

# Wacom Active ES



## 30 years of expertise

Perfected and improved for over 30 years, loved by artist and professionals everywhere, Wacom's unique digital pen technology enables precise and natural input that lets you focus on what really matters: your creations.

From the pen-tip material, carefully selected to match each writing surface, to the state-of-the-art signal noise management and pressure sensing techniques, everything is painstakingly optimized in order to achieve the Wacom feeling.

By quickly adapting to new technological challenges, Wacom has proven to deliver a natural pen experience

## Introduction of Wacom's Active ES solutions

The AES technology makes use of different assets that are also part of Wacom's de-facto standard EMR. Those are the detection of the pen pressure and the data exchange between pen and pad. This results in a fast and accurate control and a natural writing experience, combined with an accurate traceability of the pen. In the same way as with EMR, AES technology also allows the hovering of the pen over the pad.

## Our hardware offering:

Excellent performance incorporating accumulated expertise on multi-touch and pen input technologies

**Pen :** 9.5mm battery (AAAA) type

5.3mm super capacitor cartridge type

**Controller IC :** handling pen/touch input signals simultaneously

**pen tips** available to create different writing experiences

## Our quality assurance:

High levels of perfection supported by long-standing expertise on digital pen development and manufacturing

Optimization of exterior design, material choice and writing feel etc.

Mass manufacturing capability of high quality products using automated pen production facilities and Wacom's own Quality Assurance techniques.

High level of accuracy. Pressure sensitivity, low latency and high pen report rate create a natural, smooth writing feeling. The pressure sensitivity creates a richer experience and opens up a wide range of use case scenarios, e.g. for signature capturing.

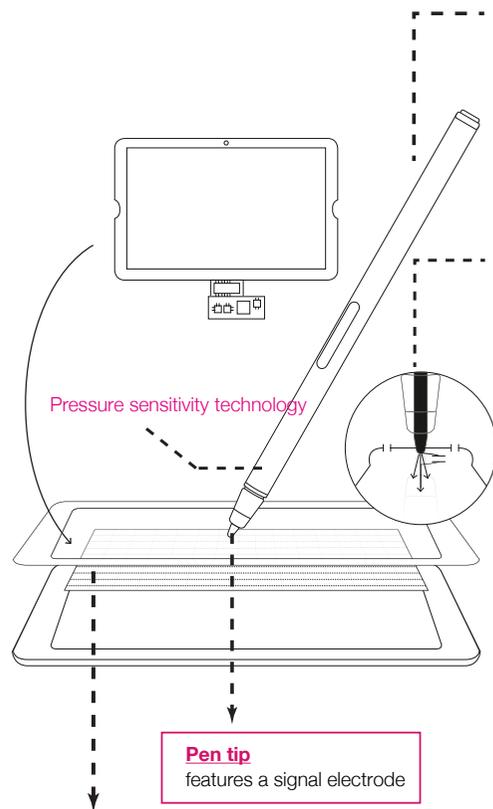
Very small tilt error, making writing even more exact.

## Application and Cloud: Pen ID

Each pen is capable of having a unique ID, suitable for file sharing/editing via the cloud. Security enhancement is also possible. Cross platform inking experience: Wacom's AES pen is ready for cloud based services; connected with Wacom's Ink Layer Language (WILL), it allows manufacturers to create a seamless inking experience for their customers across platforms and devices.

# Working principle

Wacom's Active ES solution is an electrostatic capacitive coupling pen technology. This solution uses capacity coupling between an electrostatic coupling type sensor and pen. It uses the same sensor as the touch sensor.



## Power efficiency

Power supply can either be provided by a battery or super capacitor charging

## Precision

The sensor has multiple electrostatic grids arranged orthogonally (X-axis, Y-axis) to each other. One sensor grid and the pen act as the transmitting unit; the other grids act as receiving units.

The transmitting unit generates an electric field. The generated electric charge is detected according to the electric field which has been identified on the receiving unit.

## Nearly no latency

The transmission and reception happens similarly on the other sensor grids; the pen's position is identified based on differences in the charge amount detected on each sensor grid receiving unit.

## False touch prevention

Hovering height detection /Palm rejection

# User benefits

## Write on Paper Feeling – Natural writing experience

To create the most natural writing feeling that comes as close as writing on standard paper, Wacom uses a feature set that contributes to this feeling:

1. Pixel precision transfers the precision that everyone is used to into the digital space. The high-quality writing experience of the users is directly linked to the respective hardware.
2. Millisecond data exchange (responsiveness) is key to the concept of instant interaction between the user and the hardware device. The Wacom pen communicates with the tablet in milliseconds.
3. Thousands of levels of pressure sensitivity mean mimicking the standard pen experience up to the highest possible level. For B-2-B solutions, the pressure sensitivity is one of the biometric factors, needed to capture a signature in a legally binding way.
4. Pen tip materials selection: Depending on what users write or draw, they use a different kind of pen. Wacom offers a large choice of different pen tip materials. Manufacturers can equip their pen with the material, which suits their needs and use case scenarios best.
5. Palm rejection: When using a pen on a hardware device, users expect a smooth experience. This also includes the fact that – when using a pen – the palm should not interfere with the pen. By integrating palm rejection into Wacom technology, users do not need to worry about laying their hand on the tablet, but can concentrate on what they are doing. The pen comes first and natural.

## 6. Freedom in design

For manufacturers, integrating a pen solution into their hardware offering should not mean compromising on their own design ideas. Wacom's pen offering allows customers the freedom in design. Different options are available that neatly fit into the original manufacturer's concept. Wacom's garage pen is a small, portable device. It integrates smoothly into the design of the manufacturer's hardware, building a logical design unit.

The Wacom pen needs only little power to communicate with the tablet. This is a major advantage for product design. The pen can be light and there is no need for thick coils or other. For manufacturers, this makes integration into their hardware easier, resulting in thinner, lighter devices.

Depending on the use case scenario, the pen can be in use for several hours a day. The design of the Wacom pens is ergonomic; it not only heightens the user acceptance of the digital pen, but helps them to avoid fatigue at the same time.

## 7. Personal User Experience and Adaptation

7-1.

Bottom command, the side switches of the Wacom pens make customization for different applications easy. By pre-programming the most common functions or a complete menu, onto the side switches, the use of software and hardware becomes much faster and easier for users. Depending on the use case scenario, hardware manufacturers can either do the pre-programming themselves or leave it up to their users. In any case, this feature makes the pen more than "only" a writing tool.

7-2.

PenID enables innovative cloud experience. Each Wacom pen features its unique ID. A signature or the creation of content can thus be directly linked back to the respective user. The PenID is useful in different scenarios: In education, it supports group learning in the classroom; the teacher still knows where the content stems from. The same is true for business collaboration: Meetings – also in a virtual meeting room with a shared virtual whiteboard – and brainstorming sessions come to a new level of interaction between the participants and make the work of the moderator much easier. For consumers, sharing their ideas and creativity in cloud services also benefit from the PenID.