Multiple Washer
Laundry Control System

Pneumatic - Wall Mount -
1 Channel - Installation Guide
# Table of Contents

1. Safety Measures and Requirements_______1

2. General Description____________________________1

3. Dimensions

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic Wall-Mount Main Panel (Inches)</td>
<td>2</td>
</tr>
<tr>
<td>Distribution Manifold (Inches)</td>
<td>2</td>
</tr>
<tr>
<td>Pneumatic Wall-Mount Main Panel (Millimeters)</td>
<td>3</td>
</tr>
<tr>
<td>Distribution Manifold (Millimeters)</td>
<td>3</td>
</tr>
</tbody>
</table>

4. Pre-Installation, Installation and Mounting

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Pre-Installation Survey</td>
<td>4</td>
</tr>
<tr>
<td>4.2 Main Panel Positioning</td>
<td>4</td>
</tr>
<tr>
<td>4.3 Other Component Installation</td>
<td>5</td>
</tr>
<tr>
<td>4.4 Delivery Hose Connections</td>
<td>5</td>
</tr>
<tr>
<td>Distribution Manifold Hoses</td>
<td>6</td>
</tr>
<tr>
<td>Optional Air-Assist Flush</td>
<td>7</td>
</tr>
<tr>
<td>4.5 High Pressure Air Connections</td>
<td>7</td>
</tr>
<tr>
<td>4.6 Electrical Connections</td>
<td>8</td>
</tr>
<tr>
<td>Input: 110 VAC Main Power Connection</td>
<td>8</td>
</tr>
<tr>
<td>Input: Air Pressure Sensor Connection</td>
<td>9</td>
</tr>
<tr>
<td>Input: Drum Level Sensor Connection</td>
<td>9</td>
</tr>
<tr>
<td>Input: External Emergency Stop Connection</td>
<td>10</td>
</tr>
<tr>
<td>Output: External Alarm Indicator Connection</td>
<td>10</td>
</tr>
<tr>
<td>Output: Distribution Manifold Solenoid Connection</td>
<td>11</td>
</tr>
<tr>
<td>Output: Air Assist Flush Connection</td>
<td>11</td>
</tr>
<tr>
<td>Communication: Machine Communication Boxes</td>
<td>12</td>
</tr>
</tbody>
</table>

5. Dositec Start Up

<table>
<thead>
<tr>
<th>Step</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1. Configuring the system settings</td>
<td>12</td>
</tr>
<tr>
<td>5.2. Prime the hoses that go to the washer extractors with water</td>
<td>12</td>
</tr>
<tr>
<td>5.3. Prime the suction hoses of every product</td>
<td>12</td>
</tr>
<tr>
<td>5.4. Calibration of Products</td>
<td>13</td>
</tr>
<tr>
<td>5.5. Calibration of Water</td>
<td>13</td>
</tr>
<tr>
<td>5.6. Check the Dosage Calibration with Manual Dose</td>
<td>13</td>
</tr>
<tr>
<td>5.7. Adjusting Flush Time for each Washer Extractor</td>
<td>13</td>
</tr>
<tr>
<td>5.8. Download to the PC</td>
<td>13</td>
</tr>
<tr>
<td>5.9. Test the System</td>
<td>13</td>
</tr>
</tbody>
</table>

6. Service Parts____________________________________14
1. Safety Measures and Requirements

Please follow these instructions carefully in order for the unit to work safely and efficiently.

Both the unit and its peripheral elements must be handled by qualified technical personnel.

Make sure the installation is carried out according to the current regulations of the state, county and city.

Do not mount the unit on an irregular or unstable surface.

This unit is designed to work in a vertical position.

The unit must be installed in an area with adequate clearance, far from possible impacts, electromagnetic noise sources and pipelines of gas, steam or water.

The top of the cabinet is not a shelf! Do not leave objects on the unit.

Warranty is voided if the user modifies, adds or suppresses any feature of the unit.

