

“HAWK” Pedestrian Signal System Tech Note 1106-8ch. Cabinet

The “HAWK” Pedestrian Signal System is designed to function similar to a conventional pedestrian signal in providing a protected street crossing for the pedestrian, but at an intersection that does not have traditional signal control and operation. The “HAWK” is technically a “Beacon” that is used in mid-block or un-signalized intersections to provide a cost-effective method of protecting a pedestrian movement. Operationally, the “HAWK” signal rests in a dark state for the vehicle, allowing normal flow through the mid-block area, and displays a constant “Don’t Walk” indication for the pedestrian crossing until activated. **Currently this feature is only available on the TS2 980 controllers with firmware version 61.3Q or later and ATCs with version 76.8F or later.**

Notice: Trafficware does not provide any guidelines, warrants, or recommendations for the use of the “HAWK” signal operation. The underlying assumption is that the traffic engineer has decided that the “HAWK” signal control is the most appropriate operation for a pedestrian crossing. It is also assumed that the deploying agency has made all necessary considerations regarding this control method and has determined that it is consistent with relevant traffic engineering standards and practices. Trafficware assumes no liability for the deployment and operation of any “HAWK”-style signal operation. The agency shall assume all responsibility and liability for the operation of the “HAWK” operation.

Operational Features

The “HAWK” signal head configuration consists of a three (3) section head with an AMBER indication at the bottom and dual RED indications above.



The “HAWK” is technically a “beacon” in that it remains dark for traffic unless a pedestrian activates the pushbutton. When the pedestrian presses the button, approaching drivers will see a FLASHING YELLOW for a few seconds, indicating that they should reduce speed and be prepared to stop for a pedestrian in the crosswalk.

The pedestrian output will display the “Don’t Walk” indication for the crossing until activated. When the pedestrian button is pressed, the YELLOW indication will Flash for a programmed number of seconds, then go Solid for a programmed vehicle clearance time. At this time the Pedestrian phase is still displaying a “Don’t Walk”.

Next, the dual RED indications will display solid. For the first few seconds of the solid RED, the Pedestrian is delayed and still in a “Don’t Walk” state to assure that the cars will stop, creating a RED Clearance time for the vehicle. We use the Green/Ped Delay feature to create a time gap between the vehicle REDS and the Ped Walk. This time is programmable by changing the Green/Ped Delay value. It is recommended 3 or more seconds before the Pedestrian “Walk” indication is released.

During the entire Walk time, the vehicle RED indications remain solid.

When the Ped Clearance interval begins, the RED indications begin an Alternating Flash pattern until the Ped Clearance is complete. At this time, it is expected that the vehicles will stop and proceed across in a safe manner at the given the pedestrian location in the crosswalk.

When the operation is complete, the “HAWK” signal goes dark and the “Don’t Walk” displayed for the Ped.



General Controller Programming Notes for Single Crossing

The following should be programmed for a Single Crossing “HAWK” Signal:

- You must turn on “Solo TF BIU” MM-1-8-6 in the ATC controller for a cabinet with only 1 terminal facility BIU.
- **The “HAWK” signal will be driven from Channel 3 (OLP 1) using Vehicle Phase 1 and Pedestrian Phase 2, and the logic statements that are shown at the end of this section.**

- Enable Phases 1 & 2 and put Phase 1 on Min recall as programmed at MM->1->1->2.

Options	P	..1..2..3..4..5..6..7.8>
Enable P	X	X
Min Recall	X	. . . . .
Max Recall	.	. . . . .
Ped Recall	.	. . . . .
Soft Recall	.	. . . . .
Lock Calls	.	. . . . .
Auto Flash Entry+	.	. . . . .

- Verify Outputs 1, 2, 3, and 4 are set as shown below, by programming MM->1->3->1 on the TS-2 or MM->1->8->1 on the ATC/2070.

