PulseFlow Decisions and Values

BNTUUP12.C01 0000220384 C.2 B.2 5/8/20 5:35 PM Released

NOTICE: This document tells about the decisions in the Mentor® controller that must be set if the tunnel washer includes PulseFlow® features.

This document tells about the decisions in the Mentor® controller that must be set if the tunnel washer includes PulseFlow® features. Reference manual MTCCNR03 tells about these decisions and the decisions that are not limited to machines with PulseFlow® features. Refer to the reference manual for decisions that do not affect how the PulseFlow® features work.

1. Decisions in the Configuration Menu

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1.1. In the Hardware Submenu

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The **PulseFlow** checkbox says that this machine has the pumps and valves that are required for PulseFlow® operation. This decision does not appear in Mentor® software with date codes before 20901. See the "CBW Hardware Configuration" section of the reference manual.

1.2. In the Operating Parameters/Output Timers Submenu

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1.2.1. Start Flush after Transfers

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The **Start Flush after Transfers** value sets the minimum duration, in tenths of a second, for the Mentor® to flush the load chute after a transfer is initiated. The amount of water used to flush the goods into the tunnel washer is programmed on the formula page. The minimum value for this timer is 5 seconds. See the "Output Timers" section of the reference manual.

1.2.2. PulseFlow® Timers

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1.2.2.1. PulseFlow® Time After Hold

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This timer sets the duration, in tenths of a second, that the tunnel washer PulseFlow® operates after the number of counts is satisfied or after the machine goes into a hold condition. This value is used to calculate the PulseFlow® flow rate.

1.2.2.2. PulseFlow® High Level Debounce

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This timer is used only for pumped flow pumps in middle tunnel modules. The timer sets the duration, in tenths of a second, that the tunnel washer must see a level below the high level in the module being pumped from. Pumped flow pumps turn off when the level in the source module is below high level for the time set in this timer. Set this timer to a value of 1 in most cases.

1.2.2.3. Maximum Time to Lose High Level

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In Mentor® version 20B04 this timer sets the maximum time the high level input can be present for a pumped flow PulseFlow® pump. The Mentor® controller signals an error and stops the tunnel washer if the high level input is present when this timer ends.

1.3. In the Operating Parameters/Program Constants Submenu

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1.3.1. PulseFlow® Program Constants

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1.3.1.1. PulseFlow® Pump

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Initial Value—Set a value to be used as the digital-to-analog output for each PulseFlow® pump. The Mentor® controller will use this value until it determines a new value. The valid range for this value is 0 to 4095.

1.3.1.2. PulseFlow® Rate Error Percentage

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This decision is used on PulseFlow® tunnel washers only. Set this value to a minimum percentage of the desired flow rate.

For Mentor® version 20B04, the Mentor® controller will signal an **error** if the actual PulseFlow® flow rate is less than this percentage of the desired flow rate. The tunnel washer will enter a hold condition if the error is not cleared.

For Mentor® versions before 20B04, the Mentor® controller will signal a **warning** if the actual PulseFlow® flow rate is less than this percentage of the desired flow rate.

1.3.2. Other Decisions

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For PulseFlow® tunnel washers, set the **Number of Modulating Valves** value to equal the number of PulseFlow® pumps. Do not include the flush pump on Module 1 in your count. See the "Program Constants" section of the reference manual.

1.4. PulseFlow® Configuration

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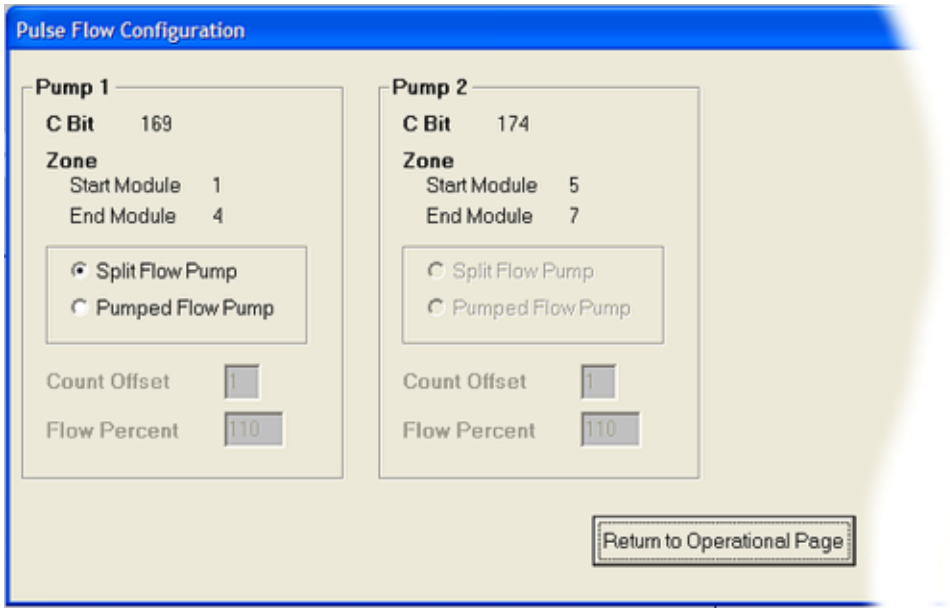
This menu item applies only to PulseFlow® tunnel washers. Use this display to configure each PulseFlow® pump as either a **split flow** pump or a **pumped flow** pump.