All components involved in maintenance tasks must be the ones registered in the spare parts list supplied by the manufacturer. Otherwise the Warranty is void.

The installation of the dosing system must be performed according to the instructions of this manual.

Main electrical power supply must be 110-120VAC, at 60 Hz.

Always use wires in good condition.

The water supply to the unit must conform to the specifications of this manual.

The high pressure air supply to the unit must conform to the specifications of this manual.

The unit should be configured according to the programming manual.

All chemical products must be stored in approved container, at a safe distance from the unit.

The handling of chemical products requires the proper safety measures such as protective glasses, a mask and gloves.

2. General Description

Pneumatic wall-mount units are designed to dose chemical products to multiple washer extractors.

The maximum number of products that can be used with a single unit is 10. Regardless of the number of dosage channels the maximum number of washers the products can be distributed to by a single unit is also 10.

All the components of the system are consistent with general purpose industry standards, and the materials of construction are compatible with all normal laundry products.

The measurements made by the built-in flow meter ensure reliable, accurate and repeatable product dosage. The use of a flow meter also allows for additional safety measures and alarms to prevent mixing of chemicals.

The pneumatic wall-mount units have four major components:

1) The collection manifold (Mounted on the main panel.)
2) The dosing channel (From the collection manifold on the main panel out to the distribution manifold.)
3) The distribution manifold, (Mounted separately.)
4) The communications boxes (To capture and transmit the signals from each washer extractor to the controller.)
When a qualified signal is detected by the communication box, the unit will dose the appropriate products according to the settings of the formula and washing phase being executed.

An external panel for an optional air flush can be used when larger doses or longer distances are required in order to deliver the chemical doses to the machines much faster and using less water.

A key feature to the system is delivering up to 10 chemicals to up to 10 washers with a single, durable, pneumatic, double-diaphragm pump. Aiding in the reliability and longevity of the system is a water flush that cleans the entire channel after every product delivery. The collection manifold, both sides of the pump, the flow meter, and all the way through the distribution manifold to the washer is flushed with clear water, to prevent the effects of long-term chemical exposure.

3. Dimensions

Pneumatic Wall-Mount Main Panel
(Inches)

Distribution Manifold
(Inches)

(6 and 8 Washer)

(10 Washer)
Pneumatic Wall-Mount Main Panel
(Millimeters)

Distribution Manifold
(Millimeters)

(6 and 8 Washer)

(10 Washer)
4. Pre-Installation, Installation and Mounting

4.1 Pre-Installation Survey

It is highly recommended to visit the site well before installation, to familiarize yourself with the physical layout of the laundry, the machines present and their characteristics, the laundry products in use, and how any current laundry dosing system is being employed.

Pay attention to the entire laundry system, its requirements and its schedules, to ensure a smooth transition to, and installation of, your Dositec laundry dosing system.

Learn the operations of all the washers, as well as the products they use, and why. Determine the capacities of the machines and what is involved in programming their signals.

Measure the distance between where the Dositec main panel will be installed and the location of the Distribution Manifold(s). Determine where the communication boxes will be installed for each washer, as well as the lengths of 4-conductor cable needed to daisy-chain them back to the main panel, and the lengths of 10-conductor cable from each communication box to each washer’s signal terminals. Identify the voltage each washer is using for its signals. Determine how many conductors you need for connecting the main panel and the distribution manifold(s) and the distance for that connection.

Measure the lengths of chemical delivery hose that will be needed to run from the main panel to the distribution manifold(s), from the distribution manifold(s) to the washers, and back to the Calibration vase. Identify how the hoses will be routed, and what hardware will be required to accomplish that scheme. Identify where the bulk chemicals will be placed and the lengths of hose needed to connect them to the Collection Manifold of the main panel. Calculate how many hose clamps will be necessary to complete the installation.

