

# 6010-2

(3342G)

## 雙組 Charger / Adapter / LED Driver 自動測試系統



基本版



標準版



加值版



完整版

### 特 性

- 可同時測試2組待測物，以提高測試效率並節省測試時間及成本
- 可依產品測試需求，選擇所需要的設備配置版本（基本版 / 標準版 / 加值版 / 完整版）
- 適用於充電器，適配器(adapter)及LED電源之多功能測試系統
- 極高性價比，全功能模組化設計之測試系統
- Windows 7 以上（含）的作業環境
- 接受客製化訂製
- 開放性架構軟體平台
  1. 支援相關硬體擴充
  2. 測試項目編輯功能
  3. 測試程式編輯功能
  4. 統計分析報表編輯功能
  5. 線上儀控功能
  6. 使用者權限設定
  7. 支援 Bar Code Reader

6010 Charger/Adapter/LED Driver 測試項目與設備配置表

| 測 試 項 目                         | 儀 器 設 備   |                              |                            |                        |                   |                            |          |                 |
|---------------------------------|-----------|------------------------------|----------------------------|------------------------|-------------------|----------------------------|----------|-----------------|
|                                 | AC Source | 3340F / G Series LED DC Load | 4031 / 4032 Timing & Noise | 4013 (20A) Power Meter | 4015A Power Meter | PFR-100M D.C. Power Supply | 5303 AVR | 60104 Mainframe |
| 輸出特性測試 Output Performances      |           |                              |                            |                        |                   |                            |          |                 |
| 輸出電壓 Output Voltage             | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 輸出電流 Output Current             | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 測試中調整 Output adjust             | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 效率 Efficiency                   | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 漣波電壓 Ripple Voltage             | ✓         | ✓                            | ✓                          |                        |                   |                            |          | ✓               |
| Brown-In Test                   | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| Brown-Out Test                  | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 輸入特性測試 Input Characteristics    |           |                              |                            |                        |                   |                            |          |                 |
| 輸入有效值電流 Input RMS Current       | ✓         | ✓                            |                            | ✓                      | ✓                 |                            |          | ✓               |
| 輸入頻率 Input Frequency            | ✓         | ✓                            |                            | ✓                      | ✓                 |                            |          | ✓               |
| 輸入功率 Input Power                | ✓         | ✓                            |                            | ✓                      | ✓                 |                            |          | ✓               |
| 無載功率 No Load Power Consumption  | ✓         | ✓                            |                            | ✓                      | ✓                 |                            |          | ✓               |
| 輸入功率因素 Input Power Factor       | ✓         | ✓                            |                            | ✓                      | ✓                 |                            |          | ✓               |
| 輸入湧浪電流 Input Inrush Current     | ✓         | ✓                            |                            | ✓                      | ✓                 |                            | ✓        | ✓               |
| 總諧波失真 Total Harmonic Distortion | ✓         | ✓                            |                            |                        | ✓                 |                            |          | ✓               |
| IEC-61000-4-11 PQT Test         | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 調變測試 Regulation Tests           |           |                              |                            |                        |                   |                            |          |                 |
| 電源調變 Line Regulation            | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 負載調變 Load Regulation            | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 組合調變 Combine Regulation         | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 時序與暫態特性測試 Timing & Transient    |           |                              |                            |                        |                   |                            |          |                 |
| 開機時間 Turn ON (Set-Up) Time      | ✓         | ✓                            | ✓                          |                        |                   |                            |          | ✓               |
| 關機時間 Turn OFF (Hold-Up) Time    | ✓         | ✓                            | ✓                          |                        |                   |                            |          | ✓               |
| 上升時間 Rise Time                  | ✓         | ✓                            | ✓                          |                        |                   |                            |          | ✓               |
| 下降時間 Fall Time                  | ✓         | ✓                            | ✓                          |                        |                   |                            |          | ✓               |
| 保護特性測試 Protection Tests         |           |                              |                            |                        |                   |                            |          |                 |
| 短路保護 Short Circuit              | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 過電壓保護 OV Protection             | ✓         | ✓                            |                            |                        |                   | ✓                          |          | ✓               |
| 過電流保護 OC Protection             | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| 過功率保護測試 OP Protection           | ✓         | ✓                            |                            |                        |                   |                            |          | ✓               |
| Others                          |           |                              |                            |                        |                   |                            |          |                 |
| TTL 控制訊號 (TTLControl)           | ✓         | ✓                            | ✓                          |                        |                   |                            |          | ✓               |
| 繼電器控制 (Relay Control)           | ✓         | ✓                            | ✓                          |                        |                   |                            |          | ✓               |

## 6010-02 Charger/Adapter/LED Driver 雙組 測試系統設備快選表

| 測 試 項 目                         | 儀 器 設 備                          |                                  |                                  |                                  |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
|                                 | 6010-02-A<br>基本版                 | 6010-02-B<br>標準版                 | 6010-02-C<br>加值版                 | 6010-02-D<br>完整版                 |
| 輸出特性測試 Output Performances      |                                  |                                  |                                  |                                  |
| 輸出電壓 Output Voltage             | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 輸出電流 Output Current             | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 測試中調整 Output adjust             | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 效率 Efficiency                   | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 漣波電壓 Ripple Voltage             |                                  | <input checked="" type="radio"/> |                                  |                                  |
| Brown-In Test                   | <input checked="" type="radio"/> |                                  |                                  |                                  |
| Brown-Out Test                  | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 輸入特性測試 Input Characteristics    |                                  |                                  |                                  |                                  |
| 輸入有效值電流 Input RMS Current       | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 輸入頻率 Input Frequency            | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 輸入功率 Input Power                | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 無載功率 No Load Power Consumption  | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 輸入功率因素 Input Power Factor       | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 輸入湧浪電流 Input Inrush Current     |                                  |                                  |                                  | <input checked="" type="radio"/> |
| 總諧波失真 Total Harmonic Distortion |                                  |                                  | <input checked="" type="radio"/> |                                  |
| IEC-61000-4-11 PQT Test         | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 調變測試 Regulation Tests           |                                  |                                  |                                  |                                  |
| 電源調變 Line Regulation            | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 負載調變 Load Regulation            | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 組合調變 Combine Regulation         | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 時序與暫態特性測試 Timing & Transient    |                                  |                                  |                                  |                                  |
| 開機時間 Turn ON (Set-Up) Time      |                                  | <input checked="" type="radio"/> |                                  |                                  |
| 關機時間 Turn OFF (Hold-Up) Time    |                                  | <input checked="" type="radio"/> |                                  |                                  |
| 上升時間 Rise Time                  |                                  | <input checked="" type="radio"/> |                                  |                                  |
| 下降時間 Fall Time                  |                                  | <input checked="" type="radio"/> |                                  |                                  |
| 保護特性測試 Protection Tests         |                                  |                                  |                                  |                                  |
| 短路保護 Short Circuit              | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 過電壓保護 OV Protection             |                                  |                                  |                                  | <input checked="" type="radio"/> |
| 過電流保護 OC Protection             | <input checked="" type="radio"/> |                                  |                                  |                                  |
| 過功率保護測試 OP Protection           | <input checked="" type="radio"/> |                                  |                                  |                                  |
| Others                          |                                  |                                  |                                  |                                  |
| TTL 控制訊號 ( TTLControl )         |                                  | <input checked="" type="radio"/> |                                  |                                  |
| 繼電器控制 ( Relay Control )         |                                  | <input checked="" type="radio"/> |                                  |                                  |

