

CFS 100 Series

Single Phase AC or DC Power Testing Simplified...

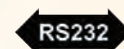


AC Power



DC Power

| CFS108 | CFS116 | CFS140 |
|---|---------|---------|
| 800 VA | 1600 VA | 4000 VA |
| AC Mode: 40 - 500 Hz 5 - 150 V _{LN} / 5 - 300 V _{LN} | | |
| DC Mode: 5 - 200Vdc / 5 - 400Vdc | | |



Look no further for cost effective single phase AC or DC power test solutions than the compact CFS100 Series programmable power sources. Designed to perform a wide range of AC and/or DC tests with excellent performance and reliability, the APS CFS100 units are industry work horses.

Available in three power levels of 800 VA, 1600 VA and 4000 VA, a wide range of commercial, industrial and aviation type equipment testing is covered. The CFS108 can be operated from either 115V or 230V AC power. Models CFS116 and CFS140 can be operated from single phase 230V or split phase 208V AC power.

CFS100 Series Features:

- Choice of Power Levels to fit your Requirements
- AC and DC Mode Output Capability
- Wide AC Frequency Range of 40 Hz to 500 Hz covers both industrial/commercial and avionics/defense applications
- Extensive List of Measurements
- Fifty Memory Locations with Nine Test Steps for Pass/Fail Measurements against pre-set Limits
- Voltage Drop-out Test Capability built-in
- Programmable Start/Stop Phase Angle
- Standard USB and RS232 Remote Control Interfaces
- Optional Ethernet / LAN Interface for ATE Test System Use
- Single Phase AC Input on all models
- CE Mark



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EASY POWER TESTING OF AC OR DC PRODUCTS

Testing both AC and DC powered products for performance to specifications and proper operation has never been easier or more cost effective than with the CFS100 Series programmable power sources. These compact rack mountable units make it easy to test single phase AC products or DC powered products, all with the same instrument.

Available in three power levels, the CFS100 units feature an intuitive menu driven user interface with a large backlit LCD display that shows settings and measurements.

Two modes of operation are available to the user:

- **Manual Mode** - Allows manual settings of all output parameters
- **Program Mode** - Allows sequencing through up to 9 test steps, each having distinct output settings and measurement pass/fail test limits

Manual Mode or Pass / Fail Limit Testing

| | | | | |
|------------|--------|-------------|--------|------|
| Auto Run | MANUAL | F Lo-Lmt | 40.0Hz | ^ |
| PLC Remote | OFF | Start Angle | 0° | |
| Alarm | 5 | End Angle | 0° | ↓ |
| Contrast | 5 | Results | LAST | |
| Power Up | OFF | OC Fold | OFF | Edit |
| V Hi-Lmt | 300.0V | Transient | OFF | |
| V Lo-Lmt | 5.0V | Lock | OFF | Exit |
| F Hi-Lmt | 1000Hz | <more> | | |

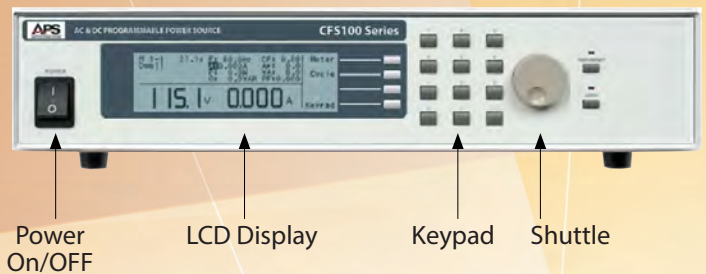
Manual Mode Setup Screen

Manual Mode allows setting individual output parameter settings and limits. By setting limits on voltage and frequency, accidental output settings that could damage an EUT can be avoided. When the Test Output button is pushed, power is applied to the EUT and the LCD screen displays all measurement values. Large characters are used for Voltage and one other parameter selected from the available measurements in the upper half of the display.

