

Bill of Materials for ES24 - Programmer Extension Component Kit V0.0 - Stage 1

Item	Description	Qty	Designator	Package
CAPACITOR				
1	470pF 5% C0G	1	C101	RAD-0.2N
2	10nF 63V Polyester	1	C102	RAD-0.2
3	22nF 63V Polyester	1	C103	RAD-0.2
CONNECTOR				
4	1x2 Pin 20mm Header	1	D103	2.54MM
5	1x4 Pin 20mm Header	3	S101, S102, S103	-
6	IDC20 RA Box Header	1	J201	-
DIODE				
7	1N4148	5	D101, D102, D104, D105, D106	DIODE-0.3
OPTO-ELECTRONIC				
8	3mm Yellow LED	1	D103	2MA
POTENTIOMETER				
9	100KB LIN - 18T Spline	3	P101, P102, P103	ALPHA 16MM
RESISTOR				
10	1K0 1% 0.5W Metal Film	1	R112	AXIAL-0.4
11	1K2 1% 0.5W Metal Film	1	R110	AXIAL-0.4
12	1K3 1% 0.5W Metal Film	1	R111	AXIAL-0.4
13	47K 1% 0.5W Metal Film	3	R101, R102, R109	AXIAL-0.4
14	100K 1% 0.5W Metal Film	1	R104	AXIAL-0.4
15	150K 1% 0.5W Metal Film	3	R105, R106, R108	AXIAL-0.4
16	220K 1% 0.5W Metal Film	3	R113, R114, R115	AXIAL-0.4
17	470K 1% 0.5W Metal Film	1	R107	AXIAL-0.4
18	1M0 1% 0.5W Metal Film	1	R103	AXIAL-0.4
SWITCH				
19	SPDT PB PCB RAEXT [ON-MOM]	1	S103	-
20	SPDT PCB RAEXT [ON-OFF-ON]	2	S101, S102	-

Bill of Materials for ES24 - Programmer Extension Component Kit V0.0 - Stage2

Item	Description	Qty	Designator	Package
CAPACITOR				
1	470pF 5% C0G	1	C101	RAD-0.2N
2	10nF 63V Polyester	1	C102	RAD-0.2
3	22nF 63V Polyester	1	C103	RAD-0.2
CONNECTOR				
4	1x2 Pin 20mm Header	1	D103	2.54MM
5	1x4 Pin 20mm Header	3	S101, S102, S103	-
6	IDC20 RA Box Header	1	J201	-
DIODE				
7	1N4148	5	D101, D102, D104, D105, D106	DIODE-0.3
OPTO-ELECTRONIC				
8	3mm Yellow LED	1	D103	2MA
POTENTIOMETER				
9	100KB LIN - 18T Spline	3	P101, P102, P103	ALPHA 16MM
RESISTOR				
10	1K0 1% 0.5W Metal Film	1	R112	AXIAL-0.4
11	1K2 1% 0.5W Metal Film	1	R110	AXIAL-0.4
12	1K3 1% 0.5W Metal Film	1	R111	AXIAL-0.4
13	47K 1% 0.5W Metal Film	3	R101, R102, R109	AXIAL-0.4
14	100K 1% 0.5W Metal Film	1	R104	AXIAL-0.4
15	150K 1% 0.5W Metal Film	3	R105, R106, R108	AXIAL-0.4
16	220K 1% 0.5W Metal Film	3	R113, R114, R115	AXIAL-0.4
17	470K 1% 0.5W Metal Film	1	R107	AXIAL-0.4
18	1M0 1% 0.5W Metal Film	1	R103	AXIAL-0.4
SWITCH				
19	SPDT PB PCB RAEXT [ON-MOM]	1	S103	-
20	SPDT PCB RAEXT [ON-OFF-ON]	2	S101, S102	-

Bill of Materials for ES24 - Programmer Extension Component Kit V0.0 - Stage2

Item	Description	Qty	Designator	Package
	TRANSISTOR			
21	BC557B PNP Transistor	3	Q101, Q102, Q103	TO-92
22	BC547B NPN Transistor	1	Q104	TO-92

