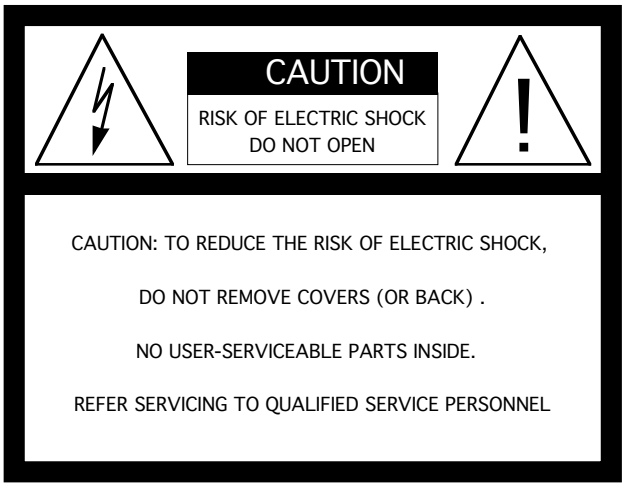
2031
SWITCHER FOLLOWER

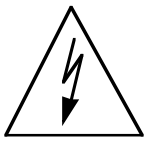
Installation and Operating Instructions

The 2031 Switcher Follower can be used with all American Dynamics Matrix Switching Systems employing control codes from 1650, 2150, a 1995, 1996, 2050, or 1024 Systems. The 2031 Switcher Follower is used to provide simultaneous audio callup of a camera site when the video from that site is called to a monitor. Other uses include the operation of panel displays showing called or alarmed camera sites.

AMERICAN DYNAMICS

The installation of this product should be made by qualified service personnel and should conform to all local codes.





The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

WARNING

To reduce the risk of fire or shock hazard, do not expose this product to rain or moisture.

This equipment has been tested and found to comply with Part 15 of the FCC Rules.

Operation is subject to the following two conditions: 1. This device may not cause harmful interference, and 2. This device must accept any interference received, including interference that may cause undesired operation.

UNPACKING AND INSPECTION

Unpack carefully. This is an electronic product and should be handled as such. Compare the items received with the packing list with your order.

Be sure to save:

1. The shipping cartons and insert pieces. They are the safest material in which to make future shipments of the product.
2. The IMPORTANT SAFEGUARDS sheet.
3. These Installation and Operating Instructions.

MAINTENANCE

User maintenance of this unit is limited to external cleaning and inspection. For specific recommendations refer to the IMPORTANT SAFEGUARDS sheet packaged with this product.

INSTALLATION AND SERVICE

If you require information during installation of this product or if service seems necessary, contact the Sensormatic Repair and Service Department at (800) 442-2225. You must obtain a Return Authorization Number and shipping instructions before returning any product for service.

Do not attempt to service this product yourself. Opening or removing covers may expose you to dangerous voltages or other hazards. Refer all servicing to qualified personnel.

QA301D

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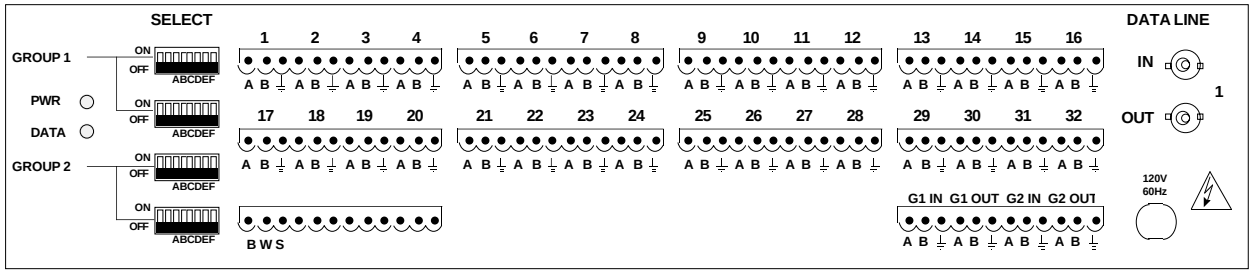


Figure 1 - 2031 Switcher Follower

DESCRIPTION

The 2031 Switcher\Follower is used to provide simultaneous relay closures corresponding to a camera when it is called to a monitor. Uses incluse the audio callup or operation of panel displays showing called or alarmed camera sites, etc.

The 2031 receives data from either a LAN output of a 1995, a DATA LINE output of a 1996, or the Control Code output of either a 1600, 1650, or 2150 System. If the 2031 operates via control code, a dip switch, located on the main printed circit board, is used to select the Control Code mode.

The 2031 then filters the incoming codes for either camera group or Monitor. The unit contains 32 addressable, normally open relays. The 32 relays can be grouped in series or, in two alike groups of 16. Each of the two groups can control 16 relays following one monitor and 16 cameras.

