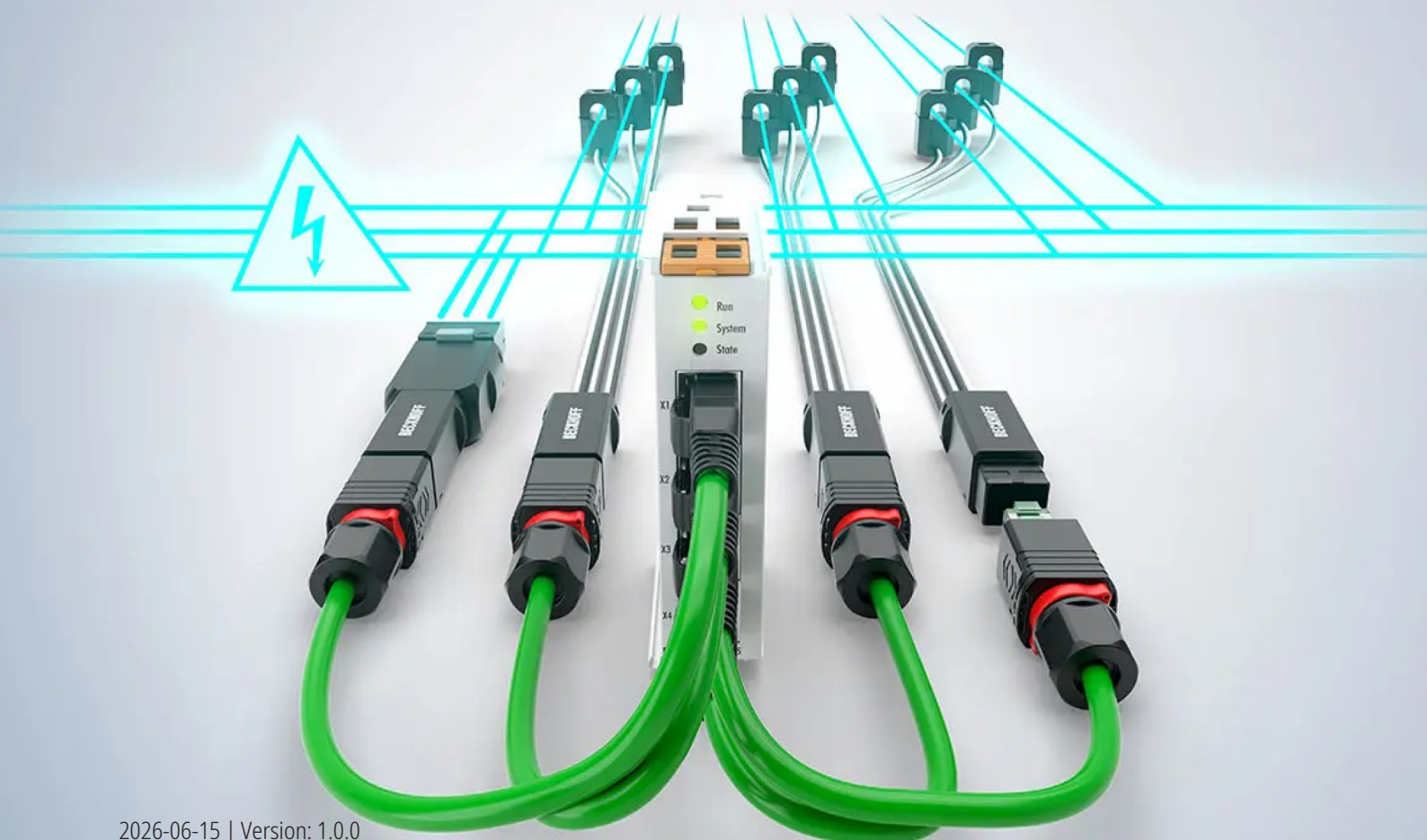


Documentation | EN

## SVL1xxx

Low power transformer, 3-channel voltage interface, accuracy class 0.5,  
electronic nameplate, RJ45





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# 1 Foreword

## 1.1 Product overview



Fig. 1: SVL1xxx - Low-power voltage transformer, 3-channel voltage interface

This documentation contains the following low-power voltage transformers, 3-channel voltage interface

### SVL1xxx | Low-power voltage transformer

|                                               |                                                          |
|-----------------------------------------------|----------------------------------------------------------|
| <a href="#">SVL1123</a> <a href="#">▶ 10]</a> | 110 V AC, accuracy class 0.5, electronic nameplate, RJ45 |
| <a href="#">SVL1323</a> <a href="#">▶ 10]</a> | 400 V AC, accuracy class 0.5, electronic nameplate, RJ45 |
| <a href="#">SVL1423</a> <a href="#">▶ 14]</a> | 690 V AC, accuracy class 0.5, electronic nameplate, RJ45 |

### Overview of measuring transformers

The complete overview of all measuring transformers can be found on the [Beckhoff website](#).

## 1.2 Notes on the documentation

### Intended audience

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with the applicable national standards.

It is essential that the documentation and the following notes and explanations are followed when installing and commissioning these components.

The qualified personnel is obliged to always use the currently valid documentation.

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

### Disclaimer

The documentation has been prepared with care. The products described are, however, constantly under development.

We reserve the right to revise and change the documentation at any time and without prior announcement.

No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

### Trademarks

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<https://www.beckhoff.com/trademarks>

## 1.3 Safety instructions

### Safety regulations

Please note the following safety instructions and explanations!

Product-specific safety instructions can be found on following pages or in the areas mounting, wiring, commissioning etc.

### Exclusion of liability

All the components are supplied in particular hardware and software configurations appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH & Co. KG.

### Personnel qualification

This description is only intended for trained specialists in control, automation and drive engineering who are familiar with the applicable national standards.

### Signal words

The signal words used in the documentation are classified below. In order to prevent injury and damage to persons and property, read and follow the safety and warning notices.

#### Personal injury warnings

##### **DANGER**

Hazard with high risk of death or serious injury.

##### **WARNING**

Hazard with medium risk of death or serious injury.

##### **CAUTION**

There is a low-risk hazard that could result in medium or minor injury.

#### Warning of damage to property or environment

##### **NOTICE**

The environment, equipment, or data may be damaged.

#### Information on handling the product



This information includes, for example:  
recommendations for action, assistance or further information on the product.

