

Eclipse i-Series #9700i-Solar

NEW!



The Intelligent Solution for Water Distribution Systems
ECLIPSETM
i series



Portable Intelligent
Monitoring and
Flushing Device

Patented
6,820,635
6,948,512

Features

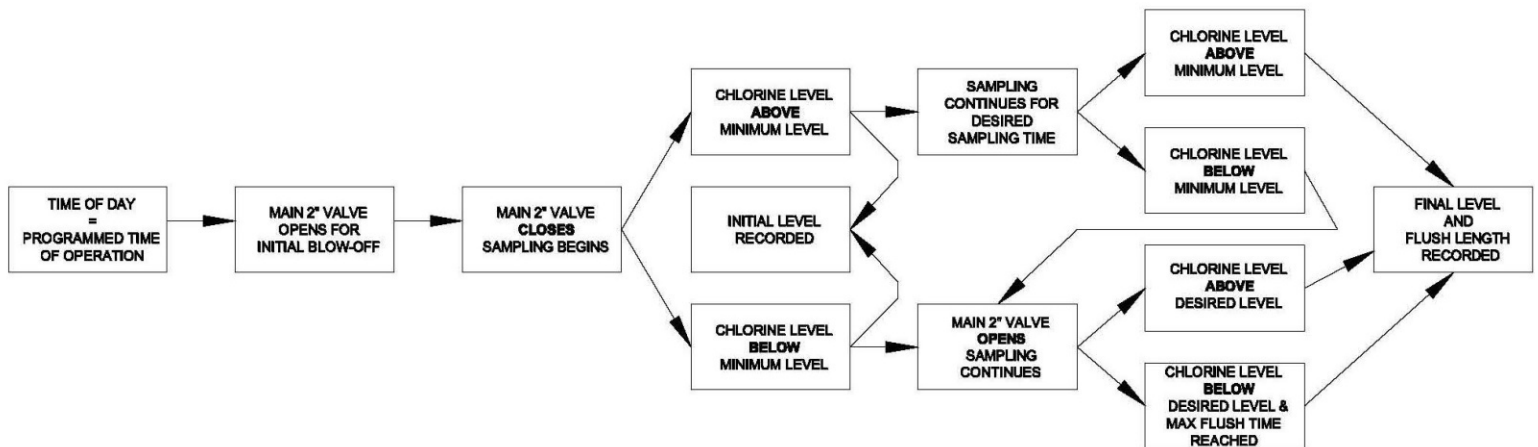
- Attaches directly to fire hydrant or any 2½” NST outlet
- Intelligent Monitoring and Flushing Device with 2” diaphragm, automatic fail-safe solenoid operated valve with adjustable flow rates up to 200 gpm
- Built-in amperometric chlorine sensor (no reagents required)
- Built-in Programmable Logic Controller (PLC) w/ 2 micro SD cards, SD adapter, and USB adapter
- Locking powder-coated aluminum enclosure
- 24 VDC lithium ion battery with solar recharging

What Does It Do?