FEATURES

The 2031 Switcher\Follower has the following features:

- *SCREW TERMINAL WIRE CONNECTORS*
- *LED INDICATOR FOR "VALID" CODE*
- *LED POWER INDICATOR*
- *DIP SWITCH SELECTION FOR CAMERA GROUPAND MONITOR*
- *COMPATIBLE WITH EITHER DATA LINE OR CONTROL CODE*
- *UNIVERSAL MOUNT CABINET*

IF YOU ENCOUNTER ANY PROBLEMS OPERATING THIS UNIT, OR NEED TECHNICAL ASSISTANCE, CALL OUR SERVICE CENTER AT:

within the United States: **1-800-442-2225**
outside the United States: **(845) 624-7600**

INSTALLATION

This installation should be made by qualified service personnel and should conform to all local codes. Safeguards must be taken to avoid unintentional operation by employees and maintenance personnel working about the premises, by falling objects, by customers, by building vibration, and by similar causes.

The cabinet of a 2031 Switcher Follower may be surface or rack mounted in any convenient location with adequate ventilation. For proper ventilation allow at least three feet (1m) from the rear of the racks to any wall and one EIA rack height (1 3/4 inches) between units.

Mounting

The 2031 is shipped with mounting ears flush with the front panel, and can be mounted to the front of a standard 19-inch rack.

The mounting ears of the 2031 can also be placed such that they are flush with the rear panel. This allows the 2031 to be mounted in a rack equipped with mounting channels.

The unit can also be surface mounted. Mount the ears so that they are either flush with athe top or bottom covers of the unit, or offset from the covers.

Optimally, the 2031 should be located near the Switching Systems (1995, 1996, 2050, 1024) or near the Control Code Line of a 1600, 1650, or 2150 Switching System. Avoid heat sources or poorly ventilated racks.

Monitor/Camera Select

The DIP switches are also used in the 2031 to determine monitor and camera group selections.

DIP Switches

The four, 8-position DIP switches located on the rear of the 2031 under the label “SELECT”, are used to determine monitor and camera group selections. The top two DIP switches (1 & 2) set the parameters of the GROUP 1 relays. The lower two DIP switches (3 & 4) set the parameters of the GROUP 2 Relays.

The configuration of the paur of 8-positions DIP switches, (1 & 2 or 3 & 4) determines the monitor to be followed (1-64), and the camera group to be followed (in groups of 16). All the switches are programmed in binary. The first and third switches are programmed to correspond to the desired monitor. The second and fourth switches are programmed to correspond to the desired camera block (in groups of 16).

TABLE 1 shows the complete correspondence of DIP switch settings to the monitor and camera numbers.

Note: The two groups can be set to two different monitor and camera numbers, if desired.

