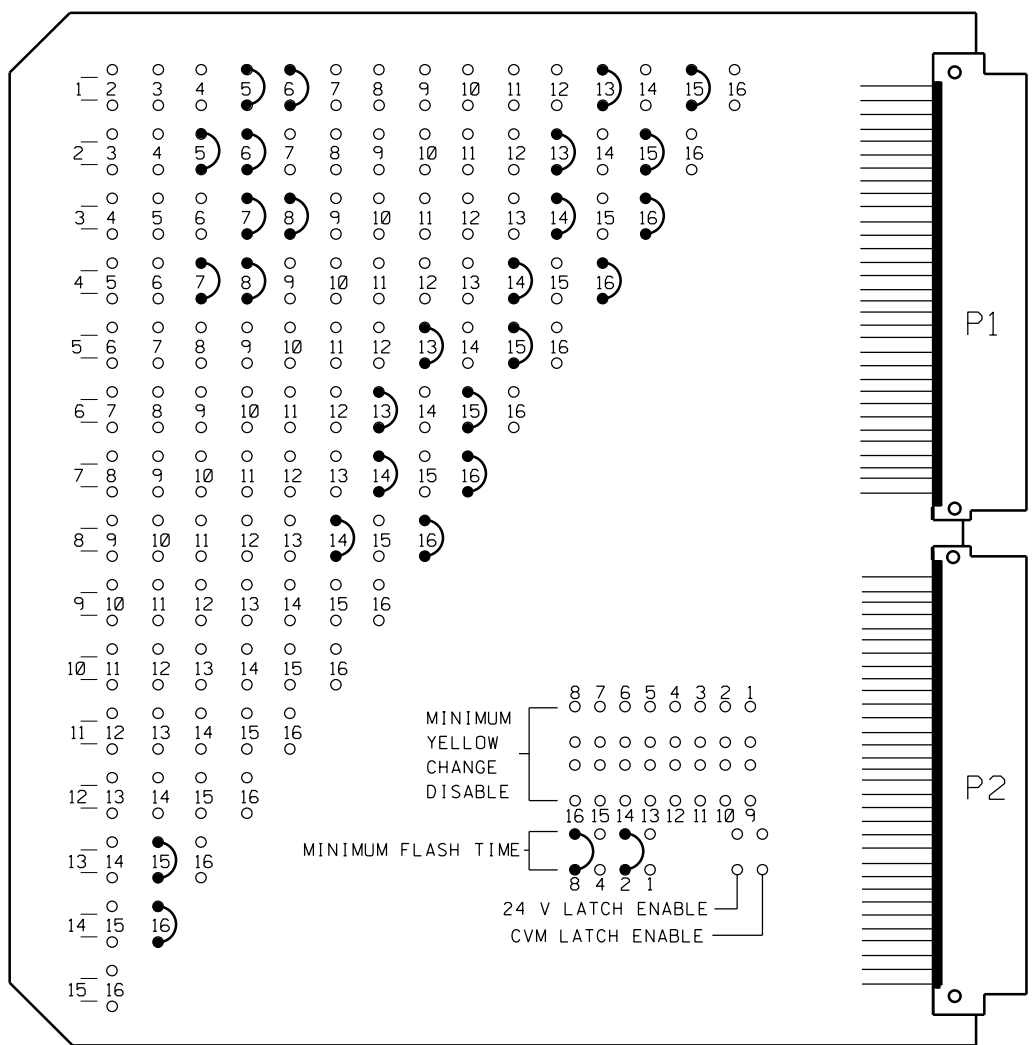


16 CHANNEL IP  
MALFUNCTION MANAGEMENT UNIT  
PROGRAMMING DETAIL

(program card and tables as shown)



MMU PROGRAMMING CARD

FIELD CHECK ENABLE	
DUAL IND ENABLE	
RED FAIL ENABLE	
CHANNEL NUMBER	ENABLE/DISABLE
1	DISABLE
2	ENABLE
3	DISABLE
4	ENABLE
5	DISABLE
6	ENABLE
7	DISABLE
8	ENABLE
9	DISABLE
10	DISABLE
11	DISABLE
12	DISABLE
13	ENABLE
14	ENABLE
15	ENABLE
16	ENABLE

