AE TECHRON®



4301 Telecom Test Systems

The *AE Techron* ***4301 Series*** Telecom Test Systems have been specially designed for EMC testing of network telecommunications equipment and are the best systems available for producing the waveforms required for transient voltage measurements as described in GR-1089 Section 10 and ATIS-0600315.2007.

For testing to these Specifications:

TELECOM

GR-1089

Section 10

ATIS-0600315.2007

The 4301 is designed to work with a standard arbitrary wave form generator or signal source that can be triggered. The system can be ordered with an optional Fluke 281 arbitrary waveform generator, which comes pre-programmed and integrated into the 4301 system. When equipped with the Fluke 281 option, the 4301 provides a complete solution for GR-1089 Section 10/ATIS-0600315.2007 testing.

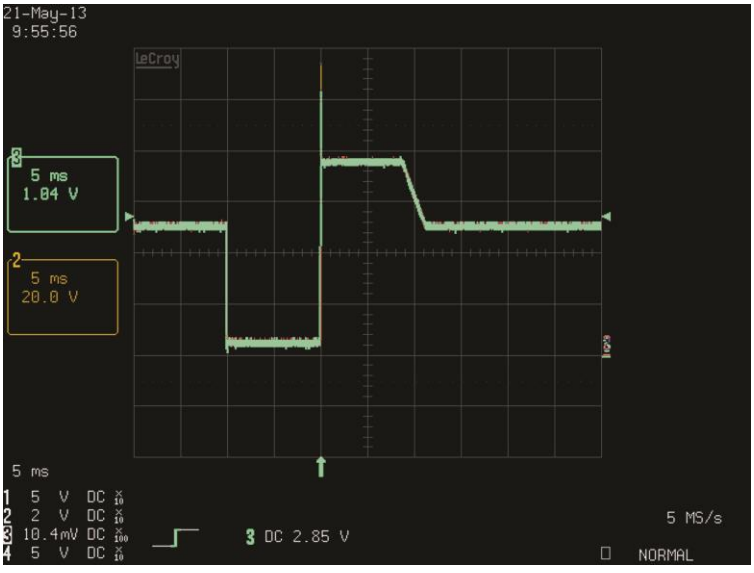
The 4301 system is available in four standard configurations and is capable of slew rates of up to 60 V/µsec. In its largest configuration (model 4301-240), the 4301 system can provide up to 240A of DC at ±50VDC and can provide pulses of up to 800 amps at voltages of up to ± 100V. The system has a voltage gain of 20 and can accept input voltages of up to ±10V.

The system cabinets have been designed with space and power provisions for the installation of other electronics, if desired.

Lower power versions of the 4301 amplifier solution are available for users with lower current requirements: 4301-180 (180A), 4301-120 (120A) and 4301-60 (60A).

Features

- Complete solution for GR-1089 Section 10 and ATIS-0600315.2007 DC Voltage Variations and Transients Testing.
- Optional Fluke 281 AWG comes pre-programmed and integrated into the 4301 system.
- Slew rates up to 60 V/µsec.
- Up to 240A DC at +50VDC or –50VDC (4301-240 configuration).
- Can provide pulses of up to 800 amps at voltages of up to ±100V (4301-240 configuration).
- Adjustable compensation allows the system to maintain a 50V/2 µsec rise-time over a wide range of current outputs.
- Cabinet design allows for additional customization.



4301 system output of combined waveform.

Performance

Maximum Continuous DC Current (±50VDC):

4301-240: 240A
4301-180: 180A
4301-120: 120A
4301-60: 60A

Maximum Pulse DC Current (up to ±100VDC):

4301-240: 800A
4301-180: 600A
4301-120: 400A
4301-60: 200A

Voltage Gain: 20

Maximum Input Voltage:

±10V, unbalanced

Indicators and Controls (4301 system amplifier modules)

LED Displays:

Indicators for Run, Ready, Standby, and Stop status, and Fault conditions in the output stage.

LCD Display:

Can be user-configured for up to four simultaneous displays reporting one, two, or all four of the following: Voltage Peak, Voltage RMS, Current Peak and Current RMS. When the amplifier module is in a Fault condition, the LCD Display lists the type of fault condition and gives suggested corrective action.

Navigation Buttons:

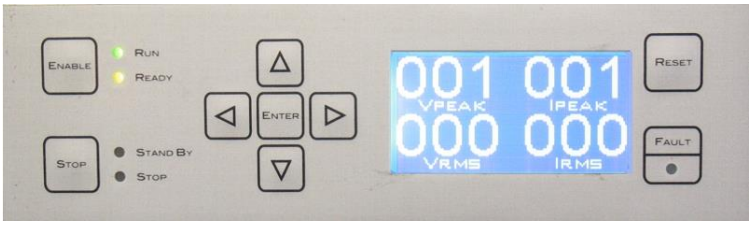
The Navigation Buttons provide four arrow keys to allow navigation through the various LCD display options.

Soft Touch Switches:

Soft touch switches allow the selection of Run (Enable), Stop and Reset functions.



