

INSTRUCTION MANUAL

MODEL 201 w/OP. 4

MANUAL INPUT/OUTPUT

SERIAL NUMBER 306



STANDARD WARRANTY

Jorway Corporation, warrants to the original purchaser that equipment of its manufacture is free from defects in material and workmanship. This warranty is effective for a period of one year after shipment of the instrument to the original purchaser.

Liability under this warranty is limited to servicing or adjusting any instrument returned to the Jorway Corporation factory for this purpose. Equipment to be returned for repair under warranty shall be returned transportation charges prepaid. If factory inspection discloses that defect developed under normal and proper use and within the warranty period, repair will be made and equipment returned with transportation charges paid by Jorway. Return shipment will be made via UPS where available or via insured parcel post. Other modes of shipment can be made at the customers request and then only on a collect basis.

If equipment is not covered under the warranty terms, an estimated cost of repair will be submitted to the customer, and upon his authorization, repairs will be accomplished and billed at cost, including U.S. Customs clearance charges and return insured transportation charges, F.O.B. Westbury, New York, U.S.A.

Equipment sold outside the U.S.A. will not be accepted for warranty repair unless prior approval and shipping instructions have been obtained from the Jorway Corporation. If equipment is covered under warranty, shipments will be returned prepaid to the foreign port of entry.

This warranty is expressly in lieu of all other obligations or liabilities on the part of Jorway Corporation. Jorway Corporation does not assume, nor authorize any other person, including representatives of Jorway Corporation to assume for them, any other liabilities in connection with the sale of Jorway instruments.



MODEL 201

MANUAL INPUT/OUTPUT MODULE

The Model 201 Manual Input/Output Module is a single width Camac module which provides the means to manually input data to the Dataway Read lines and to display Dataway Write line information.

A 24 bit toggle switch register on the front panel controls the entry of data which is gated onto the Dataway Read lines on command.

Dataway Write line data is stored in a 24 bit output storage register on receipt of an overwrite command. In addition individual bits of the output register may be selectively set or cleared by an appropriate command with the Write line data selecting the bits affected. The states of the output register are displayed by 24 LED indicators on the front panel.

A momentary switch is provided for manual generation of a Look at Me request which, once set, is maintained until cleared by command.

A Test Look at Me operation produces a Q response if a IAM is present.

A prescribed module identification code is gated onto the Dataway Read lines on command.

The Model 201 conforms to CAMAC specifications AEC TID-25875.

SPECIFICATIONS

CONTROLS AND INDICATORS

24 Input toggle switches, 1-24

IAM Pushbutton

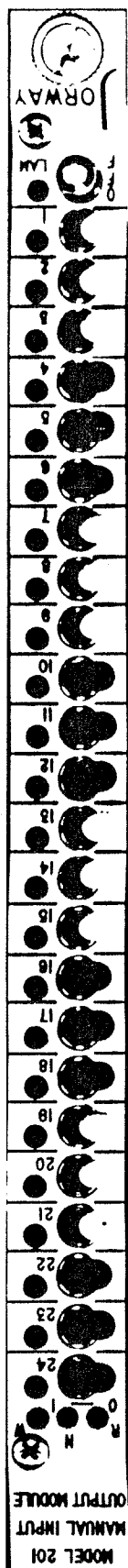
24 Output Indicators, 1-24*

N Indicator

W Indicator*

R Indicator*

- Controls entry of data to respective Dataway Read (R) lines.
- Sets IAM status Register.
- Displays state of respective output storage register.
- Illuminated when modules station is addressed.
- Illuminated when output register receives a command to update its data.
- Illuminated when switch register data is being gated onto the Dataway.



L Indicator

Illuminated when IAM is pending.

NOTE:

The N, W and R indicators are illuminated for a minimum of approximately 100 milliseconds so that short duration operations are visible.

COMMANDS

N•F(0)•A(0)	Read switch register.
N•F(8)•A(15)	Test Look at Me.
N•F(10)•A(0)•S2	Clear IAM.
N•F(16)•A(1)•S1*	Overwrite Output Display Register.
N•F(18)•A(1)•S1*	Selectively set Output Display Register.
N•F(21)•A(1)•S1*	Selectively clear Output Display Register.
N•F(1)•A(15)*	Read module identification.
Z•S2	Clear IAM.

Module Identification

In response to Read Module Identification command the following data is gated onto the Dataway Read lines:
(MSB)0000 0000 0000 0000 0001 0000 (LSB)
Single width CAMAC module with protective side shields.

