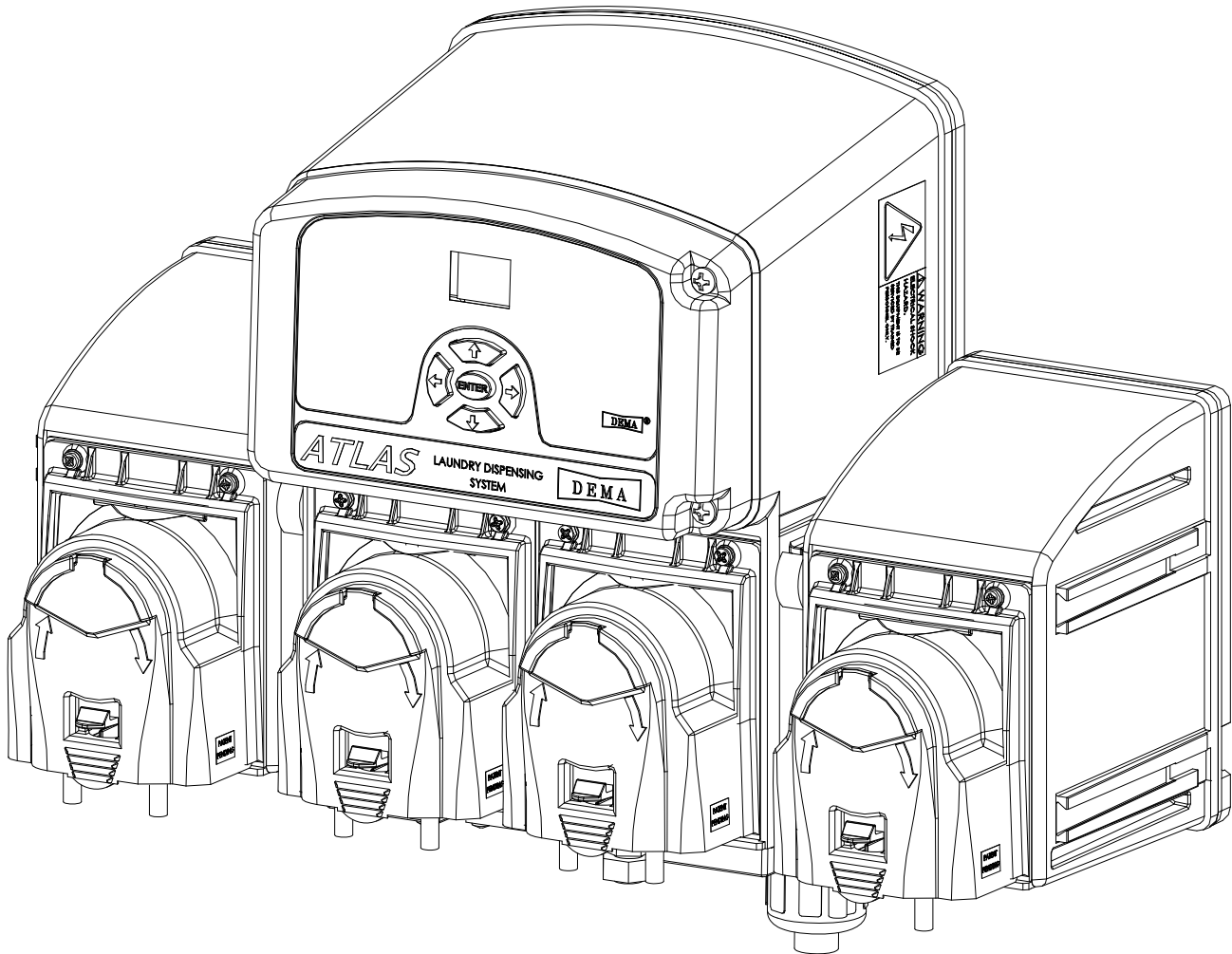


# DEMA ATLAS 844P™ SERIES LAUNDRY CONTROL



**DEMA Engineering Company**  
10020 Big Bend Blvd.  
St. Louis, MO 63122  
(800) 325-3362 or (314) 966-3533  
[www.demaeng.com](http://www.demaeng.com)

# DEMA ATLAS 844P™ SERIES LAUNDRY CONTROL

## Introduction

The DEMA 844P Atlas dispensing system has been designed to accurately deliver chemical product to commercial laundry machines. The 844P uses the proven DEMA Quick Change peristaltic pumps to deliver the chemical product to the laundry machine pocket. The Quick Change pumps and main control are mounted in a durable and attractive ABS enclosure designed to provide easy access to the various components inside.

The various electronic components of the DEMA 844P Atlas use a “plug and play” concept to provide easy setup. The heart of the 844P is the IQ-85 electronic control board that provides 30 wash formula capability. The IQ-85 is mounted in the ABS enclosure with the display and buttons available on the front panel. Along with the IQ-85 is the self contained Signal Transfer Unit (STU), which can be mounted at the laundry machine to receive trigger signals. Additionally, a handheld Enhanced Digital Select Module (EDSM) is available to allow the user to interface with the system remotely. Both the STU and the EDSM are connected to the IQ-85 via a low voltage communication cable.