6010-02-A Charger/Adapter/LED Driver 基本版雙組測試系統架構組成如表所示，只需 APS-7000 series AC Power Sources, 4013A-2 Dual Channel Power Meter and LED Load (3342F/G 系列) 即可。  
組成圖示如下

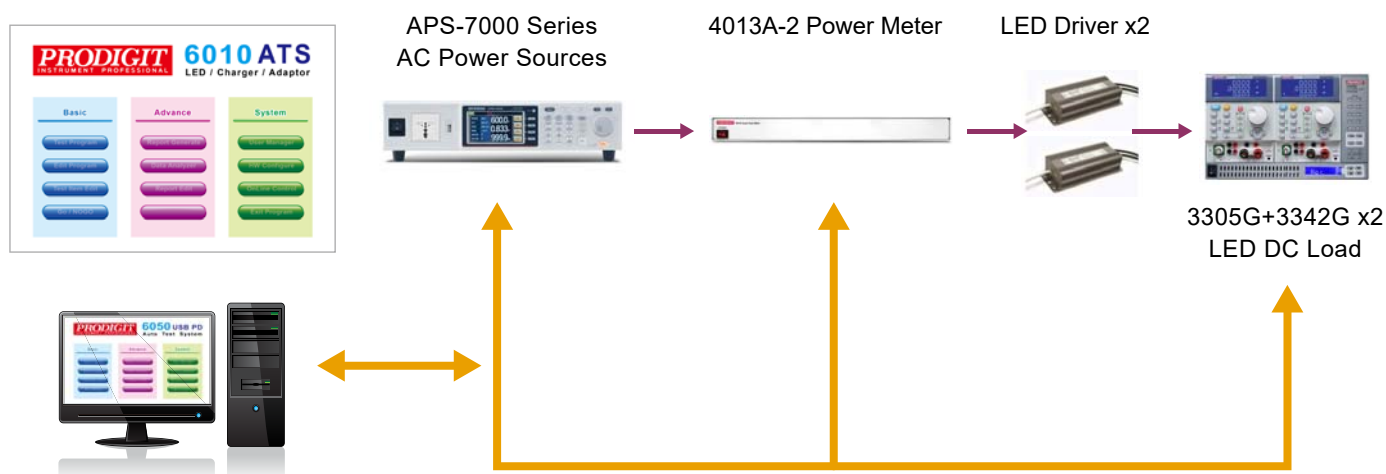


→ 3305G + 3342Gx2 LED DC Load

→ 4013A-2 Power Meter

→ APS-7000 series AC Power Sources

#### 6010-02-A 基本版雙組測試系統方塊圖



#### 6010-02-A 基本版雙組測試系統可測試項目如下表

| 輸出特性測試 Output Performances | 輸入特性測試 Input Characteristics   |
|----------------------------|--------------------------------|
| 輸出電壓 Output Voltage        | 輸入有效值電流 Input RMS Current      |
| 輸出電流 Output Current        | 輸入頻率 Input Frequency           |
| 測試中調整 Output adjust        | 輸入功率 Input Power               |
| 效率 Efficiency              | 無載功率 No Load Power Consumption |
| Brown-In Test              | 輸入功率因素 Input Power Factor      |
| Brown-In Test              | IEC-61000-4-11 PQT Test        |
| 調變測試 Regulation Tests      | 保護特性測試 Protection Tests        |
| 電源調變 Line Regulation       | 短路保護 Short Circuit             |
| 負載調變 Load Regulation       | 過電流保護 OC Protection            |
| 組合調變 Combine Regulation    | 過功率保護測試 OP Protection          |

## 6010-02-A 基本版雙組測試系統設備配備表

| Equipment Model No.                                          |                                   | Qt'y |
|--------------------------------------------------------------|-----------------------------------|------|
| APS-7000 Series Programmable Linear AC Power Sources         |                                   | 1    |
| 3342G Series 300W x 2 LED DC Load Module                     |                                   | 2    |
| 3305G 2 CH Mainframe                                         |                                   | 1    |
| 4013A-2 Dual Channel Power Meter                             |                                   | 1    |
| 6010-02 System Software                                      |                                   | 1    |
| System Controller (PC)                                       |                                   | 1    |
| CP-104EL-A 1:4 High Speed RS-232 Interface Card              |                                   | 1    |
| Uport 1410 USB to RS-232 4 Port For Note Book                |                                   | 0    |
| System Specifications ( PC or Note Book )                    |                                   |      |
| CPU                                                          | i5-3470(3.2GHz) or faster         |      |
| SRAM                                                         | 256KB                             |      |
| DRAM                                                         | 4GB or higher                     |      |
| Hard Driver                                                  | 500GB or higher                   |      |
| CD-ROM                                                       | 40X or faster                     |      |
| Monitor                                                      | 22"                               |      |
| KeyBoard                                                     | 101 Keys                          |      |
| I/O                                                          | Mouse/Print Port                  |      |
| System Interface                                             | RS-232                            |      |
| System I/O                                                   | 1:4 or 1:8 High Speed RS-232 Card |      |
| ○ Choose this interface When the System device use Note Book |                                   |      |

