



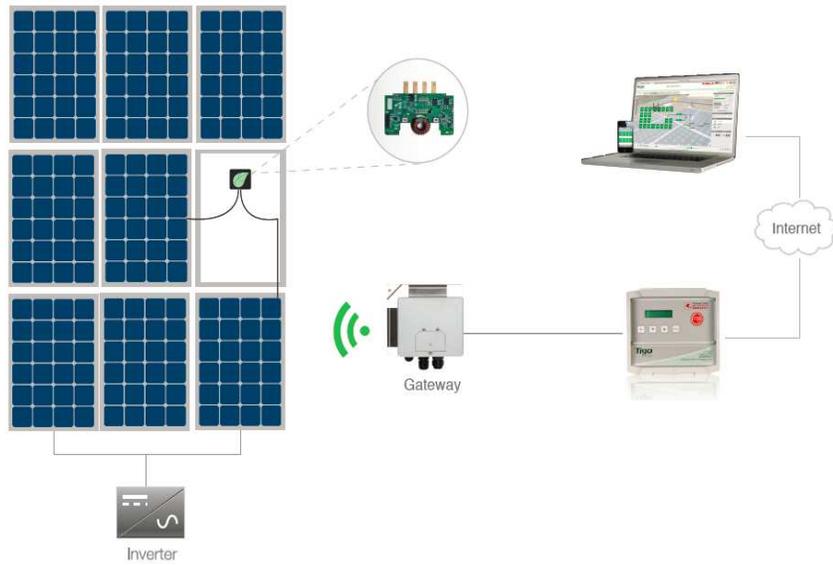
Design Rules for Gateway and Management Unit

- The Smart Module system consists of four key components:

- Smart Module
- Inverter (any off shelf)
- Management Unit (MMU)
- Gateway (GTWY)

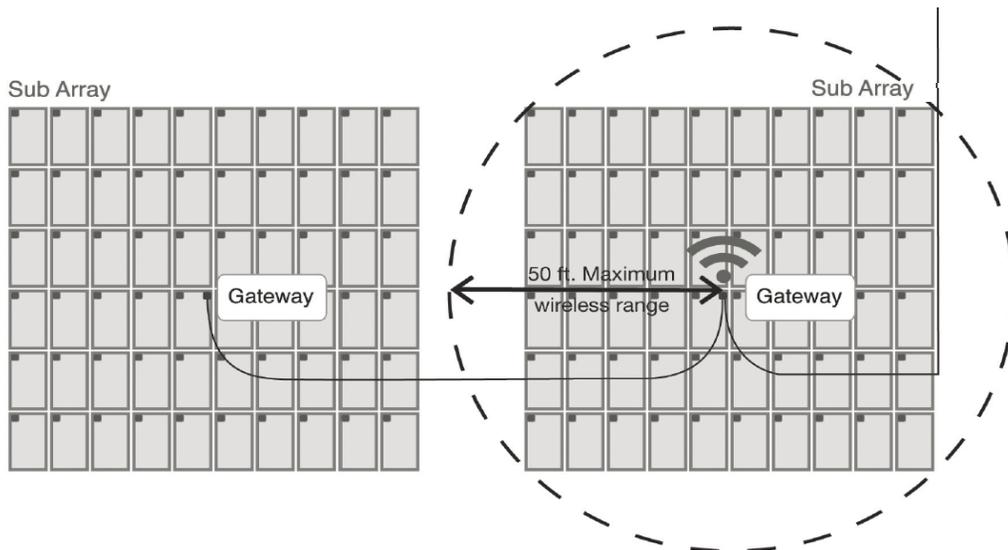
- In order to understand how many GTWYs and MMUs are needed, a system engineer or system designer must have the installation layout in front of them.