UNIT OPTIONS	
OPTION	SETTING
RECURRENT PULSE	ON
WALK DISABLE	OFF
LOG CVM FAULTS	ON
EXTERN WATCHDOG	OFF
24V-2=12VDC	OFF
PGM CARD MEMORY	ON
LEDguard	ON
FORCE TYPE 16	OFF
TYPE12-SDLC	OFF
VM 3x/Day Latch	ON

FLASHING YELLOW ARROW	
CONFIG MODE	8
ENABLE CHANNEL PAIR, FYA	
CH 1-13	ON
CH 3-14	ON
CH 5-15	ON
CH 7-16	ON
RED/YEL INPUT ENABLE	
CH 1	ON
CH 3	ON
CH 5	ON
CH 7	ON
FLASH RATE FAULT	ON
FYA TRAP DETECT	ON

MMU PROGRAMMING NOTE

ENSURE YELLOW CHANGE PLUS RED CLEARANCE MONITORING IS ENABLED FOR ALL CHANNELS.

NOTES

- To prevent "flash-conflict" problems, wire all load switches to flash red. Verify that signal heads flash in accordance with the signal plans.
- To prevent red failures on unused monitor channels, tie unused load switch red outputs 9, 10, 11, and 12 to load switch AC+ by inserting a jumper plug in the unused load switch socket from pin 1 (LS AC+) to pin 3 (RED out). Make sure all flash transfer relays are in place.
- Disable all phases for start up in Green.
- Set power-up flash time to 10 seconds and implement on the Malfunction Management Unit. Set controller power-up flash time to 0 seconds.
- Program detectors in accordance with the manufacturer's instructions to accomplish the detection schemes shown on the signal design plans.
- Program detector call delay and extension timing on the controller, unless otherwise specified.
- Set all detector card unit channels to "presence" mode.
- Program phases 4 and 8 for Dual Entry.
- The cabinet and controller are a part of the Cary Signal System.

SIGNAL HEAD HOOK-UP CHART

PHASE	1	2	3	4	5	6	7	8	2 PED	4 PED	6 PED	8 PED	OLA	OLB	OLC	OLD
SIGNAL HEAD NO.	11★	21,22	31★	41,42	51★	61,62	71★	81,82	NU	NU	NU	NU	11★	31★	51★	71★
RED	*	2R	*	4R	*	6R	*	8R								
YELLOW	*	2Y	*	4Y	*	6Y	*	8Y								
GREEN		2G		4G		6G		8G								
RED ARROW													13R	14R	15R	16R
YELLOW ARROW													13Y	14Y	15Y	16Y
FLASHING YELLOW ARROW													13G	14G	15G	16G
GREEN ARROW	1G		3G		5G		7G									

NU = Not Used

\* Denotes install load resistor. See Load Resistor Installation Detail on sheet 2.

★ See pictorial of head wiring detail this sheet.

DETECTOR RACK SET-UP DETAIL

INSERT DETECTOR CARDS IN RACK ACCORDING TO THE DETAIL SHOWN BELOW. PARTICULAR DETECTOR CHANNELS WILL CALL PHASES INDICATED.

RACK #1

BIU	CH1	CH1	CH1	CH1	CH1	CH1	CH1	CH1	SLOT	SLOT	SLOT
	L3	L1	L7	L5	L11	L9	L15	L13			
	ø 2	ø 1	ø 4	ø 3	ø 6	ø 5	ø 8	ø 7			
CH2	CH2	CH2	CH2	CH2	CH2	CH2	CH2	CH2	EMPTY	EMPTY	EMPTY
L4	L2	L8	L6	L12	L10	L16	L14	L14			
NOT USED	NOT USED	ø 4	NOT USED	NOT USED	NOT USED	ø 8	NOT USED	NOT USED			

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

LOOP NO.	LOOP PANEL TERMINALS
1A	L1A,L1B
NU	L2A,L2B
2A	L3A,L3B
NU	L4A,L4B
3A	L5A,L5B
NU	L6A,L6B
4A	L7A,L7B
4B	L8A,L8B
5A	L9A,L9B
NU	L10A,L10B
6A	L11A,L11B
NU	L12A,L12B
7A	L13A,L13B
NU	L14A,L14B
8A	L15A,L15B
8B	L16A,L16B

NOTE

BE SURE TO PROGRAM DETECTOR TYPES AND TIMERS (EXTEND AND DELAY) AS SHOWN ON THE SIGNAL PLANS.