It is recommended to use the specific installation kit for the system being installed, which is available from Hydro Systems. If the mounting hardware is obtained from local providers, all items should be the same as the ones listed in the kit.

Schedule an orderly transition from any previous dosing system in use, and investigate if any portions of that system must be removed before the installation of the Dositec system.

4.2 Main Panel Positioning

In order for the Dositec laundry dosing system to operate properly it must be installed in an unobstructed location on a flat wall. The system must also be placed at a height so that the screen is at eye level.

- Use a drill and bit appropriate to the material the panel is being mounted on.
- Drill four 5/16” (8mm) diameter holes in the wall according to the measurements given.
- Use the four wall anchors included with the unit and insert them in the holes.
- Place the unit level on the wall and use the included flat washers and screws to affix it firmly.
- To prevent binding, put the flat washer on the mounting bracket before inserting and tightening the screw.
4.3 Other Component Installation

After mounting the main panel, locate and install the other system components:

**The Distribution Manifold(s)**
- This is where the products coming from the main panel are directed to the appropriate washer.
- Product can only be delivered to one washer at a time, a dosage to another washer is simply postponed until the delivery channel is clear.
- It is common, but not necessary, to centrally locate the distribution manifold among the washers it will service.

**The Communication Boxes**
- One Communication Box is required for each washer.
- Each box requires a 10-conductor cable to acquire the trigger signals from the signal connections of the washer.
- A four conductor cable is required to daisy-chain all the boxes to the PLC at the main panel.
- The recommended installation location is a clear place on the wall behind every washer, or on the washer itself.

**The Calibration Vase**
- Since this vase is used for dosage calibration, it should be installed on the wall near the main panel.
- Please note the vase is connected by a hose to the distribution manifold.
- Make provision for draining the calibration vase and for overflow from the vent fitting.

**A Method for Routing the Delivery Hoses and Cables** (Ladder Trays, PVC Pipe, Hangers and so forth)
- Install some method to route the hoses and cables safely and attractively out of the way of operators and machinery.
- Position the hoses to allow the least restrictive flow to the distribution manifold and washers.

4.4 Delivery Hose Connections

With all the components mounted, they can be connected with the delivery hoses. A flexible, reinforced, transparent, chemically-compatible hose of the proper inside diameter is recommended. On U.S. systems the delivery hose connections are 1/2” barb and must be secured with worm-gear hose clamps. Check the fittings on the washers and the chemical drum pickup systems, in case an adapter will be required.

The product delivery system will require water flow of about 1 to 2 gallons per minute (gpm) at a dynamic (valves open) water pressure of 20 to 30 psi (1.5 to 2 bar). Do not use a water source that feeds other equipment, if during that feed the flow or pressure drops below these requirements. Water of a higher pressure will require a pressure regulator before the connection to the Dositec system. If necessary, install the appropriate Hydro Systems Booster Tank to supply water at the proper flow and pressure.

**Product Suction Hoses**

These are the hoses that connect the chemical drum pickup system to the Collection Manifold on the main panel. They allow product to be drawn into the delivery channel by the pneumatic pump during the dosage cycle.

Consider how you want the chemical drums positioned to avoid having incompatible chemicals too close together, and
to allow a neat routing of the hoses to the collection manifold on the main panel. Notice the water inlet is always the “first” valve (in the direction of flow) on the right side of the collection manifold. Also notice how the products are connected, starting from the top down on the right side and then from the bottom up on the left side.

Distribution Manifold Hoses

The Product Delivery hose from the Main Panel runs to the Distribution Manifold. From the distribution manifold there is a hose that runs to each washer, and a hose that runs back to the Calibration Vase (which should be mounted near the main panel) The Calibration Vase solenoid should always be the rightmost and the washer solenoids should always start at the left.
Optional Air-Assist Flush

There are generally four reasons you might consider employing the optional Air-Assist Flush Panel.
1) A long distance to some or all of the washers (over 100 feet).
2) Large dosage volumes of product to be delivered.
3) When you have short duration washer cycles.
4) Always for tunnel washers.

