

OPERATIONS SHEET FOR PC WITH GM+

Location: Ang Mo Kio Ave 10 PC near Blk 532

Int. No: 9361

Prepared by: Chen Eng Heng

Date: 26 / 10 / 2016

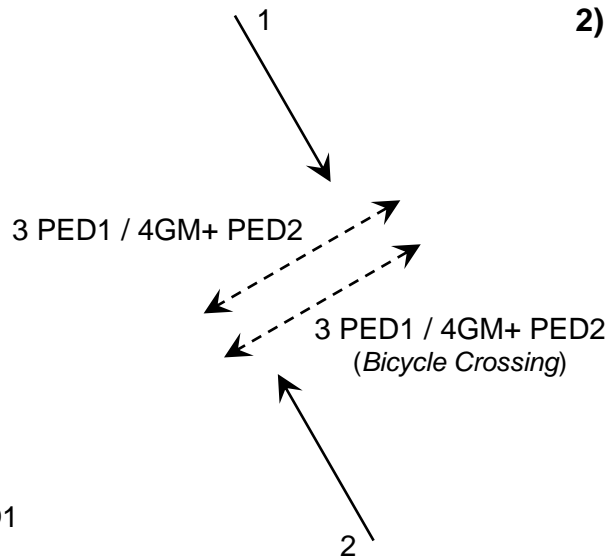
Signal ID: 840

Checked by: Low Thiam Teck

Approved by: Simon Ho

1) Upgrade Controller

**2) Add Bicycle Crossing
on Site (28/09/2021)**



SG4 – GM+ PED2 for PED1
SG5 – Audio Tactile

PED 7 – GM+ fault monitoring

Ang Mo Kio Ave 10

PB 1
GM+ 2
SAVH 3

*Bicycle
Crossing*

PB 1
GM+ 2
SAVH 3

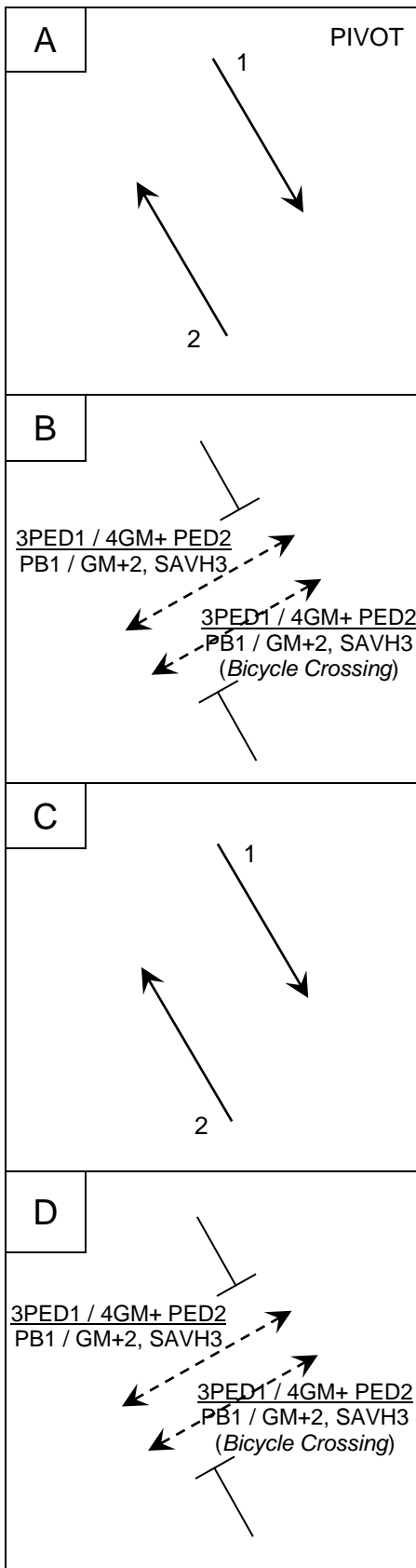
Blk 532

Ang Mo Kio Ave 10

PHASING DIAGRAM

Location: Ang Mo Kio Ave 10 PC near Blk 532

Int. No: 9361



NOTES:

