



# ESSAILEC® TEST BLOCKS

ENTRELEC Terminal Blocks

ESSAILEC® test blocks allow to safely and easily perform test operations such as current and voltage measurement, monitoring, injection, repair or replacement of meters and protective relays installed in secondary circuits of current and voltage transformers or sensors.

# ESSAILEC® test blocks

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ESSAILEC® test blocks allow to safely and easily perform test operations such as current and voltage measurement, monitoring, injection, repair or replacement of meters and protective relays installed in secondary circuits of current and voltage transformers or sensors.



### Continuous operation

#### Easy plug & play solution

ESSAILEC® allows a simultaneous test of 1 to 4 circuits thanks to the combination of a plug and a socket.

#### Fast test operation

Thanks to make before break principle, the current transformers short circuiting is automatically performed (no cursor or switch element to operate manually). Current testing without cutting the energy supply.



### Safety and protection

#### Operator's safety

IP20 protection for the socket and IP40 with the cover. Sealing option available to prevent unauthorized access.

#### Error free systems

Coding system on plugs & sockets prevent from risks of mixing between various circuits. Protection against reverse plug insertion.

#### Unitary traceability

Engraved on insulating body.



### Easy to install

#### Multiple choice of mounting

5 possibilities to install ESSAILEC® on front, within the panel or on a plate.

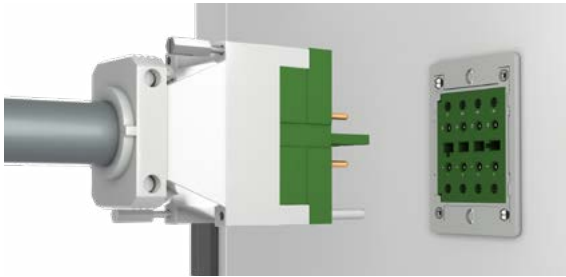
#### Various choice of wiring technologies

ESSAILEC® offers several connection types: ring tongue, screw clamp, quick-connect and RJ45, to allow different wire terminations and connections up to 10 mm².

ESSAILEC® is especially designed to fit the electricity utilities requirements for safe and reliable testing. The test operations can be made without any circuit break and without opening the panel door.

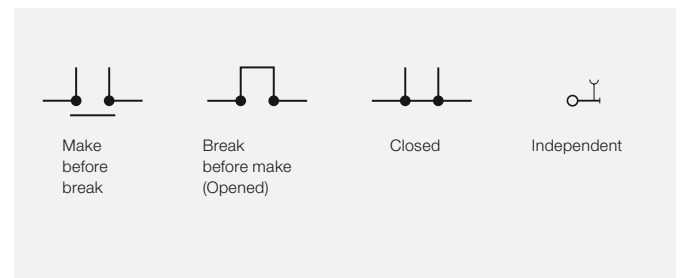
ESSAILEC® is approved by major utilities and successfully implemented for years in worldwide electricity production, transport and distribution networks.

### ESSAILEC® operation principle



ESSAILEC® is based on a plug & play operation solution. It is composed of a socket and a test plug. The socket is installed in the circuit and wired to the device to be tested during its installation or servicing (protection relay in switch-board or meters). The plug is connected to the test set and allows measurement or signal injection.

### Socket design



The sockets are available in the following designs:

- Socket with "Make before break" contact design, available in the current, voltage, and RJ45 ranges
- Socket with "Break before make" (opened) contact design, available in voltage application
- Socket with "Closed" contact design, available in voltage application
- Socket with "4 independent circuits" for voltage application.

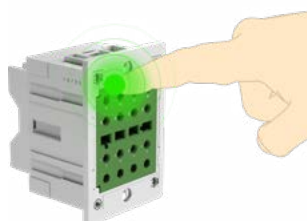
## Safety & protection



### Color coding

Prevent from risks of mixing between various circuits.

Color coding: green for current applications, grey / orange / blue for voltage applications.



IP20



IP40



Seal

### Operator's safety

Front protection IP20 for the socket and IP40 with the protective lid.

The protective lid is equipped with a sealing option to prevent unauthorized access.

### Locking mechanism

Secure the plug on the socket.

No risk of unplugging during test operations.



### Error free systems thanks to coding pins

Up to 6 possible combinations to allocate test plug with its appropriate socket for circuit differentiation.



### Unitary traceability

The socket integrates a permanent tracking number engraved on insulating body.

### Protection against reverse plug insertion

Socket and plug integrate a special plastic shape preventing the circuit polarities reversal.



1SNC169100250201

## Features and benefits

### Easy to install

#### Multiple choices of socket mounting

Mounting on panel: front or base mounting

Mounting within the panel.



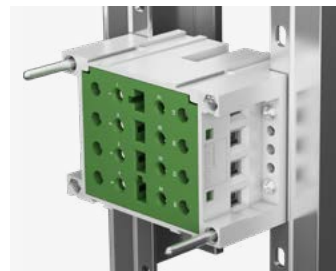
Flush mounting

Half-base mounting

Base mounting



TH35 rail mounting



Rack mounting

#### Various choices of wiring technologies

ESSAILEC® offers several connection types (according to the mounting selected): ring tongue, screw clamp, quick-connect and RJ45, to allow different wire terminations and connections up to 10 mm².

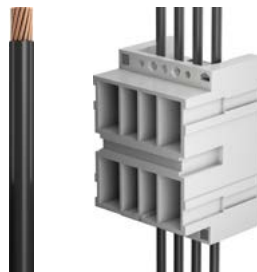
Refer to sockets panorama page for more details.



Ring tongue



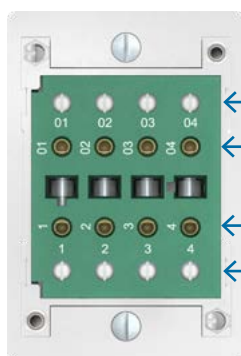
Quick-connect



Screw clamp



RJ45



#### Easy circuit identification

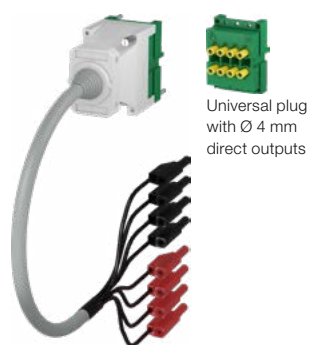
01, 02, 03, 04: equipment side.

Premarked block in two directions to allow convenient reading whatever the mounting sense.

1, 2, 3, 4: transformers side.

## Plug

The plug is connected to the test equipment by means of test plugs. Plugs are supplied in various configurations, either prewired or ready to be customized.



### 2x4 poles plugs (8 contact pins)

Allow testing of 4 current or voltage circuits. Available in different colors (green, grey, orange, blue).



### 4 poles plugs (4 contact pins)

Allow testing of 4 voltage circuits. Available in different colors (grey, orange, blue).



### 1 pole plugs (2 contacts pins)

Allow testing of 1 current or voltage circuit. Available in different colors (red for current applications or grey for voltage applications).



### Plugs for customization

In order to provide more flexibility to the end-users ESSAILEC® plugs can be customized according to the targeted application (see customized plugs catalog page).

## Protection

Lid or Cover provide dust protection (IP40) and prevent unauthorized access thanks to their embedded sealing option.

Lid and cover with electrical continuity, are necessary compatible with opened contacts sockets (Break before make).


Thanks to their inner pins and linking bars they ensure the circuits continuity.







## Sockets panorama

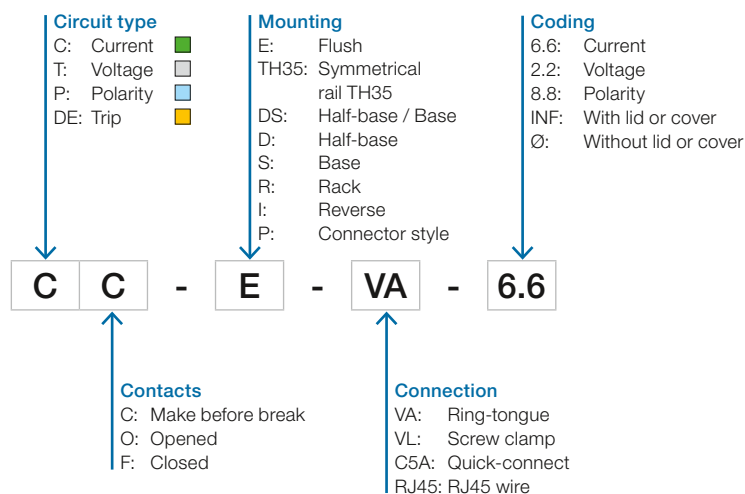
Contact type	Mounting	Connection	For current and voltage sensors	For current transformers	For voltage transformers		
					Grey coding (standard)	Blue coding (polarity)	Orange coding (trip)



<b>Make before break</b> 	Flush	Ring-tongue	–	CC-E-VA	TC-E-VA	PC-E-VA	–
			–	CC-E-VA-6.6	TC-E-VA-2.2	PC-E-VA-8.8	–
			–	CC-E-VA-R2-6.6	TC-E-VA-R2-2.2	–	–
		RJ45	TC-E-RJ45-INF	–	–	–	–
		Quick connect	–	–	TC-E-C5A-2.2	–	–
	Half-base	Ring-tongue	–	CC-D-VA	TC-D-VA	PC-D-VA	–
	Base/Half-base	Screw clamp	–	–	TC-DS-VL	PC-DS-VL	–
	Base	Screw clamp	–	CC-S-INF-VL-6.6	TC-S-INF-VL-2.2	–	–
	TH35	Screw clamp	–	CC-TH35-VL-6.6	TC-TH35-VL	–	–
	Rack	Ring-tongue	–	CC-R-VA	–	–	–
<b>Break before make</b> <b>Opened contact</b> 	Flush	Ring-tongue	–	–	TO-E-VA	PO-E-VA	DEO-E-VA
			–	–	TO-E-VA-12.12	–	–
	Half-base	Ring-tongue	–	–	TO-D-VA	PO-D-VA	DEO-D-VA
	Base/Half-base	Screw clamp	–	–	TO-DS-VL	PO-DS-VL	–
	Base	Screw clamp	–	–	TO-S-INF-VL-12.12	–	–
<b>Closed contact</b> 	Flush	Ring-tongue	–	–	TF-E-VA	PF-E-VA	–
	Half-base	Ring-tongue	–	–	TF-D-VA	PF-D-VA	DEF-D-VA
	Base/Half-base	Screw clamp	–	–	TF-DS-VL	PF-DS-VL	–
<b>Independent circuits</b> 	Base	Screw clamp	–	–	TT4-S-VL-INF	–	–

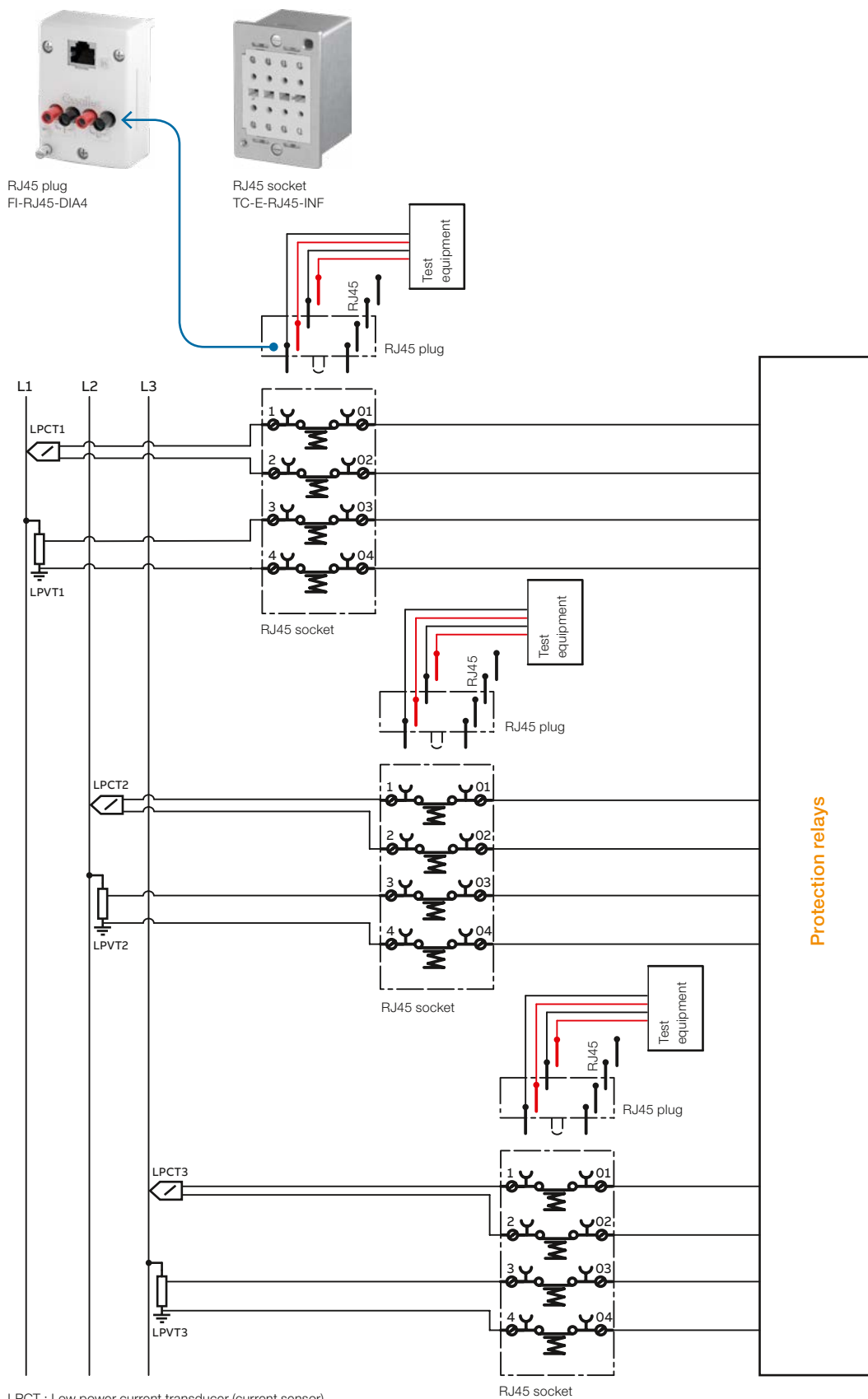
### Socket designation



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## Current and voltage sensors application

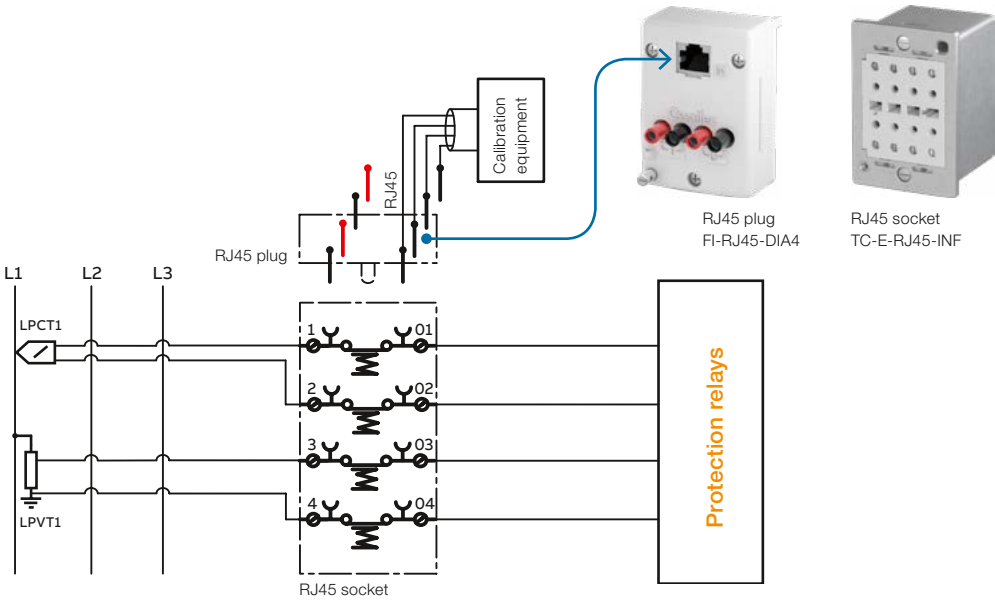
Make before break test principle - Measurement with ESSAILEC® RJ45 test plug



Protection relays



Make before break base - Injection with ESSAILEC® RJ45 test plug



LPCT : Low power current transducer (current sensor)  
LPVT: Low power voltage transducer (voltage sensor)

## Current and voltage sensors application

### Make before break test principle - With ESSAILEC® RJ45 test plug

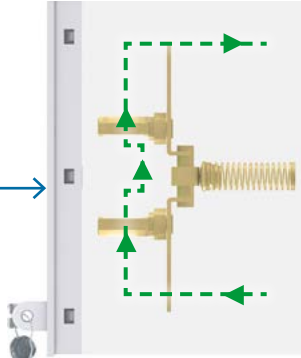
#### Applications

- Injection
- Equipment replacement

#### 1. Normal service



1.1 ESSAILEC® RJ45 sockets have a shielded body. The 3 sockets are required to cover the testing operation on the 3 main lines (L1, L2, L3).



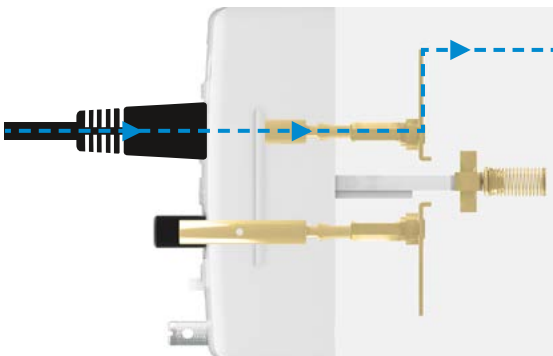
1.2 The lid is installed on the socket and can be sealed to prevent unauthorized access. The socket **circuits are closed** and signals flow from current and voltage sensors to protection relay.

#### 2. Lid removal



The lid **is removed**.

#### 4.2 Test phase: Injection



The RJ45 plug allows to perform **injection**. Plug a **RJ45 connector** on to the ESSAILEC® RJ45 plug to test the protection relay through the integrated RJ45 input.

3. Preparation: Test plugs connections

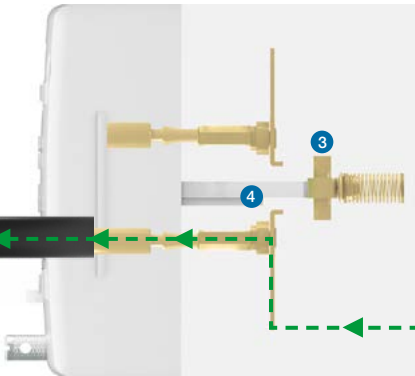


3.1 The test equipment is equipped with **dia. 4 test plugs**.



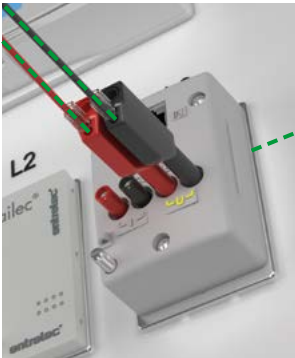
3.2 The ESSAILEC® RJ45 test plug has **built-in dia. 4 (1) and RJ45 test sockets (2)** in order to simplify the test operations. They allow current and voltage **sensors measurement (1)** as well as **injection to the protection relay (2)**.

4. Test phase: Make before Break

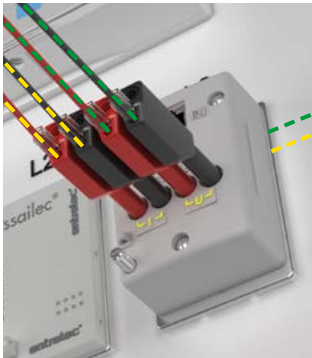


When the plug is fully inserted in the socket, inner mobile contacts (3) are pushed down by plug's plastic leads (4) and circuits are opened. Signals are derived into the **dia. 4** plug towards the test set.  
**It is possible** to perform simultaneously current and voltage sensors measurement.

