

  
**EMÍLIO DE AZEVEDO CAMPOS, S.A.**  
 METROLOGIA INDUSTRIAL

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Produtos e Tecnologia - Soluções - Serviços - Assistência Técnica - Calibrações

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Measurements Data  
Transmission



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Innovation:  
Two new systems



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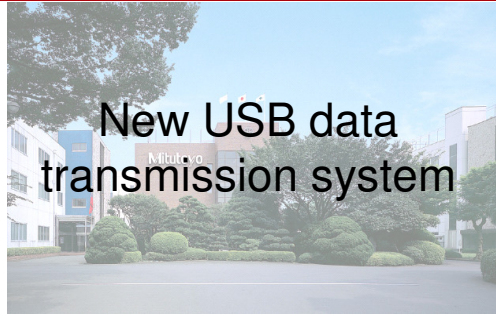
Data transmission:

- USB interface
- Wireless connection





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New USB data  
transmission system



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USB- Input Tool

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current situation:  
USB Input Tool

future situation:  
USB Input Tool  
7 different models

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Signal cable with USB- Connector

Software USB- ITPAK with Dongle

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7 different connecting cables for different type of measurement instruments

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Direct connection of more than one USB Input tool via one standard USB- Hub and Mitutoyo Software USB- ITPAK

Part Name	Part No.	Spec. Part No.	Material	Lot No.	Inspected Date	Inspected By	Inspected	Failed
1. Part	100	100	100	100	10/10/10	100	Pass	
2. Part	100	100	100	100	10/10/10	100	Pass	
3. Part	100	100	100	100	10/10/10	100	Pass	
4. Part	100	100	100	100	10/10/10	100	Pass	
5. Part	100	100	100	100	10/10/10	100	Pass	
6. Part	100	100	100	100	10/10/10	100	Pass	
7. Part	100	100	100	100	10/10/10	100	Pass	
8. Part	100	100	100	100	10/10/10	100	Pass	
9. Part	100	100	100	100	10/10/10	100	Pass	
10. Part	100	100	100	100	10/10/10	100	Pass	

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Data transfer for Multi- gage System

**Data request**  
On pressing the foot switch, the data request command will be send to the four gages.

**Data cancel (undo)**  
On pressing the foot switch, the previous data of the four gages are canceled.

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Advantage of the new USB Connecting System

Situation 1: just the USB Input Tool cable is requested

**Application:**  
Any Software ready for keyboard input at the cursor position.

**Software USB ITPAK:**  
not required

**Data format:**  
Keyboard format. Possible to connect one or more measuring tools via USB cable (HID= Human Interface Device) to a PC.

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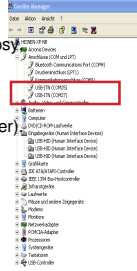

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Situation 2: USB Input Tool cable and the Mitutoyo Software USB IT PAK is required

**Application:**  
Standard SPC Software as for example QS-Stat, CAT, Quipsy MeasurLink a.s.o.

**USB ITPAK:**  
generates a fixed virtual COM Port with identification no. for each connected cable (USB IT PAK includes USB VCP Driver)  
The main functionality of USB IT PAK Software itself is inactive (not actuated).

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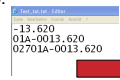

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Situation 3: USB Input Tool cable is required as well as the whole functionality of USB-ITPAK

**Application:**  
Any Software applications requesting a keyboard format . e.g. Excel, Word, Power Point, .txt Format a.s.o.

**USB ITPAK:**

- generates the virtual COM Port (VCP)
- termination character can be selected
- selection from connected USB Input Tool cables to be used
- even a footswitch operation can be selected
- stores the defined conditions as a „part program“

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Situation 4: USB Input Tool cable is required as well as the whole functionality of USB IT PAK

**USB ITPAK:**

- generates the virtual COM Port.
- arranges the whole cell control of the Excel sheet and Excel file including the start and end command of the measuring task.
- selection from different connected USB Input Tool cables to be used.
- even a footswitch operation can be selected.
- stores the defined conditions as a „part program“.
- is able to run automatically the stored „part program“ repeatedly.
- the part manager screen will start Excel automatically and provides the possibility to store the measured data automatically in Excel.
- the function key 's F1- F8 can be programmed freely as data trigger, data delete or skip data.

**Data format:**  
The measuring data in a keyboard format or a character string of up to 31 characters (e.g. free text)


**Application:**  
Excel

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U- Wave Wireless measurements transmission data for Digimatic instruments



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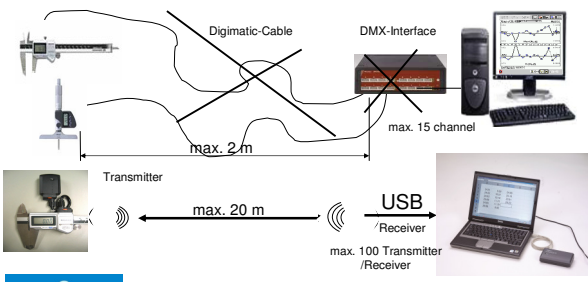
When makes sense the use of a wireless transmission system?

- When the use of cables is a risk for the operator
- When the use of cables is a risk for the measuring instrument
- When the measurements are performed in big dimension parts
- When a big measurement instrument is used
- When there are big distances between measuring instruments and a computer
- When it is necessary to use many measuring instruments for a task

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Free working movements with digimatic instruments



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Measurements Data Transmission

### Feedback through bi-directional data transmission

U-Wave Transmitter

U-Wave Receiver

Transmission confirmation  
Green: Measurement Received  
Red: Measurement not Received

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### Feedback through bi-directional data transmission

When Measuring big parts Measurement data can be in real time evaluated in a pocket PC

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### Components

Transmitter

Measuring Instrument

Software for exemple Microsoft Excel

U-Wave Pak

Receiver

24.81	8.06	24.00
24.85	10.87	25.16
24.82	10.02	24.99
25.00	11.24	25.11
24.80	11.29	25.22
25.00	8.92	

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### Special system for IP67 measuring instruments

Sound effect: Measurement received **Beep Beep**

Measurement not received **Beep**

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# Thank You

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- ISO 13485 - Certificação de Competência em Laboratório de Metrologia
- ISO 15189 - Certificação de Competência em Laboratório de Metrologia
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