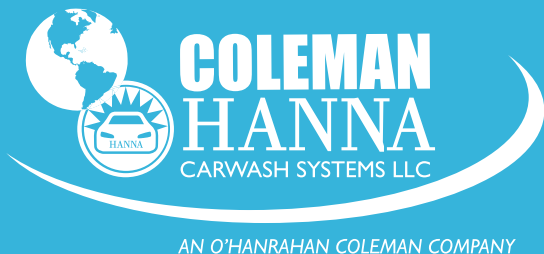


FusionX

Features & Benefits



5842 W 34th St • Houston, TX 77092
1.800.999.9878 • 1.713.683.9878

www.colemanhanna.com



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**Combination Wash System with SparkleSoft
STANDARD DESIGN FEATURES
(Optional Features Listed Below)**

Standard Features

The FusionX system includes the tremendous cleaning ability of the Water Wizard 2.0 touchfree unit with the additional cleaning power of a three brush design soft touch wash including our unique SparkleSoft material. Every unit is equipped with Undercarriage, Rocker Panel Sprayers, Entrance Signs, Web Enabled Computer Monitoring and Stainless Steel construction. Customers have the choice of a soft touch brush wash, touchfree wash only or a combination of both.

Three Brush Design

The *SparkleSoft* soft touch component of the FusionX has three brushes, two sides and one top brush. The customer has the option to have side brushes only, top brush only or a combination of both top and side brushes on any wash cycle. The top brush will rotate one direction and the change directions as it approaches the rear of the vehicle for maximum cleaning and less potential for damage.

Soft Touch Brush Controls

The system uses a Multi-Axis Coordinated Brush Motion Control to adjust the top and side brushes to the exact contour of every vehicle. Each brush uses an amp sensing technique to stay in constant contact with the vehicle and with just the right amount of cleaning pressure to ensure a clean vehicle.

The side brushes have an air activated tilt cylinder to force them to a vertical position for better cleaning on the lower portion of the car. When the cylinder is not activated, the brushes are allowed to contour to the more angled upper sides of the vehicle.

On-Board Rocker Panel Sprayers (RPS)

The On-Board High Pressure Rocker Panel Sprayer is an important feature that most competitive units do not offer. It provides far greater cleaning ability of the rocker panels, wheels and tires. Competitive units allow the customer to drive either too fast or too slow through the typical floor mounted systems. Accelerating too fast in the automatic bay, the customer may not take advantage of all the cleaning action - advancing too slow, the customer may not have the opportunity to subject the entire vehicle to the cleaning process.

Having the Rocker Panel Sprayers on board the gantry offers another advantage to the FusionX's cleaning ability. It allows for a more effective presoak application. Presoak is typically the first application of every recipe and is therefore applied onto a dry vehicle maximizing its performance. With the floor mounted systems, residual water is present on the vehicle from the rocker panel sprayers. This dilutes the strength of the presoak which can and will significantly decrease the cleaning strength of the presoak.

Total Gantry Speed Control

The speed the gantry travels is adjustable from 45% to full speed at 100%. This is controlled and easily set on the Operator Interface Panel (Red Lion). Now the low-pressure functions can be delivered at a higher rate of speed than ever before. This along with delivering the presoak and spot free rinse without dropping the boom saves a great deal of valuable cycle time.

Presoak Applied Through Independent System

The independent system designed for the FusionX has a line dedicated specifically to Presoak. The system uses 8 nozzles on the gantry to apply Presoak and completely cover the vehicle with just the Presoak chemical needed, with little or no waste. During the Presoak pass the boom does not drop saving valuable wash time.

The reduced liquid flow resulting from this design offers better control with air to product mixtures when applying foamy Presoak. Wind conditions vary with each wash site. Locations with occasional strong winds and no doors will require more liquid mixture to keep the wind from blowing it away. Locations where wind is not a problem or with doors can allow for more foamy or misty type application.

Brush Lube Application

There are specifically located nozzles on both the leading and trailing sides of the brushes. This can be used for only water or a mixture of detergent or presoak chemicals.

Scrubbing Action Oscillating Wash Nozzles

The FusionX and the Water Wizard 2.0 are the only sizing units on the market that have scrubbing action oscillating nozzles covering the entire vehicle. The difference is the design of the top wash boom which has these oscillating nozzles standard that drop below the bumper level, front and rear. Other units may have a top boom that lowers but will drop only partially.

It has been said that “touchfree washing” is not true. How true, since you are touching the vehicle with the water! With the scrubbing action nozzles, we do “scrub clean” the vehicle with high pressure water. The friction caused when the water contacts the vehicles surface at the different angles does indeed “Scrub the Vehicle Beautifully Clean”.

The 5 degree side nozzles are set on a semi-horizontal spray pattern. All other units are vertical or zero degree. With nozzles that either oscillate or rotate, striping is always a concern. This happens if the gantry moves too fast for the movement of the nozzles to cover the vehicle completely. Though still an issue, the semi- horizontal spray pattern covers more with each pass, therefore minimizing the possibility of striping.

The biggest advantage is the additional cleaning power provided by the 5 degree semi-horizontally mounted nozzles. The width of the 5 degree pattern is traveling with the gantry. The zero degree oscillating nozzles that are standard in the top boom and optional for the sides, offer yet another advantage - customer appeal. From inside the vehicle the oscillating action causes the vehicle to rock back and forth creating a lasting impression on the customer who can physically feel the High Pressure cleaning their vehicle.

Example: Pick a single point on the vehicle. If the width of the spray pattern is 2 inches at the point of contact, you attack that spot multiple times and from different angles. With a vertical pattern you hit that spot once and from one angle only. This is a major advantage when removing bugs, bird droppings, or other solid debris from the vehicle.

FusionX Contouring System

This option will allow the wash boom to follow the exact contour of any size vehicle. During the first pass the system creates a profile of the vehicle. It's amazing to watch just how closely the wash boom follows the contour of the vehicle, maximizing the scrubbing action of the high-pressure wash. This feature ensures that every vehicle that enters the FusionX, regardless of vehicle height and length will receive the same quality wash.

Maximum cleaning in a touchfree automatic depends on quality hot presoak and good high pressure scrubbing action. Moving the nozzles closer to the vehicle during the high pressure passes produces consistent and effective cleaning power.

