



CATS HAVE 9 LIVES

REVERSE OSMOSIS MEMBRANES HAVE ONE LIFE

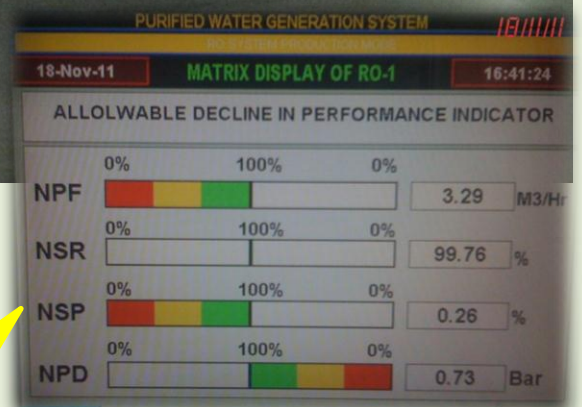
THE ONLY WAY TO STOP R.O FAILURE IS TO PREVENT IT!

“MATRIX” REAL TIME REMOTE MONITORING

JUST DOES THAT!



Ionic Engineering Technology Pvt Ltd



ONLY FROM IONIC

ARTIFICIAL INTELLIGENT BASED
PERMISSIBLE DECLINE IN
PERFORMANCE (PDP) INDICATOR

Technology that provides Peace of Mind

Reverse Osmosis is a simple pressure driven process in which pure water is separated from salty water using semi permeable membranes. Thousands of R.O systems are being installed every year and many of them perform efficiently only in paper. Many of the R.O systems fail prematurely due to poor designs, poor pretreatment, maintenance, operation poor understanding of the membrane process and other issues. All membrane system's performance change over a period of time due to various factors including change in feed water characteristics, fouling, scaling, feed water temperature fluctuations and natural membrane decline in performance over a period of it's projected life with respect to flux and salt rejection decline . For example any change in temperature of feed water will have impact on membrane water permeability and salt passage.

As long as the membrane surface is clean from inside it will give the required flow and quality. However in practice fouling does take place and is difficult to find out as it is hidden and inaccessible. All we can conclude when the R.O productivity or quality declines is that the system is not working at optimum desired efficiency. By the time the decline in performance is noticed the damage caused may be considerable and in many cases expensive membrane replacement will be the only option available.

Picture of feed spacer with biofilm



Why your R.O need Our "Matrix" advanced Real time Remote monitoring and control systems?

- **Indicates Decline in performance and efficiency level**
- **Reduces unscheduled downtime**
- **Meets water quality specifications**
- **Avoids premature membrane failure**
- **Extends potential membrane life**
- **Allows cleaning on need vs. cleaning on schedule**
- **Reduces water consumption**
- **Reduces pretreatment cost**
- **Reduces power consumption**
- **Reduces waste water for disposal**
- **Minimises risk of scaling and fouling on membrane**

Picture of iron fouled feed side of an element



Picture of biofilm on membrane surface



Our Unique Digital Technology at Work for You

CONNECTING YOUR BUSINESS TO THE TECHNOLOGY RESOURCES YOU NEED

Monitoring the performance of an RO unit can be complicated and time-consuming due to the large number of parameters that must be measured and calculated. And of course, data logging and data normalization often are difficult when manpower is in short supply or available man power is unskilled.

Since many RO problems are the result of insufficient monitoring and record keeping, Ionic developed the “**MATRIX**” real time monitoring system with “**Easy Control**” RO Performance Monitor to automatically calculate the critical normalised values like NPF, NDP, NSR%, NSP%, Recovery%, SP% etc. The more advanced versions can log and analyse RO data remotely. This is a cost effective control system even suitable for small sized plants which monitors, analyses and displays all RO operating parameters including the normalized values. The MATRIX system also calculates additional parameters that are critical to R.O performance in addition to regular raw data like pressure, flow, conductivity etc.



IONIC offers its unique skid mounted compact, pre-engineered **“Matrix” series** Fully automatic PLC controlled Advanced Reverse Osmosis systems with **“Easy Control”** and **“Real Time Monitoring”** & **“Remote Monitoring”** technology for producing purified water required in process, boiler feed, drinking etc. All components are carefully selected to give long term reliable performance. Advanced safety features have been incorporated for reliable operation 24 hrs. and 365 days a year.

The **unique “Real Time” monitoring system** developed by us for the first time in India is capable of providing normalized values for flow, salt rejection, salt passage, pressure drop continuously and **has a very unique “PDP Indicator” (Permissible Decline in Performance)** to tell the customer in plain English text what is the condition of the membranes since start up. Reference values are stored internally and automatically compared with the present normalized values to provide the customer on the spot decision making inputs for safe and long term reliable operation of the system. In a way, this system protects the membranes from irreparable damage due to excessive fouling which if not detected at the right time may lead to costly downtime and membrane replacement.

