The Voice of the Networks

Distribution Network Operator Cut-out Types & Ratings Guidance

This document is intended to assist HP and EV Charge Point installers by providing photographic examples of the various types of cut-out that exist on the DNO networks and their suitability to accommodate the increased load from new LCT devices installed in consumers' homes.

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March 2019

Introduction

The purpose of this document is to offer some guidance to EV charge point installers on how to determine the suitability of electricity services for accommodating additional load from the connection of EV charging apparatus.

With the many variations in **Distribution Network Operator** (DNO) service termination equipment that exist on a typical DNO network it is very difficult to offer prescriptive detailed guidance for every type of scenario that can be encountered. This guide gives high level guidance for the most common circumstances that are likely to be encountered.

Charge point installers must always keep a safe distance from the DNO equipment when undertaking a visual assessment of suitability. At no point should you attempt to touch or interfere with DNO equipment.

In the event that a safety issue is identified involving the DNO equipment you must contact the local DNO immediately using the contact details provided in Appendix 1 "*Contact Details for Notification of DNO Equipment Issues*".

MOCOPA *Guidance for Service Termination Issue Reporting*
You may find the following MOCOPA guidance helpful in identifying the types of service equipment issues that should be reported to the DNO. Although this document is intended for Meter Operators it provides useful details for most of the DNO equipment issues that can be found. The document can be located via the following link:
https://mocopa.org.uk/wp-content/uploads/2018/03/MOCOPA-guide-version-3.5.pdf

(MOCOPA stands for "*Meter Operator Code of Practice Agreement*")

In terms of DNO cut-out suitability for additional load, arising from newly connected Low Carbon Technology (LCT) devices, there are various scenarios that may be encountered:

1. Modern Cut-Out (Circa 1990s to present)

If presented with this type of cut-out the LCT device installer must assume that the fuse size is 60A. If the installation designer's calculations confirms that the customer's installation total load will not exceed 60A at any time then there is no need for a DNO assessment and the install can proceed and the appropriate notification sent to the DNO.

2. Black Plastic Cut-Out (Circa 1960s to 1990s)

If presented with this type of cut-out the LCT device installer must assume that the fuse size in the cut-out is 60A. If the installation designer's calculations confirms that the customer's installation total load will not exceed 60A at any time then there is no need for a DNO assessment and the install can proceed and an appropriate notification sent to the DNO.

3. Metalclad Cut-out in Good Condition (Circa 1940s to 1960s)

If presented with this type of cut-out the LCT device installer must assume that the fuse size in the cut-out is 60A (unless the cut-out states a lower rating on the casing when guidance in item 4 must be followed). If the installation designer's calculations confirms that the customer's installation total load will not exceed 60A at any time then there is no need for a DNO assessment and the install can proceed and an appropriate notification sent to the DNO.

4. Metalclad Cut-out in bad condition, "Biscuit tin", Low Rating or very old (Circa 1930s to 1960s)

If presented with this type of cut-out the LCT device installer must assume that cut-out is unsuitable for additional load or the fuse size in the cut-out is 30A. In all these cases the installer must refer the matter to the DNO for an assessment to be carried out and possibly a cut-out replacement.

5. Embargoed Fused Neutral Cut-Outs

If presented with this type of cut-out the LCT device installer must notify the DNO via the contact details in Appendix 1 for cut-out replacement to be arranged.

6. Looped Services (Top & Bottom Loop)

If presented with this type of scenario the LCT device installer must refer the matter to the DNO for an assessment to be carried out which may result in a new independent electricity service being installed.

1. Modern Cut-Out (Circa 1990s to present)

Modern cut-outs are usually manufactured in robust, Glass Reinforced Polyester (DMC) material 60/80A or 100A versions are available. These types of cut-outs will be found in buildings constructed since the 1980s. The cut-out may have a 60, 80 or 100A fuse. In modern buildings the incoming cable will be polymeric insulated cables (commonly known as plastic cables). These types of cut-outs are sometimes found in older buildings where the metal-clad cut-out has been replaced and in these cases the incoming cable may be the original paper insulated lead-sheath (and steel-wire armoured) type.

If presented with this type of cut-out the LCT device installer must assume that the fuse size is 60A. If the installation designer's calculations confirms that the customer's installation total load will not exceed 60A at any time then there is no need for a DNO assessment and the EV charge point install can proceed and the appropriate notification sent to the DNO.

