

Readwin 2000

A practical guide to readwin 2000, covering the reader intent, the relationship to readwin 2000, key evaluation criteria, common risks, and the information the intended project audience should confirm before taking the next step.



Main topic: Main Page
<https://www.level-meters.com/>

In the landscape of industrial automation and process control, the ability to accurately monitor, record, and analyze level measurement data is critical for operational efficiency and safety. Readwin 2000 has historically served as a foundational PC-based configuration and data management software used to interface with a variety of process instruments, including data loggers, paperless recorders, and level transmitters. For engineers managing water treatment facilities, chemical processing plants, or oil and gas storage, understanding how software like Readwin 2000 interacts with hardware is essential for maintaining a robust data chain.

Effective level measurement is not merely about the sensor installed on top of a tank; it is about the integration of that sensor into a broader data ecosystem. This article explores the technical principles of level measurement, the specific role of Readwin 2000 in data acquisition, and the practical considerations for selecting and installing these systems in modern industrial environments.

| Principles of Industrial Level Measurement

Before diving into the software configuration and data management capabilities of Readwin 2000, it is necessary to understand the physical principles governing the sensors that provide the raw data. In industrial B2B applications, four primary technologies dominate the market: Radar, Ultrasonic, Hydrostatic, and Magnetic level measurement.

| Radar Level Measurement

Radar level meters operate on the Time-of-Flight (ToF) principle. The device emits high-frequency electromagnetic pulses (typically in the GHz range) toward the medium. These pulses are reflected by the surface of the product and received by the antenna. Since the speed of light is constant, the time delay between transmission and reception is directly proportional to the distance.

Formula: $D = (c \times t) / 2$, where D is the distance, c is the speed of light, and t is the travel time.

Application: Ideal for high-pressure, high-temperature, and dusty environments where non-contact measurement is required.

| Ultrasonic Level Measurement

Similar to radar, ultrasonic sensors use ToF but rely on sound waves. The transducer emits an ultrasonic pulse (typically 20 kHz to 200 kHz), which travels through the air, hits the liquid or solid surface, and returns.

Limitation: Because the speed of sound is affected by air temperature and density, integrated temperature compensation is required. Ultrasonic sensors are less effective in vacuums or high-pressure gas layers.

| Hydrostatic Level Measurement

This contact-based method measures the pressure exerted by a liquid column. The pressure at the bottom of a tank is proportional to the height of the liquid and its specific gravity.

Formula: $P = \rho \times g \times h$, where P is pressure, ρ is density, g is gravity, and h is height.

Application: Widely used in water treatment and open-tank chemical storage due to its reliability and cost-effectiveness.

| The Data Link

Regardless of the measurement principle, these instruments output signals—most commonly 4-20mA analog signals or digital protocols like Modbus RTU, HART, or PROFIBUS. Readwin 2000 acts as the bridge, allowing operators to scale these signals, archive the readings, and visualize trends over time.

| The Role and Features of Readwin 2000

Readwin 2000 was developed to provide a low-cost, user-friendly interface for managing process data. While newer platforms like FieldCare have emerged, Readwin 2000 remains in use across many legacy systems due to its simplicity and low system resource requirements.

| Key Functionalities

1. **Device Configuration:** It allows users to set up device-specific parameters such as measuring range, engineering units (meters, liters, kilograms), and alarm limits without needing a complex PLC interface.
2. **Data Visualization:** The software transforms raw numerical data into graphical charts, making it easier for plant managers to identify trends, such as leakage rates or consumption patterns.
3. **Archiving and Exporting:** Data is stored in a secure database format. Users can export this data to spreadsheet software (like Excel) for regulatory reporting or further analysis.
4. **Service and Diagnostics:** It provides a window into the health of the connected level meters, showing error codes or signal strength indicators that are vital for predictive maintenance.

| Technical Selection and Compatibility

When integrating Readwin 2000 into a level measurement project, engineers must ensure compatibility between the software, the communication hardware, and the field instruments. Welk provides a range of level measurement solutions that can be integrated into such data acquisition frameworks. For more detailed specifications on compatible hardware, you can visit the [Main Page](#) of our product catalog.

| Selection Table for Data Acquisition Components

Feature	Specification / Requirement
Supported Operating Systems	Windows XP, Windows 7, Windows 10 (via Compatibility Mode)
Communication Interface	RS232, RS485, USB-to-Serial Adapters, Ethernet (via Gateways)
Max Number of Devices	Typically up to 20 devices per interface (depending on protocol)
Data Storage Format	Proprietary secure database with CSV/XLS export options
Level Sensor Input	4-20mA (via logger), Modbus RTU, or proprietary digital links
Update Rate	Configurable from 1 second to several hours

Installation and Configuration Guidelines

Successful deployment of a Readwin 2000 system requires careful attention to both software installation and physical wiring. In industrial environments, electromagnetic interference (EMI) is a common challenge that can corrupt data signals.

