cabling is double welded.

See the above pictures for dimensions and way of installing.



LANE SIDE TRAFFIC BARRIER : 620 RAPID



620 Rapid barrier for parking area access

TECHNICAL CHARACTERISTICS

Barrier body with galvanised steel sheet

- Thickness : 2 mm
- Coating : grey polyester paint
- Treatment : cataphoresis
- Foundation plate : galvanised steel sheet
- Thickness : 6mm

Barrier hydraulic motor

- Power Supply : 220V – 50Hz
- Absorbed Power : 220 W
- Rotation Speed : 1400 – 2800 rpm
- Duty cycle : 100 %
- Thermal Cut-out : at 120 C
- Torque : 0-450 Nm
- Pump Delivery : 1.5 to 2 lit/ min
- Pistons : 2 push/pull
- Balancing : compression springs
- Opening time : 2-3 Sec.
- Closing Time : 2-3 Sec.
- Anti crash System
- Patented electronic deceleration
- Protection level : IP 44

Microprocessor control unit (624 MPS)

- Power Supply : 230 V – 50 Hz
- Logic : Three logic's
- Fuses : three fuses (motor, access- control unit)
- Technology : SMT technology
- Motor load : 300 W
- Leds : for error analysis and trouble shouting

Barrier Beam

- Body : extruded aluminium
- Length : up to 4 mt.
- Cross section : 25 x 90 mm
- Coating : electrostatic powder
- Colours : RAL colours (white) and red reflectors
- Rubber strip : protection against scratching



4.2) EXIT LANE

Exit lane needed equipment's

- n.1 x PARAGON ticket/card reading unit with dual channels loop detector
- n.1 x lane side traffic light and his support pole
- n.1 x 620 rapida barrier with 2,5 meters beam
- n.1 x vehicle presence loop (to be done in installing phase and not included ion the offer)
- n.1 x vehicle transit loop (to be done in installing phase and not included on the offer)

4.2.1) EXIT LANE COMPONENTS

PARAGON TICKET READER



Paragon ticket reader

Exit unit Ticket Reader PARAGON, is able to read both bar code tickets and cards for various type of users. It is managed by microprocessor and works on line with data concentrator.

TECHNICAL CHARACTERISTICS

Same as ticket dispenser unit.

TECHNICAL FEATURES

Same as ticket dispenser unit, plus the following :

- Reading/validating of paid tickets
- Payment of stay by bank card
- Printing of receipt in case of payment with bank cards
- Payment with prepaid card

LANE SIDE TRAFFIC LIGHT

Same as entry lane

LANE SIDE TRAFFIC BARRIER : 620 RAPID

Same as entry lane



4.3) PAY ON FOOT STATION



The automatic pay-on foot station (POF), fully automates single-stay ticket payment operations and income accounting management.

It is managed by its own management PC and works on line with data concentrator.

Robust and provided with safety locks, POF allows fully automatic payments of parking fees.

It operates with cash (coins and bills) and gives back coins and bills as well.

Its 24 hour duty, grants visitors to use the park lot with at any time.

Payment transaction is displayed step by step on the LCD screen once a coin or bill is accepted.

If money exactly correspond or is more than the due amount, the POF gives back change (if due) and print out the paid ticket with grace time.

The access o internal parts is protected by the front door safety lock.

The front door opening is allowed only to technicians for tests or maintenance purposes and to operators for safes handling.

All safes, including hoppers, are protected by locks; the relevant keys are kept by administration department.

POF operates automatically and visitors just have to insert their ticket on the relevant slot, follow instructions given by LDC screen, pay according the amount displayed with coins and/or notes corresponding to the types accepted, take out the exit paid ticket to leave the car park within the grace time.

Paid ticket is the same entrance ticket in which the payment references are printed out along with the validation code.

Paid ticket, is returned to users after payment. This includes all needed information such as entry date/time, due amount paid and payment date/time.

Payment transactions can be stopped at any time until the value inserted is less than due amount, in case of change of mind, the money is not enough, to stay longer on par lot, etc.

By pressing the "stop" key, the money inserted is returned.

Moreover, in case of lack of change, POF issues a receipt for the relevant amount not returned to be reimbursed on manual toll booth.