| | | | | |
|---------|-------|-----------|-----------|--------|
| M 1-1 | 60.0s | E: 60.0Hz | CF: 0.00 | Result |
| Set | | A: 9.00A | Ap: 0.0 | System |
| | | P: 0W | VA: 0 | ENET |
| | | Q: 0VAR | PF: 0.000 | <top> |
| 100.0 V | | 9.00 A | | |

Program Mode Step Metering Display

AC or DC Output Connections



Programs can be stored in the 50 available non-volatile memory locations for quick recall. Each program memory can be assigned a name for easy reference to a test requirement or EUT. For quick setups of lab work, Manual mode is an easy way to change output values and observe measurement data without any limit testing.

| | | | | |
|-------------|---------|------------|-----|------|
| Auto Run | PROGRAM | OC Fold | OFF | ^ |
| PLC Remote | OFF | Lock | OFF | |
| Single Step | OFF | Mem Lock | ON | ↓ |
| Alarm | 5 | Volt Sense | INT | |
| Contrast | 5 | | | Edit |
| Power Up | OFF | | | |
| Loop Cycle | 1 | | | Exit |
| Results | LAST | | | |

Program Mode Setup Screen

Program Mode allows a sequence of up to nine timed test steps to be applied to the EUT. At each step, measurements are taken and compared to pre-set pass/fail limits. If all selected measurements pass, the output proceeds to the next test step once the programmed dwell time has expired. If not, an alarm sounds and the power to the EUT is cut. This mode is ideal for production test and pass fail testing without the need to develop test software.

| | | | | |
|-----------|-------|-----------|-------|------|
| A Lo-Lmt | 0.00A | PF Lo-Lmt | 0.000 | ^ |
| P Hi-Lmt | 0W | VA Hi-Lmt | 0VA | |
| P Lo-Lmt | 0W | VA Lo-Lmt | 0VA | ↓ |
| Ap Hi-Lmt | 0.0A | Q Hi-Lmt | 0VAR | |
| Ap Lo-Lmt | 0.0A | Q Lo-Lmt | 0VAR | Edit |
| CF Hi-Lmt | 0.00 | Promet | | |
| CF Lo-Lmt | 0.00 | Ext Trig. | OFF | |
| PF Hi-Lmt | 0.000 | Connect | OFF | Exit |

Test Limits Setup Screen

All load connections are made at the rear panel. Both AC or DC output are available on the same output terminal strip. An output safety cover is provided.

Instrument Specifications

| MODEL | | CFS108 | CFS116 | CFS140 |
|---|---------------|--|---------|---------|
| OUTPUT SPECIFICATIONS - AC MODE | | | | |
| Power Rating | | 800 VA | 1600 VA | 4000 VA |
| AC Output Terminals | | Rear Panel (L, N, G), Floating Neutral | | |
| Voltage Ranges | Low / High | 5 - 150V / 5 - 300V | | |
| | Resolution | 0.1 V | | |
| | Accuracy | $\pm (0.2\% \text{ setting} + 0.3 \text{ V})$ | | |
| Current | 150V Range | 9.2 A | 18.4 A | 36.8 A |
| | 300V Range | 4.6 A | 9.2 A | 18.4 A |
| Over Current Capability | | 4x Rated, 110% for 1000 msec | | |
| Peak Cur. | 150V Range | 36.8 A | 73.6 A | 147.2 A |
| | 300V Range | 18.4 A | 36.8 A | 73.6 A |
| Crest Factor | | ≥ 3 to 1 | | |
| Frequency | Range | 40 - 500 Hz | | |
| | Resolution | 0.1 Hz | | |
| | Accuracy | $\pm 0.1 \text{ Hz}$ | | |
| Start/Stop Phase | Range | 0 - 359° | | |
| | Accuracy | $\pm 1\%$, 45- 65 Hz | | |
| Harmonic Distortion (Full Resistive Load) | | < 1.0%, 80-140V on Low Range | | |
| | | < 1.0%, 160-280V on High Range | | |
| Line Regulation | | $\pm 0.1 \text{ V}$ for a 10% Line Change | | |
| Load Regulation | | $\pm 1.0\% \text{ Range} + 1 \text{ V}$, R Load | | |
| | Response time | < 400 usec | | |
| Protection | | Over Current, Short Circuit, Over Voltage, Under Voltage, Over Temperature | | |

