



 **sylvac**

LEAFLET

**D400S**

Multifunction industrial display  
for dimensional measurement

INDUSTRIE 4.0

# D400S

## Multifunction industrial display for dimensional measurement

Touch screen display, intuitive operation, highly versatile, the display D400S can be used in a wide variety of applications, from the simplest to the most complex.

### In a nutshell:

- Up to 32 characteristics can be processed simultaneously
- 99 inputs (sensors, instruments, etc.) via a network of M-Bus units
- 128 programs available
- 7" screen
- Direct acquisition of characteristics from probes or instruments, calculated characteristics, attributes characteristics or manual input characteristics
- Connectivity: USB (keyboard or VCOM type), RS232, Network, Web API, Profinet, Modbus RTU, QR code readers
- Approved robustness, even in the harshest industrial environments, thanks to its machined aluminium casing
- Embedded proprietary OS for flawless IT security

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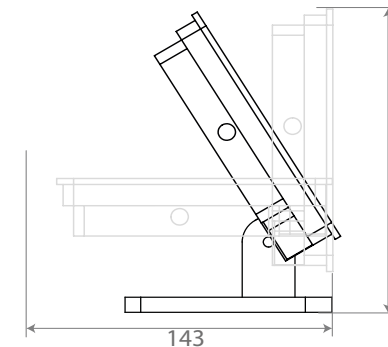
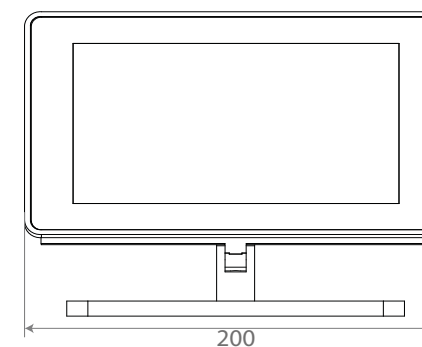
MULTIFUNCTION INDUSTRIAL DISPLAY - D400S

### Simple and intuitive

The display D400S is fitted with a 7" (17.8 cm) colour TFT touch screen. Its **highly intuitive user interface** makes it quick to program and easy for any operator to get familiar with. Measurements can be displayed as bar graphs, galvanometers or numerical values only.



### Compact and robust



The case is made of machined aluminium and comes on a swivel base that can be fixed using 4 M5 threads. The front is covered with an integral polyester film for maximum protection against liquid splashes.

### Connectors

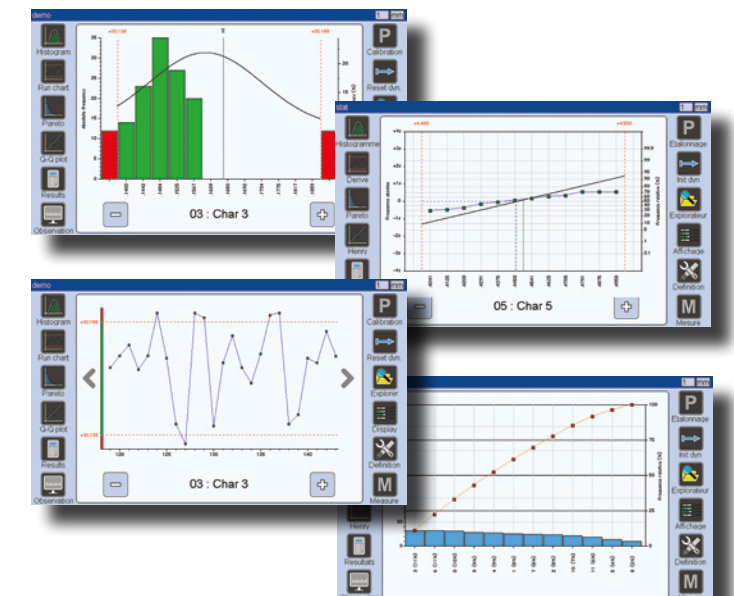


- 1 - M-Bus for connecting MB-XX modules
- 2 - 2 pedal and/or button inputs
- 3 - RS232 COM port (ASCII and Modbus RTU protocol)
- 4 - USB port - keyboard emulation (no driver required)
- 5 - Virtual COM port on USB
- 6 - USB port > USB key and QR code reader
- 7 - 24VDC power supply

### SPC Functions

The display D400S can record up to 1,000 measurements per part (128 parts max). The measurements saved can be used on various SPC screens (machine or process statistics) to provide the operator with information that can be accessed quickly and easily at the machine.

