



compac

INTEGRATED REFUELLING SOLUTIONS

PT2 Installation and Service Manual
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Model: PT2
Date: 16th May 2022



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- 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.
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Product Identification

Specifications

This manual applies to the PT2 Payment Terminal.

Models Covered

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.

CONDITIONS

Manufactured By:

The Compac PT2 Payment Terminal is designed and manufactured by Compac Industries Limited

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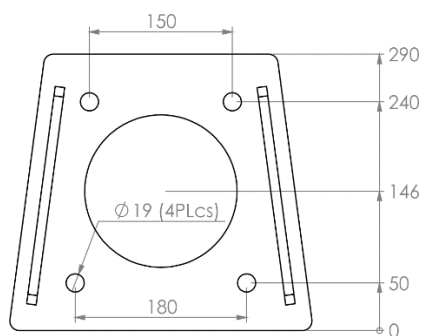
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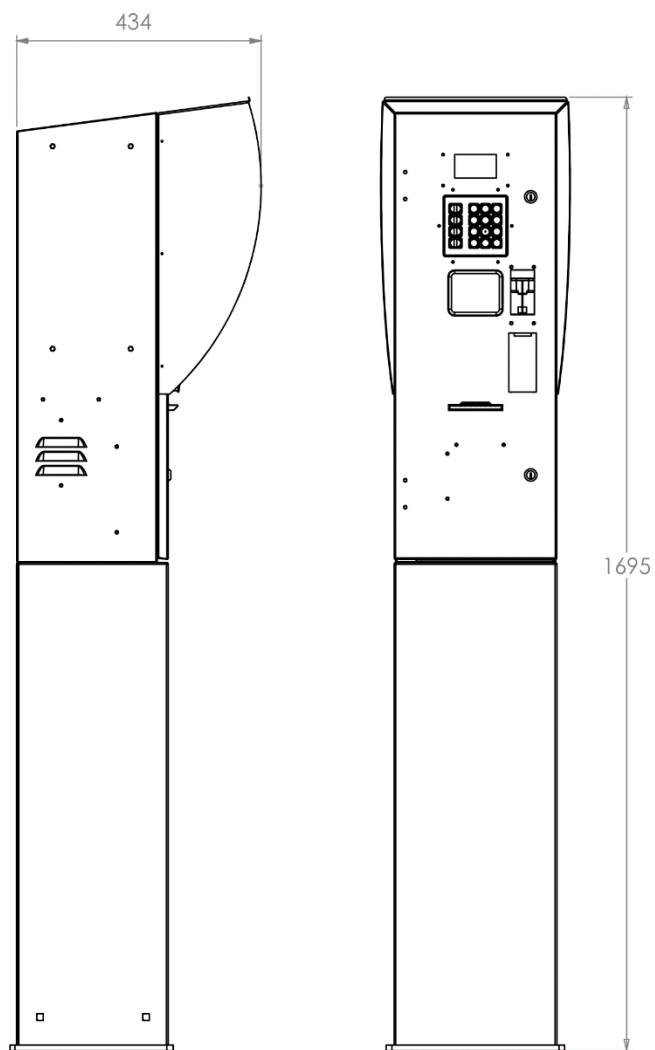
Footprints

Base Footprint

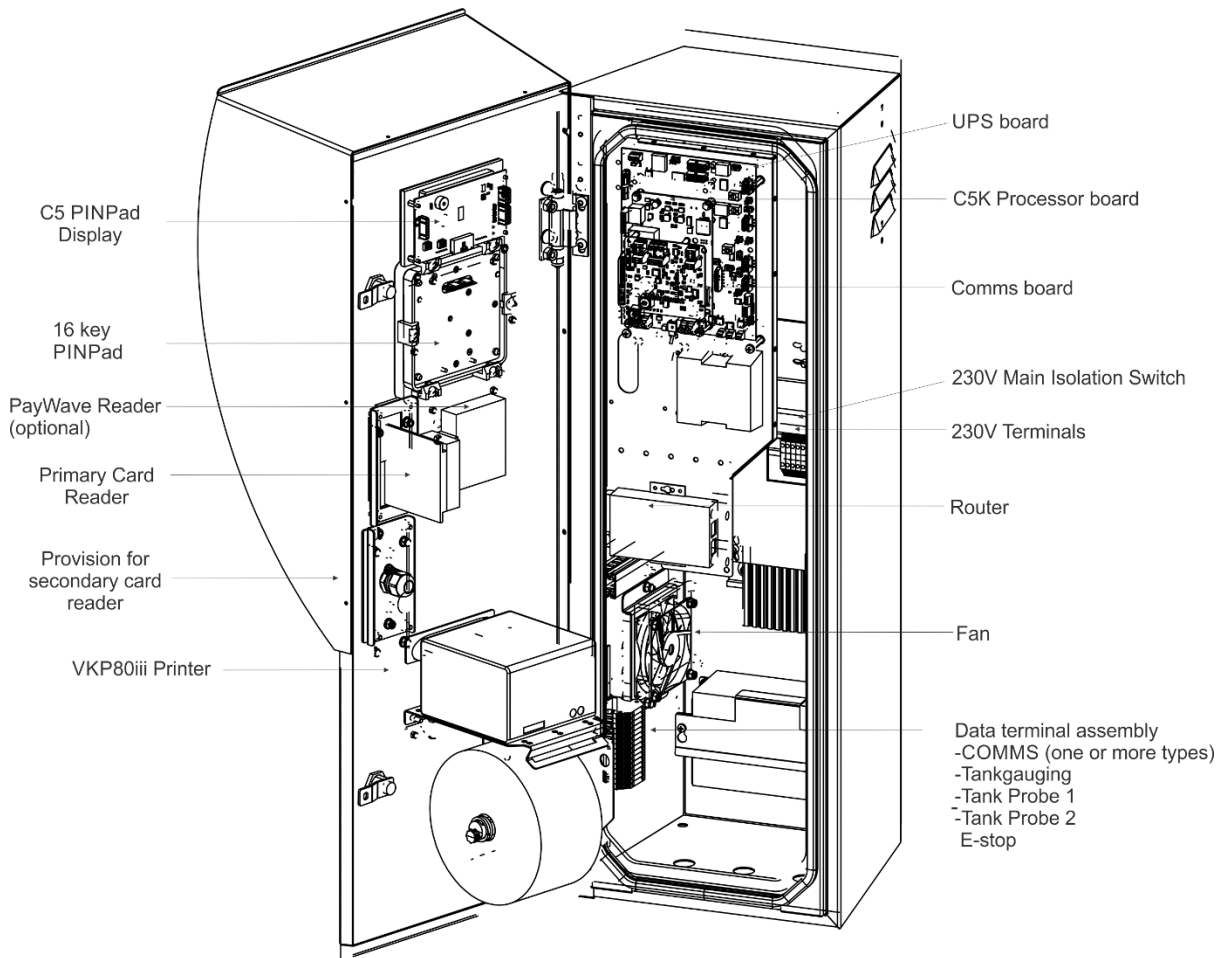
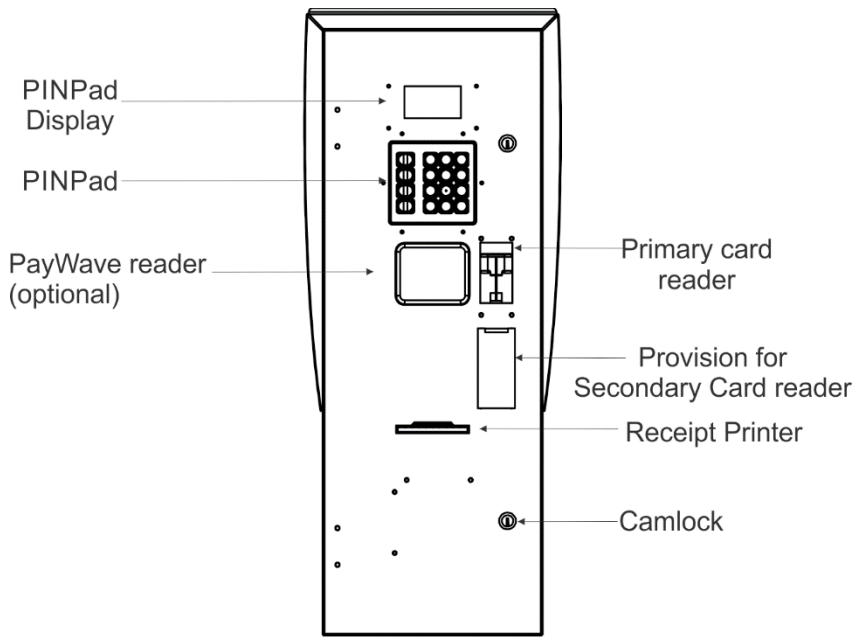


Base Footprint

External Dimensions



Components



Tools Checklist

Having all the correct tools will make installation, upgrade and repair procedures easy and minimise the risk of damage to components.

Before you arrive on site, make sure you have a minimum of all the tools listed here:

NOTE: Make sure your cell phone and laptop are fully charged.

- 5.5mm nut driver
- 7mm nut driver
- 8mm nut driver
- T30 Torx drive bit or driver
- T10 Torx drive bit or driver
- Metric spanner set
- Metric 3/8" or 1/4" drive socket set
- 1/4" screwdriver bit holder
- 1/4" A/F spanner
- 6" adjustable spanner
- Flat blade screwdriver set (1.5 - 5mm blades)
- #0, #1, #2 Phillips screwdrivers
- #1, #2 Pozidriv screwdrivers
- Set of metric Allen (hex) keys
- Fine long nose pliers, side cutters & pliers
- Hacksaw
- Stanley knife or similar sharp blade
- Felt tip pen or marker
- Glue - Loctite 601 or similar
- Insulating tape and masking tape
- Ruler
- Multimeter

Installation and Zoning

DANGER: The Compac PT2 Payment Terminal is NOT suitable for mounting in any hazardous area.

It must be installed **OUTSIDE** the Hazardous areas.

Please refer to the site's Zonal drawings to find the exact positions of the hazardous areas for each particular site.

The Site Zonal drawings consider all the equipment on site, not just the Compac equipment.

As a guide, PT2 Payment Terminal installations should comply with all the following requirements.

Important Note: The following are guidelines only

If in doubt, consult a Hazardous Area specialist.

- The PT2 should be placed at least 8 metres from any above ground flammable liquid storage or handling facility other than a dispenser.
- The PT2 should be placed at least 0.5 metres from any flammable liquid fuel dispensers and 1.5 metres from any LPG dispensers.
- The PT2 should be mounted so that the base of the cabinet is at least 0.5 metres above the ground. If mounted on the post supplied by Compac it will be 0.5 metres high.
- If the PT2 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).

