

Annexure

Metering Requirements

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1. GENERAL REQUIREMENTS

1.1 Purpose of this Annexure

This annexure sets out obligations in respect of metering that were previously stipulated by electricity distributors. These now fall on the Metering Coordinator (MC), Metering Provider (MP) and metering equipment installer working on behalf of the MP. These requirements are still important for the safe installation of metering equipment and required for on-going safety and technical needs of all parties.

Under the note to Clause 32(3) of the Electricity (Consumer Safety) Regulation 2015, persons carrying out electrical installation work should have regard for the Service and Installation Rules (SIRs).

New or replacement metering installations are now part of the consumer's electrical installation and fall under the provisions of this clause.

1.2 Advice to contractors

[Previously 1.11.2]

The customer's electricity retailer nominates the MC for the installation, who will appoint an accredited MP to maintain the installation. In accordance with this document, and reference to the SIR, the MP will define the space requirement for metering equipment on the

customer's premises. Charges may apply for metering equipment, as determined by the customer's retailer.

The customer/contractor is required to initiate and make arrangements for metering equipment, including the location of metering equipment as determined by the MP.

1.3 Alterations, Additions and Upgrades

[Previously 1.11.11]

This Annexure, in their entirety and the Rules provide the guidelines for all new installations.

However, alterations, additions, or upgrading of existing:

- a) metering equipment,

required by or for the customer must comply with this Annexure.

All alterations, additions and upgrades must

- (a) ensure the Multiple Earthed Neutral (MEN) connection is at the customer's main neutral link and not at the Service Neutral Link;
- (b) ensure the Service Protection Device (SPD) meets with the requirements of a HRC fuse or equivalent circuit breaker as per Clause 2.8;
- (c) ensure, where a combined SPD/MPD is used, it meets with the requirements of a HRC fuse or circuit breaker

For clarity, type 5 or 6 metering equipment that is temporarily taken out of circuit may, at the discretion of the electricity distributor, be re-fixed in the same or a very similar location provided that:

- a) the metering equipment is not faulty or physically impaired;

- b) the metering equipment is not being relocated to a different connection point;
- c) the physical location and nature of the connection does not change.
- d) It complies with the distributors metering requirements (e.g. size, location) and
- e) Is not classified as a new or replacement metering installation under Chapter 7 of the National Electricity Rules.

1.4 Alternative Methods

Where the customer proposes an alternative method that is not specifically contained in these Rules, the proposal must deliver the same or better level of safety, reliability and efficiency.

Applications for alternative methods must be approved by the MC and NSW Fair Trading and comply with Chapter 7 of the National Electricity Rules.

1.5 Communications

[Previously 1.11.12]

The customer's electricity retailer may require the customer to provide for the installation of

communication equipment for remote meter reading unless the customer has opted for a Type 4A meter.

1.6 Authorisation

[Previously 1.13.2]

Individuals are required to be authorised by the relevant MP prior to undertaking any metering works.

At the completion of the work the MP must perform tests on all work carried out to ensure its safe operation before connecting it to the

distribution system. These tests, where applicable, include polarity, phase rotation (before and after and where applicable), insulation resistance and earthing integrity. The tests will include both visual and instrument checks.

1.7 Certificate of Compliance – Electrical Work (CCEW) for Metering

[Previously 1.14 (f)]

The meter equipment installer must complete a Certificate of Compliance – Electrical Work (CCEW) form when metering works are undertaken. A copy of the form must be forwarded to:

- a) The customer or the customer's electricity retailer,
- b) NSW Fair Trading, and
- c) Metering Provider

The form is to be provided within 7 days of completion of works.

1.8 Provision of Installation

1.8.1 Sealing/Locking

[Previously 1.17.6]

The customer must provide for the fitting of seals or locks to metering equipment, or to parts of the electrical installation. The provision must be approved by the MP. Seals or locks must be affixed in circumstances where they are necessary in the opinion of the MP or required by law. These circumstances may include:

Preventing obstruction or diversion of the supply of electricity.

Avoiding interference to other customers supply.

Securing the metering of the electricity supply.

Any other purposes relating to the agreement with the customer.

In general, sealing or locking is required for all connections on the line side of the meters and

certain other connections associated with metering.

Refer to Section 2.11 which provides details for sealing and locking methods.

1.8.2 Installation Switchboards rated above 100A

[Previously 1.17.8]

Low voltage customer switchboards with ratings of more than 100A per phase may be subject to additional metering requirements. The customer must not proceed with work until they know the requirements for metering equipment.

1.9 Definitions

Australian Energy Market Operator (AEMO)

Australia's independent energy markets and power systems operators, providing critical planning, forecasting and power systems information and security advice.

Electricity Distributor (Distributor)

Means the electricity distributor (distributor) within whose distribution area any Electrical Installation or installation work is situated or where the installation work is carried out.

Note: Sydney Trains is the distributor for electrical installations on railway land and for a limited number of customers supplied from the rail network.

Metering Coordinator (MC)

An entity registered with AEMO responsible for the appointment of a Metering Provider and Metering Data Provider at a connection point, and who has overall responsibility and accountability under the National Electricity Rules for the provision, installation, maintenance of a metering installation, as well as the managing access to and the security of the metering installation.

Metering Equipment

Equipment used to measure the electricity consumption at a metering installation as defined by the National Electricity Rules.

This does not include electricity distributor load control equipment, or electricity distributor non revenue metering. Further details about Metering please refer to the annexure.

Meter Protection Device (MPD)

A fuse (which complies with Clause 4.7) or other protection and isolation device located on the un-metered side of the installation, intended for the isolation and protection of whole-current metering and the associated customer installation.

Metering Provider (MP)

An entity that meets the requirements listed in schedule 7.2 of the National Electricity Rules and has been accredited and registered by AEMO to provide, install, and maintain metering installations. A Metering Coordinator will engage a Metering Provider. Further details about metering, refer to this annexure.

Metering Data Provider

An entity that meets the requirements listed in schedule 7.3 of the National Electricity Rules and has been accredited and registered by AEMO to provide metering data services. Further details about metering, refer to this annexure.

Rules or SIRs

Rules means the Service and Installation Rules of New South Wales as amended from time to time.

Service Protection Device (SPD)

The first protection device which complies with Clause 4.7, located on the installation side or forming part of the Connection Point.

Type 4 meters

All new or replacement metering installation of a small customer is to be a type 4 metering installation.

Type 4A meters

Metering installation that are not connected to a telecommunications network and are not required to be remotely read.

Type 5 & 6 meters

For customers that use less than 160MWh of electricity per annum and were the standard type of interval or accumulation meters provided by electricity distributors.

2 METERING EQUIPMENT

2.1 Introduction

[Previously 4.1]

The customer must arrange to provide and have installed at the customer's cost:

- a) Service Protection Device/s (SPD) and other service equipment as defined by the SIR,
- b) Meter Protection Device/s (MPD) as defined in this document,
- c) The metering enclosure or equivalent reserved meter rooms area, as defined by this document,
- d) Associated wiring and connections in accordance with AS/NZS 300

As required to support the installation of metering equipment and any associated Network Devices required for the metering installation.

The metering enclosure/area must be in a location and in conditions acceptable to the MC MP and in accordance with this document.

Metering in accordance with the requirements of the MC.

The metering enclosure must be in a location and in conditions acceptable to the MC and in accordance with this annexure.

The customer's electrician will assess and determine the maximum demand for the

separating meter part of the electrical installation. Direct connected metering may be used where maximum demand does not exceed 80A per phase. Where maximum demand exceeds 80A per phase, current transformer metering is required.

2.1.1 Existing installations

[Previously 4.1.1]

In general, where metering installations are changed or relocated, standard metering arrangements required by this Section apply.

You may install additional metering equipment on an existing board if the additions can be accommodated without relocating existing metering equipment.

If it is necessary to install additional panels, these panels may be either:

- a) In the standard arrangements which are outlined in this document, or
- b) Matched to the existing style, or
- c) As agreed by the MC.

Where new tenancies are created in an existing multiple installation and insufficient room exists at a common metering point the metering may be located elsewhere as approved by the MC.

2.2 Location and Accessibility of Metering Equipment

[Previously 4.2]

Metering location must be in accordance with this annexure and the MC.

Note: Under the requirements of chapter 7 of the National Electricity Rules, Clause 7.8.7, the MC must ensure that the metering point is located as close as possible to the connection point.

