

# ENGMATEC

Distribué Par :

 **Cotelec**  
Composants & Technologies pour l'Electronique



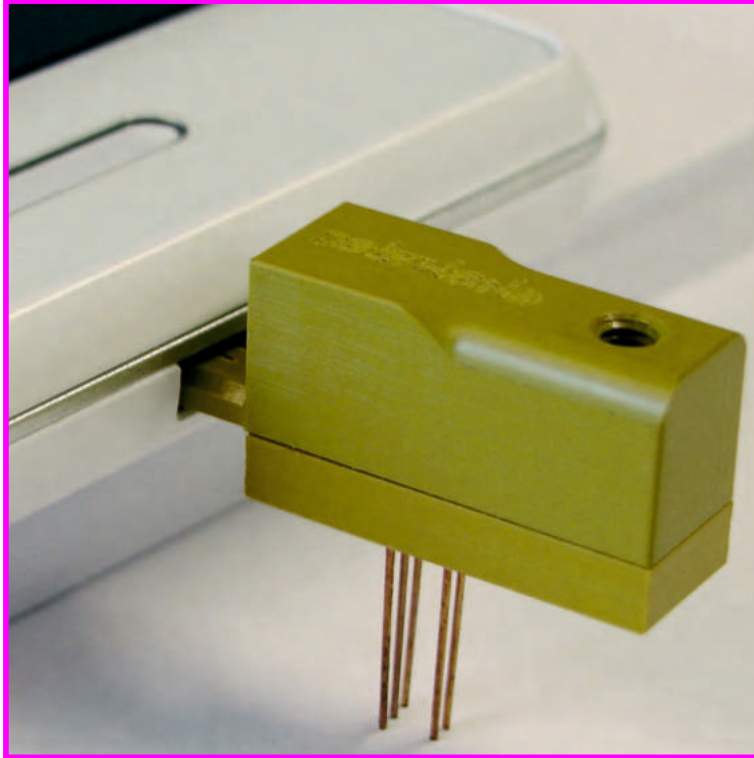
Product catalogue

# Testplugs

for functional tests and EOL tests



## Small plug



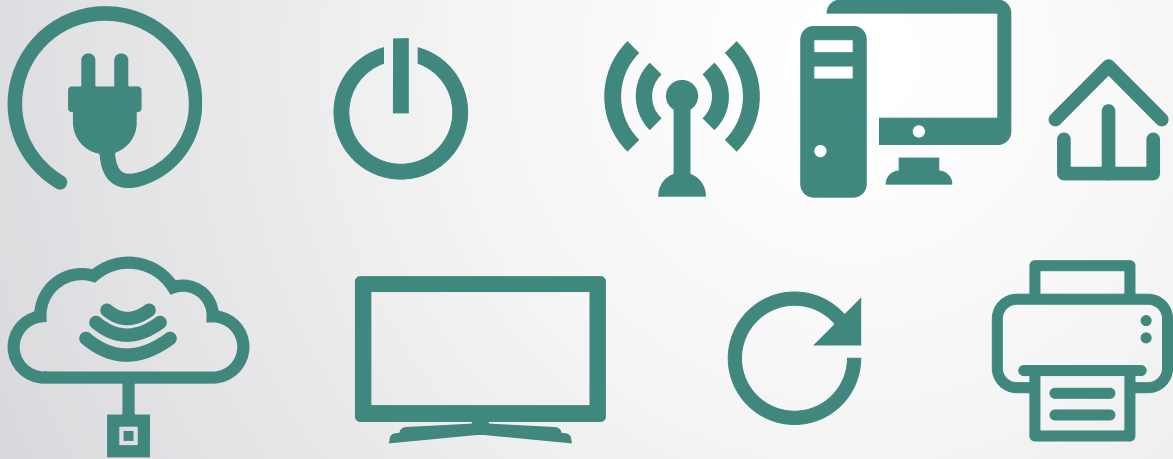
Large effect.

# Content

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	<b>Page</b>
Industry sectors	4
Overview	5
Function and application	6
RJ-Testplugs	7
USB-Testplugs	9
USB micro Testplugs	10
USB 3.0 Testplugs	11
USB mini Testplugs	12
USB Test Sockets	14
HDMI and eSata Testplugs	15
Testplugs for Displayport, DC, Firewire, TAE	16
Special shapes	17
Fitting and mounting parts	18
Marking units	19
Examples for function usage	20
Mating cycles	22
About Engmatec	23

# Industry sectors



In practically every device used in both entertainment electronics and industrial applications, there are interfaces which have to be tested during the production process.

In order to guarantee the reliability of products or assemblies, tests are required during the production process. To carry out these tests, the products are contacted with the plugs by the test system via the built-in interfaces and, in the process, the sockets themselves are, of course, also tested for fault-free performance.

ENGMATEC offers a wide variety of plug emulations for use as test plugs, which have been specially developed for industrial-level tests. These plugs are available for testing all commonly used standard connections that are widely used in the manufacturing industry and in consumer electronics. Nowadays, it is impossible to imagine entertainment electronics, the automotive industry, medical engineering or household technology, telecommunications or PCs without connections such as USB, HDMI, RJ45 etc.

During today's electronic manufacturing process it is usually not only produced in multi-shift operation, but also tested. So that the high production speed is not slowed down by the final quality assurance, it needs appropriate test solutions and components.

