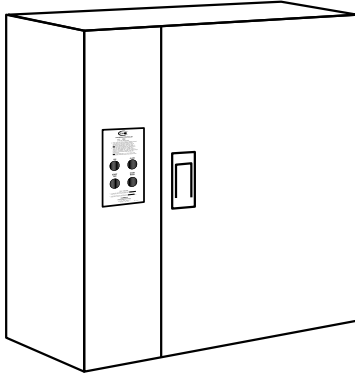# Carroll®

Carroll Manufacturing International

25 Johnson Street, Thornhill, Ontario L3T 2N8
Phone: 905-731-1050 · Fax: 905-731-8547

Website: www.carrollmi.com
Email: info@carrollmi.com

FWC Fan/Wash Control Panel Single Wash Panel

featuring PLC Logic Control

■ **Model FWC-S1**
■ **Model FWC-S1-A**

APPLICATION

The Model FWC-S1 is a single-stage wash Control Panel used in conjunction with all W2 and W1 series water wash ventilators, and for the control of interconnected air handling units such as the Carroll EnvironAir® air purification units.

DESCRIPTION

The FWC-S1 Control Panel is an industrial grade, heavy duty controller designed to provide reliable service for the life of the ventilator(s) it serves. The FWC-S1 is factory furnished with fully pre-assembled plumbing and electrical components, including a factory programmed PLC (Programmable Logic Controller) to manually start and stop the exhaust/supply fan(s) and/or any other electrically interlocked air handling units; control the ventilator hot water/detergent cleaning cycle and operate the internal fire protection system. The standard FWC-S1 is equipped with a conventional vacuum breaker for backflow prevention. The FWC-S1 is optionally available with Carroll's BP (Backflow Preventer) as either a double check value or a reduced pressure principal device, as required by the Uniform Plumbing Code (UPC) and many state and local codes. The FWC-S1 comes pre-wired for the optional time clock.

NUMBER OF VENTILATORS PER FWC-S1 PANEL

The FWC-S1 single wash control panel is designed for use with more than one ventilator. There is a limit to the total ventilator footage the single wash panel can handle. The footage limit is determined by the total ventilator footage and the pipe inlet size as listed in the "Hot Water-Wash Inlet Pipe Sizing" table. This table may be found in Carroll's Main Catalog under the "Master Engineering Tables" tab.

Multiple exhaust and supply fans may be attached to the FWC-S1 control panel where simultaneous operation is required. The panel may be designed to allow multiple exhaust and supply fans with independent operation.*
*Always consult Carroll for proper design criteria.

OPTIONAL TIME CLOCK OPERATION

The model FWC-S1-A includes a state of the art 24-hour, 7-day, solid state programmable time clock with LCD digital readouts. This feature provides automatic operation of the START FAN and START WASH function at the times programmed, along with the ability to skip or substitute programmed start times for holidays. In the event of a power outage, the time clock features a battery backup providing memory protection for the time of day and fan/wash programmed times.

OPTIONAL EQUIPMENT

☐ Time clock (A)—The panel to include a 24 hour, 7 day solid state programmable time clock with LCD readouts. Programmed operations to include START FAN and START WASH functions automatically at any desired time. The time clock to include a battery back-up for memory protection of programmed times.

☐ Low Detergent Alarm (DA)—The panel to include a detergent flow switch and Detergent Alarm Indicator Light on panel face to notify of a low detergent condition.

☐ Break-Glass Station—The panel to include a manually activated Fire Switch for mounting as shown in plans.

☐ Continuous Cold Water Mist (M)—The panel to include a continuous Cold Water Mist Assembly with shut-off valve, solenoid valve, pressure regulator, pressure gauge and a keyed mist disable switch to prevent accidentally turning off the Cold Water Mist System at the electrical panel. This feature is typically used over solid fuel burning equipment such as mesquite broilers and provides a continuous Cold Water Mist at the ventilator inlet slot. The cold water mist reduces exhaust temperatures, increases grease extraction efficiency, and prevents the escape of live embers into the exhaust duct work and/or discharge outlet.