For more advanced processing or archiving, the MB-NET module takes over and interfaces with your IT system.





## Connect

Your measuring equipment :

- Instruments
- Sensors
- Air gages
- and many more...

## Display

Your measurements on a simple, intuitive interface

- Program your tolerances and calibrate your characteristics
- Enter control-related information with QR code
- Display statistics

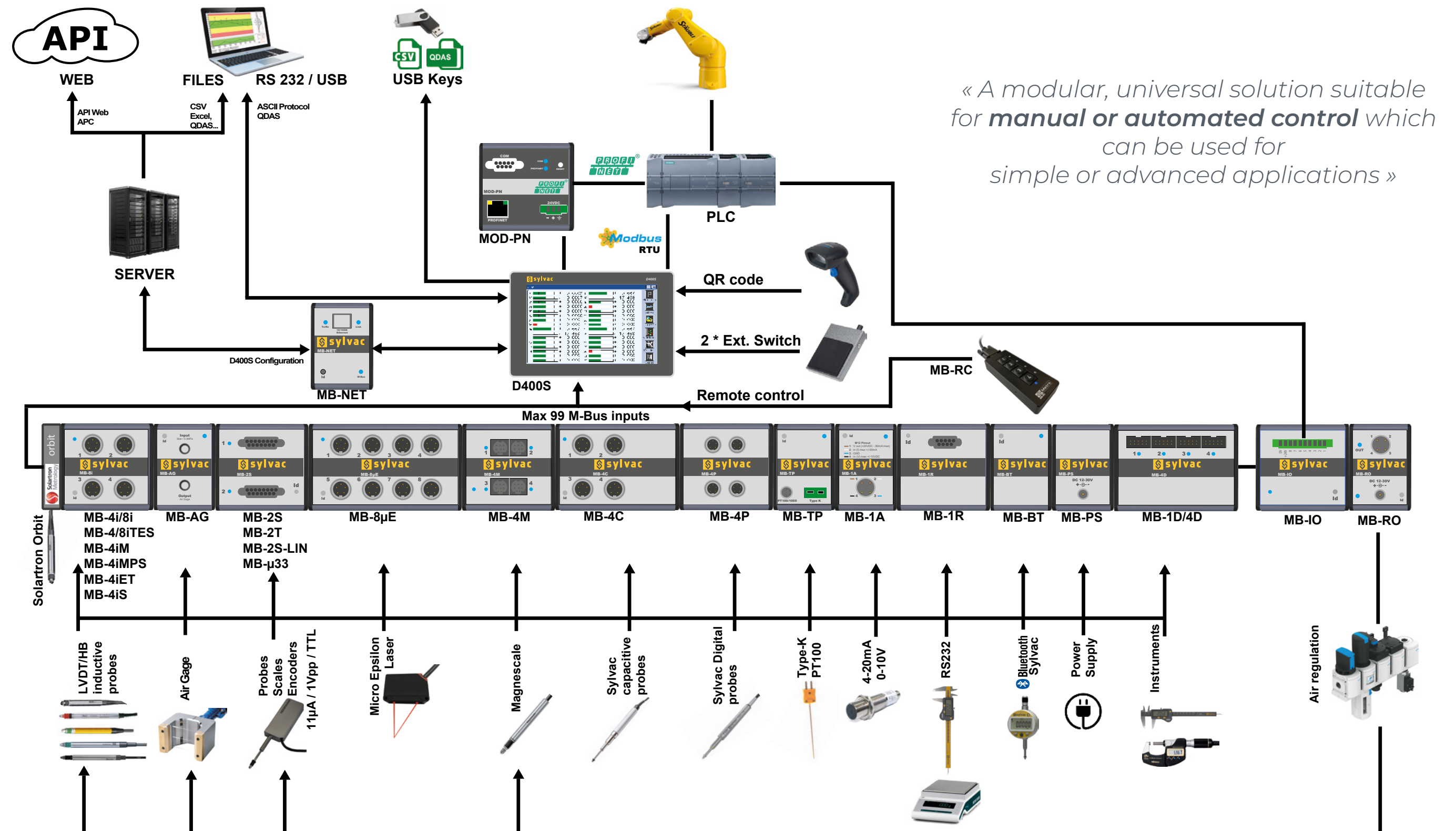
## Communicate

- To a PLC with MODBUS RTU, Profinet or inputs/outputs.
- To a computer via USB, RS232, network