The customer must ensure that access to any enclosure for metering equipment is never restricted or made unsafe. The location must always be kept clear.

If access is obstructed the customer must remove the obstruction or relocate the service and metering equipment.

Rooms dedicated to house metering equipment must be well lit, clean, unobstructed and not used for storage of materials or equipment. It should provide space or allocation for communications equipment. The door(s) of rooms and enclosures housing service and/or

metering equipment must be labelled "Electricity Supply Equipment" or "Electricity Meters".

Metering and equipment is to be easily accessible to MPs within normal working hours. Where the metering equipment is not located adjacent to the service protection device, its location must be labelled on the main switchboard. The labelling must comply with Clause 2.2.1.

Provide access to an elevated position as specified in AS 1657 'Fixed platforms, walkways, stairways and ladders - Design, construction and installation'.

Any gas meter, fittings, enclosures or other obstructions installed below the service metering panel must not project further than 300mm from the face of the wall on or in which the service metering panel is mounted.

Provide and maintain adequate space in front of the service and metering equipment panel or cabinet, to enable the equipment to be operated or adjusted.

The space must:

- a) Be flat and level
- b) Enable the door or panel to be opened or removed; and
- c) Provide a vertical clearance of not less than 2 metres from the ground, platform or floor and minimum horizontal clearance of not less than 0.6 metre from the:
 - i) Equipment mounted on the hinged panel; or
 - ii) External front edge of the switchboard enclosure

whichever point protrudes the most.

A hinged meter panel must be able to be extended to a 90° open position when all equipment has been fitted.

When a hinged meter panel is extended on its hinge to the 90° open position, make sure a clearance of 200mm is maintained between the front face of the panel and any fixed object. Recessed enclosures are to maintain a minimum of 50mm clearance from the building to enable installation of communications equipment.

Provide a clearance of 175 mm from the front of the panel to the door.

Note: The local government Act requires compliance to the Building Code of Australia for **exits for fire escape** purposes, or any corridor, hallway, lobby or the like leading to such an exit. This does not apply in single dwellings. In the case of buildings being altered or the use being changed, the local council may require an existing building to be brought up to this standard.

CAUTION

Whenever a property or building is of a type which may be subdivided, care should be taken to ensure that the meters and wiring are located within the area which would be set aside as common property or within the individual lot supplied thereby. Wiring installed within an individual lot must be associated only with that lot.

2.2.1 Single domestic premises

[Previously 4.2.1]

The service and metering equipment must be located where ready pedestrian access is maintained, in one of the following locations:

- a) On the face of the residence facing the front boundary.
- b) On the adjacent side wall within 1.5m of that face or associated corner window or verandah.
- c) On a private pole.
- d) Within the front boundary fence so that distributor meter reading and maintenance of service and metering equipment may be carried out without introducing a safety hazard. Meter location will be determined by the MP.

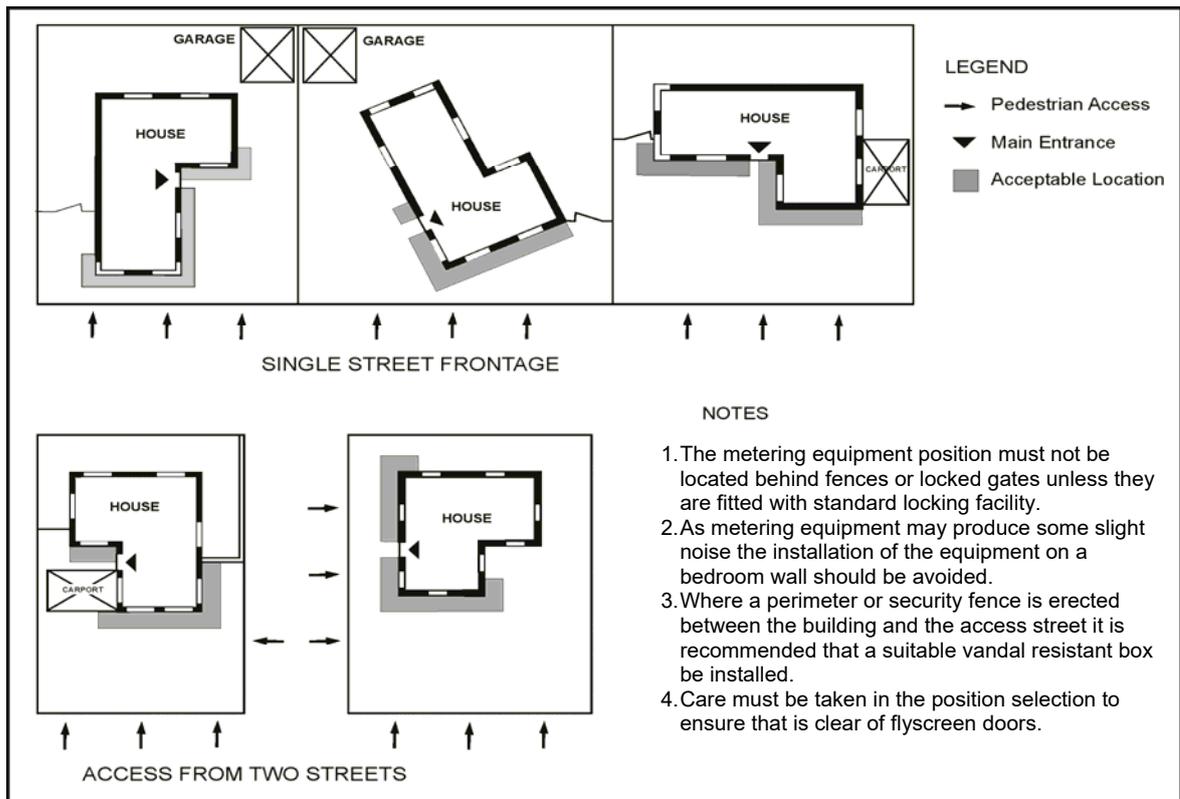
Where the main entrance is on the side of a residence the service and metering equipment may be installed on that side not further than 1.5 metres beyond the main entrance subject to access being available.

Suitable locations are shown in Figure 2-1.

The service and meter position must not be located behind fences or locked gates unless they are fitted with the electricity distributor standard locking facility. Refer to clause 2.7.

Where a perimeter or security fence is erected between the building and the access street it is recommended that a suitable vandal resistant service meter box be installed in the fence.

As metering equipment may produce slight noise the installation of metering equipment on a bedroom wall should be avoided.

Figure 2-1 Suitable Metering Locations for Single Domestic Installations

2.2.2 Single business premises

[Previously 4.2.2]

Unless otherwise approved by the electricity distributor, the service and metering equipment must be located as close as practicable to the entrance of the premises and must be readily accessible (in an area normally open to the public).

In addition, service and metering equipment must not be located in areas intended for product display such as shop windows or where access is restricted during normal operations for security, health or other reasons.

The service and metering equipment for single business premises within a multiple occupancy must be grouped at the associated common distribution board, external to the tenancies.

Access must be available during the electricity distributor's normal business hours.

2.2.3 Multiple occupancy premises

[Previously 4.2.3]

The metering service equipment for new multiple occupancy premises will be grouped at the one metering position. Provision should be made to cater for any future metering requirements.

The grouped metering service equipment must be in a location accessible to all associated tenants. It must not be located within any one occupancy.

If located in a secured common area access must be available by means of a standard locking system obtained from the electricity distributor.

MPDs must be in the same location as the metering and clearly marked with which tenancy they are supplying.

For practical reasons it may be necessary to provide more than one metering service equipment position. The following clauses shall apply:

2.2.3.1 Multi-storey developments

[Previously 4.2.3.1]

In multi-storey developments, group the metering equipment together on each floor or on each alternative floor as directed by the MP.

2.2.3.2 High density residential installations

[Previously 4.2.3.2]

In high density residential installations, the metering equipment is to be located on or adjacent to the main switchboard. Metering may be on an individual floor basis, where agreed to by the MC.

2.2.3.3 Medium density residential

[Previously 4.2.3.3]

Do not locate the metering service equipment within any individual occupancy's right of way in medium density residential developments (e.g. town houses, villa units, cluster homes, duplex

units), and domestic installations which include a separate flat or unit.

2.2.3.4 Factory unit developments, shopping centres and malls

[Previously 4.2.3.2]

For factory unit developments, shopping centres and malls, locate the metering service equipment external to the tenancies.