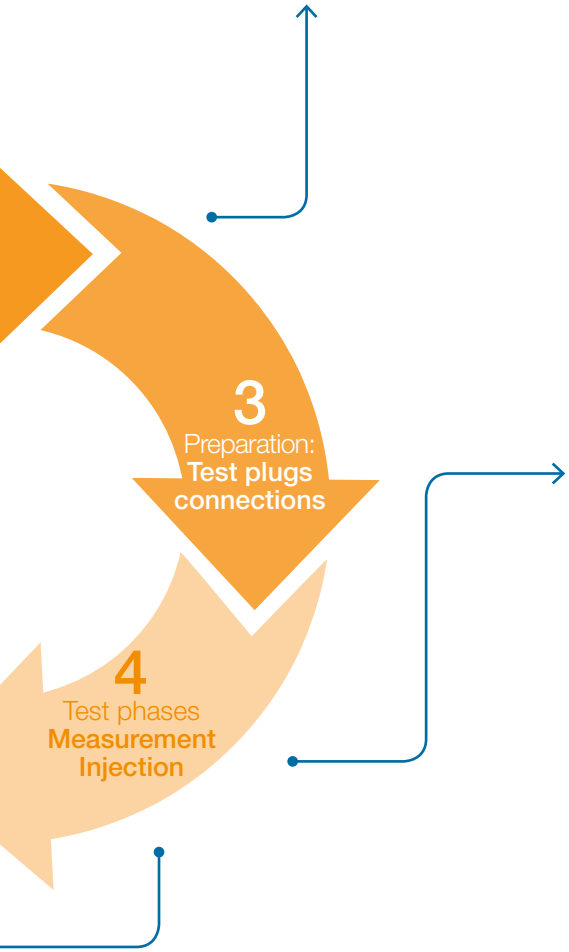
4.1 Test phase: Measurement



Ex: Voltage sensors measurement



Ex: Voltage and current sensors measurement



## Current and voltage sensors application

### ESSAILEC® RJ45 sockets for current and voltage sensors - Make before break



TC-E-RJ45

#### Description

Dedicated for the use in Digital Switchgear including sensors (current or voltage):

- RJ45 connection type (Cat.5),
- Allow safe and easy measurement and injection operations,
- Signals protection against EMI/RFI thanks to shielded lid on shielded socket,
- Shielding tests according to IEC 62271-1 Annex J,
- Grounding point: M5 screw to be wired with an adapted ring lug termination.

Make before break principle:

- The circuits are automatically disconnected with the insertion of the plug,
- The circuits close automatically when the plug is removed.

#### Main technical data

Connecting capacity	IEC 947-1
Body	Polycarbonate UL94 V0
Conductive parts	Silver-plated
Rated voltage	125 V
Impulse withstand voltage	1000 V
Pollution degree	3
Rated current	1.5 A
Accuracy	0.5 %
Storage temperature range	-40 ... +85 °C
Working temperature range	-40 ... +85 °C
Protection without lid / with lid	IP20 / IP40

#### Mounting instructions

Tool (for grounding screw)		Posidriv Ø 4 mm Ø 0.16 in
Torque (for grounding screw)		1.2 Nm 10.8 lb.in

#### Ordering details

Color	Type	Part Number	Pkg qty	Weight 1 pce g
<b>Socket</b>				
<b>Flush mounting</b>				
Grey	<input type="checkbox"/> TC-E-RJ45-INF	1SNA566000R0000	3	138
<b>Plug</b>				
Grey	<input type="checkbox"/> FI-RJ45-DIA4	1SNA566001R0000	1	69.6

#### Compatible products

Lid / Cover	Plug	Socket
Included	FI-RJ45-DIA4	-
-	-	TC-E-RJ45-INF



#### Accessories

Description	Color	Type	Part Number	Pkg qty	Weight (1 pce) g
1 Protecting covers for RJ45 sockets	Grey	<input type="checkbox"/> CPT-RJ45	1SNA167002R0000	1	25.4

1



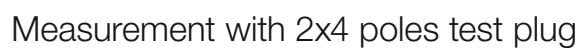
For connection details, please refer to mounting instruction 1SNC169044L1701

1SNC169010S0201

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ESSAILEC® customized plugs	26

Make before break test principle

### Measurement with 2x4 poles test plug

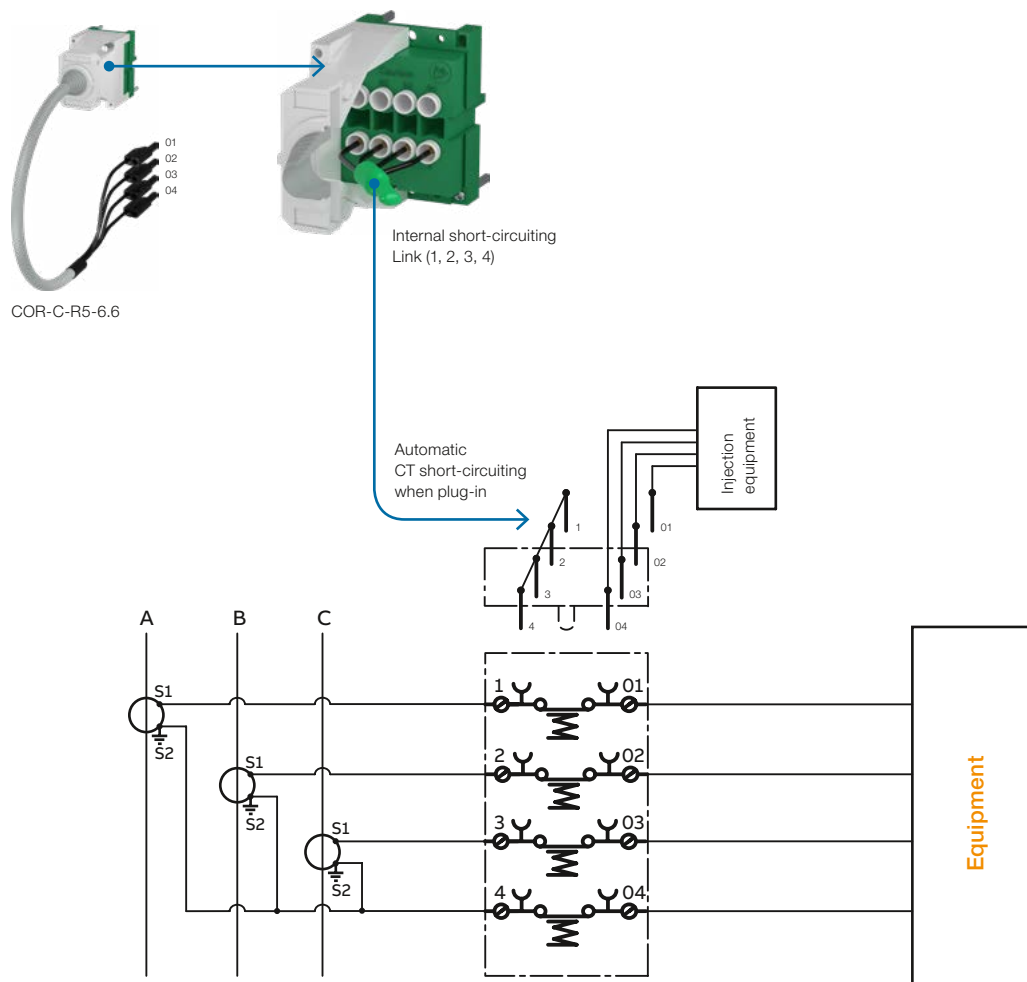


Injection or equipment replacement with 2x4 poles test plug



## Make before break test principle

Injection or equipment replacement with 2x4 poles test plug (4 poles short-circuit)



## Current transformers application

### Make before break test principle - With 2x4 poles test plug

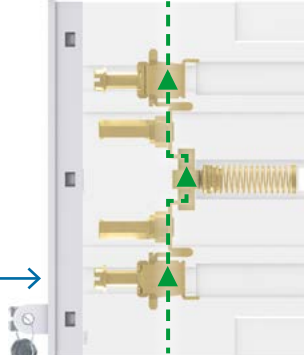
#### Applications

- Measurement on CT's
- Injection
- Equipment replacement

#### 1. Normal service



1.1 ESSAILEC® current sockets allow the simultaneous testing operations of 1 to 4 independent circuits on the same socket.



1.2 The lid is installed on the socket and can be sealed to prevent unauthorized access. **The socket circuits are closed** and signals flow from current transformers to the equipment to be tested.

#### 2. Preparation: plug and lid

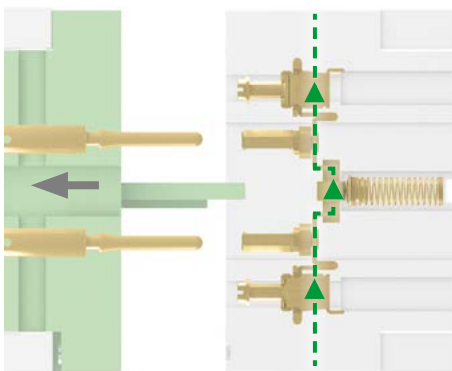


2.1 The lid is removed.

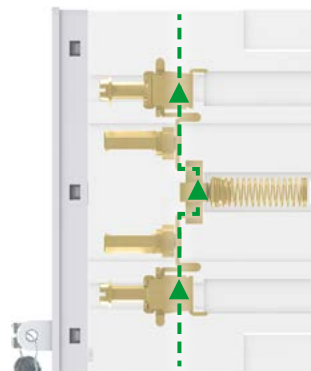


2.2 **Connect the ESSAILEC® test plug leads** to the test set. (For equipment change or injection, short-circuit externally the 4 test leads connected on the current transformer side: 1-2-3-4)

#### 5. Back to normal service



5.1 **Plug removal closes back the socket contacts** and signals flow again through the socket.



5.2 Lid is put back in place.

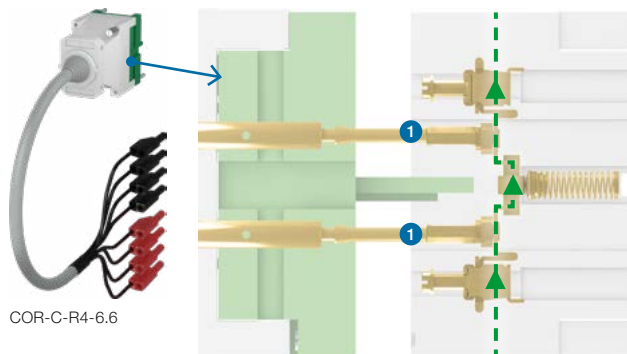
2  
Preparation

1  
Normal  
service

5  
Back to  
normal  
service

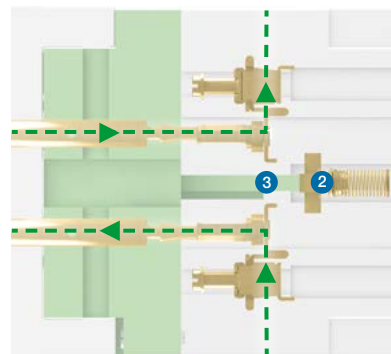


### 3. Test phase: Make



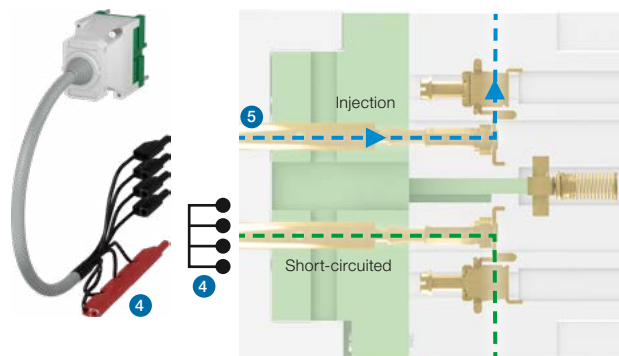
During plug insertion, plug pins make contact with socket pins (1). **Contacts remain closed and the signal flow has not change.** This operation prevent signal interruption (mandatory for current transformers).

### 4.1 Measurement: Test phase - Break



When the plug is fully inserted in the socket, inner mobile contacts (2) are pushed down by plug's plastic leads (3) and **the four circuits are opened simultaneously.** Signals are derived into the plug towards the test set without interruption of continuity.

### 4.2 Injection or equipment replacement: Test phase - Break



During preparation phase, the plug 4 test leads (1-2-3-4: current transformer side) **have been short-circuited externally (4).**

When the plug is fully inserted in the socket, **the current transformer is automatically short-circuited** and current injection (or equipment change) can be done on the equipment side (5).



## Current transformers application

Make before break test principle - With 2x4 poles test plug (4 poles short-circuited)

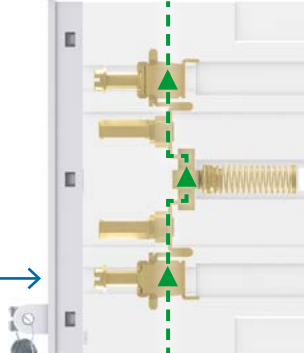
### Applications

- Measurement on CT's
- Injection
- Equipment replacement

#### 1. Normal service



1.1 ESSAILEC® current sockets allow the simultaneous testing operations of 1 to 4 independent circuits on the same socket.



1.2 The lid is installed on 2.1 The lid **is removed**. equipment side (1-2-3-4). The socket and can be sealed to **prevent unauthorized access**. The socket circuits are closed and signals flow from current transformers to the equipment to be tested.

#### 2. Preparation: plug and lid

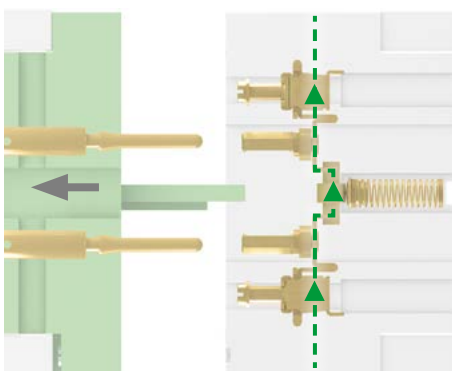


2.1 The lid **is removed**.

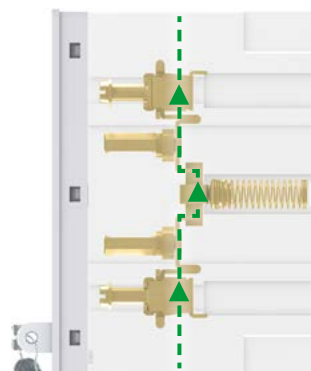


2.2 **Connect the ESSAILEC® test plug** leads to the test set. This plug is equipped with a built-in short-circuiting on equipment side (1-2-3-4).

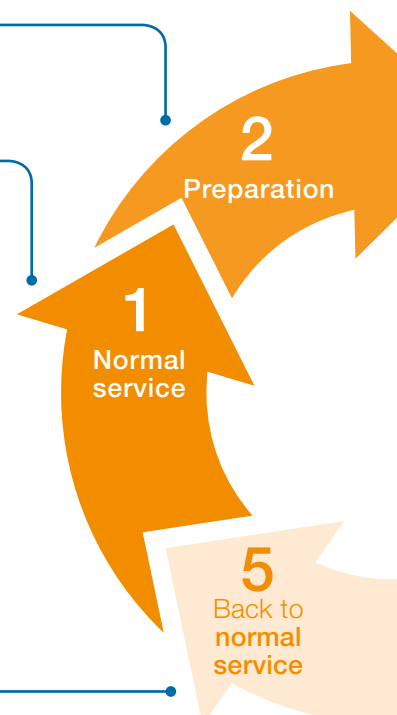
#### 5. Back to normal service



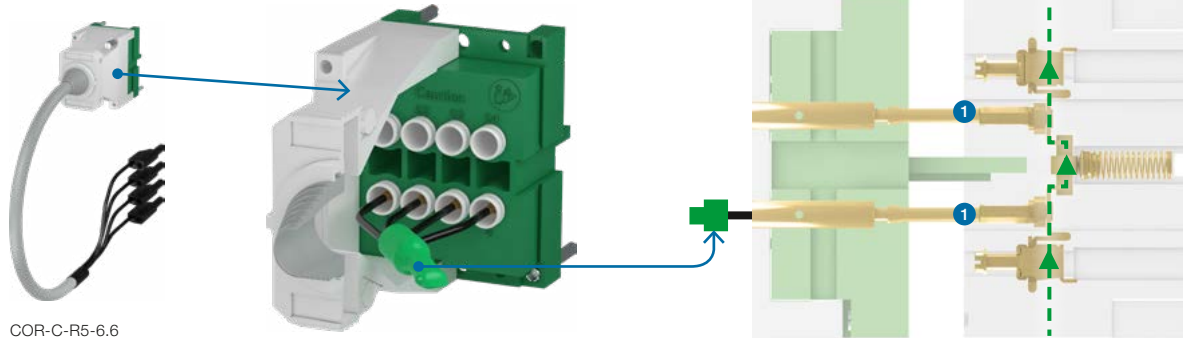
5.1 **Plug removal closes back the socket contacts** and signals flow again through the socket.



5.2 Lid is put back in place.



### 3. Test phase: Make & CT short-circuiting



COR-C-R5-6.6

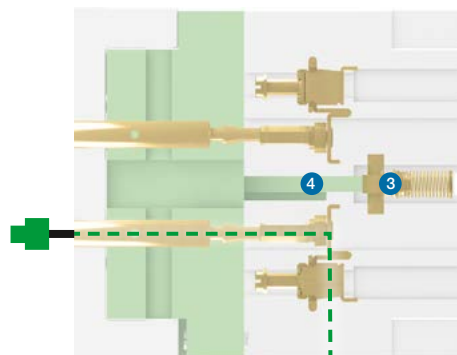
The plug is equipped with built in short circuited contacts on current transformers side (1-2-3-4)

During plug insertion, plug pins make contact with the socket pins (1), **and simultaneously the current transformer is short-circuited.**

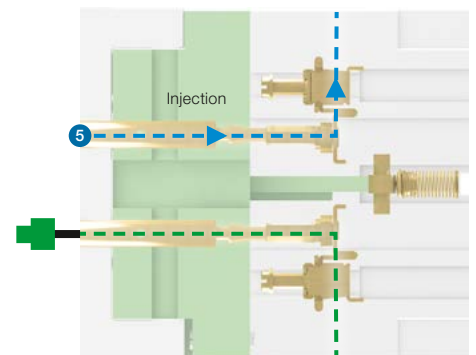
3

Test phase:  
Make

### 4. Test phase: Break and short-circuit (injection or equipment replacement)



4.1 When the plug is fully inserted in the socket, inner **mobile contacts (3)** are opened by **plastic lead (4)**. The current transformer is automatically short-circuited and circuits are opened.



4.2 Current injection can be done on the equipment (5).

## Current Transformers application

### ESSAILEC® sockets for Current Transformers – Make before break



CC-E-VA

#### Description

Short-circuited type contacts for measurement, calibration and distribution applications.

Make before break principle:

- The circuit is automatically shorted with the insertion of the plug.
- The circuit closes automatically when the plug is removed.
- This system guarantees a complete safety.
- By convention, green coding is for current circuit.