## 1.4 Intended use

### ⚠ WARNING

#### Intended use

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

## 1.5 Safety instructions for voltage transformers

### ⚠ WARNING

#### Safety instructions for voltage transformers

- The devices described are intended for installation by qualified electricians and may only be installed in electrical plant rooms or in closed housings. Any other use or the disregard of these application notes will result in the loss of the warranty/guarantee.
- Observe the applicable laws, standards and regulations.
- Observe the state of the art at the time of installation and the rules of technology.
- Observe the operating instructions and take into account the fact that these can only provide general instructions and that these must be observed.
- The devices may only be installed in dry indoor rooms.
- Do not mount the devices on or near highly flammable materials.
- Check the device carefully for transport damage prior to commissioning. The device must not be put into operation if it is mechanically damaged.
- Operation with a higher current than the rated current specified on the name plate can lead to overheating of the current transformer and thus to burns.

### ⚠ WARNING



#### Risk of injury due to electric shock/arcing/burning

Observe the following instructions (Part 1)!

- The operator must ensure that this product is only installed and operated in perfect working order and by sufficiently qualified and authorized personnel.
- Intended use: industrial, stationary indoor use:  
The analog input devices extend the field of application of the Beckhoff Bus Terminal system with functions for measuring sensor signals via voltage, current or resistance. The intended field of application is data acquisition and control tasks in industrial automation. Use of the device beyond its intended use is not permitted.
- The decision to use and release for operation must be made by an electrotechnical specialist in accordance with the applicable safety rules (occupational health and safety) for the application. National regulations may have to be observed.
- Ensure proper wiring by following all local and national regulations.
- The cables and plugs used must be in the required measuring category or be approved for the applied voltages. Note: when laying such cables, it may be necessary to comply with installation specifications, such as those specified in EN 60204.
- The installation must be thoroughly checked for incorrect wiring before commissioning; appropriate cable labeling/markings is recommended.
- Voltages > 60 V DC / 48 V AC should not be supplied when the control cabinet is open. Supplying these voltages is only permitted in individual cases, when safety precautions have been taken by appropriately qualified personnel.

**⚠ WARNING****Risk of injury due to electric shock/arcing/burning**

Observe the following instructions (Part 2)!

- Check the device before, during and after installation and periodically during breaks in operation for visible damage, such as damaged/cracked sockets/cables/plugs and loose parts. If damage is present, commissioning or further operation is prohibited.
- Ensure that the device and the wiring are de-energized on the field and bus side during installation/assembly/testing/disassembly. The 5 safety rules of electrical engineering must be observed:
  - De-energize
  - Secure against reconnection
  - Ensure that no voltage is present
  - Ground and short-circuit
  - Cover or isolate adjacent live parts
- Avoid foreign bodies entering the housing.
- Do not modify or attempt to repair the device.
- Do not open the device or interfere with the interior of the device.

## 2 SVL1123 - Product description

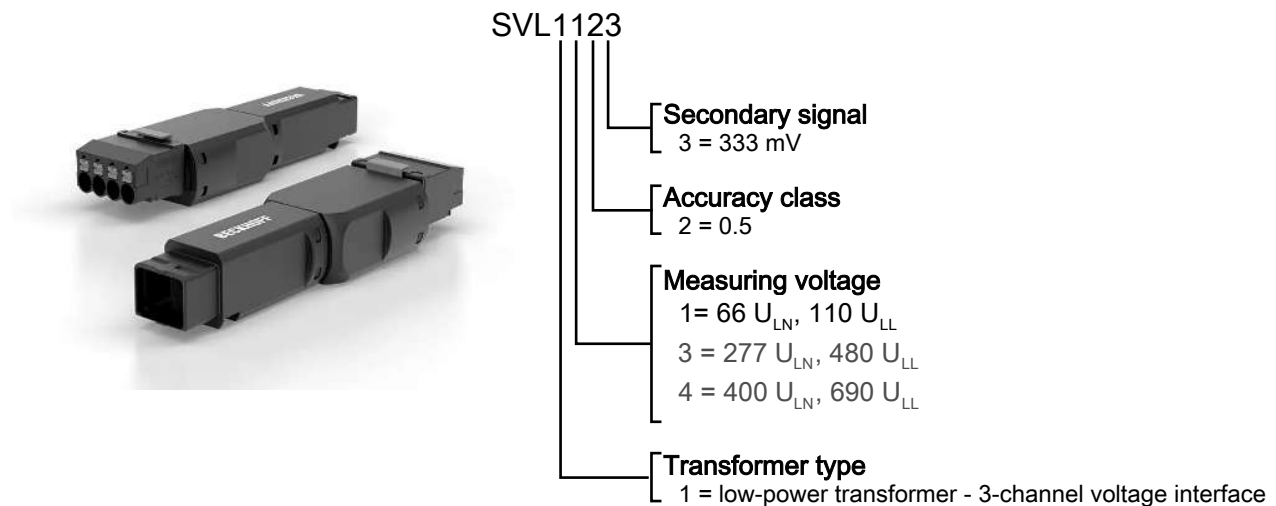


Fig. 2: Left: SVL1123 low-power voltage transformer | Right: Type designation

### Low-power transformer, 3-channel voltage interface, 110 V AC, accuracy class 0.5, electronic nameplate, RJ45

The SVL1xxx 3-phase measurement system with RJ45 connection enables all three primary conductor voltages to be recorded simultaneously. Resistive voltage dividers output 333 mV signals, allowing for easy connection of all measuring transformers via patch cables.

They also have electronic nameplates that make manual configuration of the transformer ratios superfluous. The [EL3475](#) EtherCAT Terminal can automatically read out the configuration of a mechanically assembled system, making commissioning easier.

