

## DIFFERENTIAL AMPLIFIERS



DA1855A

The DA1855A is a stand-alone, high-performance differential amplifier providing the fastest overdrive recovery of any commercially available product. This unique capability allows the amplifier to make measurements that would normally be limited by oscilloscope overdrive recovery.

### Features:

- Full control from oscilloscope through ProBus interface
- DC to 100 MHz bandwidth
- Outstanding 100,000: 1 Common Mode Rejection Ratio (CMRR)
- Gain of X1 or X10
- Industry-leading overdrive recovery
- Low noise
- Selectable BW limiting
- Two gain control modes when connected to a LeCroy oscilloscope
- Built-in Precision Voltage Generator (PVG)
- Comparator and true differential offset modes

### SPECIFICATIONS

#### GENERAL

Amplifier Gain	1 or 10
Gain Accuracy	±1% + uncertainty of termination resistance
Output Zero	≤ 2 mV referred to input
Bandwidth	> 100 MHz (X1 gain)
Output Impedance	50 Ω
Intended Output Load	50 Ω
Maximum Output	limited at ±.50 V into 50 Ω
Input Attenuation	÷1 or ÷10
Input Impedance	1 MΩ    20 pF 100 MΩ resistance selectable in ÷1 attenuation setting only

#### MAX. DIFFERENTIAL LINEAR INPUT

(X1 Gain, ÷1 Attenuator)	±0.5 V
(X10 Gain, ÷1 Attenuator)	±0.05 V
(X1 Gain, ÷10 Attenuator)	±5.0 V
(X10 Gain, ÷10 Attenuator)	±0.5 V

#### MAX. COMMON MODE INPUT

(÷1 Attenuator)	±15.5 V
(÷10 Attenuator)	±155 V

#### DIFFERENTIAL OFFSET RANGE (VDIFF) MODE

(X1 Gain, ÷1 Attenuator)	±10 V
(X10 Gain, ÷1 Attenuator)	±1 V
(X1 Gain, ÷10 Attenuator)	±100 V
(X10 Gain, ÷10 Attenuator)	±10 V

#### COMPARISON OFFSET RANGE (VCOMP) MODE

Effective Comparison Voltage Range	
(÷1 Attenuator)	±15.5 V
(÷10 Attenuator)	±155 V



## DIFFERENTIAL AMPLIFIERS

### COMMON MODE REJECTION RATIO, X1 OR X10 GAIN, $\pm 1$ ATTENUATION

$\geq 50,000 : 1$	1 (94 dB) @ 70 Hz
$\geq 50,000 : 1$	1 (94 dB) @ 100 kHz
$\geq 316 : 1$	1 (50 dB) @ 10 MHz

### OVERDRIVE RECOVERY

In X10 gain, amplifier settles to within 1 mV referred to the input within 100 nsec from 4 V input (8000% overdrive).

### BANDWIDTH LIMIT FILTERS (LOW PASS)

20 MHz, 1.0 MHz, and 100 kHz

### MAXIMUM NONDESTRUCT INPUT

250 V peak

### PRECISION VOLTAGE SOURCE

Output Range	$\pm 15.5$ V
DC Accuracy	0.05% of reading +500 $\mu$ V (15 °C to 45 °C)
Resolution	100 $\mu$ V (5 1/2 digit)

### POWER REQUIREMENTS

Line Voltage Requirement	100 to 250 V AC
Line Frequency Range	48–66 Hz
Power Consumption	$\approx 26$ W, $\approx 36$ VA $\approx 52$ W, $\approx 72$ VA (DA1855A-PR2)

### ENVIRONMENTAL CHARACTERISTICS

Operating Range	0 °C to 50 °C
Non-Operating	-4 °C to 75 °C

### PHYSICAL CHARACTERISTICS

Height	7.29 cm (2.87")
	8.75 cm (3.4") (DA1855A-PR2)
Width	21.2 cm (8.36")
	43.9 cm (17.3") (DA1855A-PR2 without rack mounting ears installed)
Depth	23.2 cm (9.12")
	42.5 cm (16.7") (DA1855A-PR2)
Weight	2.15 kg (4.75 lbs.)
	9.5 kg (21 lbs.) (DA1855A-PR2)
Shipping Weight	3.12 kg (6.88 lbs.)
	11.3 kg (25 lbs.) (DA1855A-PR2)

### WARRANTY

3 years

### ORDERING INFORMATION

1 Ch 100 MHz Differential Amplifier with Precision Voltage Source	DA1855A
2 Ch 100 MHz Differential Amplifier with Precision Voltage Source	DA1855A-PR2
2 Ch DA1855A with Rackmount	DA1855A-PR2-RM*

### PRODUCT CODE

\* Must be ordered at time of purchase, no retrofit.

