Endress Hauser Smt70

A practical guide to endress hauser smt70, covering the reader intent, the relationship to endress hauser smt70, key evaluation criteria, common risks, and the information the intended project audience should confirm before taking the next step.

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In the landscape of modern industrial automation, the ability to configure, commission, and maintain field instrumentation efficiently is paramount. The Endress Hauser Smt70, officially known as the Field Xpert SMT70, represents a specialized class of industrial tablet PCs designed specifically for mobile device management in both safe and hazardous areas. As process plants grow in complexity, the integration of smart sensors—such as radar level meters, ultrasonic sensors, and hydrostatic transmitters—requires robust tools that can bridge the gap between the physical instrument and the control system.

Measurement Principles and the Need for Configuration

Before evaluating the role of a configuration tool like the endress hauser smt70, it is essential to understand the underlying measurement principles of the instruments it manages. Level measurement in industrial settings typically relies on several physical phenomena, each requiring specific parameterization to ensure accuracy.

Time-of-Flight (ToF) Principles

Both radar and ultrasonic level meters operate on the Time-of-Flight principle. An instrument emits a signal (electromagnetic pulses for radar or sound waves for ultrasonic) that reflects off the surface of the medium and returns to the sensor. The distance is calculated based on the time interval and the speed of the wave.

However, these measurements are rarely "plug-and-play." For a radar level meter to function correctly, an engineer must input the tank height, the dielectric constant of the material, and, crucially, perform a "false echo suppression" or "mapping." This process tells the sensor to ignore internal tank obstructions like agitators or spray balls. The endress hauser smt70 provides the graphical interface necessary to visualize these echo curves and adjust the mapping parameters in real-time at the tank side.

Hydrostatic Pressure Principles

Hydrostatic level transmitters measure the pressure exerted by a liquid column at a specific point. The level is calculated using the formula: Level = Pressure / (Density × Gravity). Configuration here involves setting the zero and span, as well as compensating for the specific gravity of the liquid, which may change with temperature. A mobile workstation allows technicians to calibrate these values while observing the physical level in the vessel, ensuring the transmitter's output matches the actual process state.

Technical Overview of the Endress Hauser Smt70

The endress hauser smt70 is a ruggedized tablet PC pre-installed with device configuration software. It is designed to support a wide range of communication protocols, making it a universal tool for plant maintenance.

Feature	Specification
Operating System	Windows 10 IoT Enterprise
Display	30.7 cm (12.1 inch) multi-touch display
Processor	Intel Core i5
Protection Class	IP65 (dust-tight and protected against water jets)
Weight	Approx. 1.9 kg
Communication	Wi-Fi, Bluetooth, 4G LTE, USB 3.0
Hazardous Area Certifications	ATEX/IECEx Zone 2, NEC/CEC Class 1 Div 2

This device functions as an open platform, utilizing FDT/DTM technology (Field Device Tool / Device Type Manager). This allows it to communicate not only with Endress+Hauser instruments but also with third-party devices from any manufacturer that provides a standard DTM. For engineers managing a diverse fleet of instruments, including those found on the Main Page of specialized manufacturers, this universality is a significant operational advantage.

Practical Selection Criteria for Mobile Configuration Tools

When selecting a configuration interface for industrial level measurement, engineers must evaluate the environment and the specific communication requirements of their facility. The endress hauser smt70 is often compared against handheld communicators or standard laptops.

1. Communication Protocol Support: Ensure the tool supports HART, PROFIBUS DP/PA, FOUNDATION Fieldbus, and Modbus. The SMT70 typically requires optional interfaces (like a HART modem or fieldgate) to connect physically to these loops.

2. Environment Severity: If the measurement point is located outdoors or in a wash-down area, an IP65-rated tablet is mandatory. Standard laptops often fail in these conditions due to moisture or dust ingress.

3. Hazardous Area Requirements: Many level measurements occur in tanks containing flammable chemicals or fuels. In these instances, the configuration tool must hold the appropriate ATEX or Class/Division rating to prevent it from becoming an ignition source.