The advantage of the air-assist flush is a much faster delivery than the water flush. The compressed air will push the product dosage to the washer very quickly and also introduce much less water into the washer than would the normal water flush.

4.5 High Pressure Air Connections

Now it is time to connect the incoming high pressure air line to the pressure regulator on the main panel, and connect the air line from the main panel to the connection on the enclosure of the distribution manifold.

The incoming high pressure air must be between 60 psi and 120 psi (4 bar to 8 bar). Set the regulator on the main panel to 0.4 MPa (4 bar / 60 psi).

Both the air line coming into the main panel regulator and the air line running to the distribution manifold must be a 3/8” outside diameter plastic hose, and the fittings are a “push-in” design with no tools required. “Push twice” to get the hose past the sealing O-ring and the grip ring. The hose can be soft or hard plastic, but the grip ring of the push-in fitting may not hold with harder materials. To remove a hose from these fittings, push the external ring toward the fitting to release the hose so it can be pulled out. These fittings seal best when the hose goes “straight in”, not pulled at an angle.
4.6 Electrical Connections (110 VAC Main Power and Input / Output / Communications Connections)

Important! Do not power up the unit until ALL input, output and communications connections are connected!

Input: 110 VAC Main Power Connection

The 110 Volt AC power input must be an independent 3 wire supply and a dedicated 10-amp breaker is recommended. Never use a washer as the source for the input power supply!

The power cord must be plugged into a grounded three prong outlet (or equivalent) using all three wires on Bank X1 as follows:
1) Phase – ‘L’ connector. (Black wire in U.S.)
2) Neutral – ‘N’ connector. (White wire in U.S.)
3) Ground – ‘PE’ connector (Green wire in U.S.)

1) Black Wire to L
2) White Wire to N
3) Green Wire to PE

“Hot” Black Wire to L
110-120 VAC Grounded Supply
“Neutral” White Wire to PE
“Ground” Green Wire to PE

Set Regulator to 0.4 MPa (4 bar/60 psi)
Input: Air Pressure Sensor Connection

If your system includes the optional Air Assist Flush feature, you must connect the Air Pressure Sensor to the main panel on Bank X3 at M, L1+ and E02 as shown below. Remove the jumper/bridge wire from L1+ and E02. If the Air Pressure sensor is not being connected, there must be a jumper/bridge wire from L1+ to E02 or the system will go into alarm when the air pressure test is performed.

1) Brown Wire to M
2) Yellow Wire to L1+
3) Gray Wire to E02

Input: Drum Level Sensor Connection

The Dositec Product Drum Lances have a built-in level sensor that can tell the system if the chemical drum is empty. You can have as many as ten of the level sensors connected to the main panel, on Bank X3 using E04 through E13 and L1+ for the common ground connection.

All wires are black with white numbers

Wire 1) Product 01 connects to E04
Wire 2) Product 02 connects to E05
Wire 3) Product 03 connects to E06
Wire 4) Product 04 connects to E07
Wire 5) Product 05 connects to E08
Wire 6) Product 06 connects to E09
Wire 7) Product 07 connects to E10
Wire 8) Product 08 connects to E11
Wire 9) Product 09 connects to E12
Wire 10) Product 10 connects to E13

Wire 11) The common ground always connects to L1+
**Input: External Emergency Stop Connection**

The contacts OP1 and OP2 on Bank X5 are configured for an External Emergency Stop function. It is a simple two-wire resistance circuit, like a switch. When the circuit is closed (low resistance/continuity) the system operates normally. When the circuit is open (high resistance/no continuity) the system will perform an Emergency Stop. There is normally a jumper/bridge wire between OP1 and OP2 so the system will operate normally without an External Emergency Stop device. Remove the jumper/bridge wire when using these connections.

