FAQ – Earthing system, configuring the ground

The Xtender can be operated with any earthing system. In all cases it is imperative that the protective earth is connected in compliance with the applicable standards and regulations. The information, notes, recommendations and diagrams mentioned in the manuals are always subject to local installation regulations. The installer is responsible for the conformity of the installation with the applicable local standards.

The Xtender has a different role when there is an AC source connected or when operating off-grid.

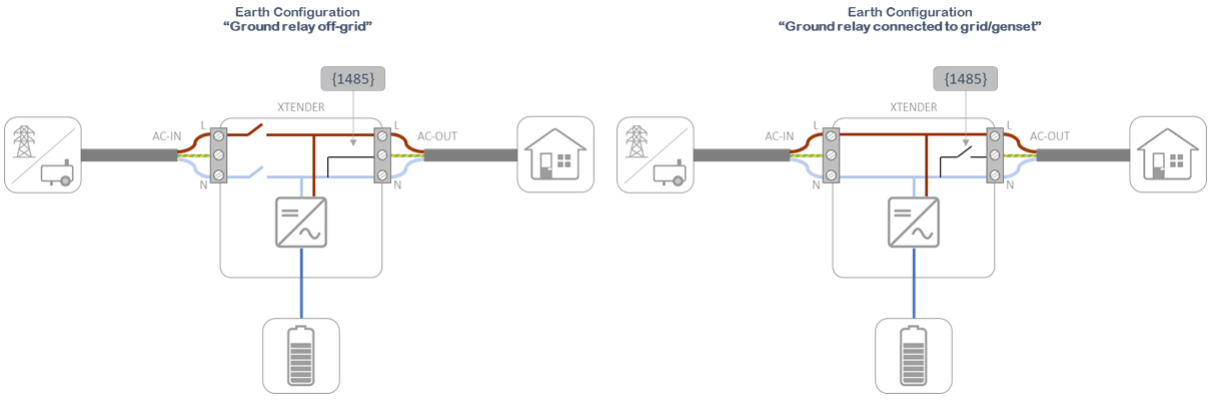
In case the Xtender is connected to a source (generator, grid), the Xtender synchronizes with the AC input and closes the transfer relay. The Xtender is just a bridge from AC-input to AC-output. In this case, the earthing strategy from the source is then transferred to the output and there is no need to configure anything in the Xtender.

When off-grid, the Xtender is forming the grid with energy from the battery, using the inverter function. In this case the Xtender is the source and we should configure the earth according to the desired strategy.

In most applications, the source should have the neutral connected to the ground, especially if there are residual current circuit breakers (RCCB) installed. There are two options for configuring the neutral to the ground in the Xtender:

- Xtender ground relay (1485)

By allowing the ground relay, the Xtender will automatically connect the neutral to earth in the AC-output, when the Xtender is off-grid in the inverter function.

