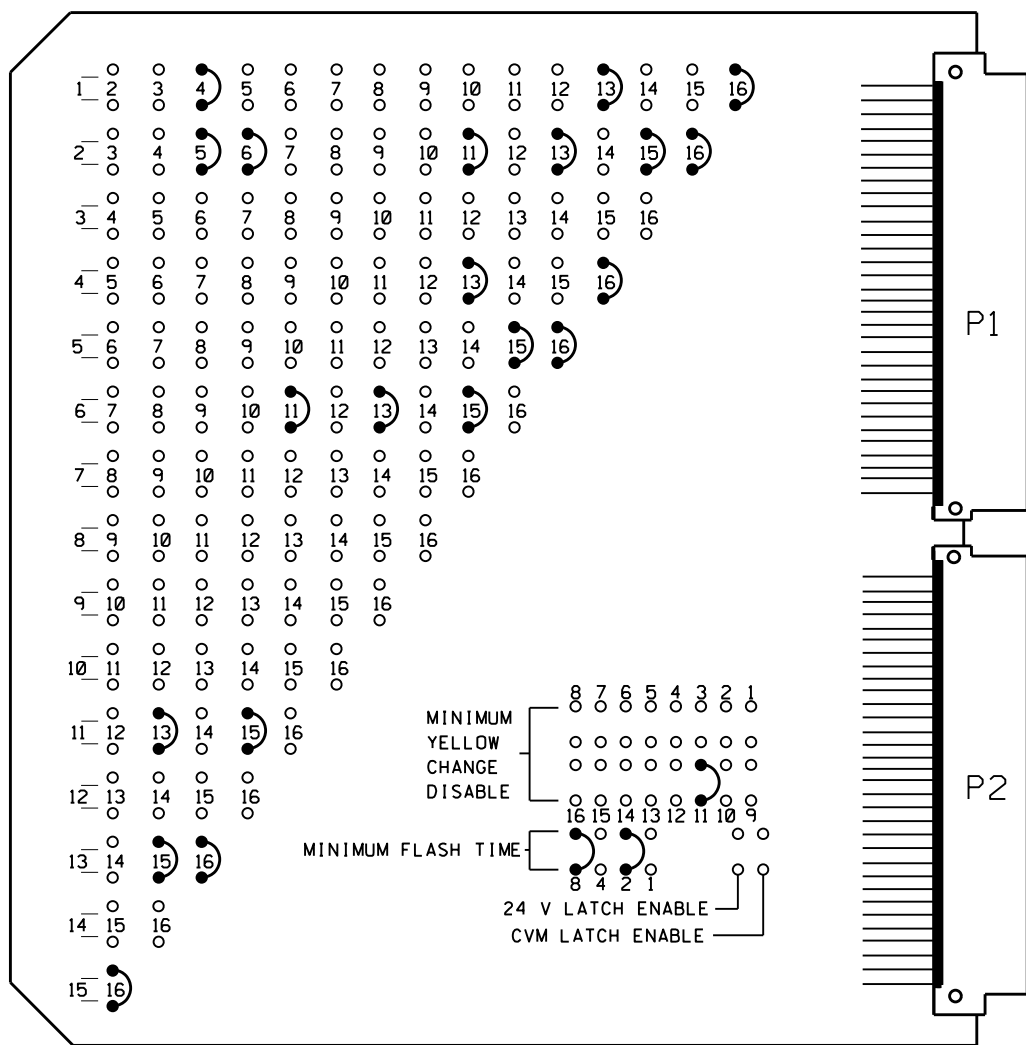


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D:\p\modat-pa-bentley.com\ncdot-pw-01\Documents\NCDOT_TSMQ/Signal Management/051244_signal Management/051244_sm.ele.20251028.dgn
sgk:rp@ncdot.com

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	DISABLE
9	DISABLE
10	DISABLE
11	ENABLE
12	DISABLE
13	ENABLE
14	DISABLE
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	B
ENABLE CHANNEL PAIR, FYA	
CH 1-13	ON
CH 3-14	OFF
CH 5-15	ON
CH 7-16	OFF
RED/YEL INPUT ENABLE	
CH 1	ON
CH 3	OFF
CH 5	ON
CH 7	OFF
FLASH RATE FAULT	ON
FYA TRAP DETECT	ON