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 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 PT2 location or protection should be such as to minimise the possibility of damage from vehicles, trailers, boats, or the like.
- On heavy vehicle sites, mounting the unit on a raised pad and/or installing bollards to help protect from damage should be considered.

- 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.
- 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.
- Generally, the area below the PT2 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.

Mechanical Installation

Prior to Installation

Read the relevant parts of this manual and make sure you have the following information:

- All necessary approvals to work on the site
- The PT2 factory set up sheet
- The site audit document
- The telephone number, user name and password for ADSL sites
- Contact details for site owner or manager
- Contact details for help desk

NOTE: For ADSL sites, check that the broadband account is set up.

NOTE: For wireless sites check that the SIM card is registered to a valid account.

NOTE: It is advisable to book an installation time with the help desk at least 24 hours before going to site. This will ensure that help desk staff will be prepared for your inquiries. Help desk hours are currently Monday to Friday 8.00am to 7pm NZ Standard Time.

Bring the following equipment:

- Mechanical and electrical tools
- Multimeter
- Fastenings to mount the PT2 Payment Terminal
- Security key drivers (Security TORX or unique security key if Extra Security equipped)
- A fully charged laptop computer
- A charged cell phone
- OPT spares kit
- SIM cards for wireless sites (if not supplied with unit)

Position

Refer to the Site Audit document for location.

Check the site drawings for details regarding hazardous areas. If in any doubt about the location, refer to the site manager.

Install the OPT in a sheltered position and if possible, facing away from prevailing wind and rain direction.

If possible, install out of direct sunlight to avoid raising the temperature inside the OPT cabinet more than necessary.

Situate the OPT so the PIN pad display will not be in direct sunlight at any time during the day as it makes it hard to read.

Make sure that you position the PT2 Payment Terminal to ensure you can open the cabinet door. If mounted on a post, you must also allow clearance be able to remove and replace the access panel on the post.

Mounting the PT2 Payment Terminal on a Post

If a post is part of the installation, the post must be securely attached to the ground using appropriate fastenings.

NOTE: Due to the variability in sites, Compac does not supply ground fastenings with the post. The base plate has 4 x 19mm holes for fastenings, select appropriate fastenings according to the surface and location where the OPT is to be mounted.

CAUTION: Take care when opening the PT2 cabinet door before the cabinet is securely mounted. The door holds several heavy components that will cause the cabinet to tip when opened.

To mount the post onto the base:

- Place the post over the base with the opening facing away from where the front of the PT2 will be.
- If the PT2 has been supplied with the extra security upgrade, place the powder coated stainless steel bolt covers over the base mounting nuts (trim the bolts if needed). Secure using the supplied stainless steel bolts passing through the bolt cover, post and base plate. (The bolts may need trimming.) The rounded head faces out and place a flat washer under the nut on the inside of the post.
- Standard PT2s do not have the bolt covers. Fasten using the supplied galvanised bolts with the rounded head facing out and a flat washer under the nut.

To mount the PT2 onto the post:

- PT2s with the extra security upgrade use special keyed machine screws. The head of the bolts face out. Standard PT2s use four M10 bolts, nuts, flat and spring washers.
- Place the PT2 cabinet on top of the post and securely fasten the cabinet to the post using a flat washer and spring washer under the nut.
- Feed the wiring into the base of the OPT using vapour resistant glands and block any unused holes.
- Coil and secure all loose wiring inside the post. Neatly cable-tie the wiring inside cabinet to existing cable routings. Ensure wiring will not contact any equipment when the door is closed and ensure it is not under tension.
- Fit the cover plate on the back of the post using the supplied M6 Security Torx head screws or security keyed M6 machine screws for the extra security models.

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

NOTE: Security Torx or Security Keyed head screws must be used on the cover plate of the post to prevent unauthorised access to the wiring.

CAUTION: Any unused holes in the bottom of the PT2 cabinet must be blanked. No open holes in the base of the PT2 cabinet are permitted.

Electrical Installation

Cable Requirements

Power Cable

3 Core Steel Wire Armour Cable 2.5mm². 230 Volts, 10A, 50 Hz. Connect the incoming mains as follows:

- **Live** - Connect to the Left bottom screw down terminal of the mains switch.
- **Neutral** - Connect to the Right bottom screw down terminal of the mains switch.
- **Earth** - Connect to the busbar.

Pump Comms

2 Core Steel Wire Armour Cable 1.5mm². Total cable length in the comms circuit should not exceed 100 metres.

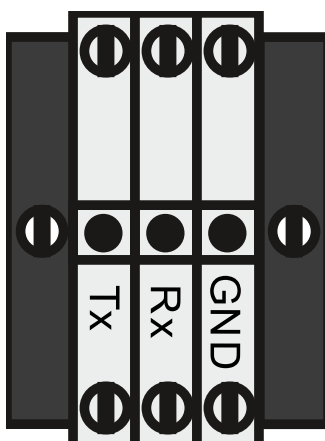
Terminals will be labelled depending on the brand of pump on site. Correct polarity must be observed.

NOTE: For pump comms, tank gauging and ADSL connections it is suggested that the wires are crimped to a ferrule to provide a greater contact area for the screw fastener.

NOTE: Make sure the clamping screw contacts the terminal and not the insulation.

Tank Gauging

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.

NOTE: Site electrical and magnetic interference can reduce transmission distance.

Phone Line/Network

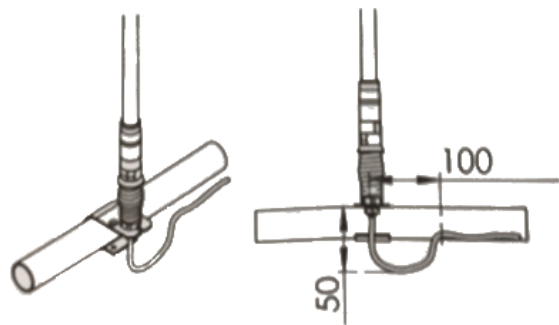
For ADSL connected units the phone cable should be run through ducting that provides suitable protection and flexibility. There is a phone line surge protector mounted on the DIN rail.

4G 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.

Glanding

Gland the mains power, pumps comms, tank gauging and phone line/Network SWA cables up through the post into the 20mm holes provided in the bottom of the cabinet.

Certain configurations will use wireless communication to internet and therefore require no phone line or network cable.

Ensure the Perspex terminal cover is refitted after the cables are connected

NOTE: Check that all cables are securely fastened by pulling each one in turn to make sure they are properly attached.

CAUTION: Ensure Perspex terminal cover is refitted after all cables are connected.

NOTE: Due to varying customer requirements, connections may change from what is shown above.

Electrical Testing

This procedure outlines how to perform an electrical operations test on the PT2 before carrying out a full site test.

Once the power and comms terminations have been completed, check all terminals, plugs and chips inside the unit to make sure they have not become loose during transit.

Site information provided to the factory may have been entered into the unit to help with commissioning, but all settings must be checked when on site to make sure they are correct.

CAUTION: Some of the options shown below and described in this section may not appear in certain configurations. The numbers used to select the options may change with different versions of software.

NOTE: Ensure all terminations are secure and made to the copper wire, not to the insulation.

System Power Up

- Turn on the main circuit breaker inside the OPT then turn on the power switch on the UPS board. When the unit is turned on, two LEDs above the power switch should turn on. LED labelled D5 indicates the 230V mains power is OK, D6 indicates the battery is connected and OK.
- If D6 does not light up when then unit is first turned on it may be because the battery has discharged during transport and storage or that the battery terminals have become loose. If this happens, remove the battery from the holder and check that the battery terminals are secure and then re-install it. If D6 still does not light up leave the unit connected to the 230V supply for an hour or so to charge the battery and then re-check.
- Check the Router or ADSL modem is turned on and the power LED is lit.
- Check the green power led on the right side of the Compac Box is on. If not, check the switch on the left-hand side of the box is turned on.

Communications

Check that the ATG and Pump Communications LEDs on the FMS Board are lit.

LED	Colours	Comment
Pump Com's (NZ)	Yellow Green Red	Toggles Yellow / Green = Normal Red = Comm's short
Pump Com's (Aus)	Green Red	Toggles Red Green = Normal
ATG (NZ)	Green Red	Toggles Red Green = Normal
ATC (Aus)	Green Red	Toggles Red Green = Normal

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	9600	No Parity	8 Bit	Yes	Off

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

System and Transaction Tests

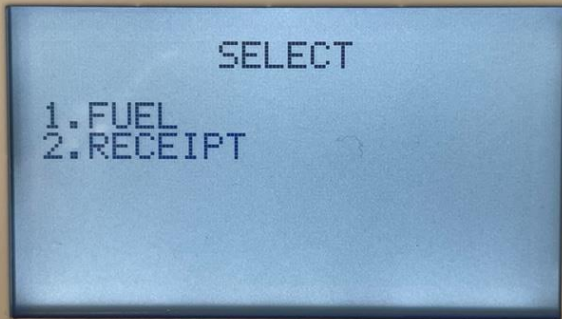
When you are happy that the OPT is powered up and communicating, contact the Help Desk. The Help Desk will check that the OPT is communicating correctly and will ask you to perform various checks to confirm this.

The exact site test setup and procedure will vary from customer to customer but as a minimum we would suggest the following:

- Check that the current price is correct.
- Check each dispenser making sure the correct price has been applied.
- Dispense fuel from each pump on site, confirming that the correct pump is authorised when requested and you are able to dispense fuel.
- After dispensing fuel, check the receipt and make sure the correct dollars, litres, fuel grade and site details are printed on the receipt.
- Test the VoIP help phone function if fitted.
- The Help Desk will open CompacOnline and check that the transactions have been recorded correctly. They will also check that the tank gauging is active and sending back the correct levels.
- If your initial test transactions were completed with the OPT door open, you will need to close and lock the cabinet and perform your transaction tests again.
- Complete the Install Checklist.

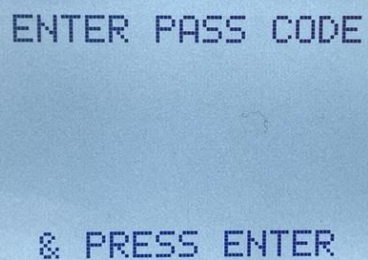
Changing the IP address on the PT2

The Pinpad should be displaying the the following. Press the red cancel button.