Adjusts to Length

With the wide range of vehicles on the road today, this feature is a necessity. The FusionX, utilizing high tech optics, determines the size and length of the vehicle during the first pass. This is a low- pressure pass that will not interfere with the optics operation. The measuring function is performed by combining optics with a count-up proximity switch system. (CTU) As the gantry travels toward the rear of the vehicle, the optics makes contact. A flag target wheel is mounted on an independent, spring loaded, floating axle. This allows for possible imperfections in the rails or installation. As each flag target passes in front of the multiple CTU's it sends a pulse which the processor counts. As the gantry moves toward the rear the processor begins to count. The optics see each other at the home position. When the gantry moves far enough that the vehicle blocks the optics, the processor records that count in memory and continues to the end of the vehicle. At the end of the vehicle the optics make contact again and the processor records that count as well. Now, the length of the vehicle is calculated. The system utilizes the counts obtained to get closer or further away for the perfect washing distance.

Some units on the market today do not use the count up method and have live eyes during the entire wash cycle. This design can cause problems when forcing the optics to work through high-pressure spray or dense fog that happens in cold weather climates.

Operator Interface Panel (Red Lion)

The FusionX is equipped with an Operator Interface Panel (OIP) mounted on the units Electrical Control Center that allows the operator complete control. The comprehensive system puts you easily in charge...either on-site or on the web. Possessing web enabled capabilities permits complete access to system controls for monitoring or troubleshooting anyplace web access is available.

Multiple menus enable you to review and modify wash recipes, adjust timers and counters, view revenue, observe system operations, monitor electrical equipment and test any of the wash's functions. Other options such as blowers, door controls, reclaim systems and other support equipment are also easily controlled with the Operator Interface Panel. Critical areas are password protected.

The FusionX has been designed to meet a wide range of operator/customer demands and comes complete with thirty (30) factory designed wash recipes. They have the option to create and save another 30 different recipes of their own. These recipes are responsible for directing the automatic to perform the desired functions to the vehicle on each pass. A "pass" is defined as the travel of the FusionX from one end of the vehicle to the other. The FusionX allows 2, 4, 6, 8 or 10 passes.

Most automatic operators will ask the carwash customer to purchase a wash from one of 4 different wash recipes offered at the entrance controller or POS system. With the FusionX, the operator will choose at start up, either four of the thirty pre-programmed wash recipes offered or variations thereof. The Operator Interface Panel will allow modification on any of the wash passes at any time. Refer to the operator's manual for a description of the simple modification process.

Modifying a wash recipe is just one of the many features of the Operator Interface Panel. The Operator can perform complete income monitoring by the day, month, or year. It records income per wash cycle and a total of all wash cycles.

Web Enabled

With a DSL line on site, you can stay in touch with your FusionX anywhere web access is available. Perform all the Operator Interface functions as if you were standing at the control panel. Service and troubleshooting becomes a much simpler task when factory service technicians can be on-line with you and see exactly what you see.

Wash Data / Operation Screen

The Wash Data section will allow the operator to monitor the wash in progress on the Operation screen. It will display the cycle and wash pass it is currently performing and the action of that pass (i.e. presoak, tire cleaner, rinse, etc.) Several other functions included in Wash Data are available for complete cycle monitoring.

Tech Menu / Testing

The testing portion of the Operator Interface Panel Tech Menu is a tremendous feature. From the interface panel, the operator can turn on any of the wash functions and perform a variety of other testing or troubleshooting tasks. Simply select the option from the Tech Menu button by scrolling through the options on the screen and toggle it on or off as required.

Example: If you want to test the strength of the presoak at the nozzle, (instead of trying to catch product during a wash cycle), you go to presoak in the test screen and turn it on. Now the gantry is sitting in the home position spraying presoak only. The same is true for any of the wash functions.

Additionally, there is a dry wash feature. This allows the operator to operate the gantry through a wash cycle without wasting chemical or water. The unit will go through a complete wash cycle without any of the liquid functions operating.

View / Force Inputs and Outputs

This feature of the Tech Menu screen provides valuable assistance to the service department in determining what sensors are on or off at any given time. It displays each proximity switch, optic sensor, tank level switch or any other input switch to determine their proper operation. You can also “force” or turn on an individual output to allow you to test for, example, a solenoid without turning on the pump and other items associated with this component.

There are many more standard features of the Operator Interface Panel. Please refer to the FusionX manual for a complete description.

System Alarms

The system automatically saves alarms when and if they happen. There are over 125 different potential alarm conditions that the FusionX will monitor. If an alarm happens the system records the date and time, what wash cycle was purchased, what pass the gantry was in, where the wash boom and/or brushes were and where the gantry was when the alarm occurred. This makes any trouble shooting that may be necessary a much simpler and quicker process.

Preferred Options

Wheel Scrub Brushes with High Pressure

Located on each side of the gantry are counter rotating scrubbing wheel brushes. The system automatically locates the front and rear wheels. The gantry will then position itself for the wheel brush to extend pressing the specialized wheel cleaning brushes to gently penetrate the most intricate wheel design. The relatively slow speed rotation of the brush is in contact with the wheel as it spins one direction and then changes direction to thoroughly clean the entire wheel. Inside the brush are 3 high pressure nozzles that completely cover the wheel and tire as the brush extends and gives you that extra blast of cleaning power in areas that the brush may not touch on some wheels.

Triple Foam Conditioner or Detergent

The Triple Shine Foaming Conditioner is offered as an option on the FusionX Automatic and is aesthetically appealing to the customer. This option is not available on all in-bay automatics. Check out the comparison chart for units that offer this unique feature.

Mechanically, the FusionX Triple Foam package includes the tanks, dilution system, pump, and air mixture controls. Dazzle your customers with the magic of a tri colored foam application. Customers are amazed at the incredible array of colors as the specially designed applicator blends the Red, Gold and Blue conditioning foam into a soft, vibrant blanket to protect your vehicle's finish. Triple Foam application provides a great show and a lot of sizzle to the customer currently in the bay and the customers waiting in line.

Hot Wax / Low Pressure Wax System

A distinctive spray pattern is provided by the Hot Wax system as this unique product is delivered through the gantry mounted rain arch. This option will provide faster drying, insure a smooth even coverage over the entire vehicle and is proven to gather high approval ratings from customers.

