DCA SERVICE MANUAL

DCA Service and Installation Manual
Version 1.2.0

Model: RAS, DCA, CC DCA and variants

Date: 7th December 2018

compac
PREMIUM DISPENSER TECHNOLOGY

Conditions of Use

- Read this manual completely before working on, or making adjustments to, the Compac equipment
- Compac Industries Limited accepts no liability for personal injury or property damage resulting from working on or adjusting the equipment incorrectly or without authorization.
- Along with any warnings, instructions, and procedures in this manual, you should also observe any other common sense procedures that are generally applicable to equipment of this type.
- Failure to comply with any warnings, instructions, procedures, or any other common sense procedures may result in injury, equipment damage, property damage, or poor performance of the Compac equipment
- The major hazard involved with operating the Compac C4000 processor is electrical shock. This hazard can be avoided if you adhere to the procedures in this manual and exercise all due care.
- Compac Industries Limited accepts no liability for direct, indirect, incidental, special, or consequential damages resulting from failure to follow any warnings, instructions, and procedures in this manual, or any other common-sense procedures generally applicable to equipment of this type. The foregoing limitation extends to damages to person or property caused by the Compac C4000 processor, or damages resulting from the inability to use the Compac C4000 processor, including loss of profits, loss of products, loss of power supply, the cost of arranging an alternative power supply, and loss of time, whether incurred by the user or their employees, the installer, the commissioner, a service technician, or any third party.
- Compac Industries Limited reserves the right to change the specifications of its products or the information in this manual without necessarily notifying its users.

- Variations in installation and operating conditions may affect the Compac C4000 processor's performance. Compac Industries Limited has no control over each installation's unique operating environment. Hence, Compac Industries Limited makes no representations or warranties concerning the performance of the Compac C4000 processor under the actual operating conditions prevailing at the installation. A technical expert of your choosing should validate all operating parameters for each application.
- Compac Industries Limited has made every effort to explain all servicing procedures, warnings, and safety precautions as clearly and completely as possible. However, due to the range of operating environments, it is not possible to anticipate every issue that may arise. This manual is intended to provide general guidance. For specific guidance and technical support, contact your authorised Compac supplier, using the contact details in the Product Identification section.
- Only parts supplied by or approved by Compac may be used and no unauthorised modifications to the hardware of software may be made. The use of non-approved parts or modifications will void all warranties and approvals. The use of non-approved parts or modifications may also constitute a safety hazard.
- Information in this manual shall not be deemed a warranty, representation, or guarantee. For warranty provisions applicable to the Compac C4000 processor, please refer to the warranty provided by the supplier.
- Unless otherwise noted, references to brand names, product names, or trademarks constitute the intellectual property of the owner thereof. Subject to your right to use the Compac C4000 processor, Compac does not convey any right, title, or interest in its intellectual property, including and without limitation, its patents, copyrights, and know-how.
- Every effort has been made to ensure the accuracy of this document. However, it may contain technical inaccuracies or typographical errors. Compac Industries Limited assumes no responsibility for and disclaims all liability of such inaccuracies, errors, or omissions in this publication.

Product Identification

Specifications

Manual Title	DCA Installation and Service Manual
Original Publication Date	Wednesday, 29 August 2012
Models Covered	This manual applies to Compac models RAS, DCA, CC DCA and variants. Power Supply: 220 - 240 V +/- 10%, 50 Hz, 1 Amp **NOTE:** *Do not use this manual for earlier models. Contact Compac for archived manuals if required.*

Validity

Compac Industries Limited reserves the right to revise or change product specifications at any time. This publication describes the state of the product at the time of publication and may not reflect the product at all times in the past or in the future.

Manufactured By:

The Compac DCA unit is designed and manufactured by Compac Industries Limited
52 Walls Road, Penrose, Auckland 1061, New Zealand
P.O. Box 12-417, Penrose, Auckland 1641, New Zealand
Phone: + 64 9 579 2094
Fax: + 64 9 579 0635
Email: techsupport@compac.co.nz
www.compac.biz
Copyright ©2015 Compac Industries Limited, All Rights Reserved

Document Control

Document Information	
Document Details	DCA Installation and Service Manual
File Name and Location	G:\Masters\Manuals\Authorised Manuals\DCA
Current Revision Author(s)	R Liu
Authorised By	W Zheng

Version	Date	Author(s)	Revision Notes
1.0.1	07 Dec 2009	R Lacey	Added USB Module instructions.
1.0.2	06 Sep 2010	R Lacey	Republished with formatting changes from Comfutra manual.
1.1.0	13 Jan 2011	R Lacey	Added Working with USB Module & Gilbarco comms update.
1.1.1	28 Feb 2011	R Lacey	Added USB key USBTransJoin.exe instructions.
1.1.2	11 Jul 2011	R Lacey	Updated grade map table.
1.1.3	01 Nov 2011	R Lacey	Added generator precautions, tank gauging cable restrictions and DCA installation checklist.
1.1.4	29 Aug 2012	R Lacey	Updated Conditions of Use. Added Colibri TG info. New Custom printer. Updated ATG Box to Compac Box. Added Roseman spec Compac Box to spare parts. Added Litres Total info. Added Fit PC info.
1.1.5	11 Mar 2014	R Lacey	Added footprint. Updated printer replacement instructions.
1.1.6	05 May 2016	H Kleyer	Added Pump Error message.
1.1.7	05 Dec 2017	S Laycock	Upgraded manual format.
1.1.8	08 May 2018	S Laycock	Updated drawings and spare parts.
1.1.9	12 Nov 18	S Laycock	Added aerial installation instructions. Added bleed resistor wiring. Updated spare parts.

| 1.2.0 | 07 Dec 2018 | R Liu | Updated Contact Information |

Contents

Contents

Contents

Safety

You must adhere to the following safety precautions at all times when working on this unit. Failure to observe these safety precautions could result in electrical or mechanical damage to the unit or injury or death to yourself or bystanders.

Make sure that you read and understand all safety precautions before installing, servicing or operating this unit.

NOTE: *Failure to follow safety instructions may invalidate any warranty.*

Mechanical Safety

Observe the following mechanical precautions:

CAUTION: *During installation, take care that the unit is well supported and cannot fall over.*

CAUTION: *Take care with handling sharp edges, wear gloves where required.*

CAUTION: *Make sure that the service area is thoroughly clean when servicing. Dust and dirt entering the components may reduce the life span of the components and can affect operation.*

Electrical Safety

Observe the following electrical precautions:

CAUTION: *Always turn off the power to the unit before commencing work on any wiring. Never touch wiring or components inside the high voltage area with the power on. Be aware that capacitors and back up batteries may power the unit even after mains power is removed.*

CAUTION: *Always turn off the power to the unit at the mains switch before removing or replacing software or memory ICs.*

CAUTION: *Always take basic anti-static precautions when working on the electronics, i.e., wearing a wristband with an earth strap.*

Environmental Safety

Observe the following environmental precautions:

Take care that you clean up after working on the unit.

Remove and carefully dispose of any waste.

Any spills must be cleaned up and disposed of in an approved manner.

CAUTION: Any spillage of fuel must be handled to minimise the risk of fire or explosion. Major spills must be reported to the local environmental authorities.

Site Safety

Observe the following precautions when on site:

Personal safety is the responsibility of the site manager and technician. Personal protective equipment appropriate to the situation is to be worn and if required, the working area appropriately cordoned off with cones, tape and/or barriers.

CAUTION: When working in or near hazardous areas, take all precautions to avoid sources of ignition. Obtain a Hot Work Permit if required.

NOTE: These instructions are intended as a guide only. It is the responsibility of the technician and the site manager to manage safety in accordance with local regulations and best safe site practice.

Introduction

The Compac DCA is designed as an authorisation station for controlling the operation of fuel pumping systems. It is compatible with most common fuel pumps and can be easily customised to accept a variety of authorisation methods and provide detailed transaction reporting. The main features include:

- Standalone unit for unattended refuelling
- Stainless steel construction
- Tactile keypad
- Robust, reliable receipt printer
- Authorisation options include: Card, Pin, HID tag, iTrack, Roseman or Compac Wireless ID (CWID) tag or nozzle loop
- Most major oil, gas company and third party cards accepted
- Data retrieval and client management by CompacOnline software or USB key
- Reporting of tank gauge readings via CompacOnline (option)
- Communication via ADSL modem, 3G wireless, LAN cable or wireless LAN
- Ability to authorise high volume pumping systems

There are two basic models of Driveway Card Acceptor.

Model 1 is known as a Driveway Card Acceptor [DCA].

A Driveway Card Acceptor is designed to be used on an unattended site where the fuel pumps are authorised and controlled totally by the DCA.

A DCA has the site controller circuit board [Communicator Controller] included inside the unit.

A DCA can be configured with the appropriate hardware to communicate to and control Compac, PEC protocol and selected Gilbarco and Email protocol pumps.

Model 2 is known as a Retail Authorisation Station [RAS].

A RAS is designed to be used on a retail site where cash and card sales can take place during attended hours and card sales only can take place after hours. A RAS is connected to a Compac Communicator Controller on the pump communication loop. The Communicator Controller is normally located in a nearby office. You can have multiple Retail Authorisation Stations on one site connected to the controller.

NOTE: *For clarity, all units are referred to as DCA units unless it contains a feature specific to a RAS unit.*

Options

The DCA is a very versatile unit and can be equipped for many different functions depending on the customer's requirements.

Driveway Card Acceptor

The Compac Driveway Card Acceptor [DCA] is a standalone unit designed for unattended refuelling. The DCA can accept multiple card bases simultaneously including all major Oil Company, Gas Company and third party cards. It can authorise and control Compac, PEC, Gilbarco and Email Pumps with the appropriate hardware. It is NSC [Weights and Measures Australia] approved.

The DCA uses a DS1250 memory chip which has the ability to change the partition on the memory to make more space for more card numbers in exchange for a reduction in transaction memory.

Standard partition	5,500 Transactions	5,000 Cards
Optional partition	4,000 Transactions	22,000 Cards

NOTE: *These figures are approximate depending on the fields required.*

Card numbers can be stored in two different ways: In limited validation mode, only the card numbers stored in the DCA can be used. In extended validation mode all valid ISO or mapped cards will be accepted apart from the "Hot Card" numbers that are stored in the DCA.

To download and manage transactions, the DCA has the following interfaces available:

- USB key
- CompacOnline

The following interfaces are no longer sold:

- Dial-up modem interface - (download via Netbase) - supported
- Printer interface (download to audit trail printer) - no longer supported
- PC interface - (downloads direct to a PC) - no longer supported

Standard Operation for a DCA

The driver goes to the DCA and Swipes their Card.

If the card is valid, the DCA display will request PIN entry [optional] and Odometer entry [optional].

The DCA display requests the driver to select which pump they wish to refuel from.

The DCA display advises the driver to take fuel.

After the transaction, if the driver requires a receipt he/she goes back to the DCA and re-swipes their card. Select YES to print receipt. (If NO is pressed, a new transaction will be started.)

To access DCA data there are the following options:

1. Print out reports on the Audit Trail Printer
2. Download the data directly to a PC running NETBASE
3. Download the data VIA MODEM to a PC running NETBASE
4. Display real time information and download data using CompacOnline software via a 3G or ADSL modem
5. Download data to a USB stick

Components

The DCA consists of the following components:

A galvanised post base that is secured to the ground.

A post to support the DCA. This post is manufactured from stainless steel and is powder coated white. It has a removable back plate to allow the DCA housing to be easily bolted on and allow access to the electrical wiring to and from the cabinet.

DCA Housing. The housing is manufactured from stainless steel and is powder coated white. The card-reader, printer and PIN pad keypad/display are fitted into the DCA housing door. A Communicator Controller circuit board is located inside.

A heater and thermostat are provided for climates where the temperature may fall below 10°C to prevent moisture forming inside the cabinet. Other components such as a modem, Gilbarco or Email Pump Interface, and Pump comms booster circuit may be installed.

The DCA housing door is weather sealed and secured by two locks.

The Card Reader can be track 1 or 2. We do not support a reader reading and processing track 1 and 2 simultaneously.

From 2012 onwards DCAs are fitted with a tactile key pad. Previous versions have a capacitance non-contact type.

Receipt printers are fitted to units where a printed receipt is required.

Printer

DCAs are fitted with two types of receipt printer. Prior to June 2012, DCAs are fitted with a guillotine style printer with receipts dispensed into a container accessed via a sliding door. From June 2012 onwards DCAs are fitted with a tear-off style printer with receipts dispensed via a chute.

NOTE: The two styles of printer use different sized paper rolls that are not interchangeable.

For guillotine style printers order: F-BA-PRTER-CK-RL

For tear-off style printers order: F-BA-PRT-TG60X80

Use only Compac supplied water-resistant thermal paper.
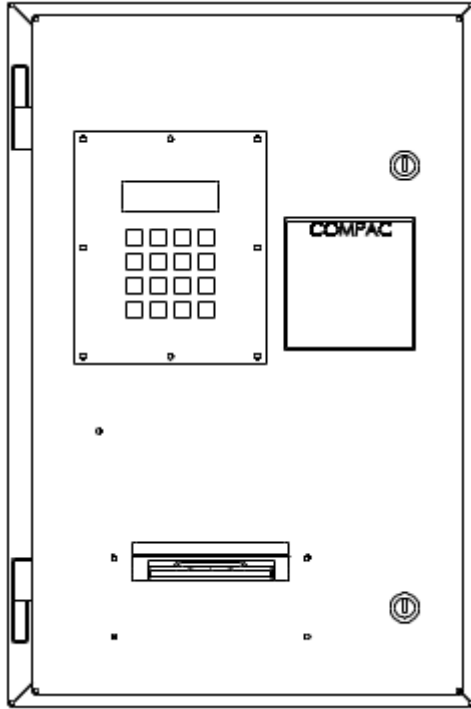
Typical Installation:
Compac DCA
with Compac CC160S
Highflow Dispensers

DCA

To additional
Bowsers &
DCA's
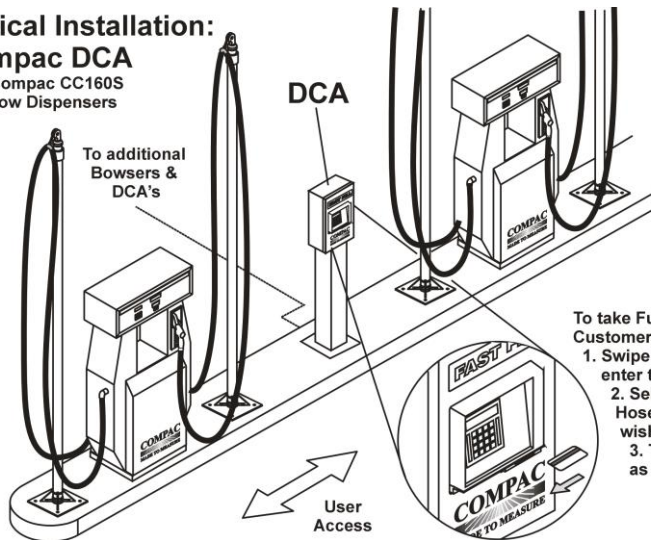
To take Fuel
Customers simply:
1. Swipe Card and
enter their PIN.
2. Select the
Hose they
wish to use.
3. Take Fuel
as required.

User
Access

11.

Litres Total

From July 2012, Compac dispensers that are connected to Compac fuel management systems (FMS) that do not have a customer receipt printer, are fitted with an additional display line labelled "Litres Total". This display shows the total amount of fuel dispensed from the site to the authorisation card or ID tag. The total is shown as litres to two decimal places.

Use

When a PIN number is entered, an authorisation card is swiped, or an ID tag detected by the fuel management system, the selected dispenser will display the current total litres dispensed to the card (or ID tag) by the site FMS.

The total will update as fuel is dispensed. When the transaction has been completed, the new total is stored in the fuel management system. The next time the card is swiped, or an ID tag detected by the FMS, the current Litres Total will display on any of Litres Total capable dispensers on the site.

NOTE: The displayed total only relates to the amount of fuel dispensed to the individual card or tag on that particular site.

Standalone

If the dispenser is set to standalone mode, the authorisation unit is bypassed and no totals are recorded against the card or ID tag.

Software

The dispensers with Litres Total capability run software version 29255.

Fuel management systems manufactured after July 2012 have Litres Total capability. Systems manufactured earlier than this require a software upgrade.

Installation Guidelines

CAUTION: You must be properly qualified, trained and authorised to install this unit. Ensure you are qualified to perform each of the operations described.

Location

DANGER: The Compac DCA is NOT suitable for mounting in a hazardous area. Please consult the site's zone drawings to find the exact positions of the hazardous areas for each particular site.

For adequately ventilated fuel dispensing sites (not including CNG/NGV), in most cases the following will apply:

- The unit is not designed to be constantly exposed to the elements. A canopy or shelter should be installed to protect it.
- The card reader and PIN pad should face away from the prevailing wind, especially in dusty or wet areas.
- In areas experiencing extremes of weather (heat, cold, wind, rain, salt spray etc.) consideration should be given to installing additional shelter.
- The DCA location or protection should be such as to minimise the possibility of damage from vehicles, trailers, boats, or the like.
- On heavy vehicle sites, mount the unit on a raised pad and/or install bollards to help protect from damage.
- If mounting on a post, the base needs to be attached to a smooth, level surface of sufficient strength to securely hold the retaining bolts or fasteners.
- The DCA should be placed at least 8 metres from any above ground flammable liquid storage or handling facility other than a dispenser.
- The DCA should be placed at least 0.5 metres from any flammable liquid fuel dispensers and 1.5 metres from any LPG dispensers.
- The DCA should be mounted so that the base of the cabinet is at least 1.2 metres above the ground. If mounted on the post supplied by Compac it will be 1.2 metres high.
- Whenever running a cable through the post into the base of the cabinet always ensure that the cable entry into the cabinet uses a vapour tight gland.
- If the DCA post is within 4 metres of a dispenser or within 1 metre of the end of any fuel dispenser hose, then the entire interior of the post may be considered a hazardous area. Any cables running through, or electrical equipment mounted in the post should be suitable for that hazardous area (refer AS/NZS 2381).
- Generally, the area below the DCA may be a hazardous area and therefore some appropriate signage may be required e.g. no smoking.
- Lighting should be provided during the hours of operation. Lighting should be sufficient to provide safe working conditions that include, but are not limited to, clear visibility of all markings on packages, signs, instruments and other necessary items.

NOTE: A minimum value of 50 lux is recommended.

These requirements do not apply to any specific site but are merely recommendations that will apply in most cases. The owner/installer must ensure that the installation complies with AS/NZS 3000, AS 1940, and any other applicable regulations.

Guidelines for Mounting the DCA on a Post

If a post is part of the installation:

Make sure you have all the appropriate wiring (power, pump comms, modem, printer etc) led to the location where you are mounting the DCA.

The post assembly should include the following parts:

- Galvanised base
- DCA post
- Back panel for DCA post
- Flange with 4 studs
- Nuts, washers and spring washers for studs
- Button head cap screws for back plate

Levelly and securely mount the galvanized post base using appropriate fastenings for the surface it is being mounted on. The mounting plate has 4 x 19 mm holes for fastenings.

NOTE: Due to the different surfaces that the DCA can be mounted on, Compac does not supply fastenings for the base plate. Installers should use fastenings suitable for the individual situation.

- Attach the post to the base with the 4 coach bolts provided.
- Feed all wires through the base plate.
- Place the DCA cabinet on top of the post and line up the mounting holes in the cabinet to the holes in the base.
- Insert the flange into the post, push the studs through the holes and fasten the cabinet to the post using the 4 washers, spring washers and nuts.

NOTE: Use only the Compac supplied 4 bolt mounting plate to secure the DCA to the post.

- Feed the wiring into the DCA cabinet using appropriate glands and plug any unused holes in the cabinet.
- Mount the cover plate onto the post using the supplied button head cap screws. The cutout goes to the bottom of the post.

NOTE: No open holes in the base of the DCA cabinet are permitted. Any unused holes in the bottom of the DCA cabinet must be blanked.

Guidelines for Mounting the DCA on a Wall

If the DCA is to be mounted on a wall, it needs to be attached to a bracket that bolts to and supports the unit from underneath. No holes are to be made in the back of the cabinet unless specifically approved by Compac. All wires into the cabinet must be glanded and all unused holes in the base must be blanked.

355

Hinges this side

535

Hinges this side

DCA Front View

20mm gland holes

Note: All unused holes must be blanked

60

115

260

10mm mounting holes

210

Door

355

Plan View of Base

15.
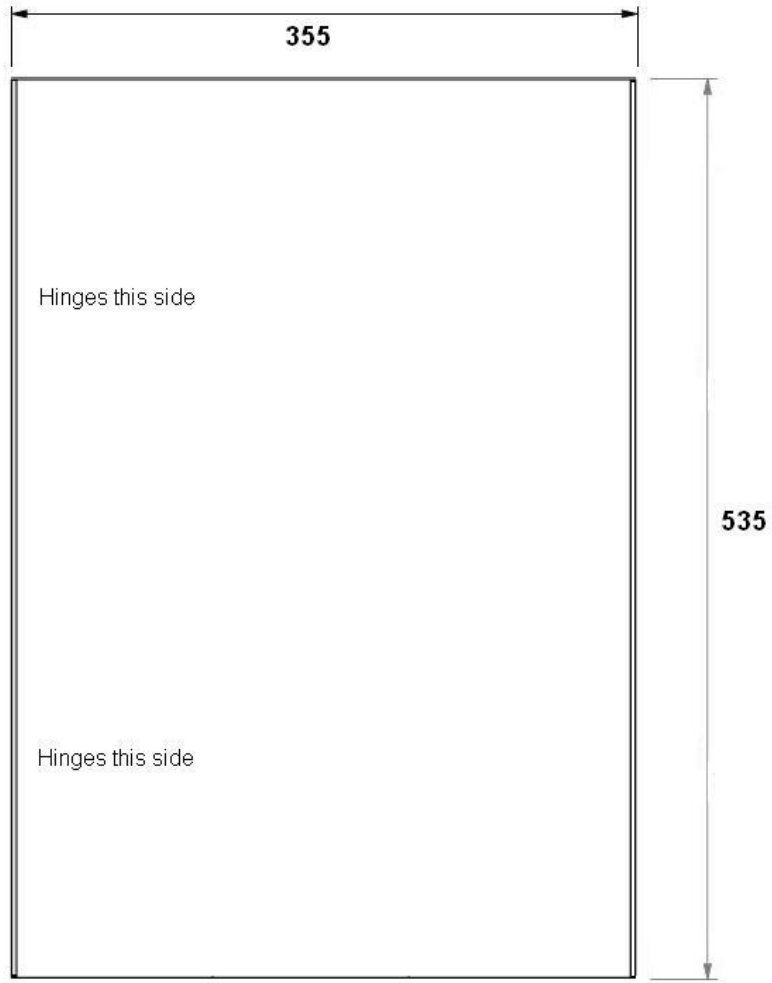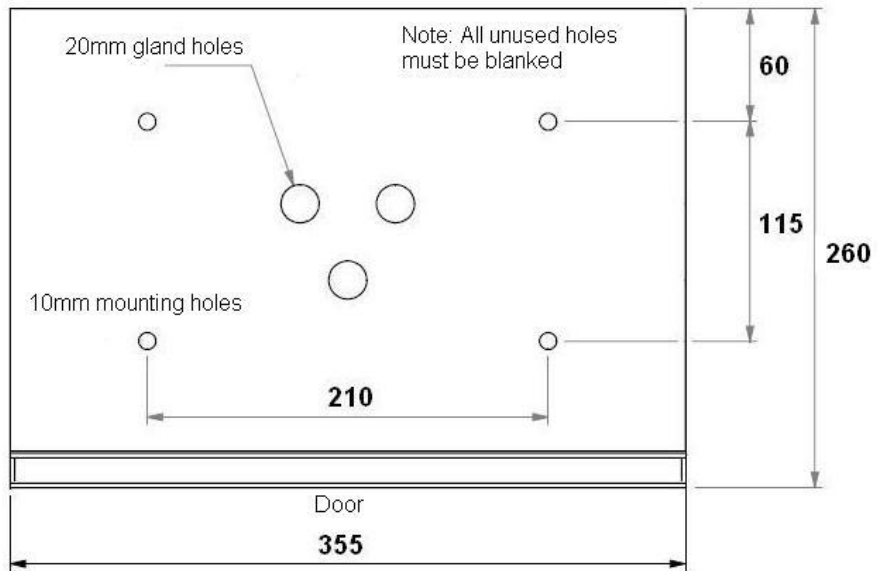
Security Guidelines

To help prevent the possibility of unauthorised tampering, it is recommended that tamper resistant fasteners be used and that all wiring outside the cabinet be enclosed.

Electrical Connections

Gland the Mains and Comms SWA cables up through the post into the 20mm holes provided in the bottom of the DCA cabinet.

Cable Recommendations

Dial up or ADSL modem (if fitted): 2 core Steel Wire Armour (SWA).

Audit Trail Printer (if fitted): 4 core shielded data cable.

Direct Host (if fitted): Standard 9 pin serial cable.

230V Mains

3 Core Steel Wire Armour Cable 2.5 mm^2. 230 Volts, 10A, 50 Hz

Connect the incoming mains to the circuit breakers as follows:

- All terminals marked "N" are common
- All terminals marked "P" are common

Connect the Earth to the busbar at the bottom of the cabinet.

Pump Comms

2 Core Steel Wire Armour (SWA) cable 1.5 mm^2.

Connect pump comms cable to the terminals marked as follows:

- CC for Compac and PEC protocol pumps
- GG for Gilbarco protocol pumps
- EE for Email protocol pumps

NOTE: *Total cable length in the comms circuit should not exceed 100 metres.*

NOTE: *Compac, PEC and Email protocol pump comms are wired in parallel. Gilbarco protocol pumps are wired in series.*

NOTE: *If the site is active, do not connect pump comms until the correct price has been entered into the DCA.*

Phone or ADSL

Connect the lines to the terminals marked T, R and G.

Comms Lightning Protection

If lightning protection is fitted on the Compac comms, connect the comms cable directly into terminals marked LINE. Match up cables to the colours at the other end of the lightning protection unit.

Tank Gauging (option)

Connect the wires from the tank gauging unit to the terminals on the Din rail marked Tx, Rx and G. The Tx wire from the tank gauging unit connects to the Rx terminal.

Cable length should be less than 3 metres. Cable length can be extended up to 10 metres if an opto-isolator is used. Part number: **FO-TEST-0001**

Mechanical Registers

Refer to the specific instructions for the individual unit.

NOTE: Ensure the perspex cover is refitted after cables are connected.

Bleed Resistor Wiring

The Bleed resistor on 230 volt solid state relays prevents the relay from remaining on when the Load on the 230 volt side is not sufficient to draw down the residual current when the relay is switched off. To connect a bleed resistor, use the following schematic:
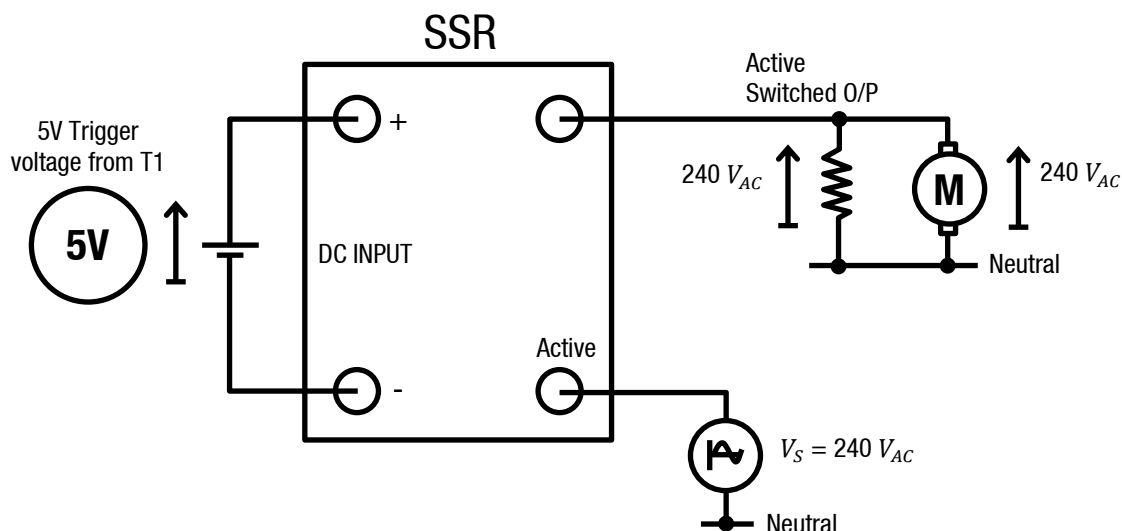
Tank Gauging Setup

Tank gauging is wired into the terminals marked Tx, Rx and G.

The tank gauging unit will have to be set up with the correct outputs to communicate with the FMS board. Settings depend on the unit.

Type	Mode	Baud Rate	Parity	Bit	1 Stop Bit	Handshake
Veeder Root	Serial	1200	Odd	7 Bit	Yes	Off
Franklin	Veeder Root	9600	No	8 Bit	Yes	Off
Colibri	Veeder Root	9600	No	8 Bit	Yes	Off

The Compac settings for each model of tank gauge are usually either set at the factory or sent via CompacOnline.

Aerial/Antennae Installation

For wireless connected units where the aerial is mounted remotely from the cabinet, the aerial cable should be run through ducting that provides suitable protection and flexibility.

When choosing a location for aerial installation, ensure that as much of the aerial as possible, especially the fibreglass whip section, is mounted away from metallic obstructions such as pillars and roof overhang. Ensure it is not mounted within one metre of any other aerials to minimise signal interference.

IMPORTANT NOTE: When installing the spring-loaded aerial, it is essential to leave enough loose cable at the bottom of the aerial for when the spring flexes. A loop of 50mm before fixing the cable should be sufficient.
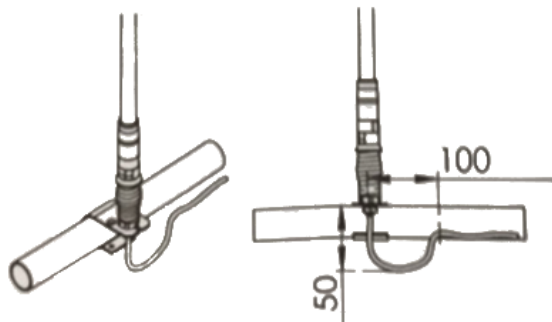
The aerial plugs into the wireless router. Neatly cable-tie the aerial cable to existing wiring and feed any excess into the base where it can be coiled and cable tied out of the way. Make sure the aerial cable does not interfere with the paper roll when the door is closed.

Generator Power

The power output from onsite generators can cause power spikes that may damage electrical components within the cabinet. When connecting to sites powered by generators, please take the following precautions:

Installing Power Conditioner

Although generators are fitted with power regulators, most are not filtered sufficiently for powering sensitive electrical components. We recommend installing a commercial power conditioner and/or UPS between the generator and the unit.

