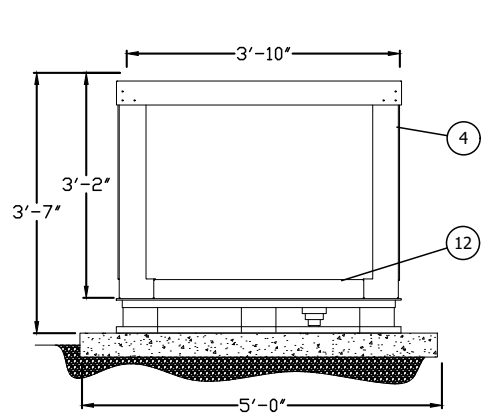
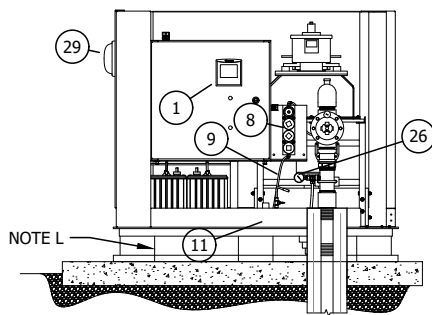


#9800i-WC-24H, #9800i-R9-24H, #9800i-CC-24H : INTELLIGENT PERMANENT FLUSHING STATION



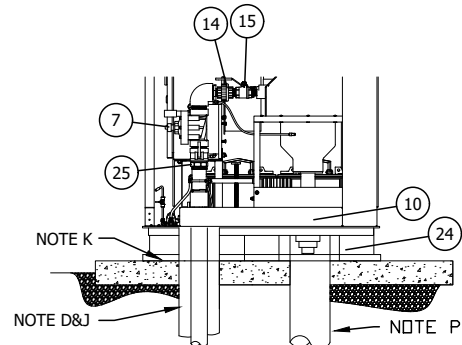
A ENCLOSURE - CLOSED (FRONT)

Scale: 3/8"=1'



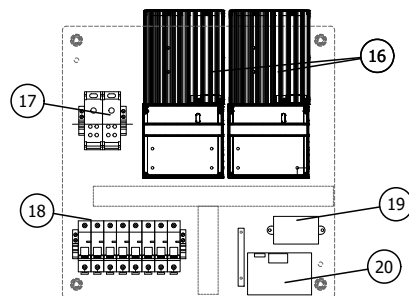
B ENCLOSURE - CUT VIEW (FRONT)

Scale: 3/8"=1'



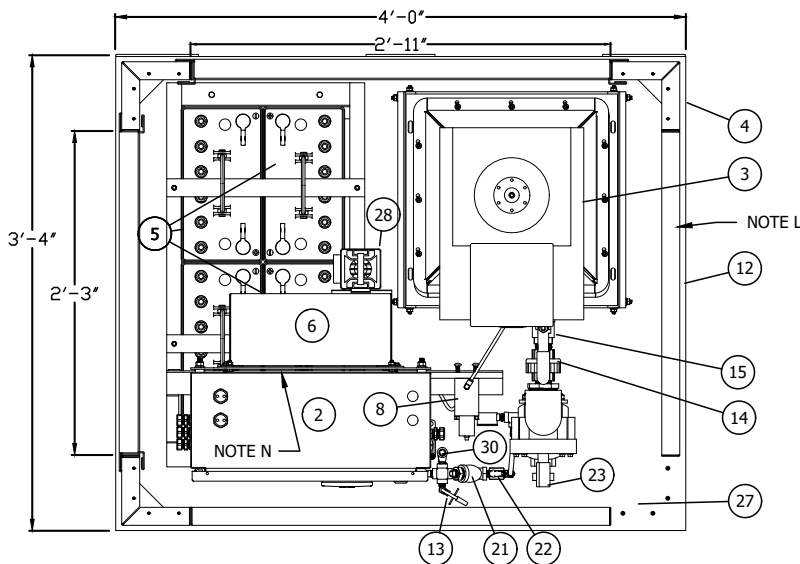
C ENCLOSURE - PLUMBING CUT VIEW (SIDE)

Scale: 3/8"=1'



D ELECTRICAL ENCLOSURE SUBPANEL - OPEN

Scale: 1"=1'



1 TOP VIEW - LID REMOVED

Scale: 1"=1'-4"

