Sanki Australia Configuration Guide

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Contents

Introduction

The following document is designed to be a reference for Sanki Australia related configuration and learnings to assist in further field deployments.

This document is by no means a complete guide but does contain answers to common configuration questions.

Depending on the level of configuration done at the factory some, or all, of the steps in the guide may be necessary.

If you have further information we can incorporate into this document, please do not hesitate to email me at seamus.kenny@yahoo.com.au

Idiosyncrasies

There are a number of things to be aware of when working on or connecting to Sanki dispensers.

1. Hose numbering on dispensers is inverted between sides. On an 8 hose pump for example hose 1 Unleaded on side A would be Hose 4 on side B.

2. Multiple flameproof junction boxes are in use reflecting a non Australian market configuration requiring separation of communications wiring from power.

3. Pre 2016 units can have issues with mains power burnout from on the push style connectors for 240V. These have since been upgraded to screw style connectors.

4. Software updates to the main board and Sanki Gilbarco protocol board
    a. Are done through a laptop running Flashmagic.
    b. These need to be done in situ
    c. Are done via serial communications.

5. Switch wiring on older model dispensers was done on the neutral. Not for compliance but for industry standard all dispensers post 2015 should be switch wired on the active.

6. AC Control Boards
    a. Are not per product
    b. Control either 1 side for a dual or 2 hoses for an MPP
    c. Are addressed as follows:
        i. Board 1 – All jumpers off
        ii. Board 2 – JMP 1 Bridged, JMP 2 Unbridged
        iii. Board 3 – JMP1 Unbridged, JMP1 Bridged
        iv. Board 4 – All jumpers on
        v. JMP 1 is the LOWER of the 2 sets
        vi. Do not use the board guide – it is confusing / wrong.
    d. 2 Capacitors are removed on turbine sites from the AC control for dispensers to remove feedback that causes the dispensers to run continuously. (C1 & C4).
    e. Note that on all new pumps and dispensers C1 & C4 should always be removed as contactors now start the motors – not the AC control boards.
    f. NOTE: AC Control boards are live even when the pump emergency stops are pressed.

7. Protocols Available:
    a. Gilbarco
        i. The Sanki Australia units come from China with this by default. The main PCB connects to a Sanki – Gilbarco protocol board and then on to a controller.
    b. PEC / Compac / NZPP
        i. To talk PEC the default Gilbarco protocol board must be removed and a Sanki - PEC protocol conversion board fitted.
    c. Sanki
        i. This is what the pump speaks natively but, as mentioned previously, pumps need to have the Gilbarco protocol board removed and wired directly to the mainboard.

8. Gilbarco Protocol
    a. Gilbarco protocol boards are particularly fragile. Communications logging can indicate they 'work' but "pump in use" errors and the like can indicate that a board needs replacing or a resistor needs installing.
    b. Sanki Gilbarco protocol boards need to be running at least V1.09 and preferably 1.12.
    c. Sanki Gilbarco protocol boards require jumpers to be set as well as software programming into the pump.
    d. Gilbarco protocol board has a communications monitor that can be viewed through Putty.
    e. Ensure that protocol boards do not have power drawn from them on port CN4. The power drain will prevent the communications from working.
    f. Currently the Gilbarco protocol employed does not support transactions above 1000L.

9. Controllers
    a. Sanki pumps can still communicate when in standalone and connected to comms. This can cause weird issues. Make sure if you are operating in standalone you disconnect the comms loop – isolating at the switchboard as required.
    b. Sanki and Enabler controllers do not communicate well on Gilbarco protocol. This is under investigation.
    c. Datafuel is tested on Gilbarco communications only.
    d. Compac
        i. On Gilbarco protocol,
            1. Particularly with Compac controllers a 330 Ohm resistor is required in the loop.
            2. Compac controllers need to be running a protocol board manufactured in December 2015 or later. Earlier ones will not work.
            3. Communications need to be set to Gilbarco Highline for communications with a Compac DCA or OPT.
        ii. Always reset the controller between changes especially with pump configuration – even if Compac say it isn't necessary.
        iii. Compac comtanks are prone to interference and require a shielded comms cable
    e. POSTEC
        i. Gilbarco - On Gilbarco protocol POSTEC controllers must be running a firmware of 636 – 2012.
        ii. PEC / Compac / NZPP
            1. on this protocol the POSTEC controller must be running firmware of 636 – 2015 or later.
            2. Even on single hose pumps / dispensers set them as multihose protocol – especially on POSTEC's.
    f. Radiant
        i. Is under test but does not work with the Sanki – Gilbarco protocol board.
        ii. Can only work under the PEC / Compac / NZPP protocol. Price changes do work under this configuration.
    g. TT
        i. Can talk via a PEC protocol board.
        ii. Untested on Gilbarco communications.
        iii. Can talk natively on Sanki communications.

10. Nozzle Switch Times
    a. If a nozzle handle is hung up within 2 seconds the pump can go into a 101 error.
    b. Nozzle will need to be hung up before the pump can be reauthorised.

11. Presets
    a. Sanki pumps require the preset to be set before picking up the hose in order to work.
    b. Sanki pumps have 2 types of presets:
        i. A large metal style preset used for:
            1. Programming the pump configuration.
            2. Industrial style applications.
        ii. A thin membrane style used for retail applications.
        iii. A jumper is required to be fitted to the mainboard to switch between the 2 styles.
        iv. To set for retail membrane set a jumper on JP1 - #1. To use programming membrane remove this jumper.
    c. Maincode software version should be SK97V530 or later to allow retail preset to work correctly.

12. ATG
    a. There is a direct integration model with Windbell.
    b. It allows the pump to interrogate the Windbell unit and send back alarm messaging.
    c. Enhancements are being sought at the time of writing to provide live monitoring of tank levels remotely.
    d. Affects power take off point for PEC / Compac / NZPP communications board.
    e. Probe ID – Manufacturing ID only exists on the probe.
    f. ATG requires reboot after changing a probe ID.
    g. Starting numbers for a 40' Containers are
        i. Length: 11130
        ii. Width: 2410
        iii. Height: 2490
        iv. Offset / Adjustment: 12mm
    h. The only Sanki software that should be used for Windbell integrations are SK98V402 or later.
    i. SK98V401 does not support a separate discharge pump button.

13. Prepay
    a. Prepay is problematic on fast nozzle switch and can cause pump 101 errors and lockups.
    b. Enabler is very problematic, particularly prepay. The enabler system locks the hose number at the time of prepay and does not release the hose number – even if the pump is reset.
    c. The POSTEC does not enforce hose number selection as it "pre pays the hose when lifted"
    d. If wrong hose is lifted reauthorisation is required.

14. Maximum Literage
    a. In standalone there is no $1000 / 1000L limit to the amount of litres product that can be dispensed
    b. If using the Gilbarco protocol there is a $1000 / 1000L limit.
    c. PEC has no limit also.
    d. There are also settings inside a controller (particularly DCA's) that also affect this.

15. Battery Change – Error 102
    a. Battery change process. If you encounter an Error 102 you need to replace the mainboard CR2302 battery.
    b. Note this needs to be done while the pump is powered up.
    c. You may also need to reprogram the pump from scratch.

16. Board voltages.
    a. On the mainboard many markings refer to 12V. In practice when measured this can run as low as 9V under load. This is normal.
    b. Transformer is supposed to output 18VAC. When measured it can be as high as 24V.

17. Menu Access
    a. The programming menu is only accessible when the pump is in an idle state. That means that if it is disconnected when it hasn't completed a task such as a price change then it will not allow access until the task is completed – EVEN IF THE POWER IS RESET.
    b. To get around this
        i. Disconnect the battery on the main board
        ii. Reset the unit
        iii. Reinstall the battery into the mainboard with the power on.

18. Adblue
    a. Run different voltages to all other dispensers. They take 240VAC input as normal.
        i. Main Processor board takes 24VAC as per normal
        ii. AC control boards have a 24V DC power supply feeding them.
        iii. 24V solenoids attached to them
        iv. Need a 240VAC active switch wire configuration and 240VAC relay for the turbine contactor.
    b. Always be careful of no flow as some ZVA adblue nozzles don't allow a standard fill without a magnetic ring. Sanki normally come with OPW though.

Basic Software Configuration

Software configuration in the Sanki unit is configured via the preset display. The Sanki software has 3 levels of security.
The upper levels are accessed as an option of the current level you are in. For example level one has an option to enter level 2 and so on.
Remember you cannot access the programming preset pad if there is a jumper on JP1:1 on the main processor board.

To access the configuration options:

1. Press “Price” on the preset.
2. When prompted for a password use “9876” followed by the “Litre” or “Enter” button.
3. Arrow up and down using the “P1” & “P2” keys and left and right where applicable using the “P3” & “P4” keys.
4. “Cancel” drops you back a level of security.
5. When accessing the level 3 level of security you will be required to turn the key in the parameter lock clockwise to access functions.

Level 1 Configuration Options

Level 1 options only allow very limited functionality. For an Australian configuration we are only interested in:

1. 18: Version. For Australia check that it is running version SK97V5.30 for standard retail or SK98V4.03 for ATG integrated units. If not contact Sanki Australia before proceeding.
2. 19: Enter level 2. When all level 1 options are set move to this option and hit the “Litre” button. When prompted for a password use “9876” followed by the “Litre” button again.

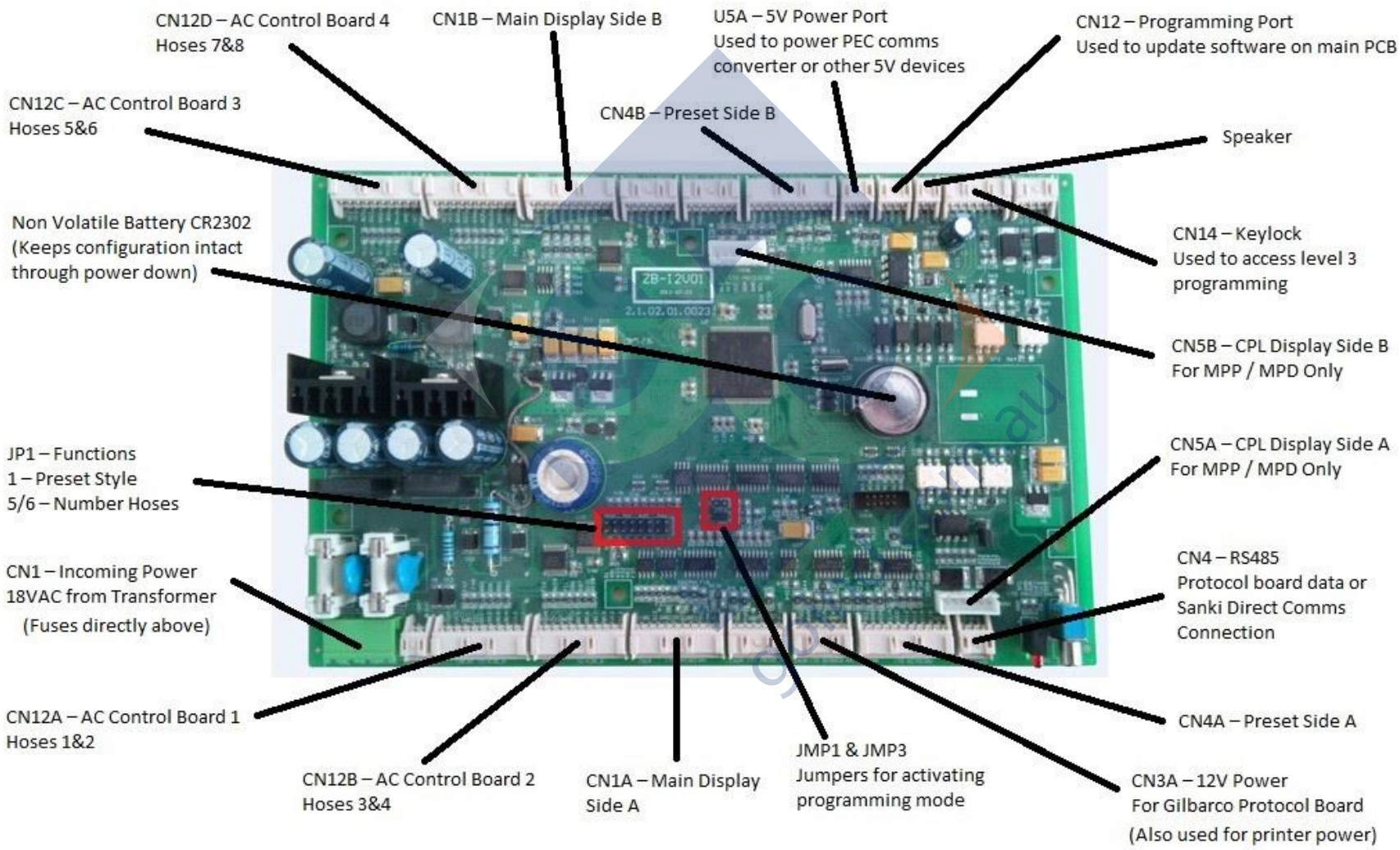
Level 2 Configuration Options

1. 22: Online / Offline. Once calibrated to put the unit into Self-Serve set this option to 2: Online.
2. 24: Price. Not required for connection to POS. configure as required for calibration checks.
3. 212: Protocol. For Australia with the Gilbarco protocol set to 5:Australia
4. 213: Address. This is the pump number. This must marry up with the numbers set in the jumpers on the protocol board if you are using a Gilbarco protocol board.
5. 215: Print Contents. This setting is primarily for units with a non retail preset attached. Setup the Currency: set to “AUS”.
6. 223: Enter Level 3. When all level 2 options are set, move to this option turn the parameter key and hit the “Litre” button. When prompted for a password use “9876” followed by the “Litre” button again.

Level 3 Configuration Options

1. 310: Sale Point. Set to 2.
2. 311: Litre Point. Set to 2.
3. 312: Price Point. Set to 1.
4. 315: Save Settings. Once all of the above are set hit the Enter button to save the configuration.

Main PCB Connections



Main PCB Jumper Settings

JMP1 – Bridged. Reset port bridged in normal use. Open only when programming the board.
JMP2 – Open. Leave unbridged.
JMP3 – Open. Boot port. Open in normal operation. Should only be bridged when programming the board.
JP2 (Toggle Switch) – Down toward board at all times.

JP1
1: Preset Type
2: Dual or Single Meter
3: Unused.
4: Unused.
5: Hoses Active per Side– See below for numbering table
6: Hoses Active per Side – See below for numbering table
7: Unused.
8: Unused.