EQUIPMENT INFORMATION

CONTROLLER.....2070LXN2  
CABINET .....[TS-2] NC-8  
SOFTWARE .....ECONOLITE ASC/3-2070  
CABINET MOUNT.....BASE  
LOADBAY POSITIONS.....16  
LOAD SWITCHES USED.....1,2,3,4,5,6,7,8,13,14,15,16  
PHASES USED.....1,2,3,4,5,6,7,8  
OLA.....\*  
OLB.....\*  
OLC.....\*  
OLD.....\*

\* See overlap programming detail on sheet 2

PROGRAM CONTROLLER DETECTORS ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW

CONTROLLER DETECTOR NO.	FUNCTION	TIMING	
		FEATURE	TIME(SEC)
* ** 1	ø 1	DELAY	15
2			
** 3	ø 2		
4			
* ** 5	ø 3	DELAY	15
6			
** 7	ø 4		
** 8	ø 4	DC/EC	5/2
* ** 9	ø 5	DELAY	15
10			
** 11	ø 6		
12			
* ** 13	ø 7	DELAY	15
14			
** 15	ø 8		
** 16	ø 8	DC/EC	5/2
* ** 61	ø 6	DELAY	3
* ** 62	ø 8	DELAY	3
* ** 63	ø 2	DELAY	3
* ** 64	ø 4	DELAY	3