- If phase change switch is equal or more than TSM 15, controller will send out MSS15 flag.
- A & C phases are placed on permanent demand in all modes.
- PED1 is introduced when Push Button PB1, GM+2, SAVH3 is activated.
- In Police Control Mode, running A and B phase only.
- In Masterlink Mode, if Y- flag is on PED1 is Auto Called.
- In Flexilink Mode, if Y+ flag is on PED1 is Auto Called.
- GM+, PED2 will be hidden.
- Any GM+ fault => PED 7, **PB will be Faulty.**
- SG 5 Audio Tactile is controlled by Z+ Flag.

DETECTOR FUNCTION

Location: Ang Mo Kio Ave 10 PC near Blk 532

Int. No: 9361

| DETECTOR NO | CALL PHASE | LOCKING | NON LOCKING | SET VIG ON PHASE | EXTEND PHASE | SPECIAL | | DETECTOR ALARMS | | | PLAN REFERENCE |
|-------------|------------|---------|-------------|------------------|--------------|-----------------------------|--|------------------|-----------|---------|----------------|
| | | | | | | | | FAULT SIMULATION | | | |
| | | | | | | | | CALL & EXTEND | CALL ONLY | DISABLE | |
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | A | | | | | VS for PB, GM+ & SAVH | | | | ✓ | |
| 13 | A | | | | | VS for GM+ | | | | ✓ | |
| 14 | A | | | | | VS for SAVH | | | | ✓ | |
| 15 | | | | | | PHASE CHANGE SWITCH | | | | ✓ | |
| 16 | | | | | | POLICE CONTROL SWITCH | | | | ✓ | |
| PB1 | B/D | ✓ | | | | PUSH BUTTON PED1 | | | ✓ | | |
| PB2 | B/D | ✓ | | | | GM+ PED2 for PED1 | | | ✓ | | |
| PB3 | B/D | ✓ | | | | SAVH PED2 for PED1 | | | ✓ | | |
| PB4 | | | | | | | | | | | |
| PB5 | | | | | | | | | | | |
| PB6 | | | | | | | | | | | |
| PB7 | | | | | | | | | | | |
| PB8 | | | | | | | | | | | |
| PB9 | | | | | | | | | | | |
| PB10 | A | | | | | GM+ Fault Monitoring (PED7) | | | | | |

Tick if detector failure causes
an alarm on det. 16

INTERGREEN, PEDESTRIAN TIMES AND SPECIAL FUNCTIONS

Location: Ang Mo Kio Ave 10 PC near Blk 532 Int. No: 9361

| PHASE | CLEARANCE MOVEMENT | CLEARANCE DISTANCE | INTERGREEN | | |
|-------|--------------------|--------------------|------------|-----|-------|
| | | | AMBER | RED | TOTAL |
| A | | | 3 | 3 | 6 |
| B | | | 3 | | 3 |
| C | | | 3 | 3 | 6 |
| D | | | 3 | | 3 |
| E | | | | | |
| F | | | | | |
| G | | | | | |

| PED NO. | PHASE | WALK | | CLEARANCE TIME | |
|------------|-------|--------------|------------|----------------|---|
| | | DISTANCE (m) | GREEN TIME | 1 | 2 |
| 1 | B/D | 15.5 | 6 | 16 | |
| 2 (GM+) | B/D | 15.5 | 6 | 20 | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |

Pedestrian Walking Speed: 1.0 m/s

(Walk Cycle Ride SG2016)

GM+ Walking Speed: 0.8 m/s

(GM+ Minimum +3 Sec)

SPECIAL FACILITIES

| SIGNAL GROUP | HOUR | MINUTE | SECOND | FUNCTION | REMARKS |
|--------------|------|--------|--------|-------------------|---------------|
| SG5 | 21 | 00 | 00 | Audio Tactile OFF | Control by Z+ |
| | 07 | 00 | 00 | Audio Tactile ON | |
| | | | | | |
| | | | | | |

Notes: 0700 to 2100 Every Day: Always set Z+ "ON"

2100 to 0700 Every Day: If SAVH was demanded, Audio Tactile will turn on once.