## 2.1 Technical data

| Primary side                                                                        | SVL1123                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring voltage                                                                   | 66 V U <sub>LN</sub> , 110 V U <sub>LL</sub>                                                                                                                                                                                                                                                                                  |
| Accuracy class                                                                      | 0.5                                                                                                                                                                                                                                                                                                                           |
| Secondary side                                                                      | SVL1123                                                                                                                                                                                                                                                                                                                       |
| Secondary signal                                                                    | 333 mV                                                                                                                                                                                                                                                                                                                        |
| Electronic nameplate                                                                | yes                                                                                                                                                                                                                                                                                                                           |
| Insulation properties<br>(only for insulated primary conductors)                    | SVL1123                                                                                                                                                                                                                                                                                                                       |
| Insulation test voltage                                                             | 3200 V AC                                                                                                                                                                                                                                                                                                                     |
| Housing material class                                                              | UL 94V-0                                                                                                                                                                                                                                                                                                                      |
| Measurement category / overvoltage category                                         | 100 V CAT III; according to EN 61010-2-030                                                                                                                                                                                                                                                                                    |
| Operating conditions                                                                | SVL1123                                                                                                                                                                                                                                                                                                                       |
| Permissible ambient temperature range during operation                              | -40 °C...+65 °C                                                                                                                                                                                                                                                                                                               |
| Permissible ambient temperature range during storage                                | -45 °C... +85 °C                                                                                                                                                                                                                                                                                                              |
| permissible relative air humidity                                                   | 95 %, no condensation                                                                                                                                                                                                                                                                                                         |
| Operating height                                                                    | up to 2000 m                                                                                                                                                                                                                                                                                                                  |
| Protection rating                                                                   | IP20                                                                                                                                                                                                                                                                                                                          |
| General data                                                                        | SVL1123                                                                                                                                                                                                                                                                                                                       |
| Connection type                                                                     | 4-pin push-in connector plug                                                                                                                                                                                                                                                                                                  |
| Contact spacing                                                                     | 6.35 mm                                                                                                                                                                                                                                                                                                                       |
| Strip length                                                                        | 10 mm ... 12 mm                                                                                                                                                                                                                                                                                                               |
| Connection cross-section                                                            | <ul style="list-style-type: none"> <li>• solid wire: 0.2 mm<sup>2</sup> ... 4 mm<sup>2</sup></li> <li>• stranded wire <ul style="list-style-type: none"> <li>◦ without ferrule: 0.2 mm<sup>2</sup> ... 4 mm<sup>2</sup></li> <li>◦ with ferrule: 0.25 mm<sup>2</sup> ... 4 mm<sup>2</sup></li> </ul> </li> </ul> AWG24 ... 10 |
| Dimensions (W x H x D)                                                              | 34 mm x 20.8 mm x 98.4 mm                                                                                                                                                                                                                                                                                                     |
| Weight                                                                              | Approx. 45 g                                                                                                                                                                                                                                                                                                                  |
| Standards and regulations                                                           | SVL1123                                                                                                                                                                                                                                                                                                                       |
| Standards/Regulations                                                               | IEC 61010-1                                                                                                                                                                                                                                                                                                                   |
| Approvals/markings *)                                                               | CE                                                                                                                                                                                                                                                                                                                            |
| *) Real applicable approvals/markings see name plate on the side (product labeling) |                                                                                                                                                                                                                                                                                                                               |

### 3 SVL1323 - Product description

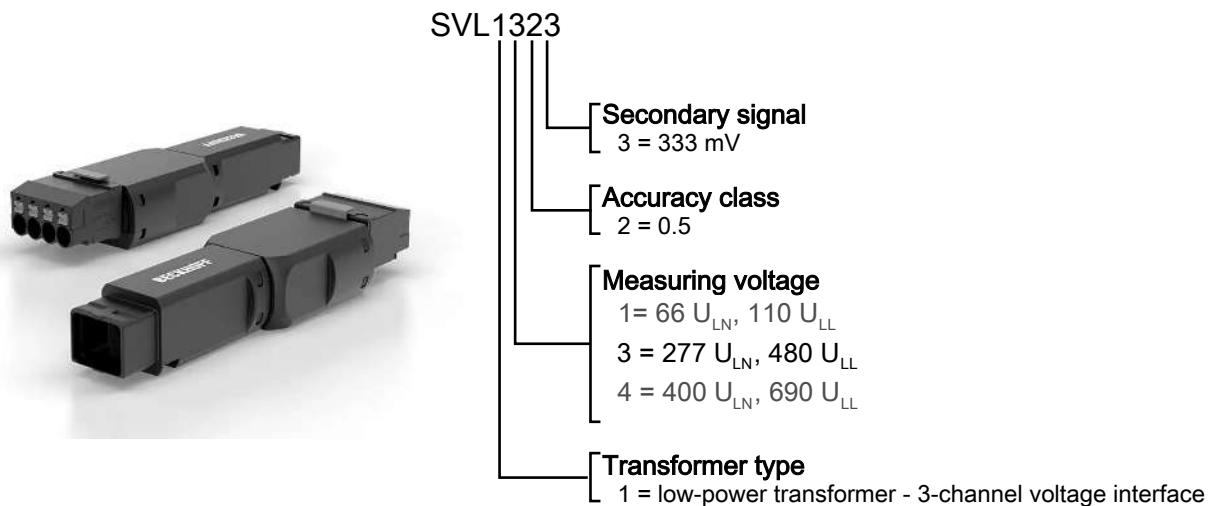


Fig. 3: Left: SVL1323 low-power voltage transformer | Right: Type designation

#### **Low-power transformer, 3-channel voltage interface, 400 V AC, accuracy class 0.5, electronic nameplate, RJ45**

The SVL1xxx 3-phase measurement system with RJ45 connection enables all three primary conductor voltages to be recorded simultaneously. Resistive voltage dividers output 333 mV signals, allowing for easy connection of all measuring transformers via patch cables.

They also have electronic nameplates that make manual configuration of the transformer ratios superfluous. The [EL3475](#) EtherCAT Terminal can automatically read out the configuration of a mechanically assembled system, making commissioning easier.