OS : Windows 7.0 or later

6010-02-B 標準版雙組測試系統由基本版增加 4032 Noise & Timing Analyzer ，增加時序與漣波雜訊測試。組成圖如下

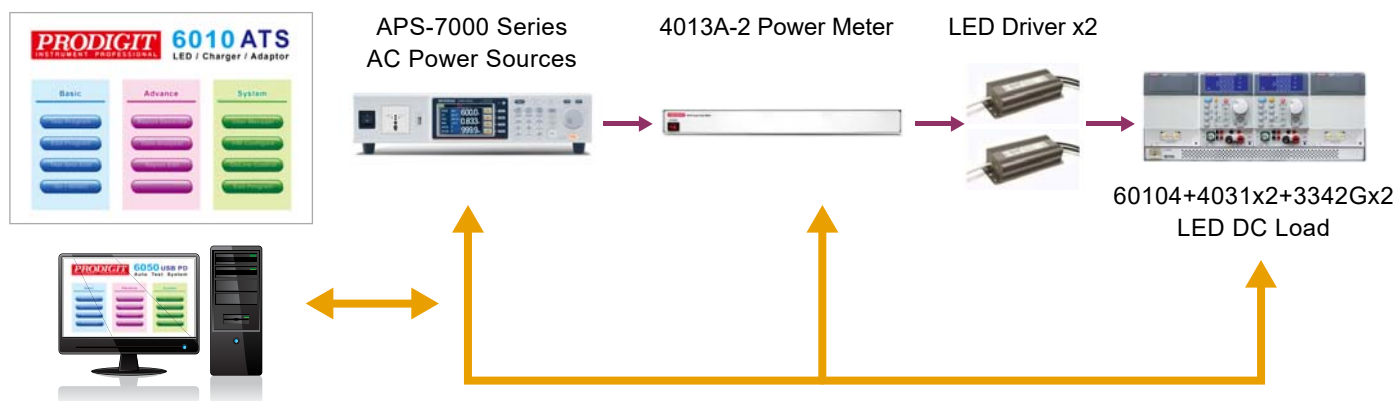


→ 60104 + 4031x2 + 3342Gx2 LED DC Load

→ 4013A-2 Power Meter

→ APS-7000 series AC Power Sources

## 6010-02-B 標準版雙組測試系統方塊圖



## 6010-02-B 標準版雙組測試系統增加測試項目如下表

| 輸出特性測試 Output Performances | 時序與暫態特性測試 Timing & Transient |
|----------------------------|------------------------------|
| 漣波電壓 Ripple Voltage        | 開機時間 Turn ON (Set-Up) Time   |
| 其他 Others                  | 關機時間 Turn OFF (Hold-Up) Time |
| TTL 控制訊號 (TTLControl)      | 上升時間 Rise Time               |
| 繼電器控制 (Relay Control)      | 下降時間 Fall Time               |

## 6010-02-B 標準版雙組測試系統設備配備表

| Equipment Model No.                                          |                                   | Qt'y |
|--------------------------------------------------------------|-----------------------------------|------|
| APS-7000 Series Programmable Linear AC Power Sources         |                                   | 1    |
| 3342G Series 300W LED DC Load Module                         |                                   | 2    |
| 60104 4 CH Mainframe                                         |                                   | 1    |
| 4031 Timing & Noise                                          |                                   | 2    |
| 4013A-2 Dual Channel Power Meter                             |                                   | 1    |
| 6010-02 System Software                                      |                                   | 1    |
| System Controller (PC)                                       |                                   | 1    |
| CP-104EL-A 1:4 High Speed RS-232 Interface Card              |                                   | 1    |
| Uport 1410 USB to RS-232 4 Port For Note Book                |                                   | 0    |
| System Specifications ( PC or Note Book )                    |                                   |      |
| CPU                                                          | i5-3470(3.2GHz) or faster         |      |
| SRAM                                                         | 256KB                             |      |
| DRAM                                                         | 4GB or higher                     |      |
| Hard Driver                                                  | 500GB or higher                   |      |
| CD-ROM                                                       | 40X or faster                     |      |
| Monitor                                                      | 22"                               |      |
| KeyBoard                                                     | 101 Keys                          |      |
| I/O                                                          | Mouse/Print Port                  |      |
| System Interface                                             | RS-232                            |      |
| System I/O                                                   | 1:4 or 1:8 High Speed RS-232 Card |      |
| ○ Choose this interface When the System device use Note Book |                                   |      |

OS : Windows 7.0 or later

6010-02-C 加值版雙組測試系統由標準版更改 4013A-2為4015A-2 Power Meter with Harmonic  
 增加電流諧波 Harmonic 量測  
 組成圖如下

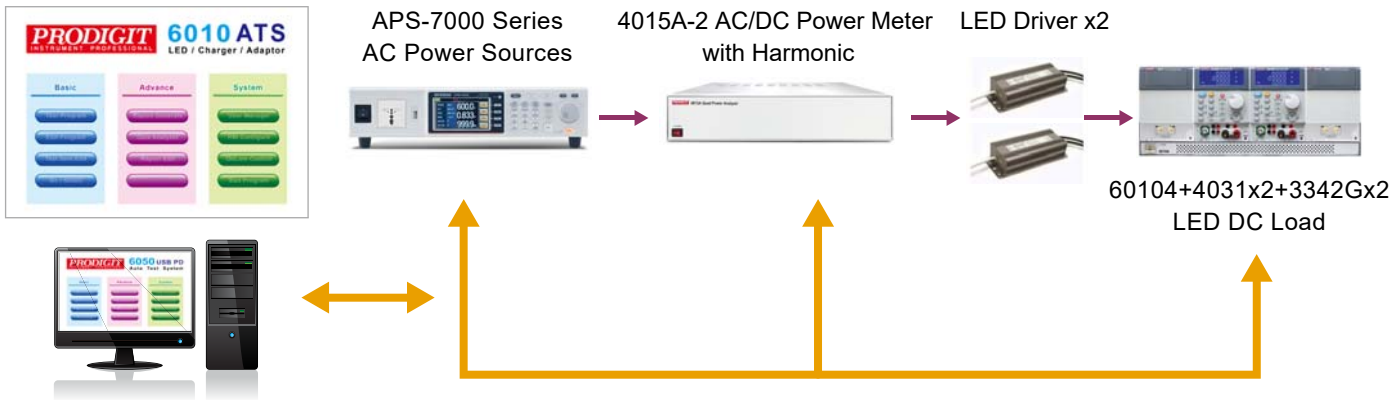


→ 60104 + 4031x2 + 3342Gx2 LED DC Load

→ 4015A-2 AC/DC Power Meter with Harmonic

→ APS-7000 series AC Power Sources

6010-02-C 加值版雙組測試系統方塊圖



6010-02-C 加值版雙組測試系統增加測試項目如下表

|                                |
|--------------------------------|
| 輸入特性測試 Input Characteristics   |
| 總諧波失真 Total Harmonic Distotion |

## 6010-02-C 加值版雙組測試系統設備配置表

| Equipment Model No.                                          | Qt'y                              |
|--------------------------------------------------------------|-----------------------------------|
| APS-7000 Series Programmable Linear AC Power Sources         | 1                                 |
| 3342G Series 300W LED DC Load Module                         | 2                                 |
| 60104 4 CH Mainframe                                         | 1                                 |
| 4031 Timing & Noise                                          | 2                                 |
| 4015A-2 Dual CH Power Meter with Harmonic                    | 1                                 |
| 6010-02 System Software                                      | 1                                 |
| System Controller (PC)                                       | 1                                 |
| CP-104EL-A 1:4 High Speed RS-232 Interface Card              | 1                                 |
| Uport 1410 USB to RS-232 4 Port For Note Book                | 0                                 |
| <b>System Specifications ( PC or Note Book )</b>             |                                   |
| CPU                                                          | i5-3470(3.2GHz) or faster         |
| SRAM                                                         | 256KB                             |
| DRAM                                                         | 4GB or higher                     |
| Hard Driver                                                  | 500GB or higher                   |
| CD-ROM                                                       | 40X or faster                     |
| Monitor                                                      | 22"                               |
| KeyBoard                                                     | 101 Keys                          |
| I/O                                                          | Mouse/Print Port                  |
| System Interface                                             | RS-232                            |
| System I/O                                                   | 1:4 or 1:8 High Speed RS-232 Card |
| ○ Choose this interface When the System device use Note Book |                                   |

