ENGMATEC

Product catalogue

Testplugs

for functional tests and EOL tests

Large effect.

Content

Version 2018 1.0

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Because plugs are frequently inserted and withdrawn, their contact resistance changes, which means that conventional original plugs are not suitable for this purpose.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
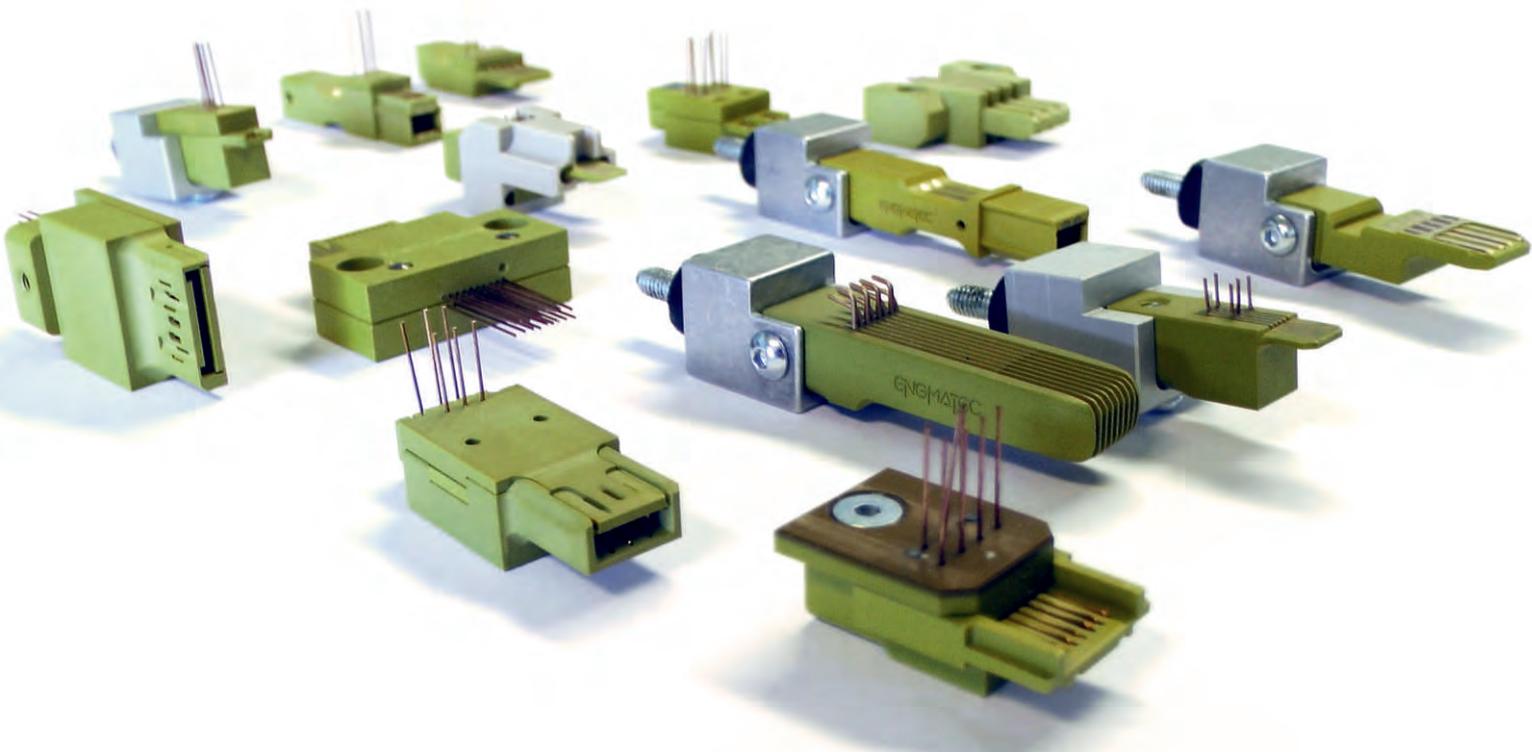
Plug emulations for testing at an industrial level achieve an extremely high durability, whereas classic plugs are usually designed for only a few 100 cycle times.