Mechanical

Option 2 Manual Switch Input Only, specifications shown by * are deleted.

Power

+6 volts @ 880ma.

Option 4

Readable Display Register: This option when included in the Model 201 allows the contents of the Display Register to be read onto the dataway by the Command N•F(0)•A(1). This feature allows the Model 201 to be used in CAMAC test and debugging problems requiring 24 bit write and readback of the same register.

SECTION V

SERVICE

5.1 GENERAL

Jorway instruments are conservatively designed using quality components with high reliability as a prime objective. In addition all units are manufactured to rigid quality control standards and are thoroughly tested and run before shipment. As a result long life and trouble-free operation can be expected. Nevertheless occasional malfunctions may occur necessitating service of the unit.

Most Jorway products are covered by our standard one year warranty. Instruments requiring service within the warranty period should be returned to the factory for repair under its terms (see warranty printed elsewhere in this manual). We also strongly recommend that the instruments which are out of warranty be returned to the factory when service is necessary. Jorway personnel being intimately familiar with our products are able to efficiently isolate any problem and restore the unit to proper operating condition.

If, for any reason, the user decides to repair an instrument it should be done by qualified personnel experienced in working with this type of equipment. The information contained in this manual should be read and understood before attempting to troubleshoot the unit, since familiarity with the principles of operation and circuitry are essential. Utilizing the schematic diagrams and other material in the manual it should be possible for a skilled technician to determine the cause of a malfunction and effect its repair.

5.2 COMPONENT REPLACEMENT

If it is necessary to replace a component on the circuit boards, extreme care should be exercised so that the board is not damaged. Most important is that excessive heat is not applied to the printed circuitry. Use the minimum amount of heat necessary to melt the solder. Multilead components such as dual in-line integrated circuits are difficult to remove and it is usually better to cut the leads of suspected components and remove the remaining pieces one by one from the component holes. The use of a suitable solder extracting device will greatly aid in the removal of such components. The holes should be thoroughly cleaned out before new component is inserted. Do not use force in either removal or insertion of components as damage to the plated through holes may result.

PARTS LISTS

SECTION VII

7.0 INTRODUCTION

The following lists of replaceable parts are included to permit repairs if it should become necessary. The first sheet shows the final assembly list which includes all major subassemblies. Following are parts lists for the subassemblies. Reference designations for electrical components correspond to those shown on the applicable schematic diagram. In some cases components of a different manufacturer may be used in some instruments, or a part with equivalent performance substituted.

Many components are readily available locally, however, if difficulties in securing needed parts are experienced, they may be ordered from the factory using the Jorway stock number. Please include the model and serial number as shown on the nameplate of the instrument when ordering parts. Equivalent parts may be substituted in many instances. If in doubt about a particular replacement, our engineering department should be consulted.



Title: Manual Input/Output-Opt.4, Top Assembly
 Reference Drawings: 201-J-002 Rev.A Last ECO 557
 Disc File "A2071C.LIS 20-MAR-87"

REFERENCE -- DESIGNATION

PART NUMBER	QUANTITY
A-5267-002	1
A-5271-003	1
H-0000-114	1
H-0000-148	2
H-0000-230	6
H-0403-000	8
H-0405-000	2
H-0403-001	6
H-0426-001	6
H-0431-300	10
MP-0000-179	1
MP-2249-000	2

DESCRIPTION

P.C.Bd. Assy, Md1 201, Fr. Panel Bd.	Jorway	MFR.
P.C.Board Assembly, Md1 201, Main Bd.	Jorway	MFR.
JackscREW, 4mm	Deutsch	
Rail, C-200	PMF	
Standoff, 1/4" Hex x 5/16", 4-42	RMF	
Screw, Pan Hd., Phillips, Stainless	Any	
Screw, Pan Hd., Phillips, Stainless	Any	
Screw, Flat Hd., Phillips, Stainless	Any	
Screw, Flat Hd., Phillips, Stainless	Any	
Washer, Lock, Med. Ep11t, Stainless	Any	
Front Panel Model 201	Jorway	
Cover, Aluminum, Modified	Jorway	