OS : Windows 7.0 or later

6010-02-D 完整版雙組測試系統由加值版增加 PFR-100M D.C. Power Supply 及 5303 Inrush Source , 增加過電壓保護及輸入湧浪電流保護測試及過電壓測試。組成圖如下



→ 60104 + 4031x2 + 3342Gx2 LED DC Load

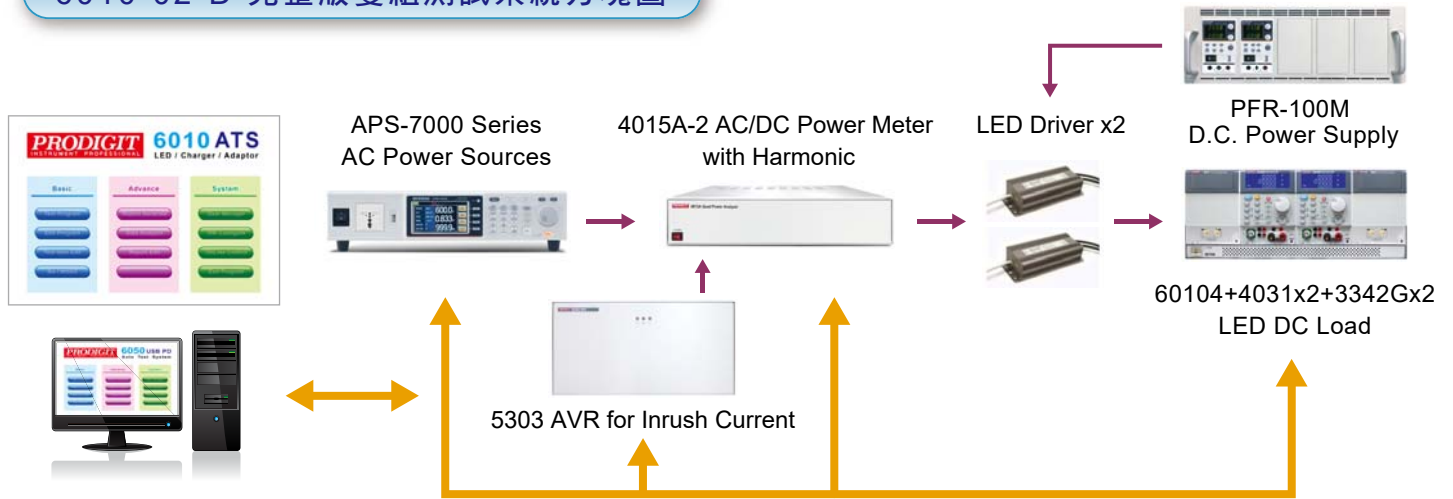
→ PFR-100M Multi-Range D.C. Power Supply

→ 4015A-2 AC/DC Power Meter with Harmonic

→ 5303 AVR for Inrush Current

→ APS-7000 series AC Power Sources

## 6010-02-D 完整版雙組測試系統方塊圖



## 6010-02-D 完整版雙組測試系統增加測試項目如下表

### 輸入特性測試 Input Characteristics

輸入湧浪電流 Input Inrush Current

### 保護特性測試 Protection Tests

過電壓保護 OV Protection

## 6010-02-D 完整版雙組測試系統設備配置表

| Equipment Model No.                                          |                                   | Qt'y |
|--------------------------------------------------------------|-----------------------------------|------|
| APS-7000 Series Programmable Linear AC Power Sources         |                                   | 1    |
| 3342G Series 300W LED DC Load Module                         |                                   | 2    |
| 60104 4 CH Mainframe                                         |                                   | 1    |
| 4031 Timing & Noise                                          |                                   | 2    |
| 4015A-2 Dual CH Power Meter with Harmonic                    |                                   | 1    |
| PFR-100M Multi-Range D.C. Power Supply                       |                                   | 2    |
| 4015A Power Meter with Harmonic                              |                                   | 1    |
| 5303 Inrush Sorce                                            |                                   | 1    |
| System Controller (PC)                                       |                                   | 1    |
| CP-104EL-A 1:4 High Speed RS-232 Interface Card              |                                   | 1    |
| Uport 1410 USB to RS-232 4 Port For Note Book                |                                   | 0    |
| System Specifications ( PC or Note Book )                    |                                   |      |
| CPU                                                          | i5-3470(3.2GHz) or faster         |      |
| SRAM                                                         | 256KB                             |      |
| DRAM                                                         | 4GB or higher                     |      |
| Hard Driver                                                  | 500GB or higher                   |      |
| CD-ROM                                                       | 40X or faster                     |      |
| Monitor                                                      | 22"                               |      |
| KeyBoard                                                     | 101 Keys                          |      |
| I/O                                                          | Mouse/Print Port                  |      |
| System Interface                                             | RS-232                            |      |
| System I/O                                                   | 1:4 or 1:8 High Speed RS-232 Card |      |
| o Choose this interface When the System device use Note Book |                                   |      |

