PR-612

DUAL 24-BIT PARALLEL OUTPUT REGISTER

Document Number M220200

Rev. B 26-OCT-1984

DSP Technology Incorporated, 48500 Kato Road, Fremont, CA 94538-7338

Phone: 415-657-7555; Telex: 283608

MODEL PR-612D & PR-612DK

DUAL 24 BIT PARALLEL OUTPUT REGISTER

FEATURES

- 48 Open Collector TTL Outputs
- 48 LED Data Display
- Readable Registers
- Register Load Pulse Available to External Device

DESCRIPTION

The PR-612 Parallel Output Register is a single-width CAMAC module which contains two 24 bit registers to hold and transfer data from the crate Dataway to an external device.

Data outputs are negative-true, open collector drivers capable of sinking 37 mA at + 5 V.

Data outputs are set by use of WRITE command (F16). Data from the write lines are clocked into the register addressed at S1. Registers may be read onto the Dataway with an F(0) command.

A negative output pulse for each 24 bit register is provided to indicate when it has been updated.

The outputs are available on two 31 pin connectors mounted on the front panel (PR-612D) or optionally on a 52 pin connector mounted on the rear panel.

APPLICATION

Holds and transfers up to 48 bits of data from the CAMAC Dataway to external Devices.

SPECIFICATIONS

OUTPUTS

Open Collector TTL, 1 sink = 37 mA with display.
Strobe output pulse width equal to Dataway S1

MATING CONNECTORS

Front panel connectors (Model PR-612D) are two double density 31 pin Cannon 2DA-31P. Mating connector is not included. Order PN 70501/76006/70524. Rear panel connector (Model Pr-612DK) is one double density 52 pin Cannon 2DA-52P. Mating connector is not included. Order PN 70503/76005/70524.

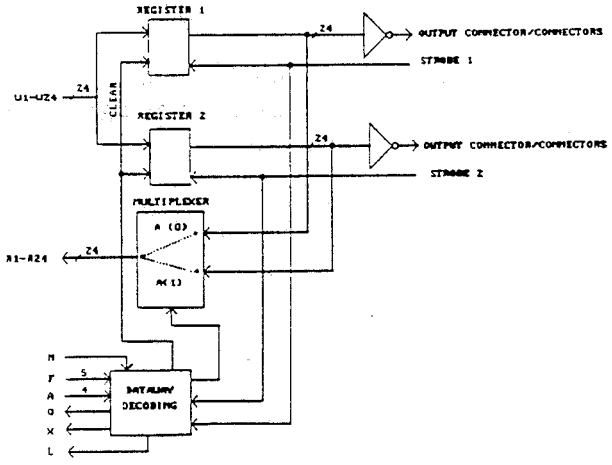
COMPUTER COMMANDS

F(0)A(0) Read Register 1, Q = 1

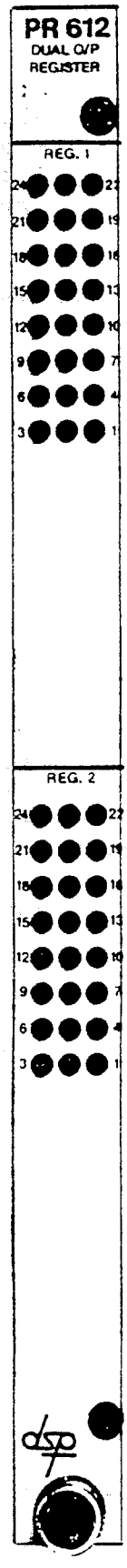
F(0)A(1) Read Register 2, Q = 1

F(16)A(0) Write Register 2, Q = 1

F(16)A(1) Write Register 2, Q = 1



PR-612 Block Diagram



ACTUAL SIZE

1. INTRODUCTION

Standard Engineering Corporation manufactures modules which provide CAMAC functions in a family of input/output modules - providing sensor and actuator interface functions, digital and analog stimulus and response functions, and digital and analog signal processing functions.

