

Model 3072  
48-bit Output Register  
**INSTRUCTION MANUAL**

February, 1988

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\*\*\*SPECIAL OPTION\*\*\*

MODEL 3072-S002

48-BIT OUTPUT REGISTER

NOVEMBER 1984

Model 3072-S002

\*\*\*\*SPECIAL OPTION\*\*\*\*

MODEL 3072-S002

The Model 3072-S002 is a Model 3072-F1C with the outputs inverted. Instead of having the output switched closed when there is a "one" in the corresponding data bit, the output switch is open. On power-up all the data bits are set to "zero", thus closing all the switches (all outputs set low).

**NOTE:** The schematic which applies to Model 3072-S002 is as follows:

#02240-D-4226

\*\*\*\*SPECIAL OPTION\*\*\*\*

Model 3072-S003

48-Bit Output Register

July, 1987

Model 3072-S003

\*\*\*\*SPECIAL OPTION\*\*\*\*

The module 3072-S003 is the same as the Module 3072-A1A except the 3072-S003 has an output drive capability of 300 mA per channel.

MLH/Rem(3000Ser.11)  
July, 1987

**\*\*\*Special Option\*\*\***

Model 3072-S004

48-bit Output Register

August, 1996

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*Model 3072-S004*

**\*\*\*Special Option\*\*\***

Model 3072-S004

The Model 3072-S004 is the same as the Model 3072-A1A with the following exception:

+5 volts wired to connector pins 25 and 50. Ground is removed from these pins.

WEH  
August, 1996

Model 3072-ALA/E1A

48-bit Output Register

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Model 3072-A1B

48-bit Output Register

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Model 3072-A1C  
48-bit Output Register  
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Model 3072-E1B  
48-bit Output Register  
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May, 1993

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Model 3072-E1C

48-bit Output Register

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Model 3072-FlA  
48-bit Output Register

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Model 3072-FlC  
48-bit Output Register  
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Model 3072-F1B

48-bit Output Register

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# 48-bit Output Register

Available with outputs that are open-collector or with 5 V pull-ups

3072

## Features

- 48 output switches
- 30 volts open-circuit rating
- 250 milliampere current drive per switch
- Diode clamping option available
- TTL output option available

## Typical Applications

- Switch indicator lamps
- Switch relays
- Switch solenoids
- Control valves
- Output data

## General Description *(Product specifications and descriptions subject to change without notice.)*

The 3072 is a single-width CAMAC module with 48 output switches. These switches are organized as two 24-bit words. Each switch is an open-collector transistor suitable for driving a relay, lamp, solenoid, or similar device.

All of the switches share a common return path. An output switch is closed whenever there is a "1" in the corresponding bit of the data register. Each output can sink 250 milliamperes with a maximum open-circuit voltage of 30 volts. Inductive loads should be diode-clamped at the load to remain within the voltage rating. Internal diode suppression clamped to +24 volt is available as an option. The 3072 is also available with pull-up resistors for TTL signal levels.

Three connector options are available: a 52-pin "2D" connector at the rear of the module above the Dataway, a 50-contact Amphenol ribbon connector on the from panel, or a 50-pin "D" connector on the front panel.

## Function Codes

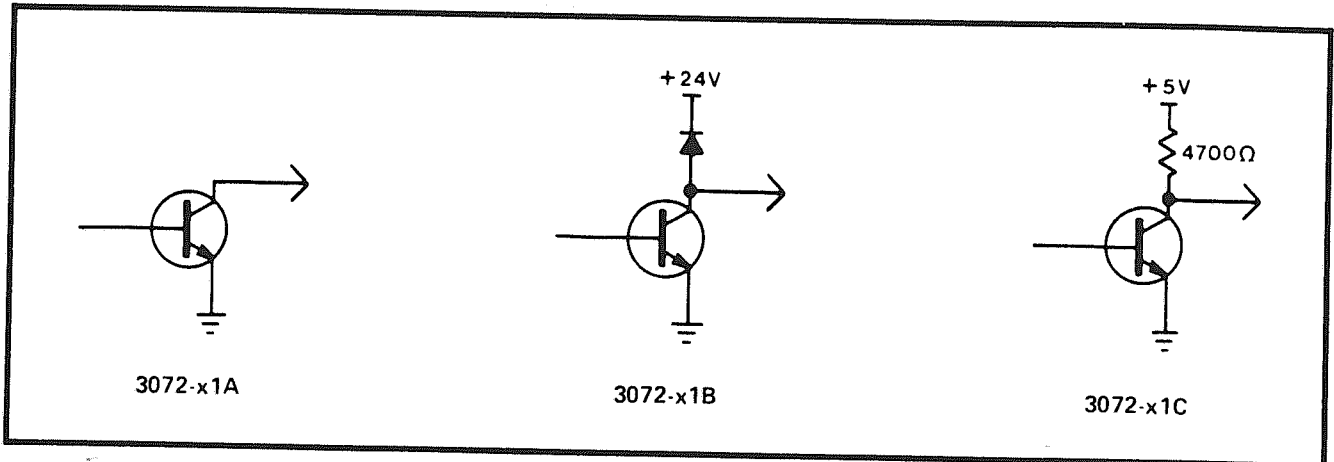
Command	Q	Action
F(1):A(15) RD2	1	Reads the module identifying number (3072 = 6000 <sub>8</sub> ).
F(16):A(0) WT1	1	Writes the Output register 1.
F(16):A(1) WT1	1	Writes the Output register 2.
C CC	0	Clears the output registers.
Z CZ	0	Clears the output registers.

