

FIRST OUT INDICATOR

Operations and Maintenance Manual

MODEL P5038-0101 (6-36V) • MODEL P5038-0102 (37-149V)
MODEL P5038-0103 (150-300V)

1.0 Introduction

The Extron First Out Indicator is a diagnostic device designed to be a means of detecting faults in the operational and safety circuit of your equipment. The First Out Indicator will monitor a string of contacts such as proxs, limit switches, photo eyes, contactors, pushbuttons, relay contacts, etc. It will latch and hold the first failed contact in the string and indicate that fault.

2.0 Description of Operation

The First Out Indicator senses and holds the first contact that opens in a series or parallel string of safety circuits. It directs the equipment operator to the basic cause of the malfunction regardless of the nature of the fault; whether intermittent, self-correcting or maintained.

As soon as the first contact opens, a latching circuit latches and turns on the appropriate circuit indicator lamp as well as the indicator's relay. This condition will lock out all the other inputs until the First Out is reset. A short time delay between the fault condition and the indication prevents false indication due to contact bounce which does not effect the monitored system.

The use of high noise immunity circuits in the First Out Indicator helps to discriminate between valid faults and noise spikes which are generated by energizing or de-energizing contactors in non-monitored parts of the circuit. Because the First Out will operate over a wide voltage range, a drop in the line voltage when large equipment is started up will not impair its operation.

The First Out features photo-isolated inputs which permit the monitoring of contacts in the same or several different circuit strings. When a fault is detected a relay is energized which can be used to sound an alarm or shut down equipment. The relay will remain energized until the fault is corrected and the First Out is manually reset. The First Out has a manual lamp test which allows testing of all indicator lamps without disturbing the rest of the system, or disabling the first out function.

The First Out Indicator can be expanded in increments of eight, providing the ability to monitor large numbers of contacts in complex systems.



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3.0 Technical Data

Power Requirement:

115 VAC +/- 10%, 50/60HZ,
3 watt max.

Ambient Temperature Range:

0-50 degrees C.

Input:

Up to eight inputs for a single unit. Expandable in multiples of eight.

Fault Detection:

Detects voltage across an open contact.

Time Delay Between Fault and Indication:

Eight milliseconds max.

Output:

24 VDC at 30 ma each (eight outputs).

Output Relay:

Form C contact, 1 amp at 120VAC.

Reset:

By removing power.

Lamp Test:

Turn on all lights. Does not affect indication if fault is present or if fault occurs during lamp test.

Jumper SW3 1-2 for relay drop out on fault.

Jumper SW3 2-3 for relay pull in on fault.

4.0 Application and Connection

The most common application of the First Out Indicator is shown in figure 1. There are many different ways of applying the indicator, some of which will be discussed separately.

The voltage across the string of contacts must be compatible with the model being used. If D.C. voltage is being monitored care must be used to ensure that the odd numbered terminals are positive with respect to the even numbered terminals. Since it is extremely unlikely that more than one contact will open at exactly the same time, the First Out will indicate only the first contact to open. By depressing the reset button after a fault has occurred, some of the other open contacts will be displayed. If more than one contact opens, the voltage will be divided between these contacts evenly, thus lowering the voltage being sensed at each input, which in effect limits the number of open contacts which can be displayed.

If the lamps used are not supplied by Extron, a lamp should be selected which will operate off 24 VDC with a current rating of less than .1 amps.

If it is required to disable the First Out during some portion of a machine cycle, a contact can be placed between terminals 27 and 29. When the contact is closed, the First Out will be disabled with no effect on the indication of any previous fault.

Figure 2 shows how to monitor contacts in more than two strings.

Figure 3 shows how to monitor unused auxiliary contacts. This scheme is used when the contacts which are to be monitored are not normally closed or can not be monitored directly.

Figure 4 shows how to expand the First Out from 8 points to any multiple of 8. With this connection scheme, any open contact will lock out all inputs being monitored.

