Bulletin 8-8-0
Power Control Systems (PCS)
Rules 2-024, 8-104 5) 6), 8-106 10) 11), 8-500, 64-112, 64-076 and 84-030

Issued May 2026

Scope

1) Background
2) PCS Types
3) Approval of Power Control Systems (PCS)
4) Direction on OESC Rules applicability to PCS

1) Background

A PCS is a type of energy management system (EMS) that electronically controls power or current to limit the system input and/or output and incorporates overload protection or power import / export limiting functionality, ***but does not replace required overcurrent protection devices.***Section 8 of the OESC defines EMS and permits its use provided it complies with Rule 8-500.

The PCS may be entirely integral to equipment such as an inverter, Energy Storage System (ESS) or other type of interconnected device or, may be comprised of separate pieces of equipment that may include a PCS controller, communications*, switching devices that control loads and/or generation sources as well as smart loads such as EVSE; in either case, sensing components such as CT's are typically required to complete the system.

*Cloud based or offsite control of PCS is not permitted for implementation of PCS control setting limits but is permitted per Rule 8-500 3) to control PCS within the set limits as long as the limit is not increased offsite.

2) PCS Types

There are three main types of PCS as described below – PCS may be evaluated to one or more recognized type:

- Single source PCS – prevents overload of a single source of supply by implementation of load management – other uncontrolled sources may be present. Note the grid / utility may be one of these sources.
- Multi-source PCS – prevents system overload where multiple sources are present by controlling each source and/or load
- Power import/power export limiting (PIL/PEL) – used to address LDC interconnection requirements and other control related to energy exchange at point of common coupling(PCC)

Single source and multi-source PCS can incorporate various control functions as listed below:

- Busbar overload control (BBOC) (i.e. to meet Rule 64-112 4) g) i))
- Feeder conductor overload control (FCOC) (i.e. between two panelboards)
- Branch conductor overload control (BCOC) (i.e. between a panelboard and a source or load)
- Single-source overload control (SSOC) (ie load shedding typically with the utility connected as the source of the system)
- PIL/PEL* control (ie control of energy exchange with the grid at the PCC)

*note that single source PCS cannot incorporate PEL control

3) Approval of Power Control Systems (PCS)

Because PCS provides the critical safety feature of overload protection, it is important to ensure the system is evaluated and approved to a product standard that incorporates robust failure analysis and testing to ensure that the PCS continues to deliver a safe level of performance despite events such as power outages, electronic component failures or loss of communications.

Until recently, no Canadian standard for evaluation of PCS existed. In December 2025, Standards Council of Canada introduced ULC-ORD-3141 Power Control Systems as a temporary measure while a bi-national standard (ANSI/CAN/UL 3141) is being developed. At this point in time, ESA is not yet aware of products certified using this new ORD (Other Recognized Document)

Leading up to the creation of ULC-ORD-3141 for Canada, various non-Canadian standards, and iterations of them, have been used in the evaluation of PCS:

- UL1741-CRD-PCS – the Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources – Certification Requirement Decision for PCS – issued in April 2019, this was the initial seed document
- UL3141 - the Outline of Investigation (OOI) for Power Control Systems – issued in Jan 2024 and updated in October 2024, this outline is based on UL-1741 CRD-PCS
- UL3141 Power Control Systems – issue date TBD, expected before end of 2026.
- ULC-ORD-3141 Power Control Systems – issued in December 2025 as an “other recognized document”, this is the Canadian recognized standard based on UL3141
- ANSI/CAN/UL 3141 Power Control Systems – issue date TBD, this will be the bi-national standard

Standard	Acceptance Today	Acceptance after Cut-off Date
UL1741-CRD-PCS – (PIL/PEL Only)	Yes	No
UL3141 (Outline of Investigation)	Yes	No
UL3141	Not published	No
ULC-ORD-3141	Yes	Yes
ANSI/CAN/UL 3141	Not Published	Yes

Cut-Off date = Date to be confirmed.

ESA will accept certification as per the above table until certification to ULC-ORD-3141 or ANSI/CAN/UL 3141 is available.

Question:
Is PCS acceptable for use in Ontario?

Answer:
Yes.

Rationale:
With the recent introduction of the Canadian ORD, it is essential to recognize the use of PCS evaluated to it and other iterations or versions of the PCS standards to allow industry to take advantage of the unique features these control systems offer. Recognizing these standards now has significant benefit to the industry and will lower the cost of installations by making DER's more accessible to more Ontarians.

4) Direction on OESC Rules applicability to PCS

Direction:
Because a PCS is a form of EMS which is recognized and defined in Section 8 of the OESC, there are already Rules in place which govern the installation of PCS. Rule 8-500 requires that the EMS prevent non-compliance with Rules 8-104 5) and 6) and Rules 8-106 10) and 11) provide guidance on calculating loads where EMS is used to control them.
Rule 2-034 requires that all equipment be installed and used in accordance with the manufacturer's instructions and the equipment's certification.
The OESC contains general requirements for overcurrent protection of conductors that are not changed by the addition of PCS to the installation. The use of devices such as

circuit breakers and fuses is still necessary; however, the PCS set limits, rather than the nameplate maximum values, may be used as the design current when sizing conductors and equipment.