The PR-612 module provides the PARALLEL OUTPUT REGISTER function in this set.

1.1 FUNCTION

This module holds and transfers up to 48 bits of parallel data from the CAMAC Dataway to external devices in two write operations.

1.2 DESCRIPTION

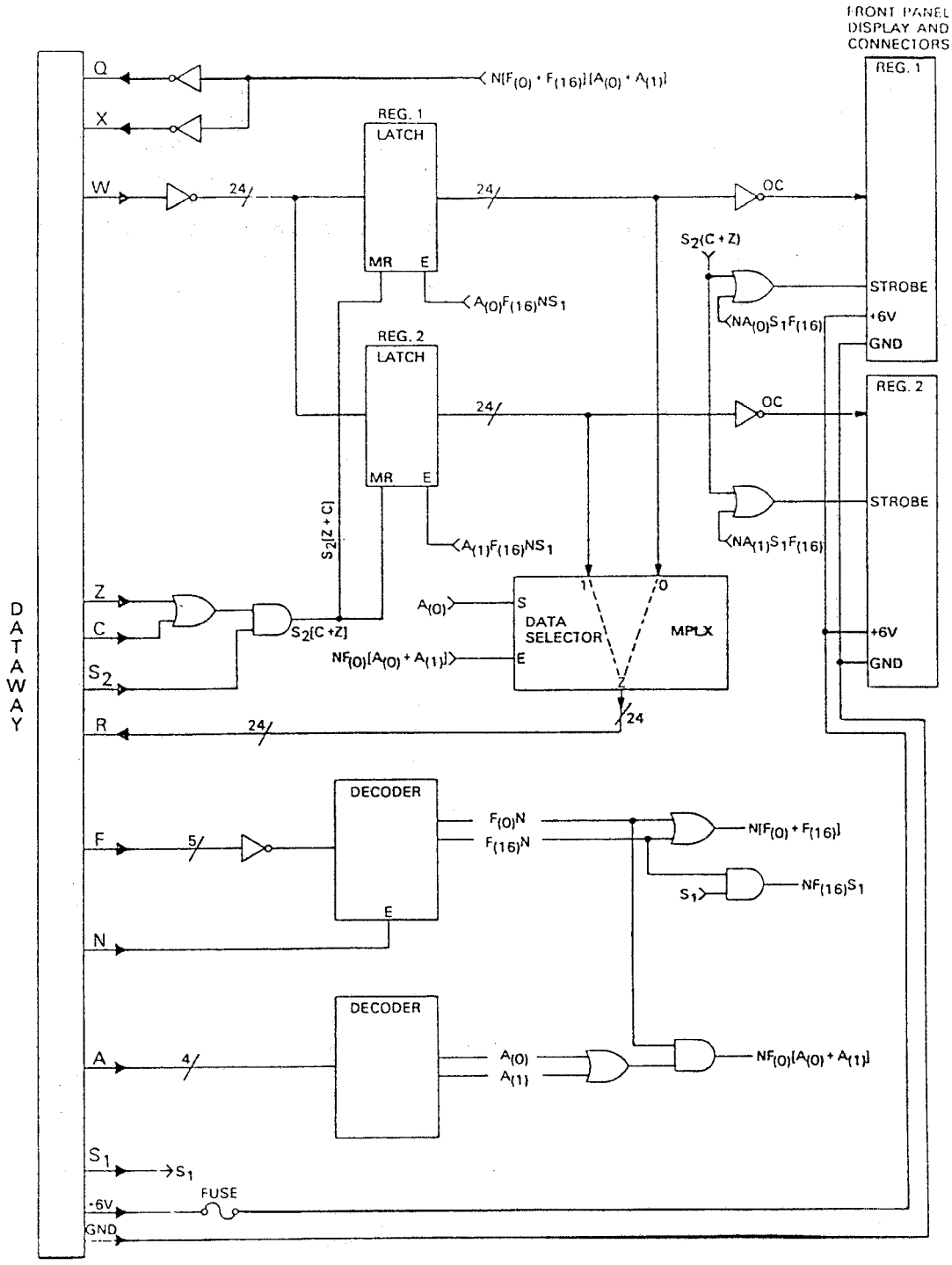
The PR-612 Parallel Output Register is a single width CAMAC module which contains two 24 bit registers to hold and transfer data from the crate Dataway to an external device. The outputs are available on two 31 pin connectors mounted on the front panel or a single 52 pin connector mounted on the rear panel. Front panel LEDs provide a visual display of all 48 bits.