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 für RJ-45, USB, USB-Micro, HDMI and Displayport.
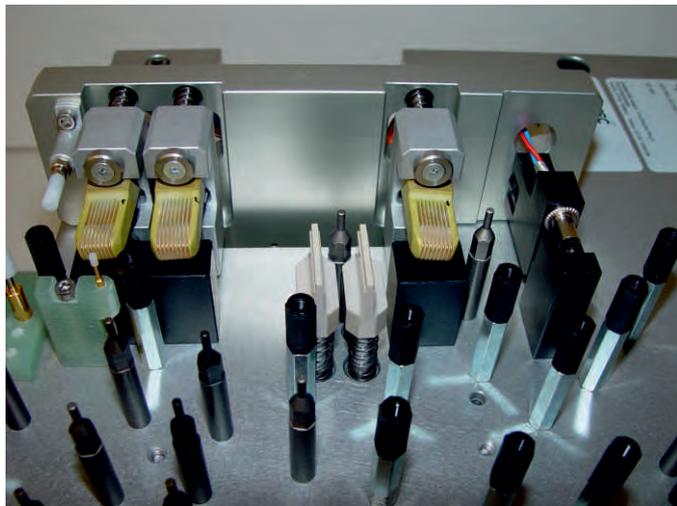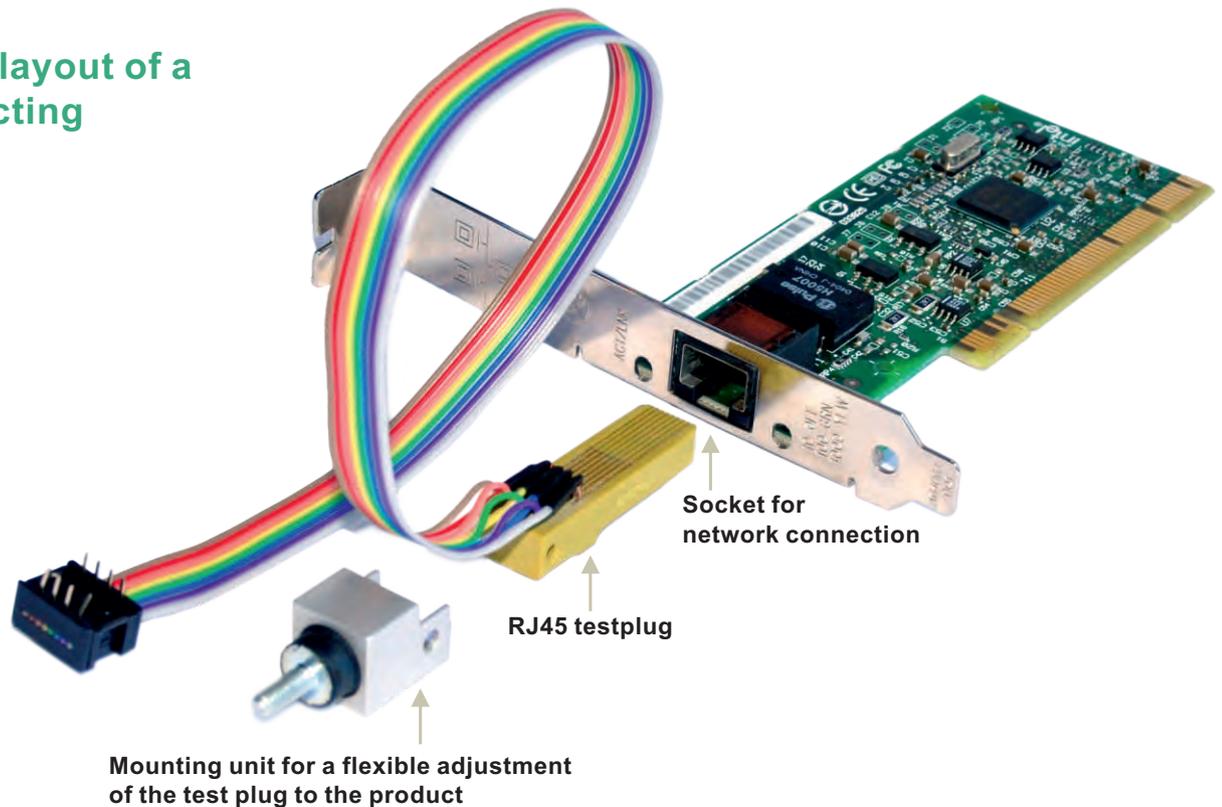
Optionally, the following accessories are available:

- Floating bearing and self-centering adapters (mounting units)
- Cable and connector assembly according to customer requirements
- Complete contacting unit with pneumatic actuation and sensors for path monitoring

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

Socket for network connection

RJ45 testplug

Mounting unit for a flexible adjustment of the test plug to the product

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
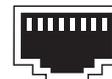
RJ-Testplugs

8-pin testplug for RJ45
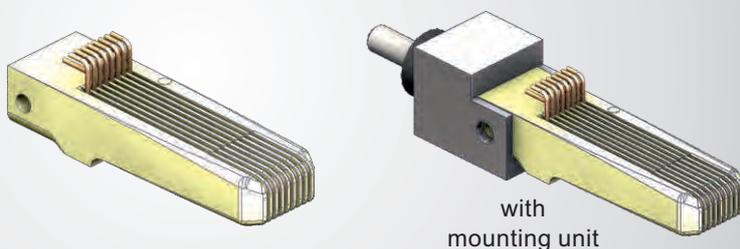
with
mounting unit

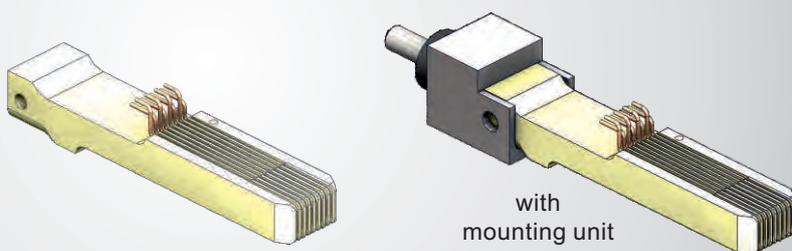| Order Number	Article
1014-56-000	RJ45 8-pin (no cord set)
1014-55-000	RJ45 8-pin (cord set, 300 mm cord)
1014-45-000	Suitable mounting unit

(Western-Min plug, modular plug)

