



## SUPPLEMENT TO CERTIFICATE Series: S005 Revision 3

issued by:  
**The National Measurement Office**

issued to:  
**Wincor-Nixdorf  
Alba House  
Mulberry Business Park  
Fishponds Road  
Wokingham  
Berks, RG41 2GY  
United Kingdom**

Authorisation is hereby given by the Secretary of State for Trade and Industry for the following Certificates of approval relating to a pattern of a liquid flowmeter to be modified as described below.

2176	80
2536	59
2619/43*	60
2780	16
2650	73

(\*) Refers to the dispenser only, the self service device described in these certificates is not part of this approval.

As described in the Certificates but modified to have an alternative self service device, as detailed in the descriptive annex, and having the following characteristics:-

DISPENSER:	Dispensers described in above certification numbers.
FORECOURT CONTROL SYSTEM:	Retalix site control system as described in the descriptive annex.
COMBINED KIOSK CONTROL AND POINT OF SALE TERMINAL:	VeriFone FOPT or Petrotec T_OPT as described in the descriptive annex.

This revision replaces previous versions of the certificate.

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**Signatory:** P R Dixon  
**for** Chief Executive



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# Descriptive Annex

## 1 INTRODUCTION

The Retalix POS/site control system is a self service device for use with Dresser Wayne 9000, IGem , Gilbarco or Petrotec dispensers. The Dione(now Verifone) FOPT outside payment terminal (OPT) allows customers to 'Pay at Pump' for fuel transactions, using a 'Chip and PIN', credit, debit, or fuel card. The FOPT is intended for installation beneath Dresser Wayne 9000, IGem , Gilbarco or Petrotec dispensers, providing a payment terminal for each fuelling position.

The OPT is controlled by the Retalix Forecourt Server application software running on the Wincor Beetle POS Terminal PC. Communication between the OPT and the Forecourt Server is via a multi-drop RS-485 interface connected over existing mineral insulated or armoured cable. Typical schematics are shown in Figures 1a 1b , 1c and 1d show TCP/IP connectivity over armoured CAT5e for Petrotec pumps and OPT's. A combination of RS485 and TCP/IP may be used on a PFS.

Each OPT is assembled from a central Trunk and two 'Cassettes', one for left and one for right hand side. The Trunk is attached to the dispenser mounting plate via four studs. The Cassettes are attached either side of the Trunk; each Cassette is securely retained by two bolts that can only be accessed through the Printer hatch. The Trunk contains two power supply units, one for each cassette, and associated cables, connectors and switches.

### 1.1 Forecourt Communication

Each Dispenser and OPT communicates with the kiosk via its own data pair using RS-485 signals or 2 wire current loop. These pass through the Relay Isolation Box and Forecourt Interface Box to the POS PC. For sites with armoured CAT5e data cable and the new Petrotec T-OPT then the RS485 coms to both Pump and OPT will be replaced by Ethernet(TCP/IP)

#### 1.1.1 Forecourt Server

OPTs and Dispensers are controlled by the Forecourt Server application software which runs on the POS PCs together with POS software. Communication between OPTs/Dispensers and Forecourt Server application is via multi-drop opto-isolated RS-485 interfaces or 2 wire current loop connected to the Forecourt Interface Box.

Each kiosk has a Master and a Slave POS PC capable of providing operator control of pumps. The Master POS PC normally runs the Forecourt Server application. In the event of failure of the Master Forecourt Server application or the Master Switch, the Slave POS Forecourt Server application may be manually or automatically set to provide forecourt control.

### 1.2 Forecourt Interface Box

The Forecourt Interface Box comprises Ethernet to RS-485 Serial Converters, and RS-485 / RS-422 hubs with integral opto-isolation. The Forecourt Interface Box is an unintelligent interface, connecting two or three Ethernet lines to up to 24 RS-485 lines and up to three RS-232 lines. It comprises two or three Ethernet to Serial

Converters, up to 8 RS-485 hubs, and two 24Vdc power supplies. See section10 for network connectivity changes as a result of installing the Petrotec T-OPT

### **1.3 Resilience**

The OPT/Dispenser arrangement provides resilient operation; in the event of a single major device failure, at least half the Dispensers & OPTs should continue to operate.

### **1.4 POS PC**

The POS PCs use either the Windows NT4 operating system when older Beetle PC are installed or WEPOS/POSREADY2000 on the new Beetle sx or x+ pc's. These interface to the Forecourt Interface Box via the Master and Slave switches where installed(new sites only have one PFS switch).

### **1.5 Uninterruptible Power Supply**

In the event of a mains power failure, the two POS PCs, Ethernet switches, Forecourt Interface Box and DDM Box are all powered via an uninterruptible Power Supply capable of providing at least 15 minutes of continued operation.

## **2 Control equipment**

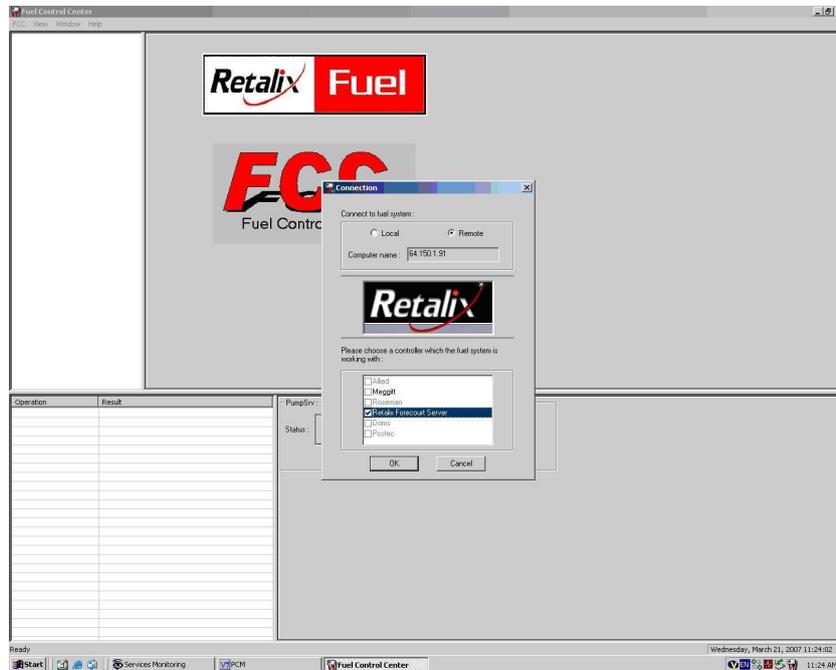
### **2.1 Forecourt Server**

The Forecourt Server application runs on the POS PC and controls the operation of Dispensers and OPTs for both Pay at Pump and Pay in Kiosk transactions. OPT on-line authorisation communications pass through the same channel as Pay in Kiosk transactions.

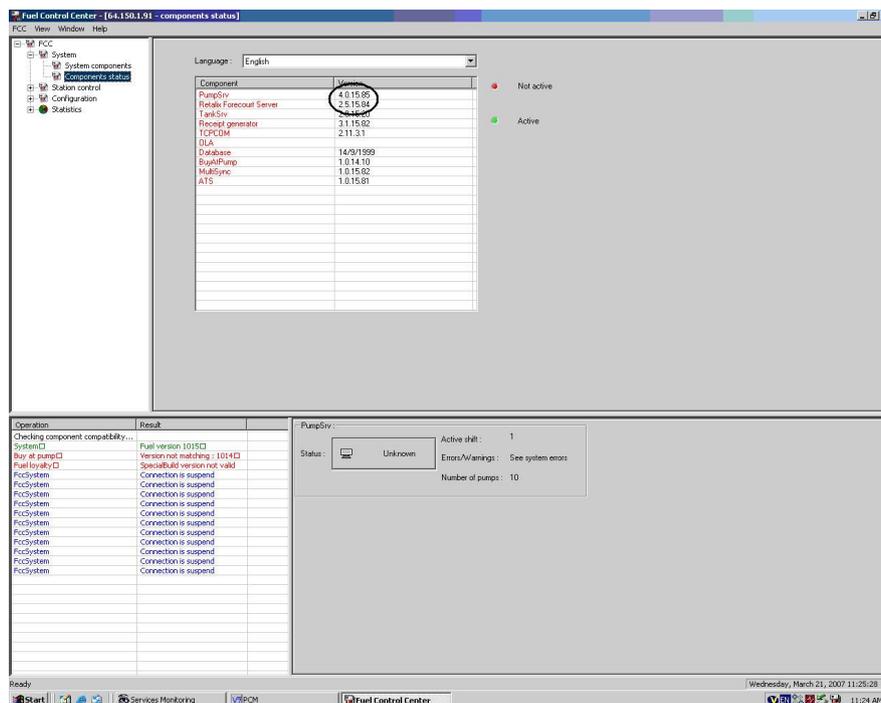
#### **2.1.1 Forecourt Control Software Version**

To view the Forecourt Server and Pump Control software component version numbers, the following procedure must be performed on the Instore Server (ISS) (normally located inside the main store):

1. Log on to the ISS
2. Press the desktop icon labelled FCC to load the FCC configuration utility.
3. Select 'Retalix Forecourt Server and press OK



4. Select 'Components Status' to show the list of software versions.



5. The top two entries, PumpSrv and RFS, are the relevant version numbers for Pump Control and Forecourt Server software.