I-SERIES PRODUCT ORDERING GUIDE																			
MODEL#	9800i	-	**	-	24H	-	0	-	*	-	X	-	*	-	*	*	*	*	
SUBSECTION	1	2	3	4	5	6	7	8	9	10	11								
MODEL SHOWN IN VIEW 1: 9800i-CC-24H-0-A-X-A-D																			
SUBSECTION DESCRIPTION	MODEL #	SUBSECTION	OPTIONS	DESCRIPTIONS															
MODEL	1	9800i	PERMANENT I-SERIES HYDRANT	WARM CLIMATES															
CLIMATE	2	WC	WARM CLIMATES	INSULATED BUT NOT HEATED (MODERATE CLIMATES)															
POWER	3	24H	24 VDC, 216 AMP HOUR DEEP CYCLE GEL BATTERIES WITH HYDRO RECHARGING	COLD CLIMATES															
DEPTH OF BURY	4	0	N/A	NONE															
COMMUNICATION	5	A	CELLULAR (RV50 GATEWAY)	ALARM INDICATION LIGHT															
BACKFLOW PREVENTION	6	X	N/A	NONE															
PRESSURE SENSOR	7	X	NONE	ANALOG 0-200.0 PSI SENSOR															
CHOOSE UP TO 4 SENSORS FOR SUBSECTIONS 8-11. LEAVE UNUSED SUBSECTIONS BLANK.																			
SENSORS	8 - SENSOR #1	A	FREE CHLORINE	H - DISSOLVED OXYGEN															
	9 - SENSOR #2	B	COMBINED CHLORINE	I - FLUORIDE															
	10 - SENSOR #3	C	TOTAL CHLORINE	J - DISSOLVED OZONE															
	11 - SENSOR #4	D	pH	K - CHLORINE DIOXIDE															
	12 : 15 - ADDITIONAL SENSORS #5 : #8	E	TURBIDITY	L - PERACETIC ACID															
		F	ORP	M - HYDROGEN PEROXIDE															
	G	CONDUCTIVITY	X - CUSTOM (CALL)																
PLEASE SEE CUT SHEET FOR UPGRADES AND AVAILABLE OPTIONS																			

GENERAL SENSOR SPECIFICATIONS	
VOLTAGE:	BUS POWERED (5 VDC)
COMMUNICATIONS:	SERIAL 485
CONNECTIONS:	M8-5 IP67/68
CHLORINE SENSOR SPECIFICATIONS	
MEASURING RANGE:	0.00 to 5.00 PPM
WETTED MATERIALS:	PVC, TEFLON, VITON, EPDM, RYTON
RESOLUTION:	0.01 PPM
POWER:	40 mW
WATER TEMPERATURE SPECIFICATIONS	
MEASURING RANGE:	23 TO 131°F
TEMPERATURE INPUT:	PT100 RTD W/ AUTOMATIC COMPENSATION
ELECTRICAL SPECIFICATIONS	
VOLTAGE:	24 VDC
BATTERY SIZE:	216 AMP HOURS
CIRCUIT BREAKERS:	(3) 2 POLE, 63 AMP, (1) 2 POLE, 4 AMP
PLC SPECIFICATIONS	
OPERATING VOLTAGE:	20.4 - 28.8 VDC
POWER CONSUMPTION:	215 mA @ 24 VDC
INPUTS:	(10) 24 VDC
ANALOG INPUTS:	(2) : 10-BIT RESOLUTION, 4-20 mA
OUTPUTS:	(6) : INDIVIDUALLY ISOLATED RELAY
NON-VOLATILE MEMORY:	120K DYNAMIC DATA
REMOVABLE MEMORY:	STANDARD MICRO SD CARDS (UP TO 32 GB)
COMMUNICATIONS:	RS-232 OR RS 485 PORT AND OPTIONAL ETHERNET/IP
OTHER SPECIFICATIONS	
MAX PRESSURE:	220 PSI
SAMPLE FLOW RATE:	1 FLOWCELL: UP TO ~10 GALLONS PER HOUR
FLUSH FLOW RATE:	UP TO ~80 GPM
WEIGHT:	~610 LBS
MINIMUM TEMPERATURE DESIGN:	WC: 5°C OR 41°F R9: 0°C OR 32°F CC: -23°C OR -10°F
CERTIFICATIONS:	ANSI, ARRA, NSF/ANSI 372

OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

Intelligent Flushing Station (IFS) shall be installed in the following location(s): _____

A 2" stainless steel FIP inlet will lead vertically to the bottom of a 2" 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 flushed water shall flow from the flushing valve through a 1" PVC union and 1" ball valve. The 1" ball valve and turbine nozzle shall be used to adjust the flow of water to the turbine to ensure that an adequate amount of electrical current will be supplied to the unit while flushing. Removal of the 2" valve and turbine enclosure for maintenance purposes shall be possible via a 2" stainless steel quick disconnect coupling below the flushing valve and a 1" PVC union after the flushing valve. A pressure gauge shall be included on the inlet for a visual aid in troubleshooting.

A 1/4" copper tubing sampling line shall be plumbed below the flushing valve and connect to a 1/4" ball valve to allow the flow of water into the sampling assembly. A Y-strainer shall be located immediately after the ball valve for maintenance purposes. From the Y-strainer, a sampling point with valve shall be provided to allow a dedicated sampling point. A sampling valve shall be included to control the flow of water through the IFS with the extension and retraction of a DC latching solenoid. Both solenoids shall have no loose parts when removed from their respective valves. The sampling valve shall control the flow of water to a pressure regulating valve (PRV) and through a node based flowcell that can house up to 4 plug-and-play sensors. As an upgrade, a second flowcell, increasing the number of available sensor ports to 8, shall be added to the right of the primary flowcell behind the control panel and filling out the appropriate sensors in the Product Ordering Guide for subsections 12-15. The node based Modbus sensor(s) shall be serially (RS485) connected to a hub and then to the PLC. The specified chlorine sensor shall be amperometric using a membrane sensor which measures chlorine directly without the use of reagents. From the node based flowcell, the water will plumb away through 1/4" copper tubing out of the top of the flowcell and empty into the splash pad below the turbine. The sample used for water quality monitoring shall not be altered by adding any chemicals or reagents to the sample stream.

