Application of ITECH IT-M3900 series power supply in micro inverter industry test

Introduction

In the photovoltaic power station system, although the proportion of the cost of the inverter is relatively low, it has a decisive influence on the power generation efficiency of the system. When components and other accessories are exactly the same, choosing different inverters will directly affect the total power generation of the entire system. Among the existing inverter types, micro-inverter has become a more suitable inverter type for household photovoltaic systems due to its advantages of safety, high efficiency and intelligence. At present, in developed countries such as Europe and United States, more and more rooftop photovoltaic power stations are using micro-inverters to replace traditional string inverters. The micro-inverter is like tailor-made for home photovoltaics, which has absolute advantages over traditional inverter systems.

Figure 1   X Model Micro Photovoltaic Inverter

Application:

The parameters of the X model inverter are as follows: Vmp= 60-300V Pmp=3KW It is necessary to use the photovoltaic simulation source to simulate the solar panel to track the MPPT test of the photovoltaic inverter. For single-channel PV input testing, you can purchase our IT-M3900B/C photovoltaic simulation source with SAS1000L photovoltaic software. If you need multiple channels of PV testing, you can equip with SAS1000M multi-channel photovoltaic testing software. Next, we build a test environment for this micro-inverter. ITECH IT-M3904C-80-80 photovoltaic simulation source is used as the PV input of the micro-inverter in the front end, and the IT7905-350-30U power grid simulator is used to simulate the real simulated power grid for testing of pulling load, island protection and other aspects.
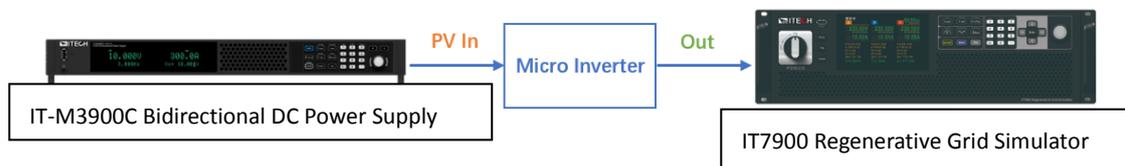

Figure 2 Measured principle diagram

IT-M3900C-SAS series is equipped with SAS1000 solar array simulation software, which can accurately simulate the I-V curve of the solar array. Built-in EN50530, Sandia, NB/T32004, CGC/GF004, and CGC/GF035. The built-in SAS models of EN50530, Sandia, NB/T32004, CGC/GF004, CGC/GF035 enable to simulate the IV curve output and generate reports after simply set the parameters to test the static and dynamic maximum power tracking performance of the photovoltaic inverter. User can also edit any IV curve that shields up to 4096 points to achieve dynamic cloud shielding effect, or store 100 IV curves under different illumination and temperature in the memory, and set the execution time and order of each curve, thereby to test the long-term maximum power tracking performance of photovoltaic inverters under different climatic conditions.
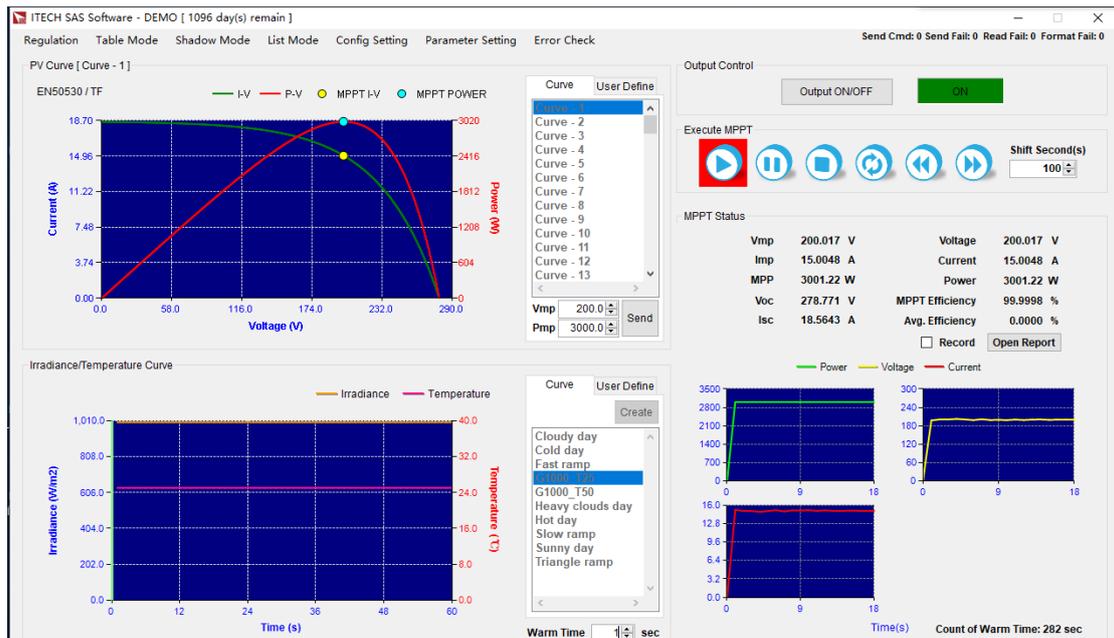
Figure 3 Interface diagram of SAS1000 PV simulation software

The whole series of IT-M3900 has 25 models, the output voltage is from 10V to 1500V, and the maximum output current of a single unit can reach 1020A. The wide-range output design provides users with more voltage and current combinations than traditional fixed-range output DC power supplies, making the use more flexible. A single power supply can cover a wide range of application, greatly reducing the complexity and space occupation of power system construction.