SELECT
1. FUEL
2. RECEIPT

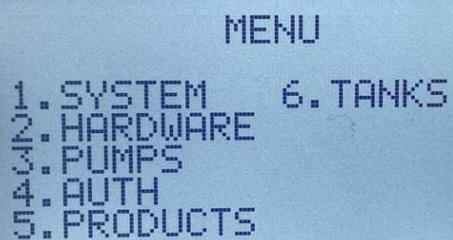
If you know the Pass code enter it now. If you don't you will have to call the helpdesk to get the backdoor passcode for that unit.



ENTER PASS CODE

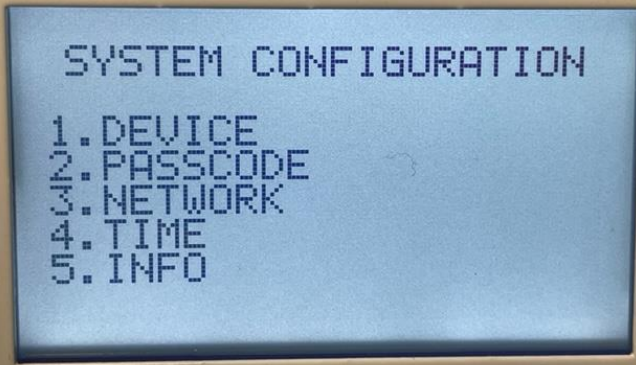
& PRESS ENTER

Press 1 for system

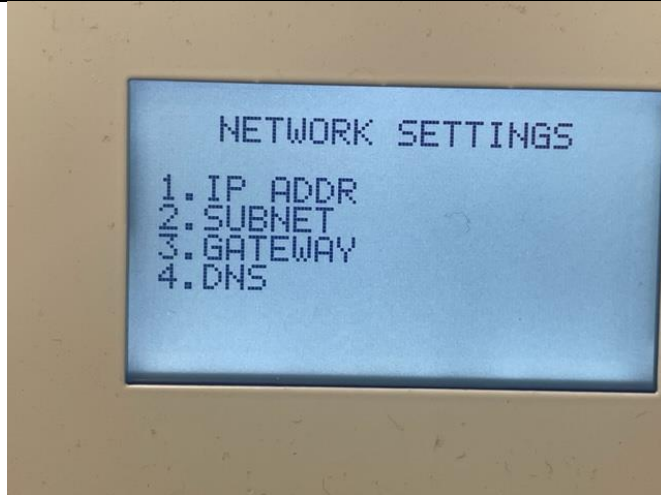


MENU
1. SYSTEM 6. TANKS
2. HARDWARE
3. PUMPS
4. AUTH
5. PRODUCTS

Press 3 network



The following is the Network setting



Enter the IP address using * for the decimal place



Do the same for the subnet mask, gateway and the DNS



New REPOWER the unit. The Unit MUST be repowered to take the new settings

Installation Checklist

Before leaving site, ensure the installation checklist is completed. If any of the following tests fail, please contact Helpdesk.

Mechanical	Yes	No
Check that the unit has been securely bolted down.		
Check all panels are securely fastened.		
Check that all cable entries to OPT are through glands.		

Wiring	Yes	No
Check that power has been connected to the main breaker in the OPT.		
Check that the phone line is connected to the router. (Wired ADSL units)		
Check that the SIM card has been inserted into the modem and the aerial wired and mounted appropriately. (Wireless internet OPTs)		
Check that the pump comms have been connected.		
Check that the tank gauging is connected and operating correctly (where fitted). Replace ATG cable to OPT where possible.		

Power On Tests	Yes	No
Check that the CE board, FMS board, pinpad, printer, cardreader, router and modem all power up.		
Check that the router logs in and is able to access the internet using a laptop and network cable plugged into the router.		
Get the installer to call the number on the back of the pinpad and get the PIN pad activated. (NZ only at present)		
Make sure the pumps are re-priced by the OPT to the current fuel price.		
Check that different fuels are correctly priced on all hoses.		
Check that the site logs onto CompacOnline and that a temperature is recorded at site.		

Transaction Tests	Yes	No
Check that all pumps can be selected when starting a transaction on the PIN pad.		
Check that the correct \$, L and fuel grade are printed on the receipt and that a receipt is issued after each transaction when the card is re-swiped.		
Check that the transactions that appear on CompacOnline match up to the receipt information that is printed on site.		
Check that date and time zones are correct.		

Tank Information Tests (where fitted)	Yes	No
Check that tanks are set up in CompacOnline and that correct information from the equipment is being displayed on screen.		
Check that the correct fuels have the correct levels and that one fuel is not being reported as a different fuel.		

VoIP Tests (where fitted)	Yes	No
Press the green button on the front of the unit and complete a test call to the service centre. It should be a clear conversation at both ends.		

Finishing	Yes	No
Ensure all cables are plugged back in after remote accessing.		
Check that door switch alarm has cleared.		
Tidy up all rubbish and clean the PT2 before leaving.		

Introduction

The Online Payment Terminal (COM5 PT2) enables unattended refuelling at unmanned sites such as truck stops, marinas, aviation sites and supermarkets where the driver, skipper or pilot can pay for fuel by Paywave credit card (Transaction limit \$100) or Distributor card.

The COM5 PT2 is a National Measurement Institute (NMI) approved control system for fuel dispensers. It incorporates a forecourt controller that is capable of controlling Compac, PEC, Gilbarco, and E-mail protocol pumps. Tank levels can be monitored with Veeder-root, Fafnir, and Franklin tank gauges. The COM5 PT2 is designed to AS/NZS 3100 wiring standards.

Card bases are setup as online and the offline mode can be enabled. Card bases can be set up as "Limited Validation" meaning a list of valid cards is stored or as "Extended Validation" meaning the card base is unlimited and the hot (lost/stolen) card lists are stored.

The COM5 PT2 has a backup power supply to allow communications and receipts to be printed in the event of a power failure. For an overview of the backup battery operation refer to Power Loss (see page 30.)

Operation

- Following the instructions displayed on the COM5 PT2, the user inserts and removes their card.
- The COM5 PT2 requests the user to select which pump they wish to refuel from.
- The user follows on-screen prompts to authorise the transaction. The prompts will vary according to the type of card, the network in use and the country of use.
- The COM5 PT2 display advises the user to take fuel.
- After fuel has been taken and the pump nozzle hung up a receipt can be obtained by the customer by re-inserting and removing their card. This can be done up to 20 minutes after the transaction

Downloading COM5 PT2 Transaction Data

Credit card transactions are handled by banks and transaction processing entities.

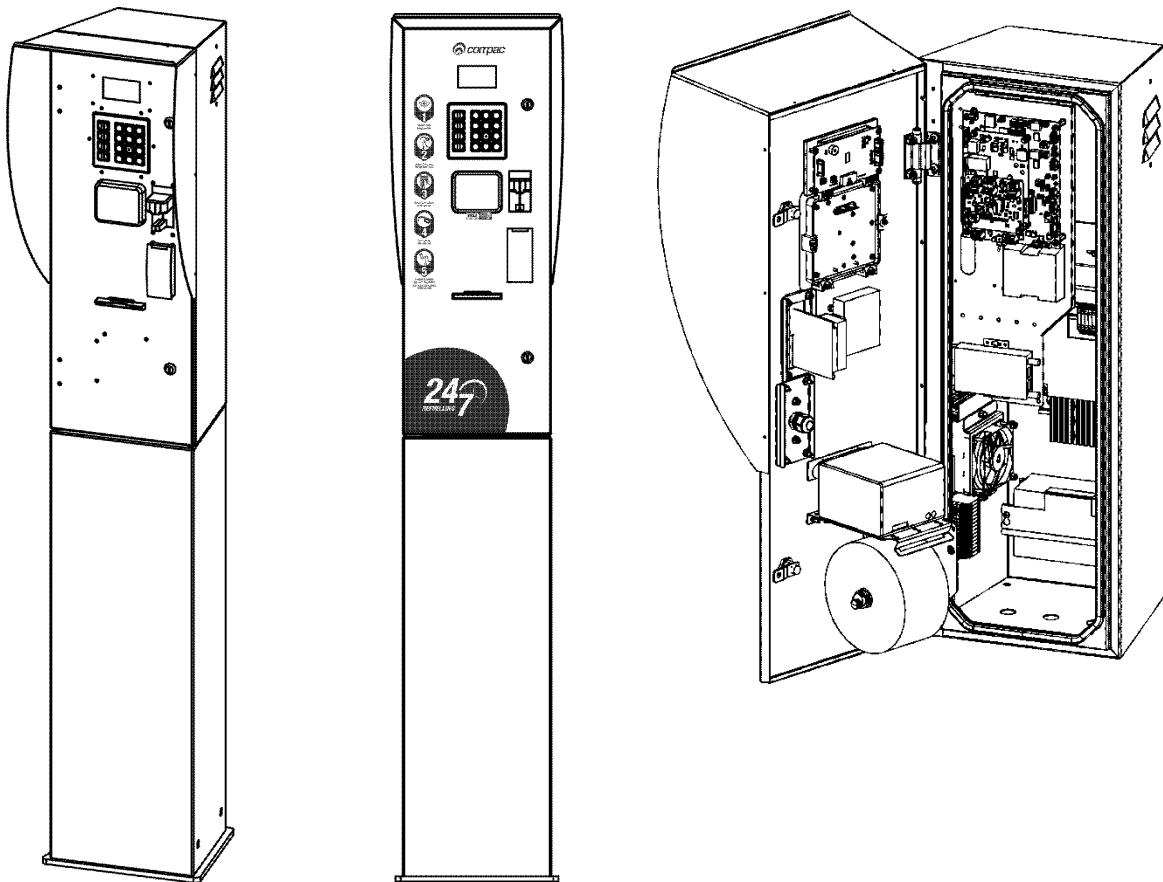
Distributor card transactions are stored in the unit and can be downloaded via the Internet using the CompacOnline website www.compaconline.com. Instructions for using the CompacOnline website are contained in the CompacOnline User Guide.