PRE-EMPTION

| SIGNAL GROUP | PHASE | FUNCTION | REMARKS |
|--------------|-------|----------|---------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

CONTROLLER TIMESETTING

Location: Ang Mo Kio Ave 10 PC near Blk 532

Int. No: 9361

| | PHASE | A | B | C | D | |
|-----------------|----------|----|---|----|---|--------------|
| | INTERVAL | 1 | 2 | 3 | 4 | <u>Range</u> |
| RED/YELLOW | 1 | | | | | 0 – 5 |
| LATE START | 2 | | | | | 0 – 20 |
| MINIMUM GREEN | 3 | 10 | 6 | 14 | 6 | 5 – 20 |
| INCREMENT | 4 | | | | | 0 – 5 |
| MAX. V. I. G. | 5 | | | | | 0 – 40 |
| MAX. EXT. GREEN | 6 | 47 | | 0 | | 0 – 150 |
| EARLY CUT-OFF | 7 | | | | | 0 – 20 |
| AMBER | 8 | 3 | 3 | 3 | 3 | 3 – 7 |
| ALL RED | 9 | 3 | | 3 | | 0 – 15 |
| SPECIAL ALL RED | 10 | | | | | 0 – 15 |
| GAP 1 | 11 | | | | | 0 – 10 |
| GAP 2 | 12 | | | | | 0 – 10 |
| GAP 4 | 14 | | | | | 0 – 10 |
| HEADWAY 1 | 15 | | | | | 0 – 5 |
| HEADWAY 2 | 16 | | | | | 0 – 5 |
| HEADWAY 3 | 17 | | | | | 0 – 5 |
| HEADWAY 4 | 18 | | | | | 0 – 5 |
| WASTE 1 | 19 | | | | | 0 – 50 |
| WASTE 2 | 20 | | | | | 0 – 50 |
| WASTE 3 | 21 | | | | | 0 – 50 |
| WASTE 4 | 22 | | | | | 0 – 50 |
| MAXIMUM 1 | 23 | | | | | 0 – 150 |
| MAXIMUM 2 | 24 | | | | | 0 – 150 |
| MAXIMUM 3 | 25 | | | | | 0 – 150 |
| MAXIMUM 4 | 26 | | | | | 0 – 150 |

**ALTERNATE TIME
SETTING
(RANGE 0-200)
(‘B’ ENTER)**

| ALT. NO | TIME |
|---------|--------|
| 11 | 32 Sec |
| 12 | |
| 13 | |
| 14 | |
| 15 | 50 Sec |
| 16 | |
| *17 GM+ | 20 Sec |
| 18 | |
| 19 | |
| 20 | 5 Sec |

Maximum V. A. Cycle Time: _____



In Flexilink Operation, If Z- flag = C (255), A phase = TSM 11



In Isolated Operation, A phase = Max. Ext. Green

| | Pedestrian NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
|-------------|----------------|----|-----------|----|----|----|----|----|----|--------------|
| | Interval | 17 | 18 GM+ | 19 | 20 | 21 | 22 | 23 | 24 | <u>Range</u> |
| Delay | 1 | | | | | | | | | 0 - 20 |
| Walk | 2 | 6 | 6 | | | | | | | 0 - 40 |
| Clearance 1 | 3 | 16 | 20 | | | | | | | 0 - 40 |
| Clearance 2 | 4 | | | | | | | | | 0 - 10 |
| DAC | | 7 | 7 | | | | | 7 | | |

CO-ORDINATION DATA

Location: Ang Mo Kio Ave 10 PC near Blk 532 Int. No: 9361

SPECIAL FUNCTIONS

| SIGNAL | FUNCTION |
|-----------|--|
| Y- FLEXI | Continuous |
| Y- MASTER | Auto call Push Button PED1 |
| Y+ FLEXI | |
| Z- FLEXI | Continuous A Phase Runs TSM11 Alternate Time Setting |
| Z- MASTER | |
| Z+ FLEXI | Set Audio Tactile SG5 "ON" |
| Z+ MASTER | |
| R- FLEXI | |
| R+ FLEXI | |
| Q- FLEXI | |
| Q+ FLEXI | |
| Z1 MASTER | |
| Z MASTER | |
| Z MASTER | |
| Z MASTER | |

