



Product Type: *ASC/3 Software*

Reference: AN2108
Date: 12 January 2010

Enhanced Phase Overlap (EPO) Feature

Purpose

Econolite has created a standard database that remaps and reconfigures the *ASC/3* controller to be able to program up to 12 numbered overlaps as well as the four standard A, B, C and D overlaps. This is called the *ASC/3* Enhanced Phase Overlap (EPO) feature. This application note tells you:

- How to obtain this feature and load it on your *ASC/3*
- Which screens have changed to program overlaps with EPO.

Introduction

To obtain the EPO feature:

1. Order Econolite N3201.DB database from your sales representative or technical support representative.
2. Use the *ASC/3_Configurator* or the *ASC/3_Utility* to download this database to your *ASC/3*. For more information about how to download an *ASC/3* database, refer to the *ASC/3 Configurator User Guide*.

With the EPO feature, the last four overlaps (13 thru 16) are A, B, C and D—and operate as usual. The first 12 overlaps are numbered 1 thru 12 and their outputs are sent to the phases 1 thru 12 depending upon which overlap (1 thru 12 respectively) is programmed. The default database is programmed with the phase numbers the same as the overlap numbers for the first 12 phases: Phase 1 for Overlap 1, Phase 2 for Overlap 2, etc. up to Phase 12 for Overlap 12. If the overlap is not programmed for any phase, the phase stays red continuously. These overlaps are also affected by the current programming on MM-2-2, which gives you the added benefit of protected, lead and lag phase overlaps.

EPO changes several screens on the controller to accommodate the phase overlaps. These are explained below.

Applications

Some possible applications for EPO are listed below:

- Track clearance during railroad preemption. The track clearance phase has two sets of signals. The first set of signals stops traffic before the railroad tracks and the second set clears the vehicles between the tracks and the intersection. The first set of signals is phase overlaps and the preemptor is programmed to terminate overlaps as soon as possible. This forces the phase overlap phases to terminate before the preemptor starts the track clearance phases.
- When one set of signals should stop traffic with a solid red, while others are flashing red.
- Inside clearance phases for a diamond interchange.
- In a TS-1 or TS2 type 2 application, phase overlaps are used to reduce wiring changes in the cabinet. This lets you standardize troubleshooting procedures for technicians in terms of phase and direction.



AN2108: Enhanced Phase Overlap (EPO) Feature

Use of New EPO Screens

When the EPO feature is enabled, several screens and their defaults change. In the descriptions that follow, the changes to the screens and the new defaults are shown in **red**.

MM-1-3, Configurator Load Switch Assignment – When EPO is enabled, the default load switch assignments for Load Switches 1 thru 8 are Overlaps 1 thru 8.

LD	SWITCH PHASE /OVL	ASSIGN TYPE	DIMMING				---FLASH---		
			R	Y	G	D	PWR	AUT	TGR
1	1	O	.	.	.	+	X	.	.
2	2	O	.	.	.	+	X	.	.
3	3	O	.	.	.	+	X	.	.
4	4	O	.	.	.	+	X	.	.
5	5	O	.	.	.	+	X	.	.
6	6	O	.	.	.	+	X	.	.
7	7	O	.	.	.	+	X	.	.
8	8	O	.	.	.	+	X	.	.
9	2	P	.	.	.	+	X	.	.
10	4	P	.	.	.	+	X	.	.
11	6	P	.	.	.	+	X	.	.
12	8	P	.	.	.	+	X	.	.
13	13	O	.	.	.	+	X	.	.
14	14	O	.	.	.	+	X	.	.
15	15	O	.	.	.	+	X	.	.
16	16	O	.	.	.	+	X	.	.

MM-1-3 Default Programming for Load Switches



AN2108: Enhanced Phase Overlap (EPO) Feature

MM-2-2, Controller Vehicle Overlaps – With EPO, the default vehicle overlap assignments for the first 12 Vehicle Overlaps are labeled numerically* from 1 thru 12 and are numbered the same as the phase numbers—that is, Overlap 1 is programmed as Phase 1, etc. Overlaps 13 thru 16 are labeled as Overlaps A thru D respectively.

```

TMG VEH OVLP...[1] TYPE- OTHER
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED X . . . . .
PROTECT . . . . .
MODIFIER . . . . .
PED PRTC . . . . .
NOT OVLP . . . . .
FLSH GRN . . . . .
LAG X PH . . . . .
LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

```

MM-2-2 Programming for Vehicle Overlaps

* Without EPO, the 16 overlaps are labeled alphabetically from A thru P respectively.



AN2108: Enhanced Phase Overlap (EPO) Feature

MM-2-3, Controller Vehicle/Pedestrian Overlaps Programming – With EPO, the default vehicle overlap assignments for the first 12 Vehicle Overlaps are labeled numerically from 1 thru 12 and are numbered the same as the phase numbers—that is, Overlap 1 is programmed as Phase 1, etc. Overlaps 13 thru 16 are labeled as Overlaps A thru D respectively.