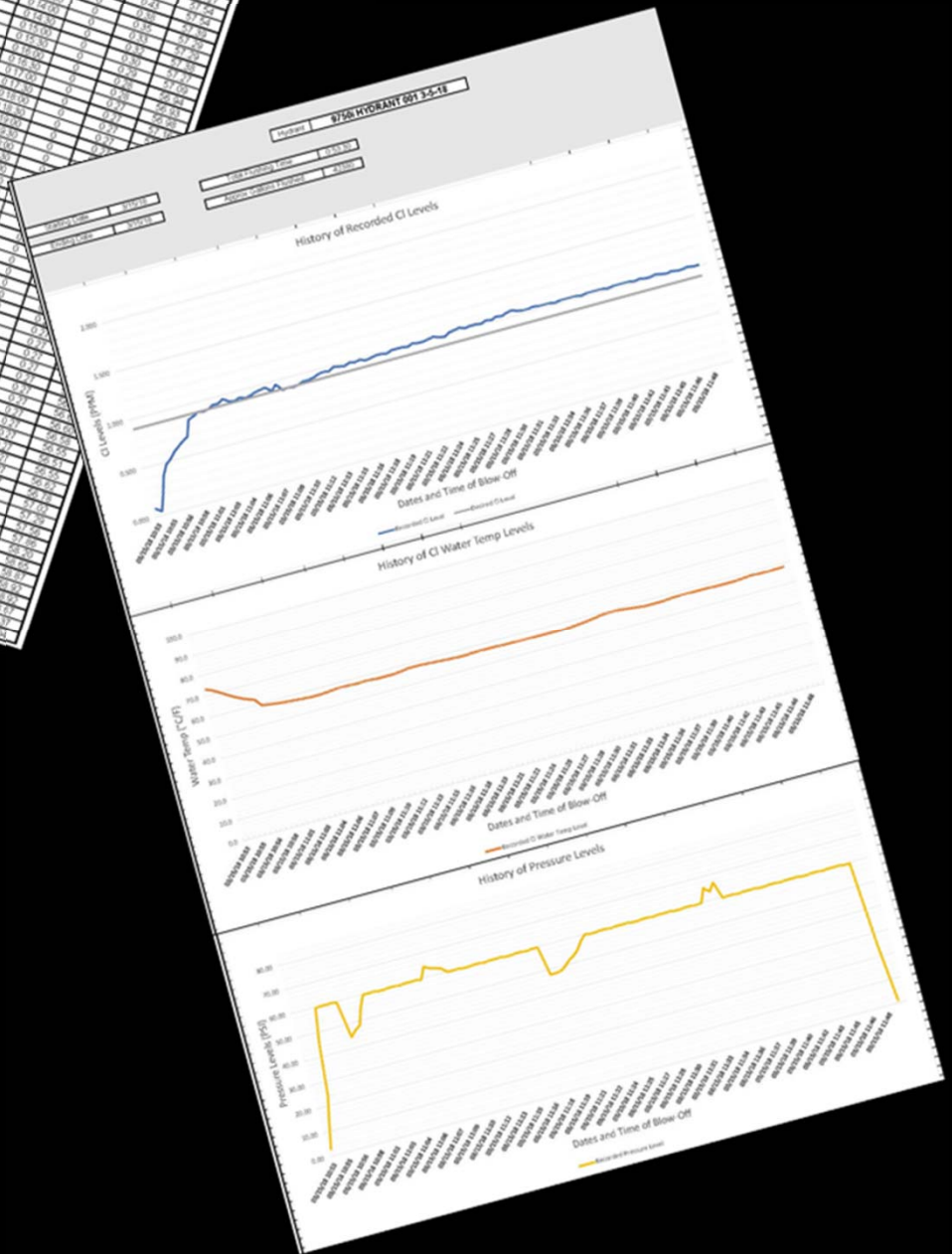
- Maintains safe residuals for drinking water
- Intelligently flushes when residuals fall below programmed minimum levels
- Automatically shuts off when residuals reach programmed desired levels
- Flushes exact amount of water needed for ultimate water conservation
- Records and captures all data related to residual levels and flush times
- Free, Combined, and Total amperometric chlorine sensors available
- Operates on 24 VDC lithium ion battery power with solar recharger
- EPA approved for water conservation (*EPA Green Project Reserve Program*)



How Does It Work?



The Eclipse 9700i-Solar automatically captures and records all residual and flushing activity. Data can be easily retrieved and imported into pre-formatted Excel worksheets.



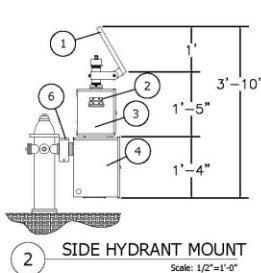
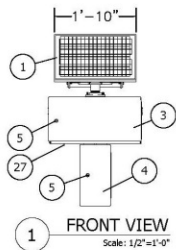
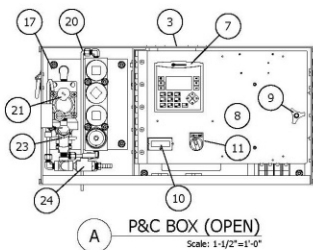
Analysis Table

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

Graphic Displays:

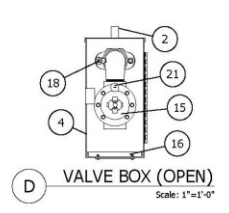
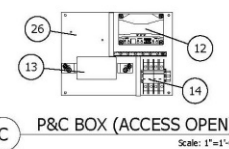
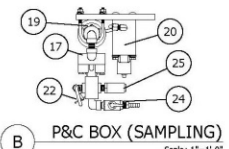
- Initial vs. final residuals data
- Residual levels over time period
- Flushing duration data