4. Software Ecosystem: A tool is only as good as its library of device drivers. The endress hauser smt70 comes with a pre-installed library of over 3,000 DTMs, which simplifies the commissioning of complex radar and ultrasonic sensors.

Installation and Connection Considerations

While the endress hauser smt70 is a mobile device, its effective use depends on how it connects to the field instruments. There are three primary methods of connection:

Point-to-Point Connection: The tablet connects directly to the instrument’s terminals or communication port using a HART or fieldbus modem. This is common during initial commissioning before the device is fully integrated into the control system.

Connection via Remote I/O or Gateway: The tablet connects to the plant’s Wi-Fi network and communicates with instruments through a system-integrated gateway. This allows for configuration from a safe distance, which is useful if the sensor is mounted in a hard-to-reach location, such as the top of a 20-meter silo.

WirelessHART/Bluetooth: Modern level sensors are increasingly equipped with Bluetooth interfaces. The SMT70 can connect wirelessly to these sensors within a range of approximately 10 to 15 meters, significantly improving safety by removing the need for technicians to climb ladders with cables.

Limitations and Common Risks

Despite its advanced capabilities, the use of the endress hauser smt70 involves certain limitations that maintenance teams must manage:

Battery Management: While the device is designed for full-shift use, intensive tasks like continuous echo curve monitoring via Wi-Fi can deplete the battery faster. In remote field locations, having a vehicle charging kit is recommended.

Software Versioning: The FDT/DTM framework requires regular updates. If a new model of a radar level meter is installed but the corresponding DTM is not updated on the SMT70, the technician may only have access to basic generic functions rather than the full diagnostic suite.

Cybersecurity: As a Windows-based device with wireless connectivity, the SMT70 must be integrated into the plant's cybersecurity policy. This includes regular OS patching and restricted use of unauthorized USB drives.

Physical Handling: Although rugged, the screen is still susceptible to extreme impacts. Using the provided hand straps and carrying cases is essential to prevent accidental drops during transit between measurement points.

Comparison Table: SMT70 vs. Traditional Handhelds

Feature	SMT70 Tablet	Traditional Handheld (e.g., HART Communicator)
Display Size	Large (12.1") - Ideal for graphs	Small (3.5" - 5") - Text-heavy
Operating System	Windows (Full PC capability)	Proprietary / Embedded
Third-Party Support	High (via DTMs)	Limited (via DD files)
Connectivity	Wi-Fi, Bluetooth, 4G, USB	Primarily physical lead-set
Documentation	Can view PDFs and save reports	Limited reporting capabilities

Frequently Asked Questions (FAQs)

Q: Can the endress hauser smt70 be used to configure instruments from other manufacturers?

A: Yes. Because it uses the FDT/DTM standard, it can manage any instrument from any manufacturer, provided the manufacturer has released a DTM for that device. This makes it a versatile tool for plants with multi-vendor instrument bases.

Q: How does the device handle updates for new instruments?

A: The device typically includes a software update service. When connected to the internet, it can synchronize with a cloud database to download the latest DTMs and software patches.

Q: Is the screen readable in direct sunlight?

A: Yes, the SMT70 features a daylight-readable display specifically designed for outdoor use in industrial environments, minimizing glare and reflections.

Q: Can I use it as a regular office tablet?

A: While it runs Windows 10, it is optimized for industrial use. It can run standard office applications, but its primary value lies in its ruggedness and specialized communication interfaces for field instrumentation.

Conclusion

The endress hauser smt70 is more than just a tablet; it is a critical bridge between complex level measurement physics and the practical needs of maintenance engineering. By facilitating clear visualization of measurement signals and providing a universal platform for device management, it ensures that level instruments—whether they are advanced radar systems or simple switches—operate at peak performance. For professionals seeking to optimize their level measurement strategies and review high-quality hardware options, exploring the resources available on the Main Page can provide further technical insights and application support for diverse industrial environments.