#### Main technical data

Connecting capacity		IEC 947-1
Screw clamp (VL)	Rigid - Solid / Stranded	0.2 ... 6 mm <sup>2</sup>
	Flexible	0.22 ... 4 mm <sup>2</sup>
Ring tongue (VA)	Flexible	0.34 ... 10 mm <sup>2</sup>
	Ø lug hole size	3 mm
	Width	7.5 mm
Body		Polycarbonate
Conductive parts		Gold-plated
Rated voltage		400 V
Impulse withstand voltage		4000 V
Pollution degree		3
Rated current		15 A
Short-circuit current		100 A/5 s ... 200 A/1 s
Storage temperature range		-25 ... +70 °C
Working temperature range		-10 ... +55 °C
Protection without lid / with lid		IP20 / IP40
Coding color		Green

#### Mounting instructions

Rail		G32, TH 35-7.5, TH 35-15
Screw clamp		
Wire stripping length		9.5 mm 0.370 in
Tool		Flat screwdriver Ø 4 mm Ø 0.157 in
Torque		0.5 ... 0.8 Nm 4.4 ... 7.1 lb.in

#### Ordering details

Type	Part Number	Pkg qty	Weight
		1 pce	g

#### Flush mounting

##### Ring-tongue

CC-E-VA	1SNA166737R2000	1	145
CC-E-VA-6.6	1SNA166625R2000	1	150
CC-E-VA-R2-6.6	1SNA166976R0000	50	170

#### Base / Half-base mounting

##### Screw clamp

CC-S-INF-VL-6.6	1SNA166722R2100	1	200
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##### Ring-tongue

CC-D-VA	1SNA166738R0100	1	90
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#### TH35 rail mounting

##### Screw clamp

CC-TH35-VL-6.6	1SNA166963R0000	1	114
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#### Rack mounting

##### Ring-tongue

CC-R-VA	1SNA166523R1200	1	140
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#### Reverse mounting

##### Ring-tongue

CC-I-VA-2	1SNA166941R2500	1	210
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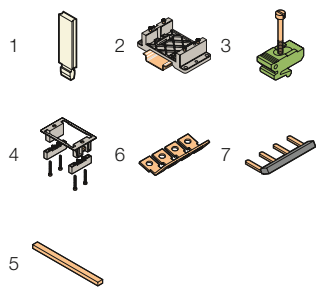
#### Compatible products

Lid	Cover	Universal plug	Pre-wired plugs		
		Ø 4 mm	2x4 poles	4 poles	1 pole
			Ø 4 mm bayonet	Ø 4 mm bayonet	Ø 4 mm bayonet
CPC-1	–	FIC-2/4-DIA4	COR-C-R4-6.6	COR-C-R5-6.6	COR-C-R3
Lid + coding included			COR-C-R1-6.6	COR-C-R2-6.6	COR-C-3
–	Cover + coding included	FIC-2/4-DIA4	COR-C-R4-6.6	COR-C-R5-6.6	COR-C-R3
			COR-C-R1-6.6	COR-C-R2-6.6	COR-C-3
CPC-1	–	FIC-2/4-DIA4	COR-C-R4-6.6	COR-C-R5-6.6	COR-C-R3
			COR-C-R1-6.6	COR-C-R2-6.6	COR-C-3
CPC-1	included	FIC-2/4-DIA4	COR-C-R4-6.6	COR-C-R5-6.6	COR-C-R3
			COR-C-R1-6.6	COR-C-R2-6.6	COR-C-3
CPC-1	–	FIC-2/4-DIA4	–	–	COR-C-R3
			–	–	COR-C-3
–	–	–	–	–	COR-C-R3
			–	–	COR-C-3

\* compatible with CC-DS-VL socket only in "base" mounting option.

# Current Transformers application

## ESSAILEC® sockets for Current Transformers – Make before break

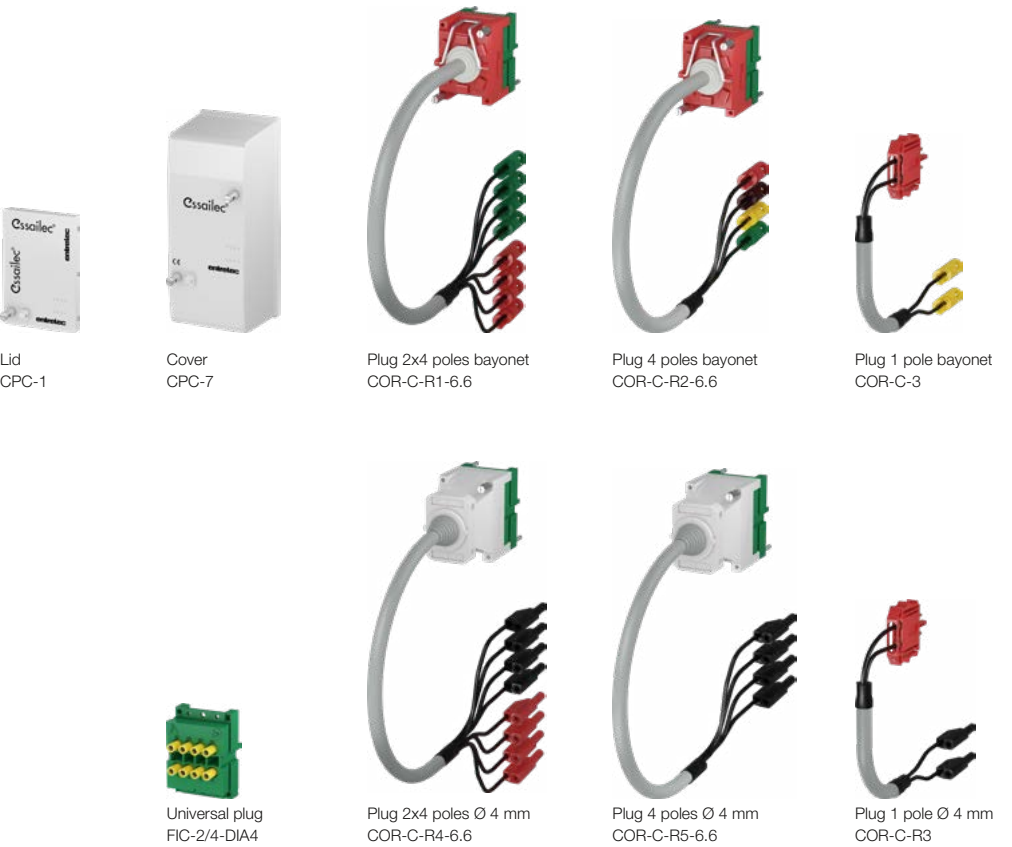


### Accessories

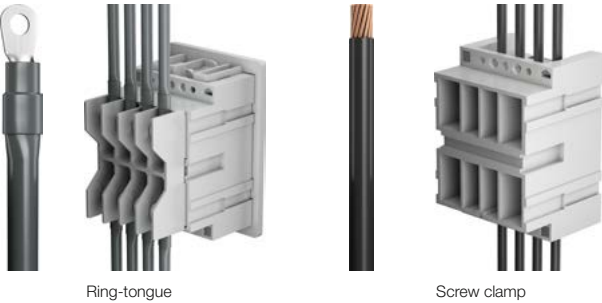
Description			Type	Part Number	Pkg qty	Weight 1 pce
1	Interlocking peg	For 2 sockets assembly	CVABM	1SNA183436R0500	10	0.4 g
2	Mounting kits	For TH35 rail (a)	KEM-3	1SNA166962R0000	10	24
3		For DIN 1 rail (a)	FX	1SNA167682R2300	10	20
4		For ring-tongue flush mounting (b)	KEM-1	1SNA166928R2000	50	18
6	Lateral jumper bars	Compatible with ring-tongue connection only (VA) (b)	PCVA	1SNA167496R1100	10	1
7		Compatible with screw connection only (VL); IP20 (c)	PCVL	1SNA167681R2200	10	1
5	Jumper bars	For two sockets screw connection type (c)	BJ-VL	1SNA167680R0500	10	1

(a) compatible with base mounting only.  
 (b) compatible with ring-tongue connection type socket only (VA).  
 (c) compatible with screw connection type socket only (VL).

### Compatible products



### Connection technologies



## Current Transformers application

### ESSAILEC® pre-wired plugs for Current Transformers

#### Description

- Standard current plugs are compatible with ESSAILEC® current sockets.
- Plugs are pre-wired with contact pins (BRE...) , coding, cables and test plugs assembled to ease your test operations.

#### Main technical data

Connecting capacity	IEC 947-1
Body	Polycarbonate
Conductive parts	Gold-plated
Rated voltage	400 V
Impulse withstand voltage	4000 V
Pollution degree	3
Rated current	15 A
Short-circuit current	100 A/5 s ... 200 A/1 s
Storage temperature range	-25 ... +70 °C
Working temperature range	-10 ... +55 °C

#### Ordering details

Description	Type	Part Number	Pkg qty	Weight 1 pce g	Compatible products Socket
<b>Plug 2x4 poles</b>					
1 plug 2x4 pins / Green 4 x Ø 4 mm test plugs / Black 4 x Ø 4 mm test plugs / Red Conductors section: 2.5 mm <sup>2</sup> cable length: 2 m / 79"	COR-C-R4-6.6	1SNA167932R1500	1	1080	CC-E-VA CC-E-VA-6.6 CC-E-VA-R2-6.6 CC-S-INF-VL-6.6 CC-D-VA CC-TH35-VL-6.6
1 plug 2x4 pins / Green 4 bayonet security test plugs / Green 4 bayonet security test plugs / Red Conductors section: 2.5 mm <sup>2</sup> cable length: 2 m / 79"	COR-C-R1-6.6	1SNA166638R0500	1	1080	CC-E-VA CC-E-VA-6.6 CC-E-VA-R2-6.6 CC-S-INF-VL-6.6 CC-D-VA CC-TH35-VL-6.6
<b>Plug 4 poles</b>					
1 plug 2x4 pins with 4 short circuited pins (1-2-3-4) / Green 4 x Ø 4 mm test plugs / Black Conductors section: 2.5 mm <sup>2</sup> cable length: 2 m / 79"	COR-C-R5-6.6	1SNA167934R1700	1	670	CC-E-VA CC-E-VA-6.6 CC-E-VA-R2-6.6 CC-S-INF-VL-6.6 CC-D-VA CC-TH35-VL-6.6
1 plug 2x4 pins with 4 short circuited pins (1-2-3-4) / Green 1 bayonet security test plug / Green 1 bayonet security test plug / Grey 1 bayonet security test plug / Brown 1 bayonet security test plug / Yellow Conductors section: 2.5 mm <sup>2</sup> cable length: 2 m / 79"	COR-C-R2-6.6	1SNA166778R1100	1	670	CC-E-VA CC-E-VA-6.6 CC-E-VA-R2-6.6 CC-S-INF-VL-6.6 CC-D-VA CC-TH35-VL-6.6
<b>Plug 1 pole</b>					
1 plug 2 pins / Red 2 dia. 4 mm test plugs / Black	COR-C-R3	1SNA166979R0000	1	320	CC-E-VA CC-E-VA-6.6 CC-E-VA-R2-6.6 CC-S-INF-VL-6.6 CC-D-VA CC-TH35-VL-6.6 CC-R-VA CC-I-VA-2
1 plug 2 pins / Red 2 bayonet security test plugs / Yellow	COR-C-3	1SNA166643R0200	1	320	CC-E-VA CC-E-VA-6.6 CC-E-VA-R2-6.6 CC-S-INF-VL-6.6 CC-D-VA CC-TH35-VL-6.6 CC-R-VA CC-I-VA-2



# Current Transformers application

## ESSAILEC® universal adaptor with Ø 4mm outputs



FIC-2/4-DIA4

### Description

- Universal adaptor compatible with all ESSAILEC® current socket
  - It ensures quick and consistently reliable ESSAILEC® sockets tests
  - Ø 4 mm test plugs may be inserted directly without the need for extra accessories or tools. It is compatible with all the insulated Ø 4mm test plugs available on the market
- Standard current plugs are compatible with ESSAILEC® current sockets.
- Plugs are pre-wired with contact pins (BRE...) , coding, cables and test plugs assembled to ease your test operations.

### Main technical data

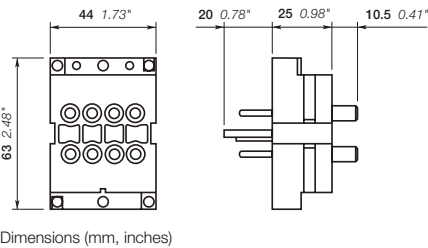
Connecting capacity	IEC 947-1
Body	Polycarbonate
Conductive parts	Gold-plated
Rated voltage	400 V
Impulse withstand voltage	4000 V
Pollution degree	3
Rated current	15 A
Short-circuit current	100 A/5 s ... 200 A/1 s
Storage temperature range	-25 ... +70 °C
Working temperature range	-10 ... +55 °C

### Ordering details

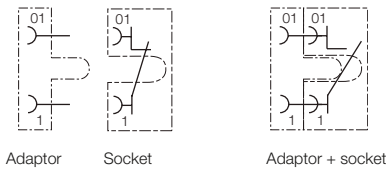
Description	Type	Part Number	Pkg qty	Weight 1 pce g
Universal plug Plug 2x4 pins with direct insertion Ø 4 mm	FIC-2/4-DIA4	1SNA167937R0000	1	60

### Compatible products

Socket
CC-E-VA CC-E-VA-6.6 CC-E-VA-R2-6.6 CC-S-INF-VL-6.6 CC-D-VA CC-TH35-VL-6.6 CC-R-VA



Dimensions (mm, inches)



Adaptor Socket Adaptor + socket  
Electrical wiring for a socket with short-circuited contacts and an universal adaptor

For connection details, please refer to mounting instruction 1SNC169041L0201











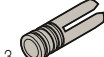
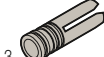






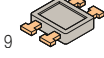


### Description

Short-circuited type contacts for measurement, calibration and distribution applications.

Make before break principle:

- The circuit is automatically shorted with the insertion of the plug.
- The circuit closes automatically when the plug is removed.
- This system guarantees a complete safety.
- By convention, green coding is for current circuit.

### Ordering details

Description	Type	Part Number	Pkg qty	Weight 1 pce g	Compatible products Socket
<b>1 pole plug with contact pins</b>					
 Plug with 2x 2.5 mm² contact pins (BRE-C-2.5), without coding pins.	FIC-2/1-1	1SNA166819R2300	1	27	CC-E-VA CC-E-VA-6.6 CC-E-VA-R2-6.6 CC-S-INF-VL-6.6 CC-D-VA CC-TH35-VL-6.6 CC-R-VA CC-I-VA-2
<b>Plugs without contact pins (contact pins BRE-C..., to be ordered separately)</b>					
 Plugs 2x4 poles, long cover, with 2 coding pins (COP-FI-1) and 8 locking pins. Contacts pins (BRE-C...) to be ordered separately.	FIC-2/4-2	1SNA166936R1000	1	105	CC-E-VA CC-E-VA-6.6 CC-E-VA-R2-6.6 CC-S-INF-VL-6.6 CC-D-VA CC-TH35-VL-6.6
 Plugs 2x4 poles, short cover, with 2 coding pins (COP-FI-1) and 8 locking pins. Contacts pins (BRE-C...) to be ordered separately.	FIC-2/4-1	1SNA166525R1400	1	91	CC-E-VA CC-E-VA-6.6 CC-E-VA-R2-6.6 CC-S-INF-VL-6.6 CC-D-VA CC-TH35-VL-6.6
 Plug 2x4 poles, rack mounting R version, with 2 coding pins (COP-FI-1) and 8 locking pins. Contacts pins (BRE-C...) to be ordered separately.	FIC-2/4-R	1SNA166529R2000	1	80	CC-R-VA
 Plug 2x4 poles, reverse mounting I version, with 2 coding pins (COP-FI-1) and 8 locking pins. Contacts pins (BRE-C...) to be ordered separately.	FIC-2/4-I	1SNA166589R2500	1	60	CC-I-VA-2
<b>BRE contact pins</b>					
 Pin 1 mm²	BRE-C-1	1SNA167264R0700	10	2.6	-
Pin 1.5 mm²	BRE-C-1.5	1SNA167265R0000	10	2.6	-
Pin 2.5 mm²	BRE-C-2.5	1SNA167260R1700	10	3	-
Pin 4 mm²	BRE-C-4	1SNA205876R0400	10	3	-
Pin 6 mm²	BRE-C-6	1SNA168146R0200	10	3	-
<b>Tools for contact pins</b>					
 1 Pin extraction tool	EXBR1	1SNA167008R0300	1	24	-
 2 Crimping tool for BRE pins 1 to 2.5 mm² (1)	PSC	1SNA173181R1300	1	478	-
 3 Locking sleeve for contact pin	DLVR	1SNA167971R2400	10	0.4	-
<b>dia 4 mm test plugs</b>					
 4 IP20 with mobile protection	FC4-1	1SNA167927R1000	10	11	-
 5 IP20 with permanent protection	FC4-5	1SNA167931R1400	10	10	-
<b>Bayonet plugs</b>					
 6 Bayonet security test plug / Black	FCB-1	1SNA167690R0700	10	7	-
 6 Bayonet security test plug / Red	FCB-2	1SNA167692R2500	10	7	-
 7 Isolating cap for FCB plug	CA	1SNA167697R2200	10	1.2	-
<b>Accessories</b>					
 8 Straight adaptor	IR1	1SNA167622R2600	5	15	-
 9 H adaptor (short-circuit bridge)	IR2	1SNA167623R2700	5	35	-
 10 Isolating cap for IR1 and IR2 adaptors	DI	1SNA167981R1700	10	7	-
 11 Adaptor between FCB plug and ring-tongue test interface	IR3	1SNA167624R2000	10	6.4	-
<b>Coding pins</b>					
 12 Plug coding pin	COP-FI-1	1SNA167378R1100	10	2.3	-

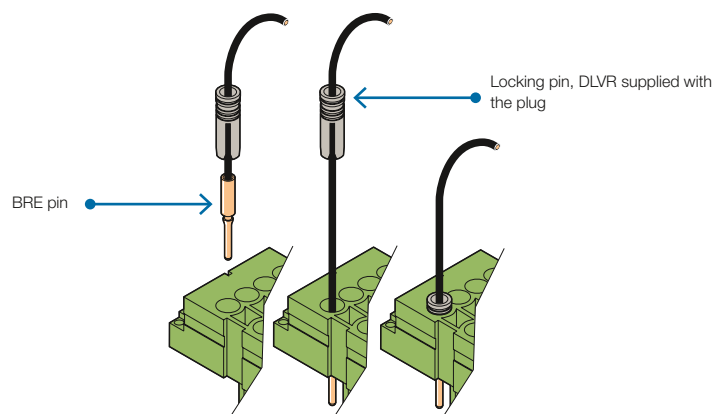
(1) Referring to 1SNC169040D1702 to find other crimping tools