Components

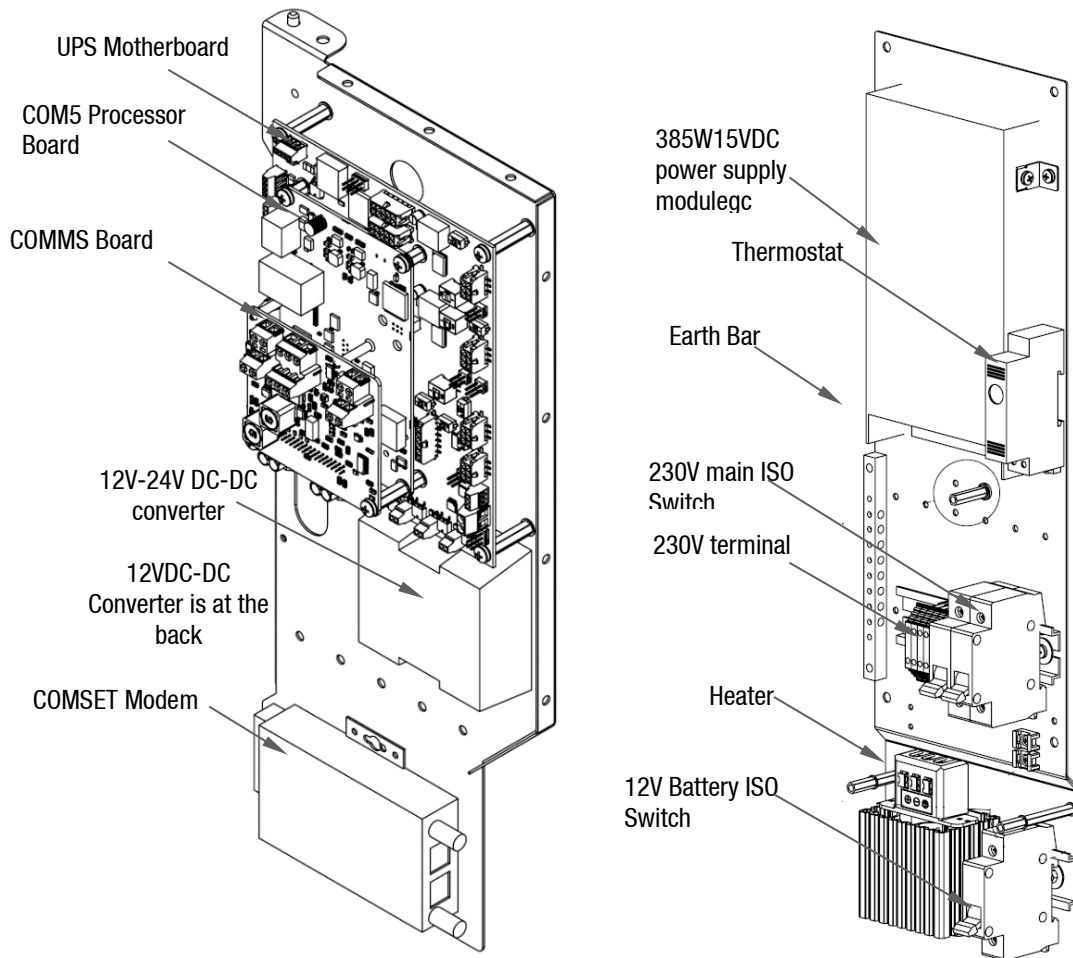
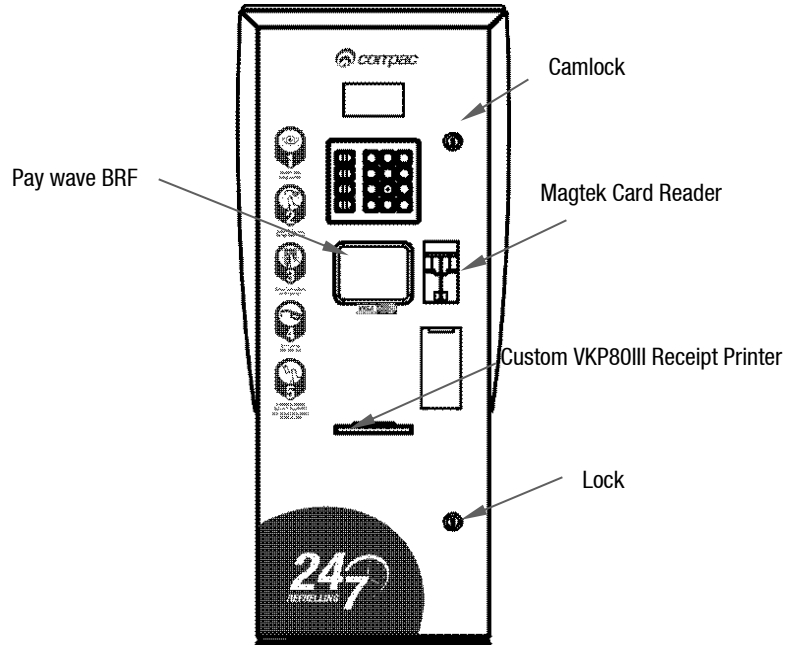
The unit has the following main components:

- **Galvanised post base:** Strong base bolted to concrete ground
- **Post:** This post is manufactured from stainless steel and has a removable panel to allow the COM5 PT2 housing to be easily bolted on and electrically wired.
- **COM5 PT2 housing:** The housing is manufactured from stainless steel and is powder coated. The Account card-reader, printer and PIN pad keypad/display are fitted into the COM5 PT2 housing doors.
- **Electronics module:** Communicates to the pumps authorising them and recording and storing details of the distributor card transactions. It also sets up price, fuel, groups, hose, and tank information. Communicates to banks via a secure internet connection for credit card authorisation. Communicates to PIN pad and card reader. Provides power in normal operation and in the event of a power outage enables the unit to finish any current transaction and print a receipt.
- **Receipt Printer:** Thermal type printer with an integrated cut-off style receipt dispenser. It uses special waterproof thermal paper. A thermostat-controlled heater element is mounted in the cabinet to help eliminate paper jams.

NOTE: Do not use standard thermal paper as this may absorb moisture and jam in the printer. Always order replacement paper from Compac.



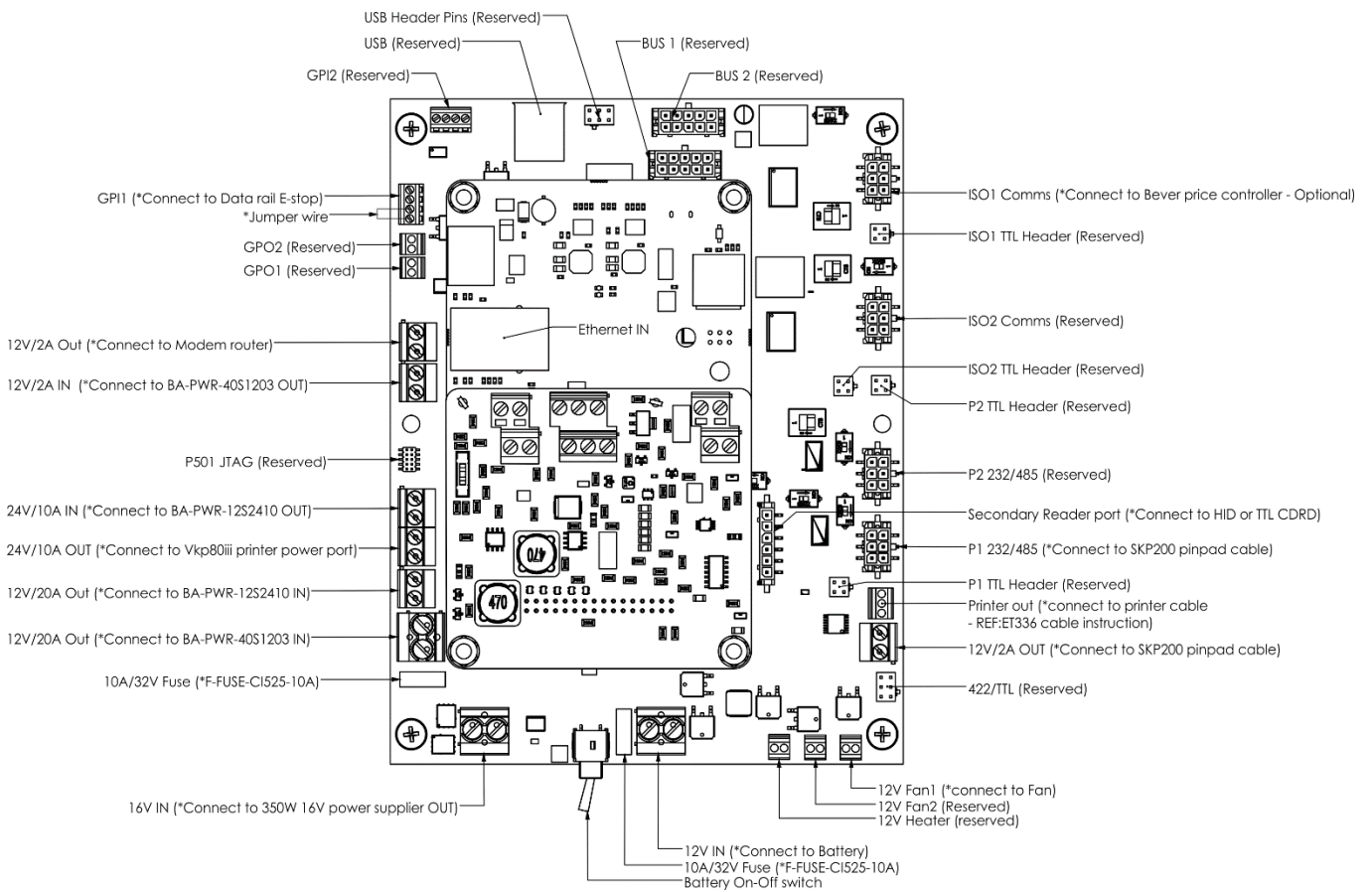
COM5 PT2 Housing Layout



Electronic Module Layout

NOTE: An industrial grade ADSL router may be in place instead of the COMSET 4G router.

UPS Motherboard



Servicing

The COM5 PT2 is designed for trouble free operation if the following regular maintenance is performed. Depending on the environmental conditions and usage of the site, maintenance may be required more frequently than stated.

Regular Testing

For trouble free operation, the COM5 PT2 should be regularly tested by performing zero value transactions with a known working card.

Swipe card and enter PIN number etc.

Lift pump nozzle and wait until the pump indicates that it is ready to dispense then return pump nozzle without dispensing fuel.

Swipe card and check that a receipt prints out.

Perform this task weekly or more frequently if customers have trouble with the COM5 PT2 operation.

Card Reader

Card reader should be swiped through with a cleaner card wet with cleaner fluid. The card reader may need to be cleaned daily on dirty, dusty, or wet sites.

PIN Pad

The PIN pad keys should be inspected and cleaned to keep the printing legible. A soft cloth should be used. Do not use a cloth moistened with solvent or petrol as the keys may be damaged.