These both have the form: **4.0.15.84**, Where:

- the first two groups define the major software version
- the subsequent groups define minor software version which have no effect on regulatory issues.

The latest version of software as of the Retalix CBO 5.060nn releases is as follows

Component	Version
PumpSrv	4.0.28.270
Retalix Forecourt Server	2.5.128.230
TankSrv	2.0.28.0
Receipt generator	3.1.28.60
TCPDOM	55.5.7100.1013
OLA	
Database	14/9/1999
BuyAtPump	1.0.28.0
MultiSync	1.0.28.0
ATS	1.0.28.0

## 2.2 Point of Sale Terminals

The Retalix Point of Sale Terminals are based on Beetle M, M II, X, SX and X+ PCs. These execute three core applications:

- Forecourt Server Application – provides the interfaces to control all Pumps and OPTs. Pumps are normally configured for auto-authorisation for PayatPump transactions, allowing Forecourt Server to automatically initiate outdoor fuel transactions after receiving an online card authorisation from the acquiring bank’s system.

Identical Forecourt Server copies run on both Master and Alternate Master POS tills, but only one (normally the Master till) is controlling the forecourt at any instance. The active till controlling the forecourt is indicated by a flag at the bottom of the screen:

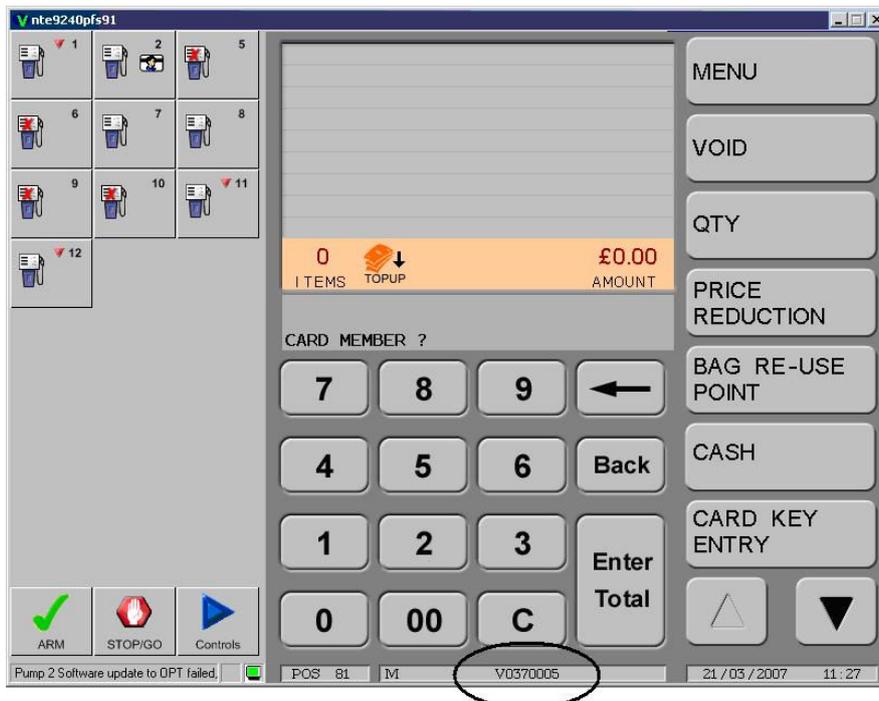


In the event of a Forecourt Server failure, the other copy may be activated using a menu key.

- Up to five more “Slave” POS tills may be connected though these do not directly control the forecourt devices but may arm or pay off fuel transactions. Pump Control Application – user interface and interlocks for manual control of pump operation by kiosk staff. OPT status for each pump is also displayed. A ‘STOP/GO’ button provides the operator with control to suspend all pump dispensing operation in an emergency.
- POS Application – to sell dry goods and Pay in Kiosk fuel transactions, including indoor card payments.

### 2.2.1 POS Software Version

The Point of Sale application software version number is continuously displayed on the till screen, at the bottom:



This version number has the form: **V037 0005**, Where:

- The first four characters define major software version, which will change every 3 months.
- The last four characters define minor software version, which will have no affect regulatory issues

## 2.2.2 Updated Version Numbering

This version number has the form: **80.5 06013**, Where:

- The first four characters define major software version, - The last four characters define minor software version, which may have no affect regulatory issues which may change every 6 months.

## 2.3 Dispenser (Calculators)

Dispensers communicate with the Forecourt Server application using the existing RS-485 arrangement, with up to three dispensers per RS-485 circuit.

Alternatively the dispensers communicate with the Forecourt Server application using the Gilbarco 2 wire current loop with up to 8 dispensers per DDM circuit.

With the Petrotec T-OPT and Armoured CAT5e data cable the pumps and OPT will communicate over TCP/IP where CAT5e cable exists but the OPT is on a non Petrotec pump then a combination of TCP/IP to the OPT and RS485 to the Pump will be employed

The OPTs use separate RS-485 circuits or TCP/IP if the Petrotec T-OPT and Cat5e data cable is present.

### **3 CONSTRUCTION**

#### **3.1 Component Parts**

The FOPT terminal consists of the following parts:

- a) A central trunk, constructed from welded steel to provide structural rigidity, and containing two power supplies, heater, and pump buttons (used for Dresser 9000). The Trunk connects to the Dresser calculator via a 4 way mains connector and an 8 way data and button connector.
- b) Left and Right hand cassettes, constructed from welded aluminium, which mount securely on either side of the Trunk. Each Cassette incorporates the following sub-assemblies:
  - Smart and Magnetic Card reader in secure housing
  - PINpad and LCD display module in secure housing
  - Communications Module
  - 80mm thermal Receipt Printer module with pull-tear paper cutter
  - Barcode scanner module

A single 12 way in-line connector is used to carry power and data between each Cassette and the Trunk.

### **4 Main sub-assemblies**

#### **4.1 Card Reader**

The Card Reader module comprises an external moulded plastic card throat plus secure interface electronics. Chip data is read when the user manually fully inserts their plastic card; magnetic stripe data is read when the card is withdrawn.

The internal card reader electronic assemblies, which store private cryptographic keys, are contained within a sealed metal housing. Complex tamper detection methods are used to ensure that any attempt to access the internal assembly results in instant erasure of all private key and cardholder information.

Card Reader and PINpad/Display modules are connected by an internal serial interface. At power on, the two modules perform self checks and then securely validate and associate with each other. All communication between these two modules is encrypted.

#### **4.2 PIN pad & Display Module**

The user is presented, on the front panel of each cassette, with a PIN pad and a Display with associated Option keys.

The PIN pad comprises numeric and function (Cancel, Clear, Enter) keys. Four Option keys on either side of the display are used to select programmable actions (e.g. Pay at Pump, Pay at Kiosk) as prompted on the Display.

The Display comprises a four line by 33 character LCD to provide instructions and status information to users. A backlight is provided to ensure user legibility under all normal forecourt lighting conditions. Except during the chip card PIN entry phase, all Display messages are transmitted from the Forecourt Server application.

The internal PIN pad electronic assemblies, which store private cryptographic keys, are contained within a sealed metal housing that should only be access by the manufacturer. Complex tamper detection methods are used to ensure that any attempt to access the internal assembly results in instant erasure of all private key and cardholder information.

### **4.3 Receipt Printers**

Thermal receipt printers are mounted on the front panel of each Cassette. These use Fujitsu mechanisms, connected to an integral controller PCB. Each printer mechanism connects to that Cassette's PIN pad module. Paper Low, Paper Out, and Paper Jam detection is also provided, causing messages to be forwarded to the Forecourt Server.

A lockable Printer Hatch gives access to change paper rolls. This internal compartment only allows access to the printer mechanisms, and does not allow access to any other internal assemblies, live terminals, etc.

### **4.4 Communication Module**

Each cassette incorporates a Communications Module that provides data routing between RS-485 bus and the relevant internal module.

The RS-485 interface incorporates galvanic isolation to ensure immunity from electrical forecourt noise.

### **4.5 Environmental Control**

Each FOPT Cassette incorporates a thermostatically controlled heater to ensure that the internal electronics is operated within its temperature range. Apertures into the printer compartment ensure circulation to prevent condensation of moisture that may cause printer paper jams.

## **5 Kiosk Equipment**

### **5.1 Relay Isolation Box**

Each FOPT and Dispenser uses a separate data cable pair to communicate with the Kiosk. All data cables are passed through a Relay Isolation Box; in the event that the Fireman's or Operator's emergency switches are operated, all relays are opened to ensure galvanic isolation of all forecourt electronics from the Kiosk.

### **5.2 Forecourt Interface Box**

FOPT and Dispenser data circuits terminate in the Forecourt Interface Box. This interfaces multiple RS-485/422 circuits to the Ethernet. No forecourt control functions are provided by this unit.

The Forecourt Interface Box comprises up to eight RS-485 hubs, and two or three (depending on number of Dispensers) Ethernet to RS-485/422 Serial Converters, mounted on a DIN rail. These are typically marked 'Portserver TS MEI'. The Ethernet to Serial Converters may also be configured to provide RS-232 ports for Tank Gauges or CarWash(Pole signs are TCP/IP connected over hard wire or Wireless connectivity) etc.

