



C O U N T I E S P O W E R

Distribution Code

Part 3: Metering Requirements for Electrical Installations

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1.0 Introduction

This document provides information relating to the installation of metering at the boundary of connections to the Counties Power network.

It is relevant to all stakeholders including electricity retailers, electricity users, developers, contractors, consultants and shareholders.

This standard forms part of our Distribution Code, which comprises six parts, all of which are available from Counties Power's website www.countiespower.com, each covering a specific set of requirements

Part 1: General Requirements

Part 2: Network Connection Standard

Part 3: Metering Requirements for Electrical Installations (this document)

Part 4: Distributed Generation Requirements

Part 5: Signalling and Technical Interference

Part 6: Distribution Operation Code

Definitions of terms and abbreviations are found in section 14.1 of Part 1 of this code.

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2.0 Distribution Code Requirements

Where appropriate, the metering system should provide at each ownership boundary and critical point, the information listed below in the most economical way, while providing the necessary flexibility for different physical and technical conditions:

- a. All active energy input or output taken from or delivered to Counties Power's distribution system by a user or customer.
- b. The active energy used solely to operate or maintain Counties Power system need not be metered.
- c. If active energy can both input to and output from Counties Power system through a point of connection, meters shall be provided which separately measure the input active energy and output active energy.
- d. Where loads are large enough to warrant, or where loads are significant to Counties Power system, meter impulses shall be available to allow the separate recording of the input active energy and the output active energy at each point, for each user or customer and for each connected voltage level.
- e. Where appropriate, reactive energy output and reactive energy input shall also be available to allow separate recording of the input reactive energy and the output reactive energy at each point, for each user and customer and for each connected voltage level.
- f. Where required by Counties Power, output and input energy shall also be metered such that this is available in an instantaneous and integrated (over an agreed period) format.

All metering required by the Distribution Code shall be of an appropriate class of accuracy having regard to the duty performed.

All parties shall take all reasonable steps to prevent loss of information or unauthorised interference with the equipment.

Space shall be provided in a user's or customer's building for metering equipment required by the Distribution Code. Access to this space by the owner of the metering equipment shall be permitted at all reasonable times.

The party responsible for the metering equipment shall be responsible for the maintenance of that equipment.

3.0 Safety

The installer shall hold a current Practicing License.

The installer shall comply with all Health and Safety requirements.

All installations shall comply with the requirements of the current Electricity Regulations.

The installer shall observe all recommendations and safety practices applicable to personnel and equipment, detailed in this manual. Recommendations and practices detailed in this manual are concerned with the prevention of personal injury and damage to equipment and property.

All Current Transformers shall have their output terminals shorted, on each phase, while work is being carried out on them or their associated meter(s).

4.0 General Technical Requirements

All installations shall comply with the requirements of the current Electricity Regulations.

Electricians undertaking metering should follow the general principles of the Metering Safety Good Practice Guide (Issued and published by the Electricity Engineers' Association of New Zealand - EEA).

All meter boards shall be positioned so as to provide unrestricted access for the reading and maintenance of the meters and installation. Where possible the location of the meter board should be selected taking into account the owners future plans for the development of the property, particularly in regard to fencing and security.

All hot water loads shall be controlled, unless agreed otherwise with Counties Power Limited.

All meter boards shall be wired ready for metering and load control equipment installation, as shown in the relevant drawings.

All meter board wiring shall be minimum 2.5mm² stranded copper, including neutrals.

For three phase meter installations, wiring may be colour coded as follows:

- Red for red phase
- White for white phase
- Blue for blue phase

IF IN DOUBT, PLEASE ASK

Booking Inspection, Metering and Livening

Prior to booking an Inspection, Metering and Livening for an installation, Counties Power must be in receipt of a signed Network Connection form (accompanied by any required Capital Contribution payment). The above process will result in the issuing of an ICP Number for the installation.

All requests for an Inspection, Metering and Livening of an installation **must** be made to the **customer's selected Retailer**. Counties Power Limited cannot receive requests directly from the Customer (or their electrician) and can only action an Inspect, Meter and Livening on instruction from an appropriate Retailer.

The installer shall ensure that the following is in place before booking an Inspection:

1. All electrical work associated with the metering installation has been completed to enable safe livening of the installation.
2. Where the service main installation has been carried out by a contractor authorized to connect to the Counties Power Network, installation of the service main should be completed to the stage where livening may be carried out by the insertion of the service main fuse(s). Where underground cables have not been, or cannot be terminated in a pillar box due to the contractor not being authorized to connect to the Counties Power Network, these may be connected by the inspector at an additional cost.
3. A properly completed Certificate of Compliance covering the **wiring of the installation to be livened** is available, on site, for the Inspector. If a distributed generation (PV solar system) is installed a Record of Inspection for the system should also be provided.
4. If applicable, a properly completed Certificate of Compliance covering the **installation of the service main** to be livened is available, on site, for the Inspector.

