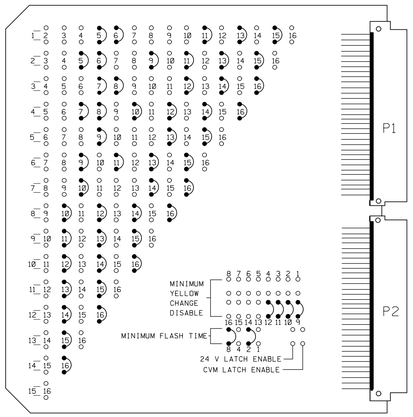
EDI MODEL MMU2-16LEip
MALFUNCTION MANAGEMENT UNIT
PROGRAMMING DETAIL

(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	ENABLE
4	ENABLE
5	DISABLE
6	ENABLE
7	ENABLE
8	ENABLE
9	ENABLE
10	ENABLE
11	ENABLE
12	ENABLE
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	B
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

1. To prevent "flash-conflict" problems, wire all unused load switches to flash red. Verify that signal heads flash in accordance with the signal plans.
2. Make sure all flash transfer relays are in place.
3. Program controller to start up in phase 2 Walk and 6 Walk.
4. Set power-up flash time to 10 seconds and implement on the Malfunction Management Unit. Set controller power-up flash time to 0 seconds.
5. Enable simultaneous gap-out feature for all phases.
6. Program detectors in accordance with the manufacturer's instructions to accomplish the detection schemes shown on the signal design plans.
7. Program detector call delay and extension timing on the controller, unless otherwise specified.
8. Set all detector card unit channels to "presence" mode.
9. Program phases 2 and 6 for volume density operation.
10. Program phases 4 and 8 for dual entry.
11. The cabinet and controller are a part of the Cary Signal System.

PROJECT REFERENCE NO.	SHEET NO.
U-5828	SIG. 2

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	22	31★	41,42	51★	61,62	62	71★	81,82	P21, P22	P41, P42	P61, P62	P81, P82	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			3Y				7Y								13Y	14Y	15Y	16Y
FLASHING YELLOW ARROW															13G	14G	15G	16G
GREEN ARROW	1G		3G	3G		5G		7G	7G									
✋											9R	10R	11R	12R				
🚶											9G	10G	11G	12G				

NU = Not Used

✳ Denotes install load resistor. See Load Resistor Installation Detail on sheet 3.

★ 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 L3 Ø2 **	CH1 L1 Ø1	CH1 L7 Ø4	CH1 L5 Ø3	SLOT EMPTY	CH1 L9 Ø5	CH1 L15 Ø7	CH1 L13 Ø6 **	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
		CH2 L4 Ø2 **	CH2 L2 Ø6 *	CH2 L8 Ø4	CH2 L6 Ø8		CH2 L10 Ø2 *	CH2 L16 Ø4	CH2 L14 Ø6 **			
RACK #2	BIU	CH1 L19 Ø8	CH1 L17 Ø8	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
		CH2 L20 NOT USED	CH2 L18 Ø8									

NOTE

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

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

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

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

CONTROLLER DETECTOR NO.	FUNCTION	TIMING	
		FEATURE	TIME(SEC)
1	Ø1	DELAY	15
✳ 2	Ø6	DELAY	3
✳✳ 3	Ø2		
✳✳ 4	Ø2		
5	Ø3	DELAY	15
6	Ø8		
7	Ø4		
8	Ø4	DELAY	10
9	Ø5	DELAY	15
✳ 10	Ø2	DELAY	3
11			
12			
✳✳ 13	Ø6		
✳✳ 14	Ø6		
15	Ø7	DELAY	15
16	Ø4		

✳ Detector Type - G
✳✳ Detector Type - N

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

LOOP NO.	LOOP PANEL TERMINALS
8A	L17A, L17B
8B	L18A, L18B
8C	L19A, L19B
NU	L20A, L20B
NU	L21A, L21B
NU	L22A, L22B
NU	L23A, L23B
NU	L24A, L24B
NU	L25A, L25B
NU	L26A, L26B
NU	L27A, L27B
NU	L28A, L28B
NU	L29A, L29B
NU	L30A, L30B
NU	L31A, L31B
NU	L32A, L32B

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

CONTROLLER DETECTOR NO.	FUNCTION	TIMING	
		FEATURE	TIME(SEC)
17	Ø8		
18	Ø8	DELAY	10
19	Ø8	DELAY	10
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			

EQUIPMENT INFORMATION

CONTROLLER.....2070LN2
CABINET TS-2 NC-8
SOFTWARE .....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
LOADBAY POSITIONS.....16
LOAD SWITCHES USED.....1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16
PHASES USED.....1,2,2 PED,3,4,4 PED,5,6,6 PED,7,8,8 PED
OLA.....✳
OLB.....✳
OLC.....✳
OLD.....✳

✳ See overlap programming detail on sheet 2

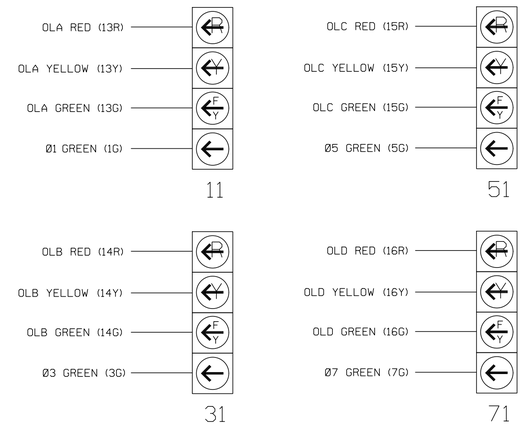
LOAD SWITCH ASSIGNMENT DETAIL

(program controller according to schedule in chart below)

LOAD SWITCH NUMBER	FUNCTION
1	Ø1
2	Ø2
3	Ø3
4	Ø4
5	Ø5
6	Ø6
7	Ø7
8	Ø8
9	Ø2 PED
10	Ø4 PED
11	Ø6 PED
12	Ø8 PED
13	OLA
14	OLB
15	OLC
16	OLD

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NC Dept of Transportation
Division of Highways
Final Drawing Date: 10/10/2016
DocuSigned by:
Assistant Engineer
ITS & Signals Unit

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2033
DESIGNED: APRIL 2016
SEALED: 9/22/2016
REVISED:

PLANS PREPARED IN THE OFFICE OF:
Kimley»Horn
NC License #F-0102
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Raleigh, NC 27601
(919) 677-2000

Electrical Detail - Sheet 1 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared For:
Traffic Engineering and Safety Systems Branch
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

SR 3015 (Airport Boulevard)
at
SR 3127 (McCrimmon Parkway)

Division 5 Wake County Morrisville

PLAN DATE: APRIL 2016	REVIEWED BY: SL PHILLIPS
PREPARED BY: SP PENNINGTON	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032607 ENGINEER STACIE L. PHILLIPS
DocuSigned by: 9/22/2016
DATE
SIG. INVENTORY NO. 05-2033