☐ Security Lock—The panel to include a keyed lock latch to prevent unauthorized access to the FWC Operational Controls.

☐ Backflow Preventer (BP)—The panel to include a ☐ double check value or a ☐ reduced pressure principal device.

PRODUCT SPECIFICATIONS

Furnish Carroll Fan and Wash Control Panel Model FWC-S1-_____(without time clock) or Model FWC-S1-A-_____(with time clock) as shown on the plans and to meet the following specifications.

The panel is to be factory furnished with fully pre-assembled plumbing and electrical components, including a factory programmed PLC controller to operate the hot water/detergent ventilator cleaning cycle, internal water spray fire protection system, and any electrically inter-locked air handling units. The panel is to be constructed of 16 gauge, 304 Stainless Steel with a number 4 finish, with welded corners, and separate doors with full length hinges for the plumbing and electrical compartments. The electrical compartment is to be water tight to protect against hose spray. The panel command center annunciators shall include NEMA rated, industrial grade, dust and water resistant switches/indicator lights, for START FAN, START WASH, FIRE, and an Audible Alarm for fire condition. The electrical compartment is to include a Fire Test Switch to simulate an internal fire condition, and a three-position toggle switch to set the duration of the wash cleaning cycle. The plumbing assembly shall include a slow close solenoid valve to prevent water hammer, a ball type shut-off valve, pressure/temperature gauge, and a detergent pump assembly. A vacuum breaker and check valve shall be furnished loose for installation by applicable trades. If specified, a Detergent Alarm Indicator Light is to be added to the panel face. The panel is to include volt-free contacts for supply and exhaust fans for interfacing with building management system or other control circuits, and volt-free contacts for the fire cycle for interconnection to the building fire alarm system or monitoring system. All components to be pre-wired and pre-plumbed for field hook up by applicable trades. The control panel is to be UL Listed.
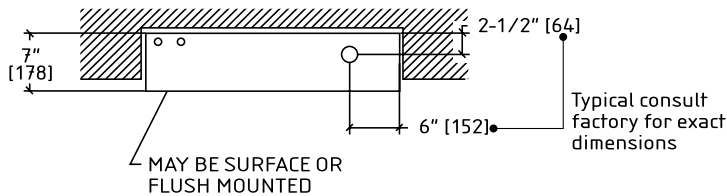
Model FWC-S1-_____
Model FWC-S1-A-_____

Carroll Control Panels are identified by a series of letters and numbers which designates features.

SERIAL DESIGNATION: 1. _FWC-_ 2. _S1_ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____
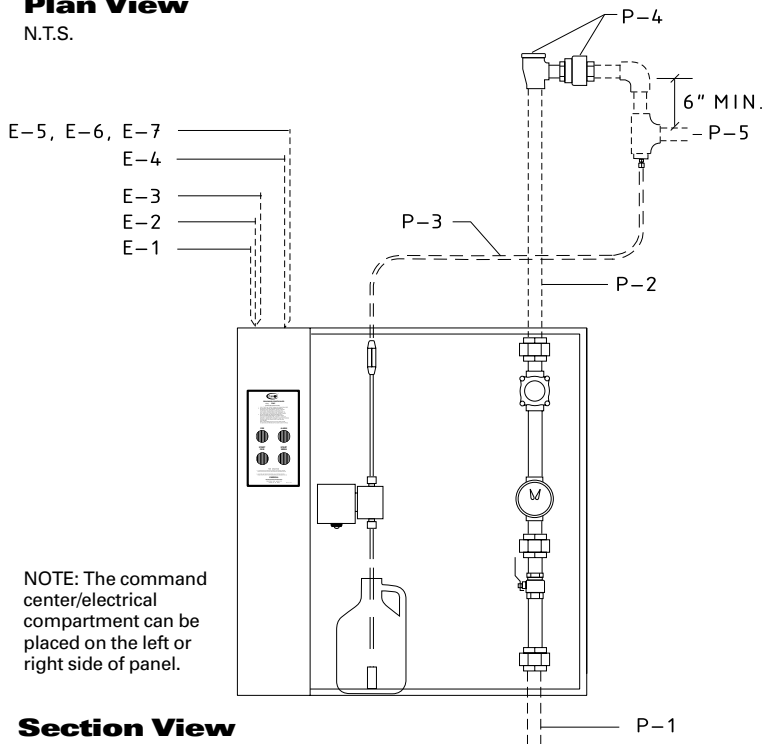
Explanation of Codes:

1. FWC– ....Fan/Wash Control Panel with PLC (Programmable Logic Controller)
2. S1 ....Indicates single wash group.
3. A ....Automatic Time Clock
4. BP ....Backflow Preventer
5. DA...........................Detergent Alarm
6. M ....Cold Water Mist
7. PIPE SIZE ....Pipe size as a decimal number, sizes are: 0.50 = 1/2" pipe, 0.75 = 3/4" pipe, 1.00 = 1" pipe, 1.25 = 1-1/4" pipe, and 1.50 = 1-1/2" pipe
8. TR ....Trim Ring

EXAMPLE: A (FWC-S1-A-DA-1.00) is a single wash group control panel and includes a programmable automatic time clock, a detergent alarm, and a 1" hot water inlet/outlet pipe.

Plan View
N.T.S.

7" [178]

2-1/2" [64]

6" [152]

Typical consult factory for exact dimensions

MAY BE SURFACE OR FLUSH MOUNTED

Section View
N.T.S.

P–4

6" MIN.

P–5

E–5, E–6, E–7
E–4
E–3
E–2
E–1

P–3

P–2

P–1

NOTE: The command center/electrical compartment can be placed on the left or right side of panel.

Engineering Data

HOT WATER REQUIREMENTS

140° F minimum, 180° F maximum temperature;
40 PSIG minimum, 80 PSIG maximum inlet pressure.
Refer to Carroll MASTER ENGINEERING TABLES for water consumption rates.

HOT WATER INLET SIZE TO CONTROL PANEL

The inlet hot water pipe size depends on the total length of ventilator served, the ventilator extraction chamber size (nominal 250 or 400 CFM/FT.), and the Ventilator Series—W1 or W2. Refer to the Carroll MASTER ENGINEERING TABLES.

PLUMBING SIDE

☐ P1 Hot Water Inlet_____.

☐ P2 Hot Water Outlet to Vacuum Breaker_____.

☐ P3 3/8" copper tubing by applicable trades.

☐ P4 Vacuum Breaker/Check Valve assembly furnished loose by Carroll.

☐ P5 Hot Water Line to Ventilators.

NOTE: Dotted lines indicate items supplied by others.

ELECTRICAL SIDE

☐ E1 120 VAC/60 Hz @ 15 or 20 amps dedicated service.

☐ E2 Four wires to magnetic motor starters, two for exhaust and two for supply fans.

☐ E3 Three wires to Ventilator exhaust collar J-Box for thermostatically-controlled fire dampers, two wires only for fusible link-controlled fire dampers.

☐ E4 (Optional) Two wires to remote break-glass station Fire Switch.

☐ E5 (Optional) Two wires from voltage-free contacts to Bldg. Motor Mgt. Center System to control exhaust fan. If specified, E2 is not used.

☐ E6 (Optional) Two wires from voltage-free contacts to Bldg. Motor Mgt. Center System to control supply fan. If specified, E2 is not used.

☐ E7 (Optional) Two wires to Building Management System to monitor fire cycle.

Control Panel Size and Mounting

MODEL #	H.W. PIPE SIZE	WIDTH	HEIGHT	DEPTH	SUGGESTED MOUNTING HEIGHT ABOVE FLOOR
FWC-S1	0.50" TO 1.50" (12.7 TO 38.1)	30 (762)	31 (787)	7" (178)	41" (1041)
FWC-S1-BP	0.50" TO 1.50" (12.7 TO 38.1)	30 (762)	48 (1219)	7" (178)	24" (1219)

NOTE: Dimensions in parenthesis (   ) are millimeters.