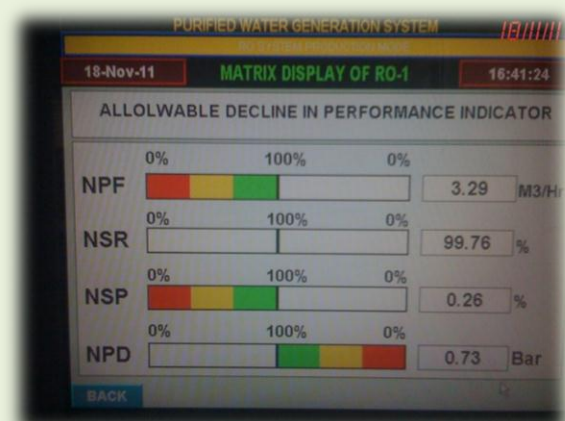
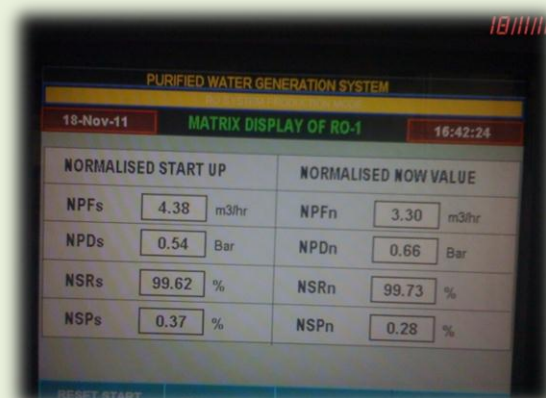
Our R.O plants are easier to configure and use than your cell phones!

You have the option of having our Remote Monitoring system to monitor the system performance from anywhere in the world!

Decision making at your finger tip

Artificial Intelligence! We have put our brain inside!

Years of experience has taught us how make life easier for you. No more guess work while trouble shooting your R.O system. The



The unique PDP indicator supports membrane cleaning decision making too!

When to clean the membranes? Or Whether membrane cleaning is successful, partially successful or failure can be easily determined even by a layman.

All the above comes with affordable cost of ownership to our customers and backed by quality after sales service.

REMOTE MONITORING FROM ANYWHERE IN THE WORLD!
MANUAL ILLEGIBLE & INCORRECT DATA NOT AVAILABLE WHEN REQUIRED!

ST	WSP	PRODUCTION				QUALITY				WATER				WATER				WATER			
		PRODUCTION				QUALITY				WATER				WATER				WATER			
		100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
100	100	2.86	2.67	0.32	0.35	9.68	4.62	1.75	3.08	3.17	3.08	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
	100	6.61	5.08	1.52	1.29	10.77	16.15	6.76	9.49	3.96	5.53	92.45	68.80	1.88	33.94	1.67	100.0	94.7	0.97	1.80	100.0
200	200	2.41	1.88	0.51	0.45	10.48	4.92	1.61	3.11	3.42	3.11	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
	200	6.54	5.19	1.52	1.27	10.77	16.15	7.26	9.69	3.93	5.60	92.45	68.80	1.88	33.94	1.67	100.0	94.7	0.97	1.80	100.0
300	300	2.86	2.50	0.34	0.46	10.20	5.17	1.75	3.67	3.27	3.11	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
	300	6.53	5.04	1.50	1.46	10.98	16.46	6.99	9.62	3.99	5.56	92.45	68.80	1.88	33.94	1.67	100.0	94.7	0.97	1.80	100.0
400	400	2.43	0.77	0.33	0.45	10.48	5.17	1.75	3.67	3.27	3.11	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
	400	6.53	5.18	1.53	1.51	10.83	16.82	6.87	9.52	4.12	5.60	92.45	68.80	1.88	33.94	1.67	100.0	94.7	0.97	1.80	100.0
500	500	2.85	2.46	0.52	0.46	10.59	5.29	1.51	3.67	2.95	3.08	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
	500	6.65	5.88	1.52	1.23	10.77	16.90	6.99	9.65	4.03	5.56	92.45	68.80	1.88	33.94	1.67	100.0	94.7	0.97	1.80	100.0
600	600	2.87	2.50	0.53	0.45	10.83	5.13	1.52	3.11	3.23	3.11	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
	600	6.57	4.99	1.50	1.31	10.88	16.42	6.99	9.62	3.99	5.53	92.45	68.80	1.88	33.94	1.67	100.0	94.7	0.97	1.80	100.0
700	700	2.56	2.57	0.35	0.46	10.63	5.44	1.59	3.11	4.03	3.11	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
	700	6.44	4.95	1.51	1.42	10.62	16.21	5.48	9.66	4.05	5.53	92.45	68.80	1.88	33.94	1.67	100.0	94.7	0.97	1.80	100.0

AUTOMATIC ACCURATE DATA MADE AVAILABLE ANY TIME EVERYWHERE!

CONTACT US TO FIND HOW THIS TECHNOLOGY WILL HELP YOUR BOTTOM LINE!



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