


# Plugs and Socket-outlets for Household Use and Similar Purposes

Specifications for the SN 441011 series of standards  
and for the IP55 plug and socket-outlet system 



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- ESTI Market Surveillance
- UK 23B “Plugs, socket-outlets and switches”
- TK 61 “Safety of household and similar electrical appliances”
- TK 64 “Electrical installations and protection against electric shock”
- TK 116 “Safety of motor-operated electric tools”

**Reference source**

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The Swiss SN 441011 standard series “Plugs and Socket-outlets for Household Use and Similar Purposes” has been valid since 1 March 2019 and replaces the previous standard SN SEV 1011. The series of standards now also includes IP55 plugs and IP55 socket-outlets. The Federal Inspectorate for Heavy Current Installations (ESTI) has set a market deadline for the final distribution of products and appliances having plugs and socket-outlets conforming to the previous SN SEV 1011 and provides the following clarification on the application and use of the IP55 plug and socket-outlet system.




### 1. Determination of transitional periods for production, import and distribution


ESTI has defined the deadlines for the replacement of the previous system here:


[https://www.esti.admin.ch/inhalte/2020-0701\\_Mitteilung\\_SN\\_441011\\_IP55\\_ESTI\\_en.pdf](https://www.esti.admin.ch/inhalte/2020-0701_Mitteilung_SN_441011_IP55_ESTI_en.pdf)

The Swiss standard series SN 441011 is based on the IEC standard 60884-1 and additionally defines multiway and intermediate adaptors, cord extension sets, cord extension sets with multiple portable socket-outlets, travel adaptors and fixed adaptors. The Swiss domestic plug and socket-outlet system now extends to plugs and socket-outlets with the degree of protection IP55. This system is both dust-protected (IP5X) and protected against waterjets (IPX5), conforming to IP55 when unused and when plugged in.

### 2. Specifications and clarifications for the IP55 plug and socket-outlet system

In keeping with SN 441011, the IP55 plugs and socket-outlets () also have the following additional features compared to the IP20 versions:

- IP55 protection in use (when plugged in);
- the marking ;
- protection against mechanical shock:  $\geq$  IK07;
- for use in low temperature environments (down to  $-25^{\circ}\text{C}$ ).

As a consequence of the introduction of the new IP55 plug () socket-outlets previously marked IP54/IP55 (e.g. NAP and NUP) may only be placed on the market after 1 January 2025 with the IP21 marking, provided they can guarantee IP21 protection with the hinged cover open and the plug inserted.

These NAP or NUP socket-outlets can continue to be used in normally dry conditions if increased mechanical stresses can be expected. Typical applications being in farm buildings, factory workshops and municipal works yards.

### 3. IP55 socket-outlets may be used immediately

IP55 socket-outlets (IP55) may be installed immediately. At the latest when the next NIN SN 411000 comes into effect in 2025, these socket-outlets must be installed in all those areas where IP21 socket-outlets do not provide the required level of protection.



Source: Feller AG



Source: A. Steffen AG



Source: Max Hauri AG

### 4. Plugs and socket-outlets for appliances

#### Compatible systems

The existing Swiss plug and socket-outlet system and the new IP55 plug and socket-outlet system (IP55) are compatible. This means that most plugs currently in use are compatible with the new IP55 socket-outlets (IP55) and also the new IP55 (IP55) plugs are compatible with most socket-outlets currently in use.

#### Note:

- There are plugs on the market that cannot be inserted into IP55 socket-outlets (IP55) because they are physically too large or because the pins do not make contact, as with older plug-in power supply units.

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- There are combinations of IP20 plugs and IP55 socket-outlets (IP55) that can only be plugged in with excessive force. Such combination use is not intended and does not provide a safe electrical connection.
  - For example, only a single IP55 plug (IP55) can be plugged into multiple socket-outlets.
  - Plugs and portable socket-outlets previously designated as IP44 are only partially compatible with the new IP55 plug and socket-outlet system (IP55);
  - IP55 protection is only guaranteed if the plug and socket-outlet have the (IP55) correct mark.

The declared degree of protection IP44 for the finished appliance with mains connection cable and plug can be achieved with the IP55 plug (IP55) conforming to SN 441011, or with the IP44 CEE industrial plug conforming to SN EN 60309. (Text from ESTI communication)

**The following appliances shall be provided with IP55 plugs (IP55) or IP44 CEE industrial plugs (SN EN 60309):**

- Appliances for outdoor long-term unattended use, such as Christmas lights, fairy lights, submersible pumps, whirlpools, power supply units/charging stations for robotic lawnmowers and vending machines;
- Appliances requiring a higher degree of protection due to their intended design function and conditions of use, such as high-pressure cleaners and concrete mixers;
- Appliances that are voluntarily fitted with plugs with a degree of protection > IP21;
- Appliances where the relevant appliance standard requires the plug to have a higher degree of protection.