NU = NOT USED

\* Detector type - G

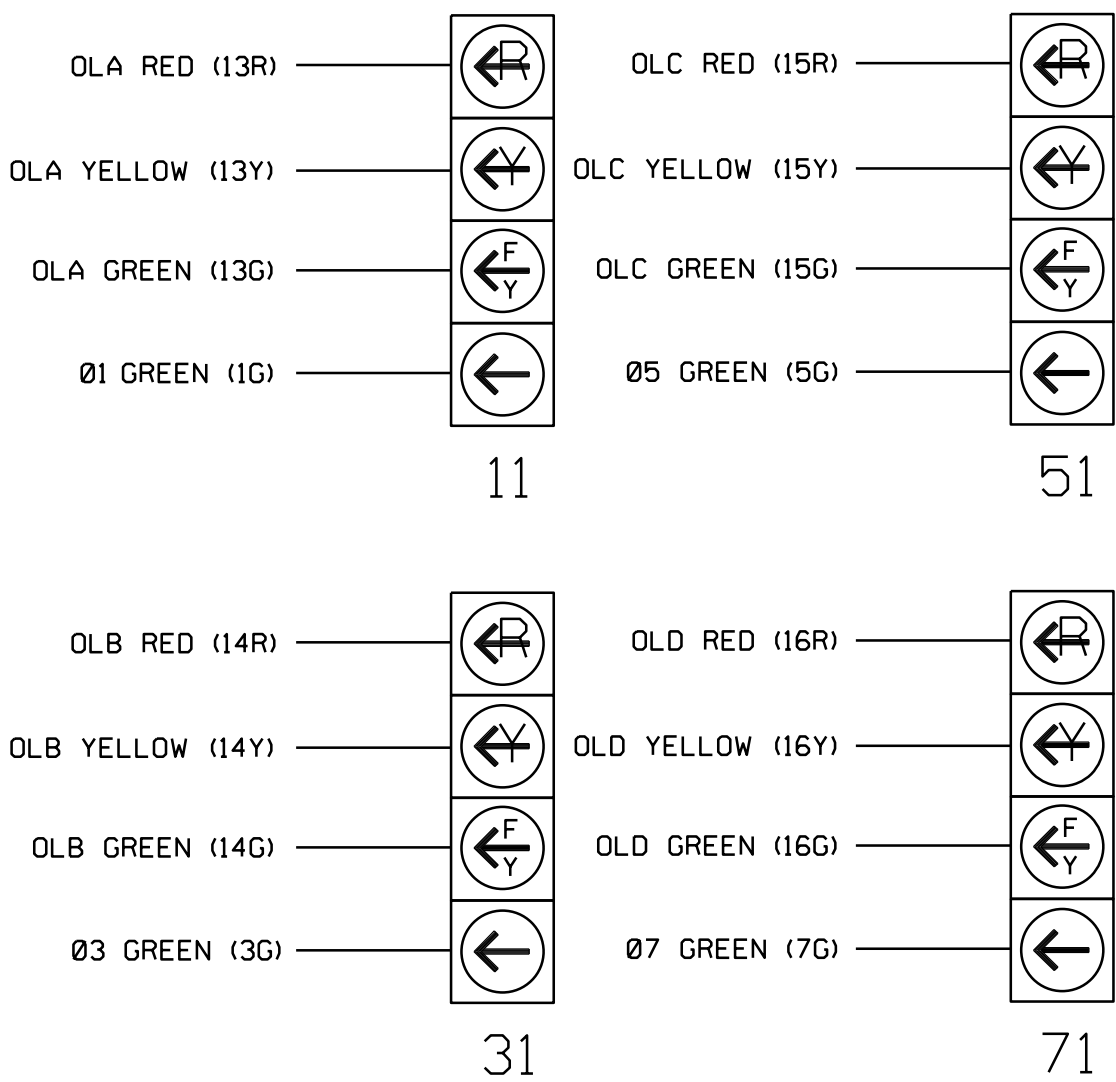
\*\* Detector type - N

\* See Vehicle Detector Setup Programming Detail for alternate phasing on sheet 3.

# See Logical Detector Programming on sheet 5.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



LOAD SWITCH ASSIGNMENT DETAIL

(program controller according to schedule in chart below)

LOAD SWITCH NUMBER	FUNCTION
1	ø 1
2	ø 2
3	ø 3
4	ø 4
5	ø 5
6	ø 6
7	ø 7
8	ø 8
9	ø 2 PED
10	ø 4 PED
11	ø 6 PED
12	ø 8 PED
13	OLA
14	OLB
15	OLC
16	OLD

THIS PLAN SUPERSEDES THE PLAN SIGNED AND SEALED ON 11-14-2023

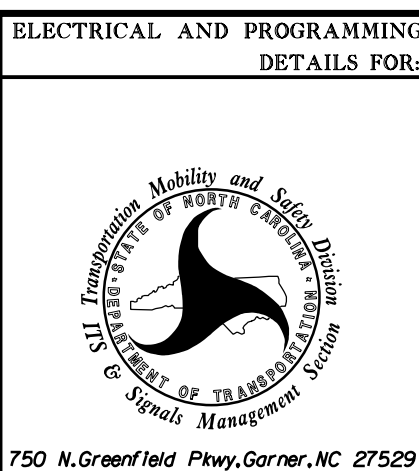
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0882  
DESIGNED: Mar 2025  
SEALED: 3/21/2025  
REVISED: N/A

Electrical Detail - Sheet 1 of 5



DRMP, INC.  
8210 UNIVERSITY EXECUTIVE PARK DR.  
SUITE 220  
CHARLOTTE, NC 28226  
PHONE: 704-541-4250

750 N. Greenfield Pkwy, Garner, NC 27529



SR 1390 (Optimist Farm Road)  
at  
SR 1386 (Bells Lake Road)

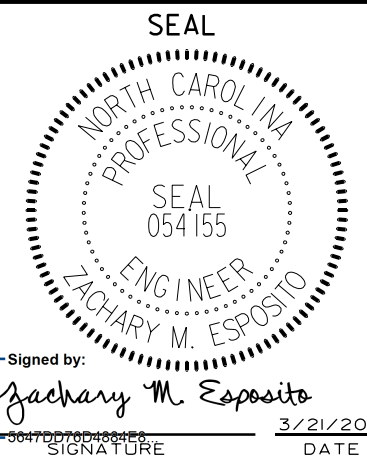
Division 5 Wake County Cary

PLAN DATE: March 2025 REVIEWED BY: ZM Esposito

PREPARED BY: AW Poole DRMP PROJ. NO.: 22242 (040)

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



Signed by: Zachary M. Esposito  
DATE: 3/21/2025  
SIGNATURE DATE

SIG. INVENTORY NO. 05-0882