



# M1-M3

Industrial display units for dimensionnal measurement with 1 or 2 channels

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*Manufacturer of precision measuring devices since 1986*

M1 and M3 displays are designed to make various dimensional controls from 1 or 2 measuring input, including:

- Half bridge or LVDT Inductive probes from Metro (example M804S), Tesa (example GT21), Mahr (example P2004M), etc.
- Air gages. Multi-brand compatible (PFL, Etamic, Mahr etc.)
- Incremental probes from Heidenhain (example MT12), Magnescale (example DK812) or Mitutoyo (LG)
- Linear scales and encoders TTL, 1 Vpp or 11µA
- Capacitive probes from Sylvac (example P25) - available from the Sylvac sales network
- Laser triangulation sensors from Micro Epsilon (type OptoNCDT)

Depending on the application, it is possible to connect:

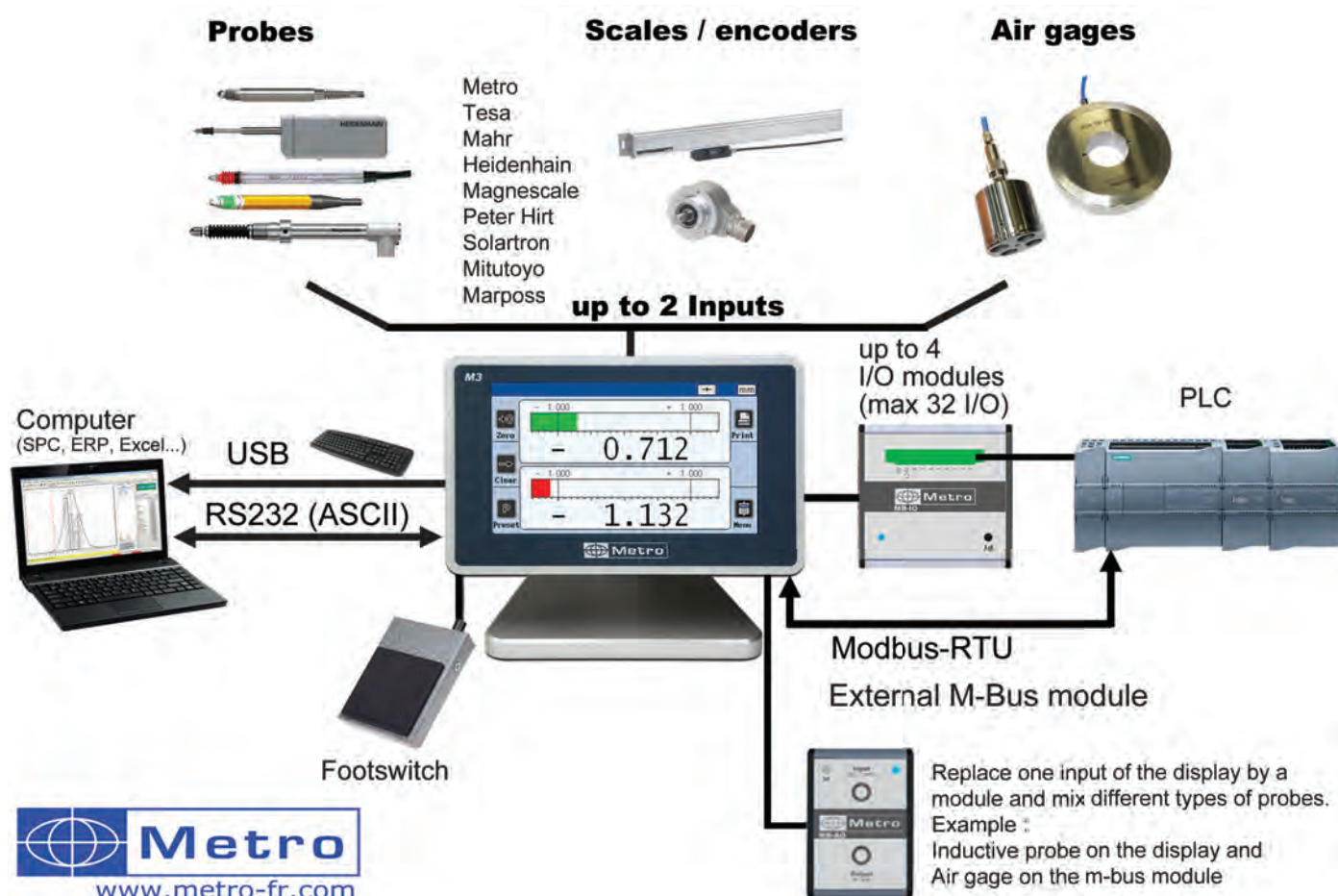
- 1 module with 8 inputs/outputs isolated by optocouplers (ref MB-IO)
- 1 module with relay outputs for new installations or retrofit of old Metro Monocote displays fitted with the relay board. (ref MB-RL)
- 1 module for temperature compensation, with the possibility to connect either a PT100 sensor or a Type K thermocouple (ref MB-TP)

