

# Manual

## f o r O p e r a t i n g



## PCD 8 s-series

### PCD 8 s-3-690-1000-100

- 8 kV Surge, 3 \* 690 V AC, 1.000 V DC, 100 A

### PCD 8 s-3-690-1000-200

- 8 kV Surge, 3 \* 690 V AC, 1.000 V DC, 200 A

Testing of Surge up to 8 kV. The coupling PCD 8 s-series coupling/decoupling network is manual operated by the user and used to couple burst pulses high current AC and DC lines.

Surge as per  
– IEC 61000-4-5

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Specifications subject to change

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## 1. General

The following manual is based on the following product family:

- coupling NX family

### 1.1. Purpose

The coupling networks from PCD 8 s-series are coupling networks for coupling Surge impulses to high voltage & current supply lines. Its couples conducted electromagnetic interference effects for immunity testing to a test equipment according international, national, and manufacturers' standards.

The system is designed for full compliance conducted electromagnetic compatibility (EMC) test requirements. The application range is for testing of industrial, light industrial, household, or commercial equipment, including many product family and product standards as per following basic standard:

- IEC 61000-4-5          Surge

### 1.2. Warranty Terms

AMETEK CTS provides this written warranty covering the product stated above, and if the buyer discovers and notifies AMETEK CTS in writing of any defect in material or workmanship within the applicable warranty period stated above, then AMETEK CTS may, at its option: repair or replace the product; or issue a credit note for the defective product; or provide the buyer with replacement parts for the product.

The buyer will, at its expense, return the defective product or parts thereof to AMETEK CTS in accordance with the return procedure specified below. AMETEK CTS will, at its expense, deliver the repaired or replaced product or parts to the buyer. Any warranty of AMETEK CTS will not apply if the buyer is in default under the purchase order agreement or where the product or any part thereof:

- is damaged by misuse, accident, negligence or failure to maintain the same as specified or required by AMETEK CTS;
- is damaged by modifications, alterations or attachments thereto which are not authorized by AMETEK CTS;
- is installed or operated contrary to the instructions of AMETEK CTS;
- is opened, modified, or disassembled in any way without AMETEK CTS's consent; or
- is used in combination with items, articles or materials not authorized by AMETEK CTS.

The Buyer may not assert any claim that the products are not in conformity with any warranty until the buyer has made all payments to AMETEK CTS provided for in the purchase order agreement.

### 1.3. Product return procedure

1. Request a Return Material Authorization (RMA) number from the local AMETEK CTS representative
2. When requesting an RMA, have the following information ready:
  - Model number
  - Serial number
  - Description of the problem

NOTE: Unauthorized returns will not be accepted and will be returned at the shipper's expense.

NOTE: A returned product found upon inspection by AMETEK CTS, to be in specification is subject to an evaluation fee and applicable freight charges.

### 1.4. Recycling and Disposal

#### 1.4.1. RoHS directive 2011/65/EU (RoHS 2)

RoHS directive *2011/65/EU* (RoHS 2)

The AMETEK CTS PCD 8 s-series complies with the directive 2011/65/EU (RoHS - Restriction of certain Hazardous Substances).

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

#### 1.4.2. WEEE directive 2012/19/EU

The AMETEK CTS PCD 8 s-series couplers are dedicated under category 9 in the directive 2012/19/EU (WEEE).

The product should be recycled through a professional organization with appropriate experience for the disposal and recycling of electronic products. AMETEK CTS is also available to help with questions relating to the recycling of this equipment.

#### 1.4.3. Dismantling information

Always remove power cord first. There is no special danger involved in dismantling the PCD 8 s-series.

#### 1.4.4. Parts which can be recycled

The PCD series couplers contains parts made from steel, aluminum, PVC, two-component sealing compound. The impulse capacitors are filled with non-poisonous mineral oil. The various parts can be separated and recycled.

#### 1.4.5. Parts which cannot be recycled

All parts in the PCD 8 s-series can be recycled.

## 2. Safety information



Attention

Before using this equipment, read the operating manual and the separate delivered **safety manual** carefully

### 2.1. Intended use

The test system compact NX / NSG 30x0A with this PCD 8 s-series is designed primarily for conducted transient interference tests as specified in the European generic standards IEC/EN 61000-6-1 to cover equipment for household, office and light industrial use, and IEC/EN 61000-6-2 for applications in industrial environments. The test system generates the test in accordance with IEC/EN 61000-4-5.

The EMC Directive 2014/30/EU (for the assignment of the CE mark) refers to these standards and to this type of equipment.

### 2.2. Responsibility of the operator

These operating instructions form an essential part of the equipment and must always be available to the operator. The user must obey all safety instructions and warnings.



WARNING

The purpose of this instrument is the generation of defined interferences signals for EMI immunity testing. Depending on the arrangement of the test rig, the configuration, the cabling, and the properties of the EUT itself, a significant amount of electromagnetic radiation may result that could also affect other equipment and systems.

The equipment is designed to operate in industrial environment. For operating in other or sensitive environment, such as light industry, airport area..., the user may use a shielded room for operate.

The user himself or herself is ultimately responsible for the correct and controlled operation of the rig. In case of doubt, the tests should be carried out in a Faraday cage.

### 2.3. General hazard

Before applying power to the system, verify that your product is configured properly for your application.



WARNING

The test system compact NX / NSG 30x0A, the PCD 8 s and its accessories operate at high voltages.

Hazardous voltages may be present when covers are removed. Qualified personnel must use extreme caution when servicing this equipment.

Circuit boards, test points, and output voltages also may be floating above (below) chassis ground.

Always ensure that facility input power is de-energized prior to connecting or disconnecting any cable.

Only *qualified personnel* who deal with attendant hazards in impulse generators, can perform installation and servicing.

Ensure that the power line ground is connected properly to the Power Rack input connector or chassis. Similarly, other power ground lines including those to application and maintenance equipment *must* be grounded properly for both personnel and equipment safety.

The user must ensure that the output power lines are labeled properly as to the safety hazards and that any inadvertent contact with hazardous voltages is eliminated.

Guard against risks of electrical shock during open cover checks by not touching any portion of the electrical circuits. Even when power is off, capacitors may retain an electrical charge. Use safety glasses during open cover checks to avoid personal injury by any sudden component failure.

Neither AMETEK CTS nor any of the subsidiary sales organizations can accept any responsibility for personnel, material or inconsequential injury, loss or damage that results from improper use of the equipment and accessories.



**WARNING** Personnel fitted with a heart pacemaker must neither operate the instrument nor approach the test setup while a test is being executed.

Only approved accessories, connectors, adapters, etc. are to be used to ensure safe operation.

**2.4. Qualification of personnel**

The PCD 8 s-series must be operated only by authorized and trained specialists.

**2.5. Safety label on the device**

Please take note of the following explanations of the symbols used to achieve the optimum benefit from this manual and to ensure safety during operation of the equipment.



This symbol warns of a potential risk of shock hazard. The symbol on an instrument shows that that it can source up to 1500 volt or more, including the combined effect of normal and common mode voltages. Use standard safety precautions to avoid personal contact with these voltages.



This symbol indicates where a caution is required. Refer to the operating instructions located in the manual to protect against personal injury or damage the equipment

**CAUTION**

The CAUTION symbol indicates a potential hazard. It calls attention to a procedure, practice, or condition which, if not followed, could possibly cause damage to equipment. Such damage may invalidate the warranty. If a CAUTION is indicated, do not proceed until its conditions are fully understood and met.

**WARNING**

The WARNING symbol indicates a potential hazard. It calls attention to a procedure, practice, or condition which, if not followed, could possibly cause bodily injured or death. If a WARNING is indicated, do not proceed until its conditions are fully understood and met.

**2.6. Prohibition of unauthorized conversions and modifications**

The user is not entitled to the device to perform its own modifications and adaptations. Modifying parts on the generator by unauthorized persons will void the warranty of the device and the correct functioning cannot be guaranteed.



### 3. Installation put in service

This chapter includes a checklist with steps that should be taken before the PCD 8 s-series is switched on and put into operation.

#### 3.1. Safety instructions for installation and initial installation

National regulations in installation and operation of electrical equipment must be respected.



**WARNING** The PCD 8 s-series test system is not suitable for use in an explosive atmosphere.



**WARNING** Connect the EUT only after the initial system setup has finished.

##### 3.1.1. Qualifications of the staff

Basic knowledge of electrical engineering and electromagnetic compatibility is required to service the unit. The national regulations for installation of electrical equipment as well as the safety at work of electrical equipment must be known to the user.

##### 3.1.2. Installation

The PCD 8 s-series system conforms to protection class 1. Local installation regulations must be respected to ensure the safe flow of leakage currents.



**WARNING** Operation without a ground connection is forbidden!

Two independent ground connections are necessary - one for the test system and one for the EUT. These must be connected back to the local permanent installation or to a fixed, permanent ground conductor.

Operate the equipment only in dry surroundings. Any condensation that occurs must be allowed to evaporate before putting the equipment into operation. Do not exceed the permissible ambient temperature or humidity levels. Use only officially approved connectors and accessory items.

Ensure that a reliable return path for the interference current is provided between the EUT and the generator. The ground reference plane and the ground connections to the instruments, as described in the relevant test standards, serve this purpose well.

The test system may only be opened by a qualified specialist upon specific instruction given by the manufacturer. The equipment works, on principle, with two independent power supplies, one for the generator and one for the EUT. The PCD 8 s-series must be disconnected from both sources before any modifications to the test setup are undertaken. Besides the mains connections themselves, certain components also operate at high voltages, and are not provided with any form of extra protection against accidental contact.

The system complies with the safety requirements of IEC/EN 61010-1 (Safety requirements for electrical equipment for measurement, control, and laboratory use).

It is the user's responsibility to ensure that the test rig does not emit excessive electromagnetic interference (EMI) that might affect other equipment. The test system itself does not produce any excessive radiation; however, the injection of interference pulses into the EUT can result in the device and/or its associated cables radiating EMI. To avoid radiating unwanted interference the standards organizations recommend that the test setup be in a Faraday cage.

Since the purpose of the test system is to produce interference signals for interference immunity testing, the requirements in the IEC/EN 61000 series concerning limiting the radiated EMI can only be complied with by operating the test system inside a Faraday cage.

## 3.2. Installation of the PCD 8 s coupling network

### 3.2.1. Unpacking

Check the packaging for signs of damage in transit. Any damage should be reported immediately to the transportation company and the local representative. Lift the PCD 8 s out of its packaging.



**NOTE** Do not dispose of packaging materials. All packaging should be retained if the instrument or any of its accessories should need to be returned to an AMETEK CTS service center for repair or calibration.

Using the following list, check that all the items ordered have been delivered (see also chapter 7.1):

#### PCD 8 s-3-690-1000-100

1. **PCD 8 s-3-690-1000-100** incl. 1 Surge coupling box (SCB)
2. IAK 6, Isolated Allen key for screw terminal, 6 mm
3. PCS SET 1; 2 cables to connect HV-COM (Surge out) to PCD 8 s
4. 2 HVS connection cables, 2.0 m, (1 red, 1 black connectors); to connect SYNC BOX with compact NX / NSG 30x0A
5. User manual (pdf on the delivered memory stick)
6. Coupling Guide, printed version
7. USB Memory card

#### PCD 8 s-3-690-1000-200

1. **PCD 8 s-3-690-1000-200** incl. 1 Surge coupling box (SCB)
2. IAK 6, Isolated Allen key for screw terminal, 6 mm
3. PCS SET 1, 2 cables to connect HV-COM (Surge out) to PCD 8 s
4. 2 HVS connection cables, 2.0 m, (1 red, 1 black connectors); to connect SYNC BOX with compact NX / NSG 30x0A
5. User manual (pdf on the delivered memory stick)
6. Coupling Guide, printed version
7. USB Memory card
8. 2 pcs. Power Supply units for supplying power to the fans including mains cable

Check the equipment for signs of transport damage. Any damage should be reported to the Transportation Company and local representative immediately.

### 3.2.2. Installation of a test rig

This section describes the check-up and installation of the PCD 8 s coupling network after delivery as well as providing a check on the functions of the unit after being transported or following to significant changes within the test rig. Installation should only be carried out by experienced personnel:

- Check the delivery for completeness
- Check the unit for any signs of damage in transit. Report any damage found to the carrier immediately
- Study the full manual
- Set up the generator in accordance with the instructions in its manual but do not switch the instrument on
- For convenience, place the coupling network close to the generator
- Connect the protective earth to the terminal. The same protective earth should also be connected to the earth terminal of the generator
- Plug the high voltage connectors into the surge generator
- Connect the Sync unit to the generator
- Connect the EUT supply
- Switch on the mains power at the generator
- Choose the appropriate coupling mode
- Connect the device to be tested according to the relevant safety specifications and with due regard to the magnitude of the pulse voltage selected. Take the necessary measures to cope with any possible explosion or outbreak of fire
- Switch on the EUT power supply
- Operate the generator as instructed in its manual and carry out the required tests.

It is assumed that the test rig has been set up in accordance with the foregoing notes and that the device to be tested has been connected taking the relevant safety measures into account.

**3.2.3. Assembling of the PCD 8 s-3-690-1000-100/-200**

Prepare the test setup conform to the chosen standard and put both decoupling network units, etc. to the place where the CDN shall be used for testing.

**Mounting of the common earth rails**

Place the two surge decoupling networks in parallel to each other. Looking from the top, make sure that the N-L1 network is below the L2-L3 network.

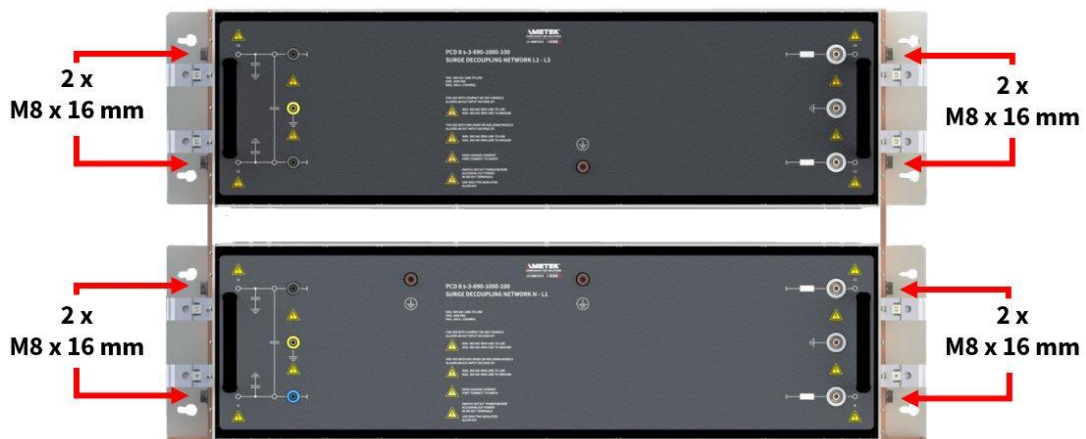


**NOTE** To enable proper synchronization assure that L1 being placed next to L2!

Use the delivered isolated Allen key to screw the copper earth rails on to both ends of the decoupling networks (2 x 2 screws each side per network).



**NOTE** Make sure that the copper rail is properly mounted and tightened. Use only the delivered screws.



After mounting the earth rails it should look like this:



### Mounting positioning plates

Screw the base plates (positioning plates) of the sync unit and of the coupling unit, with the knurled screws to the foreseen holes on the outside of the decoupling networks. If PCD 8 s decoupling networks are not placed correctly, the positioning plates cannot be screwed on.



### Mounting the Sync unit

Add the Sync unit in the middle of the positioning plate and press it slightly down into the positioning holes. Fix the Sync unit by pushing the black quick snap-on knobs (A) down. Connect the synch lines (safety banana connector) to the decoupling units (B). Connect the ground terminal of the sync unit to the decoupling network (C).