Start up

1. Before starting a generator, make sure the power to the unit is turned off.
2. Start the generator, let the generator reach stable operating speed and wait 30 seconds before reconnecting the power to the unit.
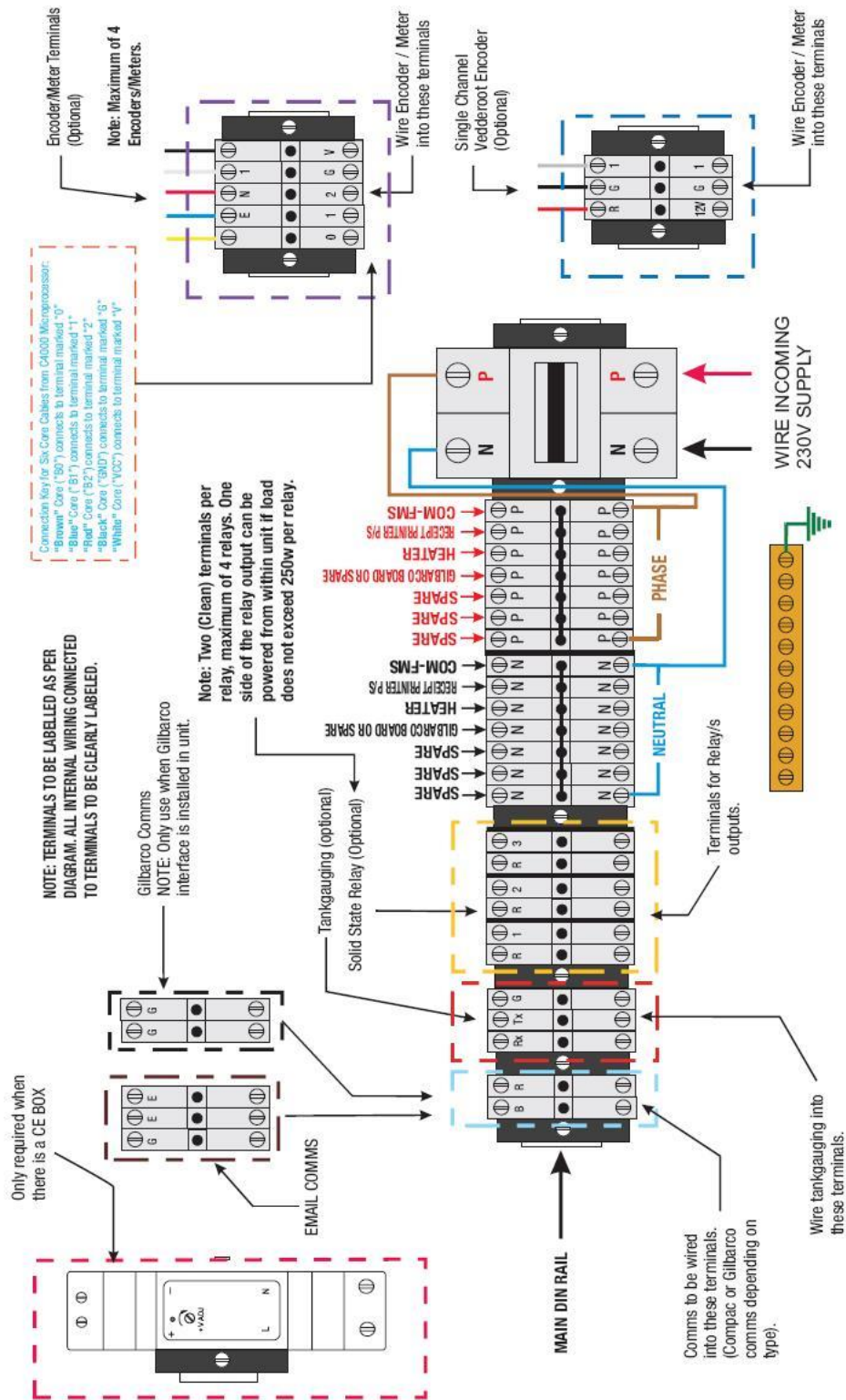
For units where the generator starts and stops on demand, install a delay timer or PLC to automatically isolate the unit until the operating speed and consistent power output is achieved.

Shut down

Isolate the unit before shutting down the generator.

Wiring Diagram

Modem Connections

Dial In 56 K Modem

The phone line into the DCA cabinet should be 2 core Steel Wire Armour (SWA). Gland and terminate this cable into the connector on the left-hand side of the DIN rail. Apart from the telephone line, the modem is pre-wired at Compac.

ADSL Modem

ADSL communication requires an ADSL enabled phone line and a Lantronix board. The Lantronix board is installed and pre-wired at the factory if an ADSL capable DCA is ordered.

The phone line is connected to the DCA in the same manner as the 56K modem.

3G (NZ) or NextG (Aus) Modem

The 3G modem (if fitted) is prewired and only requires a SIM card to be fitted.

To fit the SIM card:

1. Using a pin or small screwdriver, press the small yellow button in the hole next to the SIM card tray. The SIM card tray will pop out.
2. Remove the black plastic SIM card tray.
3. Insert the SIM card.
4. Refit the SIM card tray.

NOTE: There is a red diagnostic LED on the end of the Cell modem which will initially be permanently on but will start to flash when the Cell Modem is connected to the Network.

NOTE: If upgrading from a dial-in cell modem, a Lantronix Board is required.

Cell Modem - Dial In

The Cell modem is no longer sold. To change a SIM card:

1. Depress the small yellow button on the top of the cell modem.
2. Remove the black plastic SIM card-holder.
3. Insert the SIM card.
4. Refit the SIM card holder.

NOTE: There is a red diagnostic LED on the end of the Cell modem which will initially be permanently on but will start to flash when the Cell Modem is connected to the Network.

Direct Host

If the DCA is to be connected directly to the PC without a modem, a cable with a 9 pin female d-connector at each end is available as an option. This may be cut and additional cables spliced into it to make up the required length up to a maximum of 9 metres.

At the DCA it plugs into the socket marked "Modem". The wiring for this cable is as follows:

```
DCA       PC
Pin 2  to  Pin 3
Pin 3  to  Pin 2
Pin 5  to  Pin 5
```

NOTE: Distances greater than 9 metres may require RS422 or RS485 converters.

Audit Trail Printer

If an Audit Trail / Report printer is part of the installation, plug the data cable into the 9pin D connector located in the top left-hand corner marked 'Audit Printer'.

NOTE: The Yellow LED CTS/2 on the processor board should come on to indicate that the printer is connected.

Operating Instructions

CWID Key & CWID Block Readers

Overview

Compac authorisation units can be equipped with a Compac Wireless Identifier (CWID) sensor. Drivers with CWID keys can place their key close to the sensor to enable the pumps. The CWID keys have unique numbers so that each transaction can be assigned to a particular CWID.

CWID block transceivers can also be mounted on the pump nozzle so that the pump is authorised automatically when the nozzle is inserted into a fuel tank fitted with a CWID key. The unit can be programmed to cut out if the CWID signal is lost for 10 seconds in order to prevent filling of unauthorised vehicles.

Standard CWID Key Operation

The driver goes to the unit and places their CWID key close to the CWID "target". If the CWID is valid, the display will request PIN entry [optional] and Odometer entry [optional].

If more than one pump is available, the display then requests the driver to select which pump they wish to refuel from.

The display then advises the driver to take fuel.

After the transaction, if the unit is equipped with a receipt printer and the driver requires a receipt, he/she goes back to the unit and re-presents their CWID key. Select YES to print receipt. (If NO is pressed, a new transaction will be started.)

After printing, the driver lifts the sliding door to retrieve receipt. The receipt is cut off automatically.

CWID Block Nozzle Mount Operation

The driver goes to the pump and inserts the nozzle into the fuel tank. The unit recognises the key and starts the pump.

NOTE: *If the nozzle is removed from the filler, the unit will shut the pump down after approximately ten seconds. This it to prevent the filling of unauthorised tanks.*

When refuelling is complete, the driver hangs up the pump nozzle and departs.

Setup

The CWID aerial is tuned for best performance at the factory. If the CWID board or aerial is replaced then the aerial must be re-tuned. Follow the instructions for Tuning the CWID Aerial.

HID Readers

Overview

Compac authorisation units can be equipped with an HID reader. Drivers with HID keys can place their key close to the sensor to enable the pumps. The HID keys have unique numbers so that each transaction can be assigned to a particular key.

Standard HID Key Operation

The display on the unit will read "PASS HID KEY".

The driver goes to the unit and places their HID key close to the HID panel on the unit. If the HID key is valid, the red light at the top of the sensor will turn green and beep once.

If the unit is configured to ask for a customer ID, odometer reading or job number it will read: "ENTER CUSTOMER ID", "LOAD ODOMETER AND PRESS ENTER" or "ENTER JOB NUMBER".

When the correct numbers have been entered the display will read: "LOAD PUMP NUMBER AND PRESS ENTER". The driver selects the pump number he wishes to use and presses enter. The display will now read: "GO TO PUMP AND TAKE FUEL". (If the pump number selected is not one connected to the unit or the pump is switched off, the display will read: "PUMP OFF LINE".)

The driver will then take fuel and then hang up the nozzle; this completes the transaction.

iTrack Reader

Overview

The Compac unit can be supplied with an iTrack reader that detects vehicles fitted with an authorised transponder and authorises the pump to dispense fuel.

Standard iTrack Operation

When the driver drives up to the pump the iTrack reader will sense the presence of an authorised vehicle. Depending on site setup the unit display will request PIN entry [optional], odometer entry [optional] and which pump they wish to refuel from [optional].

The display then advises the driver to take fuel.

After refuelling, if the unit is equipped with a receipt printer and the driver requires a receipt they select YES to print receipt. (If NO is pressed, a new transaction will be started.)

After printing, the driver lifts the sliding door to retrieve the receipt. The receipt is cut off automatically.

The driver then drives away from the pump. The pump is now ready for the next transaction.

USB Module

The USB Module is mounted in a plastic enclosure with a sealed lid. Under the lid is a slot for a USB stick, an LCD display and four buttons:

⬆ and ⬇ arrows toggle between the screens

✔ accepts the Yes/No option displayed

✖ rejects the Yes/No option displayed and returns to the *"press any key"* screen

The screens available for uploading and downloading are:

- Set Price - Upload new price schedule from USB stick
- Send Cards - Uploads new card authorisation files from USB stick
- Get Trans - Downloads all untagged transaction details to the USB stick
- Get Buffer - Downloads all transactions in the memory to the USB stick including previously downloaded transactions. (This could be up to several thousand transactions.)
- Get All - Uploads and downloads all the above files

The USB module and key can be used while the unit is in operation.

While not recommended, if the USB key is removed while in use, no transaction data will be lost. If the USB key is removed, the operation will need to be repeated to ensure all the data stored on the unit is retrieved.

USB Memory Stick

The Compac USB Module comes with a USB stick that has already been programmed for the customer with a unique file number. The number is located in the Compac folder and will allow the USB module to recognise the USB stick.

NOTE: Each module must have its own key. You cannot have one USB key that covers multiple units.

You should always keep a secure copy of this file as if you lose your Compac USB stick the USB Module will not recognise any other USB stick unless it contains the unique "USB.key" file in the Compac folder.

It is also good practice to keep a secure copy of the Cards folder and Price folder if you are setting up the price through the USB.

The USB Module will display a "Non-Secure USB" error message if the USB Stick does not have the "USB.key" file or the file is not under the Compac folder.

For instructions on handling these files refer to: USB Module Files.
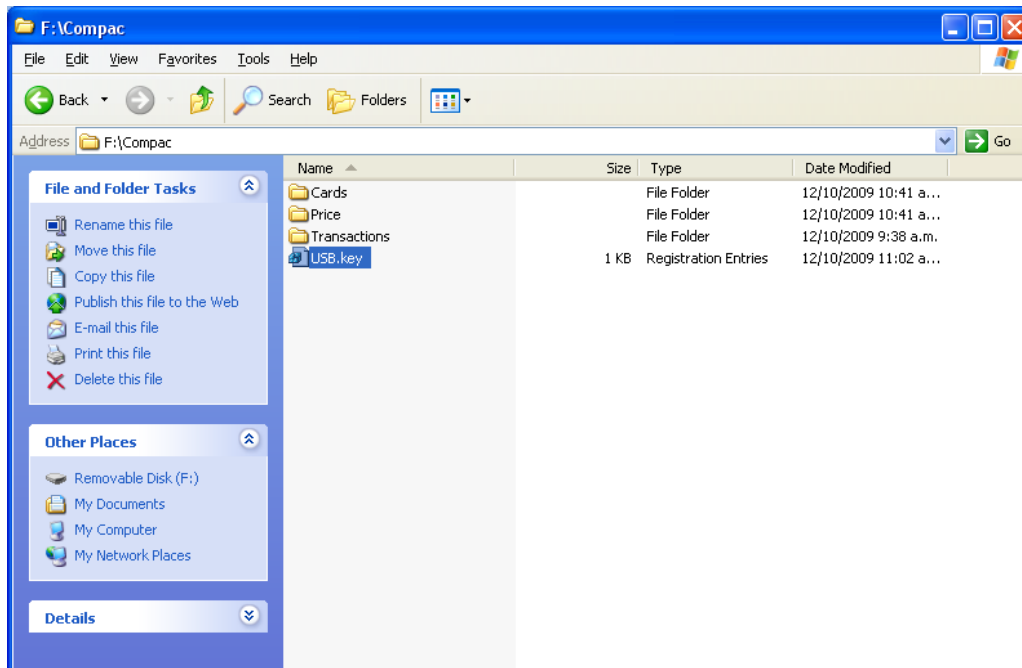
Managing Files

To use the USB Module lift the plastic cover of the module. The screen should display: *"COMPAC USB module press any key"*.

Plug your USB stick into the USB slot and push any of the keys. It will then display *"Searching USB..."*.

If the USB stick does not contain the Compac USB security code the display will read *"Non Secure USB"*. You will have to load the "USB Key" file onto the key before it will work.

If the USB stick has the security code and it has found the data on the USB stick, it will display *"Select [UP/DN] Do All? [OK]"* Refer to the screen Do All. Use the up ⬆ and down ⬇ buttons to go through the menu on the USB Module.

NOTE: *If the USB Module can't find the USB stick, pull it out and push it in again.*

1) Do All

"Do All" uploads the cards files and price files from the USB stick to the module and downloads transactions and buffers from the module to the USB stick. Push the green ✓ button to start the operation. The unit will read *"Please wait..."* while it's uploading transaction and buffer files and downloading cards and price files. Be patient.

If you do not want to use this function, use the up or down keys to scroll through the other options.

NOTE: *Getting the buffer itself could take up to 5 minutes depend on how many transactions are in the unit.*

NOTE: *It is very important that you DO NOT unplug the USB stick before the USB module says "Complete Remove USB".*

2) Set Price

Push down the button to move to the next option *"Set Price"*. Push the green ✔ button to send the price file to the module. The unit will read *"Please wait…"* Once the file has been uploaded to the unit it will say *"Complete Remove USB"*. You can now either unplug the USB stick or wait a few seconds for the screen to return to the menu to continue uploading or downloading more files.

```
Select [UP/DN]
Set Price? [OK]
```

⬆ ⬇ ✔ ✕

3) Send Cards

The next option is *"Send Cards"*. Push the green ✔ button to upload the card files to the module. The unit will read *"Please wait…"* Wait for the USB Module to say *"Complete Remove USB"*. You can now either unplug the USB stick or wait a few seconds for the screen to return to the menu to continue uploading or downloading more files.

```
Select [UP/DN]
Send Cards? [OK]
```

⬆ ⬇ ✔ ✕
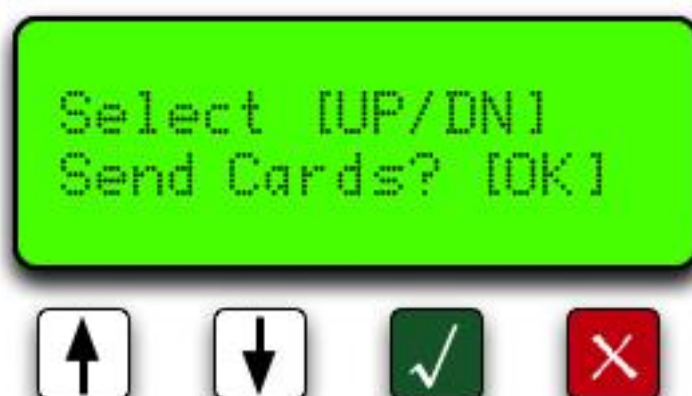
4) Get Buffer

Move down to the next option *"Get Buffer".* Use this option if you want to download all the transactions from the module. This would include the old transactions that have been downloaded from the module before. This operation could take up to 5 minutes depending on how long the unit has been trading and how many transactions are held in the memory of the equipment. Push the ✔ button. The unit will read *"Please wait..."* Wait for the USB Module to say, *"Complete Remove USB".* You can now either unplug the USB stick or wait a few seconds for the screen to return to the menu to continue uploading or downloading more files.

```
Select [UP/DN]
Get Buffer? [OK]
```

5) Get Transactions

The last option is *"Get Trans"(actions).* Push the green ✔ button to download transaction file from the module to the USB stick. The unit will read *"Please wait..."* Wait for the USB Module to say, *"Complete Remove USB".* You can now either unplug the USB stick or wait a few seconds for the screen to return to the menu to continue uploading or downloading more files.
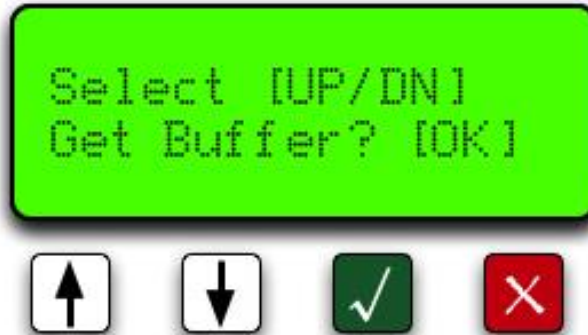
NOTE: *Every time you download transactions from the equipment, it tags them so they will not be downloaded again using this function. It also marks them as re-writable so as the transactions fill up the memory, it will overwrite the old transactions. Depending on functions, the equipment can store up to 5,000 transactions.*

```
Select [UP/DN]
Get Trans? [OK]
```

USB Module Files

You can access the files on your USB key by plugging it into the USB port of your computer and clicking on the Compac file.

You will see the following folders:
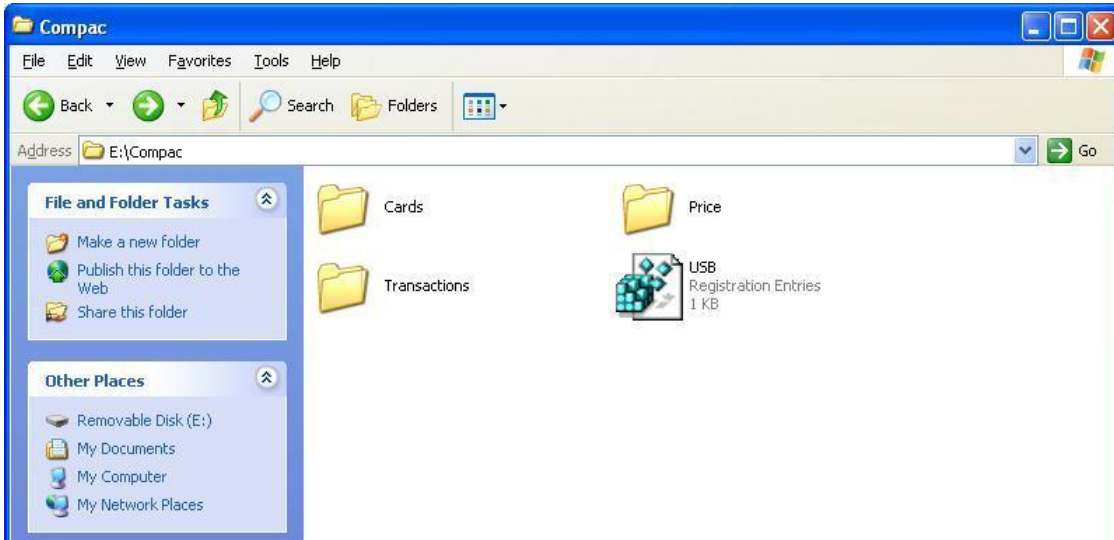
Click on the Cards, Price or Transactions files to view, change or retrieve information.

NOTE: Only transaction information is uploaded from the module. Card and pricing information is stored on the key and downloaded to the module when requested.

1) Cards

Opening the Cards folder will show the Excel spreadsheet file for the cards called cards.csv.

	A	B	C	D	E	F	G	H
1	CARD_NUM	VALID						
2	1000	TRUE						
3	1001	TRUE						
4	1003	TRUE						
5	1004	TRUE						
6	6001316	TRUE						
7	6001317	TRUE						
8	6001318	TRUE						
9	6001319	TRUE						

Adding a Card

To add a card, enter the new card number in column A and the word TRUE in column B. Save the changes. Next time the USB key is inserted in the module and the Send Cards function selected, the new card number(s) will be installed.

Deleting a Card

Change the appropriate field in column B to FALSE. Save the changes. Next time the USB key is inserted in the module and the Send Cards function selected, the card(s) will be deleted.

NOTE: The module will upload card information from the USB key and overwrite card information stored in the USB Module. The module cannot download card information to the USB key.

NOTE: It is not recommended to delete cards by deleting the card information.

PIN Numbers

If you wish to use PIN numbers for added card security, you can add a new column titled SELECT_PIN. (Depending on the set-up you ordered, this may already be entered.) When a PIN number is added in this column, the user will be prompted to enter their PIN number. If a cell in this column is left blank, a PIN will not be asked for.

PIN numbers are 4 digits as standard.

	A	B	C	D	E	F	G	H
1	CARD_NUM	VALID	SELECT_PIN					
2	290001	TRUE	1234					
3	290002	TRUE	5678					
4	290003	TRUE	3756					
5	290004	TRUE						
6	290005	TRUE	6489					
7	290006	TRUE	8526					
8	290007	TRUE						

User ID

The unit can be set up to manage user ID numbers. It requires a change to the configuration code of the unit and a new file called cardusers.csv added to the Cards folder of the USB key.

When set up, the unit will prompt for a user ID number and then a PIN number (if the card is set-up with a PIN). Users are not linked to a particular card. As PIN numbers are assigned to the card, all users will have to enter the same PIN number.

To assist with administration, you can set up a column linking names to ID numbers but this information will not be transferred to any reports.

NOTE: *It is not recommended to delete user IDs by deleting the information. Use the word FALSE in the VALID column to remove the user ID from the unit.*

	A	B	C	D	E	F	G	H
1	USER_ID	VALID						
2	1234	TRUE						
3	1235	TRUE						
4	1236	TRUE						
5	1237	TRUE						
6	1238	FALSE						
7	1239	TRUE						

File Format

If the any of the above files are lost then a new file can be recreated by duplicating the headers in row 1 (case sensitive). Enter the card fields and save as a .csv file.

2) Price

Clicking on the Price file will show the pricing spreadsheet. Click on the icon to display the pricing information.

	A	B	C	D	E	F	G
1	PRODUCT_CODE	PRODUCT_PRICE	PRODUCT_NAME				
2	3	0.999	DIESEL				
3							

Changing Price

To change pricing, change the figure(s) in column B to the new value. ($ per litre) Next time the USB key is inserted in the module and the Set Price function selected, the new price(s) will be installed.

NOTE: The module will upload pricing information from the USB key and overwrite the information stored in the USB Module. The module cannot download pricing information to the USB key.

File Format

If the price file is lost then a new file can be recreated by duplicating the headers in row 1 (case sensitive). Enter the pricing information and save as a .csv file.

3) Transactions

The Transactions folder has the downloaded transactions from the USB module. Click on the file you wish to view.

To help you find the correct file the transaction files are named using the following format: Transactions_Day (DD) Month (MM) Year (YYYY) Time (Hours Minutes Seconds).TRA

Example: Transactions_30112009140653.TRA was created on the 30th November 2009 at 2.06 and 53 seconds PM.

	A	B	C	D	E	F	G	H	I	J	K
1	Reference	Amount	Quantity	Hose	Product	Pump	CardNumber	LocalDateTime	Odometer	Tag	User ID
2	0	0.5	0.5	1	3	1	1354272	12/09/2017 6:30			
3	1	6.78	6.78	1	3	1	1354272	12/09/2017 6:32			
4	2	5.98	5.98	1	3	1	1354272	12/09/2017 6:37			
5	3	2.31	2.31	1	3	1	1354272	12/09/2017 6:47			
6	4	0.4	0.4	1	3	1	15954272	12/09/2017 6:49			
7	5	14.05	14.05	1	3	1	1354455	12/09/2017 6:52			
8	6	8.92	8.92	1	3	1	1354455	12/09/2017 6:54			
9	7	6.12	6.12	1	3	1	1354455	12/09/2017 6:59			
10	8	12.37	12.37	1	3	1	1354455	12/09/2017 7:07			
11	9	4.09	4.09	1	3	1	1354455	12/09/2017 7:12			
12	10	1.2	1.2	1	3	1	1354272	12/09/2017 7:17			
13	11	3.49	3.49	1	3	1	1354272	12/09/2017 7:22			
14	12	19.38	19.38	1	3	1	1354272	12/09/2017 7:37			
15	13	9.33	9.33	1	3	1	1354272	12/09/2017 7:44			
16	14	6.24	6.24	1	3	1	1354272	12/09/2017 7:47			
17	15	20.78	20.78	1	3	1	1354272	12/09/2017 7:50			
18	16	11.92	11.92	1	3	1	1354455	12/09/2017 7:53			
19	17	4.7	4.7	1	3	1	1354455	12/09/2017 7:54	435754		
20	18	18.49	18.49	1	3	1	1354455	12/09/2017 7:57	1207		
21	19	16.57	16.57	1	3	1	1354455	12/09/2017 8:08	675		
22	20	0.92	0.92	1	3	1	1354455	12/09/2017 8:09	88		
23	21	1.24	1.24	1	3	1	1354455	12/09/2017 8:12			
24	22	0.89	0.89	1	3	1	1354455	12/09/2017 8:14			

File Format

The files shown are as follows:

- Reference - Every transaction is given a consecutive number from initialisation of the USB module
- Amount - The value of the transaction in local currency
- Quantity - The amount of fuel dispensed in litres
- Hose - The hose number used
- Product - The product code number
- Pump - The pump number
- Card Number - The number of the card used for the transaction
- Local Date Time - The date (DD/MM/YYYY) and time (24 hour clock) of the transaction
- Odometer - The odometer reading if entered
- Tag - Information is shown here if the unit uses mapped cards
- User ID - The ID number of the user if the unit is set up to prompt for a number

Customising Your Transaction Reports

If you want to include more card information on your transaction reports we have developed an automated process to include card information in your transaction file. This software requires an update to existing USB keys that do not have it. The new software is called USBTransJoin.exe and as its name suggests, it joins the card information on the USB key to the transaction records.

Software installation and setup instructions

1. Copy the USBTransJoin.exe file onto the Compac USB key and put it in the "Compac" Folder
2. In the "Cards" folder you will have a file called "cards.csv". The two standard columns in this file are "CARD_NUM" and "VALID"
3. To include information from this file into your transaction records you will need to create new columns that start with the prefix "D_". For example, if you wanted to include the name and unit number of the vehicle using cards you would add in two columns titles "D_Name" and "D_ Unit Number". See the screenshot below showing this example.
4. There is no limitation to the number of extra columns you add to the card file however the "CARD_NUM" and "VALID" column must not have their column names altered or other columns added to the left-hand side of them.

	A	B	C	D	E	F	G	H
1	CARD_NUM	VALID	D_Name	D_Unit Number				
2	1	TRUE	Test 1	285				
3	2	TRUE	Test 2	46				
4	3	TRUE	Test 3	136				
5	4	TRUE	Test 4	64				
6	5	TRUE	Test 5	86				
7	6	TRUE	Test 6	296				
8	7	TRUE	Test 7	139				
9	8	TRUE	Test 8	46				
10	9	TRUE	Test 9	84				
11	10	TRUE	Test 10	263				
12	11	TRUE	Test 11	148				
13	12	TRUE	Test 12	57				

How to use the software

Run the USBTransJoin.exe software by double clicking on it. A dialog box with appear with the message "Card file found".
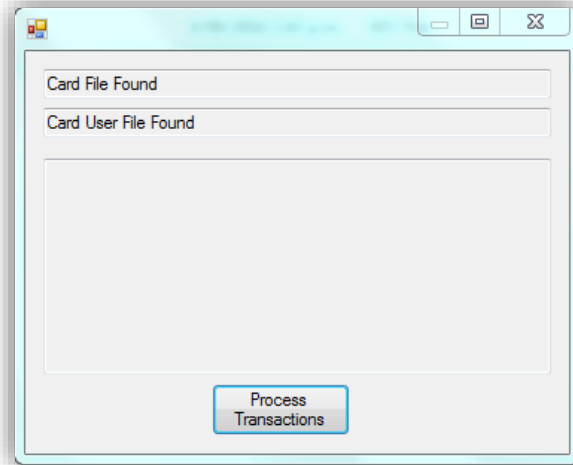
Click on the "Process Transactions" button to merge the card information with the transaction information. A confirmation message will appear showing the file path of the file created.
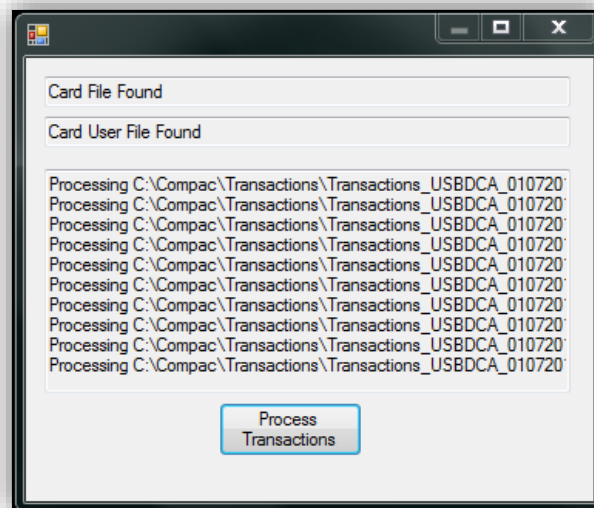
Browse to the transactions folder on the USB key, a new folder will have been created titled "PostProcess". Inside this folder will be a CSV file with the merged transaction and card information. Any of the card information fields with the "D_" suffix will appear on the right side directly after all the normal fields that are in a transaction file. If you do not have any information allocated to that card the headers will be in this file but there will not be any information against that card. In this example below card number 51 had the name "Test 39" and Unit number "188" assigned against it.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Reference	Amount	Quantity	Hose	Product	Pump	CardNumber	LocalDateTime	UtcDateTime	Odometer	Tag	UserID	Name	Unit Number
2	1	3.3	3.29	1	3	1	51	12/09/2017 6:35	12/09/2017 6:35	158		4660	Test 39	188
3														
4														

Powering Up

When you power up the USB Module it will display *"COMPAC USB module ...no host"* as the software has not started running yet. It should change after 2 minutes or so and display the idle message saying *"press any key"*.

If the no host message does not clear in 5 minutes, check all the cables are plugged in to the Compac Box.

Set Up

System Setup

The unit uses the ComFMS circuit board. All set up is done using the four line dot matrix display on the PIN Pad.

Please contact your local Compac service agent if you have any problems.

The area where installers have the most difficulty is in setting up pumps and cards.

