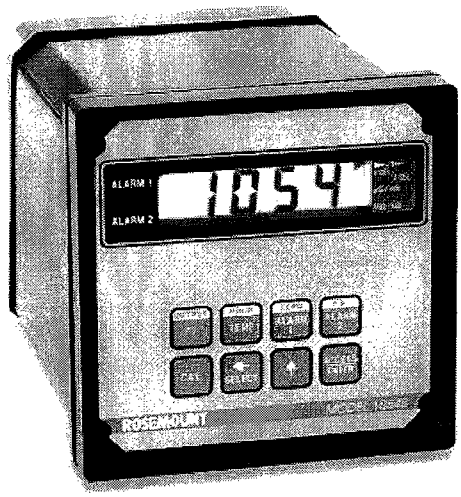
Product Data Sheet
PDS 71-1054B DC
March 2000

Model 1054B DC

Dual Cell Conductivity/Resistivity Analyzer

- TWO CELL INPUTS OR TEMPERATURE ASSIGNABLE TO TWO ISOLATED OUTPUTS.
- ACCURATE TEMPERATURE COMPENSATED AND RAW READINGS for high purity water.
- UP TO 200 FEET (61m) SENSOR CABLE LENGTH (to 500 ft. with extra shielding).
- THREE ASSIGNABLE RELAYS for process variable, temperature, or diagnostics.
- DISPLAY CAN AUTO CYCLE CELL 1 AND 2.
- NEMA 4X (IP65) ENCLOSURE.
- SECURITY CODE CAPABILITY.



FEATURES AND APPLICATIONS

The Model 1054B Microprocessor Analyzers, with the appropriate sensors, are designed to continuously measure and control pH, ORP, conductivity, resistivity, ratio, percent concentration, dissolved oxygen, ozone or total free chlorine in industrial and municipal processes.

The Model 1054B Dual Conductivity/Resistivity Analyzer offers the flexibility of one model for measurement of two cell inputs with two assignable outputs of conductivity, resistivity and/or temperature. The analyzer is housed in a NEMA 4X (IP65) weatherproof, corrosion-resistant, flame retardant enclosure suitable for panel, pipe or wall mounting. All functions are accessed through the front panel membrane keyboard which features tactile feedback. The display indicates the process variable values in (engineering units), as well as temperature, alarm status, hold output and fault conditions.

The 1054B DC can transmit two independent, isolated current outputs that are continuously expandable over the measurement range. Output dampening of 0-255 seconds is user selectable.

The output and relay default settings are user selectable for hold or fault mode operation. The hold output function allows manual control during routine sensor maintenance.

Continuous self diagnostics alert the operator to faults due to analyzer electronics, integral RTD failures, open wiring and process variable range problems. In the event of a fault condition or hold mode diagnosed by the analyzer, the output will be set to a preset or last process value and the relays will be set to their default settings.

Three alarms are a standard feature on the Model 1054B DC and are programmable for either high or low operation. Alarm 2 may be programmed as a fault or process variable alarm. Alarm 3 may be configured as a temperature alarm only. All alarms feature independent setpoints, adjustable hysteresis and time delay action. The time delay is convenient when an alarm is used for corrective action, such as shutting down a demineralizer for regeneration. Time delay will ignore a temporary breakthrough and prevent shutting down a de-mineralizer unit prematurely.

Automatic temperature compensation is standard. The process temperature is accurately measured by an integral RTD in the sensor assembly, either a Pt 100 or Pt 1000, which is automatically recognized by the analyzer. The temperature(s) can be displayed in either °C or °F. For greater accuracy, the temperature indication may be standardized to the process temperature.

Calibration is easily accomplished by entering the cell calibration constant (shown in the sensor tag) via the analyzer keypad. Standardization can also be made with the cell in a process of known conductivity (resistivity).

Analyzer settings may be protected against accidental or unauthorized changes by a user selectable security code.