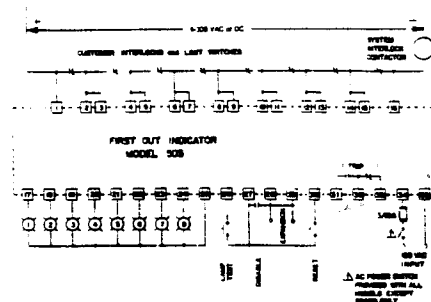


Figure 1: Connection Diagram for Series Normally Closed Contacts.

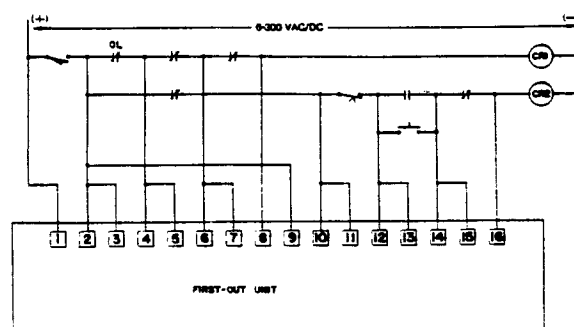


Figure 2: Connection Diagram for Parallel Normally Closed Contacts.

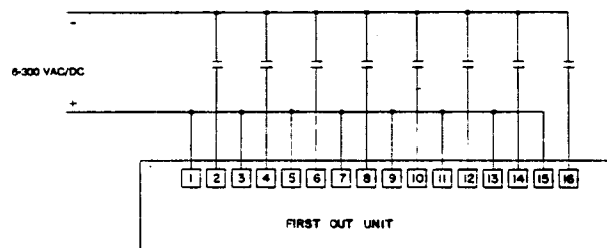


Figure 3: Connection Diagram for Parallel Normally Open Contacts.

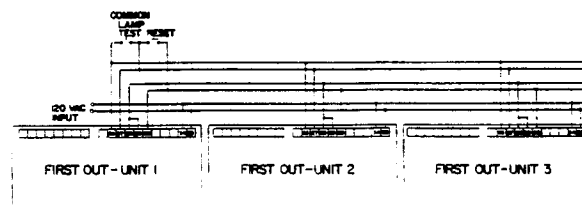
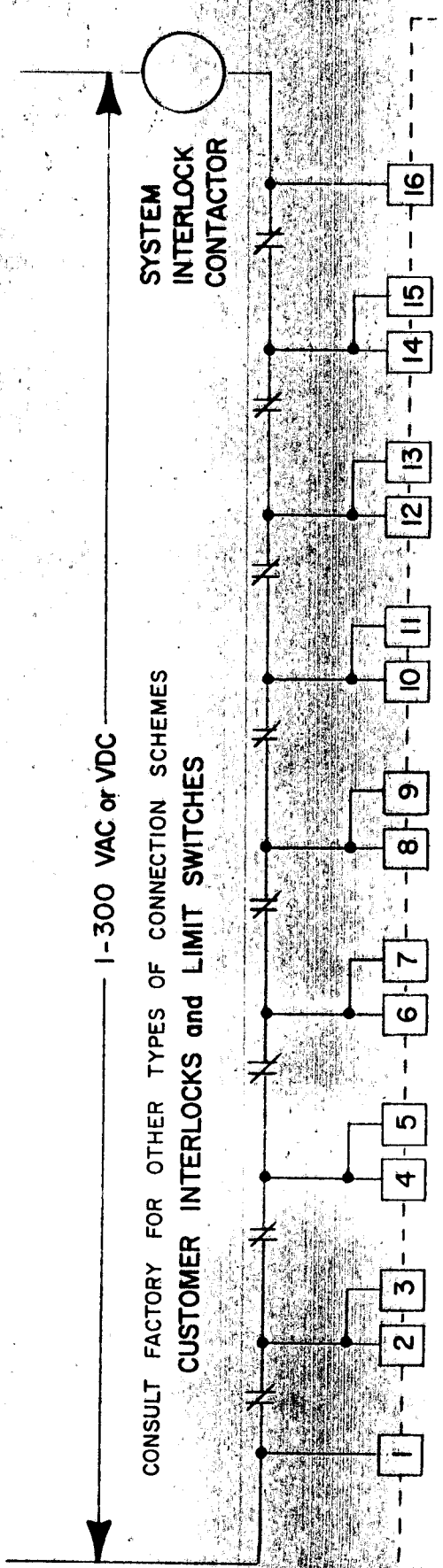


