

MODEL AM-F

16 CHANNEL, 12 BIT SCANNING ADC

FEATURES:

- INTERNAL 16 WORD MEMORY
- 16 DIFFERENTIAL INPUTS, WITH INPUT FILTERING
- PROGRAMMABLE CHANNEL SCAN SELECTION 1, 4, 8, OR 16 CHANNELS
- PROGRAMMABLE RANGE SELECTION OPTIONAL
- 12 BIT ACCURACY
- INPUT PROTECTION WITH POWER ON OR OFF

The Model AM-F is a scanning ADC and uses a successive approximation ADC providing a cycle time of less than 40usec. The standard input range is $\pm 10v$ D.C. and with the programmable range option the ranges are $\pm 10v$, $\pm 5v$, and $\pm 1v$. Unipolar inputs are also available. The input range can be changed in the field by an on-board jumper or ordered with any range from 1 volt to 10 volts. Current inputs of 4-20ma can also be accepted. For this type input it is recommended that the terminating resistor be mounted externally to the module so that the module can be disconnected without affecting the current loop.

The module scans the channels continuously at a rate determined by the converter. At the end of each conversion the data is loaded into memory. Data is read out onto the dataway from memory and so is available on command. The module can be considered to have two sections, the analog portion which scans and loads data into the memory and the digital output section that supplies data on command. Logic is provided that insures the Read and Write cycles in the memory never interfere. This allows the converter to operate at its maximum speed and data to always be available for readout. If all 16 channels are not required programmable channel selection is provided. This programs the scanner to monitor the first eight channels, four channels, or any single channel. This eliminates the time wasted converting unused channels and also provides the ability to look at any one channel continuously if required. With this feature you then get the low per channel cost of a scanning converter along with the ability to lock onto a single channel and scan it at the maximum rate of the ADC. The input to this module is a special solid state multiplexer which is protected against signals 15 volts above the supply voltages thus giving protection up to ± 30 volts. More important, however, and often overlooked is that with the module off it can still accept inputs of up to ± 15 volts without destruction. This situation is very common and most likely happens whenever the crate is turned off. Besides the use of these high voltage protected multiplexers, series resistors are also provided in both the signal and return lines. These resistors provide added protection as well as input filtering. Provision is made for capacitors which can be added if there is a noisy environment. The input amplifier is carefully trimmed to improve common mode rejection and tracking 15 volt regulators are used to improve analog performance.

ANALOG
INPUT
MODEL AM-F
N
ACTIVE
ADDRESS
8
4
2
1



SPECIFICATIONS

ANALOG INPUTS

Input Range, Voltage	<u>+10</u> volts
Programmable Input Ranges	<u>+10</u> , <u>+5</u> , <u>+1</u> volt
Input Range, Current	4 to 20ma, with 250 ohm load (+1v to +5v)
Maximum Signal Input	<u>+15</u> volts D.C.
Input Protection	
Power On	<u>+30</u> volts D.C.
Power Off	<u>+15</u> volts D.C.
Input Impedance	500K ohms minimum
Cycle Time (Convert & Write)	40usec
Resolution	12 bits, 2's compliment (offset binary optional)

CAMAC COMMANDS

N.F0.A0-15

Reads out data, gain setting and operating mode onto the dataway.

R1-12 Data

R13 Gain Setting G1

R14 Gain Setting G2

R15 In Stop Mode

R16 Error (not converting)

N.F1.A15

Reads identity XV.149.R in BCD

N.F17.A0.S1

Overwrites control register with information on Write lines W1-9.

W1-4 Channel Address (W5 must be "1")

W5 Stop Scanner

W6 Limit Scanner to Channels 0-3

W7 Limit Scanner to Channels 0-7

W8 Gain Select 1, G1

W9 Gain Select 2, G2

Q Response

All valid commands return Q=1

X Response

All valid commands return X=1

Z.S2 and Power Up

Initializes module and starts scanner

VISUAL INDICATORS

"N"

To indicate module is addressed

Active

To indicate module is converting

Address

Four LED's to indicate which channel is active

POWER REQUIREMENTS

+6v, 700ma

+24v, 40ma

-24v, 40ma

SIZE

Single width CAMAC module

CONNECTOR

AMP 552118-1, mating connector AMP 229974-1 or equivalent

TEMPERATURE RANGE

00C to 500C

JEI0488