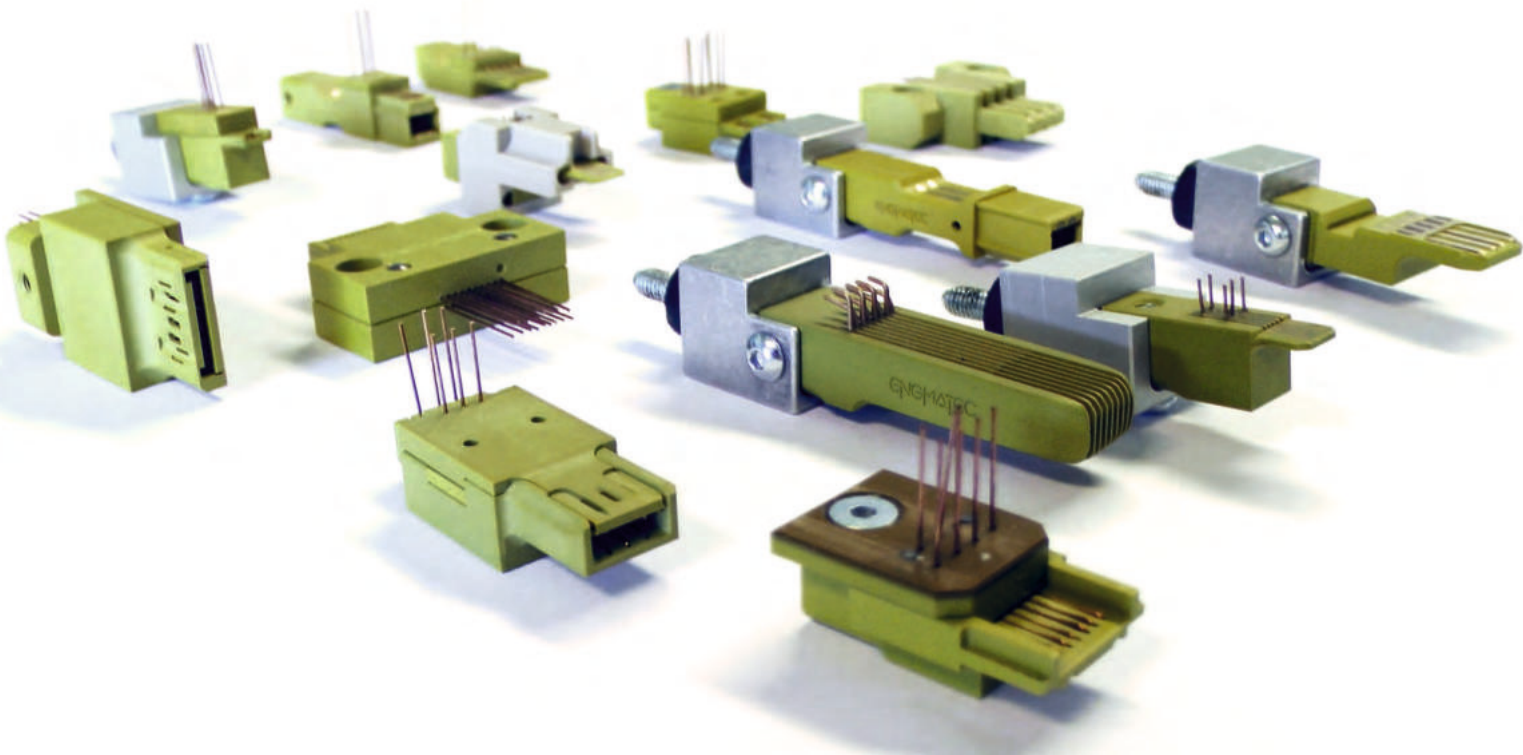
Because plugs are frequently inserted and withdrawn, their contact resistance changes, which means that conventional original plugs are not suitable for this purpose. Special test plugs are therefore necessary for automation-compatible contacting.

The plug emulations made by ENGMATEC are designed for use in functional tests during production and for end-of-line tests, and are suitable for very high mating cycles.

Depending on the interface, up to 200,000 mating cycles are possible.

The plugs can be used for testing both male and female connections.

# Overview



Plug emulations for testing at an industrial level achieve an extremely high durability, whereas classic plugs are usually designed for only a few 100 cycle times.

The test plugs are manufactured from a particularly abrasion-resistant, high-tech plastic. The contact wires made of copper beryllium are glued into the plug body and suitable for high mating cycles.

The replicas also have the advantage that, unlike the original plugs, they do not click into place, which further extends the service life. The specially shaped plug tip facilitates low-wear contacting with the plug sockets and prevents premature damage to the contact springs. In conjunction with a pneumatic contacting unit, the plugs can be built into an extremely wide variety of different test adapters.

The delivery program for test connectors from ENGMATEC includes all usual types for RJ-45, USB, USB-Micro, HDMI and Displayport.

## **Optionally, the following accessories are available:**

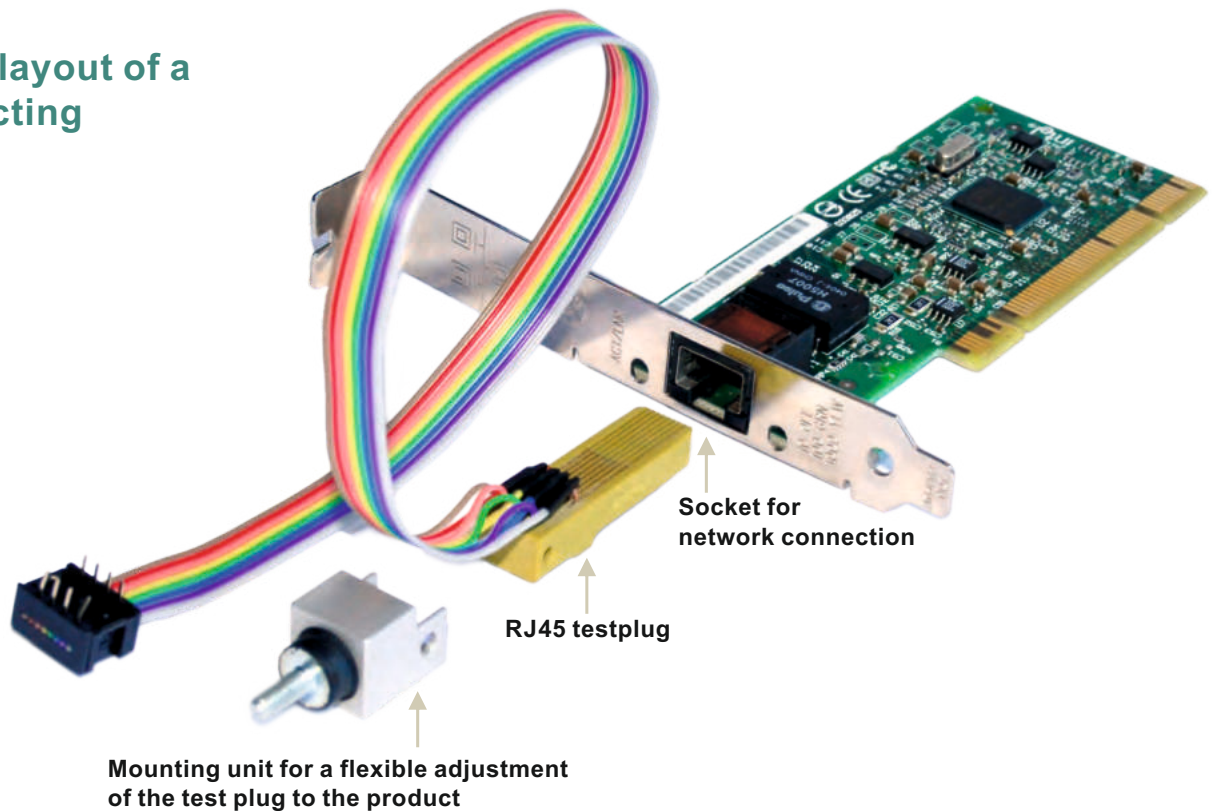
- Floating bearing and self-centering adapters (mounting units)
- Cable and connector assembly according to customer requirements

Special shapes, special lengths and self-coded connector shapes can be realized as requested by the customer. We will gladly advise you with regard to concrete tasks, i.e. whether a plug connection with industry-standard emulations can be contacted wear-free.