The Forecourt Interface Box components are arranged as two similar but separate sections each connected to their own 24Vdc power supply. In the event of an Ethernet to Serial Converter failure, the other half the forecourt should continue to operate.

### **5.3 Ethernet Switches**

The Forecourt Interface Box interfaces to the Beetle POS PCs via up to two Ethernet Switches, arranged such that failure of either should allow at least half the forecourt to continue to operate. These switches also carry POS system related data. Standard 24 port and 12 port models are used.

### **5.4 Data Distribution Module (DDM)**

This communicates to the Forecourt Interface Box via RS422, and converts this into a 2 wire current loop to communicate to the Dispensers. Typically 2 DDMs would be used to provide resilient operation on site. An example is shown in Figure 16.

### **5.4 FORECOURT SERVER / POS PCs**

Control of Dispensers and OPTs is provided via Master and Slave POS PCs. These comprise a PC controller with CPU board, Hard Disk, Ethernet adapter and other peripheral interfaces.

Each Beetle position also uses an LCD operator screen and keypad.

These PCs run two side by side applications:

- Forecourt Server – low level real-time control of up to 12 dispensers and OPTs, active on only one PC at any time.
- Point of Sale – for kiosk paid fuel and other sale transactions.

Under normal circumstances, Forecourt Server application is only active on the Master PC, although the Alternate Master maintains an image of forecourt state. In the event of failure on the Master PC, a copy of Forecourt Server on the Alternate Master may be activated without loss of data. Up to five Slave PC's may be present in the kiosk though the Slave PC's are not able to control the forecourt, arming and paying off of transactions is done on these PC's through the controlling master till.

**5.4.1** The POS PC may be any one of the following:

**5.4.1.1** The D2 BEETLE M terminal (Figures 9) incorporates an Intel Celeron processor and a communications riser card, which provides support for the SNIKEY touch screen, vendor's display. . Runs the Windows NT embedded operating system

**5.4.1.2** The D2 BEETLE S has a smaller communications riser card which results in the overall height of the enclosure being less (Figure 10). Runs the Windows NT embedded operating system

**5.4.1.3** The E-1 BEETLE M-II POS terminal, as shown in Figure 9, incorporates a Pentium IV chip set and has a different model number on the front panel. Runs the Windows NT embedded operating system

**5.4.1.4** The BEETLE-X terminal (the “X” version of the BEETLE-M range) has an external power supply unit, as shown in Figure 11. The terminal has a Celeron M processor. Runs the WEPOS operating system

**5.4.1.5** The BEETLE-SX terminal (the “SX” version of the BEETLE-M range). This model is similar to the X series but has a smaller 1 GHz processor; it uses the same external power supply unit referred to in section 5.4.1.4 (Figure 12). Runs the WEPOS operating system

**5.4.1.6** The BEETLE-X+ similar to the SX version but with an upgraded processor to an Atom Cedar View, 2 x 2GHz processor Runs the POS Ready 2000 operating system

**5.4.1.6** The DigiPoS Retail Blade™ (Figure 14)

The DigiPoS Retail Blade™ processor module is PC-based, using an Intel™ Pentium processor. Its features are:

- Intel™ Celeron 2.0GHz up to P4 3.8GHz processor.
- Up to 2GBytes of internal Compact Flash memory.
- Up to 2GBytes of internal RAM.
- Any 3.5 inch standard hard disk (IDE/EIDE/SCSI/S-ATA)
- A lockable front bezel to secure the Retail Blade™. The key for this is held by a responsible person, for example a service engineer.

**5.4.1.7** DigiPoS Retail Blade Core2 Duo

As described in 5.4.1.6 but having an Intel™ Celeron 2.0 GHz up to P4 3.8 GHz processor and including Intel™ Core2 Duo processors E4300 and E6400, this alternative is named; “DigiPoS Retail Blade Core2 Duo”.

**5.4.1.8** PH6000T POS PC System (Figure 15)

The system is made up of three main sub-systems:

a) Main system unit

The DigiPoS PH6000T processor module is PC-based, having the **SBC 84810** embedded motherboard with Intel Celeron M 1GHz processor using the Intel 852GM Chipset.

b) The Base I/O Unit

All standard PoS signals are routed through the Base I/O unit. It has the same footprint as the Main system unit.

c) Power Supply Unit

The DigiPoS power supply unit type PSS-2000 or PSS-250.

## **6 OPERATION**

The FOPT system is intended to provide attended operation during the day, and unattended operation at night.

The dispensers are controlled by means of the proprietary DART protocol the Gilbarco 2 wire protocol or the proprietary Petrotec protocol; FOPTs are controlled by the ISO Terminal 7816 protocol. Each dispenser calculator and FOPT cassette on a fuelling position are assigned the same RS-485 address, and are permanently associated with each other by means of these addresses. See section 10 for changes as a result of the Petrotec T-OPT installation.

## **6.1 Kiosk Transactions**

A Kiosk payment transaction is initiated by the customer pressing the 'Pay at Kiosk' FOPT function key. The FOPT display prompts the customer to lift the nozzle; fuelling begins when the kiosk operator authorises the pump. When the nozzle is replaced, the display prompts the customer to pay in the kiosk. The operator concludes the transaction on the POS terminal in the normal manner.

No value or volume data is displayed or printed by the FOPT for kiosk transactions.

## **6.2 Pay at Pump Transactions**

Payment at the Pump may be initiated by the customer by:

- Pressing the Pay @ Pump function key
- Inserting a payment or loyalty card
- Scanning a loyalty card or coupon

The customer is then prompted to insert card, enter PIN etc as required. Payment cards are authorised by the POS application, in the same manner as kiosk payments. These normally involve an on-line dialogue with the acquiring bank.

After the card has been authorised, the customer is prompted to remove it from the reader, after which the customer is prompted to lift the nozzle and begin fuelling.

When the nozzle is removed, the Display prompts the customer to select if a receipt is required. If no selection is made, a receipt will be printed. When the nozzle is replaced, if selected, a VAT receipt is printed.

After the transaction concludes, the display reverts to 'Pay @ Pump / Pay in Kiosk' welcome screen ready for the next customer. No transaction or card data is retained in the FOPT.

## **6.3 Receipt Information**

The FOPT receipt uses similar layout as a kiosk receipt, a sample receipt is shown in Figure 13. The following data is given:

- Site details
- Fuelling position number
- Date/time
- Fuel Grade
- Transaction Volume in Litres
- Transaction Value
- VAT value
- Card transaction details

## **6.4 Duplicate Receipts**

Following a Pay @ Pump FOPT transaction, the same card may be re-inserted into the same FOPT within a configurable period (typically 24 hours) to print a receipt. If no receipt was printed at the time of the original transaction, a normal receipt will be printed, otherwise it will be clearly marked as 'Duplicate'.

## **6.5 OPT printer faulty**

The Forecourt Server continuously monitors the Receipt printer status:

- When 'Paper Out' or 'Paper Jam' is detected such that a receipt cannot be printed, the display will prompt the customer at the welcome screen "Receipt not Available".
- When Paper Low is detected, approximately 40 receipts can be printed before the paper roll is exhausted. The Forecourt Server will count the number of receipts printed after paper low is seen. After 20 receipts, it will display at the welcome screen "Receipt not available, and disable receipt printing".

It is then the customer's choice whether to proceed with a Pay @ Pump transaction at that fuelling position.

Paper Low, Paper Out, and Paper Jam status are displayed on the operators screen on all pump authorising POS terminals as icons on the relevant pump's button. In addition, these printer events are logged on the POS Alarm list, and require operator acknowledgement to delete them.

## **6.6 Reprinting Receipts**

In the event that a customer has not been able to receive a receipt for an OPT transaction, a duplicate receipt may be obtained either from the Kiosk till via the reprint receipt icon or if the kiosk is closed from the In Store Server PC. This is normally located in the store, and accessed by Customer Support personnel.

A duplicate receipt is obtained on the ISS as follows:

1. Log on and press F2. Select Receipts for the date in question:
2. Select required search criteria then press Select'.
3. Browse through the resulting list, selecting suitable entries the pressing 'Zoom In' to display
4. Press 'Zoom In' to display an image of the receipt; if correct, press 'Print' to reprint the receipt on an adjacent laser printer.

## **6.7 Interlocks and security**

### **6.7.1 Mechanical security**

Internal access to the FOPT requires the Printer hatch to be opened. This is secured by a mechanical lock.

Once opened, it is possible to access the retaining screws that allow removal of either Cassette, as well as mains and data isolation switches, and pump operator buttons. Unscrewing the retaining screws allows separation (and replacement) of the cassettes, and access to their internal sub-assemblies.

## **6.7.2 Electronic security**

Unlocking the Printer hatch triggers a microswitch which causes a message to be sent to the Forecourt Server, where the event is logged as a security breach. During manned operation, the kiosk operator is alerted to this situation.

Card Reader and PINpad modules incorporate complex tamper detection mechanisms. In the event that the Card Reader taper detection is triggered, the Card Reader ceases to operate.

## **7 AUTHORISED ALTERNATIVES**

### **7.1 Styling**

The equipment will always be contained within painted metal casework. The styling and colour of the casework or front panel may be modified in accordance with the associated dispenser, or if it is mounted within the dispenser casework.