**Output: External Alarm Indicator Connection**

The Dositec's main panel has a built-in alarm buzzer that is quite loud with a piercing sound, but it also has two contacts on Bank X5, at A13 and M, that are designed to energize an additional, external alarm indicator. The contacts are configured to supply 24 Volts DC, at up to 2 amps, to energize an external alarm indicator, like a strobe, buzzer or bell.
Output: Distribution Manifold Solenoid Connection

The PLC controls the solenoids in the Distribution Manifold through connections made on Bank X6, using A20 through A29 for chemical delivery to up to 10 washers, A210 for delivery back to the Calibration Vase, and M as a common ground for all connections. (Note: The connector in the distribution manifold for the calibration vase solenoid is always marked “11”, even if less than ten washers are being serviced.)

Output: Air Assist Flush Connection

The optional Air Assist Flush system is controlled by the PLC using the connections on Bank X6, at A215 and M, as shown below.
Communication: Machine Communication Boxes

The Dositec’s Communication Boxes are the interface between the signals coming from the washer and the formula programming to deliver certain products at certain times. The simple On/Off signals from the washer are translated into digital packets of information and transmitted back to the Dositec PLC over a digital network. This allows a single four-wire cable to daisy-chain from one communication box to another, which greatly simplifies installation.

The connection at the main panel is on Bank X8 at L1+, M, A and B as shown below. The four conductor cable runs to the “In” connector of the box closest to the main panel. Any remaining boxes are connected with a cable running from the “Out” connector to the “In” connector of the next box.

The boxes are identified to the PLC by the DIP switch settings as shown below. If you are using the Remote Formula Selection accessory, their DIP switches must be set to match the Communication Box to which they are connected.

5. Dositec Start Up

When you have finished the physical installation of the system, you can begin the start-up procedure, detailed below:

5.1. Configuring the system settings

It is necessary to define all the parameters related to the unit, products, channels and washer extractors. Although you can do this at the front panel, it is easier to use the Laundrytec software to create an LM2 file for this installation, set all the parameters on the computer and then upload the settings to the PLC.

5.2. Prime the hoses that go to the washer extractors with water

The hoses in the delivery channel and from the distribution manifold to the washers need to be filled with water. To do this, use to the calibration screen and do successive ‘Water’ calibrations to each washer. Also fill the hose that comes back to the calibration vase by selecting it as the destination. Check for leaks before proceeding to the next step.

5.3. Prime the suction hoses of every product

The hoses that run from product pick-up drum lances to the collection manifold on the main panel also need to be filled. Once again use the calibration function but this time select ‘Product’ as calibration mode. You can send the flow to a washer or the calibration vase, releasing the button to stop the dose as soon as the product hose is filled to the collec-
tion manifold. If you are sending the flow to the calibration vase, open the valve at the bottom of the vase.

After each calibration you will be required to run a flush to clean the delivery channel. If you are sending the flow to the calibration vase, watch out for an overflow when doing the flush. It is important to take into account the chemical incompatibilities when choosing the order of the products to prime. If the delivery channel or vase is not sufficiently cleaned by the flush, do a water calibration until you are satisfied.

5.4. Calibration of Products

Now that all the hoses are primed, you can do the product calibrations. Select the Product whose delivery you wish to calibrate in the calibration screen, and choose the calibration vase as the destination. Check that the valve at the bottom of the calibration vase is closed.

Press and hold the calibration button while sending the dosage to the vase. Remember that the vase will begin to fill with water, not product, which is correct since the volume of water is the same as the volume of product being pulled from the collection manifold.

Release the button to stop the dose when there is a representative sample in the vase (use the average of the maximum and minimum dose for each chemical), check the volume scale on the side of the vase and enter the actual volume pumped on the PLC touchscreen in milliliters.

