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③

SJMP MainLoop

$MC_{iteration} = 5 \cdot MC_{checkbtn} + MC_{post\ processing} + 2$

$= 5(11) + (18) + 2$

$MC_{iteration} = 75\ MC$ (while alarm sounding)

$\frac{1844}{75} \approx 25 = R4$

1s delay → 3686500 MC $\quad \frac{3686500}{1844} \approx 2000$

40 = R1, 50 = R2

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④

$t_{mc} = \left(\frac{2cc}{1MC}\right)\left(\frac{1s}{7.373 \cdot 10^6 cc}\right) = 2.7126 \cdot 10^{-7}\ s/MC$

$\left[\frac{s}{\frac{s}{MC}}\right] = [MC]$

$t_{od} = t_{mc} \cdot x, \quad x = \frac{t_{od}}{t_{mc}}$

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500 Hz → $\frac{1}{500}s = .002s \rightarrow .001s$ / half period

1000 Hz → $\frac{1}{1000}s = .001s \rightarrow .0005s$ / half period

oscillation

$x = \frac{.001}{2.7126 \cdot 10^{-7}} = 3686.5\ MC \approx 3687\ MC$

$x = \frac{.0005}{2.7126 \cdot 10^{-7}} = 1843.25\ MC \approx 1844 MC$

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alarm duration

$x = \frac{1}{2.7126 \cdot 10^{-7}} = 3686500\ MC$

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⑤

$\frac{1844}{75} \approx 25 = R4$

1s delay → 3686500 MC $\quad \frac{3686500}{1844} \approx 2000$

40 = R1, 50 = R2

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① step by step

Lcall (2)

MOV (1)

JB (2)

NOP (1) / NOP (1) / JNB (2) — SETB (1) / MOV (1) / SJMP (2) } 4

RET (2)

$MC_{checkbtn} = 2 + 1 + 2 + 4 + 2 = 11\ MC$

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②

MC_{post}

(post processing)

Lcall (2)

Lcall (2) (delay) } 4

MOV (1)

JZ (2) — NOPx1

MOV (1) / JZ (2) / DEC (1) / DEC (1) / MOV (1) / SJMP (2) } 9

MOV (1) / JNZ (2) / DEC (1) / CPL (1) / MOV (1) / DEC (1) / SJMP (2) } 6 + 3

NOPx3 / DEC (1) / SJMP (2)

12

18 MC

RET (2) } 4

RET (2)