On request, we can perform a feasibility study. We require CAD data or data sheets of the plug connection as well as sample parts for this study.

# Function and application

## Schematic layout of a plug contacting



**The test plug is freely moveable and can optimally be aligned with the connector.**

## Modular Design

The plug contacting consists of a test plug for the transmission of the digital signals that meets your specific requirements and a suitable adapter (mounting unit).

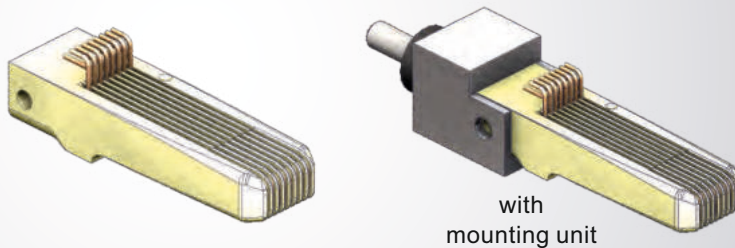
Due to their built-in rubber buffers the mounting shoes have different degrees of freedom and allow a self-centering contact. Because of these flexible fixing tolerances on the product and in the contact area can be compensated (for example in case of misalignment or deviations in the assembly).

The plugs can be easily integrated into test fixtures or contacting modules. By a suitable cable assembly, the plug is connected quickly and solderless to the measuring system.

This makes it easy to replace the test plugs while maintaining the system

# RJ-Testplugs

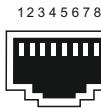
## 8-pin testplug for RJ45



with mounting unit

Order Number	Article
1014-56-000	RJ45 8-pin (no cord set)
1014-55-000	RJ45 8-pin (cord set, 300 mm cord)
1014-45-000	Suitable mounting unit

(Western-Min plug, modular plug)

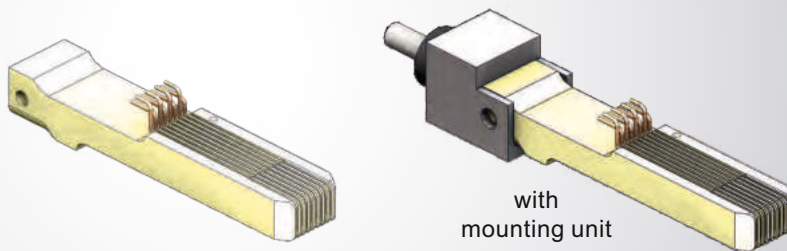


RJ45 Socket

### Usage

ISDN cable  
Computer networks  
(UAE, Ethernet, TIA-568A/B)

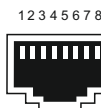
## Extended 8-pin testplug for RJ45



with mounting unit

Order Number	Article
1014-92-000	RJ45 8-pin extended (no cord set)
1552-93-000	RJ45 8-pin extended (cord set)
1014-45-000	Suitable mounting unit

(Western-Min plug, modular plug)

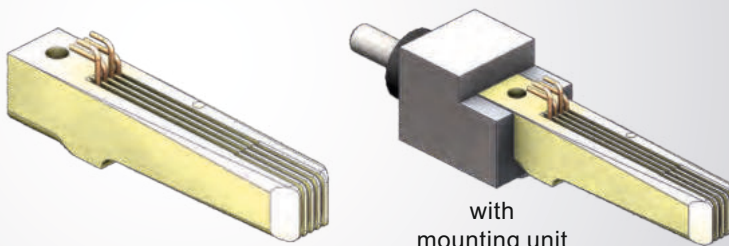


RJ45 Socket

### Usage

ISDN cable  
Computer networks  
(UAE, Ethernet, TIA-568A/B)

## 4-pin testplug for RJ9, RJ10, RJ22



with mounting unit

Order Number	Article
1014-54-000	RJ9, RJ10, RJ22 4-pin (no cord set)
1014-53-000	RJ9, RJ10, RJ22 4-pin (cord set)
1014-43-000	Suitable mounting unit

(Western-Min plug, modular plug)



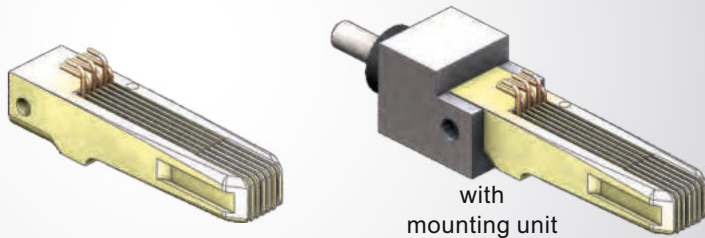
RJ9 Socket

### Usage

Telephone receiver cable

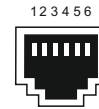
# RJ-Testplugs

## 6-pin testplug for RJ11, 12, 14



Order Number	Article
1014-52-000	RJ11, RJ12, RJ14 6-pin (no cord set)
1014-51-000	RJ11, RJ12, RJ14 6-pin (cord set 300 mm Kabel)
1014-44-000	Suitable mounting unit

(Western-Min plug, modular plug)

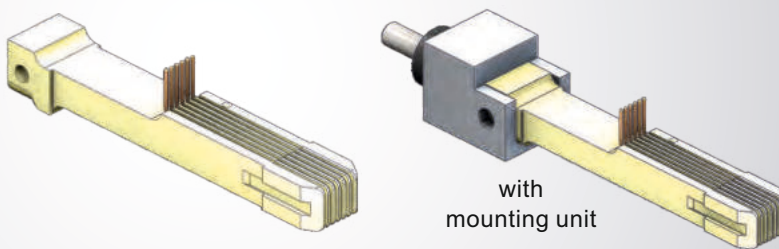


RJ11 Socket

**Usage**

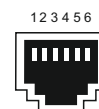
DSL Router,  
Telephone plug on device side

## Extended 6-pin testplug for RJ11, 12, 14



Order Number	Article
1014-29-000	RJ11, RJ12, RJ14 6-pin extended (no cord set)
1552-92-000	RJ11, RJ12, RJ14 6-pin extended (cord set)
1014-44-000	Suitable mounting unit

(Western-Min plug, modular plug)