LOOK AHEADS AND RELEASES

| Phase Sequence 1 | | | Phase Sequence 2 | | |
|------------------|------------|---------|------------------|------------|---------|
| PHASE | LOOK AHEAD | RELEASE | PHASE | LOOK AHEAD | RELEASE |
| A | NO | | A | | |
| B | NO | Auto | B | | |
| C | NO | | C | | |
| D | Yes to A | Auto | D | | |
| E | | | E | | |
| F | | | F | | |
| G | | | G | | |

The following phases can be inhibited in Flexilink by omitting the call pulses in the plan data _____

| NO | PHASE SEQUENCE |
|---------|----------------|
| 1 (No) | A B C D |
| 2 () | |

GLIDE INTERSECTION DATA

Location: Ang Mo Kio Ave 10 PC near Blk 532 Int. No: 9361

Note: The data shown on this page should be entered when the intersection is first placed on line. This data is not necessarily used for Master Link operation.

SLOT 64 = 4, 1, 2 E.g. x, y, z. x = No of Phases y = No of Split Plans z = No of PEDs

| | | |
|------------|-----------------|-------|
| INT = 9361 | Date: | Date: |
| VC = | PP1 = -8, -8 ^A | PP1 = |
| CS = | PP2 = 5, 5 ^A | PP2 = |
| COM = 66 | PP3 = -5, -5 ^A | PP3 = |
| PK = | PP4 = -5, -5 ^A | PP4 = |
| S# = 30 | | |

Note: Always LM = F initially

Variation Parameter (VP)

| | | | | |
|-------|--------|--------|--------|--------|
| VP1 = | VP8 = | VP15 = | VP22 = | VP29 = |
| VP2 = | VP9 = | VP16 = | VP23 = | VP30 = |
| VP3 = | VP10 = | VP17 = | VP24 = | VP31 = |
| VP4 = | VP11 = | VP18 = | VP25 = | VP32 = |
| VP5 = | VP12 = | VP19 = | VP26 = | VP33 = |
| VP6 = | VP13 = | VP20 = | VP27 = | VP34 = |
| VP7 = | VP14 = | VP21 = | VP28 = | VP35 = |

| | | |
|----------|-------|-------|
| W1 = 0 | W4 = | |
| W1T = 19 | W4T = | P- P+ |
| W2 = 0 | W5 = | |
| W2T = 23 | W5T = | P- P+ |
| W3 = | W6 = | |
| W3T = | W6T = | P- P+ |

SPLIT PLANS

| | | 1 | 2 | 3 | 4 | | | | | 5 | 6 | 7 | 8 |
|---|-----------------|-------|---|---|---|--|--|--|--|---|---|---|---|
| | SF | | | | | | | | | | | | |
| | FEATURES | | | | | | | | | | | | |
| A | 0 FG NG PD B | 0 B | | | | | | | | | | | |
| B | FS C | 25# C | | | | | | | | | | | |
| C | FG NG PD D | 20# D | | | | | | | | | | | |
| D | A | 25# A | | | | | | | | | | | |
| E | | | | | | | | | | | | | |
| F | | | | | | | | | | | | | |
| G | | | | | | | | | | | | | |

PLAN DATA

Location: Ang Mo Kio Ave 10 PC near Blk 532 Int. No: 9361

PLAN

('E' ENTER)

