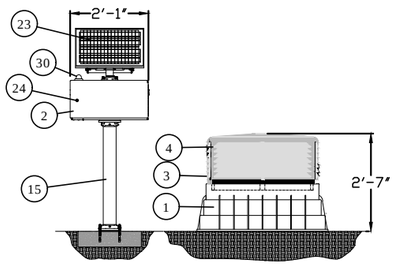
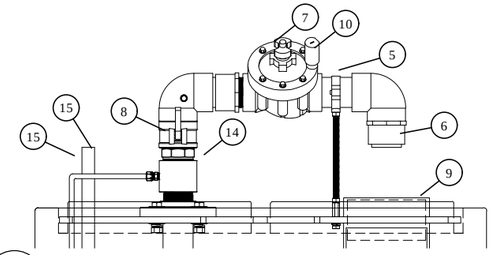
#9800i-WC-24LIS_A : PERMANENT INTELLIGENT FLUSHING STATION



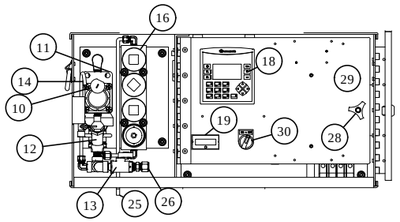
A ENCLOSURES - CLOSED (FRONT)

Scale: 1/4"=1'-0"



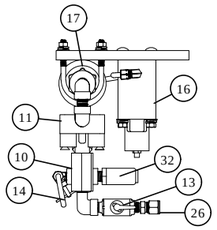
B FLUSHING ENCLOSURE - LID REMOVED

Scale: 1"=1'-0"



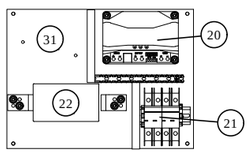
C CONTROL ENCLOSURE - OPEN

Scale: 1"=1'-0"



D SAMPLING ASSEMBLY (TOP)

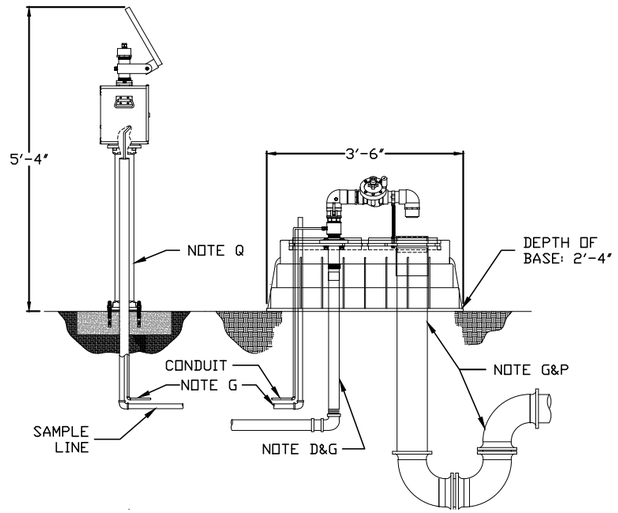
Scale: 1-1/2"=1'-0"



E CONTROL ENCLOSURE SUBPANEL - OPEN

Scale: 1"=1'-0"

DD/MM/YY	ISSUED FOR …
DATE	STATUS / REVISION



1 SIDE VIEW - INSTALL

Scale: 3/8"=1'-0"

i-SERIES PRODUCT ORDERING GUIDE																					
MODEL#	9800i	-	WC	-	24LIS_A	-	0	-	*	-	X	-	*	-	*	*	*	*			
SUBSECTION	1		2		3		4		5		6		7		8	9	10	11			
MODEL SHOWN IN VIEW 1: 9800i-WC-24LIS_A-0-A-X-A-AD																					
SUBSECTION DESCRIPTION	MODEL # SUBSECTION					OPTIONS	DESCRIPTIONS														
MODEL	1					9800i	PERMANENT i-SERIES HYDRANT														
CLIMATE	2					WC	WARM CLIMATES														
POWER	3					24LIS_A	24 VDC, 20+ AMP HOUR LITHIUM ION BATTERY WITH PEDESTAL MOUNTED CONTROL ENCLOSURE w/ SOLAR RECHARGING PANEL MOUNTED ON TOP														
DEPTH OF BURY	4					0	N/A														
COMMUNICATION	5					X	NONE														
						A	CELLULAR (RV50 GATEWAY)														
						B	ALARM INDICATION LIGHT														
						C	ETHERNET CARD ADDED														
						D	SECOND SERIAL CARD ADDED														
BACKFLOW PREVENTION	6					X	N/A														
PRESSURE SENSOR	7					X	NONE														
						A	ANALOG 0-200.0 PSI SENSOR														
CHOOSE UP TO 4 SENSORS FOR SUBSECTIONS 8-11. LEAVE UNUSED SUBSECTIONS BLANK.																					
SENSORS	8 - SENSOR #1 9 - SENSOR #2 10 - SENSOR #3 11 - SENSOR #4 12 : 15 - ADDITIONAL SENSORS #5 : #8					A - FREE CHLORINE	H - DISSOLVED OXYGEN														
						B - COMBINED CHLORINE	I - FLUORIDE														
						C - TOTAL CHLORINE	J - DISSOLVED OZONE														
						D - pH	K - CHLORINE DIOXIDE														
						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:	20+ AMP HOURS
CIRCUIT BREAKERS:	(2) 2 POLE, 10 AMP, MCB
SOLAR PANEL:	55 WATTS
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-VOLITALE 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 ~200 GPM
WEIGHT:	~70 LBS
MINIMUM TEMPERATURE DESIGN:	5°C OR 41°F
CERTIFICATIONS:	AIS, ARRA, NSF/ANSI 372