## Current Transformers application

### ESSAILEC® customized plugs

#### Pin installation on plugs



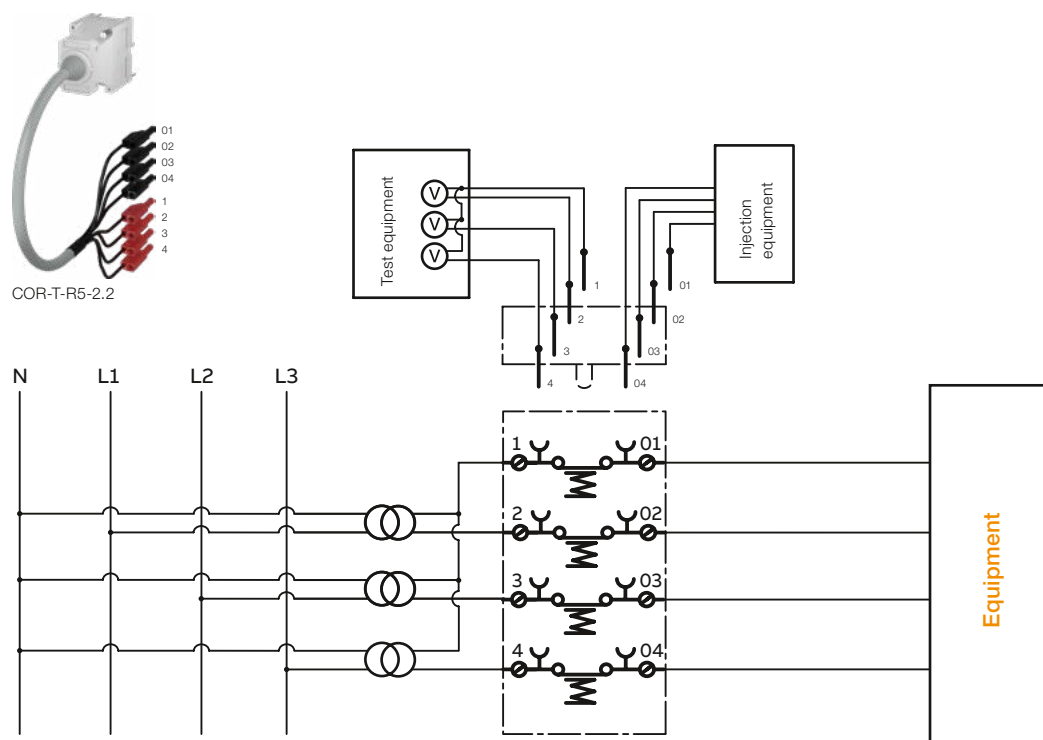


Make before break	30
Break before make	36
Closed contact	42
Independent circuits	48
Pre-wired plugs	49
Customized plugs	51

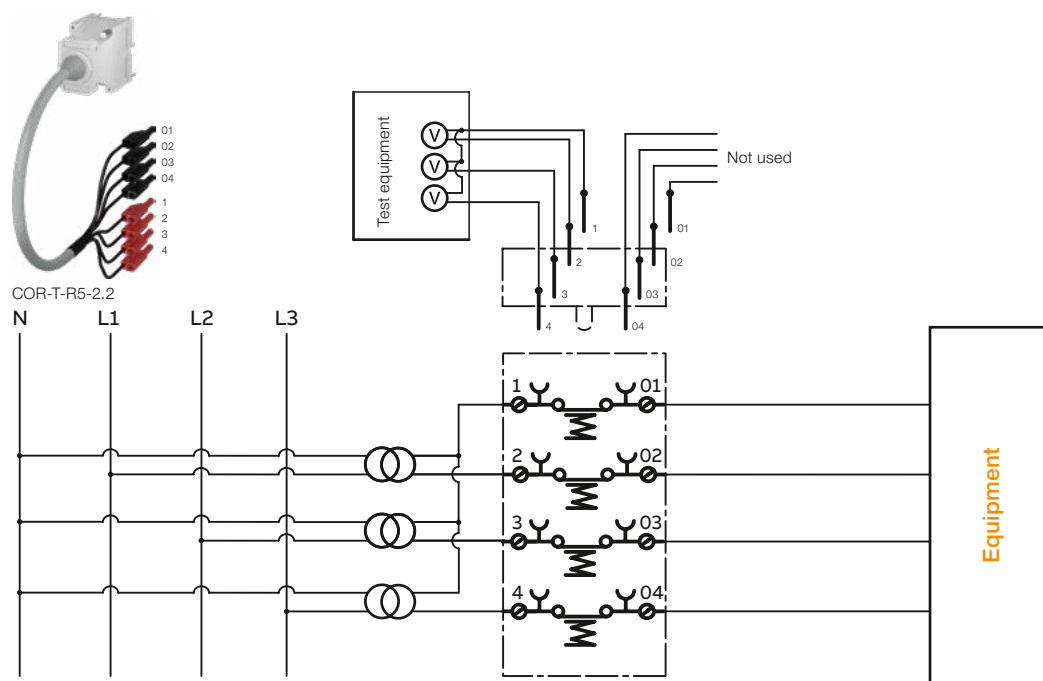
## Voltage transformers application

### Make before break test principle

Simultaneous measurement and injection with 2x4 poles test plug

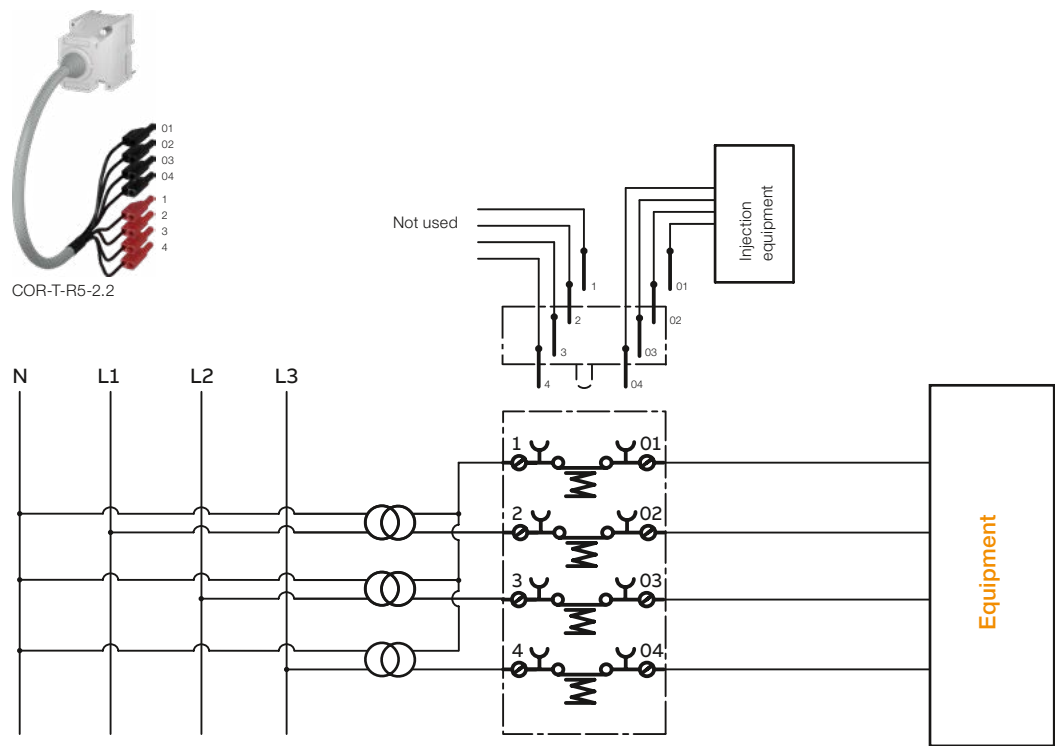


Measurement with 2x4 poles test plug



Make before break test principle

Injection with 2x4 poles test plug



## Voltage transformers application

### Make before break test principle - With 2x4 poles test plug

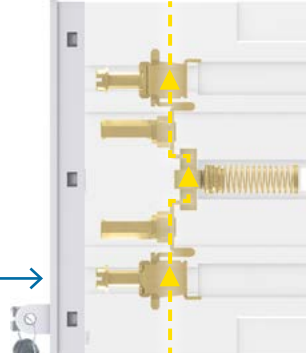
#### Applications

- Measurement on VT's
- Injection
- Equipment replacement

#### 1. Normal service



1.1 ESSAILEC® voltage sockets allow the simultaneous testing operations of 1 to 4 independent circuits on the same socket.



1.2 The lid is installed on the socket and can be sealed to prevent unauthorized access. **The socket circuits are closed** and signals flow from current transformers to the equipment to be tested.

#### 2. Preparation: plug and lid

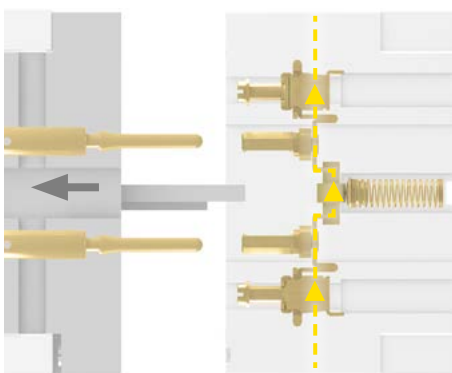


2.1 The lid is removed.

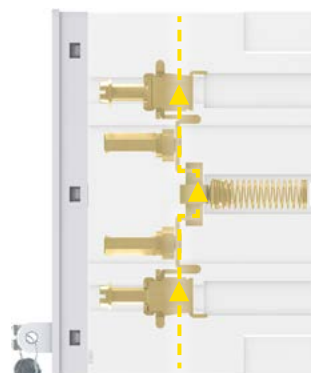


2.2 Connect the ESSAILEC® test plug leads to the test set.

#### 5. Back to normal service



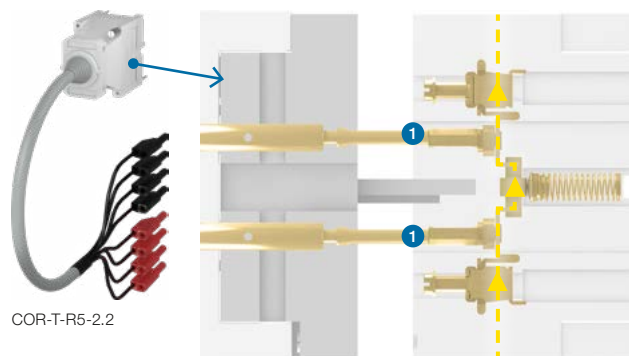
5.1 Plug removal closes back the socket contacts and signals flow again through the socket.



5.2 Lid is put back in place.

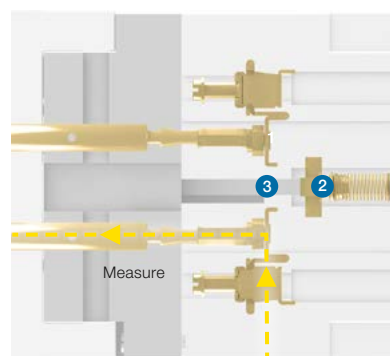


### 3. Test phase: Make



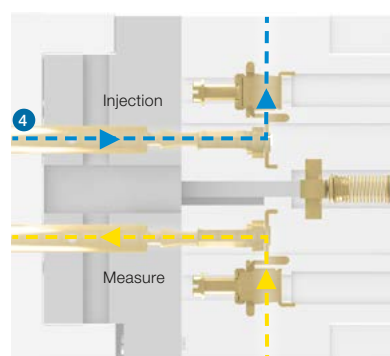
During plug insertion, plug pins make contact with socket pins (1). **Contacts remain closed and the signals flow has not changed.**

### 4.1 Measurement: test phase - Break



When the plug is fully inserted in the socket, inner mobile contacts (2) are pushed down by plug's plastic leads (3) and **the four circuits are opened simultaneously**. Signals are derived into the plug towards the test set. The equipment to be tested is no more energized.

### 4.2 Injection or equipment replacement: test phase - Break



In a second step or simultaneously, **voltage injection** can be done on the protection relay side (4).



## Voltage transformers application

### ESSAILEC® sockets for voltage transformers - Make before break



TC-E-VA

#### Description

Short-circuited contacts for measurement, calibration and distribution applications.

Make before break principle:

- The circuit is automatically shorted with the insertion of the plug.
- The circuit closes automatically when the plug is removed.
- This system guarantees a complete safety.
- By convention grey coding is for voltage circuits and blue coding is for polarity circuits.

#### Main technical data

Connecting capacity		IEC 947-1
Screw clamp (VL)	Rigid - Solid / Stranded	0.2 ... 6 mm <sup>2</sup>
	Flexible	0.22 ... 4 mm <sup>2</sup>
Ring tongue (VA)	Flexible	0.34 ... 10 mm <sup>2</sup>
	Ø lug hole size	3 mm
	Width	7.5 mm
Quick-connect	Flexible	2.5
Body		Polycarbonate
Conductive parts		Silver-plated
Rated voltage		400 V
Impulse withstand voltage		4000 V
Pollution degree		3
Rated current		8 A
Short-circuit current		25 A/5 s ... 800 A/25 ms
Storage temperature range		-25 ... +70 °C
Working temperature range		-10 ... +55 °C
Protection without lid / with lid		IP20 / IP40
Coding color		Grey <input type="checkbox"/> - Blue <input type="checkbox"/>

#### Mounting instructions

Rail		G32, TH 35-7.5, TH 35-15
Screw clamp		
Wire stripping length		9.5 mm 0.370 in
Tool		Flat screwdriver Ø 4 mm Ø 0.157 in
Torque		0.5 ... 0.8 Nm 4.4 ... 7.1 lb.in

#### Ordering details

Color	Type	Part Number	Pkg qty	Weight 1 pce g
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#### Flush mounting

##### Ring-tongue

Grey	<input type="checkbox"/> TC-E-VA	1SNA166747R0200	1	140
	TC-E-VA-2-2	1SNA166627R2200	1	150
	TC-E-VA-R2-2.2	1SNA166977R0000	50	150
Blue	<input type="checkbox"/> PC-E-VA	1SNA166763R0200	1	145
	PC-E-VA-8.8	1SNA166630R0100	1	200

##### Quickconnect

Grey	<input type="checkbox"/> TC-E-C5A-2.2	1SNA166628R0300	1	170
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#### Base / Half-base mounting

##### Screw clamp

Grey	<input type="checkbox"/> TC-DS-VL	1SNA166742R0500	1	100
	TC-S-INF-VL-2.2	1SNA166948R0400	1	170
Blue	<input type="checkbox"/> PC-DS-VL	1SNA166758R1500	1	130

##### Ring-tongue

Grey	<input type="checkbox"/> TC-D-VA	1SNA166748R1300	1	147
Blue	<input type="checkbox"/> PC-D-VA	1SNA166764R0300	1	115

#### TH35 rail mounting

##### Screw clamp

Grey	<input type="checkbox"/> TC-TH35-VL	1SNA166964R0000	1	114
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(1) Compatible only in base mounting option.

(2) Compatible with some restrictions, please contact us.

Information on pre-wired plugs: Please refer to page "ESSAILEC® pre-wired plugs for voltage transformers".

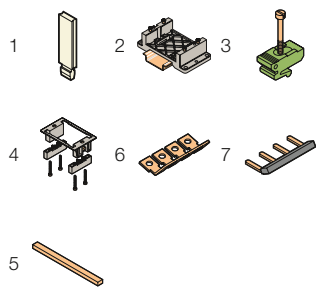
#### Compatible products

Lid	Cover	Universal plug	Pre-wired plugs 2x4 poles	4 poles
CPT-1	-	FI-2/4-DIA4	COR-T-R5-2.2	COR-T-4-4
Lid + coding included				
CPP-1			COR-P-R1-8.8	-
Lid + coding included				
Lid + coding included	-	FI-2/4-DIA4	COR-T-R5-2.2	COR-T-4-4
CPT-1	CPT-5 (1)	FI-2/4-DIA4	COR-T-R5-2.2	COR-T-4-4 (2)
-	Cover + coding included			COR-T-4-4
CPT-1	-		COR-P-R1-8.8	-
CPP-1	-	FI-2/4-DIA4	COR-T-R5-2.2	COR-T-4-4 (2)
			COR-P-R1-8.8	-
CPT-1	CPT-5	FI-2/4-DIA4	COR-T-R5-2.2	COR-T-4-4



# Voltage transformers application

## ESSAILEC® sockets for voltage transformers - Make before break

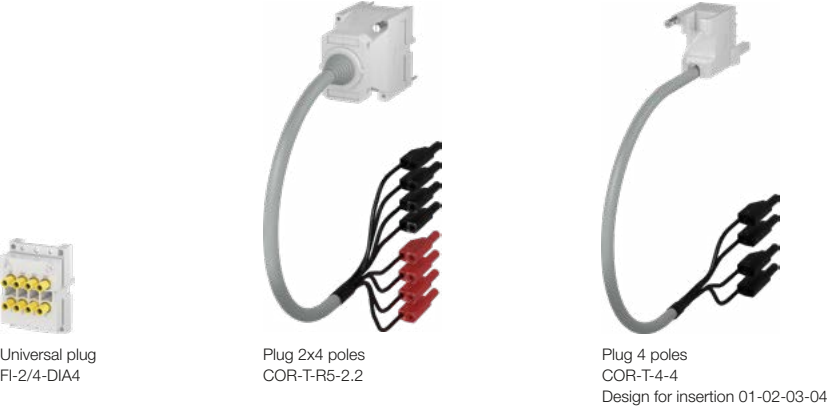


### Accessories

Description			Type	Part Number	Pkg qty	Weight 1 pce g
1	Interlocking peg	For 2 sockets assembly	CVABM	1SNA183436R0500	10	0.4
2	Mounting kits	For TH35 rail (a)	KEM-3	1SNA166962R0000	10	24
3		For DIN 1 rail (a)	FX	1SNA167682R2300	10	20
4		For ring-tongue flush mounting (b)	KEM-1	1SNA166928R2000	50	18
6	Lateral jumper bars	Compatible with ring-tongue connection only (VA) (b)	PCVA	1SNA167496R1100	10	1
7		Compatible with screw connection only (VL); IP20 (c)	PCVL	1SNA167681R2200	10	1
5	Jumper bars	For two sockets screw connection type (c)	BJ-VL	1SNA167680R0500	10	1

(a) compatible with base mounting only.  
 (b) compatible with ring-tongue connection type socket only (VA).  
 (c) compatible with screw connection type socket only (VL).