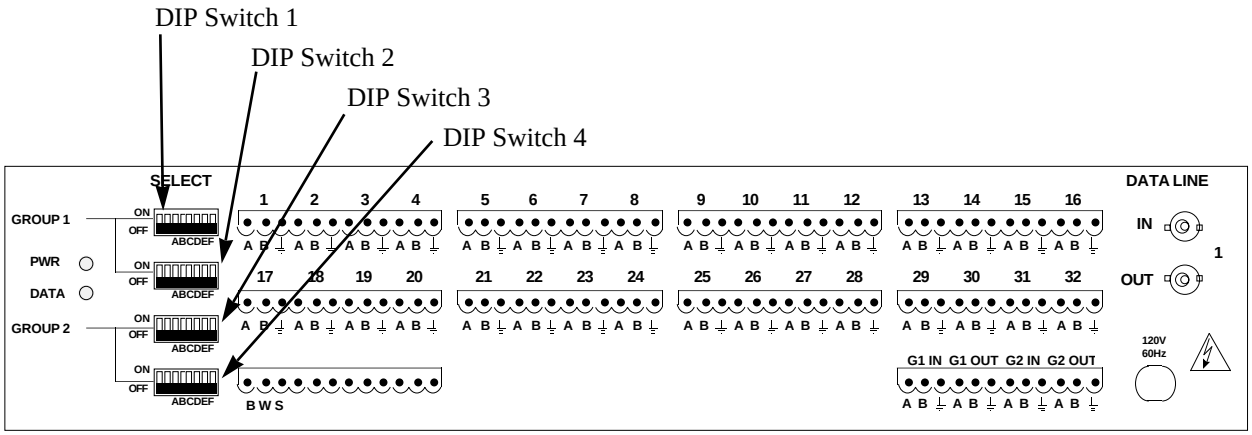


Figure 2 - Location of DIP Switches

TABLE 1
SWITCHER FOLLOWER UNIT MONITOR AND CAMERA SELECT
0 = OFF, 1

DIP Switches 1 & 3 select the monitor to be followed

DIP Switches 2 & 4 select the camera block

DIP SWITCHES 1&3	8-position DIP Switch								DIP SWITCHES 2&4
			A	B	C	D	E	F	
MON	1	2	3	4	5	6	7	8	CAM
1	0	0	0	0	0	0	0	0	1 - 16
2	0	0	0	0	0	0	0	1	17 - 32
3	0	0	0	0	0	0	1	0	33 - 48
4	0	0	0	0	0	0	1	1	49 - 64
5	0	0	0	0	0	1	0	0	65 - 80
6	0	0	0	0	0	1	0	1	81 - 96
7	0	0	0	0	0	1	1	0	97 - 112
8	0	0	0	0	0	1	1	1	113 - 128
9	0	0	0	0	1	0	0	0	129 - 144
10	0	0	0	0	1	0	0	1	145 - 160
11	0	0	0	0	1	0	1	0	161 - 176
12	0	0	0	0	1	0	1	1	177 - 192
13	0	0	0	0	1	1	0	0	193 - 208
14	0	0	0	0	1	1	0	1	209 - 224
15	0	0	0	0	1	1	1	0	225 - 240
16	0	0	0	0	1	1	1	1	241 - 256
17	0	0	0	1	0	0	0	0	257 - 272
18	0	0	0	1	0	0	0	1	273 - 288
19	0	0	0	1	0	0	1	0	289 - 304
20	0	0	0	1	0	0	1	1	305 - 320
21	0	0	0	1	0	1	0	0	321 - 336
22	0	0	0	1	0	1	0	1	337 - 352
23	0	0	0	1	0	1	1	0	353 - 368
24	0	0	0	1	0	1	1	1	369 - 384
25	0	0	0	1	1	0	0	0	385 - 400
26	0	0	0	1	1	0	0	1	401 - 416
27	0	0	0	1	1	0	1	0	417 - 432
28	0	0	0	1	1	0	1	1	433 - 448
29	0	0	0	1	1	1	0	0	449 - 464
30	0	0	0	1	1	1	0	1	465 - 480
31	0	0	0	1	1	1	1	0	481 - 496
32	0	0	0	1	1	1	1	1	497 - 512
33	0	0	1	0	0	0	0	0	513 - 528
34	0	0	1	0	0	0	0	1	529 - 544
35	0	0	1	0	0	0	1	0	545 - 560
36	0	0	1	0	0	0	1	1	561 - 576
37	0	0	1	0	0	1	0	0	577 - 592
38	0	0	1	0	0	1	0	1	593 - 608
39	0	0	1	0	0	1	1	0	609 - 624
40	0	0	1	0	0	1	1	1	625 - 640
41	0	0	1	0	1	0	0	0	641 - 656
42	0	0	1	0	1	0	0	1	657 - 672
43	0	0	1	0	1	0	1	0	673 - 688
44	0	0	1	0	1	0	1	1	689 - 704
45	0	0	1	0	1	1	0	0	705 - 720
46	0	0	1	0	1	1	0	1	721 - 736
47	0	0	1	0	1	1	1	0	737 - 752
48	0	0	1	0	1	1	1	1	753 - 768
49	0	0	1	1	0	0	0	0	769 - 784
50	0	0	1	1	0	0	0	1	785 - 800
51	0	0	1	1	0	0	1	0	801 - 816
52	0	0	1	1	0	0	1	1	817 - 832
53	0	0	1	1	0	1	0	0	833 - 848
54	0	0	1	1	0	1	0	1	849 - 864
55	0	0	1	1	0	1	1	0	865 - 880
56	0	0	1	1	0	1	1	1	881 - 896
57	0	0	1	1	1	0	0	0	897 - 912
58	0	0	1	1	1	0	0	1	913 - 928
59	0	0	1	1	1	0	1	0	929 - 944
60	0	0	1	1	1	0	1	1	945 - 960
61	0	0	1	1	1	1	0	0	961 - 976
62	0	0	1	1	1	1	0	1	977 - 992
63	0	0	1	1	1	1	1	0	993 - 1008
64	0	0	1	1	1	1	1	1	1009- 1024