Bill of Materials for ES24 - Programmer Extension Component Kit V0.0 - Stage3

Item	Description	Qty	Designator	Package
CAPACITOR				
1	470pF 5% C0G	1	C101	RAD-0.2N
2	10nF 63V Polyester	1	C102	RAD-0.2
3	22nF 63V Polyester	1	C103	RAD-0.2
CONNECTOR				
4	1x2 Pin 20mm Header	1	D103	2.54MM
5	1x4 Pin 20mm Header	3	S101, S102, S103	-
6	IDC20 RA Box Header	1	J210	-
DIODE				
7	1N4148	5	D101, D102, D104, D105, D106	DIODE-0.3
HARDWARE				
8	9mm Earth Tag	1	P101	-
OPTO-ELECTRONIC				
9	3mm Yellow LED	1	D103	2MA
POTENTIOMETER				
10	100KB LIN - 18T Spline	3	P101, P102, P103	ALPHA 16MM
RESISTOR				
11	1K0 1% 0.5W Metal Film	1	R112	AXIAL-0.4
12	1K2 1% 0.5W Metal Film	1	R110	AXIAL-0.4
13	1K3 1% 0.5W Metal Film	1	R111	AXIAL-0.4
14	47K 1% 0.5W Metal Film	3	R101, R102, R109	AXIAL-0.4
15	100K 1% 0.5W Metal Film	1	R104	AXIAL-0.4
16	150K 1% 0.5W Metal Film	3	R105, R106, R108	AXIAL-0.4
17	220K 1% 0.5W Metal Film	3	R113, R114, R115	AXIAL-0.4
18	470K 1% 0.5W Metal Film	1	R107	AXIAL-0.4
19	1M0 1% 0.5W Metal Film	1	R103	AXIAL-0.4

Bill of Materials for ES24 - Programmer Extension Component Kit V0.0 - Stage 4

Item	Description	Qty	Designator	Package
CAPACITOR				
1	470pF 5% C0G	1	C101	RAD-0.2N
2	10nF 63V Polyester	1	C102	RAD-0.2
3	22nF 63V Polyester	1	C103	RAD-0.2
CONNECTOR				
4	1x2 Pin 20mm Header	1	D103	2.54MM
5	1x4 Pin 20mm Header	3	S101, S102, S103	-
6	IDC20 RA Box Header	1	J201	-
DIODE				
7	1N4148	5	D101, D102, D104, D105, D106	DIODE-0.3
OPTO-ELECTRONIC				
8	3mm Yellow LED	1	D103	2MA
POTENTIOMETER				
9	100KB LIN - 18T Spline	3	P101, P102, P103	ALPHA 16MM
RESISTOR				
10	1K0 1% 0.5W Metal Film	1	R112	AXIAL-0.4
11	1K2 1% 0.5W Metal Film	1	R110	AXIAL-0.4
12	1K3 1% 0.5W Metal Film	1	R111	AXIAL-0.4
13	47K 1% 0.5W Metal Film	3	R101, R102, R109	AXIAL-0.4
14	100K 1% 0.5W Metal Film	1	R104	AXIAL-0.4
15	150K 1% 0.5W Metal Film	3	R105, R106, R108	AXIAL-0.4
16	220K 1% 0.5W Metal Film	3	R113, R114, R115	AXIAL-0.4
17	470K 1% 0.5W Metal Film	1	R107	AXIAL-0.4
18	1M0 1% 0.5W Metal Film	1	R103	AXIAL-0.4
SWITCH				
19	SPDT PB PCB RAEXT [ON-MOM]	1	S103	-
20	SPDT PCB RAEXT [ON-OFF-ON]	2	S101, S102	-