Where possible Compac will set up the Pumps and Cards in the unit during manufacture. However, as these details are not always available, some setting up may be required on site.

NOTE: *Refer to tables later in this manual for detailed instructions on how to set up each parameter.*

Software Identification

To identify the software versions installed in the unit, the eprom software version and then the downloaded software version are shown on the display during power-up. The downloaded software version is displayed in the screen below.



```
COMPAC COMMUNICATOR
EA-B-01:83.0
CHECKING MEMORY 521K
PLEASE WAIT...
```

NOTE: *Software versions may differ from example shown above. Check with help desk for the appropriate version for your unit.*

Main Menu Options

The following is usually displayed when the unit is not in use.

```
PASS CARD
```

If setup is required, push <NO> and "ENTER PASS CODE" will be displayed. Enter the pass code to access the main menu. (Factory default 654321). If you lose your pass code, contact Compac to get it reset.

```
ENTER PASS CODE
         *
```
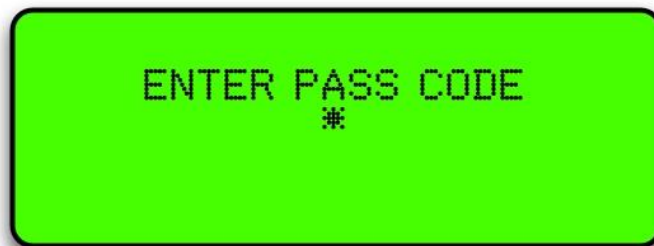
The following options are displayed:

```
1) REPORTS    5) PUMPS
2) CARDS      6) TANKS
3) FUELS      7) GROUPS
4) SYSTEM
```

Option #1 REPORTS

The reports menu is not used on current models. For old systems running audit trail printers, contact Compac for setup advice.

Option #2 CARDS

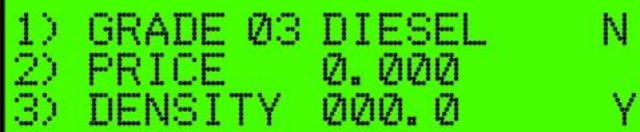Selecting Cards will bring up this screen.

```
1) IDENTIFIER VALIDATION

3) NETWORK SETUP
```

Choose 1 Identifier Validation to set up cards or 3 Network Setup to enter Access and ISO settings.

Option #3 FUELS

Selecting Fuels will bring up the following screen:

NOTE: Depending on your software, the Density line may not show.

```
1) GRADE 03 DIESEL      N
2) PRICE     0.000
3) DENSITY  000.0       Y
```

Use the Yes and No buttons to scroll through the fuel types.

To change the price for the fuel grade, press 2 and the price will start flashing.

Enter the new price in a four-digit format and press Enter.

The following table describes the process.

Keyboard Entry	Result on Display	Operation
Enter Passcode		
<ENTER>	Main Menu is displayed	
<3>	Fuel Menu is displayed	
	1) GRADE XX 2) PRICE 0.000	Change Price
<2>	1) GRADE XX 2) PRICE 0.000 (flashes)	Use the N and Y keys to scroll up and down the Grades
Type in new price	1) GRADE XX 2) PRICE 0.000 (still flashes)	
<ENTER>	1) GRADE XX 2) PRICE 0.000 (stops flashing)	
<N> or <Y> to change grade		Change another price
<CLEAR>	Returns to Main Menu	Escape

NOTE: Manual pricing is overridden by USB or internet pricing.

Pump Grade Maps

Grade Number	Standard Setup	BP Fuelcard Setup (NZ)	Mobil Fuelcard Setup (NZ)
1	Super	Diesel	Super
2	Unleaded	Super	Unleaded
3	Diesel	Oil 1	Diesel
4	PULP	Oil 2	CNG
5	LPG	T/Wash	LPG
6	Oil	C/Park	Oil
7	Kerosene	LPG	Kerosene
8	Avgas	Unleaded	Avgas
9	Jet A1	W/Bridge	Jet A1
10	Water	Oil 3	Water
11	CNG	Avgas	(not used)
12	MPD (Multi-product)	Jet A1	Multi-product
13	Oil 1	Multi-product	Oil 1
14	Oil 2	Oil 4	Avgas
15	Oil 3	Oil 5	Jet A1
16	Oil 4	N/A	N/A
21	Receipt	Receipt	Receipt
22	Auth.	Auth.	Auth.

A **receipt station** (grade 21) has a cardreader with which the holder of a validated card may request a receipt for a transaction carried out on any pump.

An **authorisation station** (grade 22) has a cardreader that enables the holder of a validated card to select and use a pump. This is typically used when non-Compac pumps are installed. An optional receipt printer may be attached to the authorisation station.
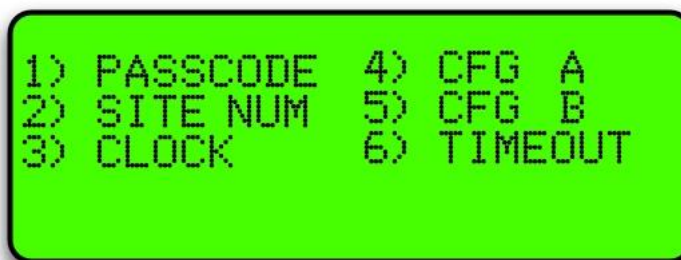
Option #4 SYSTEM

To set up a system the following parameters must be set:

NOTE: *The Passcode and Site number must be set up to enable Netbase to dial into it.*

The password and site number must be set on site as they cannot be changed remotely by Netbase.
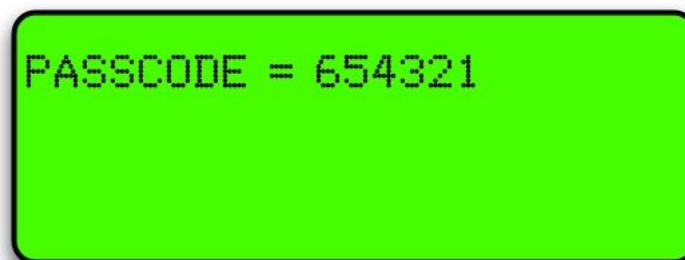
The Compac factory Passcode on new equipment is 654321.

The system screen looks like this:

```
1) PASSCODE   4) CFG  A
2) SITE NUM   5) CFG  B
3) CLOCK      6) TIMEOUT
```

Passcode

The factory set passcode 654321 can be changed using the "PASSCODE" option in the Systems menu. Passcodes can be from 1 to 6 digits long.

```
PASSCODE = 654321
```

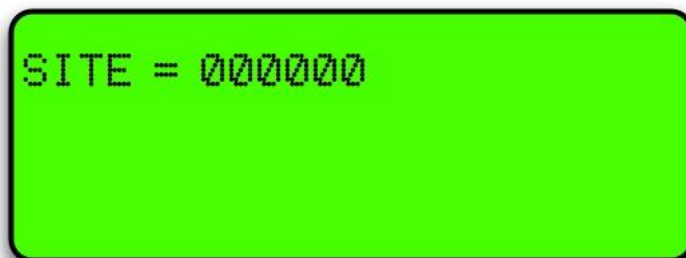If you want to change the passcode, enter it and press Enter.

Make sure you have recorded the new passcode as you will be locked out if you forget it and the memory will have to be erased to reset it.

The following table describes the process.

Keyboard Entry	Result on Display	Operation
Enter Passcode		
<ENTER>	Main Menu is displayed	
<4>	System menu is displayed	
<1>	PASSCODE = XXXXXX (flashes)	Change Passcode
Type in new passcode	PASSCODE = XXXXXX (still flashes)	
<ENTER>	Returns to System menu	

Site Number

The site number is set by using the "SITE NUM" option in the Systems menu.

```
SITE = 000000
```

If you want to set the site number, enter it and press Enter.

The following table describes the process.

Keyboard Entry	Result on Display	Operation
Enter Passcode		
<ENTER>	Main Menu is displayed	
<4>	System menu is displayed	
<2>	SITE = XXXXXX (flashes)	Change Site Number
Type in site number (Factory set Site number is #1 which can be left if unit is not part of a Network. If part of a Network, consult the Network Supervisor.)	SITE = XXXXXX (still flashes)	
<ENTER>	Returns to System menu	

Setting the Clock

The setting of the clock is very important, as transactions are stored in chronological order. The clock will need to be changed to compensate for Daylight Saving time.

NOTE: *If the clock setting is found to be wrong, upload transactions before setting the clock correctly to ensure that transactions are picked up in the correct order.*

```
ENTER DD/MM/YY HH: mm

00/00/00 00: 00
```

To set the clock follow this procedure carefully as changing the wrong numbers may disable the system. < > means push that key.

Keyboard Entry	Result on Display	Operation
Enter Passcode		
<ENTER>	Main menu is displayed	
<4>	System menu is displayed	
<3>	ENTER DD/MM/YY HH:mm DD = day MM = month YY = year (20YY) HH = hour (in 24hr time) mm = minutes	Set Date and Time
<ENTER>	Returns to system menu	

NOTE: *The clock setting is not shown on the display. To check the clock setting is correct, do a zero dollar transaction and check the time/date data on the receipt.*

Configuration "A" Settings

The configuration "A" is a 12 digit code that configures the unit for each application. This is usually set at the factory. Only change the configuration settings if you are sure that all information is backed up and that you are aware of any consequences.

Digit	Operation	Options	Display
1	Controller Type	3 – Driveway Card Acceptor (DCA / ComFutra Default / Card King) 4 – Enable HID reader (Clock&Data) 5 – Enable HID reader (26bit Wiegand)	
2	Unused	0 – Default	
3	Special prompts 1	0 – Default 1 – Grade Confirmation Prompt 2 – Aviation grade select and grade confirmation	
4	Receipt Option	0 – Default 5 – Does not display NO RECEIPT in DCA mode if no receipt printer fitted	PR2
5	Prompt 2- Alphanumeric	0 – Default (no prompt) 1 – Hours prompt 2 – Job number prompt 3 – Vehicle reg prompt 4 – Order number prompt 5 – Hours (Num only) 6 – Job Number (Num only) 7 – Vehicle Reg (Num only) 8 – Order Number (Num only)	
6	Card File	0 – Default 5 – Big Hot Card file	
7	User ID option	0 – No PIN. Note: Encoding on the card can activate a prompt for PIN 1 – Prompts for Employee number 2 – Prompts for Fleet number 3 – Prompts for PIN 4 – Prompts for user ID 5 – Prompts for user ID (masked entry) 6 – Prompts for vehicle number 7 – Prompts for cost centre 8 – Prompts for equipment number	UIP
8	Odometer prompt	1 – No odometer. Note: Encoding on the card can prompt for odo 2 – Load Odo/Engine Hours 4 – Work hours prompt 5 – Engine hours prompt 6 – Vehicle number prompt 9 – Contract number prompt	ODO
9	Card type	0 – Cards not requiring specific configuration 2 – Mobilcard 4 – Prompts for Employee Number (Card number used as Employee Number) 6 – Air BP card 7 – Shellcard 9 – Vehicle Number Authorisation (Prompts for vehicle number)	ABP
10	Validation option	2 – Limited Validation - Cards 3 – Extended validation - Cards	LVC EVC
11	Unused	0 – Default	
12	Track	2 – Track 2	T2

This is changed using the keypad and display. Follow this procedure carefully as changing the wrong numbers may disable the system. < > means push that key.
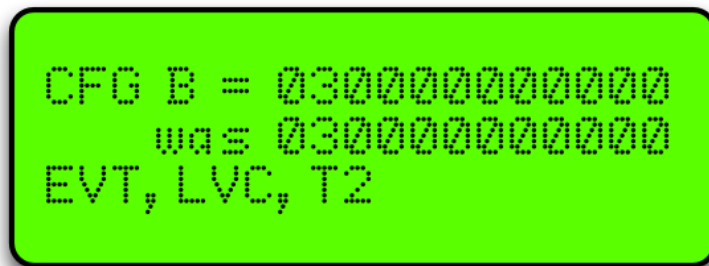
Keyboard Entry	Result on Display	Operation
Enter Passcode	52.	
<ENTER>	Main Menu is displayed	
<4>	System menu is displayed	
<4>	CFG A = XXXXXXXXXXXX (flashes) was XXXXXXXXXXXX	Set Configuration A
Edit 12 digit number	CFG A = XXXXXXXXXXXX (still flashes) was XXXXXXXXXXXX	
<ENTER>	Returns to System menu	

Communicator Configuration Code B (CFG B)

The Configuration Code B options available may depend on the software version. Refer to the following charts for options.

For credit card units refer to Credit Card Units "B" Settings.

NOTE: Not all options shown may be available on your unit. If unsure, please refer to the Helpdesk for more information.

```
CFG B = 03000000000
    was 03000000000
EVT,LVC,T2
```

Digit	Operation	Options
1	Unused	0
2	Printer	0 - Seiko drop box printer 2 - T2460 printer with cutter 3 - T2460 printer without cutter
3	Unused	0
4	CIM-less DCA	0 – DCA with CIM (early version card reader) Default Setting 1 – DCA with PINPad and Magtek TTL card-reader (changes receipt cut length)
5	Unused	0
6	Shift Reports	0
7	Audit Trial	0 - LX300 (7bit; Even parity; 1 stop bit; 9600baud) 1 - LX300+ (8bit; No parity; 1 stop bit; 9600baud)
8	Netpac reports	0
9	Tax	0
10	Accountpac	0
11	Override	0 - Default 1 - Ignore expiry date 2 - Ignore Grade Restriction 3 - Ignore both Expiry date and Grade restriction (software dependent)
12	OIML options	1 - OIML checking 2 - OIML checking and Video Primary display (COMMANDER) 2- UPS checking (DCA)

To change the "B" settings

This is changed on the keypad and display on the unit. Follow this procedure carefully as changing the wrong numbers may disable the system < > means push that key.

| Keyboard Entry	Result on Display	Operation
Enter Passcode		
<ENTER>	Main Menu is displayed	
<4>	System menu is displayed	
<5>	CFG B = XXXXXXXXXXXX (flashes) was XXXXXXXXXXXX	Set Configuration B
Type in 12 digit number	CFG B = XXXXXXXXXXXX (still flashes) was XXXXXXXXXXXX	
<ENTER>	Returns to System menu	

Credit Card Units "B" Settings

The Compac credit card capable units can be set up with a variety of credit card authorisation options using the "B" settings. The settings differ from the normal "B" options fitted to the standard unit.

Digit	Operation	Options
1	Unused	0
2	Printer	0 - Seiko drop box printer 2 - T2460 printer with cutter 3 - T2460 printer without cutter
3	Transactions	0 – Default, transactions must be deleted before over writing. 6 – Transactions are automatically deleted.
4*	CC DCA	0 – Default 1 – $5 Over Authorisation
5**	CC DCA	0 – Standard, no CVC2 Prompt, no authorisation retry 1 – CVC2 Prompt, no authorisation retry 2 – Authorisation retry, no CVC2 prompt 3 – CVC2 Prompt and authorisation retry 4 – Selectable authorisation range 5 – CVC2 + Enter authorisation 6 – Enter user selected authorisation
6	Unused	0
7	Unused	0
8	Unused	0
9	Unused	0
10	Unused	0
11	Override	0 - Default 1 - Ignore expiry date 2 - Ignore Grade Restriction 3 - Ignore both Expiry date and Grade restriction
12	OIML options	0 - No OIML checking. 2 - UPS checking (DCA)

* When option 1 is selected, the unit applies for an authorisation amount $5.00 more than selected. This is to prevent pumps over running and dispensing more than the amount authorised which can create conflict at the authorising bank.

** These options can be set to offer a variety of authorisation amounts and whether a CVC2 (back of card security code) entry is required.

To change the "B" settings

This is changed on the keypad and display on the unit. Follow this procedure carefully as changing the wrong numbers may disable the system. < > means push that key.

Keyboard Entry	Result on Display	Operation
Enter Passcode		
<ENTER>	Main Menu is displayed	
<4>	System menu is displayed	
<5>	CFG B = XXXXXXXXXXXX (flashes) was XXXXXXXXXXXX	Set Configuration B
Type in 12 digit number	CFG B = XXXXXXXXXXXX (still flashes) was XXXXXXXXXXXX	
<ENTER>	Returns to System menu	

Option #5 PUMPS

To set up a pump each of the following parameters have to be set:

(There is also an option for Bay Number which is only used in special applications.)

Use the YES and NO keys to select to the pump number.

If a Dual pump on Gilbarco comms the pump number on side B should be lower than the pump number on side A. e.g. A = 2, B = 1

For Compac comms the side A pump number is usually the larger number but will work either way round.


```
1) NUM   01    5) HI-G03
2) Chanl 1     6) H2-G00
3) TYPE C12    7) H3-G00
4) ID    01    8) BAY 00
```
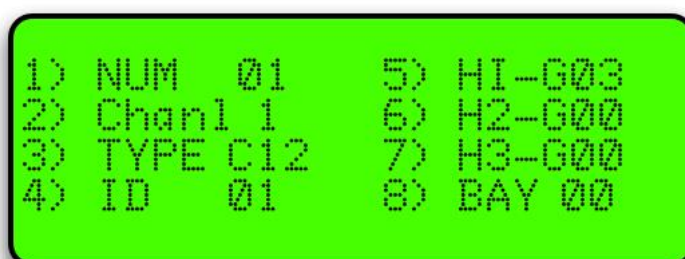
Comms Channel

The comms channel will usually be set at the factory depending on the site setup. Channel 1 or Channel 2 are the available options.

Number	Operation
1	Channel 1 pump comms e.g. via 2 pin 'PUMP COMMS 1' on rear panel (for Compac pumps) Can also be setup for RS232 comms via Port #5
2	Channel 2 pump comms used for the following: (a) Gilbarco comms I/F via TTL Port #4 (b) Email comms I/F via TTL Port #4 (c) 2nd Comms channel (pumps 17 to 32) 'PUMP COMMS 2' on rear panel via TTL Port #4 (d) Tankgauging I/F (e.g. VeederRoot, Diptronic, Franklin)
0	No comms -This will disable comms to a pump even if all the other parameters are set correctly

Comms Type

For Compac pumps enter <2>

For Gilbarco pumps enter <6> (goes to sub-menu to select Gilbarco type.)

NOTE: *Electroline pumps may need to be setup as Hilines or vice-versa. If experiencing difficulties getting Gilbarco pumps to work on a Communicator, try changing the type. After changing the type, the Communicator MUST be re-powered.*

For Email pumps enter <7> or <8> (depending on type of pump.)

If in doubt, contact your Compac agent for the correct settings.

Pump ID

For simplicity, this is usually set to the same number as the Pump number. The Controller looks for a pump with a pump number that matches the ID number.

Eg. Pump number 01 set up in controller but ID set to 05.

Controller looks for a pump with pump # 05.

Product Group Number

NOTE: *Options 1,4,5,6 & 7 require the <ENTER> key to be pressed to save the number you have entered (the cursor flashes.) Options 2 & 3 are saved as you type in the number (the cursor does not flash.)*

Keyboard Entry	Result on Display	Operation
Enter Passcode *		
<ENTER>	Main Menu is displayed	
<5>	Pump Menu is displayed	
<1>	'Num xx' flashes	Set Pump Number
Type in pump number	'Num xx' still flashes	
<ENTER>	'Num xx' stops flashing (number saved)	
<2> **	Scrolls between 1,2 & 0 each time <2> pressed	Set pump channel number
<3> ***	Comms Type Menu is displayed	Set pump comms type
<4>	'ID' flashes	Set ID Number
Type in ID number	'ID' still flashes	
<ENTER>	'ID stops flashing (number saved)	
<5>	'H1-G01' flashes	Set hose 1 Product group
Type in Number	'H1-G01' still flashes	(Single, Dual, 4 & 6 Hose Multi)
<ENTER>	'H1-G01' stops flashing (number saved)	
<6>	'H1-G02' flashes	Set hose 2 Product group
Type in Number	'H1-G02' still flashes	(Dual, 4 & 6 Hose Multi only)
<ENTER>	'H1-G02' stops flashing (number saved)	
<7>	'H1-G03' flashes	Set hose 1 Product group
Type in Number	'H1-G03' still flashes	(6 Hose Multi only)
<ENTER>	'H1-G03' stops flashing (number saved)	

Refer to Tanks/Pumps/Groups first for a detailed explanation on how to set up groups.

Comms Options

The unit can support two protocols at once out of the following:

- Compac/PEC
- Gilbarco
- Email

For Email and Gilbarco comms, interface boards are required.

These can be connected to either Port 4 (TTL) or Port 5 (RS232) although if only one interface board is used, it is normally connected to Port 4 (TTL).

If BOTH Email and Gilbarco comms are required, then Compac comms are unavailable.

Comms Channels

The Communicator has two comms channels (Compac or Gilbarco and Email). Usually Compac pump comms are assigned to channel 1 and the other comms assigned to channel 2.

Channel 1 can be either Current loop or RS232 (to either an Email or Gilbarco I/F board).

Channel 2 is TTL (to either an Email or Gilbarco I/F board).

This table shows which combinations of protocols are used on the two channels.

Channel 1 (Current Loop)	Channel 2 (Current Loop)	Channel 1 RS232 (Port 5)	Channel 2 TTL (Port 4)	Dip-Switch 1	Dip-Switch 2	Dip-Switch 6	Dip-Switch 7
Compac/PEC				ON	OFF	OFF	OFF
Compac/PEC	Compac/PEC			ON	OFF	ON	ON
Compac/PEC			Gilbarco	ON	OFF	OFF	OFF
Compac/PEC			Email	ON	OFF	OFF	OFF
		Email	Gilbarco	OFF	ON	OFF	OFF
		Gilbarco	Email	OFF	ON	OFF	OFF

Comms Dip-switches

The comms dip-switch is an 8 way switch but normally only numbers 1 and 2 are used. These two switches direct Channel 1 comms to either Current Loop or RS232 (Port 5).

Only one of these switches must be on. The factory default setting is 1 ON 2-8 OFF.

Where more than 16 pumps are controlled, the Current Loop Channel 2 can be added by using Dip switches 6 and 7.

Second Current Loop Comms Channel

There are two current loop comms channels (for Compac Pumps) on the Com FMS board. If a fault occurs on Current Loop Channel 1 and Current Loop Channel 2 is not being used then the channels can be switched over.

To connect Compac pumps to the second current loop comms channel:

1. Change the comms channel in the pump setup to Channel 2. Refer to Pumps.
2. Move the wires on the 2 core comms cable on the "Current Loop" plug to the second position in from each end. Refer Com FMS Board Replacement for detail.
3. Change the dipswitches to the following settings:

1	X
2	X
3	X
4	X
5	X
6	ON
7	ON
8	X

Email Comms

Status of LEDs on Communicator board when connected to Port #4

	Red Rx	Green Tx
Email board unplugged from Communicator board	Off	Flashes rapidly
Email board plugged in but pump not connected	Flashes	Flashes in time with Rx
Email board plugged in but pump set up for Compac comms	Off	Flashes rapidly
Email board plugged in but pump set up for wrong channel	Off	Off
Email board plugged in but pump ID incorrect	Flashes	Flashes in time with Rx
Email board plugged in and operating correctly	**Flashes very rapidly and is much brighter that Tx, almost looks like its stuck on**	**Flashes very rapidly**

NOTE: *The connections are the same on both ends.*
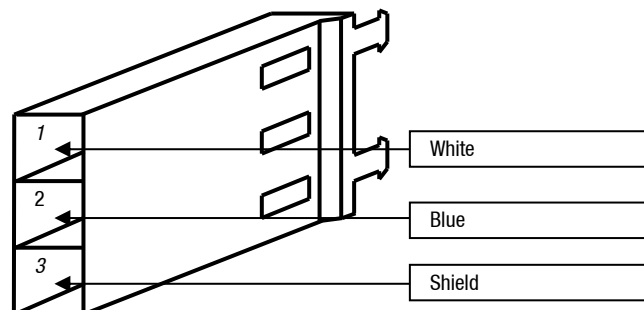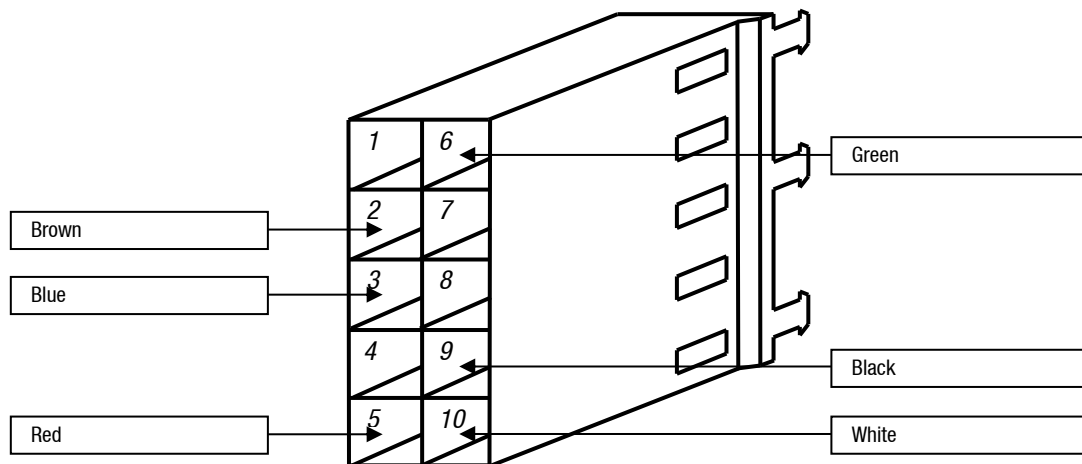
Dip Switch SW1

The Yellow, Orange Red and Brown switches should be closest to the centre of the board

i.e. A,B,C & D visible.

NOTE: *Only issue C Communicator boards support Email protocol.*

NOTE: *Multi hose Email pumps are not supported.*

NOTE: *The Shield and Blue wires should not be swapped over. If they are the system may appear to work but cause intermittent comms problems.*

NOTE: *Take great care line up the locking tabs on the green plugs correctly as reversal of these will damage the Email board.*

Gilbarco Comms

Status of the Red and Green LEDs on Port #4:

Red LED	Green LED	
Flashes rapidly and unevenly	Flashes rapidly and unevenly	Pump communicating normally
OFF	Flashes rapidly	Comms channel set up for Channel 2 but Gilbarco board not connected
ON	OFF	Gilbarco board connected but Comms channel not set up for Channel 2
ON	Flashes rapidly (dimly)	Gilbarco board connected, Comms channel set up for Channel 2 but no pump connected
Flashes slowly (and dimly)	Flashes slowly (and dimly) (simultaneously with Red LED)	Comms channel set up for Channel 2 but short on Gilbarco pump comms or pump comms wires reversed.
Flashes rapidly and unevenly	Flashes rapidly and unevenly	Pump appears to be communicating but does not work when nozzle is lifted - Pump is set up as a Hi-line instead of an Electroline

A DC voltage of approx 2 to 5V can be measured across the Gilbarco comms to establish whether a pump is connected.

Gilbarco Wiring

Wiring can either be from CON3 on the Gilbarco I/F board to TTL port 4 on the communicator board (channel 2 only, wiring is the same at both ends) or from CON4 to RS232 port 4 on the communicator board. Examples are shown below:

62.

Gilbarco Interface Card
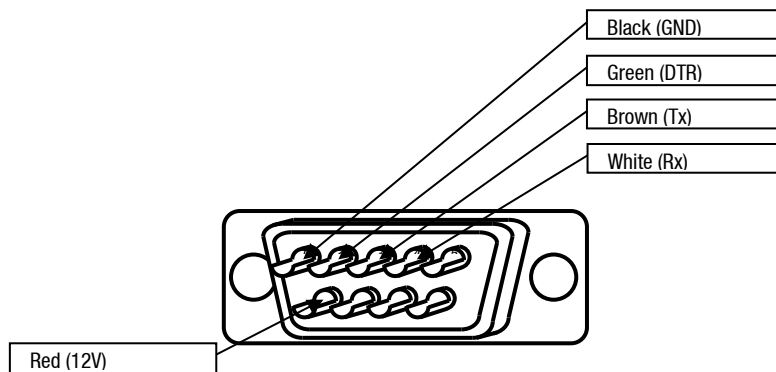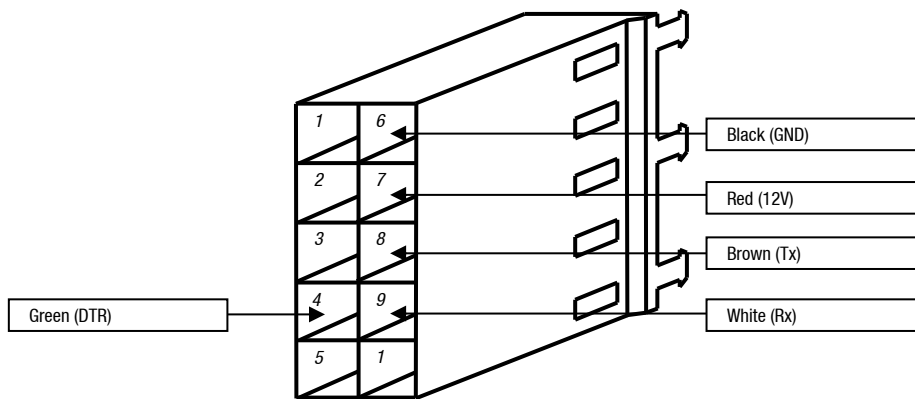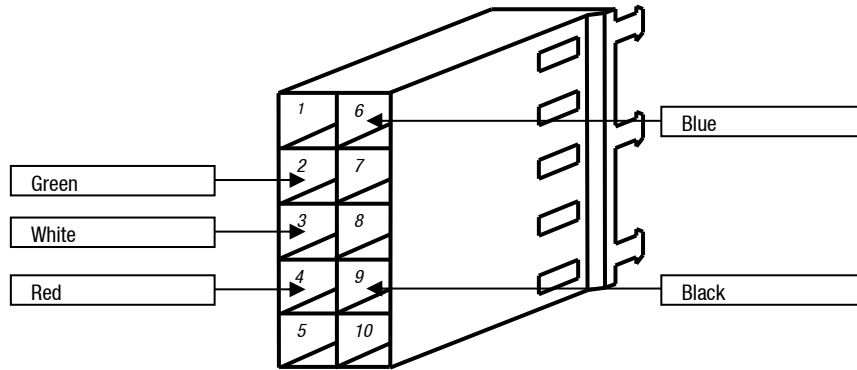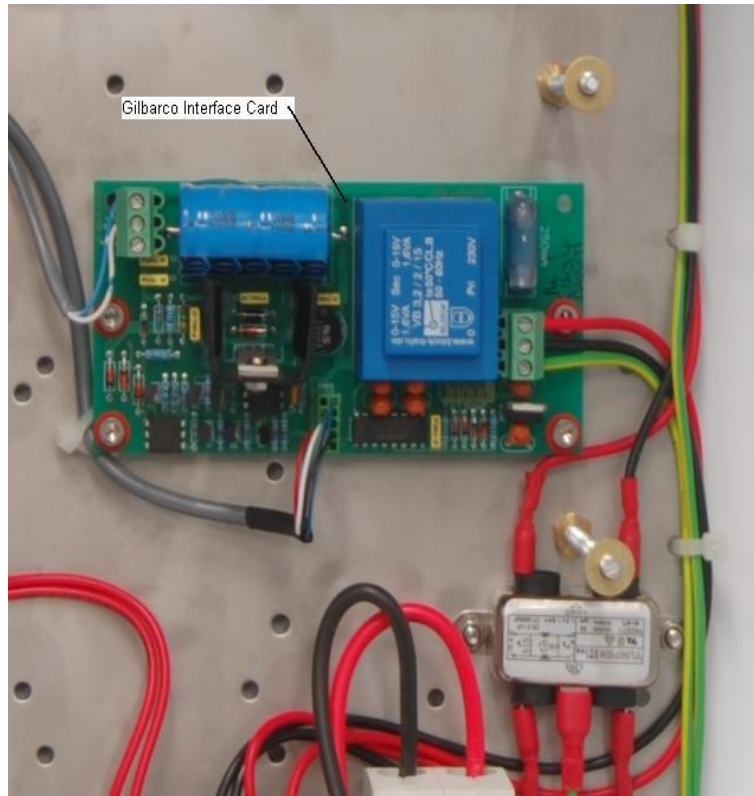
Option #6 TANKS

This is usually set at the factory. The only time it might need to be changed is if a tank gauge is added or if the tank gauge is changed.