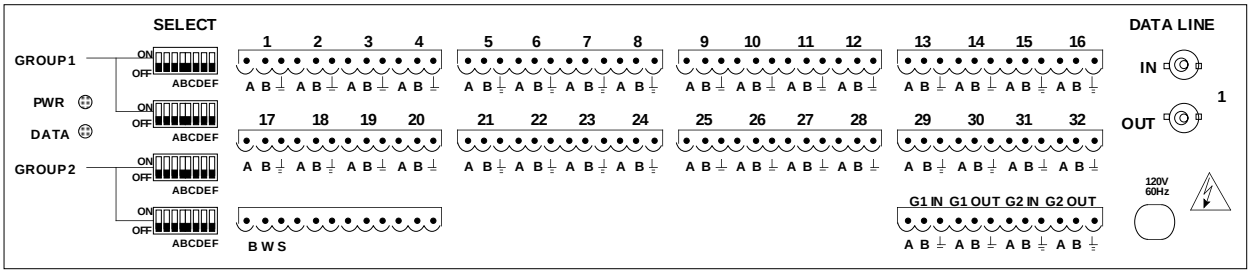


Figure 3 - 2031 Relay Groups

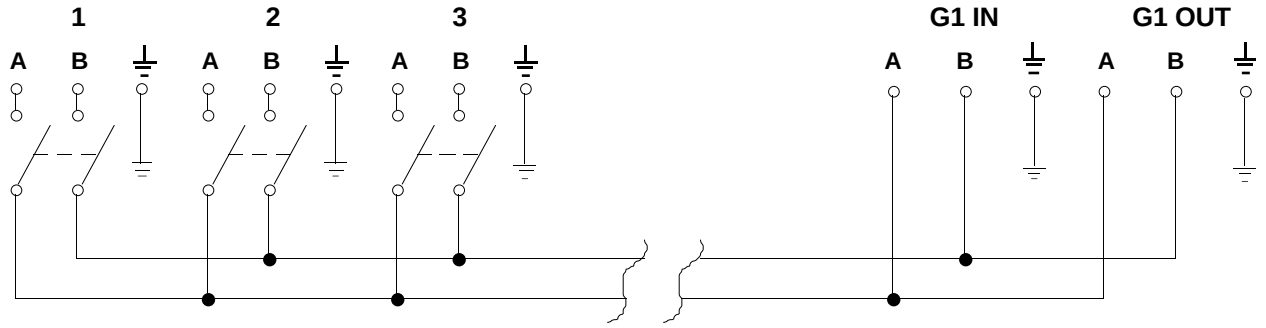


Figure 4 - 2031 Relay Contacts (Group 1)

CONNECTIONS

Relay Connections

The 2031 Switcher Follower provides relay closures only; they are not intended to supply power. Two groups (GROUP 1 and GROUP 2) of four 12-pin relay connectors are provided on the rear panel (see Figure 3). Each group provides connections for double pole relays. The two groups provide 32 pairs of relay closures. Figure 4 illustrates the internal 2031 relay interconnections for Group 1 relays.

The relay connections to the unit must be made with shielded, 2-wire twisted pair (22 AWG or heavier gauge wire or equivalent). The shield wire is to be connected to the grounding terminal.

Each set of three pin connections is labeled with a relay number, from 1 through 32, corresponding to one of the monitors of the monitor group(s) selected. Each pin within one of the numbered sets is also labeled, under the connector, with an A, a B, and a ground symbol. The A and B pins on each connection are the contacts for one side of each double pole relay. The contacts for the other side of each relay are connected to the common Group connectors (next paragraph). The ground pin is provided for shielding.

One 12-pin connector on the lower right of the 2031 rear panel contains the common connections for each relay group. Each set of pins is labeled with the group number G1 IN, G1 OUT, G2 IN, and G2 OUT, and each pin is labeled with an A, B, and ground. The A and B pins are common contacts for the other side of the double pole relays; G1 IN and OUT are connected to relays 1-16 (see Figure 4), and G2 IN and OUT are connected to relays 17-32. The Group IN connections are used for determining the function of the associated relays, such as providing a user-supplied voltage, a short to ground, or a unique signal on relay activation. The Group IN pins can also be used as inputs from cascading 2031 units. The Group OUT connections are used to connect the associated relays to a single responding device, such as a speaker or an indicator light, or for cascading to additional 2031's.

For ease of attaching to external equipment, each connector is supplied with a mating screw terminal connector, shown in Figure 5. Insert the signal and shield wires into the slots of the mating connector and tighten the hold-down screws. When all lines have been connected, insert the 12-pin connectors into the rear panel mating terminals.

The relay contact ratings are 0.6 Amps at 24 VAC, or 2 Amps at 30 VDC, resistive load. Power through the relays is not supplied by the 2031.

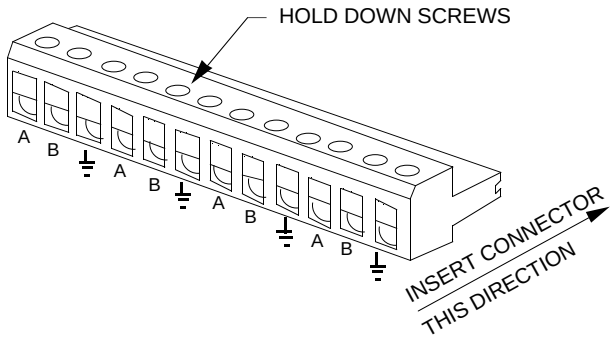


Figure 5 - Typical 12-Pin Connector

Data Line Connections

A DATA LINE is connected from the DATA LINE OUT BNC on a Matrix Bay to the DATA LINE IN BNC on the rear panel of the Switcher Follower (Older 1995 systems used the term LAN IN/OUT). Use a good grade RG-59 video cable (Belden 8241 or equivalent). The DATA LINE OUT BNC on the Switcher Follower must be fitted with a 75-ohm BNC terminator, or if used to loop to other DATA LINE controlled equipment, it must be terminated at the end of the run.