## **8 RECOMMENDED TESTS**

The Forecourt system, including OPTs will take approximately 5 minutes to start up. OPTs perform internal self tests before responding to Forecourt Server polling. Only when configured dispensers and OPTs are detected as operational will the Forecourt Server allow normal operation to commence.

When operational, the OPT displays the normal welcome screen (Pay @ Pump / Pay in Kiosk)

The following operational tests are suggested:

### **8.1 Indication OPT transaction started**

- Either Press 'Pay @ Pump'; check that display prompts for payment or loyalty card,
- Or insert a payment card
- Check that the FOPT display prompts for PIN.
- POS display icon should indicate OPT card transaction in progress
- Press CANCEL and remove card, screen returns to Welcome screen.

### **8.2 Indication of security breach**

- Open printer door
- POS Operator displays an alert message indicating that the printer door has been opened.
- Close printer door, Operator message disappears.

### **8.3 OPT Pay at Pump transaction**

- Insert a payment card, the OPT display changes stating the card will be authorised
- Using the PINPad enter the correct PIN number (if requested)
- Once payment authorisation is complete, lift nozzle and dispense fuel
- POS display indicates OPT transaction in progress and details can be displayed.
- Return nozzle and a receipt will be printed.

- Verify that receipt is printed with correct volume and value, site name & address, transaction number and card type.
- OPT transaction details cleared from POS without any operator intervention.

#### **8.4 Pay in Kiosk Transaction**

- Remove nozzle, the display prompts user to select Pay @ Pump or Pay in Kiosk
- Select 'Pay in Kiosk'
- FOPT Display shows 'Waiting for cashier'; POS shows dispenser is 'calling'.
- When cashier authorises pump, FOPT displays 'Fuelling'.
- Replace nozzle, the OPT screen returns to Welcome screen

#### **8.5 Paper Out check**

- Open the printer head using the green lever and remove paper from the head.
- Check that the OPT display corresponding to the printer, when ready for next transaction, displays 'Receipt not Available'.

#### **8.6 Paper Low check**

- With paper loaded in the printer head mechanism (so as not to trigger the Paper Out sensor), remove the receipt roll retaining disk, pull a loop of paper off the roll to allow extraction of the roll from the spindle.
- With the roll extracted (but paper still present in the printer mechanism) check that the Paper Low icon is displayed on that pump's button on the POS terminal.
- Replace roll on spindle, wind up spare paper and replace retaining disk.

### **9 TESCO FUEL SAVE**

Having an OPT with the Tesco Fuel Save functionality, changes made in the Checkout Back Office (CBO) and Retailix Fuel Server (RFS) software for the Tesco Fuel Save scheme for PayatPump.

#### **9.1 Authorised Software Version**

CBO version 5.05516.

#### **9.2 Operation**

1. When the customer scans their clubcard at the Outside Payment Terminal (OPT) on the pump a message containing the clubcard number is sent from the pump to a central system.
2. The pump receives a response message from the central system.
3. If the clubcard has sufficient balance of "petrol pennies" on the central system the response message contains an offer of a reduction on the price per litre.
4. If the clubcard does not have sufficient balance no offer is returned and no offer is presented to the customer.
5. If no response is received after waiting a few seconds, for example due to malfunction in the connection to the central system, the pump proceeds as if no offer is received and no offer is presented to the customer.

6. If an offer of a price reduction is received, and after the customer has entered their PIN for their payment card, a message is shown to the customer on the Payment Terminal screen asking if they want to accept the offer of a reduction. The customer can choose YES or NO.
7. If they choose YES:
  - a. The fuel prices on the pump are reduced by the amount of the offer for all grades. Existing Retalix Fuel server functionality is used to change the prices.
  - b. A message shows on the OPT screen saying "You have a new price".
  - c. An authorisation message is sent to the central system to reduce the petrol pennies balance for the clubcard.
8. If no fuel is dispensed after the customer has chosen YES, a void message is sent to the central system to reinstate the petrol pennies previously deducted by the authorisation message.
9. After fuelling is completed and the nozzle is replaced the price for all grades reverts back to the standard price.
10. The receipt shows the reduced fuel price and the total saving amount.
11. A further message is sent to the central system to retrieve the remaining balance of petrol pennies for the clubcard used.
12. The receipt shows the remaining balance of petrol pennies for the clubcard used.
13. Records are written to the internal transaction file to log elements of this process.
14. For a Pay at Kiosk transaction the offer, when accepted by the customer results in a discount applied to the transaction not a reduction in the pence per litre value held on the pump.

## 10 Petrotec T-OPT (Figure 17)

Having the alternative optional OPT System Model Petrotec T-OPT as described in EC Parts Certificate GB-1526.

### 10.1 Authorised Software

The following T-OPT software is approved;

Modules	SW Version
T-OPT Software	1.30

The procedure to check the SW version on the OPT is the following:

Press the third key in the OPT display



Enter the password (3835)\*

The software version shall appear in the bottom on right corner



*\* The password can change. Please refer always to the last information given by the manufacturer*

## **10.2            Petrotec T-OPT construction**

The Petrotec T-OPT consists of the following parts:-

- a) a central chassis constructed from welded aluminium to provide structural rigidity and mounting points for a power supply, Ethernet switch, heater element and two 80mm thermal receipt printers with receipt presenters. The dresser 9000 pump programming buttons is also housed in this chassis.
- b) Left and right doors are injection moulded plastic and are used to mount an Invenco G6 device which provides a graphical display, contactless chip and pin functionality and barcode scanning. Each unit is independently IP addressable and talks to the Retailix POS through a Petrotec communication layer that also handles the printer communications and external inputs such as temperature and door open sensors.
- c) A single 2 way in-line connector is used to provide power to the central chassis and patch leads carry data from the Retailix POS to the OPT switch for distribution to each G6 device.

## **10.3            Network Connectivity changes for T-OPT**

The Invenco G6 unit has the capability to run over RS485 or TCP/IP.

On non Petrotec pump sites the RS485 network connectivity in diagram 1a and 1b will remain.

Figure 1c shows TCP/IP connectivity which will be used for sites where armoured CAT5e data cable has been installed to Petrotec pumps. In this scenario there is no need for a Forecourt Interface Box, or data relay box. The data relay box is replaced by a terminating patch panel with patch leads run to one or more Weidmuller 8 port switches these are network connected to the Retailix POS. The switch is powered through the Emergency power off circuit.

It is possible to run the T-OPT in TCP/IP mode and the Pump in RS485 mode Figure 1d shows this scenario, a reduced sized Forecourt interface box will still exist but only to allow pump communication.

The Petrotec T-OPT may also be mounted in a pedestal next to the Pumping unit; this does not change the architecture and will run over TCP/IP.

## CERTIFICATE HISTORY

CERTIFICATE	DATE	DESCRIPTION
2176	29 March 2007	- supplement 80 to certificate 2176
2536	29 March 2007	- supplement 59 to certificate 2536
2780	30 November 2007	- supplement 16 to certificate 2780
Series S005	30 September 2009	- consolidation of amendments 1 & 2 to 2176/80, 2536/59 and 2780/16. - supplement 60 to certificate 2619 (requested by Dresser Wayne) - consolidation of 2176/80, 2536/59, 2780/16 and 2619/4360 into Series S005 -
Series S005 Revision 1	11 February 2010	Addition of dispenser certificate 2650. Section 5.4, Data Distribution Module (DDM) added. References to Gilbarco dispenser added (Requested by Gilbarco Veeder-Root). Trim reference number corrected on front page.
Series S005 Revision 2	2 June 2010	Certificate 2650 Supplement number changed (corrected) from 71 to 73, on front page.
Series S005 Revision 3	30 April 2014	General editing to present Retalix site controller, and new Petrotec OPT, figures 1c and 1d added. Section 2.2.2 added, Updated version Numbering Sections 5.4.1.5 and 6 added - The BEETLE-SX and The BEETLE-X+ Section 9 – Tesco Fuel save and Section 10 Petrotec OPT added, subsequent sections renumbered.