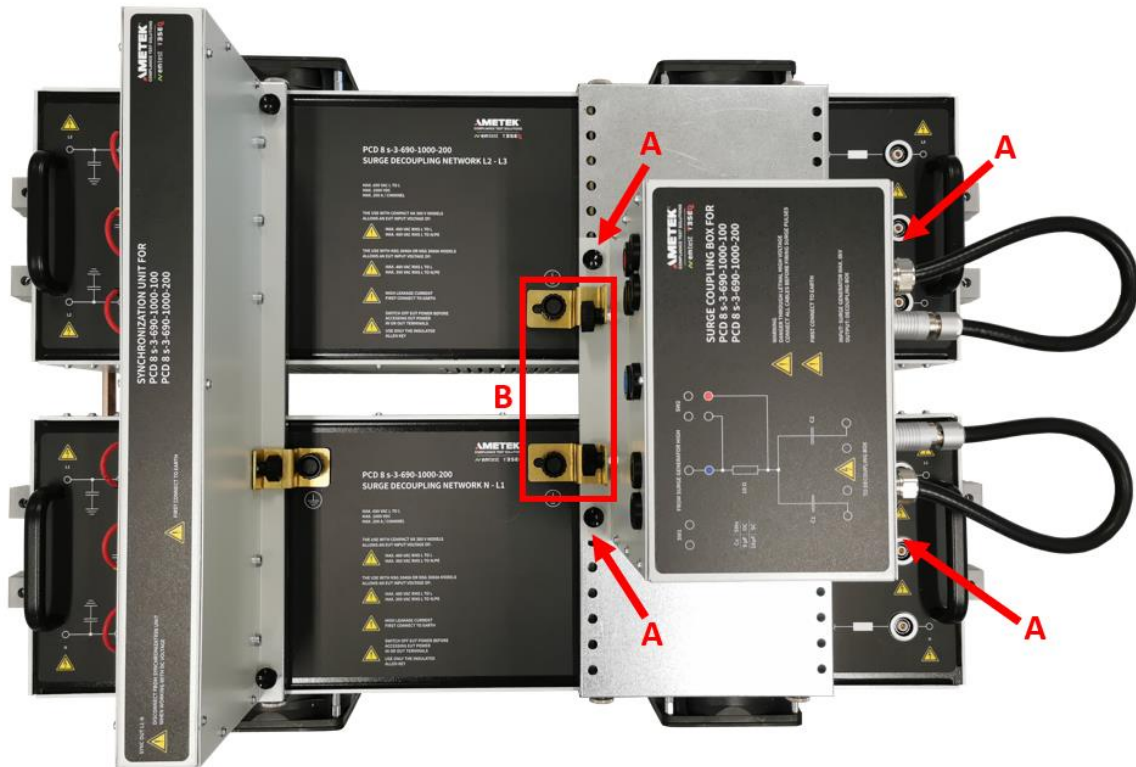


### Assembly for IEC coupling

For IEC coupling, add the coupling module SCB in the middle of the big positioning plate and press it slightly down into the positioning holes. Fix the SCB by pushing the 4 black quick snap-on knobs down (A). Connect the ground terminal of the SCB to the decoupling network (B). The PCD 8 s-3-690-1000-100 is now ready to use.



**NOTE** For the PCD 8 s-3-690-1000-200, the 4 fan motors must also be connected to the power supply units and put into operation. Only use the two power supply units included in the scope of delivery; 2 fan motors can be connected to each power supply unit.



**NOTE** Because of the coupling capacitors, the mains voltage can be present at the HV connectors when the EUT power supply is switched on. The HV connectors must therefore always be hooked up to the generator before the mains and the EUT power supply are switched on.



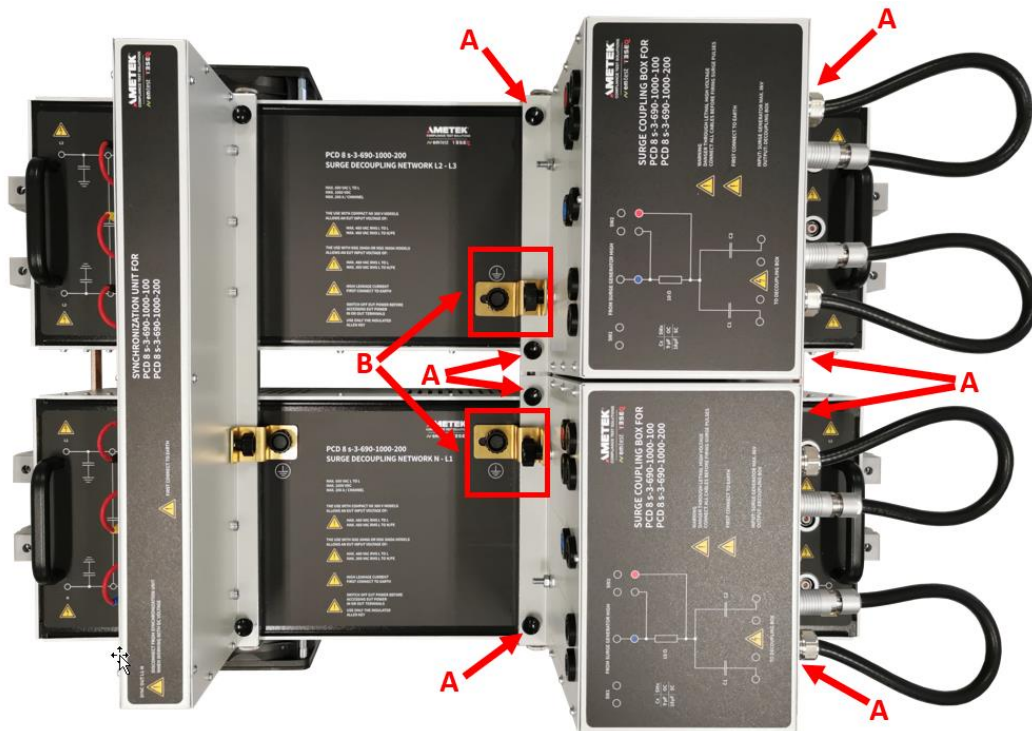
**NOTE** Never run the CDN with a loose end of the coupling unit. All connectors need to be plugged.



**NOTE** The whole test assembly should be supplied from the same mains connection in order to prevent uncontrolled flow of pulse current in other parts of the system. Installation in a Faraday cage ensures that non-associated items and equipment are not disrupted by pulses radiated from the cabling or the device under test. Connections to the EUT must be of low impedance and be made with high contact pressure. Otherwise welding or arcing might occur at the contact points.

**Assembly for ANSI coupling or additional IEC lines coupling mode**

For ANSI coupling or additional IEC lines coupling add 2 coupling modules SCB on the big positioning plate and press them slightly down into the positioning holes. Fix the SCB's by pushing the black quick snap-on knobs down (A). Connect the ground terminals of both SCB's to the decoupling networks (B).



**NOTE** Because of the coupling capacitors, the mains voltage can be present at the HV connectors when the EUT power supply is switched on. The HV connectors must therefore always be hooked up to the generator before the mains and the EUT power supply are switched on.



**NOTE** The whole test assembly should be supplied from the same mains connection in order to prevent uncontrolled flow of pulse current in other parts of the system. Installation in a Faraday cage ensures that non-associated items and equipment are not disrupted by pulses radiated from the cabling or the device under test. Connections to the EUT must be of low impedance and be made with high contact pressure. Otherwise welding or arcing might occur at the contact points.

**3.2.4. Grounding**

The instruments conform to the safety requirements, but with an increased leakage current given by the decoupling filter. Operate the equipment only in dry and clean surroundings. Any condensation that occurs must be allowed to evaporate before putting the equipment into operation. Do not exceed the permissible ambient temperature or humidity given in the IEC specification.



**NOTE** Operation without a protective earth connection is forbidden!



**NOTE** Only handle the test rig or the device being tested when the EUT power supply is switched off and the generators test sequence has been halted or aborted.

It is recommended to connect the PCD 8 s through a properly rated power switch device, which should be located close to the test setup. To ensure an easy and quick access to the EUT power, the switch should be clearly and visibly labelled as a device for «EUT power on/off» switching. The inhouse power distribution needs to be equipped with a proper circuit breaker and an emergency off button as per IEC 61010-1.

### Leakage current

Local installation regulations must be respected to ensure the safe flow of leakage currents. Use only nationally approved connectors and accessory items.

Ensure that a reliable return path for the interference current is provided between the EUT and the coupling network. The reference ground plane and the earth connections to the instruments as described in the relevant test standards serve this purpose well.

### Earth connection

The earth connection terminal ensures a positive link to the copper earth rail connected on the CDN housing. On the CDN unit «EUT power out» side it is electrically connected to the middle connection, identified by «earth connection» symbol. In case of a test installation with a solid earth (e.g. a Faraday cage), this earth terminal can be used to form a star-connection point for the earth wires of the test setup.

### EUT Supply protection

Dimensioning of EUT supply and rating of fuse protection (AC or DC), must conform with National prescriptions and EUT requirements. An inappropriate arrangement, mounting, cabling and/or handling of the device under test or the protective elements can make the protective features that are incorporated in the concept of the device worthless.



**NOTE** The in-house power distribution needs to be equipped with a proper circuit breaker and an emergency off button as per IEC/EN 61010-1.



**NOTE** Do not mismatch the EUT power input of the CDN and the EUT power output. Use only the delivered isolated allen key to screw the cables to the terminals. Never touch the terminals during the EUT power is on.

### 3.2.5. Power connection, 1-phase AC



NOTE The PCD 8 s is equipped with EUT terminals suitable for a max. wire gauge of 110 mm<sup>2</sup> AWG 4-4/0 (230 A), torque: max. 20 Nm.

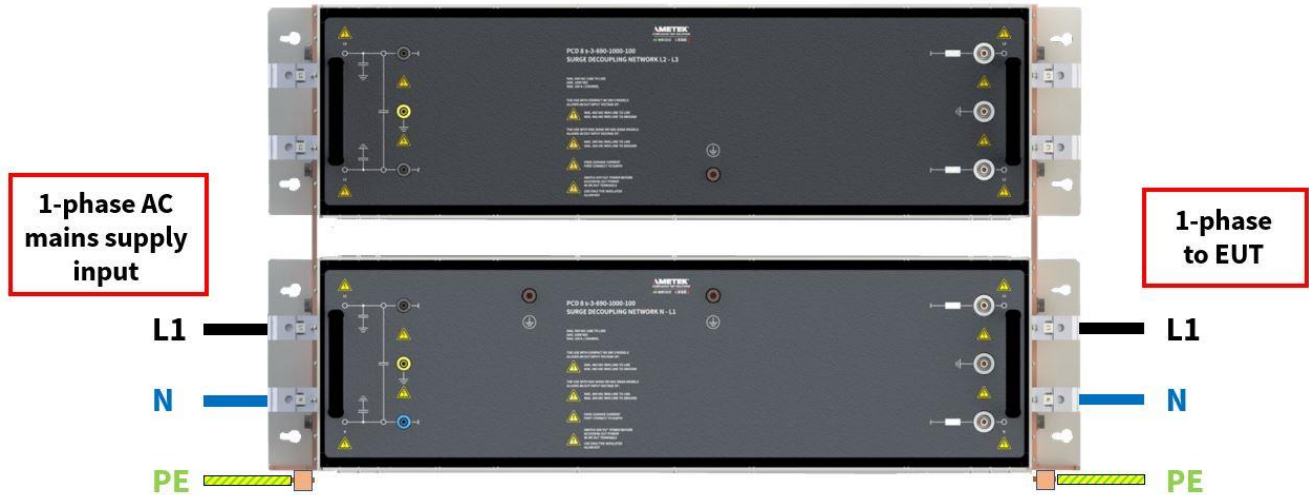


Figure 3.1: Connection with 1-phase AC mains supply

### 3.2.6. Power connection, 3-phase AC

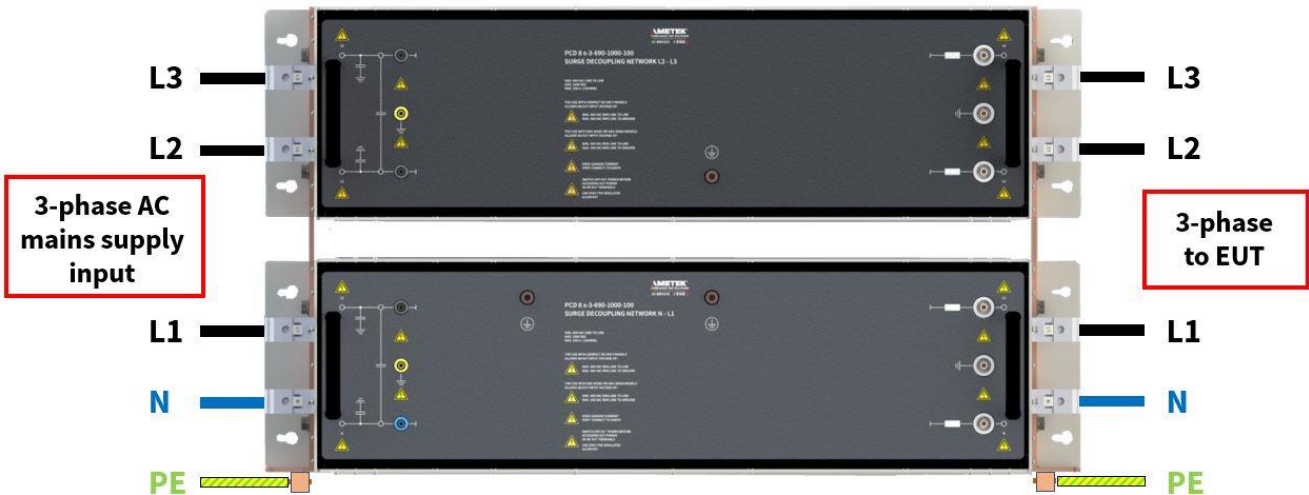


Figure 3.2: Connection with 3-phase AC mains supply



3.2.7. Power connection, DC

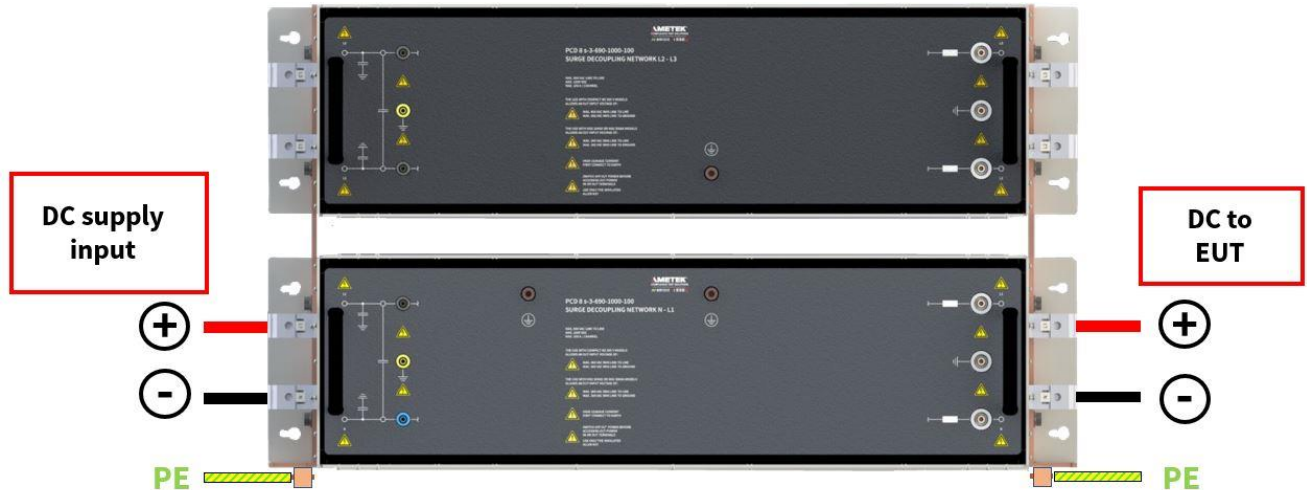


Figure 3.3: Connection with DC supply

3.2.8. EUT power supply

The power is fed in via a 5-core cable usually brought out as:

Color	3-phase AC	1-phase AC*	DC*
brown	L1	phase (L)	positive (+)
black	L2		
black	L3		
blue	N	neutral (N)	negative (-)
green/yellow	PE	ground (PE)	PE



**NOTE** Care must be taken for 1-phase or DC application to prevent the risk of electrical shock through unused channels (screwed connectors). It is recommended to screw the safety banana plug adapters (PCA BPSET) on the unused connectors.

The earth connection lug on the power supply input serves to ensure a good connection to the protective earth on the coupling network. Every test rig must be planned carefully. All the instrumentation should be readily accessible and rigidly positioned.



**NOTE** The whole test setup should be supplied from the same mains connection to prevent an uncontrolled flow of pulse current in other parts of the system. Installation in a Faraday cage ensures that non-associated items and equipment are not disrupted by pulses radiated from the cabling or the device under test. Connections to the EUT must be of low impedance and be made with high contact pressure otherwise welding or arcing might occur at the contact points.