### Compatible products



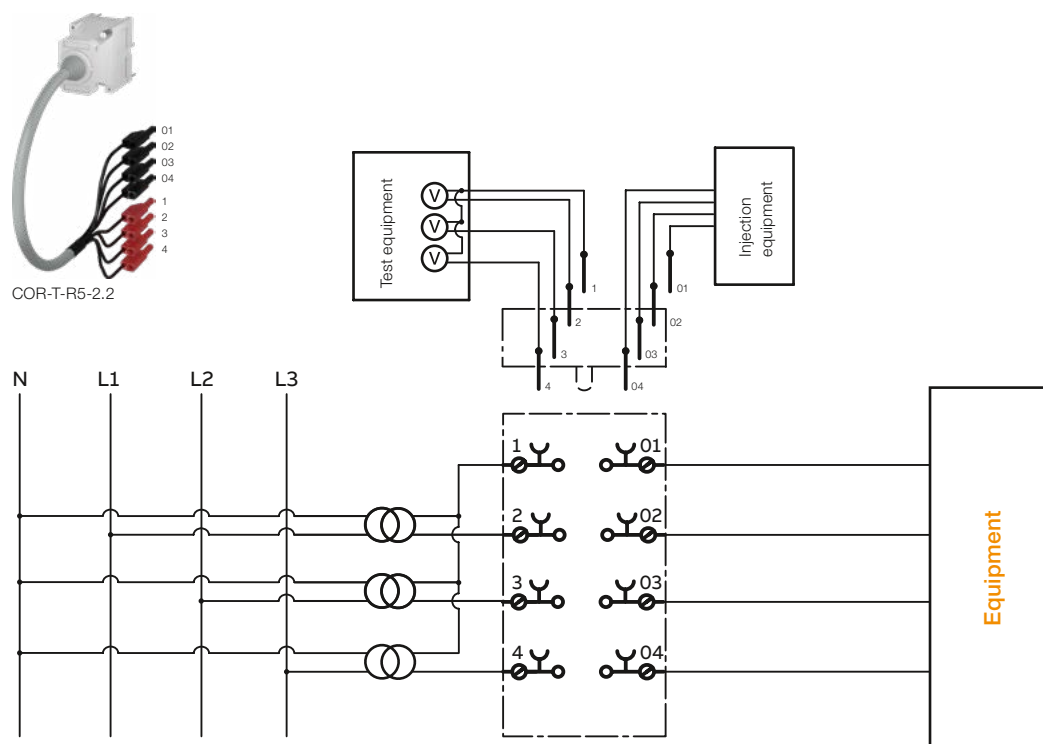
### Connection technologies



## Voltage transformers application

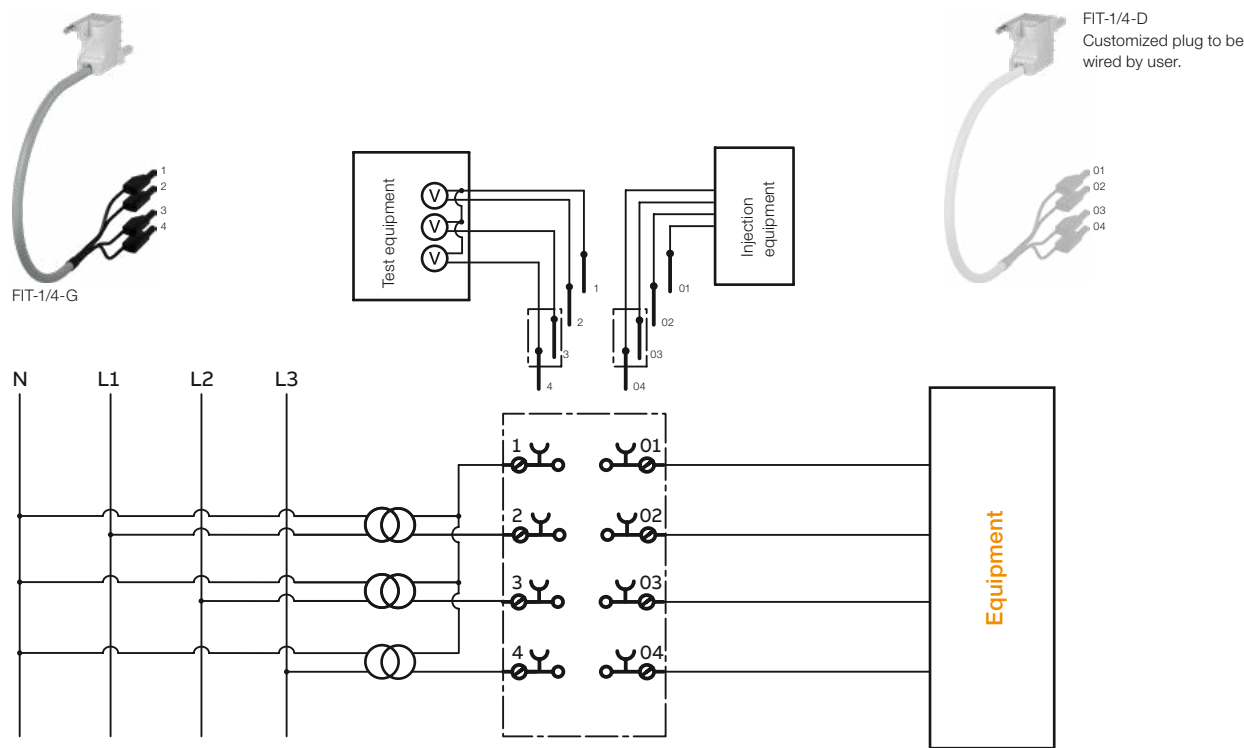
### Break before make test principle

Simultaneous measurement and injection with 2x4 poles test plug



Break before make test principle

Measurement or/and injection with 4 poles test plugs



## Voltage transformers application

Break before make test principle - With 2x4 or 4 poles test plug

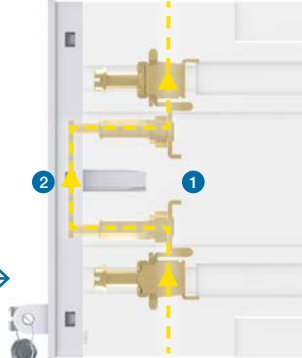
### Applications

- Measurement on VT's
- Injection
- Equipment replacement

#### 1. Normal service



1.1 ESSAILEC® voltage sockets allow the simultaneous testing operations of 1 to 4 independent circuits on the same socket.



1.2 The lid is installed on the socket and can be sealed to prevent unauthorized access. **The socket has no mobile contacts (closed style) (1).** Circuit continuity is ensured by the lid equipped with built-in contact pins (2).

#### 2. Preparation: plug

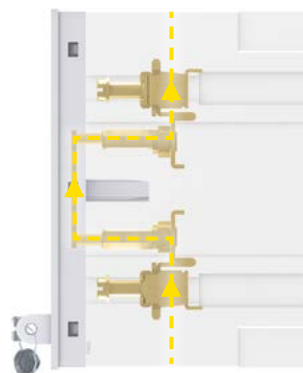


Connect the ESSAILEC® test plug leads to the test set.

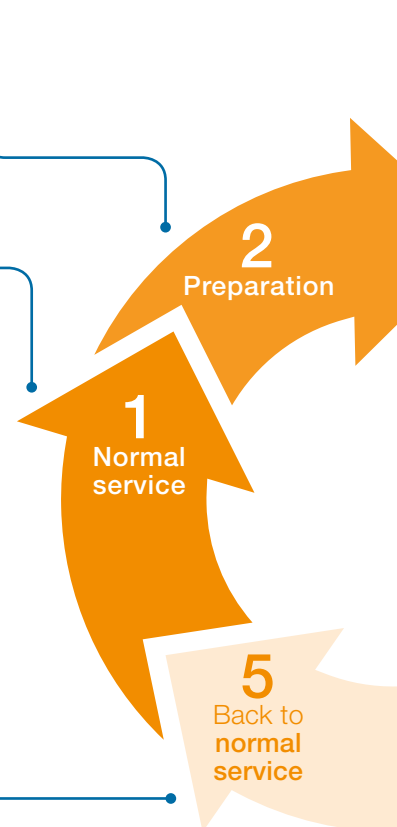
#### 5. Back to normal service



5.1 When the plug is removed, signals are disconnected.



5.2 When lid is put back in place, signals flow again through the socket.



### 3. Test phase: Break

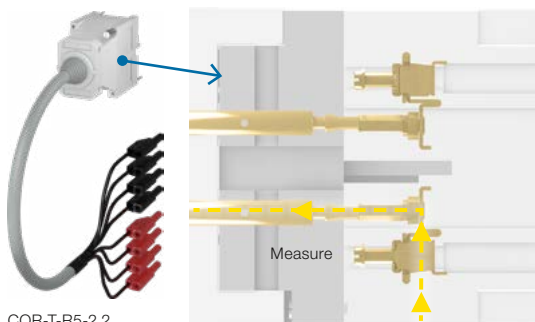


Removing of the lid **opens the circuit**.

The device to be tested is then isolated from the power supply (VT) and is no longer energized.

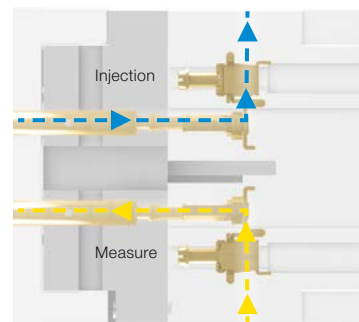
### 4. Simultaneous measurement and injection

Test phase: Make with 2x4 poles test plugs



COR-T-R5-2.2

4.1 The plug is fully inserted in the socket, **the signals are derived** into the plug towards the test set.

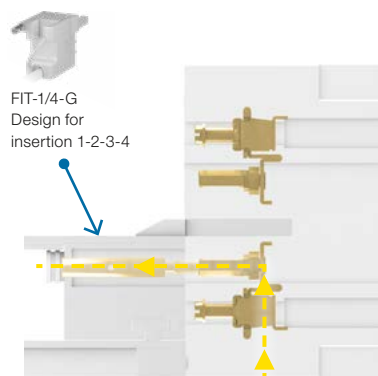


4.2 While the plug is still in place **simultaneous injection** can be realized on the equipment.

OR

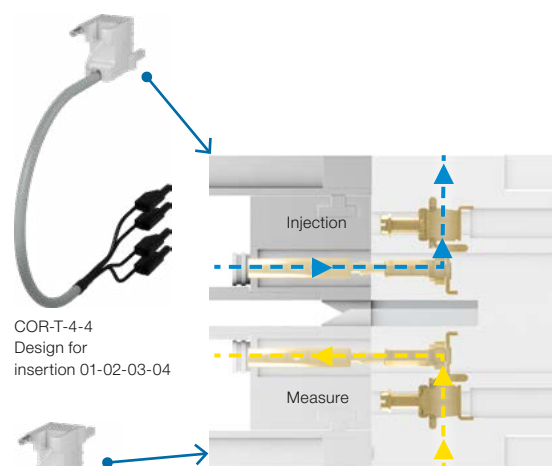
### 4. Separated measurement and injection

Test phase: Make with 4 poles test plugs



FIT-1/4-G  
Design for  
insertion 1-2-3-4

4.1 The plug is fully inserted in the socket, **the signals are derived** into the plug towards the test set.



COR-T-4-4  
Design for  
insertion 01-02-03-04

FIT-1/4-G  
Design for  
insertion 1-2-3-4

4.2 While the plug is still in place, a second plug can be installed for **injection** on the equipment.

## Voltage transformers application

### ESSAILEC® sockets for voltage transformers - Break before make



TO-E-VA

#### Description

Opened type contacts for measurement and calibration applications.

Break before make principle:

- The connection is made thanks to the lid: the removing of the lid opens the circuit. So the device is isolated from power supply to be tested.
- The circuit is closed only when the lid is reinstalled.
- By convention, grey coding is for voltage circuits blue coding is for polarity circuits and orange coding is for trip circuits.

#### Main technical data

Connecting capacity		IEC 947-1
Screw clamp	Rigid - Solid / Stranded	0.2 ... 6 mm <sup>2</sup>
(VL)	Flexible	0.22 ... 4 mm <sup>2</sup>
Ring tongue	Flexible	0.34 ... 10 mm <sup>2</sup>
(VA)	Ø lug hole size	3 mm
	Width	7.5 mm
Body	Polycarbonate	
Conductive parts	Silver-plated	
Rated voltage	400 V	
Impulse withstand voltage	4000 V	
Pollution degree	3	
Rated current	8 A	
Short-circuit current	25 A/5 s ... 800 A/25 ms	
Storage temperature range	-25 ... +70 °C	
Working temperature range	-10 ... +55 °C	
Protection without lid / with lid	IP20 / IP40	
Coding color	Grey  - Blue  - Orange	

#### Mounting instructions

Rail		G32, TH 35-7.5, TH 35-15
Screw clamp		
Wire stripping length		9.5 mm 0.370 in
Tool		Flat screwdriver Ø 4 mm Ø 0.157 in
Torque		0.5 ... 0.8 Nm 4.4 ... 7.1 lb.in

#### Ordering details

Color	Type	Part Number	Pkg qty	Weight 1 pce g
<b>Flush mounting</b>				
<b>Ring-tongue</b>				
Grey	TO-E-VA	1SNA166743R0600	1	170
	TO-E-VA-12.12	1SNA166925R1500	1	200
Blue	PO-E-VA	1SNA166759R1600	1	170
Orange	DEO-E-VA	1SNA166878R0600	1	170

#### Base / Half-base mounting

<b>Screw clamp</b>				
Grey	TO-DS-VL	1SNA166741R0400	1	100
	TO-S-INF-VL-12.12	1SNA166723R2200	1	200
Blue	PO-DS-VL	1SNA166757R0400	1	117
<b>Ring-tongue</b>				
Grey	TO-D-VA	1SNA166744R0700	1	139
Blue	PO-D-VA	1SNA166760R1300	1	170
Orange	DEO-D-VA	1SNA166874R2200	1	140

#### Reverse mounting

<b>Ring-tongue</b>				
Grey	TO-I-VA-2	1SNA166945R2100	1	190

(1) Compatible with some restrictions.

(2) Compatible in base mounting only.

(3) Plug to be mounted / see customized plugs page.

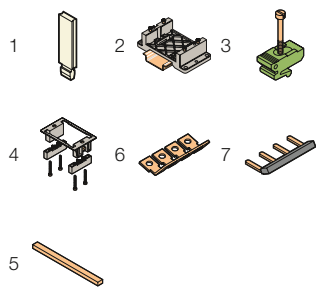
Information on pre-wired plugs: Please refer to page "ESSAILEC® pre-wired plugs for voltage transformers".

#### Compatible products

Lid	Cover	Universal plug	Pre-wired plugs	
			2x4 poles	4 poles
CPT-2	-	FI-2/4-DIA4	COR-T-R5-2.2 (1)	COR-T-4-4
Lid + coding included			FIT-2/4-2 (3)	
CPP-2			COR-P-R1-8.8 (1)	-
CPDE-2			FIDE-2/4 (3)	
CPT-2	CPT-4 (2)	FI-2/4-DIA4	COR-T-R5-2.2 (1)	COR-T-4-4
-	Cover + coding included	-	FIT-2/4-2 (3)	-
CPP-2	-	FI-2/4-DIA4	COR-P-R1-8.8 (1)	
CPDE-2			FIDE-2/4 (3)	
CPT-2	-	FI-2/4-DIA4	COR-T-R5-2.2 (1)	COR-T-4-4
CPP-2			COR-P-R1-8.8 (1)	-
CPDE-2			FIDE-2/4 (3)	
CPT-2	-	FIT-2/4-I	FIT-2/4-I (3)	-

# Voltage transformers application

## ESSAILEC® sockets for voltage transformers - Break before make

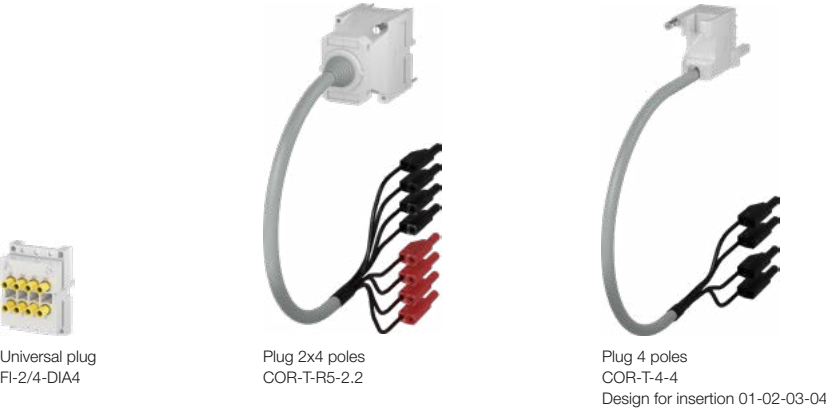


### Accessories

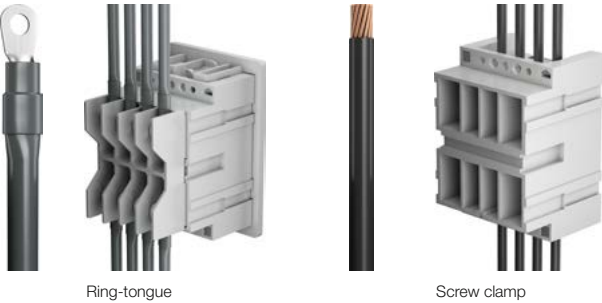
Description			Type	Part Number	Pkg qty	Weight 1 pce g
1	Interlocking peg	For 2 sockets assembly	CVABM	1SNA183436R0500	10	0.4
2	Mounting kits	For TH35 rail (a)	KEM-3	1SNA166962R0000	10	24
3		For DIN 1 rail (a)	FX	1SNA167682R2300	10	20
4		For ring-tongue flush mounting (b)	KEM-1	1SNA166928R2000	50	18
6	Lateral jumper bars	Compatible with ring-tongue connection only (VA) (b)	PCVA	1SNA167496R1100	10	1
7		Compatible with screw connection only (VL); IP20 (c)	PCVL	1SNA167681R2200	10	1
5	Jumper bars	For two sockets screw connection type (c)	BJ-VL	1SNA167680R0500	10	1

(a) compatible with base mounting only.  
 (b) compatible with ring-tongue connection type socket only (VA).  
 (c) compatible with screw connection type socket only (VL).

### Compatible products

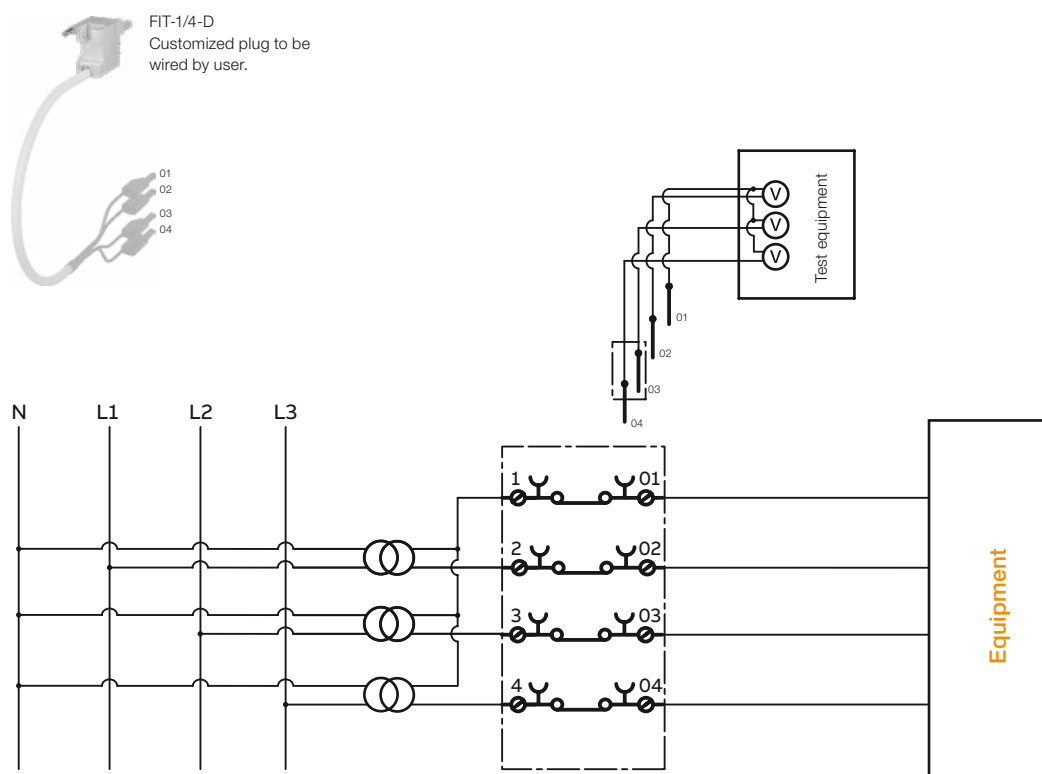


### Connection technologies



## Voltage transformers application

### Closed contact test principle - Measurement with 4 poles test plug







## Voltage transformers application

### Closed contact test principle - With 4 poles test plug

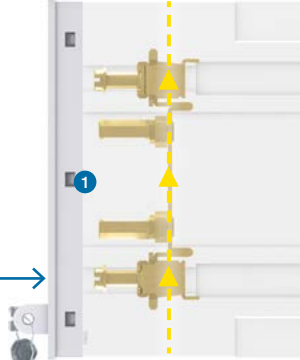
#### Applications

- Measurement on VT's

#### 1. Normal service



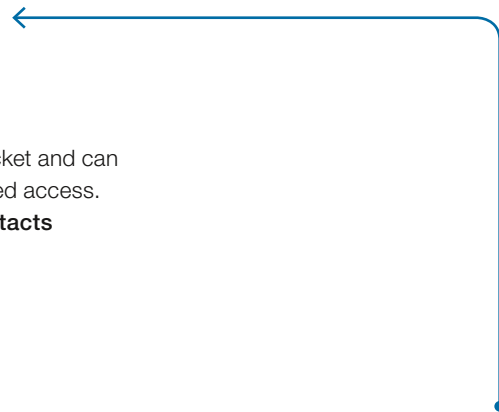
1.1 ESSAILEC® voltage sockets allow the simultaneous testing operations of 1 to 4 independent circuits on the same socket.