MMU PROGRAMMING NOTE

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

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 L3 Ø 5 5B	CH1 L1 Ø 5 5A	S L O T E M P T Y	CH1 L5 NOT USED	S L O T	S L O T	S L O T	S L O T	S L O T	S L O T
	CH2 L4 Ø 4 4A	CH2 L2 Ø 2 2A		CH2 L6 Ø 6 6A	E M P T Y	E M P T Y	E M P T Y	E M P T Y	E M P T Y	E M P T Y

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

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

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

CONTROLLER DETECTOR NO.	FUNCTION	TIMING	
		FEATURE	TIME(SEC)
1	Ø 5	DELAY	15
2	Ø 2		
3	Ø 5	DELAY	15
4	Ø 4		
5	NU		
6	Ø 6		
7	NU		
8	NU		
9	NU		
10	NU		
11	NU		
12	NU		
13	NU		
14	NU		
15	NU		
16	NU		

△*	63	Ø 2	DELAY	3
----	----	-----	-------	---

- * Detector Type - G
- △ Logical Detector (see logical detector programming on sheet 3)
- ★ TOD Detector Programming

NOTE

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

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 3, 7, 8, 9, 10, 12 and 14 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.
- Program controller to start up in phase 2 Green and 6 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.
- Enable simultaneous gap-out feature for all phases.
- 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 2 and 6 for volume density operation.
- The cabinet and controller are a part of the Cary Signal System.

SIGNAL HEAD HOOK-UP CHART

PHASE	OLG	2	3	4	5	6	7	8	2 PED	4 PED	6 PED	8 PED	OLA	OLB	OLC	OLD
SIGNAL HEAD NO.	63★	21,22	NU	41,43	51★	61,62	NU	NU	NU	NU	P61, P62	NU	63★	NU	51★	42
RED	*	2R			*	6R							13R			16R
YELLOW	*	2Y			*	6Y										
GREEN		2G				6G										
RED ARROW				4R											15R	
YELLOW ARROW				4Y									13Y		15Y	16Y
FLASHING YELLOW ARROW													13G		15G	
GREEN ARROW	1G			4G	5G											16G
⬆													11R			
⬇													11G			

* Denotes install load resistor. See Load Resistor Installation Detail this sheet.

NU = Not Used

★ See pictorial of head wiring detail this sheet.