OTHER SPECIFICATIONS AVAILABLE UPON REQUEST

ITEM	DESCRIPTION
1	UV RESISTANT BASE
2	ELECTRICAL CONTROL ENCLOSURE
3	ENCLOSURE LOCK
4	REMOVABLE UV RESISTANT LOCKABLE LID
5	2" PIPE CLAMP
6	REMOVABLE STREAM SHAPER
7	2" FLUSHING VALVE
8	2" S.S. QUICK DISCONNECT
9	SEWER PIPE CONNECTION
10	DC LATCHING SOLENOID
11	SAMPLING VALVE
12	Y-STRAINER
13	SAMPLING BALL VALVE
14	DEDICATED SAMPLE POINT
15	4" PEDESTAL WITH FLANGES
16	NODE BASED FLOWCELL
17	PRESSURE REGULATING VALVE (PRV)
18	PROGRAMMABLE LOGIC CONTROLLER (PLC)
19	ON/OFF SWITCH
20	CHARGE CONTROLLER
21	CIRCUIT BREAKERS
22	24 VDC LITHIUM ION BATTERY
23	SOLAR PANEL ASSEMBLY
24	CAM LOCK
25	1/4" COPPER DRAIN
26	3/8" COMPRESSION INLET
27	BATTERY CAPACITY GAUGE
28	CONTROL PANEL WING KNOB
29	HINGED CONTROL PANEL
30	ANTENNA (UPGRADE)
31	RV50 WIRELESS GATEWAY (UPGRADE)
32	ANALOG PRESSURE SENSOR (UPGRADE)

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

A 2" stainless steel MIP inlet will lead vertically to the bottom of a 2" flushing valve. The flushing valve shall control the flow of water through the hydrant and its diaphragm with the extension and retraction of a DC latching solenoid. The flushed water shall discharge to the 6" sewer pipe through a removable 2" stream shaper to reduce splashing of the discharged water and allow removal of debris. Maintenance of the flushing valve shall be possible via a 2" stainless steel quick disconnect directly below the flushing valve.

A 3/8" 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 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" plastic tubing out of the top of the flowcell and empty into the 6" sewer pipe. 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 lines mentioned above shall use a 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.

Unit shall be upgradeable to use a Sierra Wireless RV50 wireless gateway commissioned with an active 2FF SIM on an M2M profile through the customer's cellular carrier (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 (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 a lockable UV resistant enclosure. The control enclosure and pedestal shall be powder coated and include security mounting and the control enclosure shall feature a front opening door with a cam lock. The front panel of the 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. The pedestal of the unit can be buried or mounted on a concrete pad. Mounting hardware will not be included less the concrete gasket. Battery shall be 24 V Lithium Ion with 20+ Amp Hours of available power and shall utilize a battery capacity gauge for easy indication of the battery charge. Photovoltaic solar panel shall provide 55 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. The solar package is sized for all Kupferle components as needed. If the hydrant is upgraded to include communications for SCADA, other than the RV50 option, Kupferle should be contacted regarding the electrical load intended to be powered off the solar package.

Customer shall run the necessary conduit and sampling line between the IFS and solar package in accordance with all national and electrical codes. Connection wires and tubing not included.

Unit model # shall be 9800i-WC-24LIS_A-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.
M	EXPANDING SPRAY FOAM INSULATION TO BE SPRAYED UNDER THE ENCLOSURE AFTER INSTALLATION.
P	KUPFERLE RECOMMENDS THE INSTALLATION OF A 6" DWV P TRAP.
Q	CONDUIT UP TO ENCLOSURE TO GO DOWN TO A DEPTH OF 18" BELOW GRADE PER NEC ARTICLE 300.5.

	INITIALS	DATE
DRAWN	JRG	10/31/18
APPROVED	DCL	8/16/19
MODIFIED		
SHEET SIZE	B (11x17)	
SCALE	VARIES	

#9800i-WC-24LIS_A SPEC SHEET

KUPFERLE
Since 1857

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