**844P Atlas Contents:** The DEMA 844P Atlas includes the following:

- 844P Dispensing System, which contains the pumps, the power supply, and the IQ-85 electronic control board
- Hookup Kit, which contains communication cable, Velcro fasteners, various strain reliefs and wire ties.
- Signal Transfer Unit (STU), for receiving trigger signals and sending commands back to the IQ-85
- Optionally, the 844P Dispensing System will come with an Enhanced Digital Select Module (EDSM), for all programming functions, selecting 30 formulas, defeating bleach, and emergency stop remotely.
- Optional Kits: Tubing and pickup probe kit can also be provided which comes with 20ft of LDPE tubing per pump, one pickup probe per pump, and wire ties to secure the tubing.

**Before installing the 844P Atlas, it will be helpful to read through the instructions to become familiar with the system and its options concerning the installation and setup.**

\*\*\*\*\* IMPORTANT \*\*\*\*\*

**PLEASE READ THE NOTE BELOW AND CLEAR ALL PROGRAMS ON INITIAL USAGE OF THIS PRODUCT.**

**ON THE VERY FIRST USAGE OF THE EDSM (NEW OUT OF THE BOX) CONNECT THE EDSM TO THE LAUNDRY SYSTEM AS DESCRIBED ABOVE. POWER IT UP, ENTER PROGRAMMING AND PROCEED TO THE UTILITY MENU. “CLEAR ALL PROGRAMS” BEFORE USING THE EDSM FOR THE FIRST TIME. THIS WILL ONLY NEED TO BE DONE AT INITIAL USAGE. IT IS NOT NECESSARY TO CLEAR ALL PROGRAMS AFTER THE INITIAL CLEARING. SEE PROGRAMMING SECTION BELOW TO NAVIGATE TO UTILITY MENU. PAGES 9 AND 10 OF THIS INSTRUCTION MANUAL SHOW THE OPTIONS AND HOW TO “CLEAR ALL PROGRAMS.”**

**ALWAYS SEND A PROGRAM FILE FROM AN EDSM TO EVERY ATLAS THAT IS BEING SETUP. THE EDSM USED TO SEND THE FILE MUST HAVE BEEN CLEARED AT INITIAL USAGE AS DESCRIBED IN PREVIOUS PARAGRAPH. THE PROGRAM FILE CAN BE A FILE THAT CONSIST OF NO SETUP OR A PROGRAM FILE THAT WAS USED ON A PREVIOUS SETUP.**

## Laundry Room Survey

A complete survey of the laundry room or site installation should be completed in advance of starting the Atlas installation.

1. Locate the power connection points on the laundry machine. The **main power** to the Atlas must either be **120V or 230V 50/60Hz** (+10%/-15% for voltage is acceptable).
2. Select a location to mount the Atlas enclosure on a wall that will allow access to the chemical product containers and the chemical product feeds points on the laundry machine. The Atlas should be kept away from moisture releasing machinery and from water being splashed on the unit. Mount the Atlas on a wall by use of appropriate screws and wall anchors.
3. Select a location to mount the Signal Transfer Unit (STU). The STU should be mounted close to, or on, or possibly inside the laundry machine. The STU will need to be wired to the various trigger signal sources on the machine. The trigger wires that are coming out of the STU are 36 inches in length and are used to receive the trigger signals. The STU can be mounted by use of the self-adhesive Velcro that is included in the hook up kit. Keep in mind that the STU is wired to the IQ-85 via the supplied communication cable.

## DEMA ATLAS 844P™ SERIES LAUNDRY CONTROL

4. If using the EDSM, select a location to mount the EDSM where the laundry machine operator can easily access the buttons on the front of the EDSM module. Again, it can be mounted with the self-adhesive Velcro that is included in the hook up kit. The EDSM can be connected to the IQ-85 or the STU by use of the supplied communication cable. See the EDSM instruction manual for more information.
5. If using the DEMA 950 flush manifold or any other flush manifold, select a location that will allow all the electrical (power for solenoid valve and pressure switch) and tubing connections. It should be noted that the flush output on the IQ-85 is a 24VDC signal. The solenoid coil for the flush valve will need to match this output signal.

**Cleaning Instructions:** Do not expose inside of unit to moisture! Do not expose unit to direct water/chemical spray! Clean external shell with damp cloth.

**844P Pump Configurations:** The pumps are numbered 1 through 6 from left to right.

**Electrical Installation:** All installations must be in accordance with city, county, parish, state or provincial electrical codes and should be performed by a certified electrician. A ½” nonmetallic conduit system must be used to install the power cord. For questions, please contact local licensed electrical contractor.

Before the electrical installation, it is important to understand the various modes that the 844P Atlas has to offer. The following describe the 3 main modes; however there are sub-options that can be set up within these 3 modes. See the setup section for additional information.

### Formula Select Mode:

This is where the unit can be programmed with up to 30 different formulas. Each formula is driven to operate by individual trigger sources that are generated by the laundry machine.