TECHNICAL CHARACTERISTICS (base module)

- painted (metal grey & blue) stainless steel housing 2,5mm
- front door with ergonomic design with hinges and safe lock with micro switch for not authorised opening alarm
- dimensions H 1300 x W 800 x D 480mm (with no plinth)
- full colours LCD TFT 15" display with user messages in default language (five languages selectable)
- n.3 function/menu keys
- Management PC
- single slot for ticket and cards with flashing light to keep the user attention
- motorised ticket dispensing unit/card reader, fan-fold ticket feeding with self-sharpening cutter
- high resolution thermal ticket printer
- BARCODE 2/5 INTERLEAVED printing system
- ticket dimensions: 86 x 54 x 0,20 mm
- ticket dispensing capability: 5000 max per ticket pack (200 gr/sqm)
- entrance ticket validation
- lost ticket issuing capability
- low paper alarm
- Power supply 230 vac +/-10% - 50 Hz
- operating ambient temperature: -20° C + 50° C (with thermo heater).

OPTIONS

- Bank notes selector
- Coin change givers (up to 7 denominations self refilling)
- Bank notes dispenser (up 1 denomination)
- Receipt printer on normal thermal paper
- Base plinth (dimensions H 490 x W 800 x D 480)
- Thermo heater
- Siren with vibration sensor

TECHNICAL FEATURES

- transfer data to concentrator
- Visualisation of helping messages to the users through LCD display in 5 languages
- Automatic ticket reading and fee-calculation
- Payment effected by inserting current money (coins and notes)
- Coin change up to 4 different kinds of coins self refilling + 4 not self refilling(options)
- Exit-ticket validated with a record time
- Possibility of payment by Credit Card (option)
- Recharging of set-value badges(option)
- Print-out of cash statement
- Control and transmission of alarms to the data concentrator



4.4) MANNED TOLL BOOTH / DATA CONCENTRATOR



Manned cashier allows the payment with automatic computing of due amount for visitors, encoding and sale of magnetic stripe cards.

Decentralized manned cashier is composed by PC with WP4 software base module (REPORT MANAGER) and cashier (CASH PARK DESK).

The unit also can acts as data concentrator with WP4 (PARK EXPLORER) to set parameters and transfer them to peripherals. Manages the occupancy status and process administrative data of activities.

Manned toll booth functions

The unit is used to collect money with operator assistance, combined with the pay on foot station facility.

Operator on his booth has the following devices:

- Personal computer for automatic fee collection,
- Printer module to validate the paid exit ticket with grace time
- Reader/encoder to issue/renew magnetic stripe cards

Once the money has been collected, the visitor receives a paid ticket with grace time (this time is pre-settable from park manager).

This ticket must be read on exit reader unit.

If the grace time is over, the visitor must come back again to cashier to pay the extra time.

The same paid ticket also can be a receipt since it has date and time of entry, date and time of payment and due amount.

It can be returned to user by pressing the pushbutton on the reader exit unit.

Card users (season cards, prepaid cards, etc.) can buy their card the first time and renew it later on when expired (season) or with no credit (pre paid card).

These users are not requested to pass at cashier points since they have just to insert IN and OUT to open the barrier.

A central intercom with 12 keys, allows operator to give assistance to users on their request from peripherals (entry/exit lanes or automatic pay station.)



Data concentrator functions

This station collects counting data as difference from entry and exit lanes, manages the car park and does the local processing.

Data concentrator keeps all archives regarding transactions and current cards in use; these data can be easily up-dated at any time.

In fact, further to the first authorised cards list (season holders, employers, etc.), it will be possible to add new users or update the black list (of not authorised users) once new data for lost /stolen cards, must be added.

From this post is possible to keep the total or partial park occupancy and barrier openings on entry/exit lanes for emergency reasons.

It pools continuously all peripherals linked to the RS485 network:

- Entries
- Exits

Furthermore, from this PC, can be seen all the following alarms:

- Low paper ticket on entry lanes
- Off-line or power failure on the various units
- Transits failures like users that drive backwards
- Lack of change on pay station
- Not authorised front door opening on pay station

Management and remote control

The WP4 software management includes an important feature that is more and more requested on modern car parks : the remote management.

A telephone line (digital) or a Wide Area Network (WAN), connect the single parking to a remote control PC able to work with many functions.

Typically the remote control is done by PC with software module "report manager". This package allow the owner able to monitor the general working, to update of tariffs, to display alarms and transactions without being physically on the site.