1.2 The lid is installed on the socket and can be sealed to prevent unauthorized access.

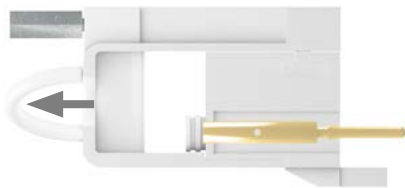
**The socket has no mobile contacts (closed style) (1).**

Circuit continuity is permanent, no possibility of disconnection.

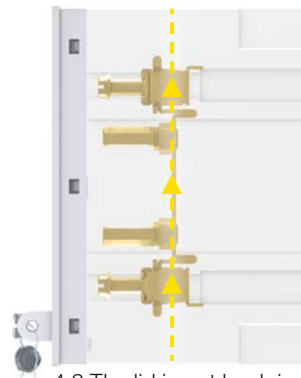
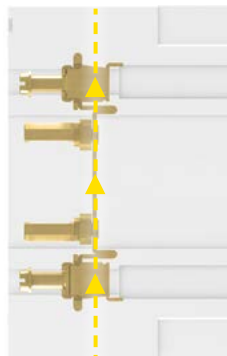


**1**  
Normal service

#### 4. Back to normal service



4.1 The plug is removed, and lid is put back in place, signals **never stop to flow through the socket**.



4.2 The lid is put back in place.



**4**  
Back to normal service

## 2. Preparation: plug and lid

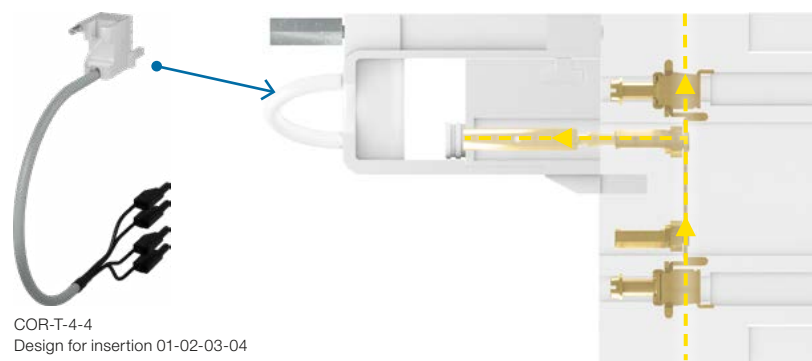


2.1 The lid is removed.



2.2 Connect the ESSAILEC® test plug leads to the test set.

## 3. Test phase: Make & Measure



COR-T-4-4  
Design for insertion 01-02-03-04

The plug is fully inserted in the socket, **the signals are derived** into the plug towards the test set.

## Voltage transformers application

### ESSAILEC® sockets for voltage transformers – closed contact



TF-E-VA

#### Description

Closed contact principle:

- The electrical connection is continuous. The circuit still closed during the testing operation.
- Closed contacts for measurement and distribution applications.
- By convention, grey coding is for voltage circuits blue coding is for polarity circuits and orange coding is for trip circuits.

#### Main technical data

Connecting capacity		IEC 947-1
Screw clamp (VL)	Rigid - Solid / Stranded	0.2 ... 6 mm <sup>2</sup>
	Flexible	0.22 ... 4 mm <sup>2</sup>
Ring tongue (VA)	Flexible	0.34 ... 10 mm <sup>2</sup>
	Ø lug hole size	3 mm
	Width	7.5 mm
Body		Polycarbonate
Conductive parts		Silver-plated
Rated voltage		400 V
Impulse withstand voltage		4000 V
Pollution degree		3
Rated current		8 A
Short-circuit current		25 A/5 s ... 800 A/25 ms
Storage temperature range		-25 ... +70 °C
Working temperature range		-10 ... +55 °C
Protection without lid / with lid		IP20 / IP40
Coding color		Grey  - Blue  - Orange

#### Mounting instructions

Rail		G32, TH 35-7.5, TH 35-15
<b>Screw clamp</b>		
Wire stripping length		9.5 mm 0.370 in
Tool		Flat screwdriver Ø 4 mm Ø 0.157 in
Torque		0.5 ... 0.8 Nm 4.4 ... 7.1 lb.in

#### Ordering details

Color	Type	Part Number	Pkg qty	Weight 1 pce g
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#### Flush mounting

##### Ring-tongue

Grey	TF-E-VA	1SNA166745R0000	1	170
Blue	PF-E-VA	1SNA166761R0000	1	170

#### Base / Half-base mounting

##### Screw clamp

Grey	TF-DS-VL	1SNA166503R2700	1	120
Blue	PF-DS-VL	1SNA166506R2200	1	117

##### Ring-tongue

Grey	TF-D-VA	1SNA166746R0100	1	119
Blue	PF-D-VA	1SNA166762R0100	1	140
Orange	DEF-D-VA	1SNA166896R1100	1	140

(1) Plug to be mounted / see customized plugs page.

(2) Compatible in base mounting only.

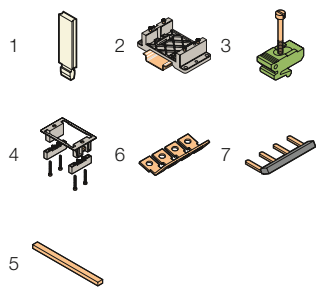
Information on pre-wired plugs: Please refer to page "ESSAILEC® pre-wired plugs for voltage transformers".

#### Compatible products

Lid	Cover	Universal plug	Pre-wired plugs	
			2x4 poles	4 poles
CPT-1	-	-	-	COR-T-4-4
CPP-1	-	-	-	FIP-1/4-D (1) FIP-1/4-G (1)
CPT-1	CPT-5 (2)	-	-	COR-T-4-4
CPP-1	-	-	-	FIP-1/4-D (1) FIP-1/4-G (1)
CPDE-1	-	-	-	COR-T-4-4
				FIP-1/4-D (1) FIP-1/4-G (1)

# Voltage transformers application

## ESSAILEC® sockets for voltage transformers – closed contact



### Accessories

Description			Type	Part Number	Pkg qty	Weight 1 pce g
1	Interlocking peg	For 2 sockets assembly	CVABM	1SNA183436R0500	10	0.4
2	Mounting kits	For TH35 rail (a)	KEM-3	1SNA166962R0000	10	24
3		For DIN 1 rail (a)	FX	1SNA167682R2300	10	20
4		For ring-tongue flush mounting (b)	KEM-1	1SNA166928R2000	50	18
6	Lateral jumper bars	Compatible with ring-tongue connection only (VA) (b)	PCVA	1SNA167496R1100	10	1
7		Compatible with screw connection only (VL); IP20 (c)	PCVL	1SNA167681R2200	10	1
5	Jumper bars	For two sockets screw connection type (c)	BJ-VL	1SNA167680R0500	10	1

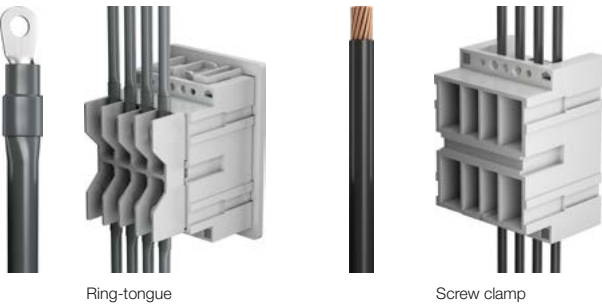
(a) compatible with base mounting only.  
 (b) compatible with ring-tongue connection type socket only (VA).  
 (c) compatible with screw connection type socket only (VL).

### Compatible products



Plug 4 poles  
 COR-T-4-4  
 Design for insertion 01-02-03-04

### Connection technologies



## Voltage transformers application

### ESSAILEC® sockets for voltage transformers – independent circuits



TT4-S-VL-INF

#### Description

Four independent circuits for voltage measurement.

Test directly performed on the four built-in dia. 4mm test sockets (no plug required).

Test sockets color coding :

- U1 - brown,
- U2 - black,
- U3 - red,
- U4 - blue.

The socket is supplied with a compact cover and sealing option (no coding required).

#### Main technical data

Connecting capacity		IEC 947-1
Screw clamp (VL)	Rigid - Solid / Stranded	0.2 ... 6 mm <sup>2</sup>
	Flexible with non insulated ferrule	0.22 ... 4 mm <sup>2</sup>
Body		Polycarbonate
Conductive parts		Silver-plated
Rated voltage		400 V
Impulse withstand voltage		4000 V
Pollution degree		3
Rated current		8 A
Short-circuit current		25 A/5 s ... 800 A/25 ms
Storage temperature range		-25 ... +70 °C
Working temperature range		10 ... +55 °C
Protection without cover/ lid		IP20

#### Mounting instructions

Rail		TH 35-7.5, TH 35-15
Wire stripping length		9.5 mm 0.370 in
Tool		Flat screwdriver Ø 4 mm Ø 0.157 in
Torque		0.5 ... 0.8 Nm 4.4 ... 7.1 lb.in

#### Ordering details

Color	Type	Part Number	Pkg qty	Weight 1 pce g
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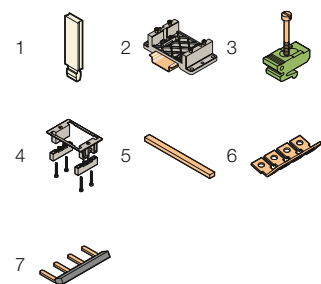
#### Base / Half-base mounting

Grey	<input type="checkbox"/> TT4-S-VL-INF	1SNA166972R0000	40	114
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Information on pre-wired plugs: Please refer to page "ESSAILEC® pre-wired plugs for voltage transformers".

#### Compatible products

Lid / Cover	Cover
Included	included



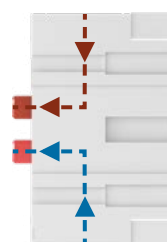
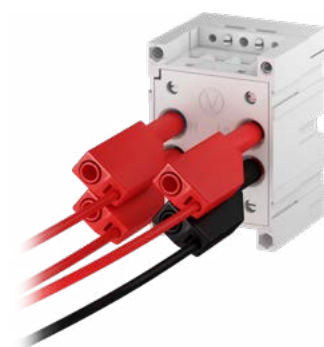
#### Accessories

Description	Type	Part Number	Pkg qty	Weight 1 pce g
1 Interlocking peg For 2 sockets assembly	CVABM	1SNA183436R0500	10	0.4
2 Mounting kits For TH35 rail (a)	KEM-3	1SNA166962R0000	10	24
3 For DIN 1 rail (a)	FX	1SNA167682R2300	10	20
4 For ring-tongue flush mounting (b)	KEM-1	1SNA166928R2000	50	18
5 Jumper bars For two sockets screw connection type (c)	BJ-VL	1SNA167680R0500	10	1
6 Lateral jumper bars Compatible with ring-tongue connection only (VA) (b)	PCVA	1SNA167496R1100	10	1
7 Compatible with screw connection only (VL); IP20 (c)	PCVL	1SNA167681R2200	10	1

(a) compatible with base mounting only.

(b) compatible with ring-tongue connection type socket only (VA).

(c) compatible with screw connection type socket only (VL).



Side view left



Side view right

# Voltage transformers application

## ESSAILEC® pre-wired plugs for voltage transformers


### Description

- Standard voltage plugs are compatible with ESSAILEC® voltage sockets.
- Plugs are ready to use with contact pins (BRE...) , coding, cables and test plugs assembled to ease your test operations.

### Main technical data

Connecting capacity	IEC 947-1
Body	Polycarbonate
Conductive parts	Silver-plated
Rated voltage	400 V
Impulse withstand voltage	4000 V
Pollution degree	3
Rated current	15 A
Short-circuit current	25 A/5 s ... 800 A/25 ms
Storage temperature range	-25 ... +70 °C
Working temperature range	-10 ... +55 °C

### Ordering details

Description	Type	Part Number		Pkg qty	Weight 1 pce g
<b>Universal plugs</b>					
<div>            Plug 2x4 pins, with direct insertion Ø 4 mm test plug         </div>	FI-2/4-DIA4	1SNA167936R1100		1	62

### Compatible products

Socket
TC-E-VA
TC-E-VA-2.2
TC-E-VA-R2-2.2
TC-DS-VL
TC-S-INF-VL-2.2
TC-D-VA
TC-TH35-VL
TC-E-C5A-2.2
TO-E-VA
TO-E-VA-12.12
TO-DS-VL
TO-S-INF-VL-12.12
TO-D-VA
PC-E-VA
PC-E-VA-8.8
PC-DS-VL
PC-D-VA
PO-E-VA
PO-DS-VL
PO-D-VA
DEO-E- A
DEO-D-VA

Continue on next page

## Voltage transformers application

### ESSAILEC® pre-wired plugs for voltage transformers



#### Ordering details

Description	Type	Part Number	Pkg qty	Weight 1 pce g	Compatible products Socket
<b>Plug 2x4 poles</b>					
1 plug 2x4 pins PRECODED 2.2 / Grey 4 x Ø 4 mm test plugs / Black 4 x Ø 4 mm test plugs / Red Conductors section: 2.5 mm <sup>2</sup> cable length: 2 m / 79"	COR-T-R5-2.2	1SNA167933R1600	1	1070	TC-E-VA TC-E-VA-2.2 TC-E-VA-R2-2.2 TC-DS-VL TC-S-INF-VL-2.2 TC-D-VA TC-TH35-VL TC-E-C5A-2.2 TO-E-VA TO-E-VA-12.12 TO-DS-VL TO-S-INF-VL-12.12 TO-D-VA
1 plug 2x4 pins PRECODED 8.8 / Blue 4 x Ø 4 mm test plugs / Black 4 x Ø 4 mm test plugs / Red Conductors section: 2.5 mm <sup>2</sup> cable length: 2 m / 79"	COR-P-R1-8.8	1SNA166978R0000	1	1080	PC-E-VA PC-E-VA-8.8 PC-DS-VL PC-D-VA PO-E-VA PO-DS-VL PO-D-VA PC-E-VA PC-E-VA-8.8 PC-DS-VL PC-D-VA PO-E-VA PO-DS-VL PO-D-VA
<b>Plug 4 poles</b>					
1 plug 4 pins / Grey Design for insertion 01-02-03-04 (D. design.) 4 x Ø 4 mm test plugs / Black Conductors section: 2.5 mm <sup>2</sup> cable length: 2 m / 79"	COR-T-4-4	1SNA167935R1000	1	500	TC-E-VA TC-E-VA-2.2 TC-E-VA-R2-2.2 TC-DS-VL TC-S-INF-VL-2.2 TC-D-VA TC-TH35-VL TC-E-C5A-2.2 TO-E-VA TO-E-VA-12.12 TO-DS-VL TO-S-INF-VL-12.12 TO-D-VA TF-E-VA TF-DS-VL TF-D-VA



## Voltage transformers application

### ESSAILEC® customized plugs

#### Description

To create a customized ESSAILEC® plug, according to the current socket chosen:

- Select a plug,
- Add contact pins (BRE...) and coding pins (COP...) if necessary,
- Choose the test plugs required by the measurement tool.

#### Ordering details

Description	Color	Type	Part Number		Pkg qty	Weight 1 pce g	products Socket
1 pole plug with contact pins							
Plug 2 poles with 2.5 mm <sup>2</sup> contact pins (BRE-T-2.5), without coding pins	Grey	 FIT-2/1-1	1SNA166821R1500		1	30	TC-E-VA
	Red	 FIT-2/1-2	1SNA166644R0300		1	30	TC-E-VA-2.2 TC-E-VA-R2-2.2 TC-DS-VL TC-S-INF-VL-2.2 TC-D-VA TC-TH35-VL TC-E-C5A-2.2 TO-E-VA TO-E-VA-12.12 TO-DS-VL TO-S-INF-VL-12.12 TO-D-VA TO-I-VA-2 PC-E-VA PC-E-VA-8.8 PC-DS-VL PC-D-VA PO-E-VA PO-DS-VL PO-D-VA DEO-E- A
Plugs without contact pins (contact pins BRE..., to be ordered separately)							
2x4 poles							
Plugs 2x4 poles, long cover, with 2 coding pins (COP-FI-1) and 8 locking pin. Contacts pins (BRE-T...) to be ordered separately.	Grey	 FIT-2/4-2	1SNA166937R1100		1	105	TC-E-VA TC-E-VA-2.2 TC-E-VA-R2-2.2 TC-DS-VL TC-S-INF-VL-2.2 TC-D-VA TC-TH35-VL TC-E-C5A-2.2 TO-E-VA TO-E-VA-12.12 TO-DS-VL TO-S-INF-VL-12.12 TO-D-VA
	Blue	 FIP-2/4-2	1SNA166939R2300		1	105	PC-E-VA PC-E-VA-8.8 PC-DS-VL PC-D-VA PO-E-VA PO-DS-VL PO-D-VA
Plug 2 poles with 2.5 mm <sup>2</sup> contact pins (BRE-T-2.5), without coding pins	Orange	 FIDE-2/4-2	1SNA166943R2700		1	105	DEO-E- A DEO-D-VA

Continue on next page

## Voltage transformers application

### ESSAILEC® customized plugs

#### Ordering details



Description	Color	Type	Part Number	Pkg qty	Weight 1 pce g
Plugs 2x4 poles, short cover, with 2 coding pins (COP-FI-1) and 8 locking pins. Contacts pins (BRE-T...) to be ordered separately.	Grey	FIT-2/4-1	1SNA166550R0100	1	91
	Blue	FIP-2/4-1	1SNA166559R0600	1	91
	Orange	FIDE-2/4	1SNA166877R2500	1	91
Plug 4 poles - insertion 01-02-03-04, with 1 coding pin (COP-FI-1) and 4 locking pins. Contacts pins (BRE-T...) to be ordered separately.	Grey	FIT-2/4-I	1SNA166672R0700	1	60



#### 4 Poles



Plug 4 poles - insertion 1-2-3-4, with 1 coding pin (COP-FI-1) and 4 locking pins. Contacts pins (BRE-T...) to be ordered separately.	Grey	FIT-1/4-G	1SNA166547R2200	1	60
	Blue	FIP-1/4-G	1SNA166556R2300	1	60
	Orange	FIDE-1/4-G	1SNA166898R2300	1	40

#### Compatible products

##### Socket




TC-E-VA  
TC-E-VA-2.2  
TC-E-VA-R2-2.2  
TC-DS-VL  
TC-S-INF-VL-2.2  
TC-D-VA  
TC-TH35-VL  
TC-E-C5A-2.2  
TO-E-VA  
TO-E-VA-12.12  
TO-DS-VL  
TO-S-INF-VL-12.12  
TO-D-VA  
PC-E-VA  
PC-E-VA-8.8  
PC-DS-VL  
PC-D-VA  
PO-E-VA  
PO-DS-VL  
PO-D-VA  
DEO-E-A  
DEO-D-VA  
TO-I-VA-2

TC-E-VA  
TC-E-VA-2.2  
TC-E-VA-R2-2.2  
TC-DS-VL  
TC-S-INF-VL-2.2  
TC-D-VA  
TC-TH35-VL  
TC-E-C5A-2.2  
TO-E-VA  
TO-E-VA-12.12  
TO-DS-VL  
TO-S-INF-VL-12.12  
TO-D-VA  
TF-E-VA  
TF-DS-VL  
TF-D-VA  
PC-E-VA  
PC-E-VA-8.8  
PC-DS-VL  
PC-D-VA  
PO-E-VA  
PO-DS-VL  
PO-D-VA  
PF-E-VA  
PF-DS-VL  
PF-D-VA  
DEO-D-VA  
DEF-D-VA  
DEO-E-VA