**Note:** X = 1 for all valid addressed commands.

3072  
OUTPUT  
REGISTER

Kinetic  
Systems

## Output Circuit



## Power Requirements

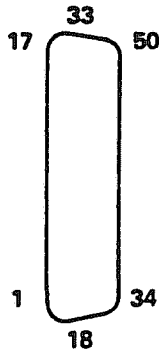
+6 volts:            950 mA

## Ordering Information

<b>Model 3072-A1A</b>	Output Register, 48 bits, open-collector output, 50S Amphenol Ribbon connector
<b>Model 3072-A1B</b>	Output Register, 48 bits, diode clamp, 50S Amphenol Ribbon connector
<b>Model 3072-A1C</b>	Output Register, 48 bits, TTL pull-up resistor, 50S Amphenol Ribbon connector
<b>Model 3072-E1A</b>	Output Register, 48 bits, open-collector output, 50P "D" connector
<b>Model 3072-E1B</b>	Output Register, 48 bits, diode clamp, 50P "D" connector
<b>Model 3072-E1C</b>	Output Register, 48 bits, TTL pull-up resistor, 50P "D" connector
<b>Model 3072-F1A</b>	Output Register, 48 bits, open-collector output, 52P "2D" connector
<b>Model 3072-F1B</b>	Output Register, 48 bits, diode clamp, 52P "2D" connector
<b>Model 3072-F1C</b>	Output Register, 48 bits, TTL pull-up resistor, 52P "2D" connector

## Related Products

For Model	Mating Connector	I/O Cable (one end unterminated)
3072-A1A, A1B, A1C	5950-Z1A	5853-Axyz I/O
3072-E1A, E1B, E1C	5934-Z1A	5851-Bxyz I/O
3072-F1A, F1B, F1C	5942-Z1A	5850-Bxyz I/O



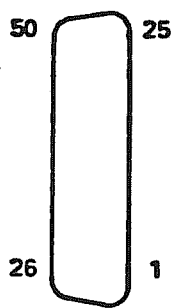
FACE VIEW

Pin/Wire List

50 PIN 'D'

<u>PIN NO.</u>		<u>PIN NO.</u>		<u>PIN NO.</u>	
17	1-17	33	2-9	50	GND
16	1-16	32	2-8	49	GND
15	1-15	31	2-7	48	2-24
14	1-14	30	2-6	47	2-23
13	1-13	29	2-5	46	2-22
12	1-12	28	2-4	45	2-21
11	1-11	27	2-3	44	2-20
10	1-10	26	2-2	43	2-19
9	1-9	25	2-1	42	2-18
8	1-8	24	1-24	41	2-17
7	1-7	23	1-23	40	2-16
6	1-6	22	1-22	39	2-15
5	1-5	21	1-21	38	2-14
4	1-4	20	1-20	37	2-13
3	1-3	19	1-19	36	2-12
2	1-2	18	1-18	35	2-11
1	1-1			34	2-10

Model 3072-  
Alx



FACE VIEW

### Socket/Wire List

### 50 SOCKET RIBBON CONN.

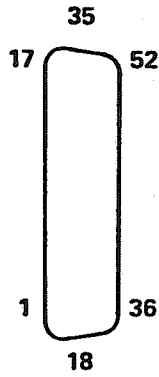
Model 3072-Alx

SOCKET NO.

50	GND
49	2-24
48	2-23
47	2-22
46	2-21
45	2-20
44	2-19
43	2-18
42	2-17
41	2-16
40	2-15
39	2-14
38	2-13
37	2-12
36	2-11
35	2-10
34	2-9
33	2-8
32	2-7
31	2-6
30	2-5
29	2-4
28	2-3
27	2-2
26	2-1

SOCKET NO.

