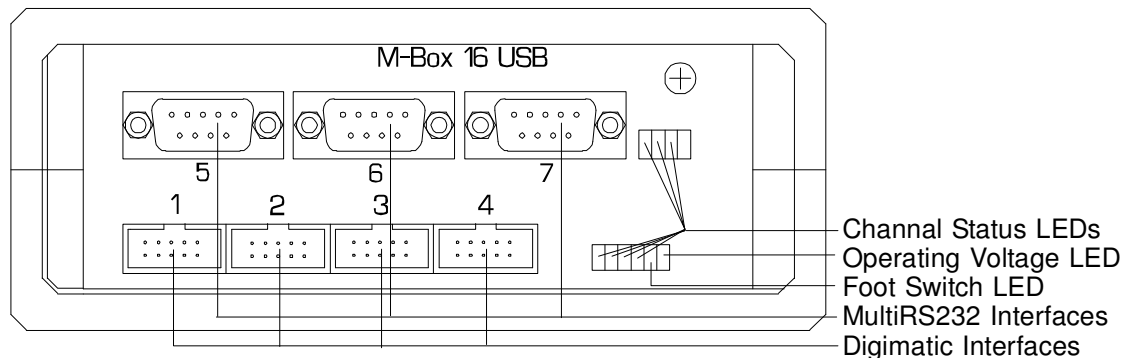


# M-Box xx USB Operating Instructions

## M-Box xx USB

e.g. M-Box16 USB



### General Information:

The M-Box xx USB is an interface which allows you to connect several measuring devices at the same time to the USB interface of a PC.

The M-Box xx USB fulfils these tasks:

- Adapting the signal level of the measuring device to the requirements of the USB interface
- Converting the different measuring device signals into a uniform data format
- Communicating with the measuring device and PC (data transfer, channel selection etc.)
- The drivers provided allow your application software to address the M-Box xx USB via a virtual COM port (VCP).

### Measuring Device Interfaces:

The *M-Box 1 USB* has: 4x Mitutoyo Digimatic inputs

The *M-Box 2 USB* has: 8x Mitutoyo Digimatic inputs

The *M-Box 7 USB* has: 4x Mitutoyo Digimatic inputs

The *M-Box 8 USB* has: 4x Mitutoyo Digimatic inputs  
4x OptoRS232 inputs

The *M-Box 11 USB* has: 4x Mitutoyo Digimatic inputs  
2x MultiRS232 inputs (**measuring device selection via the rotary switch, see Measuring Device Configuration, section A/5**)

The *M-Box 16 USB* has: 4x Mitutoyo Digimatic inputs  
3x MultiRS232 inputs

The *M-Box 22 USB* has: 6x Mitutoyo Digimatic inputs  
2x MultiRS232 inputs

The *M-Box 23 USB* has: 6x Mitutoyo Digimatic inputs  
2x MultiRS232 inputs (**measuring device selection via the rotary switch, see Measuring Device Configuration, section A/5**)

For all others see section **C** on *Interfaces*.

### Front Connector:

Mitutoyo Digimatic 10 pin two-row pin strip

MultiRS232 9 pin SubD /pin strip

OptoRS232 4 pin round/pin strip

### Data Cable:

For the Mitutoyo Digimatic or OptoRS232 (SIMPLEX) interface you can use the original cable.

For the MultiRS232 interface you have to use customized **B0xxx** cables.

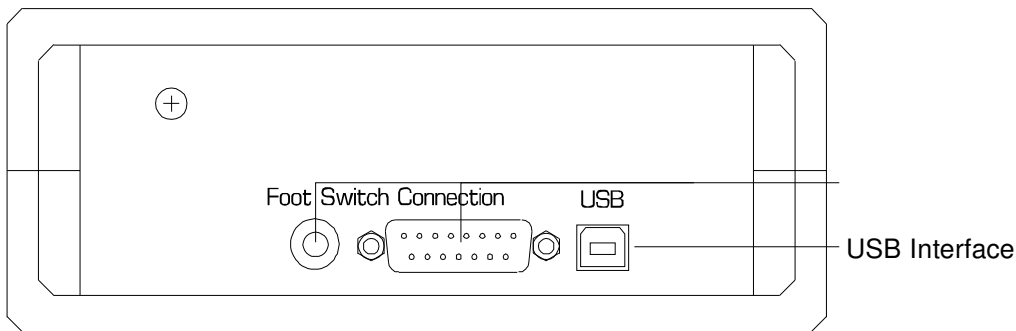
See section **C** on *Interfaces*.