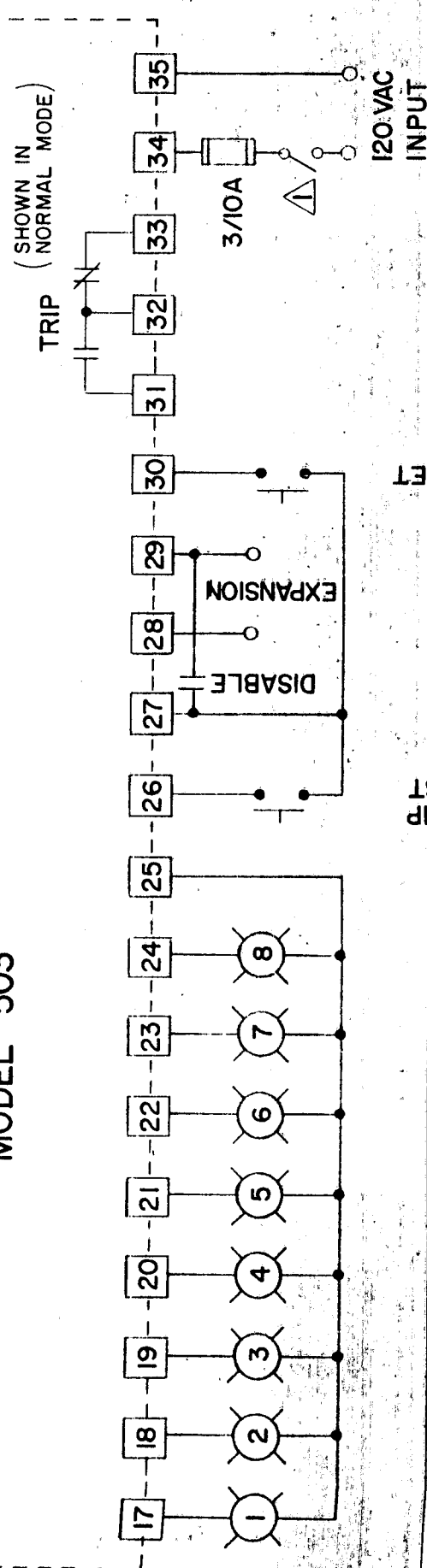
Figure 4: Expansion Diagram.