### Sequence Mode:

This is where the unit can be programmed to count a single event from the laundry machine. A good example of this is using the drain valve on the laundry machine as a trigger source. The IQ-85 will count the drain valve operations and will operate pumps based on these counts. Up to 30 formulas can be programmed in this mode as well.

### Relay Mode:

There is only one programming variable to set on the IQ-85. A flush can be set to run with, and for an additional time after, each pump operation. Otherwise the IQ-85 is not programmed, but instead the laundry machine is programmed to provide various formulas. The IQ-85 acts like a relay board and will only operate pumps for the length of time that the STU receives a trigger signal from the laundry machine.

### Auto Formula Select

One sub-option to become familiar with before wiring the STU is Auto Formula Select. This feature allows the formula to be selected based on a trigger signal that is received from the laundry machine. It is necessary to have a separate programmable input from the laundry machine to correctly use the Auto Formula Select. For more information, see Auto Formula Select section in this instruction manual.

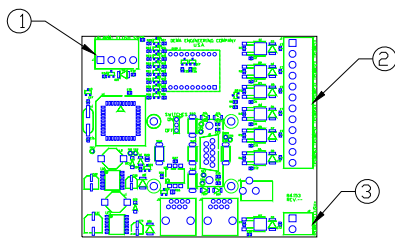
1. **CAUTION:** All electrical power must be turned off to the laundry machine and any other circuit that is to be used for this installation. Lockout and tag procedures must be observed when installing this device. Never open the DEMA Atlas while power is applied. Signals may be active from laundry machine, even with the DEMA Atlas power turned off. Use appropriately rated insulated wiring, electrical fixtures and other materials that meet all applicable electrical and building codes.
2. **Connect the power to the Atlas.** The power requirement is from 100VAC to 240VAC 50/60 Hz. Power should be applied to Atlas anytime the laundry machine is on. Some laundry machines have a terminal block setup for power (see schematic or owner’s manual for the specific machine being used). Locate the power terminal block inside the Laundry Master enclosure. **Connect “hot” or “live” wire to the terminal labeled “L1”.** **Connect the “return line” to the terminal block position labeled “L2”.** **The ground wire MUST be connected to a suitable earth ground point.** The power line should be secured by use of proper electrical fitting through access hole in Atlas enclosure. The access hole is sized to accept a ½” conduit fitting. The power line must also be secured properly between the laundry machine or power source and the Atlas according to any electrical codes that apply.

# DEMA ATLAS 844P™ SERIES LAUNDRY CONTROL

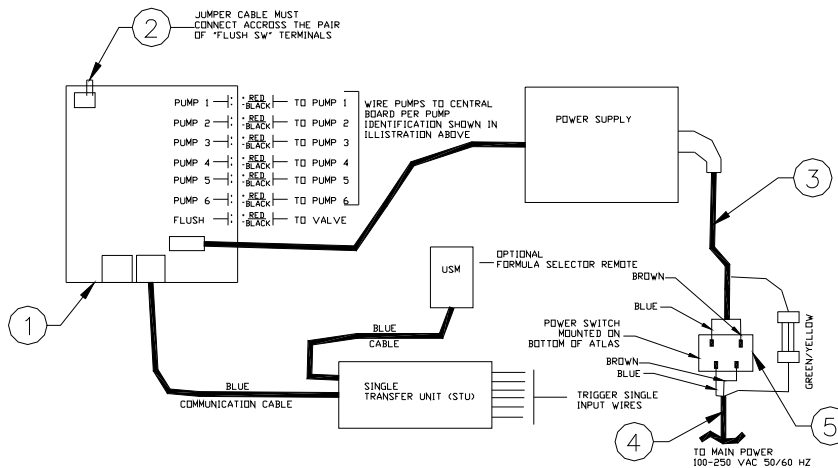
3. **Connect the flush manifold.** See note labeled flush switch below if a flush manifold is not being used. If using a flush manifold, the solenoid valve that supplies the manifold must be rated for 24V DC. The valve should be connected to the output terminal position labeled “FLUSH” on the IQ-85 control board. In addition, a manifold flush switch must be wired to the terminals labeled “Flush SW” on the IQ-85 control board.

**Flush Switch:** When a flush manifold is not used, step number 3 can be skipped. However, it is essential that a jumper be connected between the “Flush SW” terminals on the IQ-85 control board. The jumper is installed at the factory. Examine the unit to be installed to assure that it has the jumper installed. Without the jumper, the Atlas pumps will not run. If a jumper needs to be installed, use a short piece (2-4 inches) of insulated 18GA electrical wire stripped approximately 3/16” at each end.

| NO. | QTY. | PART NO. | DESCRIPTION       |
|-----|------|----------|-------------------|
| 1   | 6    | 81-13-4  | Modular Connector |
| 2   | 1    | 81-13-2  | Modular Connector |
| 3   | 1    | 81-13-4  | Modular Connector |



| NO. | QTY. | PART NO. | DESCRIPTION         |
|-----|------|----------|---------------------|
| 1   | 1    | 84-153-1 | Control Board Assy. |
| 2   | 1    | 82-7-2   | Jumper Line         |
| 3   | 1    | 84-125-4 | Power Supply Cable  |
| 4   | 1    | 80-106-4 | Power Cable         |
| 5   | 1    | 81-186-7 | Access Panel Assy.  |