The system includes a wall mounted, stainless tank and chemical mixing system, in-tank heater, delivery pump and boom mounted "Rain Arch" manifold.

On-Board Tire Cleaner Applicators (CTA)

This feature is also unique when compared to most automatic units. When included in the customer selected wash recipe, a high strength Tire/Wheel Cleaner is applied to the wheels, tires and lower portion of the vehicle. It is a separate product delivered through independent nozzles typically during the first presoak pass. Other units offer floor mounted drive-through systems if it is offered at all. The Tire Cleaner Applicators coupled with the Wheel Scrub and On-Board Rocker Panel Sprayers will enable the FusionX to "out perform" any other system in the industry on wheels and tires. The FusionX applies tire/wheel cleaning chemicals to a dry vehicle and allows time to soak.

For areas with heavy mud or snow, an optional mud-buster package is available with oscillating, zero-degree nozzles. The increased strength of impact these nozzles create will secure optimal cleaning results.

Two Step Presoak Delivery System

The term two step refers to a process in which the FusionX will apply two different presoak products during the same wash cycle. The two different types of presoak products most often used have different abilities. One is an alkaline, high pH and the other is an acidic low pH. As a rule the high pH product cleans dirt and the low pH helps remove film and works better on chromes. So the theory is to use both and cover all your bases. But the potential problem comes in dealing with acidic wash solutions. Some of the earlier acidic products had a hydrofluoric acid base that ate away at seals and brass fittings. Most of today's low pH products are citric based and are not aggressive toward metals and seals.

Mechanically it involves a separate tank, dilution system and pump to deliver the separate presoak. Typically the low pH, acidic product will go on first and then followed up with the high pH, alkaline presoak.

Something to remember is that different areas of the country have different cleaning conditions. What works in one area may not necessarily work in another and will require a different solution. In most areas cleaning with a high pH, alkaline presoak is very satisfactory which makes the low pH, acidic presoak unnecessary. But, where it is needed the two step process can be a great tool to achieve a clean vehicle.

Heated Presoak

All presoak manufacturers recommend their product be applied hot, typically 110 to 120 degrees on the vehicle. The heat makes the presoak more aggressive and loosens the dirt. The FusionX heated presoak option includes an electrical in-tank heater. These are available in 5 or 9 kW sizes. If supplying the chemical tanks with hot water the system will require only the 5 kW. When ordered with the original package the heater will be pre-wired and pre-plumbed ready to go.

Circulating Presoak

This option will insure hot presoak is delivered every time. When a customer sends a wash signal to the FusionX the presoak pump will start and circulate the heated presoak out to the gantry and return the cooler product to the tank. Once the vehicle is in position, the gantry presoak solenoid is opened and hot product will then flow through the nozzles. This is a great option for colder climates or extended wash bays.

Auto Paging System

You can't always be at your wash but you can always be in touch with it. The auto paging system will out dial your pager if an alarm should occur. The page will give the units location, time and date of fault, and the nature of the fault condition that lets the operator know if immediate attention is needed or if the situation can be handled at a later time.

Door Controls

Allows the FusionX's control panel to operate entrance and exit doors if needed. A set of safety optics are included for safe operation. ***This set of safety eye should not replace the eyes provided by the door manufacturer.*** Package also includes a toggle switch control for windy day operation.

Winter Wizard Winterization W/Track Heat

For cold weather operations, the Winter Wizard package will provide heat throughout the wash gantry and along the main rails. This is accomplished with a closed loop heating system much like a floor heat system. Hot anti-freeze is circulated throughout the insulated gantry and rails supplying enough heat to operate the unit to approximately 10 degrees without additional heat in the bays. (Actual operating temperature range varies. Factors such as the installation of doors and prevailing winds affect the performance.) Heat sources for the Winter Wizard can either be gas or electrically operated.

NOTE: It is necessary that doors and bay heat are installed for freezing weather installation. The Winter Wizard will protect the gantry and boom but not protect the brush material from freezing.

Entry Wizard 3 Entrance Controller

The Entry Wizard 3 with its WebGate Software is the next step in the evolution of entrance controller systems. Reliability and accessibility are the key features in the new EW3. It boasts a rock solid operating system and powerful web utilities that can be accessed through any high-speed Internet connection, allowing you to monitor your car wash from any computer that is connected to the Internet. The EW3 now offers more wash packages than previous units, allowing up to six programmable wash cycles and giving the customer a wider variety of options when selecting their wash.



Normal Operation

Under normal operation the FusionX will perform the following functions.

(We have used a preprogrammed 8 pass combination wash recipe as an example):

Note: All gantry speeds are set between max speed of 100% and slow speed at 45% excluding any passes that include a top and/or side brush application.

1. Customer at the entrance controller selects wash and deposits money or if applicable, enters a code. The money acceptor sends a 24-volt DC electronic signal for the corresponding wash recipe to the FusionX to begin operation.
2. Once the FusionX receives a wash signal the following will happen
 - a. The system will perform an eye test before “Enter Now” light illuminates. If any of the eyes fails then the proper error code will be displayed on the operator interface (Red Lion) and the unit will continue without certain functions or remain at home until error is corrected and unit is reset.
 - b. “Enter Now” sign at the entrance of the wash bay will illuminate
 - c. “Drive forward” sign in the wash bay will illuminate.
 - d. If applicable, Horn will sound twice.
 - e. The Entrance Timer will start.
 - f. The Overall Wash Timer will start. (This is set at 13 minutes)
3. As the customer drives forward, the vehicles front tires break the beam of the entrance optics turning on the Undercarriage wash cycle (if selected in the recipe). The undercarriage will stay on for the length of time set by the undercarriage timer or until the vehicle reaches the designated stop station (treadle switch). There is also an additional timer that will shut off the undercarriage. Once the rear vehicle tires have passed the entrance optics, it starts a timer (Under Car Rear Wheel Timer) that will shut off the undercarriage. This is usually set for 4 seconds.
4. In the event the customer drives past the stop station treadle switch and far enough toward the exit end of the wash bay to break the gantry optics, the back up message will display instructing the customer to back up until the customer once again triggers the treadle switch optic which causes the STOP light to illuminate.
5. Once the vehicle is in position on the treadle plate, the following will happen:
 - a. “Drive Forward” sign will turn off.
 - b. “Stop” message will display.
 - c. “Please Wait” light at the bay entrance will come on.
 - d. If applicable, Horn will sound once.
 - e. The Entrance timer will reset.
6. The FusionX will have a four second delay before the first wash pass begins.