#9700i SOLAR POWERED PORTABLE INTELLIGENT FLUSHING DEVICE



MODEL	EP700	MC	SAUS	D	X	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM	NN	OO	PP	QQ	RR	SS	TT	UU	VV	WW	XX	YY	ZZ
SUBJECT	DESCRIPTION	MODEL #	DESCRIPTION	OPTIONS	DESCRIPTIONS																												
1	CLIMATE	2	MC	PORTABLE - SERIES HYDRANT	24 VDC TO 100 AMP HOUR BATTERY W/ SOLAR CHARGING																												
3	POWER	3	SAUS	1/4" NPT TO 1/2" NPT HYDRANT ON BATTERY	1/4" NPT TO 1/2" NPT HYDRANT ON BATTERY																												
4	DEPTH OF BURY	4	D	A	CELLULAR (RV50 GATEWAY)																												
5	COMMUNICATION	5	B	ALARM INDICATION LIGHT	ALARM INDICATION LIGHT																												
6	REDFLOW PREVENTION	6	X	N/A	SECOND SIGNAL CARD ADDED																												
7	PRESSURE SENSOR	7	X	NONE	NONE																												
8	SENSOR #1	8	A	FREE CHLORINE	F - OFF																												
9	SENSOR #2	9	B	COMBINED CHLORINE	B - COMBUNITY																												
10	SENSOR #3	10	C	TOTAL CHLORINE	C - DISOLVED CHLORINE																												
11	SENSOR #4	11	D	PH	F - FLUORIDE																												
			E	TURBIDITY	X - CUSTOM (CALL)																												

GENERAL SPECIFICATIONS	
VOLTAGE	BUS POWER (5 VDC)
CONNECTIONS	2 Poles
COMMUNICATIONS	RS-485/RS-485
CHLORINE SENSOR SPECIFICATIONS	
MEASURING RANGE	0.00 TO 2.00 PPM
WETTED MATERIALS	PVC, TITANIUM, NYLON, PTFE, RPTON®
RESOLUTION	0.01 PPM
POWER	40 WATTS
WATER TEMPERATURE SPECIFICATIONS	
MEASURING RANGE	33 TO 131°F
TEMPERATURE RANGE	PT100 RES W/ AUTOMATIC COMPENSATION
ELECTRICAL SPECIFICATIONS	
POWER	24 VDC
BATTERY SIZE	10 AMP HOUR
CIRCUIT BREAKERS	2 POLE, 10 AMP, MCB
PLC SPECIFICATIONS	
OPERATING VOLTAGE	24 VDC
POWER CONSUMPTION	215 mA @ 24 VDC
INPUTS	(10) 24 VDC
OUTPUTS	(2) 10-100 RESOLUTION, 4-20 mA
NON-VOLATILE MEMORY	128K BYTES
REMOVABLE MEMORY	STANDARD MICRO SD CARDS (UP TO 32 GB)
COMMUNICATIONS	RS-232 OR RS-485 PORT AND OPTIONAL ETHERNET/1
OTHER SPECIFICATIONS	
MAX PRESSURE	100 PSI
SAMPLE FLOW RATE	UP TO ~3 GALLONS PER HOUR
FLUSH FLOW RATE	UP TO ~200 GPM
MINIMUM TEMPERATURE	-75 DEG
	0°C OR 41°F



Intelligent Flushing Device (IFD) shall be attached to hydrant in the following location(s): _____

A 2-1/2" NST swivel connection will lead into a flushing enclosure with a 2" flushing valve. The flushing valve shall control the flow of water through the hydrant and its diaphragm controlling the flow of water through the sampling assembly. From the ball valve, a copper gooseneck sampling point shall be provided to allow a dedicated sampling point. A Y-strainer shall be located immediately after the sampling point for maintenance purposes. A sampling valve shall be included to control the flow of water through the IFD with the extension and retraction of a DC latching solenoid. Both solenoids shall have no loose parts when removed from the valve. The sampling valve shall control the flow of water through a pressure regulating valve (PRV) to a node based flowcell that can house up to 4 plug-and-play sensors. The sensors shall be serially (RS-485) connected to a hub and then to the PLC. The included chlorine sensor shall be amperometric using a membrane sensor which measures chlorine directly without the use of reagents. From this flowcell, the water will plumb away through 1/4" copper tubing out the bottom of the enclosure and be at the customers discretion as to how they want the water to drain. The sample used for water quality monitoring shall not be altered by adding any chemicals or reagents to the sample stream.