- To WEB applications such as SPC or APC

## Improve!

The quality of your production :

- Reduce the risk of error
- Automate your measurements
- Make the most of your measuring data



Some of these modules are only available on special request.

# Solutions for automation

The display D400S offers a wide range of options for integrating or building automated systems.

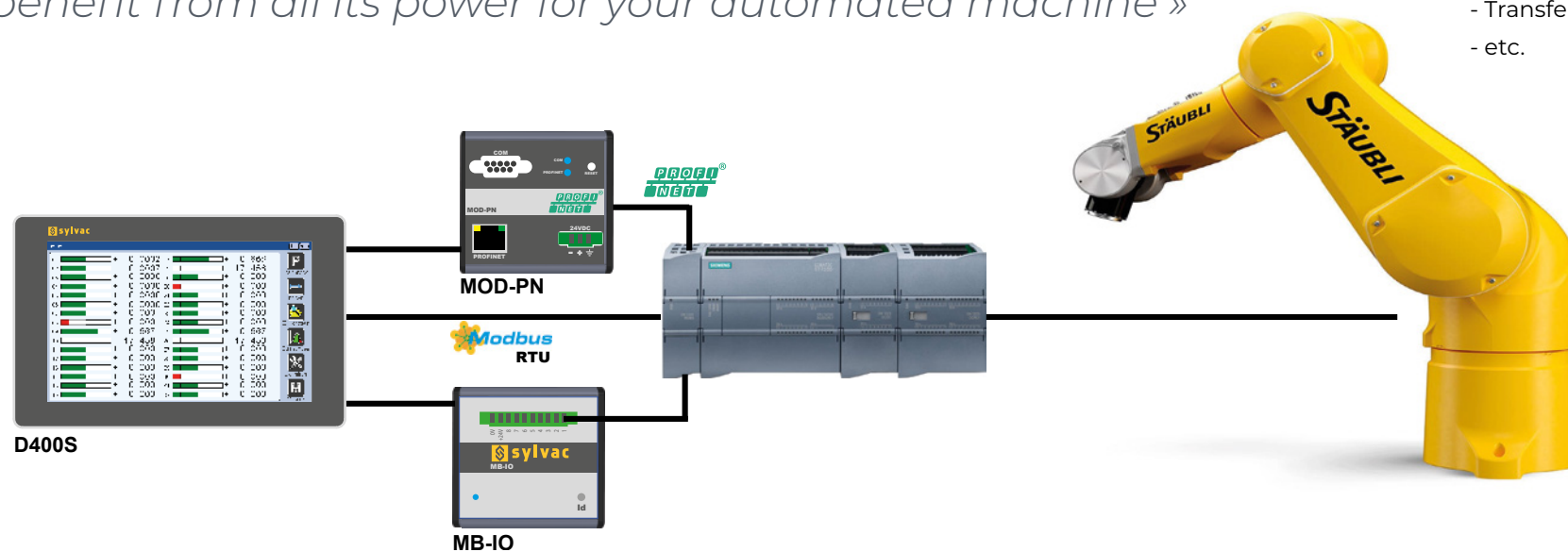
**Inputs  
Outputs**

**Script**

**Modbus  
RTU**

**Profinet**

« Let the display D400S handle your measurement tasks and benefit from all its power for your automated machine »