Physical Connection and Wiring

For most level measurement applications, the connection between the sensor and the PC running Readwin 2000 involves a data logger or a signal converter.

RS485 Networks: If connecting multiple radar level meters over a long distance (up to 1,200 meters), an RS485 bus is recommended. Use shielded twisted-pair cables to minimize noise. Ensure that the terminal resistor (typically 120 ohms) is installed at the end of the bus to prevent signal reflection.

USB Adapters: Modern PCs lack serial ports. When using USB-to-RS485 converters, ensure the drivers are correctly mapped to a COM port number between 1 and 16, as older versions of Readwin 2000 may not recognize higher port numbers.

| Software Setup Steps

1. **Driver Installation:** Install the communication drivers for your interface hardware before launching the software.
2. **Device Search:** Use the "Automatic Search" function within Readwin 2000 to identify connected devices on the bus. This requires matching the baud rate (usually 9600 or 19200 bps) and parity settings of the instruments.
3. **Scaling the Signal:** In the device settings, map the 4-20mA signal to the physical dimensions of the tank. For example, 4mA = 0.00m (Empty) and 20mA = 10.00m (Full).
4. **Database Setup:** Define the storage interval. For fast-changing processes like chemical batching, a 5-second interval may be necessary. For large water reservoirs, a 15-minute interval is often sufficient to save disk space.

| Limitations and Modern Considerations

While Readwin 2000 is a robust tool, it has limitations that B2B procurement officers and engineers should consider before a fresh implementation.

Security: Readwin 2000 lacks modern encrypted communication protocols. In facilities where cybersecurity is a high priority (NIS2 or NERC CIP compliance), it should be isolated from the main corporate network.

Operating System Support: As a 32-bit application, it may encounter stability issues on newer 64-bit Windows 11 environments without significant configuration tweaks.

Scalability: For large-scale operations involving hundreds of measurement points across multiple sites, a cloud-based IIoT (Industrial Internet of Things) platform or a full SCADA system is generally preferred over localized PC software.

For organizations looking to modernize their measurement infrastructure, Welk offers advanced level meters with integrated web servers and direct cloud connectivity, reducing the reliance on legacy PC software. Explore these options on the Main Page.

| Frequently Asked Questions (FAQ)

Q: Can Readwin 2000 be used with any brand of level meter?

A: Readwin 2000 is primarily designed for specific manufacturer ecosystems. However, it can often communicate with third-party devices if they use standard Modbus RTU protocols and the register mapping is known. For universal compatibility, a more open FDT/DTM based software is usually recommended.

Q: How do I recover data if the PC crashes?

A: Readwin 2000 stores data in .mdb or proprietary files. Regular backups of the "Data" folder are essential. If the software is used in conjunction with a data logger that has internal memory, the data can often be re-uploaded from the logger once the PC is restored.

Q: Does the software support real-time alarming?

A: Yes, Readwin 2000 can trigger visual alarms on the PC screen and log alarm events in the database. However, it should not be used as the primary safety-critical alarm system; hardware-based relays on the level meter itself should handle emergency shutdowns.

Q: What is the maximum distance for a direct cable connection?

A: For RS232, the limit is approximately 15 meters. For RS485, it can reach up to 1,200 meters without a repeater. For distances beyond this, fiber optic converters or wireless radio bridges are necessary.

| Conclusion

Readwin 2000 remains a relevant, cost-effective solution for small to medium-scale industrial level measurement tasks. By understanding the underlying physics of sensors—whether radar, ultrasonic, or hydrostatic—and following strict installation protocols, engineers can ensure that their process data is accurate and actionable. As the industry moves toward more integrated and secure digital solutions, the principles of data scaling and communication established by tools like Readwin 2000 continue to form the backbone of modern process automation. For high-quality instrumentation that integrates seamlessly with your data management strategy, consult the comprehensive range of sensors available at [Welk's Main Page](#).