

CAMAC Equipment

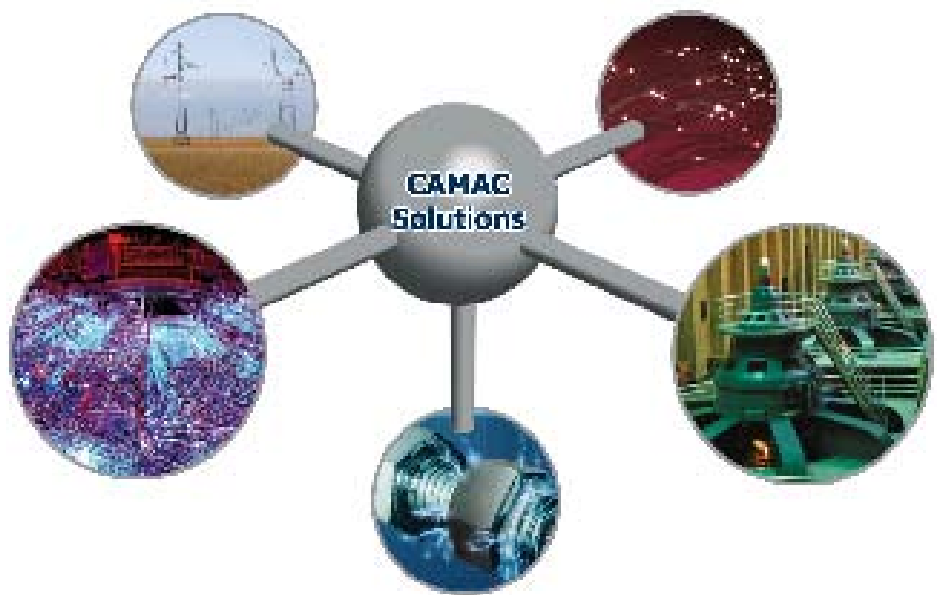
CAMAC, Computer Automated Measurement And Control, is an IEEE-standard (583), modular, high-performance, realtime data acquisition and control system concept.

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

APPLICATIONS

Industrial process control
Laboratory automation
Driving gauges or indicators
PID loop control

3195 6-channel, 16-bit D/A Converter



The 3195 D/A Converter module provides an interface between the CAMAC Dataway and devices requiring analog inputs, allowing the computer to control such devices as gauges, indicators, and displays.

FEATURES

- 6-channel DAC with 16-bit resolution
- One converter per channel for high speed
- Settles to $\pm 0.003\%$ FSR in less than ten microseconds (full-scale step)
- Independent or simultaneous conversion
- Simultaneous conversions triggered from Dataway P1 line or front-panel input

GENERAL DESCRIPTION

The 3195 D/A Converter module provides an interface between the CAMAC Dataway and devices requiring analog inputs, allowing the computer to control such devices as gauges, indicators, and displays. The 3195 is a single-width CAMAC module containing six digital-to-analog channels, each with a separate 16-bit converter. The DAC outputs are connected to a 50-contact connector on the front panel.

The 3195 accepts binary data in two's complement format from the CAMAC Dataway. The module's Mode Control register determines whether this data is passed directly to the selected DAC channel or held for sub-sequent simultaneous conversion.

OPERATION

Data is written into the Rank 1 register for each channel via F(16) commands. External control of the Rank 2 register (and DAC) update is selected by the Mode register. The Rank 1 data can be copied directly into the Rank 2 register by the F(16) command for independent conversion. For simultaneous conversion, all six channels of data can be copied into the Rank 2 registers by a one microsecond pulse on the P1 or P2 Dataway lines or by a signal at the front-panel LEMO connector. There are five modes of external Rank 1/Rank 2 update control. The active mode is determined by the contents of the Mode Control register, which is written by an F(17)•A(0) command using Dataway bits W1-W3 (W1 is the LSB). Rank 1 data can be copied into the Rank 2 register by an F(25)•A(0) command regardless of the mode setting.

MODE CONTROL REGISTER

MODE	CONTROL OF RANK1/RANK2 TRANSFER
0	Independent channel conversion
1	Rank 1/Rank 2 Transfer on P1 (See Note)
2	Rank 1/Rank 2 Transfer on P2
3	Rank 1/Rank 2 Transfer on P1 or P2 (See Note)
4	Rank 1/Rank 2 Transfer on P2, followed by P1 (See Note)

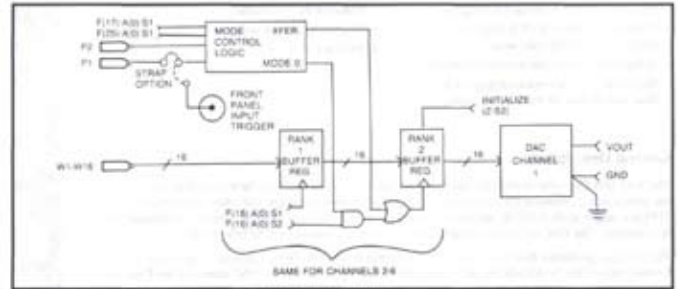
Note: The P1 pulse and the front-panel trigger inputs are strap-selectable.

FUNCTION CODES

COMMAND	Q	ACTION
F(16)-A(i) WT1	1	Writes Channel i DAC Data registers. (See Notes 1 and 2.)
F(17)A(0) WT2	1	Writes Mode Control register.
F(25)A(0) XEQ	1	Executes a Rank 1/Rank 2 data transfer.
ZS2 ZED		Initializes the DAC outputs to zero volts.

Notes: 1. (i) can range from 0 to 5 to select Channels 1 through 6.
 2. Writes Rank 2 register if Mode = 0; otherwise, writes Rank 1 register.
 3. X = 1 for all valid addressed commands.

SIMPLIFIED BLOCK DIAGRAM (SINGLE CHANNEL SHOWN)



SPECIFICATIONS FOR EACH CHANNELS

(at 25 degrees C, except where noted)

Full-scale range	±10 volts
Performance:	Monotonic to 14 bits, 15 to 35 degrees C
Total error:	± 0.003% FSR, @ 25 degrees C
DAC settling time	10 microseconds (max) (full-scale step to 0.003%)
Output impedance:	0.2 ohms (max)
Output drive:	±5 milliamperes (min)
Protection:	From shorted outputs over full-scale range

POWER REQUIREMENTS

+6 volts:	760 mA
+24 volts:	150 mA
-24 volts:	150 mA

RELATES PRODUCTS

Model 5950-Z1A	Mating Connector
Model 5935-Z1A	Mating Connector
Model 1850-E1D	Rack Termination Panel for use with a 50-pin "D" connector
Model 1850-A1D	Rack Termination Panel for use with a 50-contact Ribbon connector

ORDERING INFORMATION

MODEL	DESCRIPTION
3195-A2A	D/A Converter, 6 channels, 16 bits, 50S Amphenol Ribbon connector
3195-E2A	D/A Converter, 6 channels, 16 bits, 50P "D" connector

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KineticSystems Company, LLC

900 N. State St.
Lockport, IL 60441-2200

Toll-Free (US and Canada):

phone 1-800-DATA NOW
1-800-328-2669

Direct:

phone +1-815-838-0005
fax +1-815-838-4424

Email:

mkt-info@kscorp.com

To find your local sales representative or distributor or to learn more about KineticSystems' products visit:

www.kscorp.com