Receipt Printer

Check for foreign matter in the receipt box. Any dust or dirt should be cleaned away with a clean dry fine bristled brush. Perform this task weekly or more frequently in dusty or harsh environments.

Ensure printer has sufficient paper. Remote sites should have a new roll installed at every visit. If there is a local site contact, leave part rolls with them.

Printer

Changing Paper

CAUTION

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

To change the paper:

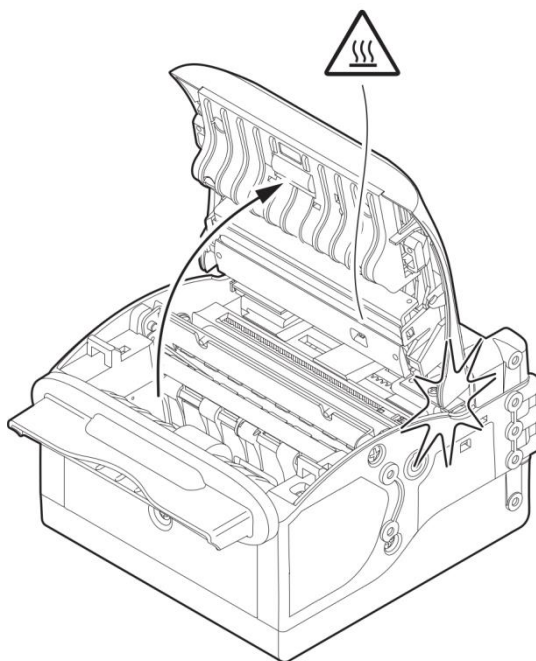
- Open the COM5 PT2 door.
- Tear the paper and remove from printer.
- Lift the paper roll and pull it off the paper roll holder.
- Put a new roll into the paper roll holder.
- Check the paper is feeding the correct way off the roll (when facing the printer, the end of the paper is closest to you). Push the end of the paper into the slot at the back of the printer. The printer will take the paper and feed it through the machine. (Make sure the paper end is cut square or you may have problems.)
- The paper will automatically feed into the printer.

Clearing Jam

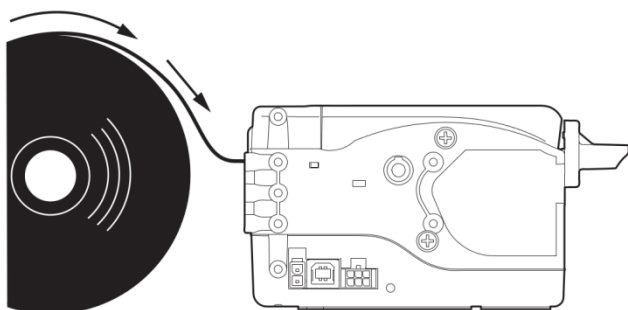
If the receipt paper is jammed, try to clear it using the following technique:

- Lift the plastic lid on the top of the printer.
- Pick out any loose or jammed paper.
- Check the receipt chute is clear and undamaged.
- Lower the plastic lid.
- Feed the paper back into the machine and perform a test print.

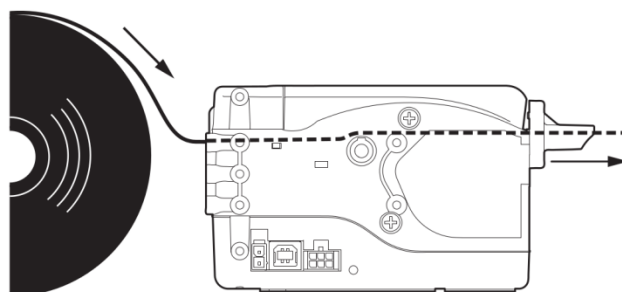
If the printer roll appears wet or damaged, replace it.



Open the device cover to the lock position.



Insert the paper into the input mouth so that it unrolls correctly. Be sure that the paper is correctly positioned into paper guides.



Wait until the paper is automatically loaded.

Removal

- Isolate the COM5 PT2
- Remove paper roll
- Unplug the power and communication connectors from the back of the printer
- Unscrew the nylok nuts that fasten the printer to the door and remove the printer
- Taking note of the position and orientation of the paper roll support arm, undo the retaining screws and remove
- Unplug the paper low sensor from the printer

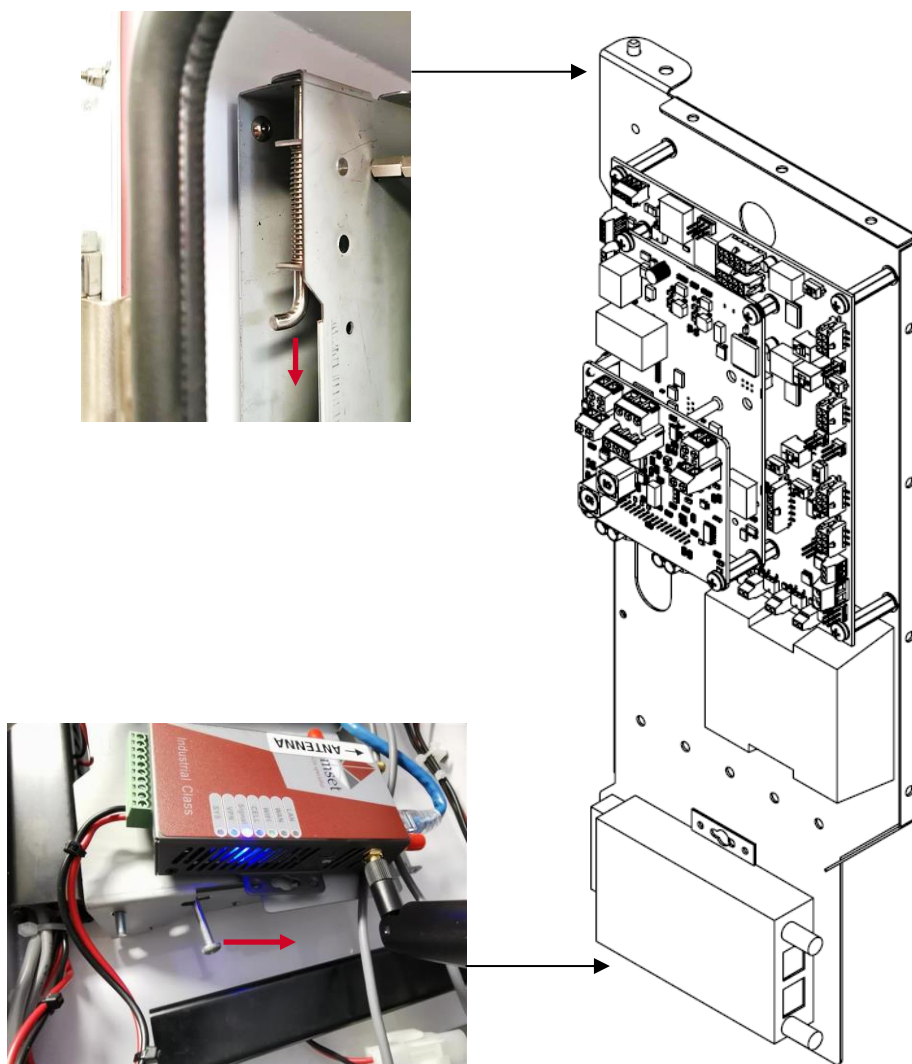
Replacement

- Fasten the old paper roll arm onto the new printer in the same position as it was on the old printer
- Plug the paper low sensor into the printer
- Fasten the new printer to the door
- Plug the power and communication cables back into the printer
- Replace the printer roll, repower the COM5 PT2 and do a test print
- Perform a test transaction.

Electronic Module Removal

To replace the power supply or for easier access to components, the electronic module can be removed from the cabinet.

- Push the bottom latch toward the PT2 to fold the electronic module forward or backward.
- Pull down the top hinge to remove the electronic module from the OPT.



CAUTION

Always take anti-static precautions when working with electronic components for example, wearing a wristband with an earth strap.

NOTE: *If the module is still functioning, contact the Technical Help Desk to ensure all data has been retrieved before disconnecting.*

Disconnecting

CAUTION

Before any connections are removed, be sure to write down, label, photograph or otherwise record all the connections. Due to the variety of customer requirements and variations in manufacturing the connection instructions given here can only be used as a guide.

- **COMMS Board.** Unscrew all the wires from the COMMS board.
- **UPS Motherboard.** Unscrew all the terminal block connections and unplug all the connectors on the UPS board.
- **COM5 PT2 Processor board.** Disconnect the ethernet cable from the processor board.
- **Power Supply.** Unscrew terminals marked L, N, FG (Live, Neutral and Frame Ground respectively). Disconnect all the wires connected to the power supply module.

Cut any cable ties that may be securing the wires to the chassis or wires that are part of the module.

NOTE: *The module is heavy. Make sure it is well supported and no wires are pulled as you remove it.*

Electronic Module Removal

- Turn off the mains switch and the Battery Isolation switch before commencing this procedure.
- Remove all the connectors/ wires and disconnect from the electronic module.
- Unscrew the four Electronic Module retaining nuts at the bottom of the unit.
- Using both hands pull the Module forward off the studs.

Replacement

- Reconnect all the cables that were removed.
- Lift the module up, place on the studs and fasten with nuts and washers.
- Check all connections are secure.
- Re-power and test.

Power Supply Replacement

The power supply is a modular unit and repair is not recommended except by an experienced power supply repair technician.

- Turn off the mains switch and disconnect the positive terminal from the battery before commencing this procedure.
- Note the connections to the screw down terminals and remove the connections.
- Remove the power supply.