The IFD to be installed on the water lines mentioned above shall use a Untronics PLC to control the intelligent blow-off of water to maintain chlorine residual levels while collecting data into local data tables (viewable at the site) and/or a removable micro SD card in a CSV file (removable and viewable in Excel). The IFD shall have the capability to monitor either the free, combined, and/or total chlorine levels in a water distribution system. The unit shall also allow the user to manually flush water from the line with the simple push of a button or unthreading of the solenoid, allow a maximum of 8 intelligent sampling times per day, have a max flush length per sampling time, and allow the end user to program the desired and minimum chlorine levels.

Unit shall be upgradeable to use a Sierra Wireless RV50 wireless gateway commissioned through the customer's cellular plan (Sprint, Verizon, AT&T, etc.). The RV50 shall forward the information from the PLC to the cellular network where it may be controlled and/or accessed by the customer on a device (phone, laptop, etc.) that can connect to the internet. Firewalls and security to be coordinated between Kupferle and the end user.

The enclosures shall be powder coated and include security mounting and locking features as well as a front opening door with a captive screw cover. The front panel of the power and control enclosure with the PLC shall swing open to allow for maintenance, data retrieval, and/or manual battery charging if required. The solar panel shall mount on top of the control enclosure and shall be rotatable (directed southwest when installed) and be positioned to provide for maximum solar hours. Battery shall be 24 V Lithium Ion with 10 Amp Hours of available power and shall utilize a battery capacity gauge for easy indication of the battery charge. Photovoltaic solar panel shall provide 20 Watts of charging power to the battery through a charge controller. Two, 2 pole, 10 amp, circuit breakers shall be used to allow disconnection of the photovoltaic solar panel and the battery. Additional grounding/lightning protection may be needed. The solar package is sized for the 9700-i hydrant only. If the hydrant is upgraded to include communications for SCADA, other than the RV50 option, additional power may be needed.

Unit model # shall be 9700i (see ordering guide for detailed ordering information) as manufactured by Kupferle Foundry Company, Saint Louis, MO, or approved equal.

ITEM	DESCRIPTION
1	SOLAR PANEL ASSEMBLY
2	POWER & CONTROL ENCLOSURE (MC-9700)
3	FLUSHING ENCLOSURE (VALVE BOX)
4	2" VALVE
5	2" NPT SWIVEL W/ LOCKING COLLAR
6	2" NPT SWIVEL W/ LOCKING COLLAR
7	PROGRAMMABLE LOGIC CONTROLLER (PLC)
8	CHARGE CONTROLLER
9	CONTROL PANEL (MC-9700)
10	BATTERY CAPACITY GAUGE
11	24 VDC LITHIUM ION BATTERY
12	CIRCUIT BREAKER
13	24 VDC LITHIUM ION BATTERY
14	CIRCUIT BREAKER
15	REMOVABLE ACCESS PLATE
16	SWIVEL VALVE
17	HYDRANTIC SAMPLING CONNECTION
18	PRESSURE REGULATING VALVE
19	NOZZLE BRASS FLANGE
20	2" FLUSHING VALVE
21	2" FLUSHING VALVE
22	DEDICATED SAMPLING POINT
23	Y-STRAINER
24	2" BALL VALVE W/ HOSE CONNECTION
25	2" BALL VALVE W/ HOSE CONNECTION
26	OPTIONAL WIRELESS GATEWAY
27	DRAIN

DATE	ISSUED FOR	STATUS / REVISION

NOTES:
1.) NOT ALL WIRES AND PIPING SHOWN FOR CLARITY PURPOSES.

DRAWN	INITIALS	DATE
APPROVED	JRC	2/7/18
MODIFIED	DCL	5/1/18
SHEET SIZE	B (11x17)	SCALE
		VARIOUS

9700i SOLAR SPEC

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ST. LOUIS, MO 63102
1-800-231-3990
FAX 314-231-2820
www.hydrants.com

SINCE 1857

SHEET 1 OF 1



Collar Lock Included



Attaches to 2 1/2" NST



Easily Accessible Lockable Enclosures



2" Solenoid Operated Valve (200 gpm max)



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