### 3.1 Technical data

| Primary side                                                                        | SVL1323                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring voltage                                                                   | 277 V $U_{LN}$ , 480 V $U_{LL}$                                                                                                                                                                                                                                                                                               |
| Accuracy class                                                                      | 0.5                                                                                                                                                                                                                                                                                                                           |
| Secondary side                                                                      | SVL1323                                                                                                                                                                                                                                                                                                                       |
| Secondary signal                                                                    | 333 mV                                                                                                                                                                                                                                                                                                                        |
| Electronic nameplate                                                                | yes                                                                                                                                                                                                                                                                                                                           |
| Insulation properties<br>(only for insulated primary conductors)                    | SVL1323                                                                                                                                                                                                                                                                                                                       |
| Insulation test voltage                                                             | 4800 V AC                                                                                                                                                                                                                                                                                                                     |
| Housing material class                                                              | UL 94V-0                                                                                                                                                                                                                                                                                                                      |
| Measurement category / overvoltage category                                         | 300 V CAT III; according to EN 61010-2-030                                                                                                                                                                                                                                                                                    |
| Operating conditions                                                                | SVL1323                                                                                                                                                                                                                                                                                                                       |
| Permissible ambient temperature range during operation                              | -40 °C...+65 °C                                                                                                                                                                                                                                                                                                               |
| Permissible ambient temperature range during storage                                | -45 °C... +85 °C                                                                                                                                                                                                                                                                                                              |
| permissible relative air humidity                                                   | 95 %, no condensation                                                                                                                                                                                                                                                                                                         |
| Operating height                                                                    | up to 2000 m                                                                                                                                                                                                                                                                                                                  |
| Protection rating                                                                   | IP20                                                                                                                                                                                                                                                                                                                          |
| General data                                                                        | SVL1323                                                                                                                                                                                                                                                                                                                       |
| Connection type                                                                     | 4-pin push-in connector plug                                                                                                                                                                                                                                                                                                  |
| Contact spacing                                                                     | 6.35 mm                                                                                                                                                                                                                                                                                                                       |
| Strip length                                                                        | 10 mm ... 12 mm                                                                                                                                                                                                                                                                                                               |
| Connection cross-section                                                            | <ul style="list-style-type: none"> <li>• solid wire: 0.2 mm<sup>2</sup> ... 4 mm<sup>2</sup></li> <li>• stranded wire <ul style="list-style-type: none"> <li>◦ without ferrule: 0.2 mm<sup>2</sup> ... 4 mm<sup>2</sup></li> <li>◦ with ferrule: 0.25 mm<sup>2</sup> ... 4 mm<sup>2</sup></li> </ul> </li> </ul> AWG24 ... 10 |
| Dimensions (W x H x D)                                                              | 34 mm x 20.8 mm x 98.4 mm                                                                                                                                                                                                                                                                                                     |
| Weight                                                                              | Approx. 45 g                                                                                                                                                                                                                                                                                                                  |
| Standards and regulations                                                           | SVL1323                                                                                                                                                                                                                                                                                                                       |
| Standards/Regulations                                                               | IEC 61010-1                                                                                                                                                                                                                                                                                                                   |
| Approvals/markings *)                                                               | CE                                                                                                                                                                                                                                                                                                                            |
| *) Real applicable approvals/markings see name plate on the side (product labeling) |                                                                                                                                                                                                                                                                                                                               |

## 4 SVL1423 - Product description

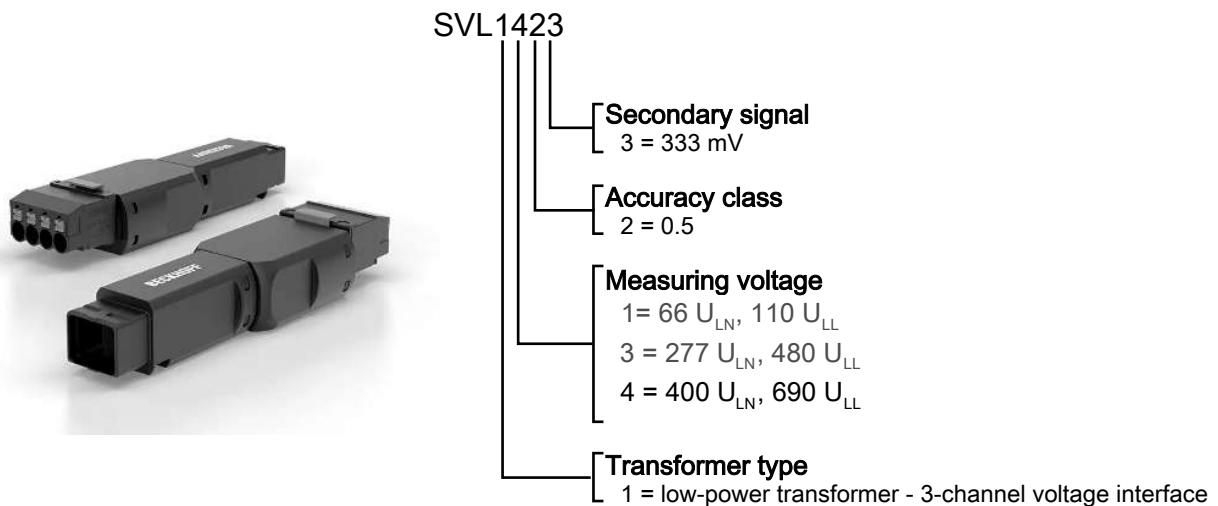


Fig. 4: Left: SVL1423 low-power voltage transformer | Right: Type designation

### Low-power transformer, 3-channel voltage interface, 690 V AC, accuracy class 0.5, electronic nameplate, RJ45

The SVL1xxx 3-phase measurement system with RJ45 connection enables all three primary conductor voltages to be recorded simultaneously. Resistive voltage dividers output 333 mV signals, allowing for easy connection of all measuring transformers via patch cables.

They also have electronic nameplates that make manual configuration of the transformer ratios superfluous. The [EL3475](#) EtherCAT Terminal can automatically read out the configuration of a mechanically assembled system, making commissioning easier.

