

Stage 1 [ES24 - Programmer Extension Component Kit]

Item	Description	Qty	Designator	Package
	CAPACITOR			
1	470pF 10% Ceramic	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	IDC20 RA Box Header	1	J201	-
5	1x3 Pin 16mm Header	1	S101	-
6	1x4 Pin 16mm Header	2	S102, S103	-
	DIODE			
7	1N4148	5	D101, D102, D104, D105, D106	DIODE-0.3
	HARDWARE			
8	Ferrule Terminal - DUCE7575	6	S102^3, S103^3	-
9	SLEEVING - 2.4mm Heatshrink [@ 1cm]	3	D103^3	-
10	Equipment Wire 7/0.2 Black [@ 1cm]	4	D103^4	-
11	Equipment Wire 7/0.2 Red [@ 1cm]	4	D103^4	-
	OPTO-ELECTRONIC			
12	3mm HE-Yellow LED	1	D103	-
	POTENTIOMETER			
13	100KB LIN - 18T Spline	3	P101, P102, P103	ALPHA 16MM
	RESISTOR			
14	1K0 1% 0.5W Metal Film	1	R112	AXIAL-0.4
15	1K2 1% 0.5W Metal Film	1	R110	AXIAL-0.4
16	1K3 1% 0.5W Metal Film	1	R111	AXIAL-0.4
17	47K 1% 0.5W Metal Film	3	R101, R102, R109	AXIAL-0.4
18	100K 1% 0.5W Metal Film	1	R104	AXIAL-0.4
19	150K 1% 0.5W Metal Film	3	R105, R106, R108	AXIAL-0.4

Bill of Materials for ES23 - Sequence Programmer [4mm] Full Kit V0.3
Stage2 [ES24 - Programmer Extension Component Kit]

Item	Description	Qty	Designator	Package
CAPACITOR				
1	470pF 10% Ceramic	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	IDC20 RA Box Header	1	J201	-
5	1x3 Pin 16mm Header	1	S101	-
6	1x4 Pin 16mm Header	2	S102, S103	-
DIODE				
7	1N4148	5	D101, D102, D104, D105, D106	DIODE-0.3
HARDWARE				
8	Ferrule Terminal - DUCE7575	6	S102^3, S103^3	-
9	SLEEVING - 2.4mm Heatshrink [@ 1cm]	3	D103^3	-
10	Equipment Wire 7/0.2 Black [@ 1cm]	4	D103^4	-
11	Equipment Wire 7/0.2 Red [@ 1cm]	4	D103^4	-
OPTO-ELECTRONIC				
12	3mm HE-Yellow LED	1	D103	-
POTENTIOMETER				
13	100KB LIN - 18T Spline	3	P101, P102, P103	ALPHA 16MM
RESISTOR				
14	1K0 1% 0.5W Metal Film	1	R112	AXIAL-0.4
15	1K2 1% 0.5W Metal Film	1	R110	AXIAL-0.4
16	1K3 1% 0.5W Metal Film	1	R111	AXIAL-0.4
17	47K 1% 0.5W Metal Film	3	R101, R102, R109	AXIAL-0.4
18	100K 1% 0.5W Metal Film	1	R104	AXIAL-0.4
19	150K 1% 0.5W Metal Film	3	R105, R106, R108	AXIAL-0.4

Bill of Materials for ES23 - Sequence Programmer [4mm] Full Kit V0.3
Stage3 [ES24 - Programmer Extension Component Kit]