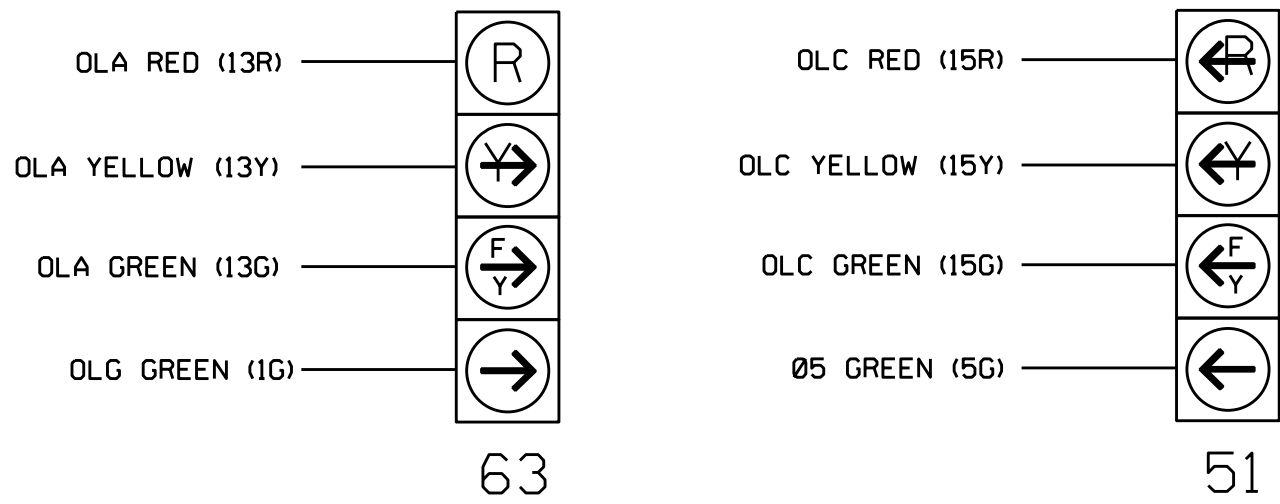
EQUIPMENT INFORMATION

CONTROLLER.....2070LXN2
CABINETTS-2
SOFTWAREECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
LOADBAY POSITIONS.....16
LOAD SWITCHES USED.....1,2,4,5,6,11,13,15,16
PHASES USED.....2,4,5,6,6 PED
OLA.....*
OLB.....NOT USED
OLC.....*
OLD.....*
OLG.....*

* See overlap programming detail on sheet 2

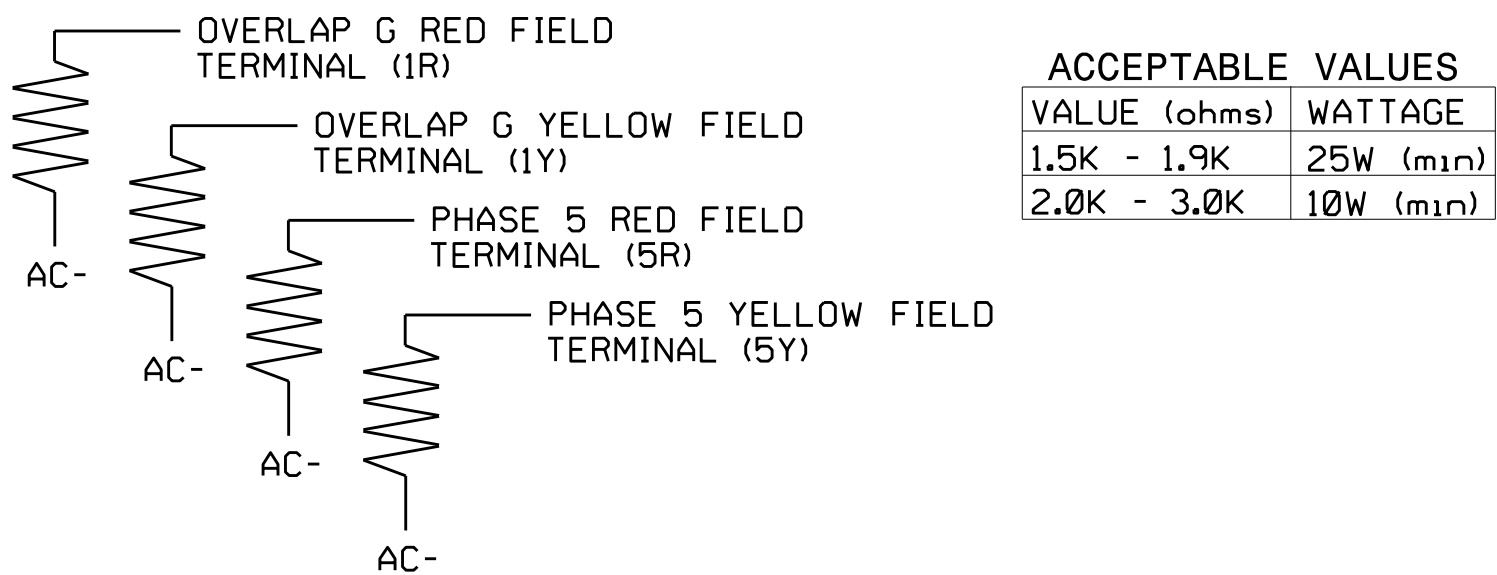
FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)



COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

Electrical Detail - Sheet 1 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1637 (Church Street) at SR 3126 (Airport Boulevard)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared In the Offices of:		Division 5 Wake County Morrisville		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031001 TODD JOYCE	
PLAN DATE: October 2025		REVIEWED BY:		DocuSigned by: D. Todd Joyce 10/28/2025	
PREPARED BY: S.Kirkpatrick		REVIEWED BY:		DATE	
REVISIONS		INIT.		DATE	
750 N. Greenfield Pkwy, Garner, NC 27529				SIG. INVENTORY NO. 05-1244	