If on the remote control PC a cashier/park desk software package is installed, it will be possible to encode and sell park titles, as example for long stay users like pre-set time cards or pre-set value cards or promotional discount tickets.

In this way it can be possible to have decentralised parking fully automated and their management is centralised in one point only also able to sell the above mentioned park titles.

Another big advantage is the remote maintenance/assistance that can be run by a skilled technician elsewhere far away from the site.

As example, it can be displayed the parking occupancy status, the current alarms, the peripheral display messages given to users on the lanes, etc.

It is also possible to check the right loops commuting when cars transit on the lanes or check that readers/dispensers are working properly.

In this way is clear that this technical solution allows to keep the assistance at the highest level with big reduction of on-site technical visits; fees up date, software releases update or system reconfiguring can be easily done remotely.



TECHNICAL CHARACTERISTICS**CENTRAL UNIT**

- Personal Computer with Windows XP operating system
- hard disk 30 Gb
- floppy disk 1,44 Mb 3"1/2 - Cd Rom 48X
- 17" SVGA colour monitor
- standard keyboard (102 keys)
- serial ports: RS 232 (No.4)
- converter RS 232 - 485 (No.1)
- digital modem
- parallel ports : CENTRONICS (No.1)
- power supply: 230 V / 50 Hz

TOLL-BOOTH MODULE

- high resolution thermal printer
- motorised ticket/card reading/dispensing unit, fed by fan fold paper
- BARCODE 2/5 INTERLEAVED printing system
- ticket dimensions and weight : 86 x 54 mm - 200 gr./sqm
- data coded on ticket: punched day/hour/minutes/seconds/ park code/cashier code
- data printed on ticket: date/time(payment) - amount paid
- magnetic coding system: ISO STANDARD track 2
- absorbed power: 40W
- power supply: 230V/50Hz
- operating ambient temperature: 0°C +45°C
- weight: 18 Kg

USER FEE DISPLAY

- fluorescent technology
- 20 characters x 2 lines
- support pedestal
- absorbed power: 2W
- power supply: 24Vdc
- connection to PC via RS 232 serial port

INTERCOM CONTROL UNIT

- power supply: 230V/50Hz
- 6/12 user channels with selection key
- Dimensions H=250mm, W=210mm, D=84 mm



5) SOFTWARE PACKAGE

5.1) WP4 SOFTWARE CHARACTERISTICS

The parking systems management software has reached its third generation.

WP4 is the new multitasking application system developed by FAAC, based on Windows XP.

Its maximum configuration modularity means it can satisfy the requirements of both large, complex and small car park management systems.

Connection capability to telecommunications systems such as modems, as well as local and geographic networks enables monitoring and remote management of parks.

You can now easily do the following jobs either from the central control point or from an authorised point: update configurations and tariffs, view the system as a whole, and control economic situation as well as operational efficiency.

You can also centralise takings and transactions received from a set of car parks in different places, or produce tickets and the like such as subscriber cards from a single remote manned point.

Use of the software as a whole is facilitated by easy-to-understand graphics and by an on-line help function you can put into operation at any time.

The WP4 system consists of three different application programs as described below:



5.2) BASE MODULE/ REPORT MANAGER

The Basic Module contains the system database - an SQL reporting database. It contains all the system data required for the operation and configuration of the car park. The report manager resident in the module makes it possible to view, print and export transactions.

Report Titoli

Legend:

- Titoli in attesa
- Annullamenti con offset
- Titoli scaduti
- Titoli con credito esaurito

Numero	Tipologia	Data Validità	Fin. validità	Importo	Data Disgressa
18	ABBONAMENTO Mensile su biglietto Civiale	08/09/2004	15/05/06	23.98.58	25/12/2004 Area Parcheggio Dextra
25	ABBONAMENTO Mensile su biglietto Pegoli Roberto	08/09/2004	14/08/06	23.98.58	
30	ABBONAMENTO Mensile su biglietto Pegoli Roberto	08/09/2004	14/12/06	23.98.58	
35	ABBONAMENTO Mensile su carta	08/09/2004	14/12/06	23.98.58	

Rapporto reddito [01-04-2005 - 30-04-2005]

CATEGORIE	Quantità	Importo
Reazioni occasionali	0	0,00
Feg. posticipati incassati	0	0,00
Rinnovi abbonamenti	0	0,00
Vendite abbonamenti	1	10,00
Ricerche scolari tempo	0	0,00
Vendite scolari tempo	0	0,00
Ricerche scolari valore	0	0,00
Vendite scolari valore	0	0,00
Scatti valore incassati	0	0,00
	1	10,00

SCONTI	Quantità	Importo
Scatti valore usati	0	0,00
Scatti automatici	0	0,00
Scatti manuali	0	0,00
	0	0,00

MODALITA' DI PAGAMENTO	Quantità	Importo

Fig.1 WP4 Report Manager



5.3) CASHIER MODULE / PARK DESK

The pay station module is used for managing the car park's pay station and, therefore, all the payment and interaction modes between cashier and Customer.

