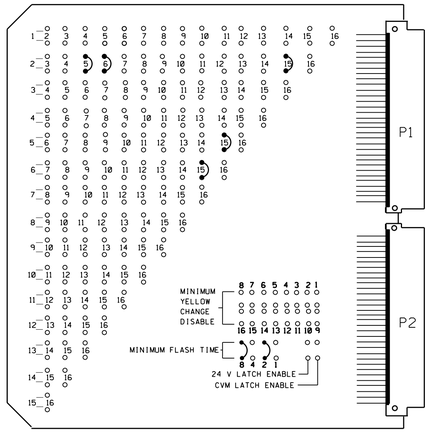
PROJECT REFERENCE NO.	SHEET NO.
I-5700	Sig. 20.1

EDI MODEL MMU2-16LEip MALFUNCTION MANAGEMENT UNIT PROGRAMMING DETAIL

(program card and tables as shown below)



MMU PROGRAMMING CARD

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

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

FLASHING YELLOW ARROW	
CONFIG MODE	B
ENABLE CHANNEL PAIR, FYA	
CH 1-13	OFF
CH 3-14	OFF
CH 5-15	ON
CH 7-16	OFF
RED/YEL INPUT ENABLE	
CH 1	OFF
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.

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 1,3,4,7,8,9,10,11,12,13,14, 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 phase 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 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. The cabinet and controller are a part of the Cary Signal System.

SIGNAL HEAD HOOK-UP CHART

PHASE	1	OLE	3	4	OLF	6	7	8	2 PED	4 PED	6 PED	8 PED	OLA	OLB	OLC	OLD
SIGNAL HEAD NO.	NU	21,22	NU	NU	51★	61,62 63	NU	NU	NU	NU	NU	NU	NU	NU	51★	NU
RED		2R			✳	6R										
YELLOW		2Y			✳	6Y										
GREEN						6G										
RED ARROW															15R	
YELLOW ARROW															15Y	
FLASHING YELLOW ARROW															15G	
GREEN ARROW		2G			5G											
✋																
🚶																

NU = Not Used

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

★ See pictorial of head wiring detail this sheet.

NOTE: Load switches 1 and 6 have been reassigned as overlaps. See sheet 3 for programming details.

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	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY

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

LOOP NO.	LOOP PANEL TERMINALS
NU	L1A,L1B
NU	L2A,L2B
NU	L3A,L3B
NU	L4A,L4B
NU	L5A,L5B
NU	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			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

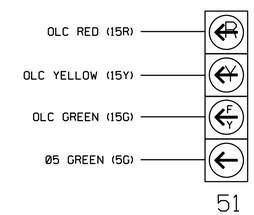
EQUIPMENT INFORMATION

CONTROLLER.....2070EN2
CABINET NC-8 TS-2
SOFTWARE .....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
LOADBAY POSITIONS.....16
LOAD SWITCHES USED.....2,5,6,15
PHASES USED.....3,6
OLA.....NOT USED
OLB.....NOT USED
OLC.....✳
OLD.....NOT USED
OLE.....3+6
OLF.....3

✳ SEE OVERLAP PROGRAMMING DETAIL ON SHEET 2

FYA SIGNAL WIRING DETAIL

(wire signal head as shown)



SPECIAL DETECTOR NOTE

Install a video detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1168T2
DESIGNED: March 2019
SEALED: 7/24/2019
REVISED: N/A

Electrical Detail - Temp Design 2 (TMP Phase III, Step A)
Sheet 1 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

Traffic Engineering, Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

SR 3015 (Airport Boulevard) at I-40 WB Ramps

Division 5 Wake County Morrisville

PLAN DATE: May 2015 REVIEWED BY:
PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 8/1/2019
A30320FAA2664C3... DATE

SIG. INVENTORY NO. 05-1168T2

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sarmstrong