## PROBES

The DXC100A is a high performance, passive, matched differential probe pair designed for use with the DA18xxA Series differential amplifiers. It allows for precise adjustment and matching of transient response, and optimization of the system Common Mode Rejection Ratio (CMRR).

### Features:

- DC to 100 MHz bandwidth with DA1855A
- Maximum input voltage 500 V
- Selectable  $\div 10$  or  $\div 100$  attenuation factor
- 1.2 meter cable length



DXC100A

### SPECIFICATIONS

Attenuation Factor	$\div 10$ or $\div 100$
System Bandwidth (-3 dB) (with DA1855A)	100 MHz
System Risetime (with DA1855A)	3.5 ns
Input Resistance	1 M $\Omega$ $\pm 1\%$
Input Capacitance	10.5 pF $\pm 0.5$ pF
Max. Nondestructive Input Voltage	500 V DC + peak AC
Length	1.2 meter

### ENVIRONMENTAL CHARACTERISTICS

Operating Range	0 °C to 50°C
Non-Operating	40 °C to 71°C

### PHYSICAL CHARACTERISTICS

Weight	0.18 kg (6.4 oz.)
Shipping Weight	0.45 kg (1 lb.)

### WARRANTY

1 year

### ORDERING INFORMATION

$\div 100$  or  $\div 10$  Selectable, 250 MHz  
Passive Differential Probe Pair

### PRODUCT CODE

DXC100A\*

\* Must be used with DA Series differential amplifiers

## PROBES

The DXC5100 is a passive, high voltage differential probe pair for use with DA18xxA Series differential amplifiers. It is ideal for motor drive and other applications with high bus voltages. Maximum differential input voltage is 500 volts (5 kV when used with DA101).

### Features:

- Maximum input voltage 2500 V to ground
- $\div 100$  attenuation
- DC to 100 MHz bandwidth with DA1855A
- $< 2.75$  pF input capacitance

### SPECIFICATIONS

Attenuation Factor	$\div 100, \pm 1.75\%$
Max. Input Voltage, each probe to ground	2500 V (DC + peak AC)
Input Resistance	10 M $\Omega$
Input Capacitance	$< 2.75$ pF
Cable Length	3.1 meter
Weight	275 g (10 oz.)
Shipping Weight	0.5 kg (1 lb. 1.6 oz.)
<b>WARRANTY</b>	1 year

### ORDERING INFORMATION

$\div 100$  250 MHz 2.5 kV, High Voltage Probe Pair

### PRODUCT CODE

DXC5100\*



DXC5100

The DA101 is a  $\div 10$  passive external attenuator. When used with the DXC5100, it extends the probe pair's differential mode range to up to 5000 volts, provided that the common mode voltage of 2500 volts to ground for each probe is not exceeded.

### SPECIFICATIONS

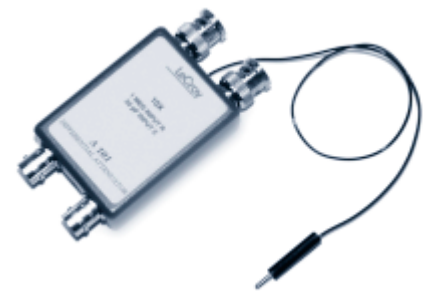
Attenuation Factor	$\div 10$
Weight	0.10 kg (3.5 oz.)
Shipping Weight	0.41 kg (0.9 lb.)

### ORDERING INFORMATION

$\div 10, 1$  M $\Omega$  External Passive Attenuator

### PRODUCT CODE

DA101†



DA101

\* Requires DA101 for full performance  
 † Recommended with DXC5100