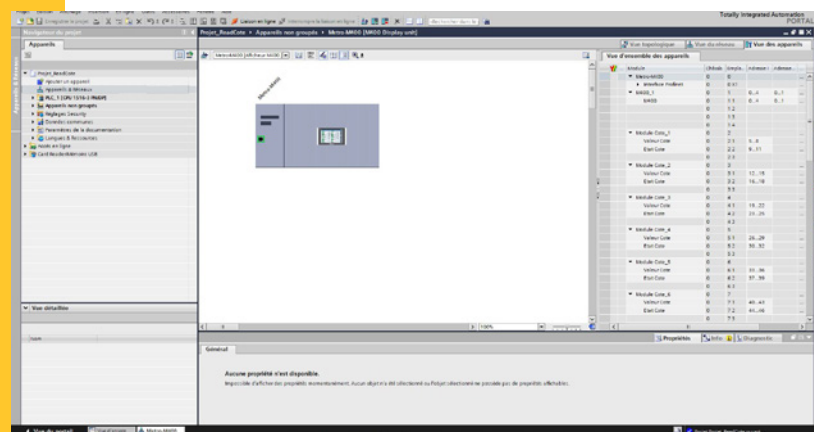


## MOD-PN - A certified Profinet module (on request)

The display D400S can communicate in Profinet via a MOD-PN module. This module has obtained official certification guaranteeing a high level of performance and reliability.

The MOD-PN is supplied with a GSDML allowing the display D400S to be programmed directly from official Siemens tools such as TIA portal.

The display D400S is then fully controllable from a compatible PLC: editing of tolerances, calibration, live measurement values, program changes, etc.



The display D400S is also directly compatible with the



## Panel mounting for perfect integration

The display D400S can be supplied with a swivel base or can be integrated into a panel. The M-BUS modules are mounted on a DIN rail.



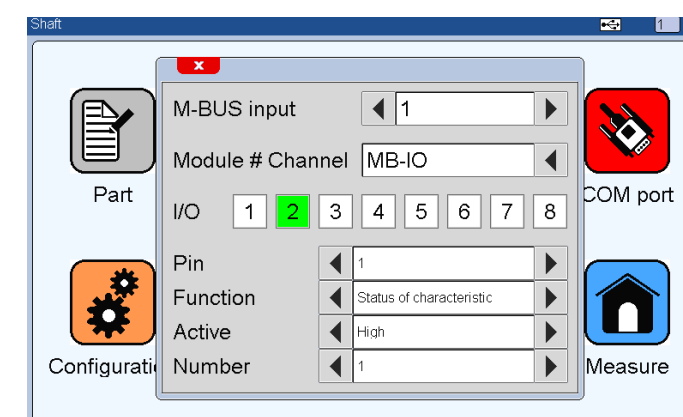
## MB-IO Module

Thanks to its 8 optocoupler-isolated inputs/outputs, the MB-IO module can be used to interface automation devices to the display D400S. Up to 4 MB-IOs, i.e. 32 inputs/outputs can be managed.

Each terminal can be easily configured as an input or output from the touch screen interface.

Simply select a terminal and assign it one of the thirty + functions available, for example:

- Calibration
- Good / bad part
- Transfer
- etc.



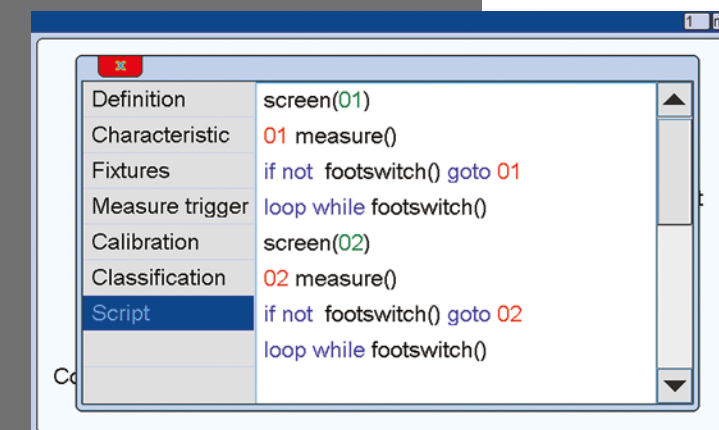
## Do you have a semi-automated application? Use the built-in VB script editor

The display D400S includes a VB-script like editor for automating your workstation via MB-IO modules.