**This is to insure the vehicle is stopped before receiving its wash and to allow time for presoak delivery to be fully pressurized.*

a) Definition of a Pass. Each pass begins with the high pressure wash boom and the top and side brushes at their Home position. During the high pressure passes, the Boom will go down and then back up. **The distance the boom travels downward is determined by the boom down counter (86 is the maximum travel count).* This is settable for both the front and rear of the vehicle for each pass. Once the boom completes its travels down and up again, the gantry will *then* travel to the opposite end of the vehicle.

b) Definition of a Brush Pass. The brushes are controlled by amp sensing. The system monitors the increased amps caused as the brushes contact the vehicle. Both the side and top brushes will contour the vehicle as they travel. If selected in the recipe, the speed is controlled by the CPU program. This is not adjustable by the operator. The operator can choose to have an angled or vertical side brush pass or offer both.

c) Low Pressure Passes. During Presoak, Hot Wax, Tri Foam and Spot Free Rinse the boom does not drop. Each of these products is delivered through a gantry mounted fixed delivery manifold or nozzles. The presoak has 2 arches in the gantry controlled by separate solenoids to ensure complete coverage.

d) Start Delay and Boom Down Count. Each pass can have a delay at the start and the end of each pass. Each pass can also have a boom down count at the start and end of each pass.

Pass #1 Presoak, Tri Foam and Tire Cleaner - The following will happen:

- a. The scrolling sign will read "Presoak"
- b. The Presoak and Tri Foam pumps (if applicable) will start and deliver product.
- c. If applicable, the Tire Cleaner pump will start and spray product to cover the tires and lower Rocker panels.
- d. The Gantry will start to travel down the track toward the back of the vehicle. Gantry speed is set at 100%
- e. The two count up proxies (CTU's) adjacent to the counting wheel will send signals for the wheel count as the gantry moves down the track.
- f. The measurement eyes are looking for the front of the car. When the eye sees the front of the vehicle it signals the Omron PLC to store the wheel count.
- g. **Locating the Wheels.** It is necessary to locate the vehicle wheels for proper wheel brush application. The front wheel is known since the treadle plate is in a fixed position. The rear wheel is located using a separate set of eyes.
- h. If applicable, the Auto Height Adjustment and/or Contouring eyes are looking for the Height and/or exact profile of the vehicle.
- i. The measurement eyes also look for the rear of the vehicle. When the eye sees the rear of the vehicle it signals the Omron PLC to store the wheel count.
- j. At the rear of the vehicle, Pass 2 is started unless pass one includes a boom down count.
- k. If there is a boom down count for pass #1, the wash boom will travel down the preset count at the rear of the vehicle and then return to the home position.
- l. If there is a start delay time then the gantry will dwell the number of seconds as set on start delay for pass #1. This is true for all subsequent passes as well.

Pass #2 High Pressure Rinse and Wheel Brush - Begins at the rear of the vehicle.

- a. High pressure Rinse will be delivered through oscillating nozzles.
- b. The wash boom will travel down based upon the boom down counter setting.
- c. The wash Boom will rise to its home position.
- d. The Gantry will travel toward the front of the vehicle based upon the wheel count. The CTU wheel counts that were collected in pass 1 are now used in the remaining passes. Gantry speed is set at 100%.
- e. Once the gantry reaches the count location of the rear wheel, it will stop and switch the oscillating high pressure to the wheel brush. The wheel brush will rotate, extend and retract cleaning the rear wheels. When finished with the rear wheels the high pressure oscillating rinse will begin again. This process is repeated at the front wheel location.
- f. The gantry will travel a preset distance past the vehicle to position the wash boom nozzles at approximately 14 inches away. This is adjustable by the operator.
- g. The auto height adjustment or contouring optic eyes will again look for the height or

profile of the vehicle.

- h. The wash boom will travel down based upon the boom down counter setting will then rise to its home position.
- i. If pass #2 has an ending delay, the presoak will dwell for the set amount of seconds at the end of that pass.

Pass #3 Top and Side Brush - Begins at the front of the vehicle.

- a. The brushes will rotate at the home position for approximately 10 seconds to establish a base amp setting. It is very important that nothing is in contact with the brush when this is happening.
- b. Scrolling sign will read - *Wash*
- c. The top brush will lower to an estimated position at full speed and slow down its travel as it comes in contact with the vehicle. Once the preset amp setting is reached, the gantry will travel toward the rear of the vehicle.
- d. The gantry travels until the side brushes are in position to wash the front of the vehicle. At this time, the top brush will raise slightly as the counter rotating side brushes travel across the front of the vehicle. They will nearly touch each other then shift past center to insure proper cleaning. The brushes continue to rotate and then return to their home position.
- e. Once at home, the top brush again lowers and the side brushes contact the side of the vehicle. This happens as the gantry travels toward the rear of the vehicle.
- f. The gantry will travel to the rear of the car based upon the wheel count. Gantry speed is controlled by the CPU according to the brushes amp reading.

Pass #4 High Pressure Wash - Begins at the rear of the vehicle.

- a. Scrolling sign will read *Wash*.
- b. High pressure wash will begin as the wash boom begins to lower the preset number of counts. (84 counts is full travel) The high pressure spray will not begin until the boom is lowered and tilted toward the vehicle.
- c. The wash boom will travel down based upon the boom @ start counter.
- d. The wash boom will rise to the home position. If auto height adjustment or contour is on, the wash boom will travel up to the adjusted position as calculated by vehicle profile in memory.
- e. The wash boom will spray High Pressure Wash while raising or lowering.
- f. Then the gantry travels toward the front at a 75% speed as selected in the recipe.

Pass #5 Low Pressure Hot Wax - Begins at the front of the vehicle.

- a. The Scrolling sign will read **Wax**.
- b. The system will begin to deliver a low pressure application of Crystal Polymer Glaze or similar product through boom mounted "*Rain Arch*".
- c. Gantry will travel toward the rear of the car
- d. The wash boom will not travel downward during this pass.

Pass #6 Spot Free Rinse – Begins at the rear of the vehicle.

