

# GS1-A version 1.1.2 BOM

Part substitution is fine, if you have lots of 1% resistors, then go for it.

The only thing to watch is the height of electrolytics, low profile ones can be used

However standard 11mm electrolytics can be used, **IN ALL BUT ONE (C5)**, just lay them flat against the board (where space permits) or place them at 45degrees to the board.

Voltages also not an issue, anything over 16v should be good, maybe 25v for the 47uF in the power filtering.

Standard 11mm clearance between the two boards, so just keep that in mind.

If you are sourcing your own transistors, Aliexpress has loads of modern 1015,1815 etc, I've tested these and they work fine

In the Mouser column, I've either placed a part number or search terms. Due to part shortages etc, using that string will find you suitable parts to choose from what is in stock etc.

**NOTE:** The kit includes footprints for both BA662 and BA6110 - you only need to fit one of these based on the op-amp you plan to use.

Components in blue are on the upper control board.

these are included in the partial DIY kit

| Value | Count | Location | Mouser | Alternatives | Notes |
|-------|-------|----------|--------|--------------|-------|
|-------|-------|----------|--------|--------------|-------|

## Resistors

### 5% Carbon 1/4W

|      |   |                             |                              |  |  |
|------|---|-----------------------------|------------------------------|--|--|
| 560R | 3 | R9,R10,R32                  | Search "CFR 100ohm 1/4w" etc |  |  |
| 1K   | 3 | R13,R20,R31                 |                              |  |  |
| 1.5K | 2 | R30,R41                     |                              |  |  |
| 2.2K | 1 | R39                         |                              |  |  |
| 2.4K | 1 | R300                        |                              |  |  |
| 3.3K | 1 | R15                         |                              |  |  |
| 6.8K | 1 | R27                         |                              |  |  |
| 8.2K | 1 | R23                         |                              |  |  |
| 10K  | 7 | R12,R14,R26,R29,R37,R33,R34 |                              |  |  |
| 15K  | 4 | R16,R22,R25,R28             |                              |  |  |
| 22K  | 1 | R18                         |                              |  |  |
| 33K  | 1 | R11                         |                              |  |  |
| 47K  | 1 | R19                         |                              |  |  |
| 68K  | 1 | R17                         |                              |  |  |
| 100K | 6 | R21,R35,R38,R4,R5,R6        |                              |  |  |
| 150K | 2 | R24,R7                      |                              |  |  |
| 180K | 3 | R1,R2,R3                    |                              |  |  |
| 220K | 1 | R40                         |                              |  |  |
| 1M   | 2 | R8,R36                      |                              |  |  |

## Capacitors

### MLCC

|      |   |           |                   |  |                   |
|------|---|-----------|-------------------|--|-------------------|
| 47p  | 1 | C2        | mlcc leaded 47pf  |  | 2.5mm leg spacing |
| 100n | 2 | C303,C304 | mlcc leaded 0.1uf |  | 2.5mm leg spacing |

### Polyester (Nichicon QYX)

|     |   |        |              |  |                 |
|-----|---|--------|--------------|--|-----------------|
| 10n | 1 | C4     | qyx 10nf 50v |  | 5mm leg spacing |
| 47n | 2 | C6,C17 | qyx 10nf 50v |  | 5mm leg spacing |

| Electrolytic |             |                 |  |   |
|--------------|-------------|-----------------|--|---|
| 1u/50        | 1 C5        | ESS105M050AB2AA |  | Must be low profile!  |
| 10u/25 BP    | 2 C1,C3     | UVP1E100MDD1TD  |  | BI-POLAR!!!   |
| 47u/25       | 2 C300,C301 |                 |  | Low profile, but normal 11mm will fit laying flat as marked |

| Diodes  |               |            |  |                      |
|---------|---------------|------------|--|----------------------|
| 1SS133M | 4 D1,D2,D3,D4 | 1SS133M    |  |                      |
| 1N5817  | 2 D301,D302   | 511-1N5817 |  |                      |
| 3mm LED | 1 D5          | Red        |  | Any standard 3mm LED |
| 3mm LED | 1 D6          | Blue       |  | Any standard 3mm LED |

| IC     |        |               |        |  |
|--------|--------|---------------|--------|--|
| 4558   | 1 IC3  | RC4558P       |        | Any variant of the 4558 op amp   |
| BA6110 | 1 IC1B | NOS rare part | BA662  | Included in partial kit  |
| BA662  | 1 IC1A | OML clone     | BA6110 | For alternate build - requires 1x OML BA662 clone boards, use pin strip and bend clone parallel to PCB |

To be clear, you either need 1x BA6110 or 1x BA662 - you do not need both.

| Transistors |                       |               |                |                         |
|-------------|-----------------------|---------------|----------------|-------------------------|
| 2SK30A-GR   | 1 Q1                  | NOS rare part | 2SK30A         | Most variants will work |
| 2SA1015     | 4 Q3,Q5,Q6,Q7         | NOS rare part | 2SA733,2SA1115 |                         |
| 2SC1815     | 6 Q2,Q4,Q9,Q10,Q8,Q11 | NOS rare part | 2SC945,2SC2603 |                         |

These are provided in the partial kit option.

| Trimmer |        |                   |  |      |
|---------|--------|-------------------|--|------|
| 1M      | 1 VR10 | 652-3362P-1-105LF |  | 3362 |
| 100K    | 1 VR8  | 652-3362P-1-104LF |  | 3362 |
| 20K     | 1 VR9  | 652-3362P-1-203LF |  | 3362 |

| Misc   |  |                     |                   |   |
|--------|--|---------------------|-------------------|---|
| A100K  | 3 VR1-IN1,VR2-IN2,VR3-IN3<br>VR4-MOD1,VR5-MOD2, VR6-MOD3, VR7- | Thonk etc           |                   | Song Heui tall trimmer pot                |
| B100K  | 4 GAIN   | Thonk etc           |                   | Song Heui tall trimmer pot                |
| PJ301M | 9 U1-U9  | Thonk etc           |                   | Thonkiconn                                |
| ON-ON  | 1 SW1  | 612-200MSP1T1B1M2RE | Thonk cheaper etc | Sub-mini on-on switch                     |
| PWR    | 1 SV1  |                     |                   | 10pin euro power header or 2x5 pin header |
| 1x5    | 1 JP1  |                     |                   | 1x5 male header                           |
| 1x3    | 1 JP2  |                     |                   | 1x3 male header                           |
| 1x4    | 1 JP3  |                     |                   | 1x4 male header                           |
| 1x5    | 1 JP1  |                     |                   | 1x5 female header                         |
| 1x3    | 1 JP2  |                     |                   | 1x3 female header                         |
| 1x4    | 1 JP3  |                     |                   | 1x4 female header                         |
| 11mm   | 3 Standoff   |                     |                   |   |
| 3mm    | 6 Screws for standoff  |                     |                   |   |

PCBS