PROJECT REFERENCE NO.	SHEET NO.
W-5601AX	Sig. 1.1

EDI MODEL MMU2-16LEip MALFUNCTION MANAGEMENT UNIT PROGRAMMING DETAIL

(program card and tables as shown below)

MMU PROGRAMMING CARD

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

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	OFF
CH 7-16	OFF
RED/YEL INPUT ENABLE	
CH 1	ON
CH 3	OFF
CH 5	OFF
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.

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. To prevent red failures on unused monitor channels, tie unused load switch red outputs 3,4,5,7,10,11,14,15 and 16 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.
3. Program controller to start up in phases 2 Walk and 6 Green.
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, on controller unit, 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. This controller and cabinet are 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★	82	21,22	NU	NU	NU	61,62	NU	81,82	P21, P22	NU	NU	P81, P82	11★	NU	NU	NU
RED	✳		2R				6R		8R								
YELLOW			2Y				6Y		8Y								
GREEN			2G				6G		8G								
RED ARROW														13R			
YELLOW ARROW		1Y												13Y			
FLASHING YELLOW ARROW														13G			
GREEN ARROW	1G	1G															
✋										9R			12R				
🚶										9G			12G				

NU = Not Used

✳ Denotes install Load Resistor, see Load Resistor installation detail this sheet.

★ See pictorial of head wiring detail this sheet.

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.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)

NOTE

See Sheet 2 Econolite ASC/3-2070 Overlap Programming Detail.

DETECTOR RACK SET-UP DETAIL

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

BIU	CH1 L3 Ø1	CH1 L1 Ø1	CH1 L7 Ø6 **	CH1 L5 Ø2 **	SLOT EMPTY	CH1 L9 Ø8	SLOT EMPTY	SLOT EMPTY	CHA EVP 3 Ø1,6	CHC EVP5 Ø8	SLOT EMPTY
	CH2 NOT USED	CH2 L2 Ø6 *	CH2 L8 Ø6 **	CH2 L6 Ø2 **		CH2 NOT USED			CHB EVP 4 Ø2,6	NOT USED	

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
	1B	L3A,L3B
		L4A,L4B
	2A	L5A,L5B
	2B	L6A,L6B
	6A	L7A,L7B
	6B	L8A,L8B
	8A	L9A,L9B
		L10A,L10B
		L11A,L11B
		L12A,L12B
		L13A,L13B
		L14A,L14B
		L15A,L15B
		L16A,L16B

NOTE

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

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	Ø 6	DELAY	3
3	Ø 1	DELAY	15
4	Ø		
** 5	Ø 2		
** 6	Ø 2		
** 7	Ø 6		
** 8	Ø 6		
9	Ø 8		
10			
11			
12			
13			
14			
15			
16			

* Detector Type - G

** Detector Type - N

EQUIPMENT INFORMATION

CONTROLLER.....2070LN2
CABINET TS-2
SOFTWARE ASC/3-2070
CABINET MOUNT.....BASE
LOADBAY POSITIONS.....16
LOAD SWITCHES USED.....1,2,6,8,9,12,13
PHASES USED.....1,2,2 PED,6,8,8 PED
OLA.....*
OLB.....NOT USED
OLC.....NOT USED
OLD.....NOT USED

*See Sheet 2 for Econolite ASC/3-2070 Overlap Programming Detail.

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

ACCEPTABLE VALUES	
VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-0711
DESIGNED: July 2015
SEALED: 10-13-15
REVISED: N/A

Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 3977 (SW Cary Parkway) at W. Chatham Street

Division 5 Wake County Cary

PLAN DATE: August 2015 REVIEWED BY: T. Joyce

PREPARED BY: James Peterson REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of: Transportation Mobility and Safety Division, Traffic Engineering Branch, Signal Management Section, Department of Transportation, State of North Carolina

750 N.Greenfield Pkwy,Garner,NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MIMS

DocuSigned by: Keith M. Mims 10/30/2015

SIG. INVENTORY NO. 05-0711

30-OCT-2015 07:16
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jtpeterson