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PHYSICAL SPECIFICATIONS - GENERAL

Enclosure: Black ABS, with interior conductive coating, NEMA 4X, IP65, CSA Enclosure 4, 144 X 144 X 192 mm (5.7 X 5.7 X 7.6 in.)

Front Panel: Membrane keyboard with tactile feedback and user selectable security

Digital Display: Code 01 - Black on grey LCD
Code 02 - Red LED, Character Height: 18mm (0.7 in.)

Electrical Classification:
FM Class I, Div. 2, Group A thru D
Relays: 28 Vdc relays - 5.0 amps resistive only
150 mA - Groups A & B; 400 mA - Group C ;
540 mA - Group D; Ci = 0; Li = 0
CSA Class I, Div. 2, Group A thru D.
Relays: 28 Vdc, 110 Vac & 230 Vac
5.0 Amps resistive only

Power: 100 - 127 VAC, 50/60 Hz ± 6%, 4.0 W
200 - 253 VAC, 50/60 Hz ± 6%, 4.0 W

Current Output: Isolated, 0-20 mA or 4-20 mA into 600 ohms maximum load at 115/230 Vac *or* 550 ohms maximum load at 100/200 Vac, direct or reverse
Output Dampening: 0-255 seconds

Weight/Shipping Weight: 1.1 kg/1.6 kg (2.5 lb/3.5 lb)

EMI/RFI: EN50081-2
EN50082-2 CE

LVD: EN61010-1

Operating Temperature: -10 to 65°C (14 to 149°F)

Storage Temperature: -30 to 85°C (-22 to 185°F)

Ambient Humidity: LED max 95% RH (LCD max 85% RH @ 50°C)

Alarms: Three. Independently field selectable: High or Low. Alarm 3 is a temperature alarm only. Alarm 2 configurable as a process or fault alarm. Time Delay 0 to 254 seconds. Setpoints are continuously adjustable. Hysteresis is adjustable up to 25% full scale for low side/high alarm and high side/low alarm

Relay Contacts: Epoxy Sealed Form A contacts, SPST, Normally open

	Resistive	Inductive
28 VDC	5.0 Amps	3.0 Amps
115 VAC	5.0 Amps	3.0 Amps
230 VAC	5.0 Amps	1.5 Amps

The **Model 1054B DC Dual Cell Analyzer** measures conductivity and/or resistivity in conventional and ultra-pure water applications. This time tested technology has been applied successfully to demineralizer, reverse osmosis, and distillation applications for decades. In this single analyzer, true temperature compensation for monitoring water containing trace mineral contaminants is software selectable among the following:

1. Compensation for pure water contaminated with trace amounts of sodium chloride (standard).

2. Cation compensation for power plant applications containing ammonia or amines. Cation compensation may also be used in semiconductor etch rinse applications where the rinse water contains traces of acids.

3. Uncompensated conductivity for applications such as required by *United States Pharmacopeia 23 (USP 23)* specifications. The analyzer can output temperature separately for this application. NIST traceable calibration certificates are available (consult factory).

The analyzer may be used with sensors having cable lengths of up to 200 ft (61 m). The cable length may be up to 500 ft (152 m) with extra shielding (contact factory).

ANALYZER SPECIFICATIONS @ 25°C

Measurement Range: 0-20,000 µS/cm or 0-50.00 megohms-cm

Output Scale: Any range within measurement

Measurement Accuracy:
Conductivity: ±.002 µS/cm or 1% of reading, (whichever is greater)
Resistivity: ±0.2 megohm-cm, temperature corrected resistivity to 25°C

Temperature Accuracy: ±.1°C (0-100°C), ±0.2°C (0-100°C) for cable lengths over 50 ft (Pt 1000 RTD)

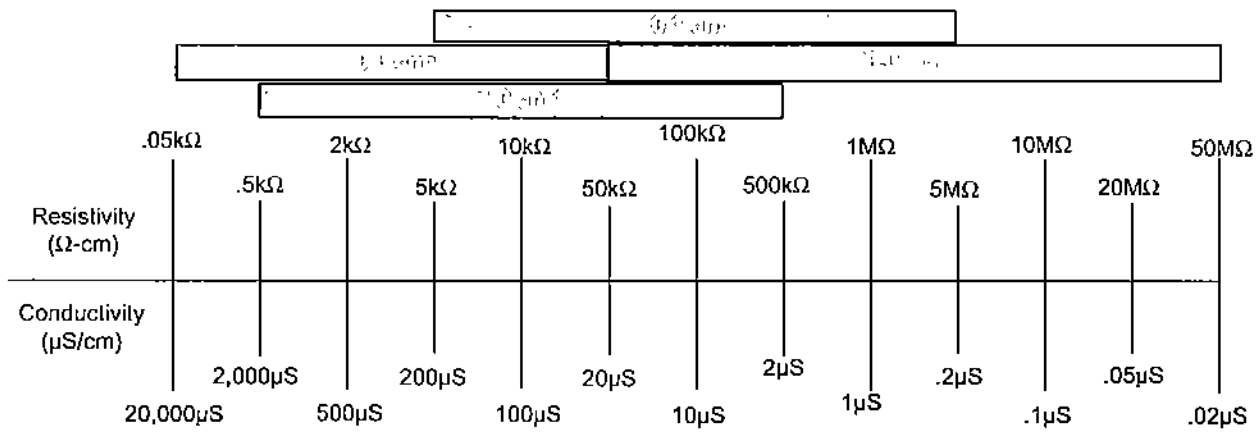
Temperature Resolution: 0.1°C

Stability: ±0.25% of output range/month, non-cumulative

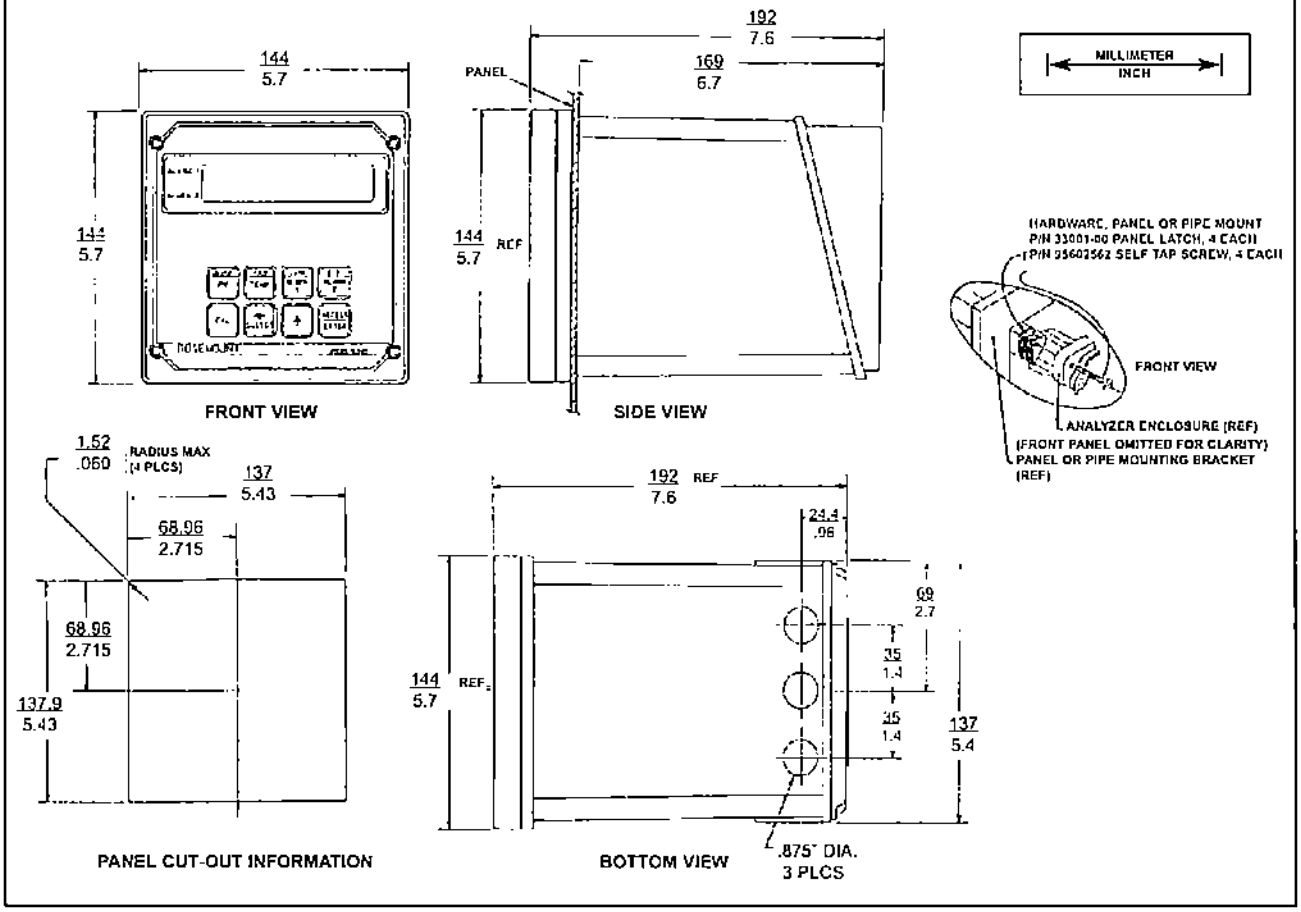
Temperature Compensation: 0 to 100°C (32 to 212°F) Neutral salt, Cation, or Raw (uncompensated)