The following Tank interface options are available:

1. Theoretical   (THEO)
2. VeederRoot   (VDDR or FRNK)
3. Diptronic   (DIPT)
4. Franklin   (FRNK)
5. Colibri   (FRNK)

The following instructions refer to the Franklin setup. Slightly different screens may appear if other tank options are selected.

The Franklin setup displays the information sent from the tank gauging unit and also works for Veeder Root TLS2 and Colibri units. Other setups require a strapping table to be entered.

Select Tanks from the main menu.

```
1) NUM  01    5) DIP (L)
2) STATUS     6) DIP (mm)
3) STATUS     7) SETUP
              8) COMS
```
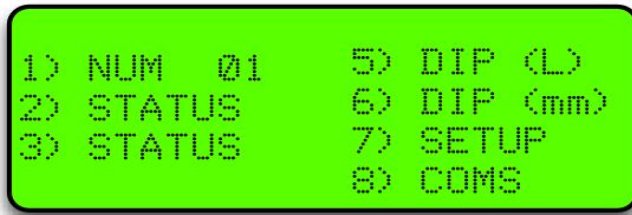
Menu Option	Function	Operation
1. No XX	Tank number	Scroll up and down with NO and YES to select tank
2. Status	Displays theoretical Capacity and Volume	
3. Status	Displays tank temperature (Franklin option only)	
4. Delivery	Enter in delivery of product	Type in delivery volume (Theoretical only)
5. Dip (L)	Enter in dipped volume (in litres)	Type in new volume (Theoretical only)
7. Setup	Sets up alarms, capacity and Product Group.	Refer to Tank setup table
8. COMMS	Sets up comms type	Refer to Tank Comms table

Tank number is usually set as 1. If there are more tanks, use the YES and NO keys to select to the tank number you want to set up.

Tank Setup Table

Select Setup from the Tanks menu and the following screen will open.

```
1) HI ALRM    5) SYPHON
2) LO ALRM    6) STRP T
3) CAPCITY    7) AUTOCAL
4) GROUP 01
```

64.

Keyboard Entry	Result on Display	Operation
<7>	Capacity Group 00	
<3>	Capacity = XXXXXXXX	Set Tank capacity (NOT required for Diptronic, Franklin or Colibri)
Type in capacity		
<ENTER>	Returns to Setup menu	
<4>	Cursor flashes	Set group
Type in product group number		
<ENTER>	Cursor stops flashing	
<CLEAR>	Returns to setup menu	
<CLEAR>	Returns to main menu	

For the units setup with Franklin comms, return to the main tanks menu and select (2) Status. The tank gauge readings should be displayed. Select (3) Status and the tank temperature should be displayed.

Depending on tank gauging and software installed, other options may or may not be available.

Tank Comms Table

Select Comms from the menu and the following screen will open.
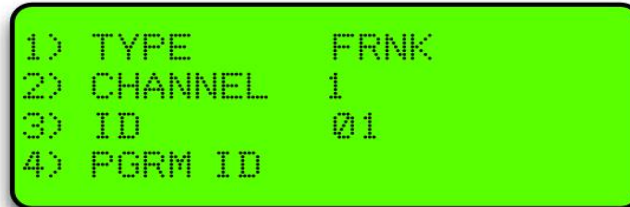
Pressing 1 will scroll through the comms options.

Keyboard Entry	Result on Display	Operation
<8>		
<1>	THEO \ FRNK \ VDDR \ DIPT 2. CHANNEL X 3. ID XX 4. PGRM ID	Scroll through by repeatedly pressing <1> to select comms type
<2> (NOT shown in THEO Mode)	2. CHANNEL 0, 1 or 2	Scroll through by repeatedly pressing <2> to select Channel number 2
		NOTE: Tank Gauging normally works on Channel 2 (Selecting Channel 0 turns the tank off)
<3>	ID	Same as tank number
<4>	PGRM ID	Not used

Depending on tank gauging and software installed, other options may or may not be available.

Tank Gauging Troubleshooting

To check that the tank gauging unit is communicating with the FMS board, look at the following LEDs:
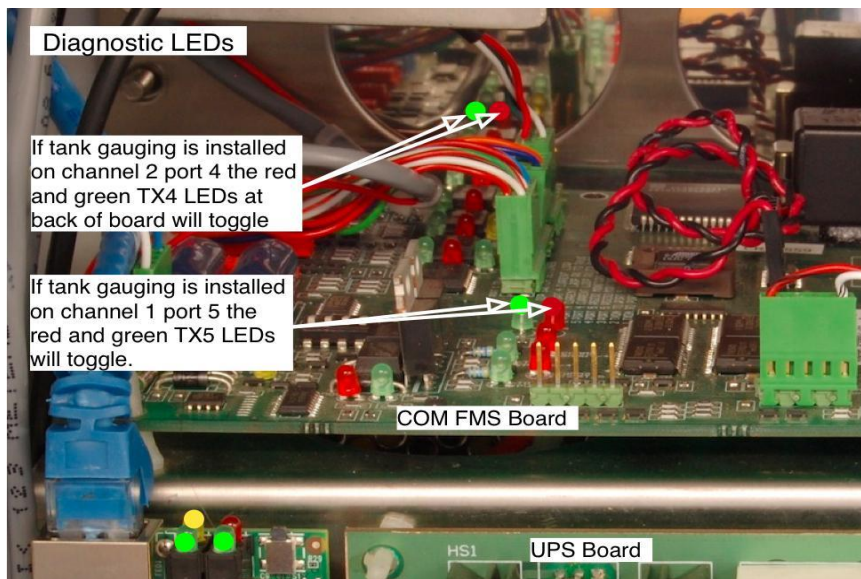
NOTE: Most tank gauging is set up on Port 4 Channel 2. The exception is for units controlling Gilbarco pumps.

If the green Tx LED is not flashing, check the settings in the FMS board.

If the red Rx LED is not flashing, check the settings in the tank gauge unit.

If all settings are correct, check for a cable fault by shorting the Rx and Tx wires together at the tank gauge end. The LEDs should flash together. If not, there is a break in the cable.

The wiring of the tank gauging cable may change for different models. If you are changing tank gauge units, you may need to swap the Tx and Rx wires to get it to work.

Option #7 PRODUCT GROUPS and GRADES

The allocation of tanks and pumps for fuel dispensing involves the use of groups. (If you are used to the concept of grades, you can think of groups as the equivalent of grades.) The group is a controller protocol that aids product reconciliation and also enables fuel dispensing to be tailored to suit different local conditions. The group is like a junction box through which tanks, pumps, devices and products are assigned.

```
GROUP NUMBER 01        N

IS 00 NOT SET          Y
```
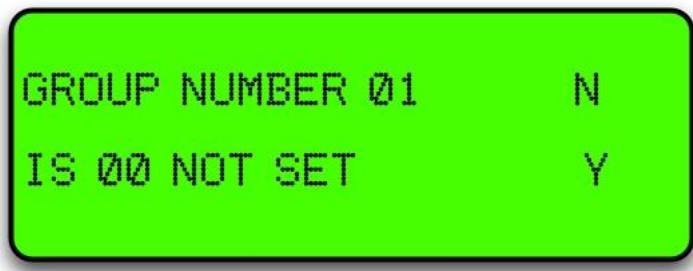
Tanks/Pumps/Groups

Concept
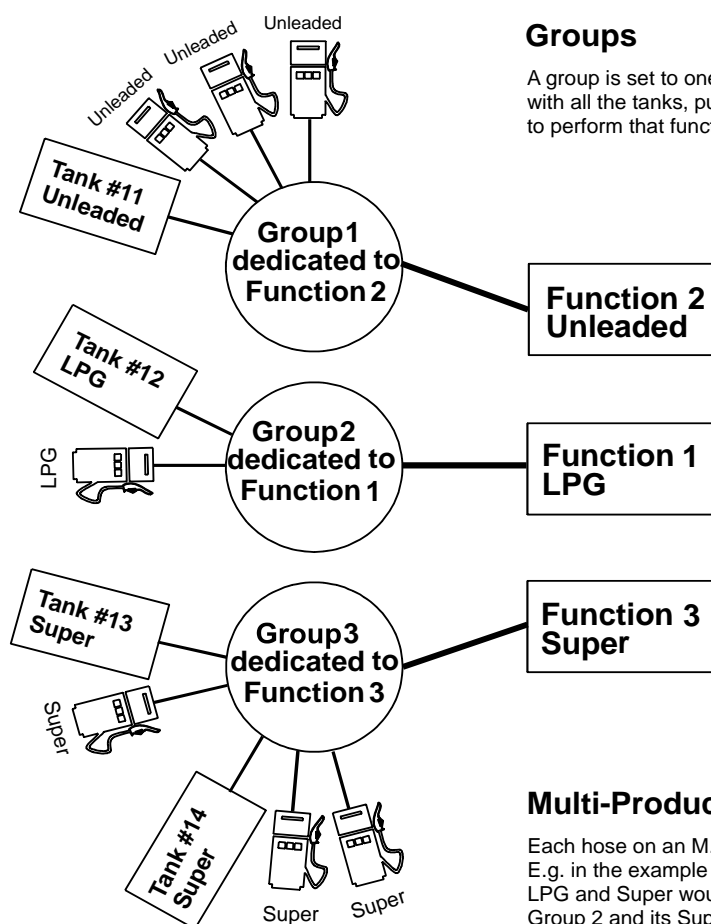
Groups

A group is set to one function - e.g. a product - with all the tanks, pumps, and devices needed to perform that function.

Functions

A function is an interface between the installation and client - e.g. dispensing a product.
Functions 1 - 16 are products,
Function 21 is the receipt station,
Function 22 is the authorisation station.

Tanks

Each tank must be individually set to a group.
A tank can only be set to one group.
However, more than one tank may be set to the same group.

Pumps

Each pump must be individually set to a group.
A pump can only be set to one group.
However, more than one pump may be set to the same group.

Multi-Product Dispensers

Each hose on an M.P.D. must be individually set to a group.
E.g. in the example shown, an M.P.D. dispensing LPG and Super would have its LPG hose(s) set to Group 2 and its Super hose(s) set to Group 3.

Groups

The first stage in setting up is to marry the functions performed by the site to groups that you create in the groups menu option. Each group is dedicated to one grade or function.

In the 'Groups' menu option, first select a unique number for a group, then select the number of the grade or function it is to be dedicated to. The group numbers don't have to be in sequence and may be any numbers between 1 and 20.

For the grade/function map refer to Pump Grade maps.

Tanks

Once the groups have been decided, the 'Tanks' menu option enables each tank to be allocated to a group. A tank must be dedicated to one group; it cannot be allocated to different groups. However, more than one tank may be dedicated to the same group.

Select Tank

Each tank must be set up individually

Select Tank – Group

This option allows you to match the tank number to the appropriate group number.

Pumps

The 'Pumps' menu option is where pumps are set up.

Select Pump

Each pump is set up individually.

Set Channel

0 - offline / not used.
1 - on board current loop 1 / external protocol converter.
2 - on board current loop 2 / internal protocol converter.

Set Type

C12 - Compac current loop pump comms, 1200 baud (NZ Standard).
C24 - Compac current loop pump comms, 2400 baud (Compac pumps only).
GC - Gilbarco Calcopac.
GEL - Gilbarco Electroline.
GHL - Gilbarco High line.
GMP - Gilbarco Multi product.
EME - Email Eclipse
EMV - Email Vision

Set ID

The number in the pump head. This must be unique per channel, per protocol.

Set hose – Group

Allocate different product hoses to different groups; for a single hose just set H1.

Setting Product Groups

Pumps are not directly assigned to a Product Grade.

Each pump is assigned to a Product Group.

Each Product Group is in turn assigned to a Product Grade.

For simplicity, in the majority of applications the Product Group numbers can mirror the Product Grade numbers according to the standard Grade Map.

The most common are:

Grade number	Product names as they appear in the Communicator / Commander	Also referred to, or used for the following products
1	Super	Premium, Premium Unleaded, 96, LRP
2	Unleaded	Unleaded 91 , 91, ULP
3	Diesel	
4	PULP	Premium Unleaded Petrol
5	LPG	
6	Oil	
7	Kerosene	
8	AVGAS	
9	JET A1	

This option simply assigns products to groups.

Keyboard Entry	Result on Display	Operation
Enter Passcode		
<ENTER>	Main Menu is displayed	
<7>	1) Group # XX 2) IS XX Product (or NOT set)	
Use N and Y keys to scroll up or down the Groups		Select Group to assign product to
<2>	1) Group # XX 2) IS XX (flashes) Product (or NOT set)	
Type in product number Refer to Grade Map for Product number		
<ENTER>	2) IS (Selected Product name)	
Use N and Y keys to scroll up or down to select another Group	Same as for previous Group	
or <CLEAR>	Returns to Main menu	

Assign Pump Number

Pump numbers for each model

Model	Number of pump numbers to set up
Master Premier Laser Single	One
Master Premier Laser Dual	Two
Laser 4 hose Quad	Two
Legend 4 hose	Two
Legend 6 hose	One in each C4000

Order of pump numbers

Compac comms:

The pump number for Side A is usually **lower** than Side B

Gilbarco comms:

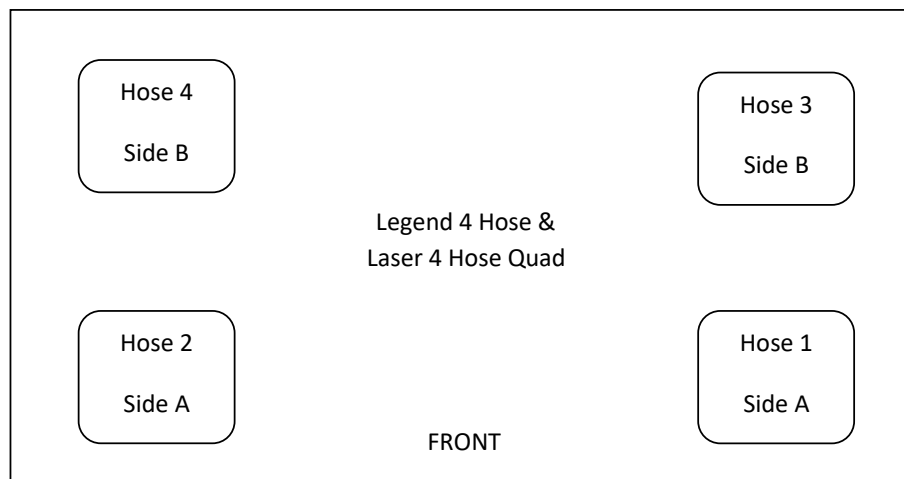The pump number for Side A must be **higher** than Side B

Assign Hoses

It is important to look at the Pump or Dispenser from the 'FRONT'.

Remove the doors and a 'FRONT' sticker will be found on the hydraulic mounting rail.

When looking at the front of the Pump/Dispenser, Hose 1-Side A is always on your right (as per the following diagrams).

Legend 4 Hose, 6 Hose and Laser 4 Hose Quad

- The layout for Hose 1 and 2 is the same for 4 hose and 6 hose MPDs
- On a 6 hose MPD, hose 3 is in the middle
- As Hose 1 (side A) is opposite Hose 1 (side B) the product group will be the same for both

Hose 4 Side B		Hose 3 Side B
	Legend 4 Hose & Laser 4 Hose Quad	
Hose 2 Side A		Hose 1 Side A
	FRONT	

Hose 2 Side B	Hose 3 Side B	Hose 1 Side B
	Legend 6 Hose	
Hose 2 Side A	Hose 3 Side A	Hose 1 Side A
	FRONT	
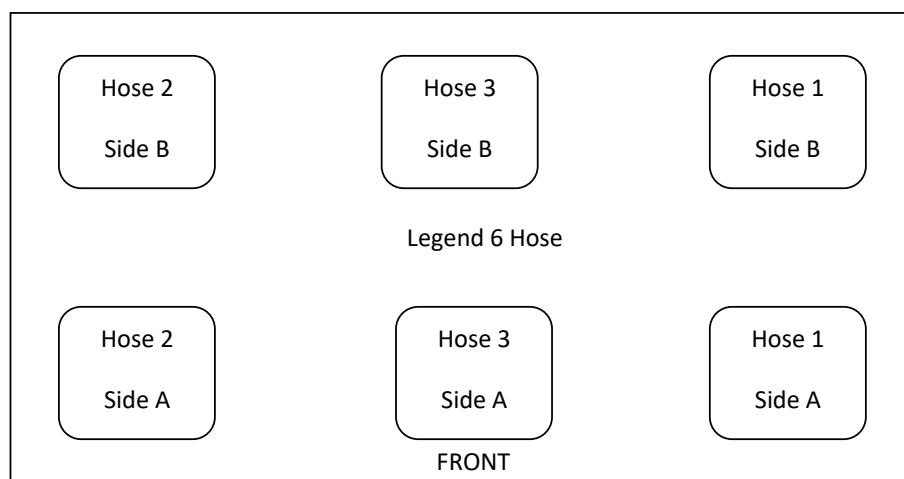
Master, Premier and Laser (Single and Dual)

Hose 1 Side B	Master Premier & Laser (Single & Dual)	Hose 1 Side A
	FRONT	
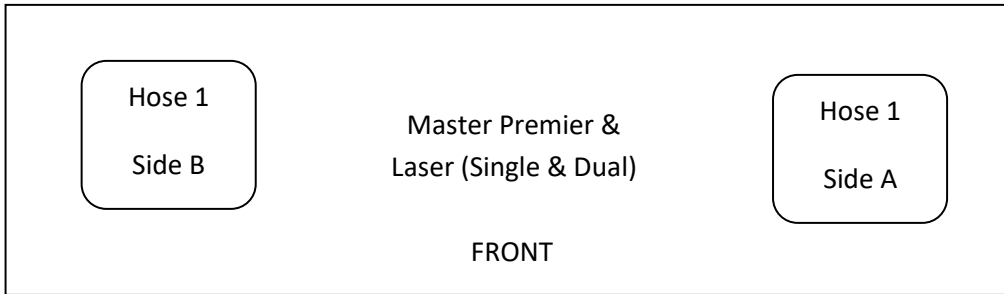
Cards

Expiry Date

The expiry date on the card must be less than 10 years from today's date. If the date is more than 10 years old, *Expired Card* will appear when the card is swiped. To allow expired cards to be used you can use this procedure: Change the second digit from the right in the 'B' configuration code to 1.

Overriding the Expiry Date

Enter the Passcode. If the Display on the unit reads "ENTER PASS CODE" type in your 6 digit Passcode. (If you do not know the passcode, contact the Compac Industries Help Desk. The default Password on new Communicator Controllers is 000000) Or, if the display reads PASS CARD, press the <NO> key. This will then bring up "ENTER PASS CODE". The main menu will then be displayed.

Press <4> (SYSTEM). The system sub menu will be displayed.

1. Press <5> (CFG B)
2. Display will read: CFG B = XXXXXXXXXXXX (12 digit binary number) Was XXXXXXXXXXXX
3. Take careful note of the existing CFG B number
4. Type in a new 12 digit number with the 11th digit from the left = 1 for example XXXXXXXXXX1X. This will overwrite the existing number in the top line but you will still be able to still view the old number in the bottom line as you type in the new number. for example Old CFG B was 000000100000 new CFG B with expiry date override = 000000100010
5. Press <ENTER>
6. Press <CLEAR> twice to return to Main screen.

NOTE: Although it is possible to put the clock back in the Communicator to less than 10 years from the expiry date of the card to make it work this is not recommended as date range reporting functionality is affected and some transactions may not be able to be retrieved.

Setting ISO and Access codes

NOTE: If two cards systems are being supported (i.e. an Oil company / Nationwide card and an in-house Compac Standard card) then the Oil company card must be set up as ISO/Access code 1 and the Compac Standard in-house card set up as ISO and Access 2. If they are setup the other way around the system may return a 'BAD CARD' or 'INVALID CARD'.

Oil company ISO and Access codes

If the unit is part of a Network, the appropriate ISO and Access codes will be downloaded via the modem by the System Administrator. Otherwise contact the Compac Helpdesk.

ATG / CE Box

The Compac Box is an option fitted to the unit to monitor tank gauging. The Compac Box also communicates with the FMS board and stores transaction information.

The tank gauging and transaction information can be accessed from the Compac Box by using either a USB key or CompacOnline software.

For Credit Card capable units the Compac Box uses the installed PXPost programme to communicate secure credit card information with DPS.
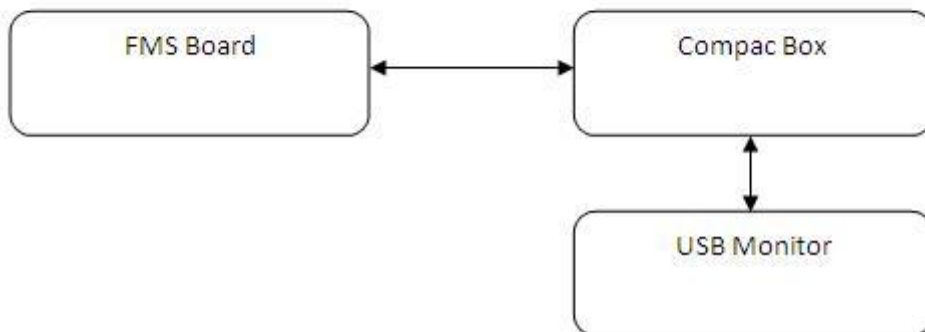
Compac Boxes are configured at the factory and require no set up unless credit card capable boxes are replaced. Set up is done remotely.

For replacement refer Compac Box Replacement.

CompacOnline Compac Box Connections
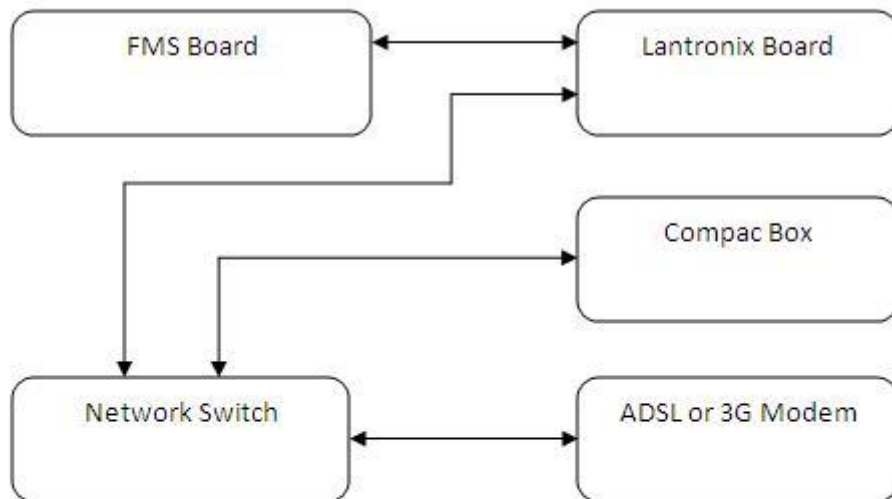
USB Monitor Compac Box Connections

Mechanical Registers

Overview

The DCA can be set up to monitor the bulk dispensing of fuel by taking signals from a mechanical register (flow sensor) installed in the fuel line. The signals are converted to provide a litre reading using a C4000 board and calibrated using a conversion (K) factor.

Mechanical registers require a C4000 board separate to the FMS board. The C4000 board is set up as a pump communicating to the FMS board via the C12 or C24 comms.

Connecting to DCA

There are three steps to connecting a mechanical register to the DCA.

1. Connect the pump relay(s) to the solid state relay output(s)
2. Connect the encoder(s) to the C4000 board inside the DCA
3. Calibration - Adjust the K factor(s)

Solid State Relay Outputs

The DCA can provide "clean" pairs of contacts (maximum 3 amp each pair) for up to 4 Mechanical Registers.

These can be used to switch a contactor or relay.

Encoder Inputs

Mount the encoder onto the flow meter in the mechanical register.

The encoder is supplied with a 1.5 metre cable. This may be cut and additional 5 core cable spliced in between the DCA and the Encoder.

Wire the encoder cable into the DIN rail mounted connectors EN1, EN2, EN3 and EN4 as follows:

NOTE: *The configuration code in the C4000 is set at Compac and should not be changed.*

The code is different depending on how many Mechanical Registers there are:

1 Register   C = 00001

2 Registers   C = 00002

3 or 4 Registers C = 00005

Calibration

A single litres only display is provided in the DCA for the purpose of setting up the C4000 board and changing the k factors. It is not used in normal operation of the DCA.

The 'K' Factor is a ratio of litres dispensed per revolution of the meter.

To follow is the method of calibration, including how to calculate the new 'K' Factor and how to enter it in the C4000 memory.

To calibrate the dispenser/pump, dispense fuel into a certified measuring container, and compare the display value with the amount dispensed.

Example:

Display shows   10.00   True volume   20.00

To calculate the correct 'K' Factor from the information above; firstly record the existing 'K' Factor.

$$New\ K\ Factor = Existing\ K\ Factor\ x\ \frac{Dispensed\ Amount}{Displayed\ Amount}$$

$$= Existing\ K\ Factor\ x\ \frac{20}{10}$$

$$= Existing\ K\ Factor\ x\ 2$$

Change the existing 'K' Factor to this new value by using the 'K' Factor Switch as follows.

Step	ACTION	RESULT
1	Ensure that no transactions are in progress	C4000 in idle state
2	Press and release the 'K' Factor switch, in quick succession, until the desired setting is displayed.	The Litres display indicates the desired setting.
3	Press and hold the 'K' factor switch.	A digit, of the displayed setting, will begin to increment.
4	When the digit is correct, release the 'K' Factor switch.	
5	Repeat steps 3 and 4 for each digit of the setting	*NOTE: The C4000 will reset itself if the 'K' factor switch is left for more than 10 seconds.*
Continue for multiple hose units, if appropriate.		
6	Press and release the 'K' factor switch 8 or more times in quick succession	The setting for side "B" (or hose 2, 3, or 4) is displayed.
7	Repeat steps 3 to 5 above.	

NOTE: *The K-Factor switch must be sealed with a lead or paper seal after commissioning.*

78.
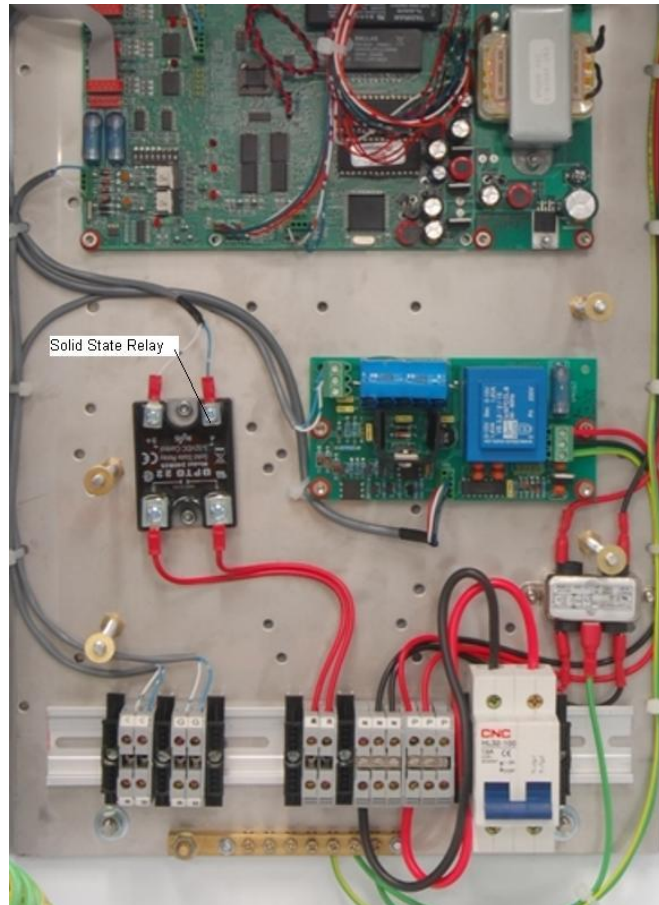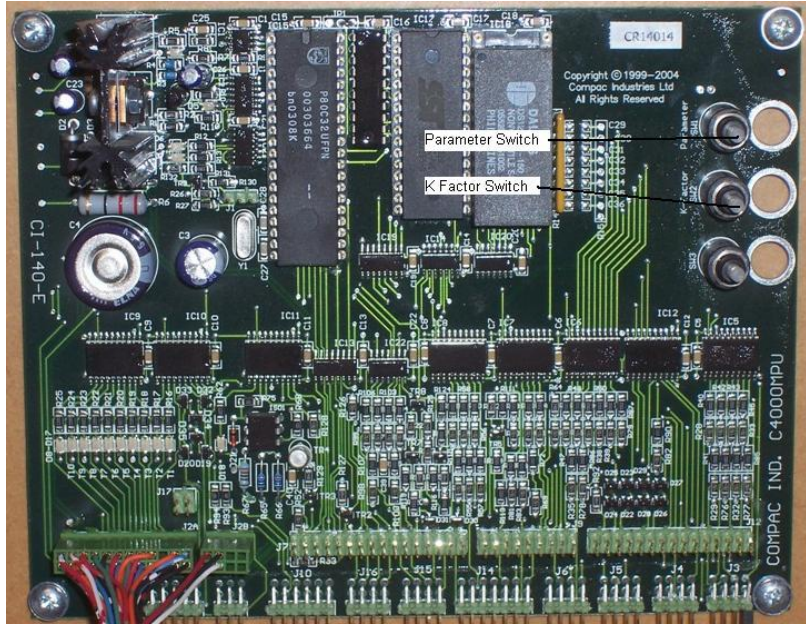
Cardreaders

Units built from January 2004 onwards no longer have CIMs and use a Magtek cardreader. These work with software version EAB1800 onwards.