Data outputs are negative true, open collector drivers capable of sinking 35 milliamps at +5 volts.

Data outputs are set by use of write command F(16). Data from the write lines are clocked into the register addressed at S1. Registers may be read onto the Dataway with an F(0) command.

A negative output pulse for each channel is provided to indicate when its register has been updated.

PR-612 BLOCK DIAGRAM



2. CONFIGURATION AND INSTALLATION

2.1 CONNECTORS

The module is supplied in two models; the standard module with two 31 pin front panel connectors, and an option (the PR-612K) which replaces the front panel connectors with a single 52 pin rear panel connector.

The two 31-pin connectors have identical pinouts as shown below. J1 corresponds to register 1 (sub address 0) and J2 corresponds to register 2 (sub address 1).

J1/J2 Pin	Function
1	BIT 1 (LSB)
2	BIT 2
3	BIT 3
4	BIT 4
5	BIT 5
6	BIT 6
7	BIT 7
8	BIT 8
9	BIT 9
10	BIT 10
11	BIT 11
12	BIT 12
13	BIT 13
14	BIT 14
15	BIT 15
16	BIT 16
17	BIT 17
18	BIT 18
19	BIT 19
20	BIT 20
21	BIT 21
22	BIT 22
23	BIT 23
24	BIT 24 (MSB)
25	N.C.
26	N.C.
27	STROBE
28	N.C.
29	VCC (+6V)
30	N.C.
31	GROUND

REAR PANEL CONNECTOR J1 (PR-612K)

Pin	Function	Pin	Function
1	STROBE 1	27	Bit 1(LSB 2)
2	BIT 1 (LSB 1)	28	BIT 2
3	BIT 2	29	BIT 3
4	BIT 3	30	BIT 4
5	BIT 4	31	BIT 5
6	BIT 5	32	BIT 6
7	BIT 6	33	BIT 7
8	BIT 7	34	BIT 8
9	BIT 8	35	BIT 9
10	BIT 9	36	BIT 10
11	BIT 10	37	BIT 11
12	BIT 11	38	BIT 12
13	BIT 12	39	BIT 13
14	BIT 13	40	BIT 14
15	BIT 14	41	BIT 15
16	BIT 15	42	BIT 16
17	BIT 16	43	BIT 17
18	BIT 17	44	BIT 18
19	BIT 18	45	BIT 19
20	BIT 19	46	BIT 20
21	BIT 20	47	BIT 21
22	BIT 21	48	BIT 22
23	BIT 22	49	BIT 23
24	BIT 23	50	BIT 24(MSB 2)
25	BIT 24(MSB 1)	51	+6V
26	STROBE 2	52	GROUND

3. PROGRAMMING AND OPERATION

3.1 OPERATION

Data from the CAMAC dataway is written 24 bits at a time into the module registers. This data is immediately and continuously available at the output connectors in negative true logic. The register data may be read back to the Dataway at any time. Data is retained in the registers until overwritten, cleared by Z or C, or the module is powered down.

3.2 DATAWAY COMMANDS

The PR-612 features a simplified command set which emphasizes functionality. Each command is described in detail below.

All commands return X = 1 AND Q = 1.

F(0)A(0): Read out 24 bits of data from register 1.

F(0)A(1): Read out 24 bits of data from register 2.

F(16)A(0): Write 24 bits of data to register 1.

F(16)A(1): Write 24 bits of data to register 2.