Troubleshooting

UPS Motherboard Connections

Connector	Use	Wire Colours	Comment
Fan 1	12V Out	Red=12V Black=GND	12V Supply to the Fan 1
Heater	12V Out	Red=12V Black=GND	12v supply to the Heater
12v in	Battery In	Red=12V Black =GND	12V input from the battery
16V IN	Power In	Red=12V Black=GND	Power from the 16V power supply
12V/20A Out	12-12 VDC converter	Red=12V Black=GND	12V out for the 12-12 VDC converter
12V/20A Out	12-24 VDC converter	Red=12V Black=GND	Output to the 24V step up converter
24V OUT	To VKP80III printer	Red=12V Black=GND	24V OUT to the Printer
24V/10A IN	Output from 12-24 VDC converter	Yellow=12V Black=GND	24V out from the 24V step up converter
12V/2A IN	Output from 12-12 VDC converter	Yellow=12V Black=GND	12V out from the 12-12 VDC converter
12V/2A Out	12V supply to the router	Red=12V Black=GND	Power supply to the router

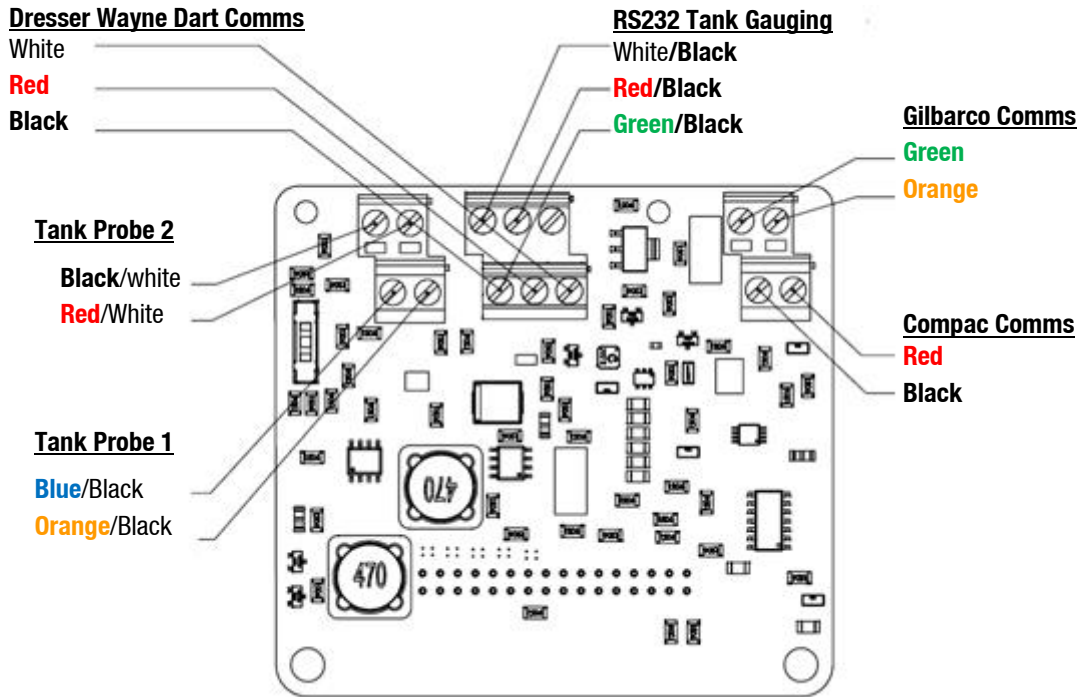
CAUTION

Use the above table as a guide only as wire colours can change during production and after servicing.

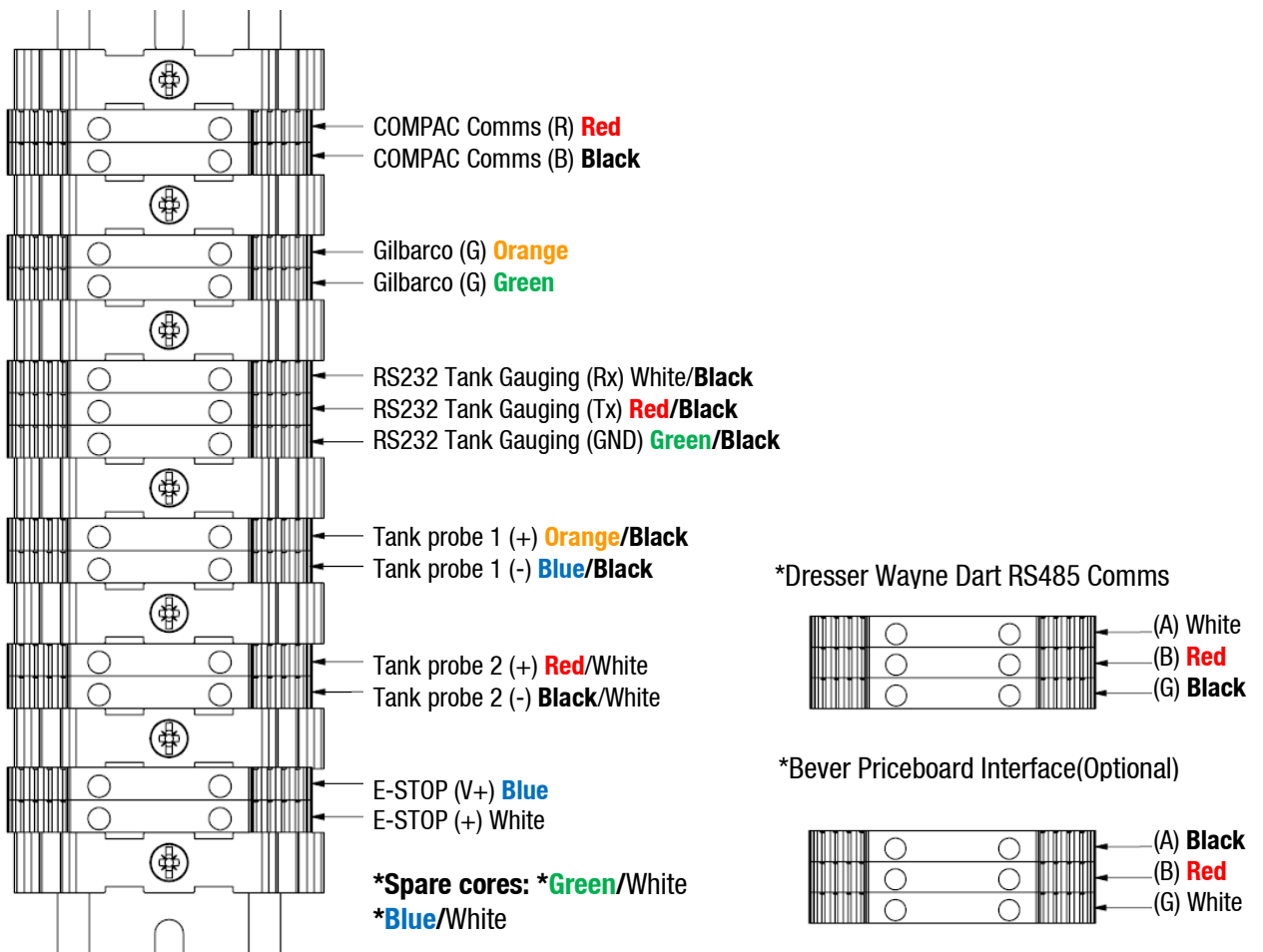
CAUTION

Take care to observe correct polarity as there are components that can be permanently damaged if connected incorrectly.

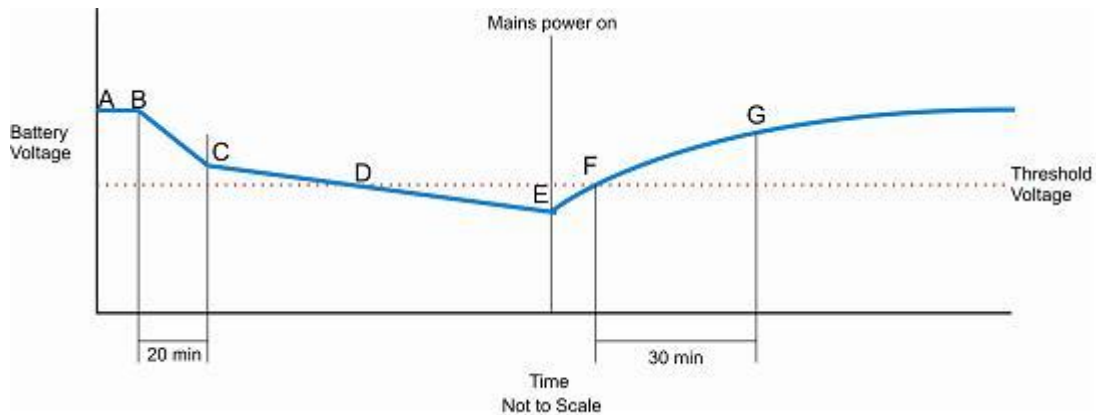
COMMS board connections



Din Rail connections



Power Loss



The diagram below shows what happens when power is lost and then restored.

A	Battery fully charged and mains power is powering the unit
B	Mains power failure, unit running on battery.
C	20 minutes after mains failure, power is shut off.
D	If mains power failed for a significant amount of time, the voltage of the battery may dip below the set 11.5 volts threshold.
E	Mains power restored; battery charging begins.
F	Battery reached set threshold level.
G	30 minutes after battery reaching the threshold level, transactions can now take place.

- After mains power to the unit is lost it will no longer allow transactions, but the user will still be able to obtain a receipt that was generated before the power outage.
- A receipt can be obtained for up to 20 minutes after mains power failure. The unit will completely power down after 20 minutes. After restoring mains power, the unit will power up. If the voltage of the battery dipped below the threshold level at any time, transactions will be disabled until the battery has been charged for at least 30 minutes above the threshold voltage. This is to ensure there is enough power to print receipts should power fail again.
- If the battery voltage does not dip below the threshold level while the mains power is disconnected, normal operation can resume as soon as mains power has been restored.

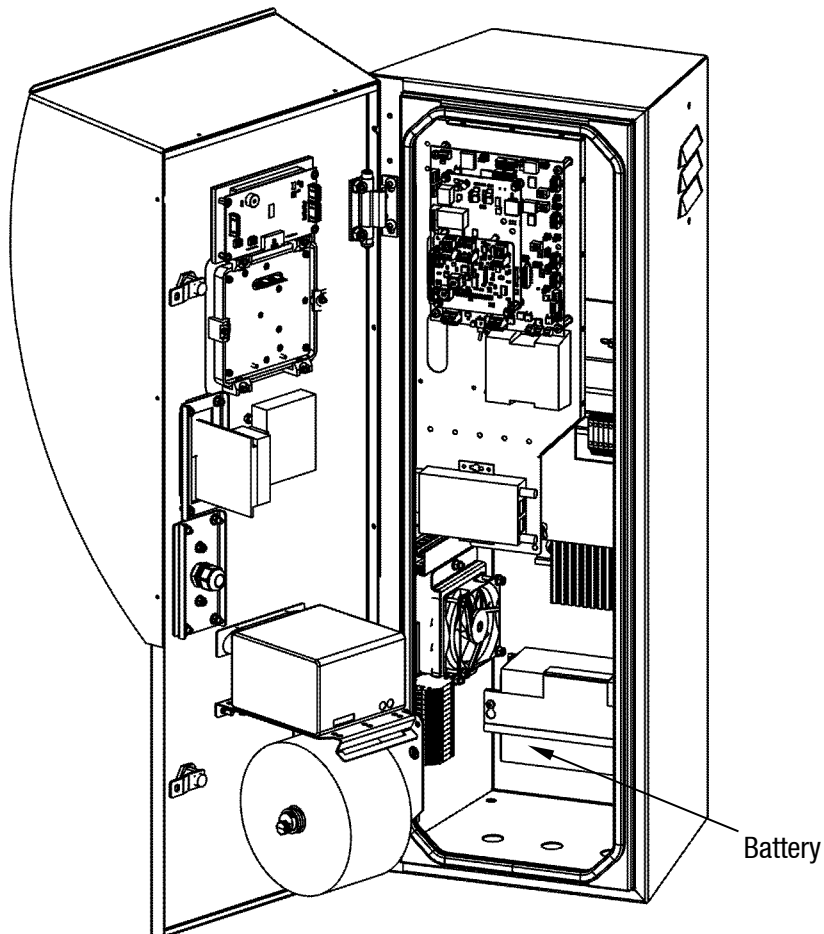
Battery

The backup battery has an expected life of 5 years in ideal conditions. If the COM5 PT1 stays on for less than 20 minutes during a power failure, then the battery may need replacing.