RJ45 Socket

Usage

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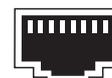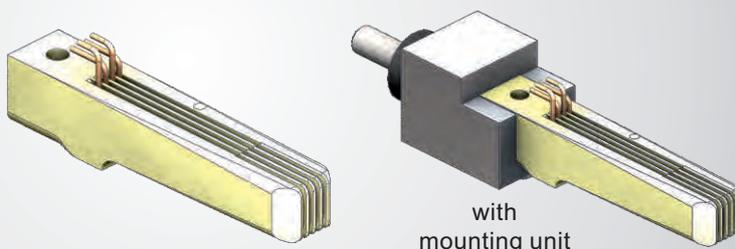(UAE, Ethernet, TIA-568A/B)

Extended 8-pin testplug for RJ45

with
mounting unit

Order Number	Article
1014-92-000	RJ45 8-pin extended (no cord set)
1592-93-000	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

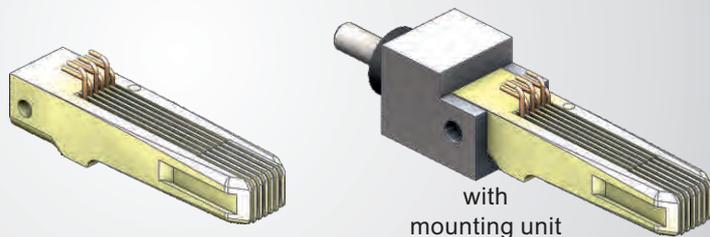| Order Number	Article
1014-54-000	RJ9, RJ10, RJ22 4-pin (no cord set)
1014-53-000	RJ9, RJ10, RJ22 4-pin (cord set)
1014-45-000	Suitable mounting unit

(Western-Min plug, modular plug)

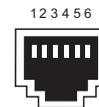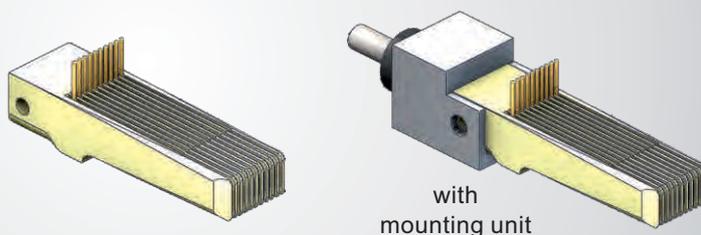RJ9 Socket

Usage

Telephone receiver cable

RJ-Testplugs

6-pin testplug for RJ11, 12, 14

with
mounting unit

(Western-Min plug, modular plug)

1 2 3 4 5 6

RJ11 Socket

<u>Usage</u>

DSL Router,
Telephone plug on device side

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

Extended 6-pin testplug for RJ11, 12, 14

with
mounting unit

(Western-Min plug, modular plug)

1 2 3 4 5 6

RJ11 Socket

<u>Usage</u>

DSL Router,
Telephone plug on device side
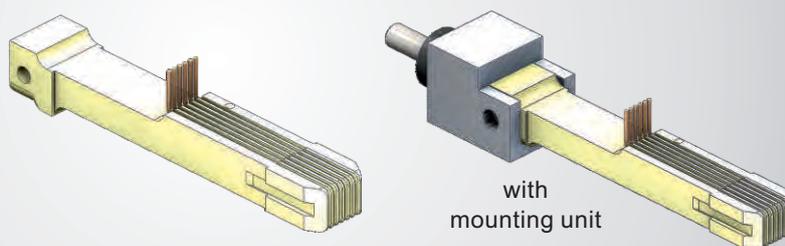
Order Number	Article
1014-29-000	RJ11, RJ12, RJ14 6-pin extended (no cord set)
1552-92-000	RJ11, RJ12, RJ14 6-pin extended (cord set)
1014-44-000	Suitable mounting unit

10-pin testplug for RJ50

with
mounting unit

(Western-Min plug, modular plug)

1 10

RJ50 Socket

<u>Usage</u>

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

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

USB-Testplugs

4-pin testplug for USB type A
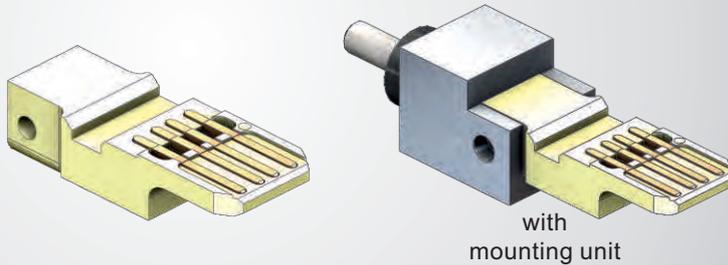
with
mounting unit

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

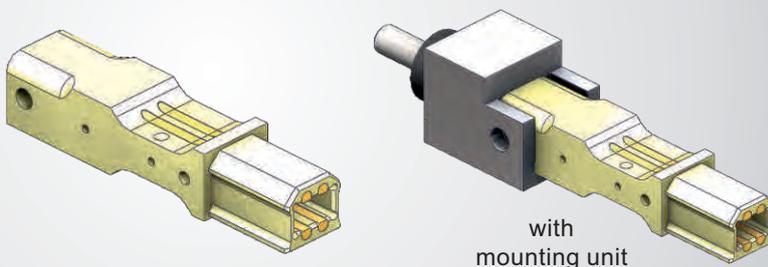## Testplug for USB 2.0 type A (with cord and plug)
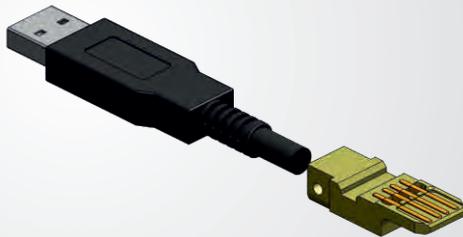
USB 2.0 A
Socket