JP1: 1 – Preset Type

JP1:1	Preset Mode
Off	No preset keypad or pump programming preset
On	Fast fill "Light" style preset

Note: JP1:1 must be off when programming up the pump. It must be put back on afterward to allow the preset to work again.

JP1: 2 – Meter Type

JP1:2	Meter Type
Off	Single Meter & Pulser per Hose
On	Dual Meter & Pulser per hose

JP1: 5&6 - Hoses / Nozzles Active per Side

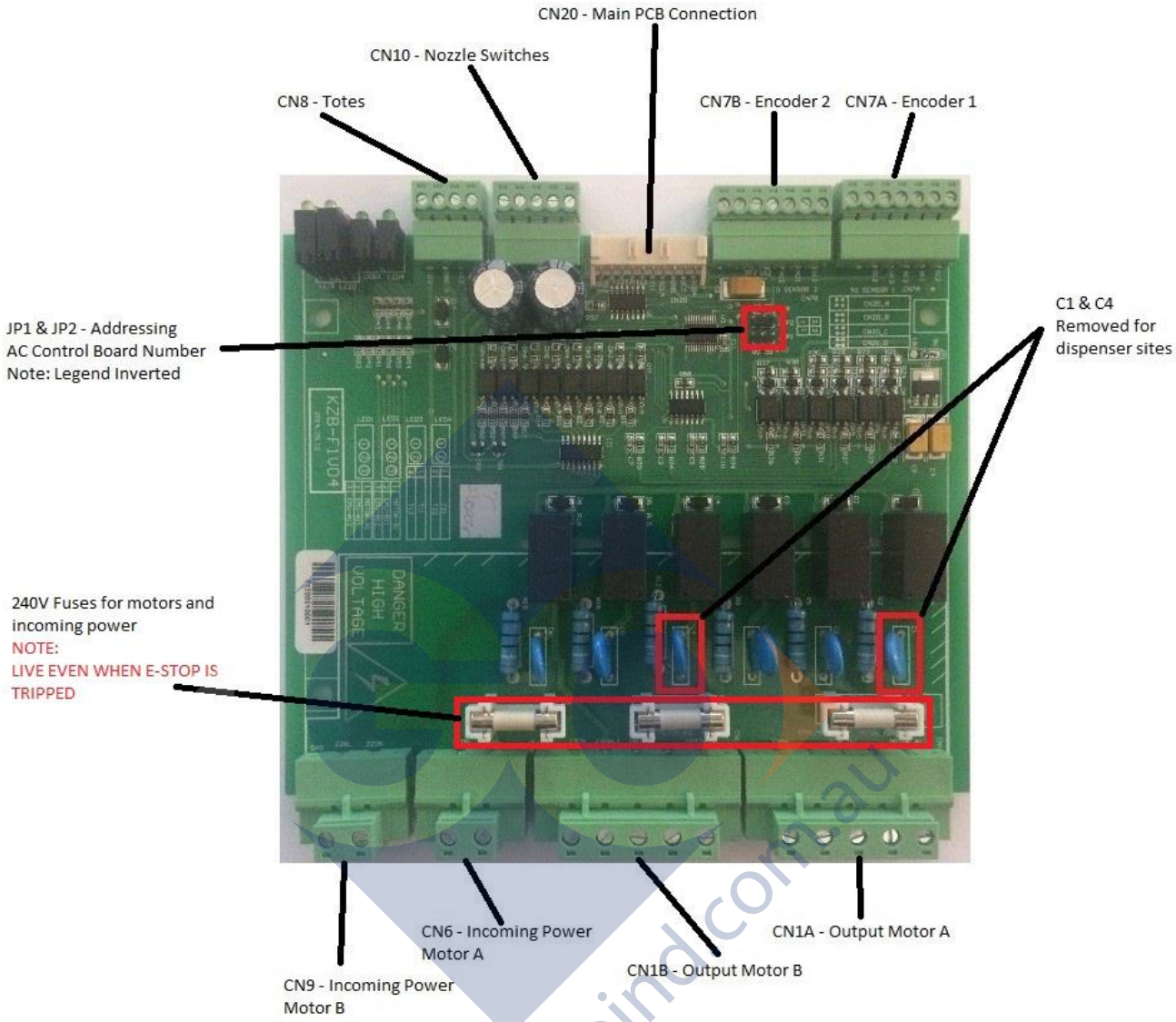
Hoses / Side	JP1: 5	JP1: 6	Pump / Dispenser Type
1	Off	Off	1or 2 Hose Dispenser
2	On	Off	4 Hose or Dual High Flow
3	Off	On	6 Hose
4	On	On	8 Hose

JP1: 8 – Printer Configuration

JP1:8	Printer Configuration
Off	One printer per side
On	One shared printer for entire dispenser

NOTE: An older dual high flow dispenser MAY have 2 AC control boards. You may need to set this as the case set as per a 4 hose unit.

AC Control Board Connections



AC Control Board CN1A & CN1B

Wiring for the solenoids and motors are as follows:

Wire Number (L-R)	Colour	Purpose
1	Grey/ Blue	Neutral
2	Black	Solenoid Primary
3	Black	Solenoid Second Stage
4	Red	Motor Input Switch Live
5	Red	Motor Activate Switch Live

AC Control Board CN7A & CN7B (Pulser 1 & 2)

Wiring for the pulsers / encoders are as follows. Orientation of the board is with these connectors facing upward. Pulser 1 is on the edge of the board (CN7A) and pulser 2 is toward the middle of the board (CN7B)

Wire Number (L-R) (Connectors Upward)	Colour	Purpose
1		Unused
2		Unused
3	Black	G12
4	Red	V12
5	Green	Signal B
6	Yellow	Signal A
7		Unused

AC Control Board CN20 (Nozzle Switches 1 & 2)

Wiring for the nozzle switches are as follows. Orientation of the board is with these connectors facing upward. Nozzle 1 is on the two pins on the right edge of the connector and nozzle 2 are the two pins left edge of the connector

Depending on the model these may run via an IS barrier.

These are normally a red & black pair of wires and are not polarity conscious.

Wire Number (L-R) (Connectors Upward)	Purpose
1	Nozzle 2
2	Nozzle 2
3	Unused
4	Nozzle 1
5	Nozzle 1

AC Control Board - Adblue

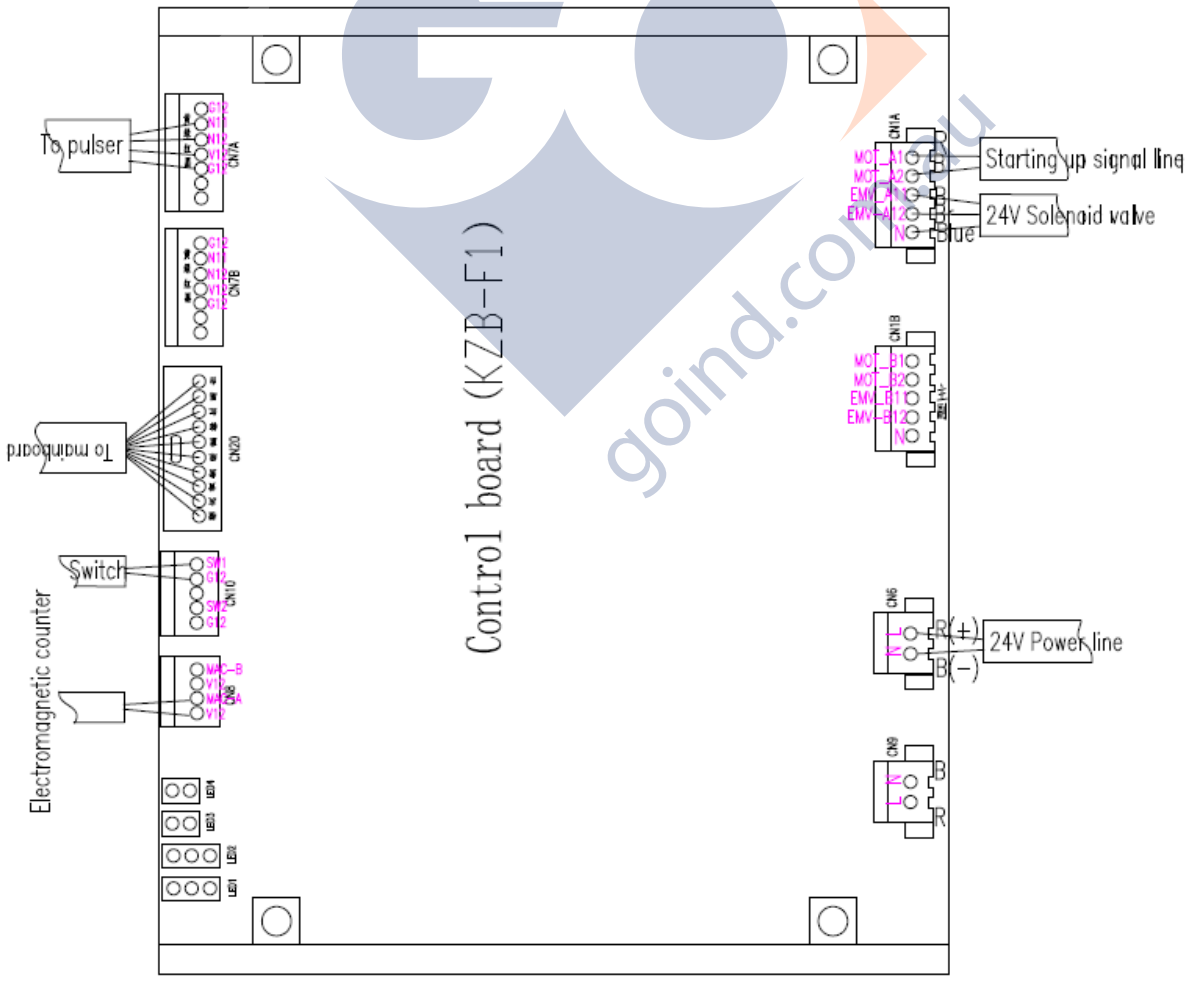
Adblue unit AC Control Board wiring is different to normal pumps and dispensers.

Due to it's corrosive nature all Adblue fittings and connections need to be stainless steel. As a part of this the solenoids controlling flow are also made of stainless steel. These however are 24VDC not 240VAC.

Turbine switch wiring remains unaffected. Turbine switch wiring remains at 240VAC is the turbine is switched on the live or active line – closing the CN1A 4&5 points (product 1) or CN1B 4&5 points (product 2).

Solenoids are 24VDC however and the feed for these is modified to 24VDC from an additional DC supply in the head. The 24VDC supply is wired into the AC Control board as follows:
Product 1 – CN6 – N – GND
Product 1 – CN6 – L - +24V
Product 2 – CN9 – N – GND
Product 2 – CN9 – L - +24V

The wiring diagram for the control board is located below. Complete diagram is available on request.



AC Control Board Addressing

A pump / dispenser can have up to 4 AC control boards. To identify which board it is and what hoses it is controlling there is a set of jumpers. Note that the legend on the board here is confusing / wrong and JMP1 is the bottom one.

Additional notes:

1. Also note that CN9 and CN6 are live even when the pump E-stop is hit.
2. An AC control board : product relationship does not exist.
3. A dual may use 2 AC control boards if there are different speeds being employed. Some may come from the factory as 1 & 2 and some as 1 & 3. This may affect the hose number jumpering on the main board.

JMP1 (Bottom)	JMP2 (Top)	Number	Hoses
Off	Off	1	1 & 2
On	Off	2	3 & 4
Off	On	3	5 & 6
On	On	4	7 & 8

CPL Display Board Addressing

A pump / dispenser can have multiple CPL displays – 1 for each grade per pump number. Numbering configuration is as follows:

JP1 (Top)	JP2 (Top)	Hose Number
Off	Off	1
On	Off	2
Off	On	3
On	On	4

Remember this needs to be done on both sides of the unit.

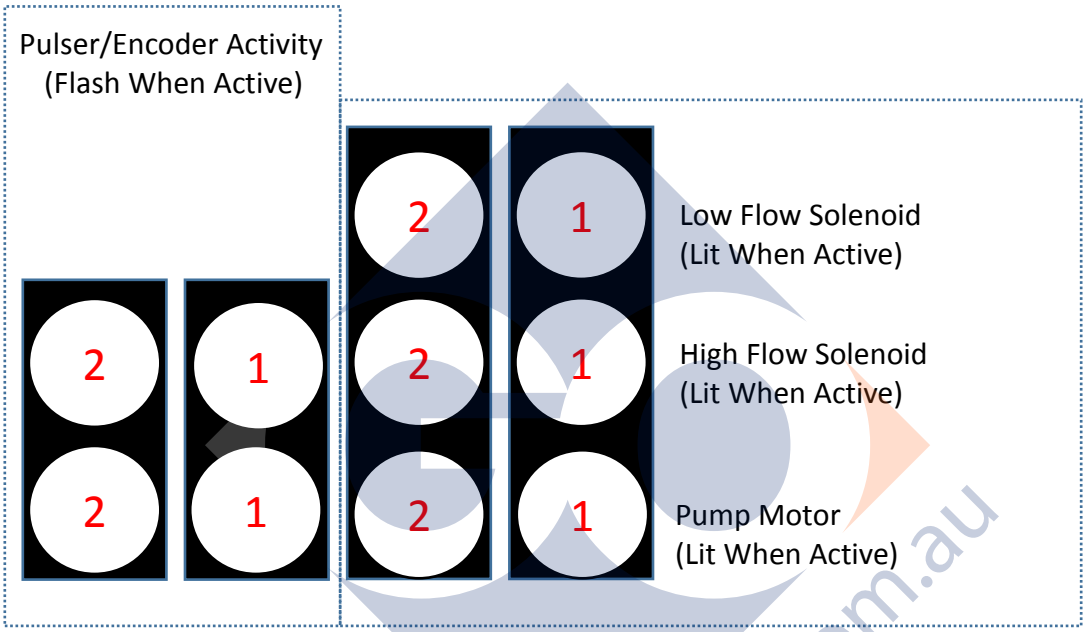
AC Control Board Lights

The lights on the AC control board provide information on what is happening signal wise.

The 2 stack LED's indicate pulser / encoder activity.