Z: Initialize

When a Z is issued, the module initializes by clearing the registers. Initialization is also accomplished by a CAMAC C (clear) command.

STROBES:

STROBE 1 is output during F(16)A(0) AND S1, OR during (C OR Z) AND S2.

STROBE 2 is output during F(16)A(1) AND S1, OR during (C OR Z) AND S2.

Both strobes are negative going pulses of approximately 200 nanoseconds duration. They may be used to strobe data into external registers or reset the registers to zero.

REVISION HISTORY

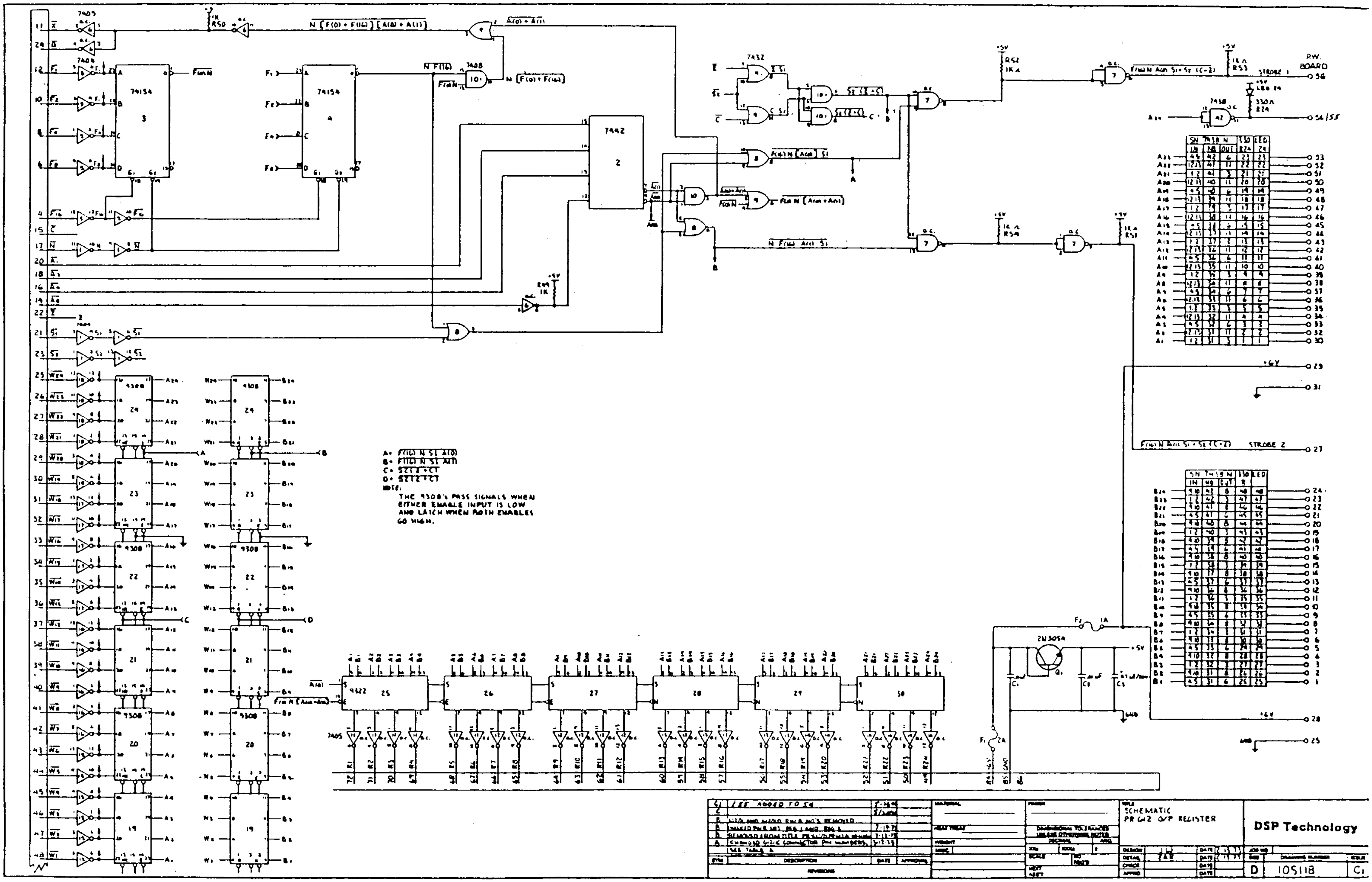
Rev.	Date	Description
A	11/3/81	Superceded previous manual.
B	9/14/84	Revised and word processed