| MODEL | | CFS108 | CFS116 | CFS140 |
|-------------------------------------|------------|--------------------------|---------------------------|--|
| MEASUREMENT SPECIFICATIONS- AC MODE | | | | |
| Voltage | Range | 0.0 - 400.0 V | | |
| | Resolution | 0.1 V | | |
| | Accuracy | ± (1.0% + 0.2V) | ± (1.0% Rdg + 0.5V) > 5 V | |
| Frequency | Range | 0.0 - 500.0 Hz | | |
| | Resolution | 0.1 Hz | | |
| | Accuracy | ± 0.1 Hz | | |
| Current RMS | Range (L) | 0.005-1.2 A | 0.005-2.4 A | n/a |
| | (H) | 1.00-13.00 A | 2.00-26.00 A | 0.05-52.00 A |
| | Res. (L) | 0.001 A | | |
| | (H) | 0.01 A | | |
| | Acc. (L) | ± (1.0% Rdg + 0.005A) | | |
| | (H) | ± (1.0% Rdg + 0.05A) | | |
| Current Peak | Range | 0.0 - 38.0 A | 0.0 - 79.0 A | 0.0 - 152.0 A |
| | Resolution | 0.1 A | | |
| | Accuracy | ± (1.0% Rdg + 0.5A) | | |
| Power | Range (L) | 0.0- 120.0 W | 0.0- 240.0 W | n/a |
| | (H) | 100-1300 W | 200-2600 W | 0-5200 W |
| | Res. (L) | 0.1 W | | |
| | (H) | 1 W | | |
| | Acc. (L) | ±(2% Rdg + 1.5W) @PF>0.2 | ±(2% Rdg + 3W) @PF>0.2 | ±(2% Rdg + 5W) @PF>0.2, V> 5V, I > 0.05A |
| | (H) | ±(2% Rdg + 1.5W) @PF>0.2 | ±(2% Rdg + 3W) @PF>0.2 | |
| Power Factor | Range | 0.000 - 1.000 | | |
| | Resolution | 0.001 | | |
| | Accuracy | Calculated W/VA | | |

| MODEL | | CFS108 | CFS116 | CFS140 |
|--|-------------|---|----------|-----------|
| OUTPUT SPECIFICATIONS - DC MODE | | | | |
| Power Rating | | 400 W | 800 W | 2000 W |
| DC Voltage Ranges | | 5 - 200Vdc / 5 - 400Vdc | | |
| | Resolution | 0.1 Vdc | | |
| | Accuracy | $\pm (0.2\% \text{ Setting} + 0.3 \text{ V})$ | | |
| Ripple & Noise RMS-VL | | < 450 mV | < 500 mV | < 900 mV |
| | VH | < 700 mV | < 800 mV | < 1500 mV |
| Ripple & Noise p-p | | < 2.0 Vpp | | |
| Max. Current | VL (< 87V) | 4.6 A | 9.2 A | 18.4 A |
| | VH (< 174V) | 2.3 A | 4.6 A | 9.2 A |
| | Accuracy | $\pm (2.0\% \text{ Setting} + 0.2 \text{ A})$ | | |

| MODEL | | CFS108 | CFS116 | CFS140 |
|---|----------|--|---------------------------------------|---------------------------------------|
| MEASUREMENT SPECIFICATIONS - DC MODE | | | | |
| Voltage DC | Range | 0.0 - 400.0 Vdc | | |
| | Accuracy | $\pm (0.2\% \text{ Setting} + 0.3 \text{ V})$ | | |
| Current DC | Range | 0.05-6.5Adc | 0.05-13.0Adc | 0.05-26.0Adc |
| | Accuracy | $\pm (1.0\% \text{ Setting} + 0.05 \text{ Adc})$ | | |
| Power | Range | 0 - 1300 W | 0 - 2600 W | 0-5200 W |
| | Accuracy | $\pm (2\% \text{ Rdg} + 1.5 \text{ W})$ | $\pm (2\% \text{ Rdg} + 3 \text{ W})$ | $\pm (2\% \text{ Rdg} + 5 \text{ W})$ |