5.5. Calibration of Water

Although you could calibrate water delivery to the calibration vase, calibrating at the washer farthest from the main panel provides the worst case scenario for pumping against back pressure. Put a bucket or other container at the inlet hose for the washer, and hold the Calibration button down long enough to get a sizable volume delivered, like half a gallon (2 liters). Carefully measure the volume of water that was delivered and enter that volume in the Actual field for the calibration in milliliters.

5.6. Check the Dosage Calibration with Manual Dose

To verify the flow meter measurements, perform a manual dosage to the calibration vase, with the Flush option set to “No”, and with the valve at the bottom of the vase closed. Then confirm the volume in the vase is the same as the manual dosage volume you entered on the PLC display.

Since using the manual dose function to check the flow meter measurement must be done with the vase valve closed and without flush, you will have to open the vase valve and flush the delivery channel as a separate operation.

5.7. Adjusting Flush Time for each Washer Extractor

Use the Manual Dose function (with the Flush Option set to “Yes”) and send a dosage to each washer extractor. Choose a product with a noticeable color, so you can watch at the inlet of the washer extractor and see if the current flush volume is enough to take the full product dosage inside the washer.

If the water flush volume needs to be adjusted, that is done on the “Parameters of Washer Extractors” screen.

5.8. Download to the PC

Once you have made the measurements, calibrations and adjustments in the previous steps, you should download the system configuration to your computer using the Laundrytec software. Open the same LM2 file you used to upload to the PLC (or create a new LM2 file with the Laundrytec software), connect to the PLC, go to the Data Transfer section, check all the boxes that apply to your system and download from the PLC.

5.9. Test the System

Run each washer one by one, and verify that the PLC is receiving all the washer’s signals, and responding with the proper product delivery, based on the formula selected and the configuration for each wash phase.

The number of the formula and the corresponding phases must be reflected in the “View machines” screen.
6. Service Parts

| Kit, Replacement Pneumatic Pump | 90096927 |
| Kit, Wilden Diaphragm (for A25P) | 90096751 |

### Pneumatic Solenoid Valve Blocks

<table>
<thead>
<tr>
<th>Valve</th>
<th>Pneumatic Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>481712EST</td>
</tr>
<tr>
<td>3</td>
<td>481713EST</td>
</tr>
<tr>
<td>4</td>
<td>481714EST</td>
</tr>
<tr>
<td>5</td>
<td>481715EST</td>
</tr>
<tr>
<td>6</td>
<td>481716EST</td>
</tr>
</tbody>
</table>

### Assy, Air Regulator, 1 Channel

| 111711C |

### M241 Pneumatic Wall-Mount Cabinet Components

<table>
<thead>
<tr>
<th>Number</th>
<th>Component Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power Supply - 24V 5A</td>
<td>2940ABL8REM24050</td>
</tr>
<tr>
<td>2</td>
<td>Thermal Circuit Breaker</td>
<td>6153IDPN21643</td>
</tr>
<tr>
<td>3</td>
<td>2-Fuse Block Connector</td>
<td>2953NSYTRV42SF5</td>
</tr>
<tr>
<td>4</td>
<td>CPU - Model 241 PLC</td>
<td>2940TM241CEC24T</td>
</tr>
<tr>
<td>5</td>
<td>4 Input / 4 Output Module</td>
<td>2940TM3DM8R</td>
</tr>
<tr>
<td>6</td>
<td>16 Relay Output Modules</td>
<td>2940TM3DQ16R</td>
</tr>
<tr>
<td>7</td>
<td>Color Touchscreen 5.7&quot;</td>
<td>2938HMISTU855</td>
</tr>
<tr>
<td>8</td>
<td>SD Memory 512MB for Schneider</td>
<td>2940TMA2SD1</td>
</tr>
</tbody>
</table>

### Flow Meter Components

- Kit, Flow Meter Sensor: 021713020002
- Input Hose Fitting, 1/2": 1318100FG4812PP
- Kit, Paddlewheel & Base: 0217297301490
- Output Hose Barb, 1/2": 54808400299