Figure 1. PulseFlow® Configuration Screen



Split flow pump Pumps water from the PulseFlow® tank to the module in a PulseFlow® zone that is closest to the discharge end of the tunnel. The PulseFlow® features require at least one split flow pump for each PulseFlow® zone in the tunnel system to provide rinse water. **The pump on the last two modules of the tunnel must be a split flow pump**.

Pumped flow pump Pumps water from one module in a PulseFlow® zone to the adjacent module toward the load chute. PulseFlow® tunnel systems require pumped flow pumps if a PulseFlow® zone must be divided into sub-zones. PulseFlow® zones are divided if they include more than five modules.

For pumped flow pumps, set a **count offset** and a **flow percent** on this page.

Count offset This pump should start operating this number of reversals before the main pump starts. This value is usually set to 0.

Flow percent This pump should operate at a speed that will move this percentage of the flow of the main pump. This value is usually set to 95.

2. Decisions in the Programming/Formulas and Programming/Functions Menus

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2.1. Op Code 08: Modulating Water with Flowmeter

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On the **Programming/Functions** page, enter op code 08 for each PulseFlow® pump used on PulseFlow® tunnel washers. For PulseFlow® machines, disable the Hold code. Compatibility and init codes are not used for PulseFlow® pump functions.

2.2. PulseFlow® Zone

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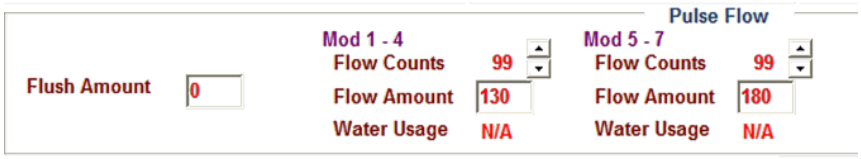
Values and prompts appear in this zone only if the tunnel washer is configured as a PulseFlow® machine.

Figure 2. The PulseFlow® Zone of the Formula Programming Page



2.2.1. Flush Amount

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Enter the amount of water to flush into the first module as these goods are loaded into the tunnel washer. This value is a volume only and does not consider any value for time.

2.2.2. Flow Counts

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For each split flow pump, the pump turns on when this number of counts remains before the goods transfer to the next module. For pumped flow pumps, this value is automatically filled when the counts for the main pump are programmed.

2.2.3. Flow Amount

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Enter the amount of water to flow when PulseFlow® is active. For pumped flow pumps, this value is automatically filled when the amount for the main pump is programmed. This value is a volume only and does not consider any value for time. The units are determined by the flowmeter setup.

2.2.4. Water Usage

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This is the PulseFlow® water usage, not the fresh water usage. This value is for information only. This value is the result of dividing the optimum weight by the flow amount.

3. Electrical Connections for the PulseFlow® Devices

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The PulseFlow® tunnel washer requires one high-speed digital-to-analog board for each two pumps. The machine also requires one high-speed 8-output/16-input board.

- The PulseFlow® pumps are numbered according to the c-bits assignments. The pump that is controlled by the c-bit with the lowest number is Pump 1.
- For each pump, one digital-to-analog output controls the inverter, and one high-speed input is the counter for the flow meter.

Table 1. Flow Meter Inputs (8-output/16-input Board at 81H)

Device	Connection
Pump 1	MTA4–1
Pump 2	MTA4–2

Flow Meter Inputs (8-output/16-input Board at 81H) (cont'd.)

Device	Connection
Pump 3	MTA4–3
Pump 4	MTA4–4
Flush Pump	MTA4–18

Table 2. Inverter Outputs (Digital-to-Analog Boards at 31H and 32H)

Device	Connection
Pump 1	Board 31H MTA43-3
Pump 2	Board 31H MTA43-1
Pump 3	Board 32H MTA43-3
Pump 4	Board 32H MTA43-1
Common	MTA43-6,7,8,9,10

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