4. **Wire the STU to the laundry machine.** The hookup configuration will depend on which of the operational modes chosen for the DEMA 844P Laundry System. The following two tables show the wiring configurations for the input signals to the STU. The first is for normal and relay modes and the second is for sequence mode. Verify the mode that will be used and wire the STU according to the appropriate table below using the leads that are coming out of the STU. Keep in mind that trigger sources should be at least 70VAC but no higher than 240VAC 50/60Hz.

| STU Wiring Configuration |               |               |                           |                                     |
|--------------------------|---------------|---------------|---------------------------|-------------------------------------|
| Trigger Input            | Line (signal) | Common        | Function of Trigger Input |                                     |
|                          |               |               | Relay/Normal Mode         | Sequence Mode                       |
| 1                        | Black         | White or Grey | Signal Pump 1             | Event Trigger                       |
| 2                        | Brown         | White or Grey | Signal Pump 2             | Event Trigger                       |
| 3                        | Red           | White or Grey | Signal Pump 3             | Reset (optional), ex. – door switch |
| 4                        | Orange        | White or Grey | Signal Pump 4             | Not used                            |
| 5                        | Yellow        | White or Grey | Signal Pump 5             | Not used                            |
| 6                        | Green         | White or Grey | Signal Pump 6             | Not Used                            |
| 7                        | Blue          | White or Grey | Signal Flush (opt'1)      | Not Used                            |
| 8                        | Purple        | White or Grey | Auto Formula Select       |                                     |

*There are more features for the STU. Please See I1036 for further instruction.*

## DEMA ATLAS 844P™ SERIES LAUNDRY CONTROL

5. **Auto Formula Select.** This allows the formulas to be selected based on a trigger signal that is received from the laundry machine. The following list outlines the setup of this feature: The 8<sup>th</sup> trigger input on the STU is used for this purpose (see table in the electrical installation section of Atlas Instruction Manual). A trigger source that can be programmed at the laundry machine will be required. The timing of this trigger source is what determines which formula is selected by the IQ-80. To determine the amount of signal time for any formula simply calculate as follows:
  - i. Multiply the formula number by 2 then subtract 1
    1. Example: Formula 7 needs a trigger signal equal to 13 seconds. ( $7 \times 2 = 14$  then  $14 - 1 = 13$ ). A 13 second trigger signal to STU input number 8 (purple and common wires) will change the Atlas to formula 7.
6. Connect the EDSM (See EDSM instruction manuals for more details) and STU modules to the IQ-85 by using the RJ45 patch cords that are supplied with the Atlas. The STU is required in all installations, but the EDSM is optional. It is possible to connect the EDSM to the STU RJ45 jack instead of connecting to the IQ-85, providing that the STU is connected to the IQ-85. See the following note concerning the EDSM.

EDSM Note: The EDSM module is a hand held, remote control that gives the operator the ability to select formulas, defeat a bleach operation, or do an emergency stop. It is not necessary to use it, but without the EDSM the only way to manually select a formula would be to select it at the IQ-85 board in the front of the enclosure.

Note: The patch cord is a communication link between the IQ-85 board, the STU and the EDSM and can be subjected to electrical interference when not installed properly. When securing the RJ45 patch cord between the On-Premise Laundry Controller and the Atlas, avoid sharp edges, electrical motors and relays; additionally do not run parallel to electrical power lines and conduit.

### **Tubing Connections**

ALWAYS WEAR PROTECTIVE CLOTHING AND EYEWEAR WHEN WORKING WITH CHEMICALS PRODUCTS.

An optional installation kit may be ordered with the 844P Atlas. The kits includes a 20ft of LDPE tubing per pump to connect from the chemical container to the DEMA 844P pump, and from the DEMA 844P pump to the fittings on the machine and 18" pickup tubes designed to accommodate 5 gallon buckets. For identification purposes, the pumps are identified starting with 1 and up to a possible 6 depending on the model. In all cases pump number 1 is the pump that is furthest left, count up as you see pumps to the right of this position. Included with the 844P Atlas is a sheet of product labels that can be adhered to the front of the Atlas or any other useful locations to identify the product that each pump is supplying.

Measure the length of tubing needed for the suction side from the chemical container to the inlet of the pump and then cut the tubing to the proper length. The 18" pickup tubes may be used with 5-gallon buckets of chemical products. Feed the LDPE tubing through the compression nut and sleeve and into the pickup tube until the LDPE tubing is about a ¼" from the bottom of the pickup tube (LDPE tubing should not stick out through the bottom of pickup tube). Tighten the compression nut to secure LDPE tubing. Route the tubing to the suction side of the pump and insert into squeeze tube approximately ½". Secure the tubing together by tightening a cable tie around the squeeze tube. Use the same procedure on the outlet of the squeeze tube and route the LDPE tubing to the injection feed points of the laundry machine. Cut off all excess tubing and keep tubing away from hot surfaces and sharp edges to prevent damage or leakage. At this point the Atlas installation is complete. See IQ-85 OPL Laundry Control Board instructions for setup and programming.