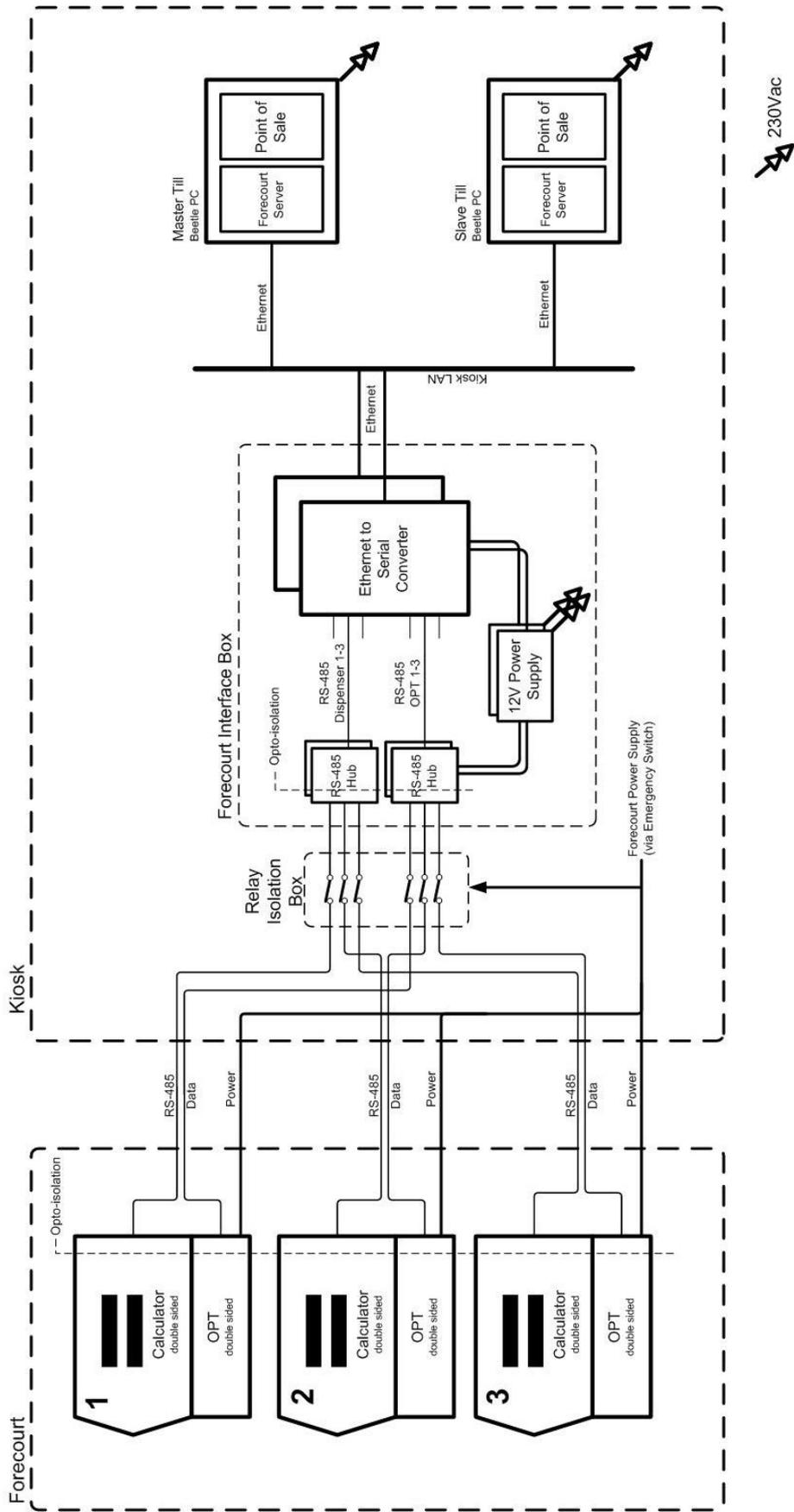


Figure 1a RS485 Forecourt Wiring

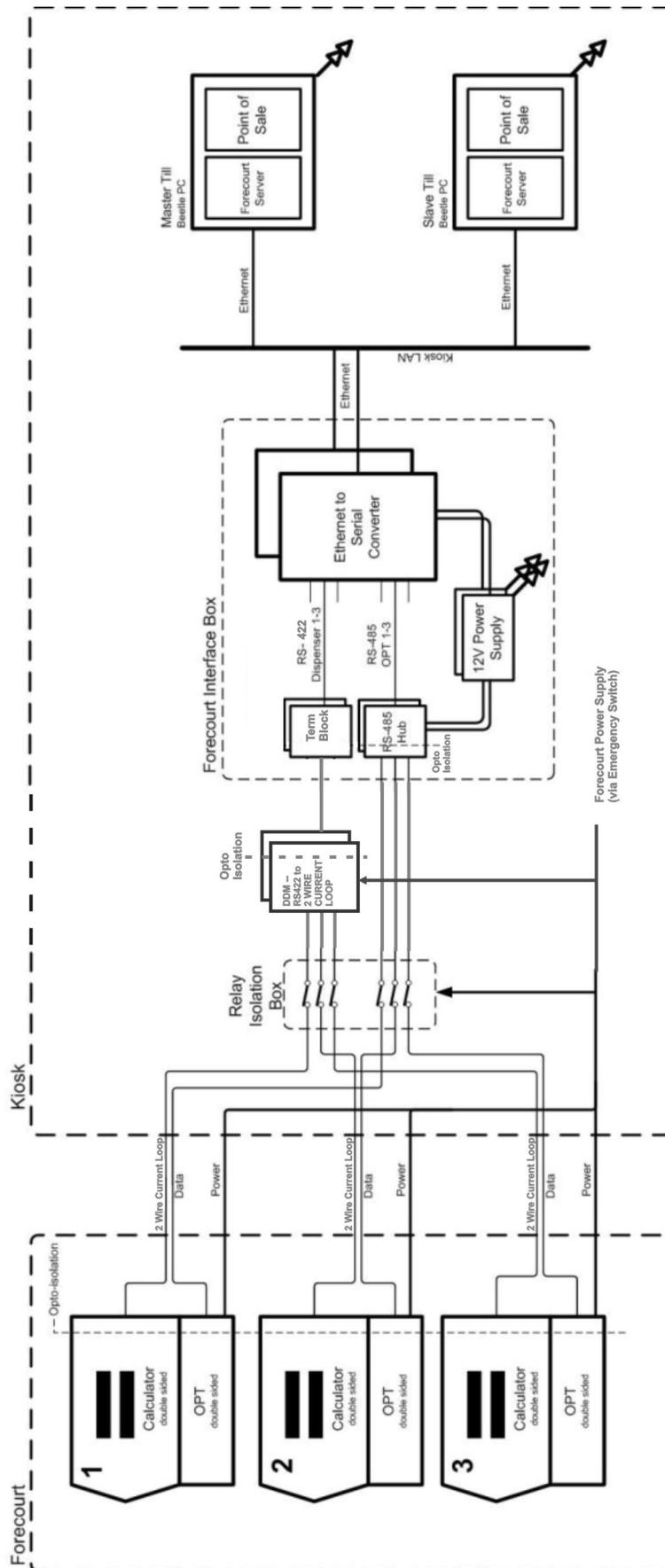


Figure 1b 2 Wire Current Loop Forecourt Wiring

Ethernet on both OPT and pumps