The M3 can be used on the simplest manual application up to the most complex ones in fully automated machines. These display units are extremely easy to use and to program with a user friendly interface and intuitive measuring principle.

The robust construction make these displays usable on the most severe industrial environment.

The new versions allows now to connect a USB stick to save the measurement data and to export them to the network through the new module COM-PC.

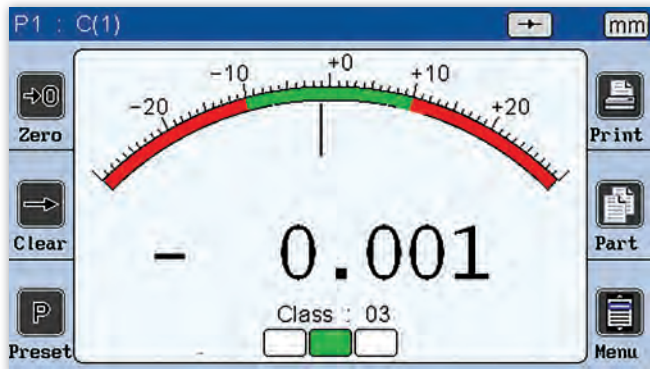
It is also possible to use a QR-code reader to input manufacturing order numbers or to configure the entire unit.



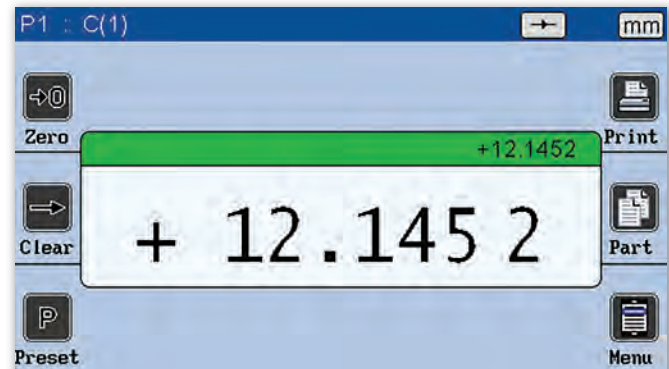
## GRAPHICAL INTERFACE WITH TOUCH SCREEN DISPLAY

The M1 and M3 are fitted with 4"3 (~11 cm) touch screen displays.

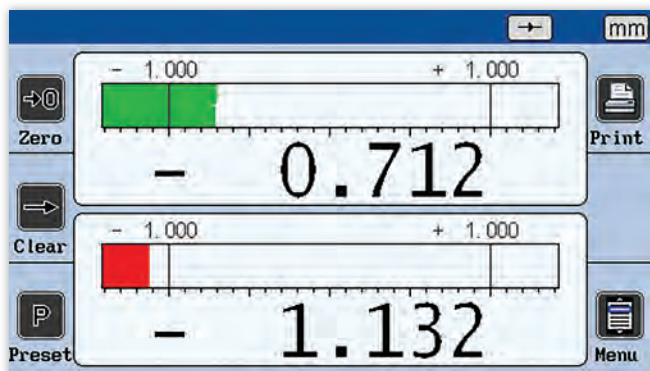
The measurements can be displayed with different types of bargraphs and needle indicators. Depending on the display, 1 or 2 characteristics can be displayed simultaneously.