This module enables payment of occasional parking, or the sale of tickets and the like such as subscriber cards, prepaid set-value cards and value coupons.

Various types of payment are possible: cash, set-value cards, and credit cards.

Tariff management is highly configurable, with up to 99 different tariff profiles possible.

Moreover tariffs can be distinguished according to vehicle category, or parking area, e.g. car area, bus area.

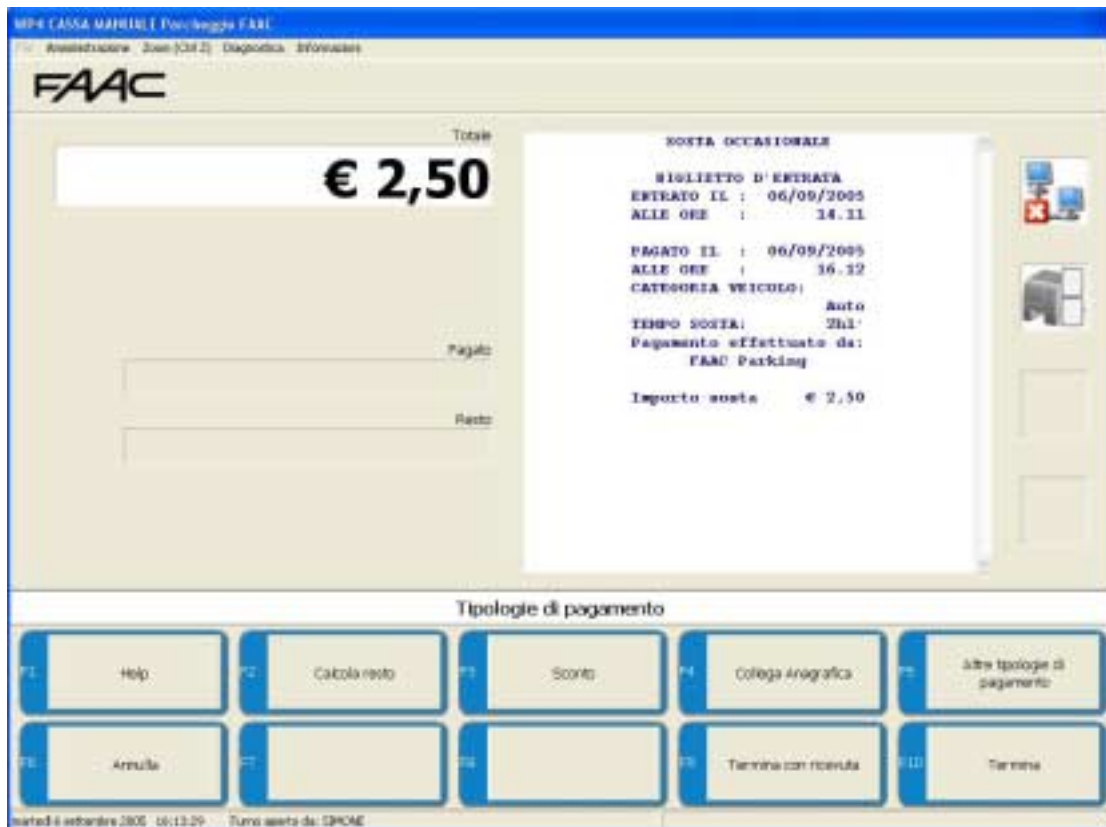


Fig.2 WP4 Park Cash Desk



5.4) DATA CONCENTRATOR MODULE / PARK EXPLORER

- The concentrator module enables data communication between the central unit and the park's peripheral units.

Access to the Controller module is possible via 4 authorisation levels. With this module you can configure peripheral units, authorise access by entry and exit ticket holders, and receive the resulting transactions.