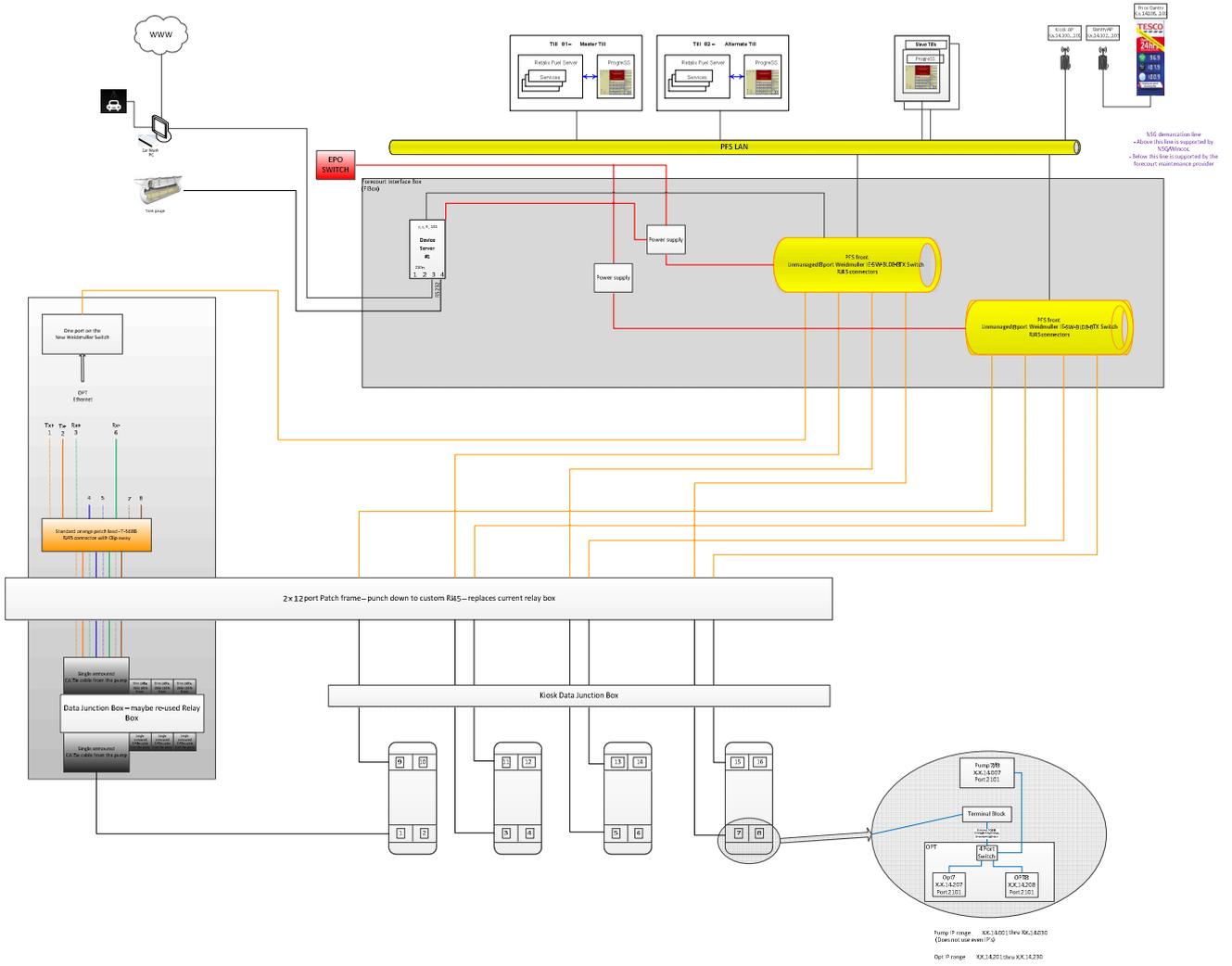
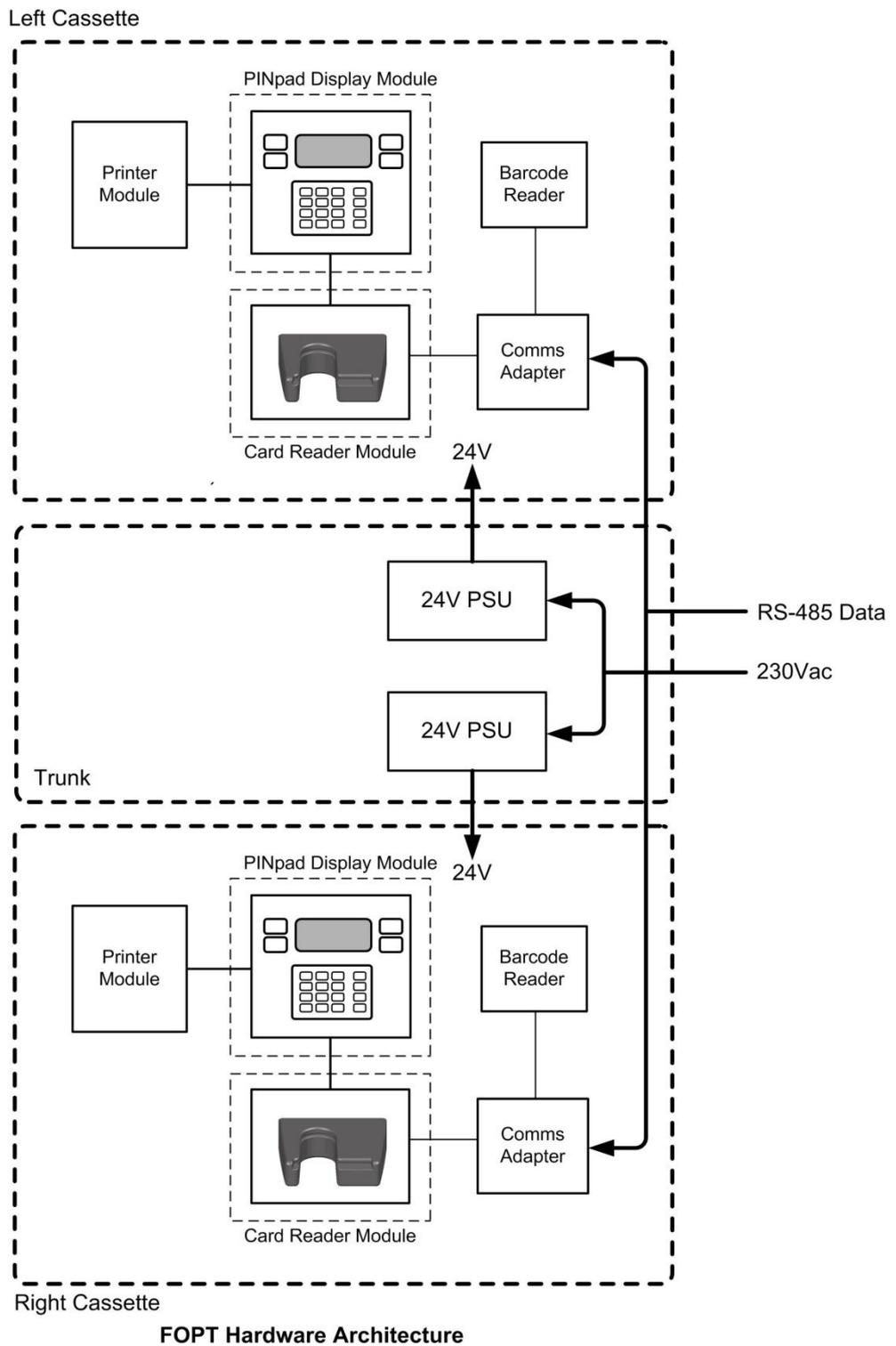


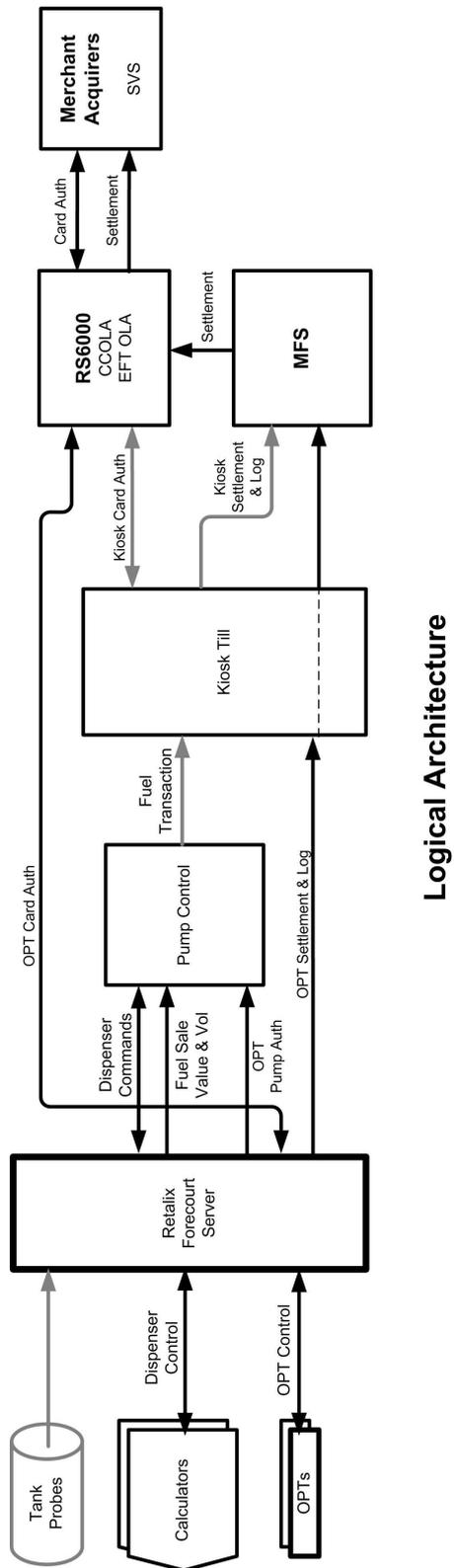
Figure 1c Petrotec T-OPT and Petrotec Pump running over TCP/IP