| MODEL | | CFS108 | CFS116 | CFS140 |
|--------------------------|--|--------------------------------|--------|--------|
| SYSTEM PARAMETERS | | | | |
| Operating Modes | | Program Mode, Manual Mode | | |
| Single Step Mode | | On / Off selectable | | |
| Alarm Level | | 0 through 9, 0 = OFF, 9 = HIGH | | |
| LCD Contrast | | 0 through 9, 0 = OFF, 9 = HIGH | | |
| Power Up Settings | | Output OFF, Output ON or LAST | | |
| Timer | | Seconds, Minutes, Hours | | |
| Loop Cycle | | 0 - 9999, 0 = Cont. 1 = OFF | | |
| Voltage Surge/Drop | | ON, OFF | | |
| Over Current Fold-back | | ON, OFF | | |

| MODEL | | CFS108 | CFS116 | CFS140 |
|-----------------------------|--|---|--------|--------|
| TEST MODE PARAMETERS | | | | |
| Memories | | 1 through 50 | | |
| Steps / Memory | | 1 through 9 | | |
| Memory Cycling | | 0 - 9999, 0 = Cont., 1 = OFF | | |
| Test Limits | | Frequency, Current Hi/Lo, Power Hi/Lo, App. Power Hi/Lo, PF Hi/Lo | | |
| Ramp Up or Down | | 0.0 - 999.9 | | |
| Delay | | 0.5 - 999.9 | | |
| Dwell | | 0.5 - 999.9 | | |
| Step Cycles | | 0 - 9999, 0 = Cont., 1 = OFF | | |
| Connect | | ON, OFF | | |
| Surge / Drop Voltage | | ON: Start 0-20ms, Duration 0-20ms OFF: Start 0-99ms, Duration 0-99ms | | |

| MODEL | | CFS108 | CFS116 | CFS140 |
|-----------------------------|--|---|--------|--------|
| INTERFACES AND I/O | | | | |
| Remote Control | | RS232, USB | | |
| LAN / Ethernet ¹ | | Option -LAN | | |
| Digital Outputs | | Pass, Fail, Test in Progress, DB9, rear panel, Relay contact closures | | |
| Output Sync Signal | | +5Vdc Out, BNC connector, rear panel | | |

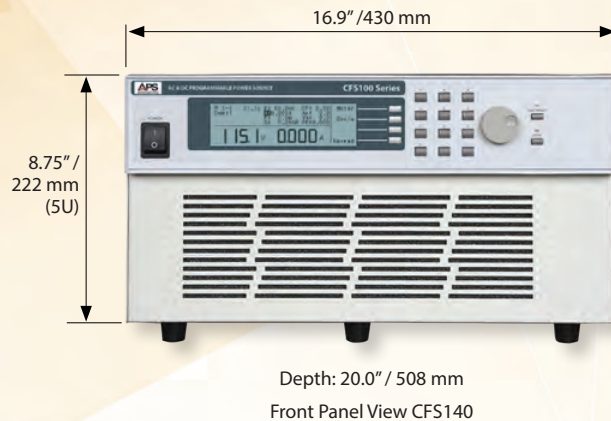
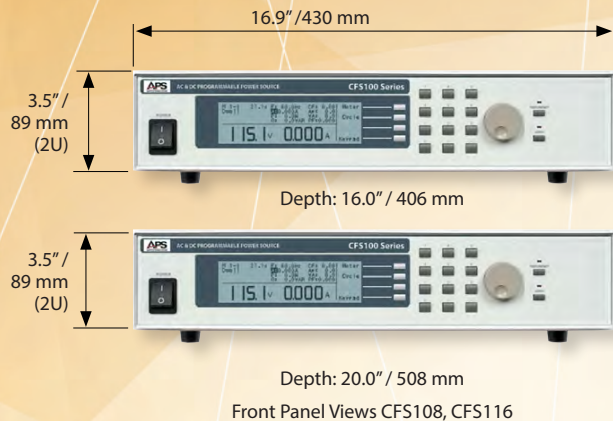
Note1: LAN option includes RS232 but deletes USB interface