OS : Windows 7.0 or later

# 各儀器設備功能與規格

APS-7000 Series Programmable Linear AC Power Sources規格簡表及可適用之功能列表

| Model                                                                                                                                                                                                                                         |             | APS-7000 Series Programmable Linear AC Power Sources                                                                                      |          |                                                                                                   |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------|----------|
| 適用測試功能                                                                                                                                                                                                                                        |             |                                                                                                                                           |          |                                                                                                   |          |
| 1. 輸入有效值電流 Input RMS Current<br>2. 輸入頻率 Input Frequency<br>3. 輸入功率 Input Power<br>4. 無載功耗 No Load Power Consumption<br>5. Input Power Factor<br>6. 輸入電源暫降 Input Voltage Sag<br>7. 線性調整率 Line Regulation<br>8. 可編成電壓開關機 (ON / OFF) 角度 (0~360度) |             |                                                                                                                                           |          |                                                                                                   |          |
| 規格 ( Specifications )                                                                                                                                                                                                                         |             | APS-7050                                                                                                                                  | APS-7100 | APS-7200                                                                                          | APS-7300 |
| Power Rating                                                                                                                                                                                                                                  |             | 500VA                                                                                                                                     | 1000VA   | 2000VA                                                                                            | 3000VA   |
| Voltage Rating                                                                                                                                                                                                                                |             | 0 ~ 155Vrms, 0 ~ 310Vrms                                                                                                                  |          |                                                                                                   |          |
| Current Rating                                                                                                                                                                                                                                | 0~155Vrms   | 4.2A                                                                                                                                      | 8.4A     | 16.8A                                                                                             | 25.2A    |
|                                                                                                                                                                                                                                               | 0~310Vrms   | 2.1A                                                                                                                                      | 4.2A     | 8.4A                                                                                              | 12.6A    |
| Frequency                                                                                                                                                                                                                                     |             | 45 ~ 500 Hz                                                                                                                               |          |                                                                                                   |          |
| Angle (ON/OFF)                                                                                                                                                                                                                                |             | 0 ~ 359°                                                                                                                                  |          |                                                                                                   |          |
| PQT<IEC 61000-4-11>                                                                                                                                                                                                                           |             | DIP, Interrupt, Variation                                                                                                                 |          |                                                                                                   |          |
| MEASUREMENT                                                                                                                                                                                                                                   |             |                                                                                                                                           |          |                                                                                                   |          |
| ACV meter (Vrms)                                                                                                                                                                                                                              |             | 0 ~ 155Vrms, 0 ~ 310Vrms, Auto                                                                                                            |          |                                                                                                   |          |
| Voltage (RMS)                                                                                                                                                                                                                                 | Range       | 0.20~38.75Vrms;38.76~77.50Vrms;77.51~155.0Vrms;155.1~310.0Vrms                                                                            |          |                                                                                                   |          |
|                                                                                                                                                                                                                                               | Resolution  | 0.01V at 0.00 ~ 99.99Vrms; 0.1V at 100.0 ~ 310.0Vrms                                                                                      |          |                                                                                                   |          |
|                                                                                                                                                                                                                                               | Accuracy *4 | ±(0.5% of reading + 2 counts)                                                                                                             |          |                                                                                                   |          |
| Frequency                                                                                                                                                                                                                                     | Range       | 45 ~ 500Hz                                                                                                                                |          |                                                                                                   |          |
|                                                                                                                                                                                                                                               | Resolution  | 0.01Hz at 45Hz~99.99Hz ; 0.1Hz at 100Hz~500.0Hz                                                                                           |          |                                                                                                   |          |
|                                                                                                                                                                                                                                               | Accuracy    | ±0.1Hz                                                                                                                                    |          |                                                                                                   |          |
| Current (RMS)                                                                                                                                                                                                                                 | Range       | 2.00 ~ 70.00mA ; 60.0 ~ 350.0mA ;<br>0.300 ~ 3.500A ; 3.00 ~ 17.5A                                                                        |          | 0.200 ~ 3.500A ; 3.00 ~ 35.00A                                                                    |          |
|                                                                                                                                                                                                                                               | Resolution  | 0.01mA, 0.1mA, 0.001A, 0.01A                                                                                                              |          | 0.001A ; 0.01A                                                                                    |          |
|                                                                                                                                                                                                                                               | Accuracy    | ± (0.6% of reading+5 counts), 2.00~350.0mA ;<br>± (0.5% of reading+5 counts), 0.300~3.500A ;<br>± (0.5% of reading+3 counts),3.000~17.50A |          | ± (0.5% of reading + 5 counts) , 0.200 ~ 3.500A<br>± (0.5% of reading + 3 counts) , 3.00 ~ 35.00A |          |
| Current (Peak)                                                                                                                                                                                                                                | Range       | 0.0 ~ 70.0A                                                                                                                               |          | 0.0 ~ 140.0A                                                                                      |          |
|                                                                                                                                                                                                                                               | Resolution  | 0.1A                                                                                                                                      |          |                                                                                                   |          |
|                                                                                                                                                                                                                                               | Accuracy    | ± ( 1% of reading + 1 count )                                                                                                             |          |                                                                                                   |          |
| Power (W)                                                                                                                                                                                                                                     | Resolution  | 0.01W, 0.1W, 1W                                                                                                                           |          | 0.1W, 1W                                                                                          |          |
|                                                                                                                                                                                                                                               | Accuracy    | ± (0.6% of reading+5 counts), 0.20~99.99W ;<br>± (0.6% of reading+5 counts), 100.0~999.9W ;<br>± (0.6% of reading+2 counts), 1000~9999W   |          | ± (0.6% of reading + 5counts) , 0.2 ~ 999.9W<br>± (0.6% of reading + 2counts) , 1000 ~ 9999W      |          |
| Apparent (VA)                                                                                                                                                                                                                                 | Resolution  | 0.01VA, 0.1VA, 1VA                                                                                                                        |          | 0.1VA, 1VA                                                                                        |          |
|                                                                                                                                                                                                                                               | Accuracy    | ±(1% of reading+7 counts), 0.20~99.99VA ;<br>±(1% of reading+7 counts), 100.0~999.9V A ;<br>±(1% of reading+5 counts), 1000~9999VA        |          | ± (1% of reading + 7 counts) , 0.2 ~ 999.9VA ;<br>± (1% of reading + 5 counts) , 1000 ~ 9999VA    |          |
| Power Factor                                                                                                                                                                                                                                  | Resolution  | 0.001                                                                                                                                     |          |                                                                                                   |          |
|                                                                                                                                                                                                                                               | Accuracy    | ± ( 2% of reading + 2 counts )                                                                                                            |          |                                                                                                   |          |
| Frequency meter                                                                                                                                                                                                                               |             | 45 ~ 500Hz                                                                                                                                |          |                                                                                                   |          |
| Interface                                                                                                                                                                                                                                     |             | RS-232                                                                                                                                    |          |                                                                                                   |          |

Table 1 - Preferred test level and durations for voltage dips

| Class <sup>a</sup>   | Test level and durations for voltage dips(ts) (50 Hz/60 Hz) |                    |                                       |                                       |                                         |
|----------------------|-------------------------------------------------------------|--------------------|---------------------------------------|---------------------------------------|-----------------------------------------|
| Class 1              | Case-by-case according to the equipment requirements        |                    |                                       |                                       |                                         |
| Class 2              | 0 % during 1/2 cycle                                        | 0 % during 1 cycle | 70 % during 25/30 <sup>c</sup> cycles |                                       |                                         |
| Class 3              | 0 % during 1/2 cycle                                        | 0 % during 1 cycle | 40 % during 10/12 <sup>c</sup> cycles | 70 % during 25/30 <sup>c</sup> cycles | 80 % during 250/300 <sup>c</sup> cycles |
| Class X <sup>b</sup> | X                                                           | X                  | X                                     | X                                     | X                                       |

a Classes as per IEC 61000-2-4; see Annex B.

b To be defined by product committee. For equipment connected directly or indirectly to the public network, the levels must not be less severe than Class 2.

c "25/30 cycles" means "25 cycles for 50 Hz test" and "30 cycles for 60 Hz test"