Do not locate the metering equipment and individual isolation devices within any individual occupancy's right of way in medium density residential developments (e.g. town houses, villa units, cluster homes, duplex units), and domestic installations which include a separate flat or unit.

2.3 Unsuitable Locations

[Previously 4.3]

Metering equipment must not be installed behind locked gates or doors unless the obstructions are fitted with acceptable access arrangements.

- In addition, the following locations are considered unsuitable for mounting service and metering equipment:
 - Over stairways or ramps, in narrow passageways, or in confined spaces.
 - In vehicle docks, driveways, factory passageways where the equipment or a person working on it would not be effectively protected.
 - In close proximity to, or over, machinery or open type switchgear.
 - Locations which are liable to be affected by fumes, vibration, dampness, or dust, which may cause deterioration of equipment or unsatisfactory working conditions.
 - In hazardous or prohibited switchboard locations as defined in the AS/NZS 3000.
 - Where the normal ambient temperature exceeds 50°C.
 - Where there is insufficient light.
- Where exposed to direct sunlight.
- Where the use of a ladder would be necessary.
- Where projections at head height are a hazard.
- In pool or spa zones as defined in AS/NZS 3000.
- On enclosed verandas.
- In areas enclosing dogs.
- In areas to which access is normally restricted - for security, health or other reasons. (This would include areas in which animals are kept for security reasons).
- Behind a fence without a gate.
- Within gas emitting devices exclusion zone, refer to AS 5601.
- Within LPG cylinder minimum clearance to ignition sources refer to AS 5601.
- In fire isolated stairways, passageways or corridors.
- Where access is restricted by vegetation.
- On the electricity distributor's asset

2.4 Hazards of Existing Meter and Switchboard Panels that may Contain Asbestos

Work should not be undertaken that disturbs the integrity (e.g. drilling) of existing meter or switchboard panels that may contain asbestos, within electrical installations, without taking suitable precautions. Information in this regard is available from the SafeWork NSW website (www.safework.nsw.gov.au) which lists relevant industry safety guidelines and model procedures.

WARNING - ASBESTOS

Historically, asbestos has been used in switchboard panels used in electrical installations. All electrical personnel who work on switchboard panels need to identify if this hazard may be present, and if necessary adopt approved industry procedures, when working with switchboard.

2.5 Facilities for the Installation of Metering Equipment

[Previously 4.5]

2.5.1 Meter Equipment Panel

For all new installations the switchgear panel must:

- (a) Not use materials containing asbestos.
- (b) Provide sufficient space for the installation of metering equipment as required by the MC.

2.5.2 Metering Equipment Enclosure

Provide and install enclosures complying with AS/NZS 3000.

2.5.3 Physical Protection of Metering Equipment

Metering equipment must be protected from:

- (a) The weather.
- (b) Mechanical damage.
- (c) Salt or dust laden air or corrosive atmospheres.
- (d) Vandalism.

An enclosure must be fitted with a door and catch.

2.5.4 Isolated and Unattended Locations

Where metering equipment is installed in an enclosure externally on a building or a pole in an isolated and unattended location, the enclosure must be constructed using galvanised steel or equivalent material of sufficient strength to achieve protection against vandalism, weather or other external factors. Such enclosures must be kept locked at all times using an acceptable locking system.

2.5.5 Top Hinged Switchboard Doors

Where possible, top hinged switchboards should be avoided due to risks of falling closed. If the door is hinged at the top, provide a stay fastened to the enclosure to hold the door open greater than 90°.

2.5.6 Fixing of Meter Equipment Enclosure

Ensure the facilities for mounting metering equipment and associated surrounds and enclosures, are securely fixed to a wall or rigid supporting structure.

2.5.7 Fixing of the Metering Equipment

All metering equipment is to be secured using all available fixing points.

For panels with a thickness of less than 20mm, bolts and nuts must be used to secure the equipment.

Bolts must not protrude more than 5mm past the fixing nut, nor be capable of damaging any conductor insulation.

Where screws are used, they must not protrude past the rear of the panel. Screws must utilise at least 75% of the panel thickness to secure any equipment.

Where the head of any fixing device is exposed on the front of the panel, it must be suitably insulated.

Bolts/screws used to mount and fix equipment on insulated meter panels shall be fit for purpose. Where mounting bolts/screws protrude through the meter panel and can be contacted, a non-conducting bolt/screw (e.g. nylon or plastic) shall be used.

Note: Metal screws with needle points and self drilling tips are not permitted.

Metering equipment must be located no closer than 32mm from the hinged edge of the panel.

2.6 Connections at Metering Equipment

The customer must arrange with the MC to have a MP, or their authorised officers, arrange the installation and connection of the metering equipment. If cables other than thermoplastic, elastomer, or XLPE insulated stranded copper-conductor cable are used, the cables must be joined, or connected in an approved manner, to a cable of the required type and size for connection to this equipment.

A single cable only is to be connected to any one terminal of service equipment.

For installations containing twin element off-peak water heaters, or a contactor as per clause titled 'Load Control Equipment' of the Service and Installation Rules of NSW (correct at time of publication) two cables may be connected into the meter load terminal.

The two cables must be twisted together.

Install meter wiring of not less than 4mm² on the load side of the service protection fuses and service neutral link. The wiring must be suitable for the maximum demand that it will carry.

2.7 Locking of Metering Enclosures

[Previously 4.6]

Locking and restricting access to a meter enclosure is acceptable if the lock or access is approved by the MP and/or the electricity distributor.

2.8 Metering Protection

The customer must provide, install and maintain an approved meter protection device in accordance with the following sub clauses.

2.8.1 Metering Protection Devices (MPD) for Low Voltage Installations up to 100A per Active Conductor- Whole Current Metering.

[Previously 4.7]

Whole current meters must be protected by a device which does not exceed 80A. This can be either a HRC fuse or a circuit breaker (CB) with the same tripping characteristics as a HRC fuse. The MPD must be located:

- a) Directly adjacent to the meter, or
- b) In a position that is readily accessible to the meter and clearly labelled to indicate the meter it protects.

2.8.2 Selection of fuse carrier and base ratings for fuses as MPDs

The maximum current rating of any fuse carrier and fuse base combination (the fuse assembly) used for a meter protection device shall always be equal to or greater than the fuse element rating, but in no case less than 100 amps.

The fuse assembly must have a sealable escutcheon, known as an anti-intrusion assembly, which prevents access to the terminals. The fuse carrier does not have to be sealed to the fuse base.

2.8.3 Selection of Rating for MPD

The rating of the fuse element is to be in accordance with Table 2-1. Alternative fuse element ratings or alternative protection devices

may be used but in no case, can the time-current protection rating exceed that of an 80A HRC fuse. Circuit breakers rated above 80A can only be installed with the approval of the MP.

2.8.4 Service Protection Device and MPD combined

For single customer installations that meet the requirements of Table 2-1, the functions of a service protection device and a meter protection device can be fulfilled by the one physical device provided clause 2.8.3 is complied with.

This situation is represented in Figure 2-3.

2.8.5 Location of MPDs

Meter protection devices must always be on the installation side of service protection devices (SPDs).

For special situations check with the MC.

2.8.6 Meter Neutral Link

The meter neutral link must accommodate:

- a) The incoming main neutral conductor.
- b) A separate neutral conductor for each meter or load control device being installed.

