NEX-G
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NEX-G AUTOMATION LLP

RO WATER PLANT DATA LOGGER

Precision IoT Monitoring & Volumetric Flow Telemetry System

DOCUMENT	**Product User Manual**
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Installation Configuration Operation Integration Maintenance

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1. Product Overview

The **Nex-G RO Water Plant Data Logger** is a precision IoT telemetry device engineered for real-time volumetric flow monitoring and totalized water management in commercial, industrial, and municipal reverse osmosis (RO) plants. Delivering high-precision ±1% measurement accuracy, the unit continuously tracks totalized dispensing volumes in liters and synchronizes data via Ethernet, GSM, or Wi-Fi to secure cloud architectures while preserving records in local fallback memory during network interruptions.

Core Deployment Capabilities:

- High-precision ±1% reading accuracy for exact daily, monthly, and annual water totals.
- Triple connectivity options: Ethernet, GSM (Cellular IoT), or Wi-Fi transceiver models.
- Autonomous local backup memory to prevent telemetry loss during server or network downtime.
- Automated export engine generating verified PDF, Excel, and CSV audit reports.

2. Safety & Installation Guidelines

> **Electrical Safety Notice:** Ensure the main power supply (230V AC or 24V DC depending on model variant) is isolated before connecting flow sensors or wiring terminal blocks inside the IP65 enclosure.

- **Qualified Installation:** Electrical connections and flow sensor calibration should be performed by certified automation technicians.
- **Enclosure Protection:** IP65 ingress protection requires all cable glands and enclosure latches to be securely tightened against moisture and chemical fumes.
- **Sensor Calibration:** Verify pulse constant or analog scaling factors during commissioning to maintain specified ±1% volumetric accuracy.

3. Technical Specifications

Parameter	Specification Details	Notes
Measurement Parameter	Total Water Volume Dispensed (Liters)	Real-time totalizer and flow rate telemetry
Measurement Accuracy	±1% of Reading	High-precision calibrated sensor input
Network Connectivity	Ethernet / GSM / Wi-Fi	Model-dependent hardware option
Data Storage Architecture	Cloud Server + Local Fallback Memory	Autonomous queueing prevents data loss
Operating Power Input	230V AC or 24V DC	Flexible plant power supply options
Enclosure Protection	IP65 Industrial Wall-Mount Housing	Dustproof and water-jet resistant protection
User Interface	Web Dashboard & Mobile App	Centralized real-time cloud monitoring
Report Export Formats	PDF, Excel (.xlsx), CSV	Dynamic automated shift and periodic reports
Runtime Reliability	24/7 Low Maintenance Operation	Designed for continuous plant environment duty
Operating Temperature	−10°C to +60°C	Industrial operating temperature limits

4. Data Pipeline & System Flow

How volumetric water data moves from sensor pulse to cloud analytics and reports:

01. Water Dispensed
Flow passes through calibrated plant pulse sensor.

02. Precise Logging
Data logger records volume at ±1% accuracy.

03. Cloud Sync
Data synced via Ethernet / GSM / Wi-Fi; backed up locally.

04. Audit Reports
Web/App dashboard exports PDF, Excel & CSV logs.

5. Dashboard & Control Capabilities

The cloud-connected platform provides complete visibility into water dispensing operations:

System Capability	Operational Function
Real-Time Volumetric Totalizer	Tracks second-by-second dispensing volumes and instantaneous flow rates directly from active water lines.
Automated Report Generator	Exports verified extraction logs into commercial PDF, Excel, or CSV formats for statutory compliance and invoicing.
Network Transceiver Monitor	Monitors link quality across Ethernet, GSM, and Wi-Fi networks with automatic re-connection protocols.
Remote Calibration Modifiers	Adjusts sensor scaling metrics and pulse constants via secure settings channels without site visits.

6. Strategic Solution Advantages

Resource Optimization
Eliminates billing discrepancies and tracks raw water usage to reduce plant overhead costs.

Regulatory Audit Compliance
Provides tamper-evident historical logs required by environmental agencies and groundwater authorities.

Local Backup Protection
Queues data locally during internet downtime, automatically uploading records upon reconnection.

Predictive Maintenance Logs
Triggers filter replacement and membrane backwash alerts based on total throughput volume.

7. Frequently Asked Questions (FAQ)

- **What does the RO Water Plant Data Logger measure?** Totalized dispensed water volume in liters with high accuracy.
- **What accuracy is specified?** High precision within ±1% of total volumetric reading.
- **Where is the data stored during network outages?** Internal fallback memory holds records until connectivity is restored.
- **What power supply options are available?** Configurable for either 230V AC mains or 24V DC industrial power.

8. Troubleshooting Guide

Symptom	Possible Cause	Recommended Action
Flow volume reading shows zero	Flow sensor disconnected or wired backwards	Check sensor wiring terminals inside IP65 box; verify fluid flow direction through pipe.
Data not updating on cloud dashboard	Cellular GSM SIM balance / Wi-Fi disconnect	Inspect signal LED indicators; check SIM data balance or verify local Wi-Fi router status.
Inaccurate totalizer readings (> ±1% variance)	Incorrect pulse constant multiplier	Re-check sensor datasheet pulse rate (pulses/liter) and update calibration factor in dashboard.
System power LED unlit	Power supply isolated or blown fuse	Verify 230V AC or 24V DC input voltage and inspect internal protective fuse.

9. Maintenance & Storage

- Inspect IP65 enclosure door gaskets and cable glands every six months to maintain moisture protection.
- Clean the exterior housing with a damp cloth; avoid spraying high-pressure water directly onto cable glands.
- Perform routine quarterly volumetric validation by comparing logger totals against physical calibration tanks.
- Store uninstalled units in a clean, dry location within the specified −10°C to +60°C temperature range.

10. Support and Service Contact

For technical support, custom sensor integration, dashboard setup, or service requests, contact Nex-G Automation LLP:

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