Usage

Storage medium,
connection of peripheral devices

Order Number	Article
1956-33-000	Testplug USB 3.0 A with cord and plug
1014-44-000	Suitable mounting unit

4-pin testplug for USB type B

with
mounting unit

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

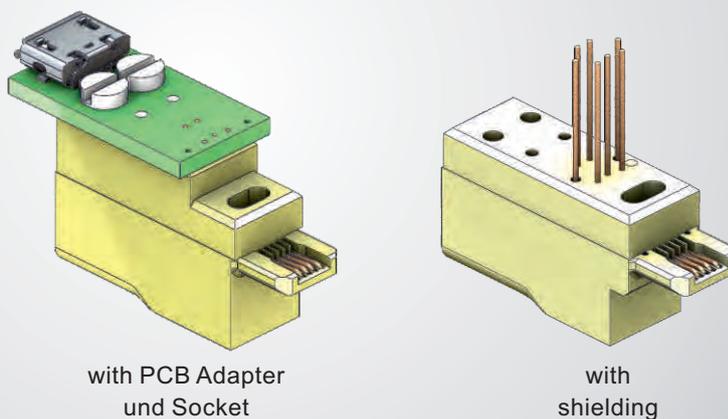# USB micro - Testplugs

5-pin testplug for USB Micro Typ B
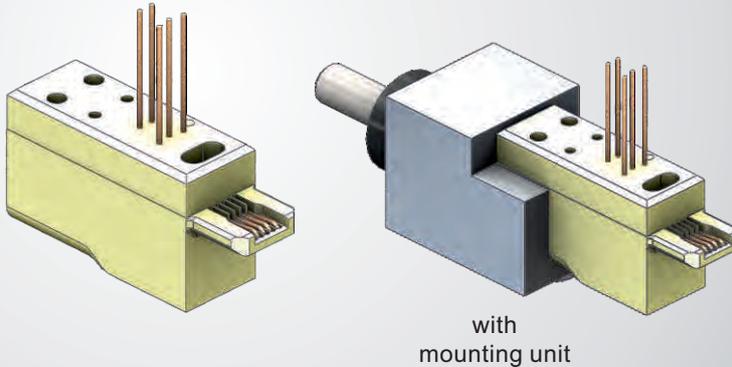
with
mounting unit

USB Micro B
Socket

Usage

Smartphones, tablets,
smaller portable devices

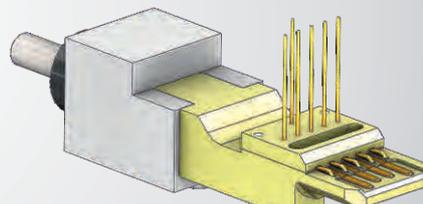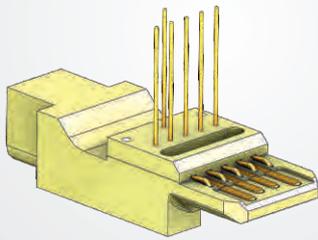| Order Number	Article
1552-57-000	USB Micro Typ B 5--pin (no cord set)
1552-61-000	USB Micro Typ B 5--pin (cord set, 300 mm cord)
1014-43-000	Suitable mounting unit

5-pin testplug USB Micro type B special models

with PCB Adapter
und Socket

with
shielding

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)
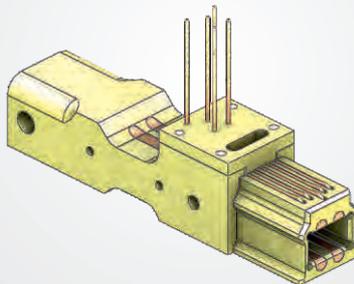

with
mounting unit

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
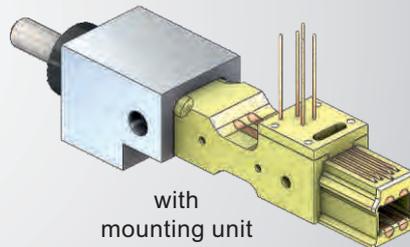
with
mounting unit

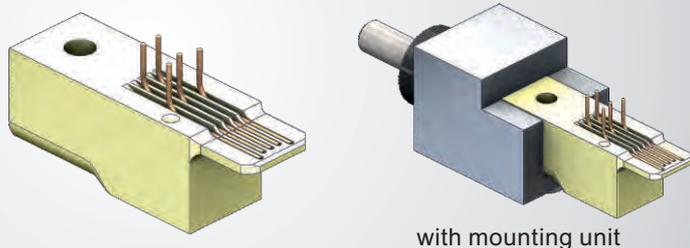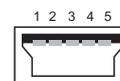USB 3.0 B
Socket

Usage

Connection of larger
peripheral equipment

Order Number	Article
1552-89-000	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

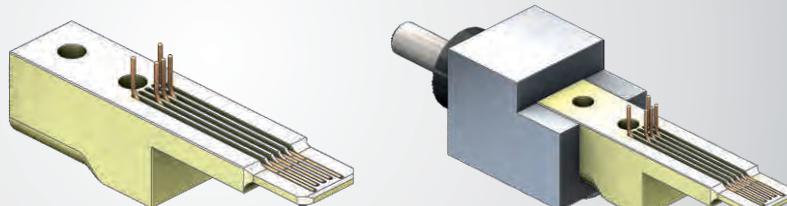## 5-pin testplug for USB mini Typ B

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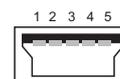
Order Number	Article
1014-66-000	Testplug USB mini type B (no cord set)
1014-65-000	Testplug USB mini type B (cord set, 300 mm cord)
1014-43-000	Suitable mounting unit

1 2 3 4 5

USB mini Typ B
Socket

Usage

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

Testplug for USB mini type B extended

with mounting unit

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

1 2 3 4 5

USB mini Typ B
Socket

Usage

Similar USB mini type B

Cord set on request

Testplug for USB mini type B (extended with shielding)
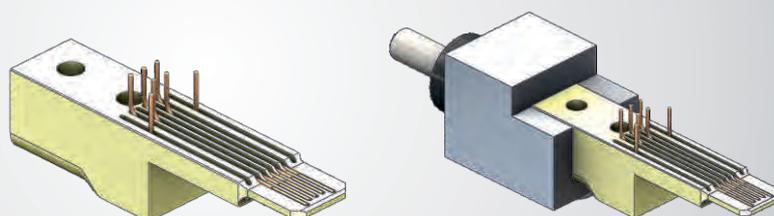
with mounting unit
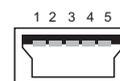
Order Number	Article
1552-29-000	Testplug USB mini type B extended with shielding
1014-43-000	Suitable mounting unit

1 2 3 4 5

USB mini Typ B
Socket

Usage

Similar USB mini type B

Cord set on request

USB mini - Testplugs

Testplug for USB mini Typ B with PCB adapter and socket
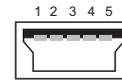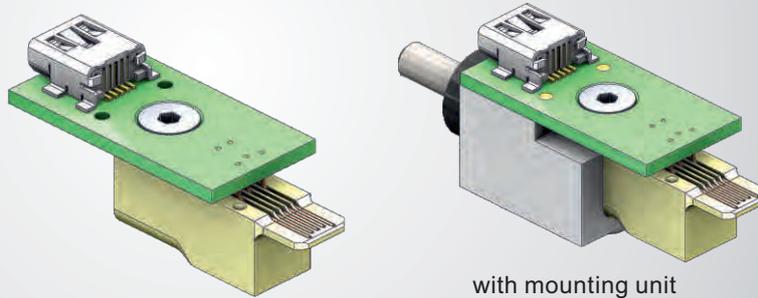
with mounting unit

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

USB mini Typ B
Socket

Usage

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

Cord set on request
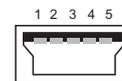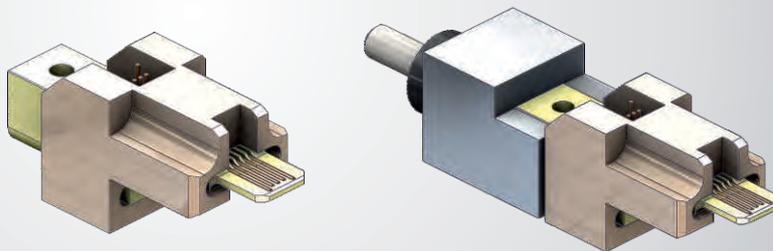
Testplug USB mini type B extended with several encodings
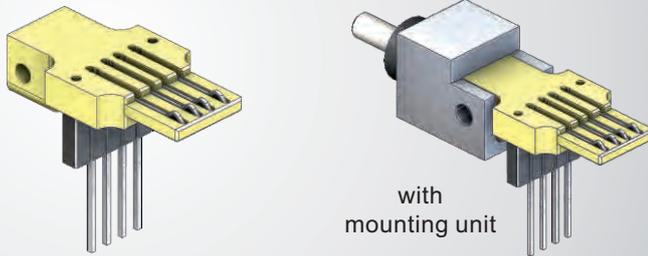

Order Number	Article
1552-86-000	Encoding right, top
1872-39-000	Encoding right, left, top Encoding 49616-0711 + 49616-0715
1872-40-000	Encoding right, top, encoding type D+K
1872-41-000	Encoding right, left, top, encoding type F+H
1552-68-000	Encoding left, top
1956-30-000	Encoding type C
1014-43-000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

USB mini Typ B
Socket

Usage

Data transfer,
Connection of charger in
the automotive environment

Cord set on request

USB Test Sockets

Testing Socket USB 2.0 type A

with
mounting unit

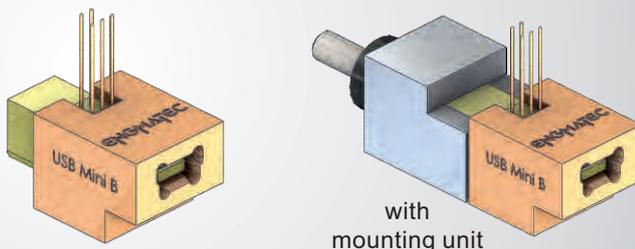| Order Number	Article
1014-76-000	Testing Socket USB 2.0 type A (no cord set)
on request	Testing Socket USB 2.0 type A (cord set)
1014-44-000	Suitable mounting unit
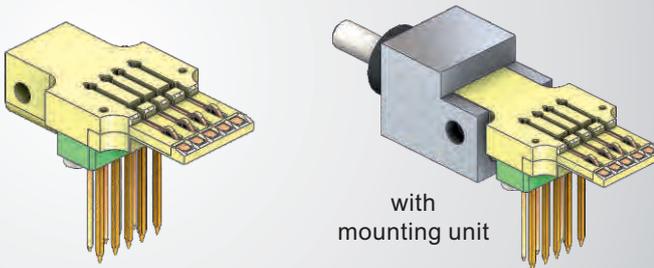
USB 2.0 A
Socket

Usage

Storage medium,
connection of peripheral devices

Testing Socket USB 3.0 type A

with
mounting unit

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

USB 3.0 A
Socket

Usage

Storage medium,
connection of peripheral devices

Testing Socket USB 2.0 Mini type B

with
mounting unit

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

1 2 3 4 5

USB mini Typ B
Socket

Usage

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

HDMI and eSata Testplugs

19-pin HDMI Testplug
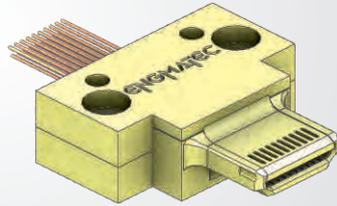
HDMI Socket

Usage

Interface for
audio and video data
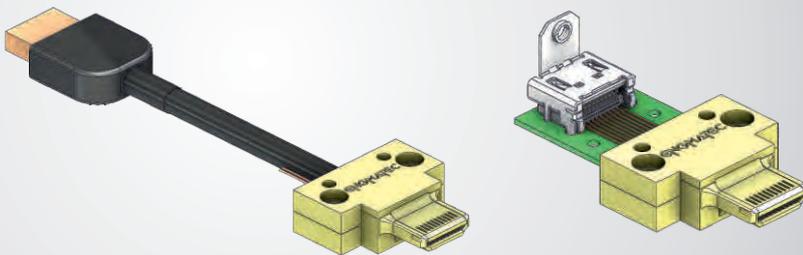
Order Number	Article
1552-59-000	19-pin HDMI Testplug

HDMI Testplug assembled

HDMI Socket

Usage

Interface for
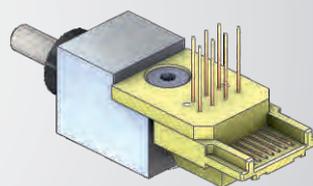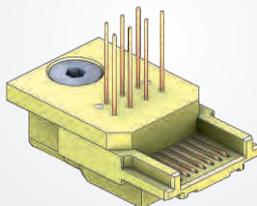audio and video data

Order Number	Article
1872-56-000	HDMI Testplug with plug (1000 mm cable)
1552-70-000	HDMI Testplug with female socket (300 mm cable)
1552-71-000	HDMI Testplug with 19-pin connection board

eSata Testplug

with mounting unit

eSata Socket

Usage

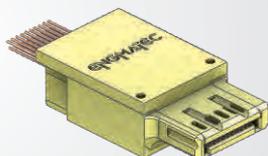Interface for
audio and video data

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

Order Number	Article
1872-30-000	Displayport Testplug (no cord set)
1956-04-000	Displayport Testplug (cord set, 300 mm cord)
on request	Special mounting unit

Displayport Socket

Usage

Interface for audio and video data

Power DC plug-in connection Ø 2,1

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
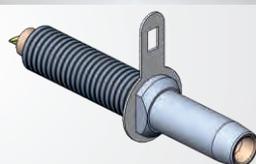
Power DC Socket

Usage

Power connection of power-supply units and electronic equipment

6-pin Firewire Testplug 1394

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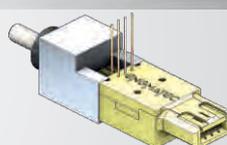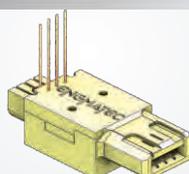
Order Number	Article
1872-31-000	Firewire Testplug (no cord set)
1956-05-000	Firewire Testplug (cord set, 300 mm cord)
1014-43-000	Suitable mounting unit

Firewire Socket

Usage

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

6-pin TAE Testplug

Order Number	Article
1014-28-000	TAE Testplug (no cord set)
1014-50-000	TAE Testplug (cord set, 300 mm cord)
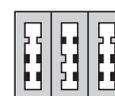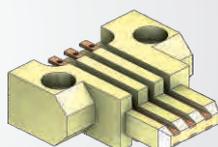
TAE Socket

Usage

Connection telecommunikation

Special shapes

Mobile radio plug type Lumberg
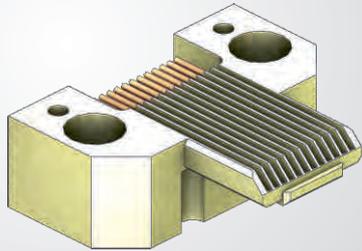
Usage	Order Number
System interface mobile phone	1014-25-000

13-pin Testplug RTX
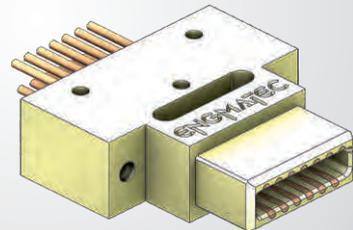
Usage	Order Number
Connection game console	1552-56-000

USB plug mini type B with center unit
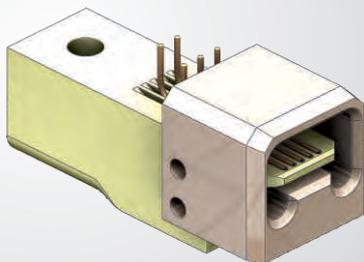
Usage	Order Number
Data transfer, charger	1552-36-000

USB mini US-Car
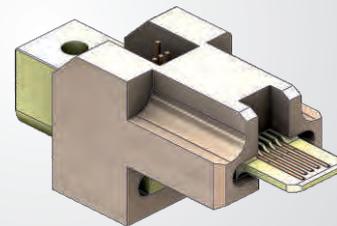
Usage	Order Number
Data transfer, charger	1552-86-000

Sensor Plug 5-pin (M12)
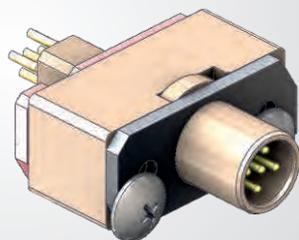
with Übergabeschnittstelle

Usage	Order Number
Electr. interface for sensor systems	1715-27-000

LVDS Plug JAE-MX…
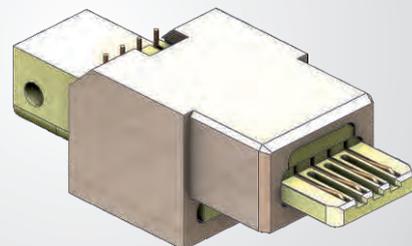
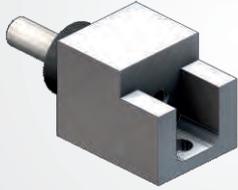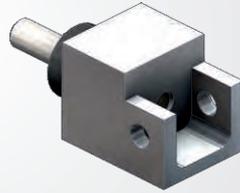| Usage	Order Number
Data and video transfer	1552-84-000

More Testing Plugs are available on request.

Fitting and mounting parts
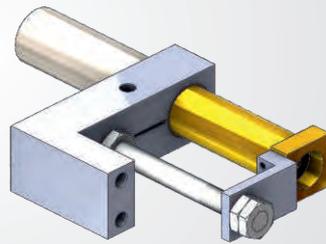
Mounting unit with rubber buffer

1014-43-000   1014-44-000   1014-45-000

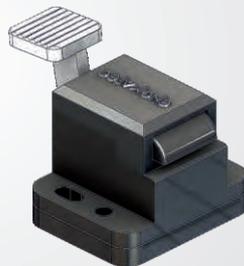| Order Number	Article
1014-43-000	Mounting unit for 4-pin plug
1014-44-000	Mounting unit for 6-pin plug and USB-plug
1014-45-000	Mounting unit for 8- and 10-pin plug

Contacting unit for testplugs

(without testplug
and mounting unit)

Order Number	Article
1004-02-000	Spring-loaded contacting unit
1004-03-000	Spring-loaded contacting unit with pneumatic actuation

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
	inclusive tachometer generator, (without threshold switch and Sub-D-connecting cable)

Board Marker with generator and threshold switch

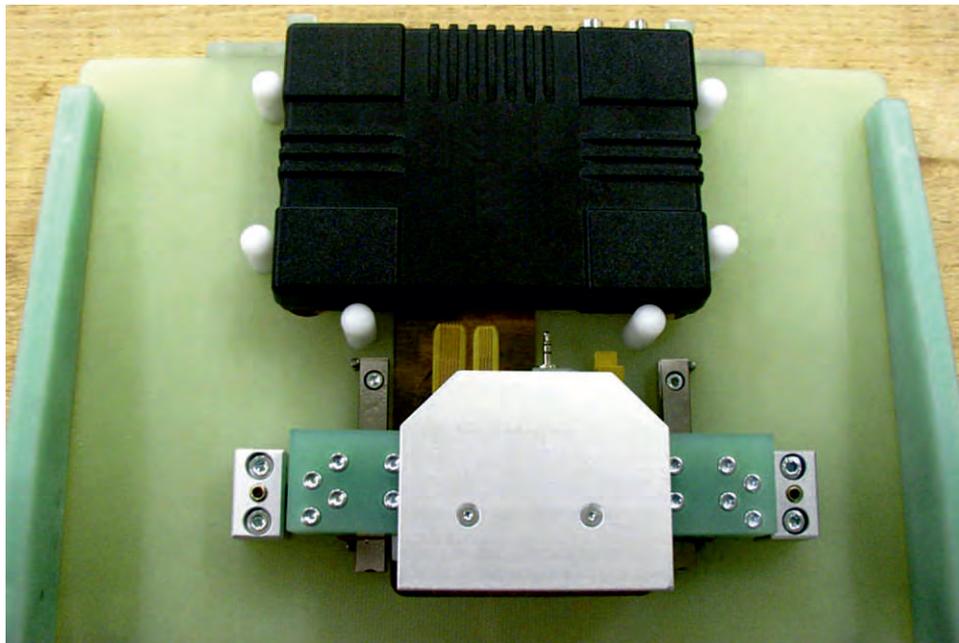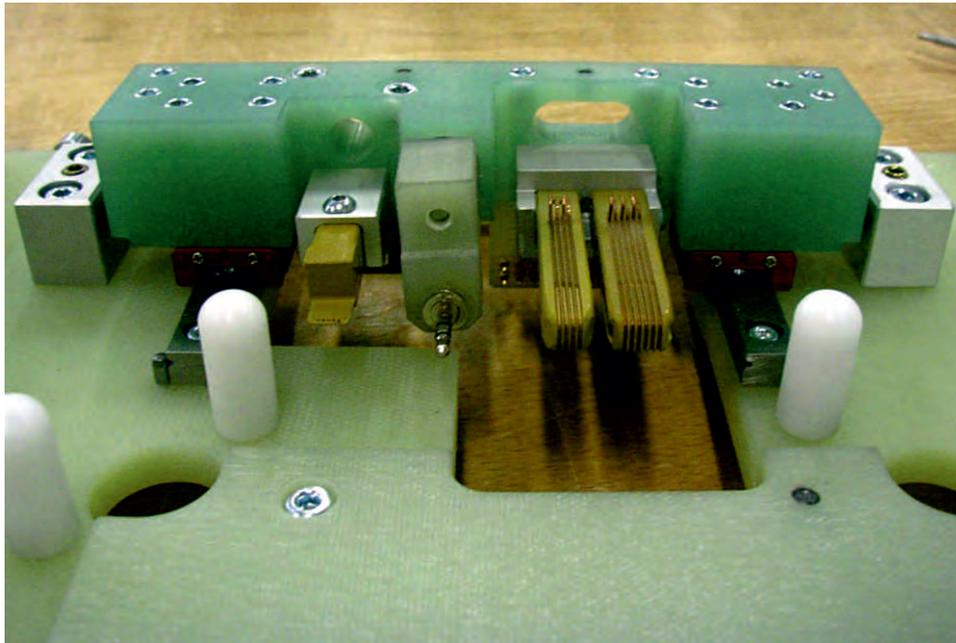
Order Number	Article
1006-26-000	Board Marker with tachometer generator
	with suspended carbide-tipped graver and motor
	einclusive tachometer generator and threshold switch, with 9 pin Sub-D-connecting cable (5m)