Chan	.1...	2...	3...	4...	5...	6...	7...	8	<	Chan	.9...	10...	11...	12...	13...	14...	15...	16
P/Olp#	1	2	1	2	5	6	7	8	P/Olp#	9	9	9	9	1	3	5	7	
Type	VEH	VEH	OLP	PED	VEH	VEH	VEH	VEH	Type	OLP	OLP	OLP	OLP	PED	PED	PED	PED	
Flash	RED	RED	RED	DRK	RED	RED	RED	RED	Flash	RED	RED	RED	RED	DRK	DRK	DRK	DRK	
Alt Hz	.	.	.	.	.	.	.	.	Alt Hz	.	.	.	.	.	.	.	.
Dim Grn	.	.	.	.	.	.	.	.	Dim Grn	.	.	.	.	.	.	.	.
Dim Yel	.	.	.	.	.	.	.	.	Dim Yel	.	.	.	.	.	.	.	.
Dim Red+	.	.	.	.	.	.	.	.	Dim Red+	.	.	.	.	.	.	.	.

- Enable Ped Delay for Phase 2 by approximately 4 seconds (for Red Clearance) by programming Phase Options+ at MM->1->1->3.

Options	P	..1..2..3..4..5..6..7.8>
Ped Delay	-	. X
Red Rest On Gap	.	. . . . .
Conflicting P	0	0 0 0 0 0 0 0 0
Grn/Ped Delay	0	4 0 0 0 0 0 0 0
Omit Yel, Yel P	0	0 0 0 0 0 0 0 0
Ped Out/Ovrlp P	0	0 0 0 0 0 0 0 0
StartYel,Next P	0	0 0 0 0 0 0 0 0

- Follow the IO Logic Programming as discussed below at MM>1>3>9>1 on the TS-2 or MM->1->8->7 on the ATC/2070.

Logic Line #1: I 240 = O 1 AND O 89 AND O 82
 Logic Line #2: O 51 = O 25 AND O 113 OR I 240
 Logic Line #3: I 241 = O 50 AND !O 28
 Logic Line #4: O 3 = O 90 AND O 113 OR I 241
 Logic Line #5: O 27 = O 90 AND !O 113 OR I 241

Where: O 1 = Ch1 Red, O 3 = Ch3 Red, O 25 = Ch1 Yellow, O 27 = Ch 3 Yellow
 O 28 = Ch4 Yellow, O 50 = Ch2 Green, O 51 = Ch3 Green
 O 82 = Phase 2 Next, O 89 = Phase 1 On, O 90 = Phase 2 On
 O 113 = Flash Logic, I 240 is Logic Placeholder #1, I 241 is Logic Placeholder #2

Result	Fcn	Oper		Fcn	Oper	Fcn	Timer
I240 = 0	1	AND	0	89	AND	0	82 DLY 0
O 51 = 0	25	AND	0	113	OR	I 240	DLY 0
I241 = 0	50	AND	!0	28		I 0	DLY 0
O 3 = 0	90	AND	0	113	OR	I 241	DLY 0
O 27 = 0	90	AND	!0	113	OR	I 241	DLY 0
I 0 = I	0		I	0		I 0	DLY 0
I 0 = I	0		I	0		I 0	DLY 0

NOTE: O90 = Phase 2 ON. This causes the Hawk to Flash through the Phase 2 Yellow & All Red. If you want the HAWK to stop flashing immediately after the Ped Clearance Interval use O28 (Ped Channel 4 Yellow output) or program Phase 2 Yellow Clearance and All Red Clearance to 0.0 seconds.

Please note that dependent on the software version and controller type, the Logic Placeholders may be a different function number than shown above. Please refer to the specific controller software manual’s Chapter 12 for the proper location of these Logic Placeholder variables.

General Cabinet Notes for a Single Crossing

- Load Switches should be placed in cabinet for Channels 3 & 4
- Channel 3 Green will drive the “HAWK” Yellow
- Channel 3 Yellow will drive the “HAWK” Red #1
- Channel 3 Red will drive “HAWK” Red #2
- Channel 4 will drive Ped 2
- *This 8ch version of TN 1106 is only for 4 or 8 load switch cabinets with only 1 BIU.*

General MMU Notes for a Single Crossing

- Use only Naztec MMU516LCD
- MMU Permissive for 3-4
- Jumpers for Minimum Yellow Change Disable – Channels 3 and 4
- Red Monitor Inhibit set to “ON” for all channels except #4
- Red Monitor Inhibit set to “OFF” for channel 4 (failsafe for Ped output failure)
- Red + Yellow Clearance set to “OFF”