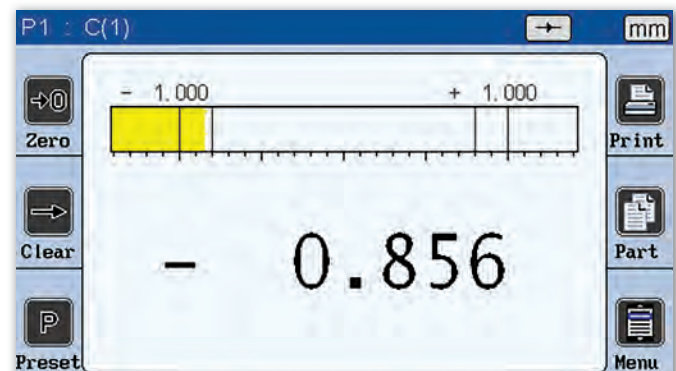
*Analogue display type with classes indication*



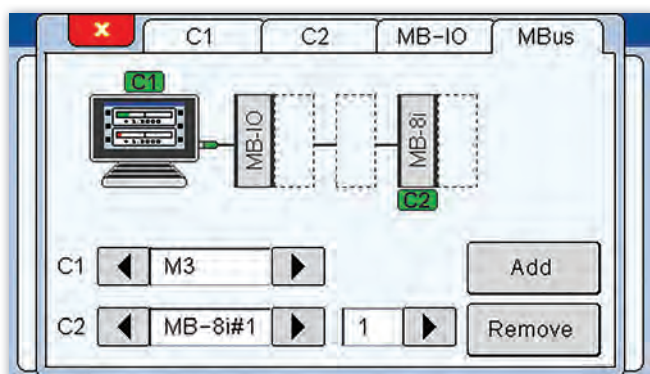
*Value only with direct access to preset value modification*



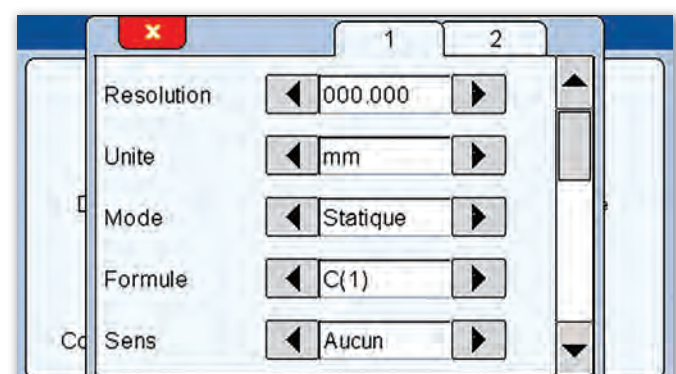
*Double characteristic display - M3 only*



*Display with warning indication*



*Configuration windows example*



*Configuration window example*

The M1, M3 are running on our own operating system (not on Windows CE or similar).

This feature allows to have high performances in terms of display, continuity of the hardware, absence of software license and absence of virus risk.



## OPTIONAL I/O MODULE

The optional MB-IO module is fitted with 8 inputs / outputs isolated by optocouplers. Max 4\*MB-IO modules can be connected on a M1/M3 display.

A visual interface allows to easily assign each pin of the module to a function on a list:

- Output for Part 1 / 2 OK or NOK
- Input for preset
- Input to trigger the measurement transfert
- Input to start a dynamic measurement
- Output for classes
- etc.



*MB-IO management windows*

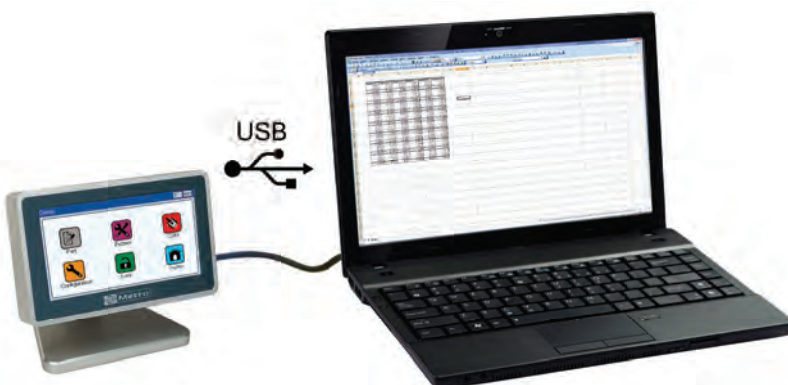
## DATA EXPORT (USB STICK AND NETWORK VISIBILITY)



This is possible to save measurements on a USB stick, or to the network. A CSV file is then available and can be used with excel or other.

The USB connector allows also to connect the new COM-PC module, which makes the M3 visible as a network drive from your network. Therefore the measurement files generated from the different M3 displays of the factory are available from a central computer.

