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Technical Information

TechnoSim DA9377- 16R Series

MassCare Part Numbers MC-06470T, MC-07483T and MC-07484T

These three chips form a series of pin-compatible, functionally equivalent replacements for the discontinued SI PEX/Hybrid Systems DAC9377-16-6 (and -4). This series was used in Flight Simulators and many other applications.

The SI PEX DACS were configurable for either Unipolar output (0 to +10V) or Bipolar output (-10V to +10V). Provision was also made for gain and offset adjustment inputs. These features are all incorporated in the MassCare range by developing a range of three products.

DA9377- 16R (MassCare Part Number MC- 06470T)

The -16R is configurable for either Unipolar or Bipolar output.. It is designed for applications where no offset or gain adjustments are incorporated, and so no provision is made for these. Voltage outputs conform to those for the -16RU and -16RB as shown below, the configuration being set by a simple link.

DA9377- 16RU (MassCare Part Number MC- 07483T)

The -16RU has **Unipolar** output only, and is designed for circuits where offsets and gain adjustments are required. Both adjustments are made using 10-turn potentiometers built into the device. The gain and offset adjusters on the circuit card (previously used to adjust the SI PEX device) no longer have any function. The response of the device is as follows:

Input Code	Output Voltage
0000 _{HEX}	0.000000VDC
7FFF _{HEX}	+4.999847VDC
8000 _{HEX}	+5.000000VDC
FFFF _{HEX}	+9.999847VDC

DA9377- 16RB (MassCare Part Number MC- 07484T)

The -16RB has **Bipolar** output only and is designed for circuits where offset and gain adjustments are required. Both adjustments are made using 10-turn potentiometers built into the device. The offset and gain adjusters on the circuit card (previously used to adjust the SI PEX device) no longer have any function. The response of the device is as follows:

Input Code	Output Voltage
0000 _{HEX}	-10.000000VDC
7FFF _{HEX}	-0.000306VDC
8000 _{HEX}	-0.000000VDC
FFFF _{HEX}	+9.999694VDC

Which Version Do You Require?

If there are no offset or gain potentiometers on the circuit card, then you should use the -16R (MC-06470T).

If offset and gain potentiometers are present, and Pin 9 is connected to Pin 11, then Bipolar output is required and you should use the -16RB (MC-07484T).

If offset and gain potentiometers are present, and Pin 9 is not connected to Pin 11, then Unipolar output is required and you should use the -16RU (MC-07483T).

Specifications

The specifications for the device are shown on the next page.

Specification

1. Digital to Analogue Converter with internal voltage reference, latched digital input, and selectable Unipolar (0 to +10V0) or Bipolar (-10 to +10V) output Voltage.
2. Package: 24-pin DIL. See drawing for dimensions.
3. Temperature Range:
 - 3.1. Operating Range: -25°C to +80°C
 - 3.2. Storage Range: -55°C to +130°C
4. Performance Characteristics:
 - 4.1 Input Coding: 16-Bit Positive True Offset Binary
 - 4.2 Logic Levels: "1" Input Level 2.0V Min, 5.5V Max.
"0" Input Level 0.0V Min, 0.8V Max
 - 4.3 Integral Linearity: +/-0.0015%
 - 4.4 Differential Linearity: +/- 0.0015%
 - 4.5 Monotonicity 15-BITS (Tmin to Tmax).
 - 4.6 Offset Drift: 5ppm/degC. (Bipolar)
 - 4.7 Power Supply Sensitivity: 0.0003%/%
 - 4.8 Output Current: 5mA.
 - 4.9 Dissipation: 365Mw TYP., 625Mw Max.
 - 4.10 Output Short Circuit Tolerance: Indefinite to Common
 - 4.11 Settling Time: To 0.01% of FSR for FSR change: 13uSec.(Max).
5. Latch Control: TTL Compatible +ve going pulse, 50nsec(Min) duration.
6. See Tables of Input Codes/Output Voltages for the different configurations earlier in this document.
7. Pin Connections:

- Pin 1 - Bit 8
- Pin 2 - Bit 7
- Pin 3 - Bit 6
- Pin 4 - Bit 5
- Pin 5 - Bit 4
- Pin 6 - Bit 3
- Pin 7 - Bit 2
- Pin 8 - Bit 1 (MSB)
- Pin 9 - Summing Junction
- Pin 10 - V Out
- Pin 11 - Not Connected
- Pin 12 - +15VDC Supply
- Pin 13 - Ground
- Pin 14 - Not Connected
- Pin 15 - -15VDC Supply
- Pin 16 - Latch Control
- Pin 17 - Bit 16 (LSB)
- Pin 18 - Bit 15
- Pin 19 - Bit 14
- Pin 20 - Bit 13
- Pin 21 - Bit 12
- Pin 22 - Bit 11
- Pin 23 - Bit 10
- Pin 24 - Bit 9