NOTE: *This also requires B configuration code setting to work -Refer to Configuration code tables.*
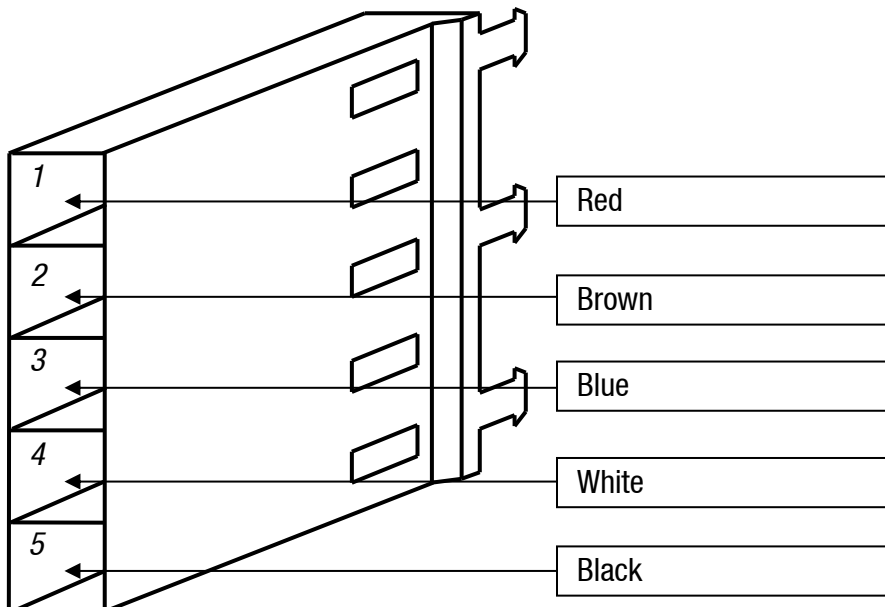
Wiring connections are:

Cardreader end J3

1. Unused
2. Blue RDP
3. White CLS
4. Brown RCP
5. Unused
6. Red Vcc
7. Black Ground
8. Unused
9. Unused

Note pin 1 is marked on the cardreader pcb next to "J3".

Communicator Controller end:

Modems

Dynalink (Hayes type)

Connects to Port #1 RS232 on the rear panel of the Communicator.

There is no special setup required for the Dynalink Modem.

GSM Modem (Wavecom)

Connection

There is a ribbon cable that goes between the Port #1 RS232 D connector and Port #1 on the Communicator board.

Cut the 'Ring Indicator' wire (connects to pin 9 on the D connector) This is the 3rd wire in from the locking tab end of the red plug.

There is cable supplied with the Cell modem with a 15 pin high density d-connector one end.

Plug this end into the Cell modem and the other (9 pin) end into to Port #1 RS232 socket on the rear panel of the board.

Setup

No special software setup is required for the Cell Modem as the Communicator recognises the modem when it initialises it.

NOTE: The SIM card must be setup by the phone provider as Data enabled (a different phone number will be issued).

The diagnostic LED stays ON for 20-30 seconds at power-up while it registers on the network. It will then flash slowly when in its idle state. During a comms session it flashes faster.

The baud rate in Netbase must be set to 9600.

The Boot ROM software version in the Communicator must be BFA01052 or later.

Lantronix

If you have given Compac the IP address that you want to use, the unit will have been set up by the factory. If you haven't told Compac the IP address it will be 10.0.0.122 by default.

Lantronix Setup

Step 1

Connect the Lantronix port on the communicator to your computer network.

Step 2

Change the IP address of your computer to be on the same network as the Lantronix unit. This means going Start/Control Panel/Network Connections; this will bring up the network connections. Right click on the connection that you will be using and then click on properties.
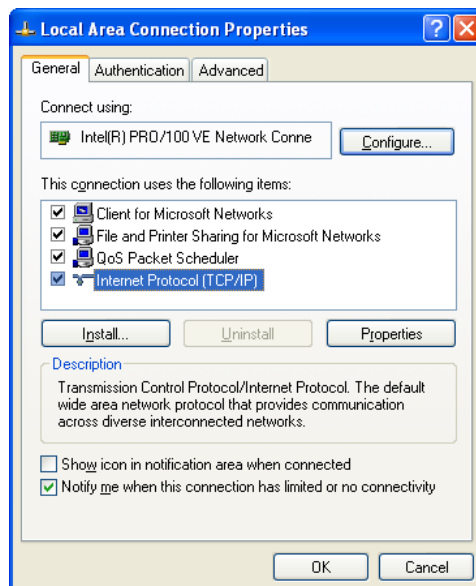
Then double click on Internet Protocol (TCP/IP).
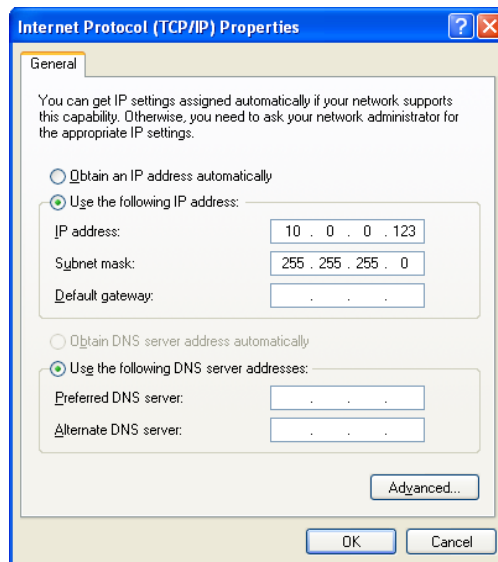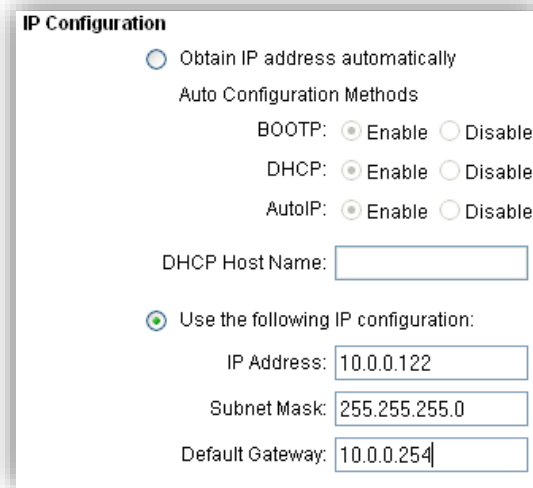
Select "Use the following IP address", for the IP address enter 10.0.0.123 subnet mask 255.255.255.0; this will put your computer on the same network as the Lantronix unit.

Step 3

In your web browser type the IP address of the Lantronix unit, in our case type http://10.0.0.122 (http://10.0.0.122). This will login into the Lantronix unit. You will be prompted for username and a password; the default username is "admin" with no password.

Once you are logged into the Lantronix unit click on "network" in the menu. What you need to do is assign an IP address that will be on the same network as the network that you are connecting the communicator to. Be aware that when you are setting the IP address on the Lantronix unit it cannot conflict with any IP address on your network. If you have a DHCP server you will have to reserve an IP address for the Lantronix unit.
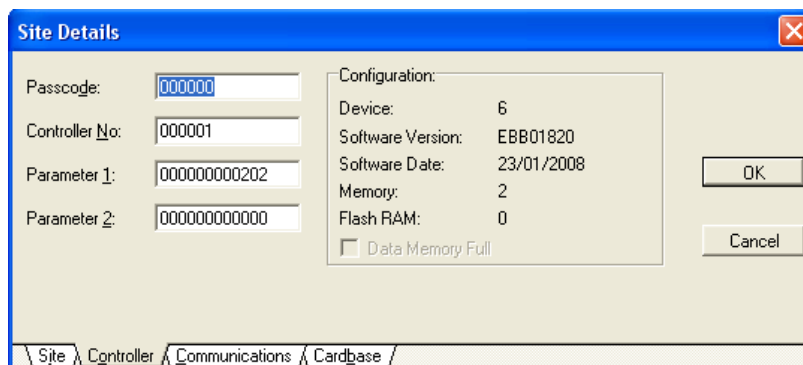
Under IP configuration select "Use the following IP configuration". This is where you can set the IP address of the Lantronix. Do not use the "Obtain IP address automatically". Remember that if you are running a DHCP server you must reserve the IP address of the Lantronix so that the server does not assign it to another computer.

Step 4

The communicator is now ready to be connected to the network. Once it is connected to the network the Netbase will be able to connect to the communicator. Before you can do this you need to make sure that the Netbase has been setup for the communicator.
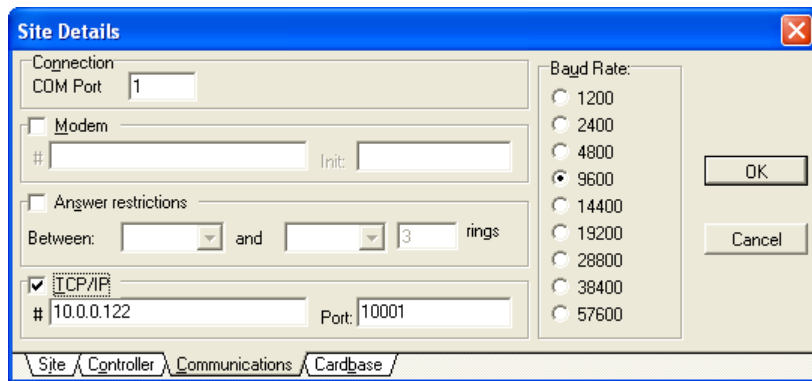
Make sure that the settings in the Communicator are the same as the settings in the Netbase.

In this case

- Passcode – 000000
- Site Number– 000001
- Config A (Parameter 1) = 202
- Config B (Parameter 2) = 0

In the Communications tab make sure that the settings are as follows.

- The TCP/IP box should in ticked
- The IP address (this is the IP address that you entered in step 3) for the Lantronix unit is to be entered in the box labelled "#".
- The box labelled port contains the port that the Lantronix unit communicates on, this is always "10001" but this can be changed.
- The baud rate must be always set to 9600.

At this stage the communicator should be setup correctly and ready to communicate with the Netbase. To test the connection try doing a "Get date time" procedure.

Diagnostic LEDs

There are a number of diagnostic LEDs on the Com FMS board to assist in the diagnosis of comms problems.

LED name on board	Location	Colour	Operation
POWER	Near Dipswitches	Green	ON to indicate Power Supply working
W/DOG	Near Dipswitches	Red	1. Watchdog 2. Indicates software has stopped running (may have restarted) 3. IC fitted incorrectly or leg broken/bent
TX/1	Adjacent Port #1 TTL plug	Green	Transmit data to Modem or Direct host
RX/1	" " " "	Red	Receive data from Modem or Direct host
DCD/1	" " " "	Green	Handshaking line to Modem
TX/2	Adjacent Port #2 TTL plug	Green	To Audit Trail Printer
RX/2	" " " "	Red	
CTS/2	" " " "	Yellow	ON when Audit Trail Printer connected
TX/3	Adjacent Port #3 TTL plug	Green	Used for Receipt Printer and Commander
RX/3	" " " "	Red	
TX/4	Adjacent Port #4 TTL plug	Green	Only used when Gilbarco or Email pumps
RX/4	" " " "	Red	Running on comms channel 2

85.

Diagnostic LEDs in a System with Compac Comms Only

In a typical system (with Compac pumps only) this is how the diagnostic LEDs will appear.

Com FMS Board

LED	Comms working correctly	Comms wiring reversed	Short on comms
To Pumps / 5	Flashes	Flashes	Flashes (very fast)
From Pumps / 5	Flashes	Flashes	Flashes (very fast)
Comm Short / 5	OFF	ON	Flashes (very fast)
TX / 5	Flashes	Flashes	Flashes
RX / 5	Flashes (faster than TX / 5)	Stuck ON	Stuck ON
WDOG	OFF	OFF	OFF
POWER	ON	ON	ON

C4000 Board

LED	Comms working correctly	Comms wiring reversed	Short on comms
D6	Flashes	Stuck ON	OFF
D7	Flashes	OFF	OFF

Reports

Reports can be printed directly from the DCA if the correct printer is connected to a Printer Interface.

If a PC running NETBASE is used the printer is normally used to keep an audit trail log only.

Reports are selected from DCA PIN Pad menus, and are only printed if an appropriate report printer is connected to RS232 Port 2 on the Controller and is ON LINE.

Accessing Reports

To access reports enter the Passcode at the PIN Pad. Go to the report menu. The following reports are available:

Shift Report

This option prints tank reconciliation data, resettable card totals, and the date and time of the last memory clearance.

Transactions Report

This prints the following data chronologically card by card (excluding anything previously deleted):

Card/account number; site and reference numbers; date and time of transaction; pump number; product and unit price; quantity issued and total price.

Transactions & Shift Report

This prints the Shift Report then the Transactions Report.

Site Status Report

This report prints the following data: Site name and number; date and time; non-resettable totals for each product and pump; product information (including unit price, total issued and value); and how full the transaction buffer is. It also automatically prints the tank status report when tank gauging is installed.

Tank Status Report

This report is only available with tank gauging. It prints the following:

Site number; date and time; tank number and tank information - quantity and status (low level, high level or normal), designated product and ullage.

Card Status Information

This specifies the current validity or non-validity of all cards in the system.

Single Card Transactions Report

This report is the same as for the Transactions Report except that a specific card may be selected.

All Buffer Data Report

This report is the same as for the Shift Report and Transactions Report, except that all transactions in the memory buffer are printed, regardless of whether or not they have been deleted.

NOTE: When deleting is carried out, 'deleted' transactions are not actually erased, but can be overwritten at any stage afterward. This option allows printing of all transactions not yet overwritten (with no guarantee that specific deleted transactions will still be recoverable).

Transaction Data by Date Range

This report is the same as for the All Buffer Data Report (that is, all transaction data including that of surviving deleted transactions), except that date parameters can be set so that only information from a specified period is printed out.

Deleting Transactions

Transactions stored in the Controller memory can only be deleted once they have been reported 'printed'. Therefore, before deleting can proceed, a report (with transactions) must be printed unless:

The Controller is configured for deleting after 'totals only reporting', or

The transactions can be effectively printed by uploading them to a host computer, either directly or via a modem.

Once one of the above has been completed, and this information is verified and secure, deleting can proceed.

NOTE: It is important to have a reasonably accurate idea of the transaction buffer capacity, so that transactions can be reported and deleted before the transaction buffer fills completely. A filled buffer will disable further transactions until it is cleared. A percentage reading of how full the transaction buffer is included in the printout which occurs on 'power up'.

Once deleted, transactions can be overwritten, with no guarantee of retrieval.

Troubleshooting

Symptom	Problem	Solution
One pump drags the comms down on the other pumps	An unused hose has been allocated to a group	Check group allocations for that pump
"Receipt unavailable" displayed keeps trying to initialise GPRS modem	Cardreader not plugged in when unit was powered up	Plug cardreader in and re-power
"Receipt unavailable" displayed	Paper not through far enough to be detected by paper out sensor	Press paper feed button momentarily
Cardreader does nothing when card swiped	Cardreader was plugged in after the unit was powered up Cardreader unplugged	Re-power the unit Plug cardreader in

Error Messages

PRINTER NOT AVAILABLE	Try pressing Paper feed button on printer, check that paper is installed correctly. Otherwise there is a fault in the printer - Call a service agent.
BUFFER FULL	The memory is full. Old transactions need to be deleted before any more transactions can be made - Refer to Deleting Transactions.
Pump unavailable or Pump OFF LINE	Comms problem between the unit and the pumps.
PUMP ERROR	One of the linked pumps or dispensers has encountered an error. Read the error message on the pump display to find out what is wrong.

Service and Upgrades

The unit is designed to perform many different operations depending on the application. The contents of the cabinets shown in the following procedures may not reflect the actual cabinet you are working on.

Com FMS Board Replacement (DCA)

CAUTION: Always take anti-static precautions when working with electronic components. i.e., wearing a wristband with an earth strap.

CAUTION: Always take precautions to avoid arcs and short circuits that may damage sensitive components.

Tools Required to Replace the FMS Board

- 3 mm allen key
- Replacement FMS board

NOTE: Check if the board has memory and software chips (consult with Compac Help Desk to see if you can use existing software or if you also need to install new chips).

Removal

1. Turn off the mains switch.
2. Remove any components that may obstruct the easy removal of the board. Note the locations and connections to the parts removed.
3. Unplug the connections to the board.
4. Undo the four machine screws holding the board and remove it.
5. Remove the memory and software chips from the FMS board if they are to be re-used and installed into the replacement FMS board.

Replacement

1. Replace the Comm FMS board and reconnect.
2. Once a new PCB has been installed in the electronic module install the memory and software chips onto the appropriate sockets on the board.
3. Replace all the components that were removed to access the board.
4. Verify the site pump and comms settings are correct. If the memory and software used are new, the site specific settings such as tanks / groups will need to be entered. Refer Main Menu Options.
5. Set the time and date. Refer to Setting the Clock.

Port 4 RS232
Port 4 TTL
Port 3 RS232
Port 3 TTL
Battery
Mains power fuse
IBM Keyboard
Mains Power
Port 2 RS232
Port 2 TTL
Dot Matrix Display
Port 1 RS232
Port 1 TTL
PIN Pad Keyboard
Port 5 RS232 Channel 1
Batt
Comms loop fuses
Comm FMS Dip Switches
General Purpose Inputs
Current Loop
IC 5 pin
Card Reader
DCA Comm FMS Board. Some wiring removed for clarity.
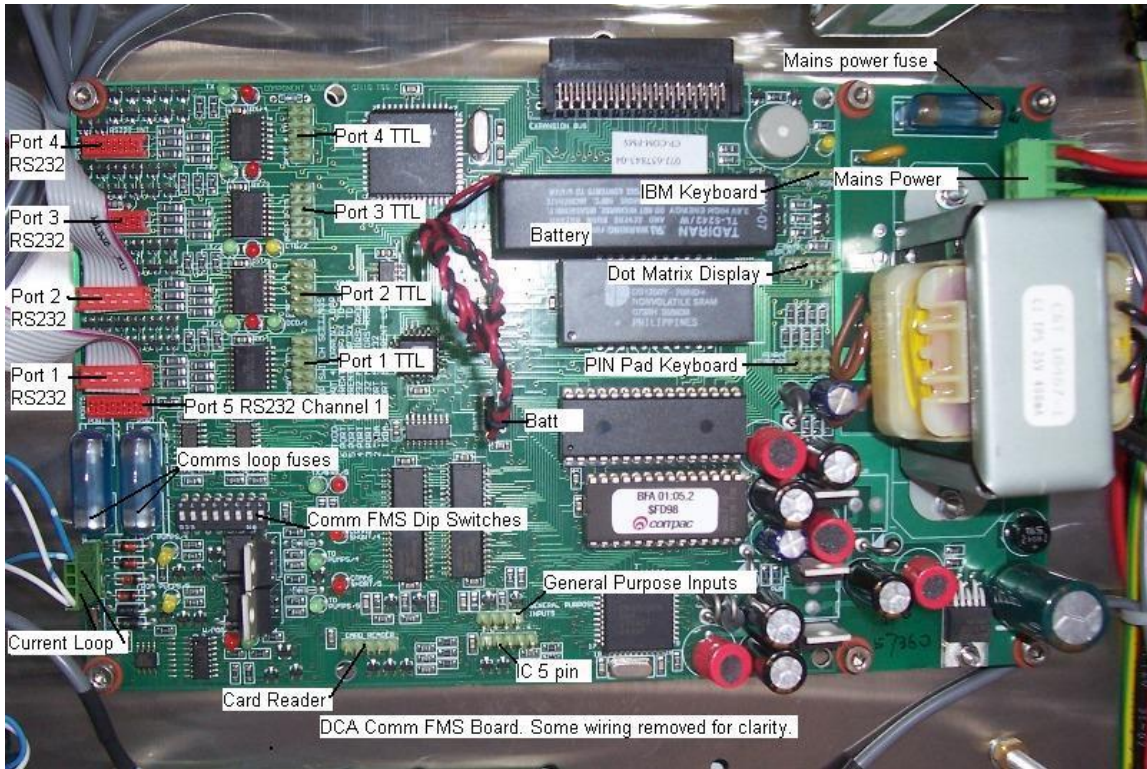
Due to the varied configurations of the units, all combinations of wiring can not be listed here. Take careful note of all connections before removal and use the list below as a guide only. The RS232 ports are RS232 mirrors of the TTL ports.

Component	Wire Colours	Comment
Port 1 RS232		Modem / direct host
Port 2 RS232		Audit trail printer or GPRS modem
Port 3 RS232		
Port 4 RS232		Tank gauging or Gilbarco comm's
Port 5 RS232		RS232 output of current loop for long distance pump comm's
Port 1 TTL		Connects to Lantronix board for TCPIP communication with CompacOnline, Netbase or Compac Box.
Port 2 TTL		Used in conjunction with Port 1 TTL
Port 3 TTL		Receipt printer
Port 4 TTL		
IC (5pin)		Power for capacitance keypad.
Card Reader		
General Purpose Inputs		
Mains Power	Red/Black/Green	Uses 3 pin plug wired: Phase-red, Neutral-black and Earth-green
PIN Pad Keyboard		
Dot Matrix Display		
IBM Keyboard		Not used
Batt	Red, Black	3.6V lithium battery
Dip Switches		Use DIP switches to allocate port functions. If replacing a board, make sure DIP switches match up.
		CAUTION: Use the above table as a guide only as wire colours can change during production and after servicing.

C4000 Board Replacement

Depending on the model of unit the C4000 board (or boards) may be mounted in different positions. The C4000 board is recognisable by the three parameter switches on the board.

Refer to the C4000 Master Manual for more information.

Removal & Replacement

Due to the varied mounting, there are no specific instructions.

Remove all components that may interfere with the removal of the board, taking note of the position and polarity of all wiring.

Remove the C4000 board.

Replacement is the opposite of removal. If a software chip was not included on the replacement board, use the chip from the old board, refer to the C4000 Master Manual for more information.

Configuration

The C4000 board can be set up in different ways depending on whether it is being used for CWID authorisation or for reporting mechanical register outputs. Refer to Compac and the C4000 Master Manual for details.

Parameter

K-Factor
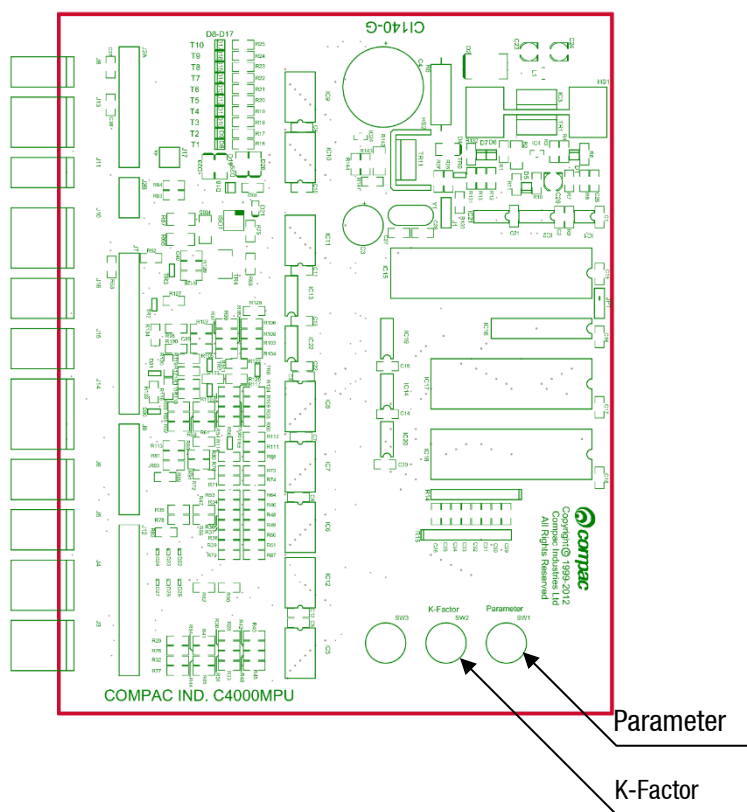
Compac Box Replacement

To Replace the Compac Box you will need:

- 7mm Nut driver
- Replacement Compac Box FE-CU-0001
- Cable ties
- Cutters
- Laptop and network cable or keyboard, mouse and screen (for CC DCA)

Removal

1. Turn off the power to the unit.
2. Remove the perspex cover and any components that restrict access to the Compac Box taking note of location and connections of all parts used.
3. Unplug all connections leading into the Compac Box, noting their positions.
4. Loosen the 4 nuts retaining the Compac Box mounting plate to the back wall of the cabinet. Lift and carefully remove the Compac Box mounting plate.
5. Remove the Compac Box from the mounting plate.

Replacement

Replacement is the reverse of removal. Ensure the perspex cover is replaced.

Configuring a Compac Box (Tank Gauging Only)

No configuration is required for tank gauging only connections.

Configuring a Compac Box (Credit card capable units)

Contact Compac who will remotely configure the unit. You may be asked to plug a laptop or screen, keyboard and mouse in to the Compac Box to do initial configuration.

Fit PC Replacement

The Fit PC is installed instead of a Compac Box when a wireless LAN connection is required. The Fit PC is recognised by the large heat sink.

To Replace the Fit PC you will need

- Replacement Fit PC (excluding heat sink) F-BA-EMB-PC2IWE
- Cable ties
- Cutters
- Laptop and network cable or keyboard, mouse and screen

Removal

1. Turn off the power to the unit.
2. Remove the perspex cover and any components that restrict access to the Fit PC taking note of location and connections of all parts used.
3. Unplug all connections leading into the Fit PC, noting their positions. Note that the power plug is attached to the box with a screw.
4. Twist the Fit PC box anti-clockwise to release the box from its mounting plate. Lift and carefully remove the Fit PC.
5. Slide the heat sink off the unit.

Replacement

Replacement is the reverse of removal. Ensure the aerial is connected (if wireless connection) and that the perspex cover is replaced.

When the unit is re-powered, check that the fit PC is turned on and the green power LED is lit. If no lights are showing, press the On/Off button to turn it on.

Configuring a Fit PC (Credit card capable units)

Contact Compac who will remotely configure the unit. You may be asked to plug a laptop or screen, keyboard and mouse in to the Fit PC to do initial configuration.

FIT PC Front Side Layout

On / Off Button   SD Card Slot   RS232 Port   Mini USB x 2

Fit PC Back Side Layout

12 V Power   Speaker   Aerial   Ethernet 1   Ethernet 2   Microphone   Reset   DVI

USB x 2
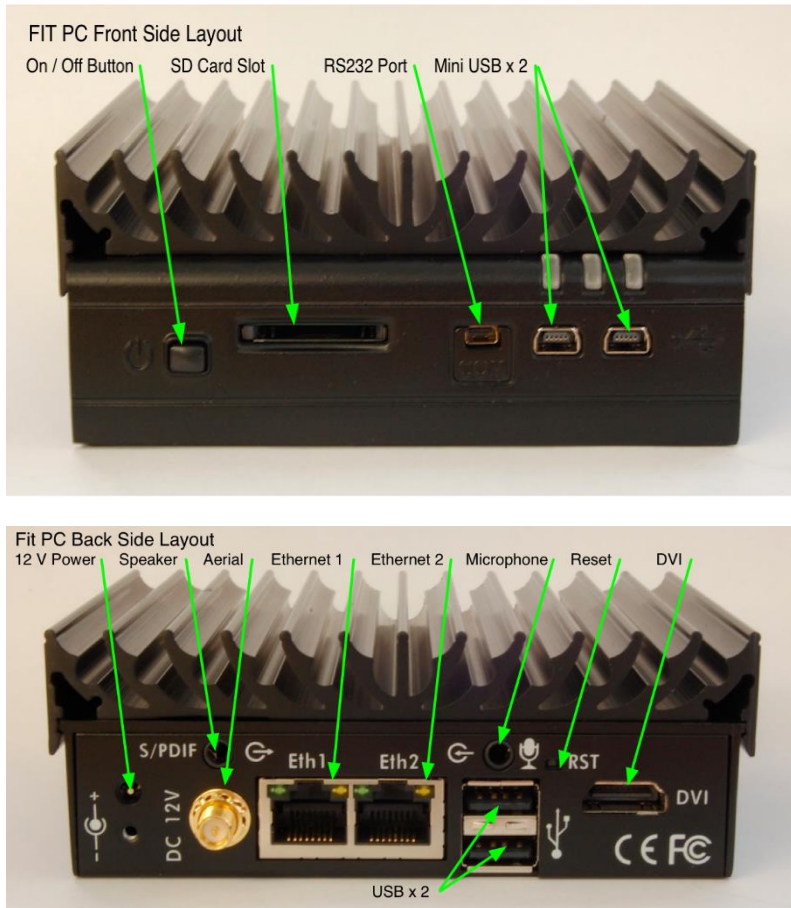
Wiring a USB Module

The diagram below shows the wiring diagram for USB interface board to a Compac Box. The power for the USB Interface Board is off J17 on the C4000 Process Board. An RS232 cable comes off Port1 on the COM-FMS board to the Com1socket on the Compac Box.

The USB cable from the USB Module plugs into the USB port on the Compac Box (not shown here).