Instrument Specifications - Continued

| MODEL | CFS108 | CFS116 | CFS140 |
|--------------------------------|--------------------|---------------|----------------|
| AC INPUT SPECIFICATIONS | | | |
| Input Phases | 1ø | | |
| Frequency | 47 - 500 Hz | | |
| Input Voltage | 115/230Vac±10% | 230 Vac ± 10% | |
| Max. Input Current@115V | 12 A | n/a | n/a |
| Max. Input Current@230V | 6 A | 12 A | 30 A |
| Efficiency | > 80 % @ Full Load | | |
| AC Line Cord, IEC 60320 | C13 | C19 | Terminal Strip |

| MODEL | CFS108 | CFS116 | CFS140 |
|---|--------------------------------|------------------|-------------------|
| MECHANICAL & ENVIRONMENTAL SPECIFICATIONS | | | |
| Dimensions (WxHxD) | 432x89x406 mm | 432x89x508 mm | 432x222x508 mm |
| | 17" x 3.5" x 16" | 17" x 3.5" x 20" | 17" x 8.75" x 20" |
| Rack Mount | Handle & Rack Ear Kit included | | |
| Weight | 19 Kg | 30.8 Kg | 64.8 Kg |
| | 42 lbs. | 68 lbs. | 143 lbs. |
| Operating Environment | | | |
| Temperature | 5 - 40° C / 41 - 104° F | | |
| Fan Cooled | Dual Speed | | Variable speed |
| Humidity | 20 - 80% R.H. Non-condensing | | |
| Altitude - Operating | 2000 meters / 6,562 feet | | |
| Storage | 7620 meters / 25,000 feet | | |
| Regulatory | | | |
| Safety & EMC | CE | | |

Dimensions



Ordering Information

| MODEL | DESCRIPTION | MODEL | DESCRIPTION |
|----------------|---------------------------------------|----------------|---------------------------------------|
| CFS108 | AC&DC Power Source, 800VA, USB/RS232 | CFS140-208 | AC&DC Power Source, 4000VA, USB/RS232 |
| CFS108-LAN | AC&DC Power Source, 800VA, LAN/RS232 | CFS140-208-LAN | AC&DC Power Source, 4000VA, LAN/RS232 |
| CFS116-208 | AC&DC Power Source, 1600VA, USB/RS232 | CFS140-230 | AC&DC Power Source, 4000VA, USB/RS232 |
| CFS116-208-LAN | AC&DC Power Source, 1600VA, LAN/RS232 | CFS140-230-LAN | AC&DC Power Source, 4000VA, LAN/RS232 |
| CFS116-230 | AC&DC Power Source, 1600VA, USB/RS232 | | |
| CFS116-230-LAN | AC&DC Power Source, 1600VA, LAN/RS232 | | |

Service and Support

Adaptive Power Systems' customer support is second to none. Our Customer Support Program provides the training, repair, calibration, and technical support services that our customers value. So, in addition to receiving the right test equipment, our customers can also count on excellent support before, during and after the sale. With company owned support and service centers around the world, support is never far away.

New Product Warranty: AC Sources & Loads: 1 year, DC Power Supplies: 2 years.

Complete calibration and repair services are offered at our US, European and Chinese manufacturing facilities (see contact info below). Calibrations are to original factory specifications and are traceable to NIST (National Institute of Standards and Technology).

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