The LED labeled DATA LINE on 2031 will illuminate when valid code is received on the Data Line.

DATA LINE Input

After completing the Data Line connections, plug in the power cord. When the 2031 receives a valid code through the Data Line inputs, the green Data Line LED illuminates. The illumination of the Data Line LED is confirmation that the relays associated with a particular monitor or camera are opening and closing as each particular monitor or camera is called.

If the DATA LINE LED does not illuminate, check for proper operation of the 1995. 1996, or 1024 CPU. Check all your connections. If all the connections are as they should be and the 2031 still does not operate properly, unplug the 2031 and remove the top cover. Check the DIP switch on the main printed circuit board. All switches should be in the OFF position. Refer to the illustration at right.

Control Code Line Connections

The 12-pin terminal connector located at the lower left side of the rear panel is used for Control Code connections. The connector is labeled B, W, and S. The B is for the BLACK code wire, the W is for the WHITE code wire, and the S is for the SHIELD wire.

CAUTION - Due to the presence of non-insulated components with hazardous voltages, the following internal adjustments should be performed by qualified service personnel only.

If the 2031 Switcher Follower is used with Control Code, remove the top cover of the unit and locate the DIP switch on the printed circuit board (see Figure 6, below). Set the eighth switch position of this DIP switch to the ON position. This setting enables the use of Control Code in the 2031.

Note: As shipped, the 2031 is set to operate in the Data Line mode; this switch is set to the OFF position.

Control Code lines must be terminated in 120 ohms. Check the last unit on each line to ensure that 120-ohm termination is present. Intermediate units on a Control Code line must not have 120-ohm termination. To remove the termination of the 2031 code line, jumper J32 must be removed from the main PCB. See Figure 6 for the location of this jumper.

Note: As shipped, the 2031 is set for 120-ohm termination; this jumper is inserted.

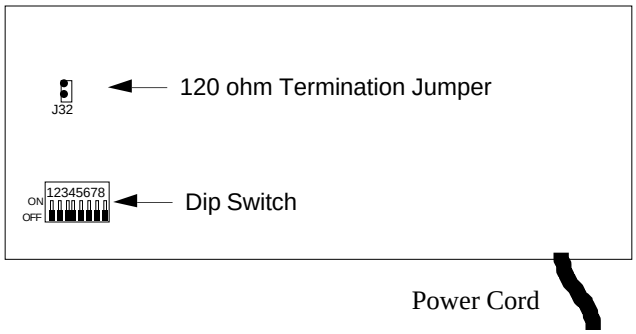


Figure 6 - DIP Swich Location on PCB

Control Code Line Connections

In switching systems using Contol Code, the Switcher Follower must be connected to the code line that contains the cameras and monitor to be followed. Each code line contains data for 64 cameras and eight monitors for 1650 systems, and a maiximum of 32 cameras and five monitors for 2150 systems.

The Control Code line connections to the Switcher Follower must be shielded, 2-wire twisted pair (Belden 8760; for plenum use Belden 88760 or equivalent).

Code Lines are NEC Class 2, low voltage circuits. Where local codes permit, installation in conduit is not required. Avoid installation near high voltage or other potential interference sources.

Multiple 2031s can be connected in a “Star” configuration to a Control Code distribution unit (1691 or 2091). See Figure 7. For this connections, each 2031 must have a 120 ohm termination.

A maximum of three Control Code devices can be “Daisy-Chained” on a single code line. When devices are daisy-chained, do not terminate the control line with intermediate devices. In addition, make sure the intermediate equipment does not contain a 120 ohm terminating resistor. If it does, remove it (see page 5). See Figure 8 for a daisy-chained configuration.

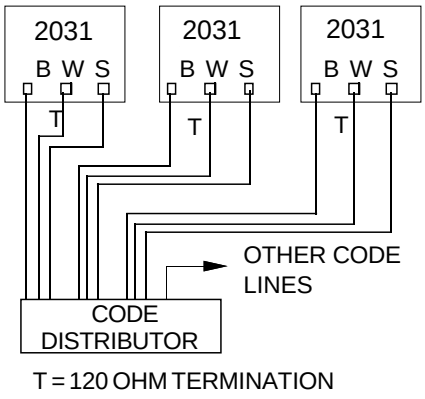


Figure 7 - Code "Star" Configuration"

Figure 4 - DIP Switch Location on PCB

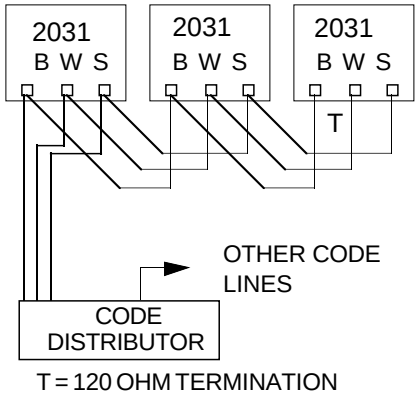


Figure 8 - Code "Daisy Chain" Configuration

OPERATION

After completing the Control Input connections, plug in the power cord. When the 2031 receives a valid code through the Control Line input, the green Data Line LED illuminates. The illumination of the Data Line LED is confirmation that the relays associated with a particular monitor or camera are opening and closing as each particular monitor or camera is called.