Examples for function usage

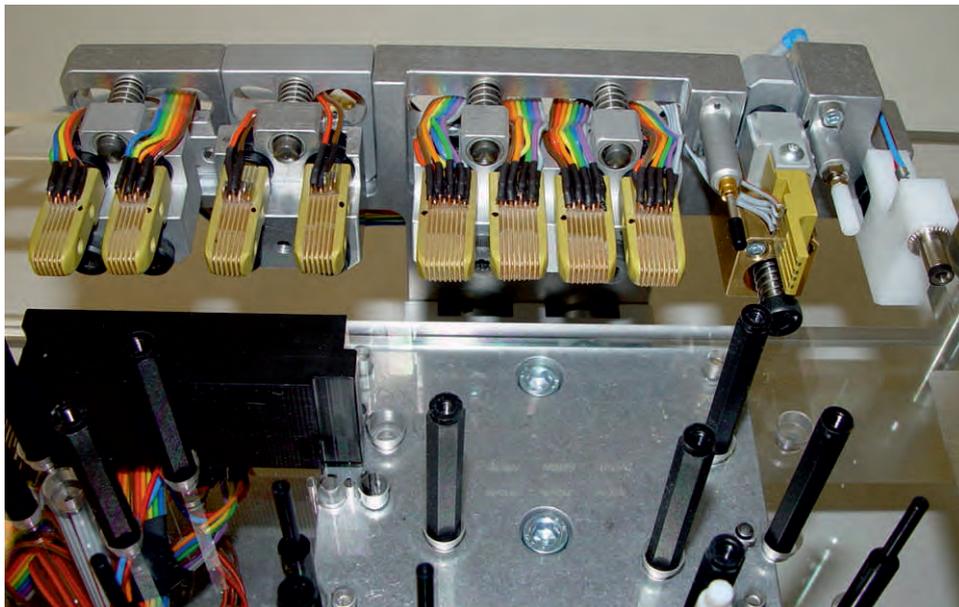Mounted in a drawer system for specific test items:

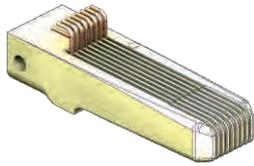- Western-Min Plugs 4-pin and 6-pin and
- Mini-USB Plugs

Usagesbeispiele

Mounted in inline fixture:
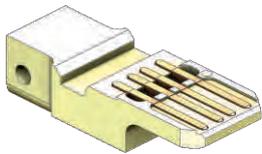- Western-Min Plugs 8-pin and
- USB Plugs type A
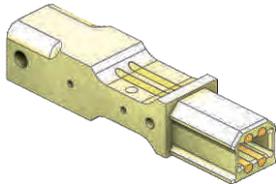
Mating cycles

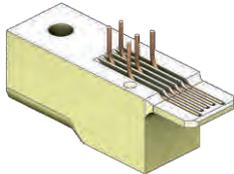|		Mating cycles in thousand
	RJ Plugs (Western-Min)	**100-200**
	USB type A	**80-100**
	USB type B	**80-100**
	USB mini	**50-60**
	USB micro	**40-50**
	DC Power Plug	**60-80**
	HDMI	**100**
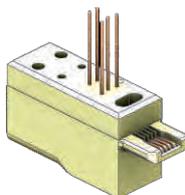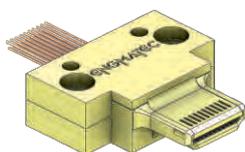
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