Table 2-1 Examples of Suitable Meter Protection Fuse Element Combinations

Service type	Service Protection Device (SPD) Element Rating	Meter Protection Device (MPD) Element Rating	Comments
100A Single domestic	1 X 100A (* see Note 6)	1 x 80A (*see Note 7)	For single domestic installations the SPD and the MPD can be one device but must be rated at the lower current carrying capacity (80A).
100A Multiple domestic	1 x 100A	Multiple x 80A	For multiple domestic installations, there must be one SPD to provide overload protection to the service supplying the installation. A separate MPD must protect each separately metered installation, see note 4.
200A	1 x 200A	Multiple x 80A	See Note 4
300A	1 x 300A/315A	Multiple x 80A	This may cause some grading problems with substation distributor fuses, which if blown are not able to be replaced by the customer. See Note 4 If there are grading constraints, 250A fuse(s) may be used for the SPD as this size would be more likely to grade. See Note 4
400A	1 x 400A	Multiple x 80A	This may cause some grading problems with substation distributor fuses, which if blown are not able to be replaced by the customer. Fuses must be to Class Q1 to BSS 88, 1975. You may be requested to install bars or have a combination of fuse ratings. See Note 4

Notes:

1. These examples are dependent on the loading of the various metered sections of an installation.
2. When using service protection devices of the larger sizes you must ensure that grading is achieved below those fuses. The grading prevents nuisance loss of supply as the Meter Protection fuse then protects a smaller portion of the installation by ensuring that the fault is seen by the fuse which is closest to the fault (between the fault and the supply).
3. With supplies direct from a substation, grading must be achieved.
4. Multiple 100 amp service protection fuses per phase are allowed, when there is a single service protection device protecting the whole installation – contact your distributor for more information with each case.
5. Number of customers per 100 amp meter protection device/fuses is determined by the requirements of Clause 2.9.
6. For existing installations this rating must be reduced to reflect the current rating of existing consumers or sub mains and to accommodate load limiting in accordance with AS/NZS 3000 requirements.
7. This is a maximum rating for an MPD HRC fuse and may be reduced for installations with a lower maximum demand.
8. In accordance with Clause 2.8.2, an MPD can be a Circuit Breaker but in any case must have time current characteristics that do not exceed that of an 80 amp HRC fuse. A circuit breaker MPD can be used as a load limiting device as per AS/NZS 3000.

Figure 2-2 Use of Service Protection Devices (SPD) and Meter Protection Devices (MPD) example of multiple occupancy installation

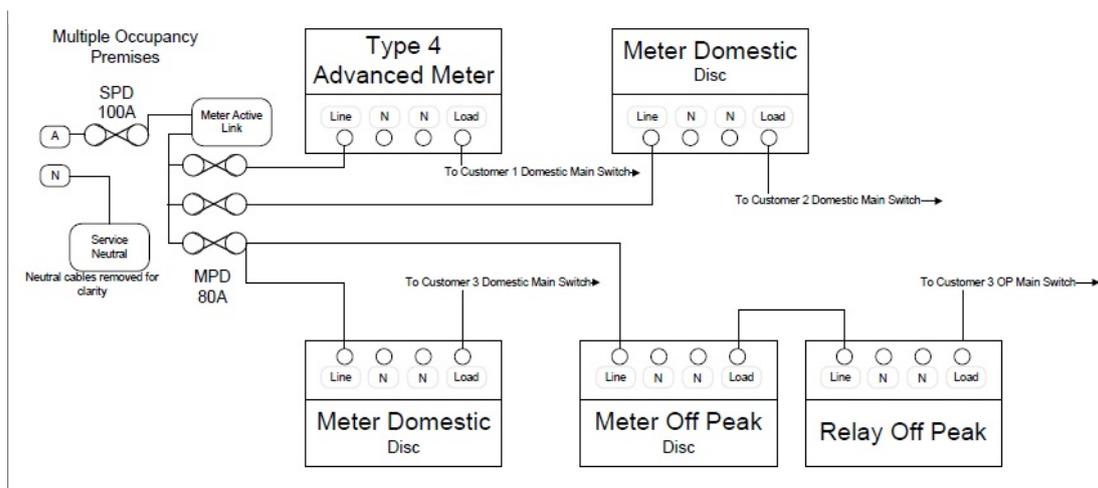
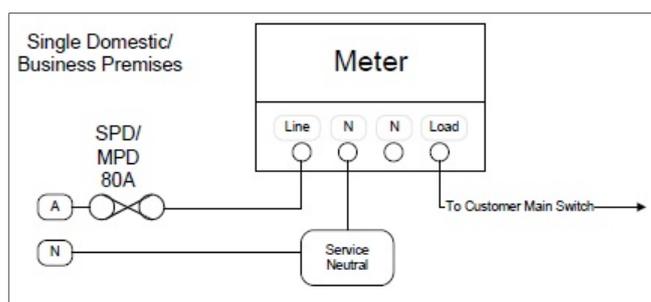


Figure 2-3 Use of Service Protection Device (SPD) and Meter Protection Device (MPD) example of Single Occupancy installation with combined SPD and MPD as per clause 2.8.4



2.9 Multiple Installations

[Previously 4.14]

Examples of multiple installations are:

- (a) Multiple residential installations which include: a number of single domestic installations. Single domestic installations include a flat, unit or duplex unit
- (b) Groups of small shops and/or offices
- (c) Shopping malls
- (d) Factory units
- (e) Combinations of the above.

For large multiple installation developments, contact the electricity distributor and MC as early as possible to prevent delays for connection of electricity.

The customer must provide for supply to each separately metered portion of an installation that is supplied from a single Point of Connection.

If the main switches have to be installed on the line side of the service protection device (before or after the upstream active links) the main switches must be rated to withstand the nominal short circuit currents.

2.9.1 Meter Protection Device

Meter protection devices must only protect a single meter installation. Refer to Table 2-1.

2.9.2 Arrangement of Metering Neutrals

Each metering device must be supplied by a separate neutral conductor. The neutral conductor must be connected to a separate terminal of the service neutral link, or an addition neutral link that will serve as a meter neutral link.

2.9.3 Paralleling Links

A customer may install paralleling links to facilitate changes to metering arrangements.

The links must be readily accessible as defined by AS/NZS 3000 and provided with sealing

facilities. Customer's equipment must not be location behind the CT compartment access door or cover.

Each paralleling link and connecting cable must be labelled to identify the particular portion of the installation connected to it. All paralleling links must be arranged in a single group, on a panel in close proximity to the associated meter group.

2.9.4 Mounting Provisions for Meters

Switchboard panels hinged, fixed or removable must be non-metallic and comply with AS/NZS 3000.

2.9.5 Unmetered Submains

The customer is to provide facilities for sealing or locking of all covers etc, providing access to unmetered equipment. The customer must be able to replace any unmetered fuse link or operate circuit breakers without the removal of the seal or lock.

The customer is responsible for the cost of such locks.

Refer to clause 2.11 for sealing details.

2.9.6 Labelling

For multiple installations, service equipment and any meter panels must be clearly and permanently labelled to indicate occupancy identification in accordance with clause titled 'Labelling' of the Service and Installation Rules of NSW for all equipment to be mounted on the panel.

2.9.7 Service Equipment Requirements

Adequate space is to be maintained around all service equipment to facilitate its safe operation and maintenance including adequate allowance for heat dissipation

2.10 Spacing between Metering Equipment and High Current Conductors

[Previously 4.15]

External magnetic fields may damage metering equipment. The following minimum spacings between metering equipment and current carrying conductors must be provided and maintained.

2.10.1 Multicore and Bunched Single Core Cables

No special requirement for spacing is needed where the separation between all conductors of

a circuit is due solely to the solid insulation and sheathing on the conductors, (e.g. multicore cables or a group of single core cables in flat or bunched formation).

2.10.2 Spaced Single Core Cables, Busway or Busbars

Where the separation between conductors of the same circuit exceeds that in clause 2.10.1 but does not exceed 160mm, refer to Table 2-1.

Table 2-2

Maximum Current in Conductor Nearest to Meter (A)*	Minimum Spacing between Conductor and Meter (mm)
150	Nil
200	100
400	500
600	700
1000	900
1500	1200
2000	1400
3000	1700
4000	2000

*The maximum current in the conductor is determined by the AS/NZS 3000 maximum demand for consumers mains and submains.

Table 2-2 gives the minimum spacing between any point on the metering equipment and any point on the nearest conductor of the circuit. Calculate the intermediate measurement proportionally.

2.10.3 Shielding

Spacings determined under clause 2.10.2 may be reduced if the meters or conductors are mounted within a suitable shielding enclosure.

Determine the spacing by multiplying the value from clause 2.10.2 by a factor. Table 2-3 indicates the multiplying factors for various thickness of mild steel. If other thicknesses or materials are proposed, the electricity distributor will determine the factor.

Table 2-3

Thickness of Mild Steel Plate (mm)	Multiplying Factor
5.0	0.25
2.5	0.5
1.2	0.75

e.g. using a 1.2mm thick shield reduces the minimum spacing between a meter and a 4000A conductor from 2m to 1.5m (spacing) 2000×0.75 (multiplying factor) = 1.5m.

2.10.4 Special Cases

Avoid spacings in excess of 160mm between the centres of conductors of a circuit near meters. If you can't do this, submit the details in writing to the MP, who will determine the spacing requirements from the metering equipment for you.