Note: Livening cannot occur until these documents have been sighted and authorised by the inspector.

It is the responsibility of the electrical contractor and/or the customer booking the inspection to ensure that both COC's, if applicable, are available to the inspector before or on arrival at site. (Note – all 3 copies of the COC are required for signing by the Inspector).

5. Bookings are made with the Customer's selected Retailer.

Cancellation of booked work is requested as soon as possible and should be notified to Counties Power. Where an Inspector attends to a booked inspection that is incomplete and unable to be completed then additional charges will be made direct to the customer unless an arrangement has been made to invoice the Electrical Contractor direct.

Persons booking inspections should be prepared to supply the following information at the time of making the booking:

1. Name of customer (Account holder)
2. The installation ICP Number
3. Address of installation
4. Date inspection required
5. Type of installation (BTS, House, Pump, Shed etc.)
6. No of phases
7. Pole top or pillar connection required
8. Special tariff rates, if known (Import/Export, etc.)
9. Helpful directions on finding the site, particularly if rural
10. Location of the installation COC
11. Location of the Service Main COC
12. Electricians name
13. Electricians contact number (preferably cell phone number)
14. Any other helpful information e.g. Special access requirements.

The appropriate fees for the Inspecting, Metering and Livening will be invoiced to the Account Holder by Counties Power.

Any costs associated with additional visits, where these are required due to the incompleteness or non-compliance of the job or documentation on the part of the Electrical Contractor will be charged to the customer by Counties Power unless an arrangement has been made to invoice the Electrical Contractor direct.

5.0 General Meter / Relay Installation Requirements

5.1 Metering

Load Control:

The controlled power tariff: Counties Power provides a lower cost supply/energy tariff designed for hot water storage cylinders. This supply can be controlled by Counties Power (switched off for up to 5 hours each day at Counties Power's discretion typically at peak times).

All domestic installations shall be wired to allow for separate metering of controllable (water heating) loads. (A minimum 2.5mm wire must be run from the metering enclosure to the distribution board).

The maximum total load allowable to be connected to the controlled supply is limited to 31 amps / 7 kW.

Any equipment wired to the controlled supply must be suitable, clearly labelled as controlled, and wired such that the remote power up cannot be dangerous (in accordance with the electrical safety regulations).

Electric Vehicle chargers may be connected to the controlled circuit provided the requirements above are met.

All controllable loads shall be separately metered.

Counties Power have a **VERY STRONG PREFERENCE** that external meter boxes be installed on new dwellings / buildings which will require whole current (W/C) meter(s) to be installed and lived on to the Counties Power Network.

Facilities for the mounting and wiring of Counties Power meters and where applicable, control equipment, **MUST** comply with the following:

- a. For a single phase installation with or without controlled power metering, an unencumbered mounting plate, or mounting rails, with minimum dimensions of 430mm high, 360mm wide, 120mm deep (clearance from the mounting plate/rails to the inside of the closed door.
- b. For two phase installations with or without controlled power metering, an unencumbered mounting plate, or mounting rails, with minimum dimensions of 500mm high, 400mm wide, 120mm deep (clearance from the mounting plate/rails to the inside of the closed door.
- c. For three phase installations with or without controlled power metering, an unencumbered mounting plate, or mounting rails, with minimum dimensions of 500mm high, 400mm wide, 120mm deep (clearance from the mounting plate/rails to the inside of the closed door.
- d. For metering configurations other than those above, please contact Counties Power for minimum device mounting requirements.

Counties Power advise an external meter box size DCB1S, DC3S or DC4S (or equivalent dimensions) will satisfy the device mounting requirements listed in a), b), or c), above.

Meter register readings must be accessible to a meter reader.

There are three acceptable internal switchboards available especially manufactured by Teubel Switchboards for the Advanced Meters in the Counties Power area:

- EZMP302CD Ezywire Board/Metering and Distribution/30 Ways/2 Row/Counties Power/Deep
- EZM6CD Ezywire Board/Metering/Size 6/Counties Power/Deep
- EZM4CD Ezywire Board/Metering/Size 4/Counties Power/Deep

Only these boards or their equivalent will be accepted.

5.2 Installation

Meters shall be mounted so that the register is clearly and easily readable through the meter box window.

Contact ratings of all load control devices shall be appropriate for the maximum controlled load.

All protection in meter boxes shall be Close Current Protection type.

Cables are permitted to be installed through the top of the meter box providing they do not restrict the installation of the meter(s) or load control devices.

Looping from the meter terminals is not permitted.

All meter boxes shall be mounted so that the centre of the top viewing window will be 1.4 to 1.8 metres above the finished ground level.