- a. The Scrolling sign will read: **Spot Free Rinse**
- b. The Spot Free Rinse pump will turn on and spray Spot Free rinse water out of the independent gantry mounted nozzles.
- c. The gantry will travel toward the front of the vehicle applying Spot Free Rinse.
- d. Gantry speed is set at 75%.

Pass #7 Blower – *Begins at the front of the vehicle.*

- a. The Scrolling message sign will read Blower.
- b. Blower motors will start alternately.
- c. Center blower will rotate 360 degrees for set time to allow air scoop to remove excess water residue from gantry top panel.
- d. Gantry will travel toward the rear of the vehicle with center nozzle sweeping back and forth toward the rear of the vehicle.
- e. Near the rear of the vehicle and at a set count, the blower nozzle will reverse direction and blow back toward the front effectively drying the rear of the vehicle.

Pass #8 Blower – *Begins at the rear of the vehicle.*

- a. The gantry travels towards the front of the vehicle.
- b. Center blower nozzle oscillates back and forth while blower is on.
- c. Near the windshield and at a set count, the blower will reverse direction and blow back toward the rear of the vehicle as it continues to the gantry home position.

End of the Wash – *Gantry is in the home position.*

The Scrolling sign will read *“Exit Slowly”*. When the vehicle passes through the eyes on the gantry completely, the FusionX will send a 3 second signal to reset the auto cashier allowing the next customer to enter. Also, the Omron PLC is reset so it can wash a different size vehicle with a different wash package.

Safety Features of the FusionX

- Both the gantry and the wash boom have redundant proximity switch counters. This is for safety reasons and allows the processor to always know which direction both are moving.
- The Wash Boom will not come down if the Gantry Eyes, Boom Safety Eyes or the Can Eyes are blocked. This prevents the wash boom from coming down on a vehicle.
- The Auto Height Adjustment and Contouring eye profiles the height of the vehicle in Pass 1. Also, to make sure that the eyes are working correctly, the system completes a diagnostic test by cycling the measurement eye on and off before the start of each wash cycle.
- The wash boom has two safety eyes mounted on it. One for the front and one for the rear of the vehicle. These are in position to look for any obstructions as the boom and gantry travel.
- Both side and top brushes have “over-amping” sensing controls that will back them away from the vehicle if they become too close.

Proximity Switches

Proximity switches should be set to have approximately 1/2 inch clearance from the prox target. Care should also be taken to not allow the face of the prox to come in contact with prox target. This will destroy the prox and will void the warranty.

Prox switches are o-ring fitted with screw on electrical connections and should be filled with electrical grease to keep moisture out.

Wheel Counts

A rubber wheel is located on the gantry and follows the gantry track. This rubber wheel has a 4-position Stainless Steel target connected to it so that every revolution of the wheel will send a count from both wheel count proxes. Full gantry track travel is approximately 340 counts. This system is used to monitor the length of the vehicle. When the gantry moves down the track the counting wheel is continuously sending electrical pulses to the PLC. The PLC receives a signal from the photo eye sensors where the front or rear of a vehicle is. The PLC stores the count of the counting wheel so that the gantry will be able to return to the Front or Rear of the vehicle using the counts stored in memory and not rely on the eyes. There is a distance away from the front and rear of the vehicle that can be changed to allow the wash boom to be closer or farther away. Remember that a setting too close will not clean a car any better and will risk hitting a vehicle.



Combination Wash System SPEC SHEET

The **FusionX** incoming electrical requires two electrical connections into the main disconnect switch. The connections go into the Electrical Control Center and hook up to the Safety Disconnect Switch, located on the upper right. The connection goes into the top of the switch. The 120 VAC hot wire goes into the auxiliary contact on the left side of the switch. The Neutral terminal is located directly left of the auxiliary contact. The amperage requirements for the FusionX are explained under “**Electrical Required**” below:

Electrical Required:

The FusionX incoming electrical:

- 125 Amp, 3ph, 208/230V (67 Amp Actual Draw)
Fusible Disconnect Switch w/125 Amp Dual Element Fuses
- 20Amp, 1 Pole Breaker, 120V (10 Amp Actual Draw)

Optional Hot Wax System

- 30 Amp, 3ph, 208/230V

Optional Water Tank Heater (5KW)

- 20 Amp, 3ph, 208/230V

Water Line Required:

1" (26mm) Water - Min. Pressure 40 psi (2.75bar) - Max. 60 psi (4.5 bar)

Max Flow Rate: 32 gpm (122 lpm)

Dimensions:

Pump Plant	30"wide X 60"long X 70"high (762mm X 1524mm X 1778mm)
Electrical Panel	29"wide X 36"high X 8" deep (736mm X 736mm X 203mm)
Gantry	12'10" wide X 84" deep X 9'5" high (3910mm X 1888mm X 2921mm)
Vehicle Height Clearance	84" (2130mm)

Recommended Bay Dimensions:

Length	37' (11.28m)
Width	16' 0" (4.87m)
Height	12' (3.66m)
Min. Door Opening Height	10' 0" (3.05m)



380/415 Volt 3 Phase System SPEC SHEET

The **FusionX** electrical requires two electrical connections into the main disconnect switch. The connections go into the Electrical Control Panel and hook up to the Safety Disconnect Switch, located on the upper right. The connection goes into the top of the switch. The 220 VAC hot wire goes into the auxiliary contact on the left side of the switch. The Neutral terminal is located directly left of the auxiliary contact. The amperage requirements for the FusionX are explained under “**Electrical Required**” below:

Electrical Required:

If FusionX has 5kw Presoak Heater Provided:

- 75 Amp, 3ph, 380/415V (46Amp Actual Draw)
- 10Amp, 1 Pole Breaker, 220V (5 Amp Actual Draw)

Optional Hot Wax System

- 17.4 Amp, 3ph, 380/415V

Water Line Required:

1" (26mm) Water - Min. Pressure 40 psi (2.75bar) - Max. 60 psi (4.5 bar)
Max Flow Rate: 32 gpm (122 lpm)

Air Line Required:

½" (13mm) Air – Min. Pressure 80 psi (5.5 bar) – Max. 120 psi (8 bar)
Max Flow Rate: 10 cfm (.283 cubic meter)

Dimensions:

Pump Plant	30"wide X 60"long X 70"high (762mm X 1524mm X 1778mm)
Electrical Panel	29"wide X 36"high X 8" deep (736mm X 736mm X 203mm)
Gantry	12'10" wide X 74" deep X 115" high (3910mm X 1888mm X 2921mm)
Vehicle Height Clearance	84" (2130mm)

Recommended Bay Dimensions:

Length	37' (11.28m)
Width	16' 0" (4.87m)
Height	12' (3.66m)

Min FusionX Combination Wash System

Operational Cost Worksheet

Passes May Include Multiple Products

Wash Name: _____ **No. of Passes:** _____

<u>Water Usage</u>	<u>Pressure</u>	(Enter GPM) <u>GPM</u>	(Enter time) Avg run time in seconds <u>each pass</u>	(Enter #) <u># of passes</u>	<u>Gallons</u>
Cold Water Undercarriage Spray	1000	18	15	1	4.50
Hot Water Presoak	60	5.5	25	1	2.29
Tire Cleaner (<i>Applied on 1st Presoak</i>)	60	2	Include W/PS	1	0.83
Presoak Dwell Time			10		
Rocker Panel Blasters/Wheel Scrub	1000	18	35	1	10.50
Brush Lube (Sparklesoft pass)	50	4	55	1	3.67
High Pressure Rinse	1000	32	34	1	18.13
Tri-Foam Product	60	2.5	20	1	0.83
Low Pressure Wax	40	2.5	25	1	1.04
Spot Free Rinse	120	10	30	1	5.00
Blowers			20	0	
Total Cycle Time in Seconds			249		46.80

Total Hot Water gallons (If applicable) (<i>Presoak, Rocker Panel Blasters, HP Wash/Brush</i>)	16.46
Total Cold Water gallons (<i>Undercarriage, Tire Cleaner, Tri Foam, HP Rinse, Low Pressure Wax</i>)	25.34
Total Spot Free Rinse Water	5.00
Avg. Water Use Per Vehicle	46.80
Water & Sewer Cost per 1000 Gal	\$7.13
Water & Sewer Cost per Vehicle	\$0.33

Natural Gas Requirements (Deduct this cost if not using gas to heat the Presoak water)

Avg. Hot Water per Vehicle	16.46
Water = 62.4 lbs per cubic ft	Cubic Ft Hot Water per Vehicle 2.20
1 cubic ft = 7.481 gallon	
Water = 8.34 lbs per gallon	Lbs of Water per Vehicle 137.26
Ambient Water Temperature	(Enter desired temperature) 50
Desired Hot Water Temperature	(Enter desired temperature) 120
Natural Gas Cost per 1000 Cubic ft	(Enter cost of Gas) \$10.03
Btu's Required per Vehicle	9608
Cubic ft of Gas per Vehicle (Natural Gas has 1000 btu's per cubic ft)	9.61
Avg Natural Gas Cost per Vehicle	\$0.0964

Electricity Requirements

1 Hp = 746 watts

(Enter voltage)

3 Ph voltage

230

1 Ph voltage

120

1 KW = 1000 watts

3 Ph AC =Watts = Volts X Amps X Power Factor 1.73

Electricity Cost per Kilowatt Hour

(Enter cost)

\$0.1050

Ampere draw 25 HP Motor

68

Ampere draw Gantry Motors

12

Ampere draw Controls & Stop Sign

6

Ampere draw 5KW Presoak Heater

3 Ph

3.413 watts = 1 Btu

12.5

Ampere draw 3-10HP Blower Motors

3 Ph

83

1 Phase Control-Complete Cycle KW Used per Vehicle

0.0000

3 Phase KW Used per Vehicle

Undercarriage Spray

0.0767

Rocker Panel Blaster

0.1789

Hot Water Presoak

Avg. vehicles per hour

15

0.3920

Tri Foam

Avg. vehicles per hour

15

0.1425

High Pressure Rinse

0.1738

Low Pressure Wax

Avg. vehicles per hour

15

0.1782

Spot Free Rinse

0.0080

Blowers

0.1517

Average KWH per Vehicle

1.3018

Average Electricity Cost per Vehicle

\$0.1367

<u>Chemical Usage / Dillution Ratio</u>	<u>Operational Pressure</u>	(Enter cost)	(Enter ml)	(Enter #)	<u>Avg Cost per Vehicle</u>
		<u>Cost per ml</u>	<u>Avg Amount per Pass</u>	<u># of Passes</u>	
Hot Presoak - 90 to 1	60	\$0.00339	5850	2	\$0.397
Tire Cleaner - 50 to 1	60	\$0.00540	1700	1	\$0.184
Triple Foam - 472 to 1	60	\$0.00810	1650	1	\$0.028
Triple Foam - 472 to 1	60	\$0.00810	1650	1	\$0.028
Triple Foam - 472 to 1	60	\$0.00810	1650	1	\$0.028
Brush Lube - 472 to 1	60	\$0.00250	650	1	\$0.003
Low Pressure Wax	50	\$0.01059	1650	1	\$0.037

Average Chemical Costs

\$0.706

Note: Chemical usage costs vary with eash wash vend. Our sample vend includes optional Tire cleaner, Triple Shine conditioner and Low Pressure Wax.

Amount per pass is total liquid-water and chemical. Avg Cost based on dilution ration

Utility Costs Summary

Water and Sewer Costs

\$0.334

Natural Gas Costs

\$0.096

Electricity Costs

\$0.137

Chemical Usage Costs

\$0.706

Average Operational Cost Per Vehicle

\$1.272



LOCATION/SITE ANALYSIS IN-BAY AUTOMATIC

WORKSHEET

Traffic Count

5,000 vehicles per day	3
7,500 vehicles per day	6
10,000 vehicles per day	9
12,500 vehicles per day	12
15,000 vehicles per day	15
17,500 vehicles per day	18
20,000 vehicles per day	21
22,500 vehicles per day	24
25,000 vehicles per day	27

Site Information

Commuter or Tourist Traffic	-18
Traffic Speed 35 and Under	3
Traffic Speed Over 35	-3
Automatic Attended Everyday	5
Automatic Attended Weekends Only	2
Stack Up Space 1-2 Vehicles	-2
Stack Up Space 3-4 Vehicles	3
Stack Up Space 5 or More Vehicles	5
Left Hand Turn Bay Entry	1
Entrance Controller Accepts Credit Cards	3
Entrance Controller Accepts Fleet Account Codes	2
Ongoing Marketing Program	2

Total Site Information Points

Competing Bays

- Competing Touchless Bays Within 1 Mile (deduct 3 points per bay)
- Competing Friction Bays Within 2 Mile (deduct 1 point per bay)

TOTAL LOCATION FACTOR POINTS

SCORE YOUR SITE.....