Some types of meters may not need the listed requirements which may be waived by the MP.

2.11 Sealing of Metering Equipment

Security seals MUST not be removed by persons without authorisation/permission from the owner of the seal.

Where seals are broken, the entity that has broken the seal is responsible for arranging the resealing upon completion of work.

[Previously 4.16]

All service and metering equipment, unmetred links and paralleling links must be sealed in an approved manner. Nylon/plastic sealing wire will generally be used.

Seals on a service protection device that are broken must be re-sealed by an authorised person. This may be a MP, Level 2 authorised service provider or the electricity distributor. A charge may apply.

The customer must suitably enclose and provide for sealing of all equipment installed on the line side of the meters, and all metering connections.

This clause is not intended to prevent MPs from removing and replacing seals in accordance with national metrology requirements and procedures.

2.11.1 Multiple, Single and Large Installations

The customer's qualified representative must be able to replace ruptured unmetred fuses, without authorised specialist personnel attending to remove seals and reseal equipment. Sealable escutcheon panels may be used with either front or back connected fuses or circuit breakers to allow this.

Individual items of equipment such as unmetred links must be sealed. In some cases, it may be better to provide a sealable cover or panel over equipment which the customer does not need to access for maintenance.

2.12 LV Current Transformer Metering

[Previously 4.17]

Where the assessed load of an installation or portion of an installation to be separately metered exceeds the current rating of the

metering equipment, the MP will require that the meter be a current transformer (CT) type.

The customer must provide the facilities for the mounting and connection of the current transformers, meters and associated equipment

in accordance with the requirements of these rules and the MP.

The customer is responsible for the provision and installation of:

- (a) All equipment mounting facilities.
- (b) Meter panels.
- (c) Voltage circuit fuses (10A current limiting (HRC)) suitable for sealing.
- (d) Meter links - used for metering purposes where the service neutral link cannot accommodate all the neutral cables associated with metering.
- (e) All cabling to the specified identification code fully connected to the equipment.
- (f) The CTs.
- (g) The meter test block - used to allow in circuit testing of CT metering systems.

The MP will specify:

- (a) The type of CTs.
- (b) The meter test block.
- (c) The meter equipment to be provided.

2.12.1 Design Considerations

Where it is necessary to meter other sections of the premises using whole current meters, the take-off PCC to the MPDs must be on the line side of the CT metering. It is not permitted to have the PCC on the load side of a CT and pass cables through the CT in the reverse direction.

Where the primary conductor is an insulated cable, sealable links must be used. The wiring to the meter protection device must be connected at these links.

The MPD must:

- (a) Be mounted either on the busbar or on an adjacent insulating panel.
- (b) Be capable of being withdrawn towards the operator.
- (c) Not impede access to the metering current transformers or other equipment.
- (d) Be sealable in accordance with clause 2.11.

2.12.2 Current Transformer Facilities

Metering CTs must be:

- (a) Mounted in a suitable enclosure segregated from the meters and switchboard equipment.
- (b) Installed on the load side of the service protection device.

Attention must be paid to additional space requirements to terminate large conductors.

2.12.3 CT Enclosure - Construction

The CT enclosure must be constructed so that a tool or article accidentally dropped by a person working on the connections cannot fall from the CT compartment into other areas of the switchboard.

CTs should be segregated from other equipment. No part of the electrical installation, including any measuring instruments and control devices, is permitted within the CT enclosure, except the customer's measurement current transformers.

Do not mount the customer measurement transformers on the removable section of the busbar provided for the metering transformers or impede access thereto.

For other situations apply to the MP.

These requirements also apply to the unmetred sections of a cubicle type switchboard.

All live conductors within 300mm of the secondary terminals, voltage circuit fuses and metering neutral link must be insulated or screened to prevent inadvertent contact. Convenient access is required for removal of CTs. These requirements may be met by the provision of a removable screen of light insulating material with openings shaped to fit over the CT secondary terminals and associated wiring. The secondary terminals, voltage-circuit fuses and metering neutral link must be accessible without removal of the screen. Where a screen is used it must be fitted with two insulated handles and be secured to the switchboard.

2.12.4 Vermin Proofing

All entries to the CT compartments/enclosures should be fitted with suitable gland plates, barriers etc, to prevent pests from entering.

2.12.5 Doors and Access Cover

Provide doors and access covers that are easy and safe to open or remove. If they are hinged, they must be capable of opening to 90° minimum.

Access covers must not be greater than 1 square metre in area. The length must not exceed 1500mm. Fit a handle to each side of the cover, slightly higher than its horizontal centre line.

Provide fixings so that the cover remains in position when the fasteners are released or removed.

2.12.6 Identification of Enclosures

The customer must provide identification for the CT metering enclosure.

The cover, whether hinged or removable, must:

- (a) Be marked "Metering CTs Enclosed".
- (b) Clearly identify the customer.

Fix a similar label adjacent to the CTs.

2.12.7 CT Security Locking or Sealing

The CT compartment and unmetred sections of a switchboard/installation must be sealed or locked as follows:

(a) The CT access covers and unmetred sections must be appropriately secured where located outdoors or remote from the meter position. This can be achieved by lockable doors that are secured with appropriate accredited MP locking system and sealed access covers. The customer can lock to add extra security to prevent unauthorised operation.

(b) The CT access covers and unmetred sections may be sealed where located within a building.

The sealing facilities must be designed so that they can be sealed with short lengths of sealing line.

Provide sealing for:

(a) A door - at the side of the door opposite to its hinged edge.

(b) A removable cover - at two approximately diagonally opposite points on the cover.

2.12.8 CT Location and Access

Locate CTs, removable busbars, voltage- circuit fuses, and neutral links so that they are:

(a) More than 500mm.

(b) Less than 2500mm

from the ground floor or platform of access.

2.12.9 Voltage Circuit Protection

The customer must provide and install all the links and the voltage circuit protection fuses.

All fuses must be:

(a) a 10A current limiting (HRC) fuse type NS to AS 60269.3.0 and AS 60269.3.1, in an enclosure with class IP2X to AS 1939 'Degrees of protection provided by enclosures for electrical equipment (IP Code)', or

(b) a Class G current limiting (HRC) fuse links in a modular fuse holder complying with IEC 269 - Part 2.

A 10A current limiting (HRC) fuse link must be installed in either option.

Fuses must be suitable for sealing the fuse-link holder to the base. You can provide a sealable cover over all the fuse assemblies. The fuses should be installed so that they are extracted

away from the face of the panel and towards the operator.

WARNING

Remove the fuse links from the fuse link holders and tie them nearby. Insert the holders into the fuse bases. The authorised person will install the fuse links when commissioning the metering installation.

Mount the voltage circuit fuses on a panel of insulating material. They must be located in an accessible position to enable their safe withdrawal whilst the supply is energised and be as close as practicable to the current transformers that they are associated with.

Provide a clearance of between 100mm (minimum) to 300mm (maximum) between the panel and the enclosure door.

Alternative forms of voltage circuit fuse mounting include:

(a) "DIN" rail.

(b) Securely fixed on a steel bracket provided the mounting screw hole is covered with a suitable insulating material.

2.12.10 Current Transformers

The CTs must comply with Chapter 7 of the National Electricity Rules. Fig 2-4 details the dimensions of the various CTs available.

Where the MP does not provide the CTs, the customer must provide the MP with test results in accordance with Chapter 7 of the National Electricity Rules.

WARNING

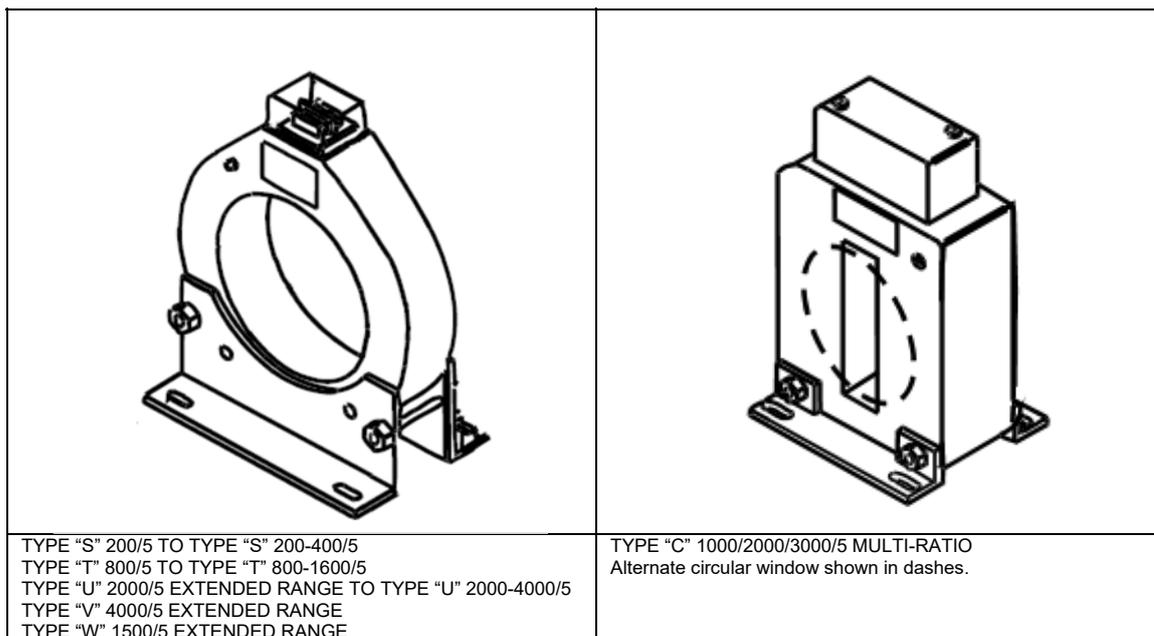
Never open-circuit the secondary terminals of a CT while the primary winding is energised because a very high voltage will be induced. This voltage is likely to give the person working on it a severe electric shock and cause damage to the CT insulation.

The secondary terminals of the CTs are to be short-circuited to prevent inadvertent damage and shock. The bridges are to be removed when commissioning the metering installation.

Retain the short-circuit of the secondary terminals when connecting the secondary current conductors, if supply is connected.

The CTs must be mounted with the polarity marks P1, L or a distinctively coloured dot adjacent to the terminals facing the incoming supply. The operating range of extended range current transformers must not be exceeded.

Figure 2-4 Current Transformer Details

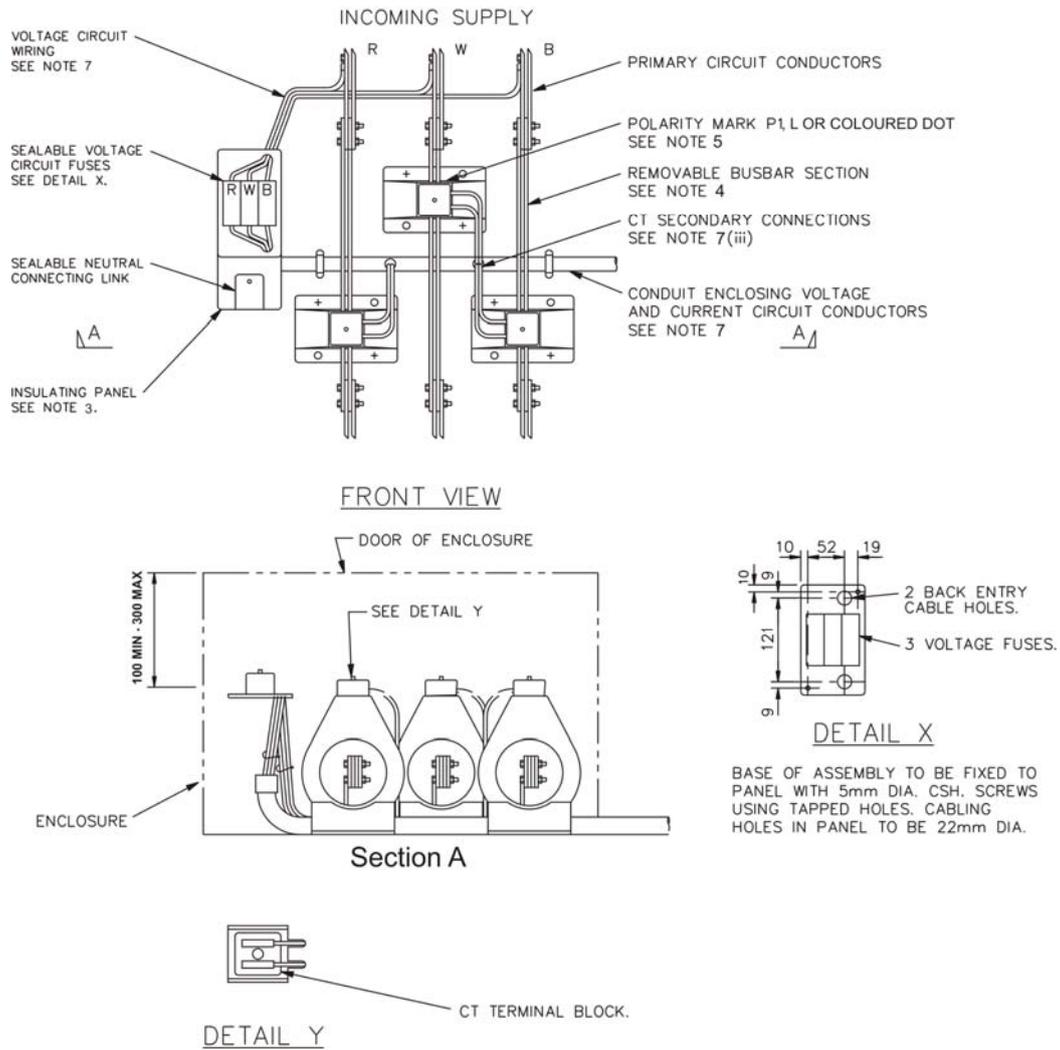


<p>Notes</p> <ol style="list-style-type: none"> Chapter 7 of the National Electricity Code Rules specifies the type of CTs to be used. Before proceeding with the manufacture or design of any switchboard assembly, requiring the use of metering current transformers, reference should be made to the electricity distributor. Alternate mounting height of type "S", "T" and "U" current transformers may be available from the electricity distributor. When allowed the feet may be assembled to provide alternative heights "H1" and "H2" between the mounting surface and the centre line of the CT. Opening (dimension "C") maximum height "H2" must be used if busbars pass through opening unless stated by electricity distributor. Polarity. Unless stated by the Metering Provider, each current transformer is to be provided with polarity marks. The transformer must be installed with the polarity marks P1 L or coloured dot facing the direction of the incoming supply. 	<p>Current Transformer dimensions. See table below.</p>
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CTs Commonly Used			
DIMENSIONS	TYPE 'S-45'	TYPE 'T'	TYPE 'W'
A	115	155	165
B-MOUNTING HOLE CENTRES	75	75	75
C	DIA 45	DIA 85	DIA 112
D	54	60	60
E	53	53	53
F	114	165	165
G	55	59	59
H SEE NOTE 3	65 85	85	87 115
J SEE NOTE 3	130 150	175	175 200
K SEE NOTE 3	163 183	210	210 236
L-MOUNTING HOLE CENTRES	80	80	80
M	102	107	107
WIDTH OF MOUNTING SLOT	10	10	10

CTs which may be available, consult Electricity Distributor							
TYPE 'S-SE'	TYPE 'S'	TYPE 'T-SE'	TYPE 'U-SE'	TYPE 'U'	TYPE 'V'	TYPE 'C - SE'	TYPE 'C'
125	115	160	240	240	275	156	156
75	75	75	190	190	225	114	114
DIA 35	DIA 32	DIA 95	DIA 170	DIA 170	DIA 178	Width 35 Height 137	DIA 112
48	48	48	48	48	48	49	49
53	53	53	53	53	53	112	112
110	110	165	254	250	308	162	162
50	55	55	55	55	62	70	70
H1-50 H2-80	80 65	80	130	130	154	105	105 115
J1-110 J2-145	150	185	270	270	325	212	212
K1-145 K2-180	180	210	310	310	370	264	264
80	80	80	125	125	132	95	95
105	105	105	160	160	162	122	122
10	10	10	10	10	10	10	10

Figure 2-5 Mounting of Current Transformer Switchboards - General Requirements



Notes to Figure 2-5

1. This is a typical arrangement of equipment showing how the requirements may be met.
2. Location and access requirements are covered in these Rules.
3. The customer is to supply and mount the voltage circuit fuses and a sealable metering neutral link (if required) to be fixed on a supporting panel.
4. The requirements for the installation of primary circuit conductors passing through the CTs are covered in clause 2.12.12.
5. Each current transformer is provided with polarity marks. The transformers must be installed with the polarity mark P1, L or a coloured dot facing the direction of the incoming supply.
6. The CTs may be staggered as required. The incoming supply may be from any direction.
7. Wiring.
 - (i) All wiring for metering purposes must be installed and connected by the customer's contractor. Under normal circumstances, the switchboard will not be energised until approved by the electricity distributor.

- (ii) The insulated and sheathed cables between voltage circuit fuses, meter neutral link and primary circuit conductors must be adequately supported. The requirement for sheathing may be met by using PVC insulated cable enclosed in 6mm diameter clear PVC tubing with a wall thickness of 1.5mm. Apart from the connections a clearance of 25mm (min) must be maintained from the busbars apart from the connection.
- (iii) The current circuit cables must be supported between the conduit and terminal blocks by tying them together. The CT meter circuit cables are to be colour identified or numbered.

Safety screen when used is not shown in Figure 2-5

2.12.11 Mounting of Current Transformers

The customer must provide the mountings for the CTs.

The mountings may use fixed studs or threaded holes tapped in a suitable mounting plate. Dimensions for the mounting centres are shown in Table 2-4.

Where the primary conductor is a busbar the CT mounting plate may be adjustable to allow for the different mounting heights of the CT suitable for the maximum current rating of the switchboard.

The mountings must consist of 6mm (min) to 9mm (max) diameter studs, secured by brazing, or equivalent means, to a mounting plate or bar, together with nuts.

Alternatively, threaded holes at two diagonally opposite corners of a mounting plate, and slotted or hexagon-headed set screws with a diameter of between 6mm (min) to 9mm (max.) are acceptable. In this case, provide dowels at the other corners to support the CTs while the set screws are removed.

Two methods of mounting current transformers are acceptable, these are:

- (a) In-line where the bodies of each CT are in one line.
- (b) Staggered where the centre phase CT is offset from the other two.

Refer to Figure 2-5 for details.

2.12.12 Primary Conductors

Provide a removable section of busbar through each CT.

Do not connect any wiring to the removable section of the busbar or the bolts or fixings which secure it.

Select the size and shape of the busbar to suit the openings in the type of CTs specified by the electricity distributor or MP.

The length of the removable section of busbar must be:

- 300mm (min) to 450mm (max) in length for CT types A, B, C, S, T and W.

Alternatively, you can use an insulated cable as the primary conductor passing through each CT. Arrange the cable so that the CT can be removed. Do not use more than 1000mm of cable from the CTs to the location of the line side cable connection.

The surfaces to which these conductors will be connected must be either copper or suitably plated copper or copper alloy. They must be free of any painting, coating or covering.

You must be able to connect and disconnect the CTs without using any tools except an adjustable or socket type spanner.

2.12.13 Cubicle Switchboard enclosed Current Transformers

The following additional requirements apply when CTs are installed in a cubicle type switchboard.

The switchboard manufacturer must submit drawings to the MP including the location of metering CTs. The equipment must be readily accessible from the outside of the cubicle.

Connections to the:

- (a) CT secondary terminals.
- (b) Voltage circuit fuses.
- (c) Meter neutral link

must not be more than 300mm from the plane of the access panel or doorway.

The cubicle or section of the switchboard allocated for the MP's use must be separated from the customer's portion of the switchboard by means of a suitable barrier(s).

No part of the electrical installation is permitted within or on the MP's section of the switchboard except as permitted in clause 2.12.3.

The MP may require arrangements for an inspection of the switchboard at the switchboard manufacturer's premises.

This is a preliminary inspection and a final inspection will be made when installed on site.

Access arrangements must also comply with clause 2.2.

2.13 Metering Panel Location and Access for CT Metering

[Previously 4.18]

The customer must provide and install a hinged meter panel where CT metering is required. The meters and their associated equipment for each separately metered part of the installation must be kept together.

Locate the meter panel so that:

- (a) The height of the top edge of the meter above the ground, floor or platform level is not more than 2 metres.
- (b) The bottom of the lowest part of metering equipment is at least 0.6 metres above the ground, floor or platform except where otherwise approved by the MP.

Provide a minimum clearance of 175mm from the face of the hinged panel to the inside face of any enclosure.

Provide a minimum distance of 200mm from the face of the panel to any fixed object when the panel is open 90 degrees on its hinges.

The metering panel must not be installed in a location subject to high intensity magnetic fields. The minimum spacing between meters and current carrying conductors set out in clause 2.10 must be provided and maintained.

The requirements set out in this Section for service and metering equipment will also apply to the installation, grouping, accessibility, location, and protection of CT meter equipment and meter panel.

2.13.1 CT Meter Panel

The customer must provide a meter panel (550mm X 550mm) or greater for a single metering installation (which includes check metering when required).

The panel must:

- (a) Be of suitable insulating material.
- (b) Be hinged on the left or right-hand side.
- (c) Be mounted on a surround made of 1mm (min) zinc coated steel to provide a clear depth of 75mm (min) behind the panel.
- (d) Be pre-drilled to suit the installation of the proposed metering instruments.
- (e) Only CT metering and associated equipment is permitted on this panel.

The panel may form part of the main switchboard.

Any door fitted to a metering enclosure must be labelled "Electricity Meters".

2.14 Facilities for Connection of CT Metering Equipment

[Previously 4.19]

Error! Reference source not found. shows a typical wiring diagram for CT metering.

The customer must provide and install all wiring necessary between the CT position and the CT meter for each separately metered part of the installation. Provide sufficient length to make the connections to the meters.

Insert 75mm of cable through the appropriate holes in the meter panel and bare 20mm of insulation from the ends.

The wiring must be 0.6/1 kV, PVC insulated, stranded copper conductor of cross sectional area as shown in Table 2-4. Each of the insulated conductors must be visually distinguishable by size, colour and/or number marked on the insulation at regular intervals throughout its length. Refer to Table 2-4.

Sheathing of the voltage and CT secondary cables is required by AS/NZS 3000 and AS/NZS 3808 Insulating and Sheathing Materials for Electric Cables. Clear PVC tubing with a wall thickness of 1.5mm may be used to make the identification visible.

The conductors must be:

- (a) Single insulated conductors enclosed in conduit, or
- (b) Multi-core cables.

Do not include any wiring for purposes other than the current and voltage circuit wiring in the conduit or sheath protecting this wiring, with the exception of the earth conductor for earthing the meter enclosure.

The conduit or cable(s) must be open to view, unless the electricity distributor approves otherwise.

2.14.1 Protective Enclosure

Wherever possible, the protective enclosure for the voltage and current circuit wiring should be:

- (a) A surface-run PVC conduit, or
- (b) The plastic sheath of multicore cable.

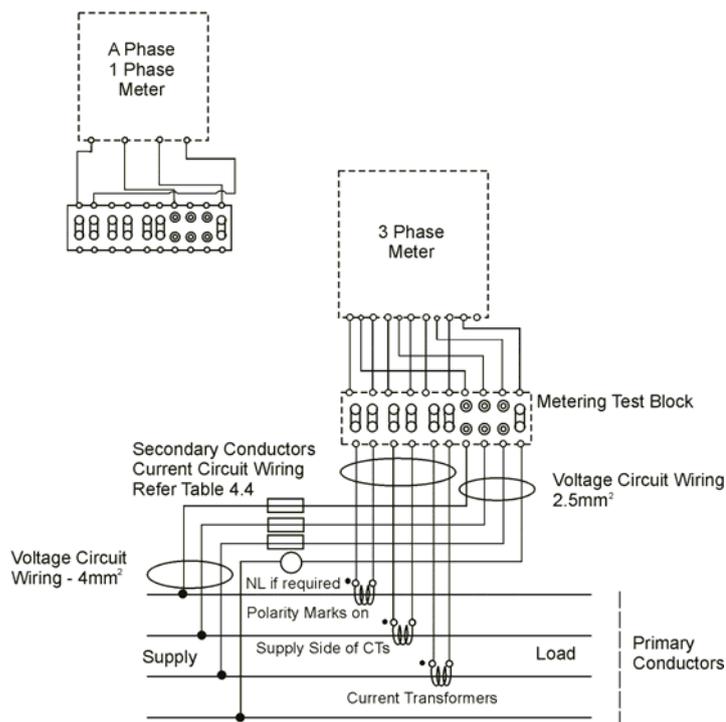
The conduit or sheath must be installed in accordance with AS/NZS 3000.

Where surface-run wiring is not practicable or additional protection is required the cable must be installed in heavy duty UPVC conduit.

Where installed underground the conduit must be laid at a depth of 500mm except where encased in concrete.

Figure 2-6 Typical Wiring for Current Transformer Metering

Three Single Phase Meter Installation
with A Phase Meter only shown for clarity

**Table 2-4 Identification Coding of Cabling for CT Metering**

Use	Size	Circuit	Identification Code		No. of Conductors	Installation
			Option 1 (Colour)	Option 2 (Numbering)		
Voltage Circuit (Fuse to Test Block to Meter)	2.5 mm ² (no limit on route length)	A phase B phase C phase Neutral	red white blue black	7 8 9 10	4 per CT metered position (includes a neutral)	Single cables in common conduit with current circuit cables or 1 multicore
Current Circuit (CTs to Test Block to Meter)	Refer to Table 2-5	A polarity A non-polarity B polarity B non-polarity C polarity C non-polarity	red black white orange blue grey	1 2 3 4 5 6	6 per CT metered position	Single cables in common conduit with voltage circuit cables or 1 multicore.
Earthing	2.5 mm ² (no limit on route length)		Green/yellow	Green/yellow	1 per CT metered position	With voltage circuit or separately with cable run
Summation Equipment	1.5 mm ² (no limit on route length)		coloured or numbered	coloured or numbered	6 per remote CT metered position	Single cables in conduit or 1 multicore
Contactor Control Wiring	2.5 mm ²		red or black	red or black	1 per CT metered position	Twin cables in one sheath

Notes to Table 2-4:

1. Voltage circuit wiring in Figure 2-8
2. All cables must have stranded copper conductors.
3. Where Option 1 identification code of cables is used the current circuit cable size cannot be the same as the voltage circuit.
4. The voltage and secondary current circuits are to be numbered or colour coded throughout their entire length.

2.14.2 Current Circuit Wiring

The customer must install six CT secondary current circuit conductors between the CTs and the meter panel (see Table 2-4).

The cross-sectional area required for the CT secondary circuit conductors is dependent upon:

- The route length of the wiring between the meter panel and the CTs.
- The transformer characteristics.

It must not be less than that shown in Table 2-5.

Note: Existing 4 wire current circuit wiring systems do not require upgrading to a 6 wire system for a meter change in the existing installations.

Table 2-5 Maximum route length of Current Circuit Wiring (m)

* Maximum demand up to & including 400A	* Maximum demands in excess of 400A	Conductor csa mm ²
10	20	2.5
16	32	4
25	55	6
40	90	10

*The maximum demand must be determined in accordance with AS/NZS 3000 unless otherwise advised by the electricity distributor. Consult the electricity distributor if the route length is likely to exceed these values.

2.14.3 Voltage Circuit Wiring

The customer must provide the following facilities:

2.14.3.1 Primary Conductor to Fuse

Install a single core insulated and sheathed 4mm² cable between each primary conductor and the voltage circuit fuses.

Sheathing may be achieved by using single core insulated cable enclosed in 6mm diameter clear PVC tubing with a wall thickness of 1.5mm.

Make the connection to the primary conductor on the line side and as close as practicable to each current transformer. Refer to Figure 2-6 and 2-8.

The cables must be:

- No longer than 500mm as specified in AS 3439.1 'Low-voltage switchgear and control gear assemblies - Part 1 Type-tested and partially type tested assemblies'.
- Connected to the voltage circuit fuses.
- Protected against mechanical damage.
- Rigidly supported.

2.14.3.2 Fuse to Meter

Install four voltage circuit conductors, identified as per Table 2-4, from the voltage circuit fuses and the neutral link to the meter panel.

2.14.3.3 Neutral Cable

The customer must provide a connection facility for the metering neutral conductor. It must be in a readily accessible location close to the CT position.

The connection facility may be:

- A suitable tunnel terminal, or
- A set screw in a neutral bar. The neutral bar may be the neutral conductor for the whole installation or for the portion of the installation being metered.

Alternatively, the connection facility may be in the form of a suitable neutral link installed on the same panel as the voltage circuit fuses. It must be connected by means of 2.5mm² cable to an approved neutral conductor as follows:

- Connect the neutral cable to a busbar using a suitable lug.
- Secure the lug with a 6mm diameter set screw into a tapped hole.
- Make the connection clearly visible from the position of the current transformers.

2.14.3.4 Sealing

Provide separate sealing facilities for these connections if they are not contained within a sealed portion of the switchboard.

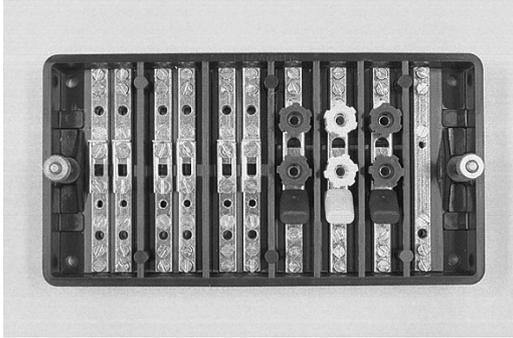
2.14.4 Meter Test Block

The customer must provide and install a meter test block at the meter panel.

The test block must:

- Be front connected with a current, rating of 20A and a voltage rating of 660V.
- Comply with AS/NZS 3000.
- Be capable of accepting two external slide links and have the facility to short each current circuit.
- Be fitted with a slide link and two insulated nuts for each voltage circuit.
- Have a solid bar without slide link for the neutral circuit.
- Have a sealable insulated cover that when in position no conductor or any mounting screw is exposed.

Make the connection of the current circuit and voltage circuit wiring as required by the MP. Refer to Figure 2-7 for an example of a meter test block.

Figure 2-7 Example of a Meter Test Block**2.14.5 Summation Equipment Wiring**

Refer to the MP for details of their summation metering requirements.

2.14.6 Load Control Device and Contactor Wiring

If you provide a contactor in accordance with clause 2.15 you must install a pair of 2.5mm² cables between the CT metering panel and the contactor as follows:

- (a) The contactor must comply with the requirements of clause titles 'Load Control Equipment' of the Service and Installation Rules of NSW.
- (b) It must be controlled and protected by a suitably rated 10A circuit breaker, both of which have provision for sealing.
- (c) The pair of cables for the contactor may be grouped with other metering cables provided they are visually distinguishable from them.

2.14.7 Earthing of Meter Surround

The customer must connect an earthing conductor to the metal surround of the meter panel in accordance with the provisions of AS/NZS 3000.

2.14.8 Supply for National Electricity Rule Compliant Communications Equipment

Where code compliant CT metering is installed, unmetered supply may be taken for rule compliant data and communications equipment only. This equipment must be connected to a sealable link on the load side of the meter test block (between the test block and the metering).

Where rule compliant whole current metering is installed, metered supply must be taken for rule compliant data and communications equipment. This equipment must be connected to a metered link on the line side of the main switch.

Communications which requires mains supply equipment must be protected by a sealable current limiting (HRC) fuse or circuit breaker with a maximum rated current of 4A (to grade with the 10A current limiting (HRC) meter potential fuse, where CT metering is installed). This equipment does not need to be controlled by a separate main switch and must be hard wired to the supply (socket outlets are not permitted).

Alternatively, communications equipment integrated in the meter may obtain a protected supply internally from the meter.

2.15 Controlled Load for CT Metering

[Previously 4.20]

The customer must supply and install a contactor if electricity is to be supplied (in accordance with the provisions of a tariff) to a CT metered portion of an installation only during certain hours.

Arrange the contactor so that it is operated by the electricity distributor's nominated load control device. The contactor must be of a type approved by the electricity distributor and have:

- (a) The terminals and mechanism enclosed in a manner which facilitates sealing.
- (b) A 240 volt operating coil and be designed to close and open simultaneously with the load control device.

Install the contactor at the meter position or, alternatively, adjacent to the controlled load current transformers. A typical wiring diagram of a CT metering installation with a controlled load contactor is shown in Figure 2-8.

Figure 2-8 CT Metering Circuit with Controlled Load