For 1650A operation, there can be a maximum of four control lines. The first control line is for monitors 1-8 and cameras 1-64. The second control line is for monitors 1-8 and cameras 65-128. The third control line is for monitors 9-16 and cameras 1-64. The fourth control line is for monitors 9-16 and cameras 65-128.

When setting the DIP switches, enter the actual monitor and camera group (i.e., monitor 12, cameras 1-64, GROUP 1; contacts for cameras 1-16).

If the DATA LINE LED does not illuminate, check for proper operation of the 1995. 1996, or 1024 CPU. Check all your connections. If all the connections are as they should be and the 2031 still does not operate properly, unplug the 2031 and remove the top cover. Check the DIP switch on the main printed circuit board. All switches should be in the OFF position. Refer to the illustration on page 5 for this DIP switch location.

If the green code LED is flickering, the code lines may be backwards. Try reversing the black and white code lines.

In operation with 1650A, 1995, 1996, and 1024 systems, the 2031 senses jumps between groups of 64 cameras. When going from one group to another, the 2031 will place one group in the OFF state (open all relays) when going to the next group of 64 cameras.

Power Sources

DO NOT CONNECT THE EQUIPMENT TO A POWER SOURCE UNTIL READY TO "POWER UP". Make all connections to the 2031 data line, or code input and relay connections and set the DIP switches prior to power up.

The 2031 Switcher\Follower does not contain an On/Off Switch. The socket outlet shall be located near the equipment and shall be readily accessible. The 120V units are supplied with a pendant 3-wire cord and plug for mating to the primary source outlet. The 230V units are supplied with a Euro style IEC 320 type inlet. A suitable detachable cord should be connected between the IEC 320 inlet and the power source. The cord should conform to all national and local use code requirements.

Switcher\Followers are available in two models, depending on the power source to be used:

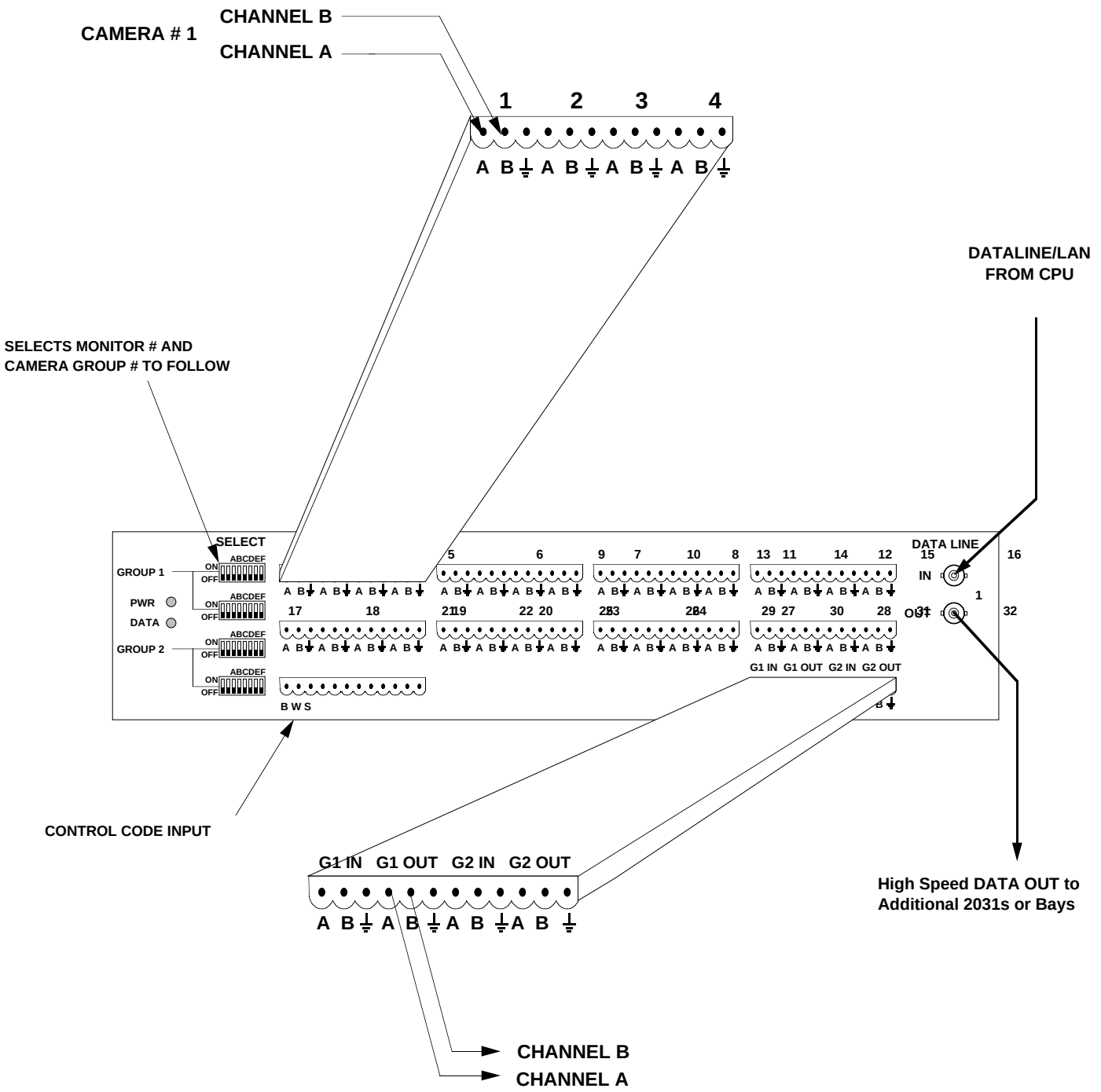
AD2031: 120 V, 50/60Hz
AD2031-1: 230 V, 50/60Hz