USB Interface
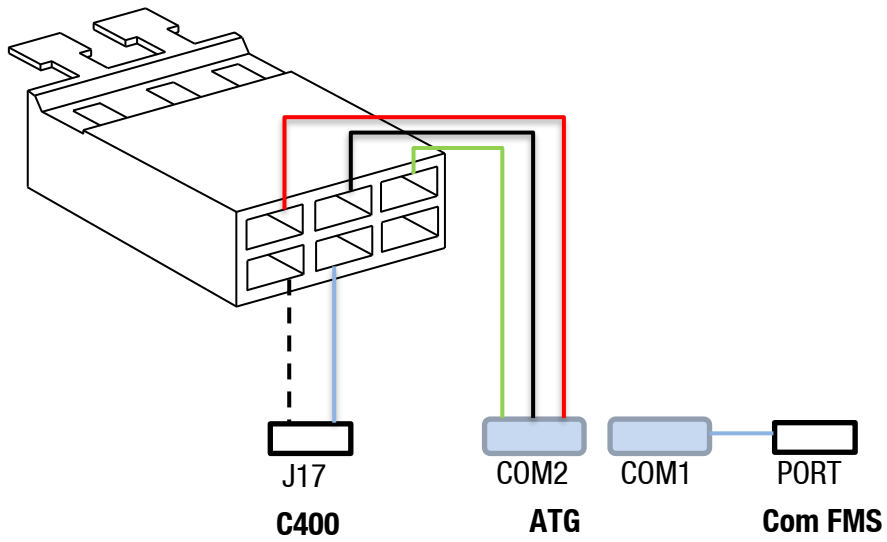
Attach the RS232 cable wires to the plug terminals so they match the following table:

Wire	Pin
Red	2
Black	3
Green	5
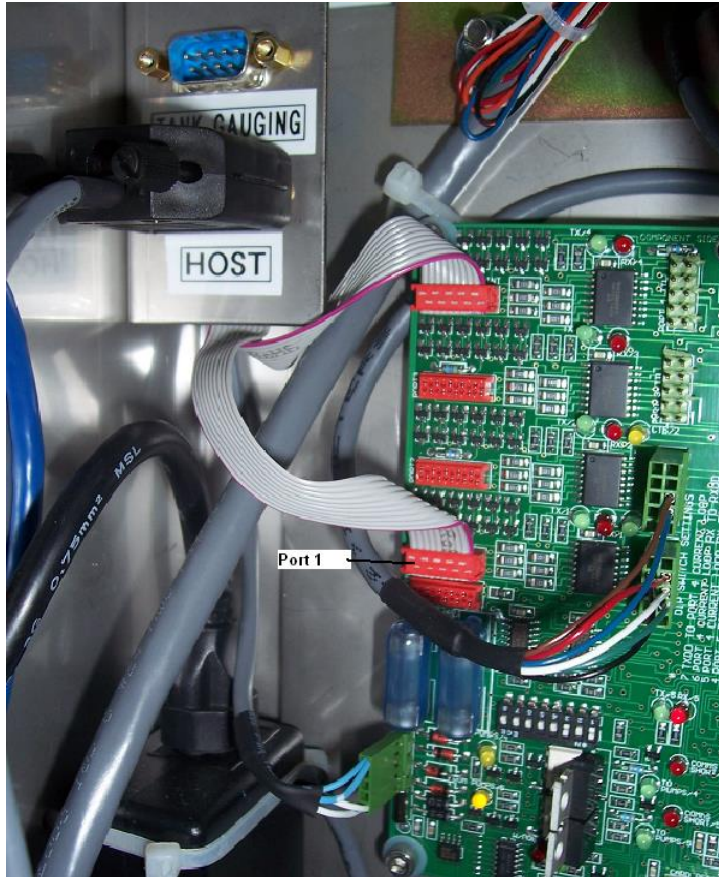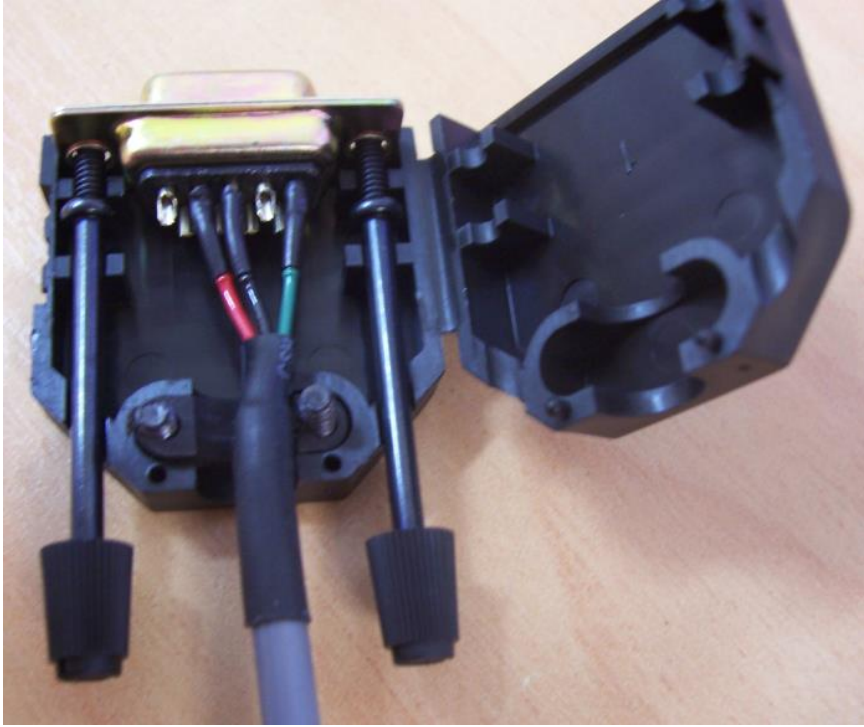
Port 1

Plug the RS232 cable into Port1 on the Com-FMS board.
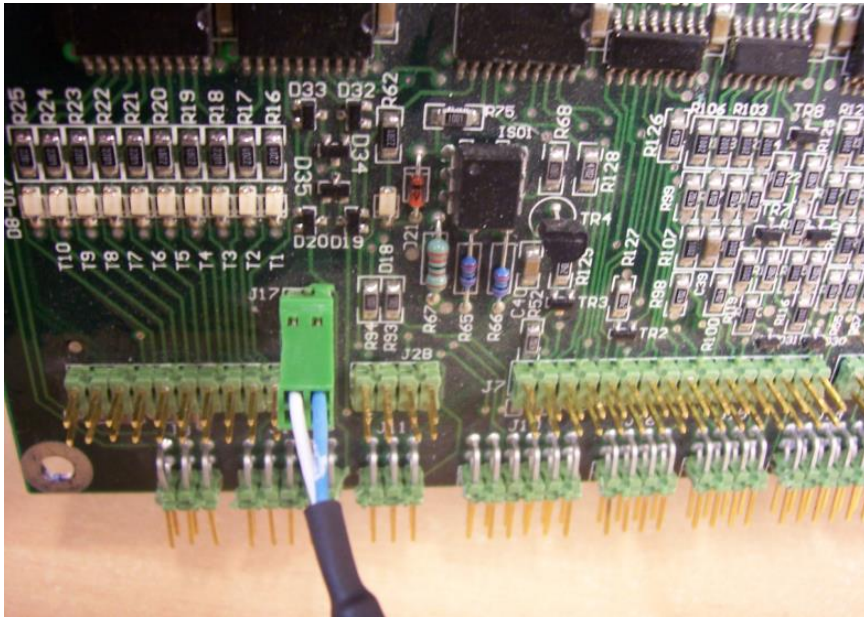
Plug the two-core cable into J17 on the C4000 processor board. The white wire goes into +12V and blue wire goes to ground.

NOTE: If the unit does not have a C4000 processor board you need to obtain a 12 volt power supply either from a power transformer or by connecting into the TTL port of the Com-FMS board as shown.
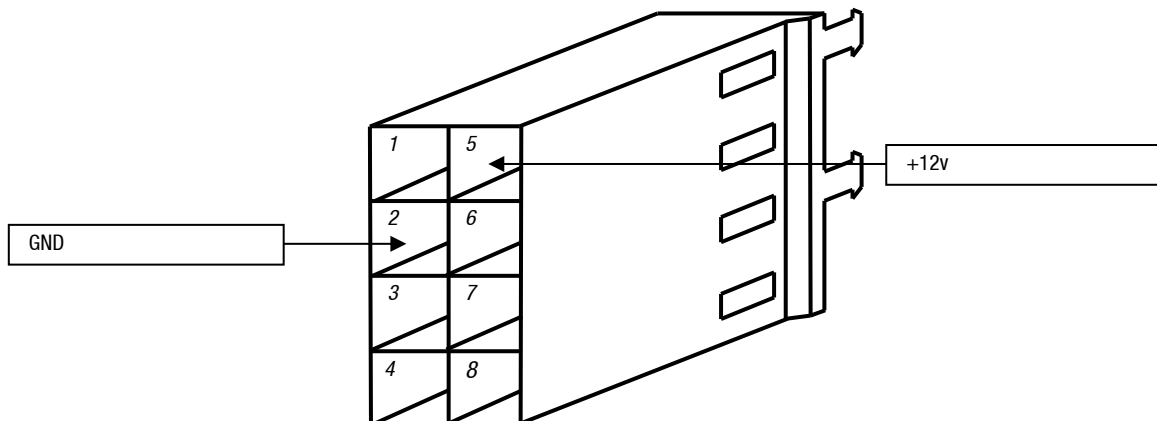
Wire both RS232 cables to the Compac Box as shown and plug the 6-way connector into the USB Interface board. The USB cable off the USB Interface board should be plugged into the USB port on the Compac Box.
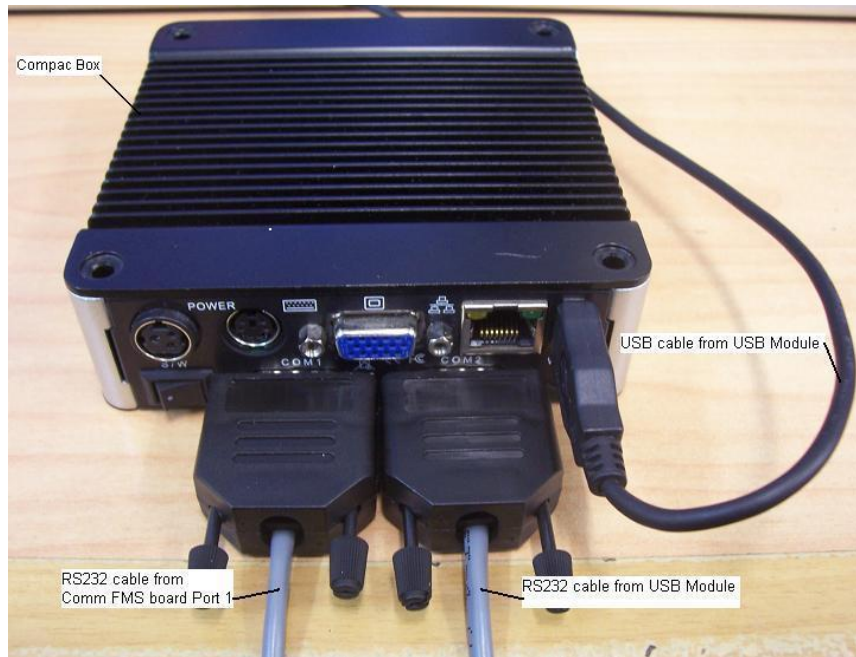
CWID Interface Board Replacement

Tools Required to Replace the CWID Board

- 3 mm allen key
- Replacement CWID board.

NOTE: Check if the board has memory and software chips (consult with Compac Help Desk to see if you can use existing software or if you also need to install new chips).

Removal

1. Turn off the mains switch.
2. Remove any components that may obstruct the easy removal of the board. Note the locations and connections to the parts removed.
3. Unplug the connections to the board.
4. Undo the four machine screws holding the board and remove it.

Replacement

1. Replace the CWID board and reconnect.
2. Once a new PCB has been installed in the electronic module install the memory and software chips onto the appropriate sockets on the board.
3. Replace all the components that were removed to access the board.
4. Repower the unit and check Power, Comm's and Valid LEDs by swiping CWID key.
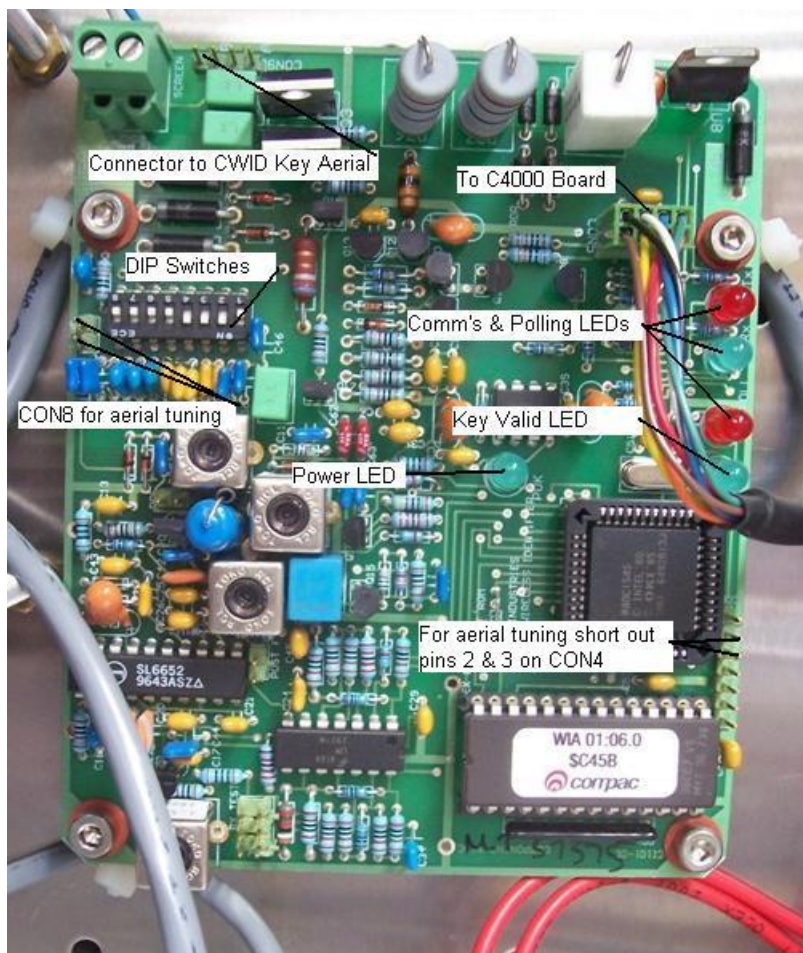
NOTE: The screw connector block can also be used for the CWID aerial connection.

NOTE: If either the aerial or the interface board are replaced the aerial must be re-tuned. Refer to Tuning the CWID Aerial.

CWID Aerial Replacement

Tools Required to Replace the CWID Aerial

- #2 Pozi-drive screwdriver
- Cable ties
- Replacement CWID aerial

Removal

1. Turn off the mains switch. Open the cabinet.
2. Remove any components that may obstruct the easy removal of the aerial. Note the locations and connections to the parts removed.
3. Unplug the aerial connection to the CWID interface board.
4. Unscrew the aerial from the square mounting block.
5. If access is difficult, undo the four screws holding the aerial mounting block and remove the assembly in order to unscrew the aerial.

Replacement

1. Replace the aerial and seal (if mounting block removed) and reconnect to the board.
2. Replace all the components that were removed to access the aerial.
3. Repower the unit and check the operation of the CWID key. The Valid LED on the CWID board will illuminate when a valid CWID key is swiped.

NOTE: If either the aerial or the interface board are replaced the aerial must be re-tuned. Refer to Tuning the CWID Aerial.

CWID Nozzle Aerial Replacement

If the nozzle mounted CWID aerial or cable fails, the entire assembly must be replaced. The aerial can be ordered with a 5, 10, 12 or 14 metre cable to suit the application.

For most nozzle mounted CWID aerials the CWID aerial will terminate at a CWID interface board mounted at the pump. The interface board is connected to the C4000 board in the unit by an extended cable.

Tools Required to Replace the CWID Nozzle Aerial

- Spanners
- Side cutters
- Electrical screwdrivers
- Cable ties

Removal

1. Remove the aerial wire from the CWID board.
2. Undo the three bolts holding the CWID aerial ring onto the nozzle and remove.
3. Undo any cable fastenings or snip any cable ties to free the cable.

Replacement

Installation is the opposite of removal. The installation of the CWID aerial cable varies from site to site. Install the new cable the same way as the original.

NOTE: If either the aerial or the interface board are replaced the aerial must be re-tuned. Refer to Tuning the CWID Aerial (see below.)

Tuning the CWID Aerial

Whenever the CWID PCB is changed, the aerial will need to be tuned. For locations of the connectors, refer to the picture in CWID Interface Board Replacement.

1. Connect a Multimeter (set to Volts) to CON8.
2. Place a shorting link across pins 2 & 3 of CON4. The poll LED will flash slower, indicating "Tuning Mode".
3. Using the dipswitches (SW1), adjust the capacitance to obtain the maximum voltage at CON8. Each dipswitch adds a capacitor to the tuned circuit. The DIP switches 1 to 5 are primary capacitors while 6 to 8 are fine tuning capacitors.
4. Use the following technique:
5. Turn on Switch 1 and measure voltage, turn on switch 8 and see if voltage rises or falls. If it rises, turn off 8 and turn on switch 2.
6. Continue this procedure for switches 3, 4 and 5 until you get a voltage drop.
7. If the voltage drop occurs at switch 2, 3, 4 or 5 then return to the previous switch and add switches 6, 7 and 8 until the voltage drops. When the drop occurs, revert to the previous switch.
8. If there is no voltage drop as switches 6, 7 and 8 are added, compare this voltage to the voltage achieved at the next primary switch with 6, 7 and 8 turned off.
9. If you can't get a voltage drop when the fine tuning switches are used, use the chart below to calculate a capacitance figure between the switch combination achieved above. For example: If 1+2+6+7+8 (7.3 nF) obtains a higher voltage than 1+2+3 (8.33nF) then try 1+2+5 (7.33 nF). If the voltage reading is higher than the two previous combinations, switch on 8 then 7 then 6 until you get a drop. If no drop is measured, try 1+2+4(7.66 nF). Keep working with combinations until you get the voltage drop when one of the fine tuning switches is added or you have run out of combinations. Always use the setting that achieves the highest voltage.
10. If the voltage drop occurs at step 5, turn off switch 1 and turn on switches 2, 3, 4 and 5 then test for voltage drop with switch 8. If voltage drops then turn off switch 5, measure voltage and test again with switch 8. Continue with combinations until a voltage drop occurs when one of the fine tuning capacitors is switched on.
11. Though the CWID aerial can work at lower voltages, the voltage reading should be above 28 Volts.
12. Remove the shorting link fitted at 2 above.
13. Test the operation with a valid CWID key.

Dipswitch (SW1)	Capacitance (nF)	Dipswitch (SW1)	Capacitance (nF)
1	4.7	5	0.33
2	2.3	6	0.1
3	1.33	7	0.1
4	0.66	8	0.1

HID Reader Replacement

The HID unit if ordered from Compac will come with approximately 1.5 metres of cable terminated with a 5 pin plug.

To Perform This Operation You Will Need

- New HID Reader
- #2 Phillips type screwdriver
- Allen key set
- 7mm Nutdriver or spanner

Removal

1. Turn off the mains switch and ensure there is no power to the unit.
2. Open the cabinet and unplug the HID Reader from the IC socket on the FMS Board marked "Card Reader".
3. Undo the gland nut on the back of the door.
4. Undo the screw at the bottom of the HID reader and pull of the HID reader cover and reader unit. Pull the cable through. (You may need to remove the terminals from the plug to do this.) If you want to replace the base plate and gland nut, remove these too.
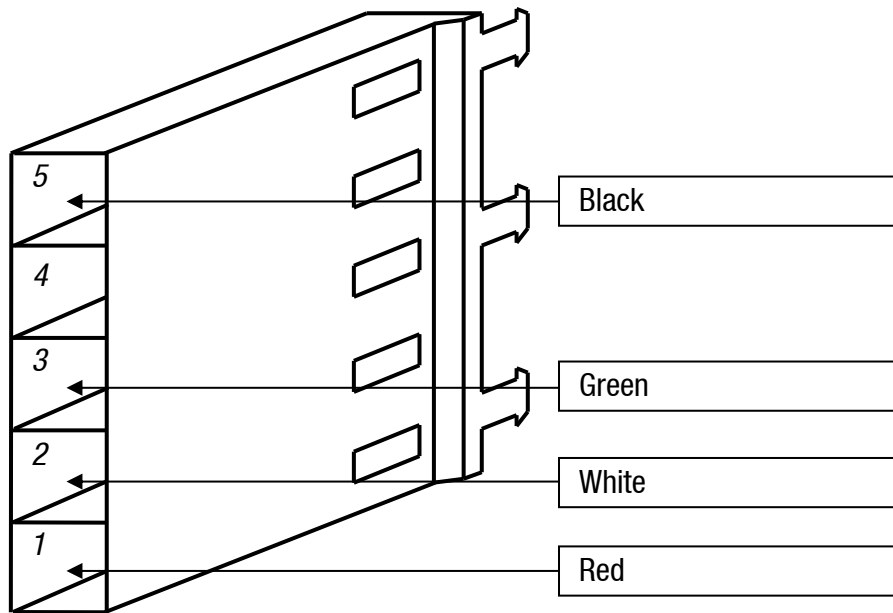
Replacement

Replacement is the reverse of removal. (The terminals may have to be removed from the plug to pass through the gland.)

NOTE: *If the gland is replaced you will need to cut about 6mm off the threaded end to allow the HID reader to fit flush against the door.*

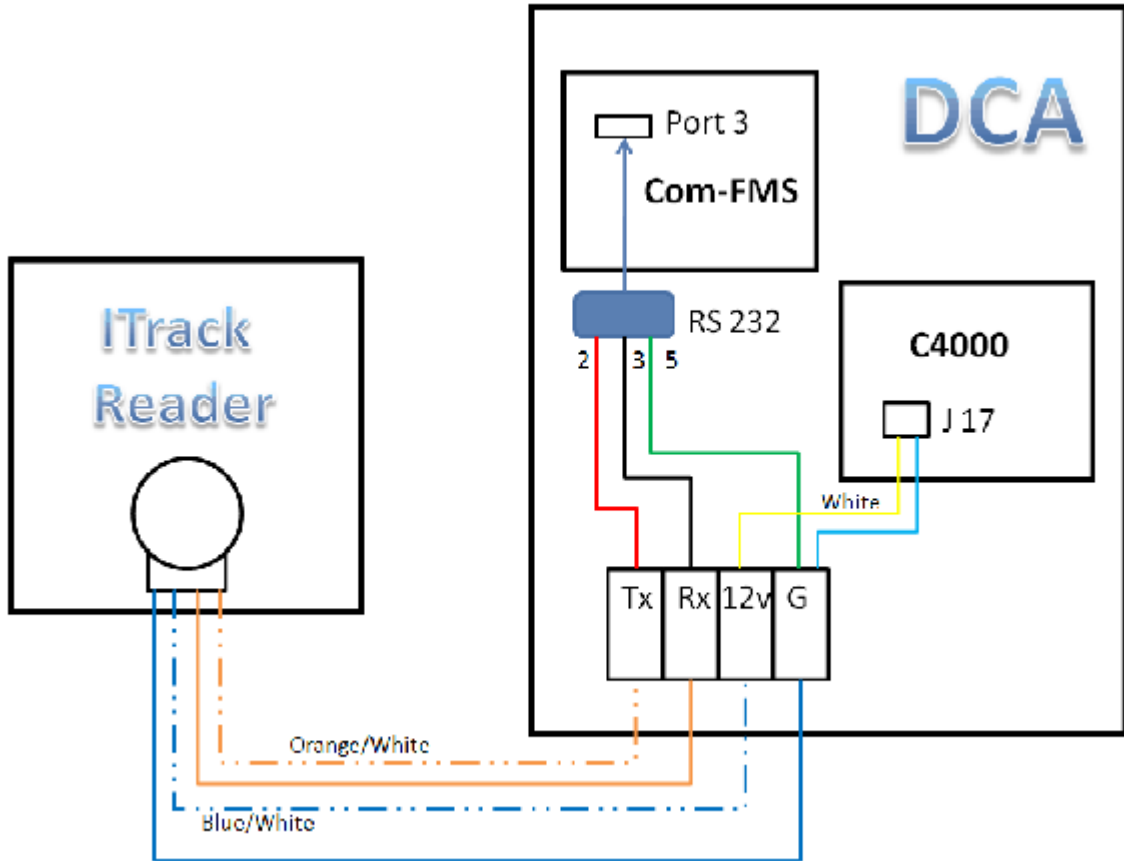Test the HID reader by using a valid key to perform a zero dollar transaction.

Gland to HID Reader

HID Reader Connection

5	Black
4	
3	Green
2	White
1	Red

106.
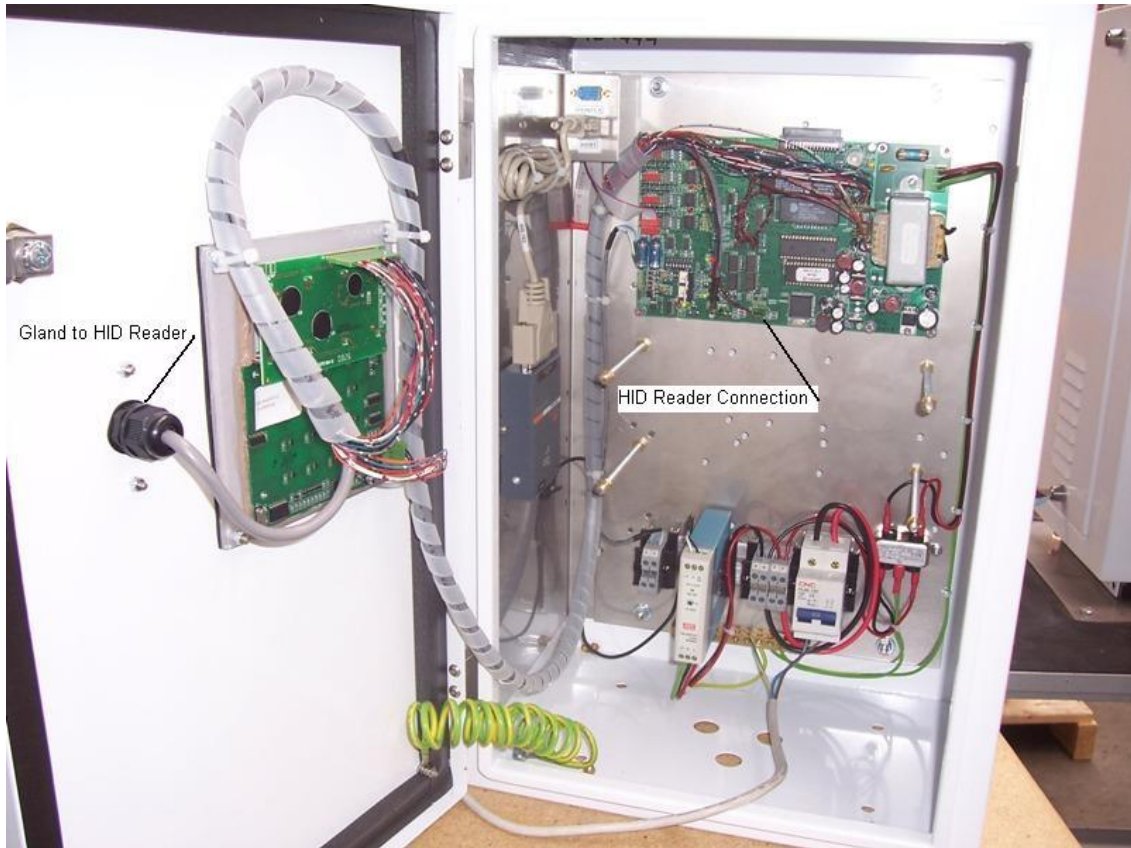
## iTrack Reader Installation and Replacement

The iTrack reader can either be supplied with a new unit or retrofitted to existing ones. See below for a wiring diagram:

Existing iTrack Reader

If the iTrack reader has been set up at the factory, it will connect to the pre-wired sockets on the DIN rail as follows:
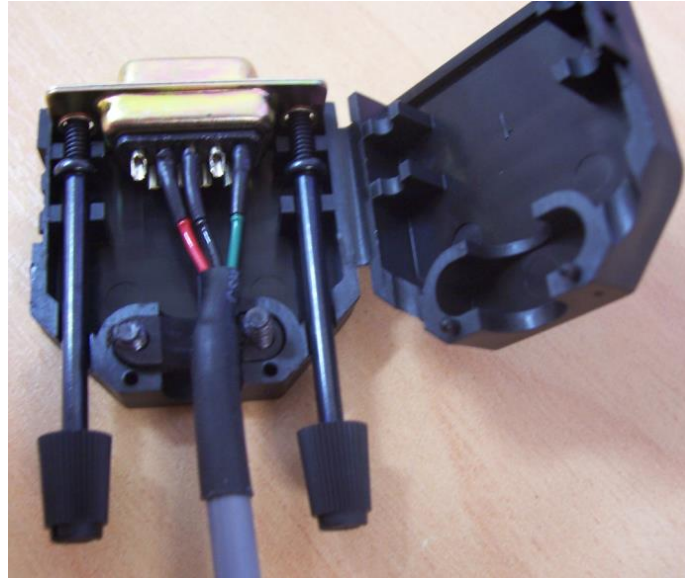
NOTE: Isolate the unit before attempting any work on the iTrack reader.
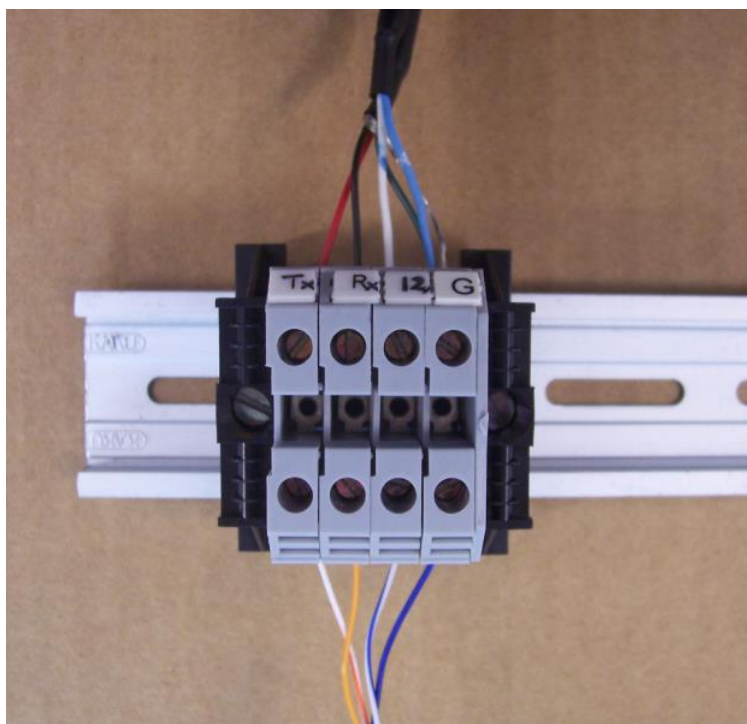
| Terminal	Wires	iTrack Reader Wires
Tx	Red	Orange and White
Rx	Black	Orange
12V	White	Blue and White
G	Blue, Green and Shield	Blue

New Installation

To connect an iTrack reader where no DIN rail connection is supplied you can wire the reader to an RS232 plug as follows:

NOTE: *The picture above shows the factory wiring. When wiring the iTrack direct to the RS232 plug use the colours in the table.*

Wire	Pin
Orange / White	2
Orange	3
Blue	5

Plug the RS232 plug into the supplied socket (generally labelled "Host") and plug the ribbon cable at the back of this socket into Port 3 on the Com FMS board.
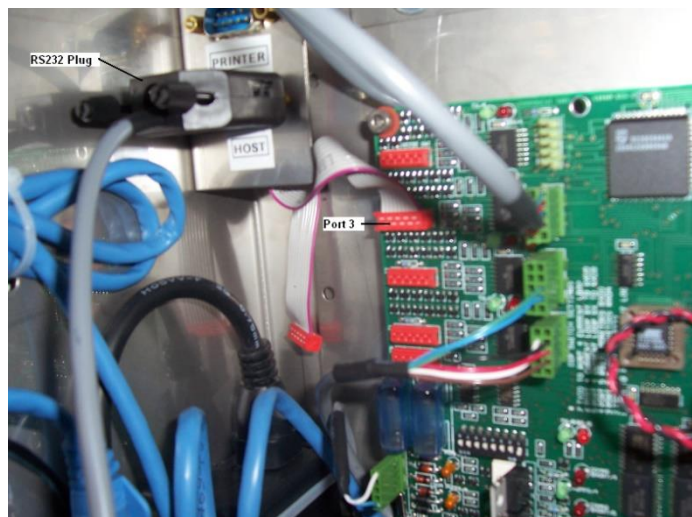
Connect the Blue/White wire to the 12v supply side of socket J17 on the C4000 board and the blue wire to the earth (twinned with the wire to RS252 pin 5).
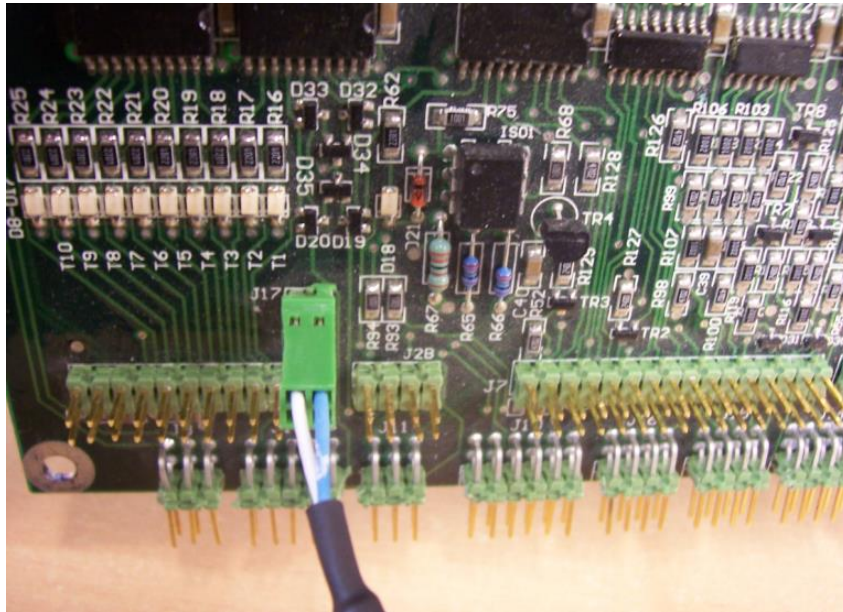
Card Reader Replacement

Tools Required to Replace the Card Reader

- Card Reader (Check the type of card reader you require)
- 7mm nut driver
- 3mm allen key
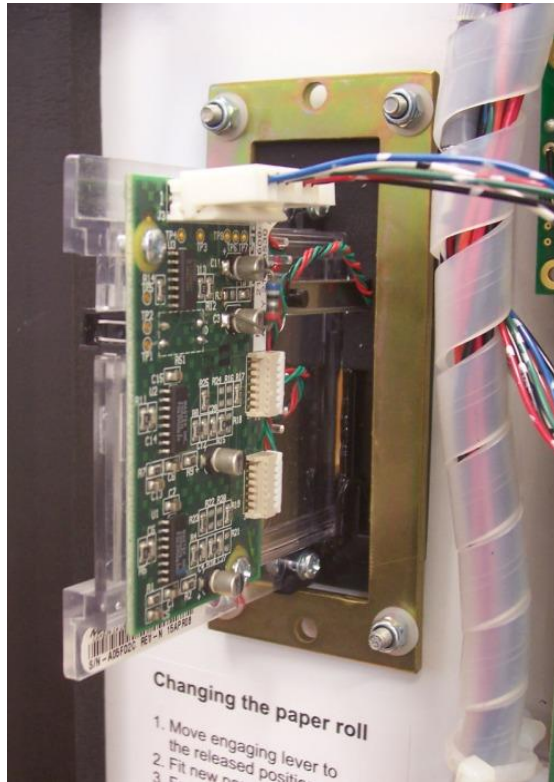- #1 Pozidrive screwdriver

Removal

1. Note the orientation of the 5 way connector and pull the connector off the back of the card reader.
2. If there is a sheet metal screen between the reader and the LCD screen, undo the cap screws that hold it on and remove the extended nuts underneath.
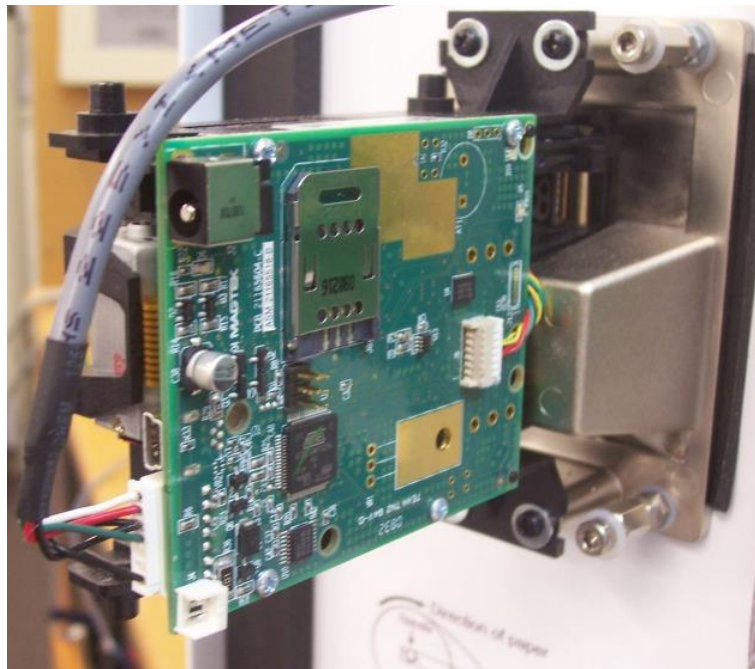3. Unscrew the four nylock nuts that retain the card reader to the door.