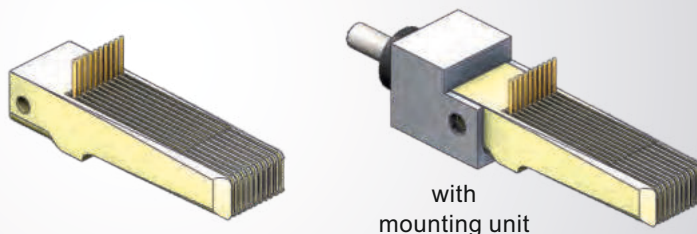


RJ11 Socket

**Usage**

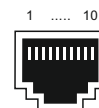
DSL Router,  
Telephone plug on device side

## 10-pin testplug for RJ50



Order Number	Article
1014-58-000	RJ50 10-pin (no cord set)
1014-57-000	RJ50 10-pin (cord set)
1014-45-000	Suitable mounting unit

(Western-Min plug, modular plug)



RJ50 Socket

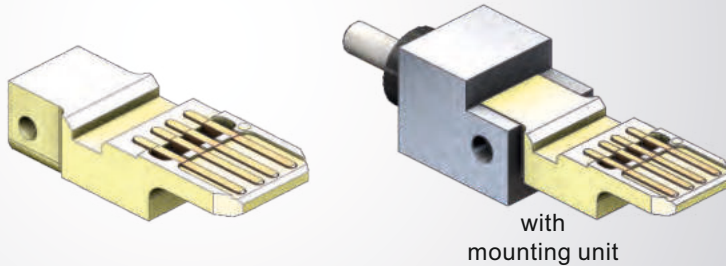
**Usage**

Data transfer, radio units,  
control systems, power supplies,  
microphones



# USB-Testplugs

## 4-pin testplug for USB type A



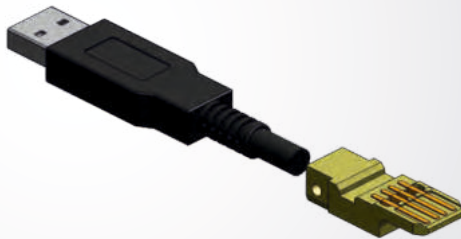
USB 2.0 A  
Socket

### Usage

Storage medium,  
connection of peripheral devices

Order Number	Article
1014-40-000	USB Typ A 4--pin (no cord set)
1014-48-000	USB Typ A 4--pin (cord set, 300 mm cord)
1014-44-000	Suitable mounting unit

## Testplug for USB 2.0 type A (with cord and plug)



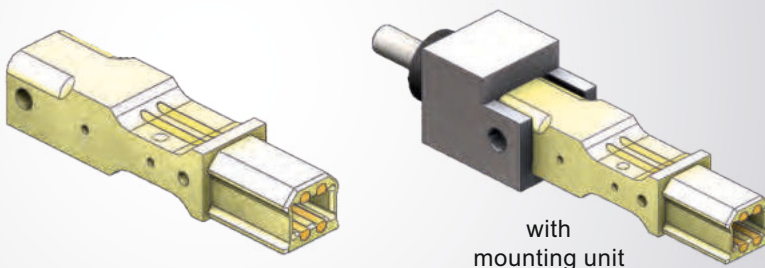
USB 2.0 A  
Socket

### Usage

Storage medium,  
connection of peripheral devices

Order Number	Article
1956-33-000	Testplug USB 2.0 A with cord and plug
1014-44-000	Suitable mounting unit

## 4-pin testplug for USB type B



USB 2.0 B  
Socket

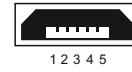
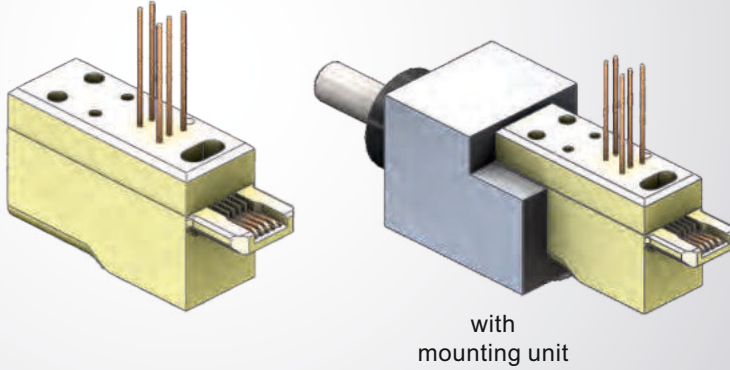
### Usage

Connection of larger  
peripheral equipment

Order Number	Article
1014-46-000	USB Typ B 4--pin (no cord set)
1014-16-000	USB Typ B 4--pin (cord set, 300 mm cord)
1014-44-000	Suitable mounting unit

# USB micro - Testplugs

## 5-pin testplug for USB Micro Typ B



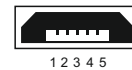
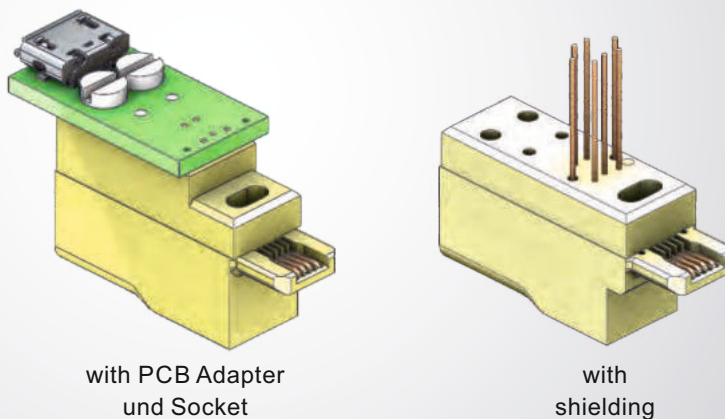
USB Micro B  
Socket

### Usage

Smartphones, tablets,  
smaller portable devices

Order Number	Article
1552-57-000	USB Micro Typ B 5--pin (no cord set)
1552-61-000	USB Micro Typ B 5--pin (cord set, 300 mm cord)
1014-43-000	Suitable mounting unit

## 5-pin testplug USB Micro type B special models



USB Micro B  
Socket

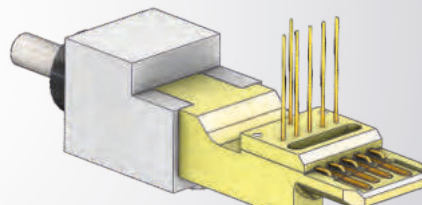
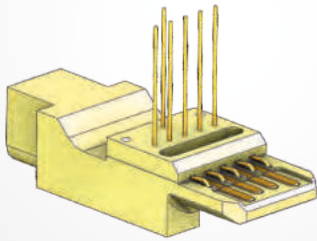
### Usage