ASSEMBLY P/N 106295 REV B1
DESCRIPTION ASSY: PCB, PR-612

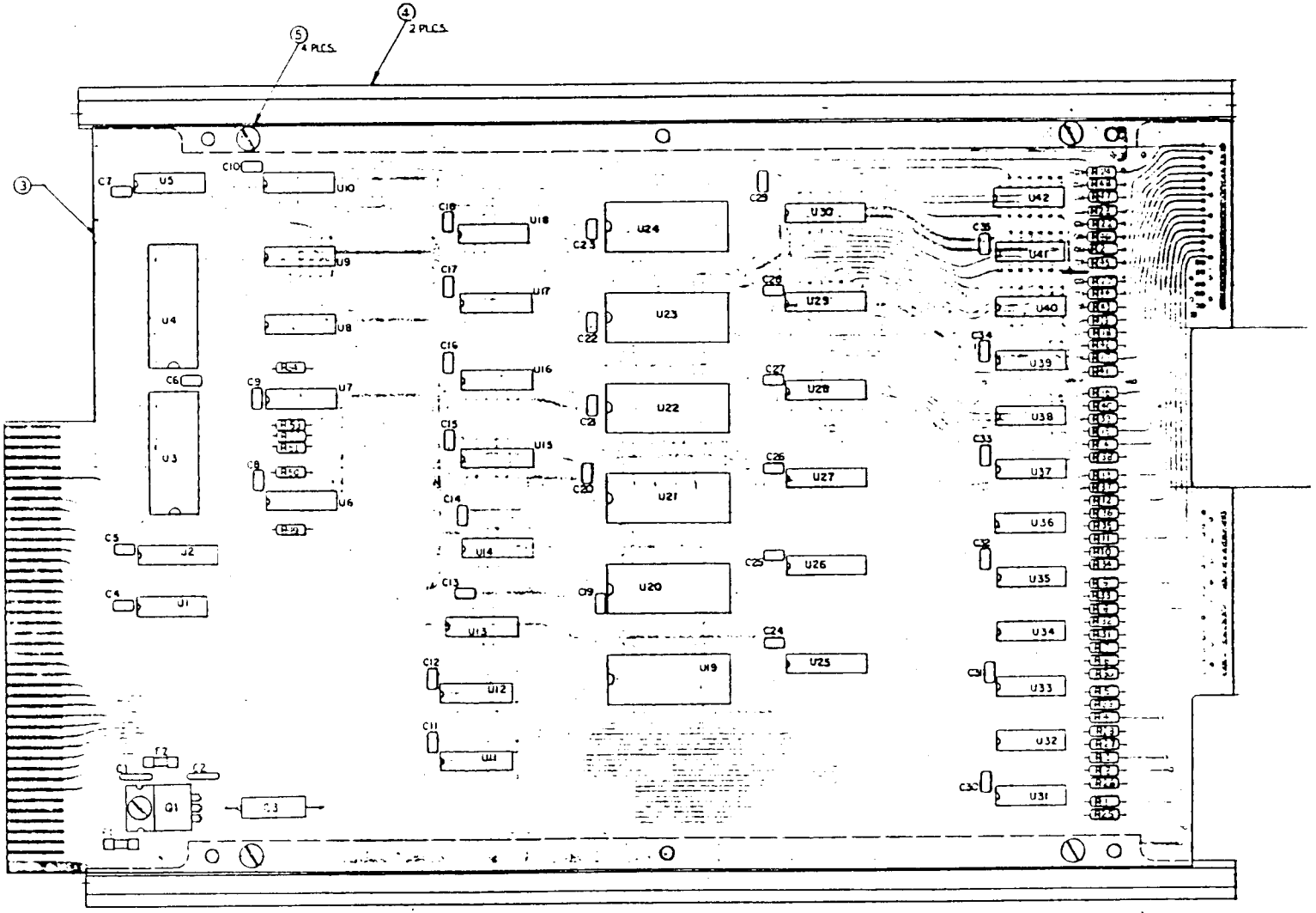
PART NUMBER	DESCRIPTION	QTY PER	AS OF	UNTIL	REFERENCE
0100-0102	RES: RC07 1K OHM	6	7/10/86	12/31/99	R49-R54
0100-0331	RES 5% 1/4W CC RESISTOR R=330	48	7/10/86	12/31/99	R1-R48
010113	CAP: CER, .01UF, 50V SPRAGUE 5GAT12	2	7/10/86	12/31/99	C1,C2
013330	CAP: AX TANT KEMET T110B336K010AS	1	7/10/86	12/31/99	C3
0520-0103	CMC C=0.01UF MONO CENTRALAB CZ20A1	32	7/10/86	12/31/99	C4-C35
061612	XSTR: NPN, 2N6121	1	7/10/86	12/31/99	Q1
062116	IC: SN74116	6	7/10/86	12/31/99	U19-U24
106267	PCB: PR-612	1	7/10/86	12/31/99	
106278	RAIL: GUIDE, MDL, 11HOLE	2	7/10/86	12/31/99	
120440	HDW: SCREW 4.40 X 3/16 BHMS	4	7/10/86	12/31/99	
120441	HDW: SCREW 4.40 X 1/4 BHMS	1	7/10/86	12/31/99	
122045	HDW: NUT #4 KEP	1	7/10/86	12/31/99	
1750-0004	ICS SN7404	6	7/10/86	12/31/99	U1,U5,U15-U18
1750-0005	ICS SN7405	5	7/10/86	12/31/99	U6,U11-U14
1750-0008	ICS SN7408	1	7/10/86	12/31/99	U10
1750-0032	ICS SN7432	2	6/03/87	12/31/99	U8,U9
1750-0038	ICS SN7438	13	7/10/86	12/31/99	U7,U31-U42
1750-0042	ICS SN7442	1	7/10/86	12/31/99	U2
1750-0154	ICS SN74154	2	7/10/86	12/31/99	U3,U4
1750-0157	ICS SN74157	6	7/10/86	12/31/99	U25-U30
3100-0202	FUS FUSE 2A LITTLEFUSE 251002	2	7/10/86	12/31/99	F1,F2
5000-0024	SKT CAMBION 703-1324-01-04-10	8	8/06/87	12/31/99	U3,U4,U19-U24