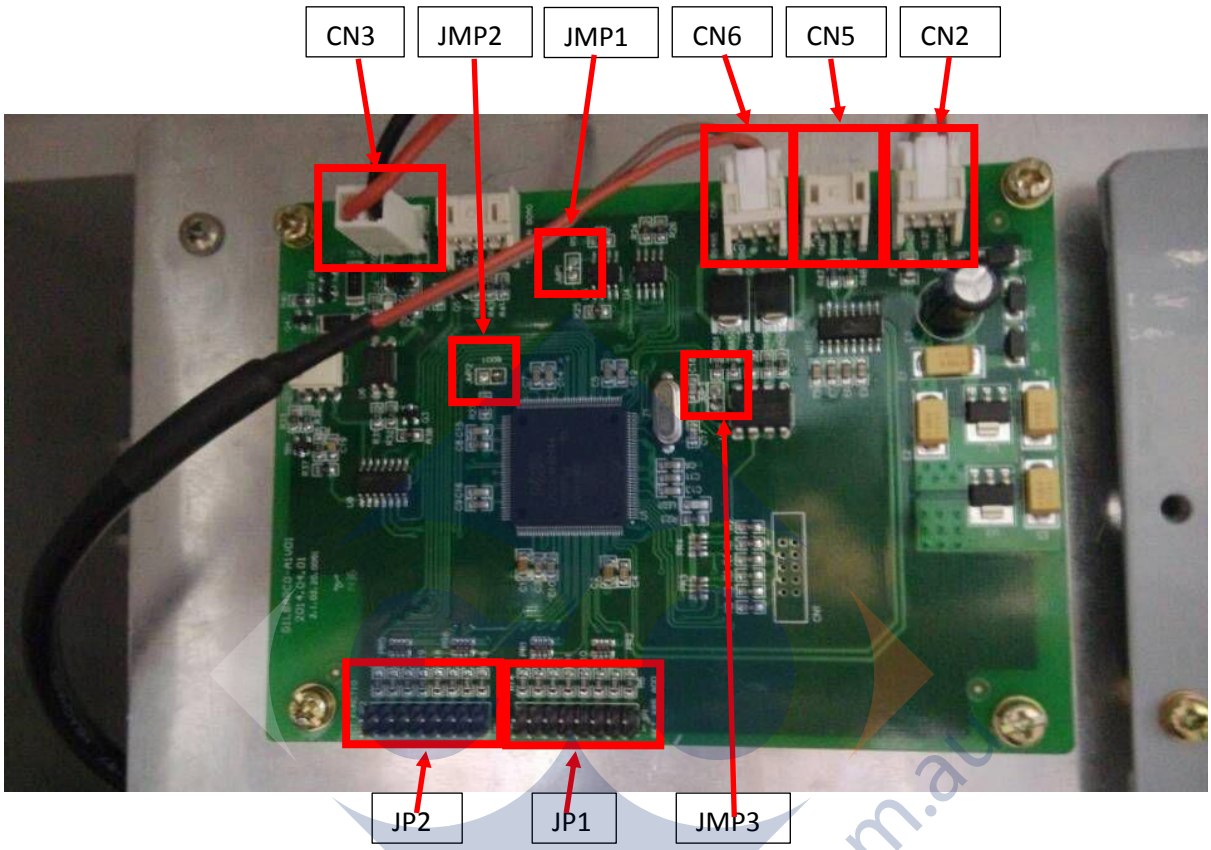
The 3 stack LED's indicate motor / solenoid activity

Numbers indicate which nozzle the light refers to.



Sanki Gilbarco Protocol Board

Below is a picture of the Gilbarco protocol board in the Sanki dispenser. The ports we are interested in are marked in red.



JMP1 – Open. Reset port.
V1.01 Board - This should always be open.
V1.02 Board or later running 1.11 or earlier – This should be open.
V1.02 Board or later running 1.12 or later – This should be closed.
JMP2 – Open. Boot port. This should only be bridged when upgrading software.
JMP3 – Open.
CN3 – Pump communications. Should connect to the communications connections on the pump.
CN6 – Main PCB connection. Should connect to the main board on port CN4
CN5 – Only used for upgrading or monitoring communications
CN2 – Protocol board power. Should connect to main board on port CN3A
JP1 – No jumpers should be on this.

JP2 - Controls pump numbering. Pins 1-4 control side A. Pins 5-6 Control side B

Sanki Gilbarco Protocol Board Jumper Settings

JMP1 – Open. Reset port. This should always be open on V101 boards. It should only be closed on V1.02 boards where software version 1.12 or later is loaded.
JMP2 – Open. Boot port. This should only be bridged when upgrading software.
JMP3 – Open. This should always be open.
JP1 – Unused

JP2 – Pump Numbering. JP2:1-4 controls side A and JP2:5-8 controls side B.

Numbering is binary therefore pin:
1: +1 to Side A number
2: +2 to Side A number
3: +4 to Side A number
4: +8 to Side A number
5: +1 to Side B number
6: +2 to Side B number
7: +4 to Side B number
8: +8 to Side B number

Alternatively you can use the guide below. Simply chose which side you want to number and put the jumpers on the JP2 pins required to “make” the pump number you want on that side.

JP2 Pump Numbering									
Side	A					B			
Pin	1	2	3	4	Pump Number	5	6	7	8
	On	Off	Off	Off	1	On	Off	Off	Off
	Off	On	Off	Off	2	Off	On	Off	Off
	On	On	Off	Off	3	On	On	Off	Off
	Off	Off	On	Off	4	Off	Off	On	Off
	On	Off	On	Off	5	On	Off	On	Off
	Off	On	On	Off	6	Off	On	On	Off
	On	On	On	Off	7	On	On	On	Off
	Off	Off	Off	On	8	Off	Off	Off	On
	On	Off	Off	On	9	On	Off	Off	On
	Off	On	Off	On	10	Off	On	Off	On
	On	On	Off	On	11	On	On	Off	On
	Off	Off	On	On	12	Off	Off	On	On
	On	Off	On	On	13	On	Off	On	On
	Off	On	On	On	14	Off	On	On	On
	On	On	On	On	15	On	On	On	On
	Off	Off	Off	Off	16	Off	Off	Off	Off

Don’t forget to number them in the software to match.

Installing PEC / Compac / NZPP Protocol Boards

Required:

Per Dispenser:
4x Gel cap connectors
1x New protocol board kit (Board, loom and standoffs)
2x Small ferules

Tools:
Small Flathead Screwdriver
Sidecuttters
Blunt nose pliers.
Wire strippers
Ferule crimping tool.

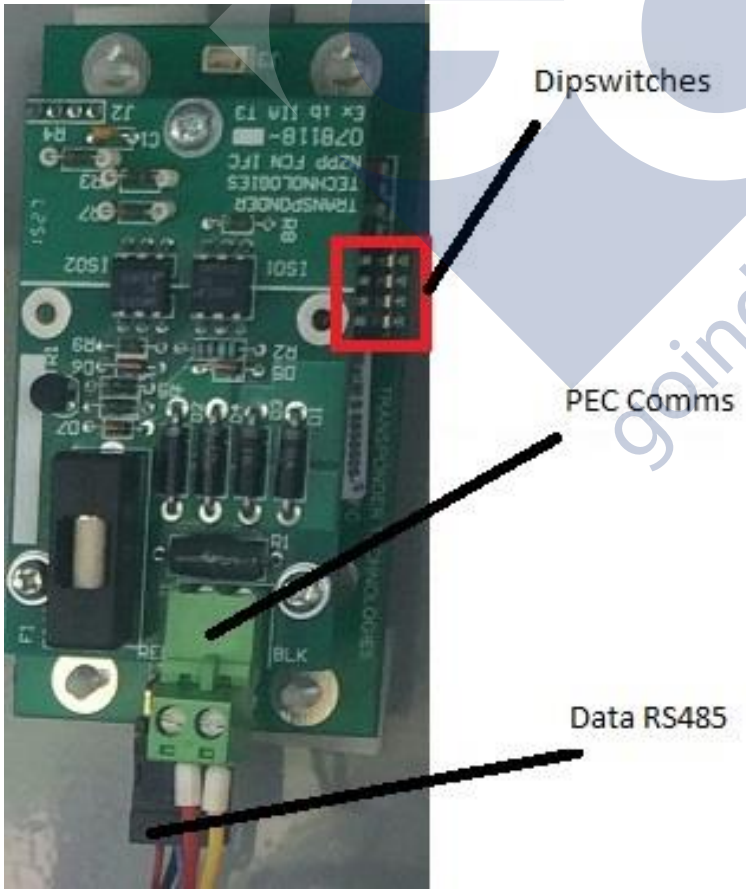
Other:
Configured PEC / Compac / NZPP 4HMPP compatible controller.

1. Power down pump.
2. If on Blue Box isolate at Blue Box.
3. Unscrew old protocol board.
4. PEC Comms
    a. Disconnect comms wire from OLD protocol board.
    b. Cut off the large white connector
    c. Ferrule each of the two wires
    d. Connect into the top green phoenix connector in the NEW protocol board
5. Power
    a. Disconnect the cable connected to CN3A from the main processor board.
    b. Cut off the 6 Way connector.
    c. Remove the cable from the cable ties looms (without cutting the ties).
    d. Disconnect at the OLD protocol board (CN2 on old Protocol board)
    e. Plug the 3 way connector into U5A on the main processor board
    f. Leave the other end free for connecting to the multiwire loom.
6. Data RS485
    a. Disconnect the cable from CN6 on the OLD protocol board.
    b. Cut the 3 way connector off the cable at that end.
    c. Remove the cable from the cable ties looms (without cutting the ties).
    d. Don't touch the connection in the main processor board at CN4.
    e. Leave the other end free for connecting to the multiwire loom.
7. Remove the OLD protocol board.
8. Protocol Board Mount
    a. Install the standoffs into the board and pull back the adhesive.
    b. Make sure the standoffs sit so the locking clip faces out so the board can be easily changed.
    c. Mount the NEW protocol board vertically, with the black loom connector to the bottom and toward the top of the space to allow the loom to be fitted.
    d. Install the loom cable.

9. Looming
    a. Cut the ferules from the multiwire loom.
    b. Wiring colours at the pump end are NOT standard. You will need to trace the cable back to the main processor board before connecting.
    c. Connect as follows:

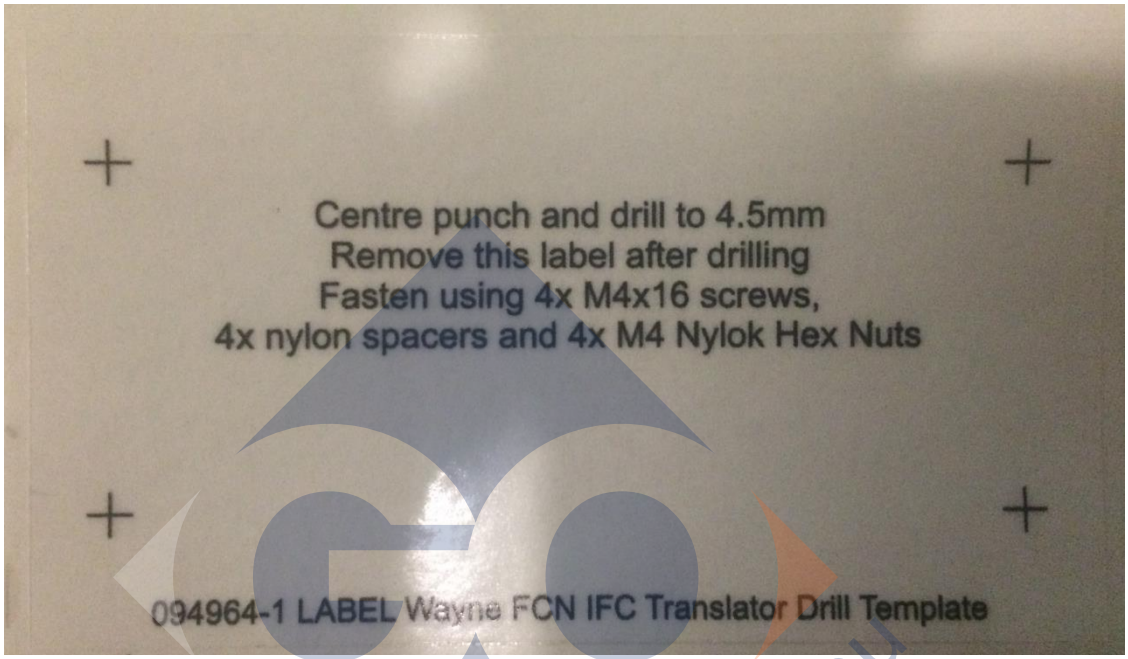
i.Multiwire Loom	i.Main Processor Board Connection
i.Red – 5V	ɣ.U5A VCC (Power)
ɣ.Blue - Ground	i.U5A GND (Power)
i.Green – RS485A	i.CN4 A (Data)
ĸ.Yellow – RS485B	ĸ.CN4 B (Data)

10. Note – scotch locks can be unreliable at times. Ensure the connections are press clamped multiple times.
11. Controller connections. Transfer wiring to new controller as required
12. Dipswitch settings. Ensure dipswitch settings are set as follows.
    a. 1 – On
    b. 2 – Off
    c. 3 – Off
    d. 4 - Off
13. Power up pump. Reverse polarity as required.



Update

a) New standoffs and template supplied allow the cover plate of the main processor board to be drilled and mount the PEC board. Observing hazardous zone requirements (generally do this outside the hazardous zone) you will need a drill and a 4.5mm steel drill bit. Stick on the template and drill accordingly.

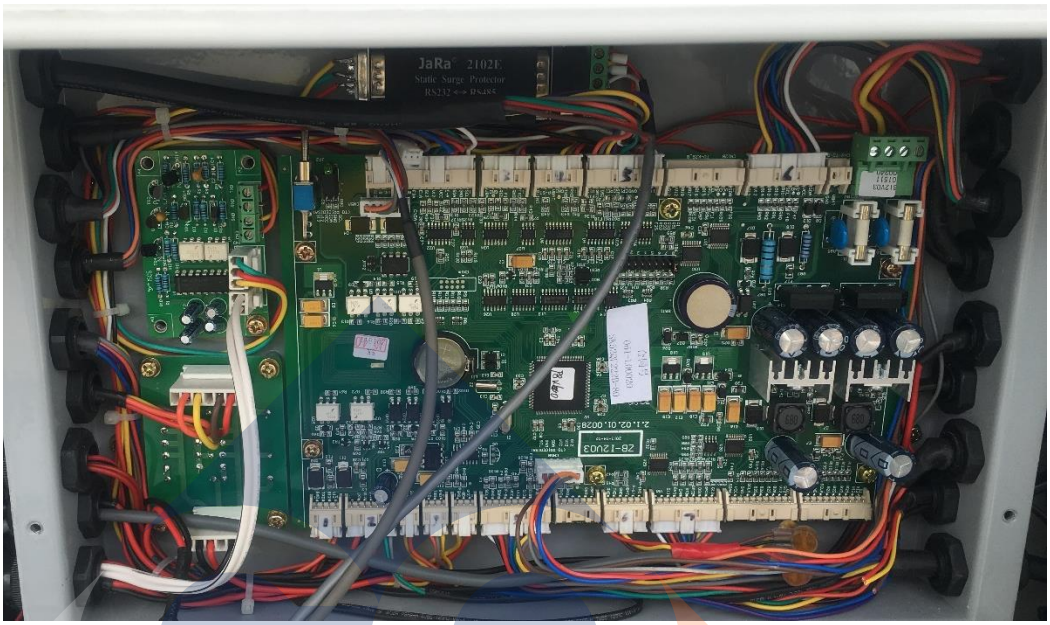


b) New PEC protocol boards now come with ready-made connectors for connection to the Sanki mainboard for U5A (Power) and CN4A (Sanki). Re-termination of the PEC-POS communications wiring is still necessary with ferules.

c) Where you are installing PEC communications onto a SK52 unit you will need to drill and grommet a hole in the face place cover of the Sanki mainboard to get the cabling through as the premade cable ends will not fit through the standard cable grommets. Suggest a 9.5mm drill bit and grommet. Alternatively slice through one of the rubber grommets on the side if there is one available.

d) Where you are installing PEC communications onto a SK52 unit with integrated Windbell ATG display you will need to make the following modifications.

   a. The U5A connection (power take off) is already being used for Windbell. Instead cut the normal U5A connection and wire it to the JaRa Converter 5V connections.



Running Sanki Communications Natively

Sanki Australia pumps will generally come with a Gilbarco protocol board fitted and wired in. This will need to be bypassed in order to run Sanki communications.

To do this:

1. Shut down the pump / dispenser.
2. Isolate at the blue box if required.
3. Remove the protocol board power cable from the protocol card and main processor. This is the connector CN3A on the main PCB and from CN2 on the Sanki Gilbarco protocol board.
4. Remove the pump comms cable from the protocol board. This is connector CN3.
5. Remove the RS485 cable at the protocol board only. This is connector CN6. It should stay connected at the Main PCB on CN4.
6. Remove the protocol board from the pump and dispenser.
7. You should now have only the CN6 and CN3 connectors
8. Chop the connectors and join the RS485 cable to the pump comms cable. The RS485 connection is polarity sensitive so you should make a temporary join first to get communications working before finalising the connection with scotch locks or similar.
9. Note – scotch locks can be unreliable at times. Ensure the connections are press clamped multiple times.
10. Test Communications with the controller.

Running Sanki Gilbarco US 485 Comms

Sanki Australia pumps will generally come with a Gilbarco protocol board fitted and wired in. This will need to be bypassed in order to run Sanki communications.

To do this:

1. Shut down the pump / dispenser.
2. Isolate at the blue box if required.
3. Remove the protocol board power cable from the protocol card and main processor. This is the connector CN3A on the main PCB and from CN2 on the Sanki Gilbarco protocol board.
4. Remove the pump comms cable from the protocol board. This is connector CN3.
5. Remove the RS485 cable at the protocol board only. This is connector CN6. It should stay connected at the Main PCB on CN4.
6. Remove the protocol board from the pump and dispenser.
7. You should now have only the CN6 and CN3 connectors
8. Chop the connectors and join the RS485 cable to the pump comms cable. The RS485 connection is polarity sensitive so you should make a temporary join first to get communications working before finalising the connection with scotch locks or similar.
9. Note – scotch locks can be unreliable at times. Ensure the connections are press clamped multiple times.
10. Go into the level 2 programming of the dispenser and choose “Global 1” as the protocol. Note that if the option of Global 1 does not appear then you need to upgrade the Sanki Mainboard software to a later version.
11. Also check that in the level 2 programming the baud rate is set to “5787”
12. Test Communications with the controller.
13. Note that this has only been tested on an Enabler console. This will not work on a Compac, TT or POSTEC controller.

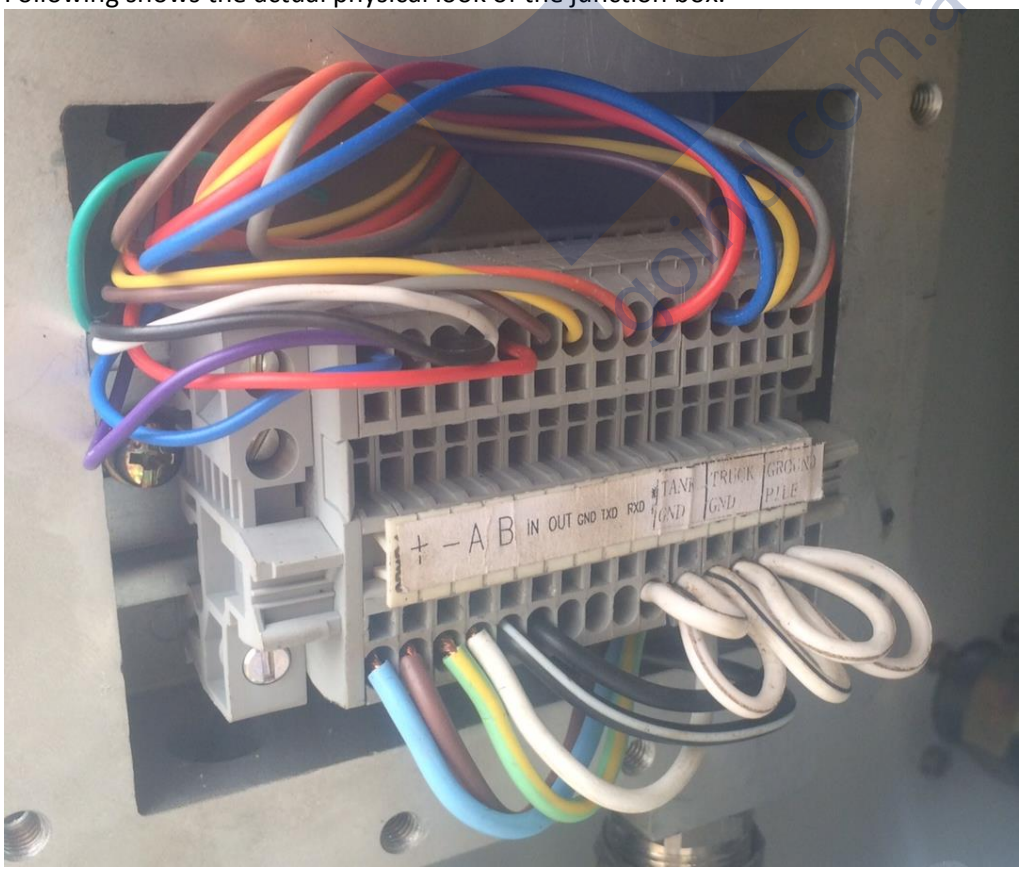
Communications Junction Box Connections

The Sanki units generally have 2 junction boxes as a result of other markets requiring separation of power and communications. Connections should be as follows:

+	Positive intrinsically safe wiring to run probe
-	Negative intrinsically safe wiring to run probe
A	RS485 probe communications leg A
B	RS485 probe communications leg B
IN	Pump controller communications wire 1
OUT	Pump controller communications wire 2
GND	RS232 local communications controller (unused) ground
TXD	RS232 local communications controller (unused) transmit
RXD	RS232 local communications controller (unused) receive
TANK GND	Grounding test point for tank (bridge out)
TRUCK GND	Grounding test point for hose (bridge out)
GROUND PILE	Grounding test point to earth (bridge out)

Notes:
Probe wiring is labelled to match flameproof box.
Local RS232 connection to local controller is not generally used.
In Australia grounding is done back to the switchboard so test points can be bridged out.
Cabling should be between 1.5 and 2mm.

Following shows the actual physical look of the junction box.



Common Issues and Resolutions

Issue	Cause	Resolution
Turbine running continuously	Electrical back feed from dispenser	Remove capacitors C1 and C4 on AC control board.
Hose 4 Finalising on wrong grade	POSTEC bug	Upgrade POSTEC firmware to version 636 – 2015 or later
Pump coming up with "Pump In Use" error when trying to authorise with DCA / OPT	Faulty Comms	Insert 330 Ohm resistor into current loop if running Gilbarco Replace faulty Gilbarco protocol board Check 12V voltage is within tolerance. Wrong type of pump in DCA configuration.
111 Error	No communications with controller	Trace back connection with POS equipment from RS485 port on main board Check standing pump programming has been done.
102 Error	Battery Error	Replace battery.
Sale not finalising on console	Pump in standalone	Reconfigure pump / dispenser
Membrane preset not working	Customer training Wrong Software version Jumper set incorrectly	Ensure customer entering preset BEFORE picking up nozzle. Upgrade mainboard software to version SK97V529 or later Set jumper 1 on JP1 on main processor to on.
Programming preset not working	Jumper set incorrectly	Clear any jumpers on JP1, jumper 1.
101 error	Nozzle not hung up Nozzle Switch IS Barrier	Reseat nozzles as required Replace Nozzle Switch Replace IS Barrier
$ Preset coming up in Litre field	Wrong software loaded	Upgrade mainboard software to version SK97V529 or later
CPL Displays not blanking unused grade prices when sale in progress	Miscabled	Swap the cables between CN5A and CN5B. May be reversed.
Continuous beep on boot up	Protocol board wiring wrong	Switch wiring between CN2 and CN6 on protocol board.
Hose grade pricing wrong	Console configuration Jumper settings wrong on CPL displays Pump numbering reversed	Rectify controller configuration. Rectify Jumper settings Correct pump numbering

Decimal Places Wrong	Incorrect Configuration	Modify in Level 3 configuration. 2CPL for Sale and dollar, 1 CPL for price.
Earthing Errors	Earthing Connections	Bridge all earthing connections in junction box together.
No Power to Displays	Blown fuses E-Stop No incoming power Transformer Issue	Check fuses on mainboard Reset E-stops on pumps and on site. Check switchboard and ensure power to AC control boards. Replace Transformer
Authorisation but no product flow	Solenoid Fuses Motor (Pump) Dispenser Site	Replace Solenoid Check AC Control board fuses Check motor Check Relay, Turbine and line leak detection Check switch on mainboard faces toward back of board. Check key switch for accessing level 3 menu is in the correct position
Flow stops at 1000L	Protocol limitation	If running Gilbarco protocol this is the maximum that can be achieved. If running PEC investigate controller limitations.
Probe reading zero	Configuration Issue	Probe ID incorrectly set. Note this can happen after a software upgrade
Pump not drawing on a suction system	Valve Line Issue Pump adjustment Flexi Leak	Ensure all valves open. Check flexi gasket Test Lines / check tank valves Adjust vacuum screw under spindle cap Replace flexi
Pumps responding on console when they are turned off	Software Issue	Software needs to be updated to SK97V5.30 or later.
Pump sales disappear off pump display shortly after pump finalisation	POS Issue Hoses too long	POS needs to be set for multiproduct for single hose pumps / dispensers running PEC protocol. POS is in auto authorise and hose may “bounce” clearing the sale from the pump but leaving it on the console
PEC Pumps not going over $1000 on colsole	Console Issue on POSTEC	Dispenser needs to be set to Special Setting 2
Intermittent Drop Outs on console if hose not started	Console Issue on POSTEC	Dispenser needs to be set to Special Setting 2

Intermittent sale drop outs during delivery on Compac Comtank	Comms cable interference	Replace comms cabling with a shielded cable from pump to controller.
Multiple motors start when nozzle lifted	AC Control Board Configuration	Check jumper settings on all AC control boards.
Pump works correctly but motor doesn't start	Configuration issue AC Control Board Cable	Toggle switch set outward rather than inward. Check fuses, jumper settings, power from AC Control board. Check mainboard to AC control board cable.
Multiple motors start when nozzle lifted	AC Control Board Configuration	Check jumper settings on all AC control boards.
Incorrect CPL Display	Controller Issue Wrong CPL Display Jumpers	Rectify Controller Configuration Correct Jumpers
Wrong Values On Customer Preset	Mainboard jumpers wrong	Jumper 1 on mainboard needs to be set
Meter Creep – Display increasing with nozzle unclicked	Air in line being compressed	Check where pipework enters pump for air leak. Replace gaskets / flexi's.
Slow dispense and no display update	Faulty Encoder Faulty AC Control Board Faulty Wiring	Replace encoder. Replace AC Control Board Check and adjust wiring
Intermittent Comms issues across more than 1 grade but not more than 1 side	Faulty Encoder	Replace encoder
Sale disappears from pump after hangup but appears inside ok.	Wrong POS configuration	Setup as MPD in POS

Modem Configuration

Following is a guide for programming modems for installation in Sanki dispensers running a Windbell automatic tank gauge integration.

Required:

- 1x Laptop. Preferably Windows 7 32bit.
- 1x late modem as confirmed by China. No visible indications of version.
- 1x USB – COM Port adaptor. Identify COM port number via device manager.
- 1x Modem cable. Should come supplied with modem. DB9F connector at both ends.
- 1x Software. SSCOM32. The only confirmed working version is V3.2 – other versions will probably work but they have not been tested on.
- 1x SIM card capable of gaining signal in the environment being used and capable of SMS
- 1x old style 3G phone capable of taking large SIM card.
- 1x another phone to confirm receipt of SMS messages.
- Phone numbers to SMS the messages to.
- These instructions.

Hardware Setup

1. Firstly insert the SIM card to be used into the old style 3G phone. Ensure that it is able to send and receive SMS messages before progressing further. Sometimes the service can take 4-8 hours to activate. Don't try it in the modem until it is confirmed working in a phone.
2. Identify the service number that the SIM card to be used has. Take a copy of this and any other numbers on the card down to prevent issues later. A quick photo is a good idea here.
3. With the modem switched off install the sim card into the appropriate tray in the modem. Metal contacts should face upward.
4. Connect all cabling to modem – aerial, data and power cables.
5. Power up modem.

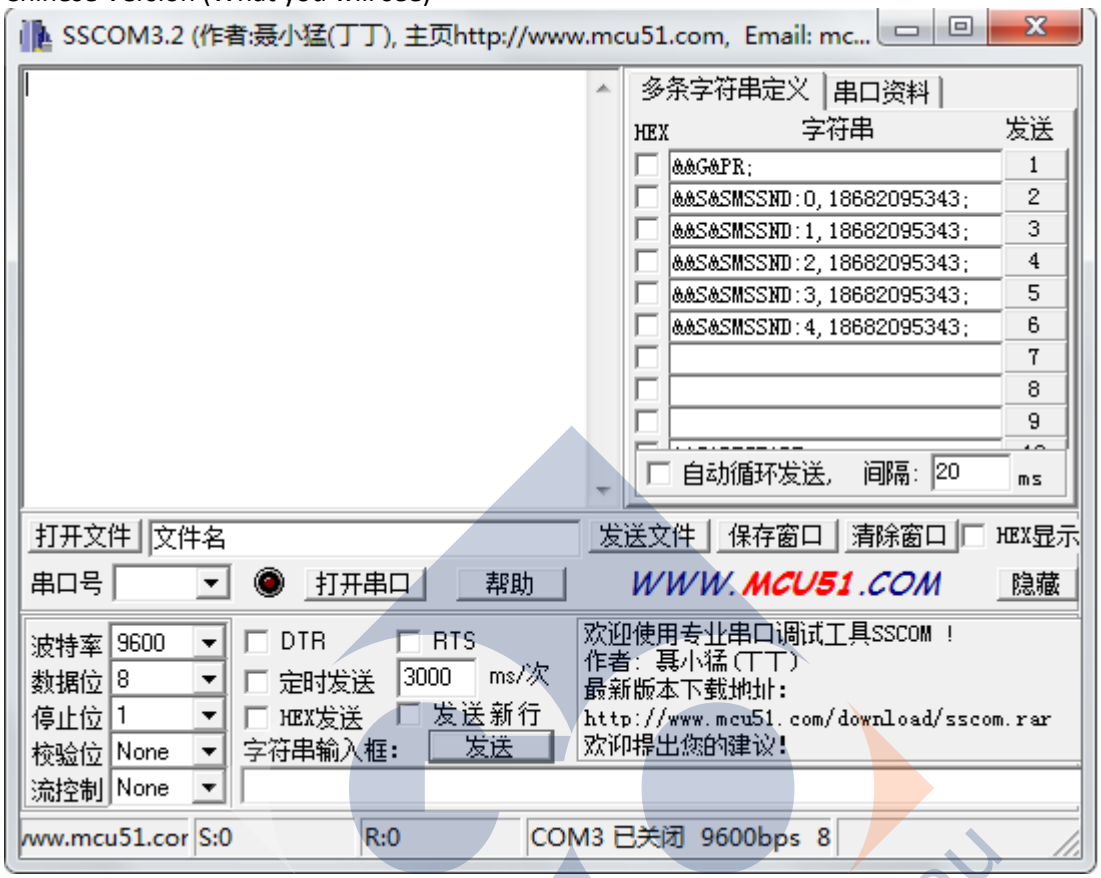
Software Setup

We now move to the software configuration. Be aware that the software is in Chinese and is very difficult to work out. Before we start on this section I've added a couple of screenshots.

The Chinese one is what you will see and need to work with.

The English one you can use for translation so that you can press the right buttons.

Chinese Version (What you will see)



English Version (Translation)

6. Start the SSCOM3.2 Application.
7. Ensure the COM port is set correctly to the COM port identified earlier.
8. Ensure the communication settings are correct:
    a. Baud: 9600
    b. Data: 8
    c. Stop: 1
    d. Verify: None
    e. Flow Control: None
9. Toggle the CloseCom button and ensure the radio light is red.
10. Click on the EXT button. This should give you the list of SMS numbers.

Setting the SMS numbers

These lines should give you the SMS command and ID number for setting the numbers to SMS an alarm to. Syntax as follows:

- To get what is currently stored in the modem:
    - &&G&PR;
- To set a new number into the modem:
    - &&S&SMSSND:<X>, <NNNNNNNNNN>;
    - Where <X> is the alarm number receipt (0, 1, 2, or 3) and <NNNNNNNNNN> is the phone number to send the SMS alarm to.
    - For example:
        - &&S&SMSSND:0, 0499055808; Sets alarm recipient 1 to receive messages and their phone number is 0499 055 808.

11. Modify the phone numbers in lines 2,3,4,5 & 6 to reflect the numbers you want the alarms to go to.
12. Click on each line ID number (2 thru 5) in turn to program the numbers into the modem.
13. Click on line 10 to reboot the modem. We need to test that the numbers are securely stored in the unit.
14. Click on line 1 to check the programming. The dialog window should show what has been accepted by the modem.

Testing the modem SMS communications

15. On the bottom line is the option to send a message. Type in a message and hit the send button. You should receive an SMS with what you have typed.
16. Reply to this message with one of the phones you have SMS'd. The responding message should appear in the dialog window.

At this point the modem is programmed and ready for installation.

Modem Installation & Wiring

The modem is used in conjunction with the Windbell probe interface to send back ATG figures at a set time or on demand via SMS. To request a tank dip simply SMS “1002” to the phone number of the SIM card installed in the modem.

Prerequisites

1. SIM Card. A working SIM card must be installed into the modem correctly.
2. Modem. A second generation modem as confirmed by China. One that responds to the SSCOM32 software.
3. Programming. The following assumes the modem has been preconfigured with the required numbers and tested accordingly.
4. Signal. These units are typically installed in a shipping container style configuration and as such require an external aerial to be fitted to ensure a reliable signal.
5. Pump software. Software needs to be SK98V403 or later. This allows the modem to work, the infill pump button to work and the tank sizes to be set.

Menu Listing

a) 234 – Tank Dimensions. The probe sends back a level in mm. This is required to allow the correct calculation of litres from the tank level. Height, width and depth are accessible from this menu option.

b) 235 – Send Time. The unit can be configured to automatically SMS the volume at a set time. The menu option allows that entry. Ensure you enter the time in 24 hour format – including leading zeroes where required.

c) 15 – Time. The send time is based off what time the pump thinks it is so the time must be correct. This needs to be set in the following 24 hour format: YYYYMMDDHHMMSSW.
   a. YYYY – Year
   b. MM – Month
   c. DD – Day
   d. HH – Hour (24 hour format)
   e. SS – Seconds
   f. W – Day of week where Sunday is 0, Monday is 1 etc.

d) 214 – Printer On / Off. The Modem uses the second printer port as its communications port so the printer should be set to off.

e) 225 – Probe serial number ID. All probes prefix their messaging with their serial number. The Windbell gauge and the Sanki unit will only accept input from a probe with this number. Note that this can sometimes be overwritten if there is a software upgrade. If you are getting a zero value this is the first thing to check.

f) 229 – Adjustment. You can use this to fine tune the ATG strapping table levels as required.

g) 226 – Earth. Switchboards in Australia are where everything earths back to so you can turn these settings off and / or bridge out the connections.

Required

Tools and consumables required will vary dependent on what you encounter when onsite but should include the following:

Tools

- Phillips head screwdriver
- Sidecutters
- Soldering Iron (Gas)
- Wire strippers
- Cable strippers
- Ferule crimping tool
- Blunt nose pliers
- Drill
- Driver
- Drill bits (for aerial feed)
- Vice

Consumables

- Solder
- DB9F
- DB9 Backshell
- Gelcaps (6)
- Grommets for aerial feed

Modem

- Aerial and connectors (Suitable for environment)
- 6 Pin locking pin plug suitable for plugging in to CN2B
- 300 – 400 mm 3-4 core data cable with crimped ends to suit the above.
- 300 – 400 mm 1 pair cable with end suitable for plugging into modem power socket on modem and power source.

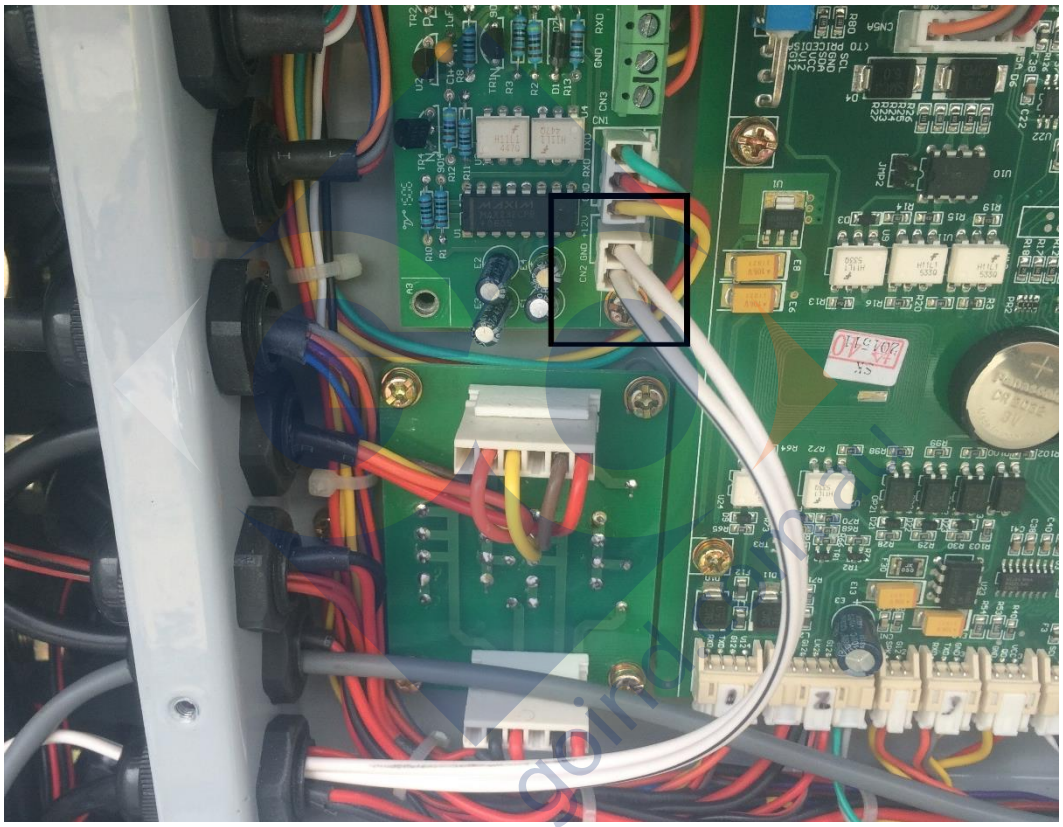
Steps

1. Program up all configuration settings to ensure that
    a. Windbell ATG is working
    b. Readings are correct
    c. Transmission and unit times are correct.

2. Turn off Sanki unit.

3. Remove cover from main processor board.

4. Identify a 9-36VDC power source similar to the below. CN2 is shown below is one that has been used before.



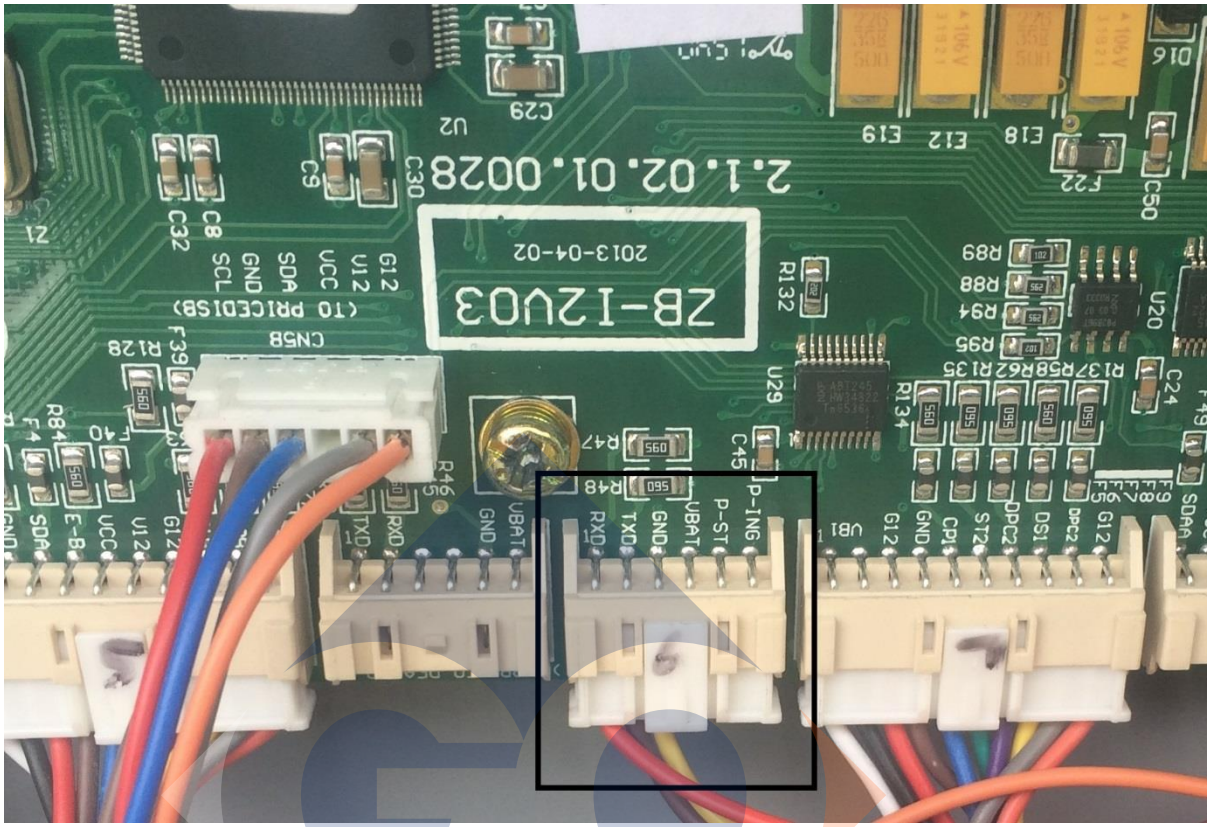
5. Run the power cable for the modem through the grommet and connect on to the power source with the relevant connectors as required.

6. Connect into the modem with the round connector. Power component is now complete.

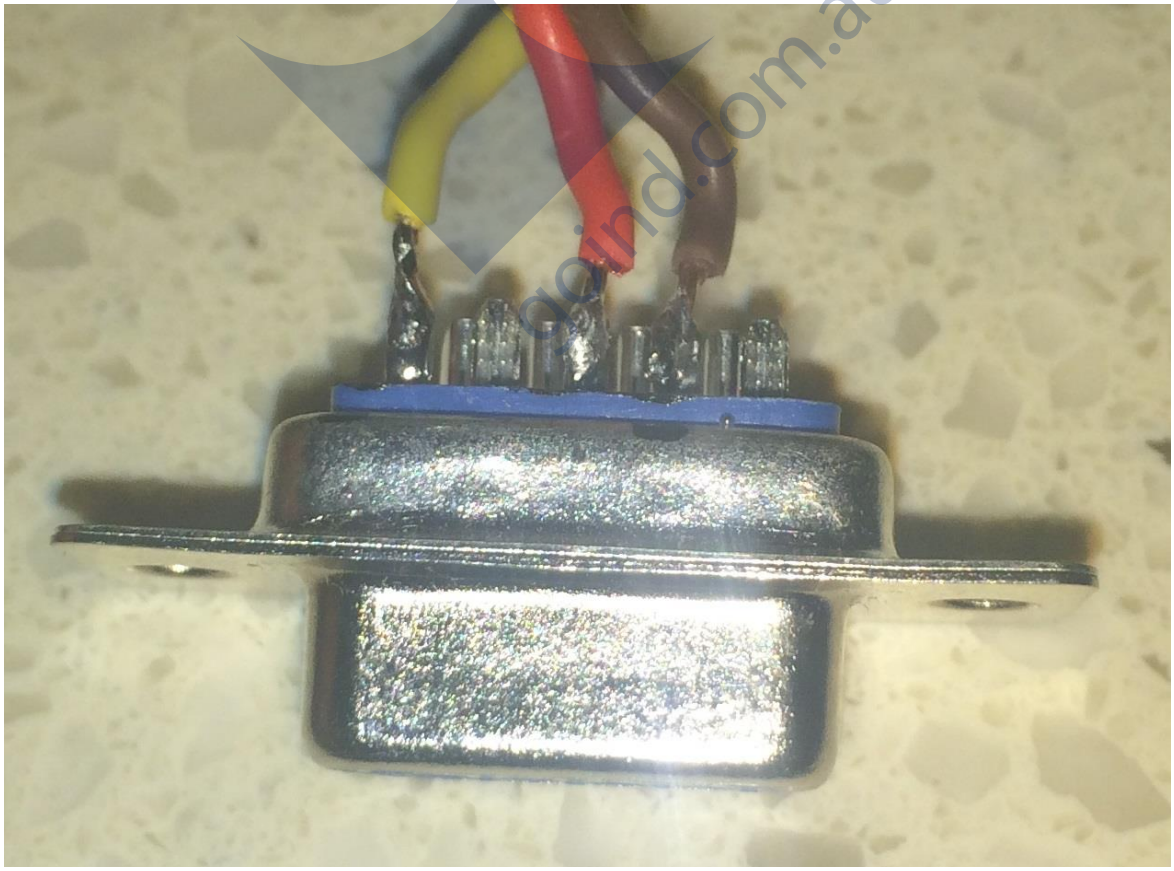
7. Run the cabling through for the data. The cable needs to go from CN2B on the main board to a DB9F outside the box to plug into the modem. Specs are as follows:

Modem DB9F Pin	CN2B Port Pin	Standard Colour
3	1	Red
2	2	Brown
5	3	Yellow

8. The clip on CN2B should face out and the numbering is from left to right. See below photo.



9. The DB9 wires up as follows. Once soldered up shell the connector appropriately.



10. Connect the DB9F (Data), Aerial and power (if not already done so) to the modem.
11. Mount the modem against the inside of the Sanki unit taking care to ensure that door movement will not pinch or strain the cabling. Example below.

12. Power on the dispenser and check that the ATG is working correctly.
13. Run a test SMS – "1002" to the phone number of the unit and ensure the recipients programmed in receive the correct volume as displayed by the Windbell unit.

Modem Light Diagnostics

Link –
1.5 On 0.5 off = Strong Signal
0.5 On 0.5 off = Medium Signal
0.5 On 1.5 off = Weak Signal

Net – Successful connection to mobile network

Act –
1.5 On 1.5 Off = Normal operation
0.2 On 0.2 Off = Modem transmit / receive

Changing Pump & Protocol Board Software

Over time additional functionality and bug fixes are provided for the Sanki dispensers. The following does not attempt to list which version should be used but simply to provide the method for changing these versions.

Required:

- 1x Laptop. Preferably Windows 7 32bit.
- 1x USB – COM Port adaptor. Identify COM port number via device manager.
- 1x DB9F to Sanki 3 pin cable. This needs to come from Sanki / pump supplier.
- 1x Software. Flashmagic version 9.20. This is the only confirmed working version. Other versions will probably work but they have not been tested on.
- Pump software or protocol board software. This needs to come from Sanki / pump supplier.
- These instructions.

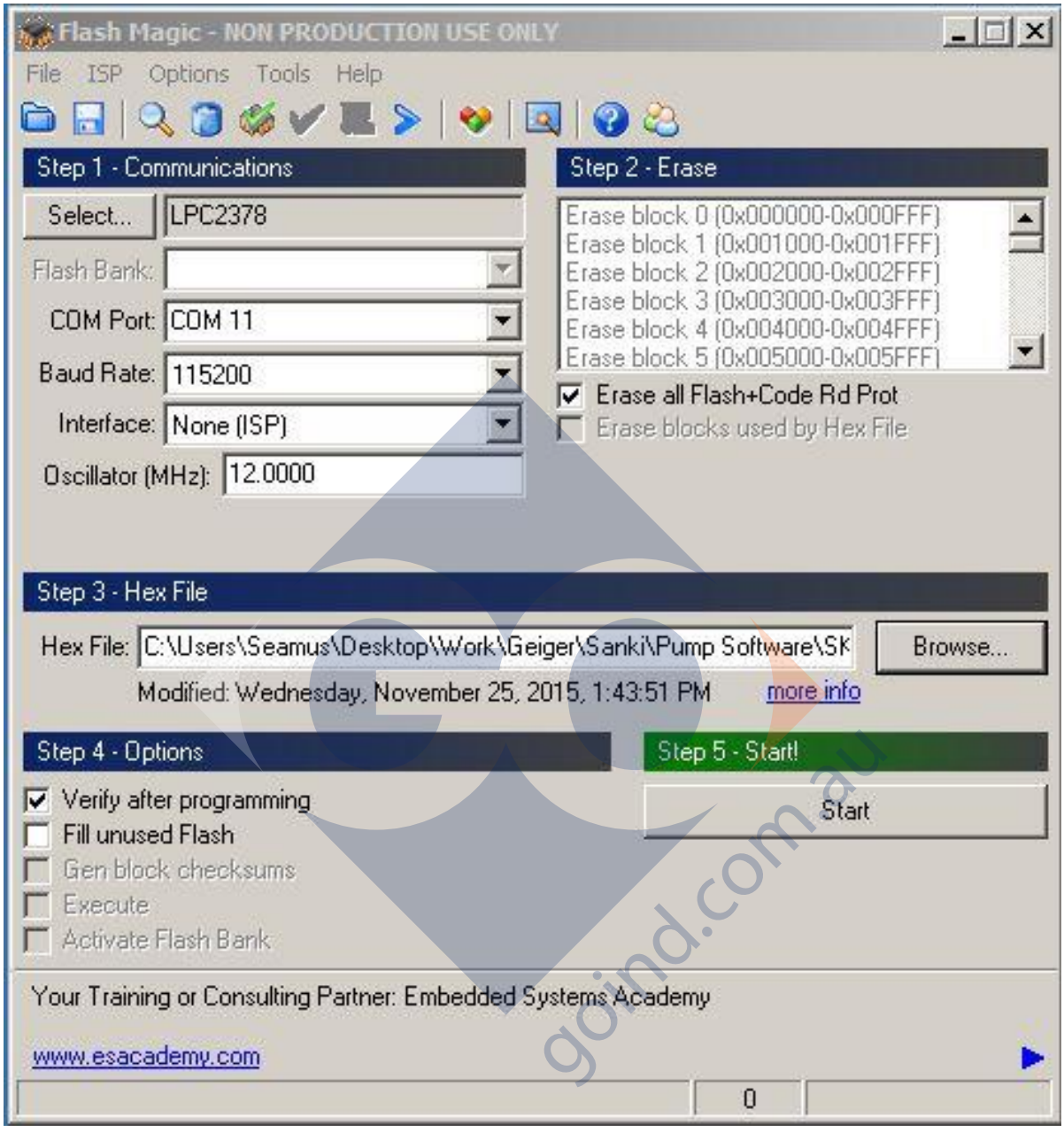
Initial Setup

The very first time you do this you need to configure the base communication settings. Following are the steps required and a screenshot of what we are trying to achieve.

Initial Configuration

1. Install your USB – Serial adaptor. Make sure you know what COM port it is emulating. Do not connect it to the pump yet.
2. Install the FlashMagic program to your laptop. Just use the standard defaults.
3. Start the Flashmagic program. Modify the following settings.
    a. Set the processor type
        i. Click on the Select Button.
        ii. Use the sidebar to scroll all the way to the top to the ARM 7 Container
        iii. Click on the plus sign to expand
        iv. Scroll back down to LPC2378
        v. Select and click OK.
    b. Set the COM Port
        i. Choose the COM Port from the drop down. It should be the one you identified earlier.
    c. Select the Baud rate.
        i. From the drop down choose 115200
    d. Interface
        i. Leave the Interface at None (ISP)
    e. Oscillator
        i. Set to 12.0000
    f. Set the Erase options
        i. Check “Erase all Flash+Code Rd Prot”
    g. Set the Post programming Options
        i. Check “Verify after programming” only

These are the base settings required to reprogram any pump or protocol board.



Subsequent Setup

After the initial setup the base configuration will be retained by the application. Following are the steps to do thereafter.

1. Ensure the USB – Serial adaptor is installed and the COM port being emulated is identified.
2. Do not connect the cable to the pump.
3. Start Flash Magic.
4. Browse to the hex file required. For
    a. MPP / MPD / Standard retail units (Mainboard) they will be labelled in the format SK97V5xx (where xx is the version revision)
    b. Windbell integrated Diesel Hi Flow Units (Mainboard) they will be labelled in the format SK98Vxxx (where xx is the version revision)
    c. Gilbarco Protocol Boards they will be labelled in the format in the format GilbarcoInterface-v1.xx.hex (where xx is the version revision)
5. Turn the Sanki unit off.
6. Set the programming jumpers
    a. Note the current pin positions.
    b. Ensure the BOOT pins are bridged
    c. Ensure the REST pins are not bridged
7. Connect the programming cable from the programming port on either the protocol board or main processor board (whichever you are upgrading) to the USB – Serial adaptor.
    a. Port CN12 on the Main Processor Board
    b. Port CN5 on the Gilbarco Protocol Board
8. Click on Start. It will take a while before you see any activity or change on the screen.
9. Once the programming and verifying is complete the footer bar of the application will notify you accordingly.
10. Do not disconnect in the middle of programming. It can render the board useless and unrecoverable.
11. Once complete power off the pump.
12. Reset the jumpers.
13. Restart the pump / dispenser.
14. Note that your pump settings are stored in a different section of the pump. The only time you need to re-enter settings following an upgrade is if they were not set beforehand or the option to set them was not available also.

Individual Pump Monitoring

For pumps running a Sanki Gilbarco protocol board there is an option to running logging to a laptop from this board using an application called putty. Please note that there is no option to do this with any other protocol.

The following assumes that you have:

- 1x Laptop. Preferably Windows 7 32bit.
- 1x USB – COM Port adaptor. Identify COM port number via device manager.
- 1x DB9F to Sanki 3 pin cable. This needs to come from Sanki / pump supplier.
- 1x Software. Putty version 0.64. This is the only confirmed working version. Other versions will probably work but they have not been tested on.
- These instructions.

Initial Setup

The very first time you do this you need to configure the base communication settings. Following are the steps required and a screenshot of what we are trying to achieve.

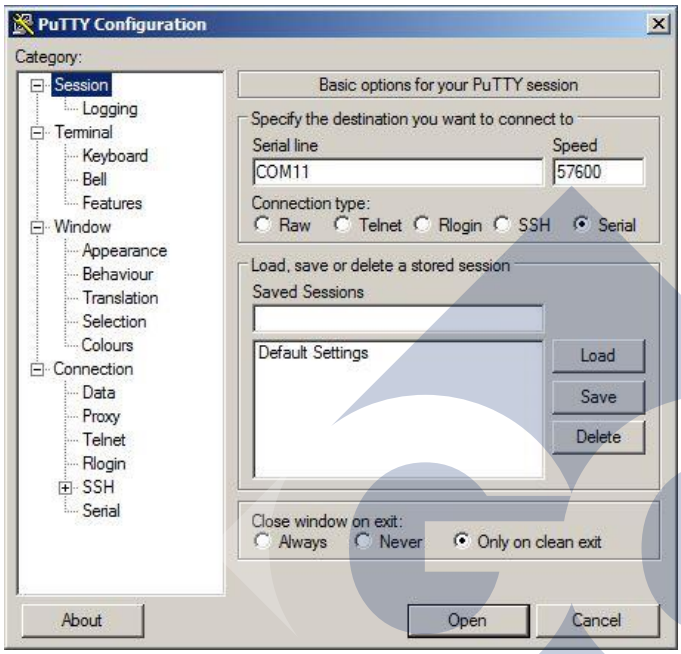
Initial Configuration

1. Install your USB – Serial adaptor. Make sure you know what COM port it is emulating. Do not connect it to the pump yet.
2. Start the Putty program. Modify the following settings.
    a. On session
        i. Set the COM number to the one determined earlier
        ii. Ensure you have the Serial radio field selected.
        iii. Click on logging
            1. Set session logging to “All session output”
            2. In the Log file name click on browse and make sure the file saves on the desktop so that you have ready access to it. Leave the file name as putty.log
            3. For existing logs change the radio field to “Always overwrite it”
            4. Uncheck flush log file frequently
    b. On connection
        i. Click on Serial
        ii. Set the Speed (Baud rate) to 57600
        iii. Set the Data bits to 8
        iv. Set the Stop bits to 1
        v. Set the Parity to NONE
        vi. Set the Flow control to NONE
    c. Click back on session
        i. Click on Default Settings
        ii. Click on Save
3. Exit putty by hitting the Cancel button
4. Re-enter putty and ensure the settings has saved as you have entered them

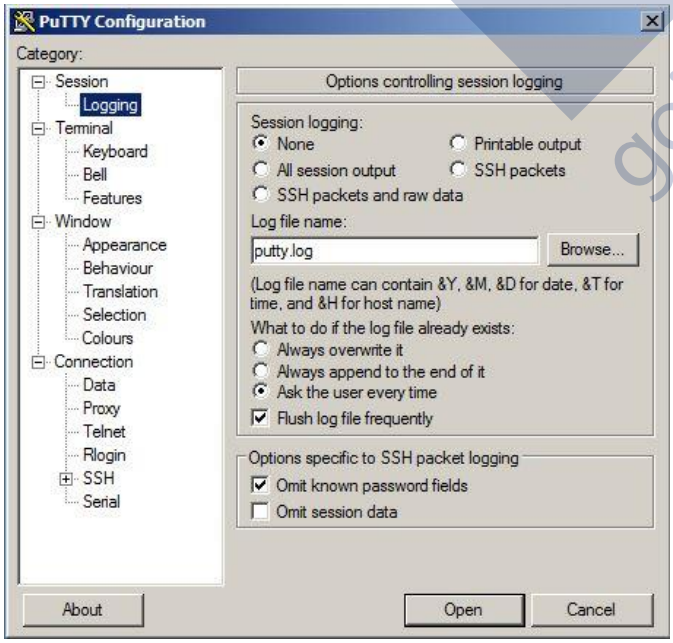
Subsequent Setup

From now on these settings will remain. Just make sure you ALWAYS plug the USB to serial adaptor into the same port each time or the COM port number will change and communication will fail. Screenshots for the putty screens follow. Other than the COM setting (unique to your laptop) all other setting should be identical.

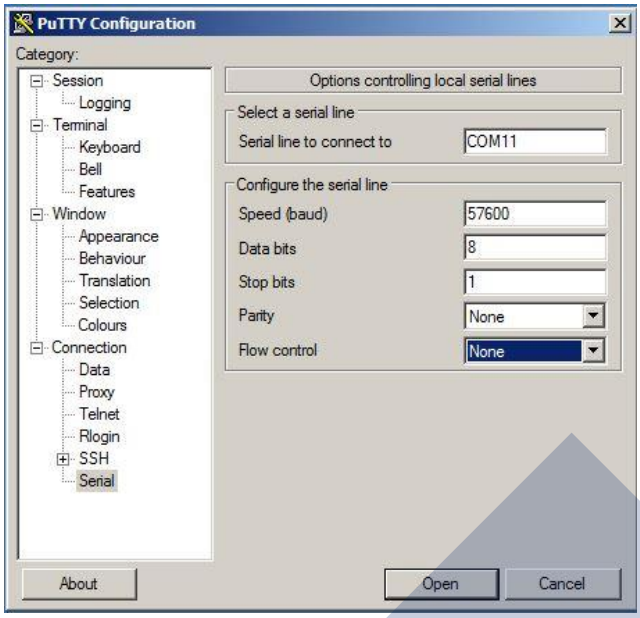
Putty Session



Putty Session Logging



Putty Connection Serial



Putty Logging Window

Running Testing

The application will display a live running log of messaging which as well as saving it to a log.

Some of the information will be easily readable some will be machine code. The most import things to be aware of are the following:

- On power up of the pump / dispenser the protocol board will indicate
  - The pump numbering it has been physically set for.
  - It's software version
- This is a very handy thing to capture so it is recommended that you start putty BEFORE you start the pump. That way you can capture it as the log moves pretty quickly

Setting Up for Testing

1. Shut down the pump or dispenser.
2. Start up the laptop.
3. Get the USB to serial cable connected and installed.
4. Connect the serial cable to the pump protocol board on CN5 (same on used on protocol software upgrades)
5. Start up putty.
6. Start pump / dispenser.
7. When done, simply close putty and disconnect cables.
8. Review logs as required.

Note that this is a good thing to do after:

a) Replacing a protocol board

b) Upgrading a protocol board

c) Commissioning a new pump

Interpreting Results

When examining the messaging:

++ Indicates a message that was received from a controller (POSTEC / DCA / Enabler etc.). In effect communications external to the pump appear to be sound.

-- Indicates a message that was an interaction between the Sanki mainboard and the protocol board. In effect the pump can see the protocol board and communications inside the pump are sound.

An example of a log follows:

```
=~=~=~=~=~=~=~=~=~=~=~= PuTTY log 2015.08.13 12:46:52 =~=~=~=~=~=~=~=~=~=~=~=~=
Sanki Australia to Gilbarco Australia Converter
Version 1.01
Device 1 Address 2
Device 2 Address 1
++ ==> 07
++ Not For Us
++ ==> 08
++ Not For Us
++ ==> 09
++ Not For Us
++ ==> 0a
++ Not For Us
++ ==> 0b
++ Not For Us
++ ==> 0c
++ Not For Us
++ ==> 0d
++ Not For Us
++ ==> 0e
++ Not For Us
++ ==> 0f
++ Not For Us
++ ==> 00
++ Not For Us
++ ==> 02
++ Not responding
++ ==> 03
++ Not For Us
++ ==> 63
++ Not For Us
++ ==> 04
++ Not For Us
++ ==> 64
++ Not For Us
++ ==> 05
++ Not For Us
++ ==> 06
++ Not For Us
-- => Pump didn't respond to poll.
-- Polling Device 2 (Address 1) - State 0
-- Transmitting 1-byte Message: 10 02 30 31 40 14 6f 10 03
++ ==> 01
++ Not responding
++ ==> 01
++ Not responding
-- => Pump didn't respond to poll.
-- Polling Device 1 (Address 2) - State 0
-- Transmitting 1-byte Message: 10 02 30 32 40 14 9f 10 03
-- Received 11-byte Message: 10 02 30 32 40 30 31 9a bc 10 03
-- Processing 11-Byte Message for Device 1
-- Status Response
-- NozzByte 30 == ActiveProduct 0
```

```
-- Status: 31
-- =========> Device 1 Setting Internal FP State 1, was 0
++ Gilbarco Got State Change: Device 1 State 1
++ Gilbarco Device Status ff, ff
++ ==> 01
++ Not responding
-- Polling Device 2 (Address 1) - State 0
-- Transmitting 1-byte Message: 10 02 30 31 40 14 6f 10 03
-- Received 11-byte Message: 10 02 30 31 40 30 31 9a f8 10 03
-- Processing 11-Byte Message for Device 2
-- Status Response
-- NozzByte 30 == ActiveProduct 0
-- Status: 31
-- =========> Device 2 Setting Internal FP State 1, was 0
++ Gilbarco Got State Change: Device 2 State 1
++ Gilbarco Device Status ff, ff
++ ==> 01
++ Not responding
-- Polling Device 1 (Address 2) - State 1
-- Transmitting 1-byte Message: 10 02 30 32 50 15 53 10 03
++ ==> 01
++ Not responding
-- Received 13-byte Message: 10 02 30 32 50 31 32 32 31 8f 9a 10 03
-- Processing 13-Byte Message for Device 1
-- CONFIG: 1 Nozzles, 2 Money DP, 2 Volume DP, 1 Unit Price DP
-- CONFIG: Unit Price DP is 1, assuming cents
-- =========> Device 1 Setting Internal FP State 2, w
```

The above log allows you to see:

1. Pump is configured as pump 1 & 2.
2. Protocol software version loaded on the board is 1.01
3. Side A is set to 2 and side B is set to 1.
4. The protocol board can see the controller.
5. The protocol board can see the pump it is attached to.
6. The controller is looking for many pumps not just ours.
7. Pump is starting to go into price change mode and is setting up its decimal places etc.

Current Software

There are 2 main version branches in use in Australia:

1. SK97Vxxx. This version is primarily for retail sites that do NOT have a Windbell integration. The version that should be used is **SK97V531.hex.** This supports:
    a. Membrane presets
    b. Preset displays in the $ display
    c. PEC protocol numbers above 10.
2. SK98xxx. This version is primarily for Tank / Pump units that have a Windbell integration. The version that should be used here is **SK98V403.hex.** This supports:
    a. ATG Integration units
    b. Infill pump buttons
    c. Tank size modification

If you have a version earlier than this contact your supplier for rectification process.

Setting up a Compac DCA / OPT with Gilbarco Communications

Setting up a Compac DCA on Gilbarco can be a little complicated so following is a summary of the considerations.

DCA / OPT

1. Before even visiting site make sure that the DCA / OPT has a Gilbarco board manufactured after November 2015. The DCA will not talk to a Sanki or late model Gilbarco MPP/ MPD unit otherwise.
2. Also ensure that the chip installed in the mainboard of the DCA is late enough to support Gilbarco comms without needing to be changed.
3. This Compac Gilbarco board has a large capacitor that stores a significant amount of charge. Be very careful NOT to earth the capacitor in any way. Ensure the board is stepped off the inside of the cabinet and if putting it down anywhere make sure it is not on a metal or conductive surface.
4. The Compac Gilbarco board runs 240V. Ensure you isolate before working on.
5. Dipswitches need to be set to allow the Gilbarco channel to work. Dipswitch 1 or 2 should be on.
6. There needs to be a loom from the DCA/OPT mainboard on Port 4 TTL to the COM 3 TTL port on the Gilbarco board.
7. Communications connect on the 2 connections furthest from the centre of the board.
8. The DCA pump configuration needs to be set for
    a. HILINE – NOT MPD.
    b. Channel 2 – Gilbarco
    c. Polling and Pump Id's need to match
    d. The hose configuration points to a group number not a grade number. Make sure you check the full configuration as there are often multiple diesel grades and you may change the wrong one during testing.
9. **DCA needs to be rebooted after pump changes – Even if Compac say otherwise**.
10. You cannot make configuration changes directly on an OPT – only on a DCA. You need to use Compac online to make the changes on an OPT.
11. DCA access password is 536095.

Sanki

1. You will need to be running 1.09 or later on your Sanki Gilbarco interface board.
2. You will need to install a 330 Ohm resistor in the loop at some point.
3. Communications are polarity sensitive as always.
4. If running multiple units you will need a blue box. The blue box if installed is the ideal location for the 330ohm resistor.
5. Ensure that there are only 3 connections on the Gilbarco interface board. Any kind of current draw additionally taken from the board will stop communications.
6. Make sure that the jumpers and programming match on the Sanki Gilbarco board.

Testing

1. TX4 Lights (Generally the top of the DCA mainboard) are an excellent source of diagnostic information. If they are
    a. Solid red. There is no connection between the Sanki and DCA
    b. Polling simultaneously and regularly then look at the resistor or Gilbarco board.
    c. Polling irregularly then and in both directions then communications should be established.
2. Price changes through the DCA are the best quick test of communications. Note that you need to leave the price line in the grade table for the price to send.
3. Compac online have problems occasionally on pump 2 when updating prices initially. This needs to be rectified at their end. To test simply perform the price change via the grade pricing. If it works then it is an issue with the database at their end.
4. If converting from a Techalimit configuration review the connections in the junction box. The Techalimit configuration taps in on the pulser/encoder communications. This means that you will get erroneous connection lights on the Compac mainboard as a loop will be maintained. Comms will however be going to the pulser instead of the mainboard and it will effectively not work.

Setting up a Techalamit with a Sanki

Tested Environment

- Dispenser (SK10)
- Turbine
- Techalimit Console
- Techalimit and Dispenser both showing correct values

Connections

Connection Type	Techalimit	Sanki	Notes
Turbine	Yes	No	Wire from Techalimit to contactor to turbine.
Pulser / Encoder	Yes	Yes	Encoder signal doubles up on standard Sanki connection to AC Control Board. Sanki uses 4 wires, Techalimit 2. Techalimit plug in on IN1 (Yellow) and G12 (Black)
Nozzle Switch	Yes	Yes	You cannot run both in parallel as they conflict. Sanki Nozzle switch goes in as normal. Techalimit goes into motor switch port A contacts. Ensure that no power is fed to the motor switch ports on the AC Control board and any wires previously connected there are safely disconnected and terminated.
Solenoid *	Yes	No	Wire from Techalimit head to the solenoid. For all except Adblue needs a 240VAC feed if using solenoid in dispenser. For Adblue needs 24VDC feed.

Notes

- Techalimit is not capable of understanding comms so a more rudimentary configuration is required with direct access to dispenser and electrical components.
- It is best to calibrate the dispenser to the Techalimit value as that will be the one that electronic figures are extracted from.
- Nozzle Switches operate in a NORMALLY OPEN configuration when hung up. They move to a NORMALLY CLOSED configuration when lifted.
- Sanki Unit should be in standalone.
- * It is untested as to whether you can have the Sanki controlling the solenoids. In theory it should be fine but has not been tested.

Error Codes

Code	Causes	Actions to Clear the Alarm
101	The Nozzle is not properly placed into boot.	Put back the nozzle into the boot properly.
	Time between the Nozzle OFF and ON again is less than 1 second.	Put back the nozzle into the boot properly.
	Multiple nozzles are out of the boot/ON at the same time.	Put back the nozzle into the boot properly. Just take out one nozzle at one time.
	In the delivery process, there is another nozzle was taken out, and when the delivery finished, and put back the nozzle, this will be reported as an alarm.	Put back the nozzle into the boot properly.
102	Read the battery backup memory failure.	Check and fix the hardware.
	Power down memory failure	Check and fix the hardware.
103	The service is over the appointed work days.	Ask for help from service or manager to reset or modify the configuration.
104	45DB041Flash reading error	Repower ON/OFF check or change the hardware if necessary.
105	45DB041Flash Write error	Repower ON/OFF check or change the hardware if necessary.
106	24LC16 I2C memory reading error	Repower ON/OFF check or change the hardware if necessary.
107	24LC16 I2C memory write error	Repower ON/OFF check or change the hardware if necessary.
108	Flowmeter coefficient is over limit.	Nozzle ON alarm, put back nozzle and cancel button will clear the alarm, but need service to fix the issue.
109	Keypad board failure.	Check the keypad board, cable, power, make sure connections, Change the board if necessary, ask for service if needed.
110	Control board failure.	Check the I/O control board and related connection, , make sure connections connected firmly, Change the board if necessary, ask for service if needed.
111	OFFLINE at back office control mode	Please check the work mode, the back office POS or MIS or FCC system, check the cable and connections, make sure the connections first. Change the main board if necessary.
112	Preset value is too low	Preset value is not in the range. Put back the nozzle and preset a proper value. Or change the preset value limit to a higher value.
113	Preset value is too high.	Preset value is not in the range. Put back the nozzle and preset a proper value. Or change the preset value limit to a lower value.
201	Time out without flow	Put back the nozzle into boot properly or put back the nozzle in time when delivery is finished.
202	Delivery time is over the set parameter "Over Max Fuel-time".	Make sure the delivery time is in the configured parameter or set the parameter to a larger number.
203	Flowrate is over flow rate upper limit, Over Flowrate UPL	Check the flowrate UP limit set, if it is too low, set it to a higher speed or disable this function. If need control the flow rate tightly, please check the hydraulics system or related parts to make sure the flow rate is in your requirement.

Integrated ATG Configuration

This section is related to Sanki SK52 units that have an integrated ATG screen. These are integrated tank / pump / ATG units.

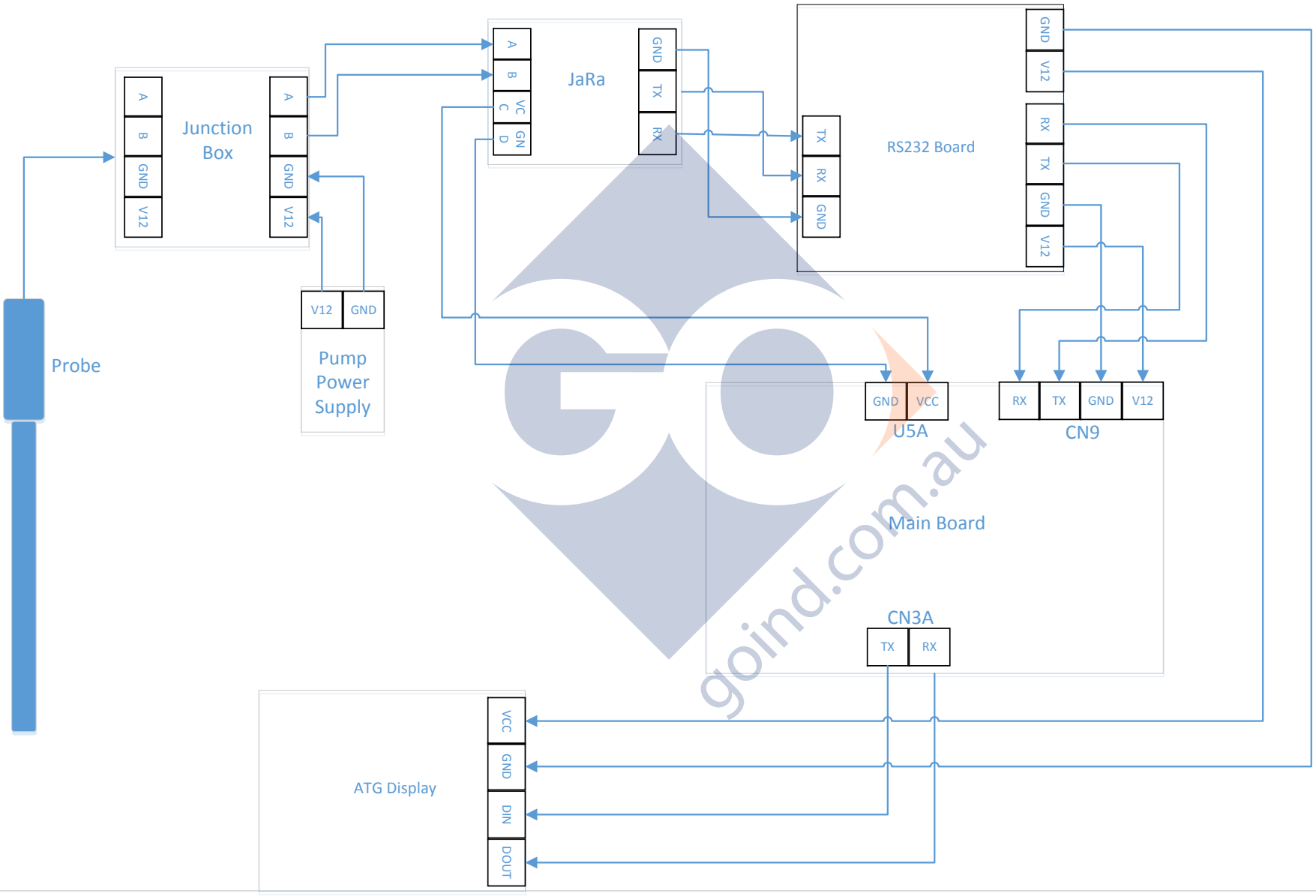
Wiring

1. The probe wiring goes from the probe to the junction box in the base of the SK52.
2. From the base of the SK52 it goes into the head of the pump through the processor board and to the ATG display located in the middle of the head of the SK52 unit.

The whole process of getting the ATG working correctly is a little complicated so below are some considerations that will assist.

1. Probe Mounting and Assembly
    a. The probe will have a unique serial number on it that relates to the address that the console or processor board needs to look for to "find" the probe. Record this number before installing the probe.
    b. Not all tanks have the correct riser tube for the probe. Make sure that the correct one has been supplied on the ground before attempting to install both the riser and the probe.
    c. Normally there will be 2 floats on the probe – one for product and one for water. Make sure that the water one sits on the bottom of the probe, underneath the product float.
    d. Circlips and alignment guides for the probe are fairly self explanatory.
2. Cabling
    a. The probe will have a short tail cable that plugs into the probe with an alignment guide which then screws on. Install this before lowering the probe.
    b. This tail cable is labelled with which wires are responsible for power or data so you can correctly join them to your cabling run.
    c. Tail configuration is labelled but if they are lost:
        i. Blue Wire – 12V+
        ii. Black Wire – GND
        iii. Brown Wire – RS485A
        iv. White Wire – RS485B
    d. Cabling will need to be run between the top of the probe and the communications junction box. This cable will need to:
        i. Leave from the junction box
        ii. Have at least 4 cores in it
        iii. Be multistrand – do not use Cat 5/6 or similar as these are too brittle.
        iv. Be drilled through the platform at the top of the tank to reach the probe entry point.
        v. Should be run in corrugated electrical conduit or similar to prevent UV deterioration of the cable.
        vi. Glanded into a waterproof cap on top of the riser tube.
        vii. The join needs to be contained within an isolation box of some description.
    e. There special blue "twist" style connectors that are used for joining the probe "tail" in to the cable you run from the junction box. You join the cables and then twist on the connectors that are filled with a white paste to make them intrinsically safe.

3. SK52 Junction Box
    a. In other countries it is not necessarily required to ground all electrical connections to a switchboard, so the communications junction box contains a number of points for checking that the PE is equal between all earth points. In Australia all earth points are grounded back to a single point so these can simply be bridged out.
    b. Push style connectors are used for the low voltage connections in the comms junction box.
4. Device Power
    a. ATG display unit requires 12V
    b. Probe requires 12V
    c. Ja Ra Data requires 5V
    d. Note: Sometimes 12V is taken from the Gilbarco protocol board. I'm yet to see this work successfully without affecting the Gilbarco comms.
5. Software Configuration
    a. Software version. The pump processor mainboard must be running a 98V403 or later version of the software for the ATG to work correctly.
    b. There are a number of settings that require setup for the probe to be accurate. These include:
        i. Menu 238. Here you set the probe address you recorded earlier. Without this your probe will not respond on the probe screen.
        ii. Menu 229. Here you set the tank dimensions. Starting numbers for a 40' Containers are
            1. Length: 11130
            2. Width: 2410
            3. Height: 2490
            4. Offset / Adjustment: 12mm
6. Wiring Data flow (Under Review)


Junction Box
A
B
GND
V12
JaRa
A
B
VC
GN
D
GND
TX
RX
RS232 Board
TX
RX
GND
GND
V12
RX
TX
GND
V12
Probe
V12
GND
Pump Power Supply
GND
VCC
U5A
RX
TX
GND
V12
CN9
Main Board
CN3A
TX
RX
ATG Display
VCC
GND
DIN
DOUT

Warranty Provisions

Sanki warranty is set for 12 months. Note that units have a maximum of 15 months from date of dispatch. Warranty expires whichever is reached first.

Certain exclusions apply to this warranty as detailed below:

1. Process
    a. Installation Warranty Documentation must be received within 7 days of go-live for warranty to be valid.
    b. Claim form must be filled out and emailed to Sanki Australia. No parts can be sent, nor can any claims be made for payment unless relevant paperwork has been followed.
    c. Where a Sanki agent is not locally available Sanki Australia must be successfully contacted by phone and authorise the job prior to attending a warranty call.
    d. If part has been found to have been tampered with or mechanically damaged warranty will not apply.
2. Installation must be:
    a. Correctly installed as per the Sanki installation manual.
    b. Installed conducted, and/or supervised by an accredited Sanki agent.
    c. Damage caused by the installer during installation is not covered.
    d. Damage caused by the freight company is not covered where freight is organised by the customer.
3. Modifications
    a. Customer / 3rd party supplied equipment such as decals is not covered by warranty.
    b. Same applies for nozzles, replacement nozzle switches etc.
    c. Also if these have a result negative affect on the Sanki hardware warranty can be affected. If this has caused the failure the customer will reimburse Sanki Australia for the time spent on attempting to resolve the issue.
4. Environment. The following will void a warranty claim
    a. Lightning
    b. Vandalism
    c. Act of God
    d. Flood
    e. Power surge / unstable power supply such as unfiltered genset.
    f. Accident Damage
    g. Bad product (water or sand) going through the meter
    h. Accident damage
    i. Issues falling outside a manufacturing defect
5. Customer handled hydraulics that are subject to misuse are not covered.
    a. Hoses
    b. Nozzles
    c. Swivels
    d. Breakaways
6. Consequential damages such as loss of trade are not covered under any circumstances.
7. Software issues are not covered under any circumstances, due to the fact that all controllers communicate differently and can be independently changed / updated without our knowledge or control. We will however work to assist in a solution where possible.

8. General Maintenance Items are the responsibility of the purchaser. These include but are not limited to:
    a. Filters and consumable items.
    b. Calibration
    c. Certification compliance
    d. Belt adjustment
9. No Fault Found. On occasions where no fault is found with the warranty claim item, charges will be associated against the claim.
10. Travel / Logistics.
    a. Sanki Australia will attempt in the first incidence to resolve with its own resources where possible and/or cost effective.
    b. No travel will be payable for parts only orders.
    c. Travel costs are generally not covered under warranty. Sanki Australia may, at their discretion cover a portion of the travel costs but only if preapproved with Sanki Australia and at a rate negotiated at the time.
    d. Onsite costs. Costs for time onsite will be at a rate of $95 per hour. Sanki Australia, at their discretion, will determine the amount of hours payable dependent on the work being done.
    e. Mobilisation costs. Meals / accommodation are not covered.
    f. Part replacements. Where a 3rd party does the installation of a part no warranty will apply unless the faulty part is received within 21 days of the swap being conducted. Repairs falling outside this range will not be deemed as warranty and standard charges will apply.
    g. Freight charges for warranty parts sent to the customer will be at Sanki Australia's expense. Return freight will be at the customers expense.
    h. After hours charges are not covered as a part of this warranty.

Calibration and Certification

Sanki units generally come precalibrated. However, for NMI requirements to be met, they must be resealed when in situ and initial calibration and certification carried out.

All of the required information is on the plate applied to the dispenser including NMI certification numbers, flow rate and the like. If the unit has no compliance plate contact your Sanki distributor immediately.

Sanki units are capable of running both motor spirit and diesel. There are no separate “diesel only” models and no differential hazardous zone requirements. This also includes adblue units that are co located with motor spirit or diesel units inside a hazardous zone range.

Calibration on the Sanki units is fairly straightforward.

Adjustment is done through the adjustment dial on the meter. There are no electronic “K Factors” or variable flow solenoids to adjust.

Where you have 2 meters per hose (ultra highflow) there is no need to adjust both meters for each hose. Simply

1. Adjust the closest one of the hose pair to you until the correct amount is being dispensed as per legal requirements.
2. Seal both meters for the hose. (Front and back)
3. If the unit is difficult to access from the rear (i.e. – Tank container configuration) ensure the wiring when sealing runs through both meters for that hose when sealing and seal the meters together.

NMI References:

Certificate: 5/6A/231

Link:
http://www.measurement.gov.au/Publications/CertificateOfApproval/Flowmeters/FuelDispensersForMotorVehicles/Documents/5-6A-231.pdf

Hydraulics

There are a couple of things to be aware of when dealing with the hydraulics of the Sanki pumps.

Gaskets, Tri Valves and Under Pump Connections

Sanki generally supply gaskets with their pumps. However in some cases a different gasket may be used. The type of gasket needs to be checked very carefully because of the Sanki flexi.

The Sanki flexi is designed to be rotatable for easy fit when trying to line up connections under the pump. When choosing a gasket, the hole must be smaller than the rotating face in order to seal.

If you are fitting a tri valve on to the flexi you must also ensure that the poppet when releasing is not hindered by the gasket also.

So the hole in the gasket needs to be larger than the tri valve poppet but smaller than the flexi rotatable surface.

Vacuum Advance

Some Sanki pump units have a vacuum advance pressure dial on the spindle, behind the belt wheel. If you find that the pump is battling to pull product through after a stockout then this can be adjusted to increase the pressure pulling from the tank.

Note that it will have little effect once product is actually in the pump and over pressurising will only wear out the pump sooner. So only adjust as far as is required to pull the product through.

Sanki Australia Commissioning Checklist

Site Name			Site Address				
Ordering Company		Placed By			Order Contact Number		
Installation Company		Installer			Installer Contact Number		
Site Controller System		Photos Taken		Photos Emailed		Install Date	
ID	Serial Number						
	Manufacture Date						
	Pump Numbers - External						
Type	Model						
	No. of Hoses						
	Dispenser / Pump						
Comms	Comms Protocol						
	M/B Software version						
	Pump Numbers - Internal						
	S/A Check						
	S/S Check						
	All comms cables tight						
Hydraulic	Calibrated						
	Adjustment Required						
	Nozzle latches removed						
	Belt Tension correct						
	Breakaway Type Fitted						
Other	Correct jumper set on Preset						
	Display (8's Check) Correct						
	Pump Livery Correct						
Notes							
Office Use Only	Site Address Listing Updated				Photos Received from Install		

Yet To Be Incorporated

1. Standard junction box wiring section