40-50 POINTS	BUILD IT!
30-39 POINTS	VERY GOOD
20-29 POINTS	GOOD
10-19 POINTS	FAIR



LAYOUT QUESTIONNAIRE

GENERAL INQUIRIES

Construction

New Remodel

Incoming Power Supply

208 230 460

Incoming Water Supply Line Diameter

1" 1-1/2" 2" 2-1/2"

Incoming Water Pressure:

Welcome Text For Scrolling Sign (Car Wash Name)

OPTIONAL EQUIPMENT FEATURES

Floor Heat

Yes No

Swipe @ The Bay

Yes No

Spot Free Rinse

Yes No

On Board Blowers

Yes No

Winterization Pkg.

Yes No

Entry Wizard

Yes No

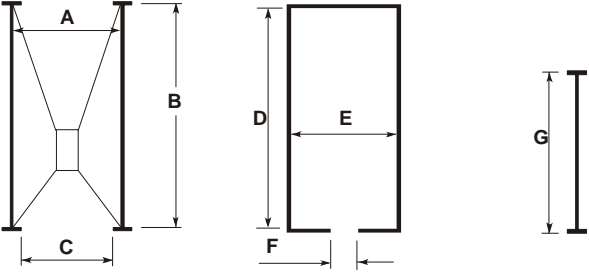
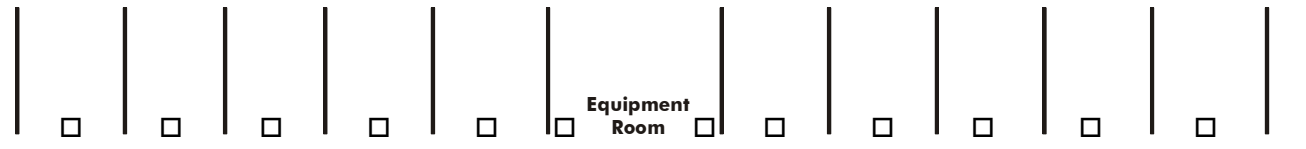
<p>DIAGRAM A</p>  <p style="display: flex; justify-content: space-around; font-weight: bold; font-size: small;"> AUTOMATIC BAY LAYOUT EQUIPMENT ROOM LAYOUT AUTOMATIC BAY HEIGHT </p>	<p>DIAGRAM A – KEY MAP</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>A. Inside Auto Bay Width =</td><td style="width: 100px;"></td></tr> <tr><td>B. Inside Auto Bay Length =</td><td></td></tr> <tr><td>C. Inside Auto Bay Entrance & Exit Opening</td><td></td></tr> <tr><td>D. Inside Equipment Room Length =</td><td></td></tr> <tr><td>E. Inside Equipment Room Width =</td><td></td></tr> <tr><td>F. Equipment Room Door Width =</td><td></td></tr> <tr><td>G. Inside Auto Bay Height =</td><td></td></tr> <tr><td> </td><td></td></tr> <tr><td> </td><td></td></tr> </table> <p>NOTES:</p>	A. Inside Auto Bay Width =		B. Inside Auto Bay Length =		C. Inside Auto Bay Entrance & Exit Opening		D. Inside Equipment Room Length =		E. Inside Equipment Room Width =		F. Equipment Room Door Width =		G. Inside Auto Bay Height =					
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F. Equipment Room Door Width =																			
G. Inside Auto Bay Height =																			

DIAGRAM B



1. In The Diagram Above Please Locate The Position Of The Automatic Bay From The Equipment Room.		
2. In The Diagram Above Please Show Which Wall The Equipment Backs Up To In The Equipment Room		
3. Is The Entrance To The Automatic Bay At The Top Or Bottom Of This Drawing?	<input type="checkbox"/> Top	<input type="checkbox"/> Bottom

Operator, Coleman Hanna Carwash Systems and Equipment Installers Requirements and Responsibilities

(Please refer to your local distributor for their specific requirements)

- 1) Operator must provide installer and COLEMAN HANNA a completed Site Questionnaire. All dimensions and other information must be accurate. The operator is responsible for all additional costs if dimension's provided to COLEMAN HANNA are not accurate and additional equipment or components are required to complete a proper installation.
- 2) When requested, COLEMAN HANNA will provide the operator Site Drawings for the proper placement of equipment for both the equipment room and in-bay, in a timely manner, once the Site Questionnaire has been received.
- 3) If site includes a floor heat system, operator is responsible to install in-floor tubing so as to avoid the area of bay floor directly beneath the drive rail and gantry rail mounting location as specified on the above mentioned drawings. COLEMAN HANNA's equipment installation does not include floor heat installation unless otherwise specified and quoted separately.
- 4) Operator is responsible for the mounting and installation of the auto-cashier. If operator chooses to construct auto cashier base of masonry, COLEMAN HANNA will provide a typical brickwork installation drawing that will include proper height and location of cashier. This is to be completed prior to installation of the automatic equipment.
- 5) Operator is to provide 2 ¼ inch electrical conduits which run from a specified location in the equipment room to the cashier island. Electrician supplied by the operator shall install the 110 volt power supply w/dedicated ground to the cashier and the low voltage control circuits at the time of installation. COLEMAN HANNA installers will make final terminations of low voltage control circuits. Wire size and quantity to be specified on bay layout drawing. NOTE: If Entry Wizard, Entry Wizard 2.0, or Swipe N Clean is installed, an additional 3/4 inch conduit for a communications cable is to be included per bay layout drawing.
- 6) PLUMBING: The hot, cold, & spot free rinse water supply including proper installation of water softeners, boilers or water heaters or any plumbing up-stream of the automatic pumping unit is the responsibility of local plumbers who shall be provided by the operator. COLEMAN HANNA installers will install everything down-stream of the pumping unit including the wash bay. If the Winter Wizard option is included, local plumber is responsible for proper installation of heat source as with other water heaters if other than COLEMAN HANNA wall mounted tank. COLEMAN HANNA installers will install all downstream equipment.
- 7) ELECTRICAL: Local electricians who shall be provided by the operator will supply 1 – 125 amp 3 phase 208/230/460 volt to the Electrical Control Center main disconnect (*Fusible Disconnect Switch w/125 amp Dual Element Fuses Recommended*) and 1 – 20 amp 1 phase 120 volt grounded circuit. Electrician will also wire as per equipment requirements all equipment up-stream of pumping unit.
- 8) ELECTRICAL IN-BAY: Local electricians who shall be provided by the operator shall install in-bay underground conduits as specified on the Site Drawings. At the time of equipment installation, electricians will pull proper wire for entrance and stop station optics as specified on Site Drawings.

