Voltea

CapDI© DiEntry©
TECHNICAL SPECIFICATIONS

DiEntry ©

Voltea CapDI
Membrane Capacitive Deionization

We specialize in tunable water purification that is designed to remove total dissolved salts (TDS) from a variety of water sources, ranging from tap water and brackish groundwater to industrial process water. CapDI achieves this at a lower economic cost and reduced environmental impact than any other available technology.

Voltea's CapDI technology purifies water types ranging from residential consumer appliances to large-scale industrial plants. Our systems are modular, allowing easy expansion to meet any increased water demands.

CapDI Benefits

- Automated cleaning

- Remote monitoring available

- High water recovery, up to 90 %

- Tunable TDS reduction, up to 90 %

- Complete system monitoring and feedback

- Dynamic Control - controlled output water quality

- Customizable system sizing to reach client needs

- Operation at high temperatures, up to 35 °C (95 °F)

- Low energy usage, 0,4 - 0,8 kWh/m^3 (1.5 - 3.0 kWh/kgal)

- Patented Membrane Capacitive Deionization Technology

Quality Assurance

- NSF/ANSI 42

- CE Certified

- UL Listed

- Factory Acceptance Test on request

- Systems and modules quality control tested

- Voltea Remote Monitoring and Control package

Feed Water Quality

PARAMETER	UNIT	RANGE	INTERMITTENT
Removal Limit	Δppm	$\leq$ 1300	
Total Dissolved Solids (TDS)	ppm	$\leq$ 2000	
Total Organic Carbon	ppm	< 10	
Chemical Oxygen Demand	ppm	< 20	< 100
Turbidity	NTU	< 4	< 100
Fats, Oils, Greases	ppm	< 0.5	
Total Suspended Solids (TSS)	ppm	< 4	< 20
Free Chlorine	ppm	< 2	< 25
pH	-	2 - 10	1 - 12
Iron total	ppm	< 0.5	
Total Hardness (CaCO$_3$)*	ppm	< 1000	
M Alkalinity (as CaCO$_3$)*	ppm	< 1000	
Pre-filtration	μm	5	
Temperature	°C	1 - 35	
Chemicals	-	Contact Voltea	

* Limits depend on set TDS reduction and water recovery

DiEntry©

CapDI DiEntry
Point-of-Entry (PoE)

Design and Scope of Supply

- DiEntry User Manual
- Chemical container and containment tray
- Membrane Capacitive Deionization DiEntry Module
- Built-in monitoring; flow, conductivity, module voltage
- Automated cleaning triggered by cycles

DiEntry Features

- Automated system CIP (Clean-In-Place)
- Automated safety bypass line
- Voltea remote monitoring and data collection available

Pure Outlet Conductivity Meters	0 - 10 mS/cm
Flow Meter	0 - 30 L/min (0 - 7.9 gpm)
User Interface	Built-in Display

Performance

Produced Flow Rate*	2 - 12 L/min (0.5 - 3.2 gpm)
Instant Flow Rate*	0,6 - 15,1 L/min (0.2 - 4 gpm)
Salt Removal	25 - 90 %
Water Recovery	40 - 90 %

System Specification

Average Power Requirements	0.31 kW, Single - Phase (110 - 240 V AC / 50 - 60 Hz)
System Dimensions (L x W x H)	0,4 x 0,53 x 1,05 m (1'4" x 1'9" x 3'6")
Power Output to Modules	0 - 125 A / 0 - 1.2 V DC
Weight**	30 kg (67 lbs)
Feed Inlet Coupling	3/8" push fit (1/2" adapter included)
Product Outlet Coupling	1/2" push fit
Concentrate/Waste Outlet Coupling	1/2" push fit
Automatic Bypass Line	1/2" push fit

Operational Requirements

Water Feed Pressure	3 - 20 bar (43 - 290 PSI)
Water Pressure Produced***	$\leq$ 4,8 bar ($\leq$ 70 PSI)
Operating Ambient Air Temperature	< 35 °C (< 95 °F)

In/Out Puts

Start / Stop	Pressure switch (standard) or external 24 V DC signal

Cleaning

Procedure	Automated chemical cleaning
Control (Auto/Manual)	Automatic
Storage	3 L chemical container

Controls

Remote Control / Data Monitoring	Total flow, conductivity, average voltage, cycles count, alarms (SIM card/GSM bit internet or local)
Parameter Change	Local