General Controller Programming Notes for a Dual Crossing

The following should be programmed for a Dual Crossing “HAWK” Signal:

- You must turn on “Solo TF BIU” MM-1-8-6 in the ATC controller for a cabinet with only 1 terminal facility BIU.
- The first “HAWK” signal will be driven from Channel 3 (OLP 1) using Vehicle Phase 1 and Pedestrian Phase 2, and the logic statements that are shown at the end of this section.
- The second “HAWK” signal will be driven from Channel 7 (OLP 2) using Vehicle Phase 5 and Pedestrian Phase 6, and the logic statements that are shown at the end of this section.
- Enable Phases 1, 2, 5 & 6 and put Phases 1 and 5 on Min recall as programmed at MM->1->1->2.

Options	P	..1..2..3..4..5..6..7.8>
Enable P	X	X . . X X . .
Min Recall	X	. . . X . . .
Max Recall	.	. . . . . . . .
Ped Recall	.	. . . . . . . .
Soft Recall	.	. . . . . . . .
Lock Calls	.	. . . . . . . .
Auto Flash Entry+	.	. . . . . . . .

- Verify Outputs 1, 2, 3, 4, 5, 6, 7 and 8 are set as shown below, by programming MM->1->3->1 on the TS-2 or MM->1->8->1 on the ATC/2070.

Chan	.1...	2...	3...	4...	5...	6...	7...	8	<	Chan	.9...	10...	11...	12...	13...	14...	15...	16
P/Olp#	1	2	1	2	5	6	2	6		P/Olp#	9	9	9	9	1	3	5	7
Type	VEH	VEH	OLP	PED	VEH	VEH	OLP	PED		Type	OLP	OLP	OLP	OLP	PED	PED	PED	PED
Flash	RED	RED	RED	DRK	RED	RED	RED	DRK		Flash	RED	RED	RED	RED	DRK	DRK	DRK	DRK
Alt Hz	.	.	.	.	.	.	.	.		Alt Hz	.	.	.	.	.	.	.	.
Dim Grn	.	.	.	.	.	.	.	.		Dim Grn	.	.	.	.	.	.	.	.
Dim Yel	.	.	.	.	.	.	.	.		Dim Yel	.	.	.	.	.	.	.	.
Dim Red+	.	.	.	.	.	.	.	.		Dim Red+	.	.	.	.	.	.	.	.

- Enable Ped Delay for Phases 2 and 6 by approximately 4 seconds (for Red Clearance) by programming Phase Options+ at MM->1->1->3.

Options	P	..1..2..3..4..5..6..7.8>
Ped Delay	-	. X . . . X . .
Red Rest On Gap	.	. . . . . . . .
Conflicting P	0	0 0 0 0 0 0 0 0
Grn/Ped Delay	0	4 0 0 0 0 4 0 0
Omit Yel, Yel P	0	0 0 0 0 0 0 0 0
Ped Out/Ovrtp P	0	0 0 0 0 0 0 0 0
StartYel,Next P	0	0 0 0 0 0 0 0 0

- Follow the IO Logic Programming as discussed below at MM>1>3>9>1 on the TS-2 or MM->1->8->7 on the ATC/2070 for the first crossing.

Logic Line #1: I 240 = O 1 AND O 89 AND O 82
 Logic Line #2: O 51 = O 25 AND O 113 OR I 240
 Logic Line #3: I 241 = O 50 AND !O 28
 Logic Line #4: O 3 = O 90 AND O 113 OR I 241
 Logic Line #5: O 27 = O 90 AND !O 113 OR I 241

Where: O 1 = Ch1 Red, O 3 = Ch3 Red, O 25 = Ch1 Yellow, O 27 = Ch 3 Yellow
 O 28 = Ch4 Yellow, O 50 = Ch2 Green, O 51 = Ch3 Green
 O 82 = Phase 2 Next, O 89 = Phase 1 On, O 90 = Phase 2 On
 O 113 = Flash Logic, I 240 is Logic Placeholder #1, I 241 is Logic Placeholder #2

Result	Fcn	Oper		Fcn	Oper		Fcn	Timer	
I240 = 0	1	AND	0	89	AND	0	82	DLY	0
O 51 = 0	25	AND	0	113	OR	I	240	DLY	0
I241 = 0	50	AND	!0	28		I	0	DLY	0
O 3 = 0	90	AND	0	113	OR	I	241	DLY	0
O 27 = 0	90	AND	!0	113	OR	I	241	DLY	0
I 0 = I	0		I	0		I	0	DLY	0
I 0 = I	0		I	0		I	0	DLY	0

NOTE: O90 = Phase 2 ON. This causes the Hawk to Flash through the Phase 2 Yellow & All Red. If you want the HAWK to stop flashing immediately after the Ped Clearance Interval use O28 (Ped Channel 4 Yellow output) or program Phase 2 Yellow Clearance and All Red Clearance to 0.0 seconds.

