FT520-86 Flow Rate Alarm Instructions

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General Information

The FT520 is a flowmeter monitor with added output and alarm features. It is designed for use with SeaMetrics flow meters and sensors, as well as other units which have a pulse or frequency output. It displays flow rate and total in large digits on an easily-read backlit display. Units are user selectable between gallons, cubic feet, and cubic meters.

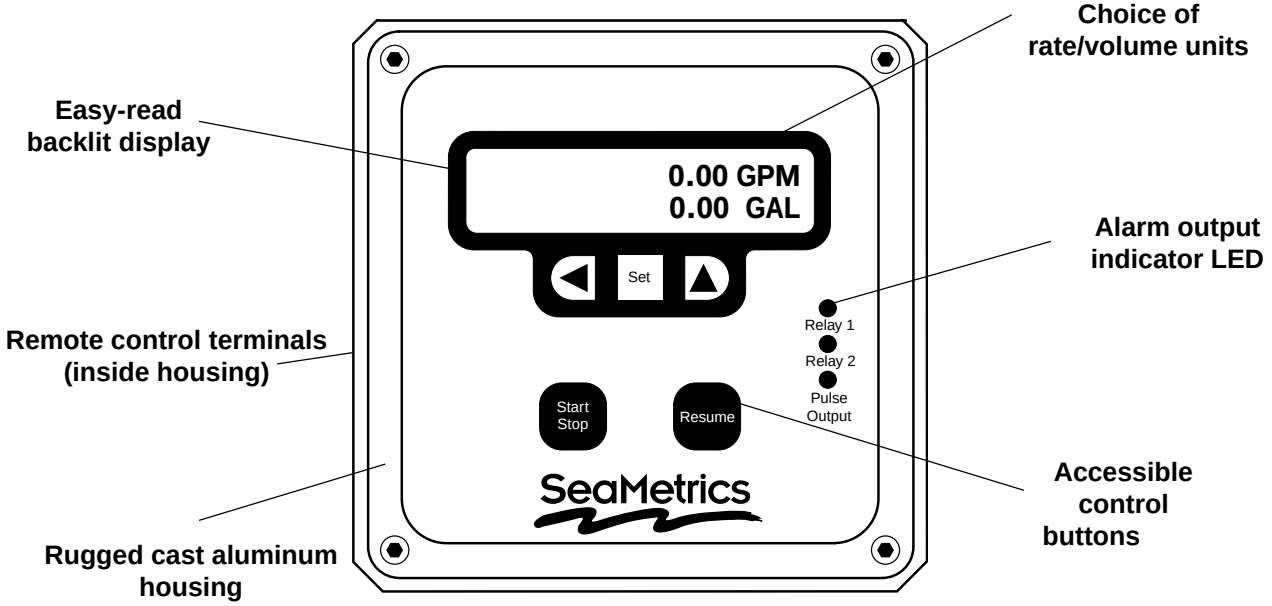
The primary output of this unit is is a set of user-configurable alarm relays which can signal when a maximum or minimum flow is reached. Applications tyically include detection of a pipeline failure or of a pump that has run dry. The dual relays can be connected to an alarm, auto dialer, or any other switch-controllable device.

In addition to the flow rate alarm, the FT520 has analog output (4-20 mA, 0-5 VDC or 0-10 VDC) and programmable pulse output. These can be used for data logging or to provide proportional chemical feed, using an externally-controlled metering pump.

Specifications

Power	115 VAC (220 VAC optional), 50/60 Hz; 12 VDC
Temperature	32° -130° F (0° - 55° C)
Enclosure	Precision cast aluminum, NEMA 4X
Alarm Outputs	Two Form C SPDT relay, 115 VAC 5A max
Max Pulse Output	100 mA at 60 VDC
Memory Type	Non-volatile EEPROM auto-backup
Sensor Power	12 VDC, 10 mA
Totalizer	8 digit
Rate Display	5 digit
Volume Units	Gallons, cubic feet, cubic meters, liters, million gallons
Time Units	Minutes, hours
Analog Output	4-20 mA, 0-5 VDC, 0-10 VDC, opto-isolated
Sensor Input	Open collector current sink, ESD protected
Max Input Frequency	1,000 Hz
Shipping Weight	7 lbs

Features



Installation

Wall Mounting. Using the four screws provided, attach the two foot brackets to the sides of the enclosure. Then attach the unit to any secure surface by inserting screws through the mounting holes in the foot brackets.

Panel Mounting. Follow the dimensions given for "Panel Cutout" (see page 4). Be sure to include the four corner screw holes. After cutting and drilling, place the front plate on the front side of the panel with its gasket against the panel, and the remainder of the square housing on the back side. Slide the screws through the four holes drilled in the panel, and into the threaded holes in the housing. Tighten until the gasket is firmly compressed against the panel.

Expose Terminals. Remove the four screws which hold the front plate to its flange. Remove the front plate. The display board is attached to this front plate. It is also connected to the power board by a ribbon cable. For convenience, this cable can be disconnected while making connections. Connections can be made inside the enclosure, or the terminals can be unplugged for easier access, by gently tugging on them.