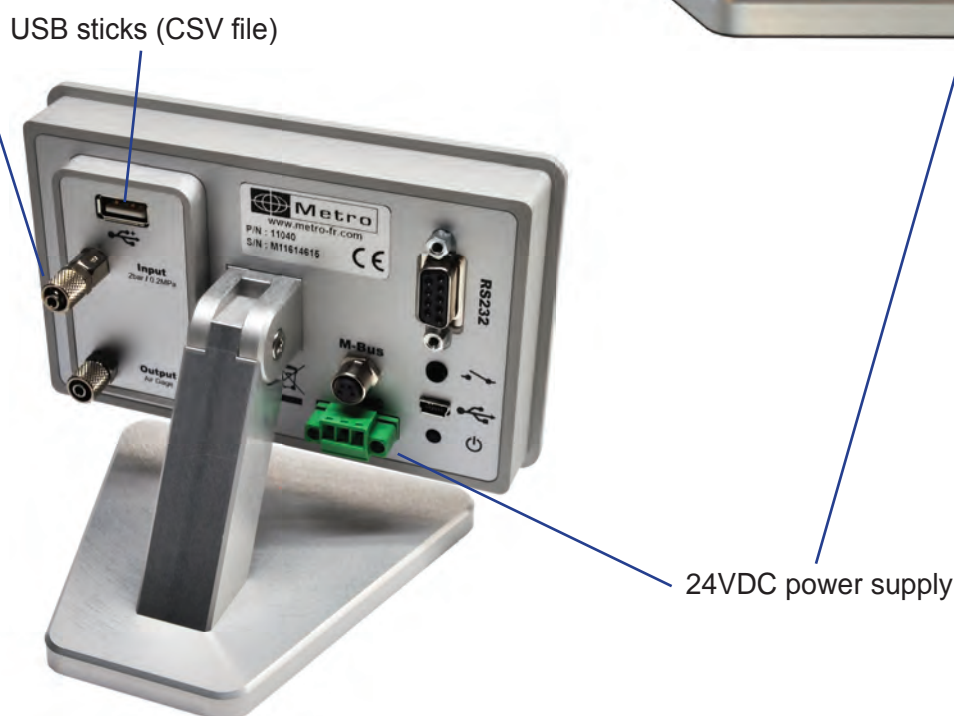
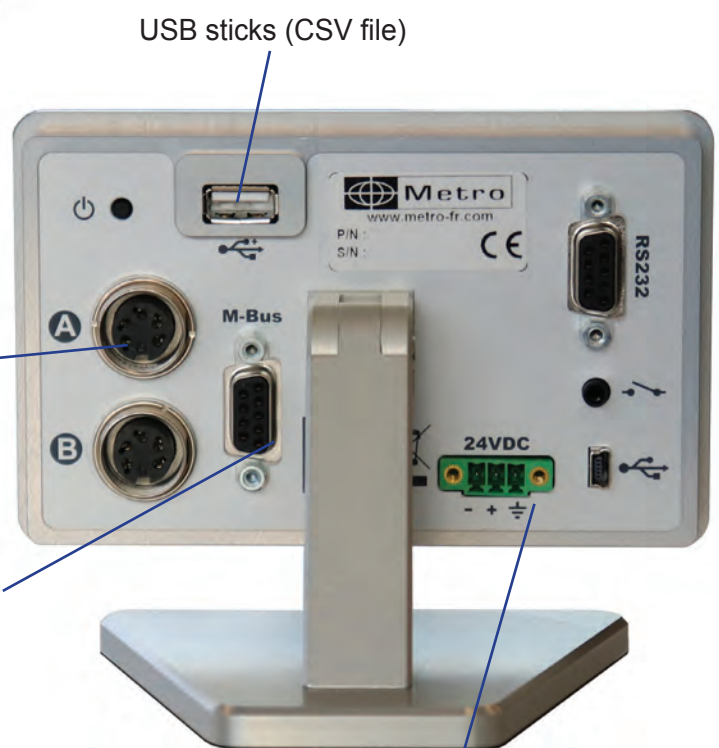
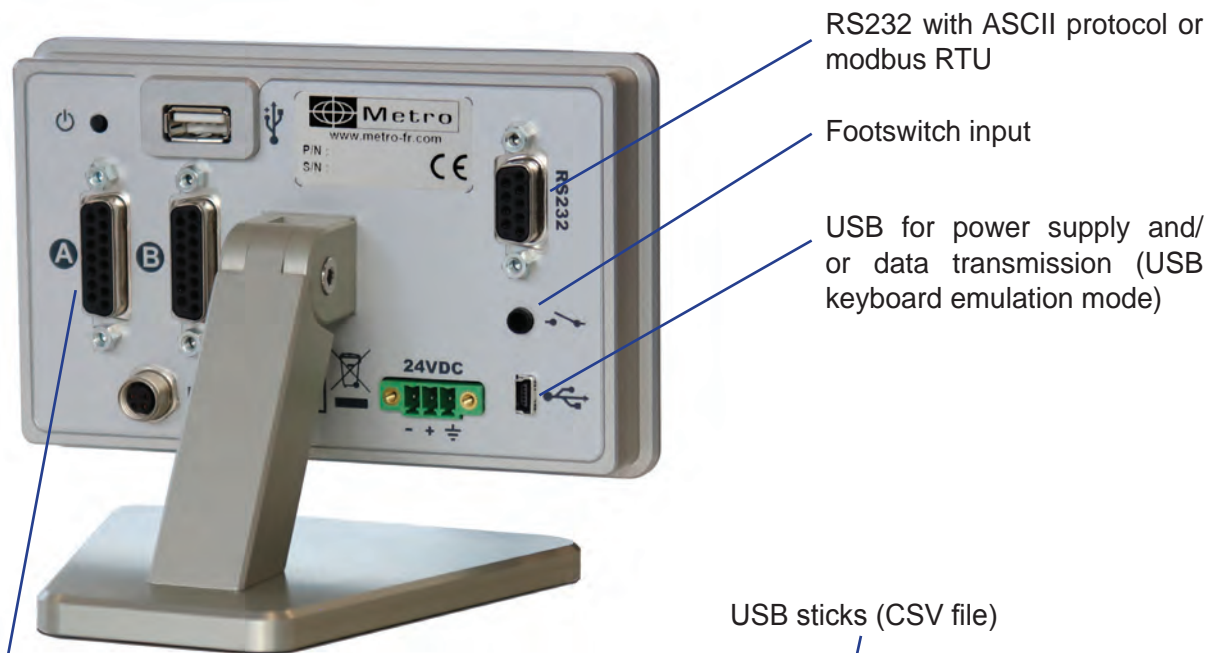
## USB KEYBOARD EMULATION FOR DATA TRANSMISSION