Display messages, control actuators and presence sensors, and transfer measurements.

The script can be written using the «Display Manager» PC software.

Simple applications no longer require a PLC!



« Sylvac can help you  
in producing your script »

# Sequential mode

For manual measurement applications, the display D400S features a sequence editing mode that makes it simple and intuitive to define the operating mode of an inspection. It's a **graphical script** that lets you define the steps that will guide the operator through the inspection. Sequence mode offers a multitude of possibilities for very simple or more elaborate applications, with **incredible ease of use**.

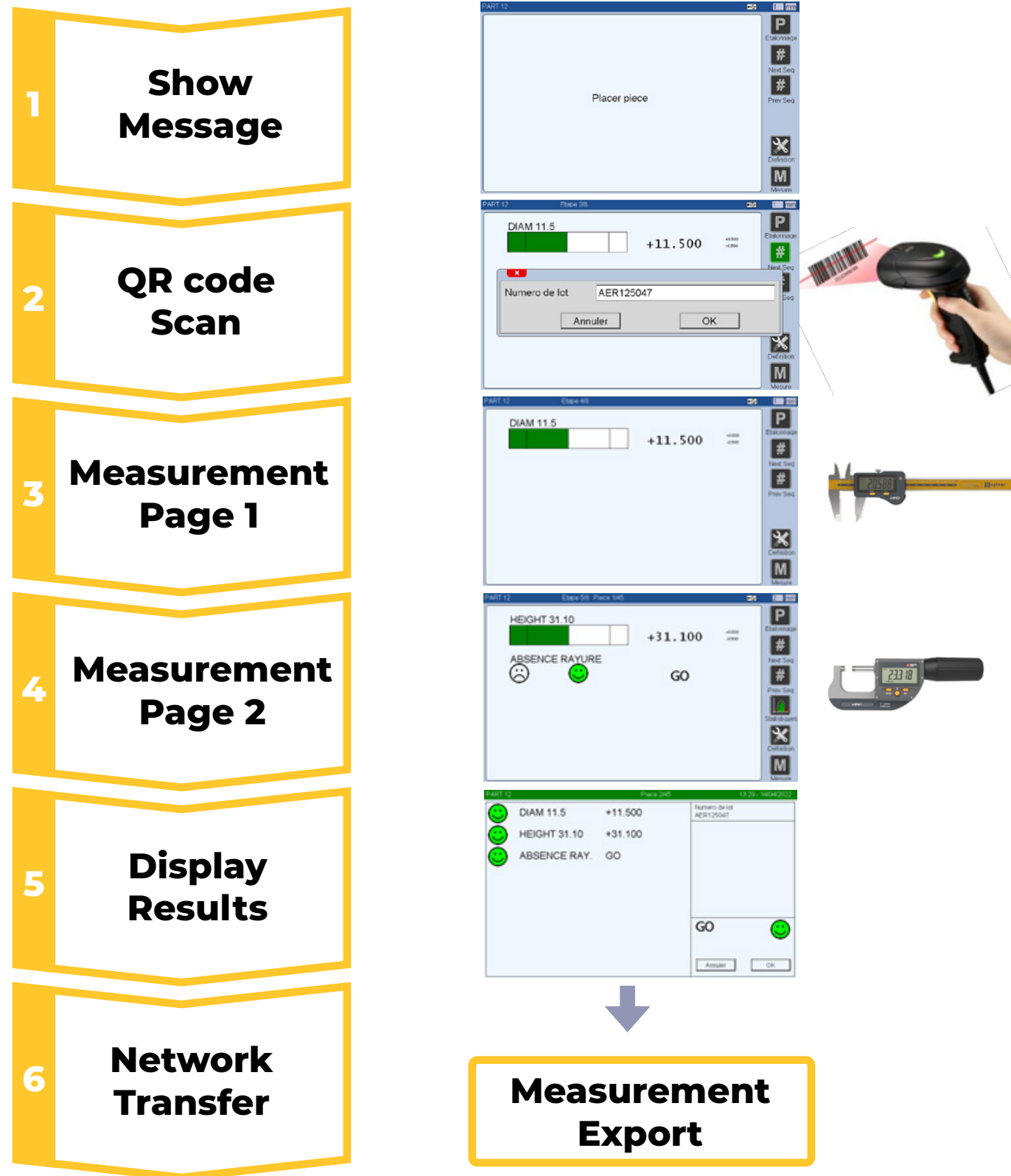
## Configuration part

Simply select actions from a list and place them in the desired order to completely customise the measurement process.

