Data transmission and software

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CONNECTIONS

What is the future for metrology?
Industry 4.0 and other similar concepts want to take data collection to new levels, monitoring all along the manufacturing process, collecting and storing information from all measuring equipment.

Traditional metrology will evolve towards more automation and digital (paperless) solutions which will enable increased traceability and remote monitoring of a whole set of information centralised on one server.

Sylvac is ready for the challenge!
As Pioneer and Expert in connected Metrology, Sylvac did not wait the current excitement for data acquisition to offer reliable connection options and data processing software on the market. We have been striving to provide solutions for decades, first of all by offering wired connections (RS232 then USB) and over the last few years, by launching amazing Bluetooth wireless instruments that meet the current requirements, this at a price similar to the wired solutions of yesteryear.

The advantage of our instruments with Bluetooth® Wireless technology
Wired connections limit operator's freedom of action and more flexibility for the operator requested to execute measurements. New solutions can also be implemented for control-ling components using specific instruments or positions. Here are some of the highlights:

- <u>The solution is totally integrated into the instrument</u>
  The wireless Bluetooth® transmitter is fixed on the electronic chart of the instrument and no further accessory is required. The Sylvac instrument with Bluetooth® Wireless technology that you receive is ready to be connected. Most of our competitors claim to offer wireless solutions, which are not really wireless solutions, or which require an external element to be acquired which is often fragile and costly! Our integrated system also has the advantage of not being sensitive to liquids or dirt.

- <u>Transmission distance</u>
  The maximum distance between the instrument and the peripheral device receiving the values is generally between 5 and 15 meters, depending on the configuration of the premises and any potential disruptive influences. Given that a wired USB connection is limited to 7 meters, the transmission range of our instruments with Bluetooth® Wireless technology is therefore greater than wired connections most of the time!

- <u>Autonomy</u>
  Sylvac's technological achievement was to offer a solution with energy-efficient Bluetooth® Wireless technology so that our instruments powered by a standard lithium battery could remain connected and used for several weeks, even several months. This is achieved thanks to our patented measurement system (Sylvac System) which only needs minimum energy. On request our agent can give you an estimate of the battery service life of your instrument taking your specific usage conditions into account.

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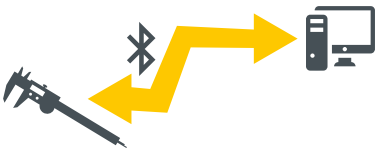
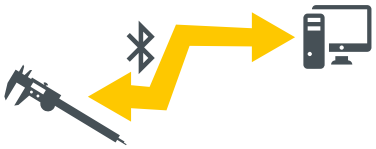


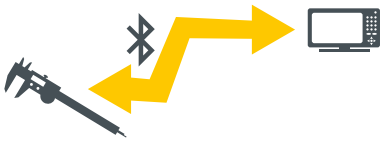
- Duplex Transmission
  Sylvac instruments are currently the only instruments able to communicate bidirectionally by Bluetooth® Wireless technology with the peripheral to which they are connected. This means that they can both send values and information and receive and interpret them. The best example of this is the transmission from the computer of a zero reset command for the instrument. This ensures the synchronisation of the value displayed on the instrument and on the peripheral device in order to limit the risks of error.

- Freedom of action at the price of a wired connection
  One important factor to consider when selecting an instrument is of course its price! Our Sylvac instruments with Bluetooth® Wireless technology also offer, as well as the features listed above, the benefit of not costing more than a traditional wired digital instrument. Therefore they can be used everywhere as replacements for wired instruments.

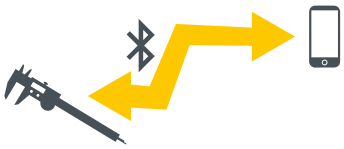
How to connect our instruments with Bluetooth® Wireless technology
Flexibility is one of the watchwords that characterise our Sylvac instruments with Bluetooth® Wireless technology. They can be connected to a computer running Windows, to our D300S and D400S display units and to a Smartphone or Apple or Android tablet. This is how to connect them:



- Connection to a computer
  There are different requirements depending on the instrument and the Windows operating system running on your computer. The most reliable solution is to attach a Sylvac Bluetooth® dongle to your computer which can connect up to 8 instruments. The most recent instruments also have a Human Interface Device (HID) direct communication mode enabling them to connect to a computer as a peripheral keyboard and transmit the values in any software application. (Use without dongle with Windows 10 possible with Sylcom)



- Connection to our multi-functional display units
  Our D300S display unit can be fitted with a Sylvac Bluetooth® dongle in order to connect up to 8 Sylvac Bluetooth® instruments. The same applies to the D400S unit to which one or several (up to 12) M-Bus BT modules can be connected enabling a multitude of Sylvac Bluetooth® instruments to be connected to it.



- Connection to a smartphone or tablet
  Our instruments can be connected directly to a smartphone and to tablets running Android or iOS. Sylvac demonstration apps are available from the Google Store and the Apple Store. These apps demonstrate the connection of one of our instruments with Bluetooth® technology to one of these peripheral devices. As this area is evolving very rapidly, please refer to our website for the latest information.

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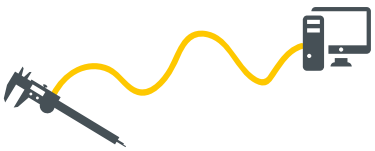
IOT Ready connection profiles
The second generation of Sylvac Bluetooth® Technology equipped all Smart instrument for more possibilities and easier connection.

- SIMPLE Profile (default mode)
  - Instruments can be connected to several devices, but only one active connection and on a «first come, first served» basis.
  - Best solution if different people share the same instrument which has to be connected to several devices.
  - Avoid pairing manipulations at each device change.