### **Atlas Operation**

Once the system has been programmed and set up to the desired configuration the 844P Atlas is ready for operation.

**Priming the Pumps:** There are two ways to prime a pump. The first way, is to press the LEFT arrow on the front of the 844P. "P1" will be displayed indicating pump 1. Use the UP and DOWN arrows to select the desired pump. Press the ENTER button to start and stop the pump. Pressing the RIGHT arrow will return the 844P to formula select mode. If no action is taken in the pump priming mode the 844P will return to formula select mode after 30 seconds. The second way is to use the EDSM (Enhanced Digital Selection Module). Refer to the EDSM Instruction Sheet I-901.

**Emergency Stop:** At anytime, the pumps and flush can be stopped by pressing the "STOP" button on the EDSM. When pressed, it will also reset the system to a starting point of the formula.

**Changing Formulas:** Formulas can be manually changed at the EDSM or on the front of the 844P. Use the UP and DOWN arrows on the 844P to select the desired formula. If in the pump priming mode pressing the RIGHT arrow will return

## DEMA ATLAS 844P™ SERIES LAUNDRY CONTROL

the 844P to formula select mode. The EDSM has 30 formula capability and has a numeric display that will identify the formula. See the EDSM instruction sheet for more details.

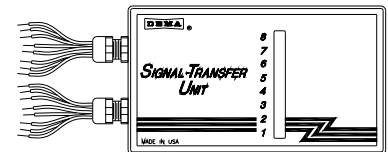
**Bleach Defeat:** The bleach defeat function is activated with the EDSM. See the EDSM instruction sheet for more details.

**Load Counts:** Load counts are displayed on the EDSM. See the EDSM instruction sheet for more details.

### Replacement Parts

| Replacement Parts |                                                                   |
|-------------------|-------------------------------------------------------------------|
| DEMA Part Number  | Description                                                       |
| 84-65-29          | IQ-85 Control Board kit                                           |
| 84-65-38          | EDSM Remote Kit                                                   |
| 84.65.6           | STU Kit                                                           |
| 80.59.60          | 60 RPM Gear/Motor 24VDC                                           |
| 80.59.105         | 105 RPM Gear/Motor 24VDC                                          |
| 84.65.9           | 80VA Power Supply Kit                                             |
| 83.11             | Power Switch (Toggle Switch)                                      |
| 84.65.4           | Toggle Switch Boot Mounting Nut                                   |
| 84.48.2           | Fuse 2A, 250V 5 X 20mm Kit                                        |
| 84.27.3           | 25 Foot, RJ-45 Patch Cable (connection between STU-DSM/FSM-IQ-80) |
| 84.27.4           | 6 Foot, RJ-45 Patch Cable (connection between STU-DSM/FSM-IQ-80)  |

| Accessory Replacement Parts |                                             |
|-----------------------------|---------------------------------------------|
| DEMA Part No                | Description                                 |
| 25-68-20                    | 20 ft of ¼" O.D. LDPE Tubing                |
| 25-68-40                    | 40 ft of ¼" O.D. LDPE Tubing                |
| 25-68-60                    | 60 ft of ¼" O.D. LDPE Tubing                |
| 25-68-80                    | 80 ft of ¼" O.D. LDPE Tubing                |
| 25-68-100                   | 100 ft of ¼" O.D. LDPE Tubing               |
| 25-68-120                   | 120 ft of ¼" O.D. LDPE Tubing               |
| 25-115                      | 20 ft of 3/8" O.D. LDPE Tubing              |
| 25-115-40                   | 40 ft of 3/8" O.D. LDPE Tubing              |
| 25-115-60                   | 60 ft of 3/8" O.D. LDPE Tubing              |
| 25-115-80                   | 80 ft of 3/8" O.D. LDPE Tubing              |
| 25-115-100                  | 100 ft of 3/8" O.D. LDPE Tubing             |
| 25-115-120                  | 120 ft of 3/8" O.D. LDPE Tubing             |
| 80-66                       | 10" PVC Pick-up Tube Assembly               |
| 80-66-2                     | 18" PVC Pick-up Tube Assembly               |
| 81-16-1                     | 8" Tie Wrap (for securing wiring or tubing) |



**SIGNAL TRANSFER UNIT  
(STU)**

| 84-17-2 - INSTALLATION KIT PARTS |             |                                     |
|----------------------------------|-------------|-------------------------------------|
| QUANTITY                         | PART NUMBER | DESCRIPTION                         |
| 2                                | 83-16-1     | Velcro, Black Hook & Loop           |
| 1                                | L709-1      | Laundry Product Label Sheet         |
| 8                                | 81-16-1     | Tie Wrap, 8" Lg.                    |
| 1                                | 84-9-3      | Signal Transfer Unit (STU) Assembly |
| 1                                | 84-152-2    | 25' RJ445 Cable                     |
| 1                                | 84-152-1    | 6' RJ45 Cable                       |

**Return Policy:** No merchandise may be returned for credit without DEMA Engineering Company's written permission. Return Merchandise Authorization (RMA) number required in advance of return.

