CARLON METER®

LEADERS IN WATER MEASUREMENT AND CONTROL

INSTALLATION, PROGRAMMING, & OPERATING INSTRUCTIONS

CAR-LOGGER®

#FL100 (B OR D)

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INSTALLATION, PROGRAMMING, AND OPERATING INSTRUCTIONS FOR MODELS #FL100 (B or D)

The versatile FL-100 CAR-LOGGER® is designed to receive an input signal from a Carlon meter using an optical coupler located inside the meter register, providing "real time" flow signal information to the CAR-LOGGER®. All models convert that signal into two visual display values: 1- the "real time" flow rate, 2- the "real time" total volume of water passing through the meter. CAR-LOGGER® models FL100-B and FL100-D provide a 4 – 20 mA (milliamp) output current signal with values directly proportional to the flow rate, for data logging and dosing pump controller applications. Finally, CAR-LOGGER® models provide two pulse output signals for inputs to programmable controllers and remote counters, if required for the application. Because the CAR-LOGGER® has two pulse outputs, no splitter unit is required. (Optional MODBUS communication protocol information is included in this manual.)

The CAR-LOGGER® has a non-volatile memory – no battery is required. The programming menu is simple to use with a multiple choice approach. This product is designed to be used with Carlon's JSJ® positive displacement meters, C series cold water turbine meters, and H series hot water turbine meters.

CAR-LOGGER® INSTALLATION INSTRUCTIONS

1. DO NOT BRING POWER TO THE UNIT UNTIL IT IS MOUNTED AND WIRED TO THE WATER METER AND OUTPUT CONNECTIONS. Install the unit in the desired location, noting accessibility to power outlets. Mount and keep unit inside, free from dust, moisture, and extreme temperatures. To mount, remove the dust cover with thumb screws, and use the same holes as a template to drill holes and fasten to a wall or cabinet. All wiring to and from the CAR-LOGGER® are to be done using the terminal strip inside the unit housing.

2. The optical input signal comes from the Carlon meter, which must be ordered with the CAR-LOGGER®. The meter has been fitted with an optical coupler output. Connect the meter output wire to the CAR-LOGGER® Optical Input for the type of meter being used to the terminal strip provided. See Terminal Strip Diagram for wiring location information.

3. All CAR-LOGGER® models have the capability to send dry contact pulse output signals to other devices like remote counters and programmable controllers (proceed to step 4 if this type of output is not required). If these signals are necessary for the application, output locations on the terminal strip are provided. Use a two wire cable for each output. See Terminal Strip Diagram for wiring location information.

4. THE POWER SUPPLY (16.5 VAC) CAN NOW BE BROUGHT TO THE UNIT AND CONNECTED VIA THE TERMINAL STRIP. Plug the Carlon transformer into a wall outlet and run wire from the transformer to the CAR-LOGGER®. *Only use the transformer supplied with the CAR-LOGGER®*. Upon power-up, the display will show the flow rate of water through the meter, and the corresponding milliamp output level.

⚠ **Caution** should be taken not to run any power line in the same conduit with the input or output signals to and from the unit. That may cause electrical "noise" from the AC power line, which can cause significant electrical errors.

WIRING THE CAR-LOGGER® TERMINAL STRIP

Remove the see-through cover.

Remove the two faceplate screws on the cover plate.

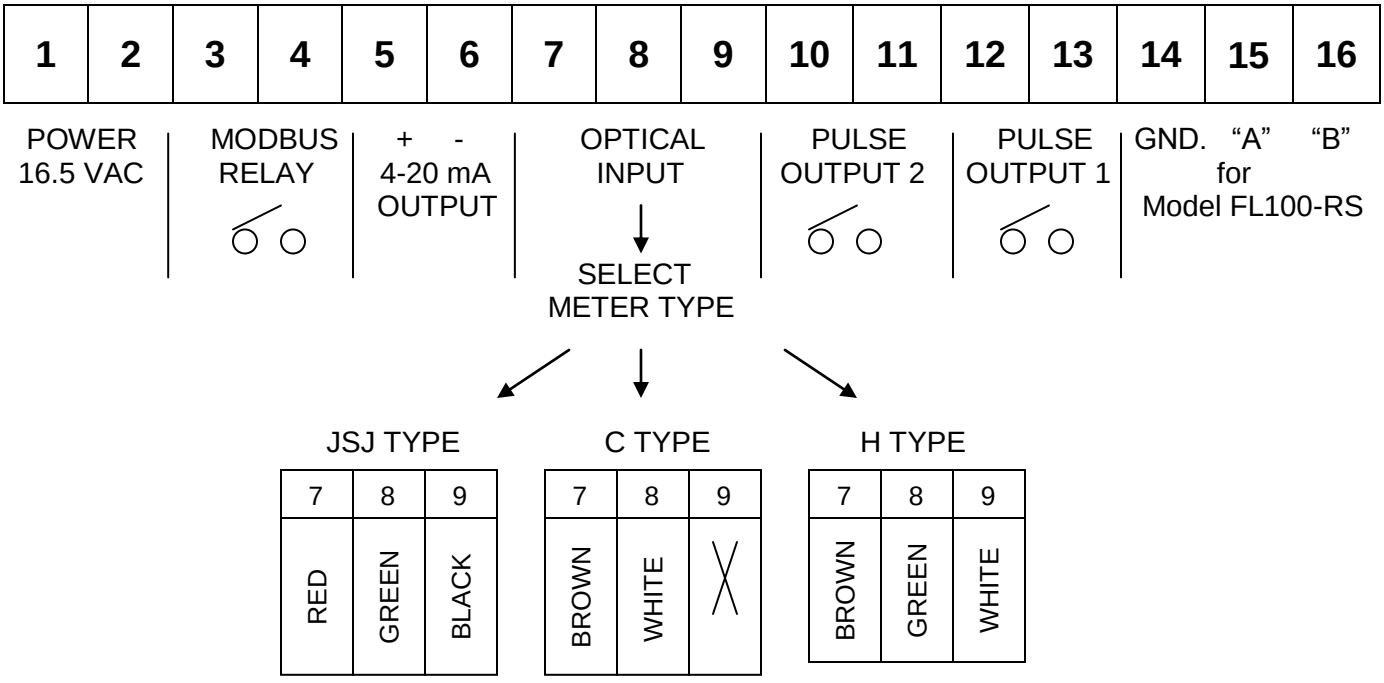
CAREFULLY pry up the plate at any corner, tilt it back, and locate the 5 PIN connector and flat plastic cable attached to the membrane switch pad.

Disconnect the connector from the circuit board pins and remove the face plate assembly to access the terminal strip for wiring purposes.

Be VERY CAREFUL handling this faceplate assembly.

Terminal strip diagram for electrical wiring locations.

Note: Models equipped with RS485 MODBUS Communication option must use # 14-16 terminals.



CHOICE OF NON ISOLATED OR ISOLATED POWERED OUTLET

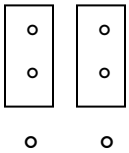
The CAR-LOGGER models can be configured in either of two ways:

Configuration 1 – ***Default configuration*** is a non-isolated, powered output (Car-Logger® supplies the power to the loop)
BOTH JUMPERS must be in the "up position" on the circuit board - SEE DIAGRAM.

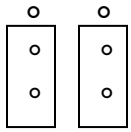
Configuration 2 - Isolated, loop powered output (loop power is supplied by user)
BOTH JUMPERS must be in the "bottom position" pm the circuit board - SEE DIAGRAM.

⚠ **CAUTION** – jumpers must be in the same position BOTH up or BOTH down. Do NOT put jumpers in opposite positions or damage may occur to the circuit.

CONFIGURATION 1
UP



CONFIGURATION 2
DOWN



After wiring the terminal strip, reassemble the cable connector to the circuit board pins and reassemble the faceplate assembly in the CAR-LOGGER® housing.

PROGRAMMING INSTRUCTIONS FOR ALL CAR-LOGGER® MODELS

After all input, output, and power supply wiring connections have been made to the terminal strip, the unit is ready for programming. This is done by pressing the "PGRM" key momentarily, which offers choices on the display menu to choose from, using the "INC" or "DEC" keys to select the applicable item.

The display will show water flow rate on line one. Line two will show a corresponding milliamp number of the 4-20 mA output.

NOTE: After 15 seconds of user programming inactivity, the screen will return to displaying the "real time" flow rate and 4-20 mA analog corresponding value output. The one exception to this 15 second inactivity return to the flow rate value is the "adjust totalizer" display, which will remain on the screen until the user chooses to exit this specific display.

USE THE FOLLOWING STEPS TO SET UP THE CAR-LOGGER®:

FIRST, using the PGRM, INC, & DEC keys, choose the Carlon meter type and size that is being used with the CAR-LOGGER®. (Ex. JSJ-100)

SECOND, choose the units of flow and volume desired i.e. gallons, cubic feet, liters or cubic meters. (Normally, this is set to be the same as the register units chosen for the meter above.)

THIRD, adjust the totalizer water volume to zero or other starting number desired.

FOURTH, if the pulse output feature is needed, to activate a remote counter or programmable controller, choose pulse output 1 amount desired. This number is how often (in units of volume through the meter, like 10 gallons) the pulse output signal is sent to the device connected to this output line (such as a pump controller or remote counter).

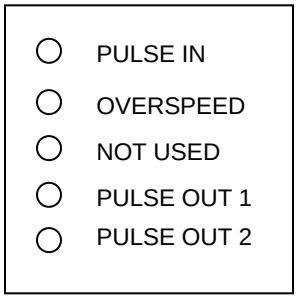
FIFTH, do the same for pulse output 2, if a second output signal is required.

SIXTH, decide if the CAR-LOGGER® is to be password protected for security of programming and operation. The password can be alpha or numeric. Write the chosen password down and store in a separate location for future reference to re-access the unit.

SEVENTH, view manufacturing information on this specific CAR-LOGGER® regarding date manufactured, serial number, etc.

EIGHTH, exit menu. Unit is now operational as programmed.

During operation, LED's will light showing incoming signals from the meter, excessive flow (over speed) through the meter, and each time output pulse signals are being sent.



UNDERSTANDING THE 4-20 mA SIGNAL ON MODELS FL100-B & FL100-D

The milliamp display gives a numerical current reading which is proportional from zero flow to the maximum flow. The minimum value of the current range (4) is set to zero water flow through the meter, and the maximum number (20) is set for the maximum published flow rate of the meter. Exceeding this flow rate results in an "overspeed" led signal which will remain on as long as this condition exists.

The converter output providing the variable milliamp current output signal, located on the terminal strip, is to be connected to the instrument designated to receive the milliamp signal. See the terminal strip diagram for proper wiring locations.

Contact Carlon Meter directly for any assistance with this unit regarding installation, programming, or operation of the Carlon water meter and CAR-LOGGER® unit.