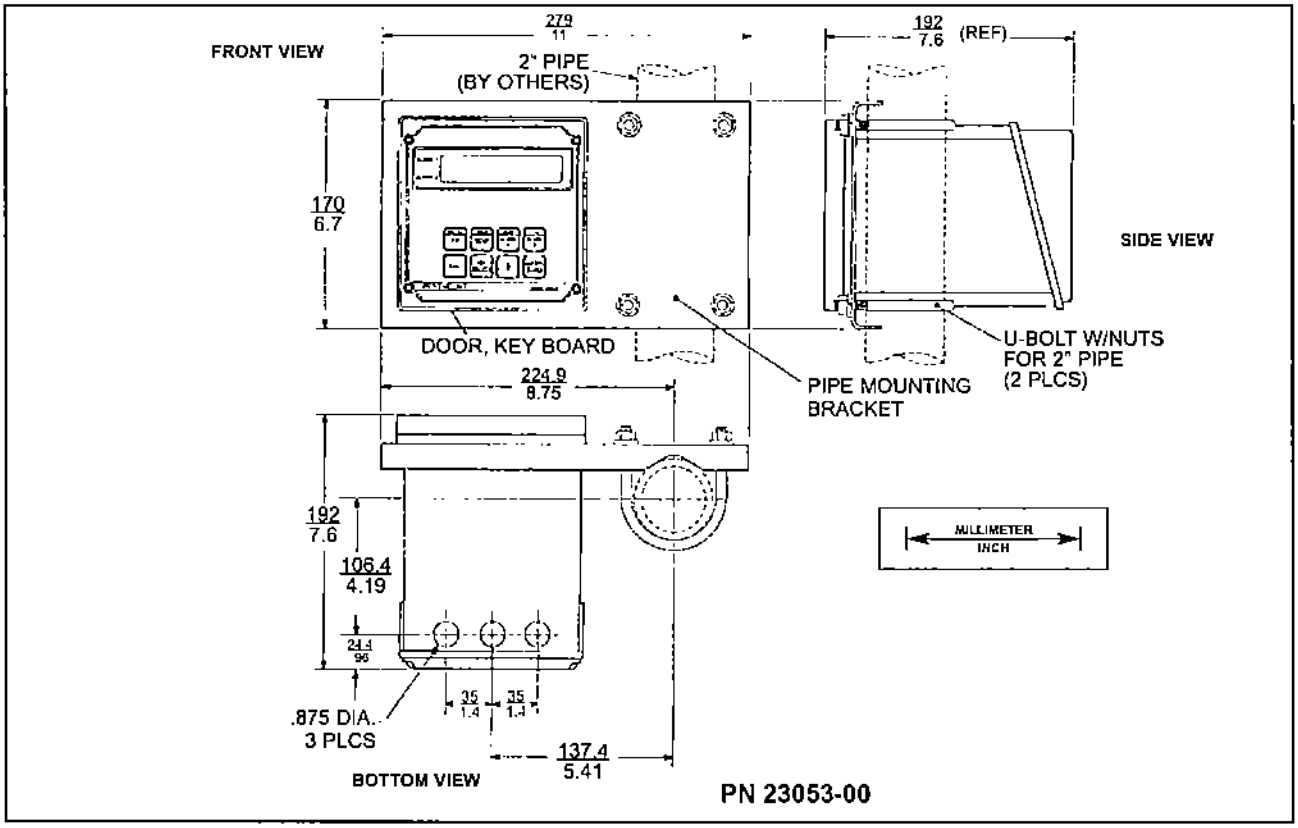
Temperature Measurement: 0-135°C (32 to 275°F)

