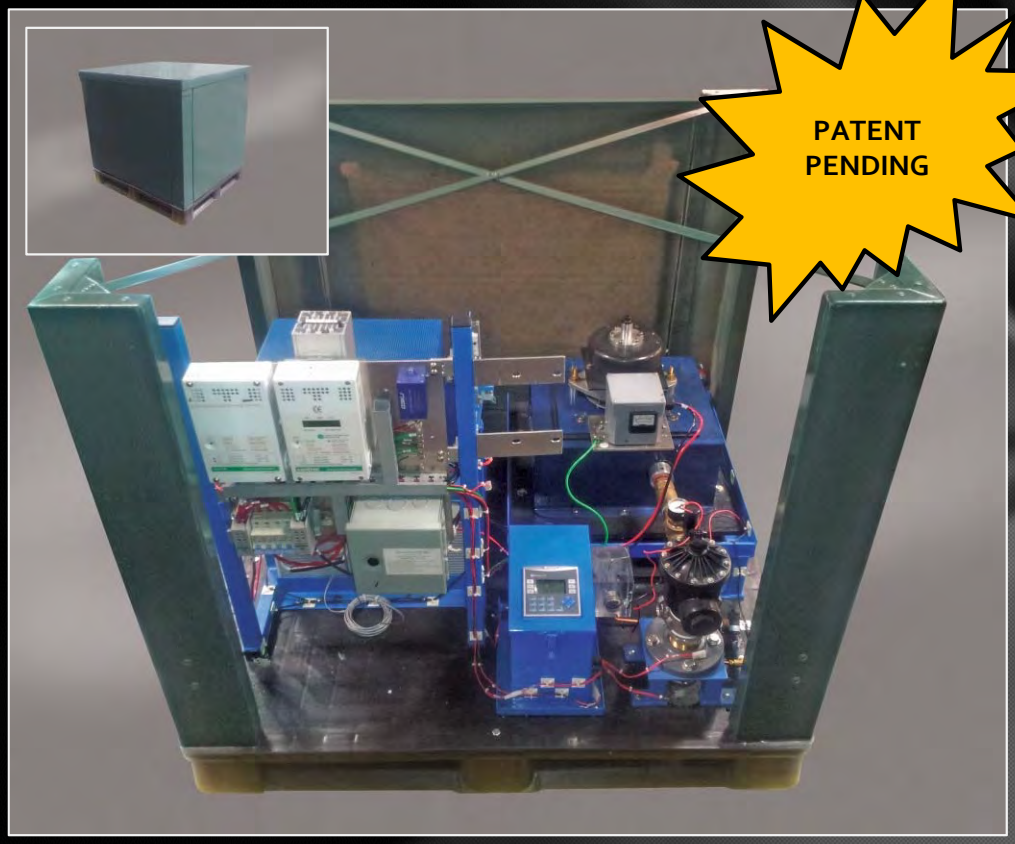
The Intelligent Solution for Water Distribution Systems

ECLIPSE™ i series

GENESIS

Eclipse i-Series #9800i-GENESIS



Intelligent Flushing and Water Monitoring Station with Built-in PLC and Chlorine Analyzer Powered by a Water Turbine Self-Charging System

See inside for additional available water monitoring analyzers

THE KUPFERLE FOUNDRY COMPANY

Since 1857

#9800i-GENESIS

Features

- Intelligent Automatic Flushing Device with 2” diaphragm, automatic fail-safe solenoid operated valve
- Built-in Water turbine charges a 24VDC battery bank– no line or solar power needed!
- Built-in Amperometric chlorine analyzer - no reagents required!
- Additional water monitoring capabilities: temperature, psi, pH, turbidity, conductivity and ORP
- Built-in Programmable Logic Controller w/ 2 micro SD and standard SD adapters and SCADA upgradable!
- Approximate flow rate of 50 gpm @ 60 psi, varies upon site conditions
- Locking aluminum thermal insulated enclosure (R-9 rated). Designed to outside temperatures of -20ºF
- Built-in 24VDC high performance heater with fan and redundant thermostats

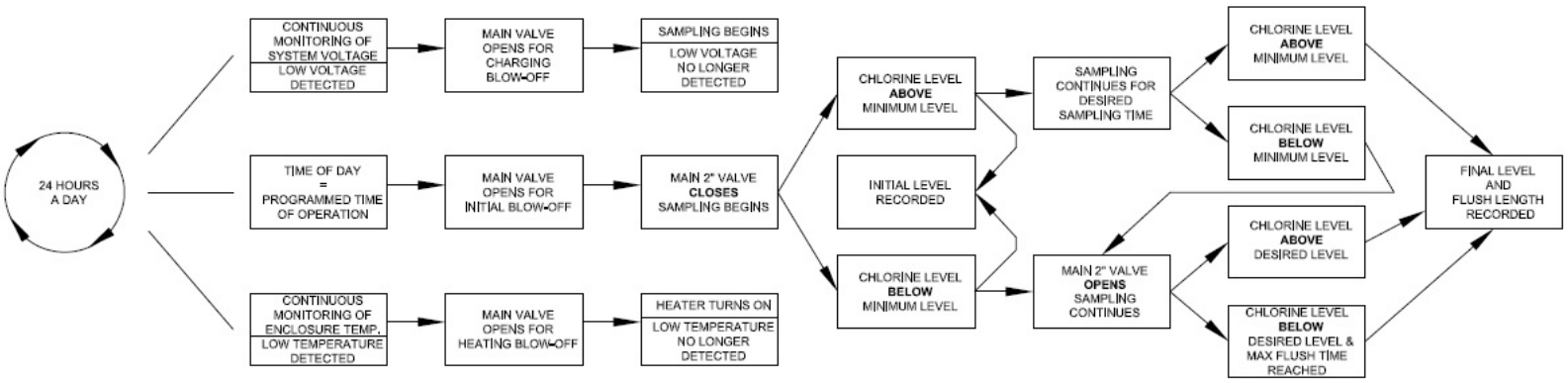
What Does It Do?

- Automatically maintains safe residuals for drinking water
- Automatically flushes when residuals fall below programmed minimum levels
- Automatically shuts off when residuals reach programmed desired levels
- Flushes exact amount of water needed for ultimate water conservation
- Uses any analyzers/sensors to provide detailed data regarding water quality
- The PLC records and captures all data related to residual levels and flush times. The data can be retrieved manually on a periodic basis or daily using a remote access SCADA system that collects the data via cellular, satellite or other communication transmission method
- Analyzer is free or combined chlorine compatible
- While flushing it uses a water turbine to recharge batteries that powers the electronics that provide enhanced monitoring and control
- Approved by the USEPA for water conservation (Green Project Reserve Program)

YouTube

see product videos at
www.youtube.com/kupferle1857

How Does It Work?



ECLIPSE i series

Eclipse 9800i-GENESIS automatically captures and records all residual and flushing activity. Data can be easily retrieved and imported into pre-formatted Excel worksheets.

Analysis Table:

- Displays all programmed information and activity regarding residuals and flushing operations and presents the imported data in an informative color- coded format

Graphic Displays:

- Initial vs. Final residuals data
- Residual levels over time period
- Flushing duration data

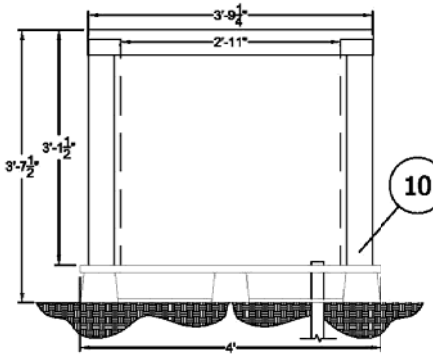
Additional analyzers that can be incorporated in the station:

- Temperature
- pH
- PSI
- Conductivity
- Turbidity
- ORP

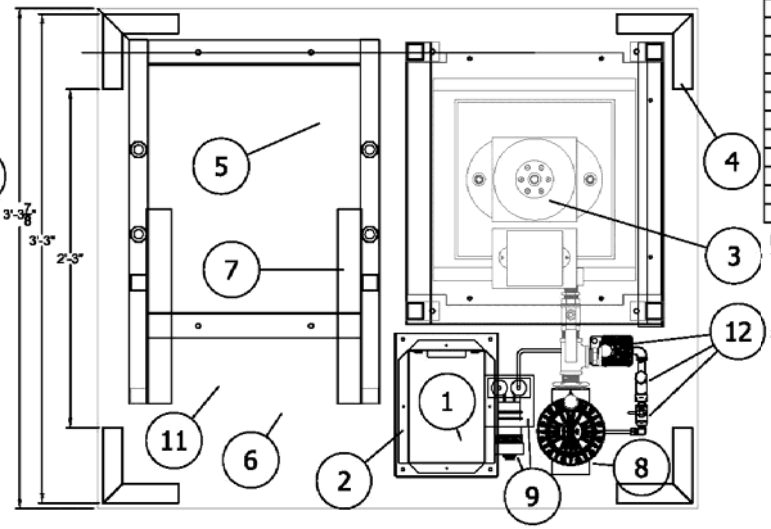
Contact us for additional available analyzers

#9800i-GENESIS

#9800i-GENESIS INTELLIGENT SELF CHARGING FLUSHING DEVICE



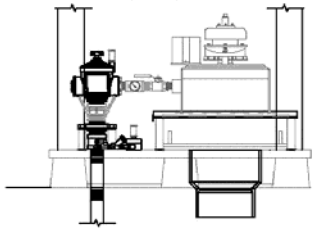
1 9800i-GENESIS FRONT VIEW
Scale: 1/2"=1'-0"



2 9800i-GENESIS LAYOUT SPEC
Scale: 1"=1'-0"

ITEM	ITEM / DESCRIPTION
1	PROGRAMMABLE LOGIC CONTROLLER (PLC)
2	ELECTRICAL CONTROL ENCLOSURE
3	TURBINE
4	ENCLOSURE POST
5	BATTERY HOLDER STAND AND BATTERIES
6	VOLTAGE CONTROL SLIDE
7	RESISTOR PLATE WITH PROTECTIVE CAGE
8	2" PGV AUTOMATIC VALVE
9	CONSTANT HEAD FLOWCELL & CHLORINE SENSOR
10	THERMOSTAT (1 ON EACH POST)
11	HIGH EFFICENCY FAN HEATER
12	SAMPLING VALVE ASSEMBLY

NOTES:
1. THE 2" PIPE LEADING INTO THE ENCLOSURE SHOULD BE WRAPPED WITH SOME FOAM RUBBER PIPE INSULATION. RECOMMENDED R-RATING OF SAID INSULATION SHOULD BE IN THE 6.7 RANGE.
2. STATION SHOULD BE MOUNTED LEVEL TO ALLOW THE TURBINE TO RUN SMOOTHLY.



Intelligent self charging flushing station shall be installed in the following location:

_____

_____

A 2" brass FIP inlet will lead vertically to the bottom of a 2" automatic flushing valve. The flushing valve shall control the flow of water through the hydrant, turbine, and its diaphragm with the extension and retraction of a DC latching solenoid. The solenoid shall have no loose parts when removed from the valve. Removal of the 2" valve and turbine enclosure shall be possible via a 2" stainless steel quick disconnect coupling.

The ***Intelligent Flushing Station*** (IFS) to be installed on the water line mentioned above shall use a PLC, with input from a chlorine analyzer, to control the automatic blow-off of water to maintain chlorine residual levels while collecting data. The IFU shall have the capability to monitor either free or combined chlorine levels in a water distribution system. The station shall also allow the user to manually flush water from the line with the simple push of a button, allow a minimum of 8 automatic sampling times, have a max flush length per sampling time, and allow the end user to program the desired and minimum chlorine levels. The IFS shall be enclosed in an insulated (R9 rating) lockable housing with a high efficency fan heater that is also controlled by 4 seperate thermostats that are located in different areas of the enclosure to account for an possible drafts by the enclosure access panels, one on each side of the station. The enclosure shall be locked by using 2 stainless steel hasps.

The chlorine sensor shall be amperometric using a membrane sensor which measures chlorine directly without the use of reagents. Water shall simply flow past the sensor and directly to drain, with the flow rate and pressure across the sensor controlled by a constant head flow cell assembly. The sample used for chlorine measurement shall not be altered by adding any chemicals to the sample stream. A shutoff valve should be present as well as a filter to prevent debris from entering the flowcell and allow maintenance.

All flushed water shall hit the wheel of a turbine which will charge the 210 Ah deep cycle batteries which power the entire station. The station shall use a voltage sensing relay to maintain a certain level of power in the batteries at all times. Should the voltage drop below certain level the PLC will receive an alarm and begin main valve will begin flushing according. While charging, the batteries shall be monitored via redundant charge controllers that will automatically "burn off" any access power using resistors to prevent the deep cycle batteries from being over-charged or damaged.

Should a thermostat detect a low temperature the hydrant shall turn on high efficiency fan heater to heat the enclosure. The turbine must be running for the heater to be turned on. If the hydrant is not flushing at the time a low temperature was detected the PLC receive an alarm and will start a flushing sequence.

The IFS shall be designed to allow the end user to interface with a SCADA system via remote communication.

Unit model # shall be 9800i-GENESIS as manufactered by Kupferle Foundry Company, St. Louis MO, or approved equal.

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mm/dd/yy	ISSUED FOR ...				
DATE	STATUS / REVISION		9800i-GENESIS SPEC SHEET		

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