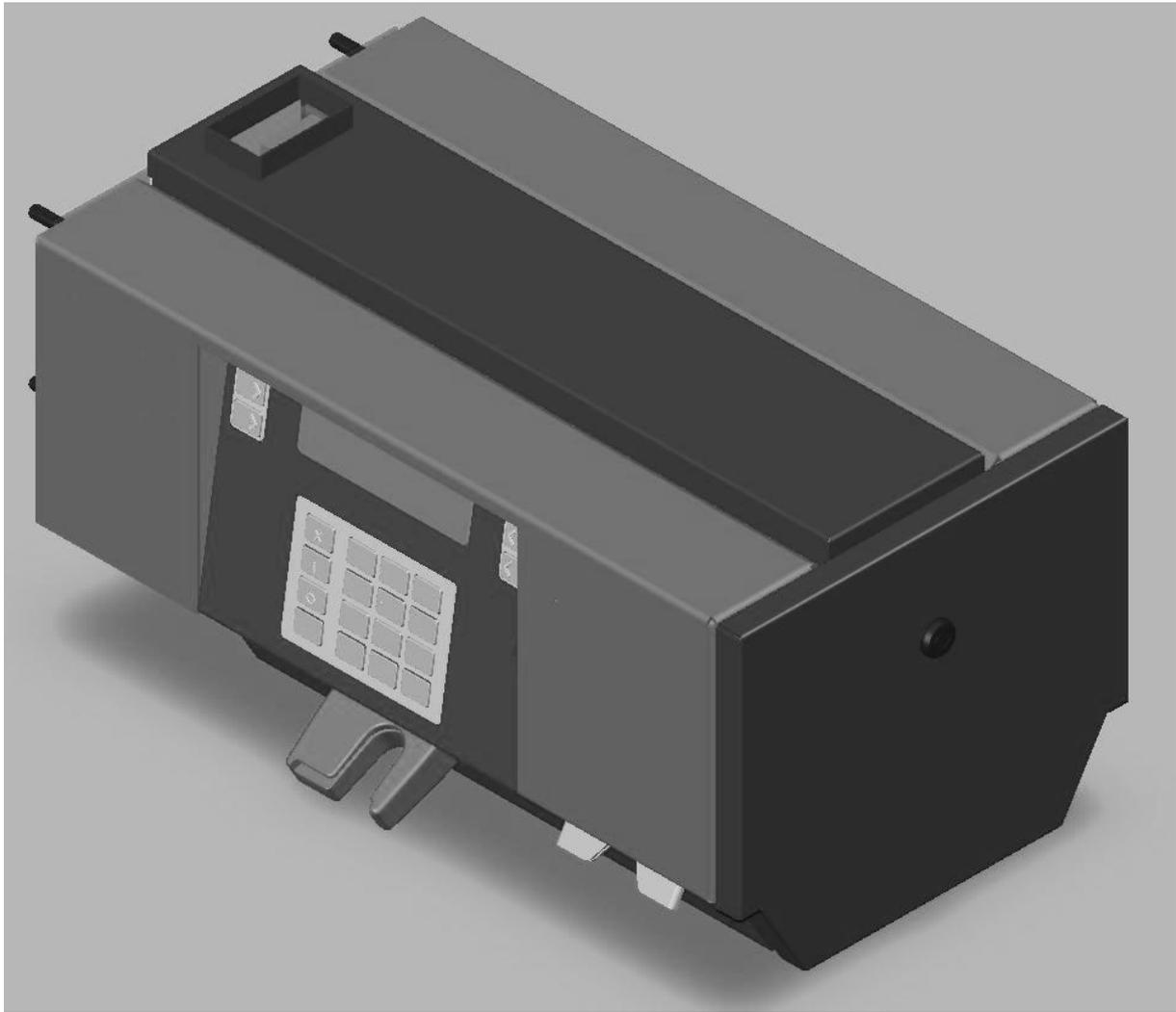
**FOPT Hardware Architecture**

**Figure 2 FOPT Hardware Architecture**

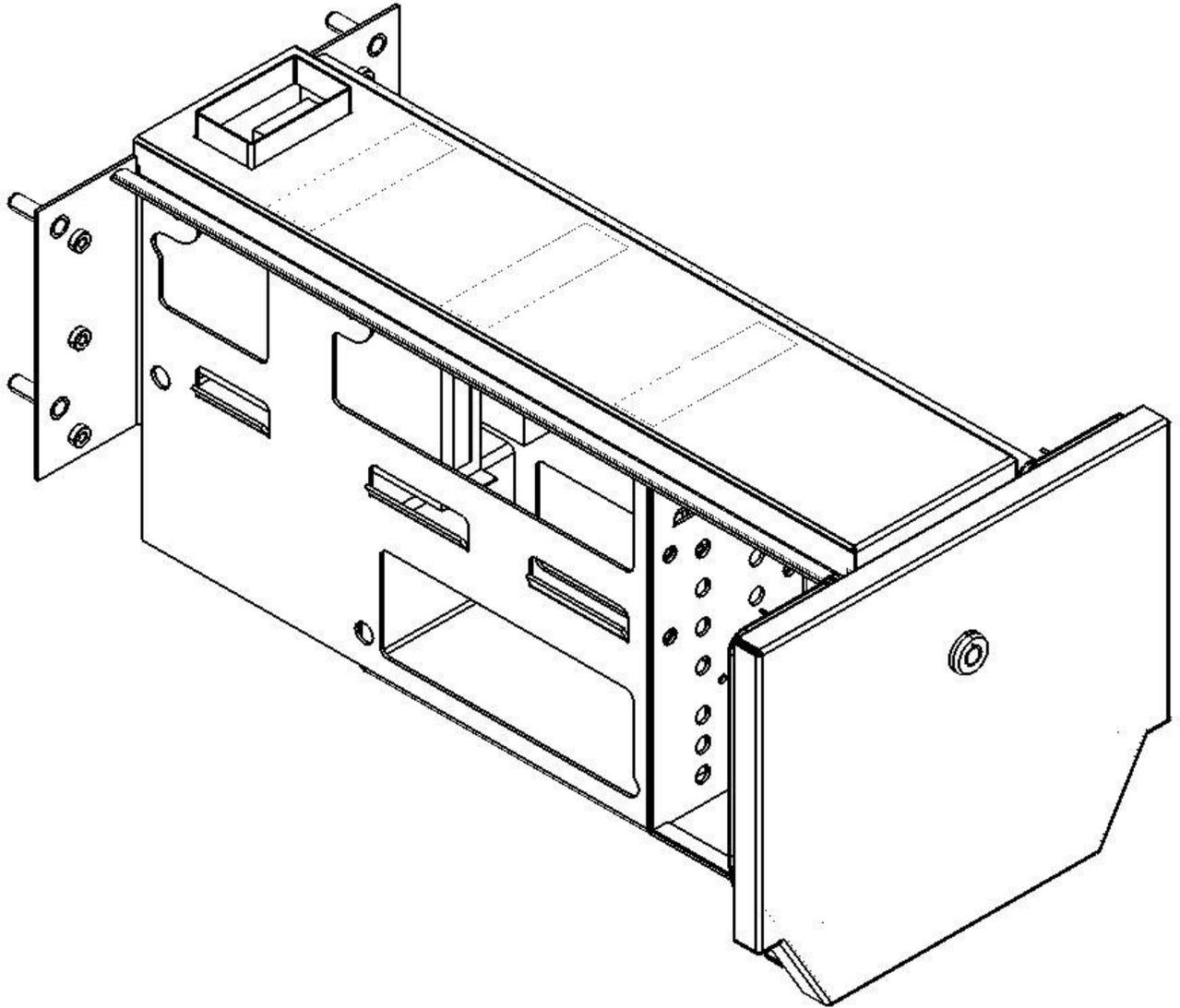


Logical Architecture

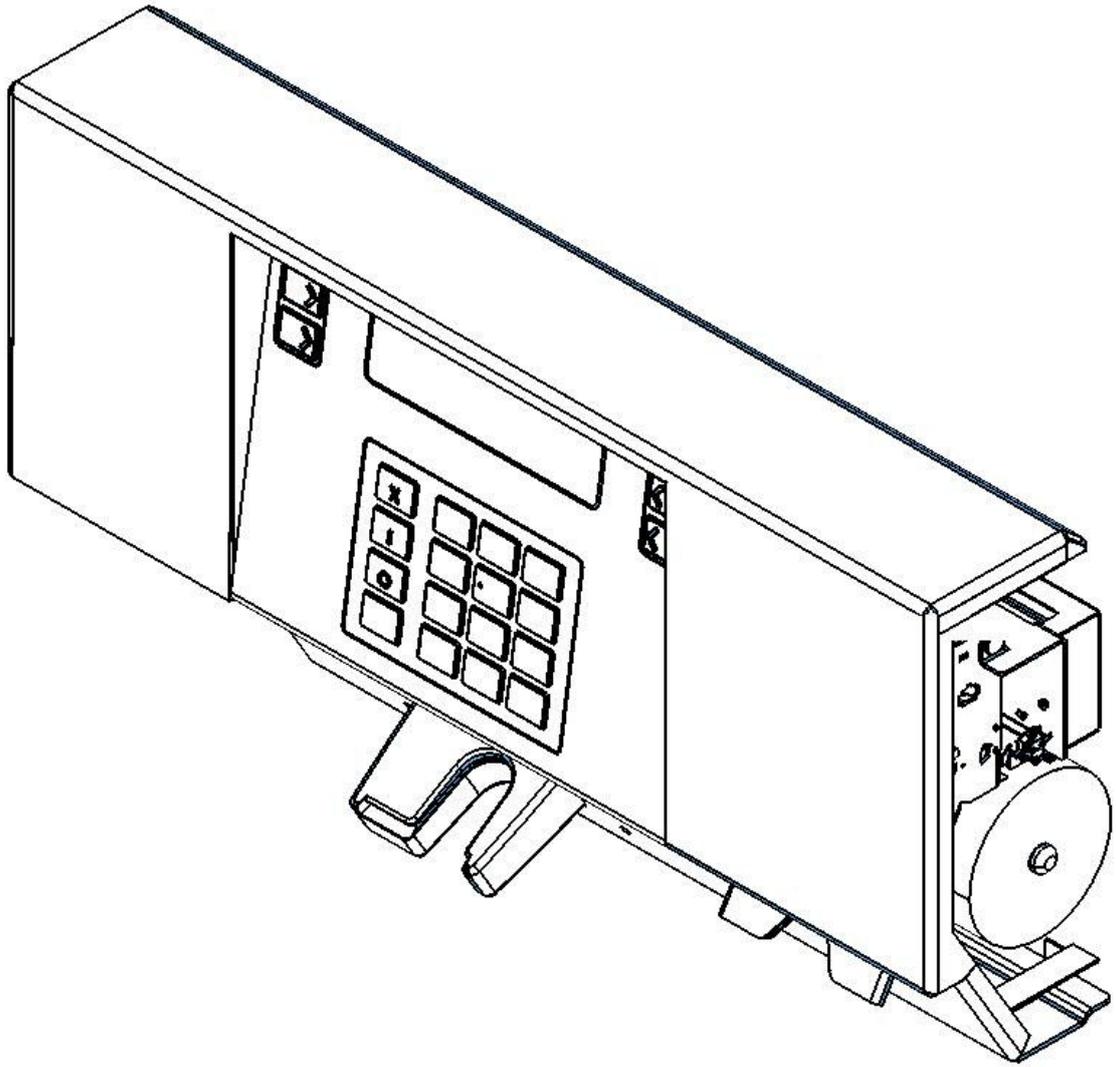
Figure 3 Logical Architecture



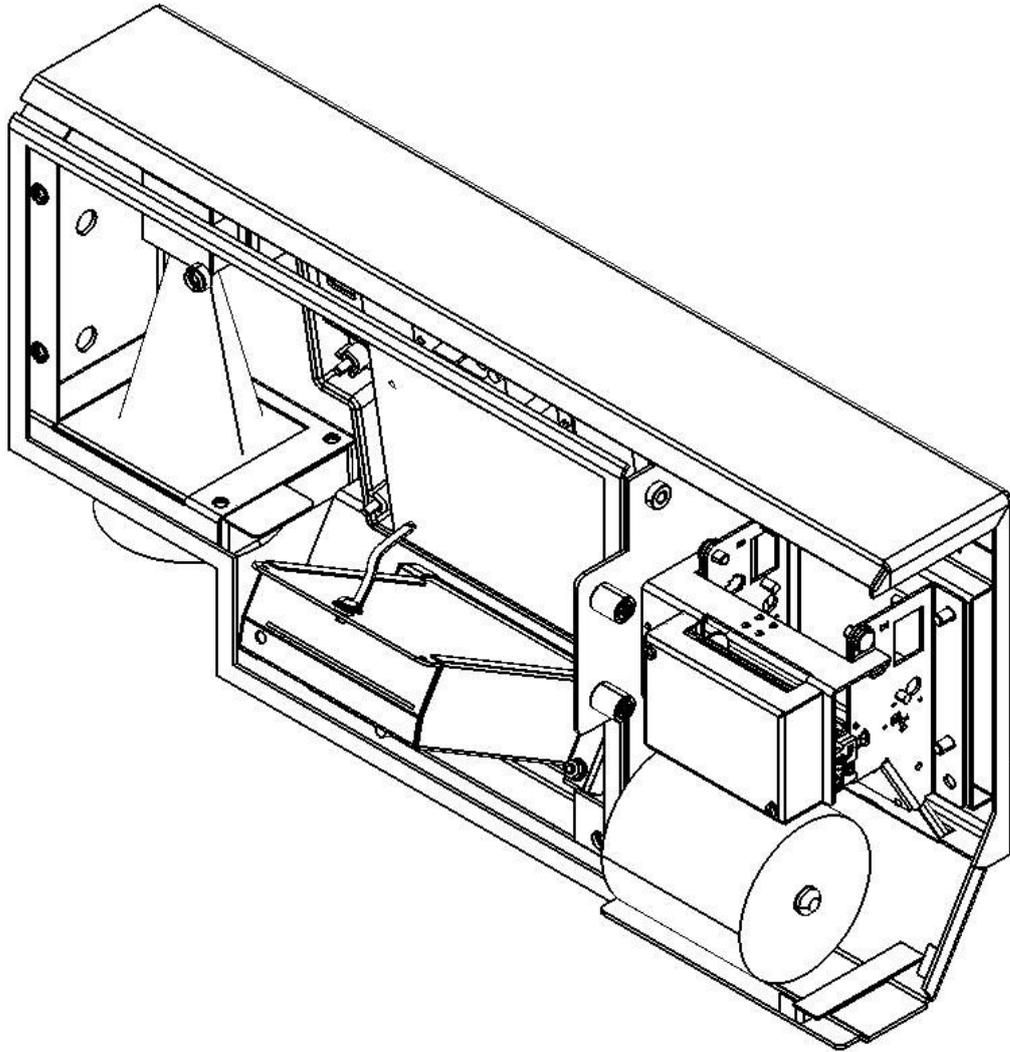
**Figure 4** OPT outline



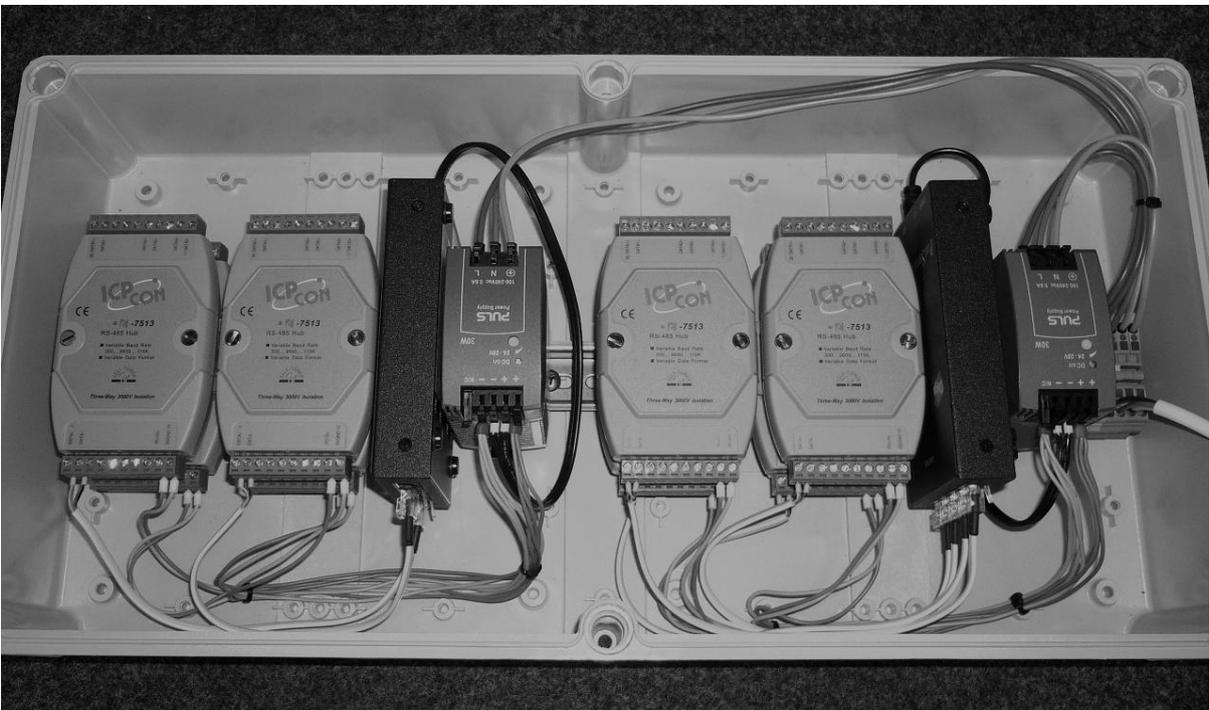
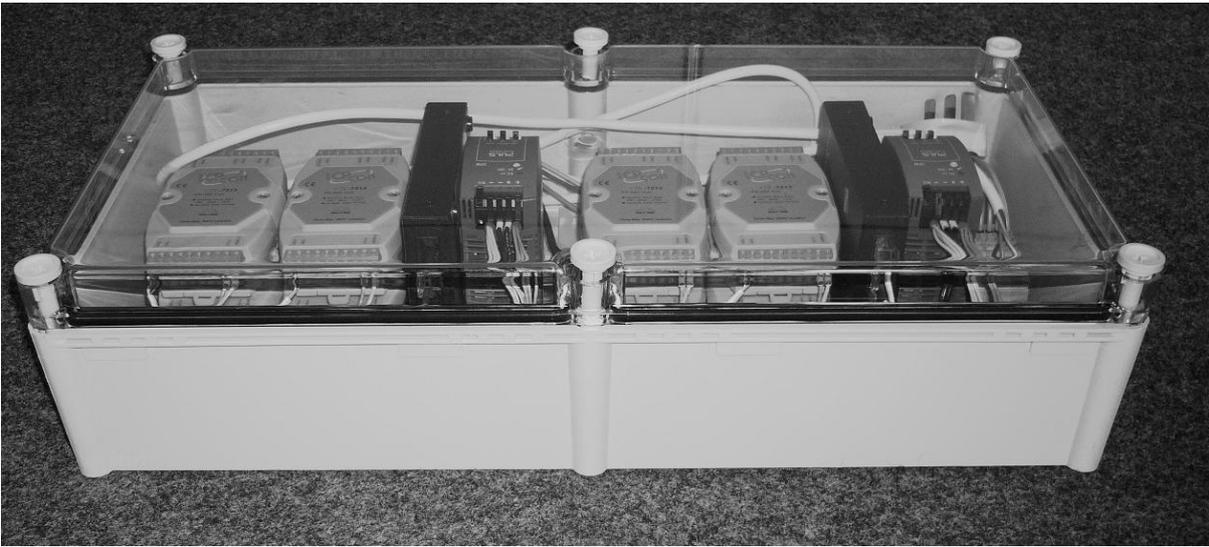
**Figure 5** Trunk outline



**Figure 6**    **Cassette Outline**



**Figure 7**      **Cassette Internals (protective plate removed)**



**Figure 8 Forecourt Interface Box**



**Figure 9 D2 BEETLE M POS terminal**



**Figure 10 Rear view of D2 BEETLE S POS terminal**



**Figure 11 BEETLE-X POS terminal with external power supply unit**



**Figure 12 BEETLE-SX POS terminal**



**Figure 13 Sample Receipt**



**Figure 14 DigiPoS Retail Blade EPOS PC**



**Figure 15** Front view of PH6000T System Unit showing Main system unit (top) and IO Expansion Hub (bottom)



**Figure 16** Top view of BW703635-103 DDM with generic 2-Wire Dispenser Interface PCB



**Figure 17** Petrotec T-OPT