## 4.1 Technical data

| Primary side                                                                        | SVL1423                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring voltage                                                                   | 400 V U <sub>LN</sub> , 690 V U <sub>LL</sub>                                                                                                                                                                                                                                                                                 |
| Accuracy class                                                                      | 0.5                                                                                                                                                                                                                                                                                                                           |
| Secondary side                                                                      | SVL1423                                                                                                                                                                                                                                                                                                                       |
| Secondary signal                                                                    | 333 mV                                                                                                                                                                                                                                                                                                                        |
| Electronic nameplate                                                                | yes                                                                                                                                                                                                                                                                                                                           |
| Insulation properties<br>(only for insulated primary conductors)                    | SVL1423                                                                                                                                                                                                                                                                                                                       |
| Insulation test voltage                                                             | 6100 V AC                                                                                                                                                                                                                                                                                                                     |
| Housing material class                                                              | UL 94V-0                                                                                                                                                                                                                                                                                                                      |
| Measurement category / overvoltage category                                         | 600 V CAT III; according to EN 61010-2-030                                                                                                                                                                                                                                                                                    |
| Operating conditions                                                                | SVL1423                                                                                                                                                                                                                                                                                                                       |
| Permissible ambient temperature range during operation                              | -40 °C...+65 °C                                                                                                                                                                                                                                                                                                               |
| Permissible ambient temperature range during storage                                | -45 °C... +85 °C                                                                                                                                                                                                                                                                                                              |
| permissible relative air humidity                                                   | 95 %, no condensation                                                                                                                                                                                                                                                                                                         |
| Operating height                                                                    | up to 2000 m                                                                                                                                                                                                                                                                                                                  |
| Protection rating                                                                   | IP20                                                                                                                                                                                                                                                                                                                          |
| General data                                                                        | SVL1423                                                                                                                                                                                                                                                                                                                       |
| Connection type                                                                     | 4-pin push-in connector plug                                                                                                                                                                                                                                                                                                  |
| Contact spacing                                                                     | 6.35 mm                                                                                                                                                                                                                                                                                                                       |
| Strip length                                                                        | 10 mm ... 12 mm                                                                                                                                                                                                                                                                                                               |
| Connection cross-section                                                            | <ul style="list-style-type: none"> <li>• solid wire: 0.2 mm<sup>2</sup> ... 4 mm<sup>2</sup></li> <li>• stranded wire <ul style="list-style-type: none"> <li>◦ without ferrule: 0.2 mm<sup>2</sup> ... 4 mm<sup>2</sup></li> <li>◦ with ferrule: 0.25 mm<sup>2</sup> ... 4 mm<sup>2</sup></li> </ul> </li> </ul> AWG24 ... 10 |
| Dimensions (W x H x D)                                                              | 34 mm x 20.8 mm x 98.4 mm                                                                                                                                                                                                                                                                                                     |
| Weight                                                                              | Approx. 45 g                                                                                                                                                                                                                                                                                                                  |
| Standards and regulations                                                           | SVL1423                                                                                                                                                                                                                                                                                                                       |
| Standards/Regulations                                                               | IEC 61010-1                                                                                                                                                                                                                                                                                                                   |
| Approvals/markings *)                                                               | CE                                                                                                                                                                                                                                                                                                                            |
| *) Real applicable approvals/markings see name plate on the side (product labeling) |                                                                                                                                                                                                                                                                                                                               |

## 5 SVL1xx3 - Dimensions

Low-power transformer, SVL1xxx 3-channel voltage interface

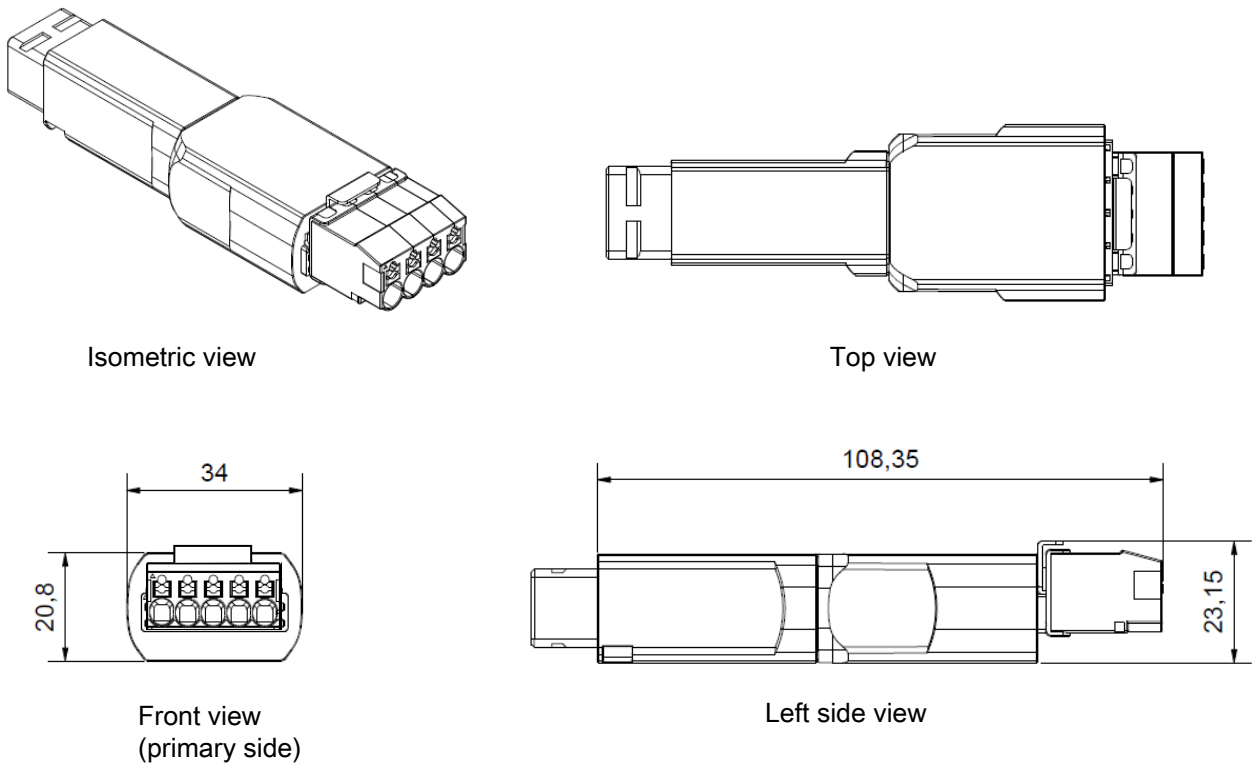


Fig. 5: SVL1xx3 – Dimensions low-power transformer, 3-channel voltage interface (all values in mm)

For further details see technical drawing([low-power transformer RJ45](#))

## 6 Accessories

We recommend the following accessories for wiring the SCLxxxx and SVLxxxx low power transformers with the EL3475-xxxx EtherCAT Terminals for distributed power measurement:

| Name                    | Description                                                        | Figure                                                                                |
|-------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <u>ZK2003-91D1-3xxx</u> | Sensor cable, shielded, PVC, 4 x 2 AWG26, fixed installation, gray |     |
| <u>C9900-K938</u>       | Ethernet/EtherCAT connector, for field assembly, IP65/67           |    |
| ZB8201-0900             | Snap-on mounting SCLxxxx/SVLxxxx                                   |    |
| ZS2001-0015             | SVL primary connection connector                                   |  |

## 7 Mounting and wiring

### 7.1 Connection technology

#### 7.1.1 Primary side connection (push-in wiring)

##### ⚠ DANGER

##### **Dangerous electrical voltage leads to electric shock and arc flashover!**

Non-compliance will result in death, personal injury or considerable material damage!  
Ensure a safe working environment during assembly, maintenance and installation work

- Before beginning any assembly, maintenance, or installation work, disconnect the system from the power supply!
- Interrupt the power supply of the primary conductor and secure against being switched on again inadvertently.
- Make sure that the details on the nameplate and in the "Technical data" correspond to the operating parameters of the system.