REFERENCE	DESIGNATION	QUANTITY	PART NUMBER	DESCRIPTION	MFR. PART NUMBER
23		1	C-0221-000	Cap., Ceramic, 220pf, 10%, 1KV, X5F	Sprague 121E122
	C2,4,6,7,9 THRU 22,26	19	C-0104-003	Cap., Ceramic, 10uf, 20%, 50V, Z5U	Sprague 122E125U104M0508
		1	C-0105-002	Cap., Tant., Dipped, 1uf, 20%, 35V	Kemet 136B4105M035AS
	1,3,5,8,24	5	C-0226-030	Cap., Tant., Dipped, 22uf, 20%, 15V	Kemet 136B226M015AS
		1	CR-5400-003	Diode, Silicon, 3A, 50V PIV	Mot 1H5400
	CR30	1	CR-7491-000	DIODE, ZENER 400MA, 3.9V	IR 1N7491
	C21 THRU 32	12	IC-7400-000	Integrated Circuit, DIP, Plastic	SN7400N
	C11,45 THRU 56	13	IC-7401-000	Integrated Circuit, DIP, Plastic	SN7401N
	IC14	1	IC-7402-000	Integrated Circuit, DIP, Plastic	SN7402N
	C2,6,15,17,18,19,20	7	IC-7404-000	Integrated Circuit, DIP, Plastic	SN7404N
	C2A,10	2	IC-7405-000	Integrated Circuit, DIP, Plastic	SN7405N
	IC1,16	2	IC-7410-000	Integrated Circuit, DIP, Plastic	SN7410N
	IC12	1	IC-7416-000	Integrated Circuit, DIP, Plastic	SN7416N
	CS	1	IC-7425-000	Integrated Circuit, DIP, Plastic	SN7425N
	IC13	1	IC-7430-000	Integrated Circuit, DIP, Plastic	SN7430N
	IC7,8,9	3	IC-7432-000	Integrated Circuit, DIP, Plastic	SN7432N
	CS,4	2	IC-7442-000	Integrated Circuit, DIP, Plastic	SN7442A
	C3,3 THRU 44	12	IC-7474-000	Integrated Circuit, DIP, Plastic	SN7474N
	IC5A	1	IC-0121-000	Integrated Circuit, DIP, Plastic	SN74121N
	1	1	L-0474-000	Inductor, Molded, .47uh	Leifers 4425-2M
	4	1	Q-3053-000	Transistor, NPN	Motorola 2N3053
	Q1,2,3	3	Q-3243-000	Transistor, NPN	FSC FM3643
	R74	1	R-3680-101	Resistor, 1/4W, 68 OHM 5%	AB R007
	4,8,11,21	4	R-0151-101	Resistor, 1/4W, 150 OHM 5%	AB R007
	46 THRU 69	24	R-0221-101	Resistor, 1/4W, 220 OHM 5%	AB R007
	R10,12 THRU 14	4	R-0561-101	Resistor, 1/4W, 560 OHM 5%	AB R007
	5,9,15 THRU 18,73,75	8	R-0222-101	Resistor, 1/4W, 2.2K 5%	AB R007
	1,22 THRU 45,70	26	R-0472-101	Resistor, 1/4W, 4.7K 5%	AB R007
	R2,6,19,72	4	R-2107-101	Resistor, 1/4W, 10K 5%	AB R007
	5,7,20	3	R-0223-101	Resistor, 1/4W, 22K 5%	AB R007
	C,D,E,F,6	1	W-0201-004	P.C. Board, Model 201 Main Board	Jorway 201-200 Rev.D
		1	W-0204-000	Dumper, #24 Wht Testion, 0.600" Length Equival	J 0.600 x W.250 124
		5	W-0205-000	Dumper, #24 Wht Testion, Length as required none	none



Parts List 201-A-702 Rev. D Assembly No. 45269B 29-AUG-86
 Title: Front Panel P.C. Board Assembly
 Reference Drawings: 201-J-002 Rev. A Last ECD 557
 Disc File "45269B.LIS 20-MAR-87"

REFERENCE DESIGNATION	QUANTITY	PART NUMBER	DESCRIPTION	MFR.	MFR. PART NUMBER
CR1 THRU 24	24	CR-2002-109	Diode,Light Emitting,Red	G.I.	WV5075C
CR25 THRU 28	4	CR-0000-112	Diode,Light Emitting,Green	H.F.	HLMP-1503
S1 THRU 24	24	S-0000-021	Switch,Toggle,SPDT,P.C.Term.	C&K	7101SYCZ
525	1	S-0000-023	Switch,Toggle,SPDT,Cn-Off-Mom,Lock	C&K	7107XVCB
54,5,6,10,11,12,16,17,18,22,23,24	12	S-0000-014	Toggle Cap,Rec	C&K	7062-3
51,2,3,7,8,9,13,14,15,19,20,21	12	S-0000-015	Toggle Cap,White	C&K	7062-1
	1	TR-0201-010	P.C.Board, Model 201 Front Panel	Jonway	201-201
	32	M-0007-001	Tubing,#22 Oir.Tef.,Lgth in Inch	Alpha	TFT-200-22



