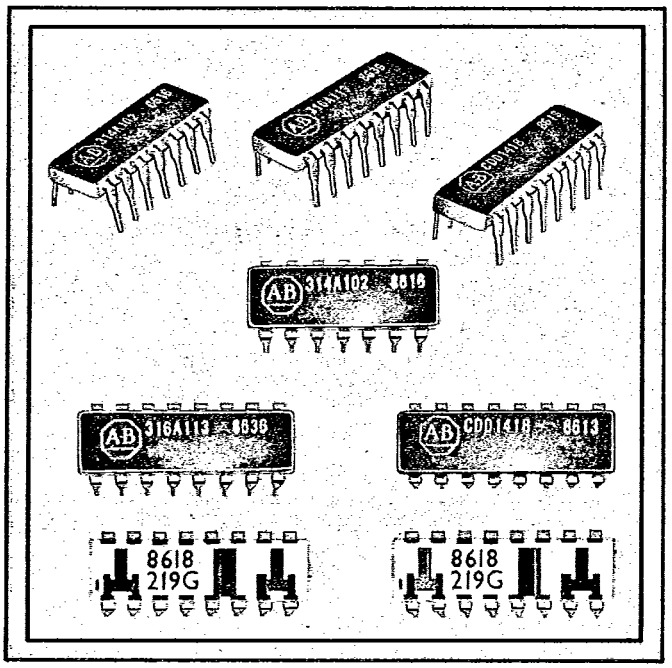
# Series 314, 316 Cermet Resistor Networks



I-DIP
Dual In-Line Package

## FEATURES

- Solid Ceramic Body
- Custom Circuit Compatible
- 0.100 Inch (2,54mm) Lead Spacing
- Low Profile
- 14, 16 and 18 Pin Construction
- Automatically Insertable
- Exclusive Allen-Bradley Cermet Ink Performance

## SPECIFICATIONS

## Standard Network Applications

| NETWORK | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 314A<br>316A | 314B<br>316B | 314E<br>316E | 316LR8<br>316L08<br>314L10 | 314M110<br>314M120<br>314M125 | 314M130 | 316T110 | 314X101<br>316X101 | 314Z |
| **APPLICATIONS** | | | | | | | | |
| Pull-Up Resistor Arrays for Unused TTL Gates<br>Parallel High Speed Circuitry<br>Wired OR Configurations<br>Pull-Down Applications<br>TTL-MOS Interfacing<br>Digital Pulse Squaring | Transmission Line Termination<br>Power Gate Pull-Up<br>Current Limiting<br>Logic Level Translation | Digital Line Termination<br>ECL and TTL Applications | 8 BIT R/2R Ladder<br>10 BIT R/2R Ladder<br>Network for D/A and A/D Converter with Bi Polar or CMOS Switches | Complement the 7520 Series of Core Memory Sense Amps | Core-Memory Sense Line Applications with Two 711 Dual Voltage Comparators | TTL to ECL Translator Network | Interconnect Networks<br>Shorting Applications<br>Matrix Interconnections<br>Test Plugs | Fixed Voltage Attenuation with Impedance Matching |

## Applications Information

For application information refer to the following Allen-Bradley Application Notes:

— Digital System Resistor Arrays: EC5410-4.1
— ECL Terminator Networks: EC5410-4.2
— Resistive Attenuator Pads: EC5410-4.3

## Custom Resistor Networks

When a standard Allen-Bradley network does not meet your requirements, a custom network can be designed to your specifications. See suggestions as shown later in this publication.

# SERIES 314A, 314B, 316A and 316B

## Applications

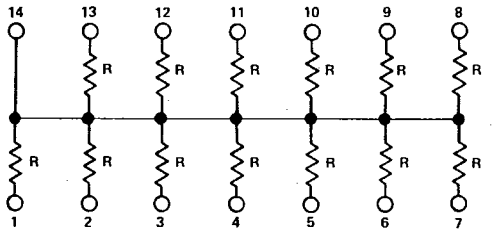
**Series 314A and 316A —**

Pull-Up resistor arrays for unused TTL gates.
Parallel high speed circuitry.
Wired OR configurations.
Pull-Down applications.
TTL-MOS interfacing.
Digital pulse squaring.

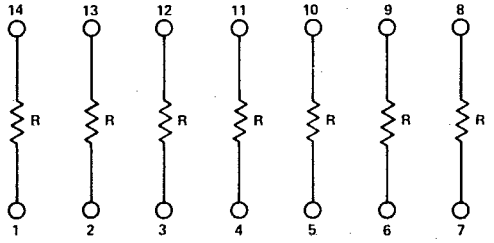
**Series 314B and 316B —**

Transmission line termination.
Power gate pull-up.
Current limiting.
Logic level translation.

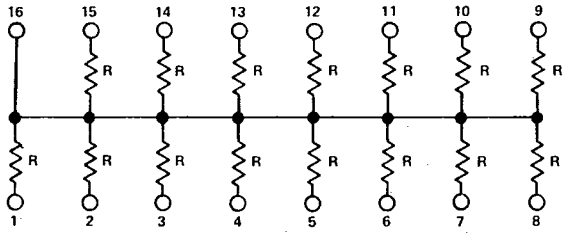
## Standard Network Schematic Diagrams



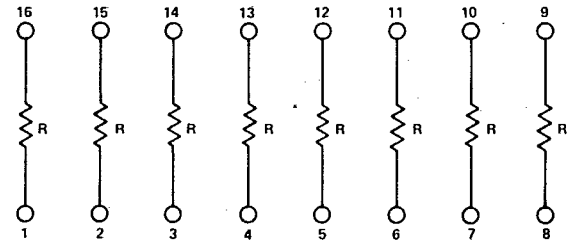

**Series 314A**




**Series 314B**




**Series 316A**




**Series 316B**

## Standard Network Specifications

Resistor tolerance — ±2%, also optional tolerance of ±1% available for certain values.