25	GND
24	1-24
23	1-23
22	1-22
21	1-21
20	1-20
19	1-19
18	1-18
17	1-17
16	1-16
15	1-15
14	1-14
13	1-13
12	1-12
11	1-11
10	1-10
9	1-9
8	1-8
7	1-7
6	1-6
5	1-5
4	1-4
3	1-3
2	1-2
1	1-1



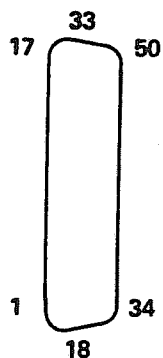
FACE VIEW

Model 3072-Flx

Pin/Wire List

52 PIN 'DD'

<u>PIN NO.</u>	<u>PIN NO.</u>	<u>PIN NO.</u>
17	1-17	35
16	1-16	2-11
15	1-15	34
14	1-14	2-10
13	1-13	33
12	1-12	2-9
11	1-11	32
10	1-10	2-8
9	1-9	31
8	1-8	2-7
7	1-7	30
6	1-6	2-6
5	1-5	29
4	1-4	2-5
3	1-3	28
2	1-2	2-4
1	1-1	27
		2-3
		26
		2-2
		25
		2-1
		24
		1-24
		23
		1-23
		22
		1-22
		21
		1-21
		20
		1-20
		19
		1-19
		18
		1-18
		52
		GND
		51
		GND
		50
		GND
		49
		2-24
		48
		2-23
		47
		2-22
		46
		2-21
		45
		2-20
		44
		2-19
		43
		2-18
		42
		2-17
		41
		2-16
		40
		2-15
		39
		2-14
		38
		2-13
		37
		2-12
		36



FACE VIEW

Pin/Wire List

50 PIN 'D'

PIN NO.

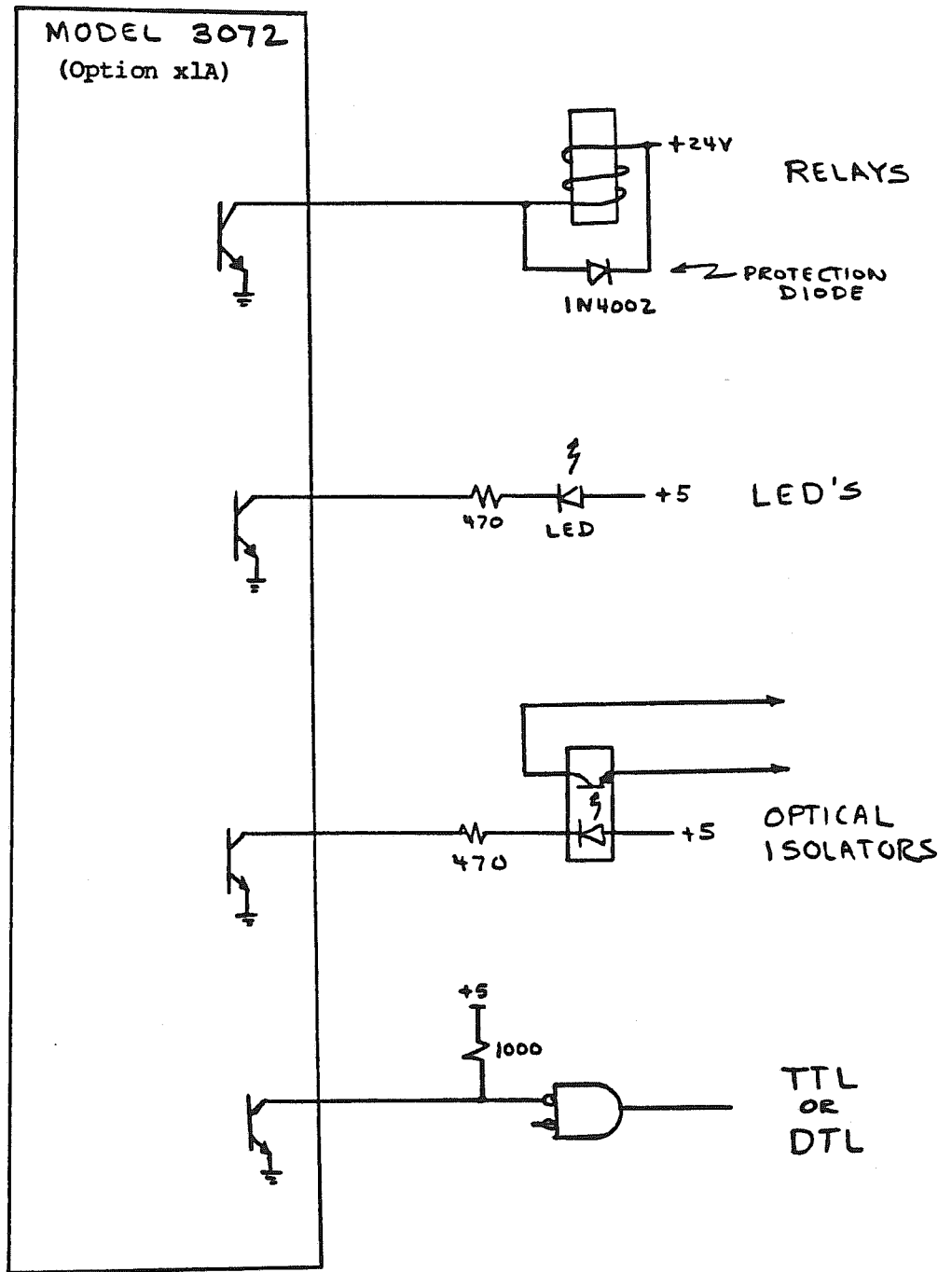
17	1-17
16	1-16
15	1-15
14	1-14
13	1-13
12	1-12
11	1-11
10	1-10
9	1-9
8	1-8
7	1-7
6	1-6
5	1-5
4	1-4
3	1-3
2	1-2
1	1-1