##### **Plug and unplug the wire**

- The wire is connected using the direct plug-in technique,
  - i.e. no tools required for solid wires and ferrules, the wire is simply inserted into the contact point after stripping
  - Free stranded wire ends can also be connected in this way; in this case the wire clamping mechanism has to be opened by operating the pushing device.
  - Note the assignment of the individual primary conductors according to the printing on the top of the housing see following figure!
- The wires are released via the contact release device, using a screwdriver or pushing device see figure below (A).

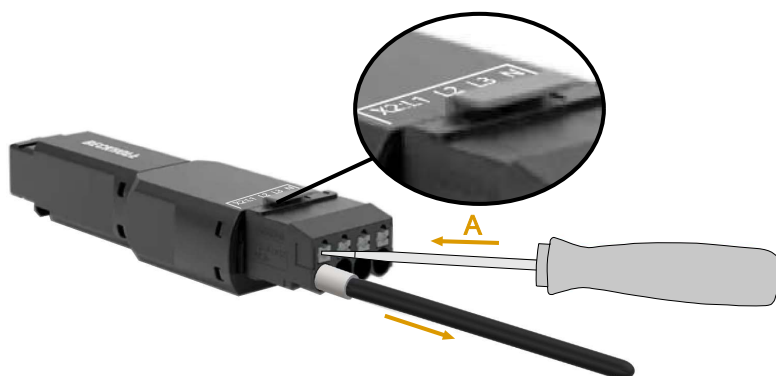


Fig. 6: Connection of primary conductor to SVL1xx3 low-power transformer

##### NOTICE

##### **Do not pull the conductor when live or under load**

The cables must not be live or plugged/unplugged under load.

The permitted wire cross-sections and the strip length are shown in the following table.

|                                     |                                                                  |
|-------------------------------------|------------------------------------------------------------------|
| Wire cross-section (solid wire)     | 0.2 ... 4 mm <sup>2</sup>                                        |
| Cable cross-section (stranded wire) | 0.2 ... 4 mm <sup>2</sup>                                        |
| Cable cross-section (stranded wire) | 0.25 ... 4 mm <sup>2</sup> (with ferrule with plastic collar)    |
| Cable cross-section (stranded wire) | 0.25 ... 4 mm <sup>2</sup> (with ferrule without plastic collar) |
| Conductor cross-section AWG         | 24 ... 10                                                        |
| Strip length                        | 10 ... 12 mm / 0.39 – 0.47 in                                    |

### Insert and pull the push-in service plug

The push-in plug is included.

The push-in plug is designed as a service plug. Maximum number of mating cycles: 25

For maintenance purposes, e.g. during service, the entire plug-in body can be removed from the transformer without releasing the individual wires. Proceed as follows:

- Grasp the transformer housing firmly with one hand.
- Press the locking tab with the thumb of your other hand and remove the plug from the housing.
- Insert the plug until you hear it click into place.

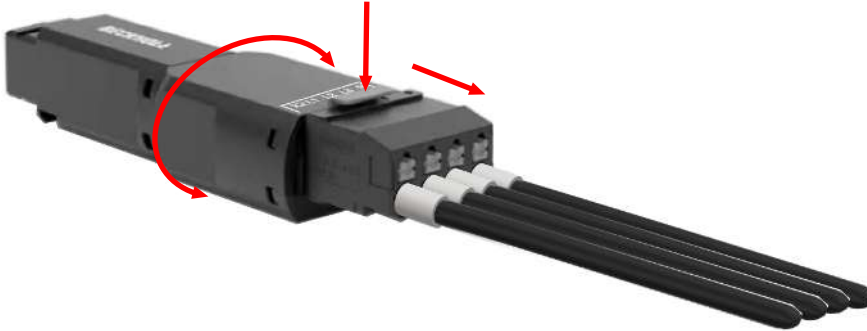


Fig. 7: SVL1xxx - Remove the service plug

#### NOTICE

##### **Do not insert/remove the service plug under load**

The service plug has no specified switching capacity and must not be plugged/unplugged live or under load.

## 7.1.2 Secondary side connection (RJ45 plug)

1. Connect the connection housing of the transformers to the measuring unit for distributed power measurement (e.g. EL3475, EL3475-xxxx) via:
  - the pre-assembled sensor cable ZK2003-91D1-3xxx, shielded, PVC, 4 x 2 AWG26, for fixed installation, gray,
  - the EtherCAT connector C9900-K938, an 8-pin EtherCAT cable and an application-specific connector.

### **i** Note on connecting the measuring unit

We recommend connection via the pre-assembled sensor cable,

- as this connection enables quick and easy assembly and disassembly and
  - the contact is completely protected against contact (dust-tight) and moisture via this connection in accordance with protection rating IP65/67.
- ⇒ Alternative connection options for laboratory operation are possible (see [Alternative connection options for laboratory operation](#) [► 21]).

2. To do this, insert the RJ45 plug of the connection cable into the RJ45 socket of the transformer housing so that the arrows printed on it match and push the plug into the socket until it audibly clicks into place.