SINGLE LEVEL BILL OF MATERIAL - by Part Number - for Assembly 106295

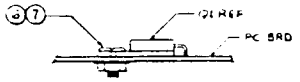
PART NUMBER	DESCRIPTION	QTY PER	AS OF	UNTIL	REFERENCE



A = F(16) N S1 A(0)
B = F(16) N S1 A(1)
C = S2(Z + C)
D = S2(Z + C)
NOTE:
THE 9308'S PASS SIGNALS WHEN EITHER ENABLE INPUT IS LOW AND LATCH WHEN BOTH ENABLES GO HIGH.
STROBE 1
STROBE 2
P.W. BOARD
2N3054
SCHEMATIC
PR G/2 O/P REGISTER
DSP Technology
D
105118
C1



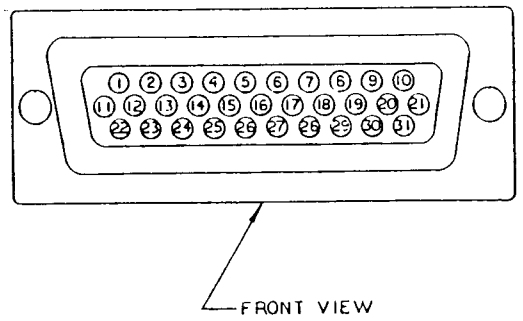
REF DOC:
1. FAB. DWG 106267
2. SCHEMATIC 105116
3. PARTS LIST 106295



MOUNTING DETAIL OF Q1

ASSEMBLY DRAWING
PWBA
PRG124

dsp Technology



PC BOARD		CONNECTOR J1-
30	BIT 1 BRN	1
32	BIT 2 RED	2
33	BIT 3 ORN	3
34	BIT 4 YEL	4
35	BIT 5 GRN	5
36	BIT 6 BLU	6
37	BIT 7 VIO	7
38	BIT 8 GRY	8
39	BIT 9 WHT/BLK	9
40	BIT 10 /BRN	10
41	BIT 11 /RED	11
42	BIT 12 /ORG	12
43	BIT 13 /YEL	13
44	BIT 14 /GRN	14
45	BIT 15 /BLU	15
46	BIT 16 /VIO	16
47	BIT 17 WHT/GRY	17
48	BIT 18 GRY	18
49	BIT 19 BRN	19
50	BIT 20 WHT/BLK	20
51	BIT 21 RED	21
52	BIT 22 ORG	22
53	BIT 23 YEL	23
54	BIT 24 BLU	24
	BLANK	25
	GRN (NOTE 3)	26
56	VIO STROBE 1	27
55	BLANK	28
	RED VCC	29
28	BLANK	30
	BLK GND	31
25		

PC BOARD		CONNECTOR J2-
1	BIT 1 BRN	1
2	BIT 2 RED	2
3	BIT 3 ORN	3
4	BIT 4 YEL	4
5	BIT 5 GRN	5
6	BIT 6 BLU	6
7	BIT 7 VIO	7
8	BIT 8 GRY	8
9	BIT 9 WHT/BLK	9
10	BIT 10 /BRN	10
11	BIT 11 /RED	11
12	BIT 12 /ORG	12
13	BIT 13 /YEL	13
14	BIT 14 /GRN	14
15	BIT 15 /BLU	15
16	BIT 16 /VIO	16
17	BIT 17 WHT/GRY	17
18	BIT 18 GRY	18
19	BIT 19 BRN	19
20	BIT 20 WHT/BLK	20
21	BIT 21 RED	21
22	BIT 22 ORG	22
23	BIT 23 YEL	23
24	BIT 24 BLU	24
	BLANK	25
27	GRN (NOTE 3)	26
26	VIO STROBE 2	27
	BLANK	28
	RED VCC	29
29	BLANK	30
31	BLK GND	31

NOTES:

1. ALL WIRES ARE 26 AWG. PER MIL-W-16878D
2. CONNECTOR: CANNON 2DA 31P
3. CONNECTOR PINS J1,J2-26 ARE USED ONLY IN CERTAIN APPLICATIONS.

SYM	DESCRIPTION	DATE	APPROVAL
D	REVERSED 55,56 - 26,27 PWB NO'S		
C	CHANGED GND AND VCC CONNECTIONS	12-15-74	JAN

REVISIONS

MATERIAL: NOTE 1
HEAT TREAT
WEIGHT
MISC

FINISH
DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED
DECIMAL .XX ±.01 .XXX ± ANG ±
SCALE NO REQ'D
NEXT ASSY

TITLE: DIAGRAM, CONNECTOR WIRING 31 PIN CANNON

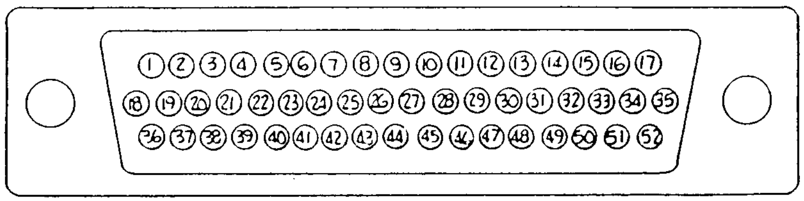
DESIGN	CARRINGTON	DATE	6-27-73
DETAIL		DATE	
CHECK		DATE	
APPRO		DATE	

