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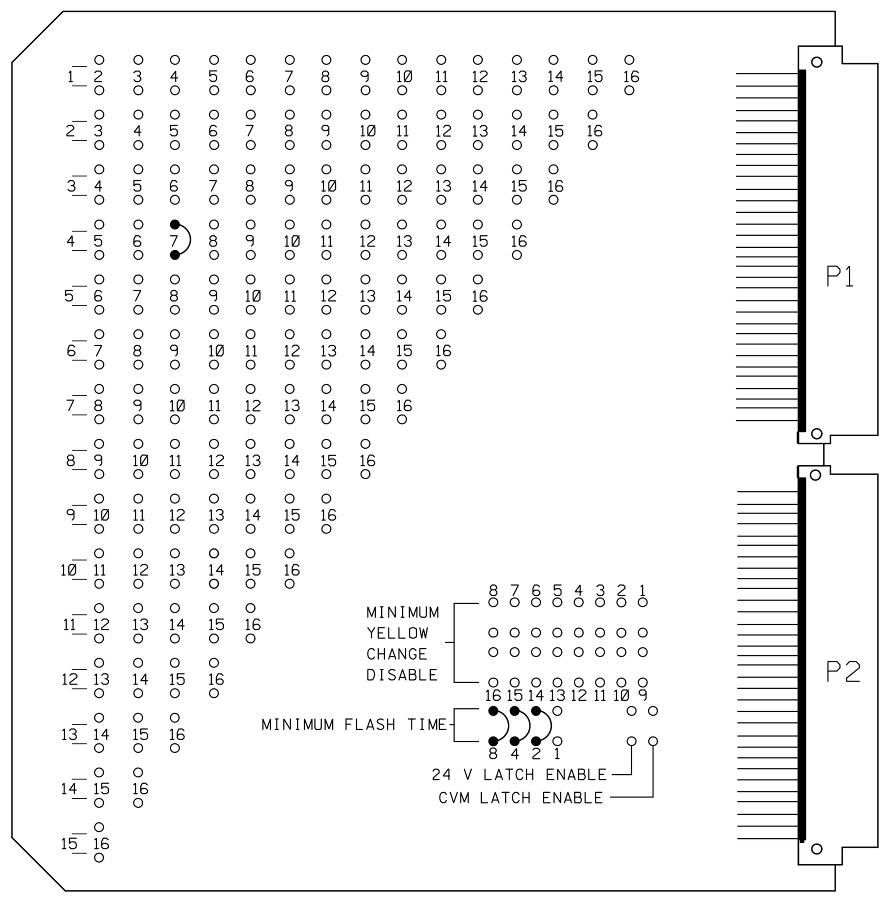
PROJECT REFERENCE NO.	SHEET NO.
I-5973	SIG. 1.3

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	DISABLE
4	ENABLE
5	DISABLE
6	DISABLE
7	ENABLE
8	DISABLE
9	DISABLE
10	DISABLE
11	DISABLE
12	DISABLE
13	DISABLE
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	OFF
CH 3-14	OFF
CH 5-15	OFF
CH 7-16	OFF
RED/YEL INPUT ENABLE	
CH 1	OFF
CH 3	OFF
CH 5	OFF
CH 7	OFF
FLASH RATE FAULT	OFF
FYA TRAP DETECT	OFF

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 1,3,5,6,8,9,10,11,12,13,14,15 & 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 2 Green.
4. Set power-up flash time to 12 seconds and implement on the malfunction management unit. Set controller power-up flash time to 22 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. The cabinet and controller are a part of the Charlotte Signal System.