The Controller module also enables to:

- manage the park areas/sub-areas and the relevant vehicle count, indicating occupancy status and level;
- configure: a single area, two or more separate areas, two or more areas with a passage or passages common to them, and concentric sub-areas;
- view the operational status of the peripheral units in general and of the tickets management modules in particular, thus providing speedy information also during transactions with the Customer.

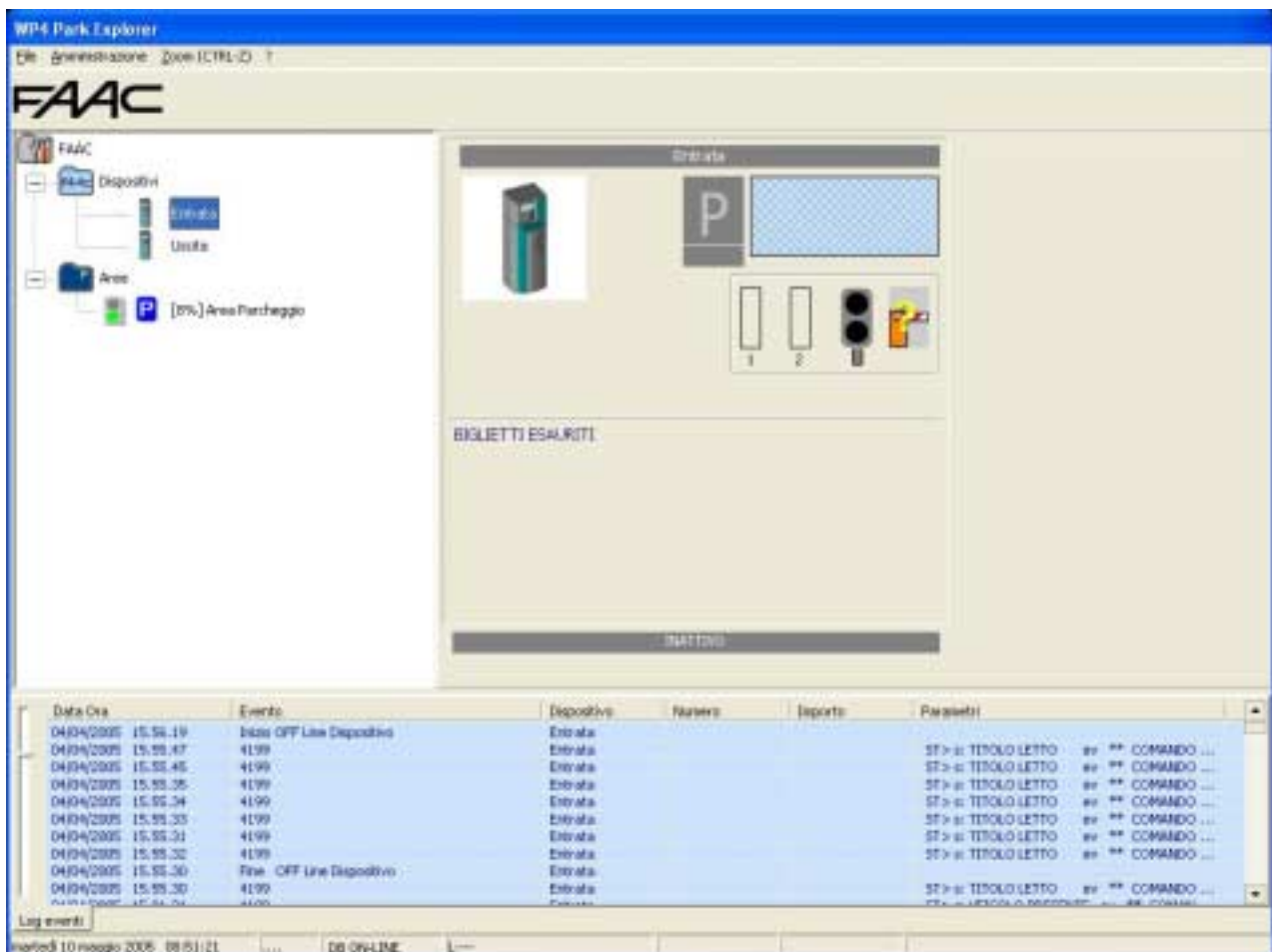


Fig.3 WP4 Park Explorer