6.0 Current Transformer (CT) Metering

Where the maximum load is expected to exceed 100 amps then CT's shall be used.

All proposed installations requiring CT's shall be discussed with Counties Power Limited engineering staff, at an early stage of the planning. CT's may take up to 4 weeks to be delivered.

The CT ratio to be installed, and the ratio to be used in the case of multi ratio CT's, shall be approved by Counties Power Limited.

All CT installations shall be fitted with a CT test block.

All CT's and test blocks shall be supplied by Counties Power Limited where the Retailer requesting the living has nominated Counties Power as Metering Equipment Provider for the ICP.

Provision shall be made for a separate sealable CT chamber, with a removable section of busbar or cable.

One set of potential fuses shall be mounted on the metering panel and loaded with 10amp cartridges. These fuses shall be mounted so as to allow the cartridge holders to be sealed so as to prevent removal (i.e. spaced apart to enable individual fuses to be sealed).

Where busbars are installed, a second set of fuses shall be mounted on the busbar and loaded with 20amp cartridges. This second set of fuses shall be mounted within the sealable CT chamber in such a position that the cartridge may be safely changed without the requirement for a shutdown.

All potential fuses shall be of the HRC, Q2 type.

A minimum depth of 150mm is required on the meter board to accommodate the meter. All hinged meter boards shall allow 90 degree opening with the meters fitted.

7.0 Import / Export Metering for Distributed Generation

All distributed generation connecting to Counties Power Network must be approved by Counties Power

Refer to Counties Power specific distributed generation documentation - Distribution Code Part 4 Distributed Generation Requirements.

Import export metering is typically implemented via specific meter or meter programming. This metering must be requested via the Retailer for the ICP as this corresponds to a tariff change.

Counties Power typically will not undertake the electrical inspection of PV Solar energy systems, and this should be organised with an Electrical Inspector specialising in such systems.

Where PV Distributed Generation is included with a new build premises a Record of Inspection should be provided for the PV with the COC for the building to Counties Powers Inspector

7.1 Rural Area Connections

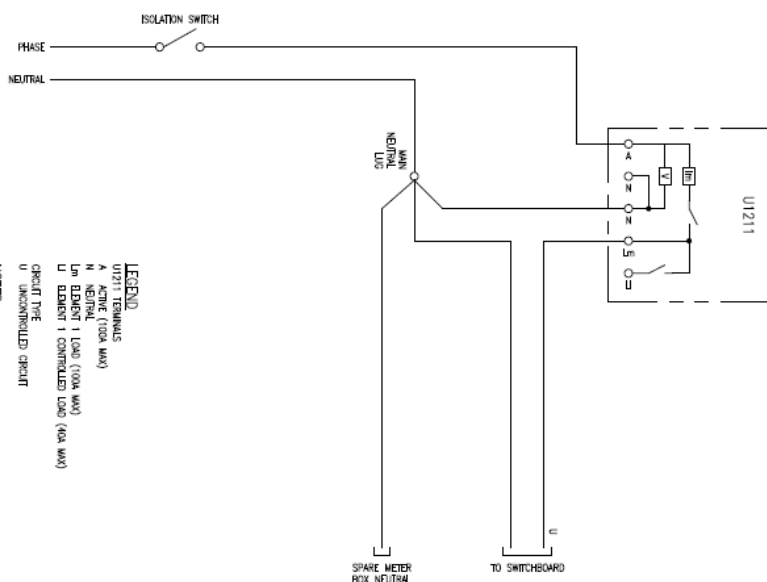
Counties Power Network Connection Standard (Part 2 of the Distribution Code) specifies that:

“Supply to rural dwelling installations is recommended to be three phase and shall be a minimum of two phase and the connected load balanced across all connected phases at the Main Switchboard”.

When a small scale distributed generation system is installed in a rural area where a three phase or two phase supply is provided, then the generation is required to inject equally into all phases to maintain a balanced load.

Appendix A - Wiring Diagrams List

3641	Single Phase – No Controlled Load
3640	Single Phase + Pilot – Urban Area
3639	Single Phase Overhead – Urban Area
3647	Two Phase + Relay Control – Urban Area
3646	Two Phase + Pilot – Split Uncontrolled Load – Urban Area
3643	Single Phase Domestic with Control & Night Rate Urban
3642	Two Phase Relay Control – Urban or Rural
3644/45	Two Phase Domestic + 2 Controlled Circuits
3650	Three Phase Domestic – Rural
3648/49	Three Phase Controlled & Uncontrolled – Pilot Control – Urban
3651/52	Three Phase + One Phase Controlled – Rural
3653	Three Phase Uncontrolled Load
667	CT Operated Metering With 10 Way Test Block
672	CT Operated Metering With 13 Way Test Block



NEW METERING CONFIGURATION

MOD 03

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