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----|--------------------|----|----|---|----|---|----|----|---|---|----|
| 0 | CL | 75 | 60 | | 75 | | 60 | 60 | | | |
| 1 | A | 39 | 45 | | 39 | | 45 | 45 | | | |
| 2 | B | 2 | 8 | | 2 | | 8 | 8 | | | |
| 3 | C | 37 | 43 | | 37 | | 43 | 43 | | | |
| 4 | D | 38 | 44 | | 38 | | 44 | 44 | | | |
| 5 | E | | | | | | | | | | |
| 6 | F | | | | | | | | | | |
| 7 | G | | | | | | | | | | |
| 8 | R- | | | | | | | | | | |
| 9 | R+ | | | | | | | | | | |
| 10 | Y- | C | C | | C | C | C | C | | | |
| 11 | Y+ | | | | | | | | | | |
| 12 | Z- | | | | | C | | | | | |
| 13 | Z+ | C | C | | C | N | N | C | | | |
| 14 | Q- | | | | | | | | | | |
| 15 | Q+ | | | | | | | | | | |
| 16 | XSF (9-16)* | | | | | | | | | | |
| 17 | XSF (1-8)* | | | | | | | | | | |

* A digit hexadecimal number which signifies which XSF bits are used; e.g. AO signifies bits 14 & 16 are set.

NOTE: C = Continuous (255) N = Not Used (254)

PLAN SCHEDULE

('F' ENTER)

| CODE | HOUR | MINUTE | PLAN |
|----------|-----------|----------|----------|
| 8 | 0 | 0 | 5 |
| 8 | 7 | 0 | 1 |
| 8 | 9 | 0 | 7 |
| 8 | 12 | 0 | 2 |
| 8 | 17 | 0 | 4 |
| 8 | 21 | 0 | 6 |
| 8 | 23 | 0 | 5 |
| 7 | 0 | 0 | 5 |
| 7 | 7 | 0 | 1 |
| 7 | 9 | 0 | 7 |

| CODE | HOUR | MINUTE | PLAN |
|----------|-----------|----------|----------|
| 7 | 12 | 0 | 4 |
| 7 | 15 | 0 | 2 |
| 7 | 21 | 0 | 6 |
| 7 | 23 | 0 | 5 |
| 1 | 0 | 0 | 5 |
| 1 | 7 | 0 | 7 |
| 1 | 9 | 0 | 7 |
| 1 | 14 | 0 | 2 |
| 1 | 21 | 0 | 6 |
| 1 | 23 | 0 | 5 |

Pedestrian and Vehicle Signal Groups Interlock Table

Location: Ang Mo Kio Ave 10 PC near Blk 532

Int. No: 9361

| | Phase A | Phase B | Phase C | Phase D | Phase E | Phase F | Phase G |
|-----------------------|---------------|---------|---------|---------|---------|---------|---------|
| SG 1 | SGAR | RED | SGAR | RED | | | |
| SG 2 | SGAR | RED | SGAR | RED | | | |
| SG 3 | DON'T | WALK | DON'T | WALK | | | |
| SG 4 (GM+) | DON'T | WALK | DON'T | WALK | | | |
| SG 5 | AUDIO TACTILE | | | | | | |
| SG 6 | | | | | | | |
| SG 7 | | | | | | | |
| SG 8 | | | | | | | |
| SG 9 | | | | | | | |
| SG 10 | | | | | | | |
| SG 11 | | | | | | | |
| SG 12 | | | | | | | |
| SG 13 | | | | | | | |
| SG 14 | | | | | | | |
| SG 15 | | | | | | | |
| SG 16 | | | | | | | |

Legend:

| | |
|-------|---|
| GAR | Green, Amber, Red |
| GEAR | Green, Amber, Red (With ECO) |
| RED | Red |
| SGRN | Special Green |
| SOFF | Special Off |
| WALK | PED Walk, Clearance 1 and Clearance 2 |
| SWALK | Special PED Walk, Clearance 1 and Clearance 2 |
| DON'T | PED Red |

Signal Groups Conflict MatrixLocation: Ang Mo Kio Ave 10 PC near Blk 532 Int. No: 9361

('C16' ENTER)

| SG | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| 1 | | | X | X | | | | | | | | | | | | |
| 2 | | | X | X | | | | | | | | | | | | |
| 3 | X | X | | | | | | | | | | | | | | |
| 4 | X | X | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | |