

Technical Information Manual

Series 6720 – EzyFill™ Retail Dispensing Unit



Dispenser suited for high precision measurement with rugged design and automation compatibility in point-of-sale applications

Applications

- Retail outlets
- Service centers
- Mining
- Commercial vehicle fleet
- Automotive assembly lines

Device Properties

- Std duty: 25 LPM, Heavy: 50 LPM and SupHvy: 100 LPM for DEF
- High accuracy oscillating piston flowmeter
- Auto-shutoff nozzle
- All joints with Triclamp connections
- Inbuilt 3 micron filter protection for DEF
- Modbus output for automation
- Large 7-7-6 display with backlight
- Rugged SS304 keypad

Your benefits

- Industry leading accuracy of 0.02%
- Repeatability of better than 0.01%
- Indian Legal Metrology approved
- All in one design for DEF-Diesel-Coolant-Water-Oil dispensing
- Can be used on negative suction
- The lowest pressure drop in a Positive Displacement flowmeter – 0.1 kg/cm²
- Easy-to-use UI with Backlight enabled LCD
- Automation compatible
- Empty pipe sensing feature
- IoT output to connect all your dispensers to common platform Flowlog

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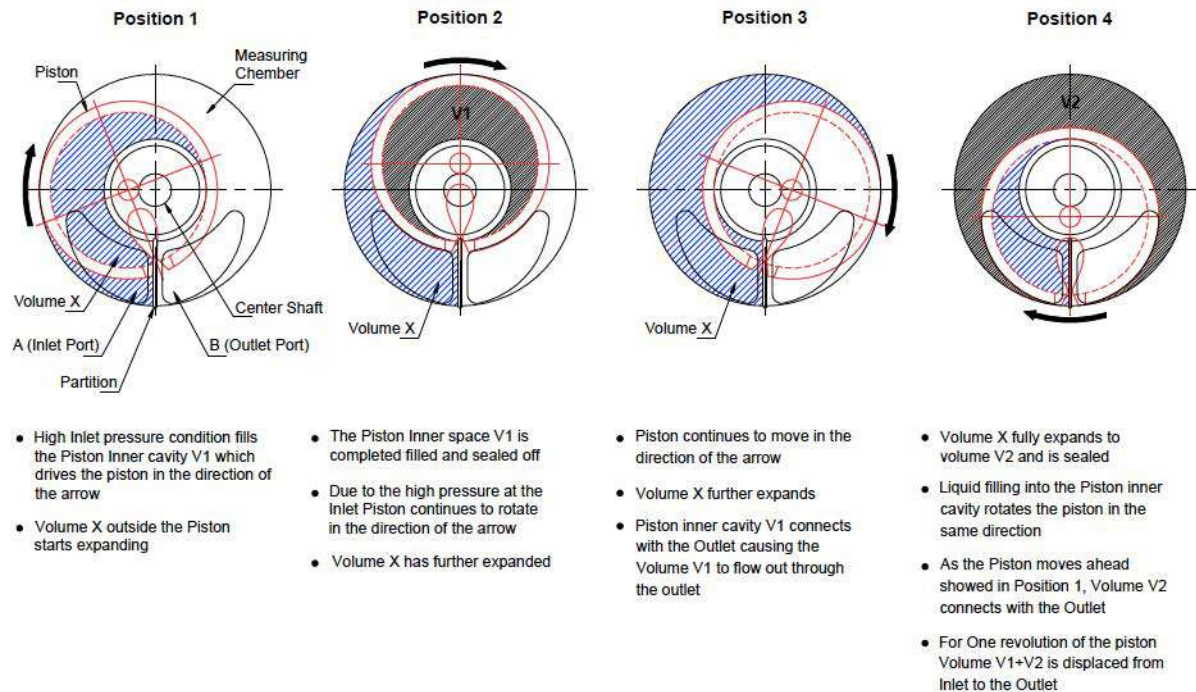
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1. Revision History

Versions	Release Date	Description	Author	Approver	Remark
1.0	2 September 2022	General operation, service, dos and don't's and troubleshooting	Shubhankar M	Shivdas M	
2.0	11 April 2023	Addition of company name, GST, vehicle no., phone number storage features and inclusion in print. Updated contact personnel info	Pratik S	Shivdas M	Ref to sections 9.3, 10.3 and 14 for the relevant additions
3.0	25 July 2023	Addition of steps in section 11.1 and 11.9 for compulsory verification under local legal metrology department	Shubhankar M	Shivdas M	
4.0	22 January 2024	Addition of Company location, HSN number, Phone Number, print sequence, Version wise feature list.	Pratik S	SSM	
5.0	03 March 2026	Revision of settings and overall unit details with EzyFill V2.0	Akshay D Adinath P	SSM	

2. Measurement principle



The Positive Displacement principle is the only accurate method of flow measurement due to its direct measurement of volume. Volume is not inferred from velocity of liquid or mass flow rates as in inferential meters.

The Positive Displacement principle works by continuously separating the flow stream into discrete volumetric segments and precisely measuring this volume in a calibrated measurement chamber. The Fluidyne PD meter is based on the time-tested and robust oscillating piston mechanism. In this mechanism, the piston is the only moving part which displaces calibrated volume of liquid from meter inlet to outlet in every rotation. The movement of the piston is recorded by magnetic pickup coils and thus a number of movements are equal to the actual measured volume by multiplying movements with calibrated volume displaced.

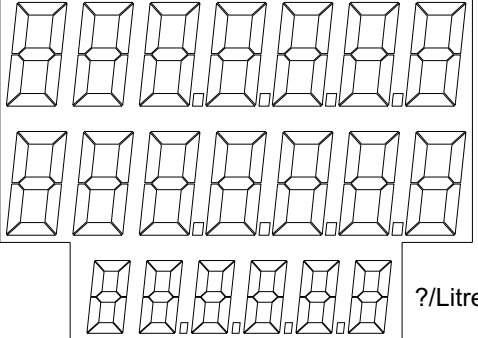
The calibrated volume is a nearly constant value for every size of PD meter Fluidyne manufactures. This correlation of piston movement to the calibrated volume is the calibration factor or 'k factor' which is adjusted as per the liquid to be measured by the flowmeter.

Total volume in flow stream = k factor * number of oscillations of piston

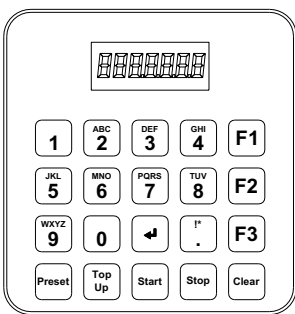
3. Measurement System

The system consists of a pump, sensor, batch display, totalizer display, dual stage valve, hose, nozzle and dispensing pump.

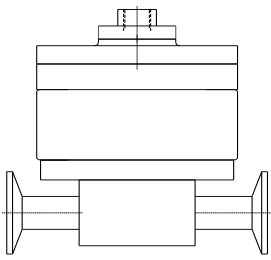
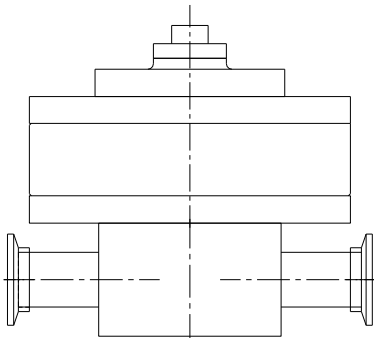
Batch Display

	Device materials - Aluminum coated: AlSi10Mg Window material - Glass Specifications - 7 digit 7 segment type - 3 rows 7-7-6 configuration - 1.5-inch height digit - Backlight enabled
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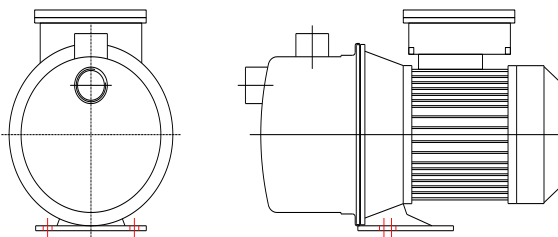
Numeric Keypad with Display

	Details - 8x2 Dot matrix LCD with backlight Advantages - Retentive LCD data
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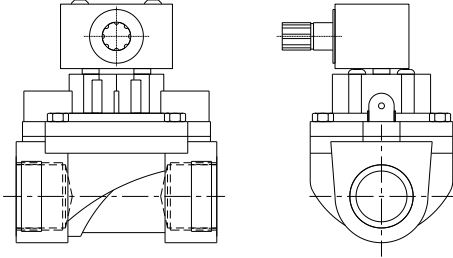
Flow Sensor

 DN 25	Material of Construction - CF3M/316L Process connections - Triclamp/SMS fittings Advantages - Low pressure drop due to one moving part - Direct measurement of volume - Immune to process influences and pipe bends - Nominal diameter DN25 for 25 LPM and DN40 for 100 LPM
 DN 40	

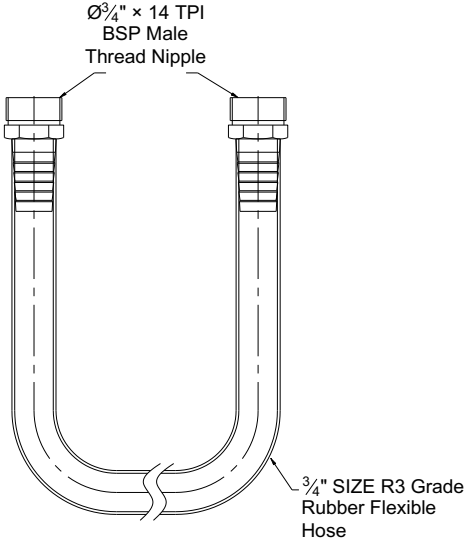
Pump

	Material of Construction - Stainless Steel 304/316 Technical detail - Triclamp/SMS fittings - 0.75HP motor + pump (monobloc design) - 15 LPM, 25 LPM for DEF - 40 LPM, 70 LPM for Diesel and Oils - Single phase operation (230 AC 50 Hz) and 12 VDC for DC operations Advantages - Negative and positive suction - Sizing for pressure drop of all components - Compact size - Same pump is used for oil and water-based liquids
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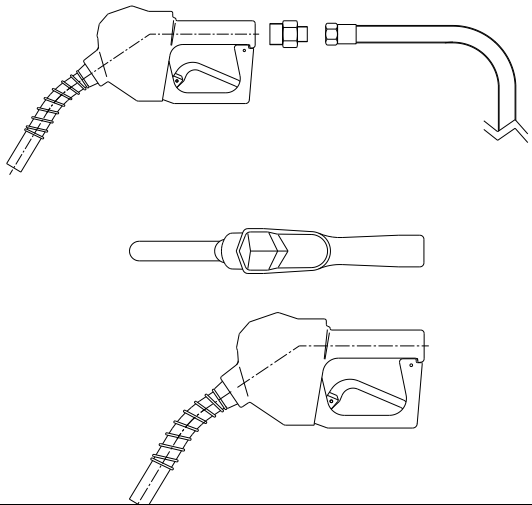
Liquid Vending Valve

	Material of Construction - Nickel plated Aluminium Technical detail - Triclamp/SMS fittings - 15 LPM, 25 LPM for DEF - 40 LPM, 75 LPM for Diesel and Oils - Single phase operation (230 AC 50 Hz) Advantages - Same pump can be used for negative and positive suction - Sizing for pressure drop of all components - Compact size
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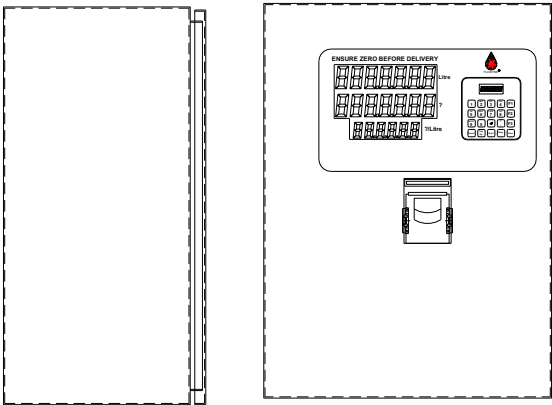
Hose

	Material of Construction - R3 grade rubber - Transparent tubing with SS reinforcement Technical detail - 3/4" Diameter Rubber flexible grade - Hose nipple fittings for DEF - 3/4" x 14 TPI BSP Male thread nipple for Diesel - 15 LPM, 25 LPM for DEF - 40 LPM, 75 LPM for Diesel and Oils Advantages - Easy assembly and disassembly due to hose nipple fitting - Same hose suitable for suction and delivery side - Lightweight
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Nozzle

	Material of Construction - Aluminium (Diesel, oils) - SS304 + plastic (for DEF/Water/Coolant) - Viton/Nitrile O-rings Technical detail - 1" – For 100 LPM - ¾" – For 25 LPM Advantages - Auto-shutoff action - Seals compatible with all liquids - Compact size and lightweight - Includes swivel joint for easy handling
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Panel enclosure

	Material of Construction - MS with powder coating Technical detail - IP44
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4. Input

4.1 Measured variables - Direct

- Instantaneous volume
- Totalized volume
- Currency

4.2 Measuring Range

Pipe size (mm)	Pipe size (inch)	Duty	Discharge (LPM)
20	$\frac{3}{4}$ "	Standard	25
25	1"	Heavy	100

5. Outputs

5.1 Printer

Function	Printed receipt outputs
Type	Thermal printer
Operating interface	RS232
Voltage	5 VDC

5.2 MODBUS with RS485

Protocol	Modbus Applications Protocol Specification V1.1
Mode	32bit floating point mode
Response times	Direct data access: typically, 20-50 ms
Device type	Slave
Slave Address Range	1 - 255
Baud rates supported	9600 BAUD 115200 BAUD
Data Transfer mode	RTU

5.3 IoT output

Function	Direct data transmission to Flowlog cloud service
Type	GSM enabled internet services (4G)
Voltage	4 VDC

6. Power Supply

6.1 Supply Voltage

Check dispensing unit name plate / power supply point for voltage specification

Terminal Voltage	Frequency (Hz)
230 VAC $\pm 20\%$ (For stationary applications)	50/60 Hz
DC 12 V $\pm 20\%$ (For mobile applications only)	-

6.2 Power Consumption

Max – 10W

6.3 Current Consumption

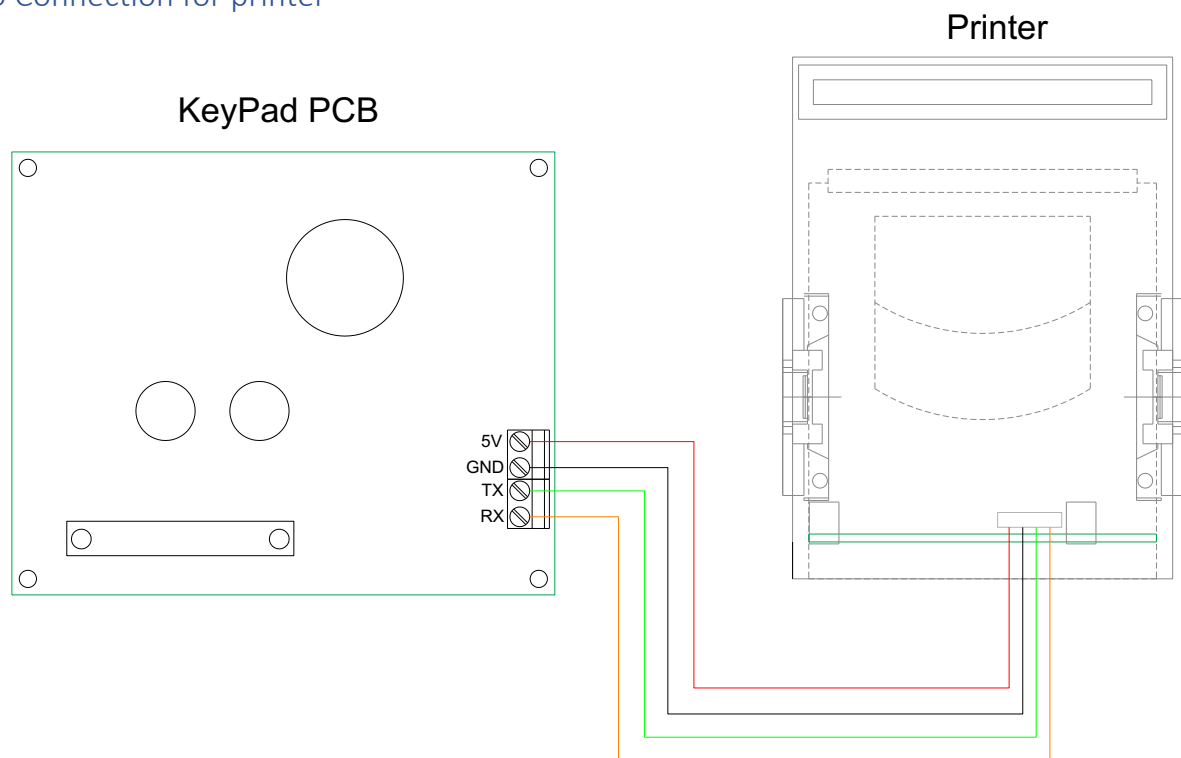
Max – 450 mA (12 VDC)

Max – 200 mA (110 VAC 50/60 Hz, 230 VAC 50/60 Hz)

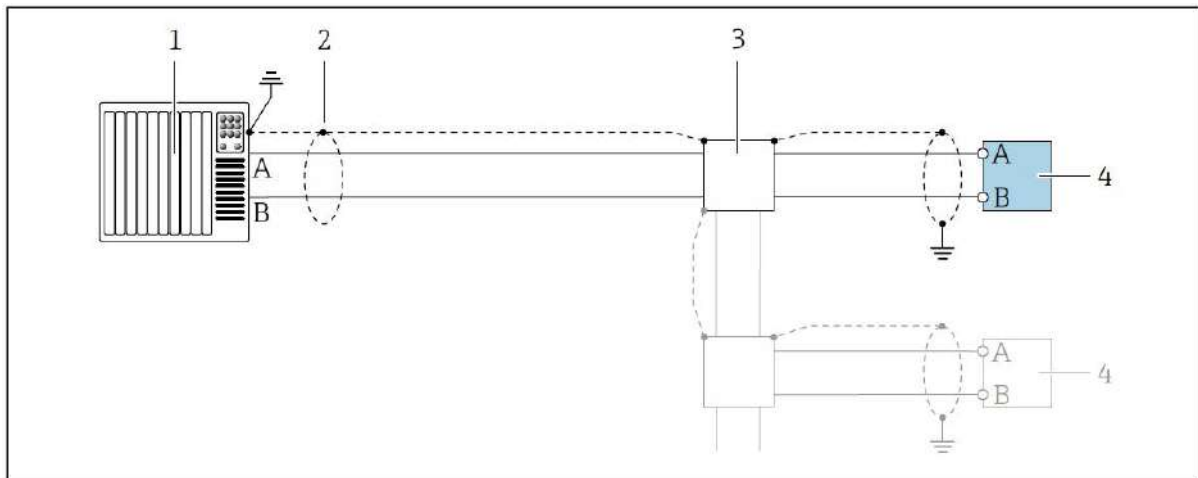
6.4 Power supply failure

- Totalizers stop at last value measured (totalizer display)
- Data is maintained in NV memory

6.5 Connection for printer



6.6 Connection for RS485-Modbus

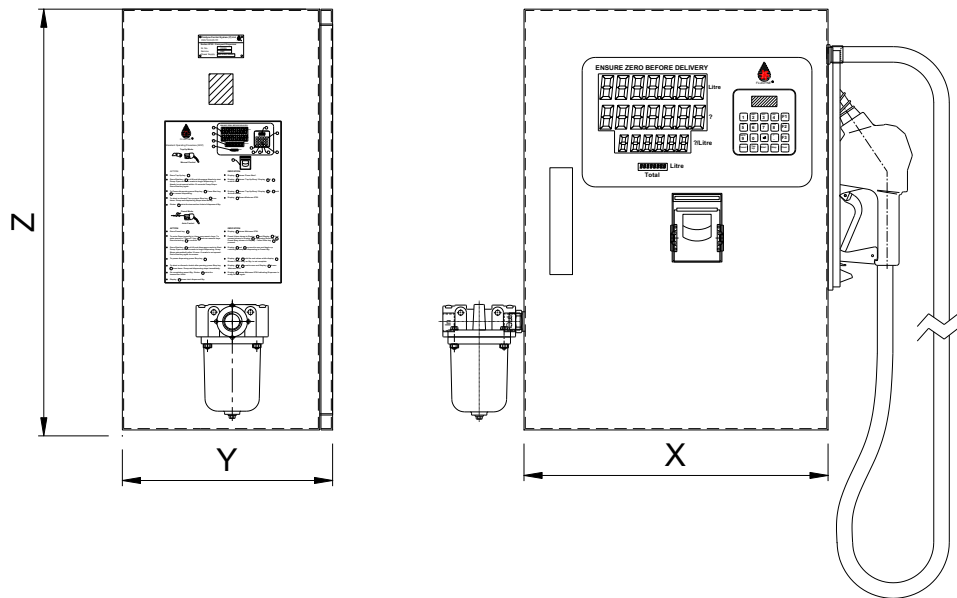


Connection example for Modbus RS485 in non-hazardous area and Zone 2

- 1 – Automation system (eg PLC/DCS)
- 2 – Cable shield provided. The cable shield must be grounded at both ends to comply with EMC requirements; observe cable specifications
- 3 – Distribution box
- 4 – Transmitter

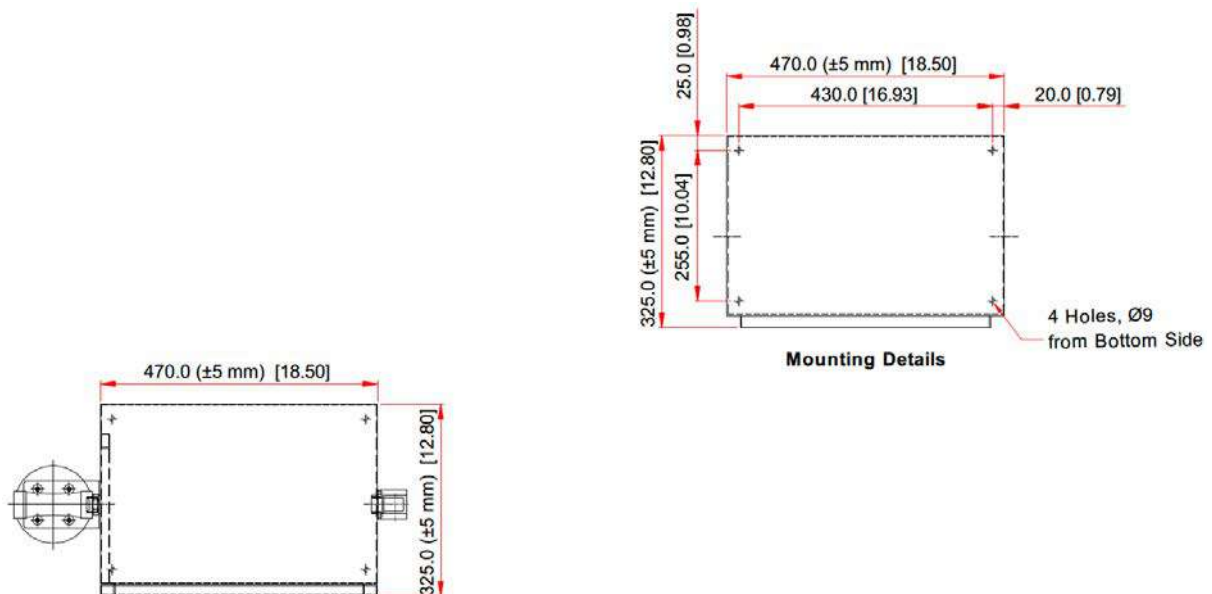
7. Dispensing Unit Dimensions

7.1 Outer box dimensions

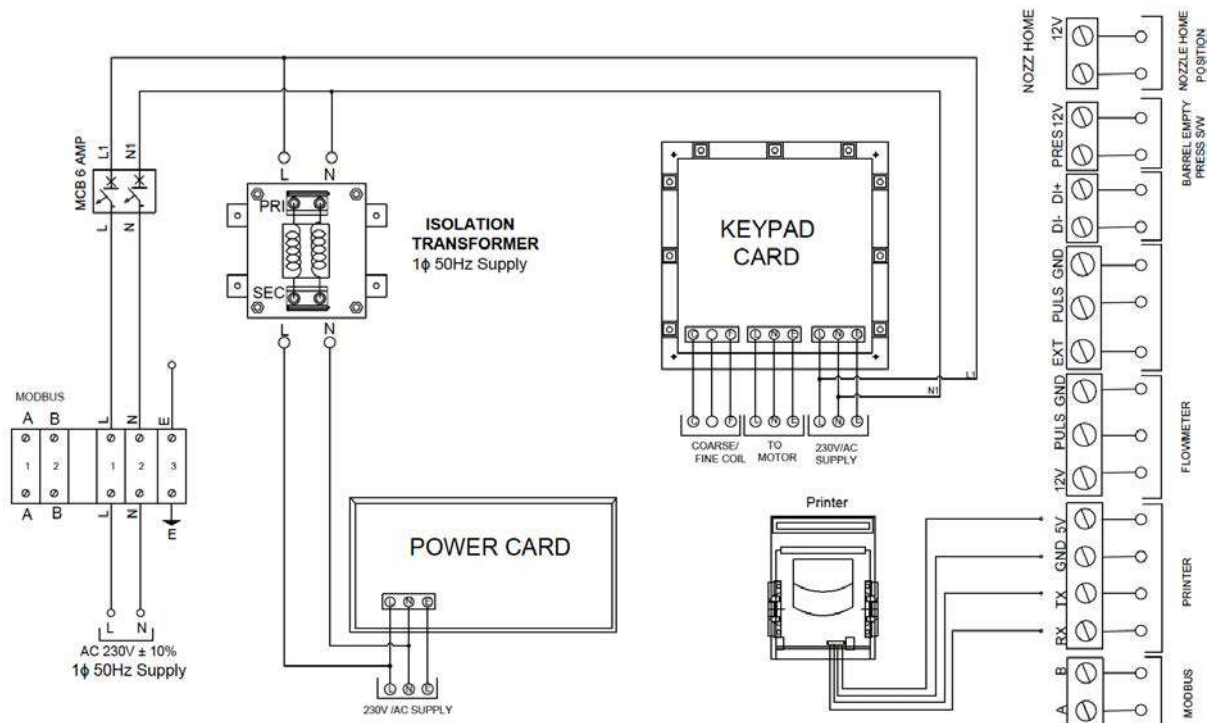


System size	X (mm)	Y (mm)	Z (mm)
25 and 100 LPM	470.0	305.0	650.0

7.2 Other dimensions



8. Electrical Terminal Connections



Customer needs to only provide the wiring for external power supply and RS485 if it is being used.

For supply use 14 AWG or 2.1 mm² type cable.

For RS485/Modbus 18 AWG or 0.82 mm² cable is preferred

Earthing is mandatory with N-E voltage under 1.5 V

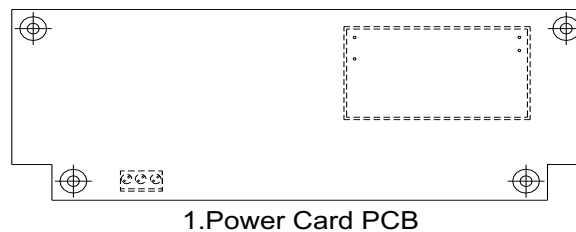
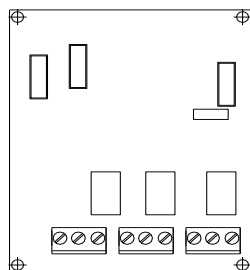
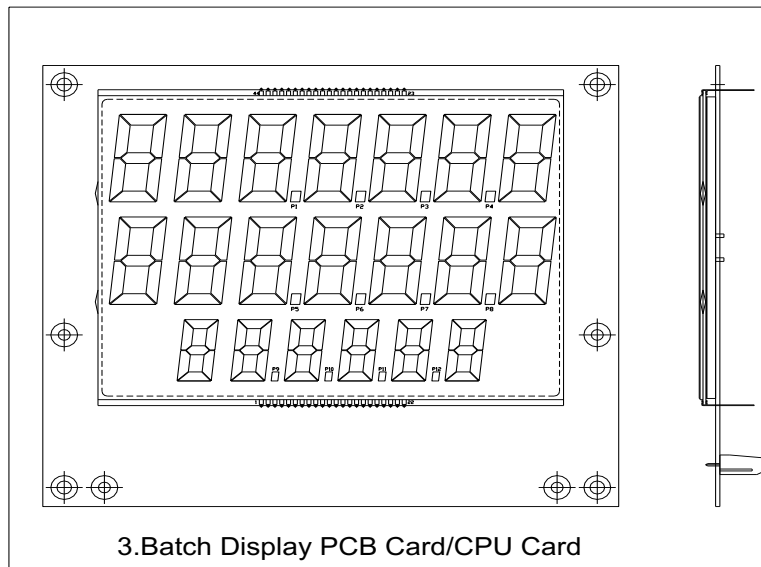
Connecting terminals with every order (mandatory)

- Nozzle home position
- AC Power
- Coarse+Fine coil
- Motor
- Printer
- Flowmeter

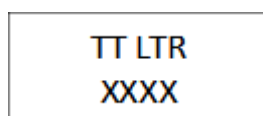
Optional (as per order code specification)

- Modbus
- Barrel empty / empty pipe detection add on

9. Keypad Operation



Default screen display on keypad is as below which displays cumulative totalizer



9.1 Top Up Mode

Topup mode is used to completely fill up the reservoir without any preset quantity.

Press topup key and press start to start pump. If nozzle is not opened within 10 seconds, pump stops. Press start key again. Keypad displays following screen when topup mode is active



9.2 Preset Mode

9.2.1 Preset with Volume

Preset mode is used to dispense set quantity to reservoir.

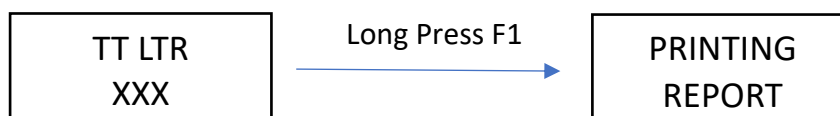
Press Preset key. Type in volume value, use decimal key if required. Press start to begin preset dispensing. If nozzle is not opened within 10 seconds, pump stops. Press start key again. Keypad displays following screen when preset mode is active



9.2.2 Preset with Money

Press Preset key. Switch to Money mode by pressing F1. Type in money value, use decimal key if required. Press start to begin preset dispensing. If nozzle is not opened within 10 seconds, pump stops. Press start key again.

9.3 Report Print



Obtain print report of Daily, Weekly, Monthly and Total Litres consumption, Long Press F1 when on the default screen.

System prints a receipt of the consumption values.

Note – This feature is not available by default and has to be purchased separately.

9.4 Receipt print, Entering vehicle number

0000 000000

MH12 JK1234

(Example)

- If the vehicle number is to be printed on the receipt it can be entered after the batch ends by pressing F3.
- Both numeric and alphabetical values can be entered in the corresponding places as shown in the example.
- Press enter key when number is entered. To scroll between digits, press F1
- If vehicle number is not required then user can press Enter Key directly without entering the vehicle number.
- Press Enter to confirm entry and print copy

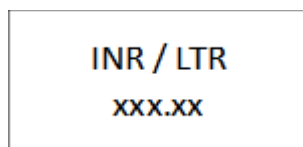
10. Settings

To access passwords, long press enter key and type in password using the number keys.
Use F1 key to scroll between digits and enter key to confirm values/save settings.

Use F2 key to switch between alphabets and numbers (company name, location, GSTIN)

10.1 Operational Settings – Password 2006

10.1.1 INR/Litre



Press **Enter** after completing the entry to proceed to the next menu item.

10.1.2 Setup-2

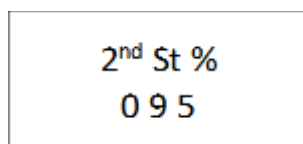


If set to **Enable**, the next feature will be displayed.

If set to **Disable**, the system will exit from the password mode.

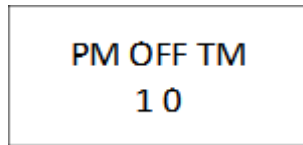
Press **Enter** after making your selection to move to the next menu item.

10.1.3 2nd Stage %



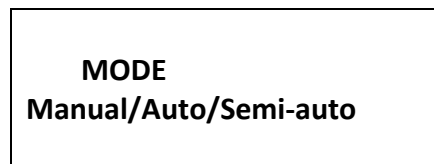
Use the number keys to set each digit or simply enter the value directly the cursor will automatically move to the next position.

10.1.4 Pump Off Time



This is the default off time for the pump in case nozzle is not opened.

10.1.5 Mode selection



- Press the **F2** key to toggle the **MODE** between "**AUTO**" and "**SEMIAUTO** And **MANUAL**."

Press **Enter** after making your selection to move to the next menu item.

This option is available only if autonomous mode feature is availed in order code.

Manual Mode – Dispenser functions normally

Semiauto mode – Dispenser functions normally and data is transferred via Modbus protocol

Auto Mode – Dispenser keypad is disabled, and dispenser is commanded over Modbus protocol directly.

In semiauto and auto mode, report feature is disabled temporarily.

10.1.6 Baud Rate

Baud Rate
9 6 0 0/115200

This screen is only visible if the mode is set to either Remote Mode or Semi-Auto Mode. If manual mode is selected, the system will not display this screen.

When you enter in the setting the screen is displayed as shown above. It switches to the next screen as shown below after a second

Press the **F2** key to toggle the Baud Rate between "9600" and "115200."

Press **Enter** after making your selection to move to the next menu item.

10.1.7 Parity

Parity
NONE

This screen is only visible if the mode is set to either Remote Mode or Semi-Auto Mode. Default value is NONE.

Press **Enter** after making your selection to move to the next menu item.

10.1.8 Slave ID

Slave ID
xxx

This screen is only visible if the mode is set to either Remote Mode or Semi-Auto Mode. Default value is 001. Max value - 255

10.1.9 Prime Time

PRIME TIME
XXX (seconds)

This screen is only visible if the Empty pipe feature is added on in order.

Do not change this value as it is a maximum time as to after system primes completely.

Press **Enter** after making your selection to move to the next menu item.

10.1.10 Prime Litres

PRIME LITER
XXX

This screen is only visible if the Empty pipe feature is added on in order.

Do not change this value as it is a minimum qty as to after system primes completely.

Press **Enter** after making your selection to move to the next menu item.

10.1.11 Barrel Empty Time

Barrel Empty Time
XX seconds

This screen is only visible if the Empty pipe feature is added on in order.

Default value is 2. Do not change this value. Press **Enter** after making your selection to move to the next menu item.

10.1.12 Company ID

Company ID
XXX

This is the Company Id setting in case FlowLog cloud services is availed.

Use the **F1** key to scroll between digits or alphabet.

Use the number keys to set each digit or simply enter the value directly — the cursor will automatically move to the next position.

Use the **F2** key to change between alphabet mode and number mode. When the **F2** key is pressed the display will indicate what is current mode for **500ms** and then go back to the screen where the name is to be inserted. Use the enter key to move to next screen.

Note:-Only 6 characters are allowed for the Company name.

10.1.13 Device ID

Device Id
x x x

This is the Device Id setting in case FlowLog cloud services is availed.

10.1.14 Lifetime totalizer

LT LTR
XXXX

This is the function show lifetime totalizer. Totalizer cannot be reset

Press enters and move to next menu item.

10.1.15 Density

Density x x x x . x x

After enabling, the default density is set to 0000.0.

Enter the value in **kg/m³** and press **Enter**.

Use the **F1** key to scroll between digits.

Use the number keys to set each digit, or simply enter the value directly — the cursor will automatically move to the next position.

Press **Enter** after completing the entry to proceed to the next menu item.

10.1.16 Nozzle Number

NOZZLE x x x

This setting is used to enter the nozzle number from which the liquid is dispatched.

default NOZZLE is set to 000.

Use the number keys to set each digit, or simply enter the value directly — the cursor will automatically move to the next position.

The **nozzle number** will be printed on the receipt.

Press the **Enter** key after making your selection to proceed to the next menu item.

10.1.17 Product

Product DEF/DIESEL/PETROL/COOLANT

The default product is set to DEF.

Press the **Enter** key after making your selection to proceed to the next menu item.

10.1.18 GST Number

Enter GST
Num

When you enter in the setting initially the screen is displayed as shown above. It switches to the next screen as shown below after a second

0 0 0 0 0 0 0 0 0 0 0 0 0 0	Alphabet mode	Number mode
--------------------------------	------------------	----------------

This is the first setting. Use the **F1** key to scroll between digits or alphabet. Use the number keys to set each digit or simply enter the value directly — the cursor will automatically move to the next position. Use the **F2** key to change between alphabet mode and number mode. When the **F2** key is pressed the display will indicate what is current mode for **500ms** and then go back to the screen where the number is to be inserted. Use the enter key to move to next screen.

10.1.19 GST Name

Enter
NAME

When you enter in the setting initially the screen is displayed as shown above. It switches to the next screen as shown below after a second

0 0 0 0 0 0 0 0 0 0 0 0 0 0	Alphabet mode	Number mode
--------------------------------	------------------	----------------

This is the Company name setting. This is the first setting. Use the **F1** key to scroll between digits or alphabet.

Use the number keys to set each digit or simply enter the value directly — the cursor will automatically move to the next position.

Use the **F2** key to change between alphabet mode and number mode. When the **F2** key is pressed the display will indicate what is current mode for **500ms** and then go back to the screen where the name is to be inserted. Use the enter key to move to next screen.

Note:-Only 16 characters are allowed for the Company name.

10.1.20 Location Name

Enter
LOCATION

Initially the screen is displayed as shown above. It switches to the next screen as shown below after one second

0 0 0 0 0 0 0 0 0 0 0 0 0 0	Alphabet mode	Number mode
--------------------------------	------------------	----------------

Use the number keys to set each digit or simply enter the value directly — the cursor will automatically move to the next position.

Use the **F2** key to change between alphabet mode and number mode. When the **F2** key is pressed the display will indicate what is current mode for **500ms** and then go back to the screen where the name is to be inserted. Use the enter key to move to next screen.

Note:-Only 16 characters are allowed for the Company name.

10.1.21 CGST %

CGST %
 x x . x

This is the CGST percentage setting screen.

Use the **F1** key to scroll between digits.

Use the number keys to set each digit, or simply enter the value directly the cursor will automatically move to the next position.

Press enter key after making the selection and move to next menu item.

10.1.22 SGST %

SGST % x x . x

This is the SGST percentage setting screen.

Use the **F1** key to scroll between digits.

Use the number keys to set each digit, or simply enter the value directly the cursor will automatically move to the next position.

Press enter key after making the selection and move to next menu item.

10.1.23 HSN Number

HSN NO. x x x x x x x

When you enter in the setting initially the screen is displayed as shown above. It switches to the next screen as shown below after a second.

Use the **F1** key to scroll between digits.

Use the number keys to set each digit, or simply enter the value directly the cursor will automatically move to the next position.

Press enter key after making the selection and move to next menu item

10.1.24 Phone Number

PHONE x x x x x x x x x x

When you enter in the setting initially the screen is displayed as shown above. It switches to the next screen as shown below after a second

Use the **F1** key to scroll between digits.

Use the number keys to set each digit or simply enter the value directly the cursor will automatically move to the next position.

Press enter key after making the selection and Exit From this mode move to Default Screen.

11. Meter Factor Setting (Password 1111)

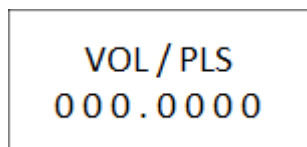
Note - These settings are vital for the dispensing product's smooth working. These settings must not be changed without the prior approval of Fluidyne or in the presence of a Fluidyne service representative. Ensure that dispensing is not active while accessing the below settings.

If the dispensing unit is being used for Point-Of-Sale applications, it is forbidden to change the calibration factor by breaking open the protective seal in absence of an authorized local Weights and Measures representative.

Tampering with k factor will immediately result in warranty becoming void. This is a punishable offence under consumer affairs guidelines.

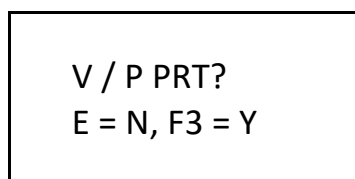
To access these settings, change the position of the DIP switch on the keypad card to the right.

11.1 K Factor



This value is not to be changed unless authorized written permission by Fluidyne is given or only in the presence of W&M inspector.

11.2 Last 5 K Factor Print



This is the **second setting** when you enter this menu.

E = N means press '**Enter**' to select **No** (printing not required).

F3 = Y means press '**F3 key**' to select **Yes** (printing is required).

Press **F3 (Y)** to print the last 5 K-Factors and exit the setting.

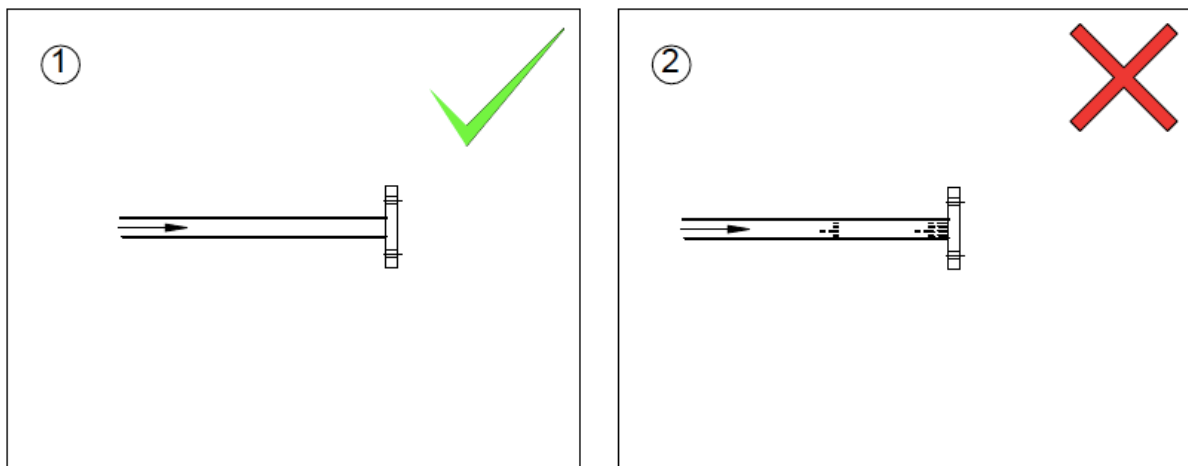
Press **Enter (E = N)** to exit without printing and go directly to the home

12. Dispensing Unit Installation and Operational Guidelines

12.1 Prior to startup of dispensing unit

Review the system installation to ensure all components are in proper sequence, all isolation valves must be closed and all electrical connections are complete.

Before the dispensing unit is installed in line ensure that the line is sufficiently flushed with water or required liquid service in order to remove any debris like burr, soil particles and other dirt, rust, welding slag. This is observed usually when new pipelines are built and dispensing units are used to dispense quantities of liquid.



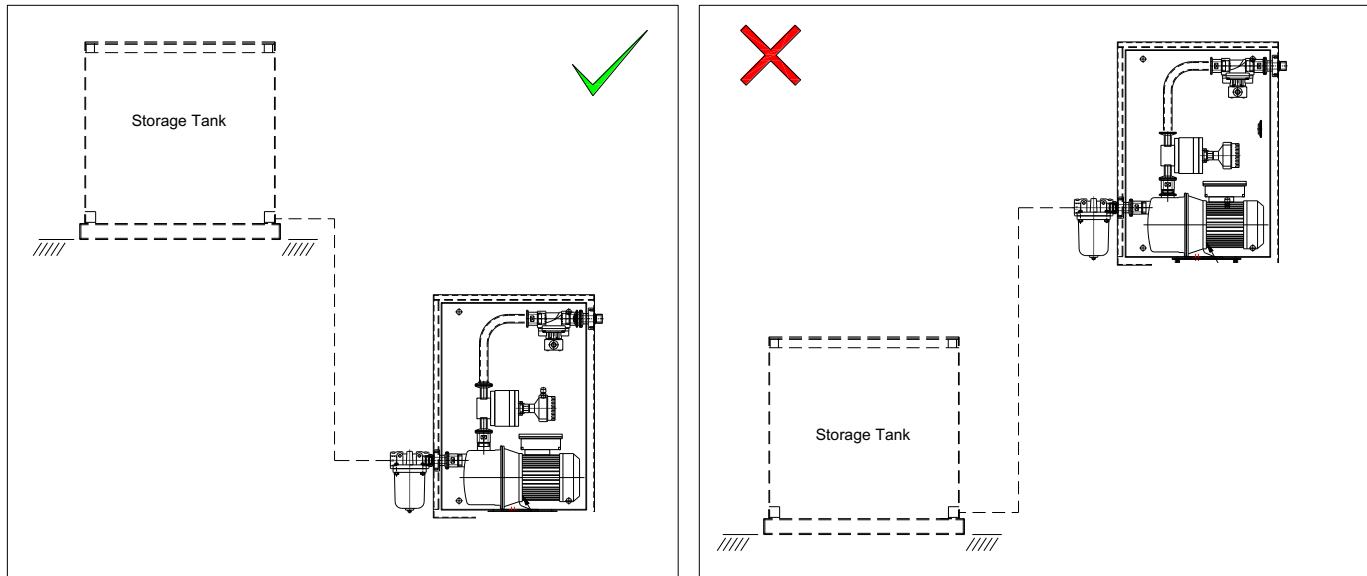
1- Ensure that piping is free of burr, particles and other material before dispensing unit installation

2 – Particles left behind might jam the internal measurement chamber or cause filter choke. It is recommended to take a few runs of liquid and collect the same into a storage tank until the service at the installation point appears clean and devoid of solid matter

3 – The same precaution must be taken for hoses that are being used to connect to the system

4 - Prior to using the System, it is mandatory to verify system accuracy from a Licensed Legal Metrology inspector and obtain stamp and verification certificate as per Legal Metrology Act 2009 or local legal metrology rules.

12.2 Recommended Operating setup



The pump used in the 6720 can be used in cases of negative suction such as barrels, buckets or tanks that are lower in height from the dispensing unit. However in these cases, it is possible that due to the head difference between the source and the DU, the liquid can flow in a reverse direction back to the tank. In this case, air pockets can develop which may hamper accuracy.

Therefore, it is recommended to keep the source tank always at a higher point than the dispensing unit and to ensure that the suction hose up to the pump is always flooded at all times.

12.3 Continuous Operation – Clean Filtered Liquid Service

Strainers are installed in pipelines ahead of pumps, meters, valves etc to protect such equipment from intrusion of pipe scale, welding splatter and other foreign material. The use of proper size strainer together with an element of suitable mesh pays dividends in reduced maintenance on mechanisms which are in contact with flowing liquids. When it is known that comparatively large amounts of lint or iron oxide are present in stream, a large strainer must be used as these materials clog up element screens rapidly-especially if resins, gums or varnishes are also present.

Larger size foreign matter like pebbles, welding beads etc should be removed at frequent intervals to prevent their abrasive action from damaging the element screen.

Fluidyne dispensing unit comes equipped with 100 micron reusable strainer. However, it is recommended that the customer uses highly filtered 20 micron level liquid delivery or installs a 100 micron filter prior to dispensing unit filter.

This enables all filter cleaning service to be localized at large strainer location and the larger strainer will also take longer for dirt deposits to eventually reduce flowrate to a certain threshold due to large surface area.

12.4 Air elimination

In any system wherein the supply tank gets empty or drained, or multiple products enter a common manifold into one metering system, there is a risk of air being present in the fluid stream. The solution is an air or vapor eliminator located before the system to vent vapor or air entrained in liquids. Air elimination is required for all legal metrology regulatory approvals for custody transfer. Alternatively, please ensure that the supply tank does not get empty by installing level switches or automatic top-up system

12.5 Utility connections and valves

Safety and isolation valves must be used throughout the line along with proper cables for powering up the system as recommended in this user manual.

It is recommended that the system always be operated on the supply voltage specified in the cable entry point and nameplate. Always run the DU on a stable power supply source. Best recommended source is a UPS for smooth power delivery. If an inverter based supply is to be used, a stabilizer is recommended for best results.

12.6 Protective covering

Dispensing unit must be covered from direct sunlight and rain by protective roof or shed.

12.7 Best plumbing configuration

- Dispensing Unit must have secure mounting to a riser stand or foundation
- Inlet and outlet must be secured, and weight of dispensing unit must be supported
- **System should be designed to keep flowmeter full of liquid at all times.** Meter inlet and outlet should be lower than associated system plumbing.
- The pipe must be installed as straight as possible to prevent pressure drop due to flow restrictions

12.8 Products that dry/crystallize or polymerize

There are many liquids that crystallize, harden or polymerize on contact with air or decreased temperature. A proper system design and a good understanding of the product being measured will help avoid the possibility of air entering the system and product to be affected.

Do not let product get contaminated with fuel, water, oil, dust, debris or detergents of any kind.

12.9 Custody transfer

A right k factor will need to be established under actual operating conditions if the instrument is to be used in custody transfer applications. This initial proving run should be carried out following the completion of above startup procedure and in presence of local regulatory weights and measures/legal metrology body.

NOTE – There are no user adjustable parts in the flowmeter. However, the meter cover and transmitter are provided with two cross-drilled bolts to facilitate sealing if required by local weights and measurements regulations. The same is provided for the electronic control unit. To access the calibration the DIP switch in the electronic assembly has to be set in position 2 to unlock the k factor screen.

12.10 Strainer Elements

To be efficient, strainer elements must be kept clean. A buildup of sediment increases pressure drop and decreases flow. If element is allowed to become completely clogged, damage will result. A regular procedure should be set up for cleaning the strainer elements – the frequency depending on amount and character of foreign material in stream. It is advisable to keep a spare element on hand.

Recommended screen mesh for various liquids

Liquid types	Micron
Gasoline/Diesel or similar liquids	50
Additives/DEF/Adblue	20

12.11 Other Important Do's and Don'ts

DO's

- Protect liquid against any contamination of fuel, oil, water, dust, dirt, metals, detergent by using only sealed equipment.
- Use proper grade and filtration level of liquid of at least 100 microns
- Provide proper roofing on dispenser to avoid direct sun light and rain contact
- Only use dedicated liquid storing and dispensing equipment.
- Check all internal components and fittings before starting the machine
- Ensure that the suction hose of the dispensing unit upto the pump always remains full of liquid
- Check utility connections like supply line and Manual Valves in proper position before starting the machine
- Clean all external components before dispenser startup
- Ensure all cable connections are in proper condition
- Park the dispensing nozzle in the parking slot provided on the dispensing machine
- Use genuine Fluidyne spares and sealing parts to avoid leakages
- Check and clean the prefilter once a month
- Check calibration of dispenser once in 3 months
- Use proper stabilizer in case power fluctuations and ensure voltage stays in the range of 230 VAC 50 Hz +/- 10 V

DON'Ts –

1. Don't use any other liquid in the machine other than the recommended liquid grade.
2. Don't use any other fuel or lubricant equipment or any other jugs, buckets, funnels or non-dedicated equipment to dispense your liquid.
3. Don't store AdBlue/other liquid in direct sunlight as recommended by manufacturer
4. Don't use dispensers with IBCs and drums as supply reservoirs, only dedicated pipeline should be connected at all the time which remains full of liquid
5. Don't use other make spare parts, buy spares from Fluidyne only

13. Maintenance

The Fluidyne 6720 dispensing unit will give many years of consistent performance with little need for maintenance or service. There are, however, several recommendations which if followed, will further extend the instrument's life.

The instrument should be kept filled with the process fluid it is measuring. This prevents the exposure to any product vapors which, in the case of many products, are more corrosive than their liquids. In addition, this also prevents formation and build-up of deposits or gums which would cause increased mechanical friction. The instrument should be kept free of air, keeping it full with process fluid will accomplish this, but if there are chances of air entrained liquid or empty pipe conditions, then additional Fluidyne air separator device must be fitted at the inlet of the flowmeter.

Filter and strainer elements should be cleaned frequently. Debris and foreign matter are the biggest cause of meter wear and damage.

All other associated equipment within the system should be regularly maintained and checked for functionality.

NOTE – The instrument is not intended for operation in hazardous area.

If the instrument is removed from the process line, the line should be sealed with suitable covers. Rinsing the meter internals with solvent will ensure all internal parts remain free of debris.

13.1 Performance Considerations

The amount of maintenance necessary for efficient instrument performance is dependent on many factors and some are listed below –

Continuity of Operation – An instrument that operates continuously will require more attention than one used intermittently.

Working Flow Rate – The life of the instrument is proportional to the speed of its operation. If the instrument is operating at near or above maximum flow rate it will have a shorter life expectancy than if it were operating at its minimum flow rate.

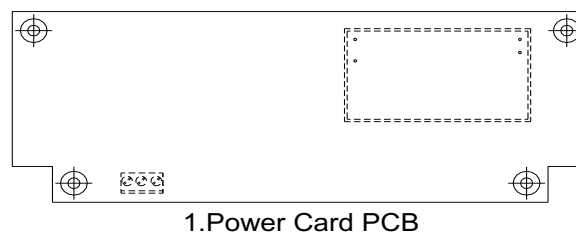
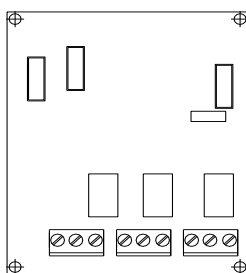
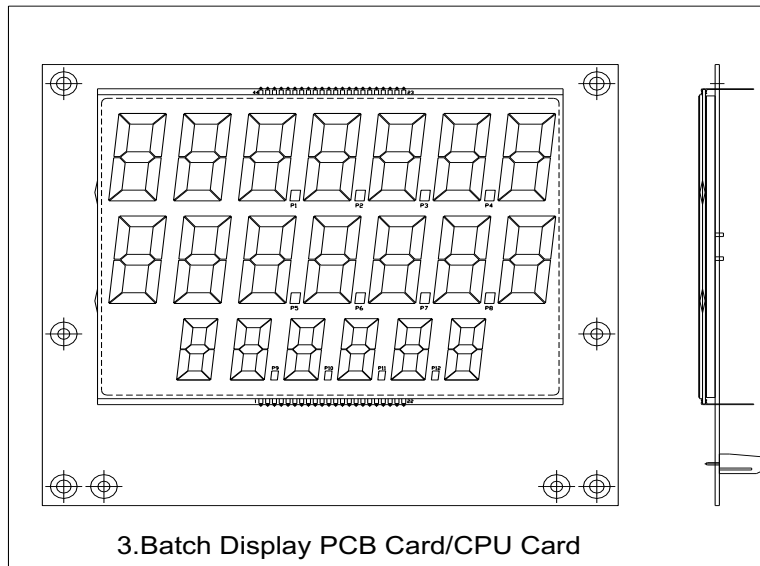
Lubricity – The lower the lubrication properties of a process fluid being measured, the lower the life expectancy of the meter.

Cleanliness – A product contaminated with abrasive particulate will accelerate the wear of the instrument.

Air pockets – Intermittent air pockets in the liquid will cause sudden speed bursts of the internal piston which will lead to excessive wear.

13.2 Electronics

The flowmeter is enabled with three main cards

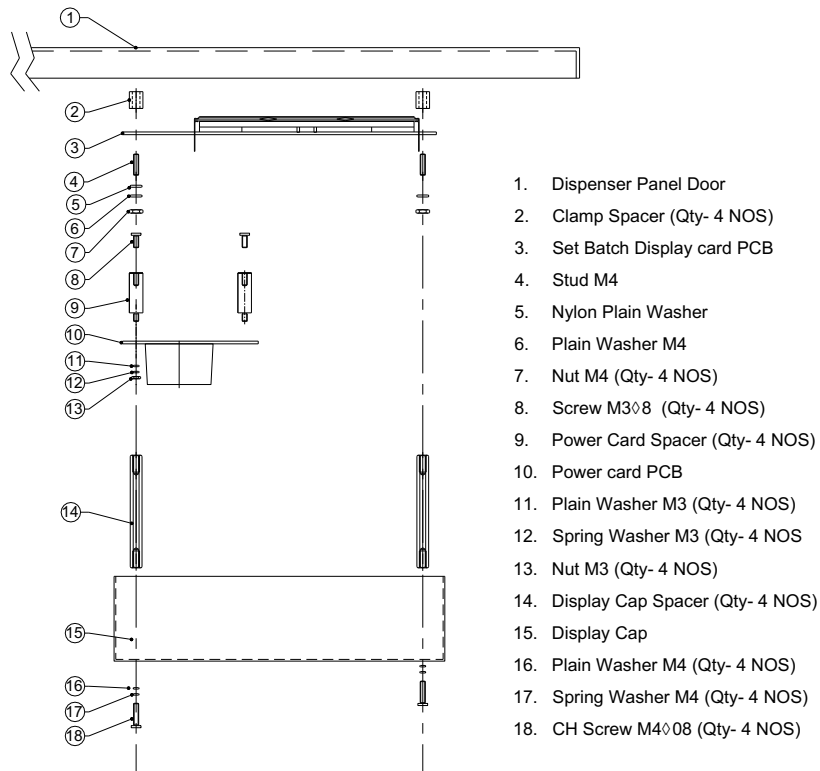


1. Power card
2. Keypad card
3. CPU card/ Batch display card

Note – It is forbidden to tamper with this part of the flowmeter as it houses the transducer. This should only be done under the supervision of a W&M inspector or Fluidyne personnel.

ESD precautions must be followed.

13.3 Removal/Replacement of the electronic cards



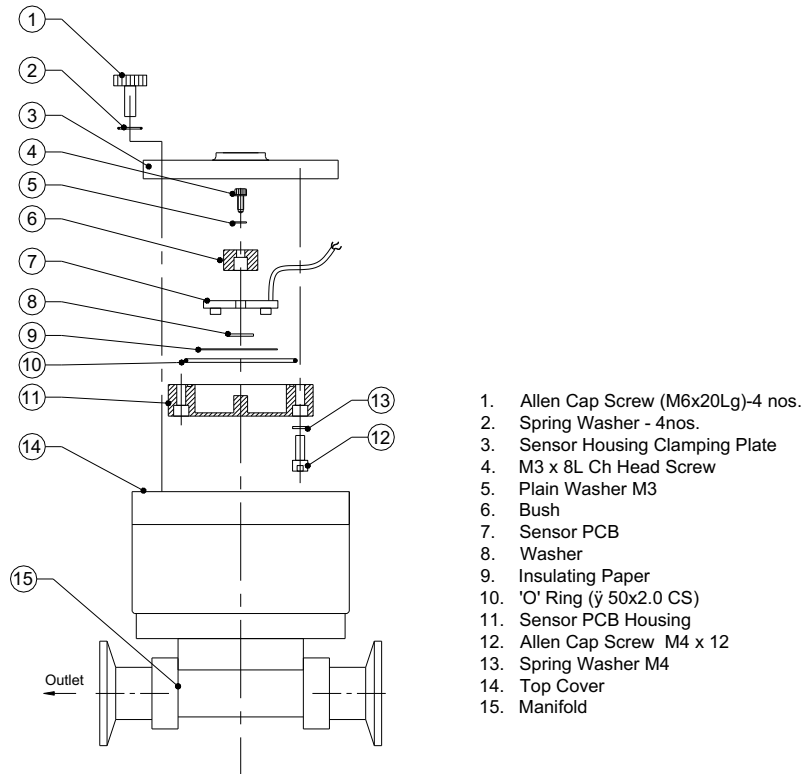
Caution – Isolate power before removing front cover. Do not open when module is energized.

The front cover must be screwed out to access the electronic card stack. The stack must first be disassembled by removing the screws, spacers and washers.

Gently disassemble the assembly and contact Fluidyne representative for more information

ESD precautions must be followed.

13.4 Removal/Replacement of the sensor card



1. Allen Cap Screw (M6x20Lg)-4 nos.
2. Spring Washer - 4nos.
3. Sensor Housing Clamping Plate
4. M3 x 8L Ch Head Screw
5. Plain Washer M3
6. Bush
7. Sensor PCB
8. Washer
9. Insulating Paper
10. 'O' Ring (50x2.0 CS)
11. Sensor PCB Housing
12. Allen Cap Screw M4 x 12
13. Spring Washer M4
14. Top Cover
15. Manifold

Caution: Ensure no flow in pipeline. Isolate the flowmeter on upstream and downstream ends. Ensure isolation of power before opening top cover.

At times it may be necessary to change the flow transducer board. This can be done by unscrewing the allen cap screws 1 and then reaching the sensor card 6. The sensor PCB must be removed from position by loosening the screw 4. Remove the card and discard it.

Place new sensor PCB in housing, insert screw 4 and bush 5 and tighten to secure the flow sensor card. The orientation of the PCB does not matter. Ensure that the PCB fits with sensor side facing downward.

Note – It is forbidden to tamper with this part of the flowmeter as it houses the transducer. This should only be done under the supervision of a W&M inspector or Fluidyne personnel.

ESD precautions must be followed.

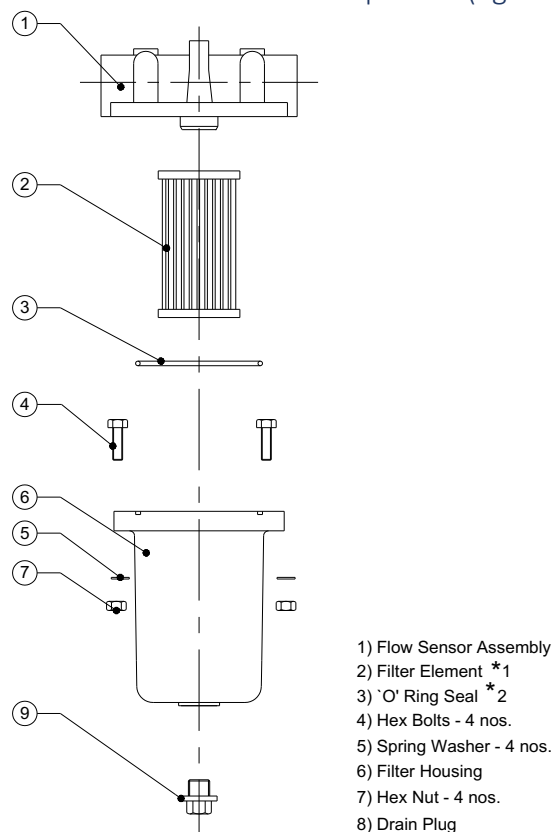
13.5 Removal/Replacement of the dispenser filter

Caution: Ensure no flow in pipeline. Isolate the flowmeter on upstream and downstream ends.

Remove the filter element and blow compressed air inside the element by blocking one side of the element with your palm. All debris sticking to the filter mesh will be blown away. Rinse the element in clean 10 micron filtered DM water or solvent for five minutes until the filter mesh is completely free of debris.

If filter is not damaged, dry the filter with compressed air at 2-3 bar. Fit the filter back into the flowmeter, change the O Ring seal 3 and with the help of original bolts, screw the filter housing back on the filter.

13.5.1 Removal of filter in oil-based liquid DU (eg.Diesel)



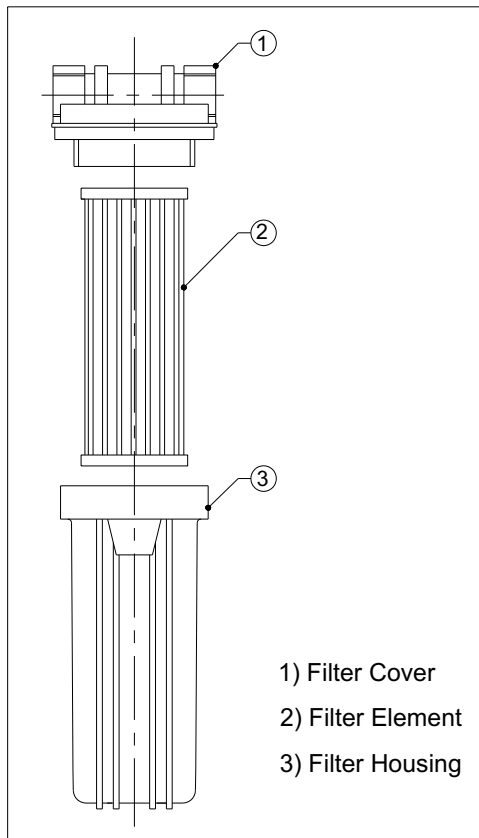
First, open the drain plug 8 to drain out all the residual liquid inside the filter housing.

To remove the filter, loosen the bolts shown in 4 and remove the filter housing 6. Then gently remove the filter element 2 from its position. Examine the filter element for debris, weld splatter and other foreign particles. Clean the filter in a different area with 10 micron filtered DM water and dry with a jet of compressed air (not more than 3 bar)

Fit the filter element back into the housing.

Examine O ring seal 3 and check for cuts. If cuts or breakage is observed, replace this O ring.

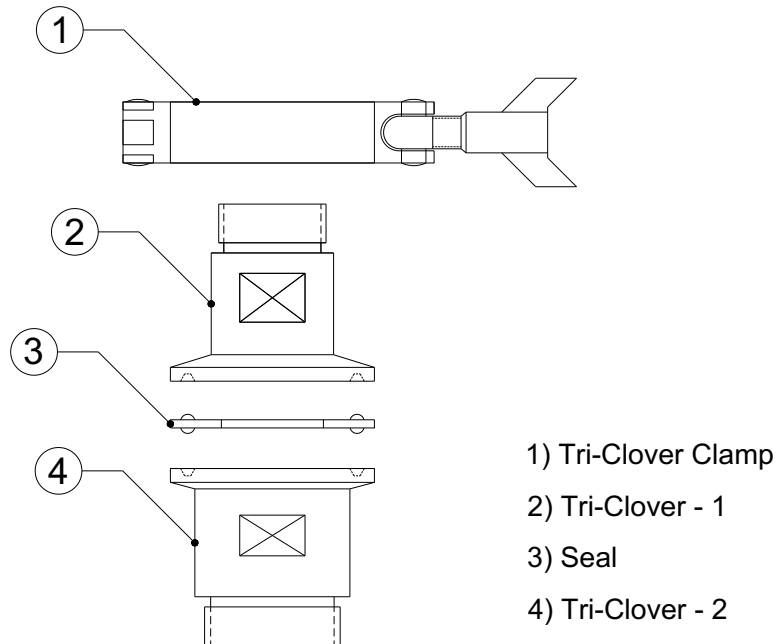
13.5.2 Removal of filter in water-based liquid DU (eg. Adblue)



Unscrew the filter housing 3 by hand. Remove the filter element 2 and clean with clear DM water and air dry with compressed air at maximum 3 bar. Fit the filter element with the gasket and tighten the housing to the filter cover 1.

Remove the filter element and blow compressed air inside the element by blocking one side of the element with your palm. All debris sticking to the filter mesh will be blown away. Rinse the element in clean 10 micron filtered DM water or solvent for five minutes until the filter mesh is completely free of debris.

13.6 Removal/Replacement of any component from the process line

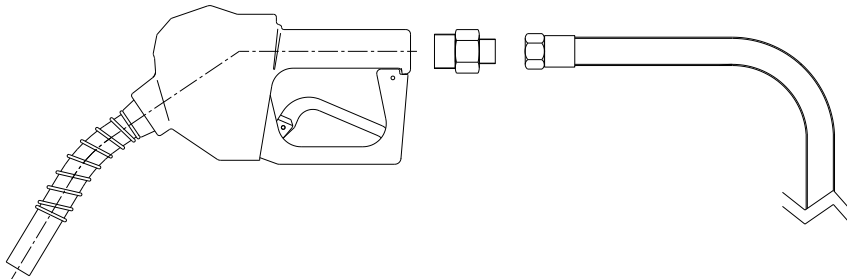


Caution – Isolate power before opening front panel. Do not open when module is energized. Ensure all liquid is drained from the flowmeter and isolate the flowmeter on upstream and downstream ends.

The parts are joined together with triclover end connections which can easily be removed by unscrewing them. Change the rubber seal 3 whenever the triclamp is removed before re-fitment if it has cuts or is broken.

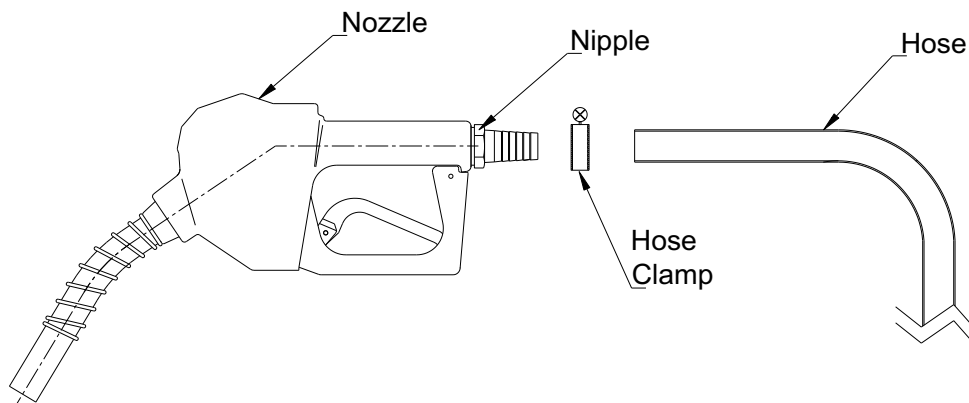
13.7 Removal/Replacement of hose or nozzle

13.7.1 Oil based liquids dispensing nozzle (eg. Diesel, Oils etc)



To isolate the nozzle, loosen the hose threading with a spanner and pull out the hose connection to the nozzle. Replace the nozzle and follow the same procedure to fit back the hose onto the nozzle.

13.7.2 Water based liquids dispensing nozzle (eg. Adblue, Coolant etc)



To isolate the nozzle, loosen the hose nipple clamp with a screwdriver and pull out the hose connection to the nozzle. Replace the nozzle and follow the same procedure to fit back the hose onto the nozzle.

14. Modbus Protocol Details

Basic Details

- Interface: 2-wire RS-485 communication
- Type: 32 bit floating point mode
- Protocol: MODBUS RTU
- Baud Rate: 115200 / 9600 (Selectable)
- Slave Id: Selectable
- Parity: None
- Data Bit: 1
- Stop Bit: 1
- Supported function code Read – x03
- Supported function code write – x10

Register-Data Mapping

Sr. No	Register	Parameters	R/W
1	40001 – 40002	Current Volume Floating Point	Read
2	40003 - 40004	Current amount Floating Point	Read
3	40005 - 40006	Unit Rate	Read / Write
4	40007 -40008	Status – Idle Status – Call Status – Authorized Status – Fueling Status – Payable Status – Pause Status – Barrel empty detected Status – Start Priming Status – Priming Busy Status - Priming fail Start again Status -Priming Complete	Read
5	40009 - 40010	Authorization/Set – 1, Pause – 2, Resume/Start /Priming Start– 3, Abort-4 (In normal condition register value is – “0”)	Write
6	40011 – 40012	Preset Volume	Write
7	40013 – 40014	Cumulative totalizer	Read
8	40015 – 40016	Cumulative amount	Read
9	40017 – 40018	Clear Sales	Write
10	40019 – 40020	Previous Dispensed Liter	Read
11	40021 – 40022	Previous Dispensed Amount	Read
12	40023- 40024	Density	Read
13	40025-40026	Transaction id	Read

14	40027-40028	TOP UP Status	Read
15	40029-40030	Mode (Manual mode – 0, Remote Mode -1, Semi-Auto Mode -2.	Read

Status code disambiguation in 40007 – 40008 register

Status	Code	Description
Status – Idle	1	Fuel dispenser is online
Status – Call	2	Nozzle is lifted
Status – Authorized	3	Authorization received but Fueling not started
Status – Fueling	4	Fueling started
Status – Payable	5	After Fueling nozzle kept on boot waiting for clear sales command from FCC
Status – Pause	6	Fueling is paused by Pause command from FCC
Status - Abort	7	Abort Batch
Status – Barrel Empty	8	Barrel empty detected
Status – Priming	10	Start Priming
Status – Priming Busy	11	Priming busy
Status - Priming Fail	12	Priming Fail start again
Status - Priming Complete	13	Priming complete

15. Troubleshooting

The information on this section has been provided as an aid for basic troubleshooting. Disassembly procedures have been outlined in chapter 12. If the 6720 has been found to need repair, it is recommended the user contact the nearest Fluidyne service office or representative. It is important that servicing is performed by trained and qualified personnel.

Condition	Probable Cause	Corrective Actions
No change in counting on 776 display and 7 segment totalizer display	Filter element choked	Remove filter element and clean with clear DM water and air dry with 4 kg air
	Nozzle lever closed	Open the nozzle to begin dispensing and free flow of liquid
	Insufficient input voltage	Supply sufficient voltage as per spec
	Power failure	Ensure power is connected to device and all associated accessories
	No flow through meter	Ensuring the pipeline has requisite flow of liquid by topping up the supply tank
	Improper electrical connection	Ensure proper wiring connections have been made
	Liquid vending valve faulty	Check the 2 nos relays on relay card. If LED does not light up on startup condition, replace relay card. If relay LEDs light up, then vending valve requires replacement
	Pump not switching on	Check pump connections and input supply connections with a multimeter and ensure that supply is as per spec and connections are okay
	Flowmeter jammed with debris	Contact Fluidyne representative
No change in counting on 776 display but ok counting in 7 segment totalizer display or vice-versa	CPU card failure	Replace CPU card
Pump switching ON but no counting	Depleted liquid service tank	Ensure that tank is full with liquid and that tank is kept at a height greater than the dispensing unit. Always connect tank from lowest point to the dispenser filter entry.

	Flow sensor failure	If liquid is coming out from the nozzle, then flow sensor card needs to be replaced
	Liquid Vending Valve not opening	Replace liquid vending valve
Pump switching ON but flow unstable	Inlet filter severely choked	Clean filter element as procedure given in 12.5
Nozzle not shutting off automatically after completion of top up/ liquid overflow from tank	Nozzle was not inserted into the tank properly	Insert nozzle properly with the spout inserted inside the tank
	Auto-shutoff action failure	Run a test in a small tank for auto-shutoff action in Top Up mode. If this test fails 3 times, replace nozzle
Pump not switching ON when start key is pressed	Relays are damaged	Check LED on Pump relay on relay card. If it does not switch on, replace relay card
	Supply not connected	Check supply voltage is ON
	Supply voltage low	Ensure 230 VAC 50 Hz value on voltage
	Pump not discharging liquid	Check pressure gauge value on delivery of pump and verify if it is reading above 0.0 bar. If not, pump has to be replaced
Vending valve LED not switching ON	Vending valve is damaged	Replace Vending valve
Power connected to system but device not switching on (no display)	Power not getting transmitted to internal components	Check the voltage LEDs on the Power Card. If they are off then power card is damaged and must be replaced
Display backlight not working	Power connected but no backlight visible in dark	Backlight damaged or worn out. CPU card to be replaced
Keypad not taking input	Signal between keys and internal processor is broken	Replace keypad + keypad card set
	Keypad controller unresponsive	

16. Contact personnel

Original Equipment Manufacturer

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