The M1 and M3 hardware are configured as a USB keyboard. When the displays are connected to a computer with USB, it is automatically detected as an additional keyboard.

When the operator transfers the measurement, the values appears on the PC like if they would have been typed with a keyboard. Works everywhere (Excel, SPC softwares, ERP, etc.) on any operating system (Windows, Linux...). No need to Install a special software or any specific driver.

CONNECTION FACILITIES



## QR CODE COMPATIBILITY

A barcode / QR-code reader can be plugged into the M1 and M3 displays.



2 functions are then available :

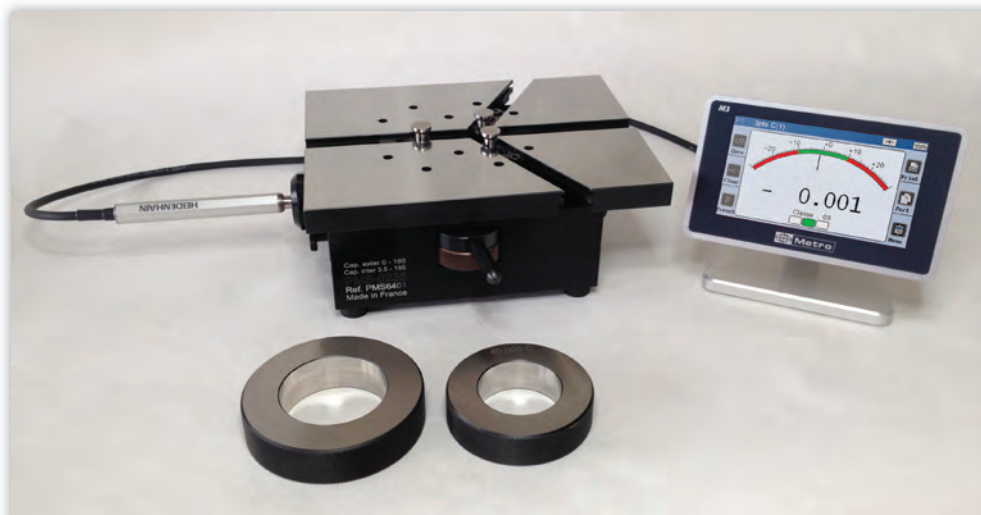
- **Data input :** Possible to scan a manufacturing order number. The CSV file generated will be named according to the manufacturing order number scanned.
- **Display configuration :** The entire display configuration can be encoded on a QR code (tolerance, master values, characteristics names display style etc). It allows to reconfigure in 1s the display when changing the part or the gage.

## APPLICATION EXAMPLES



Communication between a M3 display and a Proface PLC with the Modbus RTU protocol. The HMI from Proface has been programmed with different buttons and indicators allowing to control and bring back informations from the M3.

In the case of connection with an automated machine, the M3 manages the measuring tasks (tolerances, mastering, probe combination...), and the PLC just reads the measurement result.



### 3 points diameter measurement

The M3 has a special measuring mode for 3 points tables, taking into account the tip diameter. The operator can then easily read the part diameter (internal or external), and / or rotate the part to get the TIR (Max-Min).



## APPLICATION EXAMPLES



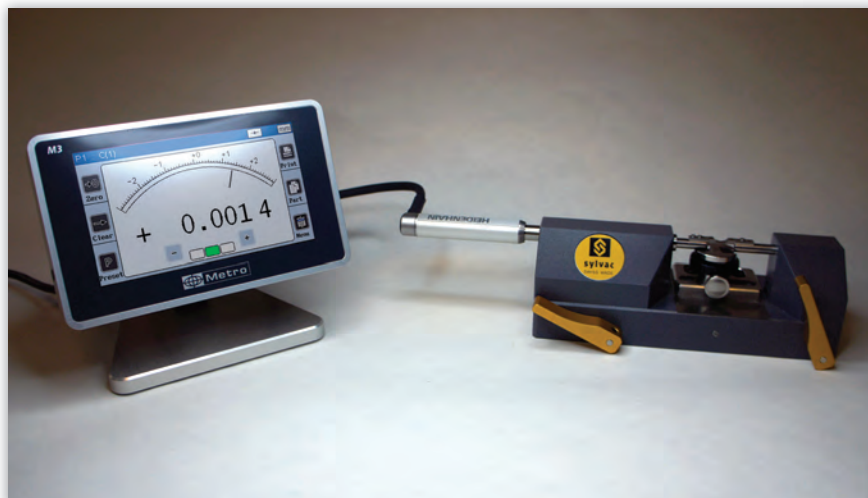
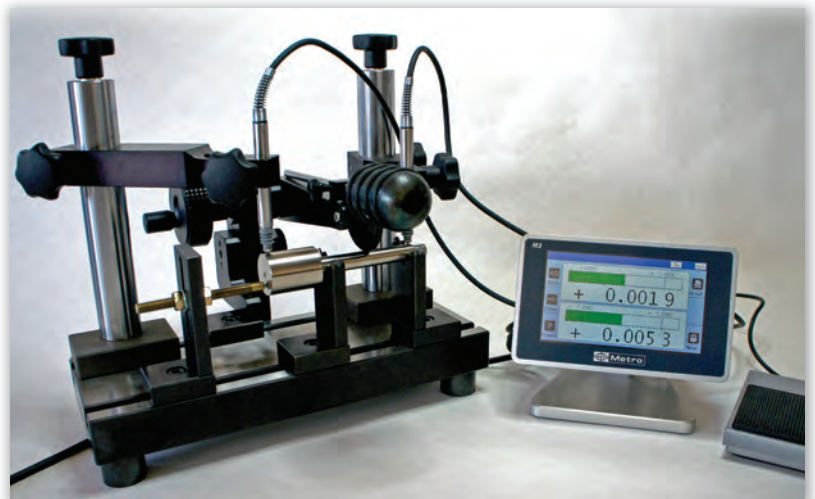
16N7 Internal diameter measurement on a air plug gage directly connected on a M3 display

**The M1/M3 for air gages are compatible with all the air gages available on the market, but we can also supply full solution including electronic and air gage according to your drawing.**

Retrofit of a gauging fixture that was mounted with needle indicators on a 100 % sorting working place :

TIR (Max-Min) measurement on 2 points of a cylindrical part. Start measurement with a footswitch.