## DEMA ATLAS 844P™ SERIES LAUNDRY CONTROL

**Warranty:**

DEMA products are warranted against defective material and workmanship under normal use and service for one year from the date of manufacture. This limited warranty does not apply to products that have a normal life shorter than one year or failure and damage caused by chemicals, corrosion, improper voltage supply, physical abuse or misapplication. Rubber and synthetic parts such as “O”-rings, diaphragms, squeeze-tubes and gaskets are considered expendable and are not covered under warranty. This warranty is extended only to the original buyer of DEMA products. If products are altered or repaired without prior approval of DEMA, this warranty will be void.

Defective units or parts should be returned to the factory with transportation prepaid. If inspection shows them to be defective, they will be repaired or replaced without charge. F.O.B. factory DEMA assumes no liability for damages. Return merchandise authorization number to return units for repair or replacement must be granted in advance of return.

**NOTE:**

This unit shall be used within the following limits:

For Indoor Use Only!

Environmental Temp: 0 – 50 °C

Pollution Degree: II

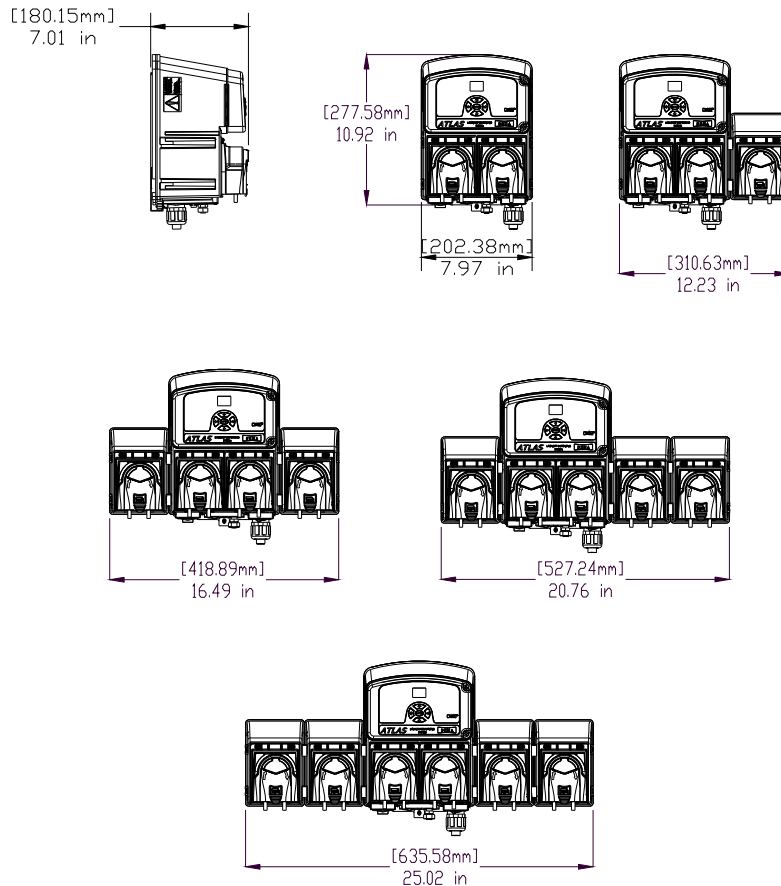
Max Altitude: 2000 Meters

Installation Category: II

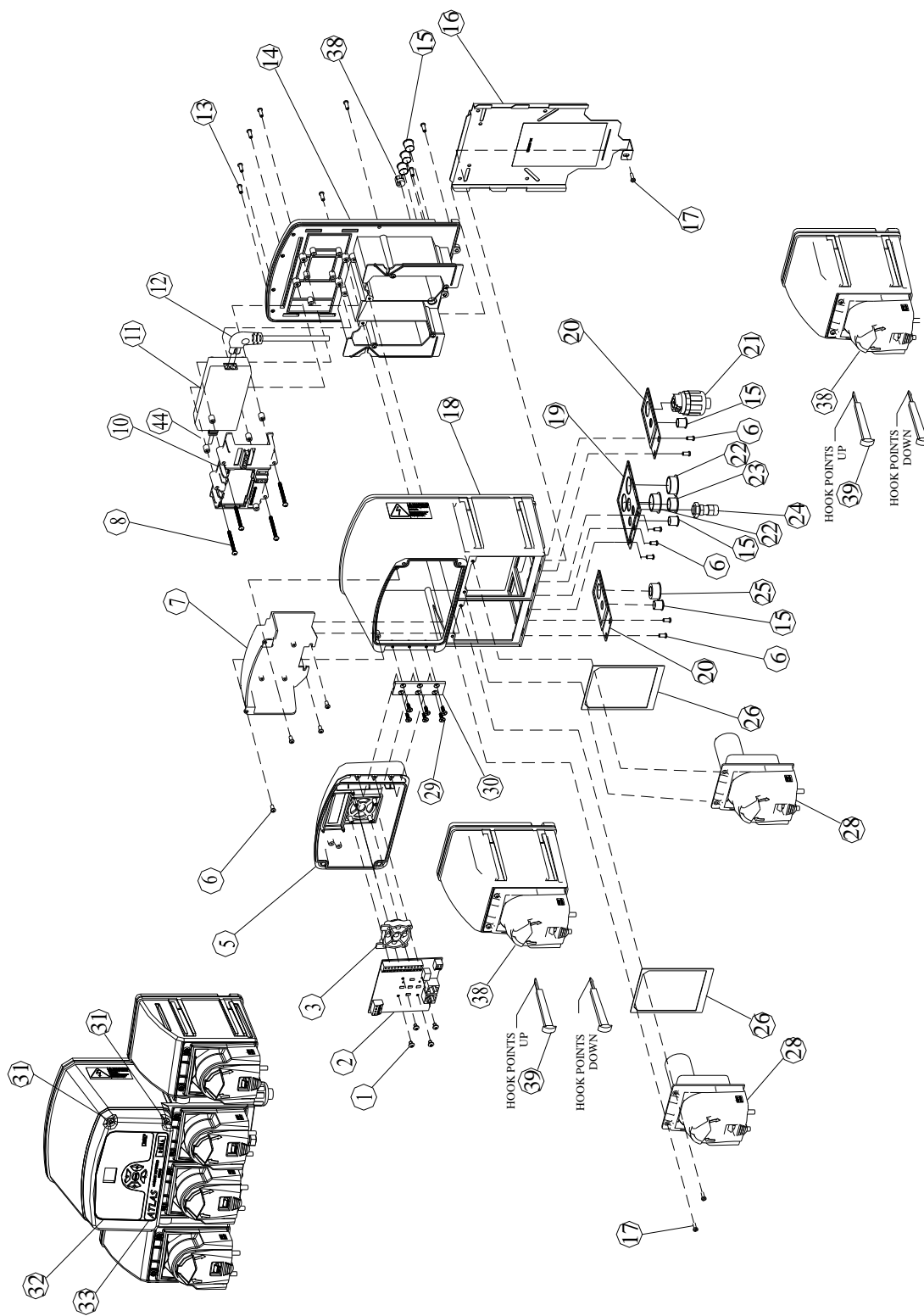
**Disclaimer:** The integrity and operational characteristics of this unit are not guaranteed outside of the above mentioned parameters. Use of this unit outside of these parameters nullifies warranty.

### *Technical Specifications*

|                       |                           |
|-----------------------|---------------------------|
| Main Power            | 100V – 240V 50/60 Hz 1.5A |
| Motor/Solenoid Rating | 24 VDC                    |
| Case                  | High Impact               |