Table 2 - Preferred test level and durations for short interruptions

| Class <sup>a</sup>   | Class Test level and durations for short interruptions (ts) (50 Hz/60 Hz) |
|----------------------|---------------------------------------------------------------------------|
| Class 1              | Case-by-case according to the equipment requirements                      |
| Class 2              | 0 % during 250/300 <sup>c</sup> cycles                                    |
| Class 3              | 0 % during 250/300 <sup>c</sup> cycles                                    |
| Class X <sup>b</sup> | X                                                                         |

a Classes as per IEC 61000-2-4 ; see Annex B.

b To be defined by product committee. For equipment connected directly or indirectly to the public network, the levels must not be less severe than Class 2.

c "250/300 cycles" means "250 cycles for 50 Hz test" and "300 cycles for 60 Hz test"

Table 3 - Timing of short-term supply voltage variations

| Voltage test level | Time for decreasing voltage (td) | Time at reduced voltage (ts) | Time for increasing voltage (ti) (50 Hz/60 Hz) |
|--------------------|----------------------------------|------------------------------|------------------------------------------------|
| 70%                | Abrupt                           | 1 cycle                      | 25/30 <sup>b</sup> cycles                      |
| X <sup>a</sup>     | X <sup>a</sup>                   | X <sup>a</sup>               | X <sup>a</sup>                                 |

a To be defined by product committee.

b "25/30 cycles" means "25 cycles for 50 Hz test" and "30 cycles for 60 Hz test".

### 3310G Series DC E-Load 規格簡表及可測試項目列表

| Model                  | 3310G Series DC E-Load |                            |
|------------------------|------------------------|----------------------------|
| 適用測試功能                 |                        |                            |
| 1. 輸出電壓 Output Voltage |                        | 5. 平均效率 Average Efficiency |
| 2. 輸出電流 Output Current |                        | 6. 短路保護 Short Circuit      |
| 3. 動態負載 Dynamic Load   |                        | 7. 過電流保護 OC Protection     |
| 4. 效率 Efficiency       |                        | 8. 過功率保護 OP Protection     |
| 規格                     |                        |                            |
| Power                  | 75W, 150W, 300W        |                            |
| Current                | 15A, 30A, 60A          |                            |
| Voltage                | 60V, 500V              |                            |

### 3341G Series LED DC E-Load 規格簡表及可測試項目列表

| Model                  | 3341G Series DC E-Load     |                        |
|------------------------|----------------------------|------------------------|
| 適用測試功能                 |                            |                        |
| 1. 輸出電壓 Output Voltage | 4. 效率 Efficiency           | 7. 過電流保護 OC Protection |
| 2. 輸出電流 Output Current | 5. 平均效率 Average Efficiency | 8. 過功率保護 OP Protection |
| 3. 動態負載 Dynamic Load   | 6. 短路保護 Short Circuit      | 9. 調光測試 DIM Test       |
| 規格                     |                            |                        |
| Channel                | 1                          | 2                      |
| Power                  | 300W                       | 150W x 2               |
| Current                | 12A, 24A                   | 6A x 2                 |
| Voltage                | 300V, 500V                 | 500V                   |

## 4031 Noise & Ripple Meter 規格簡表及可測試項目列表

| Model                               |                                | 4031Noise & Timing Analyzer Module |                             |
|-------------------------------------|--------------------------------|------------------------------------|-----------------------------|
| 適用測試功能                              |                                |                                    |                             |
| 1. 漣波電壓 Ripple Voltage              |                                | 4. 上升時間 Rise Time                  |                             |
| 2. 開機時間 Turn ON(Set-Up) Time        |                                | 5. 下降時間 Fall Time                  |                             |
| 3. 關機時間 Turn OFF(Hold-Up) Time      |                                |                                    |                             |
| 規格 ( Specifications )               |                                |                                    |                             |
| No. of input channel                |                                | 1                                  |                             |
| Timing Measurement                  |                                | Ripple Measurement                 |                             |
| Set-up / Hold-up / Rise / Fall Time |                                | Band Width                         | 0 ~ 100 KHz                 |
| Voltage range                       | 0 ~ 80 / 600 Vdc               | Voltage range                      | 0 ~ 80 / 600 Vdc            |
| Current range                       | *(1/4F.S.) / (F.S.) Adc        | Measurement range                  | 0 ~ 3.2 / 20 Vp-p           |
| Timing range                        | 1 Sec/2 Sec/4 Sec/8 Sec/16 Sec | Resolution                         | 0.001/0.01V                 |
| Resolution                          | 1 uS/2uS/4uS/8uS/16uS          | Current range                      | *(1/4F.S.) / (F.S.) Adc     |
| Vth1 / Vth2                         |                                | Measurement range                  | *(1/8F.S.) / (1/2F.S.) Ap-p |
| Voltage range                       | 5% ~ 95% of reading            | Resolution                         | 0.001 / 0.01A               |
| Resolution                          | 0.01 V / 0.01V, 0.001A/0.01A   | Accuracy                           | ±5% of (Reading + Range)    |
| Accuracy                            | ±2% of (Reading + Range)       | Sampling Rate                      | 100KHz                      |
| Noise Measurement                   |                                | Update Rate                        | 50~1000 mS                  |
| Low Pass Filter                     | up to 20 MHz                   | Resolution                         | 1mS                         |
| Voltage range                       | 0.6 / 3Vp-p                    | Dimming Measurement                |                             |
| Resolution                          | 1mV                            | Band Width                         | 100KHz                      |
| Accuracy                            | ±2% OF reading + 5mV           | Current range                      | *(1/8F.S.) / (1/2F.S.) Adc  |
| Over Shoot Measurement              |                                | Resolution                         | 0.001 / 0.01A               |
| Band Width                          | 0 ~ 100 KHz                    | Accuracy                           | ±5% of (Reading + Range)    |
| Voltage range                       | 0~80 / 600Vdc                  | Sampling Rate                      | 100KHz                      |
| Measurement range                   | 0 ~ 80 / 600 Vdc               | Update Rate                        | 50~1000 mS                  |
| Resolution                          | 0.01 / 0.1Vdc                  | Resolution                         | 1mS                         |
| Current range                       | *(1/4F.S.) / (F.S.) Adc        | Frequency range                    | 10Hz~35KHz                  |
| Measurement range                   | *(1/4F.S.) / (F.S.) Adc        | Resolution                         | 1Hz                         |
| Resolution                          | 0.001 / 0.01A                  | Accuracy                           | ±1% of (Reading + Range)    |
| Accuracy                            | ±5% of (Reading + Range)       | Duty(Ton) Range                    | 3uS~90mS                    |
| Sampling Rate                       | 100KHz                         | Resolution                         | 1uS                         |
| Update Rate                         | 50~1000 mS                     | Accuracy                           | ±1% of (Reading + Range)    |
| Resolution                          | 1mS                            |                                    |                             |