DSP Technology

JOB NO

SIZE	DRAWING NUMBER	ISSUE
C	106261	D

PV. D CONNECTIONS	STR	Wire	Signal	INEC PIN NO'S
				1
30		BRN	BIT 1 (A0)	2
32		RED	BIT 2 (A0)	3
33		ORG	BIT 3 (A0)	4
34		YEL	BIT 4 (A0)	5
35		GRN	BIT 5 (A0)	6
36		BLU	BIT 6 (A0)	7
37		VIO	BIT 7 (A0)	8
38		GRY	BIT 8 (A0)	9
39		WHT/BLK	BIT 9 (A0)	10
40		WHT/BRN	BIT 10 (A0)	11
41		WHT/RED	BIT 11 (A0)	12
42		WHT/ORG	BIT 12 (A0)	13
43		WHT/YEL	BIT 13 (A0)	14
44		WHT/GRN	BIT 14 (A0)	15
45		WHT/BLU	BIT 15 (A0)	16
46		WHT/VIO	BIT 16 (A0)	17
47		WHT/GRY	BIT 17 (A0)	18
48		GRY	BIT 18 (A0)	19
49		BRN	BIT 19 (A0)	20
50		RED	BIT 20 (A0)	21
51		ORG	BIT 21 (A0)	22
52		YEL	BIT 22 (A0)	23
53		GRN	BIT 23 (A0)	24
54		BLU	BIT 24 (A0)	25
27	STROBE 2	VIO		26
1		GRY	BIT 1 (A1)	27
2		WHT/BLK	BIT 2 (A1)	28
3		WHT/BRN	BIT 3 (A1)	29
4		WHT/RED	BIT 4 (A1)	30
5		WHT/ORG	BIT 5 (A1)	31
6		WHT/YEL	BIT 6 (A1)	32
7		WHT/GRN	BIT 7 (A1)	33
8		WHT/BLU	BIT 8 (A1)	34
9		WHT/VIO	BIT 9 (A1)	35
10		WHT/GRY	BIT 10 (A1)	36
11		GRY	BIT 11 (A1)	37
12		BRN	BIT 12 (A1)	38
13		RED	BIT 13 (A1)	39
14		ORG	BIT 14 (A1)	40
15		YEL	BIT 15 (A1)	41
16		GRN	BIT 16 (A1)	42
17		BLU	BIT 17 (A1)	43
18		VIO	BIT 18 (A1)	44
19		GRY	BIT 19 (A1)	45
20		WHT/BLK	BIT 20 (A1)	46
21		WHT/BRN	BIT 21 (A1)	47
22		WHT/RED	BIT 22 (A1)	48
23		WHT/ORG	BIT 23 (A1)	49
24		WHT/YEL	BIT 24 (A1)	50
28	+6V	RED		51
GND		BLK		52



FRONT VIEW

NOTES:
1. ALL WIRES ARE 26 AWG. PER MIL-W-16878D
2. CONNECTOR: CANNON 2DB52P

SYM	DESCRIPTION	DATE	APPROVAL
	REVISIONS		

MATERIAL ____ HEAT TREAT ____ WEIGHT ____ MISC ____

FINISH ____ DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED: DECIMAL .XX± .XXX± ANG ± | SCALE | NO REQ'D | NEXT ASS'Y

TITLE: DIAGRAM, CONNECTOR WIRING, 52-PIN CANNON

DESIGN | DATE
DETAR: LOUDEN | DATE 7-19-73
CHECK | DATE
APPRO | DATE 7-19-73

DSP Technology

JOB NO | SIZE: C | DRAWING NUMBER: 106327 | ISSUE