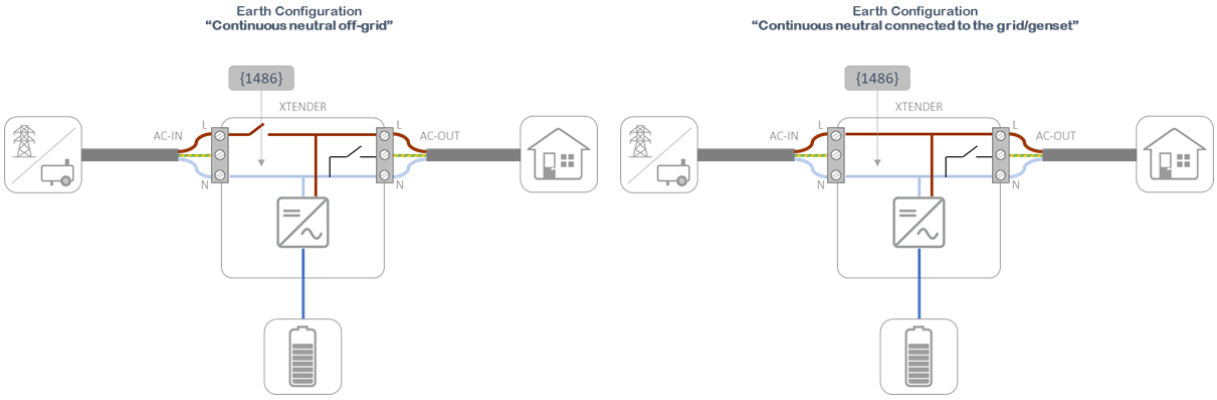


This relay is automatically open (no more liaison between neutral and the earth within the Xtender) when the Xtender is connected to a source. The earth strategy is coming from AC-in, from the grid or generator.

- Continuos neutral from AC-in to AC-out (1486)

For stationary applications, we can configure the Xtender to tie the AC-in neutral with the AC-out neutral. There is an AC-in continuous reference (grid or generator) and the neutral is always transferred to the AC-output. In this configuration, the transfer relay will open only the AC-input phase, leaving the neutral connected, when the Xtender is on inverter function.

FAQ – Earthing system, configuring the ground



Both strategies are not compatible to be configured simultaneously, the installer should choose one. We recommend configuring the ground relay (1485) for most applications and continuous neutral (1486) for stationary applications. If none of these strategies is configured, the installation will not have the neutral referenced to the ground when the Xtender is off-grid. This could lead to a not proper functioning of the RCCB devices in the installation.

Studer Innotec SA is an equipment manufacturer, not an installer, integrator or electrical specialist. Please check the local regulations and contact with a specialist on the field for an assessment.

Similar to AC, we recommend contacting a specialist for an assessment on DC earthing: battery and/or PV solar generator.

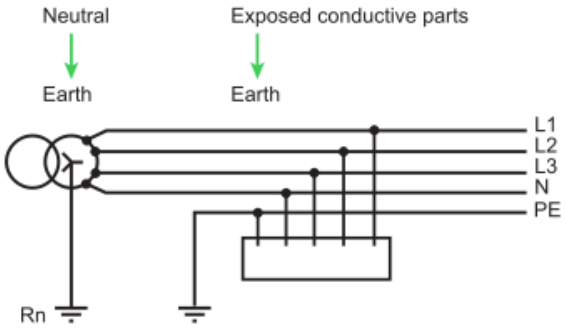
FAQ – Earthing system, configuring the ground

There are the following standardized earthing schemes, according to the Electrical Installation Wiki, depending on the earthing strategy in the source and in the exposed protective parts:

TT

- Source neutral = T
- Exposed conductive = T

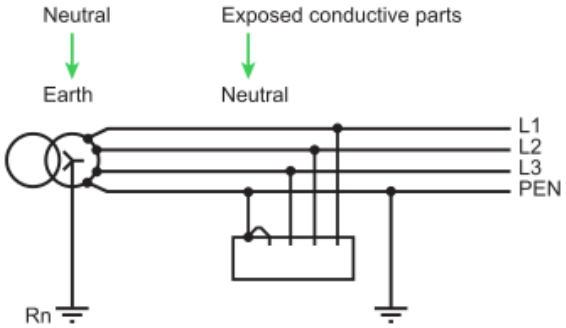
T = Terra (latin), earth



TN-C

- Source = T
- Exposed conductive = N

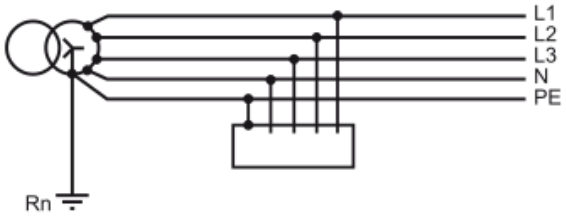
Neutral is protective conductor (C)



TN-S

- Source = T
- Exposed conductive = N

Protective conductor and neutral separate (S)



IT

- Source = I
- Exposed conductive = T

No connection between neutral and earth in the source