Please note that dependent on the software version and controller type, the Logic Placeholders may be a different function number than shown above. Please refer to the specific controller software manual’s Chapter 12 for the proper location of these Logic Placeholder variables.

- Follow the IO Logic Programming as discussed below at MM>1>3>9>1 on the TS-2 or MM->1->8->7 on the ATC/2070 for the second crossing.

Logic Line #6: I 230 = 0 5 AND 0 93 AND 0 86
 Logic Line #7: 0 55 = 0 29 AND 0 113 OR I 230
 Logic Line #8: I 231 = 0 54 AND !0 32
 Logic Line #9: 0 7 = 0 94 AND 0 113 OR I 231
 Logic Line #10: 0 31 = 0 94 AND !0 113 OR I 231

Where: 0 5 = Ch5 Red, 0 7 = Ch 7 Red, 0 29 = Ch5 Yellow, 0 31 = Ch 7 Yellow
 0 32 = Ch8 Yellow, 0 54 = Ch6 Green, 0 55 = Ch7 Green
 0 86 = Phase 6 Next, 0 93 = Phase 5 On, 0 94 = Phase 6 On
 0 113 = Flash Logic, I 230 is Logic Placeholder #1, I 231 is Logic Placeholder #2

Result	Fcn	Oper		Fcn	Oper	Fcn	Timer
I230 = 0	5	AND	0	93	AND	0	86 DLY 0
0 55 = 0	29	AND	0	113	OR	I	230 DLY 0
I231 = 0	54	AND	!0	32		I	0 DLY 0
0 7 = 0	94	AND	0	113	OR	I	231 DLY 0
0 31 = 0	94	AND	!0	113	OR	I	231 DLY 0
I 0 = I	0		I	0		I	0 DLY 0
I 0 = I	0		I	0		I	0 DLY 0

NOTE: O94 = Phase 6 ON. This causes the Hawk to Flash through the Phase 6 Yellow & All Red. If you want the HAWK to stop flashing immediately after the Ped Clearance Interval use O32 (Ped Channel 8 Yellow output) or program Phase 6 Yellow Clearance and All Red Clearance to 0.0 seconds.

Please note that dependent on the software version and controller type, the Logic Placeholders may be a different function number than shown above. Please refer to the specific controller software manual's Chapter 12 for the proper location of these Logic Placeholder variables.

General Cabinet Notes for a Dual Crossing

- Load Switches should be placed in cabinet for Channels 3,4 & 7,8

FIRST CROSSING

- Channel 3 Green will drive the first direction “HAWK” Yellow
- Channel 3 Yellow will drive the first direction “HAWK” Red #1
- Channel 3 Red will drive first direction “HAWK” Red #2
- Channel 4 will drive Ped 2

SECOND CROSSING

- Channel 7 Green will drive the second direction “HAWK” Yellow
- Channel 7 Yellow will drive the second direction “HAWK” Red #1
- Channel 7 Red will drive second direction “HAWK” Red #2
- Channel 8 will drive Ped 6

General MMU Notes for a Dual Crossing

- Use only Naztec MMU516LCD
- MMU Permissive for 3-4 and 7-8
- Jumpers for Minimum Yellow Change Disable – Channels 3,4,7 and 8
- Red Monitor Inhibit set to “ON” for all channels except # 4 and 8
- Red Monitor Inhibit set to “OFF” for channels 4 and 8 (failsafe for Ped output failure)
- Red + Yellow Clearance set to “OFF”

Summary

Trafficware TS2 or ATC controllers that have the ability to do logic programming, will allow the user to program this mid-block pedestrian indication known as a “HAWK” Pedestrian signal.