Replacement

Replacing the card reader is the reversal of the removal procedure. Replace the gasket if it is perished or damaged.

NOTE: When reconnecting, pay attention that the connector orientation is the same as when it was removed.

Changing the paper roll

1. Move engaging lever to the released position
2. Fit new paper roll
3. ...

NOTE: *Compac authorisation units are fitted with a variety of card readers. Quoting the serial number when ordering will ensure you get the correct part.*

Multiplex Board Replacement

A multiplex board is used with Credit Card units to allow the printer and card reader to communicate to the same port on the Com FMS board.

To Replace Multiplex Board

Removal and replacement is straight forward with the board held in by machine screws and the connections replaced as removed.
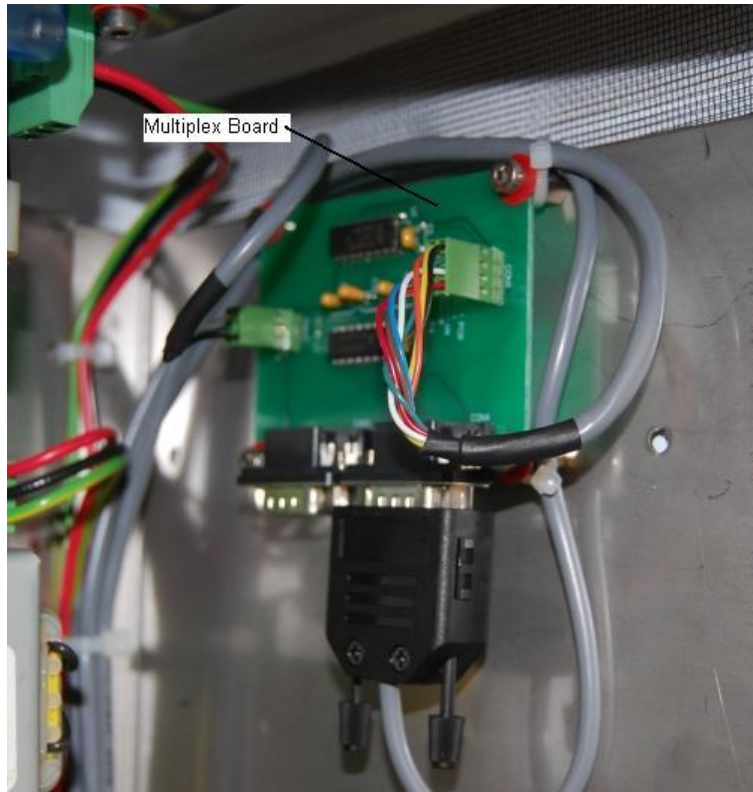
Keypad and Display Screen Replacement

Tools Required to Replace the Keypad

- Replacement keypad (part number
- 7mm nut driver
- Side cutters
- Cable ties

Removal

1. Cut the cable ties around the key pad and remove the cable tie clips.
2. Note the position and orientation of the connectors before removing them.
3. Unscrew the four nylock nuts that retain the keypad to the door.

Replacement

Replacing the keypad is the reversal of the removal procedure.

Test the keypad and display for correct operation.

NOTE: Replace the gasket if it is damaged or perished.

Router / Switch Replacement

The ADSL router / switch module is not repairable on site and will need to be replaced with a new part.

Tools Required to Replace the Router / Switch

- ADSL Router / Switch module
- Wire cutters
- Cable ties
- 7mm & 8mm Nut driver

Removal

1. Turn off the power using the mains switch.
2. Unclip the Ethernet cables, power and phone line (If present) and cut any cable ties that secure the module in place. Remove the module.

NOTE: Some routers are mounted behind a mounting plate. In this case you will also need a 7mm nut driver to unscrew the nuts, then pull off the mounting plate.

Replacement

Reverse the removal procedure above to replace the router / switch.

Once the unit has been installed contact Compac to set up the router user name, password and port forwarding.

Replacing the Receipt Printer

These instructions only refer to the current Custom TG2460C guillotine style printer which supercedes all existing printers. For replacing Seiko and Custom dropbox style printers with the TG2460C, refer to Technical Bulletin CTB1049. For replacing the Custom TG2460 tear-off style printer refer to Technical Bulletin CTB1056.

Tools Required to Replace the Printer

- TG2460C printer (part number F-BA-PRT-TG2460C)
- 5.5mm nut driver
- #2 pozidriv screwdriver

Removal

1. Isolate the DCA.
2. Remove paper roll.
3. Unplug the power and communication connectors from the side of the printer.
4. Unscrew the four nylock nuts that retain the printer and remove the printer.
5. Taking note of the position and orientation of the paper roll support arm, undo the retaining screws, unplug the paper low sensor and remove.

Replacement

1. Fasten the old paper roll arm onto the new printer in the same position as it was on the old printer. Plug in the paper low sensor.
2. Fasten the new printer to the door.
3. Plug the power and communication cables back into the printer.
4. Replace the printer roll, repower the DCA and do a test print by pressing the Print button on the side of the printer.
5. Perform a test transaction.

NOTE: The receipt printer uses special waterproof thermal paper. Do not use standard thermal paper as this may absorb moisture and jam in the printer. Order paper from your Compac agent.
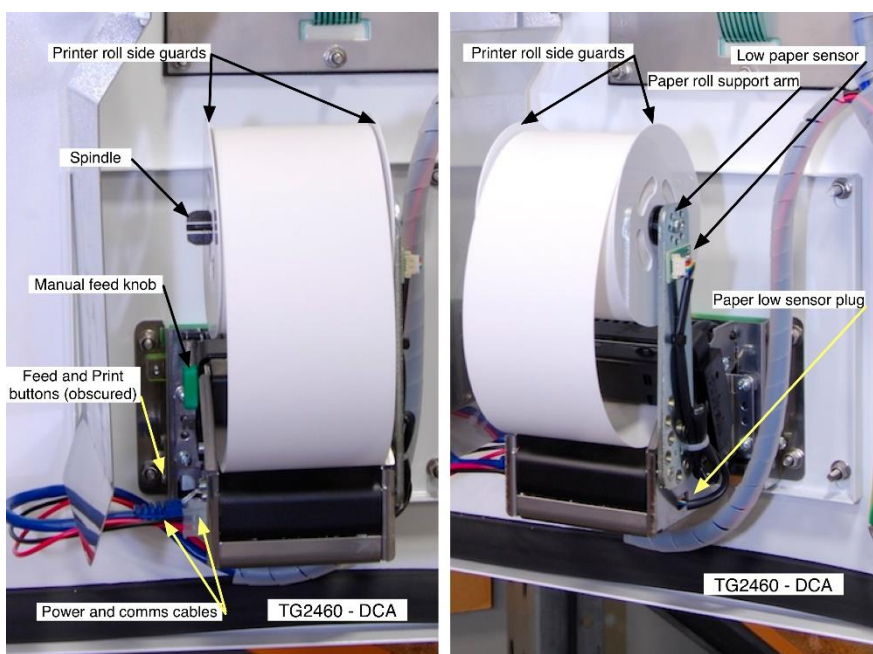
Software Upgrading

This is the software upgrade procedure to be followed for all EPROMS.

1. Ensure, before working on the DCA, that anti-static precautions are taken (i.e. wearing of wristband with earth strap).
2. Check that all current data has been uploaded from the unit.
3. Record all existing parameters and settings.
4. The above steps are taken to safeguard against software incompatibility causing loss of information.
5. Turn off power.
6. Remove software EPROM using an EPROM extractor.
7. Plug in new software EPROM, being careful that the dimple is at the correct end of the socket (see diagram below). Also ensure that all the legs are correctly located in the socket.
8. Turn on power.
9. Check that the data recorded in Step 3 is still present, if not contact Help Desk for instructions.
10. Check date/time and all other settings are correct.
11. Test pump operation.

CAUTION: When replacing Integrated Circuit chips, ensure that the notch is facing in the direction of the IC board socket (the notch is the end referred to as the "front").

When inserting the IC chip, the rear pin (of the IC chip) must be plugged into the rear pin socket of the IC board socket. If the chip is shorter than the socket, any spare pin sockets should be at the front.

Failure to correctly insert the IC chips or adhere to the above guidelines specified will result in a loss of memory data.
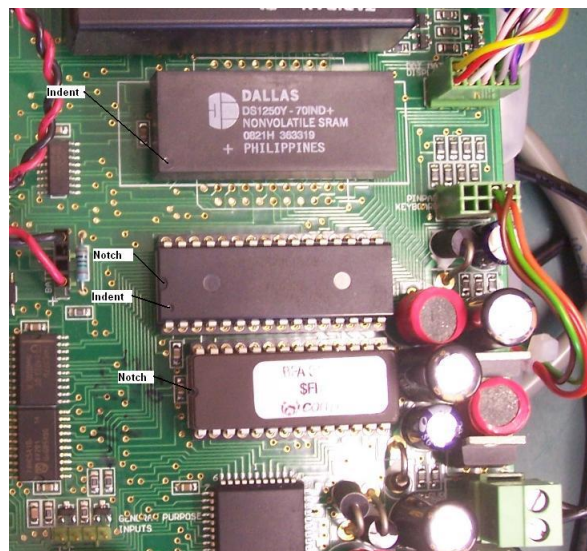
Maintenance

Introduction

The unit is a fairly simple device requiring the following regular maintenance:

Cleaning the Cabinet

The cabinet should be cleaned with a soft cloth and non-abrasive cleaner to remove dirt, grease, graffiti and unauthorised stickers. All instruction and branding decals should be replaced if damaged or faded.

NOTE: Do not use buckets of water, hoses or water blasters to clean the cabinet as water may enter and damage delicate components. Water damage is not covered by warranty.

Card Reader

The card reader should be swiped through with a cleaner card (Part number F-BA-CARDRD-CKIT) wet with cleaner fluid. The card reader may need to be cleaned daily on dirty, dusty or wet sites.

PIN Pad

The fascia should be cleaned to keep the printing legible. A soft dry rag should be used. Do not use a rag wet with solvent or petrol as the PIN pad fascia printing may be damaged. No other service is required, as there are no moving parts.

Door Seals

If the seals appear perished or damaged or there is water leakage into the cabinet through the seals, they should be replaced. Order new seals through your Compac agent.

Protection

The unit should have been mounted facing away from prevailing winds and in a sheltered place. If there are recurring problems with moisture, dust, sun damage or any other problems caused by the environment, moving the unit, constructing a shelter or other protective measures should be considered.

Receipt Printer

The receipt printer must be kept clean and dry. Any dust or dirt should be cleaned away with a clean, dry brush.

The correct waterproof thermal paper must be used otherwise you will have problems with paper jams. Contact your Compac agent for the correct paper.

From June 2012, DCAs have been fitted with a 24V Custom TG2460 printer using 60mm wide paper. Earlier models use a different paper size which is not interchangeable with the current model.

Changing Paper

CAUTION: Use only Compac supplied 60mm wide waterproof thermal paper. If you do not use this paper you may void the warranty, damage the printer and have receipt printing problems.

1. Unlock the two locks on the door.
2. Tear off the paper and feed the scrap piece out using the feed button.
3. Squeeze together the plastic retaining clips and remove the plastic side guard and the old roll.
4. Place the new roll on the spindle with the paper feeding off the <u>bottom</u> of the roll
5. Replace the plastic side guard.
6. Feed the end of the paper into the paper slot, the printer should automatically pick up the paper and feed it out the chute.
7. To make sure the paper is feeding properly, press "Feed" button to feed paper until it appears from the paper chute.
8. If the paper does not appear in the exit chute you can lift up the hinged plastic cover plate and make sure it has not jammed.
9. Press the "Print" button to do a test print. If nothing appears on the paper, the paper may be wrong way around.
10. If the test print is okay, close the DCA door.
11. Perform a test transaction.

The receipt printer is now ready.

NOTE: If "Receipt unavailable" appears on the internal display, press the "Feed" button again.

To Clear Paper Jams

If the receipt paper is jammed, try to clear it using the following technique:

1. Lift the plastic lid on the top of the printer.
2. Pick out any loose or jammed paper.
3. Use the green knob or the feed button to help release any trapped paper.
4. Check the receipt chute is clear and undamaged.
5. Lower the plastic lid.
6. Feed the paper back into the machine and do a test print.
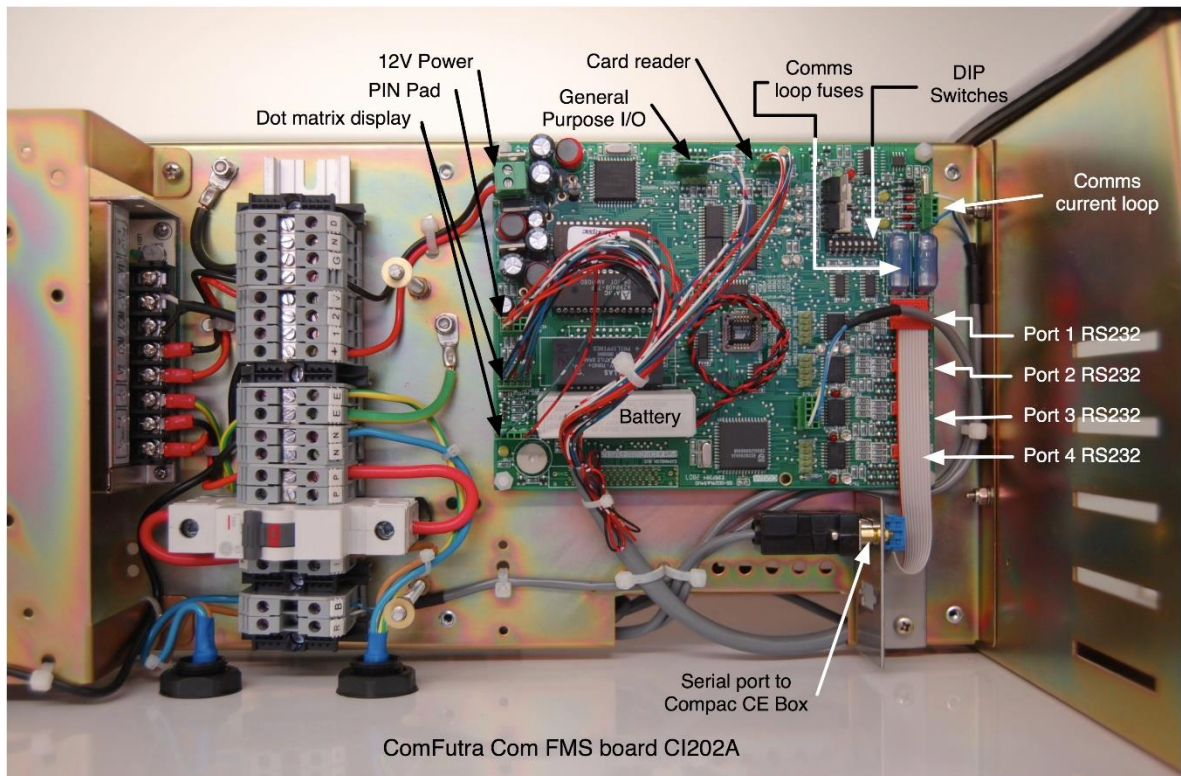7. If the printer roll appears wet or damaged, replace it.
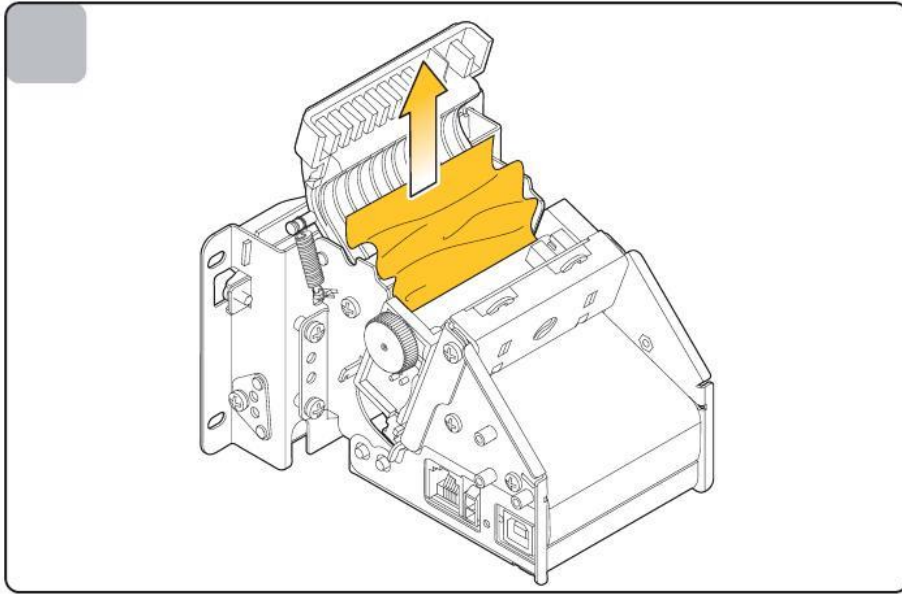
Appendix

Comm FMS Board Connections
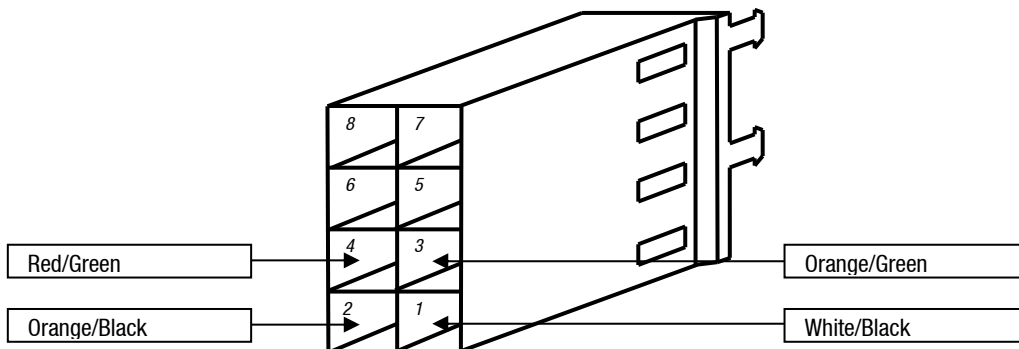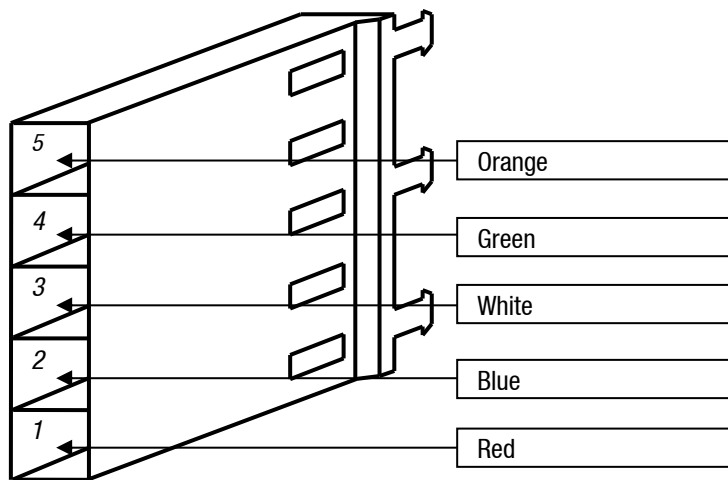
The following pictures and diagrams indicate the common wiring location and wire colours for the Comm FMS board.

NOTE: *Due to the wide range of configurations, actual wiring in the unit may vary from what is shown here.*

ComFutra Com FMS board CI202A

Connecter shown below is for the capacitive (hard) type key pad. Refer to membrane key pad wiring for soft type key pad wiring.

121.

Blue/Black — 10

9 — Black/White

Black — 8

7 — White/Red

Green/White — 6

5 — Orange/Red

Blue/Red — 4

3 — Black/White/Red

Green/Black — 2

1 — Red/White/Black

5 — Orange

4 — Green

3 — White

2 — Blue

1 — Red
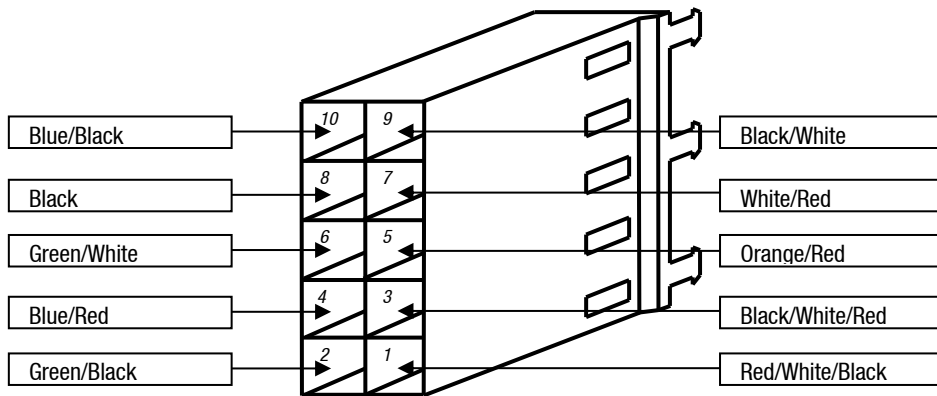
For a "White Card" and Fuelcard enabled unit the receipt printer plugs into Port 3 TTL of the Comm FMS board as shown below:

Black — 8

Green — 6

5 — White

10 9
8 7
6 5
4 3
2 1

122.
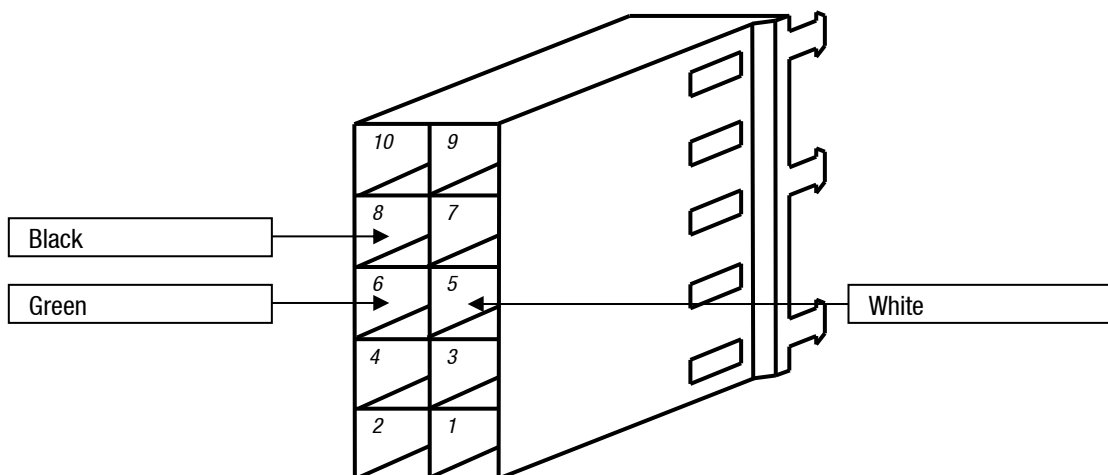
For a Credit Card enabled unit the plug for Port 3 TTL is wired like this and terminates at the Comm FMS RS232 Port Expansion Board.

Black →	8	7 ←	Green (9)
Orange →	6	5 ←	Red (7)
White →	4	3 ←	Blue (5)
Yellow →	2	1	Brown (3)

Connector pins:
- 10, 9
- 8 (Black →), 7 (→ Green)
- 6 (Orange →), 5 (→ Red)
- 4 (White →), 3 (→ Blue)
- 2 (Yellow →), 1 (→ Brown)
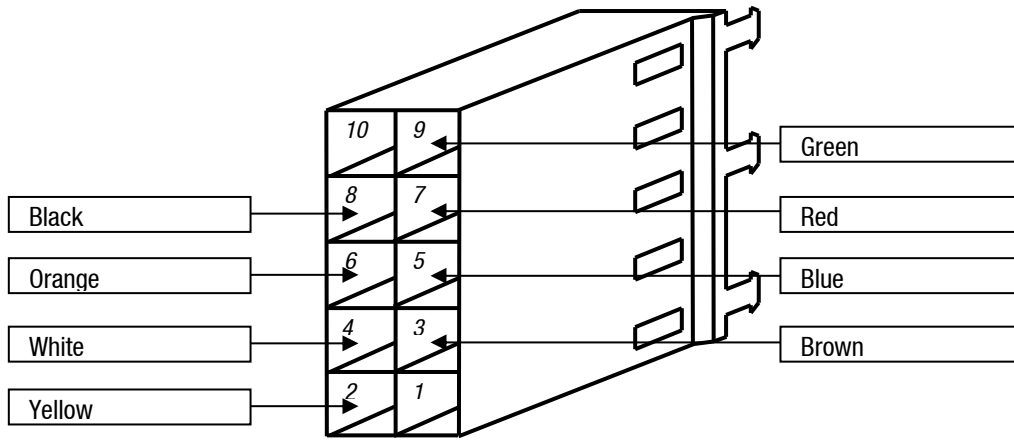
Plugs and Connectors

Display

The Display is connected as shown below:

124.
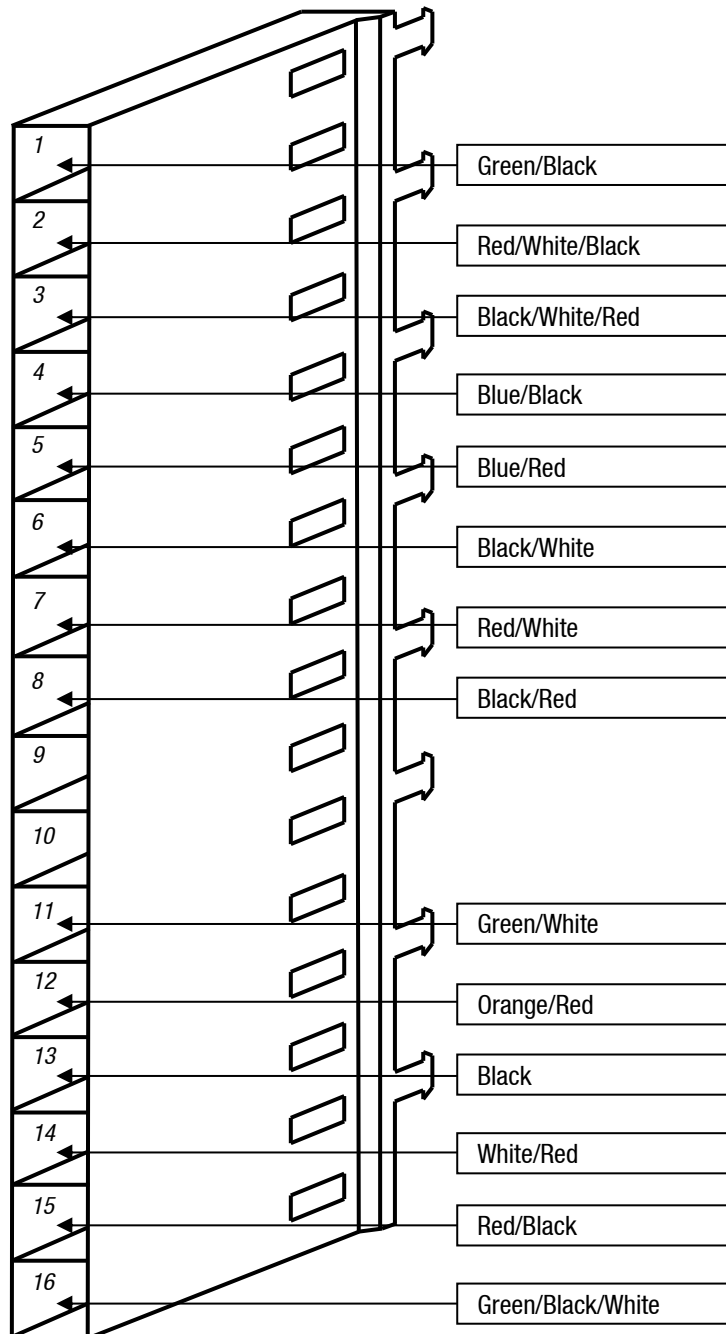
Capacitance Keypad

The capacitance (hard) keypad is connected as follows:

Pin	Wire
1	Orange/Black
2	Red/Green
3	White/Black
4	Blue/White
5	Orange/Green
6	White/Black/Red
7	Link to pin 2
8	Link to pin 3
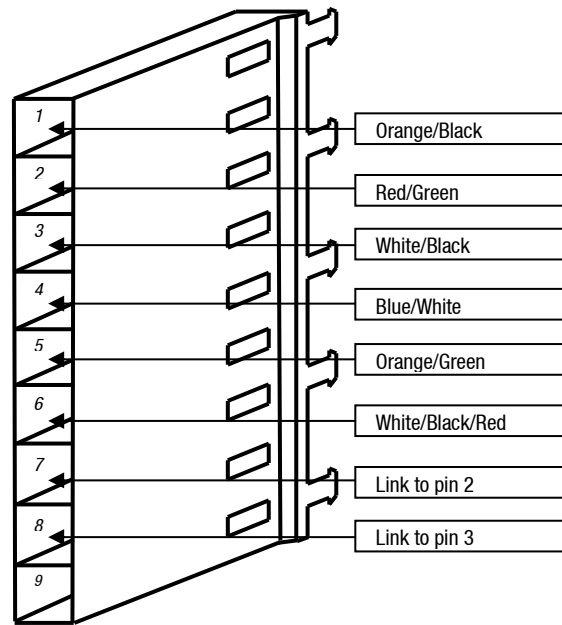
Membrane Keypad

The membrane type (soft) key pad requires a different cable to the capacitance (hard) type key pad. Key pads can be interchanged but a software change is required if a different key pad is fitted.