Operating Indicators

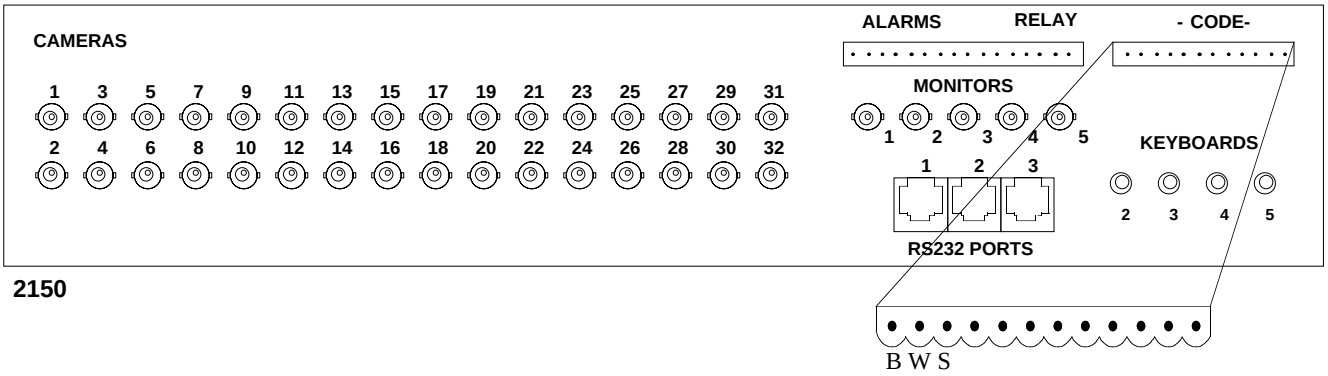
A green POWER LED power indicator located on the rear panel illuminates when power is applied.

When the unit is receiving valid code, the green DATA LINE LED on the rear panel will illuminate and glow steadily. If it flickers, there may be a problem with the Control Input line.