When implementing PCS, the following conditions shall apply:

- PCS settings shall be accessible via access-controlled means similar to those for derating of inverters or EVSE and shall meet one or more of the following:
    - Locked doors preventing access to the equipment except by authorized persons;
    - Password protected software – PCS settings must not be accessible to general users of software or apps associated with the system that provide end user control and/or monitoring features; or
    - Tool access covers enclosing hardware settings (dip switches, jumpers, etc.);
- PCS set limits shall be considered to be continuous for application of Rule 8-104;
- PCS controlled conductors and equipment shall be identified on the single line diagram required by Rules 64-076 and 84-030 (see Diagram B1);
- PCS controlled current settings shall be labelled in amps at the panelboard supplying the controlled conductor or at the controlled equipment (see Image B1);
- PCS Control settings shall be demonstrated or accessible to the Inspector upon request (See Image B2 & B3);
- PCS shall be installed in accordance with the manufacturer's specific instructions; and
- Notwithstanding Rule 2-024, non-Canadian standards, as listed above, shall be acceptable for evaluation of PCS for an interim period yet to be determined. Evidence of evaluation to one of the listed standards shall be made available to the Inspector upon request.
- PCS evaluation is in addition to any evaluation of equipment that PCS may be embedded in. For example, a micro-grid interconnected device such as a gateway or site controller containing PCS shows a Canadian certification marking.

Diagram B1 - Single line diagram showing possible PCS controlled conductors

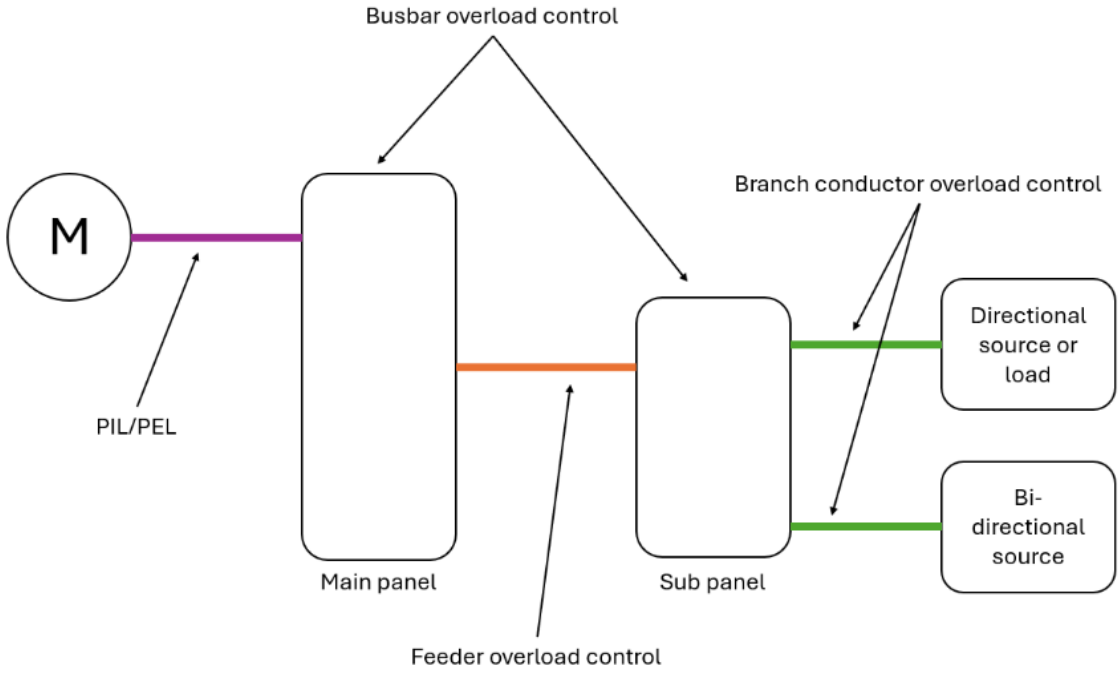

Image B1 - Sample of label to be applied

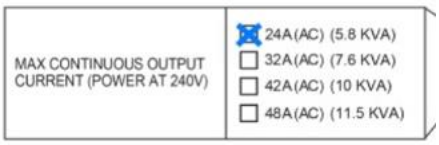

Image B2 - Sample of PCS Control Setting

Installation Summary

Equipment

Site Name	
Site Controller	1707000-11-K--TG12428600317H
Powerwalls	1707000-11-K--TG12428600317H Max Current: 41.7A (10 kW)
Meters	Gateway 3: 1841000-01-D--GF2242900008FX (Site, Site)

Operation Settings

Software Version	25.10.1 6bea8bd4
Mode	Time-based control
Backup Reserve	24%
Timezone	America/Toronto
Network	Ethernet
Grid Code	60Hz_240V_s_SMC_IEEE1547-2018_Canada-2022
Grid Charging Permission	Allowed
Grid Exporting Permission	No Export
Site Import Limit	None
Site Export Limit	None
Panel Maximum Current Limit	Panel Limits Disabled
Backup Behavior	Automatic
PCS controlled source(s) output-circuit current	0A - 41.67A

Compiled at Date & time

Image B3 - Sample of PCS control setting on label.