PIN NO.

33	2-9
32	2-8
31	2-7
30	2-6
29	2-5
28	2-4
27	2-3
26	2-2
25	2-1
24	1-24
23	1-23
22	1-22
21	1-21
20	1-20
19	1-19
18	1-18

PIN NO.

50	GND
49	GND
48	2-24
47	2-23
46	2-22
45	2-21
44	2-20
43	2-19
42	2-18
41	2-17
40	2-16
39	2-15
38	2-14
37	2-13
36	2-12
35	2-11
34	2-10



When driving mixed loads, a separate ground lead is recommended from the 3072 to each type load to reduce the effect of ground currents.

FIGURE 1 -- THE MODEL 3072 DRIVING VARIOUS LOADS

### CLEARING THE OUTPUT REGISTERS

The output registers are cleared (all zeros) by an initialize (Z) or clear (C) command. The registers are also cleared during power-up. The power-up circuit 'holds' the registers clear for approximately 0.5 second to allow the +6 volt supply to stabilize. This circuit is particularly useful when the module is used to control motors, power supplies, etc., so that the loads are not falsely energized on power-up. Valid commands will not produce a Q or X response until the power-up sequence is complete (approximately 0.5 second after +6 volts are applied).

### APPLICATIONS OF THE MODEL 3072

The Model 3072 contains 48 open-collector NPN transistors, with all collectors available at the I/O connector. The emitters of these transistors are connected to ground. This ground connection is available on the remaining pins of the I/O connector.

Since the output circuits are open-collector, loads connected to mixed voltages can be accommodated. For example, some output leads may drive LED's connected to +5 volts while others drive 24 volt relays. If TTL loads are driven, pull-up resistors should be provided at the load. When mixed loads such as relays and TTL gates are driven, noise considerations become very important. Proper grounding, R-C circuits at the TTL input as well as the use of higher noise immunity DTL gates (such as the DM8836), should be considered. An example of the 3072 driving various loads is shown in Figure 1.

### OUTPUTS

Each bit has an output circuit which consists of an open-collector transistor with a grounded emitter. The transistor is "on" whenever there is a one in the corresponding bit of the data register. Each output can sink 250mA with a maximum open circuit voltage of 30 volts. Inductive loads should be diode suppressed at the load to remain within the voltage rating. Internal diode suppression clamped to +24 volts is available on special order. The outputs appear at the rear of the module on a 52-pin "2D" connector above the Dataway or at a 50-contact ribbon connector out the front panel.

### FRONT PANEL

A jackscrew is provided which functions both for insertion and extraction of the module. There is an "N" light which flashes whenever this module is addressed.



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2. Obtain a Return Authorization (RA) Number.
3. Initiate a purchase order for the estimated repair charge if the product is out of warranty.
4. Include a description of the problem and your technical contact person with the product.
5. Ship the product prepaid with the RA Number marked on the outside of the package to:

KineticSystems Company, LLC  
Repair Service Center  
900 North State Street  
Lockport, IL 60441

Telephone: (815) 838-0005  
Facsimile: (815) 838-4424  
Email: tech-serv@kscorp.com