Smartphones, tablets,  
smaller portable devices

Order Number	Article
1872-14-000	USB Micro Typ B 5-pin with PCB adapter and socket
1956-27-000	USB Micro Typ B 5-pin with shielding

# USB 3.0 - Testplugs

## Testplug for USB 3.0 type A (with shielding)



with  
mounting unit



USB 3.0 A  
Socket

### Usage

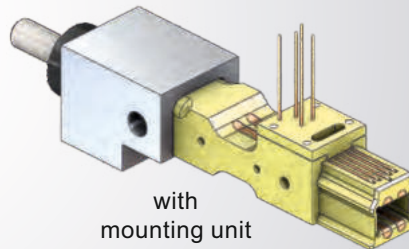
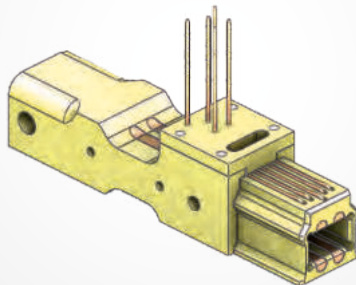
Storage medium,  
connection of peripheral devices

### Order Number

### Article

1552-89-000	Testplug USB 3.0 A (no cord set)
1956-01-000	Testplug USB 3.0 A (cord set, 300 mm cord)
1014-43-000	Suitable mounting unit

## Testplug for USB 3.0 Typ B



with  
mounting unit



USB 3.0 B  
Socket

### Usage

Connection of larger  
peripheral equipment

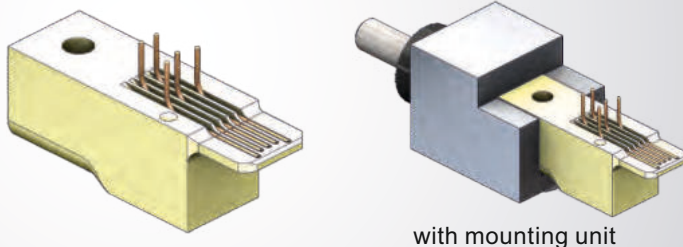
### Order Number

### Article

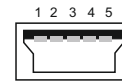
1552-90-000	Testplug USB 3.0 B (no cord set)
1956-02-000	Testplug USB 3.0 B cord set
1014-44-000	Suitable mounting unit

# USB mini - Testplugs

## 5-pin testplug for USB mini Typ B



with mounting unit



USB mini Typ B  
Socket

### Usage

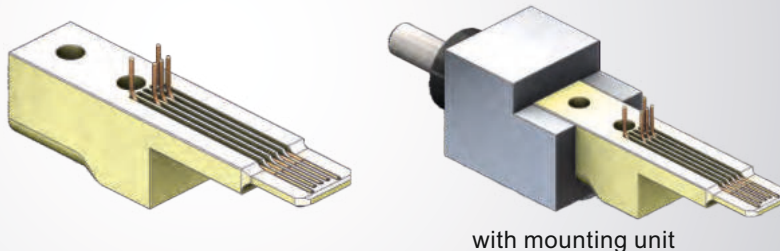
Connection of charger for mobile devices, connection of digital cameras, data transfer

### Order Number

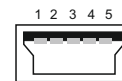
### Article

1014-66-000	Testplug USB mini type B (no cord set)
1014-65-000	Testplug USB mini type B (cord set, 300 mm cord)
1014-43-000	Suitable mounting unit

## Testplug for USB mini type B extended



with mounting unit



USB mini Typ B  
Socket

### Usage

Similar USB mini type B

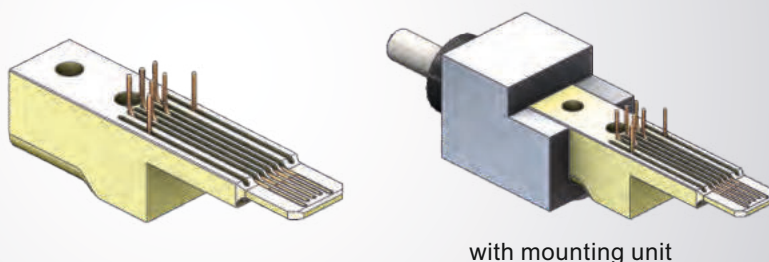
### Order Number

### Article

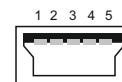
1552-82-000	Testplug USB mini type B extended (no cord set)
1014-43-000	Suitable mounting unit

**Cord set on request**

## Testplug for USB mini type B (extended with shielding)



with mounting unit



USB mini Typ B  
Socket

### Usage

Similar USB mini type B

### Order Number

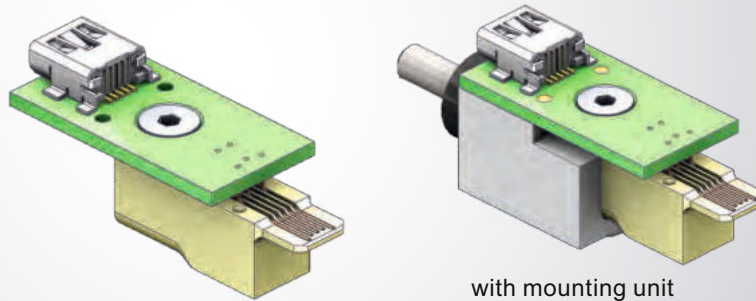
### Article

1552-29-000	Testplug USB mini type B extended with shielding
1014-43-000	Suitable mounting unit

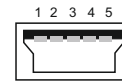
**Cord set on request**

# USB mini - Testplugs

## Testplug for USB mini Typ B with PCB adapter and socket



with mounting unit



USB mini Typ B  
Socket

### Usage

Connection of charger for mobile devices, connection of digital cameras, data transfer

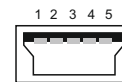
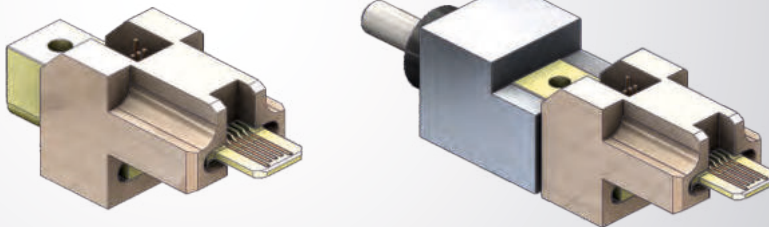
**Cord set on request**

### Order Number

### Article

1872-21-000	Testplug USB mini type B (with PCB adapter and socket)
1872-98-000	Special mounting unit

