

Instruction Sheet

# INS-SOP8-36 ADAPTER SET

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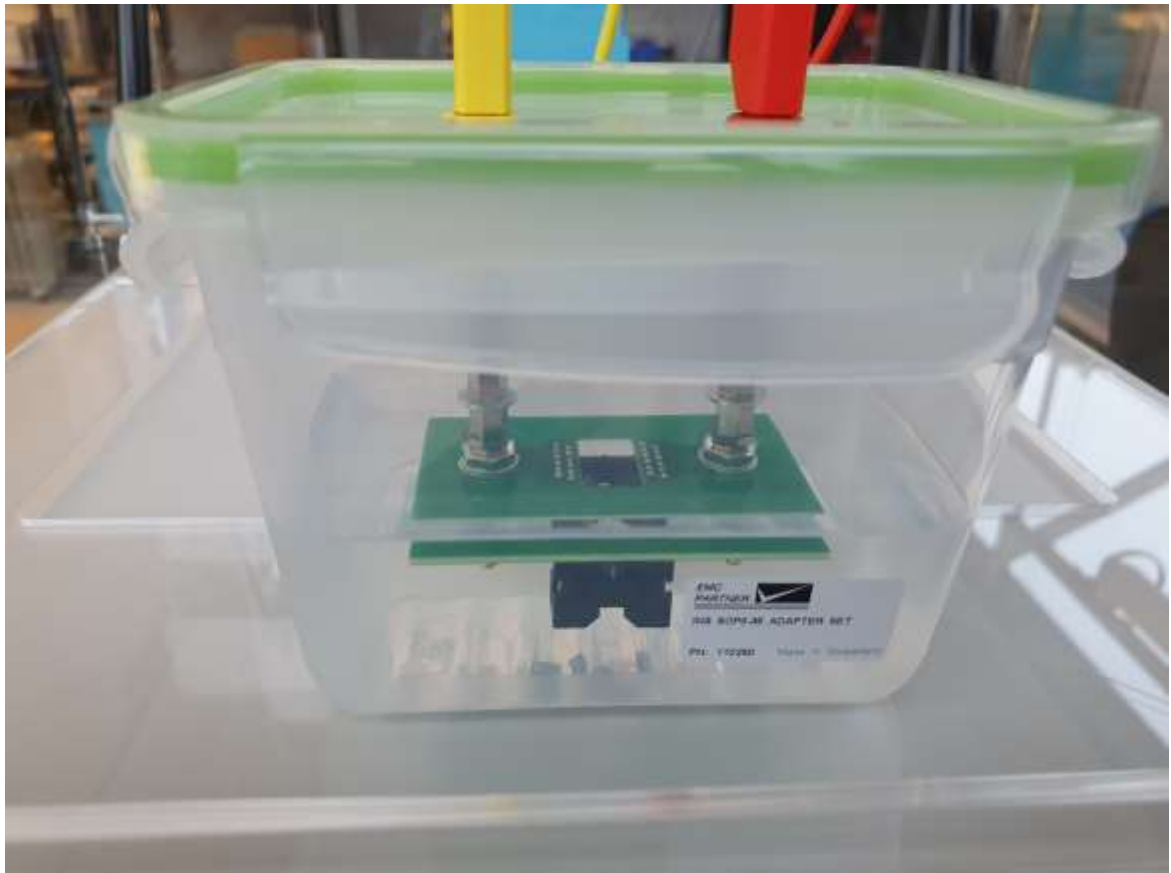
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## 1 General Information

INS-SOP8-36 ADAPTER SET is used for the insulation testing of Small Outline Package semiconductors in combination with the EMC PARTNER IN-1250 and INS-0805 series of impulse generators.

The set comprises two plastic boxes, together with four adapter boards for various semiconductor packages.

Connection is made to the impulse generator using standard push fit laboratory cables.



The plastic box can be used with or without insulating oil.

## 2 Technical Data

INS-SOP8-36 ADAPTER SET comprises:

Plastic oil bath 0.7 litres

Four adapter boards, high voltage to SOP for following devices:

| Pins                        | Pitch | Width  |
|-----------------------------|-------|--------|
| <b>8</b>                    | 1.27  | 150mil |
| <b>16</b>                   | 1.27  | 150mil |
| <b>20</b>                   | 1.27  | 300mil |
| <b>24</b>                   | 1.27  | 300mil |
| <b>36 permanent mounted</b> | 0.8   | 300mil |
| <b>44 permanent mounted</b> | 0.8   | 300mil |

Two adapter boards are fitted with sockets to allow changing of the SOP adapter and two are mounted permanently with 36 respectively 44 pin sockets.

### 2.1 Standards

Product standards define conditions under which a finished product should successfully operate, but do not provide the levels of stress required to determine dielectric withstand of semiconductors. Manufacturers of semiconductor devices have a need to test the insulation breakdown of their devices. This is particularly relevant for opto and digital isolators.

Some typical semiconductor standards are as follows:

UL 1577 for Digital / Optical isolators

IEC 60747-17 Magnetic and capacitive coupler for basic and reinforced insulation

IEC 60747-5-5 for opto isolators

VDE 0884-11 is the only component-level certification for basic and reinforced digital isolators these include isolated interfaces, isolated gate drivers, isolated amplifiers.

VDE 0884-10 specified for digital isolators

Manufacturers will test their product for transient isolation voltage, maximum transient peak isolation voltage, etc.

## 3 Safety

### 3.1 Safety standards

The INS-SOP8-36 ADAPTER SET fulfils the requirements of the safety standards IEC 61010 „Safety requirements for electrical equipment for measurement, control and laboratory use and the safety standard VDE 0104 (Safety circuits, warning lamps or connector for warning lamps).

This manual is an integral part of the Test system. The instructions contained in this manual regarding operation and the test set up are to be strictly observed.

### 3.2 Climatic Conditions

INS test systems contains high voltage circuits. EMC PARTNER only guarantees correct functioning of the INS test systems and associated accessories, if operated under the climatic condition specified.

Temperature 10 °C to 35 °C

Relative humidity <80 % Non-condensing

Atmospheric pressure 86 kPa to 106 kPa (860 to 1060 mbar)

Not influenced by: direct solar radiation, rain or condensation, dust or large electro-magnetic fields.

### 3.3 Safety Instructions

This manual is an integral part of the INS test system. The safety rules and precautions must be observed. EMC PARTNER and their representatives accept no responsibility for damage to persons and equipment caused through not observing the safety rules and precautions in this manual.

The INS test system should only be operated in a dry, clean room. It is strictly forbidden to operate the test system or EUT if water condensation is present.

It is strictly forbidden to operate the INS test system in rooms with gas explosion risk. The high voltage impulse or connections can generate sparks, which could ignite a gas.

People with heart pacemakers should not be in the vicinity of the test set up during operation

## 4 Precautionary measures during use

The INS test system generates high voltage impulses. The energy content of the SURGE impulse is high and can be dangerous with improper use. The following rules must be observed:



**NEVER touch the EUT when a test is in operation**



NEVER touch connectors or connection cables when a test is in operation



ALWAYS turn OFF high voltage of the INS test system and the power on the EUT before a manipulation of the EUT is carried out



ALWAYS remove the power cord from INS test system before checking fuses or performing any service operation

The INS GENERATORS must be connected to power line with a protective earth connection to safety ground. If an Isolation transformer is used the secondary side of the isolating transformer must be grounded.

### 4.1 Electromagnetic Compatibility

The outputs of the INS generator and connections to the EUT can emit disturbances.

The Test System should not be operated near sensitive measuring and control systems.

The INS test system fulfils the following immunity requirements:

- Electrostatic discharge Level 4 (8 kV) (IEC 61000-4-2)
- Burst EFT Level 4 (4 kV) (IEC 61000-4-4)
- SURGE Level 3 (2 kV) (IEC 61000-4-5)

## 5 Application

### 5.1 Component Parts of INS-SOP8-36 ADAPTER SET

INS-SOP8-36 ADAPTER SET can be configured for use with or without an oil bath.

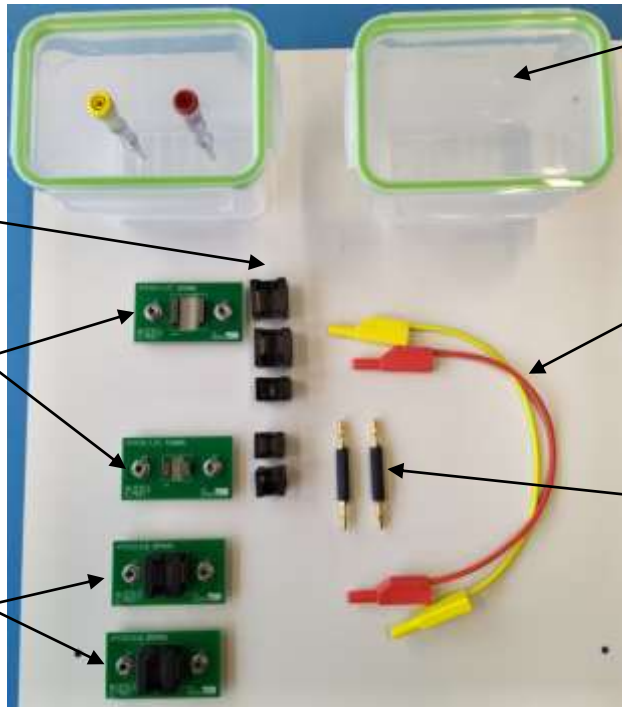
Two plastic boxes are provided. One is configured with high voltage connections and enables testing of semiconductor devices immersed in insulating oil. The second box is used as a storage receptacle for the adapter circuit boards and SOP adapters.

Oil bath with high voltage terminals

8, 16, 20, 24 pin SOP sockets.

1.27 pitch adapter boards

0.8 pitch adapter boards with permanently mounted 36 and 44 pin sockets



Spare box for storage

High voltage cables for connection of oil bath to generator

Mounting posts for direct connection to generator

INS-SOP8-36 ADAPTER SET

### 5.2 Connecting an EUT



**Attention observe all ESD requirements when handling semiconductors.**

Select the appropriate SOP adapter for the device to be tested. Fit the test sample into the adapter. The device can be fitted directly onto the INS series high voltage outputs if no additional insulation is required.

### 5.2.1 Direct connection with INS generator

The adapter set is designed so that it fits directly onto INS-1250 or INS-0805 generator high voltage outputs.

Direct connection exposes the user to dangerous voltages. We therefore only recommend direct connection when a TC-ST test cabinet is mounted on the generator.

The adapter is a push fit onto the generator high voltage outputs.



**Always stop and turn off INS generator before manipulating the EUT.**

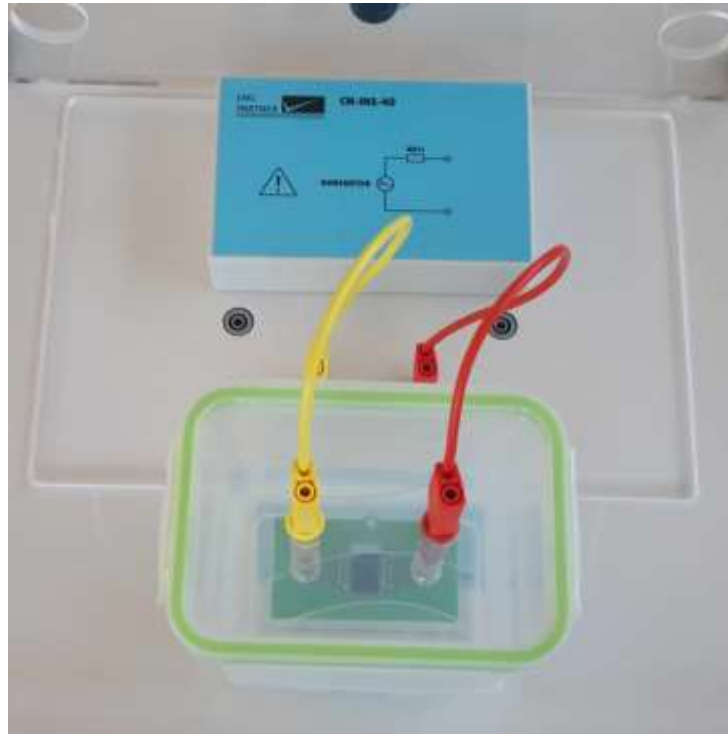


INS-SOP8-36 ADAPTER SET fitted directly onto generator high voltage outputs



## 5.2.2 Connection using insulation oil bath

The adapter set is a push fit directly onto the lid of the oil bath.



INS-SOP8-36 ADAPTER SET usage with oil bath

The oil bath can be filled with an insulating oil if needed. The lid is watertight.

Connection is made between the generator and oil bath using the 0.25m cables provided. Even though the EUT is sealed inside the oil bath, we still recommend using a test cabinet such as TC-ST to protect operators from potential hazards.



INS-SOP8-36 ADAPTER SET oil bath mounted on INS generator

## 6 Recycling / Disposal

### 6.1 RoHS directive 2002/95/EG

The INS-SOP8-36 ADAPTER SET complies with the directive 2002/95/EG (RoHS - Restriction of certain Hazardous Substances).

From December 2005, all EMC PARTNER products either hand soldered or by machine are produced using lead-free solder.

### 6.2 WEEE directive 2002/96/EG

The EMC PARTNER INS-SOP8-36 ADAPTER SET, is exempted from the directive 2002/96/EG (WEEE) under category 9.

The product should be recycled through a professional organisation with appropriate experience for the disposal and recycling of electronic products. EMC PARTNER are also available to help with questions relating to the recycling of this product.

### 6.3 Information for dismantling



**Always remove the power cord first**

There is no special danger involved in dismantling the INS-SOP8-36 ADAPTER SET.

### 6.4 Parts which can be recycled

The INS-SOP8-36 ADAPTER SET contains parts made from steel, aluminium, PVC, two-component sealing compound. The various parts can be separated and recycled.

### 6.5 Parts which cannot be recycled

All parts in the INS-SOP8-36 ADAPTER SET can be recycled.

## 7 Service Information

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