# DEMA ATLAS 844P™ SERIES LAUNDRY CONTROL

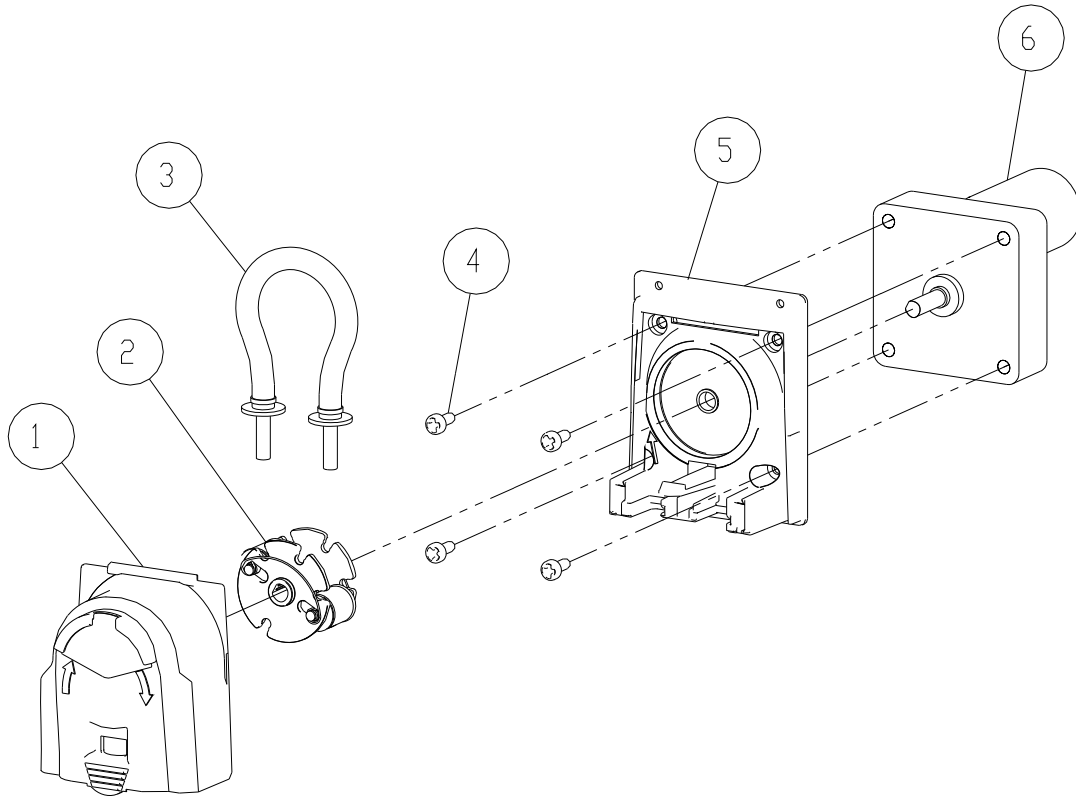




## DEMA ATLAS 844P™ SERIES LAUNDRY CONTROL

| NO. | QTY.  | DEMA NO.  | DESCRIPTION                                         |
|-----|-------|-----------|-----------------------------------------------------|
| 1   | 4     | 81-20-1   | #4 HI-LO SCREW                                      |
| 2   | 1     | 84-153-1  | CONTROL BOARD AND DISPLAY ASSY.                     |
| 3   | 1     | 81-147-1  | KEY PAD                                             |
| 5   | 1     | 81-139-1  | CONTROL COVER                                       |
| 6   | 11    | 44-116-2  | #8 X 3/8" HI-LO SCREW                               |
| 7   | 1     | 81-137-1  | FIREWALL                                            |
| 8   | 4     | 41-63-10  | #8-32 X 1 3/4 PHIL. SS SCREW                        |
| 10  | 1     | 81-138-1  | POWER SUPPLY BRACKET                                |
| 11  | 1     | 84-154-1  | POWER SUPPLY (includes 84-xxx-x power supply cable) |
| 12  | 1     | 84-125-1  | POWER SUPPLY CABLE                                  |
| 13  | 8     | 44-116-1  | #8 X 1/2 HI-LO SCREW                                |
| 14  | 1     | 81-170-1  | ENCLOSURE ASSY. BACK                                |
| 15  | 7     | 81-47-1   | 1/2" HOLE PLUG                                      |
| 16  | 1     | 81-187-1  | MOUNTING BRACKET                                    |
| 17  | 5     | 41-40-2   | #6-32 X 1/2 PHIL SS SCREW                           |
| 18  | 1     | 81-168-1  | ENCLOSURE ASSY.                                     |
| 19  | 1     | 81-186-11 | LARGE ACCESS PANEL ASSY.                            |
| 20  | 1     | 81-186-5  | SMALL ACCESS PANEL ASSY. W/TWO HOLE PLUGS           |
|     | 1     | 81-186-7  | SMALL ACCESS PANEL ASSY. W/CONDUIT FITTING          |
| 21  | 1     | 81-148-3  | CONDUIT FITTING                                     |
| 22  | 2     | 81-47-6   | 1" HOLE PLUG                                        |
| 23  | 1     | 81-47-5   | 3/4" HOLE PLUG                                      |
| 24  | 1     | 81-16     | LIQUID-TIGHT FEED THROUGH                           |