The IFS to be installed on the water line mentioned above shall use a Unitronics 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 IFS 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, 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 minimum and desired chlorine levels. All flushed water shall hit the wheel of a turbine which will charge the 216 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 the acceptable level, the PLC will receive an alarm and the main valve will begin flushing accordingly. While charging, the batteries shall be monitored via redundant diversion controllers that will automatically "burn off" any excess power using resistors to prevent the deep cycle batteries from being over-charged or damaged.

Unit shall come standard with a Sierra Wireless RV50X wireless gateway commissioned with an active 2FF SIM on an M2M profile through Kupferle's cellular carrier (Verizon). The RV50X 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 (smart phone, tablet, laptop, existing SCADA system, etc.) that can connect to the internet. Firewalls and security to be coordinated between Kupferle and the end user.

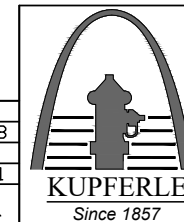
The IFS shall be enclosed in an insulated (R9 rating) and powder coated lockable housing with four access panels, one on each side of the station. The warm climate version shall replace the four insulated access panels with 4 louvered access panels to release heat. The enclosure shall be lockable by using 2 stainless steel hasps on the front door. The cold climate version shall include a 250 Watt high-efficiency fan heater and 4 separate thermostats (1 located at each corner) to account for any possible drafts by the enclosure access panels.

Unit model # shall be 9800i-**-24H-0-*X-* with *'s specified in accordance with the product ordering guide as manufactured by Kupferle Foundry Company, St. Louis MO, or approved equal.

NOTES	
A	NOT ALL WIRES AND PIPING SHOWN FOR CLARITY PURPOSES.
D	PVC SLEEVE TO BE INSTALLED AROUND PIPING.
G	ITEM TO BE PROVIDED BY OTHERS.
J	KUPFERLE RECOMMENDS INLET PIPE TO BE WRAPPED WITH FOAM RUBBER PIPE INSULATION WITH AN R-RATING OF 6.7 RANGE.
K	STATION SHOULD BE MOUNTED LEVEL TO ALLOW THE TURBINE TO RUN SMOOTHLY.
L	THREE INCH KICK PLATES INSTALLED BETWEEN POSTS TO REDUCE DEBRIS IN THE ENCLOSURE AND TO REDUCE HEAT LOSS.
M	EXPANDING SPRAY FOAM INSULATION TO BE SPRAYED UNDER THE ENCLOSURE AFTER INSTALLATION.
N	AT NO TIME SHOULD ANYTHING BE STORED ON TOP OF THE RESISTOR CAGE. DOING SO MAY RESULT IN A FIRE AND VOID THE WARRANTY.
P	KUPFERLE RECOMMENDS THE INSTALLATION OF A 6" DWV P TRAP.
R	KUPFERLE RECOMMENDS SEALING AROUND THE INLET HOLE TO PREVENT RODENTS FROM ENTERING THE ENCLOSURE.

ITEM	DESCRIPTION
1	PROGRAMMABLE LOGIC CONTROLLER (PLC)
2	ELECTRICAL CONTROL ENCLOSURE
3	TURBINE
4	ENCLOSURE POST
5	BATTERY HOLDER STAND AND BATTERIES
6	RESISTOR PLATE WITH PROTECTIVE CAGE
7	2" FLUSHING VALVE
8	NODE BASED FLOWCELL
9	PRESSURE REDUCING VALVE (PRV)
10	DIRECT DISCHARGE ASSEMBLY
11	SAMPLING VALVE
12	DOOR KICK PLATE
13	DEDICATED SAMPLE POINT
14	1" PVC UNION
15	1" BALL VALVE
16	DIVERSION CONTROLLERS
17	DISTRIBUTION BLOCKS
18	CIRCUIT BREAKERS
19	DC VOLTAGE REGULATOR
20	LOW VOLTAGE ALARM RELAY
21	Y-STRAINER
22	SAMPLING BALL VALVE
23	DC LATCHING SOLENOID
24	PLASTIC PALLET BASE
25	2" S.S. QUICK DISCONNECT
26	PRESSURE GAUGE
27	THERMOSWITCH (CC ONLY)
28	HIGH EFFICIENCY FAN HEATER (CC ONLY)
29	CELLULAR ANTENNA
30	ANALOG PRESSURE SENSOR (UPGRADE)

	INITIALS	DATE
DRAWN	JRG	10/31/18
APPROVED	XXX	XXX
MODIFIED	DCL	3/12/21
SHEET SIZE	SCALE	VARIES
B (11x17)		



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