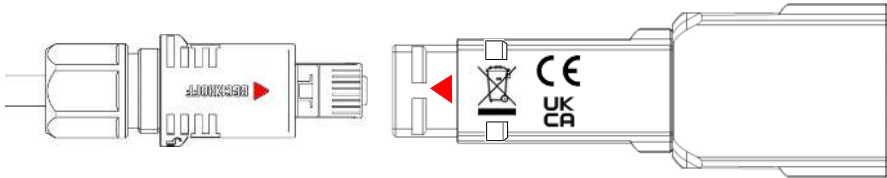


Fig. 8: Connect the secondary side of the transformer to the measuring unit

3. Also lock the connection with the red locking ring on the connector housing.

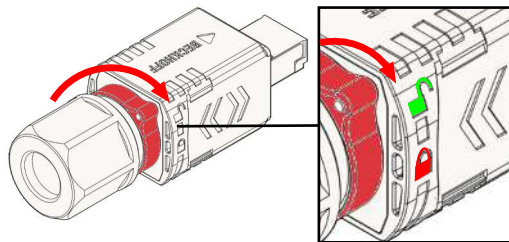


Fig. 9: Locking the connection to the measuring unit

**Alternative connection option for laboratory operation**

- an 8-pin standard EtherCAT cable with RJ45 plugs (e.g. ZK1093-9191-0xxx).  
The connection housing of the transformers is designed so that most standard RJ45 plugs snap into the housing.
  - Make sure that the RJ45 plug is securely engaged in the connection housing of the transformer!
  - A small screwdriver is required for disassembly (e.g. ZB8701).

You can use the position of the latching lug to determine whether the plug snaps into the connection housing:

- Latching lug outside the flexible cover:
  - Plug snaps into the connection housing
- Latching lug inside the flexible cover:
  - Plug **does not** engage in the connection housing.

**NOTICE****Alternative connection option for laboratory operation only**

The solution described above is suitable for laboratory use and is not recommended for industrial environments.

- Please note that tool-free disassembly is no longer possible after engaging!

### 7.1.3 Assignment of the RJ45 interface

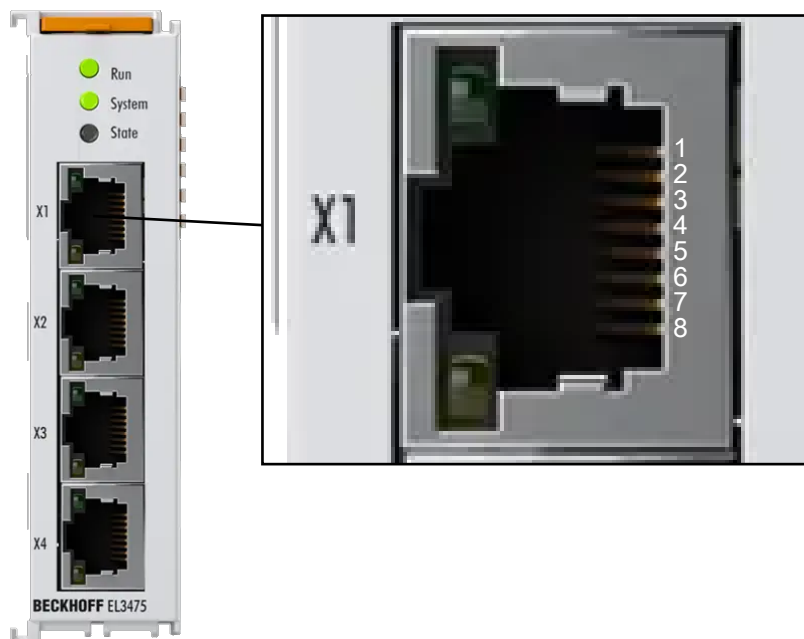


Fig. 10: RJ45 interface

#### Assignment of the X1 ... X4 RJ45 interfaces

| PIN | Signal         | Description                                                              |
|-----|----------------|--------------------------------------------------------------------------|
| 1   | Channel 1      | analog signal (333 mV) for channel 1                                     |
| 2   |                |                                                                          |
| 3   | Supply / TEDS* | sensor power supply (5 V) and integration of the electronic nameplate ** |
| 4   | Channel 2      | analog signal (333 mV) for channel 2                                     |
| 5   |                |                                                                          |
| 6   | Supply / TEDS* | sensor power supply (5 V) and integration of the electronic nameplate ** |
| 7   | Channel 3      | analog signal (333 mV) for channel 3                                     |
| 8   |                |                                                                          |

\*) Transducer **E**lectronic **D**ata **S**heet

\*\*) When reading out the TEDS, the sensor power supply is switched off briefly.

## 7.2 Mounting the transformer on the mounting rail

The SCL/SVLxxx transformers can be attached to the mounting rail using the ZB8201-0900 snap-on mounting.

1. Screw the snap-on mounting to the mounting surface or snap it onto the mounting rail. Note the correct direction - the arrows point upwards.
2. To do this, first push the upper rigid end onto the mounting rail,
3. then press the lower flexible end onto the mounting rail.
4. Insert the transformers with the primary connections facing downwards onto the mounting bracket so that the latching cams on the mounting rails engage audibly in the receptacles of the connection housing.

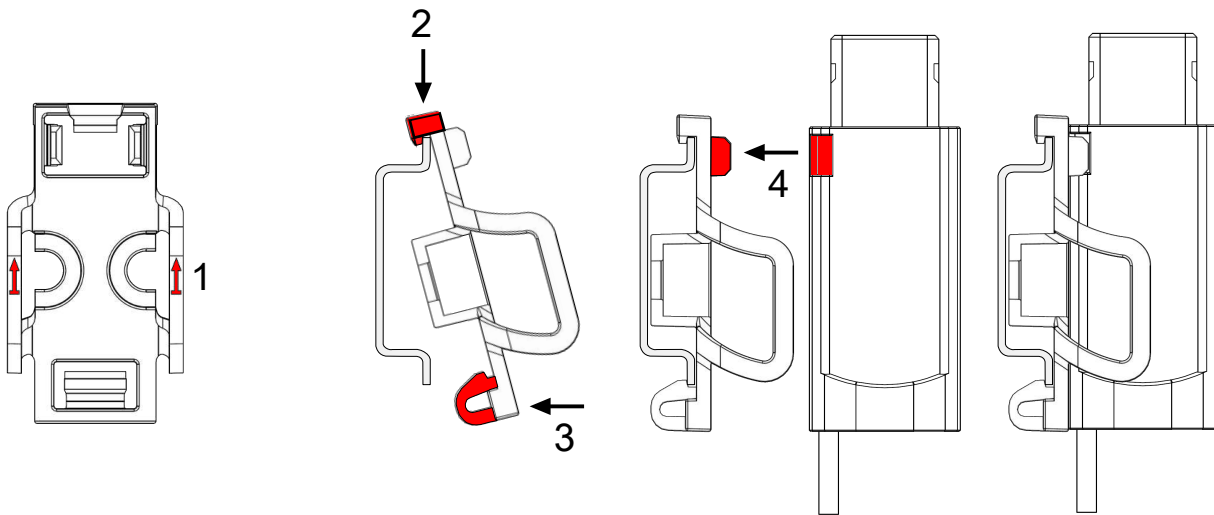


Fig. 11: Attaching the SCL/SVL transformers to the mounting rail using the ZB8201-0900 snap-on mounting