Item	Description	Qty	Designator	Package
CAPACITOR				
1	470pF 10% Ceramic	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	IDC20 RA Box Header	1	J210	-
5	1x3 Pin 16mm Header	1	S101	-
6	1x4 Pin 16mm Header	2	S102, S103	-
DIODE				
7	1N4148	5	D101, D102, D104, D105, D106	DIODE-0.3
HARDWARE				
8	Ferrule Terminal - DUCE7575	6	S102^3, S103^3	-
9	SLEEVING - 2.4mm Heatshrink [@ 1cm]	3	D103^3	-
10	Equipment Wire 7/0.2 Black [@ 1cm]	4	D103^4	-
11	Equipment Wire 7/0.2 Red [@ 1cm]	4	D103^4	-
OPTO-ELECTRONIC				
12	3mm HE-Yellow LED	1	D103	-
POTENTIOMETER				
13	100KB LIN - 18T Spline	3	P101, P102, P103	ALPHA 16MM
RESISTOR				
14	1K0 1% 0.5W Metal Film	1	R112	AXIAL-0.4
15	1K2 1% 0.5W Metal Film	1	R110	AXIAL-0.4
16	1K3 1% 0.5W Metal Film	1	R111	AXIAL-0.4
17	47K 1% 0.5W Metal Film	3	R101, R102, R109	AXIAL-0.4
18	100K 1% 0.5W Metal Film	1	R104	AXIAL-0.4
19	150K 1% 0.5W Metal Film	3	R105, R106, R108	AXIAL-0.4

Stage 4 [ES24 - Programmer Extension Component Kit]

Item	Description	Qty	Designator	Package
	CAPACITOR			
1	470pF 10% Ceramic	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	IDC20 RA Box Header	1	J201	-
5	1x3 Pin 16mm Header	1	S101	-
6	1x4 Pin 16mm Header	2	S102, S103	-
	DIODE			
7	1N4148	5	D101, D102, D104, D105, D106	DIODE-0.3
	HARDWARE			
8	Ferrule Terminal - DUCE7575	6	S102^3, S103^3	-
9	SLEEVING - 2.4mm Heatshrink [@ 1cm]	3	D103^3	-
10	Equipment Wire 7/0.2 Black [@ 1cm]	4	D103^4	-
11	Equipment Wire 7/0.2 Red [@ 1cm]	4	D103^4	-
	OPTO-ELECTRONIC			
12	3mm HE-Yellow LED	1	D103	-
	POTENTIOMETER			
13	100KB LIN - 18T Spline	3	P101, P102, P103	ALPHA 16MM
	RESISTOR			
14	1K0 1% 0.5W Metal Film	1	R112	AXIAL-0.4
15	1K2 1% 0.5W Metal Film	1	R110	AXIAL-0.4
16	1K3 1% 0.5W Metal Film	1	R111	AXIAL-0.4
17	47K 1% 0.5W Metal Film	3	R101, R102, R109	AXIAL-0.4
18	100K 1% 0.5W Metal Film	1	R104	AXIAL-0.4
19	150K 1% 0.5W Metal Film	3	R105, R106, R108	AXIAL-0.4

ES23 - Sequence Programmer Component Kit

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	6	C303, C304, C305, C306, C307, C308	RAD-0.2N
4	10uF 35V Electrolytic	2	C301, C302	RB-D5.0-P2.0
CONNECTOR				
5	14-pin IC Socket 0.3inch	1	U201	DIP-14
6	8-pin IC Socket 0.3inch	2	U101, U202	DIP-8
7	IDC20 RA Box Header	1	J302 NB: Do not solder pin 16	-
8	1x4 Pin 9mm Header	3	J201, J202, J203	2.54MM
9	Jumper Shunt	2	JP1, JP2	2.54MM
10	IDC16 Box Header	1	J301	2.54MM
11	1x4 Pin 16mm Header	2	J102, J104	-
DIODE				
12	1N4148	2	D101, D102	DIODE-0.3
LINEAR				
13	TL074 Quad JFET Opamp	1	U201	DIP-14
14	LM393 - Dual Comparator	1	U101	DIP-8
15	TL072 Dual JFET Opamp	1	U202	DIP-8
INDUCTOR				
16	Ferrite Bead - 5A	2	L301, L302	AXIAL-0.3
RESISTOR				
17	330R 1% 0.5W Metal Film	3	R204, R214, R224	AXIAL-0.4
18	1K0 1% 0.5W Metal Film	4	R108, R120, R125, R130	AXIAL-0.4
19	1K3 1% 0.5W Metal Film	2	R107, R119	AXIAL-0.4
20	2K2 1% 0.5W Metal Film	2	R124, R129	AXIAL-0.4
21	10K 1% 0.5W Metal Film	4	R110, R111, R112, R128	AXIAL-0.4

