Procedure

Engineering Standard E-PRO-STD-001 Cable Numbering Convention

Document number: PRO-02389

Ver No.	Description	Document Owner		Document Approver		
		Position	Approval	Position	Approval	Approval Date
2	Amended Version	Lead Electrical Engineer - P6250	Refer to supporting Info in REX	Principal Engineering Standards and Assurance	Refer to supporting Info in REX	27/01/2026
This Engineering Standard was endorsed an RPEQ on behalf of Seqwater.						

Version History

Ver	Date	Description	Author	SME	Owner	Approver
1	1/11/2019	Initial Release				
2	27/01/2026	Amended Version				

(Refer Controlled Document in REX for Author, SME, Owner and Approver details)

Contents

1. Purpose

This document is part of a suite of Seqwater Engineering Standards which are in alignment with the Seqwater Quality Management System. Their purpose is to provide a consistent approach to the development, modification, and management of Seqwater infrastructure that is fit for purpose, economic over the life of the asset, and meets Seqwater's risk appetite and compliance requirements including Work Health and Safety obligations.

The purpose of this Procedure is to define the minimum requirements and recommendations for cable numbering to be used in Seqwater electrical systems.

This document must be used in conjunction with the documents it references to assist in ensuring fit for purpose infrastructure. This Procedure is not intended to be relied on solely for design, supply, and installation works; advice from specialist engineers and/or manufacturers may be required on a case-by-case basis.

2. Scope

This Procedure applies to all Seqwater employees, contractors, suppliers and consultants working for, or on behalf of, Seqwater unless otherwise stated. Deviation from the requirements in this Procedure requires written agreement from Seqwater as per the deviation process detailed in *X-PRO-STD-008 Asset Standards Management and Application*.

Seqwater undertakes regular updates of its Engineering Standards. Before utilising this Procedure, the complete list of Seqwater Engineering Standards should be reviewed to ensure currency and applicability of standards to be applied to the works. These can be accessed on the Waternet Seqwater Engineering Standards & Framework page or from your Seqwater project manager, design manager, or engaging officer.

Advice must be sought from the Seqwater Document Owner as listed in the document footer, via the Engineering Mailbox to clarify any ambiguities in relation to this Procedure.

This Procedure applies to power, instrumentation and control cables that form part of the installation cabling on Seqwater sites.

This Procedure does not apply to numbering of individual cores within a multicore cable, or numbering of internal wiring entirely within a switchboard or electrical/control enclosure. Refer to E-SPE-STD-001 Electrical Design and Construction (SPE-00352) and standard template drawings for core and wire numbering conventions.

This Procedure does not apply to network communication cables. Refer to I-SPE-STD-013 Control Systems Design and Construction (SPE-00361) for numbering of network communication cables.

3. Cable Numbering

Seqwater's electrical system cable numbering philosophy is to retain the equipment numbering generated using *X-PRO-STD-006 Equipment Numbering and Naming Convention* throughout the electrical system.

Changes brought to equipment numbering, via formal change management (as per X-PRO-STD-009 Engineering Design, Construction, Operation and Maintenance Procedure (PRO-01617) and Management of Change (Technical) Procedure (PRO-02234)) must cascade to changes in the electrical cable numbering.

To achieve integration with Seqwater equipment numbering conventions, information management systems and existing electrical cable numbering, all electrical cable numbering must be developed and documented as part of the electrical system design and engineering process, following the processes defined in X-PRO-STD-009 Engineering Design, Construction, Operation and Maintenance Procedure (PRO-01617) and Management of Change (Technical) Procedure (PRO-02234).

For any cable installation, a cable tag displaying an identical cable number must be displayed at both ends of the cable.

3.1. Cable Numbering – Power, Instrumentation and Control

This section applies to power, instrumentation and control cables that form part of the Seqwater cabling installation, with the exception of lighting and small power final sub-circuits that are covered in section 3.2.

The cable numbering must consist of a 'device name', 'service code' and a 'unique index number' with a single core cable code if required:

NNNNNNNN-Zuuupp

Where:

NNNNNNNN = Device Name

Z = Cable Service Code

uuu = Cable Unique Index Number

pp = Single Core Cable Code

Table Error! No text of specified style in document.**-1– Cable Numbering Example**

Cable Number	Description
E8DBR102-P1	Electrical equipment power cable 1 from Main Switchboard to L&P Distribution Board TNP-E-8DBR102 main switch.
M2PMP004-C1	Mechanical equipment 24VDC control cable 1 from MCC to pump TNP-M-2PMP004 emergency stop button.
I2FIT201-A1	Instrumentation equipment 4-20mA analogue signal cable 1 from PLC RIO to Flowmeter TNP-I-2FIT201.

3.1.1. Device Name

The Device Name (NNNNNNNN) is a modified version of the Equipment / Instrumentation Number in X-PRO-STD-006 Equipment Numbering and Naming Convention Procedure (PRO-02190) with the facility code

removed, and the hyphens removed from around the Equipment Designation. (Exception: For cables that span from one facility to another, retain the Area/Facility code and the hyphen following the Area/Facility code.)

The device name used in the cable number will be that of the subordinate equipment that is being powered/monitored/controlled by the cable.

An example at North Pine WTP of a pump being powered from a MCC is shown below.

Table Error! No text of specified style in document.**-2 - Device Name from Equipment / Instrumentation Number**

Equipment / Instrumentation Number Source	Equipment / Instrumentation Number Destination	Cable Number
TNP-E-8MCC002	**TNP-M-2PMP004**	**M2PMP004-P1**

Refer X-PRO-STD-006 Equipment Numbering and Naming Convention Procedure (PRO-02190) for details on equipment and instrument naming.

3.1.2. Cable Service Code

The Service Code (Z) is a letter to describe the general type of cable. For example, "P" for Power Cables, "C" for Hardwired Electrical Control Cables. Appendix A – Cable Service Codes contains a full listing of service codes.

3.1.3. Cable Unique Index Number

The Cable Unique Index Number (uuu) is a numerical identifier of one to three digits used to distinguish between multiple cables with the same service code connected between the same equipment. If there is only a single cable used for a particular service connected between two particular pieces of equipment, the index number will be '1'. Leading zeroes are not required in the cable unique index number.

3.1.4. Single Core Cable Code (pp) – If Required

In the case of power circuits made up of single core cables:

- Use a common unique index number for the circuit; and
- Add a Single Core Cable Code as a suffix for each single core cable as per the example.
- If there are multiple parallel single core cables per phase, add a further digit after the single core cable code to enumerate each parallel single core cable on that phase.

Table Error! No text of specified style in document.**-3 – Single Core Cable Codes Explained**

Single Core Cable Code	Description
R	Red Phase
W	White Phase
B	Blue Phase
N	Neutral
E	Earth
POS	DC Positive
NEG	DC Negative

Table Error! No text of specified style in document.**-4– Single Core Cable Number Example**

Cable Number	Description
E8MCC101-P1B2	Electrical equipment circuit from transformer to MCC 101, blue phase, second single core cable on blue phase.

3.2. Cable Numbering – Lighting and Small Power Circuits

This section is not applicable to instruments and equipment for which a specific equipment number may be generated.

Lighting and small power circuits supplying devices **without** equipment numbers must be numbered in accordance with the following:

NNNNNNNN\CBxxx-yy

Where:

NNNNNNNN = Distribution Board Device Name

CBxxx = Circuit Breaker Number

yy = suffix for each sequential cable from the same Circuit Breaker (where required)

Table Error! No text of specified style in document.**-5 – Lighting and Small Power Cable Number Example**

Cable Number	Description
E8DBR102\CB8-01	Cable from L&P DB TNP-E-8DBR102, circuit breaker Q8 to the first light fitting of the circuit
E8DBR102\CB8-02	Cable from first light fitting to second light fitting.
E8DBR102\CB9-01	Cable from L&P DB TNP-E-8DBR102, circuit breaker Q9 to first GPO
E8DBR102\CB9-02	Cable from first GPO to second GPO
E8DBR102\CB9-03	Cable from second GPO to third GPO
E8DBR102\CB13	Cable from L&P DB102, 3 pole circuit breaker Q13 to 3 phase GPO

3.2.1. Distribution Board Device Name

The Distribution Board Device Name (NNNNNNNN) is a modified version of the Equipment / Instrumentation Number in X-PRO-STD-006 Equipment Numbering and Naming Convention Procedure (PRO-02190) with the facility code removed, and the hyphens removed from around the Equipment Designation. (Exception: For cables that span from one facility to another, retain the Area/Facility code and the hyphen following the Area/Facility code.)

For lighting and small power circuits, the distribution board device name used in the cable number will be that of the distribution board that is supplying power to the cable.

The format of the distribution board equipment number may vary between locations according to existing equipment numbering conventions.

3.2.2. Circuit Breaker Number

The Circuit Breaker Number (CBxxx) identifies the circuit breaker supplying the cable, as per the numbering on the distribution board schedule.

For example, a circuit breaker labelled “Q1” on the distribution board will have an associated Circuit Breaker Number of “CB1”.

3.2.3. Each sequential cable from the same Circuit Breaker

For circuits where there are multiple equipment fed from one circuit (lighting circuits, GPO circuits, etc.), a sequential numerical suffix (yy) unique to each sequential cable shall be added (e.g., “01”, “02”, “03”, etc.). For circuits serving only one light fitting / outlet, etc. the suffix “yy” may be omitted.

3.3. Cable Numbering – Communication

Refer to I-SPE-STD-013 Control System Design and Construction (SPE-00361) for communication cable numbering conventions.

4. Cable Number Designation

When creating new cable numbers, the equipment / instrumentation numbering for connecting assets must be identified. New assets are allocated numbering and naming through the process outlined in X-PRO-STD-006 Equipment Numbering and Naming Convention Procedure (PRO-02190).

All Seqwater electrical systems with cabling installed / modified must have a corresponding cable schedule using E-TMP-STD-004 Cable Schedule Template (TEM-00283). The cable schedule contains important information that is not detailed in the cable numbering tags, such as the source and destination equipment, cable specifications, installation comments, etc.

5. Definitions & Abbreviations

Table Error! No text of specified style in document.**-6 – Definitions and Abbreviations**

Term	Definitions
Contractor	An entity engaged by Seqwater to undertake work in accordance with an agreed contract with a defined scope of work.
Control Panel	A type of a switchboard that may contain ELV and/or LV sources including switching control devices
DB	Distribution Board
Employees	Means persons employed directly by Seqwater in a permanent, temporary or casual capacity.
Fit for purpose	Suitable for the intended purpose and meets the performance requirements set out in this standard and other project documents.
L&P	Light and Power

Term	Definitions
Leader	Means any Level 1, 2, 3 and 4 Leader with responsibility for managing a functional area of the business, including people management responsibilities within their functional area.
Manufacturer / Supplier / Vendor / Original Equipment Manufacturer (OEM)	The entity that manufacturers or supplies equipment to meet the specifications of the Contractor.
Manufacturer / Supplier / Vendor / Original Equipment Manufacturer (OEM)	The entity that manufacturers or supplies equipment to meet the specifications of the Contractor.
MCC	Motor Control Centre
Owner / Principal / Seqwater	The entity that engages the Contractor to undertake the work and takes custody of the outcome. The Owner may delegate responsibilities to other entities to act on its behalf (e.g. a consultant).
Owner / Principal / Seqwater	The entity that engages the Contractor to undertake the work and takes custody of the outcome. The Owner may delegate responsibilities to other entities to act on its behalf (e.g. a consultant).
PLC	Programmable Logic Controller
REX	Seqwater Electronic Document and Records Management System.
REX	Seqwater Electronic Document and Records Management System.
RIO	Remote Inputs / Outputs
RPEQ	Registered Professional Engineer of Queensland
Seqwater Approval / Acceptance	Written sign-off gained via the deviation process, as detailed in X-PRO-STD-008 Asset Standards Management and Application.
Seqwater Approval / Agreement / Acceptance	Written sign-off gained via the deviation process, as detailed in X--PRO--STD--008 Asset Standards Management and Application Procedure (PRO-02205).
Seqwater Engineering Standard	Includes Standard Procedures and Standard Specifications and associated supporting documents such as Standard Drawings, Guidelines, Lists, Datasheets, Manuals, Registers, and Templates.
Shall / Must	Indicates a mandatory requirement
shall / must	Indicates a mandatory requirement.
Should	Indicates a recommendation
should	Indicates a recommendation.
SME	Subject Matter Expert
Switchboard	An assembly of circuit protective devices, with or without switchgear, instruments or connecting devices, suitably arranged and mounted for distribution to, and protection of, one or more submains or final subcircuits, or a combination of both.

Term	Definitions
Worker(s)	Inc Includes all permanent, temporary, and casual employees of Seqwater, and: • vocational and work experience placements • volunteers • suppliers, contractors, and consultants temporarily engaged to do work for or on behalf of Seqwater. ludes all permanent, temporary, and casual employees of Seqwater, and:
Worker(s)	Includes all permanent, temporary, and casual employees of Seqwater, and: • vocational and work experience placements • volunteers • suppliers, contractors, and consultants temporarily engaged to do work for or on behalf of Seqwater.
WTP	Water Treatment Plant

6. Roles and Responsibilities

The following roles and responsibilities in Table **Error! No text of specified style in document.**-7 are applicable in the context of this Procedure.

Table Error! No text of specified style in document.**-7 – Roles and Responsibilities**

Role	Responsibilities
Contractors, suppliers and consultants working for, or on behalf of, Seqwater	• Be aware of and comply with this Procedure
Lead Electrical Engineer	• Responsible for implementation and management of this Procedure
Leaders	• In addition to the responsibilities of a worker, ensure compliance with this Procedure by those they lead
Principal, Engineering Standards and Assurance	• Accountable for implementation and management of this Procedure
Seqwater Change Owner	• Responsible for implementation of this Procedure
Seqwater Project Manager	• Responsible for implementation of this Procedure
Workers / Employees	• Be aware of and comply with this Procedure

7. References and Related Materials

The documents listed in Table 7-8 and the requirements therein, are relevant to this Procedure. In their latest editions, these documents form a part of this Procedure. Note that this is not an exhaustive list of documents relevant to the works.

Table 7-8 - References and Related Materials

Description	Location
AS/NZS 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules)	Intertek Inform
AS/NZS 3008.1.1 Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical Australian installation conditions	Intertek Inform
PRO-01617 Engineering Standard X-PRO-STD-009 Engineering Design, Construction, Operation and Maintenance Procedure	REX
PRO-01872 Engineering Standard X-PRO-STD-002 Engineering Drawing Numbers Procedure	REX
PRO-01873 Engineering Standard X-PRO-STD-001 Asset Standards Document Classification and Naming Structure Procedure	REX
PRO-01874 Engineering Standard X-PRO-STD-004 Development and Review of Asset Standards Procedure	REX
PRO-02187 Engineering Standard X-PRO-STD-007 Drawing and Spatial Data Standards Procedure	REX
PRO-02190 X-PRO-STD-006 Equipment Numbering and Naming Convention Procedure	REX
PRO-02205 Engineering Standard X-PRO-STD-008 Asset Standards Management and Application Procedure	REX
SPE-00346 Engineering Standard B-SPE-STD-003 Commissioning Requirements	REX
SPE-00352 Engineering Standard E-SPE-STD-001 Electrical Design and Construction	REX
SPE-00361 Engineering Standard I-SPE-STD-013 Control Systems Design and Construction	REX
TEM-00224 Engineering Standard X-TMP-STD-022 Asset Standards Deviation Request Template	REX

8. Changes from previous version

This Procedure will be regularly reviewed and updated, including the consideration of requested alterations, in accordance with Seqwater Procedure X-PRO-STD-004 Development and Review of Asset Standards. Changes made from the previous version are summarised in Table 8-9 below.

Table 8-9 – Changes from previous version

Section Number	Change
All	Document reformatted according to the new template.
3	Revised for consistency with X-PRO-STD-009
3.1	Revised code letters and examples for clarity and consistency
3.1.1	Corrected definition of device name to match examples
3.2	Added details related to sequential cables from the same Circuit Breaker and example in Table 3.5
3.2.1	Corrected definition of device name to match examples
3.2.3	New section describing requirements for sequential cables from the same Circuit Breaker
3.3	Communication cable numbering removed from this procedure and will now be covered in I-SPE-STD-013
6	Roles and Responsibilities updated to suit current Controlled Document Procedure and organisational structure
Appendix A	Corrected and simplified definitions of High Voltage, Low Voltage and Extra Low Voltage

Appendix A – Cable Service Codes

Cable Service Code	Description
A	Analogue Instrument Signal
C	Hardwired Electrical Control
D	Digital Instrument Signal
E	Earth (Power earthing, lightning protection, equipotential bonding)
F	Fibre Optic (Refer I-SPE-STD-013)
H	*High Voltage* (as defined in AS/NZS 3000) Power Cables
M	Copper-based Communications (Includes Profibus-DP, Ethernet Cat6a, etc.) (Refer I-SPE-STD-013)
N	Neutral
P	Power Cables at *Low Voltage* (as defined in AS/NZS 3000) or *Extra Low Voltage* (as defined in AS/NZS 3000)