| 25  | 1     | 81-47-4   | 7/8" HOLE PLUG                                      |
| 26  | 2     | 81-159-1  | GASKET - PUMP BASE                                  |
| 28  | 2 - 6 | 81-173-5  | PUMP 2 SPRING 1/4" ID - 105RPM                      |
|     | 2 - 6 | 81-173-1  | PUMP 2 SPRING 1/4" ID - 60RPM                       |
| 29  | 6     | 81-19-7   | #8 SCREW (HINGE SCREW)                              |
| 30  | 1     | 81-140-1  | HINGE                                               |
| 31  | 2     | 81-29-2   | CAPTIVE SCREW                                       |
| 32  | 1     | L942      | DISPLAY LABEL                                       |
| 33  | 1     | L941      | ATLAS LABEL                                         |
| 35  | 2     | 81-32-44  | RED CABLE ASSEMBLY                                  |
| 36  | 2     | 81-32-43  | BLACK CABLE ASSEMBLY                                |
| 38  | 1     | 81-198-4  | PUMP MODULE ASSY. W / 2 SPRING 1/4" ID 105 RPM PUMP |
| 39  | 2     | 81-144-1  | SIDE MODULE JOINT                                   |
| 40  | 1     | 81-173-1  | DETERGENT PUMP - 60 RPM (SEE BREAKOUT DRAWING)      |
| 44  | 4     | 81-193-1  | SPACER                                              |

# DEMA ATLAS 844P™ SERIES LAUNDRY CONTROL



## 81-173-5 PUMP ASSEMBLY

| NO. | QTY.  | DEMA NO.                  | DESCRIPTION                                   |
|-----|-------|---------------------------|-----------------------------------------------|
| 1   | 1     | 81-174-1                  | PUMP COVER                                    |
| 2   | 1     | 81-118-28-1 (Detergent)   | ROLLER ASSY.                                  |
| 3   | 1     | 81-177-1 (Detergent)      | SQUEEZE TUBE<br>(includes plastic connectors) |
|     | 2     | 81-176-1 (Detergent)      | Plastic connectors <u>only</u>                |
| 4   | 4     | 25-85-2                   | SCREW                                         |
| 5   | 1     | 81-128-2                  | PUMP BASE                                     |
| 6   | 1     | 80-59-105MK-1 (Detergent) | GEARMOTOR – 105 rpm<br>Replacement Kit        |
|     | 1 oz. | 81-17-5                   | SILICONE LUBE PACKET                          |