Temperature coefficient of resistance — ±100ppm/°C.

Operating temperature range — −55°C to +125°C.

Power dissipation rating — Up to 70°C ambient [1].

| Series | Individual Resistor Rating | Total Package Rating |
|---|---|---|
| 314A | 125 mw [2] | 1.6 watts |
| 314B | 250 mw [3] | 1.6 watts |
| 316A | 125 mw [2] | 1.8 watts |
| 316B | 250 mw [3] | 1.8 watts |

[1] At +70°C power derates linearly from full rated power to 0 wattage at +130°C.

[2] Rated continuous working voltage (RCWV), based on nominal resistance (R) in ohms, is $\sqrt{125 \times R}$ or 100 volts, whichever is less.

[3] Rated continuous working voltage (RCWV), based on nominal resistance (R) in ohms, is $\sqrt{.25 \times R}$ or 250 volts, whichever is less.

## Standard Resistance Values*

| | | | | | |
|---|---|---|---|---|---|
| 22 | 110 | 560 | 3000 | 13K | 68K |
| 24 | 120 | 620 | 3300 | 15K | 75K |
| 27 | 130 | 680 | 3600 | 16K | 82K |
| 30 | 150 | 750 | 3900 | 18K | 91K |
| 33 | 160 | 820 | 4300 | 20K | 100K |
| 36 | 180 | 910 | 4700 | 22K | 120K |
| 39 | 200 | 1000 | 5100 | 24K | 150K |
| 43 | 220 | 1100 | 5600 | 27K | 180K |
| 47 | 240 | 1200 | 6000 | 30K | 220K |
| 51 | 270 | 1300 | 6200 | 33K | 270K |
| 56 | 300 | 1500 | 6800 | 36K | 330K |
| 62 | 330 | 1600 | 7500 | 39K | 390K |
| 68 | 360 | 1800 | 8200 | 43K | 470K |
| 75 | 390 | 2000 | 9100 | 47K | 560K |
| 82 | 430 | 2200 | 10K | 51K | 680K |
| 91 | 470 | 2400 | 11K | 56K | 1M |
| 100 | 510 | 2700 | 12K | 62K | |

*All standard values available in 1% tolerance.

## Explanation of Part Numbers

**Series Designation**
**314A**
**314B**
**316A**
**316B**

**314A103** **F**

***For 1% Tolerance add F to Part Number.**

**Resistance Value**

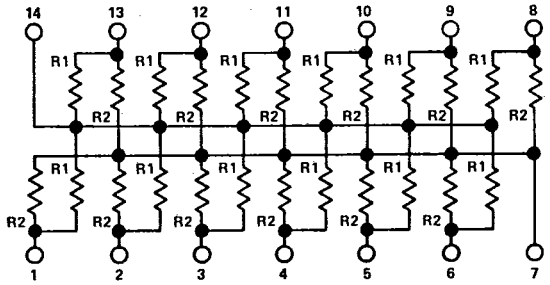
First two digits are significant figures and the third indicates the number of zeros following the first two digits —
Examples: 101 = 100 Ohms
102 = 1000 Ohms
122 = 1200 Ohms

# SERIES 314E AND 316E

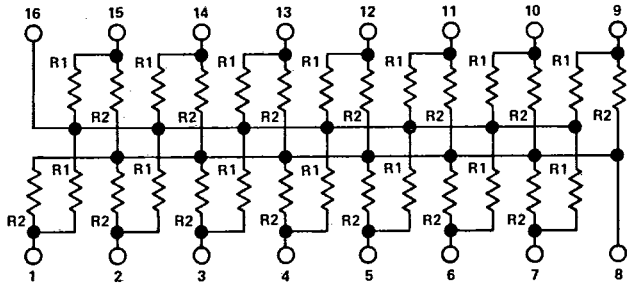
## Applications

**Series 314E and 316E —**
Digital line termination.
ECL and TTL applications.

## Standard Network Schematic Diagrams




**Series 314E**




**Series 316E**

## Standard Network Specifications

**Resistor tolerance** — ±2%.

**Temperature coefficient of resistance** — ±100ppm/°C.

**Operating temperature range** — −55°C to+ 125°C.

**Power dissipation rating** — Up to 70° C ambient [1].

| Series | Individual Resistor Rating | Total Package Rating |
|---|---|---|
| 314E | 125 mw | 1.6 watts |
| 316E | 125 mw | 1.8 watts |

[1] At +70°C power derates linearly from full rated power to 0 wattage at +130°C.

## Standard Resistance Values

| R1/R2 | R (Ohms) (Characteristic $Z_0$ Impedance) | R1/R2 | (Characteristic $Z_0$ Impedance) |
|---|---|---|---|
| 81/130 | 50 | 220/330 | 132 |
| 120/200 | 75 | 330/390 | 179 |
| 90/660 | 80 | 330/470 | 194 |
| 130/210 | 80 | 330/680 | 222 |
| 160/260 | 100 | 1.5K/3.3K | 1.03K |
| 220/270 | 121 | 3K/6.2K | 2.02K |
| 180/390 | 123 | | |

## Explanation of Part Numbers

**Series Designation**
**314E**
**316E**

**314E 221 331**

**R1** **R2**
**Resistance Value**

First two digits are significant figures and the third indicates the number of zeros following the first two digits —
Examples: 101 = 100 Ohms
102 = 1000 Ohms
122 = 1200 Ohms