FIELD CONNECTION 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.	NU	21,22, 23	NU	41,42 43	NU	NU	71,72	NU	NU	NU	NU	NU	NU	NU	NU	NU
RED		2R		4R												
YELLOW		2Y														
GREEN																
RED ARROW							7R									
YELLOW ARROW				4Y			7Y									
GREEN ARROW		2G		4G			7G									

NU = NOT USED

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 Ø4 4A	CH1 L1 Ø2 2A	CH1 L7 Ø7 7B	CH1 L5 Ø4 4C	CH1 L11 Ø4 4F	CH1 L9 Ø4 4D	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
		CH2 L4 Ø4 4B	CH2 L2 Ø2 2B	CH2 L8 Ø7 7C	CH2 L6 Ø7 7A	CH2 L12 NOT USED	CH2 L10 Ø4 4E					

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

LOOP NO.	LOOP PANEL TERMINALS
2A	L1A,L1B
2B	L2A,L2B
4A	L3A,L3B
4B	L4A,L4B
4C	L5A,L5B
7A	L6A,L6B
7B	L7A,L7B
7C	L8A,L8B
4D	L9A,L9B
4E	L10A,L10B
4F	L11A,L11B
NU	L12A,L12B
NU	L13A,L13B
NU	L14A,L14B
NU	L15A,L15B
NU	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	TIMING TIME(SEC)
1	Ø2	–	–
2	Ø2	–	–
3	Ø4	–	–
4	Ø4	–	–
5	Ø4	–	–
6	Ø7	–	–
7	Ø7	–	–
8	Ø7	–	–
9	Ø4	–	–
10	Ø4	–	–
11	Ø4	–	–
12	–	–	–
13	–	–	–
14	–	–	–
15	–	–	–
16	–	–	–

EQUIPMENT INFORMATION

CONTROLLER..............2070LX
CABINET TS-2
SOFTWARE ....ECONOLITE EOS
CABINET MOUNT...........BASE W/ RISER
LOADBAY POSITIONS.......16
LOAD SWITCHES USED......2,4,7
PHASES USED.............2,4,7
OLA.....................NOT USED
OLB.....................NOT USED
OLC.....................NOT USED
OLD.....................NOT USED

LOAD SWITCH ASSIGNMENT DETAIL

(program controller according to schedule in chart below)

LOAD SWITCH NUMBER	FUNCTION
1	-
2	Ø2
3	-
4	Ø4
5	-
6	-
7	Ø7
8	-
9	-
10	-
11	-
12	-
13	-
14	-
15	-
16	-

UNUSED LOAD SWITCH CHANNELS SHALL BE DISABLED IN CONTROLLER PROGRAMMING

ECONOLITE EOS SPECIAL MMU PROGRAMMING

(program controller as shown)

1. From Main Menu select [1. CONFIGURATION]
2. From CONFIGURATION Submenu select [1. CABINET]
3. From Cabinet Submenu select [4. MONITOR PROGRAMMING]

CAUTION!

Set intersection to Flash before attempting to enter or change any MMU programming data.

This programming and that of the MMU programming card must match exactly. If they do not, the intersection will be placed into Flash.

```
MMU PROGRAM [     MANUAL]

CH  6 5 4 3 2 1 0 9 8 7 6 5 4 3 2
 1  . . . . . . . . . . . . . . .
 2  . . . . . . . . . . . . . .
 3  . . . . . . . . . . . . .
 4  . . . . . . . . . X . .
 5  . . . . . . . . . . .
 6  . . . . . . . . . .
 7  . . . . . . . . .
 8  . . . . . . . .
 9  . . . . . . .
10  . . . . . .
11  . . . . .
12  . . . .
13  . . .
14  . .
15  .
```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-2272
DESIGNED: September 2021
SEALED: 2/16/2022
REVISED:

PLANS PREPARED IN THE OFFICE OF:
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Final Design
Electrical Detail

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
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Signal Design Section
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NC 16 (Brookshire Boulevard)
at
East Cross-Over

Division 10 Mecklenburg County Charlotte

PLAN DATE: September 2021	REVIEWED BY: SL Phillips
PREPARED BY: SP Pennington	REVIEWED BY:

REVISIONS	INIT.	DATE

NORTH CAROLINA PROFESSIONAL SEAL 032607 ENGINEER STACIE L. PHILLIPS

DocuSigned by:
0C87A59ED60B437...
SIGNATURE 2/16/2022 DATE

SIG. INVENTORY NO. 10-2272

$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$