## Testplug USB mini type B extended with several encodings



USB mini Typ B  
Socket

### Usage

Data transfer, Connection of charger in the automotive environment

**Cord set on request**

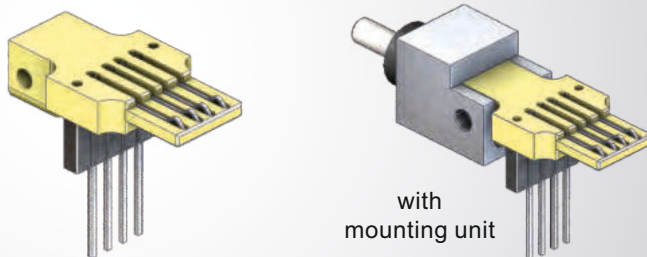
### Order Number

### Article

1552-86-000	Encoding right, top
1872-39-000	Encoding right, left, top Encoding 49616-0711 + 49616-0715
1872-40-000	Encoding right, top, encoding type D+K
1872-41-000	Encoding right, left, top, encoding type F+H
1552-68-000	Encoding left, top
1956-30-000	Encoding type C
1014-43-000	Suitable mounting unit

# USB Test Sockets

## Testing Socket USB 2.0 type A



USB 2.0 A  
Socket

### Usage

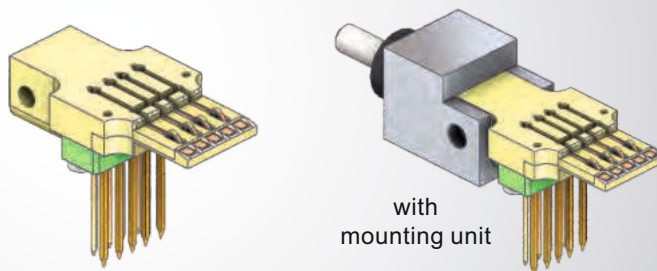
Storage medium,  
connection of peripheral devices

### Order Number

### Article

1014-76-000	Testing Socket USB 2.0 type A (no cord set)
on request	Testing Socket USB 2.0 type A (cord set)
1014-44-000	Suitable mounting unit

## Testing Socket USB 3.0 type A



USB 3.0 A  
Socket

### Usage

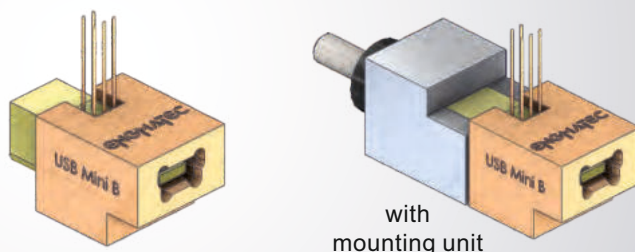
Storage medium,  
connection of peripheral devices

### Order Number

### Article

1956-09-000	Testing Socket USB 3.0 type A (no cord set)
on request	Testing Socket USB 3.0 type A (cord set)
1014-44-000	Suitable mounting unit

## Testing Socket USB 2.0 Mini type B



USB mini Typ B  
Socket

### Usage

Connection of charger  
for mobile devices,  
connection of digital cameras,  
data transfer

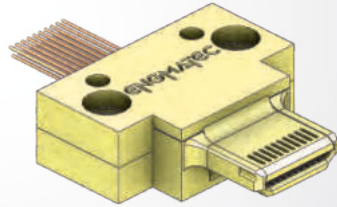
### Order Number

### Article

1872-64-000	Testing Socket USB 2.0 Mini type B (no cord set)
on request	Testing Socket USB 2.0 Mini type B (cord set)
1014-44-000	Suitable mounting unit

# HDMI and eSata Testplugs

## 19-pin HDMI Testplug



HDMI Socket

### Usage

Interface for audio and video data

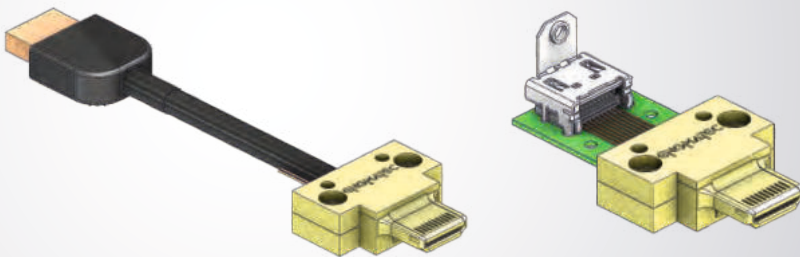
### Order Number

### Article

1552-59-000

19-pin HDMI Testplug

## HDMI Testplug assembled



HDMI Socket

### Usage

Interface for audio and video data

### Order Number

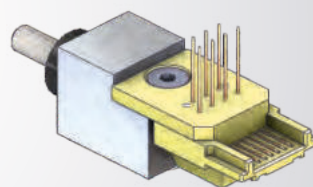
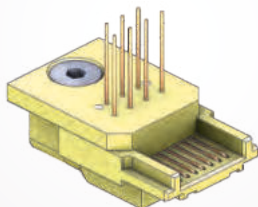
### Article

1872-56-000 HDMI Testplug with plug (1000 mm cable)

1552-70-000 HDMI Testplug with female socket (1000 mm cable)

1552-71-000 HDMI Testplug with 19-pin connection board

## eSata Testplug



with mounting unit



eSata Socket

### Usage

Interface for audio and video data

### Order Number

### Article

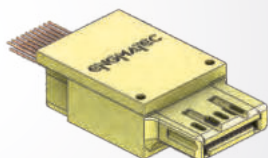
1552-75-000 eSata Testplug (no cord set)

1956-07-000 eSata Testplug (cord set, 300 mm cord)

1014-43-000 Suitable mounting unit

# Displayport, DC, Firewire, TAE

## Displayport Testplug



Displayport  
Socket

### Usage

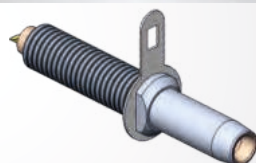
Interface for  
audio and video data

### Order Number

### Article

1872-30-000	Displayport Testplug (no cord set)
1956-04-000	Displayport Testplug (cord set, 2000 mm cord)
on request	Special mounting unit

## Power DC plug-in connection Ø 2,1



Power DC  
Socket

### Usage

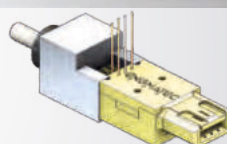
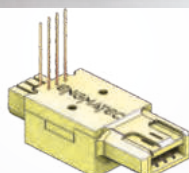
Power connection of  
power-supply units and  
electronic equipment

