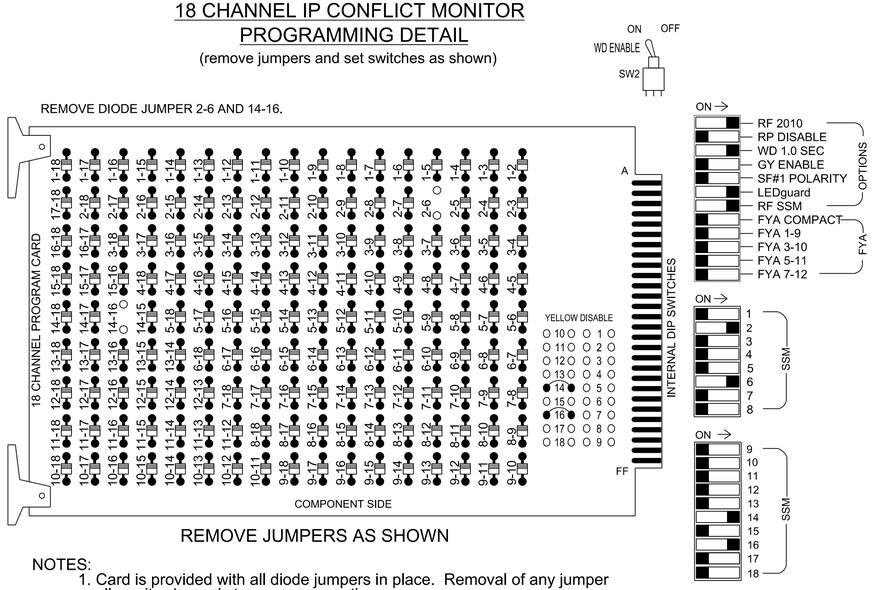
PROJECT REFERENCE NO.	SHEET NO.
B-6051/U-6143	Sig.18.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that the Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
3. Install the latest 332_NCDOT_HAWK_Default database onto controller.
4. Program phases 4 and 8 for No Startup Veh Call and No Startup Ped Call.
5. Program phases 4 and 8 for Ped Clear During Red Clear.

EQUIPMENT INFORMATION

Controller.....2070LX
Cabinet.....332
Software.....Q-Free MAXTIME
Cabinet Mount.....Base
Output File Positions.....12
Load Switches Used.....S2, S6, S8, S12
Phases Used.....2, 4*, 4 PED, 6, 8*, 8 PED
Overlap "1".....NOT USED
Overlap "2".....NOT USED
Overlap "3".....NOT USED
Overlap "4".....NOT USED

*Used for timing purposes only.

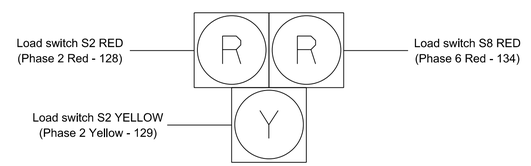
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22, 23	NU	NU	NC	P41	NU	21,22 23	NU	NU	NC	P81
RED	·	128	·	·	·	·	·	134	·	·	·	·
YELLOW	·	129	·	·	·	·	·	*	·	·	·	·
GREEN	·	*	·	·	·	·	·	*	·	·	·	·
RED ARROW	·	·	·	·	·	·	·	·	·	·	·	·
YELLOW ARROW	·	·	·	·	·	·	·	·	·	·	·	·
FLASHING YELLOW ARROW	·	·	·	·	·	·	·	·	·	·	·	·
GREEN ARROW	·	·	·	·	·	·	·	·	·	·	·	·
✋	·	·	·	·	·	104	·	·	·	·	·	110
🚶	·	·	·	·	·	106	·	·	·	·	·	112

NU = Not Used
NC = Not Connected
*Denotes install load resistor. See load resistor installation detail this sheet.

SIGNAL HEAD WIRING DETAIL

(wire signal heads as shown)



21,22,
23

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	NOT USED	NOT USED	FS DC ISOLATOR
	L												Ø 4 PED DC ISOLATOR	Ø 8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L														

EX. : 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
PED PUSH BUTTONS												
P41	TB8-5,6	I12L	69	35	4	PED 4 / 8 *						
P81	TB8-8,9	I13L	70	36	8	PED 8 / 4 *						

* FOR THE ABOVE DETECTORS TO CALL ANOTHER PHASE SCROLL OVER AND ENTER SECOND PHASE IN "ADDITIONAL CALL PHASES" COLUMN.

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

OPERATIONAL NOTES

1. In order for the controller to perform the Pedestrian Hybrid Beacon (HAWK signal) sequence, the 332_NCDOT_HAWK_v1_3 database must be installed on the controller.
2. The only Phase 6 load switch output that is being used drives one of the red signal faces of each signal head.
3. The Logic Processor flashes Phase 2 Yellow during the Phase 2 Pre-Clearance Interval. Phase 2 Yellow drives the solid yellow signal face during the Phase 2 Vehicle Yellow Change.
4. The Phase 2 and Phase 6 Red outputs drives the solid Red displays during the Phase 2 and 6 Red Clear and Ped 4 and 8 Walk Interval. The Logic Processor flashes Phase 2 and Phase 6 Red Outputs in a wig-wag pattern during 4+8 Ped Clear Interval.
5. The controller must be programmed for Ped Clear During Red Clear for Pedestrian Phases 4 and 8 so that Red displays continue to flash during Phases 4 and 8 Yellow Change and Red Clear.
6. Make sure that all Phase 2 and Phase 6 timings match each other and that all Phase 4 and Phase 8 timings match each other.
7. The Ped 4 push button is programmed to call Ped 4 and Ped 8. The Ped 8 push button is programmed to call Ped 8 and Ped 4.

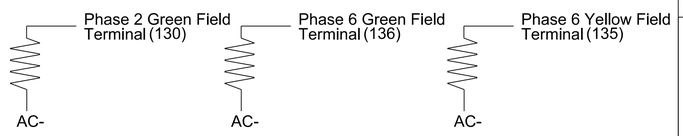
TIMING INTERVAL

PHASE 2+6 = DARK DISPLAY
PHASE 2+6 PRE CLEARANCE = FLASHING YELLOW DISPLAY
PHASE 2+6 YELLOW CHANGE = STEADY YELLOW DISPLAY
PHASE 2+6 RED CLEAR THROUGH 4+8 WALK = STEADY RED DISPLAY
PED 4+8 DON'T WALK = ALTERNATING FLASHING RED DISPLAY

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-2480
DESIGNED: August 2025
SEALED: 8/1/2025
REVISED: N/A

New Installation - Electrical Detail

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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Electrical and Programming Details For:

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Traffic Engineering & Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

Pedestrian Hybrid Beacon:
US 29-74 (Wilkinson Blvd)
at
SR 1600 (Moores Chapel Loop)

Division 10 Mecklenburg County Charlotte

PLAN DATE:	August 2025	REVIEWED BY:	CB Holden
PREPARED BY:	WP Erickson-Jones	REVIEWED BY:	DT Sears

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 044558 ENGINEER DAVID T SEARS
DocuSigned by: David T Sears 069183F28E5741E...
8/1/2025
DATE

SIG. INVENTORY NO. 10-2480

8/1/2025
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dsears