KineticSystems

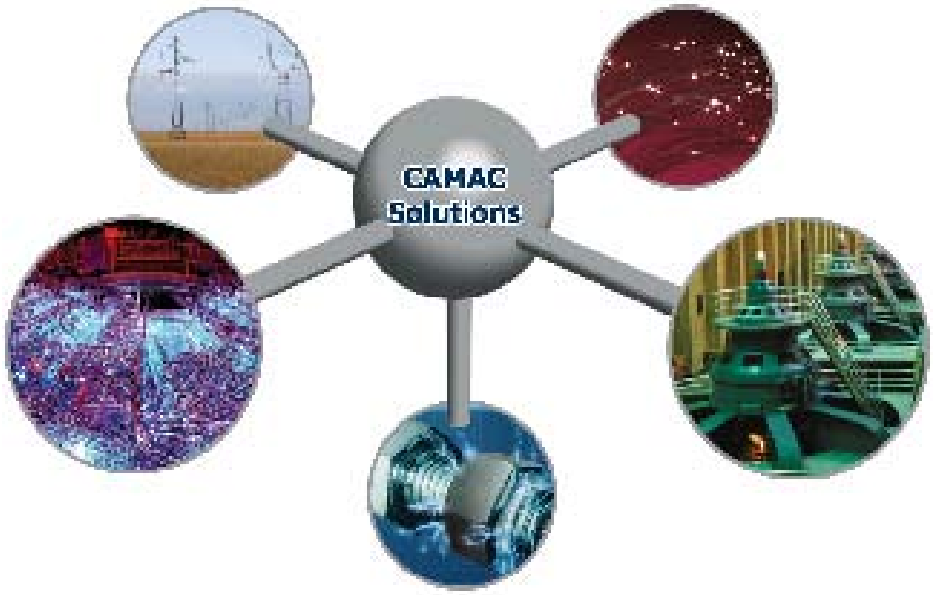
CAMAC Equipment

CAMAC, Computer Automated Measurement And Control, is an IEEE-standard (583), modular, high-performance, realtime data acquisition and control system concept.

Since 1969, CAMAC has been used in many thousands of scientific, industrial, aerospace, and defense test systems around the world.

3196

16-channel, 16-bit Multiplying DAC



The 3196 is a single-width CAMAC module that functions as a programmable digital attenuator for 16 differentially received analog inputs.

APPLICATIONS

Magnetic modeling

Applications requiring precision computer control of signal attenuation

FEATURES

- 16 channels of 16-bit multiplying digital-to-analog converters
- Excellent gain stability
- Full four-quadrant multiplication
- 16-bit resolution of digitally controlled gain from -1 to +1
  Channel-by-channel programmable pre-gain (1 or 100)
- Independent differential inputs for each channel
- Input and output full-scale range of ±10 V

GENERAL DESCRIPTION

The 3196 is a single-width CAMAC module that functions as a programmable digital attenuator for 16 differentially received analog inputs. Each channel contains a four-quadrant, multiplying digital-to-analog converter that provides 16-bit (one part in 65,536) resolution in gain from -1 to +1. In addition, a channel-by-channel programmable pre-gain of 100 may be selected.

The data for channels 1 through 16 are written as 16-bit 2's complement words using function codes F(16)•A(0) through F(16)•A(15), respectively. On power-up or in response to an Initialize command, the MDACs are cleared to provide a nominal gain of zero. Two 36-contact AMP front-panel connectors are provided, one for the input signals and one for the output signals. For maximum noise immunity, twisted pair cables should be used for both inputs and outputs. Individual shields or common shields for each connector are acceptable.

A front panel "N" LED indicates when the module is addressed.

Command	Q	Action
F(0)-A(0) RD1	RDY	Reads the last data word sent by an F(16) command (Note 1
F(1)A(0) RD2	1	Reads the 16-bit Pre-gain register for all channels. Bit "x"=1 indicates a gain of 100 on Chan, "x"
F(16)A(i) WT1	RDY	Writes the Gain Multiplier data for channel i+1 (Notes 2, 3)
F(17)A(0) WT2	1	Writes the Pre-gain Register for all channels. Bit "x"=1 indicates a gain of 100 on Chan,"x."
F(27)A(0) TST	RDY	Tests (through the "Q" response) if the module is ready for further commands
ZS2 CZ	0	Clears the DAC data (0 x Vin for all channels) and clears the Pre-gain register

Notes:
1. This command is only operational when the /TST strap is removed (for factory diagnostic purposes only).
2. Channels 1 to 16 correspond to i = 0 to 15.
3. This command requires approximately 5 µs to execute and produces a Not Ready (/RDY) condition until it is completed.

SIGNALS AND CONNECTORS

J1 Differential analog channel inputs (ESD and overvoltage protected)

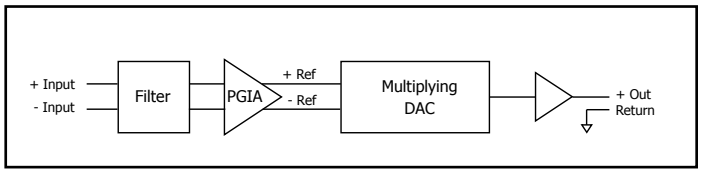
Up to ±10 volt signal range (depending on setting of channel gain)

Connector type: 36-socket rectangular AMP connector

J2 Differential analog channel outputs

Up to ±10 volt signal range

Connector type: 36-socket rectangular AMP connector



SPECIFICATIONS

ITEM	SPECIFICATION
Number of inputs	16
Type of inputs	Differential
Input impedance	10^{10} Ω ‖ 35 pF minimum
Full-scale input range	+10 V @ unity gain, +0.1 V @ pre-gain of 100
Full-scale output range	±10 V
Output current capability	40 mA maximum over full-scale voltage range
Resolution	16 bits
Missing codes	None
Programmable pre-gain	1 or 100+0.025%
Pre-gain change settling time	140 µs to 0.01%
Offset drift error	±0.4 + 3/G µV/°C typical
Common-mode rejection ratio	100 dB typical, 0 to 60 Hz
Effective bandwidth (-3 dB)	4 kHz

POWER REQUIREMENTS

+6 volts: 835 mA
+24 volts: 220 mA + load current
-24 volts: 190 mA + load current

RELATES PRODUCTS

Model 5944-Z1A	36-pin AMP Rectangular Mating Connector
Model 1865-Z1A	Rack-mount Termination Panel
Model 5855-Bxyz	50-socket Ribbon to 36-pin AMP Rectangular Connector Cable

ORDERING INFORMATION

MODEL	DESCRIPTION
3196-Z1A	Multiplying DAC, 16 channels, 16 bits

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