### Order Number

### Article

1638-07-000	Power DC Plug Ø 2,1 (no cord set)
1638-08-000	Power DC Plug Ø 2,1 (cord set, 300 mm cord)
on request	Special mounting unit

## 6-pin Firewire Testplug 1394



with mounting unit



Firewire  
Socket

### Usage

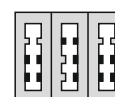
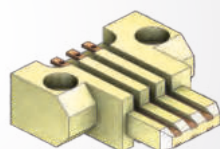
Sound and video technology,  
connection of external mass  
storages, audio interfaces,  
sound systems

### Order Number

### Article

1872-31-000	Firewire Testplug (no cord set)
1956-05-000	Firewire Testplug (cord set, 300 mm cord)
1014-43-000	Suitable mounting unit

## 6-pin TAE Testplug



TAE Socket

### Usage

Connection  
telecommunication

### Order Number

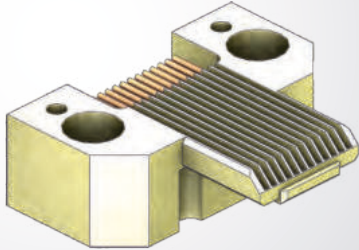
### Article

1014-28-000	TAE Testplug (no cord set)
1014-50-000	TAE Testplug (cord set, 600 mm cord)



# Special shapes

## Mobile radio plug type Lumberg



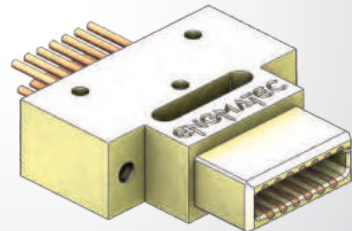
### Usage

System interface mobile phone

### Order Number

on request

## 13-pin Testplug RTX



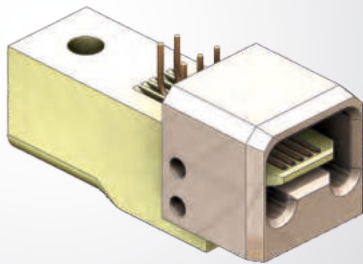
### Usage

Connection game console

### Order Number

1552-56-000

## USB plug mini type B with center unit



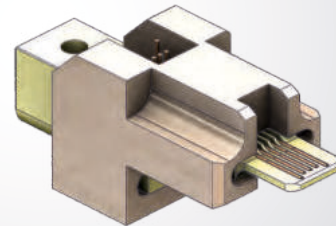
### Usage

Data transfer, charger

### Order Number

on request

## USB mini US-Car with several encodings



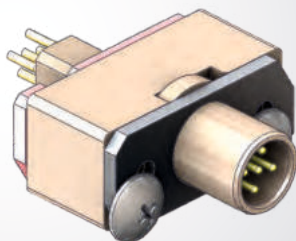
### Usage

Data transfer, charger

### Order Number

on request

## Sensor Plug 5-pin (M12)



with Übergabeschnittstelle

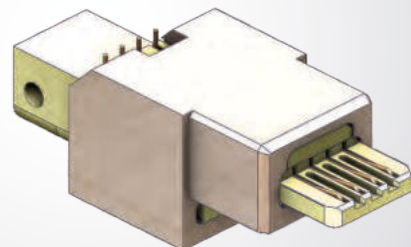
### Usage

Electr. interface for sensor systems

### Order Number

1715-27-000

## LVDS Plug JAE-MX...



### Usage

Data and video transfer

### Order Number

1552-84-000

More Testing Plugs are available on request.

# Fitting and mounting parts

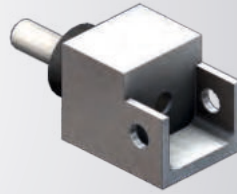
## Mounting unit with rubber buffer



1014-43-000



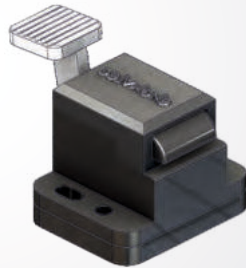
1014-44-000



1014-45-000

Order Number	Article
1014-43-000	Mounting unit S for 4-pin plug
1014-44-000	Mounting unit M for 6-pin plug and USB-plug
1014-45-000	Mounting unit L for 8- and 10-pin plug

## Latch



Order Number	Article
1669-01-000	Latch

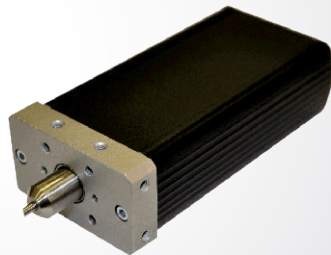
# Marking units

## Board Marker



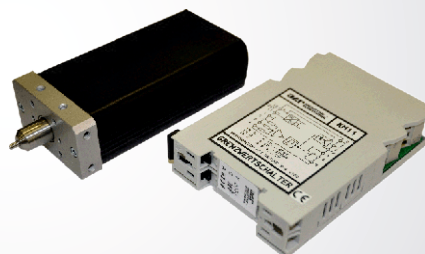
Order Number	Article
1006-01-000	Board marker with suspended carbide-tipped graver Ø3mm and 24V DC motor with gear 1,5W

## Board Marker with tachometer generator



Order Number	Article
1006-39-000	Board Marker with tachometer generator with suspended carbide-tipped graver and motor (24 V) inclusive tachometer generator, (without threshold switch and Sub-D-connecting cable)