## 8 Commissioning

### 8.1 Maintenance, inspection and troubleshooting

#### DANGER

##### **Dangerous electrical voltage leads to electric shock and arc flashover!**

Non-compliance will result in death, personal injury or considerable material damage!  
Ensure a safe working environment during assembly, maintenance and installation work

- Before beginning any assembly, maintenance, or installation work, disconnect the system from the power supply!
- Interrupt the power supply of the primary conductor and secure against being switched on again inadvertently.
- Make sure that the details on the nameplate and in the "Technical data" correspond to the operating parameters of the system.

#### **Maintenance and inspection**

- Check whether the secondary conductors are firmly connected to the measuring device.
- Check that the primary conductors are connected correctly (see [device labeling](#) [► 18]).
- Check that the plug is latched to the housing.
- Contact with moisture must be avoided at all costs.

#### **Troubleshooting**

In the case of errors, e.g. unexpected or incorrect values, inverse power:

- Check the settings of the measuring device on the basis of its operating instructions.
- Check that the primary conductors are connected correctly (see [device labeling](#)).
- Check that the plug is latched to the housing.

## 9 Application example

### 9.1 Power measurement at a machine

#### ⚠ WARNING

##### Risk of injury from electric shock!

Bring the bus terminal system into a safe, de-energized state before starting mounting, disassembly or wiring of the bus terminals!

#### ● Connection of low power split-core transformers with current and voltage interfaces

**i**

Both low power transformers with current and voltage interfaces can be connected to the RJ45 connections X1 - X4.

- When using small signal transformers from the SCL and SVL series, the transformer ratios are set automatically via the electronic nameplate.
- When using transformers without an electronic nameplate, manual configuration via the “modules/slots” procedure is required.
- The voltage is measured via a low power voltage transformer (e.g. from the Beckhoff SVL series) in the following example via the RJ45 connection X1.
- The current is measured by means of a low power transformer, 3-channel current interface (e.g. from the Beckhoff SCL series) in the following example, the RJ45 connection X2.

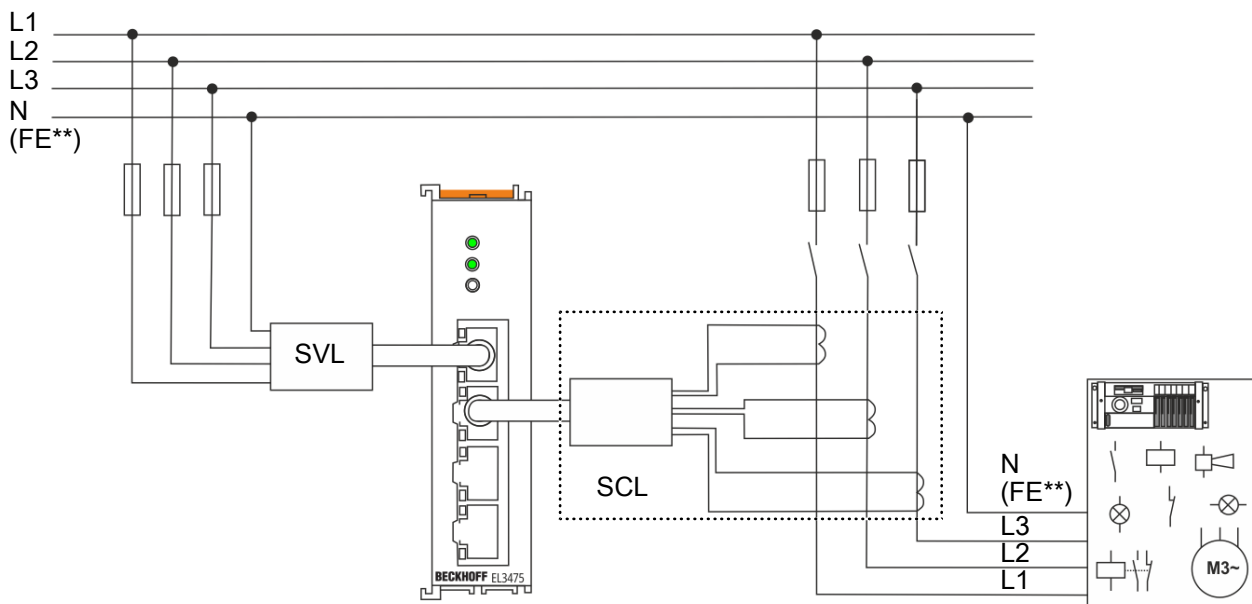


Fig. 12: Power measurement on a machine with EL3475 and low power transformers SCL and SVL

**i**

#### Terminal fuse protection

- The voltage measurement inputs are high-resistance; a minimum measuring current flows. The protection for the SVL connections must therefore be applied in accordance with the conductor cross-section used.
- For current measurement inputs, the fuse protection must be adapted by the device to be measured. The secondary currents of the transformers are no longer fused (see fig.)

**i**

#### \*\* FE as star point for 3-phase systems without neutral conductor

Depending on the current transformer used, in 3-phase systems without a neutral conductor FE must be connected as a star point as shown in the figure above. Please observe the current transformer manufacturer's instructions!

**Negative power values**

If negative power values are measured on a circuit, please check whether the associated current transformer circuit is connected correctly.

# 10 Appendix

## 10.1 Documentation issue status

| Version | Comment                                                                                 |
|---------|-----------------------------------------------------------------------------------------|
| 1.0.0   | <ul style="list-style-type: none"><li>• First release</li></ul>                         |
| 0.1     | <ul style="list-style-type: none"><li>• Provisional documentation for SVL1xxx</li></ul> |

## 10.2 Support and Service

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