**Units that may be fitted with IP20 plugs:**

- Appliances designed exclusively for dry indoor use, such as washing machines, shavers, carpet cleaners;
- Appliances for outdoor use only when in use, such as hand-held power tools (e.g. lawn mowers, hedge trimmers, scarifiers, chain saws, leaf blowers), garden shredders and electric barbecues;
- Appliances where the manufacturers operating instructions state that it shall not be used in wet conditions e.g. outdoors in the rain.

*Note: It is recommended that these plugs be welded to the cable or fitted with a rubber sleeve at the cable entry.*

**Socket-outlets built into appliances**

Appliances having a degree of protection > IP21 must be equipped with IP55 socket-outlets (IP55) or CEE industrial socket-outlets with a degree of protection IP44 (SN EN 60309).

This includes, for example, high-pressure cleaners and on-site floodlights with built-in socket-outlets as well as generators.

From 1.3.2022, these appliances may only be manufactured or imported with IP55 socket-outlets (IP55) or with CEE industrial socket-outlets with a degree of protection IP44 (SN EN 60309).

## 5. Adaptors, cord extension and cord extension sets according to SN 441011-2-2

### Fixed adaptor

Fixed adaptors are merely tolerated by the Federal Inspectorate for Heavy Current Installations (ESTI). Preferably a corresponding Swiss plug shall be attached to the cable. Fixed adaptors are only permitted for dry, dust free indoor applications (IP20).

Fixed adaptors for plugs with a degree of protection IP55 are not permitted. Combining a fixed adaptor with a cord set to SN EN 60799 or direct plug-in products of any kind, such as intermediate adaptors, multiway adaptors, power supplies etc., is not permitted.

#### Note:

*For outdoor appliances that may still be supplied with an IP20 plug, in the future according to the applicable appliance standards, the fixed adaptor can continue to be used as an alternative to the Swiss IP20 plug. An example is a hedge trimmer with a welded German Schuko plug with a degree of protection IP20.*

*To reduce the ingress of water into the combination of foreign plug and fixed adaptor, it is recommended that a foam rubber seal is included to improve the seal.*

Where an appliance is supplied with a foreign plug, a professional replacement by a suitable Swiss plug has no influence on the conformity and the statutory warranty obligation of the appliance.

### Intermediate adaptor

For intermediate adaptors (e.g. timers) having a degree of protection IP55 (IP55), the plug, socket-outlet, housing and any built in additional function(s) must also have a degree of protection IP55 (IP55).

### Multiway adaptor

Multiway adaptors for the IP55 (IP55) plug and socket-outlet system are not permitted.

### Cord sets and cord extension sets

From 1.3.2022, cord sets and cord extension sets for use in humid and dusty conditions (degree of protection IP44 or higher) shall be supplied with plugs, socket-outlets and portable socket-outlets having a degree of protection IP55 (IP55).

Appliances according to SEV 1011, such as cord extension sets with IP44 plugs and built-in IP44 socket-outlets, which have been manufactured or imported by the 28.2.2022, may still be placed on the market until the 31.12.2024.



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## 6. Cable reels conforming to SN EN 61242

From 1.3.2022, cable reels advertised for use in humid and dusty conditions (degree of protection IP44 or higher) must be fitted with plugs and socket-outlets of protection IP55 (⚡⚡⚡) (SN 441011) or CEE industrial plug contacts of a degree of protection IP44 (SN EN 60309).

Appliances having IP44 plugs and built-in IP44 socket-outlets that have been manufactured or imported by the 28.2.2022, may still be placed on the market until the 31.12.2024.

## 7. Construction site power distributors according to SN EN 61439-4

From 1.3.2022, construction site power distributors with plug and socket-outlets suitable for household use may only be manufactured or imported with IP55 plugs (⚡⚡⚡) and IP55 socket-outlets (⚡⚡⚡) if the required degree of protection IP44 cannot be achieved by other means.

Appliances having IP44 plugs and built-in IP44 socket-outlets that have been manufactured or imported by the 28.2.2022, may still be placed on the market until the 31.12.2024.

## 8. Products with degree of protection > IP55

Products having IP65 protection (e.g. luminaires) with IP55 plugs (⚡⚡⚡) may be declared as IP65 (in their rating information and marking), if the applicable product standard permits this.

## 9. Electrical installations in which the IP21 degree of protection is not sufficient

Requirements for socket-outlets used in electrical installations such as construction sites, car washes, campsites, boat moorings and funfairs will be mandated by SN 411000 (NIN) 2025. However, the use of the IP55 plug and socket-outlet systems (⚡⚡⚡) is already recommended today.

## 10. Market surveillance by ESTI

ESTI will verify the compliance of products made available on the market based on spot checks of economic operators according to Art. 5 in conjunction with Art. 13 of the Ordinance on Electrical Low Voltage Equipment (NEV; SR 734.26).



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