9) SPOT FREE RINSE SYSTEM: If spot free rinse system is included, operator shall have SFR system plumbed and wired according to the units' specific plumbing and electrical requirements. COLEMAN HANNA installers will make necessary wiring and plumbing connections from the SFR system to the automatic pumping unit.

10) START-UP CHEMICALS: Unless otherwise specified by COLEMAN HANNA or its distributor, operator is to supply their own start up chemicals. It will be necessary to supply COLEMAN HANNA with the chemical manufacturers recommended mixing ratios for proper vehicle application if using chemicals other than Turtle Wax products.

11) START-UP: Unless other arrangements are otherwise agreed to in writing, COLEMAN HANNA installers must be able to wash vehicles at the completion of automatic installation. This means that all support equipment up-stream of the automatic be installed and operational and all utilities in place and turned-on. COLEMAN HANNA installers will allow a one-day grace period for final preparation leading to turn-on. If after the one-day grace period COLEMAN HANNA installers are not able to turn-on the automatic due to delays in the construction, plumbing or electrical work, the operator will be charged normal service fees. If a return trip is required, operator will bear additional expenses.

Signed by Operator _____ DATE: _____

Print Name _____

Site Location _____

Signed by **Coleman Hanna Carwash Systems** _____ DATE: _____

Print Name _____



LIMITED WARRANTY

The Manufacturer warrants any component or part of the Coleman Hanna Carwash Systems Car Wash equipment to be free from defects in material and workmanship for a period of one year from date of shipment, with the exception of such parts as are commonly recognized to be subject to wear in normal usage, such as high pressure hoses, swivels, nozzles, safety shut off guns, etc., which are warranted for ninety (90) days. All electrical parts not manufactured by Coleman Hanna Carwash Systems are warranted to be free from defects in material and workmanship for a period of 90 days. Electrical motors shall be covered under manufacturer's warranty for a period of one year, unless otherwise specified. Coleman Hanna Carwash Systems electronic controls, such as timers, coin acceptors and computer monitoring equipment, carry a one-year warranty. Claims under this warranty must be asserted in writing within the one-year period covered by this warranty.

Any component or part alleged to be defective in material or workmanship shall, at option of Manufacturer, be returned with shipping cost prepaid. If, upon examination, such component or part is found to be defective in workmanship or materials, Manufacturer, at its option, will either repair or replace such component or part, and shall ship such repaired or replaced component or parts F.O.B. factory, Houston, Texas. Manufacturer reserves the right to use "Like New" or Remanufactured parts in repair of warranty items that exceed 6 months in service. The cost of such replacement or repair shall be the exclusive remedy for any breach of any warranty and Manufacturer shall not be liable to any person for consequential damages for injury or commercial loss resulting from any breach of any warranty. This warrant does not cover any labor installation cost, either with respect to the original equipment, the repaired or replaced component, or part defective in workmanship or materials. Coleman Hanna Carwash Systems does not warrant loss of income should there be any during such time repairs are being made. Coleman Hanna Carwash Systems shall not be responsible for vehicle damage or repairs as may arise during normal wash cycle operation. Operator acknowledges accepted risks involved with friction in-bay automatic washes.

This warranty does not apply to components or parts which have been misused, altered, neglected, not installed, adjusted, maintained, or used in accordance with applicable codes and ordinances and in accordance with Manufacturer's recommendations as to such factors.

THIS WARRANTY IS IN LIEU OF ALL WARRANTIES, EXPRESS OR IMPLIED, OF EITHER MANUFACTURER OR SELLER, AND MANUFACTURER MAKES NO WARRANTY AGAINST INFRINGEMENT OF THE LIKE, MAKES NO WARRANTY OF MERCHANTABILITY, MAKES NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING IMPLIED WARRANTY ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

This warranty does not apply to damage resulting from improper operation or abuse, exceeding the rated capacities of the unit, running foreign particles or non related solutions through pumps or valves, using acidic solutions, improper installation or maintenance, operational neglect, neglect of manufacturers recommended maintenance, use of water containing solids in excess of twenty microns in diameter or 2000 PPM, damage caused by customer, unjustifiable nuisance calls, or acts of God.

Compliance with any local governmental laws or regulations relating to the location, use or operation of the equipment, or its use in conjunction with other equipment, shall be the responsibility of the purchaser. The rights and obligations of the parties shall be governed by the State of Texas.

FusionX

Electrical Required:

The FusionX incoming electrical:

- 125 Amp, 3ph, 208/230V (67 Amp Actual Draw)
Fusible Disconnect Switch w/125 Amp Dual Element Fuses
- 20Amp, 1 Pole Breaker, 120V (10 Amp Actual Draw)

Optional Hot Wax System

- 30 Amp, 3ph, 208/230V

Optional Water Tank Heater (5KW)

- 20 Amp, 3ph, 208/230V

Water Line Required:

- 1" (26mm) Water - Min. Pressure 40 psi (2.75bar)
Max. 60 psi (4.5 bar)

Max Flow Rate: 32 gpm (122 lpm)

Dimensions:

Pump Plant	30" wide X 60" long X 70" high (762mm X 1524mm X 1778mm)
Electrical Panel	29" wide X 36" high X 8" deep (736mm X 736mm X 203mm)
Gantry	12'10" wide X 74" deep X 115" high (3910mm X 1888mm X 2921mm)
Vehicle Height Clearance	84" (2130mm)
Recommended Bay Dimensions: (Contact JCC for lesser dimensions)	
Length	39' (11.88m)
Width	16' (4.88m)
Height	12' (3.66m)
Min. Door Opening Height	10' 0" (3.05m)