DESCRIPTION



CONSULT FACTORY FOR OTHER TYPES OF CONNECTION SCHEMES
CUSTOMER INTERLOCKS and LIMIT SWITCHES

FIRST OUT INDICATOR
MODEL 503

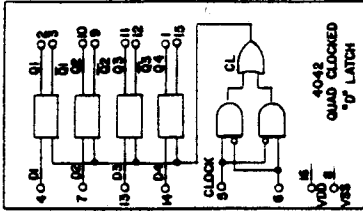
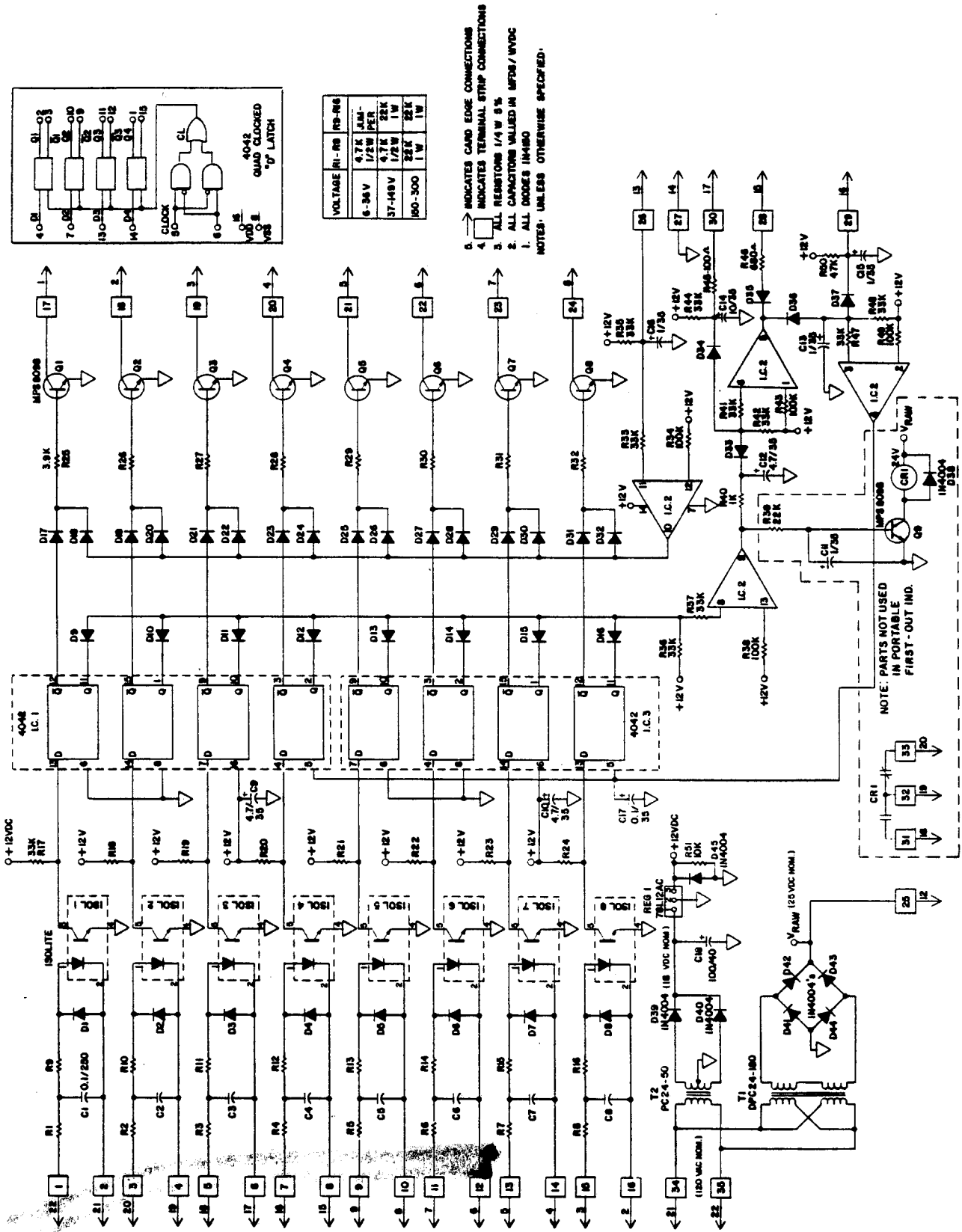


△ AC POWER SWITCH PROVIDED WITH ALL MODELS EXCEPT BOARD ONLY

LAMP TEST

UNLESS OTHERWISE SPECIFIED - DIMENSIONS ARE IN INCHES				SHEET <u> </u> OF <u> </u> DRAWING NO. <u>PC 5034-0100</u>	
MAT'L	DATE	8-7-75	TITLE		
FINISH	DRAWN BY	JDC	FIRST OUT INDICATOR		
REF. SCHEMATIC NO.	CHECKED BY		SERIES CONTACTORS		
REF. CONNECTION DIAG.	RELEASED BY		SCALE	TOL.	SCALE
					8