The backup battery for the UPS is mounted inside the electronics chassis.

CAUTION

Always take precautions with the exposed battery terminals to avoid arcs and short circuits. This can damage sensitive components or cause fire or explosion.



Removal

- Remove the electronic module.
- Turn off the battery isolation switch.
- Unscrew the battery, and remove from electronic module, remove the positive and negative leads from the battery.
- Replace.

CAUTION

Take care not to touch the exposed battery cables with the steel bracket.

CAUTION

Ensure the Red lead connects to the red battery terminal marked \oplus . Severe internal damage can be caused if the battery is connected the wrong way around.

CAUTION

Please ensure the used battery is disposed of in accordance with local environmental regulations

COMMS Board Replacement

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.

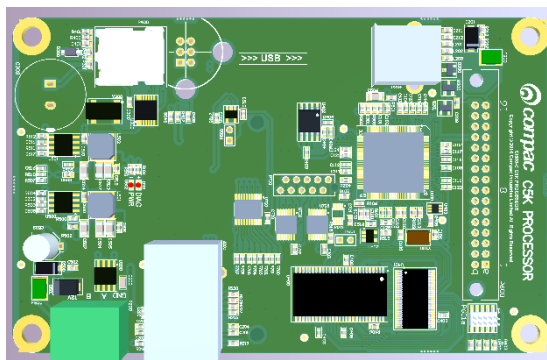
Removal

- Turn off the mains switch and the Battery Isolation switch.
- Take note of their location and unplug the connections.
- Undo the 2 hex nuts holding the COMMS board to the processor board.
- Pull the COMMS board out to remove the board from the electronic module.

Replacement

- Align the COMMS board 32pin DIN connector with the COM5 Processor board DIN connector
- Align the 2 plastic standoffs and 2 screws.
- Push the board onto the standoffs until they click into place.
- Fasten the 2 bolts in with the washers.
- Test for correct operation.

C5K Processor Board Replacement



CAUTION

Always take anti-static precautions when working with electronic components such as wearing a wristband with an earth strap.

CAUTION

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

NOTE: Before replacing the processor board, contact the Help Desk to ensure all data has been uploaded. Do not unplug the board until this has been done.

Removal

- Turn off the mains switch and the Battery Isolation switch.
- Remove the COMMS board as stated above. Label and photograph if required.
- Unplug the Ethernet cable from the COM5 Processor board.
- Unscrew the four hex bolts from the board.
- Pull the board off the UPS Motherboard to disconnect the processor board from the UPS motherboard.

NOTE: The COM5 Processor board **MUST** be installed the right way round. Installing Processor board the wrong way will destroy them and will void any warranty.

Replacement

- Reconnect the COM5 Processor board to the UPS motherboard making sure that the 2 connectors are connected properly.
- Hand tight the 4 bolts in to secure the processor board.
- Plug in the ethernet cable to the processor board.
- Install the COMMS board.
- Make sure all the connectors are connected properly.
- Repower the unit.
- Contact the Help Desk and follow their instructions to re-install site parameters.

Replacement

- Bolt in the UPS motherboard to the chassis of the COM5 PT2.
- Reconnect the COM5 Processor board and the COMMS board to the UPS Motherboard.
- Plug in the ethernet cable to the processor board.
- Reconnect all the wires and connectors to the terminals of the UPS Motherboard.
- Make sure all the connectors are connected properly.
- Repower the unit.

Contact the Help Desk and follow their instructions to re-install site parameters.

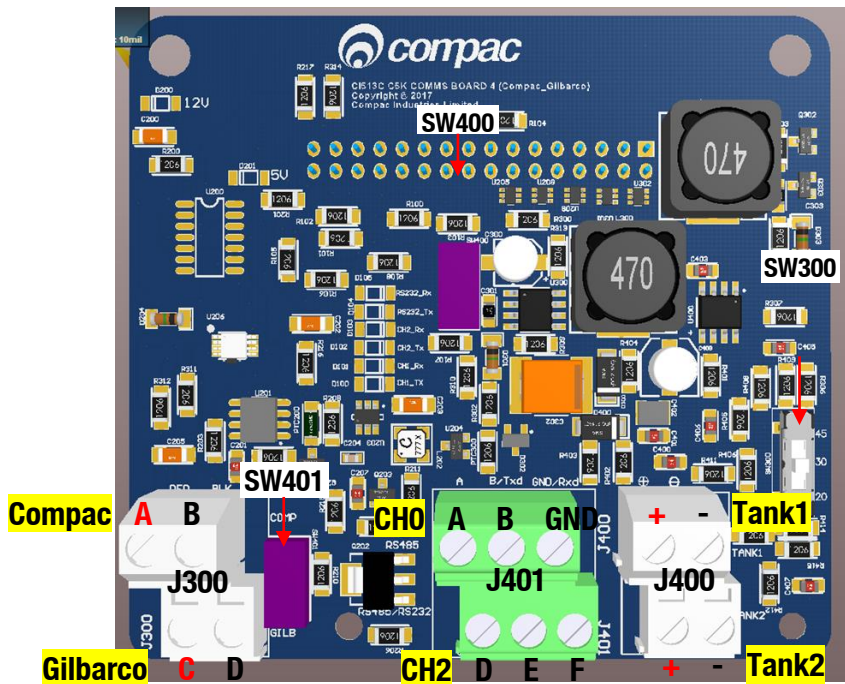
Connections Layout

Connector	Use	Wire Colours	Comment
Secondary reader Port	Secondary reader	Red, Blue, White, Green, Brown,	Optional card reader
Printer out	Printer COMMS	Black, White, Red	Printer cable

CAUTION

Use the above table as a guide only as wire colours can change during production and after servicing.

Comms Wiring



If Compac or Gilbarco comms are being connected, connect to the J300 port on the comms board as shown below.

Protocol	Channel	J300 terminal
Compac	1	A - RED B - BLACK
Gilbarco	2	C - RED D - BLACK

Switch SW300

This switch is used for current loop systems on channel 1 (e.g., Gilbarco, Wayne). Adjust the switch according to the current (mA) of the site protocol as required. There are three current options.

Site Protocol	SW300 switch position
Wayne	45
Gilbarco AUS	30
Gilbarco USA	20

RS232 and RS485 comms

If RS232 or RS485 comms are being used, use the table below to configure the switches and connect the comms.

J401 channel 0 is wired to the upper terminals whereas channel 2 RS485/RS232 is wired to the lower terminals.

COMMS/terminal block	SW400	SW401	Channel	Terminal		
RS485 on J300 *Note	N/A	N/A	0	GND	RS485-A	RS485-B
RS485 on J401	OFF	OFF	2	GND	RS485-D	RS485-E
RS485 on J401 with a terminator	OFF	ON	2	GND	RS485-D	RS485-E
RS232 on J401	ON	OFF	2	GND	RS232-E (Txd)	RS232-F (Rxd)

***NOTE:** J300 is shared with Compac Comms. Therefore, a site with Compac comms cannot use this RS485 channel.

Tank Gauge comms

Use J400 for 4-20mA tank gauge connections. Up to two tank gauges can be connected to J400.

LEDs

LED	Colours	Comment
Pump Com's (NZ)	Yellow, Green, Red	Toggles Yellow / Green = Normal Red = Comm's short
Pump Com's (Aus)	Green, Red	Toggles Red Green = Normal
ATG (NZ)	Green, Red	Toggles Red Green = Normal
ATC (Aus)	Green, Red	Toggles Red Green = Normal

Fan & Filter

The Filter element can become blocked up in dusty environments and may be removed from the ducting and cleaned with a vacuum cleaner or compressed air. If the filter is excessively dirty or damaged it can be replaced with a new filter.

The Fan has a Life expectancy of 100,000 hours in ideal conditions. If the fan fails or becomes excessively noisy it should be replaced.

Filter Replacement

Removal & Replacement

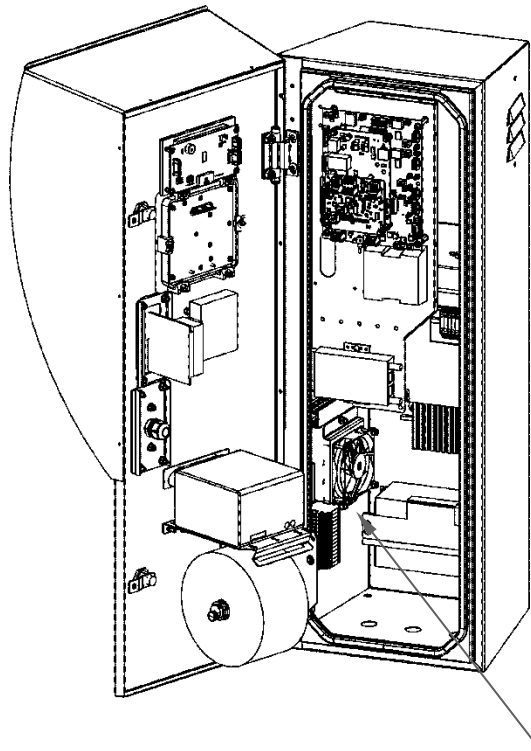
- Unclip the fan connector or turn off the COM5 PT2
- Unscrew the four screws that hold the air duct together and remove the filter housing.
- Remove the filter.
- Replace.

NOTE: The filter element can be cleaned with a vacuum or compressed air.

Fan Replacement

Removal & Replacement

- Unclip the fan connector.
- Remove fan from COM5 PT2 housing.
- Replace.



Filter
FO-FIL-0002

Modem LEDs

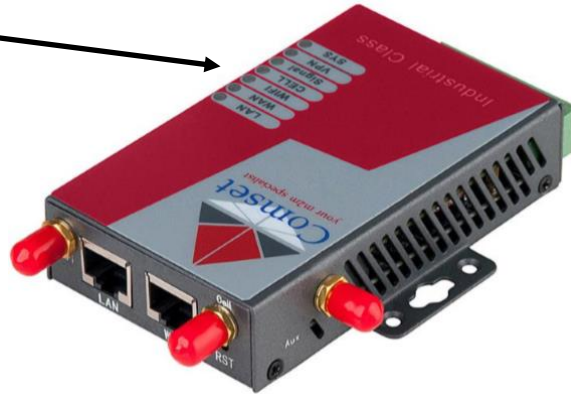
Etic, Machinelink and Comset modems are currently used in the COM5 PT2. The LEDs can be used to diagnose problems with the modems. The LEDs of these modems are as follows.

Comset

The LEDs are as shown. Refer to the accompanying table to understand the modem LEDs.

LEDs shown here.
Order is as follows:

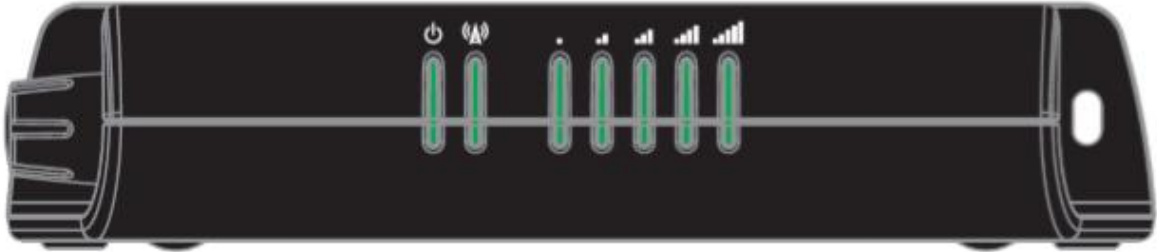
- LAN
- WAN
- WIFI
- CELL
- Signal
- VPN
- SYS






LED	Indication Light	Description
SYS	On for 25 seconds	On for 25 seconds after power up
	Blinking	System set-up normally
	Off or still on after 25 seconds	System set-up failure
LAN	Blinking	Ethernet data transmission
	Off	No Ethernet connection
	On	Ethernet is connected
VPN	On	VPN tunnel set-up
	Off	VPN tunnel not set-up or VPN failure
CELL	On	Cell connection is 'UP' and now you have access to the Internet
WIFI	On	WiFi enabled
	Off	WiFi disabled
WAN	Blinking	Ethernet data transmission
	Off	No Ethernet connection
	On	Ethernet is connected
Signal	Off	No signal, or signal checking is not ready
	Blinks once every 4s	Signal bar is 1
	Blinks once every 3s	Signal bar is 2
	Blinks once every 2s	Signal bar is 3
	Blinks once every 1s	Signal bar is 4
	Blinks twice every 1s	Signal bar is 5

Machinelink

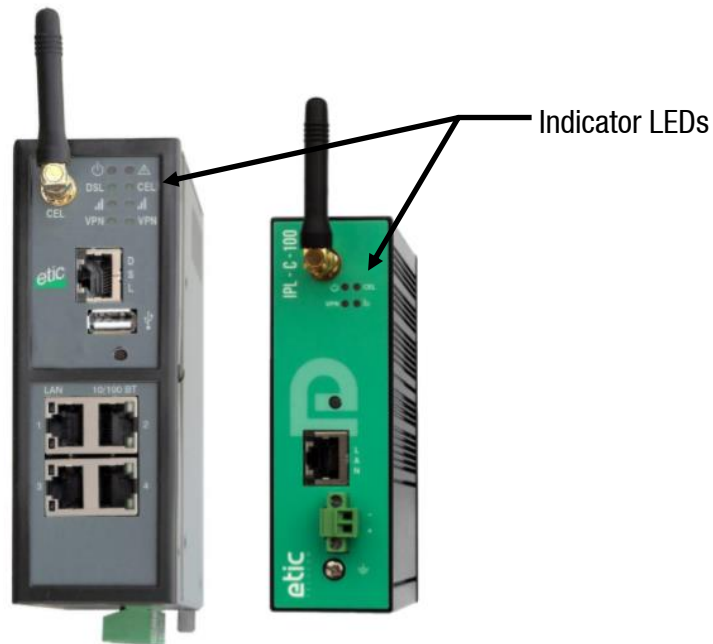
The Vodafone Machinelink modem uses 7 LED indicators to display connection status.





LED	Colour	State	Description
 Power	Off	Off	Power off
	Green	Double flash	Powering up
	Green	On	Power on
	Orange	On	Power on in recovery mode
	Red	Slow flash	Hardware error
 Network	Green	On	Connected via WWAN
	Green	Blinking	Traffic via WWAN
	Green	Slow flashing	Connecting PDP
	Orange	On	Registered network
	Orange	Slow flashing	Registering network
	Red	Slow flashing	SIM PIN locked
	Red	Fast flashing	SIM PUK locked
	Red	On	Can't connect
 Signal Strength	Green	On	3G
	Orange	On	2G GPRS
	Red	On	GSM only (no GPRS)

Etic

The Etic ADSL modem is shown. Refer to the table to find the descriptions of the LEDs.



Modem LEDs

LED	State	Description
 Operation	Off	Power off
	Steady green	The unit is ready
	Slow blinking green	The unit is busy
	Steady red	Startup (30s) – Hardware or software failure or SIM card missing or memory flash drive missing
	Fast blinking red	Firmware download in progress
DSL ADSL connection	Off	ADSL Interface disabled
	Flashing 4 s	ADSL signal not detected / Line not connected
	Slow blinking 2 s	Connection in progress - 1st step (adsl)
	Fast blinking 0,5 s	Connection in progress - 2nd step (password and @ IP)
	Steady green	Connected / Brief flashing when traffic on link
 Quality of signal (ADSL)	Off	No signal measured
	1 flash	Not sufficient signal
	2 flashes	Sufficient signal
	3 flashes	Strong signal
CEL Cellular conection	Off	Sim card missing - wrong PIN code – Cellular interface disable
	Flashing 4 s	Interface enable - not connected
	Slow blinking 2 s	Connection in progress - 1st step
	Fast blinking 0,5 s	Connection in progress - 2nd step (password and @ IP)
	Steady green	Connected / Brief flashing when traffic on link

Quality of signal (cellular)		Same as the ADSL signal quality LEDs	
VPN VPN Connection	Off	No VPN connection in progress	
	Blinking slowly - 2 s	Connection in progress	
	Steady green	At least one VPN is established	
Lower LED Ethernet WAN	Off	Not connected or interface disable	
	Green	Connected / Brief flashing when traffic on link	
Wi-Fi Wifi connection	Off	Interface disable or enable as an access point	
	Flashing every 4 s	Interface enable - not connected	
	Blinking fast - 0,5 s	Connection in progress	
	Steady green	Connected / Brief flashing when traffic on link	
	Off	Wi-Fi not enabled or enabled as an access point	
Wifi signal quality	2 flashes	Sufficient signal	
	3 flashes	Strong signal	
	1 flash	Faint not sufficient signal	
	Off	Wi-Fi not enabled or enabled as an access point	
Lower LED Ethernet LAN 1 to 4	Off	Not connected or interface disable	
	Green	Connected / Brief flashing when traffic on link	

Troubleshooting

Problem	Possible Cause	Recommended Action
No Power/No Lights	No power entering unit	Ensure that power is entering unit, check external fuses and switches
	Faulty power supply	Replace the Power supply module
Will not Print	No power to printer	Check the voltage on the printer power cable and try performing test print
	Printer data cable unplugged	Check cable is plugged in correctly at both ends and is free from corrosion
	Transaction not complete	Ensure all nozzles relating to the transaction are properly hung up
	Trying to print on wrong side of paper	Remove paper and re-insert
	Faulty Printer	Replace Printer
	Faulty Electronics module	Replace the electronics module
“Paper low” on internal PIN pad (EFTPOS PIN pad displays “Receipt unavailable OK?” after swiping card)	No paper or low on paper	Load a full roll of paper
	Faulty low paper sensor	Disable Low Paper Sensor
	Poor adjustment of low paper sensor	Disable Low Paper Sensor
	Door Open	Close Door
	Wrong system (with distributor / In-house cards)	Wrong card base (ISO, Access number) Check card base is loaded onto the COM5 PT2
	Intermittent or broken connection between COM5 Processor board and the Router.	Re-power COM5 PT2 and jiggle network cables to see if fault re-occurs. If so, try replacing cables and/or connectivity module Replace the Router module

Troubleshooting

Will not communicate to pumps	Connection to the pumps has been cut	Check Tx and Rx LEDs on the COMMS board are flashing. If not check the pump comms cabling from pumps to the COMS board.
	No power on pumps	
	Wrong pump protocol	Check pumps and their protocols matches what is set in the COM5 PT2.
	Faulty pump(s)	
"Pump offline" on EFTPOS PIN pad after pump number has been selected	Pumps have gone into standalone mode	Configure pumps for inhibit standalone mode. (On C4000 Compac pumps set the thousand position of the b configuration to 1. i.e., 1xxx)
	CommFMS board fault	Replace the FMS Board
"Pump Error" on display	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.
"System not ready" on EFTPOS PIN pad	Internet connection to card processing company unavailable	Re-power COM5 PT2. Check connection by plugging laptop computer into one of the connectivity module ports and trying to open a common web site.
Unable to Auth/Block cards from Compac online	Internet connection quality low or intermittent	Check with internet service provider for information on internet service quality.
	COM5 PT2 not communicating with pumps	See "Will not communicate to Pumps" above
Pumps will not dispense fuel	Wrong pump number selected	Ensure pump number set in pumps matches pump number set in PT2 and pump number written on the pump.
	No fuel in tanks	Verify tanks have sufficient product
	Pump fault	Try another pump to verify. Contact pump service agent Have service agent check pumps

Unable to get data from COM5 PT2	Internet connection down	Check with internet service provider for information on internet service quality
COM5 PT2 is beeping constantly and displays "System Not Ready" when card transaction is attempted.	Unit lost Mains power, Low Battery.	Check the internal screen to confirm if there is "No Mains" or "Battery Low" message on the screen and get the electrician to investigate if there is a power/battery issue.

Troubleshooting

Spare Parts

Spare Parts

