

# **System Documentation Requirement- Solar PV Rooftop Installation**

## **System Documentation requirements (Ref. SLS 1522)**

### **1.0 General**

The purpose of clause 4 is to list the minimum documentation that should be provided following the installation of a grid connected PV system. This information will ensure key system data is readily available to a customer, inspector or maintenance engineer. The documentation includes basic system data and the information expected to be provided in the operation and maintenance manual.

### **2.0 System data**

#### **2.1 Basic system information**

As a minimum, the following basic system information shall be provided. This “nameplate” information would typically be presented on the cover page of the system documentation pack.

- a) Project identification reference (where applicable).
- b) Rated (nameplate) system power (kW DC or kVA AC).
- c) PV modules and inverters – manufacturer, model and quantity.
- d) Installation date.
- e) Commissioning date.
- f) Customer name.
- g) Site address.

#### **2.2 System designer information**

As a minimum, the following information shall be provided for all bodies responsible for the design of the system. Where more than one company has responsibility for the design of the system, the following information should be provided for all companies together with a description of their role in the project.

- a) System designer, company.
- b) System designer, contact person.
- c) System designer, postal address, telephone number and e-mail address.

#### **2.3 System installer information**

As a minimum, the following information shall be provided for all bodies responsible for the installation of the system. Where more than one company has responsibility for the installation of the system, the following information should be provided for all companies together with a description of their role in the project.

- a) System installer, company.
- b) System installer, contact person.
- c) System installer postal address, telephone number and e-mail address.

### **3.0 Wiring diagram**

#### **3.1 General**

As a minimum, a single line wiring diagram shall be provided. This diagram shall be annotated to include the information detailed in 4.3.2 to 4.3.6.

In general, it is expected that this information will be presented as annotations to the single line wiring diagram. In some circumstances, typically for larger systems where space on the diagram may be limited, this information may be presented in table form.

### **3.2 Array – General specifications**

The wiring diagram or system specification shall include the following design information.

- a) Module type(s).
- b) Total number of modules.
- c) Number of strings.
- d) Number of modules per string.
- e) Identify which strings connect to which inverter.

Where an array is split into sub-arrays, the wiring diagram shall show the array – sub- array design and include all of the above information for each sub-array.

### **3.3 PV string information**

The wiring diagram or system specification shall include the following PV string information.

- a) String cable specification – size and type.
- b) String overcurrent protective device specifications (where fitted) - type and voltage/current ratings.
- c) Blocking diode type (if relevant).

### **3.4 Array electrical details**

The wiring diagram or system specification shall include the following array electrical information (where fitted).

- a) Array main cable specifications – size and type.
- b) Array junction box / combiner box location.
- c) DC switch disconnect, location and rating (voltage/current).
- d) Array overcurrent protective devices – type, location and rating (voltage/current)
- e) Other array electronic protective circuitry (such as arc fault detection), if applicable – type, location and rating.

### **3.5 AC system**

The wiring diagram or system specification shall include the following AC system information.

- a) AC isolator location, type and rating.
- b) AC overcurrent protective device location, type and rating.
- c) Residual current device location, type and rating (where fitted).

### **3.6 Earthing and overvoltage protection**

The wiring diagram or system specification shall include the following earthing and overvoltage protection information.

- a) Details of all earth / bonding conductors – size and type. Including details of array frame equipotential bonding cable where fitted.
- b) Details of any connections to an existing Lightning Protection System (LPS).

- c) Details of any surge protection device installed (both on AC and DC lines) to include location, type and rating.

#### **4 String Layout**

For systems with three or more strings, a layout drawing of the PV system showing how the array is split and connected into strings shall be provided.

NOTE: This is particularly useful for finding faults in larger systems and on building mounted arrays where access to the rear of the modules is difficult.

#### **5 Datasheets**

As a minimum, datasheet shall be provided for the following system components.

- a) Module datasheet for all types of modules used in system – to the requirements of IEC 61730 – 1.
- b) Inverter datasheet for all types of inverters used in system.

The provision of datasheet for other significant system components should also be considered.

#### **6 Mechanical design information**

A data sheet for the array mounting system shall be provided. If the mounting structure was custom engineered, include the relevant documentation.

#### **7 Emergency systems**

Documentation of any emergency systems associated with the PV system (fire alarms, smoke alarms, etc). This information shall include both operation and design details.

#### **8 Operation and maintenance information**

Operation and maintenance information shall be provided and shall include, as a minimum, the following items:

- a) Procedures for verifying correct system operation.
- b) A checklist of what to do in case of a system failure.
- c) Emergency shutdown / isolation procedures.
- d) Maintenance and cleaning recommendations (mechanical, civil & electrical) – if any.
- e) Considerations for any future building works related to the PV array (e.g. roof works).
- f) Warranty documentation for PV modules and inverters – to include starting date of warranty and period of warranty.
- g) Documentation on any applicable workmanship or weather-tightness warranties.

#### **9 Test results and commissioning data**

Copies of all test and commissioning data shall be provided. As a minimum, these shall include the results from the verification tests detailed in Clause 5 of this standard.