8.0 Schematic Diagram

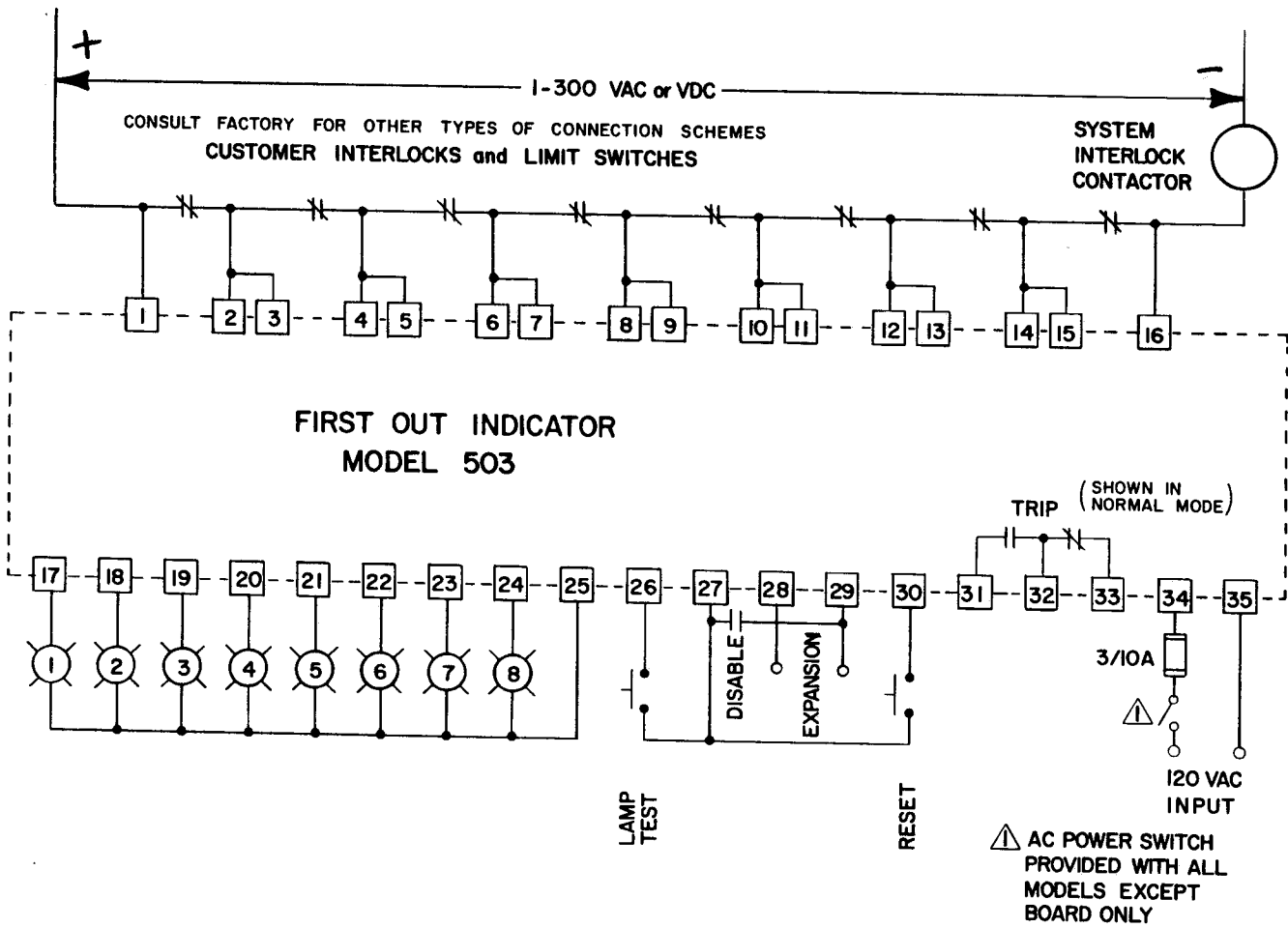


VOLTAGE	RI - R8	RD - R8
6-34V	4.7K 1/2W PER	1W
37-148V	4.7K 1/2W	22K 1W
160-300	22K 1W	22K 1W

- 5. INDICATES CARD EDGE CONNECTIONS
 - 6. INDICATES TERMINAL STRIP CONNECTIONS
 - 7. ALL RESISTORS 1/4W 5%
 - 8. ALL CAPACITORS VALUED IN MF/UF/VV/UC
 - 9. ALL DIODES 1N4180
- NOTES: UNLESS OTHERWISE SPECIFIED.

NOTE: PARTS NOT USED IN PORTABLE IN FIRST-OUT IND.

TYPICAL CONNECTION DIAGRAM



EXPANSION DIAGRAM