- The MMU and GTWYs communicate using an RS485 cable. This cable is NOT provided by Tigo Energy. To learn more about compatible cables visit www.tigoenergy.com/content/resources/cabling-nec

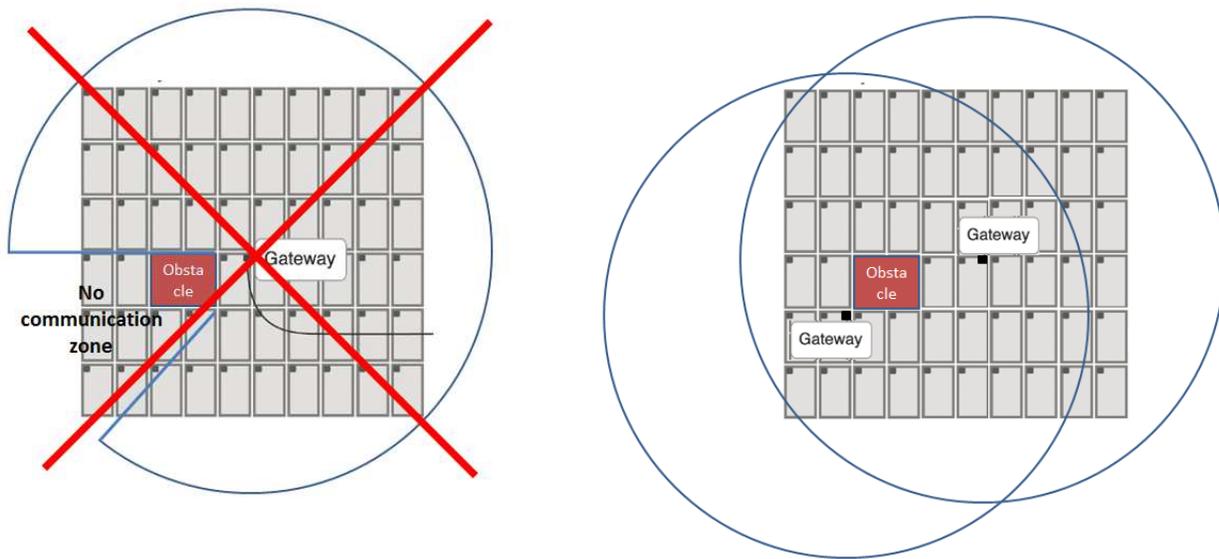


1. Determine Number of Gateways

- Maximum number of **Smart Modules per Gateway is 120**.
- A Gateway can reach Smart Modules that are within a maximum radius of 50 ft (15m). If the Smart Module is More than **50 ft (15m)** away from the Gateway, use more than 1 Gateway. See diagram below:



- Each different **plane of array** must have its own Gateway. For example, on a roof that has one side facing east and the other facing west with solar modules covering both planes, at least 2 Gateways are required; one per roof orientation.
- If there are **obstacles** in the middle of the array, such as air conditioners, it would block the communication between the Smart Module and the Gateway. In this case you'll have to reposition and / or add Gateways in order to provide complete coverage. See diagram below:



2. Determine the Number of Management Units

Each MMU can handle up to **360 Smart Modules**. However, note that all modules in the same string must be assigned to the same MMU. For example, consider the following scenarios for a 720 PV module system.

- 40 strings of 18 modules
- 45 strings of 16 modules

In the 1st scenario, you have exactly 360 modules (20 strings) per MMU, therefore 2 MMUs are needed to support the installation.

In the 2nd scenario, you have 352 modules per 22 strings, and another 368 modules per 23 strings. In that case 3 MMUs are needed, as 368 exceeds the maximum of 360 modules per MMU.

- Each MMU can handle up to **7 Gateways**.
- Number of MMUs required should be calculated according to the restrictions above. The larger output from these 2 calculations is the number of MMUs needed.

For Example

A system that consists of 2 GTWYs and 60 Smart Modules will have 1 MMU.

A system that consists of 8 GTWYs and 200 Smart Modules will have 2 MMUs.

A system that consists of 6 GTWYs and 600 Smart Modules will have 2 MMUs.