### Caution:

Before you use the box for the first time, make sure that you read *First Operation of the M-Box xx USB*, section **B**.

## M-Box xx USB Operating Instructions

Back

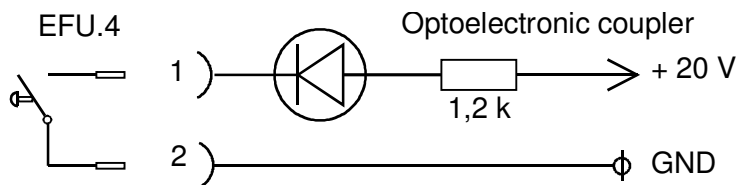


### Technical Data:

Host Interface (M-Box xx USB):

**VCP at USB, transfer parameters: 9600 baud, 8 data bits, 1 start bit, 1 stop bit, no parity.**

Foot Switch Interface (15 pins)



Foot Switch Connection Interface (jack plug)

937179T

Power Supply

via USB

Dimensions

Weight: approx. 665g

Height x Width x Depth: 65mm x 160mm x 205mm

### Caution:

Use the device only in dry rooms.

Always unplug the USB cable before you open the cover.

### Accessories:

Foot Switch EFU .4

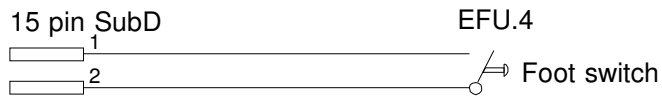
Foot Switch 937179T

USB Connection Cable USB cable

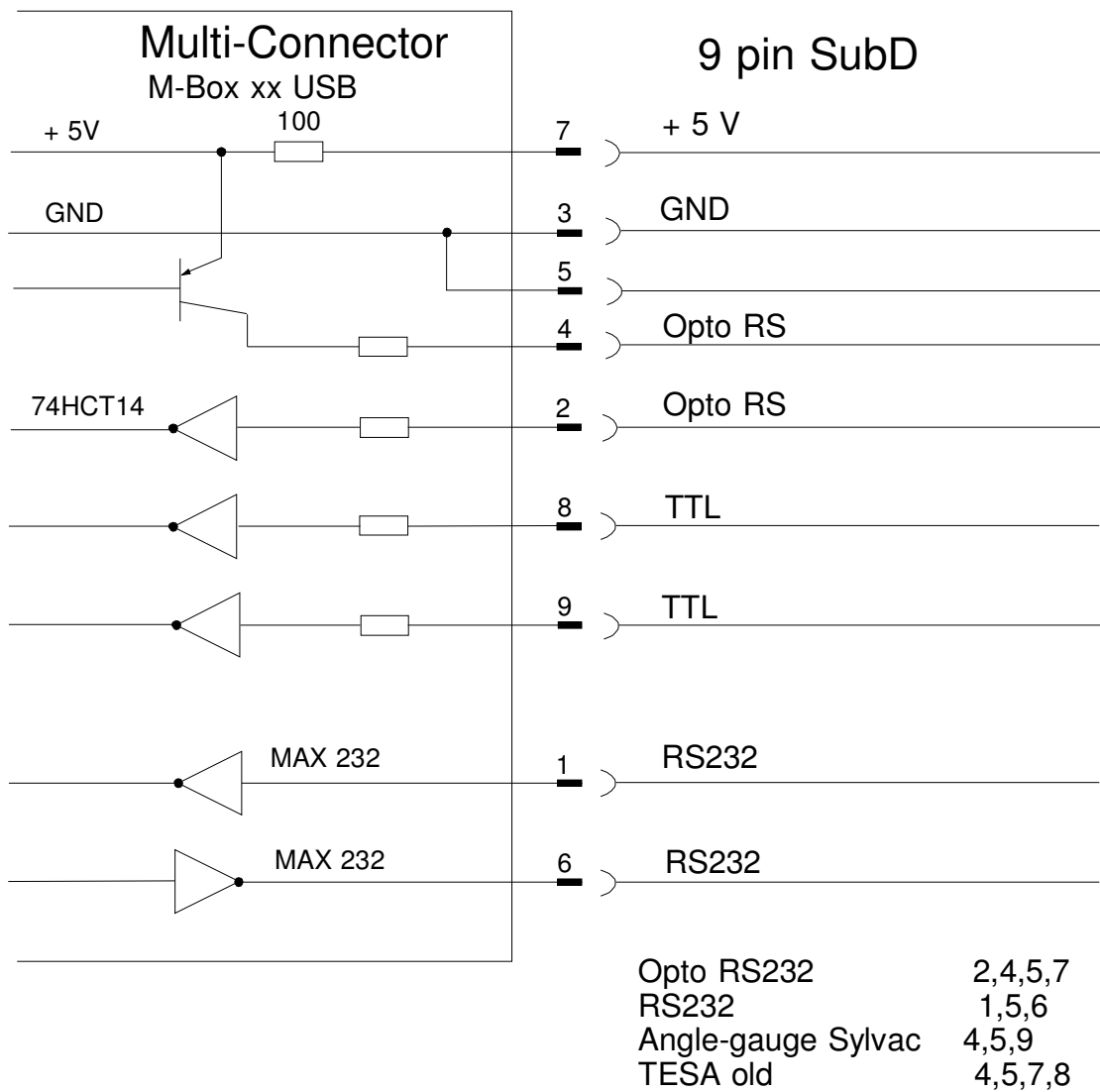
*For measuring device data cables and other accessories see the Accessories Price List.*