COM-FMS Board
Pinpad Keypad

PINPAD

2 x 4Way housing
TYCO PART# 925370-4

Pin ; MTE Latching Pins x 8
TYCO PART : # 104257-7 08

Housing ; 103653-7 08MTE SHRD PIN HSG with self Retaining Latch. (Viewed from Rear.)
TYCO PART: # 103653-7 08
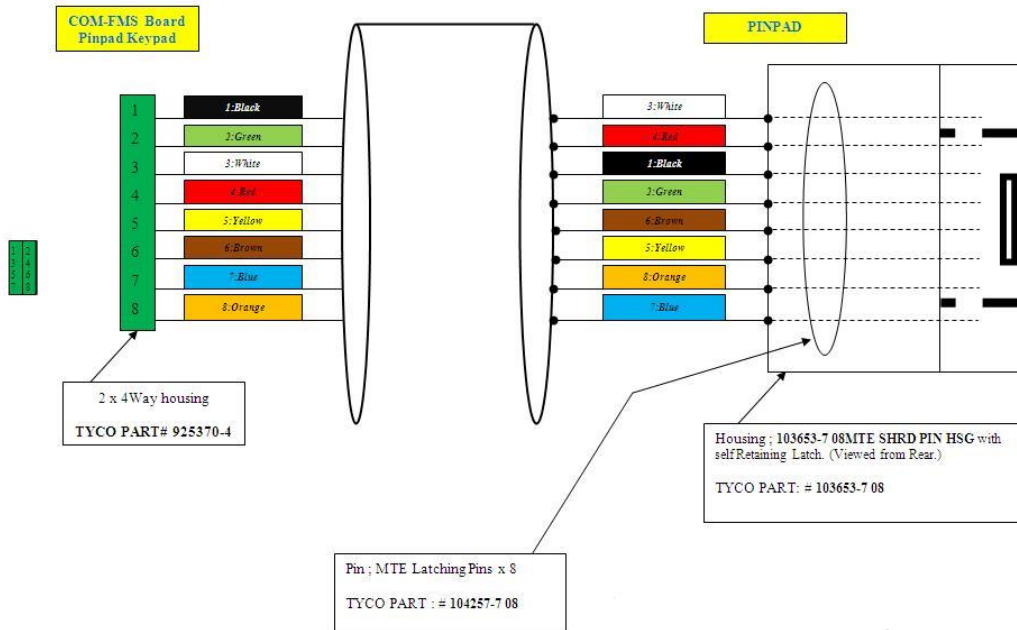
Printer Connections

Printer power is supplied by the 24V output from the Power Supply.

Printer communications are handled through the RS232 Port 3 on the Com FMS board.

FMS Expansion Board Wiring

The Comm FMS Expansion Board is used in credit card units. Location and mounting of the FMS expansion board varies depending on the model.
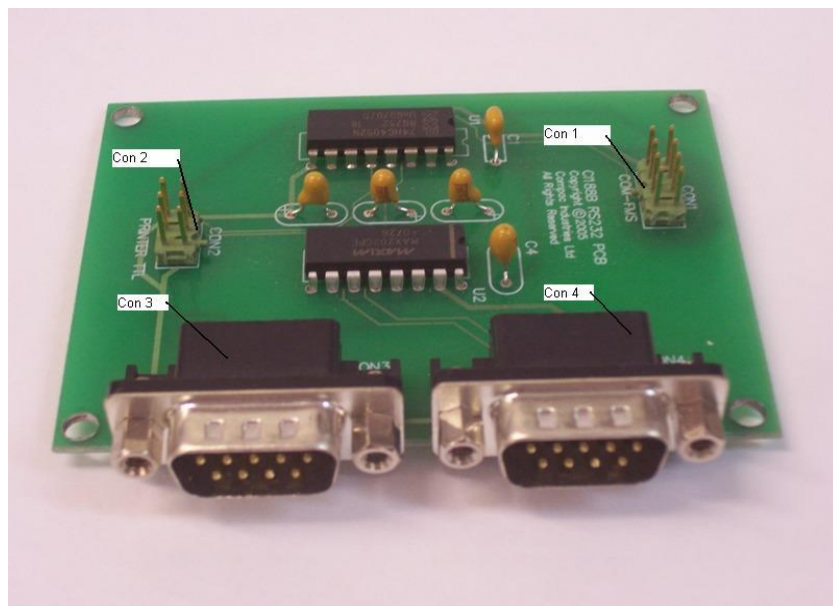
Port 3 TTL from the Comm FMS board plugs into Con 1 (8 pin).

Con 2 plugs into connector CN 7 on the receipt printer.

The EMV card reader plugs into either Con 3 or Con 4.

Red → 8

White → 6

Green → 4

Black → 2

7 → Blue

5 → Brown

3 → Orange

1 → Yellow
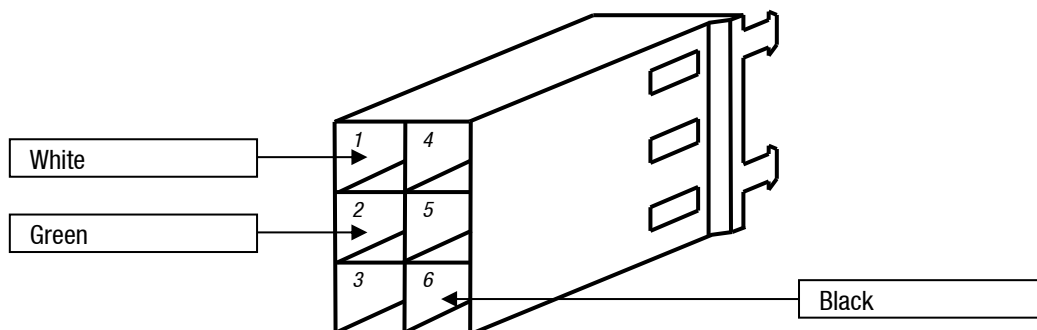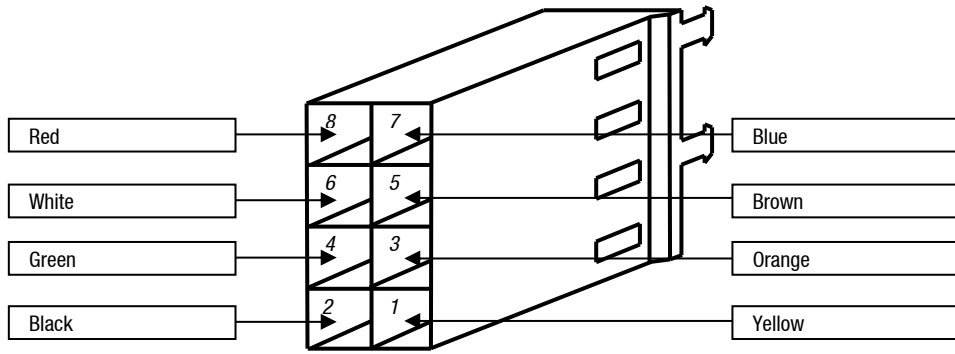
Part Locations

Because there is a wide variety of RAS, DCA and CC DCA options this manual will not exactly cover every combination of setup. The pictures below indicate the most common parts and their location.

Printer Power Supply

Comm FMS Board

Router Power Supply

Lantronics Board

ADSL Router

Compac Box

129.
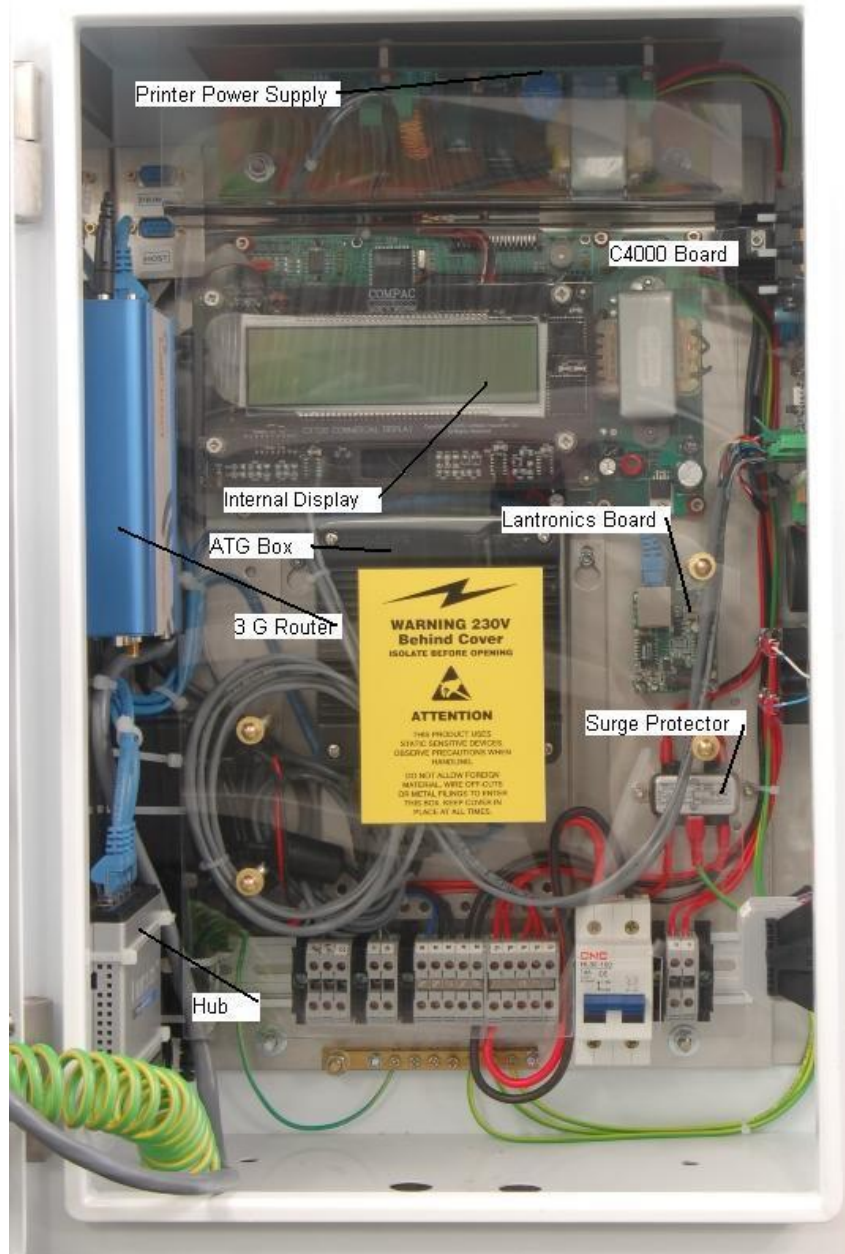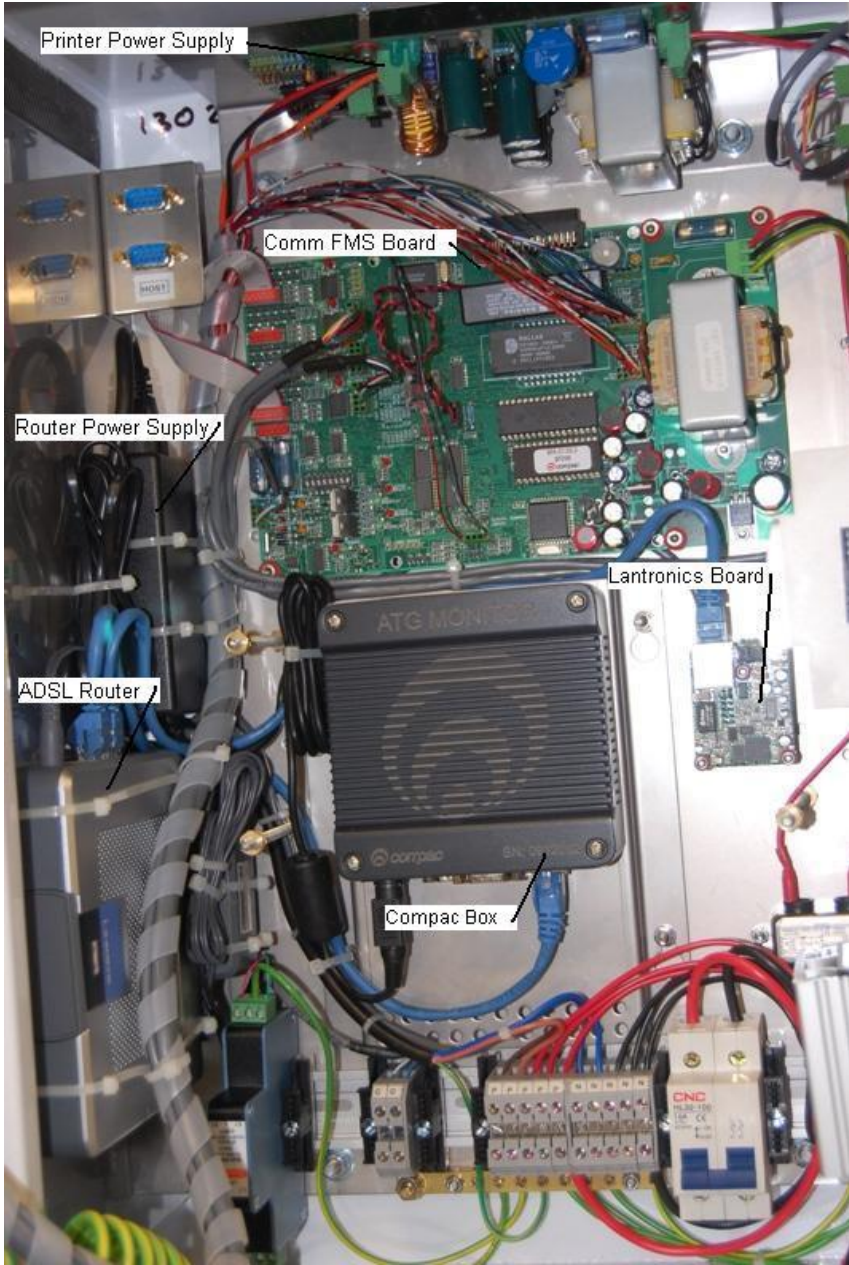
Spare Parts List

The following parts list may contain components that are not specific to your particular unit. To ensure you get the correct parts, always quote the serial number of the unit when ordering.

DCA Cabinet

DCA Cabinet
(with hinges / no door)
Part No.: FD-CF-BOX-DCA

DCA Cabinet Door
(quote DCA serial number)
Part No.: FD-CF-BX-DCA-DPE

DCA Door Hinge
Chrome pair
Part No.: FD-HINGE-001
Stainless pair
Part No.: FD-HINGE-002

DCA Door Lock and Key
(each)
Part No.: F-KEYS-144

DCA Door frame sealing tape
Part No.: FD-P-SEALANT-01
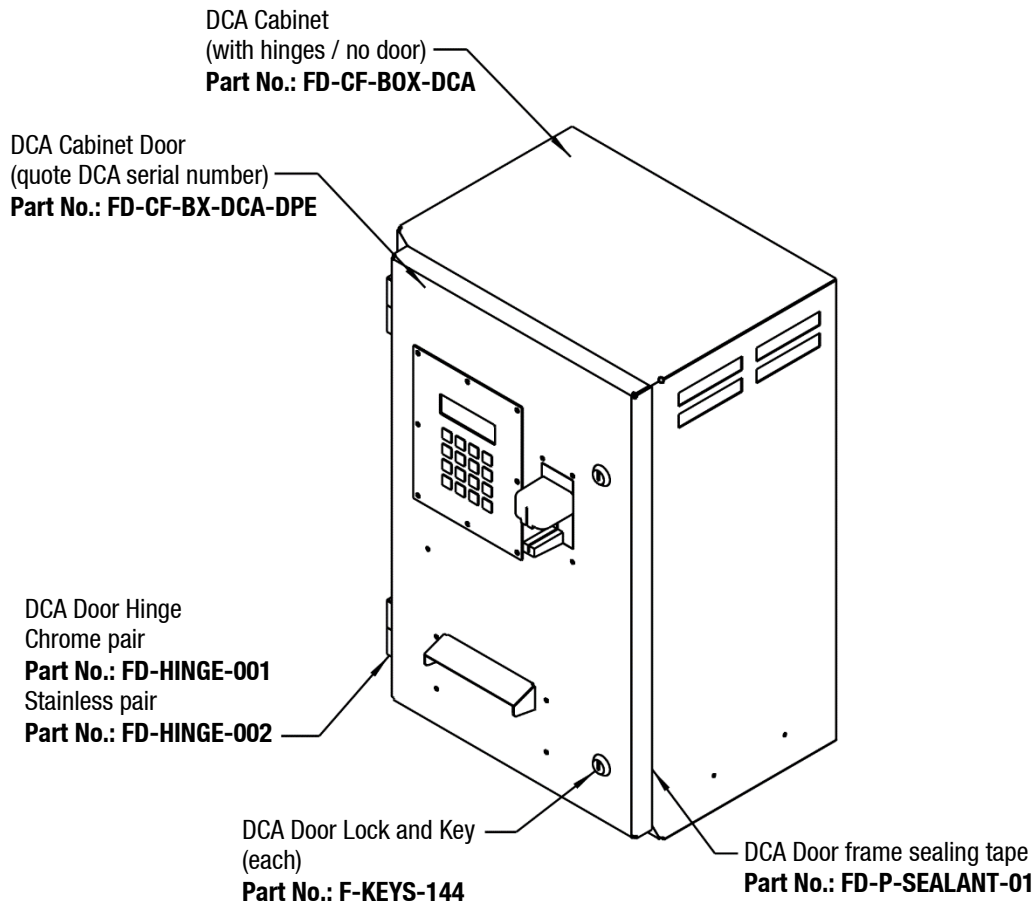
Not Shown:

Part Number	Description
FD-P-POST-RPN-N	DCA Post
FD-P-FRAME-DCA-BG	DCA Back Gearplate
FD-P-FRAME-DCASGR	DCA Right Gearplate
FD-P-FRAME-DCASGL	DCA Left Gearplate
FD-BC-DIN-RL35	DIN Rail

Electronic Components

Part Number	Description
FD-BS-2P-ISO-SW	Mains Switch
FD-BF-FILTER-3A	Mains Filter
FD-BA-HEATER-45W	Cabinet Heater Unit 45W
FD-BA-TEMP-STAT	Heater Thermostat
F-C4PWR-FUSEKIT	0.5MM Amp Fuse 20MM
F-CP-COM-FMS	Comm FMS Board - Tested
FD-AM-BT-BUP-3V6	Comm FMS Backup Battery 3.6V,1.9AH
F-AD-4MEG-NVRAMN	Flash Memory (DS1250Y)
F-CP-C4PROCESS-A	C4000 Board
FD-BA-CE-BOXP	Compac Box for CompacOnline Units
FD-BA-CE-BOXPUSB	Compac Box for USB Module Units
F-RSM-MXBOX	Compac Box for Roseman Equipped Units
F-BA-EMB-PC2IWE	Fit PC option
FO-BRD-0003	Embedded LAN Interface
F-FAS-DCA-PINPAD	LCD 20X4 EXT/TEMP Backlit
F-CP-COMEX-CI118	RS232 Comm Port Expansion PCB CI118
F-CP-COMM-DPIA	Commander RS232 PORT I/F
FO-TEST-0001	Opto-isolator kit for extending tank gauging length
F-AD-27C512-A	EPROM 8 X 64K 28 PIN DIP
F-BRG7L1ABUBJ240	Omron relay for DCA with mechanical register
FO-RS232-ISO	ATG Opto-isolator without cabling
FO-RS232-ISO TKG	RS232 Opto-isolator tank cable only
FO-RS232-ISO FMS	RS232 Opto-isolator FMS cable only

Door Components

PIN Pad
Complete Capacitance PIN Pad (DCA) Obsolete
Part No.: F-CP-PINPADT
Tactile PIN Pad assembly without LCD (DCA)
Part No.: F-FAS-PPAD-CMFM
Tactile PIN Pad assembly without LCD (RAS)
Part No.: F-FAS-PPAD-CMFC4
PIN Pad LCD Display (DCA)
Part No.: F-BL-20X4LCD-LCD
PIN Pad LCD Display with I/F Board & Leads
(RAS)
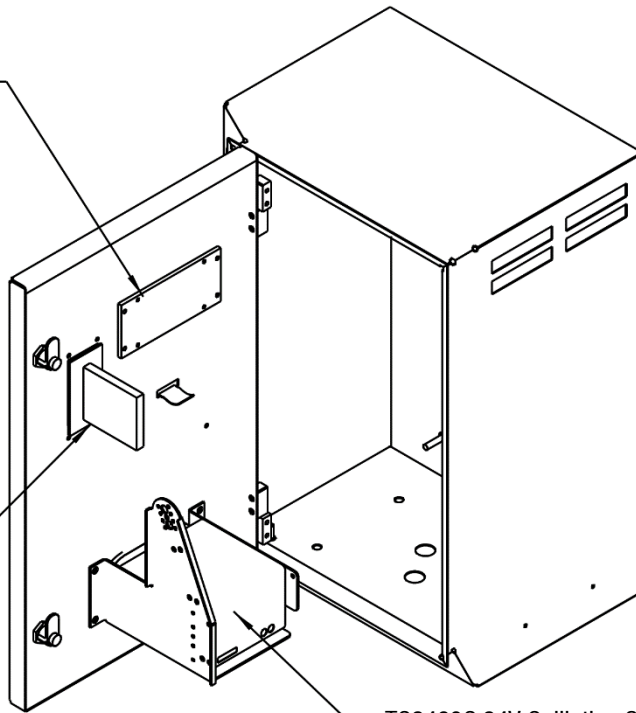**Part No.: F-CP-CF-IFDISP**
PIN Pad Gasket
Part No.: FD-P-GASKET-PINP

Credit Card EMV Card Reader
Part No.: FD-BA-CDR-HB-232
Account Card Reader
Part No.: F-BA-CDRD-MT-TTL

TG2460C 24V Guillotine Style Printer
Part No.: F-BA-PRT-TG2460C
DCA Receipt Printer Paper Roll -
60mm wide
Part No.: F-BA-PRT-TG60X80

NOTE: *From June 2012 the DCA printer was changed from a drop box type with a receipt door to a receipt chute. The new style uses a 60mm wide paper with a different spindle bore size. The paper is not interchangeable between models. Make sure you order the correct paper for the printer.*

DCAs can be upgraded to the new printer by using an adaptor plate and software change.

CWID, HID and USB options are also available. Spare parts for these are shown below.

Part Number	Description
F-CIM-CWCRD	CIM Cardswipe for CWID & C4000 equipped DCA
F-CP-CWID-E	CWID board for one or two aerials
F-CU-CWIDD-TAG1	CWID Tag block type - programmed
F-CU-CWIDD-TAG2	CWID Tag key ring type - programmed
F-CWID-RD-FORM/K	CWID key reader aerial former (DCA cabinet mount)
BA-HID-RDR	HID key reader
CU-HID-TAG	HID key
F-BA-USBKEY	USB memory stick 2Gb
FD-BA-CE-BOXPUSB	CE box programmed for USB applications
FD-BA-USBINT	DCA USB interface cable. Does not include cables.

Modem / Router Options (DCA)

Part Number	Description
F-BA-MDM-CELGSM	GSM Modem 1306B
FD-	GPRS Modem
FD-BA-MDM-CELDCB	Modem Data Cable
FD-BA-MDM-CD1625	Aerial
FD-P-GSKT-AERIAL	Aerial Gasket
FO-ADSL-001	Linksys AG 300 ADSL Router
F-BA-MDM-CDR990	3G Vodafone Router (NZ)
FO-MDM-NTC6908IA	3G Cellular Router (Aus)
FO-HUB-001	Switch / Hub
FO-AERIAL-0001	Long external aerial kit For 3G/Next-G
FO-AERIAL-0002	Short external aerial kit For 3G/Next-G

Exchange Parts

Part Number	Description
FE-BA-CE-BOXP	Exchange Compac Box for CompacOnline Units
FE-BA-CDR-HB-323	Exchange MSRIS65 RS323 Card Reader

Glossary of Terms

TERM	DESCRIPTION
ATG	Automatic Tank Gauging.
ATG Monitor	Transaction interface box now known as a Compac Box.
Class 1 Zone 0	An area in which an explosive-gas atmosphere is present continuously or is present for long periods.
Class 1 Zone 1	An area in which an explosive-gas atmosphere is likely to occur in normal operation.
Class 1 Zone 2	An area in which an explosive-gas atmosphere is not likely to occur in normal operation, and if it does occur it will exist for short periods only.
ComFutra	A model of pump mounted authorisation terminal made by Compac.
CPU	Central Processing Unit.
CWID	Compac Wireless Identifier.
DCA	Driveway Card Acceptor - A type of pump authorisation terminal made by Compac.
Encoder	A device that translates rotary motion into electronic pulses. Often referred to as a pulser.
Head	Dispenser calculator/Indicator. C4000 PCB, complete with power supply.
HID	Transponder key authorisation system.
Intrinsically safe circuit	A circuit in which any spark or any thermal effect produced in the test conditions prescribed in the relevant standard (which includes normal operation and specified fault conditions) is incapable of causing ignition of a given explosive atmosphere.
Intrinsically safe electrical equipment	Electrical equipment in which all the circuits are intrinsically safe. The equipment may be self-contained or may form part of an intrinsically safe electrical system.
Intrinsically safe electrical system	An assembly of interconnected items of electrical equipment in which the circuits or parts of circuits, intended to be used in an explosive atmosphere, are intrinsically safe circuits.
LED	Light emitting diode.
Memory chip	EPROM chip that stores parameters and/or transaction & totals.
OPT	Outdoor Payment Terminal - A type of authorisation terminal designed for credit card applications made by Compac.
PCB	Printed Circuit Board.
RAS	Retail Authorisation Station - Authorisation terminal designed for manned sites.
Via	'Plated through hole' in a PCB that enables tracks to swap sides on a PCB.
Software chip	EPROM chip with label indicating program version.

Installation Checklist

Installation Checklist

Version 1.0.1.

Covers Compac DCA, ComFutra, Card King and Controller units.

Site number and name:	
Date:	
Installer name and phone number:	
Terminal ID number:	

When a new unit is being installed use the following checklist to make sure the unit is fully operational. Check each box or write N/A where not applicable. Refer to the relevant installation manual for procedures.

Mechanical Checks

	Yes	No
Check unit is undamaged and has not been tampered with.		
Is the unit in a sheltered position and facing away from the prevailing wind and rain?		
Check all panels are securely fastened using tamper-proof fastenings where supplied.		
Check that all cable entries to unit are through glands.		

Power on Checks

	Yes	No
Check that the CE board, FMS board, pinpad, printer, cardreader, router and modem all power up.		
Check pumps are re-priced to the current fuel price.		
Check that different fuels are correctly priced on all hoses.		

Transaction Checks

	Yes	No
Complete transaction using white card/CWID/HID/Pin authorisation methods		
Complete transaction using credit card (credit card DCA only).		
Check that all hoses can be selected and authorised by the unit.		
Check all hoses stop on or before the pre-authorised value (credit card DCA only).		

Receipt Checks (where fitted)

	Yes	No
Check that the correct $, L and fuel grade are printed on the receipt.		
Check the date, time and header information is correct.		

USB Module Checks (where fitted)

	Yes	No
Check the supplied USB key is recognised by the unit.		
Select "Set Price" and check that the unit price is correctly updated on all hoses.		
Select "Get Transactions" and check that transactions are uploaded to the USB key.		

CompacOnline Checks (when connected)

	Yes	No
Check the site appears on CompacOnline.		
Check that transactions have been recorded on CompacOnline.		
Change price on line and check that the price is uploaded to all units.		

Tank Gauging Checks (where fitted)

	Yes	No
Check that tanks are set up in CompacOnline and that correct levels are being reported.		
Check that the correct products are assigned to the correct tanks.		

Customer Training

	Yes	No
Check site attendants understand refuelling procedures.		
Check that site administrators understand how to obtain transactions and administer cards.		

Final Checks	Yes	No
Ensure all cables are plugged back in after remote accessing.		
Tidy up all rubbish and clean the exterior of the unit before leaving.		

If one or more of these tests fail, contact the Compac help desk or your service centre so the problem can be logged and parts issued if required.

Notes:

To validate warranty and receive future help desk assistance please fax both sides of this form to:+64 9 579 0635 or post to: Compac Industries Ltd, PO Box 12 417 Penrose, Auckland 1642, New Zealand.

Report any damage immediately to Compac Industries on: +64 9 579 2094. Any site safety issues should be reported immediately to the site manager.