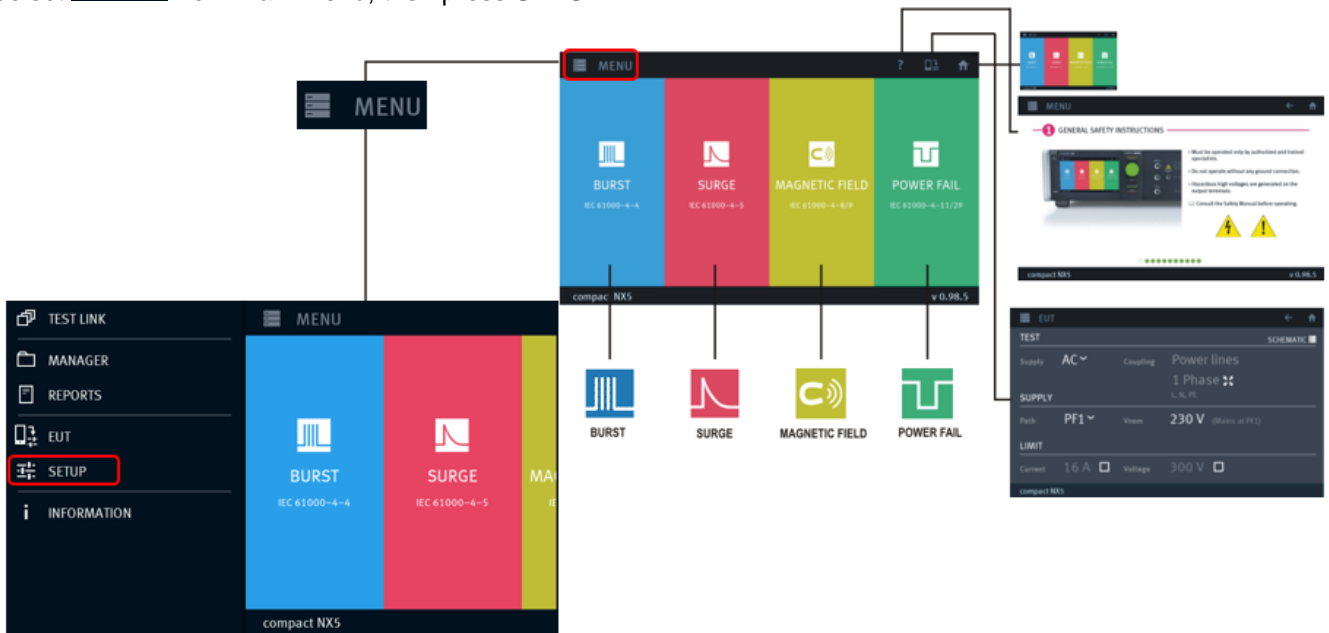


**NOTE** Only handle the test rig or the device being tested when the EUT power supply is switched off and the generators test sequence has been halted or aborted.

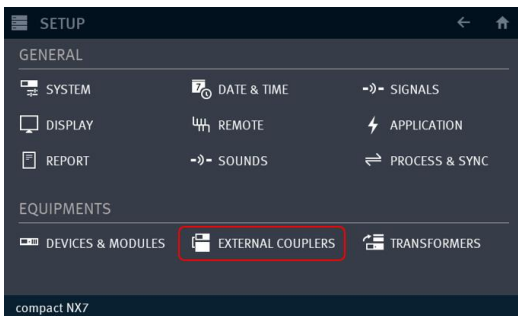
### 3.3. Firmware settings

#### 3.3.1. Activate of the PCD 8 s in compact NX

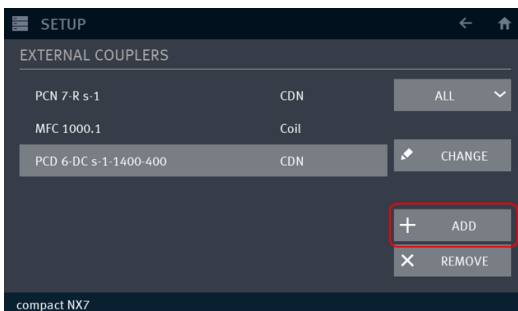
Select **MENU** from Main Menu, then press **SETUP**:



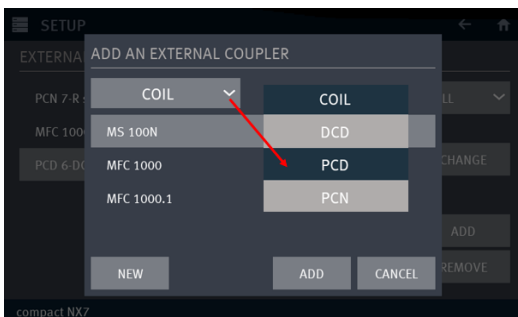
Select **EXTERNAL COUPLERS** in the EQUIPMENTS section.

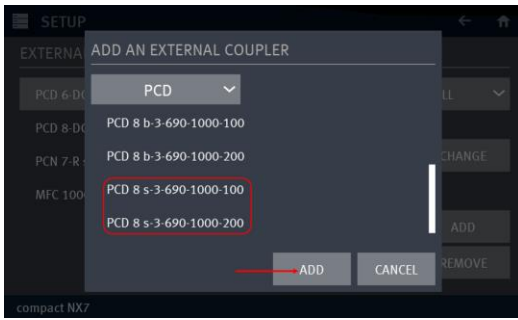


If the PCD 8 s is not yet in the list, it can be added by pressing **+ ADD**.



Open the selection menu and select **PCD**.





Then select your PCD from the list. If you are using both the 100 and 200 A version, please ensure that both PCDs are selected (one after the other).

### 3.3.2. Selecting the PCD 8 s in test-mode (compact NX)

To be able to select the PCD 8 s for coupling, it must first be activated as an external coupler as shown in chapter 3.3.1. The PCD 8 s can then be selected as a coupling network in the various test menus.



Example Quickstart: In the lower left corner of the test window you can see which coupling network is currently selected (1). Open the coupling setting menu (2).



Change the coupling mode from **Internal** to the **PCD 8 s** (3) to be used and press **OK** (4).

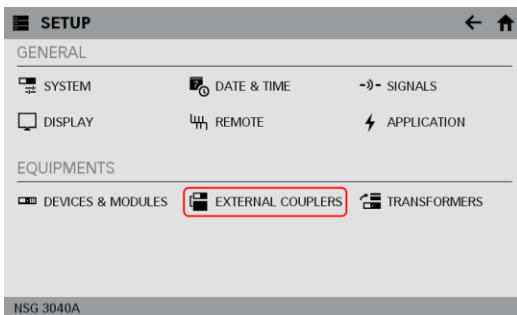
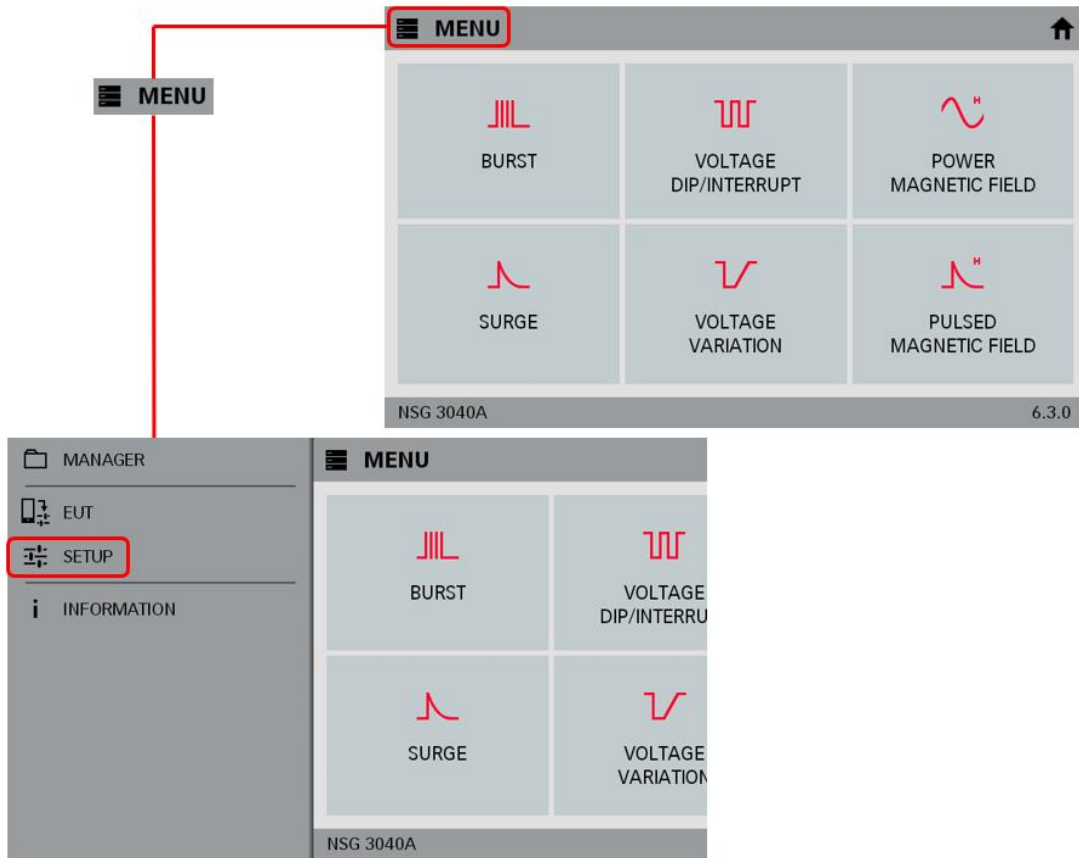


In the lower left corner of the test window you can see now the selected PCD 8 s.

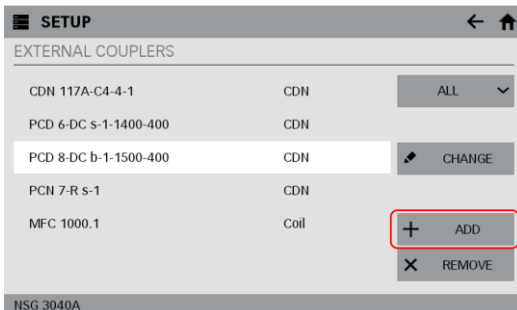
Example PCD 8 s-3-690-1000-100

### 3.3.3. Activate of the PCD 8 s in NSG 3000A

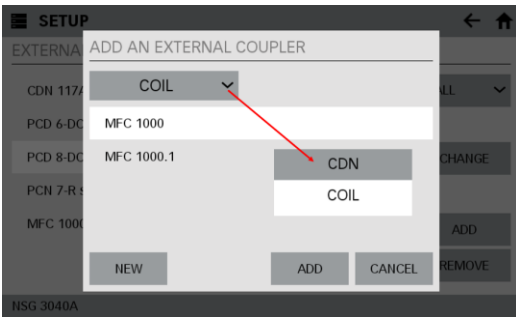
Select **MENU** from Main Menu, then press **SETUP**:



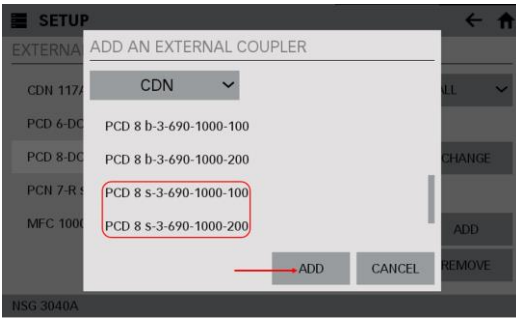
Select **EXTERNAL COUPLERS** in the EQUIPMENTS section.



If the PCD 8 s is not yet in the list, it can be added by pressing **+ ADD**.



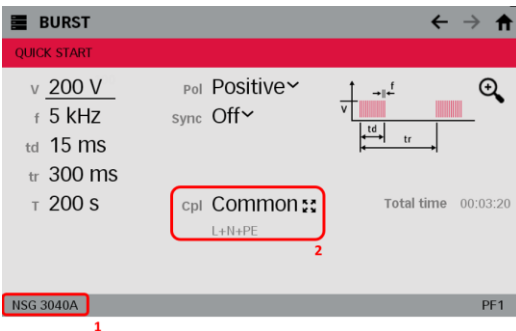
Open the selection menu and select **CDN**.



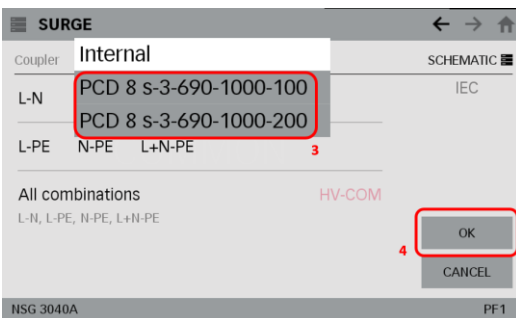
Then select your PCD from the list. If you are using both the 100 and 200 A version, please ensure that both PCDs are selected (one after the other).

**3.3.4. Selecting the PCD 8 s in test-mode (NSG 3000A)**

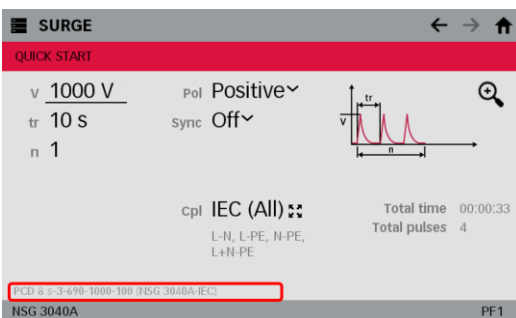
To be able to select the PCD 8 s for coupling, it must first be activated as an external coupler as shown in chapter 3.3.3. The PCD 8 s can then be selected as a coupling network in the various test menus.



Burst Quickstart: In the lower left corner of the test window you can see which coupling network is currently selected (1). Open the coupling setting menu (2).



Change the coupling mode from **Internal** to the **PCD 8 s** (3) to be used and press **OK** (4).



In the lower left corner of the test window you can see now the selected PCD 8 s.

Example PCD 8 s-3-690-1000-100

#### 4. List of coupling networks

Coupling network for **Surge** impulses:

Device	Impulse voltage	Phases	EUT Voltage [V]	EUT Current [A]
PCD 8 s-3-690-1000-100	8 kV	+, -, PE	690 AC, 1000 DC	100
PCD 8 s-3-690-1000-200	8 kV	+, -, PE	690 AC, 1000 DC	200



**It is forbidden to disconnect the plug in DC operation under voltage.**

**Risk of a stationary spark!**

## 5. PCD 8 s-3-690-1000-100/200

### 5.1. Input PCD 8 s-3-690-1000-100/200

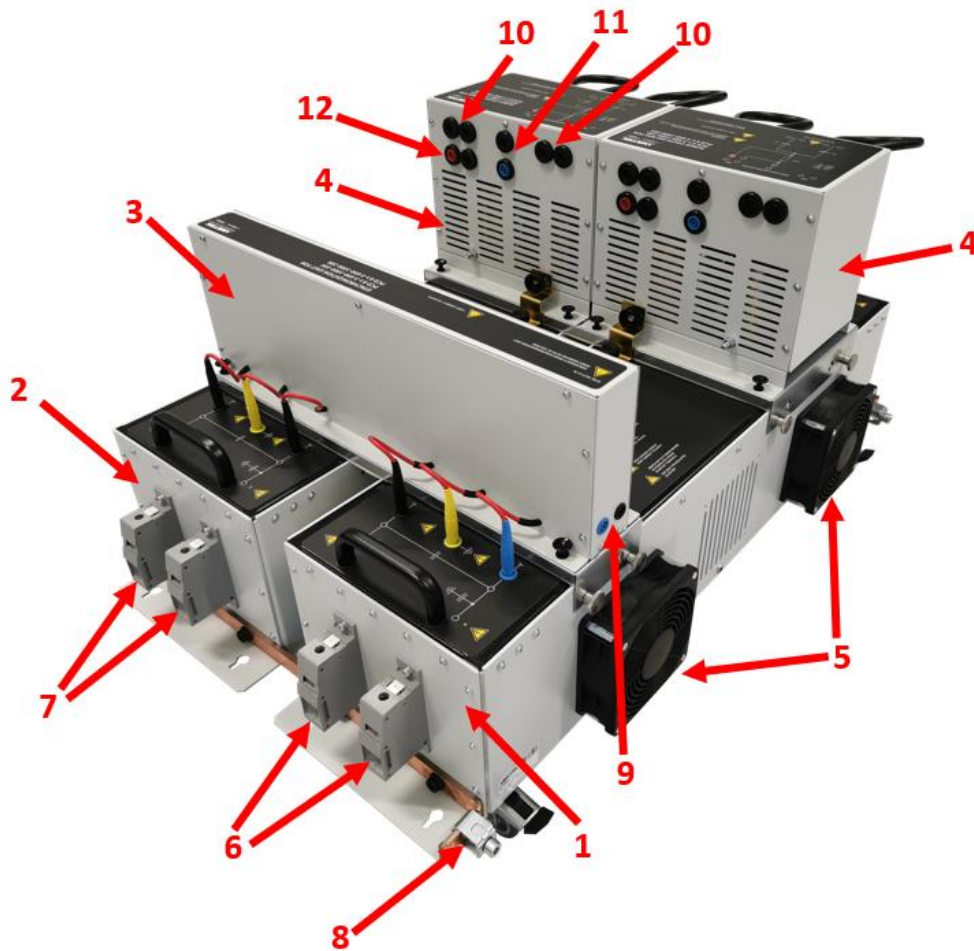


Figure 5.2: Input coupling PCD 8 s-3-690-1000-200

- |   |                                   |    |                                     |
|---|-----------------------------------|----|-------------------------------------|
| 1 | Decoupling network L1-N           | 7  | Power supply input L3-L2            |
| 2 | Decoupling network L3-L2          | 8  | Earth rail (PE)                     |
| 3 | Sync unit                         | 9  | Surge generator synch. input        |
| 4 | Surge coupling box (SCB)          | 10 | Jumper for capacitance setting (Jc) |
| 5 | Cooling fans (200 A-models only)  | 11 | HV-high input from Surge generator  |
| 6 | Power supply input L1-N / DC+-DC- | 12 | Jumper for impedance setting (Ji)   |

#### 1 Decoupling network L1-N

Surge decoupling network, L1-N.