APPENDIX 1

TABLE A1-1 CONTACT ALLOCATION AT A NORMAL STATION

(Viewed from front of crate)

Bus-line	Free Bus-line	P1	B	Busy	Bus-line
Individual patch contact	Free Bus-line	P2	F16	Function	Bus-line
Individual patch contact		P3	F8	Function	Bus-line
Individual patch contact		P4	F4	Function	Bus-line
Individual patch contact		P5	F2	Function	Bus-line
Bus-line	Command Accepted	X	F1	Function	Bus-line
Bus-line	Inhibit	I	A8	Sub-address	Bus-line
Bus-line	Clear	C	A4	Sub-address	Bus-line
Individual line	Station Number	N	A2	Sub-address	Bus-line
Individual line	Look-at-Me	L	A1	Sub-address	Bus-line
Bus-line	Strobe 1	S1	Z	Initialise	Bus-line
Bus-line	Strobe 2	S2	Q	Response	Bus-line
W24 = least significant bit		W24	W23		
W24 = most significant bit		W10	W9		
		W8	W7		
		W6	W5		
		W4	W3		
		W2	W1		
		R24	R23		
		R22	R21		
		R20	R19		
		R18	R17		
		R16	R15		
		R14	R13		
R1 = least significant bit		R12	R11		
R24 = most significant bit		R10	R9		
		R8	R7		
		R6	R5		
		R4	R3		
		R2	R1		
		-12	-24		
		+200	-6		
		ACL	ACN		
		Y1	E		
		+12V d.c.	Clean Earth		
		Reserved	+24V d.c.		
		Reserved	+6V d.c.		
		0V (Power Return)	0V (Power Return)		

TABLE A1-2 CONTACT ALLOCATION AT THE CONTROL STATION

(Viewed from front of crate)

Bus-line	Individual patch contact	P1	B	Busy	Bus-line
Bus-line	Individual patch contact	P2	F16	Function	Bus-line
Bus-line	Individual patch contact	P3	F8	Function	Bus-line
Bus-line	Individual patch contact	P4	F4	Function	Bus-line
Bus-line	Individual patch contact	P5	F2	Function	Bus-line
Bus-line	Individual patch contact	X	F1	Function	Bus-line
Bus-line	Inhibit	I	A8	Sub-address	Bus-line
Bus-line	Clear	C	A4	Sub-address	Bus-line
Bus-line	Individual patch contact	P6	A2	Sub-address	Bus-line
Bus-line	Individual patch contact	P7	A1	Sub-address	Bus-line
Bus-line	Strobe 1	S1	Z	Initialise	Bus-line
Bus-line	Strobe 2	S2	Q	Response	Bus-line
Bus-line	L24	L24	N24		
Bus-line	L23	L23	N23		
Bus-line	L22	L22	N22		
Bus-line	L21	L21	N21		
Bus-line	L20	L20	N20		
Bus-line	L19	L19	N19		
Bus-line	L18	L18	N18		
Bus-line	L17	L17	N17		
Bus-line	L16	L16	N16		
Bus-line	L15	L15	N15		
Bus-line	L14	L14	N14		
Bus-line	L13	L13	N13		
Bus-line	L12	L12	N12		
Bus-line	L11	L11	N11		
Bus-line	L10	L10	N10		
Bus-line	L9	L9	N9		
Bus-line	L8	L8	N8		
Bus-line	L7	L7	N7		
Bus-line	L6	L6	N6		
Bus-line	L5	L5	N5		
Bus-line	L4	L4	N4		
Bus-line	L3	L3	N3		
Bus-line	L2	L2	N2		
Bus-line	L1	L1	N1		
Bus-line	-12V d.c.	-12	-24	-24V d.c.	
Bus-line	+200V d.c.	+200	-6	-6V d.c.	
Bus-line	117V a.c. Live	ACL	ACN	117V a.c. Neutral	
Bus-line	Reserved	Y1	E	Clean Earth	
Bus-line	+12V d.c.	+12	+24	+24V d.c.	
Bus-line	Reserved	Y2	+6	+6V d.c.	
Bus-line	0V (Power Return)	0	0	0V (Power Return)	

24 individual Look-at-Me lines
L1 from Station 1, etc.