Continue on next page

# Voltage transformers application ESSAILEC® customized plugs



Ordering details							Compatible products
Description	Color	Type	Part Number		Pkg qty	Weight 1 pce g	Socket
Plug 4 poles - insertion 01-02-03-04, with 1 coding pin (COP-FI-1) and 4 locking pins. Contacts pins (BRE-T...) to be ordered separately.	Grey	 FIT-1/4-D	1SNA166546R2100		1	60	TC-E-VA TC-E-VA-2.2 TC-E-VA-R2-2.2 TC-DS-VL TC-S-INF-VL-2.2 TC-D-VA TC-TH35-VL TC-E-C5A-2.2 TO-E-VA TO-E-VA-12.12 TO-DS-VL TO-S-INF-VL-12.12 TO-D-VA TF-E-VA TF-DS-VL TF-D-VA
	Blue	 FIP-1/4-D	1SNA166555R2200		1	60	PC-E-VA PC-E-VA-8.8 PC-DS-VL PC-D-VA PO-E-VA PO-DS-VL PO-D-VA PF-E-VA PF-DS-VL PF-D-VA
	Orange	 FIDE-1/4-D	1SNA166897R1200		1	40	DEO-D-VA DEF-D-VA DEO-E-VA

Accessories

Description	Type	Part Number		Pkg qty	Weight 1 pce g
<b>BRE contact pins</b>					
Pin 0.34 mm <sup>2</sup>	BRE-T-0.34	1SNA168160R1400		50	2
Pin 0.75 mm <sup>2</sup>	BRE-T-0.75	1SNA167779R1300		50	2.9
Pin 1 mm <sup>2</sup>	BRE-T-1	1SNA164921R1700		50	3
Pin 1.5 mm <sup>2</sup>	BRE-T-1.5	1SNA164922R1000		50	2.6
Pin 2.5 mm <sup>2</sup>	BRE-T-2.5	1SNA164923R1100		50	2
Pin 4 mm <sup>2</sup>	BRE-T-4	1SNA166980R0000		100	3
Pin 6 mm <sup>2</sup>	BRE-T-6	1SNA168147R0300		50	3
<b>Tools for contact pins</b>					
1 Pin extraction tool	EXBR1	1SNA167008R0300		1	24
2 Crimping tool for BRE pins 1 to 2.5 mm <sup>2</sup> (1)	PSC	1SNA173181R1300		1	478
3 Locking sleeve for contact pin	DLVR	1SNA167971R2400		10	0.4

Dia 4 mm test plugs

4 IP20 with mobile protection	FC4-1	1SNA167927R1000		10	11
5 IP20 with permanent protection	FC4-5	1SNA167931R1400		10	10

Coding pins

6 Plug coding pin	COP-FI-1	1SNA167378R1100		10	2.3
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(1) Referring to 1SNC169040D1702 to find other crimping tools

Compatible  
products

Socket

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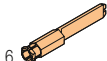
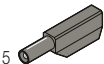
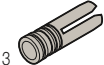
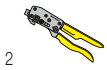
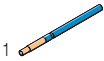
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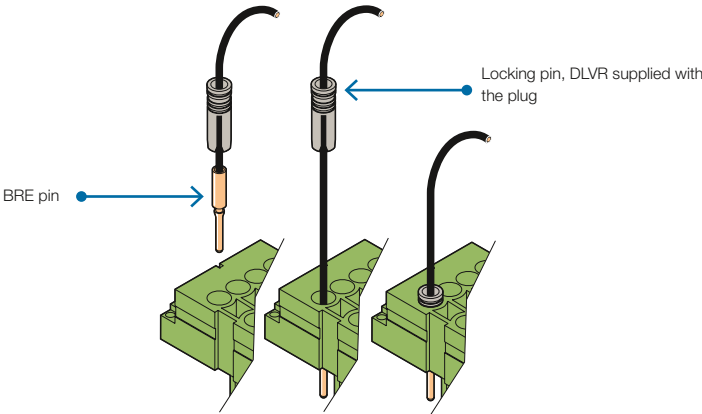
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Pin installation on plugs



## For all applications

### ESSAILEC® protection lids and covers

#### Description

During normal operation, lids and covers ensure protection of the test sockets from dust and unauthorized use.

According to the mounting choice, two options available:

- a lid for all types of mounting
- a cover required for base mounting ("S/DS" mounting coding)

In the case of opened contacts sockets, electrical continuity covers or lids are required. The electrical continuity is provided thanks to inner pins and linking bar.

#### Main technical data

Protection with cover / lid	IP40
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#### Ordering details

Description	Color	Type	Part Number	Pkg qty	Weight 1 pce g
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##### Lid

Protecting lid for current sockets	Green	CPC-1	1SNA166578R0100	1	30
Protecting lid for voltage sockets	Grey	CPT-1	1SNA166646R0500	1	30
Protecting lid for trip sockets	Blue	CPP-1	1SNA166647R0600	1	30
Protecting lid for polarity sockets	Orange	CPDE-1	1SNA166876R2400	1	30
Lid for RJ45 socket (spare part)	Grey	CPT-RJ45	1SNA167002R0000	1	25.4

##### Lid with electrical continuity

Protecting lid for voltage sockets	Grey	CPT-2	1SNA166577R2000	1	40
Protecting lid for polarity sockets	Blue	CPP-2	1SNA166645R0400	1	40
Protecting lid for trip sockets	Orange	CPDE-2	1SNA166926R1600	1	40

##### Cover

Protecting cover for current sockets	Green	CPC-7 (1)	1SNA166734R2500	1	66
Protecting cover for voltage sockets	Grey	CPT-5	1SNA166930R2600	1	66

##### Cover with electrical continuity

Protecting cover for voltage sockets	Grey	CPT-4	1SNA166733R2400	1	78
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(1) CPC-7 is compatible with CC-S-INF-VL-6.6 sockets.





### Description

- Designed for high density wiring inside panels.
- Alternative to large terminal strips.
- Allows easy circuits disconnection without wiring modification.

Multi-circuit blocks can be mounted side by side for compact panel board wiring in replacement of large terminal strip.

### Main technical data

Connecting capacity		IEC 947-1
Socket	Quick connect (C5A)	0.5 ... 0.8 Nm
	Flexible	2.5 mm <sup>2</sup>
Plug		Pin BRE
Body		Polycarbonate
Conductive parts		Silver-plated
Rated voltage		400 V
Impulse withstand voltage		4000 V
Pollution degree		3
Rated current		8 A
Short-circuit current		25 A/5 s ... 800 A/25 ms
Storage temperature range		-25 ... +70 °C
Working temperature range		-10 ... +55 °C
Protection without cover/ lid		IP20 / IP40

### Mounting instructions

Wire stripping length  9.5 mm  
0.370 in

### Ordering details

Color	Type	Part Number	Pkg qty	Weight 1 pce g
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#### Sockets

<b>Half-base mounting</b>				
Grey	<input type="checkbox"/> M10-D-C5A	1SNA166513R1000	10	60
<b>Extension mounting</b>				
Grey	<input type="checkbox"/> M10-P-C5A	1SNA166772R0300	10	66
<b>Rack mounting</b>				
Grey	<input type="checkbox"/> M10-R-C5A	1SNA166566R2500	10	60
<b>Reverse mounting</b>				
Grey	<input type="checkbox"/> M10-I-C5A-1	1SNA166774R0500	10	100
	M20-I-C5A	1SNA166777R0000	1	190

#### Plugs

Grey	<input type="checkbox"/> FIM10-1	1SNA166516R1300	10	55
	FIM10-R	1SNA166573R2400	1	54
	FIM10-I-1	1SNA166574R2500	1	30
	FIM20-I	1SNA166576R2700	1	53

### Compatible products

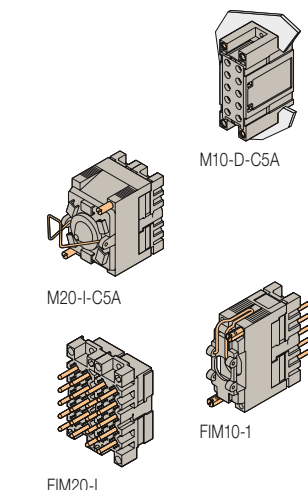
Plug	Socket
FIM10-1	–
–	–
FIM10-R	–
FIM10-I-1	–
FIM20-I	–
–	M10-D-C5A
–	M10-R-C5A
–	M10-I-C5A-1
–	M20-I-C5A

The various accessories necessary for each mounting option are supplied with the socket as well as the 2 coding pins COP-E-1 (see coding section).  
The BRT contacts pins are to be ordered separately.

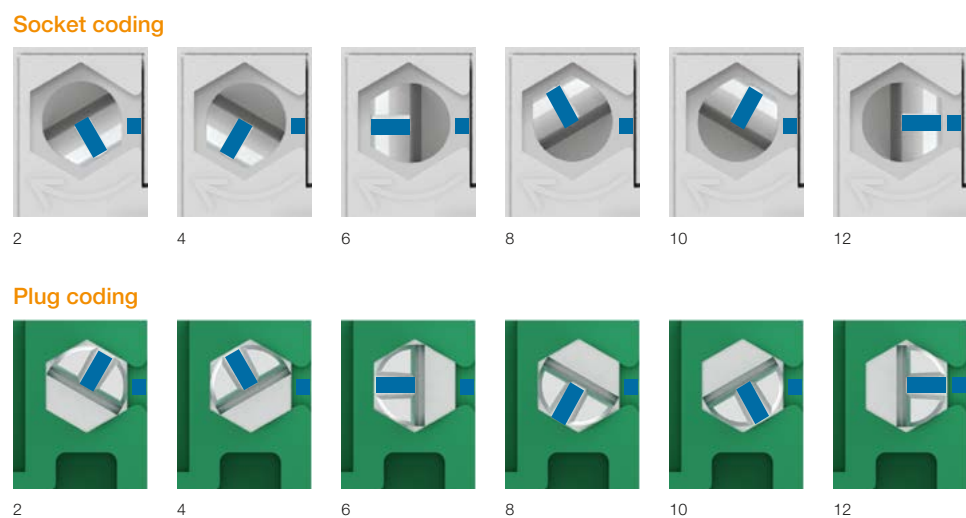
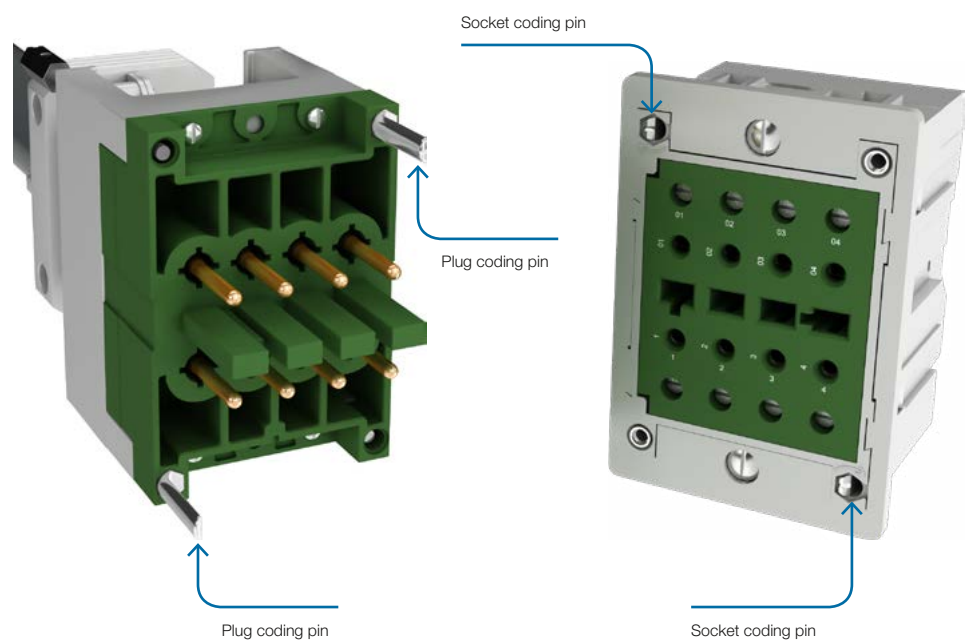
### Accessories

Description	Type	Part Number	Pkg qty	Weight 1 pce g
<b>For sockets</b>				
1 For 2 sockets assembly	CVABM	1SNA183436R0500	10	0.4
<b>For plugs</b>				
2 Pin 0.34 mm <sup>2</sup>	BRE-T-0.34	1SNA168160R1400	50	2
Pin 0.75 mm <sup>2</sup>	BRE-T-0.75	1SNA167779R1300	50	2.9
Pin 1 mm <sup>2</sup>	BRE-T-1	1SNA164921R1700	50	3
Pin 1.5 mm <sup>2</sup>	BRE-T-1.5	1SNA164922R1000	50	2.6
Pin 2.5 mm <sup>2</sup>	BRE-T-2.5	1SNA164923R1100	50	2
Pin 6 mm <sup>2</sup>	BRE-T-6	1SNA168147R0300	50	3
3 Pin extraction tool	EXBR1	1SNA167008R0300	1	24
4 Crimping tool for BRE pins 1 to 2.5 mm <sup>2</sup> (1)	PSC	1SNA173181R1300	1	478

(1) Referring to 1SNC169040D1702 to find other crimping tools



Mounting instructions for coding	58
Outer dimensions, mounting instructions	60



These numbers correspond to the coding information

**For instance:**

CC-E-VA-6.6 corresponds to COR-C-R4-6.6

TC-E-VA-2.2 corresponds to COR-T-R5-2.2

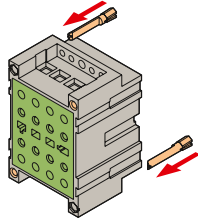
### Ordering details

Description	Type	Part Number	Pkg qty	Weight kg
Socket coding pin	COP-E-1	1SNA167379R1200	10	2.3
Plug coding pin	COP-FI-1	1SNA167378R1100	10	2.3

1SNC169102950201

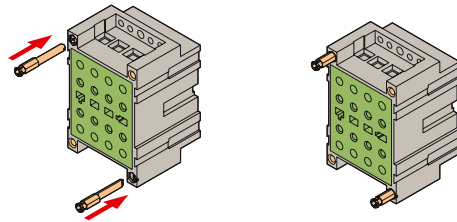


## How to insert the coding pins?



### Step 1 - Socket

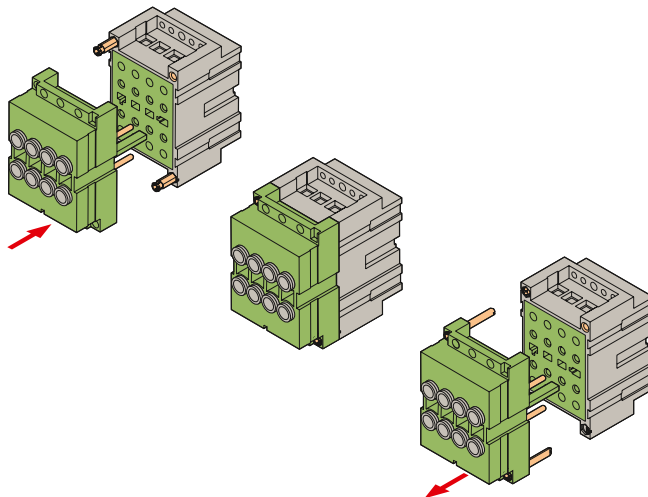
Choose a coding code for the socket. Then, insert the coding pin (COP-E-1) from below into the socket.



### Step 2 - Plug

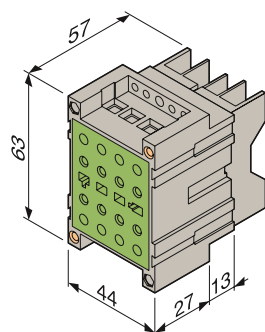
In order to guarantee a perfect compatibility between the socket coding and the plug coding, you have to:

1. Insert the coding pin for the plug (COP-FI-1) inside the socket.

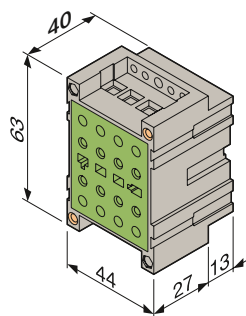


2. On a second time, connect the plug on the socket to insert the plug coding within the plug.

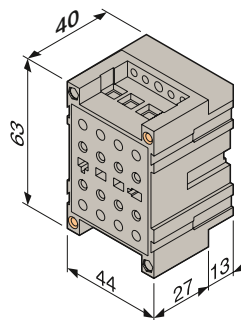
## Sockets



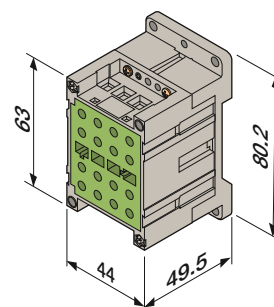
Half-base mounting



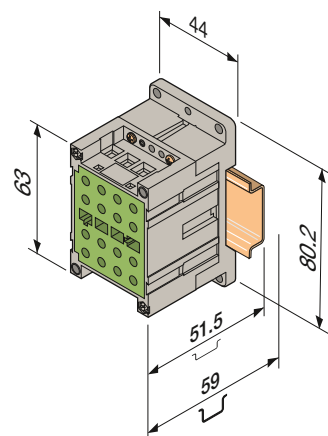
Rack mounting



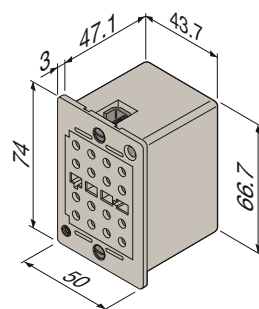
Base mounting



Base mounting with KEM-3

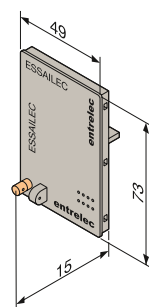


TH35 rail mounting

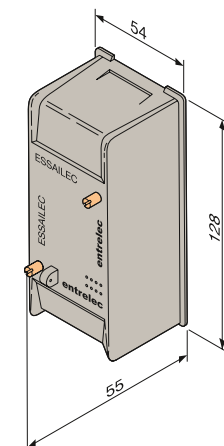


RJ45

## Lids and covers

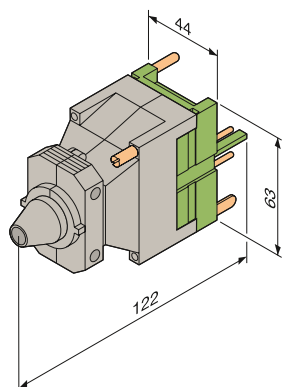


Lid

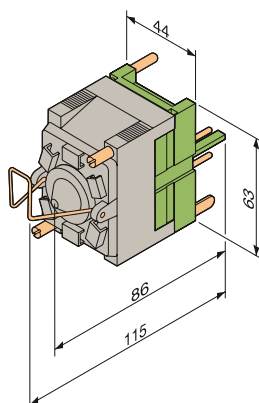


Cover

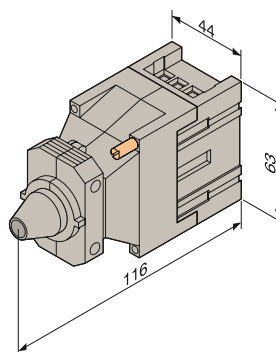
**Plugs**



Plug 2x4 poles long cover

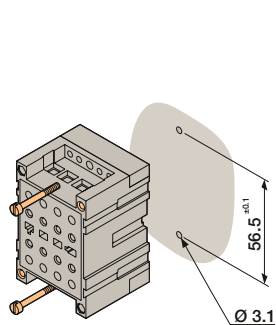


Plug 2x4 poles short cover

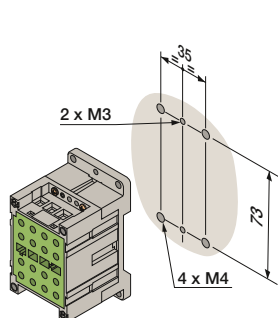


Reverse mounting

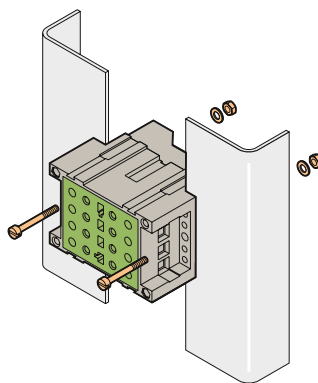
## Sockets



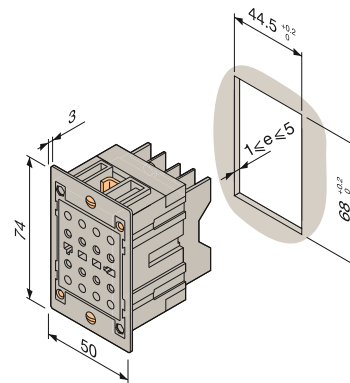
Base mounting  
0.5 Nm < Tightening torque  
< 0.8 Nm.