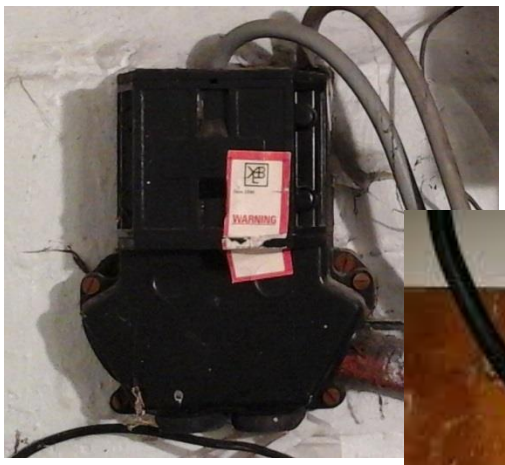
Examples of Modern Cut-outs:

With polymeric/plastic incoming cable

With paper-lead incoming cable

2. Black Plastic Cut-Out (Circa 1960s to 1990s)

If presented with this type of cut-out the LCT device installer must assume that the fuse size in the cut-out is 60A. If the installation designer's calculations confirms that the customer's installation total load will not exceed 60A at any time then there is no need for a DNO assessment and the install can proceed and an appropriate notification sent to the DNO.



3. Metalclad Cut-out in Good Condition (Circa 1940s to 1960s)

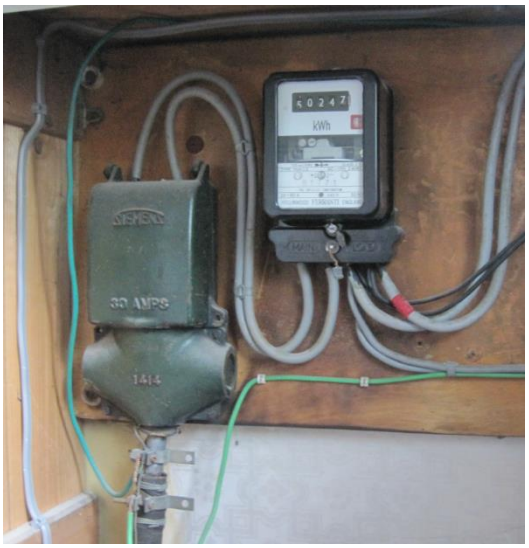
There are still many metal-clad cut-outs on the DNO networks which are in serviceable condition. These cut-outs mainly contain rewireable fuses but in some cases may contain the more modern cartridge fuse types. If presented with this type of cut-out, and it can been seen that they are in reasonably good condition, the LCT device installer must assume that the fuse size in the cut-out is 60A. If the installation designer's calculations confirms that the customer's installation total load will not exceed 60A at any time then there is no need for a DNO assessment and the install can proceed and an appropriate notification sent to the DNO.

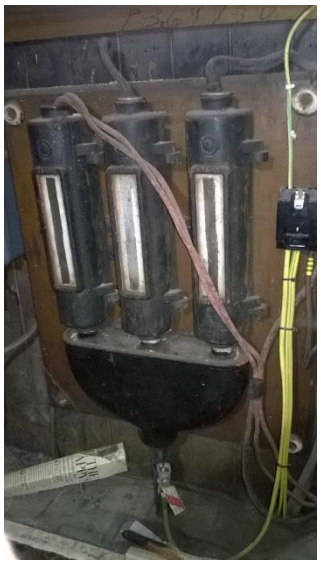
Installers must take care to note that the cut-out is not a fused-neutral cut-out or a cut-out that is rated lower than 60A as some metal-clad cut-outs may have markings showing 30A or 45A etc. Installers must never open a DNO cut-out while trying to establish the rating of a cut-out. If in doubt, the installer must contact the DNO to seek assistance.

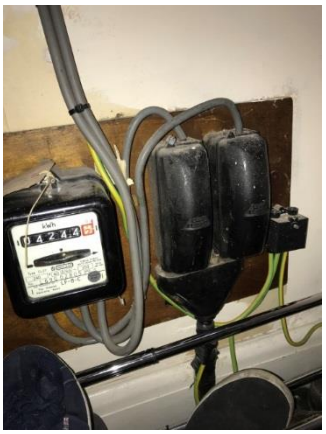
More examples of good condition single phase metal-clad cut-outs to be added here soon.

4. Metalclad Cut-out in bad condition, “Biscuit tin”, Low Rating or very old (Circa 1930s to 1960s)

There are still many metal-clad cut-outs on the DNO network. The vast majority of these continue to be serviceable. However, as shown in the photographs below, sometimes cut-outs are discovered that present clear issues of ageing or are seen to be of the lower rating type of cut-out. In these circumstances the LCT device installer must assume that cut-out is unsuitable for additional load or the fuse size in the cut-out is 30A. In all these cases the installer must refer the matter to the DNO for an assessment to be carried out and possibly a cut-out replacement.







Biscuit Tin Cut-outs

Some cut-out are known as “biscuit-tin” cut-outs. In these circumstances the LCT device installer must assume that cut-out is unsuitable for additional load or the fuse size in the cut-out is 30A. In all these cases the installer must refer the matter to the DNO for an assessment to be carried out and possibly a cut-out replacement.