24 individual Station Number lines
N1 to Station 1, etc.

SECTION VIII

DRAWINGS

8.0 INTRODUCTION

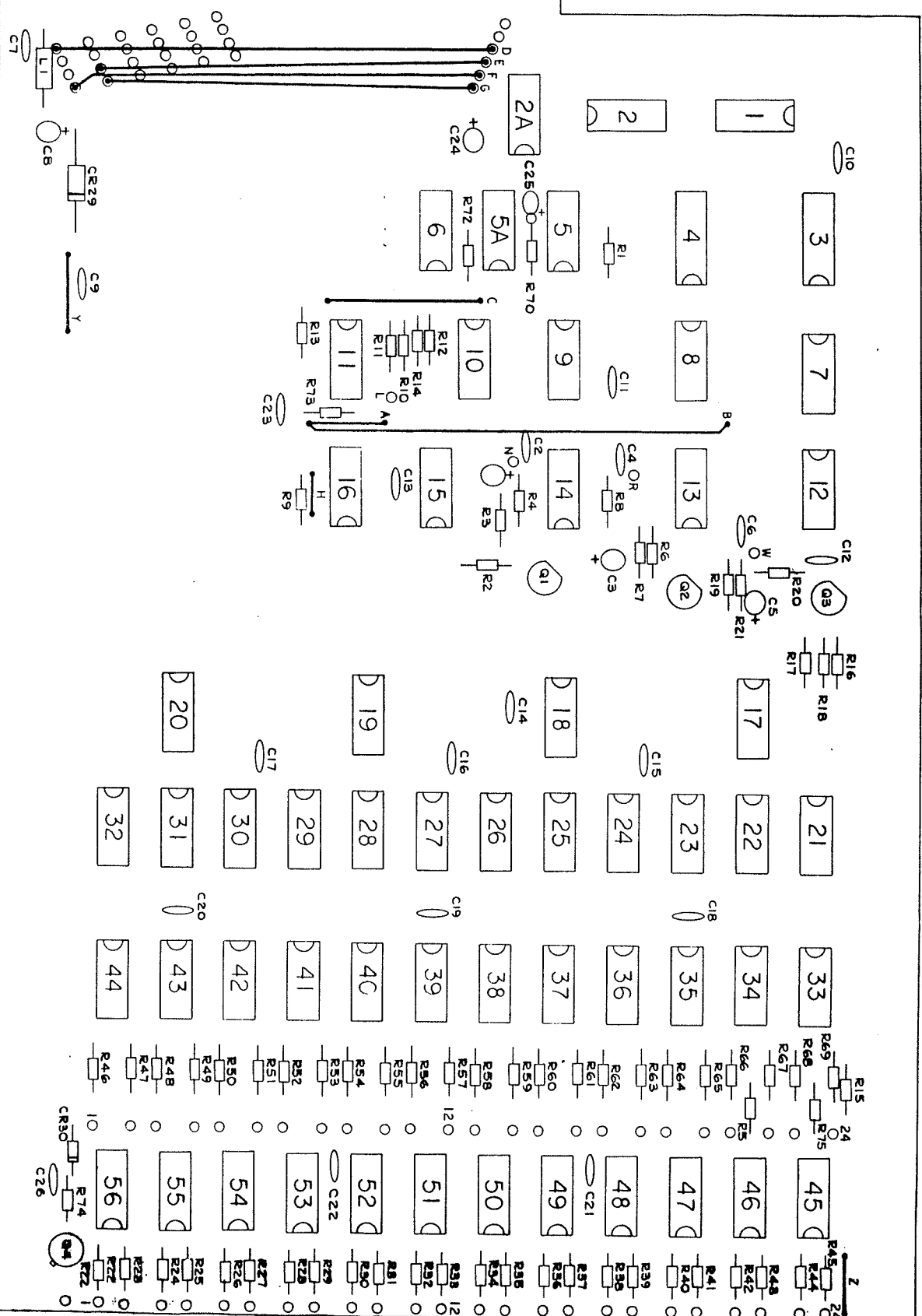
The following drawings are included as a reference for those reading the principles of operation text presented in Section IV, and as an aid to personnel servicing module.

8.1 Model 201 with Option 4

Manual Input/Output Component Layout 201-D-352

Option 4 Schematic 201-J-002





JORWAY CORP.	
SCALE 2/1	APPROVED BY
DATE 19 JAN 77	REVISED
MAN. INPUT OUTPUT COMPONENT LAYOUT	
DRAWING NUMBER 201-D-352	