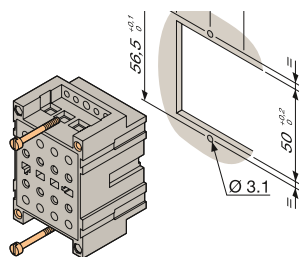
Base mounting



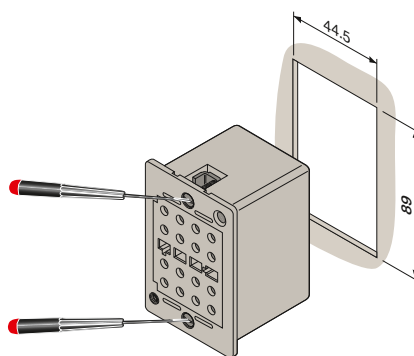
Flush mounting



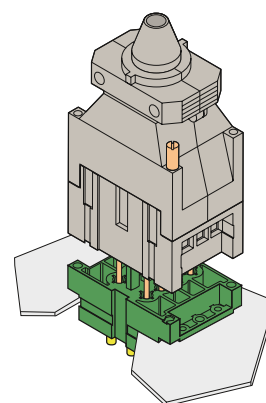
Flush mounting  
The flush mounting kit must be mounted on the  
socket prior to the installation on the panel.  
Tightening torque = 0.5 Nm maxi.



Half-base mounting - Rack mounting  
The rack mounting is supplied  
with 2 additional guiding pins.  
0.5 Nm < Tightening torque < 0.8 Nm.

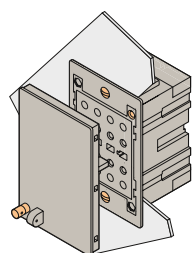


Flush mounting (RJ45)

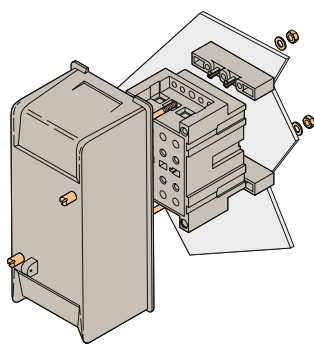


Reverse mounting

## Lids and covers



Flush mounting



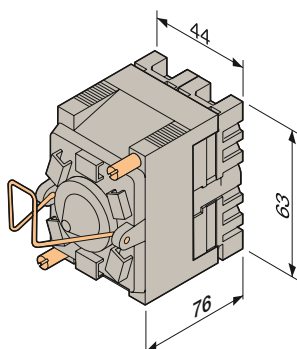
Base mounting

# ESSAILEC® multicircuits

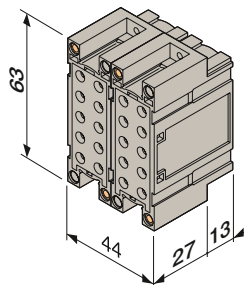
## Outer dimensions, mounting instructions

### Outer dimensions

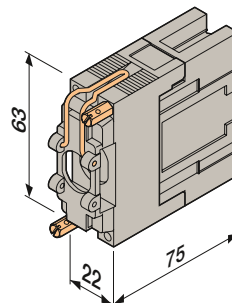
#### Sockets



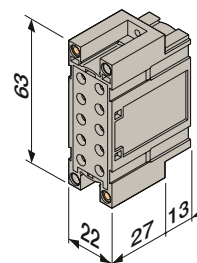
**M20-I-C5A**  
20 points multicircuits half-base reverse mounting socket



**M20-C5A**  
20 points multicircuits half-base mounting socket

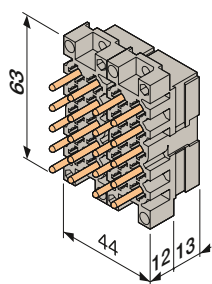


**M10-I-C5A-1**  
10 points multicircuits half-base reverse mounting socket

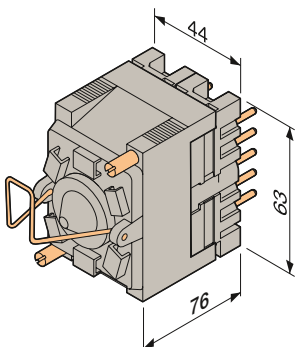


**M10-D-C5A**  
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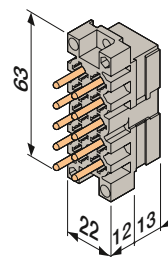
#### Plugs



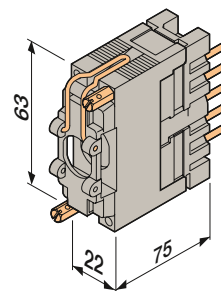
**FIM20-I**  
20 points multicircuits half-base reverse mounting plug



**FIM20**  
20 points multicircuits half-base mounting plug

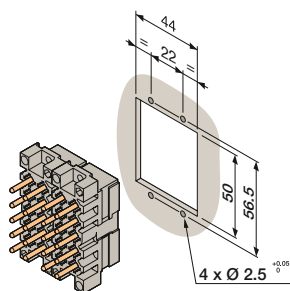


**FIM10-I-1**  
10 points multicircuits half-base reverse mounting plug

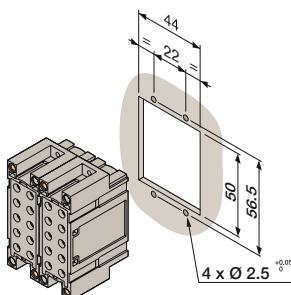


**FIM10-1**  
10 points multicircuits half-base mounting plug

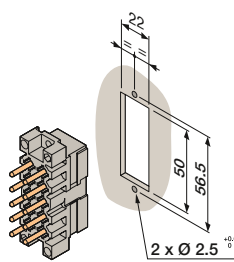
### Mounting instructions



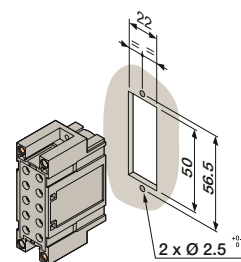
20 points multicircuits half-base reverse mounting plug



20 points multicircuits half-base mounting socket



10 points multicircuits half-base reverse mounting plug



10 points multicircuits half-base mounting socket

Part Number	Type	Page	Part Number	Type	Page	Part Number	Type	Page
1SNA164921R1700	BRE-T-1	54	1SNA166759R1600	PO-E-VA	40	1SNA167680R0500	BJ-VL	23
1SNA164922R1000	BRE-T-1.5	54	1SNA166760R1300	PO-D-VA	40	1SNA167681R2200	PCVL	23
1SNA164923R1100	BRE-T-2.5	54	1SNA166761R0000	PF-E-VA	46	1SNA167682R2300	FX	23
1SNA166503R2700	TF-DS-VL	46	1SNA166762R0100	PF-D-VA	46	1SNA167690R0700	FCB-1	26
1SNA166506R2200	PF-DS-VL	46	1SNA166763R0200	PC-E-VA	34	1SNA167692R2500	FCB-2	26
1SNA166513R1000	M10-D-C5A	56	1SNA166764R0300	PC-D-VA	34	1SNA167697R2200	CA	26
1SNA166516R1300	FIM10-1	56	1SNA166772R0300	M10-P-C5A	56	1SNA167779R1300	BRE-T-0.75	54
1SNA166523R1200	CC-R-VA	22	1SNA166774R0500	M10-I-C5A-1	56	1SNA167927R1000	FC4-1	26
1SNA166525R1400	FIC-2/4-1	26	1SNA166777R0000	M20-I-C5A	56	1SNA167931R1400	FC4-5	26
1SNA166529R2000	FIC-2/4-R	26	1SNA166778R1100	COR-C-R2-6.6	24	1SNA167932R1500	COR-C-R4-6.6	24
1SNA166546R2100	FIT-1/4-D	53	1SNA166819R2300	FIC-2/1-1	26	1SNA167933R1600	COR-T-R5-2.2	50
1SNA166547R2200	FIT-1/4-G	52	1SNA166821R1500	FIT-2/1-1	51	1SNA167934R1700	COR-C-R5-6.6	24
1SNA166550R0100	FIT-2/4-1	52	1SNA166874R2200	DEO-D-VA	40	1SNA167935R1000	COR-T-4-4	50
1SNA166555R2200	FIP-1/4-D	53	1SNA166876R2400	CPDE-1	55	1SNA167936R1100	FI-2/4-DIA4	49
1SNA166556R2300	FIP-1/4-G	52	1SNA166877R2500	FIDE-2/4	52	1SNA167937R0000	FIC-2/4-DIA4	25
1SNA166559R0600	FIP-2/4-1	52	1SNA166878R0600	DEO-E-VA	40	1SNA167971R2400	DLVR	26
1SNA166566R2500	M10-R-C5A	56	1SNA166896R1100	DEF-D-VA	46	1SNA167981R1700	DI	26
1SNA166573R2400	FIM10-R	56	1SNA166897R1200	FIDE-1/4-D	53	1SNA168146R0200	BRE-C-6	26
1SNA166574R2500	FIM10-I-1	56	1SNA166898R2300	FIDE-1/4-G	52	1SNA168147R0300	BRE-T-6	54
1SNA166576R2700	FIM20-I	56	1SNA166925R1500	TO-E-VA-12.12	40	1SNA168160R1400	BRE-T-0.34	54
1SNA166577R2000	CPT-2	55	1SNA166926R1600	CPDE-2	55	1SNA173181R1300	PSC	26
1SNA166578R0100	CPC-1	55	1SNA166928R2000	KEM-1	23	1SNA183436R0500	CVABM	23
1SNA166589R2500	FIC-2/4-I	26	1SNA166930R2600	CPT-5	55	1SNA205876R0400	BRE-C-4	26
1SNA166625R2000	CC-E-VA-6.6	22	1SNA166936R1000	FIC-2/4-2	26	1SNA566000R0000	TC-E-RJ45-INF	14
1SNA166627R2200	TC-E-VA-2-2	34	1SNA166937R1100	FIT-2/4-2	51	1SNA566001R0000	FI-RJ45-DIA4	14
1SNA166628R0300	TC-E-C5A-2.2	34	1SNA166939R2300	FIP-2/4-2	51			
1SNA166630R0100	PC-E-VA-8.8	34	1SNA166941R2500	CC-I-VA-2	22			
1SNA166638R0500	COR-C-R1-6.6	24	1SNA166943R2700	FIDE-2/4-2	51			
1SNA166643R0200	COR-C-3	24	1SNA166945R2100	TO-I-VA-2	40			
1SNA166644R0300	FIT-2/1-2	51	1SNA166948R0400	TC-S-INF-VL-2.2	34			
1SNA166645R0400	CPP-2	55	1SNA166962R0000	KEM-3	23			
1SNA166646R0500	CPT-1	55	1SNA166963R0000	CC-TH35-VL-6.6	22			
1SNA166647R0600	CPP-1	55	1SNA166964R0000	TC-TH35-VL	34			
1SNA166672R0700	FIT-2/4-I	52	1SNA166972R0000	TT4-S-VL-INF	48			
1SNA166722R2100	CC-S-INF-VL-6.6	22	1SNA166976R0000	CC-E-VA-R2-6.6	22			
1SNA166723R2200	TO-S-INF-VL-12.12	40	1SNA166977R0000	TC-E-VA-R2-2.2	34			
1SNA166733R2400	CPT-4	55	1SNA166978R0000	COR-P-R1-8.8	50			
1SNA166734R2500	CPC-7 (1)	55	1SNA166979R0000	COR-C-R3	24			
1SNA166737R2000	CC-E-VA	22	1SNA166980R0000	BRE-T-4	54			
1SNA166738R0100	CC-D-VA	22	1SNA167002R0000	CPT-RJ45	14			
1SNA166741R0400	TO-DS-VL	40	1SNA167008R0300	EXBR1	26			
1SNA166742R0500	TC-DS-VL	34	1SNA167260R1700	BRE-C-2.5	26			
1SNA166743R0600	TO-E-VA	40	1SNA167264R0700	BRE-C-1	26			
1SNA166744R0700	TO-D-VA	40	1SNA167265R0000	BRE-C-1.5	26			
1SNA166745R0000	TF-E-VA	46	1SNA167378R1100	COP-FI-1	58			
1SNA166746R0100	TF-D-VA	46	1SNA167379R1200	COP-E-1	58			
1SNA166747R0200	TC-E-VA	34	1SNA167496R1100	PCVA	23			
1SNA166748R1300	TC-D-VA	34	1SNA167622R2600	IR1	26			
1SNA166757R0400	PO-DS-VL	40	1SNA167623R2700	IR2	26			
1SNA166758R1500	PC-DS-VL	34	1SNA167624R2000	IR3	26			

Type	Part Number	Page	Type	Part Number	Page	Type	Part Number	Page
BJ-VL	1SNA167680R0500	23	EXBR1	1SNA167008R0300	26	PF-D-VA	1SNA166762R0100	46
BRE-C-1	1SNA167264R0700	26	FC4-1	1SNA167927R1000	26	PF-E-VA	1SNA166761R0000	46
BRE-C-1.5	1SNA167265R0000	26	FC4-5	1SNA167931R1400	26	PO-DS-VL	1SNA166757R0400	40
BRE-C-2.5	1SNA167260R1700	26	FCB-1	1SNA167690R0700	26	PO-D-VA	1SNA166760R1300	40
BRE-C-4	1SNA205876R0400	26	FCB-2	1SNA167692R2500	26	PO-E-VA	1SNA166759R1600	40
BRE-C-6	1SNA168146R0200	26	FI-2/4-DIA4	1SNA167936R1100	49	PSC	1SNA173181R1300	26
BRE-T-0.34	1SNA168160R1400	54	FIC-2/1-1	1SNA166819R2300	26	TC-DS-VL	1SNA166742R0500	34
BRE-T-0.75	1SNA167779R1300	54	FIC-2/4-1	1SNA166525R1400	26	TC-D-VA	1SNA166748R1300	34
BRE-T-1	1SNA164921R1700	54	FIC-2/4-2	1SNA166936R1000	26	TC-E-C5A-2.2	1SNA166628R0300	34
BRE-T-1.5	1SNA164922R1000	54	FIC-2/4-DIA4	1SNA167937R0000	25	TC-E-RJ45-INF	1SNA566000R0000	14
BRE-T-2.5	1SNA164923R1100	54	FIC-2/4-I	1SNA166589R2500	26	TC-E-VA	1SNA166747R0200	34
BRE-T-4	1SNA166980R0000	54	FIC-2/4-R	1SNA166529R2000	26	TC-E-VA-2-2	1SNA166627R2200	34
BRE-T-6	1SNA168147R0300	54	FIDE-1/4-D	1SNA166897R1200	53	TC-E-VA-R2-2.2	1SNA166977R0000	34
CA	1SNA167697R2200	26	FIDE-1/4-G	1SNA166898R2300	52	TC-S-INF-VL-2.2	1SNA166948R0400	34
CC-D-VA	1SNA166738R0100	22	FIDE-2/4	1SNA166877R2500	52	TC-TH35-VL	1SNA166964R0000	34
CC-E-VA	1SNA166737R2000	22	FIDE-2/4-2	1SNA166943R2700	51	TF-DS-VL	1SNA166503R2700	46
CC-E-VA-6.6	1SNA166625R2000	22	FIM10-1	1SNA166516R1300	56	TF-D-VA	1SNA166746R0100	46
CC-E-VA-R2-6.6	1SNA166976R0000	22	FIM10-I-1	1SNA166574R2500	56	TF-E-VA	1SNA166745R0000	46
CC-I-VA-2	1SNA166941R2500	22	FIM10-R	1SNA166573R2400	56	TO-DS-VL	1SNA166741R0400	40
CC-R-VA	1SNA166523R1200	22	FIM20-I	1SNA166576R2700	56	TO-D-VA	1SNA166744R0700	40
CC-S-INF-VL-6.6	1SNA166722R2100	22	FIP-1/4-D	1SNA166555R2200	53	TO-E-VA	1SNA166743R0600	40
CC-TH35-VL-6.6	1SNA166963R0000	22	FIP-1/4-G	1SNA166556R2300	52	TO-E-VA-12.12	1SNA166925R1500	40
COP-E-1	1SNA167379R1200	58	FIP-2/4-1	1SNA166559R0600	52	TO-I-VA-2	1SNA166945R2100	40
COP-FI-1	1SNA167378R1100	58	FIP-2/4-2	1SNA166939R2300	51	TO-S-INF-VL-12.12	1SNA166723R2200	40
COR-C-3	1SNA166643R0200	24	FI-RJ45-DIA4	1SNA566001R0000	14	TT4-S-VL-INF	1SNA166972R0000	48
COR-C-R1-6.6	1SNA166638R0500	24	FIT-1/4-D	1SNA166546R2100	53			
COR-C-R2-6.6	1SNA166778R1100	24	FIT-1/4-G	1SNA166547R2200	52			
COR-C-R3	1SNA166979R0000	24	FIT-2/1-1	1SNA166821R1500	51			
COR-C-R4-6.6	1SNA167932R1500	24	FIT-2/1-2	1SNA166644R0300	51			
COR-C-R5-6.6	1SNA167934R1700	24	FIT-2/4-1	1SNA166550R0100	52			
COR-P-R1-8.8	1SNA166978R0000	50	FIT-2/4-2	1SNA166937R1100	51			
COR-T-4-4	1SNA167935R1000	50	FIT-2/4-I	1SNA166672R0700	52			
COR-T-R5-2.2	1SNA167933R1600	50	FX	1SNA167682R2300	23			
CPC-1	1SNA166578R0100	55	IR1	1SNA167622R2600	26			
CPC-7	1SNA166734R2500	55	IR2	1SNA167623R2700	26			
CPDE-1	1SNA166876R2400	55	IR3	1SNA167624R2000	26			
CPDE-2	1SNA166926R1600	55	KEM-1	1SNA166928R2000	23			
CPP-1	1SNA166647R0600	55	KEM-3	1SNA166962R0000	23			
CPP-2	1SNA166645R0400	55	M10-D-C5A	1SNA166513R1000	56			
CPT-1	1SNA166646R0500	55	M10-I-C5A-1	1SNA166774R0500	56			
CPT-2	1SNA166577R2000	55	M10-P-C5A	1SNA166772R0300	56			
CPT-4	1SNA166733R2400	55	M10-R-C5A	1SNA166566R2500	56			
CPT-5	1SNA166930R2600	55	M20-I-C5A	1SNA166777R0000	56			
CPT-RJ45	1SNA167002R0000	14	PC-DS-VL	1SNA166758R1500	34			
CVABM	1SNA183436R0500	23	PC-D-VA	1SNA166764R0300	34			
DEF-D-VA	1SNA166896R1100	46	PC-E-VA	1SNA166763R0200	34			
DEO-D-VA	1SNA166874R2200	40	PC-E-VA-8.8	1SNA166630R0100	34			
DEO-E-VA	1SNA166878R0600	40	PCVA	1SNA167496R1100	23			
DI	1SNA167981R1700	26	PCVL	1SNA167681R2200	23			
DLVR	1SNA167971R2400	26	PF-DS-VL	1SNA166506R2200	46			

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