4301 system amplifier module



4301 amplifier module control panel



4301 amplifier module compensation control and indicators

Current Required at System Output	Compensation Setting				
	Model	**0**	**1 (blue)**	**2 (green)**	**3 (yellow)**
	4301-60	0-6A (compensation off)	6-12A	12-50A	50-60A
	4301-120	0-12A (compensation off)	12-24A	24-100A	100-120A
	4301-180	0-18A (compensation off)	18-36A	36-150A	150-180A
	4301-240	0-24A (compensation off)	24-50A	50-200A	200-240A

4301 system compensation settings

Compensation Setting:

A four-position rotary control allows the selection of optimum compensation settings according to the total current required at the system output.

Compensation LEDs:

When the amplifier module is receiving AC power, the colored LED associated with the selected Compensation setting will be lit.

Inputs and Outputs

Signal Input:

A BNC connector located on the cabinet front input/output panel accepts input from an arbitrary waveform generator.

External Trigger Output:

A BNC connector located on the cabinet front input/output panel provides the signal to the Trigger In connector on the AWG.

Current Monitor Output:

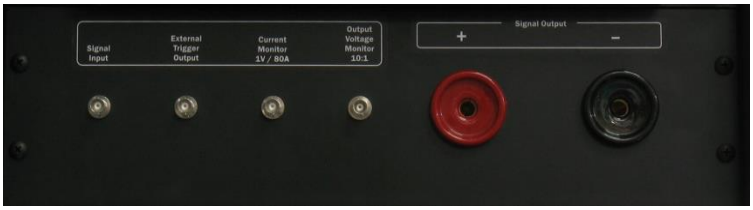
A BNC connector located on the cabinet front input/output panel provides scaled voltage output for current monitoring:
4301-60: 20A output = 1V monitor output.
4301-120: 40A output = 1V monitor output.
4301-180: 60A output = 1V monitor output.
4301-240: 80A output = 1V monitor output.

Voltage Monitor Output:

A BNC connector located on the cabinet front input/output panel provides scaled voltage output for voltage monitoring: 10V output = 1V monitor output.

Signal Output:

250A Pin Plug connectors (or optional Anderson SB350 connectors) provide signal output to the equipment under test.



4301 system input/output panel



Optional SB350 output connectors



Optional Fluke 281 AWG is integrated into the 4301 system

Protection

Fault:

The Fault LED on an amplifier module will light if the module's output stage stops operating. If this happens, contact AE TECHRON for servicing information.

AC Under/Over Voltage Protection:

If the AC line voltage rises or drops more than10% of the nominal operating voltage, the system will be forced to Standby.

Over Current:

Each amplifier module contains breaker protection on both the unit's main power supply and the low-voltage supplies. The 4301 system provides a Main Power breaker switch and an Auxiliary Power breaker switch located inside the cabinet rear door.

Over Temperature

Each amplifier module contains separate output transistor, heat-sink and transformer temperature monitoring and protection circuits.

Options:

AWG Option:

A Fluke 281 AWG can be integrated into the 4301 system. The optional AWG comes pre-programmed with the required test waveforms and is mounted securely within the 4301 cabinet. A GPIB port located next to the AWG on the system front panel allows communication with the AWG through a user-supplied computer.

Customization:

The 4301 systems are configured with space for additional customer customization, if desired. A pre-wired, 120V auxiliary outlet box is also provided.

Physical Characteristics

Cabinet:

Welded steel cabinet with a textured black, powder-coat finish.

Main Power:

A main power selector located on the system front panel controls the main power supply to the system.

Required AC Mains (±10%):

Three-phase, 208-VAC; 47-60 Hz, 5-conductor wiring.

4301-240: 120A AC service
4301-180: 90A AC service
4301-120: 60A AC service
4301-60: 30A AC service

Three-phase, 400-VAC; 47-60 Hz, 5-conductor wiring.

4301-240: 60A AC service
4301-180: 45A AC service
4301-120: 30A AC service
4301-60: 15A AC service

Operating Temperature:

10°C to 50°C (50°F to 122°F), Maximum Output Power de-rated above 30°C (86°F).)

Humidity:

70% or less, non-condensing.

Cooling:

The 4301 system amplifier modules employ forced air-cooling from front to back through removable filters via six 100 ft3/min. fans per unit. No space is required between rack-mounted modules. Provide room at the cabinet back to allow for proper airflow.

Dimensions (H x W x D):

4301-240 and 4301-180: 74 in. x 22 in. x 31.5 in. (188 cm x 55.9 cm x 80 cm).
4301-120 and 4301-60: 52 in. x 22 in. x 31.5 in. (132 cm x 55.9 cm x 80 cm).

Net Weight:

4301-240: 850 lbs. (386 kgs.)
4301-180: 697 lbs. (316 kgs.)
4301-120: 454 lbs. (206 kgs.)
4301-60: 301 lbs. (137 kgs.)

Shipping Weight:

4301-240: 1050 lbs. (476 kgs.)
4301-180: 897 lbs. (407 kgs.)
4301-120: 589 lbs. (267 kgs.)
4301-60: 436 lbs. (198 kgs.)

AE Techron Sales Representative