

**Bulletin 2-27-1**  
**Solar powered LED luminaires, signs and flashers**  
**Rules 2-004, 2-022 and 2-024**

**Issued May 2019**  
Supersedes Bulletin 2-27-0

**Scope**

- (1) Background
- (2) LED luminaires
- (3) LED signs or flashers

**(1) Background**

The direction in this bulletin applies to LED luminaires\*, signs and flashers with the following characteristics:

- standalone and/or pole mounted; AND
  - self contained solar powered;
- (\*) Luminaires used for roadway lighting and general outdoor area lighting

**Note**

Products installed on structures or connected to another source of supply, are outside the scope of this Bulletin. Photo B1 provides some examples of luminaires and signs covered in this bulletin.

**Photo B1 – Example of standalone, pole mounted, solar powered, LED luminaires and flashers**



Based on Rule 2-022, all electrical equipment is required to be approved, with some exceptions specified in Subrule 2) of Rule 2-022. The approval process is set out in Section 2 of Ontario Regulation 438/07 and Rule 2-024.

**(2) LED luminaires**

A pole mounted, solar powered luminaire, as shown in Photo B2, is an assembly that is required to be approved. Wiring within the assembly, between devices such as PV panels, lights and batteries, is part of the approval.

Field assembled luminaires which do not bear an overall approval, are required to be field evaluated.

**Photo B2 – Example of solar powered luminaire assembly**



### **(3) LED signs or flashers**

Pole mounted, solar powered signs or flashers are required to be approved, unless they are exempted as per Rule 2-022 3) b).

Rule 2-022 3) b) exempts signs from approval requirements, when they are connected to:

- A Class 2 power supply; or
- A limited power supply (LPS) whose output does not exceed Class 2 power supply limits (100 VA, 30 V rms – 42.4 V peak or dc).

**The following questions and answers are intended to address some inquiries received from the industry:**

#### **Question 1**

Is approval required for field assembled signs that do not have an overall assembly approval, and operate above Class 2 power level?

#### **Answer 1**

Yes. Approval as per Rule 2-024 is required for field assembled signs or flashers. This direction applies to assemblies that include:

- separate approved products wired on site to form a solar powered sign or flasher; or
- components forming a solar powered sign or flasher and assembled on site.

Also, refer to Rule 2-024 Appendix B note.

#### **Rationale 1**

The overall assembly is considered to be a new product. Wiring within the assembly (between devices such as PV panels, lights, batteries, etc.) is part of the assembly.

#### **Question 2**

Is a notification required for stand alone, pole mounted, solar powered LED luminaires and signs or flashers?

#### **Answer 2**

No.

#### **Rationale 2**

Wiring within the assembly is part of the approved product.

#### **Question 3**

Is approval required for pole mounted, solar powered signs or flashers connected to batteries, whose output does not exceed Class 2 power supply limits?

#### **Answer 3**

No.

### **Direction**

Pole mounted, solar powered signs or flashers supplied with integral batteries, whose output does not exceed Class 2 power supply limits, are not required to be approved.

As batteries are not standard products and come in different sizes and capacities, signs or flashers are required to be approved, unless the combined battery output is limited to a maximum 42.4 V peak or dc (30 V rms) and:

- Batteries are marked as LPS and certified to UL standard, UL 2054; or
- Batteries with short circuit (Isc) of  $\leq 8$  A that are inherently limited to Class 2 power supply.

The power limitation of the solar cells and/or batteries must be marked on the unit and confirmed by the approval agency (or a manufacturer for batteries' short circuit value) for the above exemption to be effective.

If the power source exceeds Class 2 limits or inherently limited power source, pole mounted, solar powered signs or flashers are required to be approved.

### **Rationale**

Based on the Standard UL 2054, Clause 13 and Table 13.1

*“Batteries that meet the limited power source requirements may be marked “Limited Power Source” LPS to indicate that they are considered to be a limited power source. Batteries that do not meet these requirements, regardless to terminal design, shall not be marked to indicate that they are a limited power source and are restricted to applications where a limited power source is not required.”*