VEH/PED OVERLAPS																
INCLUDED	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
VEH OL 1	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
VEH OL 2	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
VEH OL 3	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.
VEH OL 4	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
VEH OL 5	X	.	.	.	.	.	.	.	.	.	.	.
VEH OL 6	X	.	.	.	.	.	.	.	.	.	.
VEH OL 7	X	.	.	.	.	.	.	.	.	.
VEH OL 8	X	.	.	.	.	.	.	.	.
VEH OL 9	X	.	.	.	.	.	.	.
VEH OL 10	X	.	.	.	.	.	.
VEH OL 11	X	.	.	.	.	.
VEH OL 12	X	.	.	.	.
VEH OL A	X	.	.	.
VEH OL B	X	.	.
VEH OL C	X	.
VEH OL D	X
PD OL 01
PD OL 02
PD OL 03
PD OL 04
PD OL 05
PD OL 06
PD OL 07
PD OL 08
PD OL 09
PD OL 10
PD OL 11
PD OL 12
PD OL 13
PD OL 14
PD OL 15
PD OL 16

MM-2-3 Default Programming for Vehicle Overlaps



ASC/3 Software

AN2108: Enhanced Phase Overlap (EPO) Feature

MM-2-5, Controller Start/Flash – With EPO, the labels for the overlaps are 1 thru 12 and A thru D, as shown below:

```

START/FLASH DATA
-----START UP-----
      1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
PHASE  . Y . . . Y . . . . . . . . . .
      1 2 3 4 5 6 7 8 9 0 1 2 A B C D
OVERLAP X X X X X X X X X X X X X X X X
FLASH>MON. NO FL TIME..255 ALL RED...255
PWR START SEQ.. 1
-----AUTOMATIC FLASH-----
      PHASE 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
ENTRY   . X . . . X . . . . . . . . . .
EXIT    . X . . . X . . . . . . . . . .
OVERLAP 1 2 3 4 5 6 7 8 9 0 1 2 A B C D
EXIT    X X X X X X X X X X X X X X X X
FLASH>MON. NO EXIT FL. W MIN FLASH. 8
MINIMUM RECALL. NO CYCLE THRU PHASE. NO

```

MM-2-5 Default Display for Start/Flash



ASC/3 Software

AN2108: Enhanced Phase Overlap (EPO) Feature

MM-4-1, Preempt Plans 1 thru 10 – With EPO, the labels for the overlaps are 1 thru 12 and A thru D, as shown below:

```

PREEMPT PLAN [ 1 ]
  VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
  OVERLAP 1 2 3 4 5 6 7 8 9 0 1 2 A B C D
  TRKCLR V . . . . .
  TRKCLR O . . . . .
  ENA TRL . . . . .
  DWEL VEH . . . . .
  DWEL PED . . . . .
  DWEL OLP . . . . .
  CYC VEH . . . . .
  CYC PED . . . . .
  CYC OLP . . . . .
  EXIT PH . . . . .
  EXIT CAL . . . . .
  SP FUNC . . . . . (1-8)

ENABLE.... NO|PMT OVRIDE.X|INTERLOCK NO
DET LOCK.. X|DELAY.. 0|INHIBIT... 0
OVERIDE FL. .|DURATION 0|CLR>GRN... NO
TERM OLP.ASAP|PC>YEL NO|TERM PH NO
PED DARK.. NO|TC RESRV. NO|DWELL FL LDSW
LINK PMT...0|X FLCOLR GRN|PMT> CRD. NO
X TMG PLN...0|RE-SERV.. 0|
FREE DUR PMT|R1 NO|R2 NO|R3 NO|R4 NO
--TIMING-----WALK|PED CL|MN GR|YEL|RED
ENTRANCE TM. 0|255|5|4.0|1.0
-----MIN GR|EXT GR|MX GR|YEL|RED
TRACK CLEAR 0|255|5|4.0|1.0
-----MIN DL|PMTEXT|MX TM|YEL|RED
DWL/CYC-EXIT 0|0.0|0|4.0|1.0
PMT ACTIVE OUT.. ON PMT ACT DWELL... NO
OTHER - PRI PMT.OFF NON-PRI PMT.....OFF

```

MM-4-1 Display



AN2108: Enhanced Phase Overlap (EPO) Feature

MM-7-1, Controller Status Display, and MM-7-3-1, Preemptor Status Display – With EPO, the labels for the overlaps are changed from VEH OVL to PHS OVL, as shown below:

```

CONTROL[CORD SYS P120] MM/DD/YY|HH:MM:SS
  PHASE 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
  PH STAT . G R R G R R R - - - - -
  PHS OVL R G R - - - - -
  PED OVL - D - C - D - D - - - - -
  VEH CALL . I I . . . . .
  PED CALL . . . . .
  PLAN SPLT:.. |TP:.. |SEQ:.. |ACT:  |DP:
  R1/PH 04|R2/PH 08|R3/PH ..|R4/PH ..
  MGR1 0.0|YEL 0.0|INACTIVE|INACTIVE
  PDCL 12.0|FORCE OFF|
  DEN00/000|DEN00/000|DEN00/000|DEN00/000
  MAX 00.0|MAX 00.0|MAX 00.0|MAX 00.0
  OLA G . |OLB Y 2.9|OLC R . |OLD R .
  FUNCTION 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
  LP FLAG . A . . . A . . . . .

```

MM-7-1 Controller Status Display

```

PREEMPT[CORD SYS P120] MM/DD/YY|HH:MM:SS
  PHASE 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
  PH STAT R G R R G R R R - - - - -
  PHS OVL R O R G - - - - -
  PED OVL - D - D - D - D - - - - -
  VEH CALL . I I . . . . .
  PED CALL . . . . .
  LC: 6s/ 0|SYS CYC: 0s|COS 111|COORD
  R1/PH 4|R2/PH 8|R3/PH .|R4/PH .
  NOT PMT | CLR TRK | CYCLING | DWELL
  MGR1 0.0|YEL 0.0|RED REST|RED REST
  PDCL 12.0|FORCE OFF|
  FUNCTION 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
  PMT/TSP
  LP FLAG . A . . . A . . . . .

```

MM-7-3-1 Preemptor Status Display

Preemption Operation – With the EPO feature, if the function Preempt Terminate Phase Option is enabled, then any Phase Overlap must clear before you enter the track clearance phases.