## 4032 Noise & Ripple Meter 規格簡表及可測試項目列表

|                                     |                                        |                     |                          |
|-------------------------------------|----------------------------------------|---------------------|--------------------------|
| Model                               | 4032-PD Noise & Timing Analyzer Module |                     |                          |
| 適用測試功能                              |                                        |                     |                          |
| 1. 漣波電壓 Ripple Voltage              |                                        | 4. 上升時間 Rise Time   |                          |
| 2. 開機時間 Turn ON(Set-Up) Time        |                                        | 5. 下降時間 Fall Time   |                          |
| 3. 關機時間 Turn OFF(Hold-Up) Time      |                                        |                     |                          |
| 規格 ( Specifications )               |                                        |                     |                          |
| No. of input channel                |                                        | 2                   |                          |
| Timing Measurement                  |                                        | Ripple Measurement  |                          |
| Set-up / Hold-up / Rise / Fall Time |                                        | Band Width          | 0 ~ 100 KHz              |
| Voltage range                       | 0 ~ 80 / 600 Vdc                       | Voltage range       | 0 ~ 80 / 600 Vdc         |
| Current range                       | 0~0.8/3.2Adc                           | Measurement range   | 0 ~ 3.2 / 24 Vp-p        |
| Timing range                        | 0~1 Sec                                | Resolution          | 0.001 / 0.01V            |
| Resolution                          | 10uS                                   | Current range       | 0 ~ 0.8 / 3.2 Adc        |
| Vth1 / Vth2                         |                                        | Measurement range   | 0 ~ 0.4 / 1.6 Ap-p       |
| Voltage range                       | 5% ~ 95% of reading                    | Resolution          | 0.001 / 0.01A            |
| Resolution                          | 0.1 V/1V, 0.001A/0.01A                 | Accuracy            | ±5% of (Reading + Range) |
| Accuracy                            | ±2% of (Reading + Range)               | Sampling Rate       | 100KHz                   |
| Noise Measurement                   |                                        | Update Rate         | 50~1000 mS               |
| Low Pass Filter                     | up to 20 MHz                           | Resolution          | 1mS                      |
| Voltage range                       | 0.6 / 3Vp-p                            | Dimming Measurement |                          |
| Resolution                          | 1mV                                    | Band Width          | 100KHz                   |
| Accuracy                            | ±2% OF reading + 5mV                   | Current range       | 0 ~ 0.8 / 3.2 Adc        |
| Over Shoot Measurement              |                                        | Resolution          | 0.001 / 0.01A            |
| Band Width                          | 0 ~ 100 KHz                            | Accuracy            | ±5% of (Reading + Range) |
| Voltage range                       | 0 ~ 80 / 600 Vdc                       | Sampling Rate       | 100KHz                   |
| Measurement range                   | 0 ~ 80 / 600 Vdc                       | Update Rate         | 50~1000 mS               |
| Resolution                          | 0.1 / 1Vdc                             | Resolution          | 1mS                      |
| Current range                       | 0 ~ 0.8 / 3.2 Adc                      | Frequency range     | 10Hz~35KHz               |
| Measurement range                   | 0 ~ 0.8 / 3.2 Adc                      | Resolution          | 1Hz                      |
| Resolution                          | 0.001 / 0.01A                          | Accuracy            | ±1% of (Reading + Range) |
| Accuracy                            | ±5% OF (Reading + Range)               | Duty(Ton) Range     | 3uS~90mS                 |
| Sampling Rate                       | 100KHz                                 | Resolution          | 1uS                      |
| Update Rate                         | 50~1000 mS(1/Fs * 20000)               | Accuracy            | ±1% of (Reading + Range) |
| Resolution                          | 1mS                                    |                     |                          |

Note : F.S. Load Current range

## 4013A Power Meter 規格簡表及可測試項目列表

| Model                          | 4013A Power Meter                                                              |
|--------------------------------|--------------------------------------------------------------------------------|
| No. of Input Channel           | 4                                                                              |
| 適用測試功能                         |                                                                                |
| 1. 輸入有效值電流 Input RMS Current   | 4. 無載功率 No Load Power Consumption                                              |
| 2. 輸入頻率 Input Frequency        | 5. 輸入功率因素 Input Power Factor                                                   |
| 3. 輸入功率 Input Power            |                                                                                |
| 規格                             |                                                                                |
| ACV meter(Vrms)                | 30V / 300V                                                                     |
| Resolution                     | 16-bit                                                                         |
| Accuracy                       | $\pm 0.5\%$ of (Reading + Range)                                               |
| ACA meter(Arms)                | 20mA / 200mA / 2A / 20A / 200A(for Inrush)                                     |
| Resolution                     | 16-bit                                                                         |
| Accuracy                       | $\pm 0.5\%$ of (Reading + Range) / $\pm 2\%$ of (Reading + Range) (for Inrush) |
| ACW meter                      | 0.6W / 6W / 60W / 600W / 6000W                                                 |
| Resolution                     | 32-bit                                                                         |
| Accuracy                       | $\pm 0.5\%$ of (Reading + Range)                                               |
| DCV meter                      | 40V / 400V                                                                     |
| Resolution                     | 0.001V / 0.01V                                                                 |
| Accuracy                       | $\pm 0.5\%$ of (Reading + Range)                                               |
| DCA meter                      | 20mA / 200mA / 2A / 20A / 200A(for Inrush)                                     |
| Resolution                     | 0.001mA / 0.01mA / 0.1mA / 1mA / 10mA(for Inrush)                              |
| Accuracy                       | $\pm 0.5\%$ of (Reading + Range) / $\pm 2\%$ of (Reading + Range) (for Inrush) |
| DCW meter                      | 800mW / 8W / 80W / 800W / 8000W                                                |
| Resolution                     | 32-bit                                                                         |
| Accuracy                       | $\pm 0.5\%$ of (Reading + Range)                                               |
| PF meter                       | $\pm 0.01 \sim 1.00$                                                           |
| Resolution                     | 0.01                                                                           |
| Accuracy                       | Corresponds to V and A, 1% of (Reading + Range)                                |
| Frequency meter                | 40~70 Hz                                                                       |
| Resolution                     | 0.1 Hz                                                                         |
| Accuracy                       | $\pm 0.1$ Hz                                                                   |
| Inrush Delay/Period            | 0~99.9mS/0.1~99.9S                                                             |
| Meter Meas. Rate Interval time | 100mS / 200mS / 500mS / 1S / 5S / 10S                                          |
| Low Pass Filter(V & A)         | 50KHz                                                                          |
| Interface                      | RS-232                                                                         |