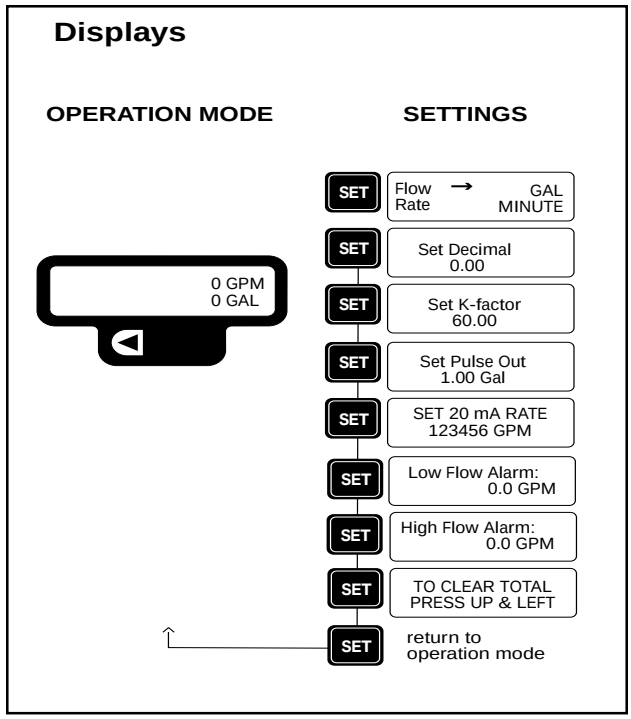
Caution: When the control is powered up, relay or analog outputs may be active. If this could be a hazard, wait to make external connections until programming is complete.

Sensor Connection. Follow the "Connections" diagram to connect either two or three wires from the flow meter or flow sensor.

Flow Alarm Connection. Connect the alarm devices to the appropriate relay terminals. Note that the relays have both normally-open (NO) and normally-closed (NC) contacts.

Analog Connection. This output can be configured 4-20 mA, 0-10 V or 0-5 V by placing a jumper in the correct position on the analog header. The swith next to the header selects active (powered) or passive (unpowered) output. When using the 12 VDC powered input you may only select passive output.

Power Connection. Connect AC or DC power as desired to the appropriate terminals. For safety, if using AC power, be sure to connect the ground terminal provided to a good earth ground. If using DC power, be sure to use a Seametrics PC1 (part number 05040) or comparable 12 V 500 mA power supply.



Replace the front panel, taking care to reconnect the ribbon cable if it has been disconnected. When power is switched on, the display should light up immediately with meaningful letters or digits.

Settings

Set Units. Press SET. Use ▲ to select volume units. Use ◀ to select the particular unit desired (gallons, liters, etc.). Then use ▲ to switch to time units. Again, select the unit desired. Press SET for next menu item.

Set K-Factor. The unit will not function properly until this number is entered. It is simply the number of pulses which the flow meter or flow sensor puts out per gallon of liquid. It is marked on the Model/ Serial tag of SeaMetrics flow meters and flow sensor fittings. On adjustable flow sensors, the K-factor must be taken from the chart in the flow sensor instructions, based on pipe size. Press SET for next menu item.

Set Pulse Out. An output pulse is activated at the selected volume intervals if this feature is in use. Otherwise, it does not need to be set. Press SET for next menu item.

Set 20 mA Out. The “SET 20mA RATE” programs the flow rate at which the output is 20 mA, 5 V or 10 V. Use ▲ and ◀ to set the maximum flow rate for full scale output. Press SET for next menu item.

Set Low Alarm. Use ▲ and ◀ to set the desired minimum flow rate. Low alarm corresponds to alarm relay one (see Connections diagram). Press SET for next menu item.

Set High Alarm. Use ▲ and ◀ to set the desired maximum flow rate. High alarm corresponds to alarm relay two (see Connections diagram). Press SET for next menu item.

Clear Total. This function resets the running total back to zero. To reset to zero, press ▲ and ◀ simultaneously, or press SET and the total will remain the same. The “Start/Stop” and “Resume” keys are not used in flow alarm mode.