Features are predefined in an editor that allows you to select the instrument, define tolerances, preset values, etc., with just a few clicks.

The sequence editor offers great flexibility, allowing to create loops and conditional steps, define the type of export, control the output of pneumatic pushed LVDTs, switch on the air for air gages and display statistics.

« For your manual shop floor dimensionnal controls, the display D400S allows you to centralise your different instruments and gives rigour to your control plan. »



## Display part

Once the display D400S has been configured, the operator simply needs to follow the on-screen instructions.

### A solution with many advantages:

- Limited risk of error
- Rigour in following an inspection plan
- Centralisation of a multitude of measuring tools on a single screen
- A simple, consistent graphical interface that can be handled by any operator
- Export of measurements, with local statistical processing if required
- The PC at the workstation becomes optional
- No risk of viruses or computer attacks linked to the connection of the display D400S to your network, as it is not a PC



# Application examples

## Medical

### Manual cone measuring station on a hip prosthesis.

The control assembly consists of a pneumatic ring with 24 independent measuring points, spread over 3 altitudes.

The display D400S measurement sequence requires the operator to enter information using a QR-code reader, such as batch number, name, drawing number, etc.

- Direct measurement of diameters at 3 altitudes using MB-AG modules for air gage,
- Calculation of the circularity at each altitude, the taper angle and the theoretical diameter at the gauge plane.
- Acquisition of a roughness value from a Mitutoyo device connected via the MB-1R M-BUS module

The measurements and data acquired are then compiled into a final report in the customer's format and stored on the customer's server. Files are automatically archived and reports printed at the end of each batch. Calibrations are also integrated into the traceability system.

Finally, we control the air regulator by reducing the pressure by a factor of 10 when the ring is not measuring, to save air (and therefore electricity) and limit noise. We do not cut off the air completely to maintain a constant temperature for the measuring tool.

## Measure

- Diameters and heights

## Calculate

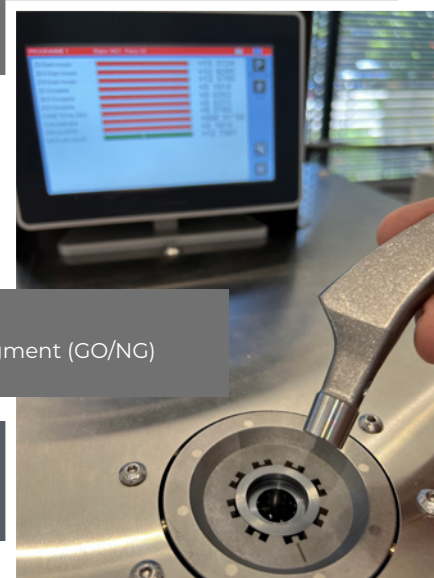
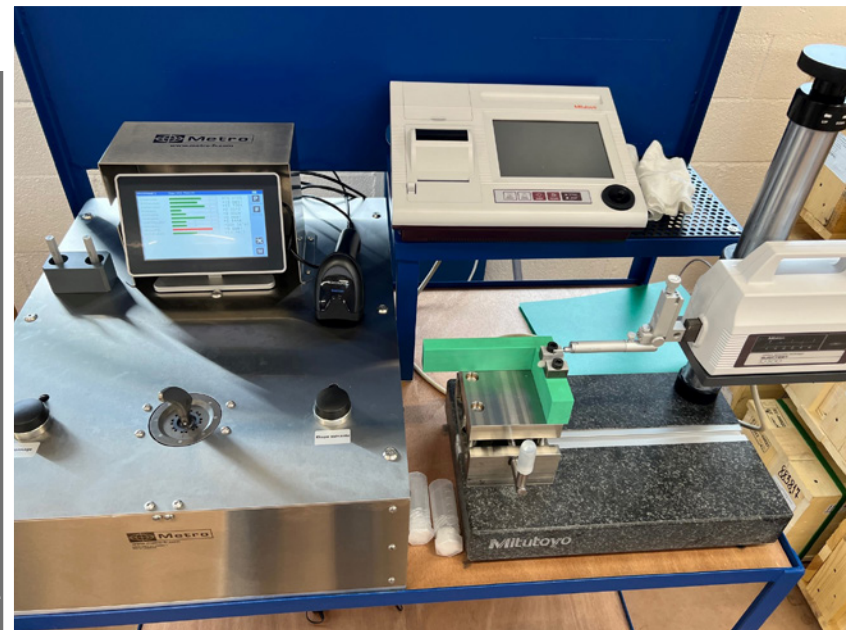
- Taper angle, circularity