#### 2 Decoupling network L3-L2

Surge decoupling network L3-L2.

#### 3 Sync unit

For synchronisation purpose the synchronisation unit needs to be connected to the decoupling units 1 and 2 (also see 9).

#### 4 Surge coupling box (SCB)

Surge coupling box for IEC coupling L-L and L-PE. An additional SCB is required for ANSI and optional IEC coupling (in combination with the SCB included in delivery).

#### 5 Cooling fans (200 A-models only)

For operation, the fan motors must be connected to the power supply units supplied, there is no separate on/off switch for this purpose.

#### 6 Power supply input L1-N / DC+-DC-

Input screw terminal L1(DC+) and N(DC-). Max. voltage 3 \* 690 V AC, 1.000 V DC.

- 7 Power supply input L3-L2**  
Input screw terminal L3 and L2. Max. voltage 3 \* 690 V AC, 1.000 V DC.
- 8 Earth rail (PE)**  
Screw terminal for protected earth (PE).
- 9 Surge generator synch. input**  
Needs to be connected to the synch connection of the generator (also see 3).
- 10 Jumper for capacitance setting (Jc)**  
The jumper is used to set the coupling capacitance to 9 or 18  $\mu\text{F}$ , please follow the instructions in the Coupling Guide (chapter 9). Open circuit -> 9  $\mu\text{F}$ , short circuit -> 18  $\mu\text{F}$ .
- 11 HV-high input from Surge generator**  
Connection to the HV output of the surge generator, max. amplitude 8 kV.
- 12 Jumper for impedance setting (Ji)**  
The jumper is used to set the coupling impedance to 2 or 12 ohms, please follow the instructions in the Coupling Guide (chapter 9). Open circuit -> 12 Ohm, short circuit -> 2 Ohm.



## 5.2. Output PCD 8 s-3-690-1000-100/200

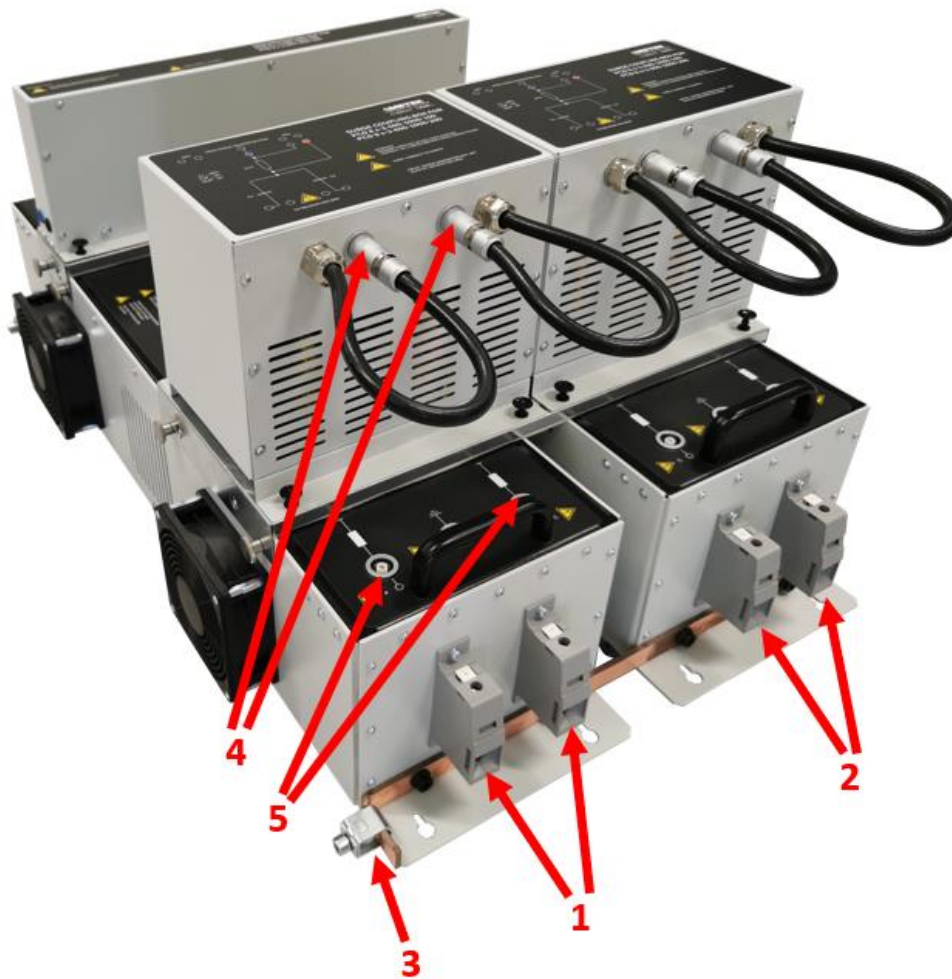


Figure 5.2: Output coupling PCD 8 s-3-690-1000-200

- 1 EUT test supply L1-N / DC+-DC-
- 2 EUT test supply L3-L2
- 3 Earth rail (PE)
- 4 Surge output SCB

- 5 Surge input coupling network

- 1 **EUT test supply L1-N / DC+-DC-**  
Screw terminal L1(DC+) and N(DC-) for EUT supply.
- 2 **EUT test supply L3-L2**  
Screw terminal L3 and L2 for EUT supply.
- 3 **Earth rail (PE)**  
Screw terminal for protected earth (PE).
- 4 **Surge output SCB**  
Coupling lines, use according to chapter 9. Never run the PCD with a loose end of the coupling unit. All connectors need to be plugged.
- 5 **Surge input coupling network**  
To connect the coupling lines from the SCB.

5.3. PCD 8 s-3-690-1000 SCB (Input)



Figure 5.3: Surge Coupling Box SCB (Input)

- 1 Jumper for capacitance setting
- 2 Jumper for impedance setting
- 3 Earth connection (PE)
- 4 Input from Surge generator (high)

1 Jumper for capacitance setting (Jc)

SWx open circuit -> Cx 9  $\mu$ F  
 SWx short circuit -> Cx 18  $\mu$ F

2 Jumper for impedance setting (Ji)

The jumper is used to set the coupling impedance to 2 or 12 ohms, please follow the instructions in the Coupling Guide (chapter 9). Open circuit -> 12 Ohm, short circuit -> 2 Ohm.

3 Earth connection (PE)

Screw terminal for protected earth (PE).

4 Input from Surge generator (high)

Connection to the HV output of the surge generator, max. amplitude 8 kV.

#### 5.4. PCD 8 s-3-690-1000 SCB (Overview / Output)

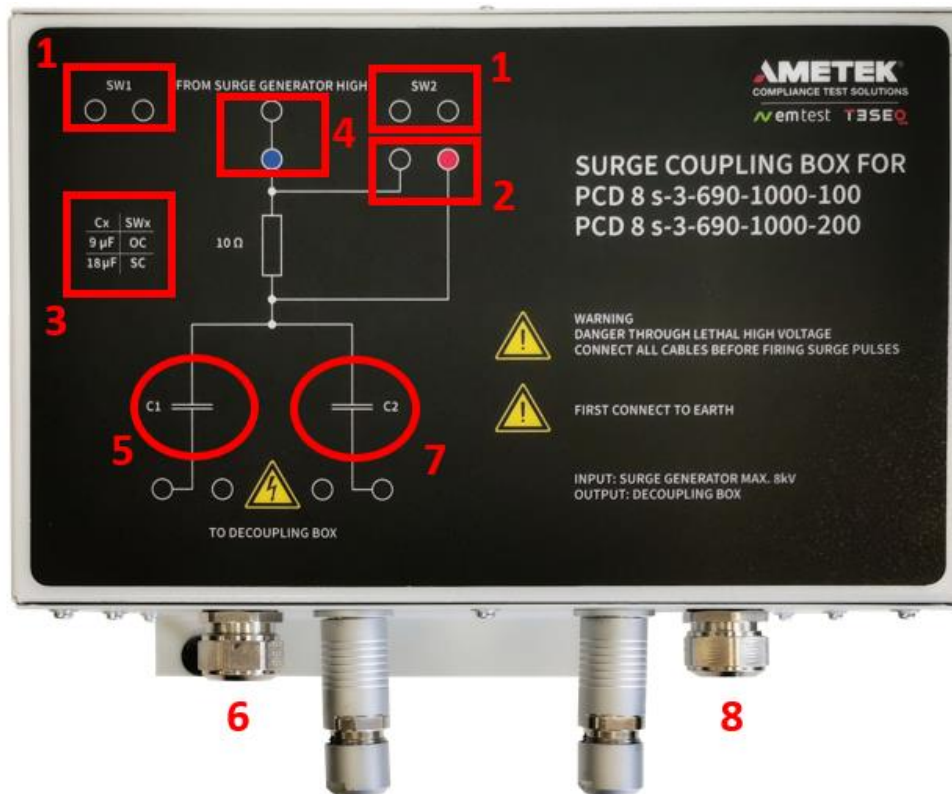


Figure 5.4: Surge Coupling Box SCB (Overview / Output)

- |   |                                   |   |                       |
|---|-----------------------------------|---|-----------------------|
| 1 | Jumper for capacitance setting    | 5 | Coupling capacitor C1 |
| 2 | Jumper for impedance setting      | 6 | Output C1             |
| 3 | Explanation capacitance           | 7 | Coupling capacitor C2 |
| 4 | Input from Surge generator (high) | 8 | Output C2             |

#### 1 Jumper for capacitance setting

SWx open circuit -> Cx 9  $\mu$ F  
SWx short circuit -> Cx 18  $\mu$ F

#### 2 Jumper for impedance setting

The jumper is used to set the coupling impedance to 2 or 12 ohms, please follow the instructions in the Coupling Guide (chapter 9). Open circuit -> 12 Ohm, short circuit -> 2 Ohm.

#### 3 Explanation capacitance

Explanation table to set the coupling capacitance to 9 or 18  $\mu$ F. Open circuit -> 9  $\mu$ F, short circuit -> 18  $\mu$ F.

#### 4 Input from Surge generator (high)

Connection to the HV output of the surge generator, max. amplitude 8 kV.

#### 5 Coupling capacitor C1

The capacitance of C1 is 9  $\mu$ F when the jumper SW1 is open and 18  $\mu$ F when the jumper is shorted.

#### 6 Output C1

For coupling lines, use according to chapter 9. Never run the SCB with a loose end of the coupling unit. All connectors need to be plugged.

#### 7 Coupling capacitor C2

The capacitance of C1 is 9  $\mu$ F when the jumper SW1 is open and 18  $\mu$ F when the jumper is shorted.

#### 8 Output C2

For coupling lines, use according to chapter 9. Never run the SCB with a loose end of the coupling unit. All connectors need to be plugged.

## 5.5. Technical data PCD 8 s-3-690-1000-100/200

### General data PCD 8 s-3-690-1000-100

Parameter	Value
Impulse voltage Surge	max. 8.0 kV
Coupling mode	Lx - Lx and Lx - PE with 1 SCB (Surge Coupling Box) included in delivery
Decoupling inductance	0.3 mH +/- 10 %
Residual voltage	< 3000 V @ 6000 V surge, typical < 2000 V
<b>EUT</b>	
Lines	L1(DC+), L2, L3, N(DC-), PE
Supply voltage AC	max. 3 * 690 V (p-p)
Supply voltage DC	max. 1000 V
Current AC / DC	max. 100 A (continuous); IEC: 32 - 100 A, ANSI: 32 - 100 A
<b>In/Output connector</b>	
	Rugged screw terminals, rated for 200 A, up to 110 mm <sup>2</sup> (AWG 4-4/0)
<b>Surge connector</b>	
	HV: 4 mm Safety banana plug, COM: Fischer F-105
<b>Grounding</b>	
	Copper earth rail
<b>Size</b>	
	850 mm x 520 mm x 345 mm (length x depth x height)
<b>Weight</b>	
	app. 120 kg
<b>Environment</b>	
Temperature	10 °C to 40 °C
Humidity	30 % to 70 %; noncondensing
Atmospheric pressure	86 kPa (860 mbar) to 106 kPa (1 060 mbar)

### General data PCD 8 s-3-690-1000-200

Parameter	Value
Impulse voltage Surge	max. 8.0 kV
Coupling mode	Lx - Lx and Lx - PE with 1 SCB (Surge Coupling Box) included in delivery
Decoupling inductance	0.3 mH +/- 10 %
Residual voltage	< 3000 V @ 6000 V surge, typical < 2000 V
<b>EUT</b>	
Lines	L1(DC+), L2, L3, N(DC-), PE
Supply voltage AC	max. 3 * 690 V (p-p)
Supply voltage DC	max. 1000 V
Current AC / DC	max. 200 A (continuous); IEC: 32 - 200 A, ANSI: 32 - 200 A
<b>In/Output connector</b>	
	Screw terminals, rated for 200 A, up to 110 mm <sup>2</sup> (AWG 4-4/0)
<b>Surge connector</b>	
	HV: 4 mm Safety banana plug, COM: Fischer F-105
<b>Grounding</b>	
	Copper earth rail
<b>Size</b>	
	850 mm x 520 mm x 345 mm (length x depth x height)
<b>Weight</b>	
	app. 130 kg
<b>Environment</b>	
Temperature	10 °C to 40 °C
Humidity	30 % to 70 %; noncondensing
Atmospheric pressure	86 kPa (860 mbar) to 106 kPa (1 060 mbar)

## 6. Maintenance and calibration

### 6.1. General

The coupling network is maintenance-free by using.

### 6.2. Calibration and Verification

#### 6.2.1. Factory calibration

Every AMETEK CTS generator is entirely checked and calibrated as per international standard regulations before delivery. A calibration certificate is issued and delivered along with a list of the equipment used for the calibration proving the traceability of the measuring equipment. All auxiliary equipment and accessories are checked to our internal manufacturer guidelines.

The calibration certificate and the certificate of compliance (if available) show the date of calibration.

The AMETEK CTS equipment are calibrated in the factory and marked with a calibration mark. The used measuring instruments are traceable to the Swiss Federal Office of Metrology.

The calibration date is marked. The validity of the calibration is to the responsibility of the user's quality system. Neither the certificate of calibration nor the corresponding label marks any due date for re-calibration.



Example: Calibration mark

#### 6.2.2. Guideline to determine the calibration period of AMETEK CTS instrumentation

Our International Service Departments and our QA Manager are frequently asked about the calibration interval of AMETEK CTS equipment.

AMETEK CTS does not know each customer's Quality Assurance Policy, nor do we know how often the equipment is used and what kind of tests is performed during the life cycle of test equipment. Only the customer knows all the details and therefore the customer needs to specify the calibration interval for his test equipment.

In reply to all these questions we like to approach this issue as follows:

AMETEK CTS make use of a solid-state semiconductor switch technique to generate high voltage transients. A precious advantage of this technique is the absolute lack of periodical maintenance effort. In consequence thereof a useful calibration period must be defined based on two criteria:

- The first one is the customer's Quality Assurance Policy. Any existent internal regulation has to be applied at highest priority. In the absence of such internal regulation the utilization rate of the test equipment has to be taken into consideration.
- Based on the experience and observation collected over the years **AMETEK CTS recommends a calibration interval of 1 year** for frequently used equipment. A 2-years calibration interval is considered sufficient for rarely used test generators to assure proper performance and compliance to the standard specifications.

#### 6.2.3. Calibration of Accessories made by passive components only:

Passive components do not change their technical specification during storage. Consequently, the measured values and the plots stay valid throughout the storage time. The date of shipment shall be considered as the date of calibration.

#### 6.2.4. Periodically In-house verification

Please refer to the corresponding standard before carrying out a calibration or verification. The standard describes the procedure, the tolerances, and the necessary auxiliary means. Suitable calibration adapters are needed. To compare the verification results, AMETEK CTS suggests referring to the wave shape and values of the original calibration certificate.

All calibrations and verifications are always done without mains supply voltage connected to the coupling network input.



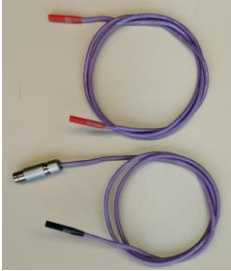



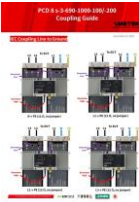



**Before starting the calibration or verification**  
**remove the EUT Mains Supply**  
**from the generator and from the coupling network**










## 7. Delivery Groups

### 7.1. Basic equipment

#### PCD 8 s-3-690-1000-100

Item	Name	Remark	Picture
1	<b>PCD 8 s-3-690-1000-100</b>	Manual Surge coupling network (100 A) - without fan motors - incl. 1 pcs. Surge coupling box for IEC coupling L-L and L-PE.	
2	<b>IAK 6</b> #104960	Isolated Allen key for screw terminal, 6 mm	
3	<b>PCS SET 1</b> #1004962	2 cables to connect HV-COM (Surge out) to PCD 8 s, length 1,4 m	
4	<b>HVS</b> #107301	2 pcs. HVS connection cable, 2.0 m, (1 red, 1 black connectors); to connect SYNC BOX with compact NX / NSG 30x0A	
5	<b>Jumper</b> #109849	3 pcs. Jumper; one for impedance setting and two for capacitance setting	
6	<b>User Manual</b>	User manual (pdf-file on USB Memory card)	 Manual for Operating
7	<b>Coupling Guide</b>	PCD 8 s-3-690-1000-100/-200 coupling guide pdf- (printed version)	
8	<b>USB Memory card</b>	Files on USB Memory card	

**PCD 8 s-3-690-1000-200**

1	<b>PCD 8 s-3-690-1000-200</b>	Manual Surge coupling network (200 A) - incl. 4 fan motors - incl. 1 pcs. Surge coupling box for IEC coupling L-L and L-PE.	
2	<b>IAK 6</b> #104960	Isolated Allen key for screw terminal, 6 mm	
3	<b>PCS SET 1</b> #1004962	2 cables to connect HV-COM (Surge out) to PCD 8 s, length 1,4 m	
4	<b>HVS</b> #107301	2 pcs. HVS connection cables, 2.0 m, (1 red, 1 black connectors); to connect SYNC BOX with compact NX / NSG 30x0A	
5	<b>Jumper</b> #109849	3 pcs. Jumper; one for impedance setting and two for capacitance setting	
6	<b>User Manual</b>	User manual (pdf-file on USB Memory card)	
7	<b>Coupling Guide</b>	PCD 8 s-3-690-1000-100/-200 coupling guide (printed version)	
8	<b>USB Memory card</b>	Files on USB Memory card	
9	<b>Power Supply</b>	2 pcs. power supply units for supplying power to the fans including mains cable	

Check the equipment for signs of transport damage. Any damage should be reported to the Transportation Company and local representative immediately.

## 7.2. Accessories and options



### **PCD 8 s-3-690-1000 SCB (#1006198)**

Additional Surge Coupling Unit (SCB); Enables ANSI and optional IEC coupling (in combination with the SCB included in delivery). Can be used for both models (100 and 200 A). Delivery inclusive printed Extended coupling guide.



### **PCA BPSET (#1004959)**

Pulse Connection Adapter Banana Plug Set - from 6 to 4 mm, set of 10 connectors (**max. 32 A**)



### 8. Coupling mode overview

All IEC 61000-4-5 coupling possibilities are listed below. For easy understanding, the Surge Coupling Box (SCB) input is identified by X1 while the outputs are marked with X2 and X3. The jumper for impedance adjustment is marked Ji.



Part of the delivery are 3 black jumpers (#109849), for a better view they are color coded in the coupling guide here. Technically the 3 jumpers are identical, they are shorting plugs. The color marking serves the description.

Jumper Ji for setting the impedance



Jumper Jc for setting the capacitance



Example for use of Ji and Jc



**8.1. IEC line to line**

Line to line (18 µF)

- L1 - N
- L1 - L2
- L1 - L3
- L2 - N
- L2 - L1
- L2 - L3
- L3 - N
- L3 - L1
- L3 - L2

	Generator output		Loop on SCB (X2 – X3)	Decoupling network PCD 8 s-3-690-1000-xxx			Jumper Ji	Jumper Jc
	High	Low		L1	L2	L3		
L1 - N	X1	N	No	X3			Yes	Yes (SW1)
L1 - L2	X1	L2	No	X3			Yes	Yes (SW1)
L1 - L3	X1	L3	No	X3			Yes	Yes (SW1)
L2 - N	X1	N	No		X2		Yes	Yes (SW2)
L2 - L1	X1	L1	No		X2		Yes	Yes (SW2)
L2 - L3	X1	L3	No		X2		Yes	Yes (SW2)
L3 - N	X1	N	No			X2	Yes	Yes (SW2)
L3 - L1	X1	L1	No			X2	Yes	Yes (SW2)
L3 - L2	X1	L2	No			X2	Yes	Yes (SW2)

**8.2. IEC line to ground**

Line to ground (9 µF)

- N - PE
- L1 - PE
- L2 - PE
- L3 - PE

	Generator output		Loop on SCB (X2 – X3)	Decoupling network PCD 8 s-3-690-1000-xxx				Jumper Ji	Jumper Jc
	High	Low		N	L1	L2	L3		
N - PE	X1	PE	No	X3				No	No
L1 - PE	X1	PE	No		X3			No	No
L2 - PE	X1	PE	No			X2		No	No
L3 - PE	X1	PE	No				X2	No	No

### 8.3. Optional IEC coupling (only with second SCB)

Optional coupling modes are possible with a second Surge Coupling Box (SCB). Those are different multiline couplings to ground such as:

Lines to ground (9  $\mu$ F)

- L1+L2 - PE
- L1+L3 - PE
- L1+N - PE
- L2+L3 - PE
- L2+N - PE
- L3+N - PE
- L1+L2+L3 - PE
- L1+L2+N - PE
- L1+L3+N - PE
- L2+L3+N - PE
- L1+L2+L3+N - PE

### 8.4. ANSI coupling modes (only with second SCB)

For coupling modes required by ANSI standard, a second SCB needs to be added on the PCD 8 s.

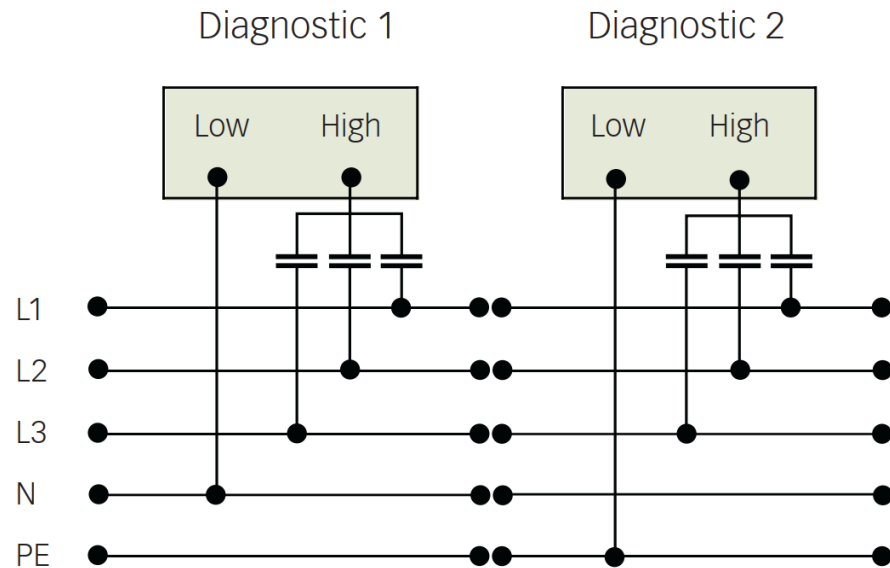
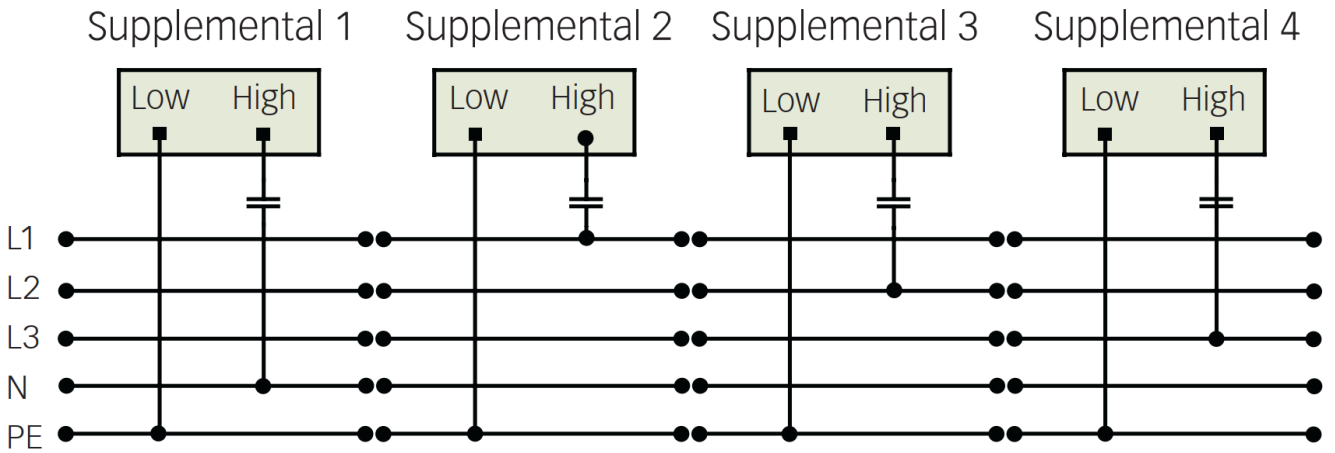
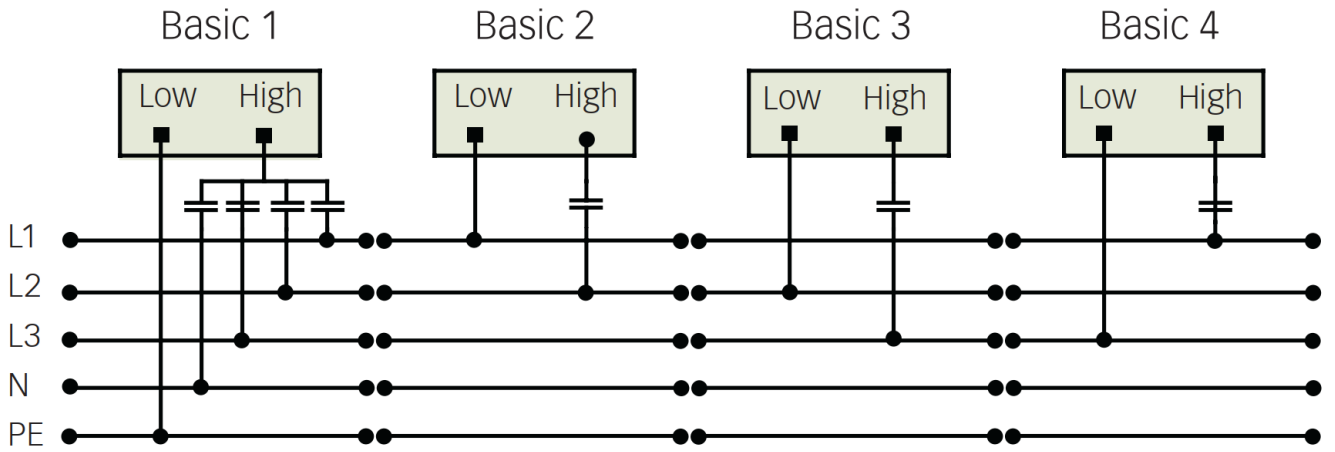


- Basic 1                      L1+L2+L3+N - PE
- Basic 2                      L2 - L1
- Basic 3                      L3 - L2
- Basic 4                      L1 - L3
  
- Supplemental 1            N - PE
- Supplemental 2            L1 - PE
- Supplemental 3            L2 - PE
- Supplemental 4            L3 - PE
  
- Diagnostic 1                L1+L2+L3 - N
- Diagnostic 2                L1+L2+L3 - PE

	Generator output		Loop on SCB	Connection from X1 to Y1	Decoupling network PCD 8 s-3-690-1000-xxx			
	High	Low			N	L1	L2	L3
Basic 1	Y1	PE	No	Yes	Y3	Y2	X3	X2
Basic 2	X1	L1	No	No			X3	
Basic 3	X1	L2	No	No				X2
Basic 4	Y1	L3	No	No		Y2		
Supplemental 1	Y1	PE	No	No	Y3			
Supplemental 2	Y1	PE	No	No		Y2		
Supplemental 3	X1	PE	No	No			X3	
Supplemental 4	X1	PE	No	No				X2
Diagnostic 1	Y1	N	No	Yes		Y2	X3	X2
Diagnostic 2	Y1	PE	No	Yes		Y2	X3	X2

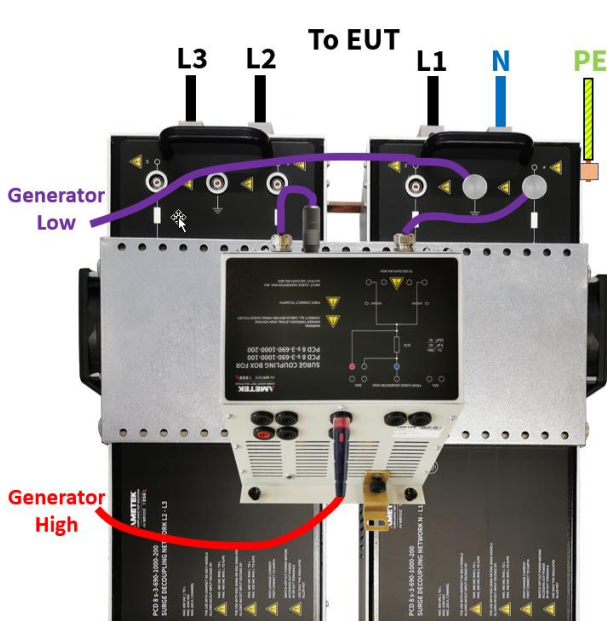


**NOTE** ANSI A: Do not use the jumper Ji (ANSI A = 12 Ohm).  
 ANSI B: Use the jumper Ji (ANSI B = 2 Ohm). Use only jumpers as described in chapter 9!

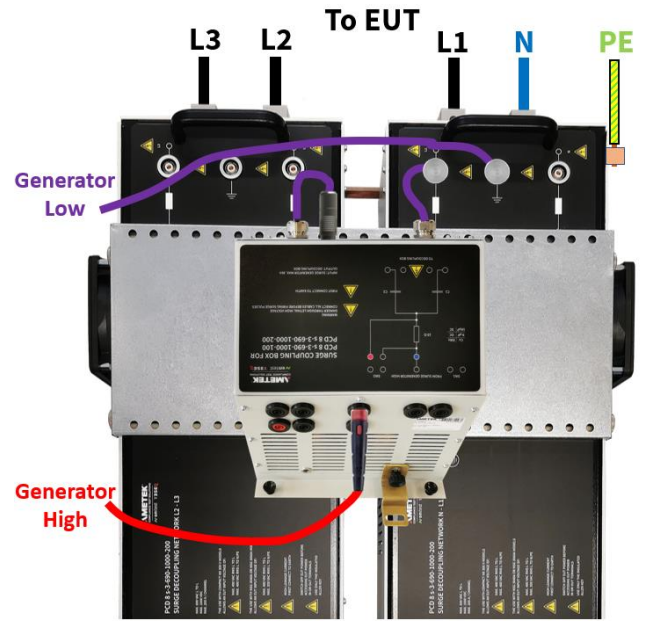


## 9. Coupling guide

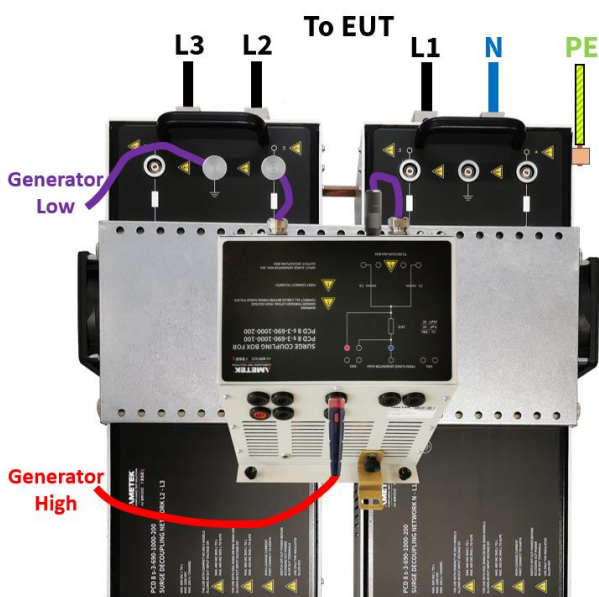
### 9.1. IEC coupling Line to Ground (9 $\mu$ F)



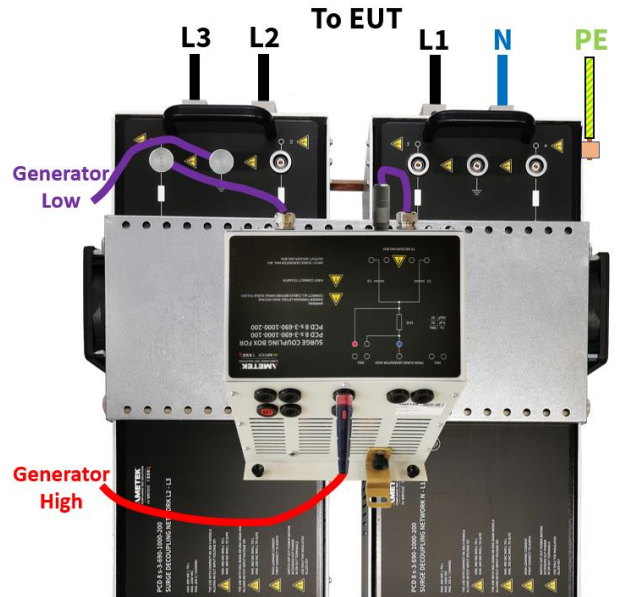
**N  $\rightarrow$  PE (12  $\Omega$ , no use of jumper)**



**L1  $\rightarrow$  PE (12  $\Omega$ , no use of jumper)**

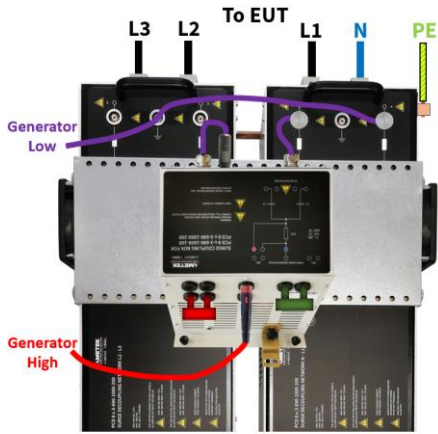


**L2  $\rightarrow$  PE (12  $\Omega$ , no use of jumper)**

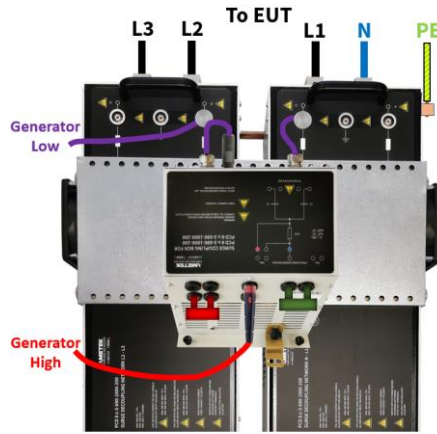


**L3  $\rightarrow$  PE (12  $\Omega$ , no use of jumper)**

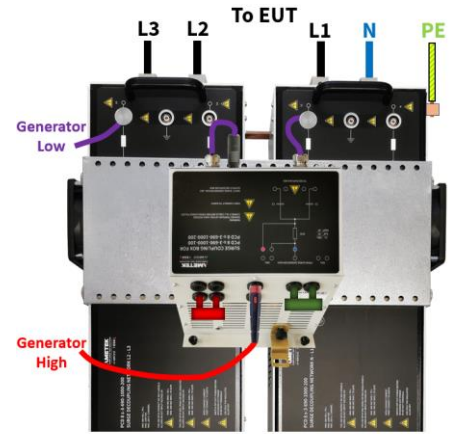
### 9.2. IEC coupling Line to Line (18 $\mu$ F)



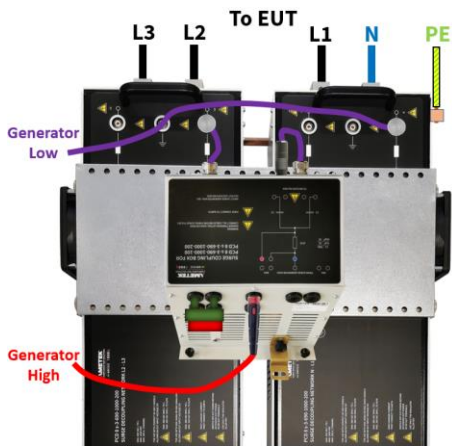
L1 → N (2  $\Omega$ , use jumper Ji + Jc)



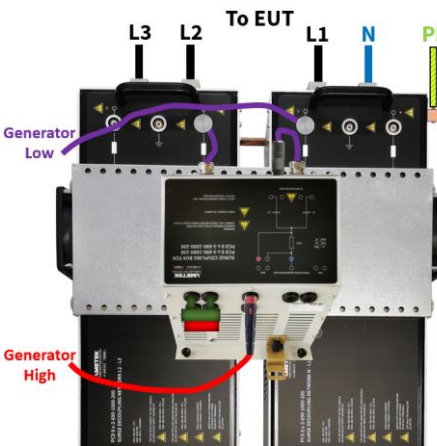
L1 → L2 (2  $\Omega$ , use jumper Ji + Jc)



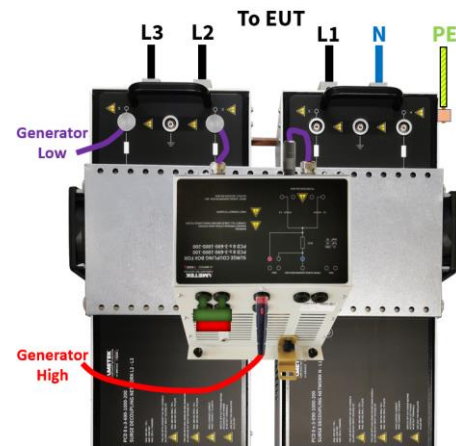
L1 → L3 (2  $\Omega$ , use jumper Ji + Jc)



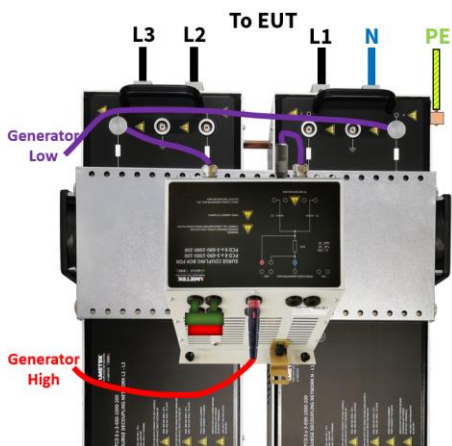
L2 → N (2  $\Omega$ , use jumper Ji + Jc)



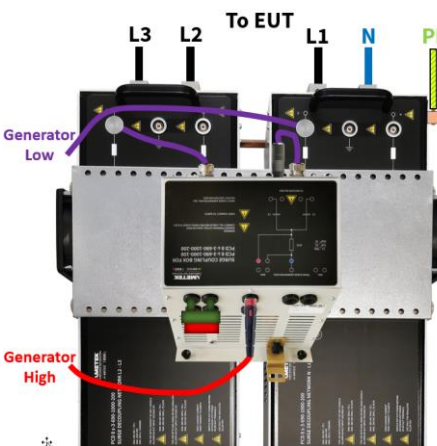
L2 → L1 (2  $\Omega$ , use jumper Ji + Jc)



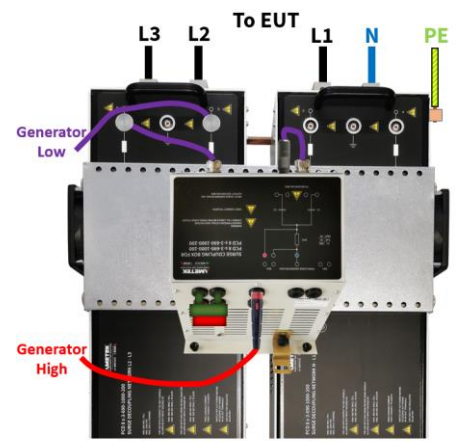
L2 → L3 (2  $\Omega$ , use jumper Ji + Jc)



L3 → N (2  $\Omega$ , use jumper Ji + Jc)

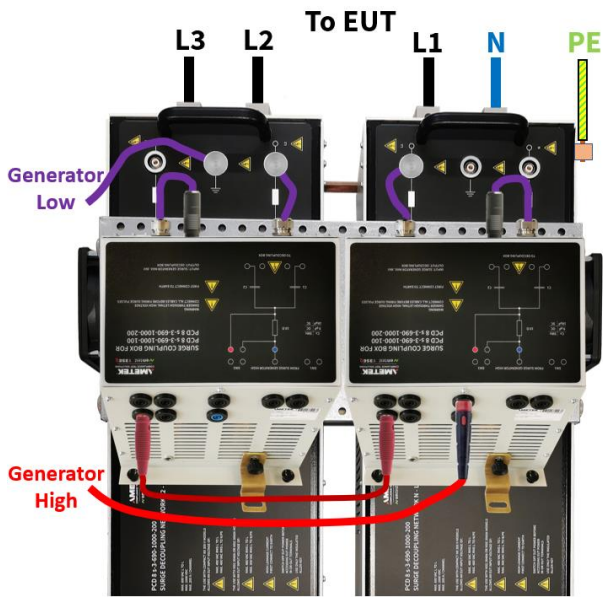


L3 → L1 (2  $\Omega$ , use jumper Ji + Jc)

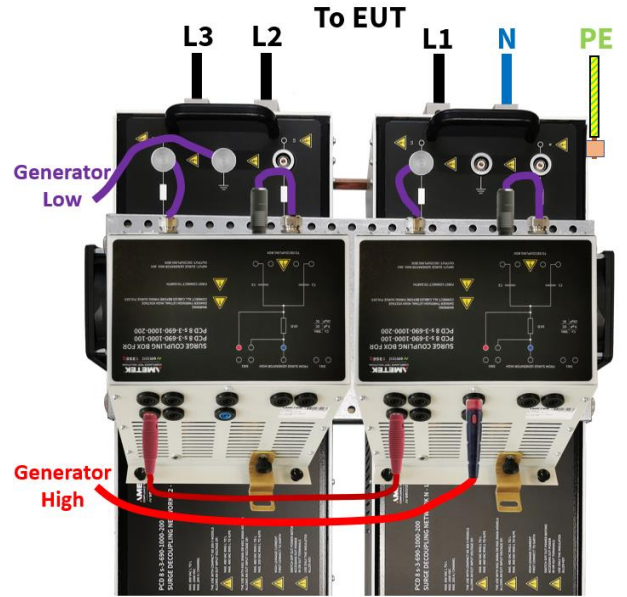


L3 → L2 (2  $\Omega$ , use jumper Ji + Jc)

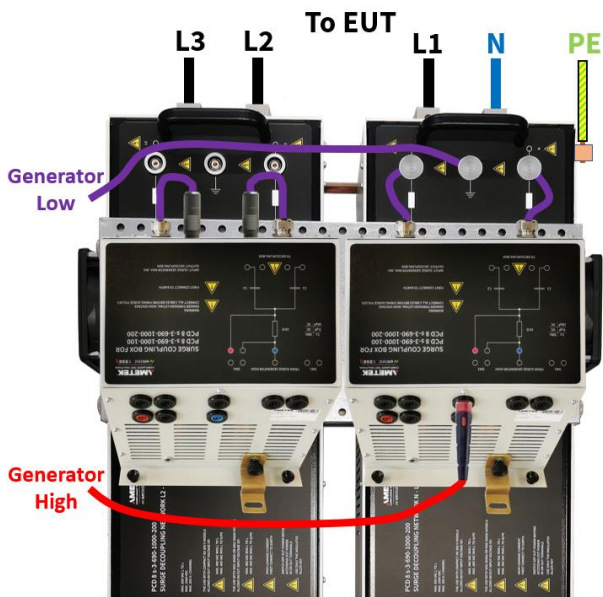
9.3. Optional IEC coupling Lines to Ground (9  $\mu$ F), 1/3



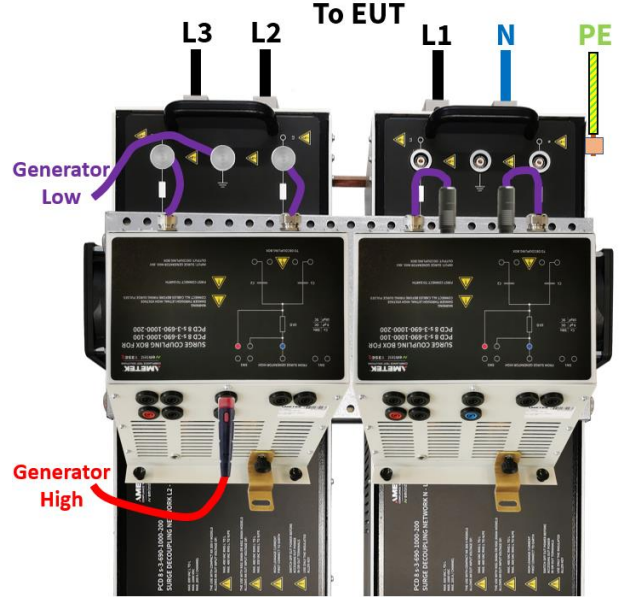
L1+L2  $\rightarrow$  PE (12  $\Omega$ , no jumper)



L1+L3  $\rightarrow$  PE (12  $\Omega$ , no jumper)



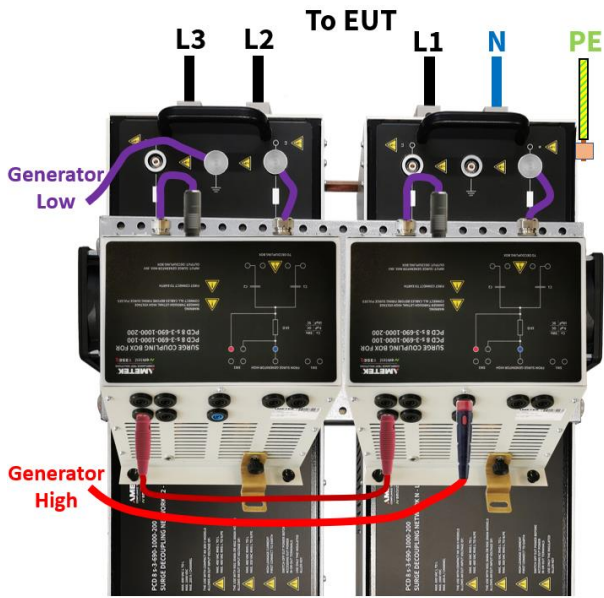
L1+N  $\rightarrow$  PE (12  $\Omega$ , no jumper)



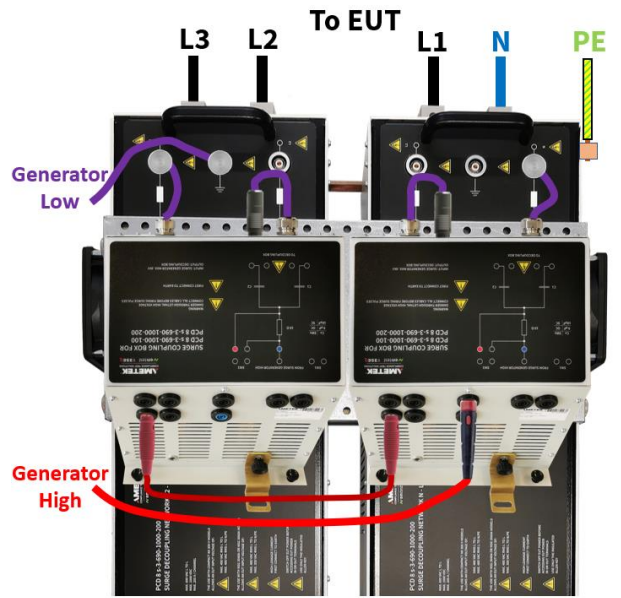
L2+L3  $\rightarrow$  PE (12  $\Omega$ , no jumper)



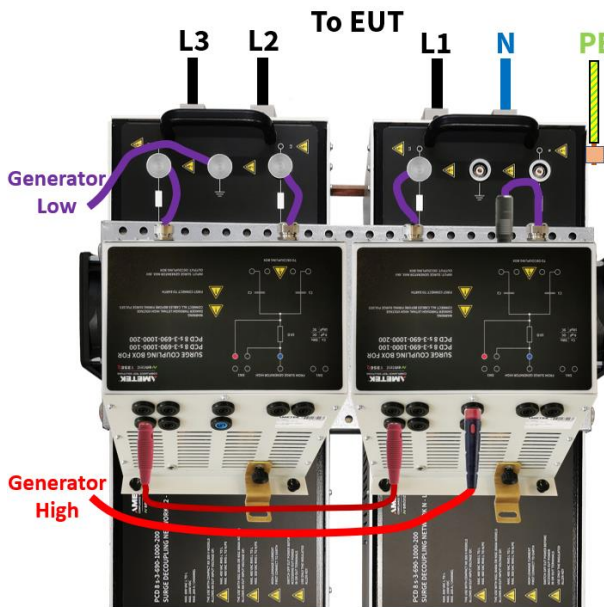
### 9.4. Optional IEC coupling Lines to Ground (9 $\mu$ F), 2/3



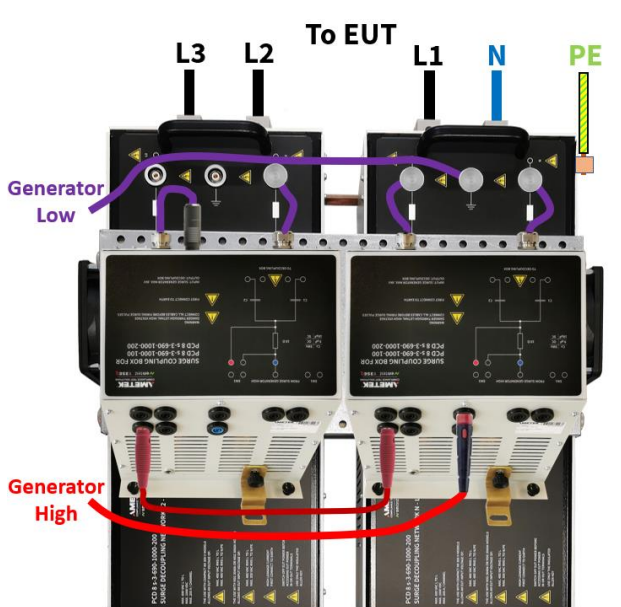
L2+N  $\rightarrow$  PE (12  $\Omega$ , no jumper)



L3+N  $\rightarrow$  PE (12  $\Omega$ , no jumper)

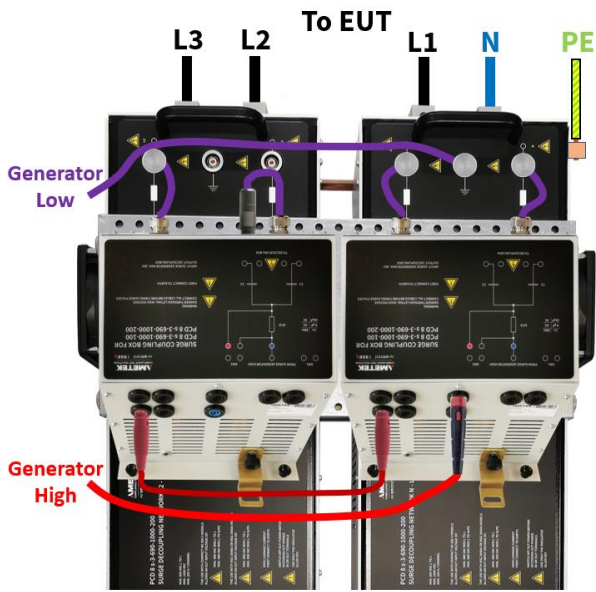


L1+L2+L3  $\rightarrow$  PE (12  $\Omega$ , no jumper)

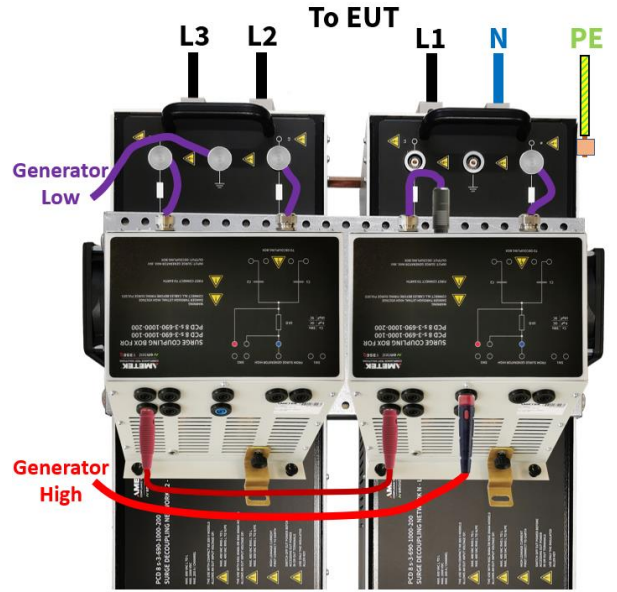


L1+L2+N  $\rightarrow$  PE (12  $\Omega$ , no jumper)

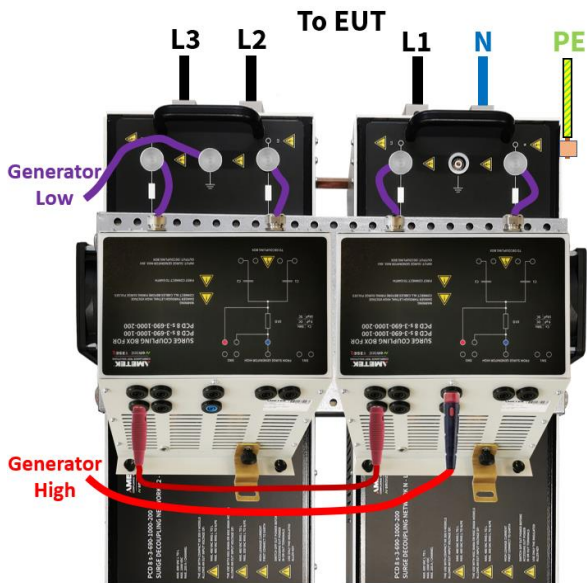
9.5. Optional IEC coupling Lines to Ground (9  $\mu$ F), 3/3



L1+L3+N  $\rightarrow$  PE (12  $\Omega$ , no jumper)

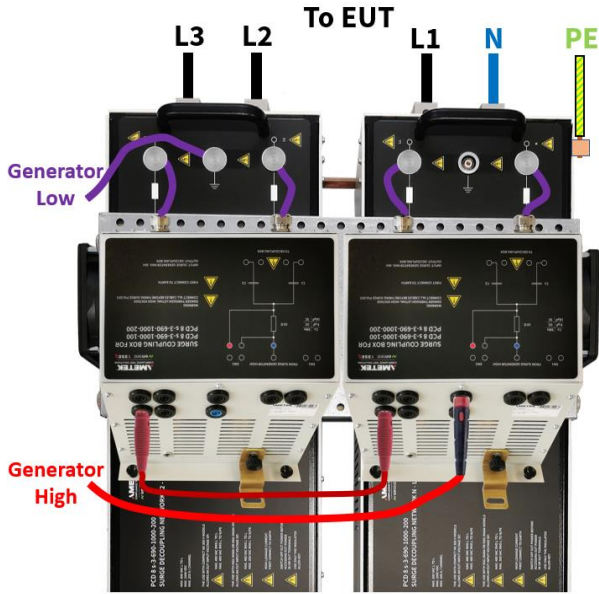


L2+L3+N  $\rightarrow$  PE (12  $\Omega$ , no jumper)

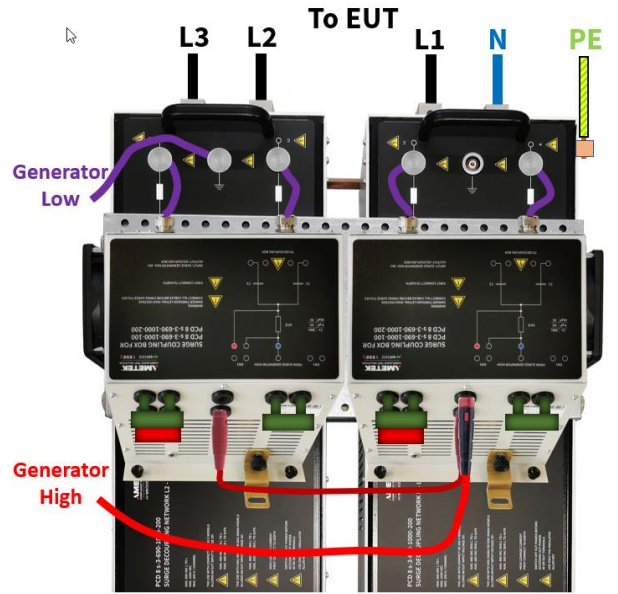


L1+L2+L3+N  $\rightarrow$  PE (12  $\Omega$ , no jumper)

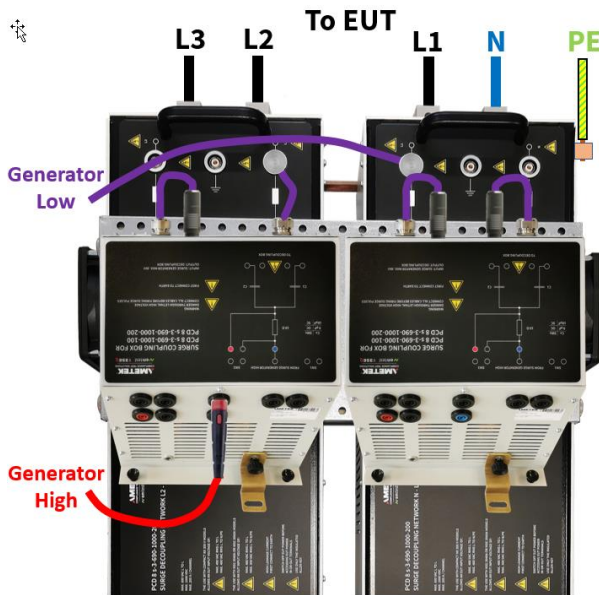
9.6. Optional ANSI coupling, 1/5 (Basic)



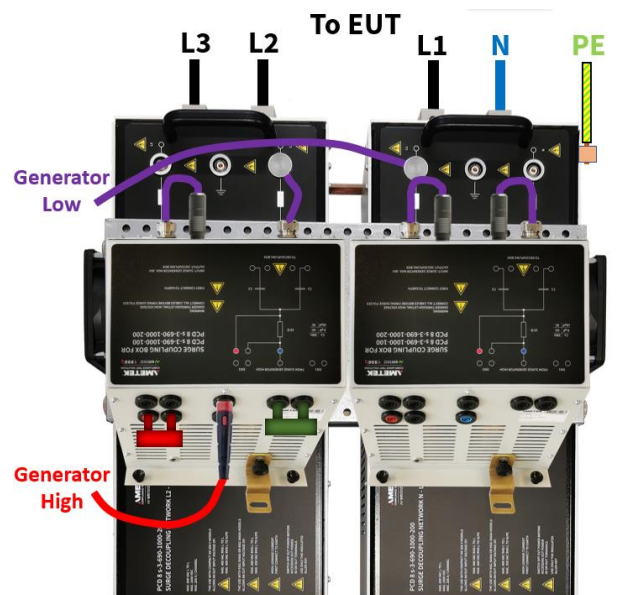
Basic 1 (ANSI A, 9 μF, no jumper)



Basic 1 (ANSI B, 18 μF, use jumper Ji + Jc)

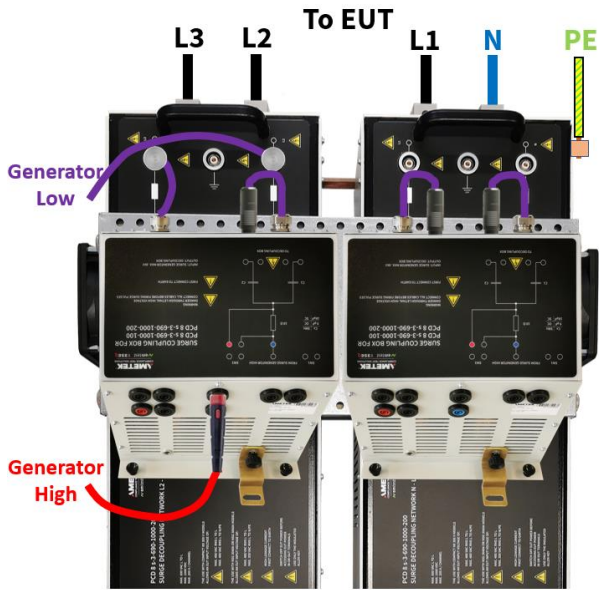


Basic 2 (ANSI A, 9 μF, no jumper)

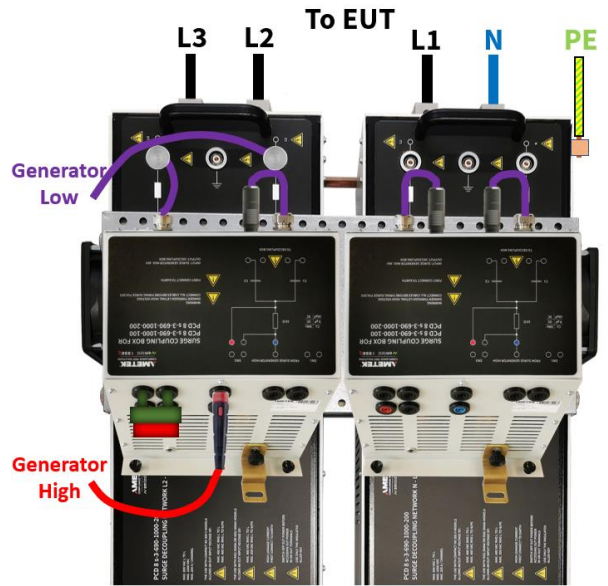


Basic 2 (ANSI B, 18 μF, use jumper Ji + Jc)

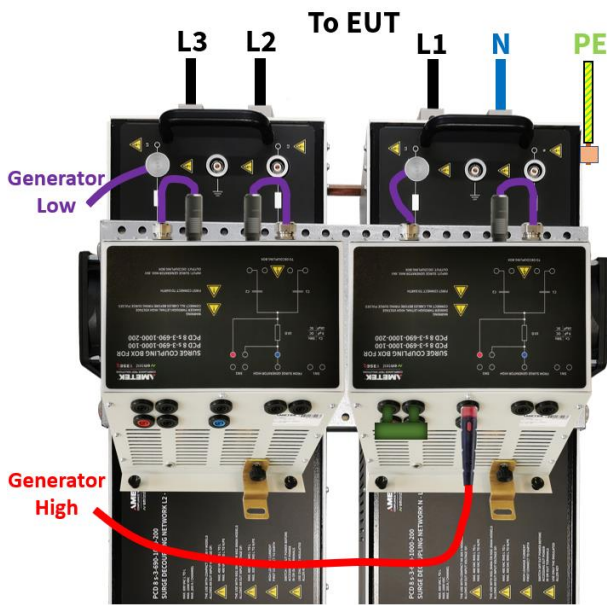
9.7. Optional ANSI coupling, 2/5 (Basic)



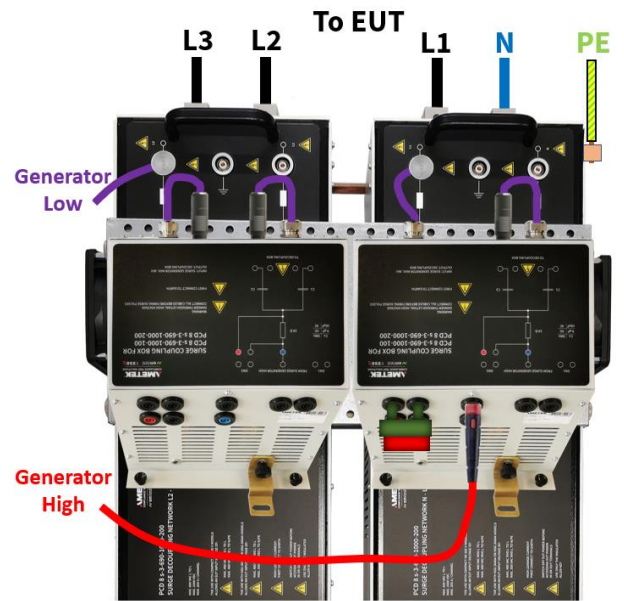
Basic 3 (ANSI A, 9 μF, no use jumper)



Basic 3 (ANSI B, 18 μF, use jumper Ji + Jc)

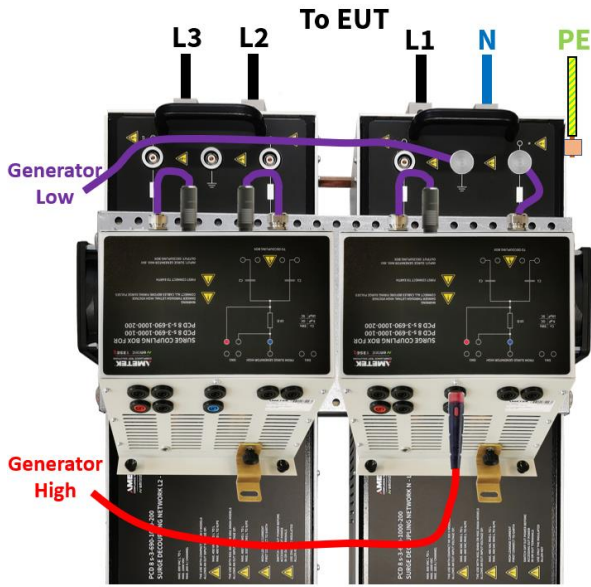


Basic 4 (ANSI A, 9 μF, no jumper)

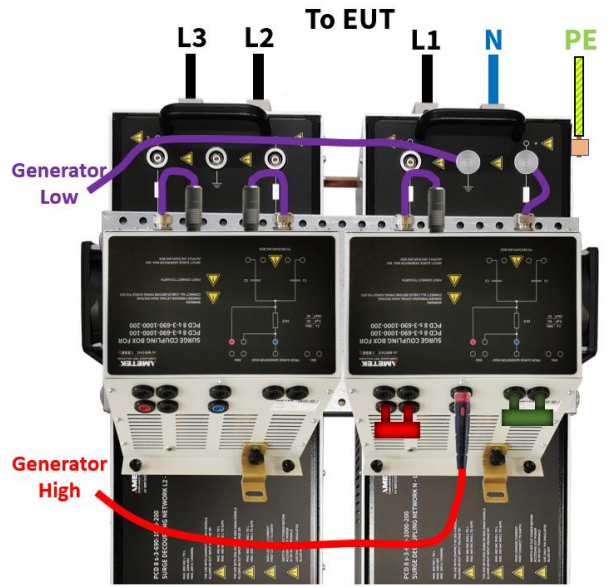


Basic 4 (ANSI B, 18 μF, use jumper Ji + Jc)

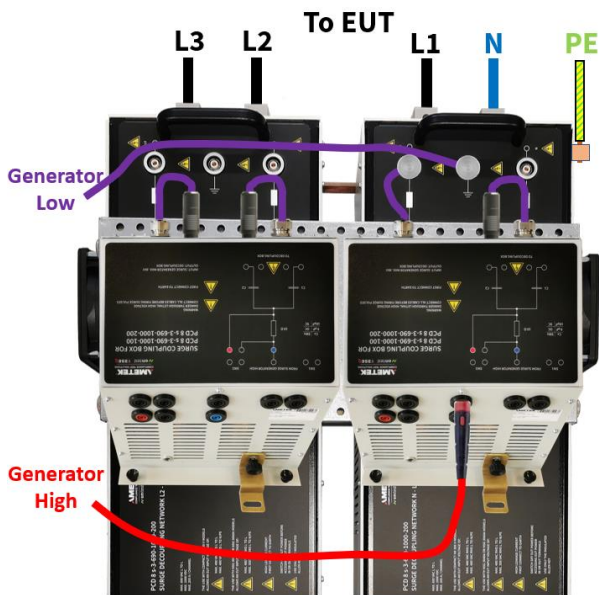
9.8. Optional ANSI coupling, 3/5 (Supplemental)



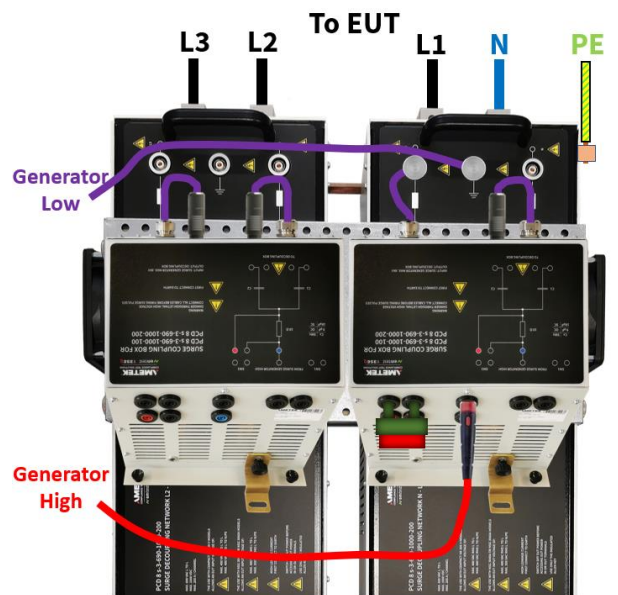
Supplement. 1 (ANSI A, 9 μF, no jumper)



Supplement. 1 (ANSI B, 18 μF, jumper Ji + Jc)

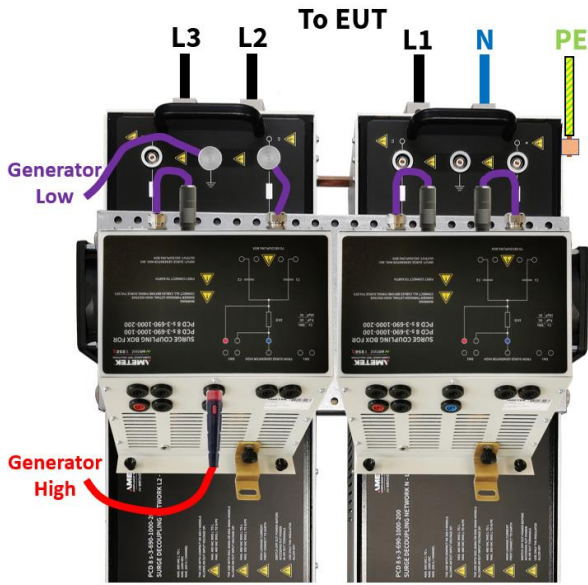


Supplement. 2 (ANSI A, 9 μF, no jumper)

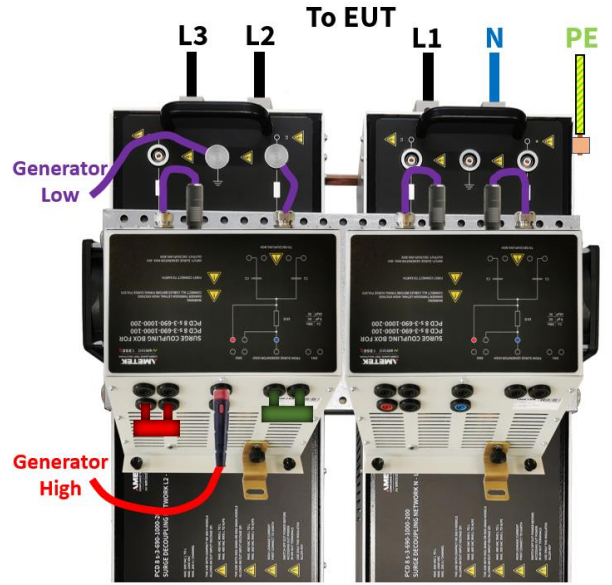


Supplement. 2 (ANSI B, 18 μF, jumper Ji + Jc)

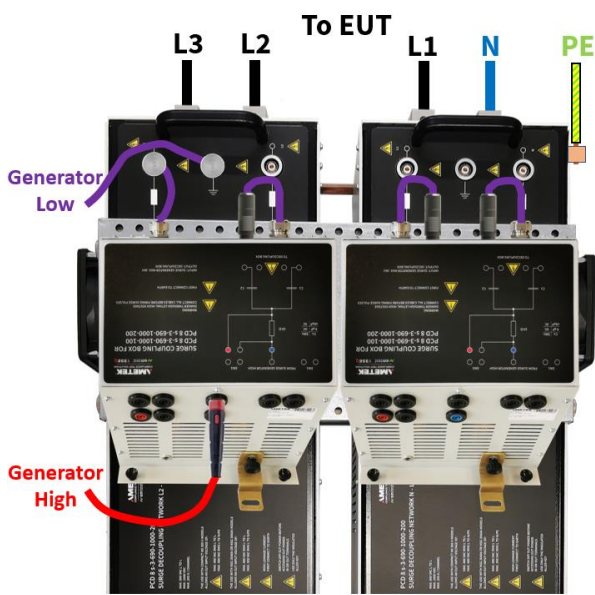
9.9. Optional ANSI coupling, 4/5 (Supplemental)



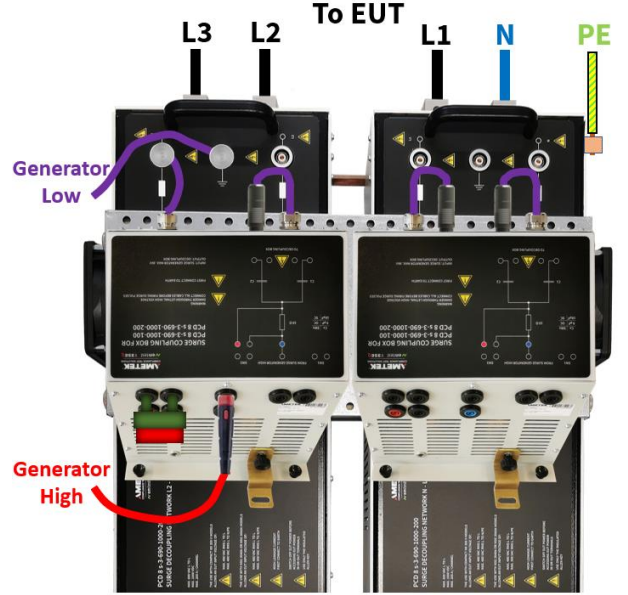
Supplement. 3 (ANSI A, 9 μF, no jumper)



Supplement. 3 (ANSI B, 18 μF, jumper Ji + Jc)

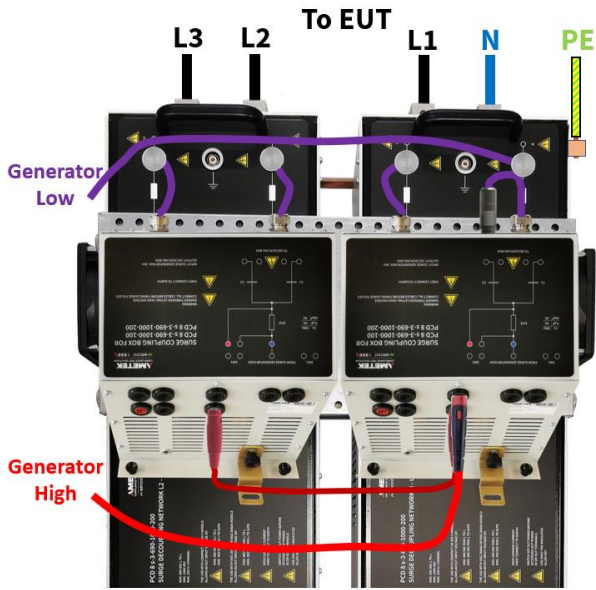


Supplement. 4 (ANSI A, 9 μF, no jumper)

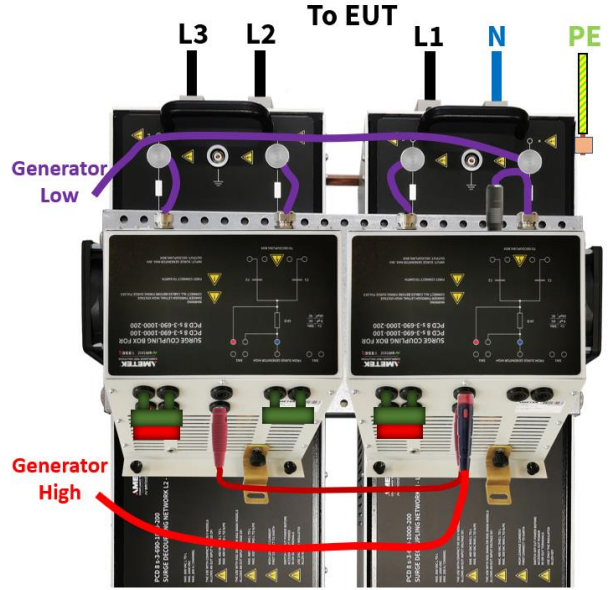


Supplement. 4 (ANSI B, 18 μF, jumper Ji + Jc)

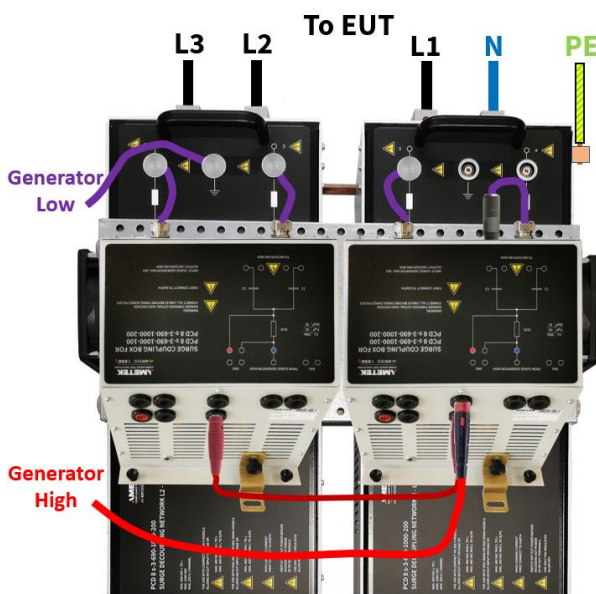
9.10. Optional ANSI coupling, 5/5 (Diagnostic)



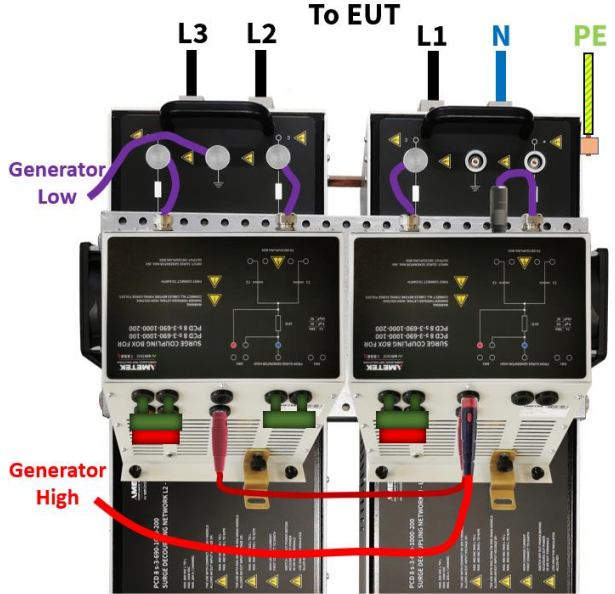
Diagnostic 1 (ANSI A, 9  $\mu$ F, no jumper)



Diagn. 1 (ANSI B, 18  $\mu$ F, use jumper Ji + Jc)



Diagnostic 2 (ANSI A, 9  $\mu$ F, no jumper)



Diagn. 2 (ANSI B, 18  $\mu$ F, use jumper Ji + Jc)

## 10. Effects on the EUT

The surge pulse contains considerable energy. When super-imposed on the mains, a significant resultant current can occur if the EUT becomes defective. The effects can be very different, depending on the characteristics of the equipment undergoing the test:

- No effect
- Brief faulty operation without permanent damage
- Reduction of the insulation resistance or similar
- Quality is affected (life expectancy)
- Change in the technical specification of the device under test
- Flash-over in cables, connectors, and equipment
- Bursting of components
- Explosion of components
- Burning of parts caused principally by resultant mains current when mains superposition mode is used
- Damage to equipment, systems or components that are electrically or inductively coupled to the pulse current path



**NOTE** When testing with high energy surge pulses, a test on a device should never be considered as being damage free until a subsequent thorough investigation proves that the EUT is still fully intact.





## 12. Appendix

### 12.1. Declaration of CE-Conformity

#### 12.1.1. Declaration of CE-Conformity coupling Network coupling PCD 8 s-3-690-1000-100

Manufacturer: **AMETEK CTS GmbH**  
Address: Sternenhofstr. 15  
CH 4153 Reinach  
Switzerland

Declares, that under its sole responsibility, the product's listed below, including all their options, are conformity with the applicable CE directives listed below using the relevant section of the following EC standards and other normative documents.

Product's name: Manual coupling Network for high AC/DC current  
Model Number(s) PCD 8 s-3-690-1000-100

#### **Low Voltage Directive 2014/35/EU**

Standard to which conformity is declared:

EN 61010-1:2011 Safety requirements for electrical equipment for measurement, control, and laboratory use.

#### **EMC Directive 2014/30/EU**

Standard(s) to which conformity is declared:

EN 61326-1:2013 Electrical equipment for measurement, control, and laboratory use  
(Requirements for devices to use in industrial area.)

EN 61000-3-2:2014 Limits for harmonic current emissions

EN 61000-3-3:2013 Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.

The purpose of this instrument is the generation of defined interferences signals for EMI immunity testing. Depending on the arrangement of the test rig, the configuration, the cabling, and the properties of the EUT itself, a significant amount of electromagnetic radiation may result that could also affect other equipment and systems. The user himself or herself is ultimately responsible for the correct and controlled operation of the rig. In case of doubt, the tests should be carried out in a Faraday cage.

Manufacturer  
AMETEK CTS GmbH  
Sternenhofstr. 15  
CH 4153 Reinach  
Phone: +41 61 204 41 11  
Fax: +41 61 204 41 00



By A. Burger  
Director Engineering AMETEK CTS  
Place Reinach BL, Switzerland  
Date 01. November 2020

**12.1.2. Declaration of CE-Conformity coupling Network coupling PCD 8 s-3-690-1000-200**

Manufacturer: **AMETEK CTS GmbH**  
 Address: Sternenhofstr. 15  
 CH 4153 Reinach  
 Switzerland

Declares, that under is sole responsibility, the product's listed below, including all their options, are conformity with the applicable CE directives listed below using the relevant section of the following EC standards and other normative documents.

Product's name: Manual coupling Network for high AC/DC current  
 Model Number(s) PCD 8 s-3-690-1000-200

**Low Voltage Directive 2014/35/EU**

Standard to which conformity is declared:

EN 61010-1:2011 Safety requirements for electrical equipment for measurement, control, and laboratory use.

**EMC Directive 2014/30/EU**

Standard(s) to which conformity is declared:

EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use  
 (Requirements for devices to use in industrial area.)

EN 61000-3-2:2014 Limits for harmonic current emissions

EN 61000-3-3:2013 Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.

The purpose of this instrument is the generation of defined interferences signals for EMI immunity testing. Depending on the arrangement of the test rig, the configuration, the cabling, and the properties of the EUT itself, a significant amount of electromagnetic radiation may result that could also affect other equipment and systems. The user himself or herself is ultimately responsible for the correct and controlled operation of the rig. In case of doubt, the tests should be carried out in a Faraday cage.

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By A. Burger  
 Director Engineering AMETEK CTS  
 Place Reinach BL, Switzerland  
 Date 01. November 2020