- PAIRED Profile
  - Several instruments connected and locked (paired) to a specific device, which allows to have a lot of control stations side by side in a small area.
  - Best secured solution for a permanent control station.
  - Avoid instruments connecting to the wrong device.
  - Device-Instrument link has to be reset in order to connect to another device.

- HID Profile (Human Interface Device)
  - The instrument can be connected only to one specific device, but device can accept multiple input devices (keyboards, bar code reader, etc.).
  - Emulate a keyboard action.
  - Write and send data to any software/device without any further settings.
  - Device-Instrument link has to be reset in order to connect to another device.

Wired connections



- Wired Connections
  Despite all the benefits described above, it could be that Bluetooth® Wireless technology is not the most appropriate solution for a specific application. We are of course able to provide a connection cable fitted either with an RS232 or USB connector for every Sylvac instrument with a data output. Our standard cables are 2 or 3 meters in length depending on the models. On request they can be delivered in special lengths of up to 15 metres for RS232 cables and up to 7 metres for USB cables.

Use of a digital test indicator without its battery
In some cases, as for example when a digital test indicator is installed in a location that is difficult to access, or if it is fitted on a non-stop operating machine, it may be advisable to replace the battery of the instrument with a special cable (Power) which will ensure both its power supply and the data transfer. Most of our digital test indicators offer this option and they are identified by the Power logo. Other digital test indicators, intended for connection to programmable logic controllers (PLC) also operate without a battery and their power supply is provided by the controller.

Please refer to the chapter on cables for details on the different cables available.

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Connection Proximity

Connection RS-485

Connection M8

Bluetooth® Wireless technology with dongle

Bluetooth® Wireless technology and USB

Bluetooth® Wireless technology via HID

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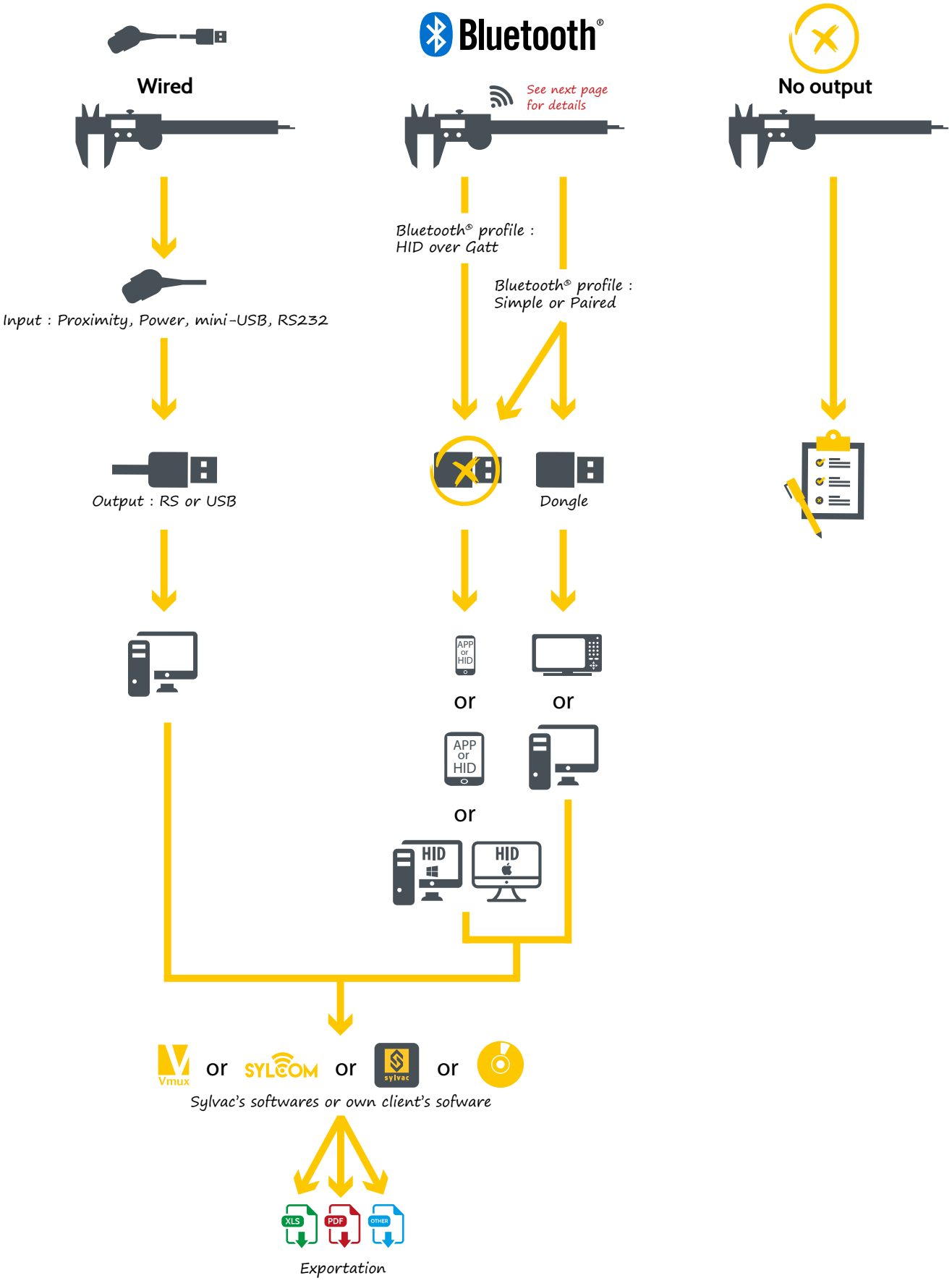
CONNECTIONS POSSIBILITIES



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WIRELESS CONNECTION PROFILES