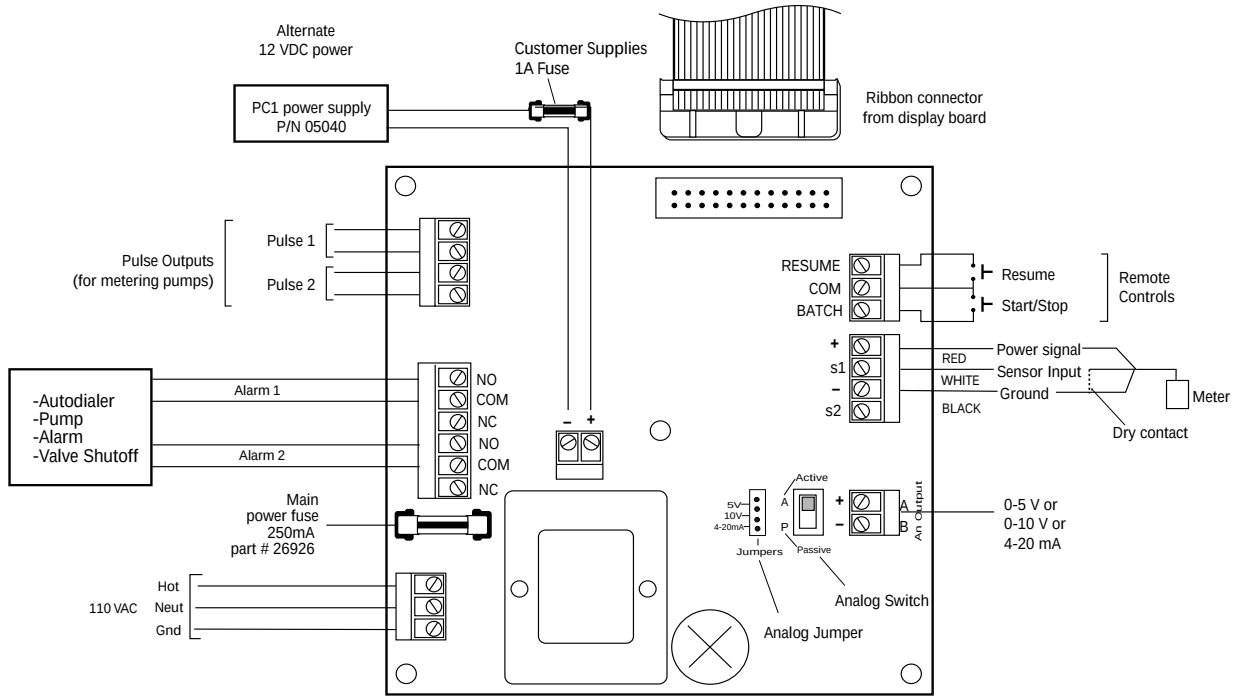
Operation

The last press of the SET key returns the unit to operation mode (see “Displays” diagram).

Flow Monitoring. The “Rate” indication gives the current rate of flow. “Total” is a running total of flow which increases indefinitely unless it is reset (see procedure under “Settings”).

Alarms. Alarm relay two activates when flow reaches the high alarm set point. Because of the built-in hysteresis, the relay does not deactivate until the flow rate has reached 10% below the high alarm set point. Similarly, alarm relay one activates when flow reaches the low alarm set point, and does not deactivate until flow returns to 10% above the low alarm set point.

Connections

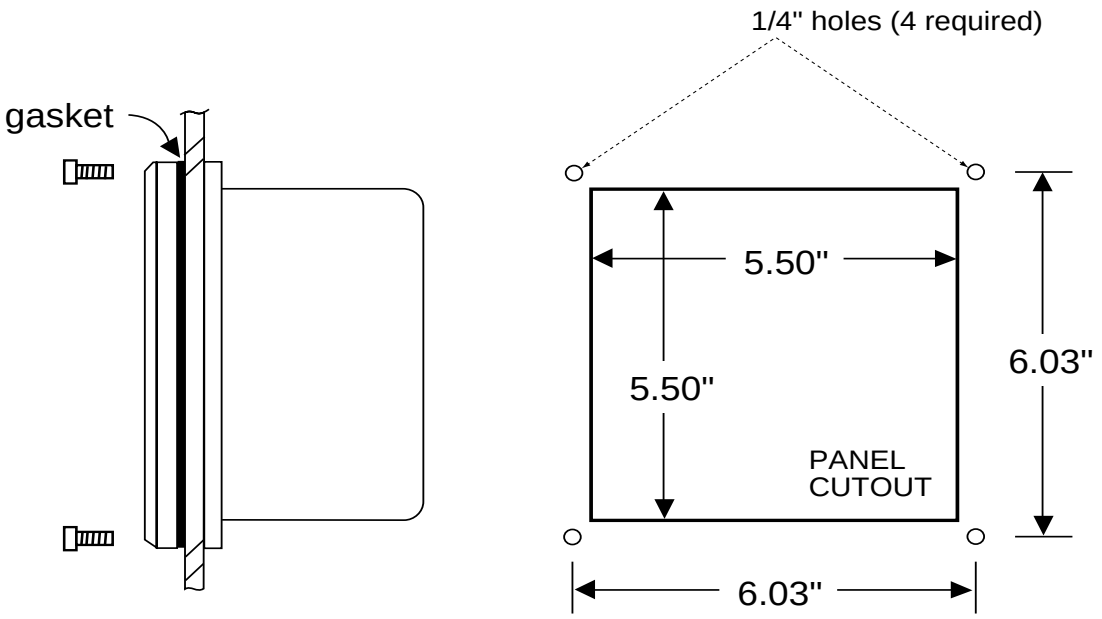


Repair

The only field-repairable component on the FT522 is the fuse. If failure is due to a cause other than a blown fuse, it is necessary to replace the entire board stack. Contact your distributor for information.

Caution: Always disconnect power to the unit before opening the terminal cover. Do not reconnect power until all connections have been made and the terminal cover has been replaced.

Panel Cut-out Dimensions



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