5. Embargoed Fused Neutral Cut-Outs

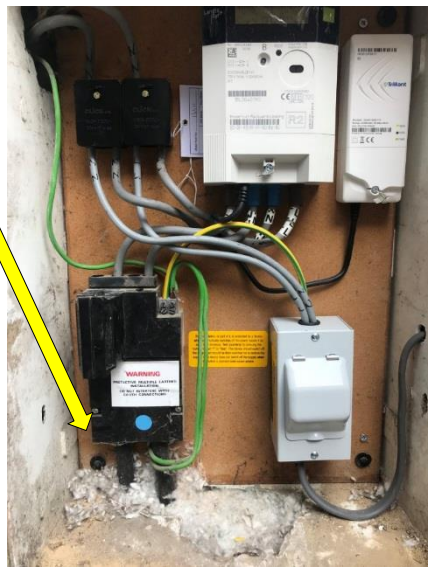
Despite DNO efforts to replace all fused-neutral cut-outs some of these types of cut-outs are still discovered from time to time. DNOs have a directive from HSE to replace such cut-outs within 21 business days of them being discovered. If presented with this type of cut-out the LCT device installer must notify the DNO for an urgent cut-out replacement to be undertaken. Some examples of fused neutral cut-outs are shown below.

6. Looped Services (Top or Bottom Loop)

In some parts of DNO networks some of the electricity services are looped from the neighbouring property. Looped services can have one or more looped connections to neighbouring dwellings. In some areas this could be 5 or 6 dwellings looped in a daisy chain configuration. Looped connections can be from the bottom of the cut-out or sometimes from the top of the cut-out. If presented with this type of scenario the LCT device installer must refer the matter to the DNO for an assessment to be carried out which may result in a new independent electricity service being installed.

In these three examples the incoming service cable is looped at the bottom of the black cut-out and runs into the neighbouring property.

There are two customer supplies looped from a single phase incoming service.



Installers should be aware that a service with one service cable entering the base of the cut-out may actually be the final looped connection in the daisy chain of connections. These are very difficult scenarios to identify unless it can be determined through investigation of the cable entry point to ascertain if it's likely to emanate from the neighbouring property. The property occupier may also be aware of the issue from previous experience/discussions.

Shared Supply Fuse

In the vast majority of cases each customer supply has its own independent mains supply fuse. However, there are some scenarios still in existence where two customers share the same fuse (usually 60A). In these circumstances no additional load should be added to either customer's electrical installation without first consulting with the DNO.

High Level Process

For

Determining the suitability of a service cut-out for additional load from an EV charging point.

Modern Cut-Out
(Circa 1990s to present)

Black Plastic Cut-Out
(Circa 1960s to 1990s)

Metalclad Cut-out in Good Condition
(Circa 1940s to 1960s)

If presented with the above types of cut-out the LCT device installer must assume that the fuse size in the cut-out is 60A. If the installation designer's calculations confirms that the customer's installation total load will not exceed 60A at any time then there is no need for a DNO assessment and the install can proceed and an appropriate notification sent to the

Metalclad Cut-out in bad condition, Low Rating or very old (Circa 1930s to 1960s)

Embargoed Fused Neutral Cut-Outs

Looped Services
(Top or Bottom Loop)

If presented with the above types of cut-out the LCT device installer must assume that the cut-out is unsuitable for additional load or that the fuse size in the cut-out is 30A. In all these cases the installer must refer the matter to the DNO for an assessment to be carried out and possibly a cut-out replacement.

Appendix 1 - Contact Details for Notification of DNO Equipment Issues

DNO Company	Contact Details	Comments
Scottish & Southern Electricity Networks (SSEN)	By e-mail GE@ssen.co.uk By phone 0800 048 3516	Further information can be found at: https://www.ssen.co.uk/generalenquiries/insideyourhome/
UK Power Networks (UKPN)	General Enquiries 0800 029 4285	Or contact via the website https://www.ukpowernetworks.co.uk/electricity/fuse-upgrade
Western Power Distribution (WPD)	0800 6783 105	Further information can be found at: https://www.westernpower.co.uk
Scottish Power Energy Networks (SPEN)	General Enquiries for both SPEN Areas: 03301010444	online enquiry form link:- https://www.spenergynetworks.co.uk/pages/general_enquiry_form.aspx
Northern Powergrid (NPG)	0800 011 3332	General Enquiries Number
Electricity North West (ENW)	0800 195 4141	Further information can be found at: https://www.enwl.co.uk
GTC	General Enquiries 01359 243311	e-mail enquiries: EV.Notification@gtc-uk.co.uk Further information can be found at: https://www.gtc-uk.co.uk/householders
NIE Networks	03457 643 643	Further information can be found at www.nienetworks.co.uk

You can find out the correct Network Operator for a premise by using typing the property's post code into the ENA's network operator finder box here. Or by typing the following details into your internet browser's web address box:

http://www.energynetworks.org/info/faqs/who-is-my-network-operator.html