## M-Box xx USB Operating Instructions

### Foot Switch Pin Allocation:



### Connector Pin Allocation Plan for M-Box 11/16/22 and 23 with MultiRS232 Inputs:

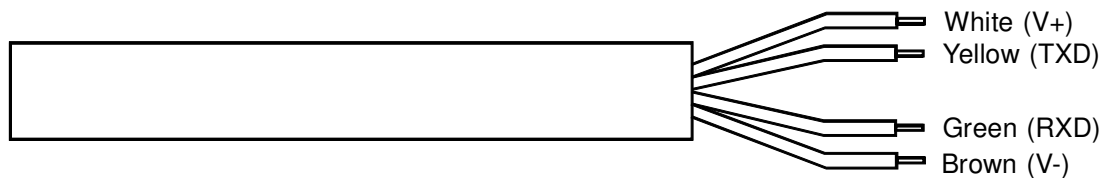


## M-Box xx USB Operating Instructions

### Connector Pin Allocation Plan for M-Box 7 and 8 USB with OptoRS232 Inputs:

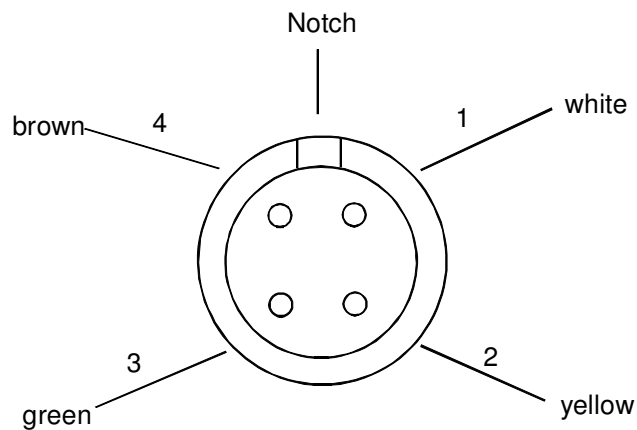
|                    |   |
|--------------------|---|
| Cable Allocation : | ESY2.4  |
| Cable :            | OptoRS232<br>Sylvac / Mahr / Helios / Preisser<br>Sylvac-No. 926.5522<br>CBL.Opto-RS/Libre 208.043                                  |
| Socket             | Binder Serie 719<br>09-9764-70-04   |
| Caution!           | Swapping the connections can destroy the<br>Opto contact!<br><br>Align with the socket notch!<br>Drawin represents the solder face! |