## Board Marker with generator and threshold switch

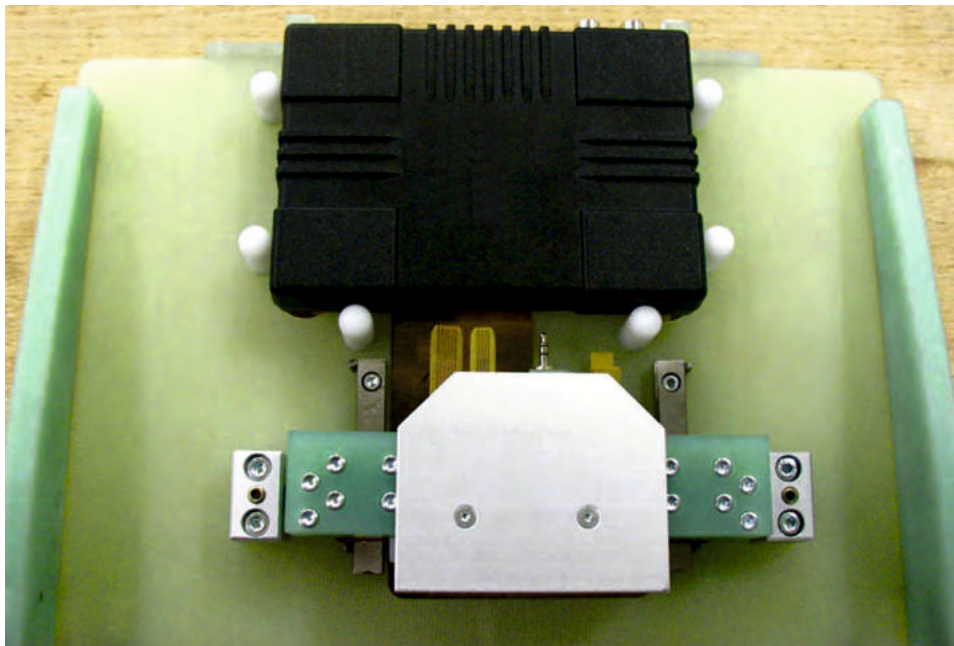
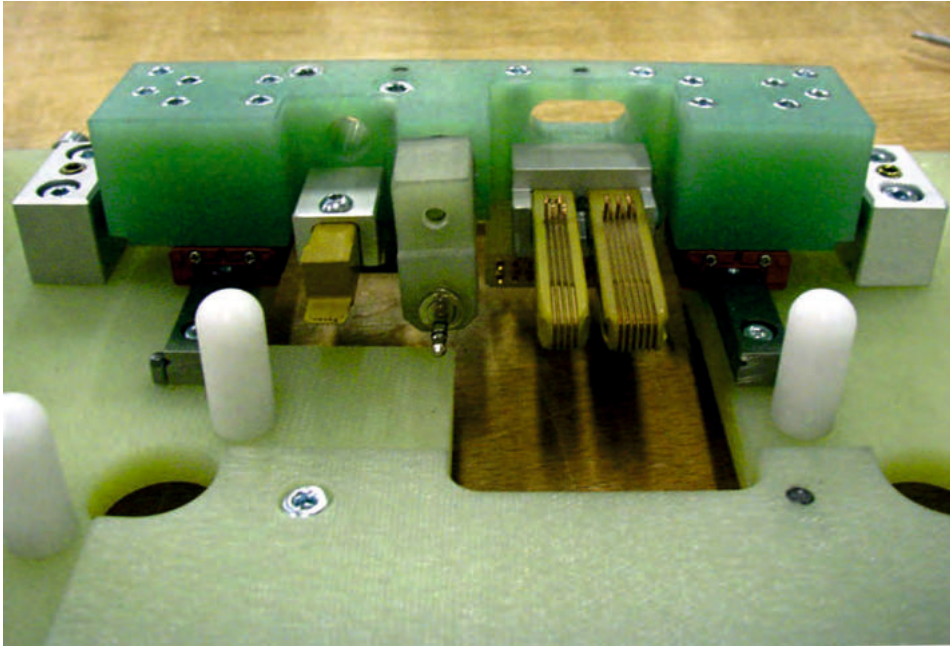


Order Number	Article
1006-26-000	Board Marker with tachometer generator with suspended carbide-tipped graver and motor (24 V) inclusive tachometer generator and threshold switch, with 9 pin Sub-D-connecting cable (5m)

# Examples for function usage

Mounted in a drawer system for specific test items:

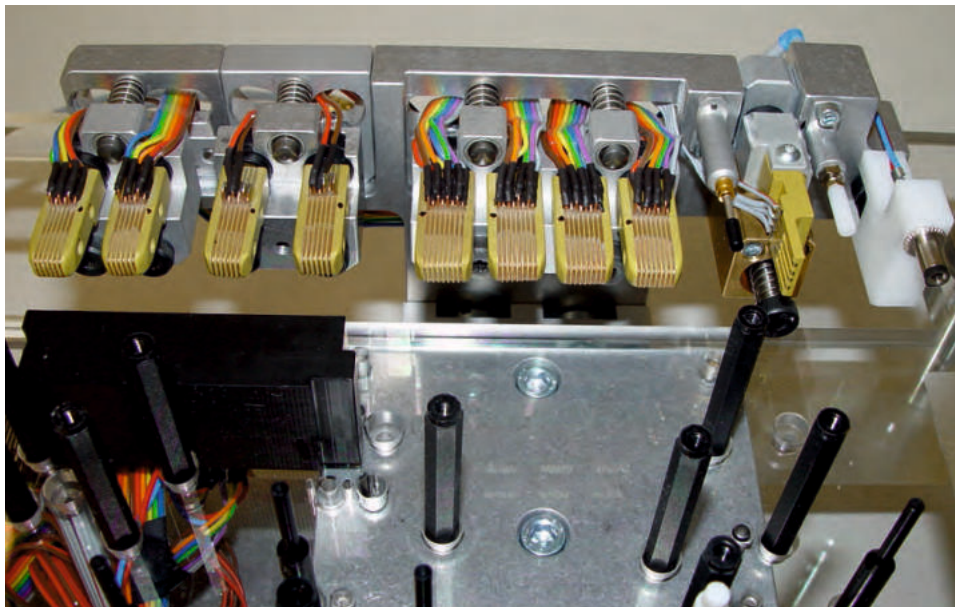
- Western-Min Plugs 4-pin and 6-pin and
- Mini-USB Plugs



# Examples for function usage

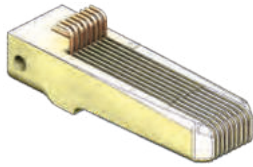
Mounted in inline fixture:

- Western-Min Plugs 8-pin and
- USB Plugs type A



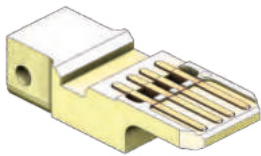
# Mating cycles

Mating cycles in thousand



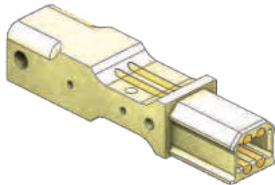
**RJ Plugs (Western-Min)**

**100-200**



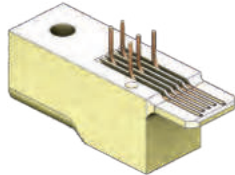
**USB type A**

**80-100**



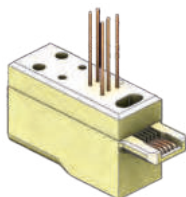
**USB type B**

**80-100**



**USB mini**

**50-60**



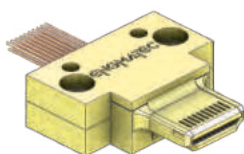
**USB micro**

**40-50**



**DC Power Plug**

**60-80**



**HDMI**

**100**

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