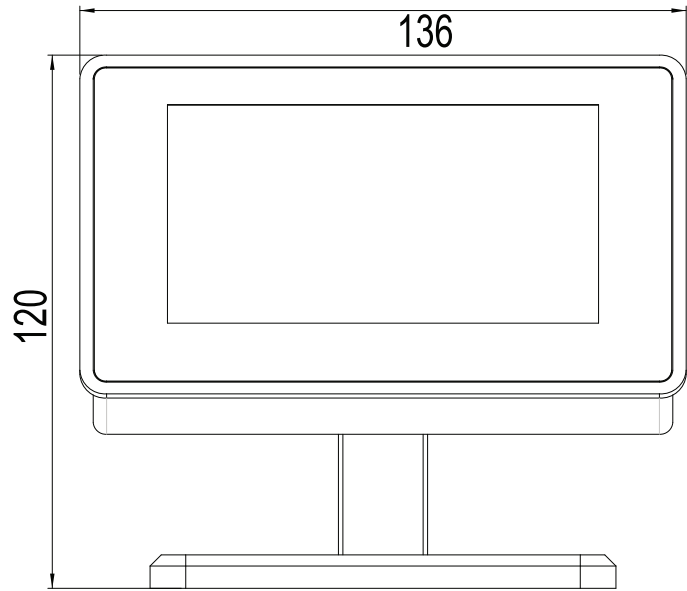
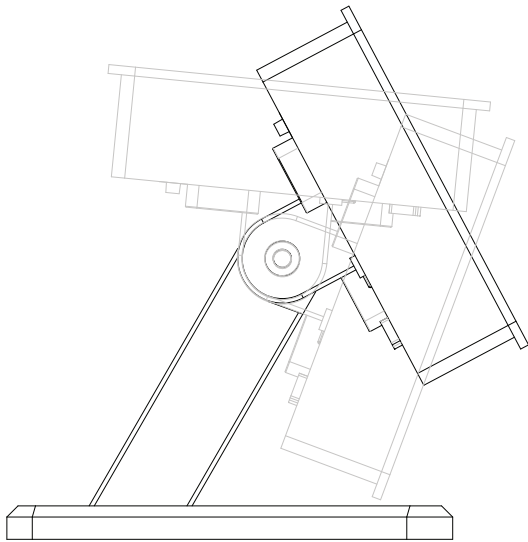
Customer benefit: Accuracy increased, instantaneous reading of the 2 characteristics without the risk of wrong reading of the needles. Measurement transmission to a central SPC/ERP software. Significant time saved on this control place.



Measurement of very small watch parts. Here the M3 is connected with a Heidenhain SPECTO probe, mounted on a Sylvac PS 15 measuring bench.

Metro displays are not only compatible with the entire Heidenhain's range of probes and scales (Certo, MT12, MT25, MT101, Specto...) but it offers a great flexibility and a wide panel of functions with a user friendly interface.

## DIMENSIONS



## REFERENCES

Reference	M1	M3
Display with 1 input for air gage (compatible with all brands of air gage)	11 040	X
Display with 2 inputs for air gage (compatible with all brands of air gage)	X	13040
Display with 2 inputs for Metro inductive probes	X	13010
Display with 2 inputs for Tesa compatible inductive probes	X	1301T
Display with 2 inputs for Mahr inductive probes	X	1301M
Display with 2 inputs for Heidenhain probes with 11µA or 1 Vss output (subd-15)	X	13020
Display with 2 inputs for encoder/scale TTL with Heidenhain subd 15 pinout. Allows to connect the Magnescale DK and Mitutoyo LG with an adapter.	X	13000
Display with 2 inputs for laser triangulation sensors from MicroEpsilon type OptoNCDT	X	13030
Optionnal module MB-IO (input/output TOR) including connection cable	X	MB-IO
Optionnal module MB-RL including connection cable	X	MB-RL
Optionnal module MB-TP (temperature compensation) for M3 only, including connection cable	X	MB-TP
Footswitch	18 020	
Adapter for Magnescale probes on M3 TTL	24 062	
Rs232 communication cable	24 060	
QR Code reader	ACS-AFF-003	
Ethernet communication module	COM-PC	
Adapter for Heidenhain M23 / 11µA connector	84 100	
Air preparation (including filter+ regulator) for M1/M3 air gage	ACS-PNE-003	
Optionnal accessory for panel mouting	ACS-AFF-001	
Digimatic cable between M1/M3 and Metro Mux	18 193	
RS232 to USB communication cable for M1/M3/M400	45 173	



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