Opto-RS232 plug-in connection without connector  
Pin allocation



Connection Sylvac Opto instrument - RS232 peripheral equipment  
Order No.: 926.5522  
This order no. includes:

- 1 OptoRS232 plug-in connection, cable length 2m
- 1 OptoRS232 Operating Instructions



Caution: solder face view

## M-Box xx USB Operating Instructions

### Measuring Device Configuration only for M-Box 11 and 23 USB (via the rotary switch)

For these types you always have to specify the company number 001 in the command string. Use the rotary switch on the front to choose the correct measuring device type, and use the correct data cable. See the following table for the correct settings. If a measuring device is not listed, it can be operated if the transfer parameters correspond to one of the measuring devices listed. Switch position **0** for example allows the operation of almost all hand measuring devices with OptoRS232 interface.

| Switch Position | Measuring Device Type                   | Interface Type | Transfer Parameters     | Data Cable Order No.<br>BOBE Catalogue |
|-----------------|---|----------------|-------------------------|--|
| <b>0</b>        | Default OptoRS232                       | OptoRS232      | 4800,e,7,1 <sup>1</sup> | ESY2.2                                 |
| <b>1</b>        | Mahr 1085 Digital Indicator             | OptoRS232      | 4800,n,8,1              | ESY2.2                                 |
| <b>2</b>        | Tesa DigitCal Caliper                   | OptoRS232      | 1200,e,7,1              | ESY2.2                                 |
| <b>3</b>        | Tesa Digit Micrometer Screw Gauge       | TTL-RS232      | 1200,e,7,1              | B0004                                  |
| <b>4</b>        | Sony U30 Length Gauge                   | RS232C         | 2400,n,8,1              | B0002                                  |
| <b>5</b>        | Sartorius MC1 Balance                   | RS232C         | 1200,o,7,1              | B0006                                  |
| <b>6</b>        | Mettler PM 3000 Balance                 | RS232C         | 2400,e,7,1              | B0007                                  |
| <b>7</b>        | Heidenhain VRZ / ND Incremental Counter | RS232C         | 2400,e,7,2              | B0016                                  |
| <b>8</b>        | Kern 510 Balance                        | RS232C         | 9600,n,8,1              | B0037                                  |
| <b>9</b>        | Tesa Hite Height Gauge                  | OptoRS232      | 4800,e,7,1              | ESY2.2                                 |
| <b>A</b>        | Tesa MicroHite Height Gauge 1D          | RS232C         | 1200,e,7,1              | B0026                                  |
| <b>B</b>        | Tesa MicroHite Height Gauge 1D          | RS232C         | 4800,e,7,1              | B0026                                  |
| <b>C</b>        | Tesa MicroHite Height Gauge 1D/2D       | RS232C         | 4800,e,7,1              | B0026                                  |
| <b>D</b>        | Mahr Millitron 1240/1500                | RS232C         | 9600,n,8,1 <sup>2</sup> | B0014                                  |
| <b>E</b>        | Sylvac Protractor                       | TTL-RS232      | 4800,e,7,1              | B0018                                  |
| <b>F</b>        | Identification                          |                |                         |  |

As far as possible, the transfer parameters correspond to the factory setting of the measuring device.

<sup>1</sup> *Default OptoRS232* refers to the OptoRS232 format as used by the hand measuring instruments made by Sylvac, Helios, Mahr and some devices made by Tesa.

<sup>2</sup> The Mahr Millitron 1240 and 1500 send data on their own only in the mode of operation *printer*. The transferred measured value depends on the chosen measuring unit. In the mode of operation *calculator* the device allows you to request data only through a request signal. A measured value is always sent in  $\mu\text{m}$ . The IMU2 converts measured values from  $\mu\text{m}$  into  $\text{mm}$ .