Bill of Materials for ES23 - Sequence Programmer Component Kit V0.3

Item	Description	Qty	Designator	Package
CAPACITOR				
1	47pF 5% Ceramic	6	C201, C202, C211, C212, C221, C222	RAD-0.2N
2	10nF 63V Polyester	4	C101, C102, C103, C104	RAD-0.2
3	100nF Ceramic Capacitor	6	C303, C304, C305, C306, C307, C308	RAD-0.2N
4	10uF 35V Electrolytic	2	C301, C302	RB-D5.0-P2.0
CONNECTOR				
5	1x4 Pin 9mm Header	3	J201, J202, J203	2.54MM
6	1x4 Pin 20mm Header	2	J102, J104	-
7	IDC16 Box Header	1	J301	2.54MM
8	IDC20 RA Box Header	1	J302	-
			NB: Cut pin 16	
9	8-pin IC Socket 0.3inch	2	U101, U202	DIP-8
10	14-pin IC Socket 0.3inch	1	U201	DIP-14
11	Jumper Shunt	2	JP1, JP2	2.54mm
DIODE				
12	1N4148	2	D101, D102	DIODE-0.3
HARDWARE				
13	9mm Earth Tag	1	PANEL_GND	-
LINEAR				
14	TL074 Quad JFET Opamp	1	U201	DIP-14
15	LM393 - Dual Comparator	1	U101	DIP-8
16	TL072 Dual JFET Opamp	1	U202	DIP-8
INDUCTOR				
17	Ferrite Bead - 0.45uH 7A	2	L301, L302	-
RESISTOR				
18	330R 1% 0.5W Metal Film	3	R204, R214, R224	AXIAL-0.4
19	1K0 1% 0.5W Metal Film	4	R108, R120, R125, R130	AXIAL-0.4

Bill of Materials for ES23 - Sequence Programmer Component Kit V0.3

Item	Description	Qty	Designator	Package
	RESISTOR - continued			
20	1K3 1% 0.5W Metal Film	2	R107, R119	AXIAL-0.4
21	2K2 1% 0.5W Metal Film	2	R124, R129	AXIAL-0.4
22	10K 1% 0.5W Metal Film	4	R110, R111, R112, R128	AXIAL-0.4
23	22K 1% 0.5W Metal Film	1	R113	AXIAL-0.4
24	33K 1% 0.5W Metal Film	1	R114	AXIAL-0.4
25	47K 1% 0.5W Metal Film	9	R103, R104, R106, R115, R116, R117, R118, R131, R132	AXIAL-0.4
26	100K 1% 0.5W Metal Film	10	R123, R201, R202, R203, R211, R212, R213, R221, R222, R223	AXIAL-0.4
27	150K 1% 0.5W Metal Film	1	R101	AXIAL-0.4
28	220K 1% 0.5W Metal Film	2	R122, R127	AXIAL-0.4
29	470K 1% 0.5W Metal Film	3	R102, R121, R126	AXIAL-0.4
30	1M0 1% 0.5W Metal Film	1	R105	AXIAL-0.4
	TRANSISTOR			
31	BC557B PNP Transistor	2	Q102, Q105	TO-92
32	BC547B NPN Transistor	3	Q101, Q103, Q104	TO-92
	UNITS			
33	Panther - IDC16 - 24cm	1	J301	-

Bill of Materials for ES24 - Programmer Extension Hardware Kit V0.0 - Stage2

Item	Description	Qty	Designator	Package
	CONNECTOR			
1	3.5mm Mono PCB Socket c/w Nut - Yellow	1	J102	-
2	3.5mm Mono PCB Socket c/w Nut - Red	1	J101	-
	HARDWARE			
3	KNOB - Panther Hi-contrast Blue	3	P101, P102, P103	18T SPLINE
	OPTO-ELECTRONIC			
4	3mm Clear Lens Mount	1	D103	-

Bill of Materials for ES24 - Programmer Extension Hardware Kit V0.0 - Stage 4

Item	Description	Qty	Designator	Package
CONNECTOR				
1	3.5mm Mono PCB Socket c/w Nut - Yellow	1	J102	-
2	3.5mm Mono PCB Socket c/w Nut - Red	1	J101	-
HARDWARE				
3	KNOB - Panther Hi-contrast Blue	4	P101, P102, P103, P103	18T SPLINE
OPTO-ELECTRONIC				
4	3mm Clear Lens Mount	1	D103	-

Bill of Materials for ES23 - Sequence Programmer Hardware Kit V0.3

Item	Description	Qty	Designator	Package
	CONNECTOR			
1	3.5mm Mono PCB Socket c/w Nut - Yellow	2		-
2	3.5mm Mono PCB Socket c/w Nut - Green	3	J201, J202, J203	-
3	3.5mm Mono PCB Socket c/w Nut - Red	2		-