# 4015A Power Meter with Harmonic 規格簡表及可測試項目列表

| Model                        |            | 4015A-1 Power Meter                                                                                                                 |                            |              |  |
|------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------|--|
| No. of Input Channel         |            | 1                                                                                                                                   |                            |              |  |
| 適用測試功能                       |            |                                                                                                                                     |                            |              |  |
| 1. Current Harmonic          |            | 4. 輸入功率 Input Power                                                                                                                 |                            |              |  |
| 2. 輸入有效值電流 Input RMS Current |            | 5. 無載功率 No Load Power Consumption                                                                                                   |                            |              |  |
| 3. 輸入頻率 Input Frequency      |            | 6. 輸入功率因素 Input Power Factor                                                                                                        |                            |              |  |
| 規格                           |            |                                                                                                                                     |                            |              |  |
| ACV meter (Vrms)             | Range      | 15V / 0.001V, 30V / 0.001V, 50V / 0.01V<br>150V / 0.01V, 300V / 0.01V, 500V / 0.1V                                                  |                            |              |  |
|                              | Accuracy   | ±0.1% of (Reading + Range)                                                                                                          |                            |              |  |
| ACA meter (Arms)             | Range      | 20mA / 0.001mA, 500mA / 0.01mA, 10A / 1mA<br>50mA / 0.001mA, 2A / 0.1mA, 20A / 1mA<br>200mA / 0.01mA, 5A / 0.1mA, 200A peak / 0.01A |                            |              |  |
|                              | Accuracy   | ±0.1% of (Reading + Range)                                                                                                          |                            |              |  |
|                              |            | ±2% of (Reading + Range, for Inrush)                                                                                                |                            |              |  |
| ACW meter                    | Range      | 0.3W / 0.01mW                                                                                                                       | 0.6W / 0.01mW              | 1W / 0.1mW   |  |
|                              |            | 0.75W / 0.1mW                                                                                                                       | 1.5W / 0.1mW               | 2.5W / 0.1mW |  |
|                              |            | 3W / 0.1mW                                                                                                                          | 6W / 0.1mW                 | 10W / 1mW    |  |
|                              |            | 7.5W / 1mW                                                                                                                          | 15W / 1mW                  | 25W / 1mW    |  |
|                              |            | 30W / 1mW                                                                                                                           | 60W / 1mW                  | 100W / 10mW  |  |
|                              |            | 75W / 1mW                                                                                                                           | 150W / 10mW                | 250W / 10mW  |  |
|                              |            | 150W / 10mW                                                                                                                         | 300W / 10mW                | 500W / 10mW  |  |
|                              |            | 300W / 10mW                                                                                                                         | 600W / 10mW                | 1000W / 0.1W |  |
|                              |            | 3W / 0.1mW                                                                                                                          | 6W / 0.1mW                 | 10W / 1mW    |  |
|                              |            | 7.5W / 1mW                                                                                                                          | 15W / 1mW                  | 25W / 1mW    |  |
| ACW meter                    | Range      | 30W / 1mW                                                                                                                           | 60W / 1mW                  | 100W / 10mW  |  |
|                              |            | 75W / 10mW                                                                                                                          | 150W / 10mW                | 250W / 10mW  |  |
|                              |            | 300W / 10mW                                                                                                                         | 600W / 10mW                | 1000W / 0.1W |  |
|                              |            | 750W / 10mW                                                                                                                         | 1500W / 0.1W               | 2500W / 0.1W |  |
|                              |            | 1500W / 0.1W                                                                                                                        | 3000W / 0.1W               | 5000W / 0.1W |  |
|                              |            | 3000W / 0.1W                                                                                                                        | 6000W / 0.1W               | 10000W / 1W  |  |
|                              |            | Accuracy                                                                                                                            | ±0.1% of (Reading + Range) |              |  |
|                              |            | DCV                                                                                                                                 | Range                      | Same as AC   |  |
|                              |            |                                                                                                                                     | Accuracy                   | Same as AC   |  |
|                              |            | DCA                                                                                                                                 | Range                      | Same as AC   |  |
| Accuracy                     | Same as AC |                                                                                                                                     |                            |              |  |
| DCW                          | Range      | Same as AC                                                                                                                          |                            |              |  |
|                              | Accuracy   | Same as AC                                                                                                                          |                            |              |  |
| PF meter                     | Range      | ±0.001~1.000 / 0.001                                                                                                                |                            |              |  |
|                              | Accuracy   | 1% of (Reading + Range, Corresponds to V and A)                                                                                     |                            |              |  |
| Frequency meter              | Range      | 40~70 / 0.1Hz                                                                                                                       |                            |              |  |
|                              | Accuracy   | ± 0.1 Hz                                                                                                                            |                            |              |  |
| V/A                          | Number     | 1~50 th / Same as ACV, ACA meter                                                                                                    |                            |              |  |
| Harmonic                     | Accuracy   | ±0.5% of (Reading + Range)                                                                                                          |                            |              |  |
| V/A THD                      | Range      | 0%~255% / 0.001%                                                                                                                    |                            |              |  |
|                              | Accuracy   | ±0.5% of (Reading + Range)                                                                                                          |                            |              |  |
| Inrush Delay / Period        |            | 0~100ms                                                                                                                             |                            |              |  |
| Low Pass Filter(V & A)       |            | 50KHz                                                                                                                               |                            |              |  |
| Interface                    |            | RS-232                                                                                                                              |                            |              |  |

### 5303 規格簡表敘述及可適用之功能列表

| Model                   | 5303 AVR                   |
|-------------------------|----------------------------|
| 適用測試功能                  |                            |
| 1. Input Inrush Current |                            |
| 規格                      |                            |
| Power Rating            | 3KVA                       |
| Maximum Capacity        | CF > 7                     |
| Input Voltage Rating    | 230Vrms +/- 10%            |
| Output Voltage Rating   | 230,264,277Vrms Selectable |
| Accuracy                | ±2.5Vrms                   |
| Interface               | RS-232 remote control only |

### PFR-100L/100M 規格表及可適用之功能列表

| Model                            |           | Fanless Multi-Range D.C. Power Supply |          |
|----------------------------------|-----------|---------------------------------------|----------|
| 適用測試功能                           |           |                                       |          |
| 1. 過電壓保護 Over Voltage Protection |           |                                       |          |
| 規格                               |           | PFR-100L                              | PFR-100M |
| Power Rating                     |           | 100W                                  |          |
| Voltage range                    |           | 0 ~ 50V                               | 0 ~ 250V |
| Resolution                       |           | 40mV                                  | 200mV    |
| Current range                    |           | 0 ~ 10A                               | 0 ~ 2A   |
| Resolution                       |           | 1mA                                   | 0.1mA    |
| Slew rate                        | Rise Time | 50ms                                  | 100ms    |
|                                  | Fall Time | 100ms                                 | 200ms    |
| Protection                       |           | OCP , OTP                             |          |

### 訂 購 方 式



基本版

6010-02-A  
雙組Charger/Adapter/LED Driver  
自動測試系統



標準版

6010-02-B  
雙組Charger/Adapter/LED Driver  
自動測試系統



加 值 版

6010-02-C  
雙組Charger/Adapter/LED Driver  
自動測試系統



完整版

6010-02-D  
雙組Charger/Adapter/LED Driver  
自動測試系統