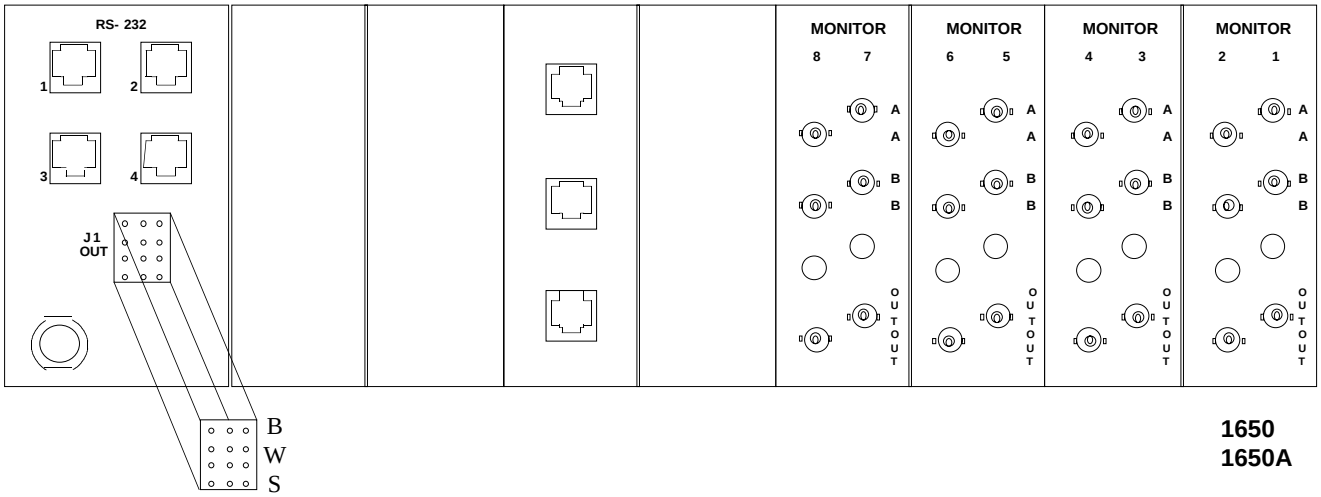
APPENDIX


CAMERA # 1
CHANNEL B
CHANNEL A
1 2 3 4
A B A B A B A B
DATALINE/LAN
FROM CPU
SELECTS MONITOR # AND
CAMERA GROUP # TO FOLLOW
SELECT
GROUP 1
GROUP 2
PWR
DATA
ON
OFF
ABCDEF
DATA LINE
IN
OUT
B W S
G1 IN G1 OUT G2 IN G2 OUT
CONTROL CODE INPUT
High Speed DATA OUT to
Additional 2031s or Bays
CHANNEL B
CHANNEL A

TYPICAL SYSTEM CONNECTIONS
2031 SWITCHER FOLLOWER

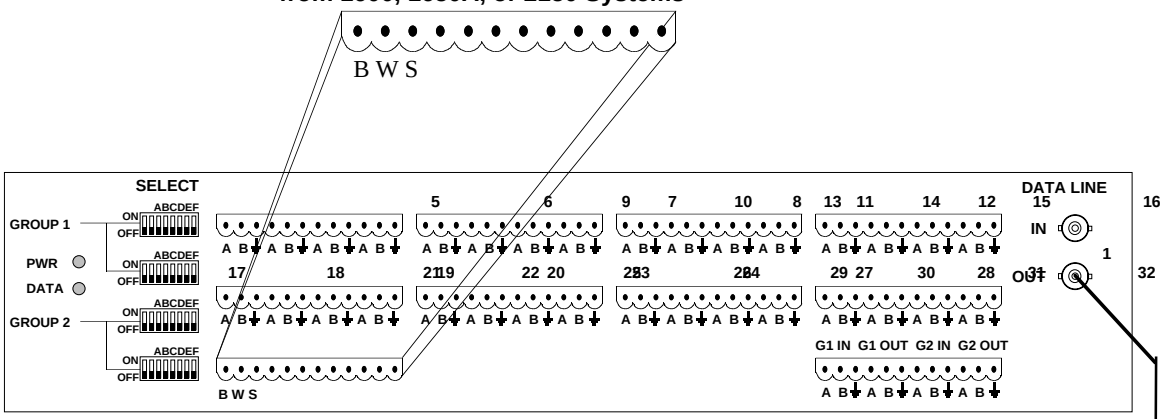


2150



1650
1650A

from 1600, 1650A, or 2150 Systems



2031

DATALINE OUT to additional 2031's or 75- ohm terminator

DECLARATION OF CONFORMITY

According to ISO/IEC Guide 22 and EN45014

Manufacturer's Name: Sensormatic Electronics Corporation

Manufacturer's Address: 1 Blue Hill Plaza
2nd Floor
Pearl River, New York, 10965 USA

Declares, that the product listed below:

Name/Type:	Switcher / Follower
Model Number:	AD2031-1

complies with all applicable directives as demonstrated by conformance to the following Product Specifications:

Safety:	EN 60950: 1992
EMC:	EN 50130-4: 1995 EN 55022: 1994 , Class B EN 61000-3-2: 1995 EN 61000-3-3: 1995 EN 61000-4-2: 1995 EN 61000-4-3: 1996 EN 61000-4-4: 1995 EN 61000-4-5: 1995 EN 61000-4-6: 1996 EN 61000-4-11: 1994

Supplementary Information:

The products herewith comply with the requirements of the Low Voltage Directive, 73/23/EEC as amended by 93/68/EEC, and the EMC Directive, 89/339/EEC as amended by 93/68/EEC.

Pearl River, NY, USA 15 December, 2000

Harold D. Johnson, Ph.D.
Director of Engineering

European Contact: Sensormatic France S.A.
7, rue Alexis de Tocqueville, Parc de Haute Technologie, 92183 ANTONY CEDEX

SPECIFICATIONS

Electrical Ratings:	AD2031	120 VAC, 50/60Hz, 15 W
	AD2031-1	230 VAC, 50/60Hz, 125 mA
Relay Contact Ratings:	0.6 A at 24 VAC, 2.0A at 30 VDC	
Mounting:	Free Standing or Rack Mount	
Weight:	7 lbs (1.4 kg)	
Dimensions:	3.5” H x 17” W x 8” D (89 x 432 x 203 mm)	

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FAX: (845) 624-7685

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December, 2000

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