*Depends on TDS reduction and water recovery
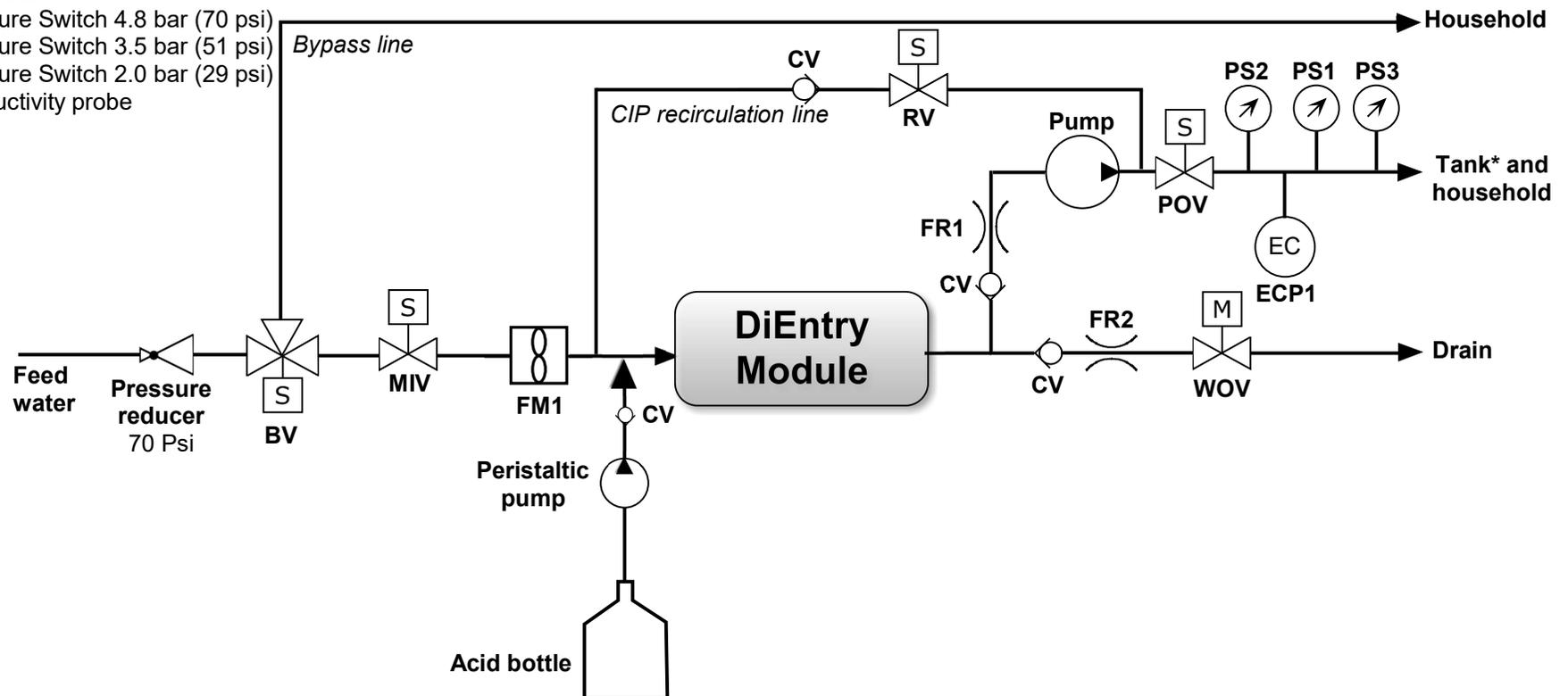**Weight without module
***Depends on flow target

DiEntry Process Flow Diagram

Valves
BV : Bypass valve
MIV : Main Inlet valve
RV : Recirculation valve
POV : Pure Outlet valve
WOV: Waste Outlet valve
CV : Check valve
FR1 : Flow restrictor (default 6.0 lpm [1.6 gpm])
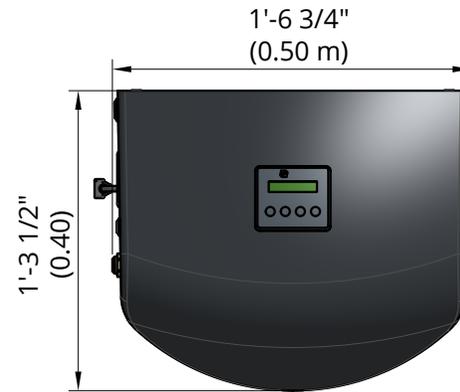**FR2** : Flow restrictor (default 2.0 lpm [0.5 gpm])

Sensors
FM1 : Flowmeter
PS1 : Pressure Switch 4.8 bar (70 psi)
PS2 : Pressure Switch 3.5 bar (51 psi)
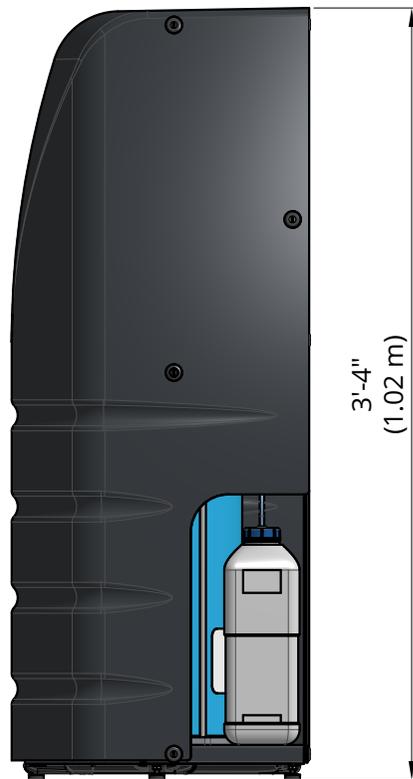**PS3** : Pressure Switch 2.0 bar (29 psi)
ECP1: Conductivity probe

Household

Bypass line

CIP recirculation line

CV

S

RV

Pump

PS2 PS1 PS3

S

POV

Tank* and household

FR1

EC

ECP1

CV

Feed water

Pressure reducer 70 Psi

S

BV

S

MIV

FM1

CV

DiEntry Module

CV

FR2

M

WOV

Drain

Peristaltic pump

Acid bottle

*pressure (bladder) tank

DiEntry Overview

Voltea

Top view

1'-6 3/4" (0.50 m)

1'-3 1/2" (0.40)

Right side view

3'-4" (1.02 m)

Front view

Left side view

Pure ½"

Bypass ½"

Inlet ⅜"

Waste ½"

1 1/2" (0.04 m)

3 3/4" (0.10 m)

1 1/2" (0.04 m)

2'-7" (0.79 m)