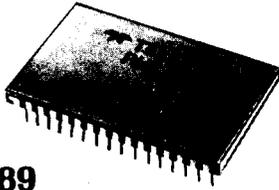
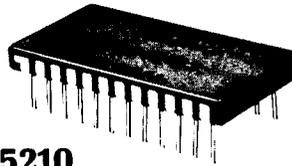


Analog to Digital Converters



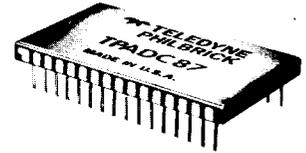
4189

12 Bits, 5 μ sec Max Conversion Time
No Missing Codes Over Temperature



TP5210

Military Standard 12 Bit A/D
7 μ sec Conversion Time



TPADC85/TPADC87

Industry Standard 12 Bit A/D's
- 55°C to + 125°C Operation

A/D Converter Selection Guide

Resolution (Bits)	Part Number	Maximum Conversion Time (1)	Input Voltage Ranges (V)	Integral Linearity Error (LSB's, Max)	Differential Linearity Error (LSB's, Max)	Temperature Range for No Missing Codes (°C)	Maximum Power Consumption (mW)	Package	Page No.
8	4143	1.8msec	10 μ A (3)	$\pm 1/2$	$\pm 1/2$	(2)	25	A	5-17
8	4130 Series (4)	750nsec	- 5, - 10 $\pm 5, \pm 10$	$\pm 1/2$	$\pm 1/4$	0 to + 70	3,275	B	5-11
10	4144	6msec	10 μ A (3)	$\pm 1/2$	$\pm 1/2$	(2)	25	A	5-17
10	4131 Series (5)	1 μ sec	- 5, - 10 $\pm 5, \pm 10$	± 1	$\pm 1/2$ (Typ)	0 to + 70	3,275	B	5-11
3 1/2 Digit (6)	4146	12msec	10 μ A (3)	$\pm 1/2$	$\pm 1/2$	(2)	25	A	5-21
12	4145	24msec	10 μ A (3)	$\pm 1/2$	$\pm 1/2$	(2)	25	A	5-17
12	TP5210 Series (7)	13 μ sec (1)	- 10, + 10 $\pm 5, \pm 10$	$\pm 1/2$	$\pm 1/2$ (Typ)	0 to + 70	915	C	5-33
12	TP5210-83 Series (8)	13 μ sec (1)	- 10, + 10 $\pm 5, \pm 10$	$\pm 1/2$	$\pm 1/2$ (Typ)	- 55 to + 125	915	C	5-33
12	TPADC85 (9)	7 μ sec	+ 5, + 10 $\pm 2.5, \pm 5, \pm 10$	$\pm 1/2$	$\pm 1/2$	- 25 to + 85	1,200 (Typ)	D	5-3
12	TPADC87 (9)	7 μ sec	+ 5, + 10, $\pm 2.5, \pm 5, \pm 10$	$\pm 1/2$	$\pm 1/2$	- 55 to + 125	1,200 (Typ)	D	5-3
12	4189	5 μ sec	+ 5, + 10, $\pm 2.5, \pm 5, \pm 10$	$\pm 1/2$	$\pm 1/2$	0 to + 70	1,300 (Typ)	D	5-25
12	4189-83 (8)	5 μ sec	+ 5, + 10, $\pm 2.5, \pm 5, \pm 10$	$\pm 1/2$	$\pm 1/2$	- 55 to + 125	1,300 (Typ)	D	5-25
12	4132-22	3.5 μ sec	- 10, - 20, $\pm 5, \pm 10$	± 1	$\pm 1/2$ (Typ)	0 to + 50	3,275	B	5-11
12	4133-22	2.5 μ sec	- 10, - 20, $\pm 5, \pm 10$	± 1	$\pm 1/2$ (Typ)	0 to + 50	3,275	B	5-11
12	4134	2 μ sec	- 10, - 20, $\pm 5, \pm 10$	± 1	$\pm 1/2$ (Typ)	0 to + 50	3,275	B	5-15

Please turn page for footnotes and package dimensions.



Allied Drive @ Rte. 128, Dedham, Massachusetts 02026
Tel: (617) 329-1600, TWX: (710) 348-6726, Tlx: 92-4439

- Notes:**
1. All Teledyne Philbrick A/D converters, with the exception of the TP5210 Series, have internal clocks, and maximum conversion time refers to the slowest conversion time a user can expect from these devices. They may run faster. For the TP5210 Series, maximum conversion time refers to the fastest conversion rate at which these devices can be externally clocked and still guarantee accuracy and linearity.
 2. Maximum differential linearity drift guaranteed less than ± 5 ppm of FSR/ $^{\circ}$ C.
 3. These A/D's use an incremental charge balancing technique and require an input current. Any voltage, buffered by an external series resistor, may be applied.
 4. Includes part numbers 4130-10 (0 to -5V input), 4130-20 (0 to -10V), 4130-30 (± 5 V), and 4130-40 (± 10 V).
 5. Includes part numbers 4131-10 (0 to -5V), 4131-20 (0 to -10V), 4131-30 (± 5 V), and 4131-40 (± 10 V).
 6. The 4146 has a 3½ digit binary coded decimal (BCD) output.
 7. Includes part numbers TP5210/TP5213 (0 to -10V input), TP5211/TP5214 (± 5 V), TP5212/TP5215 (± 10 V), and TP5216/TP5217 (0 to +10V).
 8. The TP5210-83 Series and 4189-83 are screened to the high reliability requirements of MIL-STD-883, Method 5008. They differ from the TP5210 Series and 4189 in screening and specified temperature range.
 9. MIL-STD-883 screened versions of these devices are designated by adding "-83" to the selected part number. Screened versions have the same specified temperature range as the standard devices.

- Packages:**
- A. 24 pin plastic dual-in-line, 1.25" \times 0.6" \times 0.18"
 - B. Module, 4" \times 2" \times 0.4"
 - C. 24 pin ceramic dual-in-line, 1.34" \times 0.83" \times 0.26"
 - D. 32 pin dual-in-line, 1.71" \times 1.1" \times 0.25"



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