Operating Ranges for Various Cells Constants (not to scale)



MOUNTING AND DIMENSIONAL DRAWING – ANALYZER





PN 23053-00

ORDERING INFORMATION

The **Model 1054B Dual Cell Microprocessor Analyzer** is housed in a corrosion resistant, weatherproof enclosure and operates on either 115 or 230 VAC, 50/60 Hz power. Standard features include two independent conductivity or resistivity inputs, two isolated current outputs, three alarms, and automatic temperature compensation.

MODEL 1054B	MICROPROCESSOR ANALYZER (3.5 lb/1.5 kg)
Code	Measurement
DC	Dual Cell Conductivity/Resistivity

Code	Display
01	LCD Display
02	LED Display

1054B - DC - 01 EXAMPLE

ACCESSORIES	
PART #	DESCRIPTION
2001492	Stainless Steel Tag
23053-00	2 in. Pipe Mounting Bracket

OPERATING RANGES

Cell Constants (cm^{-1})	Conductivity Range	Resistivity Range[2]
0.01	.02µS/cm to 20µS/cm	.05M to 50M
0.1	0.2µS/cm to 200µS/cm[1]	5 k to 5M[1]
1.0	2µS/cm to 2000µS/cm[1]	.5 k to 500k[1]
10.0	20µS/cm to 20,000µS/cm[1]	.05 k to 50k[1]

NOTE:
1.The notation k represents k-ohms. The notation M represents megohms. 1000Ω = 1kΩ. 1000 kΩ = 1 MΩ.
2. Ranges are given in absolute (non-temperature compensated) conductivity and resistivity.

CELLS FOR MODEL 1054B DC

Model	Description	Cell Const cm^{-1}
400-11/400VP-11	Screw-in	0.01
400-11-36/400VP-11-36	Screw in with 6 in. insertion	0.01
400-11-50	Screw in with 50 ft. cable	0.01
451	Dip cell	0.01
455, 404-11	Flow cell, stainless steel	0.01
PD-441	Flow cell, plastic	0.01
IB-441	Plastic ball valve cell	0.01
IB(SS)-441, 402-11	Ball valve cell, stainless steel	0.01
460, 403-11-20/403VP	1-1/2 in. Sanitary fitting	0.01
456, 403-11-21/403VP	2 in. Sanitary fitting	0.01
400-12	Screw in cell	0.1
452	Dip cell	0.1
461, 404-12	Flow cell	0.1
IB(SS)442, 402-12	Ball valve cell, stainless steel	0.1
400-13/400VP-13	Screw-in cell	1.0
453A	Dip cell	1.0
402-13, IB(SS)-443A	Ball valve cell, stainless steel	1.0
401-14	Screw-in cell	10.0
454	Dip cell	10.0
402-11, IB(SS)-444	Ball valve cell, stainless steel	10.0

Contact Esys for more information about this product:
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