## Acquire

- Roughness, attributive judgment (GO/NG)
- Production information

## Traceability

- Creation and printing of measurement files on the network in client format
- Calibration traceability



## Automation

**Automated sorting machine.** Here, the display D400S measures 9 precision inside diameters using 2 multi-levels air gages, and heights using LVDTs on 5 separate stations.

### The display D400S allows to :

- calculate characteristics according to their tolerances, including dynamic characteristics (form faults)
- calibration of pneumatic buffers
- simple, live statistics display
- simple, intuitive interface for sensor settings and machine set-up
- a very simple data transfer system using keyboard emulation (no driver required), enabling measurement tests (GAGE R&R for instance) to be carried out very simply while the machine is being set up.

Profinet communication is provided to the machine's main PLC.

The main PLC thus completely outsources the measurement task to the display D400S.

The MOD-PN (the display D400S's Profinet module) is certified by Profibus International, guaranteeing maximum performance.



| <b>D400S and accessories</b>  | <b>REF</b> |
|---|------------|
| D400S Display   | 804-2400   |
| Bracket for panel mounting  | 804-2202   |
| Optional rear kit for mounting M-Bus modules (eliminates the need for an M-Bus cable) | 804-2210   |
| Pedal with jack   | 804-4101   |
| Table button with jack  | 804-4103   |
| M12 male/female cable, length 1m for MB-RO  | 804-2211   |
| Cable RS232 9pM - 9pF (D400S-M-Bus), length 1m  | 925-5606   |
| <b>Measurement acquisition modules</b>  | <b>REF</b> |
| M-BUS module MB-4C with 4 Sylvac capacitive probe input                               | 804-2104   |
| M-BUS module MB-4P with 4 Sylvac P12D probe input                                     | 804-2105   |
| M-BUS module FMB-4i with 4 inductive probe input (fast version)                       | 804-2107   |
| M-BUS module MB-8i with 8 inductive probe input                                       | 804-2108   |
| M-BUS module MB-1D with 1 Mitutoyo Digimatic input                                    | 804-2111   |
| M-BUS module MB-4D with 4 Mitutoyo Digimatic input                                    | 804-2114   |
| M-BUS module with 2 probes 1Vpp input   | 804-2122   |
| M-BUS module with 1 analogue input  | 804-2123   |
| Gateway profibus  | 804-2124   |
| M-BUS module MB-I/O with 8 input/output   | 804-2130   |
| M-BUS module MB-NET for connection to server  | 804-2132   |
| M-BUS module MB-RO with 1 output relay  | 804-2133   |
| M-BUS module MB-1R with 1 entry RS232   | 804-2134   |
| M-BUS module MB-PS power  | 804-2140   |
| M-BUS master module MB-RS for communication with PC                                   | 804-2160   |
| M-BUS module MB-TP, temperature   | 804-2170   |
| M-BUS module MB-BT for the connection of 8 Sylvac BT Smart instruments                | 804-2180   |
| M-BUS module MB-AG for air gages  | 804-2190   |
| <b>Air gaging accessories</b>   | <b>REF</b> |
| Standard air preparation kit  | 804-2203   |
| Air preparation kit for air gages with energy saving set                              | 804-2212   |
| Air preparation kit for the lifting of inductive pneumatic probes                     | 804-2213   |



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